



Maeda Corporation

MTRCL Contract C3840-13C Tsim Sha Tsui  
Station Carnarvon Road Subway and Entrances  
Modification Works

Quarterly EM&A Report (September to November 2015)

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Your Ref:  
Our Ref: 40032976/449159

**By Email and Post**

MTR Corporation Limited  
Fo Tan Railway House  
No. 9, Lok King Street, Fo Tan  
Shatin, N.T.,  
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Attn.: Mr. Kenneth Chow / Environmental Engineer II

19 January 2016

Dear Sirs

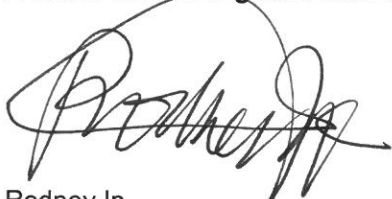
**Consultancy Agreement A130-13  
Independent Environmental Checker for CRS and LTS  
CRS - Verification for 7th Quarterly Environmental Monitoring and Audit (EM&A) Report  
(September to November 2015) (Report No.: EB001340R00303)**

We refer to the 7th Quarterly EM&A Report (September to November 2015) received under cover of the email from the Environmental Team, Hyder Consulting Limited (HCL), dated on 5 January 2016.

Further to our comments provided on 5 and 18 January 2016, and subsequent revision of the Report by HCL on 19 January 2016, we have no further comment and have verified the captioned report (Report No.: EB001340R00303).

Should you have any queries, please feel free to contact the undersigned at 3922 9529.

Yours faithfully  
**AECOM Consulting Services Ltd**

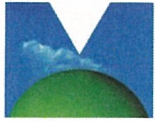


Rodney Ip  
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**M A E D A**

## Maeda Corporation

# MTRCL Contract C3840-13C Tsim Sha Tsui Station Carnarvon Road Subway and Entrances Modification Works

## Quarterly EM&A Report (September to November 2015)

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<b>Date</b>	4 January 2016

Three handwritten signatures in blue ink are positioned to the right of the signature lines. The top signature is for Fu Nam Wong, the middle for Peter Onuselogu, and the bottom for John Berry.

This Quarterly EM&A Report is prepared for Maeda Corporation in accordance with the terms and conditions of appointment dated 30 October 2013. Hyder Consulting Limited (Company Number 126012) cannot accept any responsibility for any use of or reliance on the contents of this report by any third party.

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## EXECUTIVE SUMMARY

### *KEY ISSUES DURING REPORTING PERIOD*

#### **Breaches of Action and Limit Levels**

- ES01 No Notice of Exceedance (NOE) and the associated investigation and follow-up actions were required as the environmental monitoring results registered no exceedances of Action/ Limit Levels of air quality and construction noise during the Reporting Period.
- ES02 No corrective actions were required as the environmental audit during the Reporting Period observed:
- 1) No deficiencies with major environmental significance of the required environmental mitigation measures;
  - 2) No non-compliance with the required waste management; and
  - 3) No adverse environmental impacts on the nearby sensitive receivers.

#### **Environmental Complaints**

- ES03 No environmental complaints were recorded during the Reporting Period.

#### **Notification of Summons and Successful Prosecutions**

- ES04 No notification of summons and successful prosecutions were recorded during the Reporting Period.

#### **Reporting Changes**

- ES05 No major reporting changes were made during the Reporting Period.

### *FUTURE KEY ISSUES*

#### **General**

- ES06 Full implementation of the environmental mitigation measures, which are required in the EM&A Plan and summarized in Implementation Schedule, are recommended. Whenever necessary, proper maintenance and improvement of the implemented mitigation measures are reminded.

#### **Construction Noise**

- ES07 Particular attention should be paid to construction noise mitigation measures, especially during piling works during the coming construction period to ensure full compliance with statutory and non-statutory requirements and guidelines. Proactive review of working methods, careful selection and arrangement of the noisy equipment as well as effective noise mitigation measures are strongly recommended.

#### **Water Quality**

- ES08 In addition, compliance with water quality mitigation measures remains one of the key environmental issues within the construction period, especially when water usage is high.

#### **Air Quality**

- ES09 Furthermore, implying of construction dust suppression measures are recommended during dusty activities under dry and windy conditions.
- ES10 Construction dust suppression measures including decking over the excavation areas, watering of exposed site surface and covering of all excavated and stockpiles of dusty material by impervious sheeting or similar materials are reminded.

## 1. INTRODUCTION

### 1.1 REPORTING PERIOD

1.1.1 This is the 7<sup>th</sup> quarterly EM&A report (hereinafter referred as 'This Report') covering construction period from 1<sup>st</sup> September to 30<sup>th</sup> November 2015 (hereinafter referred as 'the Reporting Period').

1.1.2 This Report has been written in accordance with the **Environmental Monitoring and Audit Plan** (hereinafter referred as 'the EM&A Plan') enclosed in the **Project Profile – MTR Tsim Sha Tsui Station Carnarvon Road Subway and Entrances Modification Works**, which is registered in the **Environmental Permit No. EP-440/2012** (hereinafter referred as 'the EP') (Register No.: PP-462/2012).

### 1.2 PROJECT BACKGROUND

1.2.1 In order to improve the appearance of Carnarvon Road Entrance D1 and D2 of Tsim Sha Tsui (hereafter referred as 'TST') Station and to provide a more comfortable walking environment nearby, MTR Corporation Limited (hereafter referred as 'MTRC' or 'the Corporation') has commissioned Maeda Corporation (hereinafter referred as 'MC') the contract **MTR Tsim Sha Tsui Station Carnarvon Road Subway and Entrances Modification Works** (hereafter referred as 'the Project'). The Project is proposed to rebuild the existing Entrance D1 and D2 and construct a new Entrance D3 at the basement B2 level of the K11 Art Mall to connect to the TST station by a subway, which extends from the Entrance D1 and D2 and runs approximately 80m along Carnarvon Road and across the Bristol Avenue to the Entrance D3. The Project was commenced in March 2014 and is anticipated to be completed in September 2017.

1.2.2 The existing TST Station had been in operation before the **Environmental Impact Assessment Ordinance** (hereafter referred as 'EIAO') came into effect on 1 April 1998. It constitutes an exempted Designated Project (hereinafter referred as 'DP') according to Section 9(2) (g) of the EIAO (Cap. 499). As the Project involves a material change to an exempted DP which may have potential environmental impacts, an environmental permit is required prior to the commencement of the modification works. The Project Profile has been developed to provide information for direct application of an environmental permit. The EP has been granted since 18 July 2012, where the Project Profile and the associated **EM&A Plan** are registered.

1.2.3 Site map, works area and locations of the environmental monitoring under the Project are illustrated in Figure 1.1 Site Location Plan of **Appendix A**.

1.2.4 Management structure of the Project, including organization chart, lines of communication and contact names and telephone numbers of key personnel, is demonstrated in **Appendix B**.

1.2.5 Construction programme is shown in **Appendix C**, whereas implementation schedule for the recommended environmental mitigation measures (hereinafter referred as 'the Implementation Schedule') is summarized in **Appendix D**, which fine tunes construction activities and shows inter-relationship with environmental protection/mitigation measures for the construction period.



## 1.3 ENVIRONMENTAL STATUS

- 1.3.1 As required in the EP, AECOM Consulting Services Limited (formerly known as “URS Hong Kong Limited”) has been appointed as the Independent Environmental Checker under the Project (hereinafter referred as ‘the IEC’), whereas Hyder Consulting Limited has been appointed as the Environmental Team under the Project (hereinafter referred as ‘the ET’).
- 1.3.2 According to the EP Condition 3.2 (a) under Environmental Monitoring and Audit (EM&A) during the Construction Period, baseline monitoring has been completed and the required Baseline Monitoring Report has been submitted to EPD on 14 February 2014 prior to commencement of the works under the Project.
- 1.3.3 Status of relevant environmental permits, licences, and/or notifications on environmental protection for the Project is summarized in **Table 1-3**. They are detailed in **Appendix E**.

**Table 1-3 Summary of Status of Environmental Licenses and Permits**

Item	Description	License/Permit Status
1	Air Pollution Control (Construction Dust)	Notification Ref. 365953 acknowledged on 21 Oct 2013.
2	Water Pollution Control Ordinance (Discharge License)	The discharge license (Ref No. WT0019722-2014) granted on 01 Sep 2014 superseding the previous license (Ref No. WT00018229-2014)
3	Billing Account for Disposal of Construction Waste	A/C Ref. 7018523 granted on 25 Oct 2013
4	Chemical Waste Producer Registration	Registration Ref. 5213-2214-M2446-16 granted on 4 Mar 2014
5	Noise Control Ordinance	Noise Permit Ref No. GW-RE0558-15 for use in September to November 2015.

## 1.4 CONSTRUCTION ACTIVITIES

1.4.1 Construction activities undertaken during the Reporting Period are summarized in **Table 1-4:**

**Table 1-4 Construction Activities Undertaken during the Reporting Period**

1	Removal of unforeseen RC structure, left-in pipe pile and sheet pile
2	Excavation for temporary staircase
3	Construction of the temporary staircase reinforced concrete structure
4	Installation of waling and strut for construction of temporary staircase and cut and cover tunnel
5	Installation and construction of steel decking
6	Horizontal pipe piling for mined tunnel
7	Curtain grout for the mined tunnel
8	Rock breaking and excavation at vertical shaft
9	Excavation of top layer for UU identification and support tailoring at G3-4 and trial trench for UU identification at D2.

## 2. EM&A REQUIREMENTS

### 2.1 AIR QUALITY

#### Monitoring Parameters and Frequency

- 2.1.1 24-Hour Total Suspended Particulates (hereinafter referred as '24-Hr TSP') is required to be monitored once a week during construction period of the Project.
- 2.1.2 1-Hour Total Suspended Particulates (hereinafter referred as '1-Hr TSP') is required to be monitored when exceedances of 24-Hr TSP were recorded, following the Event and Action Plan presented in **Appendix F**.

#### Action and Limit Levels

- 2.1.3 The Action and Limit levels (hereinafter referred as 'the A/L Levels') at K11 have been established in the Baseline Monitoring Report in accordance with the derivation criteria specified in Section 3.7 of the EM&A Plan, which are summarized in **Table 2-1-1** as follows:

**Table 2-1-1 Derivation of Action and Limit Levels for Air Quality at K11,  $\mu\text{g}/\text{m}^3$**

Parameter	Action Level	Limit Level
24-Hr TSP	For baseline level $\leq 200 \mu\text{g}/\text{m}^3$ , Action level = $(130\% \text{ of baseline level} + \text{Limit level})/2$ For baseline level $> 200 \mu\text{g}/\text{m}^3$ , Action level = Limit level	260
1-Hr TSP	For baseline level $\leq 384 \mu\text{g}/\text{m}^3$ , Action level = $(130\% \text{ of baseline level} + \text{Limit level})/2$ For baseline level $> 384 \mu\text{g}/\text{m}^3$ , Action level = Limit level	500

- 2.1.4 The established A/L Levels for 24-Hr and 1-Hr TSP are summarized in **Table 2-1-2** as follows:

**Table 2-1-2 Action & Limit Levels for Air Quality at K11,  $\mu\text{g}/\text{m}^3$**

Parameter	Action Level	Limit Level
24-Hr TSP	222	260
1-Hr TSP	373	500

#### Event and Action Plan

- 2.1.5 In case exceedances of Action and/or Limit levels for air quality occur, **Event and Action Plan** for Air Quality enclosed in **Appendix F** will be implemented.

## Environmental Mitigation Measures for Air Quality

- 2.1.6 Although most of the construction works would be carried out underground, appropriate dust mitigation measures as stipulated in the EP, Project Profile, related environmental regulation including Air Pollution Control (Construction Dust) Regulation as well as those recommended in the Implementation Schedule should be implemented to control fugitive dust emission. The following key dust suppression measures are recommended:
- Decking over the excavation areas;
  - Regular watering to reduce dust emissions from all exposed site surface, particularly during dry weather;
  - Frequent watering for particularly dusty construction areas and areas close to air sensitive receivers;
  - Cover all excavated or stockpiles of dusty material by impervious sheeting or spraying with water to maintain the entire surface wet;
  - Provision of vehicle washing facilities at the exit points of the site; and
  - Provision of tarpaulin covering for any dusty materials on a vehicle leaving the site.
- 2.1.7 Details of the implementation schedule for the required environmental mitigation measures are presented in **Appendix D**.

## 2.2 CONSTRUCTION NOISE

### Monitoring Parameters and Frequency

- 2.2.1 **Table 2-2-1** summarizes the monitoring parameters and frequency for construction noise.

**Table 2-2-1 Noise Monitoring Parameters and Frequency**

Parameters	Frequency
$L_{eq}$ in 30 minutes	Once a week

- 2.2.2 Monitoring schedules for construction noise for the Reporting Period and the next Reporting Period are prepared and submitted to MTRC, IEC and MC prior to implementation via e-mail and / or facsimile for ease of necessary inspection. Where amendment is necessary under ad hoc conditions, including actual and broadcast adverse weather, accidental instrument failures, etc., advanced notification is given at least 24 hours prior to implementation or as practical as possible.

### Action and Limit Levels

- 2.2.3 The Action and Limit levels (hereinafter referred as 'the A/L Levels') at K11 have been established in the **Baseline Monitoring Report**. They are summarized in **Table 2-2-2** as follows:

**Table 2-2-2 Action and Limit Levels for Construction Noise**

Time Period	Action Level	Limit Level
0700-1900 hours on normal weekdays	When one valid documented complaint is received.	75*

*Note: \*70 dB(A) for schools and 65 dB(A) during school examination periods. If works are to be carried out during restricted hours, the conditions stipulated in the Construction Noise Permit (CNP) issued by the Noise Control Authority have to be followed.*

### Event and Action Plan

- 2.2.4 In case exceedances of Action and/or Limit levels for construction noise occur, the Event and Action Plan enclosed in **Appendix F** will be implemented.

### Mitigation Measures for Construction Noise

- 2.2.5 Although no residual noise impact would be generated after the proposed mitigation measures are in place, the general construction noise control measures stipulated in the EP, Project Profile as well as those recommended in the Implementation Schedule should be fully implemented in order to minimize noise impacts during the construction phase. They are summarized as follows:

- a) The Code of Practice on Good Management Practice to Prevent Violation of the Noise Control Ordinance (Chapter 400) (for Construction Industry) published by EPD shall be adopted;
- b) The statutory and non-statutory requirements and guidelines shall be complied with;
- c) Approval for the method of working, equipment and noise mitigation measures intended to be used at the site shall be granted from the Project Engineer before commencing any work;
- d) Working methods to minimize the noise impact on the surrounding NSRs shall be formulated and executed, and the implementation of these methods shall be monitored by experienced personnel with suitable training;
- e) Noisy equipment and noisy activities shall be located as far away from the NSRs as is practical;
- f) Unused equipment shall be turned off;
- g) PME should be kept to a minimum and the parallel use of noisy equipment / machinery should be avoided;
- h) All plant and equipment shall be maintained regularly;
- i) Material stockpiles and other structures shall be effectively utilized as noise barriers, whenever practicable; and
- j) Enclosure of Entrance D1 with acoustic mat during demolition.

- 2.2.6 Details of the implementation schedule for the mitigation measures are presented in **Appendix D**.

### 3. MONITORING RESULTS

#### 3.1 AIR QUALITY

##### Monitoring Results

3.1.1 24-Hr TSP monitoring during the Reporting Period was conducted following the agreed monitoring schedule.

3.1.2 24-Hr TSP results of the Reporting Period are summarized in the following **Table 3-1**. Graphical plots of the parameter are illustrated in **Appendix H**.

**Table 3-1 Summary of 24-Hr TSP Monitoring Results,  $\mu\text{g}/\text{m}^3$**

Monitoring Date	24-Hr TSP	A/L Levels			
07 September 2015	31.3	<b>Action Level: 222</b>	<b>Limit Level: 260</b>		
15 September 2015	31.8				
22 September 2015	26.5				
03 October 2015	Samples were not acquired due to abnormal power supply, which was re-instated on 16 October 2015.				
08 October 2015					
16 October 2015	45.9				
23 October 2015	34.6				
27 October 2015	44.6				
03 November 2015	41.6				
10 November 2015	34.0				
17 November 2015	20.2				
24 November 2015	27.2				
<b>Mean (Min – Max)</b>				<b>33.8 (20.2 – 45.9)</b>	

##### Discussion

3.1.3 No environmental complaints against air quality were registered during the Reporting Period.

3.1.4 **Table 3-1** demonstrates that all 24-Hr TSP results of the Reporting Period were fluctuated below the A/L Level, there were no Action Level or Limit Level exceedances recorded during the Reporting Period.

3.1.5 No Notice of Exceedances (thereinafter referred as 'NOE') and the associated NOE Investigation and remedial actions were required during the Reporting Period.

## 3.2 CONSTRUCTION NOISE

### Monitoring Results

- 3.2.1 Construction noise monitoring during the Reporting Period was conducted following the agreed monitoring schedule.
- 3.2.2 Construction noise monitoring results of the Reporting Period are summarized in the following **Table 3-2**. Graphical plots of the parameter are illustrated in **Appendix H**.
- 3.2.3 Weather condition, including wind speeds and directions, during the monitoring period are recorded and shown in **Appendix G**.

**Table 3-2 Summary of Construction Noise Monitoring Results at K11, dB(A)**

Monitoring Date	Leq (30 min)	A/L Levels
01 September 2015	69.1	<b>Limit Level: 75</b>  <b>Action Level:</b> <b>Any Documented complaint</b> <b>against construction noise.</b>
08 September 2015	67.6	
15 September 2015	69.0	
23 September 2015	66.5	
29 September 2015	67.4	
09 October 2015	66.7	
13 October 2015	68.0	
20 October 2015	66.4	
27 October 2015	67.6	
03 November 2015	70.9	
10 November 2015	67.2	
17 November 2015	68.9	
24 November 2015	70.9	
<b>Mean (Min – Max)</b>		

### Discussion

- 3.2.4 No environmental complaint against construction noise was registered during the Reporting Period, whereas Table 3-2 demonstrates that all construction noise results of the Reporting Period fell below the Limit Level of the parameter.
- 3.2.5 Neither NOE nor NOE investigation and the associated remedial actions were required during the Reporting Period.
- 3.2.6 The Contractor was reminded to pay attention to noisy construction activities within the Reporting Period and the coming quarter. The ET will liaise closely with the Contractor on any unusual level of noise recorded in the upcoming month.

- 3.2.7 It is recommended that adequate mitigation measures should be implemented during the noisy construction activities in order to alleviate noise nuisance generated from the Project related construction activities.

#### Weather Conditions

- 3.2.8 No weather conditions and any other factors were identified to have significant effects on the monitoring results of air quality and construction noise during the Reporting Period.
- 3.2.9 Weather information during the Reporting Period which is extracted from Hong Kong Observatory King's Park Weather Station is enclosed for reference in **Appendix G**.

### 3.3 CONCLUSIONS AND RECOMMENDATIONS

#### Conclusions

- 3.3.1 No exceedances of A/L Levels of air quality and no exceedances of Action Level of construction noise were registered during the Reporting Period.
- 3.3.2 No NOE and the associated NOE Investigation and corrected actions were required during the Reporting Period.

#### Recommendations

- 3.3.3 Full implementation of the environmental mitigation measures, which are required in the EM&A Plan and summarized in Implementation Schedule of **Appendix D**, is recommended. Where necessary, proper maintenance and improvement of the implemented mitigation measures are reminded.
- 3.3.4 Construction dust shall be suppressed during dusty construction activities under dry and windy conditions.



## 4. ENVIRONMENTAL AUDIT

### 4.1 SITE INSPECTION

4.1.1 Weekly site inspections during the Reporting Period are conducted by MTRC, MC and ET, whereas monthly site inspections of the Reporting Period were jointly conducted by the IEC, MTRC, MC and ET. The site inspection was conducted according to the agreed Site Inspection Checklist, which covers all the site audit requirements stipulated in the EM&A Plan, PS and all relevant environmental laws.

4.1.2 The completed Site Inspection Checklists are distributed to all relevant parties upon completion of the site inspection for agreement and signature and, where appropriate, for implementation of the recommended corrected actions to promptly rectify the situation.

4.1.3 There were 13 site inspections conducted within the Reporting Period. Deficiencies or findings of the site audits and the associated follow up actions are summarized in **Table 4-1**:

**Table 4-1 Summary of Findings and Follow-Up Actions of the Site Inspection**

Date	Deficiencies or findings	Follow-Up Action
01-Sept-2015	No deficiency was observed on site.	Not required.
08-Sept-2015	No deficiency was observed on site.	Not required.
15-Sept-2015	No deficiency was observed on site.	Not required.
22-Sept-2015	No deficiency was observed on site.	Not required.
29-Sept-2015	No deficiency was observed on site.	Not required.
06-Oct-2015	No deficiency was observed on site.	Not required.
13-Oct-2015	No deficiency was observed on site.	Not required.
20-Oct-2015	No deficiency was observed on site.	Not required.
27-Oct-2015	No deficiency was observed on site.	Not required.
03- Nov 2015	No deficiency was observed on site.	Not required.
10-Nov 2015	No deficiency was observed on site.	Not required.
17-Nov 2015	No deficiency was observed on site.	Not required.
24-Nov 2015	No deficiency was observed on site.	Not required.

4.1.4 As shown in **Table 4-1**, no deficiencies or non-compliance of environmental mitigation measures or adverse environmental impacts were observed during the Reporting Period.

## 4.2 COMPLIANCE WITH LEGAL / CONTRACTUAL REQUIREMENTS

4.2.1 Construction activities under the Project must comply with all environmental protection and pollution control laws in Hong Kong, as well as the contractual requirements of the Project. **Table 4-2** summarizes breaches of legal and contractual requirements.

**Table 4-2 Summary of Breaches of Legal and Contractual Requirements**

Month	No. of Breaches	Cumulative no. of Breaches
September 2015	0	0
October 2015	0	0
November 2015	0	0

## 4.3 ENVIRONMENTAL COMPLAINTS

4.3.1 Environmental complaints are handled following closely the flow chart of complaint response procedure which is enclosed in **Appendix I**.

4.3.2 Environmental complaints registered during the Reporting Period and cumulative statistics of environmental complaints are summarized in **Table 4-3** below:

**Table 4-3 Summary of Complaint**

Month	No. of Complaint	Cumulative No. Complaint
September 2015	0	0
October 2015	0	0
November 2015	0	0

## 4.4 NOTIFICATION OF SUMMONS/SUCCESSFUL PROSECUTIONS

4.4.1 Notification of summons and successful prosecutions registered during the Reporting Period are summarized in **Table 4-4** below:

**Table 4-4 Summary of Summon and Successful Prosecutions**

Month	Number of Issue	Cumulative no. of Issue
September 2015	0	0
October 2015	0	0
November 2015	0	0

## 5. WASTE MANAGEMENT

### 5.1 WASTE MANAGEMENT

5.1.1 Despite small scale of the Project and the amount of C&D material that needs to be hauled off site and disposed of is anticipated not to be significant, 3-R waste management i.e. Reduce, Reuse and Recycle, is adopted in order to minimize adverse environmental impacts to be generated from construction of the Project.

5.1.2 Waste management under the Project is performed in accordance with the Waste Management Plan, which has been prepared for implementation of the construction waste mitigation measures in compliance with the requirements stipulated in the EM&A Plan, PS, Waste Disposal Ordinance and the associated subsidiary regulations.

### 5.2 WASTE MANAGEMENT RECORD

5.2.1 Updated waste management status is detailed in **Appendix J**, where the 3-R status of the construction waste generated from construction of the Project during the Reporting Period is presented.

## 6. FUTURE ENVIRONMENTAL ISSUES

### 6.1 KEY ENVIRONMENTAL ISSUES

6.1.1 Future key environmental issues include:

- 1) Air quality in particular construction dust during dusty construction activities on site, e.g. piling works and excavation works, under dry and windy conditions;
- 2) Construction noise during noisy activities; and
- 3) Site surface water run-off and construction wastewater discharge.

### 6.2 Mitigation Measures

6.2.1 To avoid potential adverse environmental impacts of the future key environmental issues stated above, full implementation of the mitigation measures as stipulated in the Implementation Schedule shown in **Appendix D** is required.

6.2.2 Mitigation measures for air quality, construction noise and water quality implemented to date shall be properly maintained.

6.2.3 Where appropriate, improvement of the implemented mitigation measures is reminded to ensure effectiveness of the mitigation measures.

## 7. CONCLUSIONS AND RECOMMENDATIONS

### 7.1 CONCLUSIONS

- 7.1.1 In compliance with the EP Condition 5.6 of the EM&A Plan, the environmental monitoring results of the monitored parameters during the Reporting Period, covering 24-hr TSP and Leq(30min), were supported by statistical information including result tables and graphical plots as presented in **Appendix H**. No exceedances of A/L Levels of air quality and construction noise were recorded. No NOE and the associated investigation as well as follow-up actions were hence required.
- 7.1.2 The weekly site inspection and audit during the Reporting Period also recorded no non-compliances or deficiencies which carried environmental significance. No follow-up actions or corrective actions were required.
- 7.1.3 In addition, no notification of summons and successful prosecutions were registered during the Reporting Period. No remediation actions were hence required.

### 7.2 RECOMMENDATIONS

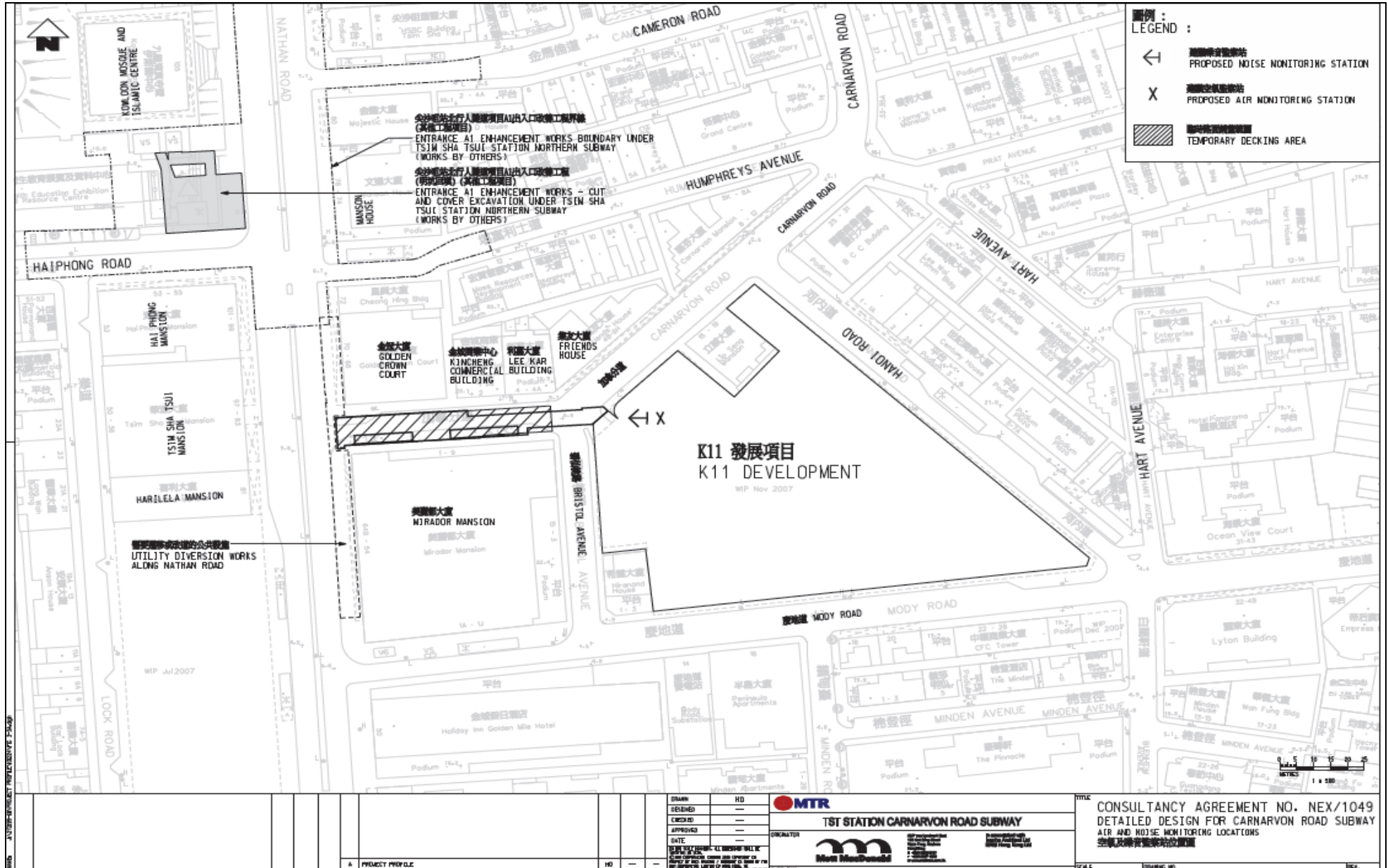
- 7.2.1 In general, full implementation of the environmental mitigation measures stipulated in the EM&A Plan and summarized in Implementation Schedule in **Appendix D** of This Report, are recommended. Where necessary, proper maintenance and improvement of the implemented mitigation measures are reminded.
- 7.2.2 Adequate mitigation measures are reminded to be implemented in order to alleviate noise nuisance to acceptable levels.
- 7.2.3 In addition, suppression of construction dust is required during dusty construction activities under dry and windy conditions.
- 7.2.4 Furthermore, monitoring of site water runoff is reminded to prevent any direct water discharge off site, especially when water usage is high during the construction period. When necessary, the Contractor is reminded to apply additional precautionary measures to prevent any possible environmental deficiency.

## **APPENDICES**

- APPENDIX A SITE LOCATION PLAN
- APPENDIX B PROJECT ORGANIZATION CHART IN ENVIRONMENTAL MANAGEMENT
- APPENDIX C CONSTRUCTION PROGRAMME
- APPENDIX D IMPLEMENTATION SCHEDULE
- APPENDIX E STATUS OF ENVIRONMENTAL LICENSES AND PERMITS
- APPENDIX F EVENT AND ACTION PLAN
- APPENDIX G WEATHER INFORMATION EXTRACTED FROM HK OBSERVATORY
- APPENDIX H MONITORING RESULTS AND PLOTS
- APPENDIX I FLOW CHART FOR HANDLING ENVIRONMENTAL COMPLAINTS
- APPENDIX J WASTE MANAGEMENT RECORDS



# APPENDIX A SITE LOCATION PLAN



**圖例 :**  
**LEGEND :**

- ← 擬議噪音監察站  
PROPOSED NOISE MONITORING STATION
- X 擬議空氣監察站  
PROPOSED AIR MONITORING STATION
- ▨ 臨時搭建的臨時圍欄  
TEMPORARY DECKING AREA

全港車站行人通道項目出入口改善工程界線 (其他工程項目)  
 ENTRANCE A1 ENHANCEMENT WORKS BOUNDARY UNDER TSIM SHA TSUI STATION NORTHERN SUBWAY (WORKS BY OTHERS)

全港車站行人通道項目出入口改善工程 (特別用途) (其他工程項目)  
 ENTRANCE A1 ENHANCEMENT WORKS - CUT AND COVER EXCAVATION UNDER TSIM SHA TSUI STATION NORTHERN SUBWAY (WORKS BY OTHERS)

擬議沿 Nathan Road 的公共設施  
 UTILITY DIVERSION WORKS ALONG NATHAN ROAD

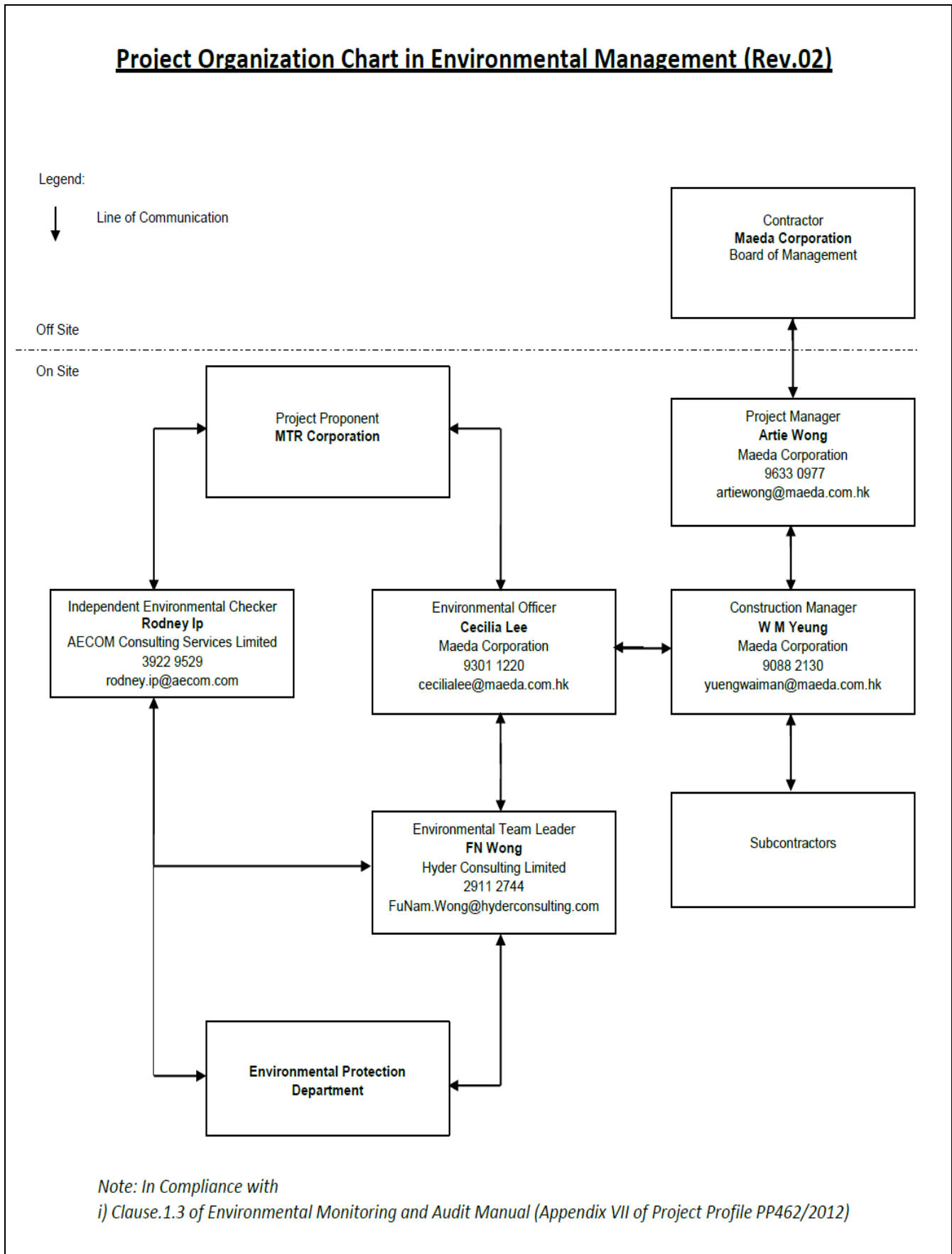
**K11 發展項目**  
**K11 DEVELOPMENT**  
 WIP Nov 2007

A. SITE LOCATION PLAN

DRAWN		HD	 <b>MTR</b> MTR Corporation Limited 地鐵有限公司 香港中環皇后大道中 2號
DESIGNED		---	
CHECKED		---	
APPROVED		---	
DATE		---	
PROJECT TITLE: TST STATION CARNARVON ROAD SUBWAY PROJECT NO.: NEX/1049 DRAWING NO.: NEX/1049/01			CONSULTANCY AGREEMENT NO. NEX/1049 DETAILED DESIGN FOR CARNARVON ROAD SUBWAY AIR AND NOISE MONITORING LOCATIONS 空氣及噪音監察站位置圖

CONSULTANCY AGREEMENT NO. NEX/1049  
 DETAILED DESIGN FOR CARNARVON ROAD SUBWAY  
 AIR AND NOISE MONITORING LOCATIONS  
 空氣及噪音監察站位置圖

# APPENDIX B PROJECT ORGANIZATION CHART IN ENVIRONMENTAL MANAGEMENT





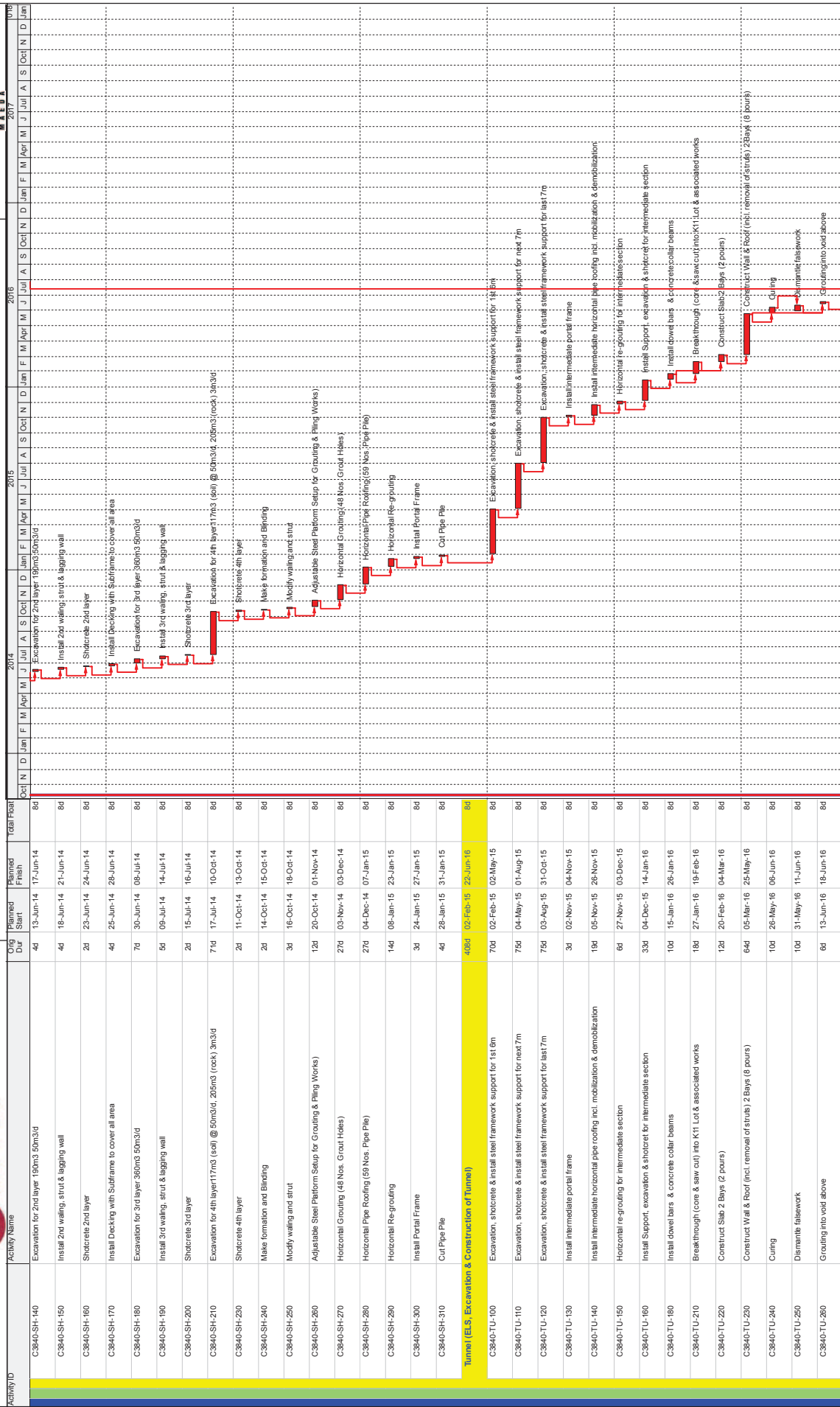




APPENDIX C

CONTRACT C3840-13C Tsim Sha Tsui Station, Carnarvon Road Subway

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■ Actual Work  
■ Remaining Work  
■ Critical Remaining Work

◆ Milestone  
 ◆ Critical Path

**Preliminary Master Programme**  
 Extract Critical Path 1

Date	Revision	Checked	Approved
27-Feb-14	REV 2	BG	AW

Data Date: 11-Oct-13

Page 2 of 3

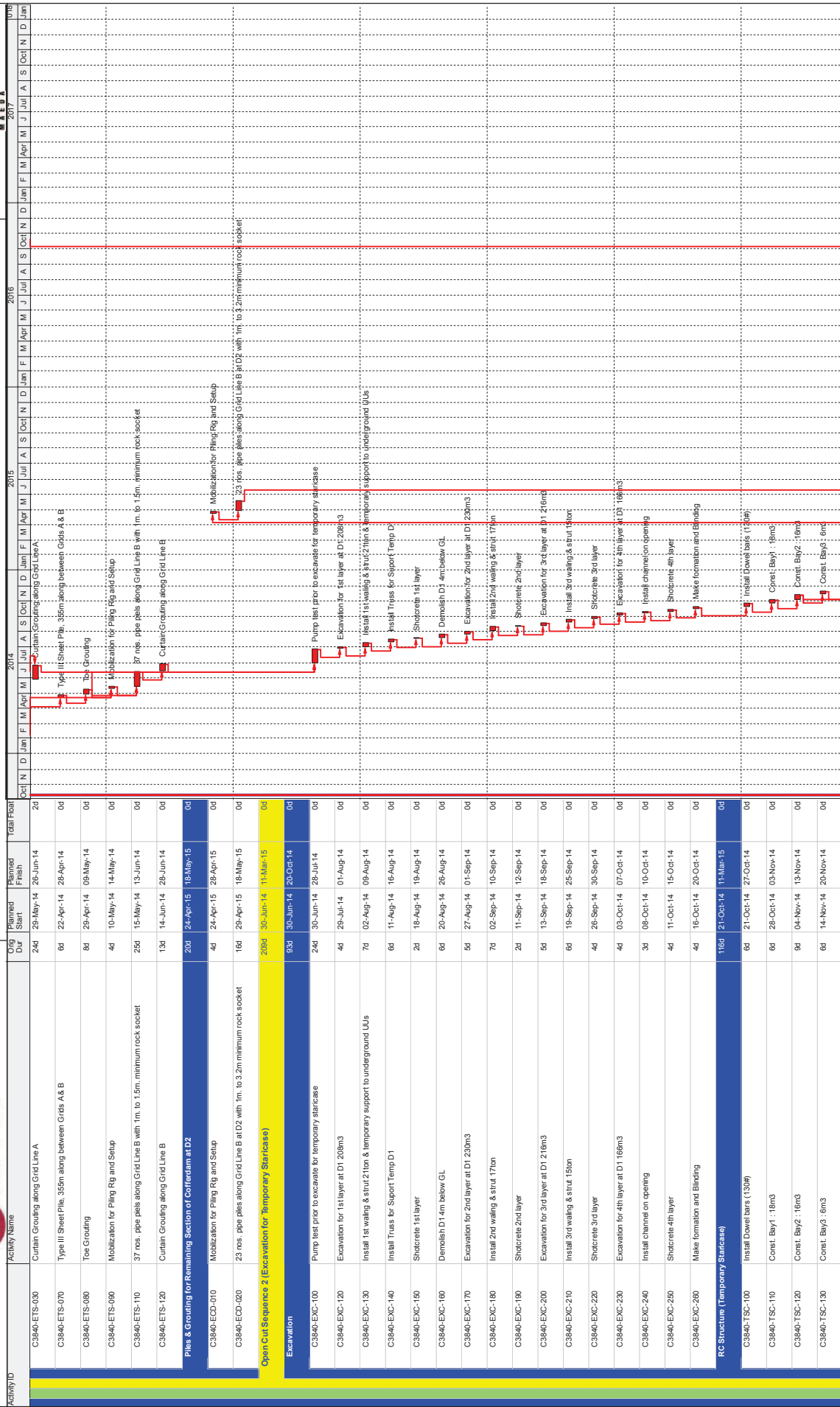






APPENDIX C

CONTRACT C3940-13C Tsim Sha Tsui Station, Carnarvon Road Subway



■ Actual Work  
■ Remaining Work  
■ Critical Remaining Work

Data Date: 11-Oct-13  
 Page 2 of 5

Preliminary Master Programme  
Extract Critical Path 2

Date	Revision	Checked	Approved
27-Feb-14	REV 2	BG	AW

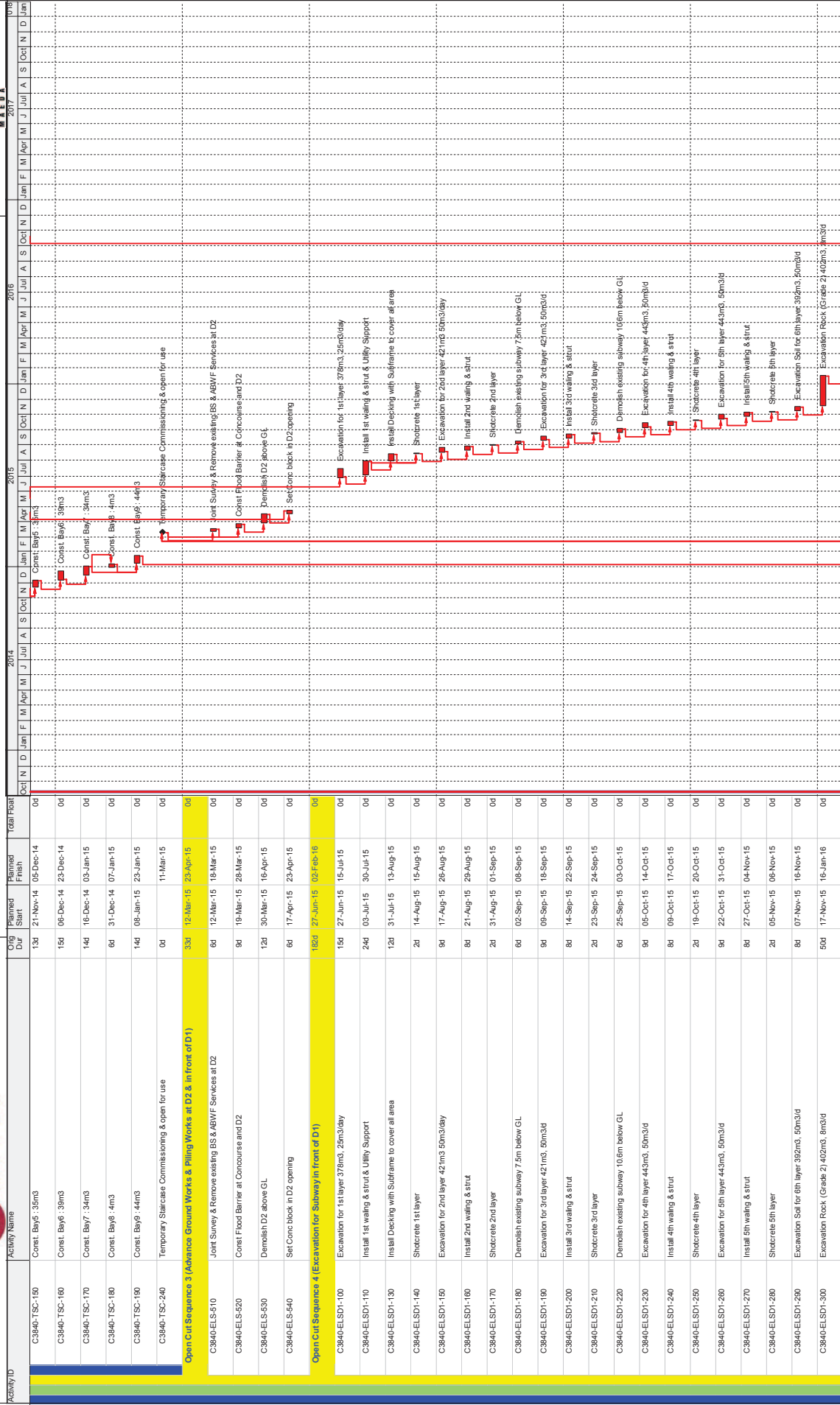
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APPENDIX C

CONTRACT C3840-13C Tsim Sha Tsui Station, Carnarvon Road Subway

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Activity ID	Activity Name	Orig Dur	Planned Start	Planned Finish	Total Float
C3840-TSC-150	Const. Bay5: 3m x 3m	13d	21-Nov-14	05-Dec-14	0d
C3840-TSC-160	Const. Bay6: 3m x 3m	15d	06-Dec-14	23-Dec-14	0d
C3840-TSC-170	Const. Bay7: 3m x 3m	14d	16-Dec-14	03-Jan-15	0d
C3840-TSC-180	Const. Bay8: 4m x 3m	6d	31-Dec-14	07-Jan-15	0d
C3840-TSC-190	Const. Bay9: 4m x 3m	14d	06-Jan-15	23-Jan-15	0d
C3840-TSC-240	Temporary Staircase Commissioning & open for use	0d	11-Mar-15	11-Mar-15	0d
<b>Open Cut Sequence 3 (Advance Ground Works &amp; Piling Works at D2 &amp; in front of D1)</b>					
C3840-EELS-210	Joint Survey & Remove existing BS & ABWF Services at D2	6d	12-Mar-15	23-Apr-15	0d
C3840-EELS-220	Const Flood Barrier at Concourse and D2	9d	12-Mar-15	18-Mar-15	0d
C3840-EELS-230	Demolish D2 above GL	12d	30-Mar-15	16-Apr-15	0d
C3840-EELS-240	Set Conc block in D2 opening	6d	17-Apr-15	23-Apr-15	0d
<b>Open Cut Sequence 4 (Excavation for Subway in front of D1)</b>					
C3840-EELS-1-100	Excavation for 1st layer 37m x 25m x 3day	15d	27-Jun-15	02-Feb-16	0d
C3840-EELS-1-110	Install 1st waling & strut & Utility Support	24d	03-Jul-15	30-Jul-15	0d
C3840-EELS-1-120	Install Decking with Subframe to cover all area	12d	31-Jul-15	13-Aug-15	0d
C3840-EELS-1-140	Shotcrete 1st layer	2d	14-Aug-15	15-Aug-15	0d
C3840-EELS-1-150	Excavation for 2nd layer 42m x 50m x 3day	9d	17-Aug-15	26-Aug-15	0d
C3840-EELS-1-160	Install 2nd waling & strut	8d	21-Aug-15	29-Aug-15	0d
C3840-EELS-1-170	Shotcrete 2nd layer	2d	31-Aug-15	01-Sep-15	0d
C3840-EELS-1-180	Demolish existing subway 7.5m below GL	6d	02-Sep-15	08-Sep-15	0d
C3840-EELS-1-190	Excavation for 3rd layer 42m x 50m x 3day	9d	09-Sep-15	18-Sep-15	0d
C3840-EELS-1-200	Install 3rd waling & strut	8d	14-Sep-15	22-Sep-15	0d
C3840-EELS-1-210	Shotcrete 3rd layer	2d	23-Sep-15	24-Sep-15	0d
C3840-EELS-1-220	Demolish existing subway 10.5m below GL	6d	25-Sep-15	03-Oct-15	0d
C3840-EELS-1-230	Excavation for 4th layer 44.5m x 50m x 3day	9d	05-Oct-15	14-Oct-15	0d
C3840-EELS-1-240	Install 4th waling & strut	8d	09-Oct-15	17-Oct-15	0d
C3840-EELS-1-250	Shotcrete 4th layer	2d	19-Oct-15	20-Oct-15	0d
C3840-EELS-1-260	Excavation for 5th layer 44.5m x 50m x 3day	9d	22-Oct-15	31-Oct-15	0d
C3840-EELS-1-270	Install 5th waling & strut	8d	27-Oct-15	04-Nov-15	0d
C3840-EELS-1-280	Shotcrete 5th layer	2d	05-Nov-15	06-Nov-15	0d
C3840-EELS-1-290	Excavation Soil for 6th layer 39.2m x 50m x 3day	8d	07-Nov-15	16-Nov-15	0d
C3840-EELS-1-300	Excavation Rock (Grade 2) 40.2m x 50m x 3day	5d	17-Nov-15	16-Jan-16	0d

■ Actual Work  
■ Remaining Work  
■ Critical Remaining Work

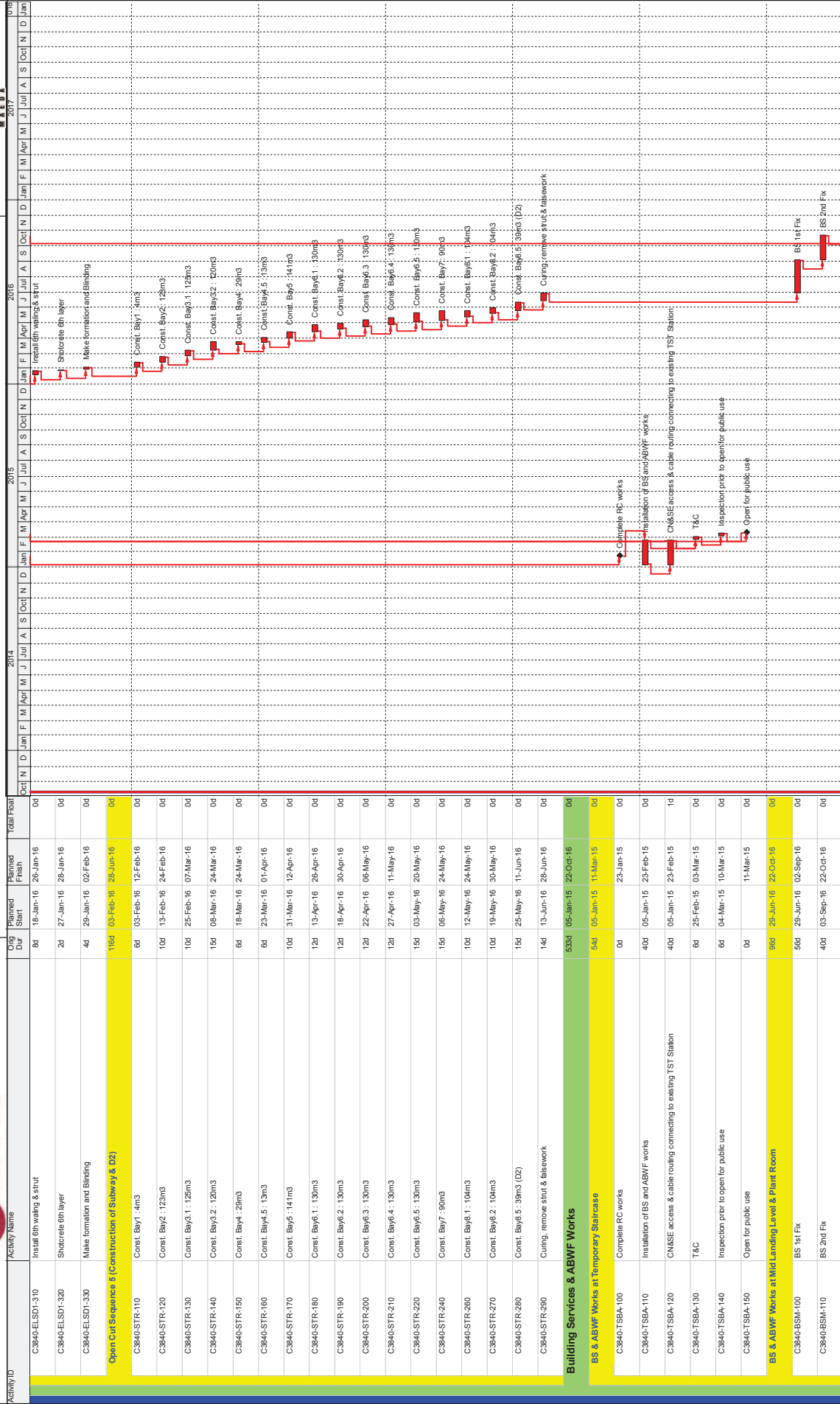
◆ Milestone

Data Date: 11-Oct-13  
 Page 3 of 5

**Preliminary Master Programme**  
 Extract Critical Path 2

Date	Revision	Checked	Approved
27-Feb-14	REV2	BG	AW

Maeda/P/MP/2



■ Actual Work  
■ Remaining Work  
■ Critical Remaining Work

Data Date: 11-Oct-13  
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**Preliminary Master Programme**  
 Extract Critical Path 2

Date	Revision	Checked	Approved
27-Feb-14	REV2	BG	AW





APPENDIX C

CONTRACT C3840-13C Tsim Sha Tsui Station, Carnarvon Road Subway

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Activity ID	C3840-BSM-120	Activity Name	Complete all BS works in TER	Orig Dur	0d	Planned Start	22-Oct-16	Planned Finish	22-Oct-16	Total Float	0d																																																																																																																																																				
<table border="1"> <tr> <th colspan="12">2014</th> <th colspan="12">2015</th> <th colspan="12">2016</th> <th colspan="12">2017</th> </tr> <tr> <th>Oct</th><th>Nov</th><th>Dec</th><th>Jan</th><th>Feb</th><th>Mar</th><th>Apr</th><th>May</th><th>Jun</th><th>Jul</th><th>Aug</th><th>Sep</th> <th>Oct</th><th>Nov</th><th>Dec</th><th>Jan</th><th>Feb</th><th>Mar</th><th>Apr</th><th>May</th><th>Jun</th><th>Jul</th><th>Aug</th><th>Sep</th> <th>Oct</th><th>Nov</th><th>Dec</th><th>Jan</th><th>Feb</th><th>Mar</th><th>Apr</th><th>May</th><th>Jun</th><th>Jul</th><th>Aug</th><th>Sep</th> <th>Oct</th><th>Nov</th><th>Dec</th><th>Jan</th><th>Feb</th><th>Mar</th><th>Apr</th><th>May</th><th>Jun</th><th>Jul</th><th>Aug</th><th>Sep</th><th>Oct</th><th>Nov</th><th>Dec</th><th>Jan</th> </tr> <tr> <td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td> <td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td> <td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td> <td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td> </tr> </table>												2014												2015												2016												2017												Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan																																																
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<ul style="list-style-type: none"> <li><span style="display: inline-block; width: 10px; height: 10px; background-color: blue; margin-right: 5px;"></span> Actual Work</li> <li><span style="display: inline-block; width: 10px; height: 10px; background-color: green; margin-right: 5px;"></span> Remaining Work</li> <li><span style="display: inline-block; width: 10px; height: 10px; background-color: red; margin-right: 5px;"></span> Critical Remaining Work</li> <li><span style="display: inline-block; width: 0; height: 0; border-left: 5px solid transparent; border-right: 5px solid transparent; border-bottom: 8px solid black; margin-right: 5px;"></span> Milestone</li> </ul>	<p><b>Preliminary Master Programme</b></p> <p>Extract Critical Path 2</p>	<p>Data Date: 11-Oct-13</p> <p>Page 5 of 5</p>	<table border="1"> <tr> <td colspan="2">Maeda/PPMP/2</td> </tr> <tr> <td>Revision</td> <td>Checked</td> </tr> <tr> <td>REV 2</td> <td>BG</td> </tr> <tr> <td>Date</td> <td>Approved</td> </tr> <tr> <td>27-Feb-14</td> <td>AW</td> </tr> </table>	Maeda/PPMP/2		Revision	Checked	REV 2	BG	Date	Approved	27-Feb-14	AW
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Revision	Checked												
REV 2	BG												
Date	Approved												
27-Feb-14	AW												



## APPENDIX D IMPLEMENTATION SCHEDULE

Project Profile Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Implementation Parties	Location of the measure	When to implement the measure	Relevant requirements or standards for the measure to achieve
	Noise Impact					
S.3.1	Use of quieter plant	To minimise construction noise emissions	Contractor	Work site	Construction Stage	ProPECC PN2/93 and Noise Control Ordinance
S.3.1	Use of noise enclosure and movable barrier <ul style="list-style-type: none"> <li>movable barrier can achieve a 5 dB(A) reduction for movable PME and 10 dB(A) reduction for stationary PME;</li> <li>noise enclosure can achieve 15dB(A) reduction for PME;</li> <li>A typical design barrier with a steel frame of vertical / cantilever type would be adopted and located close to the noise generating part of PME;</li> <li>Barrier material of surface mass in excess of 7kg/m<sup>2</sup> shall be required to achieve the maximum screening effect (and minimum 10kg/m<sup>2</sup> for noise enclosure);</li> <li>The length of barrier should generally be at least five times greater than its height and the minimum height of a barrier should be such that no part of the noise source will be visible from the noise sensitive receiver being protected.</li> </ul>	To minimize construction noise emissions	Contractor	Work site	Construction Stage	ProPECC PN2/93, Noise Control Ordinance and EIAO Guidance Note NO. 9/2010
S.3.1	General Construction Noise Control Measures <ul style="list-style-type: none"> <li>The Code of Practice on Good Management Practice</li> </ul>	To minimize construction noise	Contractor	Work site	Construction Stage	ProPECC PN2/93 and Noise Control

	<p>to Prevent Violation of the Noise Control Ordinance (Chapter 400) (for Construction Industry) published by EPD shall be adopted;</p> <ul style="list-style-type: none"> <li>The statutory and non-statutory requirements and guidelines shall be complied with;</li> <li>Approval for the method of working, equipment and noise mitigation measures intended to be used at the site shall be granted from the Project Engineer before commencing any work;</li> <li>Working methods to minimize the noise impact on the surrounding NSRs shall be formulated and executed, and the implementation of these methods shall be monitored by experienced personnel with suitable training;</li> <li>Noisy equipment and noisy activities shall be located as far away from the NSRs as is practical;</li> <li>Unused equipment shall be turned off;</li> <li>PME should be kept to a minimum and the parallel use of noisy equipment / machinery should be avoided;</li> <li>All plant and equipment shall be maintained regularly; and</li> <li>Material stockpiles and other structures shall be effectively utilized as noise barriers, whenever practicable.</li> </ul>	emissions				Ordinance
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## APPENDIX D IMPLEMENTATION SCHEDULE

Air Quality Impact						
S.3.2	<p>Construction Dust Control Measures</p> <ul style="list-style-type: none"> <li>• Decking will be provided subsequent to the completion of surface excavation works. The duration</li> </ul>	To minimise the dust impacts arising from the	Contractor	Work site	Construction Stage	Air Pollution Control (Construction
	<p>of decking is around 13 months after surface excavation works;</p> <ul style="list-style-type: none"> <li>• Regular watering to reduce dust emissions from all exposed site surface, particularly during dry weather;</li> <li>• Frequent watering for particularly dusty construction areas and areas close to air sensitive receivers;</li> <li>• Cover all excavated or stockpile of dusty material by impervious sheeting or spraying with water to maintain the entire surface wet;</li> <li>• Provision of vehicle washing facilities at the exit points of the site; and</li> <li>• Provision of tarpaulin covering of any dusty materials on a vehicle leaving the site.</li> </ul>	construction works				Dust) Regulation
Water Quality Impact						
S.3.3	<p>Construction Water Quality Impact Measures</p> <ul style="list-style-type: none"> <li>• The Contractor should design and implement all the mitigation measures and practices specified in the ProPECC PN 1/94 "Construction Site Drainage" and "Recommended Pollution Control Clauses for Construction Contracts" issued by EPD.</li> <li>• All runoffs arising from the construction site should be properly collected and treated to ensure the discharge standards as stipulated in WPCO are met. Silt trap and oil interceptor should be provided to remove the oil, lubricants, grease, silt, grit and debris from the wastewater before being pumped to the public stormwater drainage system. The silt traps and oil interceptors should be cleaned and maintained regularly.</li> </ul>	To reduce water quality impact induced by the construction work	Contractor	Work Site	Construction Stage	ProPECC PN1/94; Water Pollution Control Ordinance
	<ul style="list-style-type: none"> <li>• Any foul effluent should not be discharged into any public sewer and stormwater drain, unless an effluent discharge permit is obtained under the WPCO by the Contractor.</li> <li>• Site toilet facilities, if needed, should be chemical toilets or should have the foul water effluent directed to a foul sewer.</li> </ul>					
S.3.4	<p>Construction Waste Management Measures</p> <ul style="list-style-type: none"> <li>• Excavated material should be reused on site as far as possible to minimise off-site disposal. Scrap metals or abandoned equipment should be recycled if possible.</li> <li>• Waste arising should be kept to a minimum and be handled, transported and disposed of in a suitable manner.</li> <li>• The Contractor should adopt a trip ticket system for the disposal of C&amp;D materials to any designated public filling facility and/or landfill. Independent</li> </ul>	To adopt waste management measures in the way of avoiding, minimising, reusing and recycling so as to reduce waste generation	Contractor	Work Site	Construction Stage	Waste Disposal Ordinance (Cap. 54); Waste Disposal (Chemical Waste) (General) Regulation; ETWB TCW No. 31/2004; ETWB TCW No. 19/2005.

## APPENDIX D IMPLEMENTATION SCHEDULE

	<p>audits of the Contractor and resident site staff will be undertaken to ensure that the correct procedures are being followed.</p> <ul style="list-style-type: none"> <li>• Chemical waste shall be handled in accordance with the Code of Practice on the Packaging, Handling and Storage of Chemical Wastes.</li> <li>• All general refuse should be segregated and stored in enclosed bins or compaction units and waste separation facilities for paper, aluminium cans, plastic bottles etc. should be provided to facilitate reuse or</li> </ul>					
	recycling of materials and their proper disposal.					
	Landscape and Visual Impact					
S.3.5	<p>Landscape and Visual Measures</p> <ul style="list-style-type: none"> <li>• Screening of construction works by hoardings/noise barriers around works area with visually unobtrusive colours</li> </ul>	To reduce visual impact by construction works.	Contractor	Temporary Storage Area at Salisbury Road	Construction Stage	EIAO
S.3.5	<ul style="list-style-type: none"> <li>• Reinstating the affected amenity planting area at Salisbury Road after the completion of works</li> </ul>	To prevent loss of planter after construction	Contractor	Temporary Storage Area at Salisbury Road	Operation Stage	ETWB TCW No. 2/2004



## APPENDIX E STATUS OF ENVIRONMENTAL LICENSES AND PERMITS



**Maeda Corporation**

**Contract No. C3840-13C**

**Tsim Sha Tsui Station Carnarvon Road Subway**

Last Update: 31-August-2015

### Licence Summary

Item No.	Our Ref.	Govt. Ord.	Type? (License / Permit / Account / Notification / Registration & etc.)	Description	Submission	Ref. No	Date of Submission (to EPD) (DD-MM-YYYY)	Date of Approval / Receipt (from EPD) (DD-MM-YYYY)	Date of Activation (DD-MM-YYYY)	Date of Expiry (DD-MM-YYYY) Green = expire next mth; Yellow = expire this wk; Red = Expired	Description	Remarks
000	000	EIAO	Permit	Environmental Permit	N/A	AEP-440/2012	N/A	N/A	18 - 07 - 2012	N/A	Baseline, Air & Noise Impact Monitoring	
001	001	APCO	Notification	Construction Dust Notification	Form NA – Notification S3(1) of APCO (Construction Dust)	365953	18 - 10 - 2013	21 - 10 - 2013	01 - 02 - 2014	01 - 10 - 2016	Demolition of a Building	
001	001	APCO	Notification	Construction Dust Notification	Form NA – Notification S3(1) of APCO (Construction Dust)	365953	18 - 10 - 2013	21 - 10 - 2013	01 - 08 - 2014	01 - 08 - 2016	Work carried out in any part of a tunnel that is within 100m of any exit to the open air	
001	001	APCO	Notification	Construction Dust Notification	Form NA – Notification S3(1) of APCO (Construction Dust)	365953	18 - 10 - 2013	21 - 10 - 2013	01 - 01 - 2016	01 - 03 - 2017	Construction of the Superstructure of a Building	
001	001	APCO	Notification	Construction Dust Notification	Form NA – Notification S3(1) of APCO (Construction Dust)	365953	18 - 10 - 2013	21 - 10 - 2013	01 - 11 - 2016	10 - 09 - 2017	Road Construction Work	
002	002	WDO	Account	Construction Waste Billing Account	EPD-211 (Form 1) Application for a Billing Account for Disposal of Construction Waste	7018523	18 - 10 - 2013	25 - 10 - 2013	25 - 10 - 2013	N/A	Disposal of C&D Waste	Application No. WFG12765
003	003 WPCO #002	WPCO	Licence	Water Discharge Licence	EPD-117 (Form A) Application for a Licence of Water Discharge	WT00019722-2014	24 - 07 - 2014	01 - 09 - 2014	01 - 09 - 2014	31 - 03 - 2019	Quarterly Report FlowRate 25m3/d, pH 6-9, SS 30mg/L, COD 80mg/L	
004	004 CWP#001	WDO	Registration	Chemical Waste Producer	EPD-129 Application for Registration as a Chemical Waste Producer	5213-2214-M2446-16	15 - 01 - 2014	04 - 03 - 2014	04 - 03 - 2014	N/A	Surplus paint, spent lubricating oil, spent battery	
006	005 CNP#003	NCO	Permit	Construction Noise Permit	EPD74A(s) Form 1 - Application for a Construction Noise Permit	Application: 389338 Permit: GW-RE0558-15	27 - 05 - 2015	03 - 06 - 2015	23 - 06 - 2015	22 - 12 - 2015	Apply for 4nos Submersible Water pump (Electric) w/ new area to be included	

## APPENDIX F EVENT AND ACTION PLAN

### CONSTRUCTION NOISE

Event		ET	IEC	ER	Action Contractor
Action Level	<ol style="list-style-type: none"> <li>1. Notify IEC and Contractor.</li> <li>2. Carry out investigation.</li> <li>3. Report the results of investigation to the IEC and Contractor.</li> <li>4. Discuss with the Contractor and formulate remedial measures</li> <li>5. Increase monitoring frequency to check mitigation effectiveness.</li> </ol>	<ol style="list-style-type: none"> <li>1. Review the analyzed result submitted by ET.</li> <li>2. Review the proposed remedial measures by the Contractor and advise the ER accordingly.</li> <li>3. Supervise the implementation of remedial measures.</li> </ol>	<ol style="list-style-type: none"> <li>1. Confirm receipt of notification of exceedance</li> <li>2. Notify Contractor</li> <li>3. Require Contractor to propose remedial measures for the analysed noise problem</li> <li>4. Ensure remedial measures are properly implemented.</li> </ol>	<ol style="list-style-type: none"> <li>1. Submit noise mitigation proposals to IEC</li> <li>2. Implement noise mitigation proposals</li> </ol>	
Limit Level	<ol style="list-style-type: none"> <li>1. Notify IEC, ER, EPD and Contractor, and follow other actions</li> <li>2. Identify source</li> <li>3. Repeat measurement to confirm findings</li> <li>4. Increase monitoring frequency</li> <li>5. Check Contractor's working procedures to determine possible mitigation to be implemented</li> <li>6. Inform IEC, ER and EPD the causes and actions taken for the exceedances</li> <li>7. Assess effectiveness of Contractor's remedial actions and keep IEC, EPD,</li> </ol>	<ol style="list-style-type: none"> <li>1. Discuss amongst ER, ET and Contractor on the potential remedial actions</li> <li>2. Review Contractor's remedial actions whenever necessary to assure their effectiveness and advise the ET accordingly</li> <li>3. Supervise the implementation of remedial measures</li> </ol>	<ol style="list-style-type: none"> <li>1. Confirm receipt of notification of exceedances</li> <li>2. Notify Contractor</li> <li>3. Require Contractor to propose remedial measures</li> <li>4. Ensure remedial measures are properly implemented</li> <li>5. If exceedance continues, consider what portion of the work is responsible and instruct the Contractor to stop that portion of work until the exceedance is</li> </ol>	<ol style="list-style-type: none"> <li>1. Take immediate action to avoid further exceedance</li> <li>2. Submit proposals for remedial actions to IEC within 3 working days of notifications</li> <li>3. Implement the agreed proposals</li> <li>4. Revise and resubmit proposals if problem still not under control</li> <li>5. Stop the relevant portion of works as determined by the ER until the exceedance is abated</li> </ol>	
	<ol style="list-style-type: none"> <li>ER informed of the results</li> <li>8. If exceedance stops, cease additional monitoring</li> </ol>			abated.	

# APPENDIX F EVENT AND ACTION PLAN

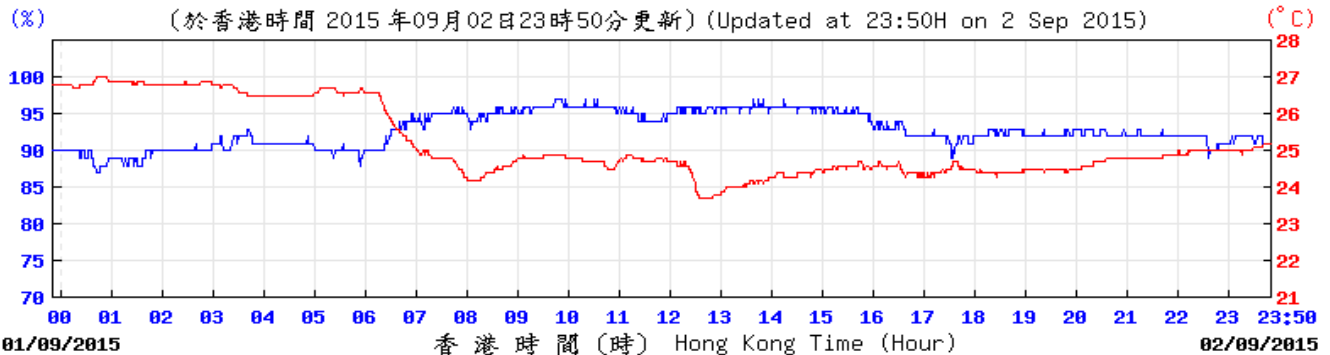
## AIR QUALITY

Event	Action Level			
	ET	IEC	ER	Action Contractor
Exceedance for one sample	<ol style="list-style-type: none"> <li>1. Identify source;</li> <li>2. If valid, inform IEC and ER;</li> <li>3. Repeat measurement to confirm finding;</li> <li>4. Increase monitoring frequency to daily.</li> </ol>	<ol style="list-style-type: none"> <li>1. Check monitoring data submitted by ET;</li> <li>2. Check Contractor's working method.</li> </ol>	<ol style="list-style-type: none"> <li>1. Notify Contractor</li> </ol>	<ol style="list-style-type: none"> <li>1. Rectify any unacceptable practice;</li> <li>2. Amend working methods if appropriate</li> </ol>
Exceedance for two or more consecutive samples	<ol style="list-style-type: none"> <li>1. Identify source;</li> <li>2. Inform IEC and EPD;</li> <li>3. Repeat measurements to confirm findings;</li> <li>4. Increase monitoring frequency to daily;</li> <li>5. Discuss with IEC and Contractor on remedial action required;</li> <li>6. If exceedance continues, arrange meeting with IEC and ER;</li> <li>7. If exceedance stops, cease additional monitoring.</li> </ol>	<ol style="list-style-type: none"> <li>1. Check monitoring data submitted by ET;</li> <li>2. Check Contractor's working method;</li> <li>3. Discuss with ET and Contractor on possible remedial measures;</li> <li>4. Advise the ER on the effectiveness of the proposed remedial measures;</li> <li>5. Supervisor implementation of remedial measures.</li> </ol>	<ol style="list-style-type: none"> <li>1. Confirm receipt of notification of failure in writing;</li> <li>2. Notify Contractor;</li> <li>3. Ensure remedial measure properly implemented.</li> </ol>	<ol style="list-style-type: none"> <li>1. Submit proposals for remedial action to IEC within 3 working days of notification;</li> <li>2. Implement the agreed proposals;</li> <li>3. Amend proposal if appropriate.</li> </ol>
Limit Level				
Exceedance for one sample	<ol style="list-style-type: none"> <li>1. Identify source;</li> <li>2. Inform ER and EPD;</li> <li>3. Repeat measurement to confirm finding;</li> <li>4. Increase monitoring frequency to daily;</li> <li>5. Assess effectiveness of Contractor's remedial actions and keep IEC, EPD and ER informed of the results.</li> </ol>	<ol style="list-style-type: none"> <li>1. Check monitoring data submitted by ET;</li> <li>2. Check Contractor's working method;</li> <li>3. Discuss with ET and the Contractor on possible remedial measures;</li> <li>4. Advise the ER on the effectiveness of the proposed remedial measures;</li> <li>5. Supervise implementation of remedial measures.</li> </ol>	<ol style="list-style-type: none"> <li>1. Confirm receipt of notification of failure in writing;</li> <li>2. Notify Contractor;</li> <li>3. Ensure remedial measures properly implemented.</li> </ol>	<ol style="list-style-type: none"> <li>1. Take immediate action to avoid further exceedance;</li> <li>2. Submit proposals for remedial actions to IEC within 3 working days of notification;</li> <li>3. Implement the agreed proposals;</li> <li>4. Amend proposal if appropriate.</li> </ol>
Exceedance for two or more consecutive samples	<ol style="list-style-type: none"> <li>1. Notify IEC, ER, Contractor and EPD;</li> <li>2. Identify sources;</li> <li>3. Repeat measurement to confirm findings;</li> <li>4. Increase monitoring</li> </ol>	<ol style="list-style-type: none"> <li>1. Discuss amongst ER, ET and Contractor on the potential remedial actions;</li> <li>2. Review Contractor's remedial actions whenever</li> </ol>	<ol style="list-style-type: none"> <li>1. Confirm receipt of notification of failure in writing;</li> <li>2. Notify Contractor;</li> <li>3. In consultation with IEC, agree with the Contractor on</li> </ol>	<ol style="list-style-type: none"> <li>1. Take immediate action to avoid further exceedance;</li> <li>2. Submit proposals for remedial actions to IEC within 3 working days of</li> </ol>
	<ol style="list-style-type: none"> <li>5. frequency to daily;</li> <li>5. Carry out analysis of Contractor's working procedures to determine possible mitigation to be implemented;</li> <li>6. Arrange meeting with IEC and ER to discuss the remedial actions to be taken;</li> <li>7. Assess effectiveness of Contractor's remedial actions and keep IEC, EPD and ER informed of the results;</li> <li>8. If exceedance stops, cease additional monitoring.</li> </ol>	<ol style="list-style-type: none"> <li>3. Supervise the implementation of remedial measures.</li> </ol>	<ol style="list-style-type: none"> <li>4. the remedial measures to be implemented;</li> <li>4. Ensure remedial measures properly implemented;</li> <li>5. If exceedance continues, consider what portion of the work is responsible and instruct the Contractor to stop that portion of work until the exceedance is abated.</li> </ol>	<ol style="list-style-type: none"> <li>3. notification;</li> <li>3. Implement the agreed proposals;</li> <li>4. Resubmit proposals if problem still not under control;</li> <li>5. Stop the relevant portion of works as determined by the ER until the exceedance is abated.</li> </ol>

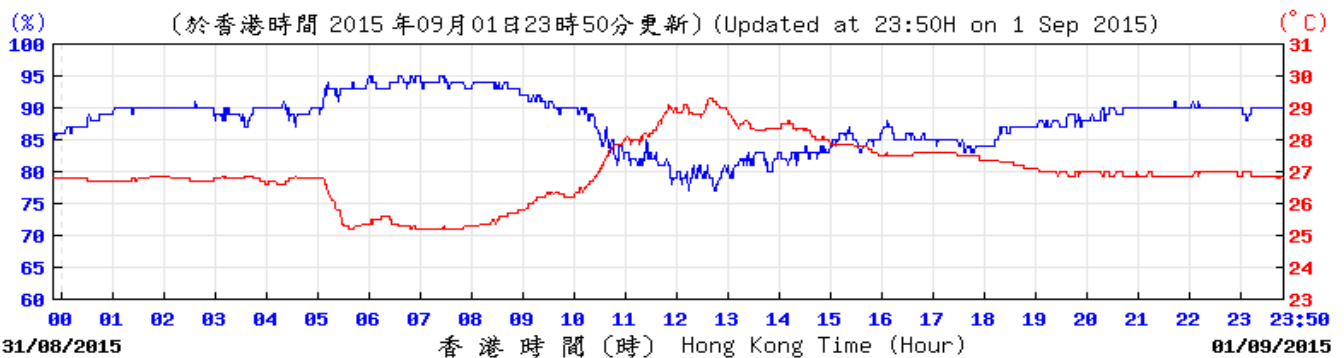
# APPENDIX G WEATHER INFORMATION EXTRACTED FROM HONG KONG OBSERVATORY KING'S PARK WEATHER STATION

01 September 2015

Temperature/Humidity:

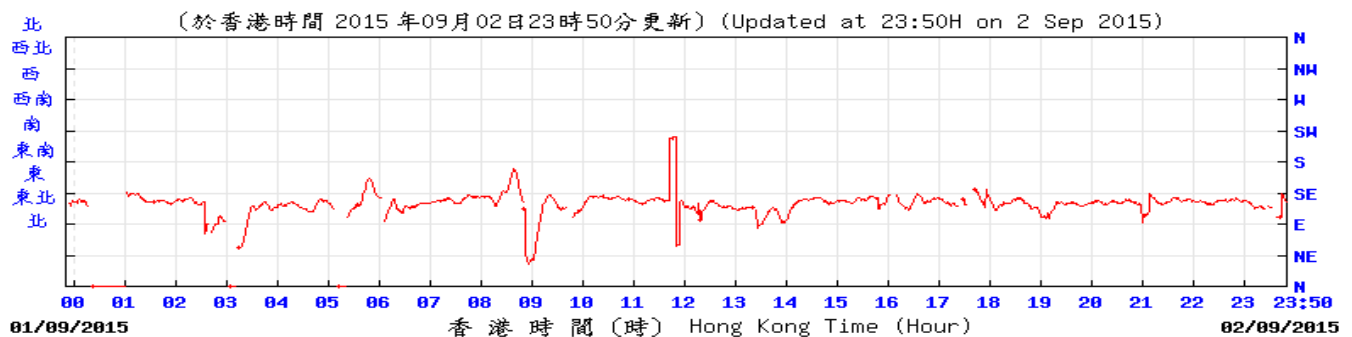


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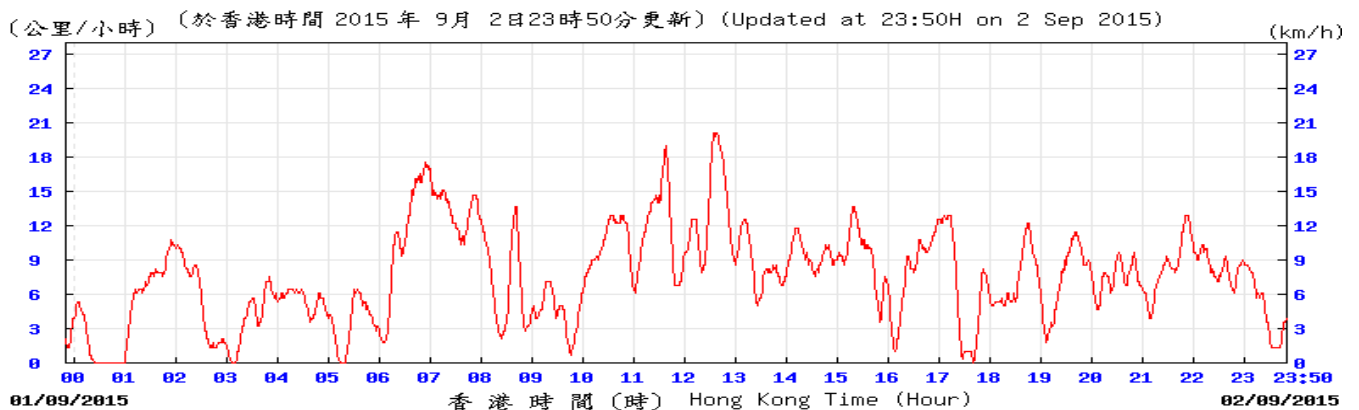
© 香港天文台 Hong Kong Observatory

Wind Direction:



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Wind Speed:

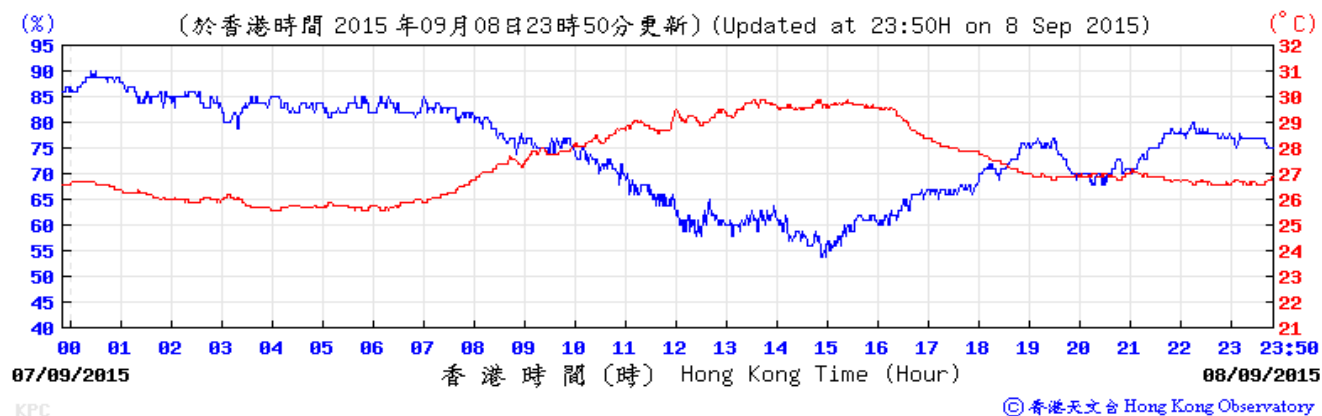


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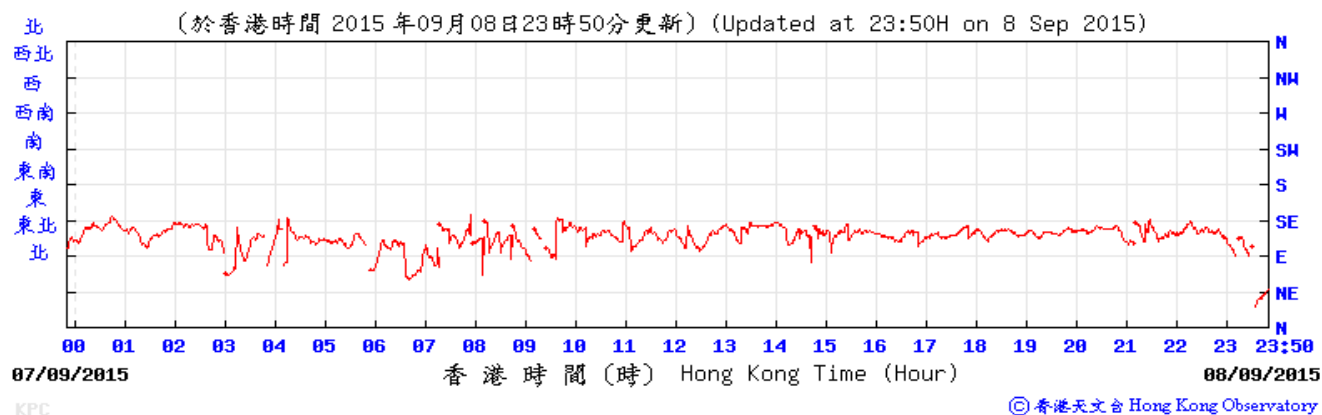
APPENDIX G WEATHER INFORMATION EXTRACTED FROM HONG KONG OBSERVATORY KING'S PARK WEATHER STATION (Continued)

07 September 2015

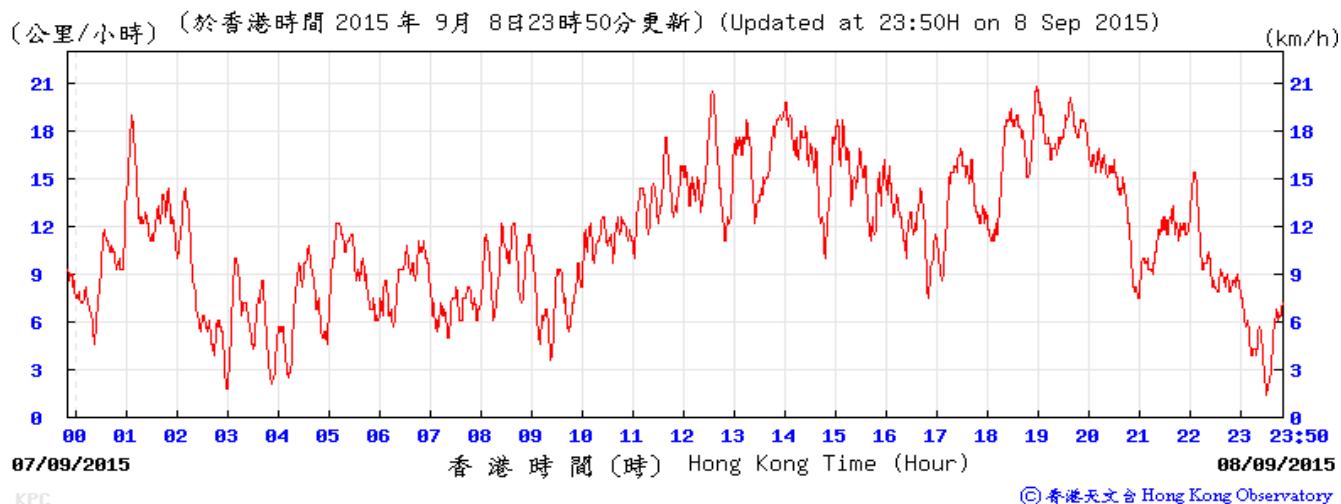
Temperature/Humidity:



Wind Direction:



Wind Speed:

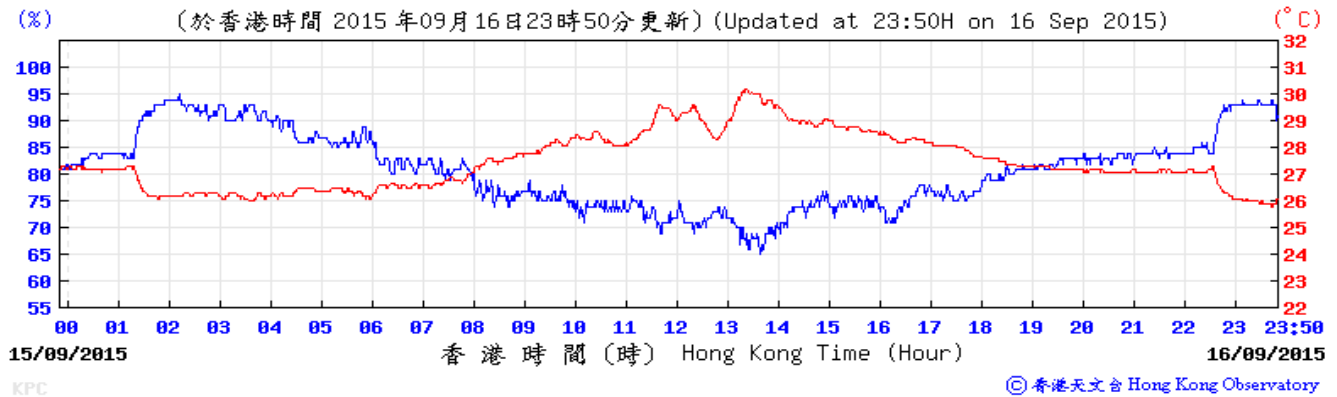




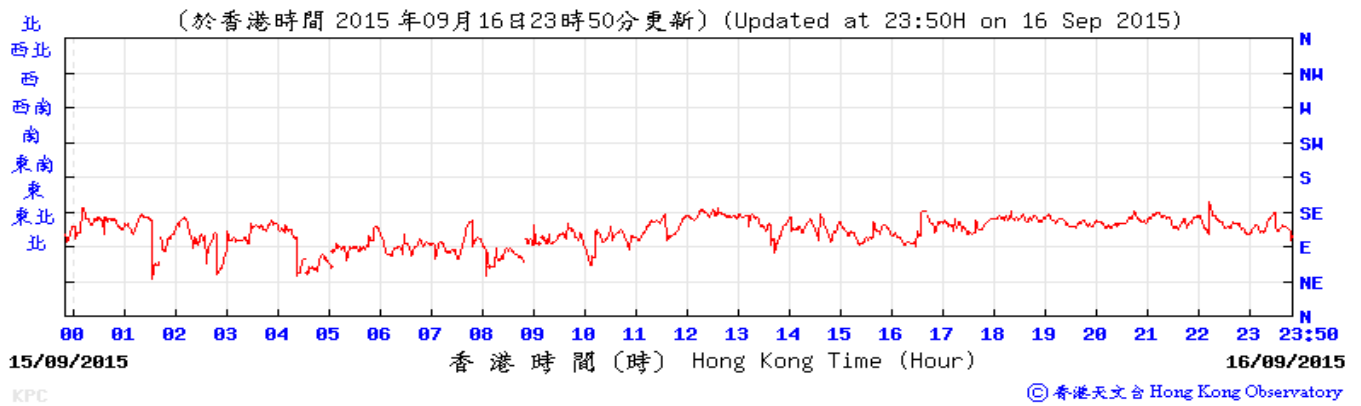
APPENDIX G WEATHER INFORMATION EXTRACTED FROM HONG KONG OBSERVATORY KING'S PARK WEATHER STATION (Continued)

15 September 2015

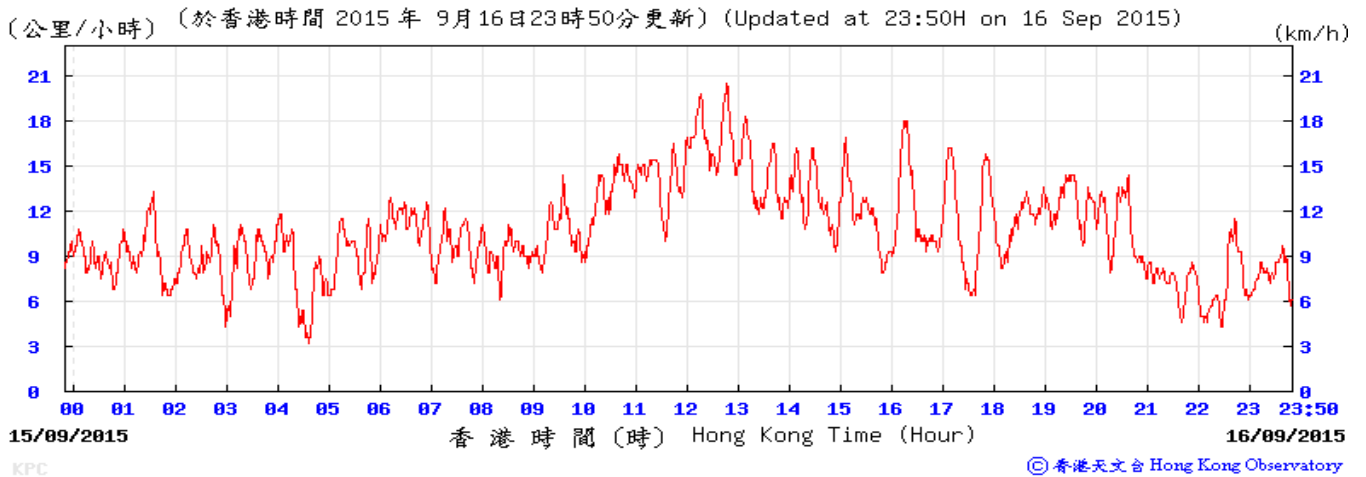
Temperature and Humidity:



Wind Direction:



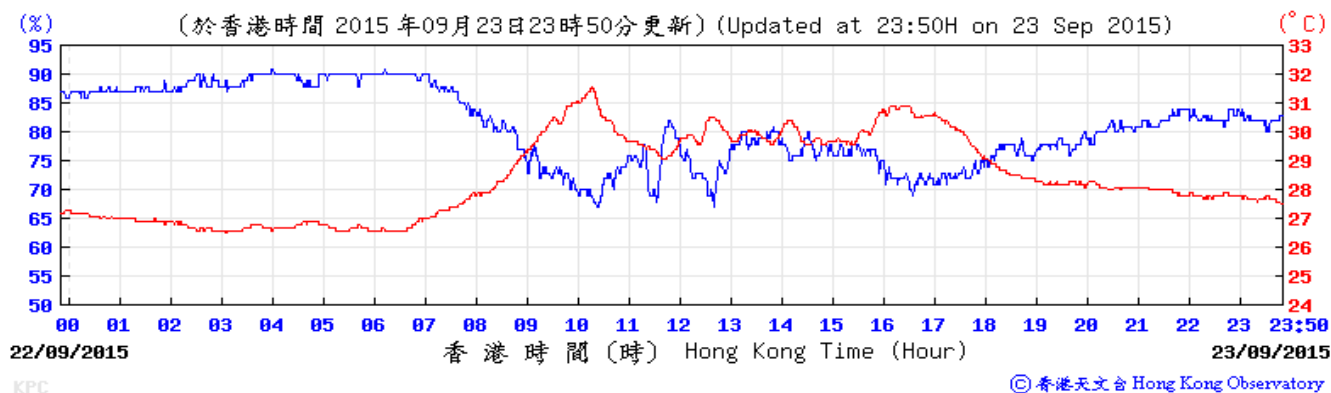
Wind Speed:



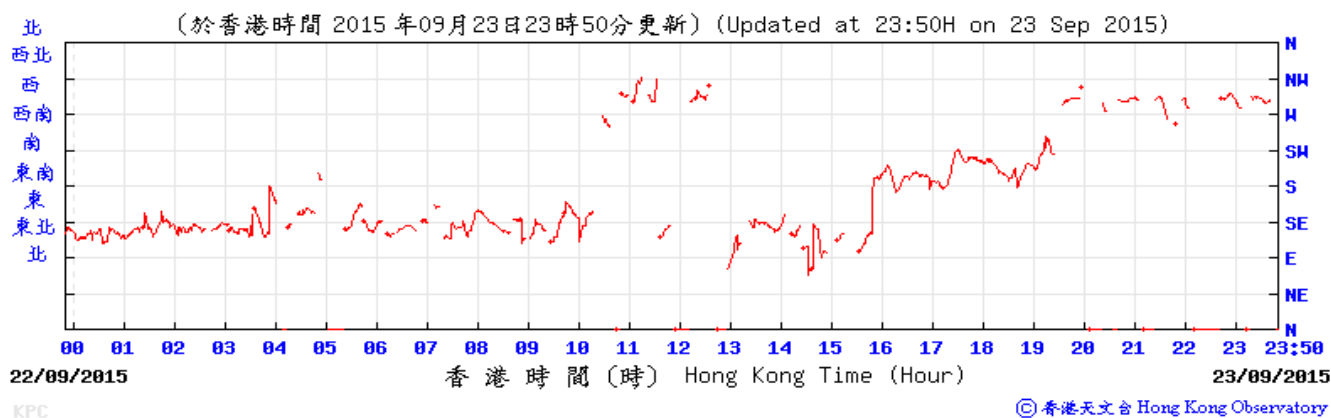
APPENDIX G WEATHER INFORMATION EXTRACTED FROM HONG KONG OBSERVATORY KING'S PARK WEATHER STATION (Continued)

22 September 2015

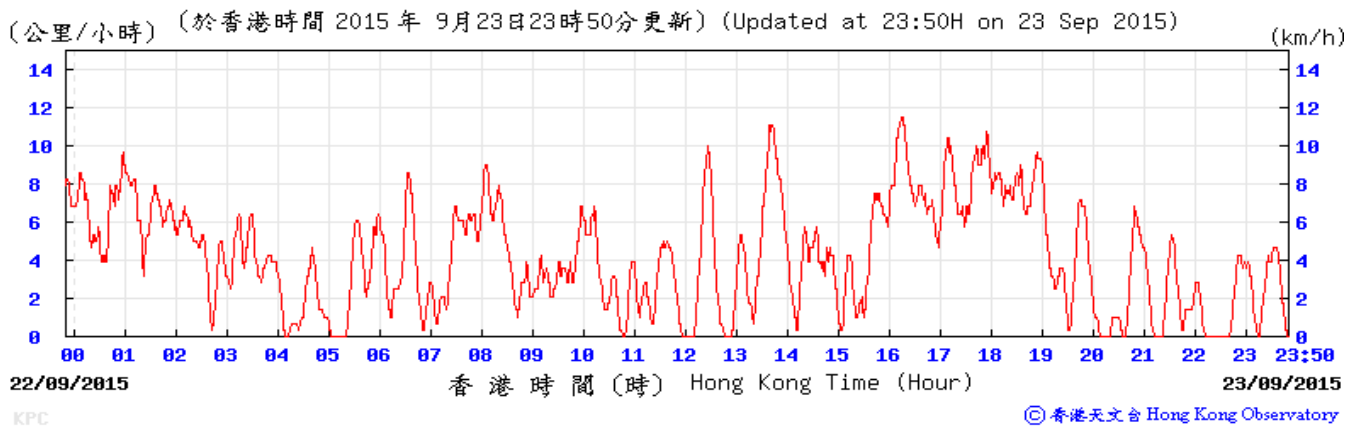
Temperature and Humidity:



Wind Direction:



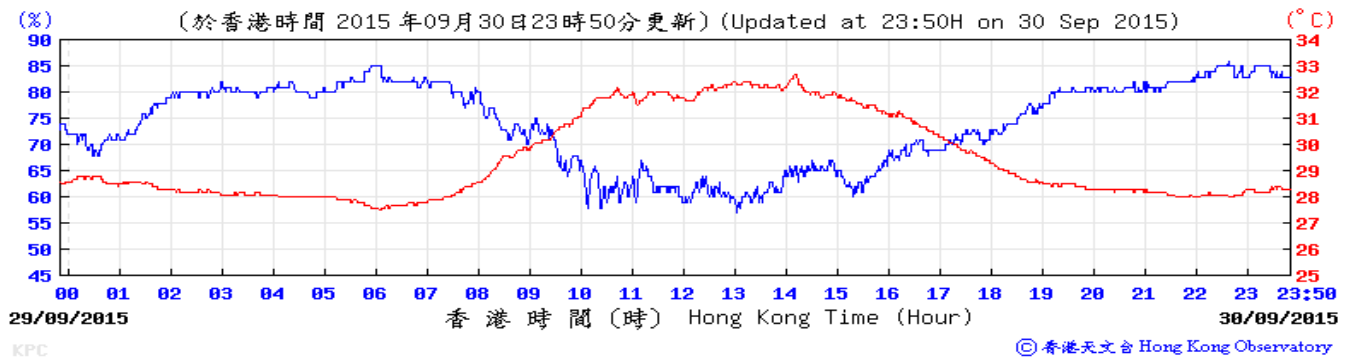
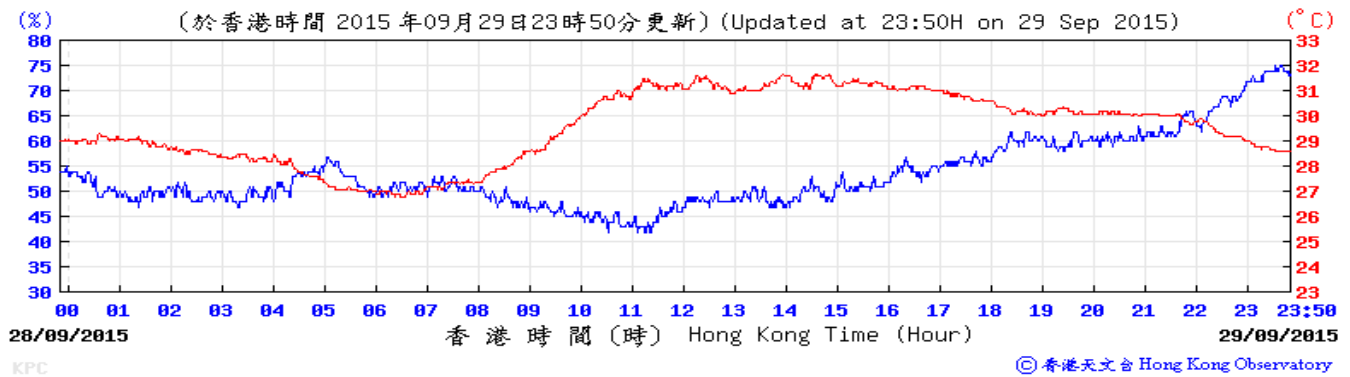
Wind Speed:



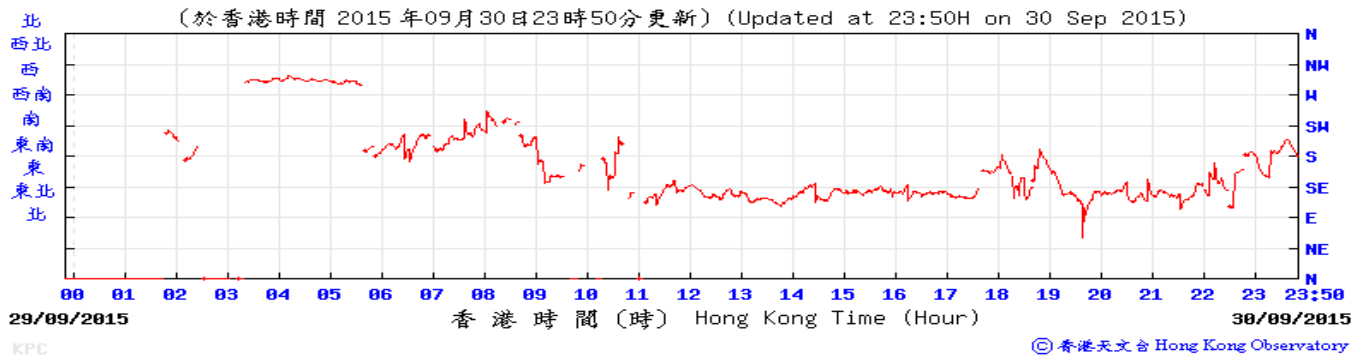
APPENDIX G WEATHER INFORMATION EXTRACTED FROM HONG KONG OBSERVATORY KING'S PARK WEATHER STATION (Continued)

29 September 2015

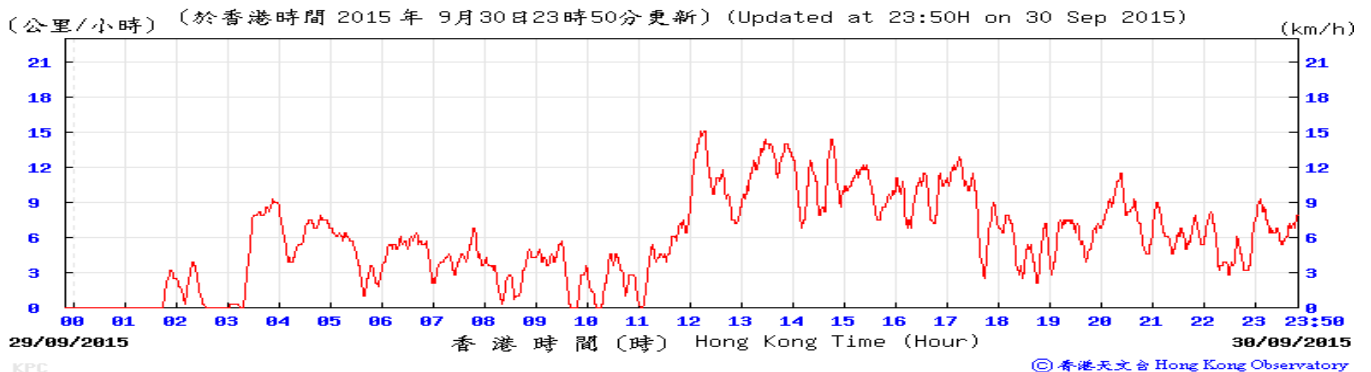
Temperature/Humidity:



Wind Direction:



Wind Speed:



## APPENDIX G (Continued)

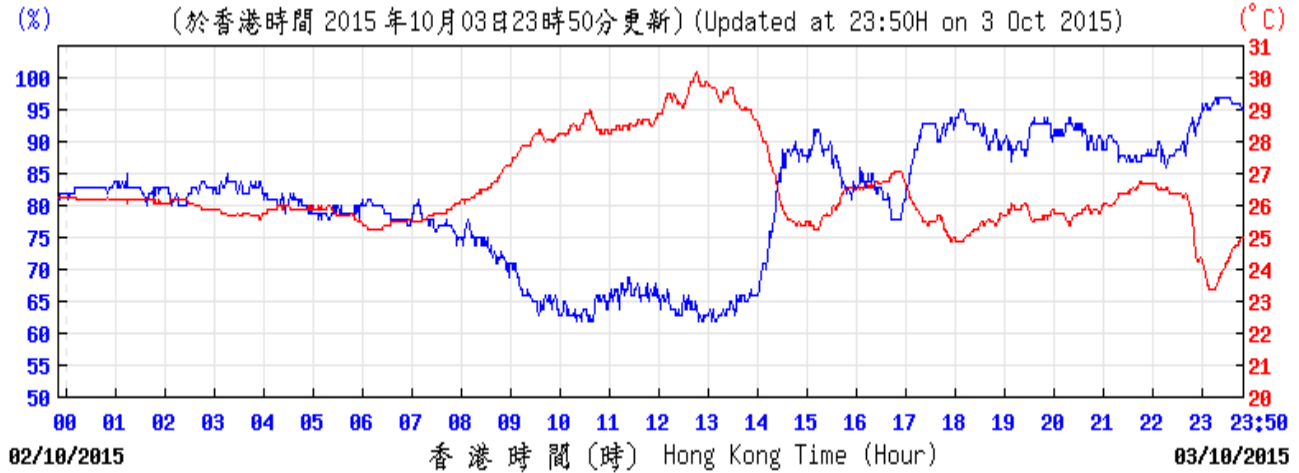
## Daily Total Rainfall at King's Park HKO Weather Monitoring Station - September 2015

Day	September	24-hr TSP	Noise	Remarks
1	7.8		✓	No rainfall recorded on site during Noise Monitoring
2	38.9			
3	0.3			
4	-			
5	-			
6	-			
7	7.5	✓		
8	-		✓	No rainfall recorded on site during Noise Monitoring
9	-			
10	-			
11	-			
12	-			
13	-			
14	-			
15	-	✓	✓	No rainfall recorded on site during Noise Monitoring
16	5.0			
17	-			
18	-			
19	-			
20	-			
21	19.5			
22	1.4	✓		
23	-		✓	No rainfall recorded on site during Noise Monitoring
24	-			
25	-			
26	7.0			
27	2.2			
28	-			
29	-		✓	No rainfall recorded on site during Noise Monitoring
30	-			
<b>Total</b>	<b>89.6</b>			

# APPENDIX G WEATHER INFORMATION EXTRACTED FROM HONG KONG OBSERVATORY KING'S PARK WEATHER STATION (Continued)

## 03 October 2015

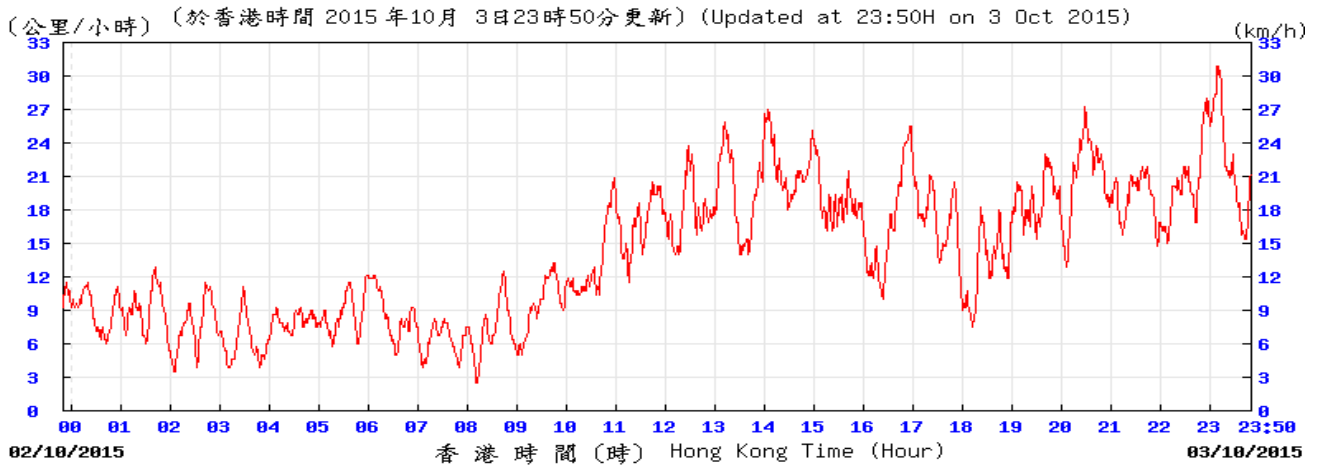
Temperature/Humidity:



KPC

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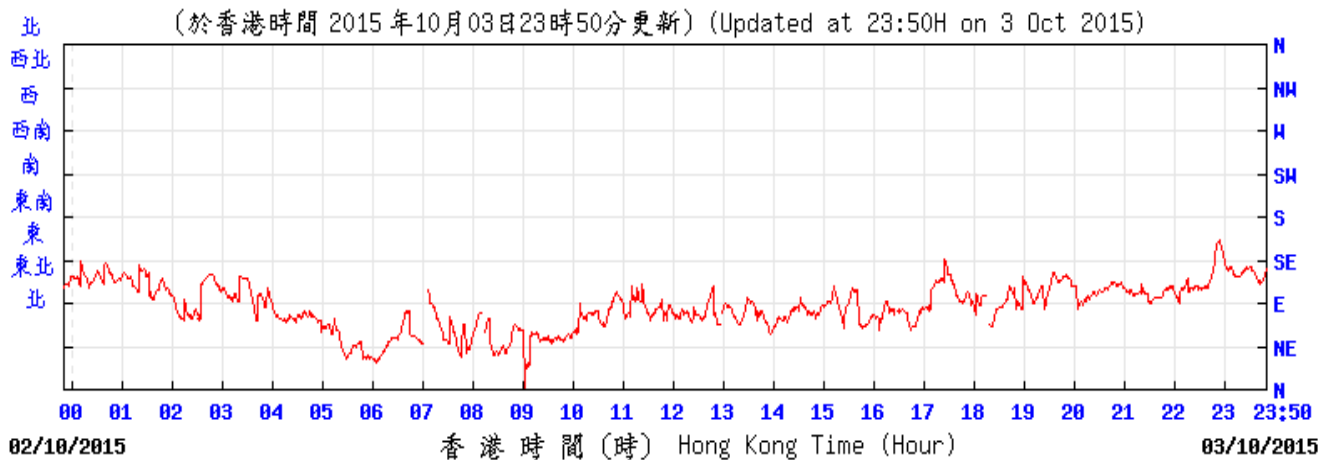
Wind Speed:



KPC

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Wind Direction:

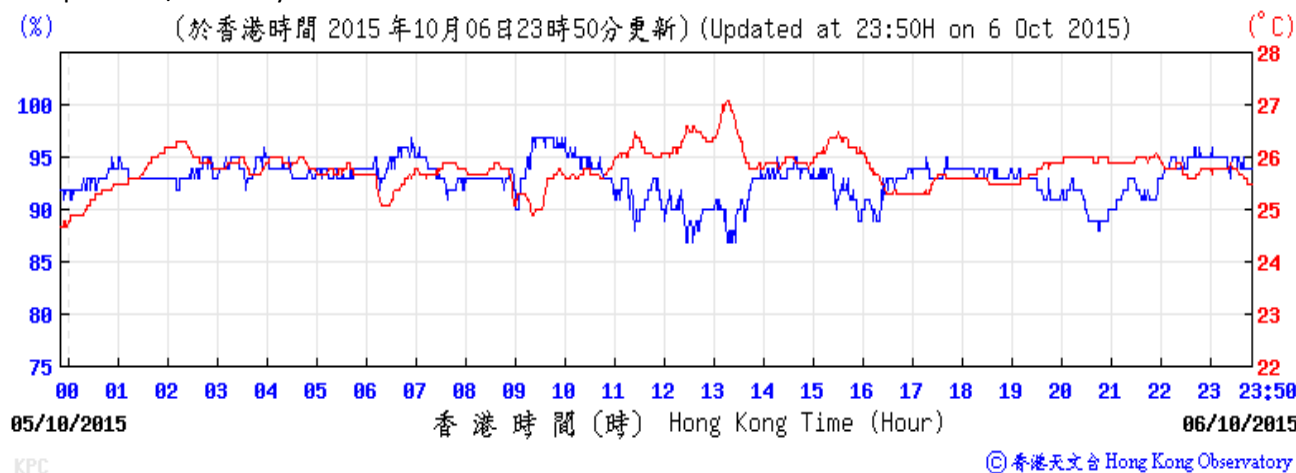


KPC

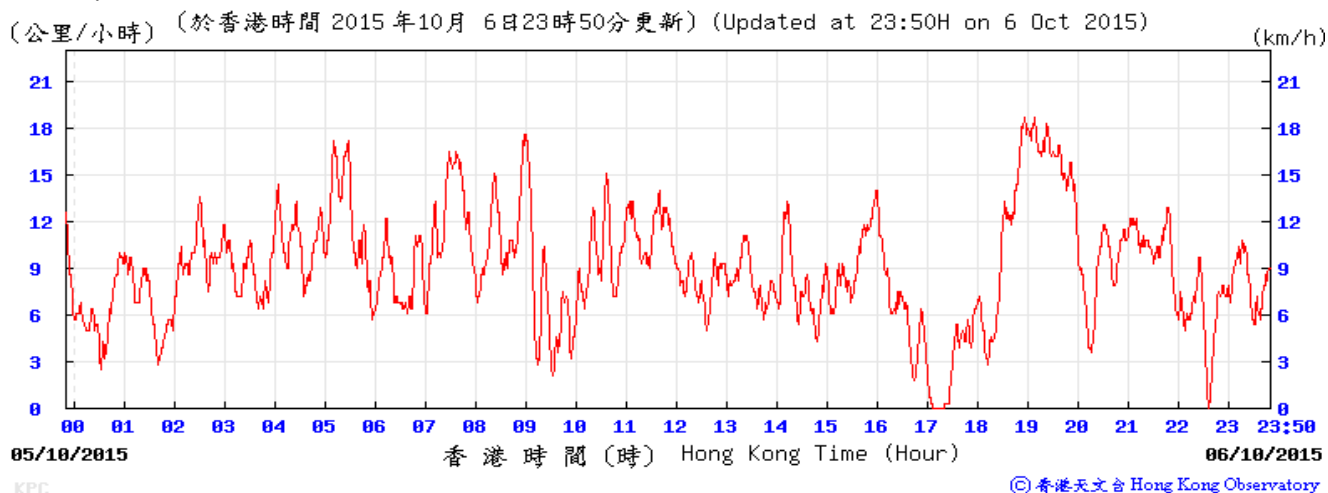
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**06 October 2015**

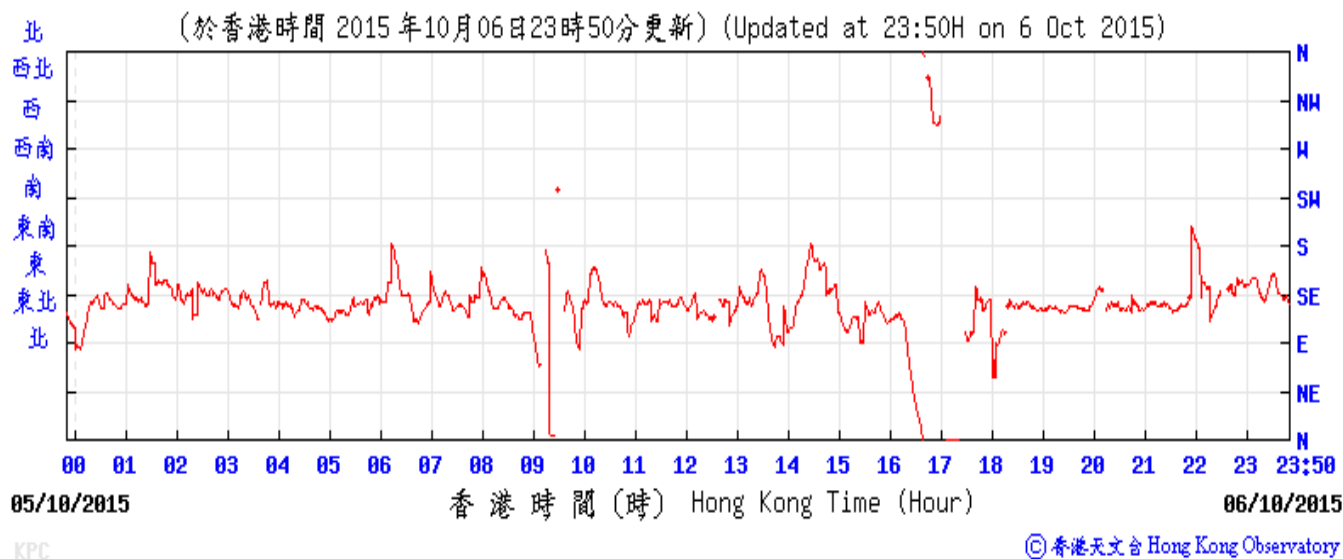
Temperature/Humidity:



Wind Speed:

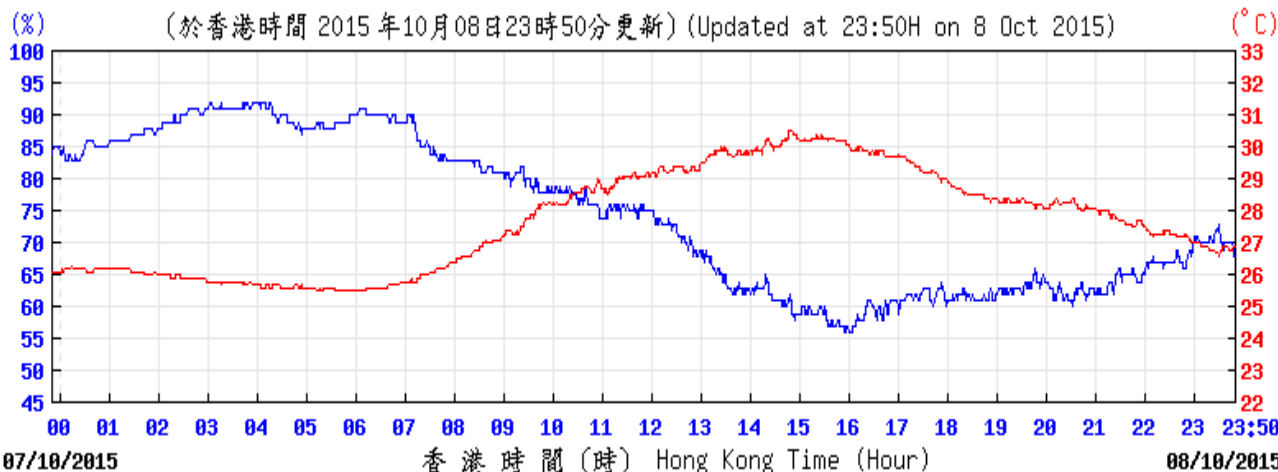


Wind Direction:



**08 October 2015**

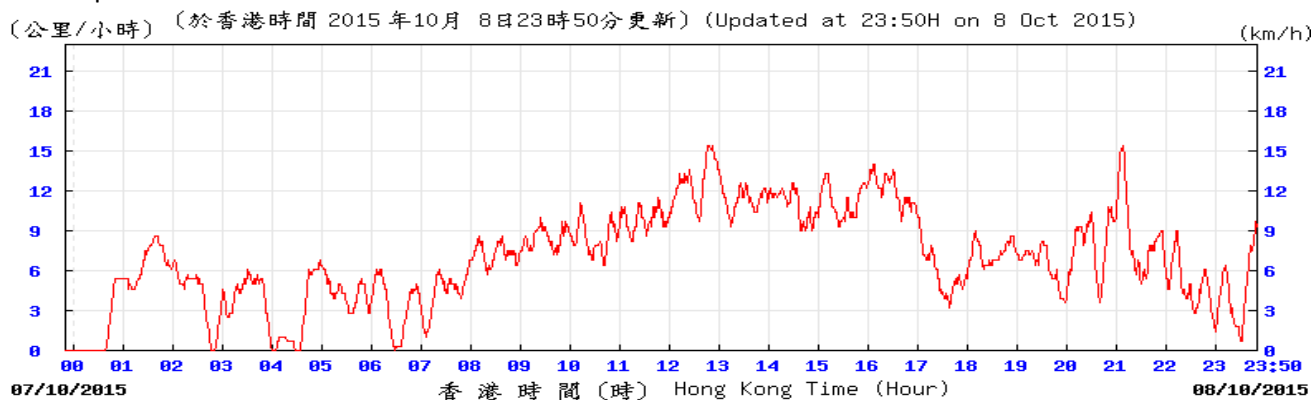
Temperature/Humidity:



KPC

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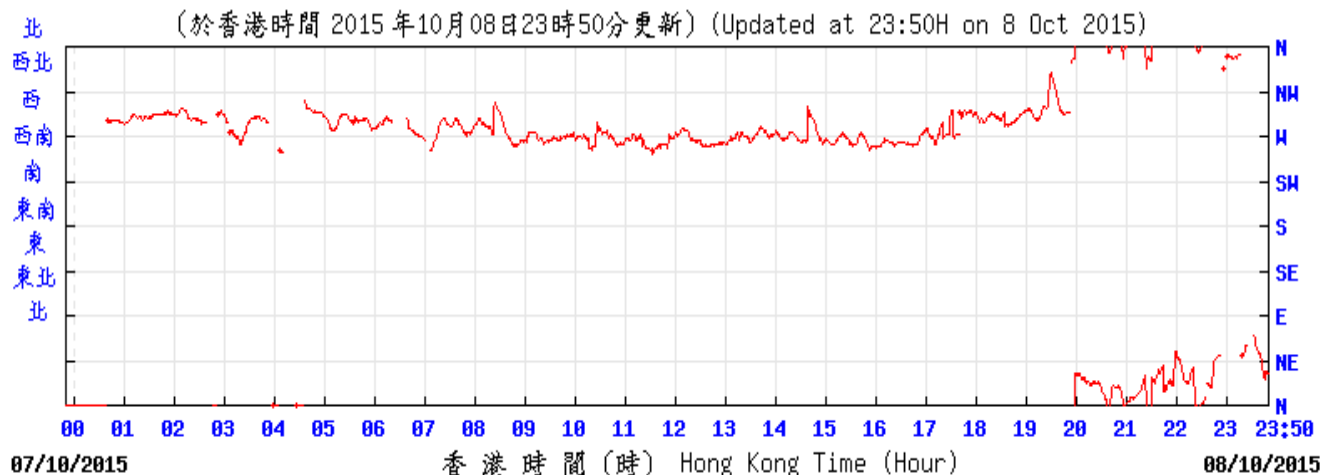
Wind Speed:



KPC

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Wind Direction:

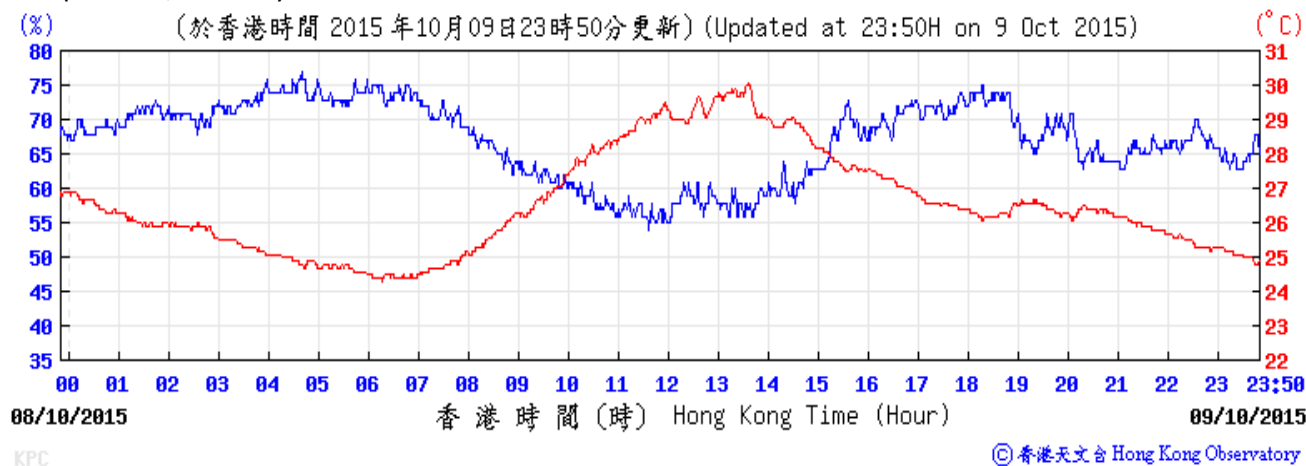


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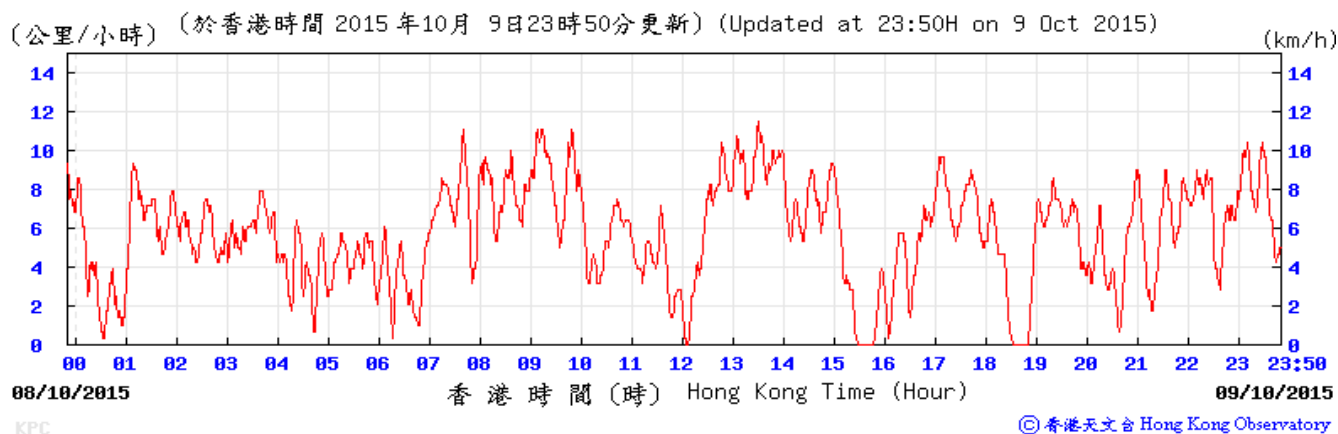
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**09 October 2015**

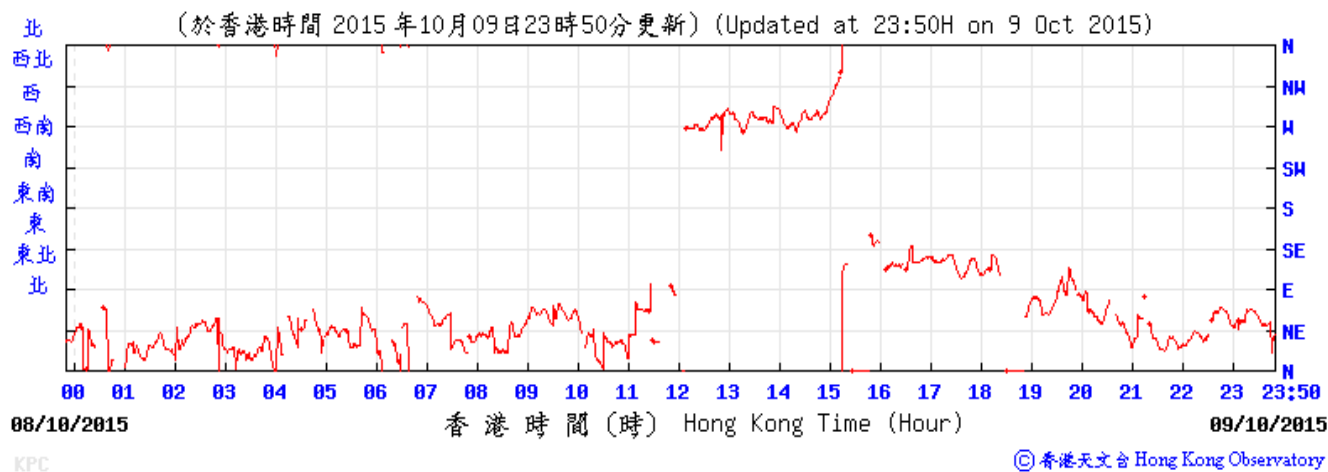
Temperature/Humidity:



Wind Speed:



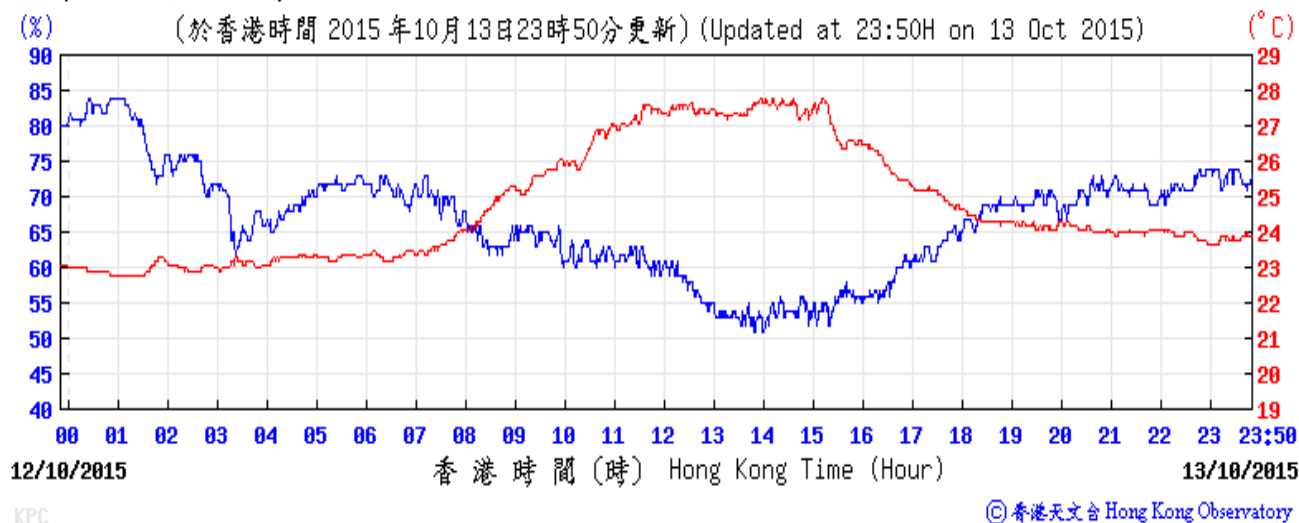
Wind Direction:



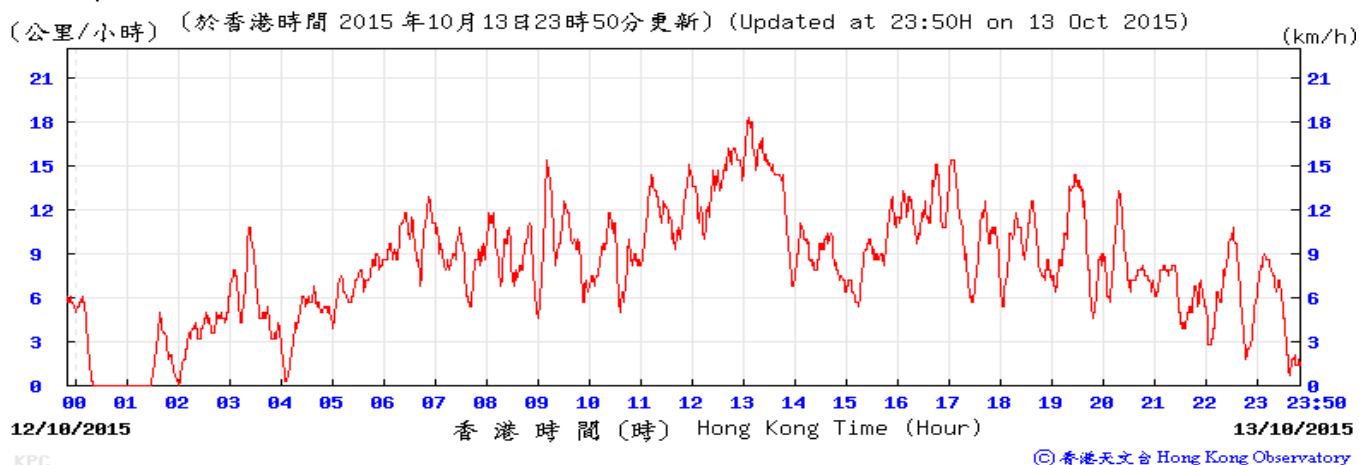


**13 October 2015**

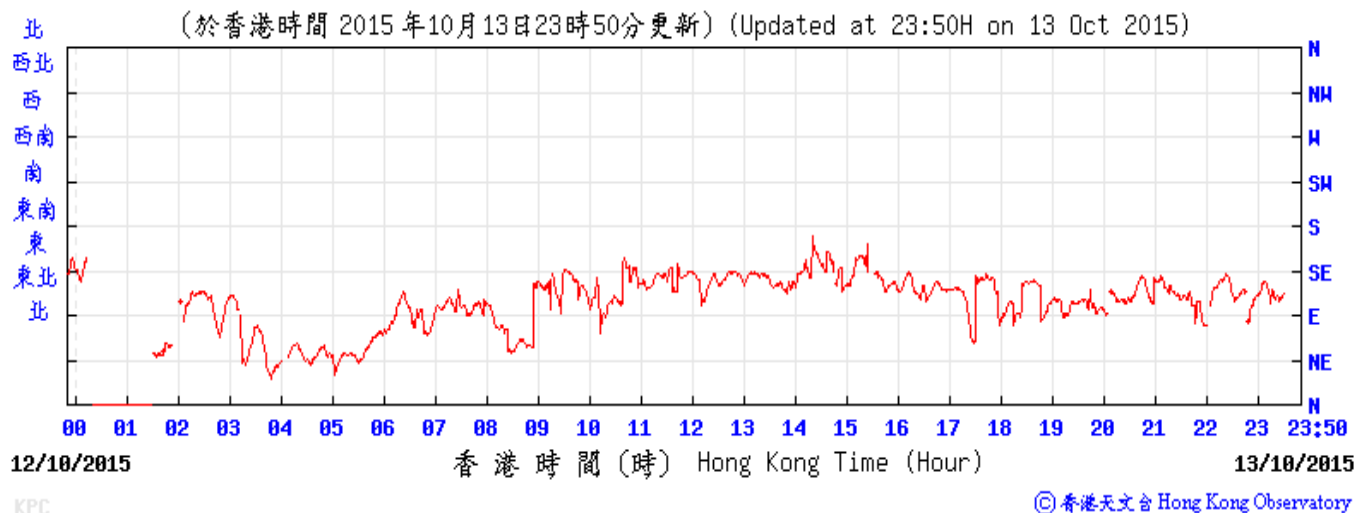
Temperature/Humidity:



Wind Speed:

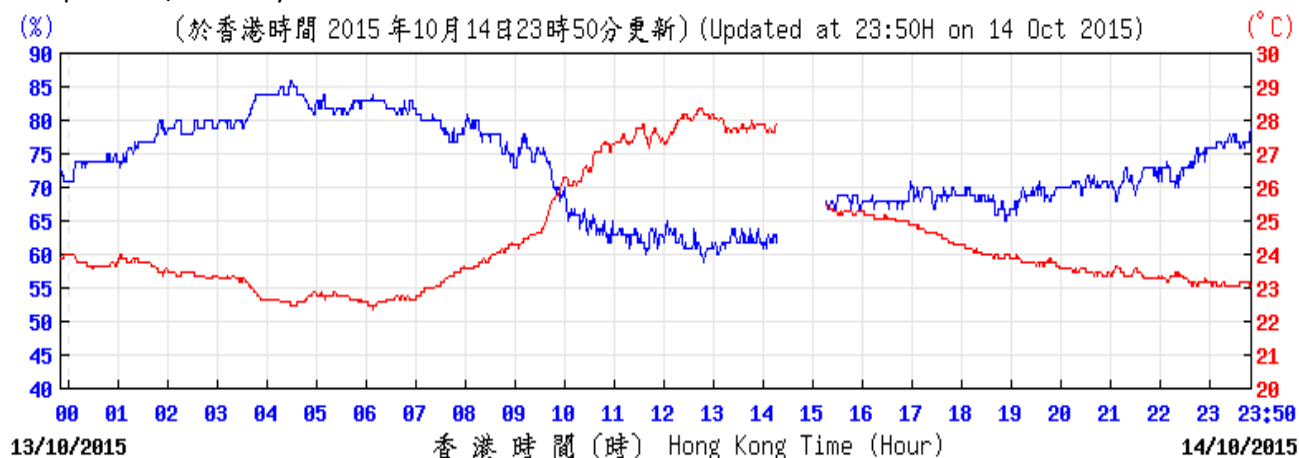


Wind Direction:



**14 October 2015**

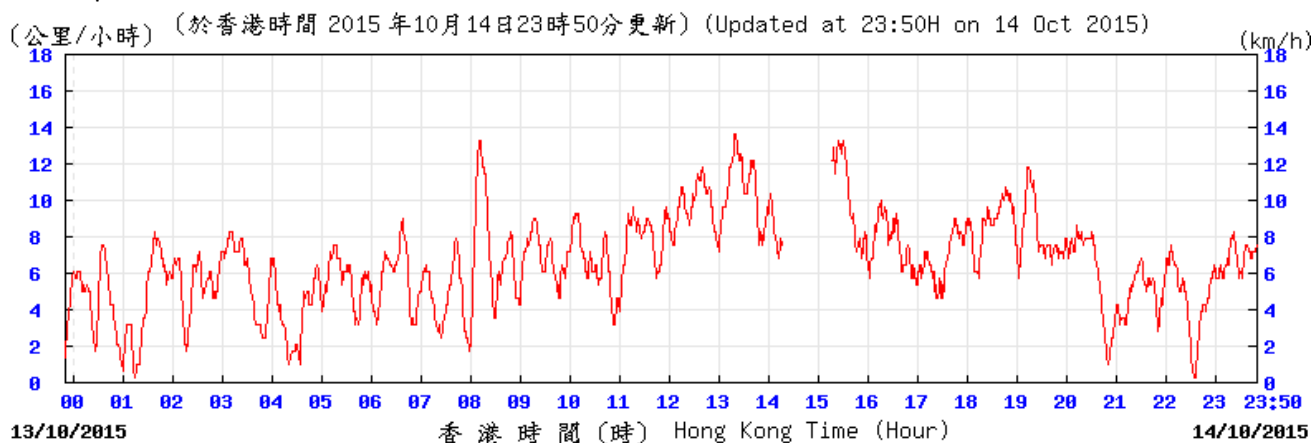
Temperature/Humidity:



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KPC

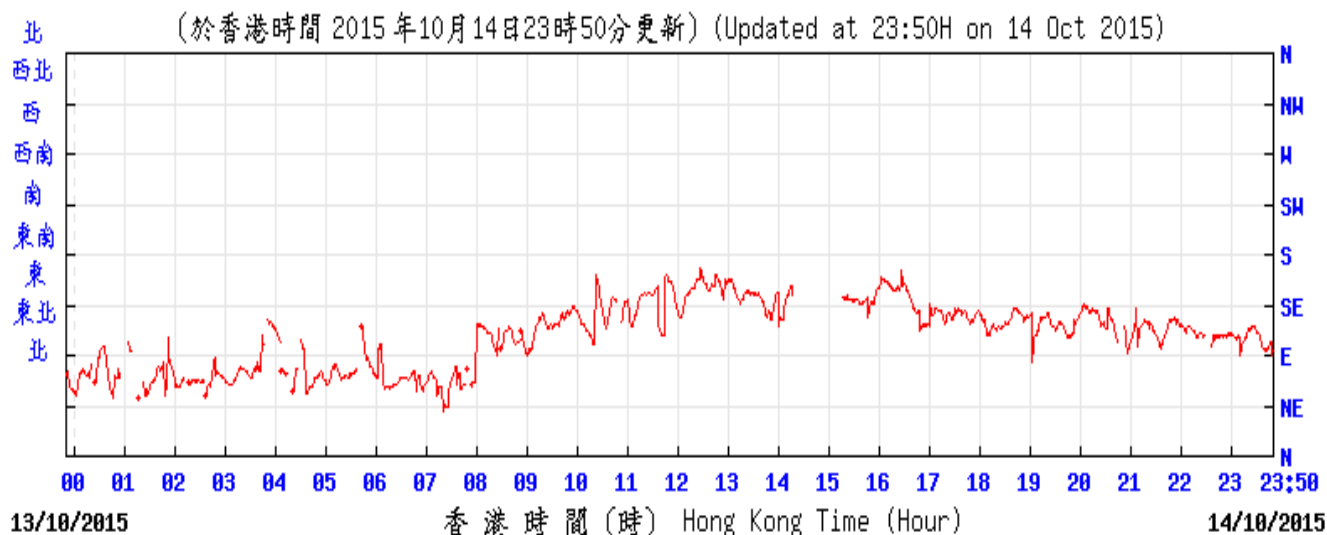
Wind Speed:



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Wind Direction:

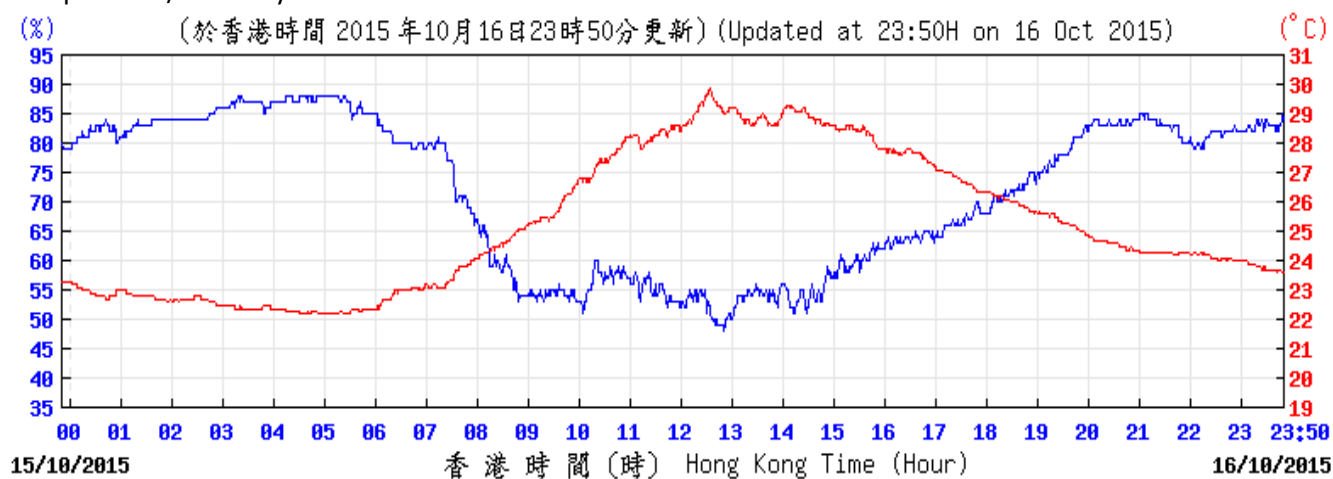


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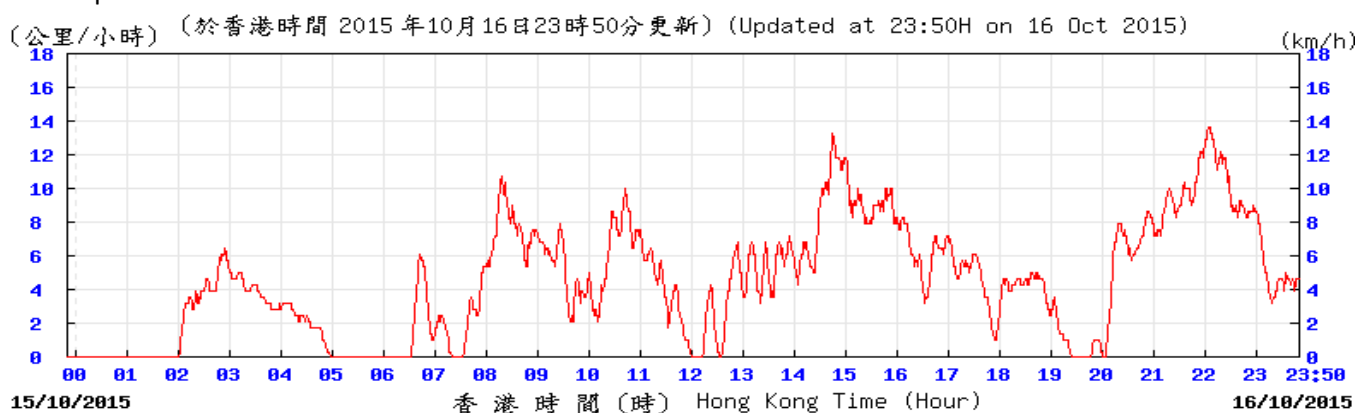
**16 October 2015**

Temperature/Humidity:



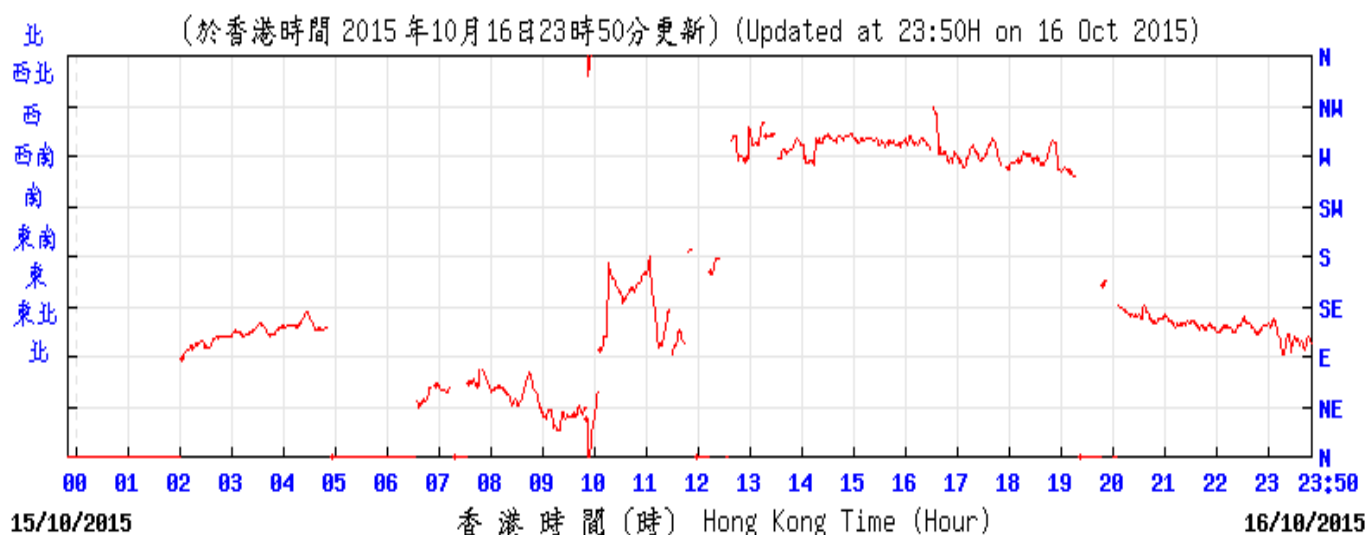
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KPC  
Wind Speed:



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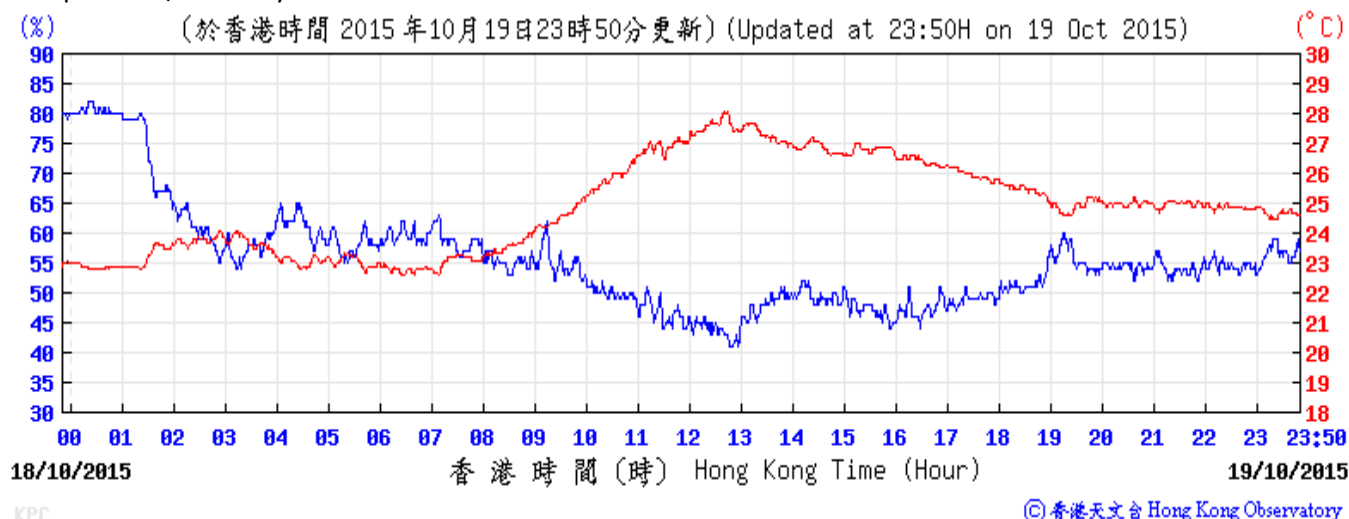
Wind Direction:



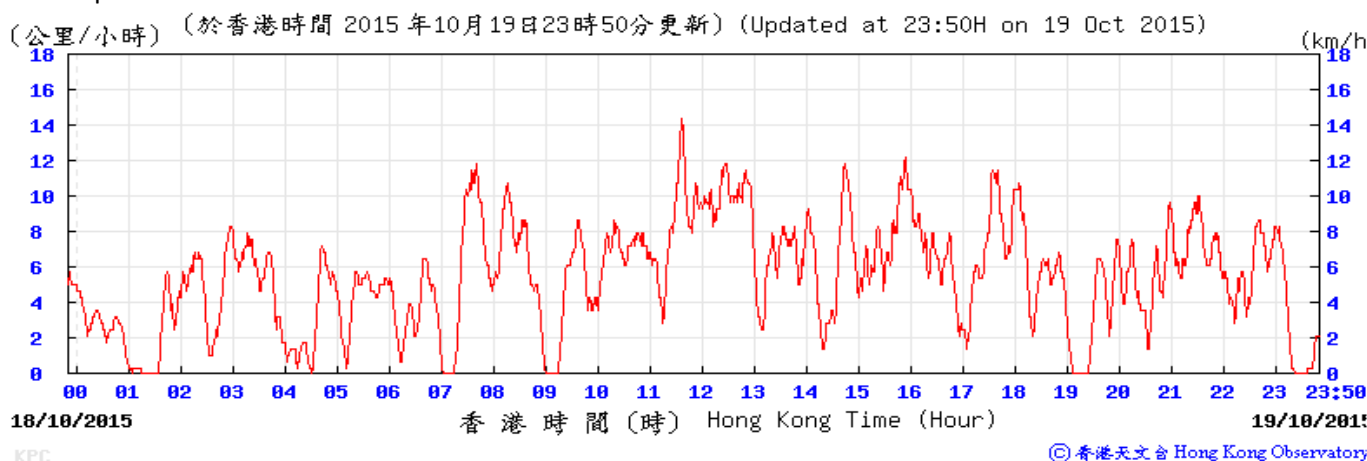
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**19 October 2015**

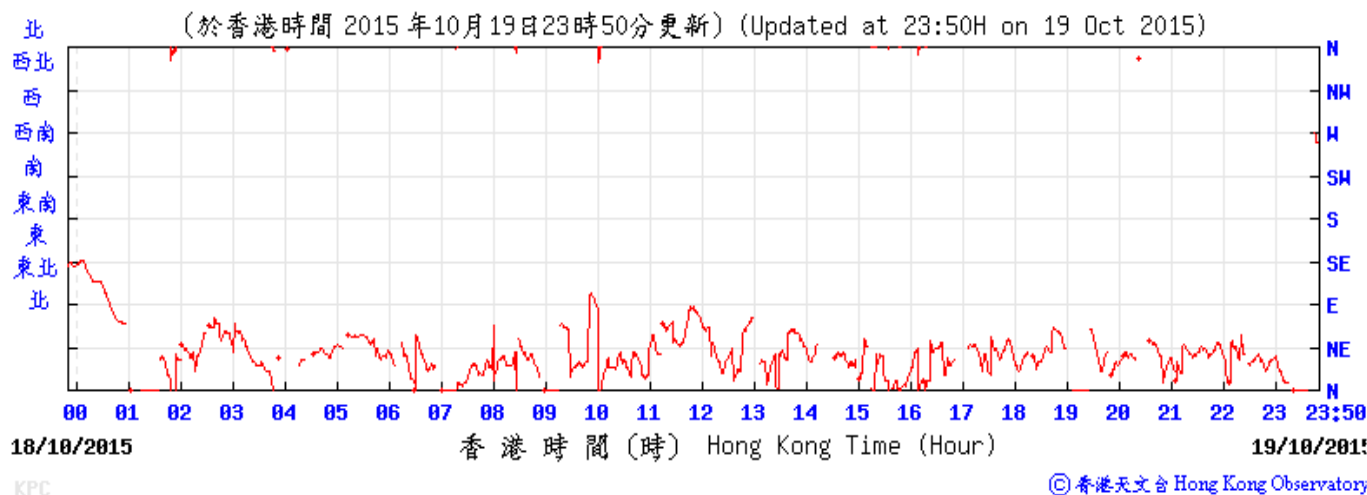
Temperature/Humidity:



Wind Speed:

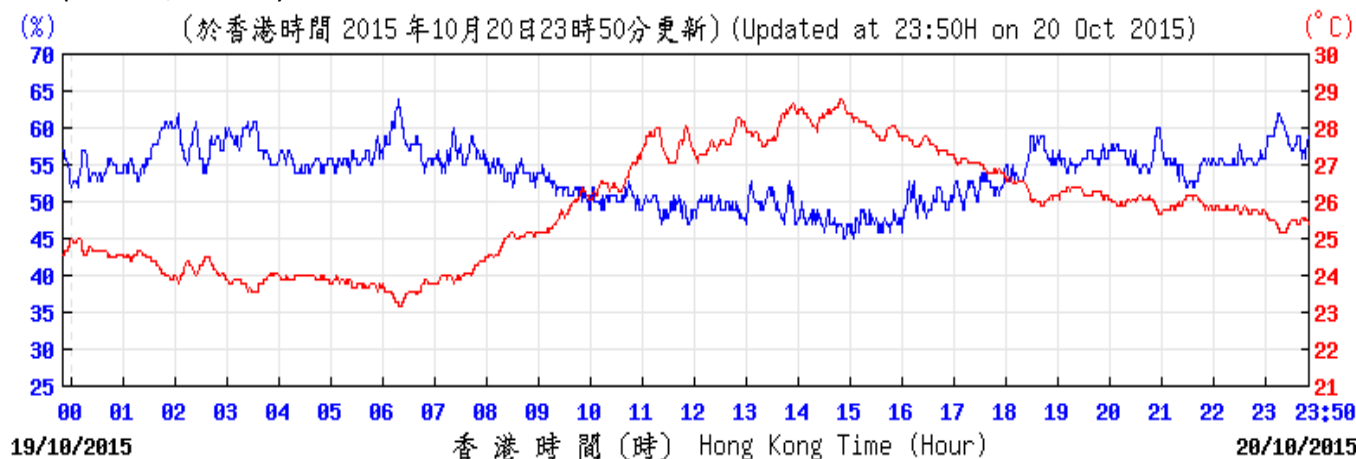


Wind Direction:



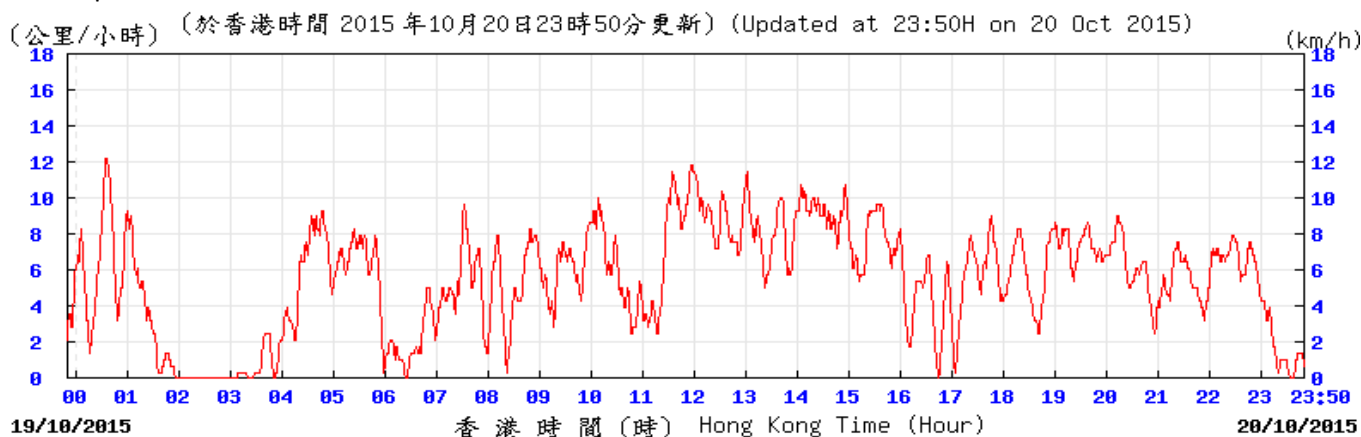
**20 October 2015**

Temperature/Humidity:



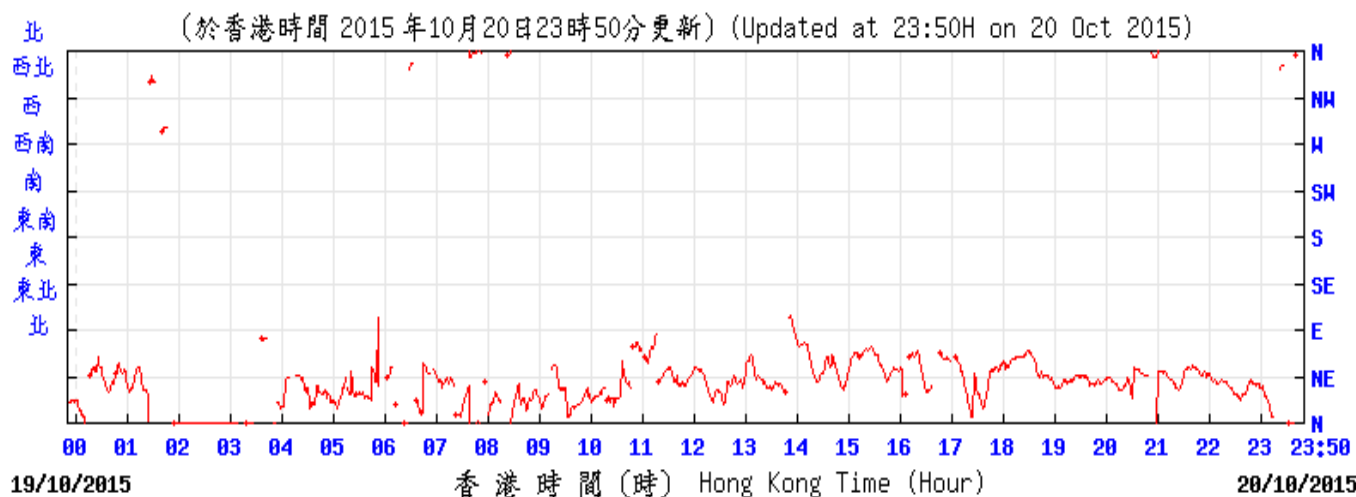
KPC © 香港天文台 Hong Kong Observatory

Wind Speed:



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Wind Direction:

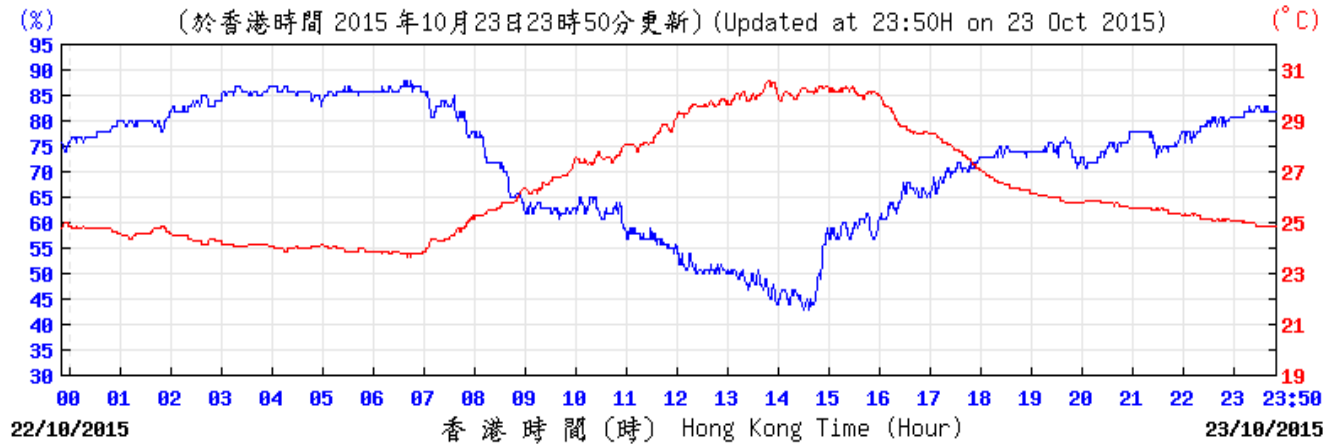


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APPENDIX G WEATHER INFORMATION EXTRACTED FROM HONG KONG OBSERVATORY KING'S PARK WEATHER STATION (Continued)

**23 October 2015**

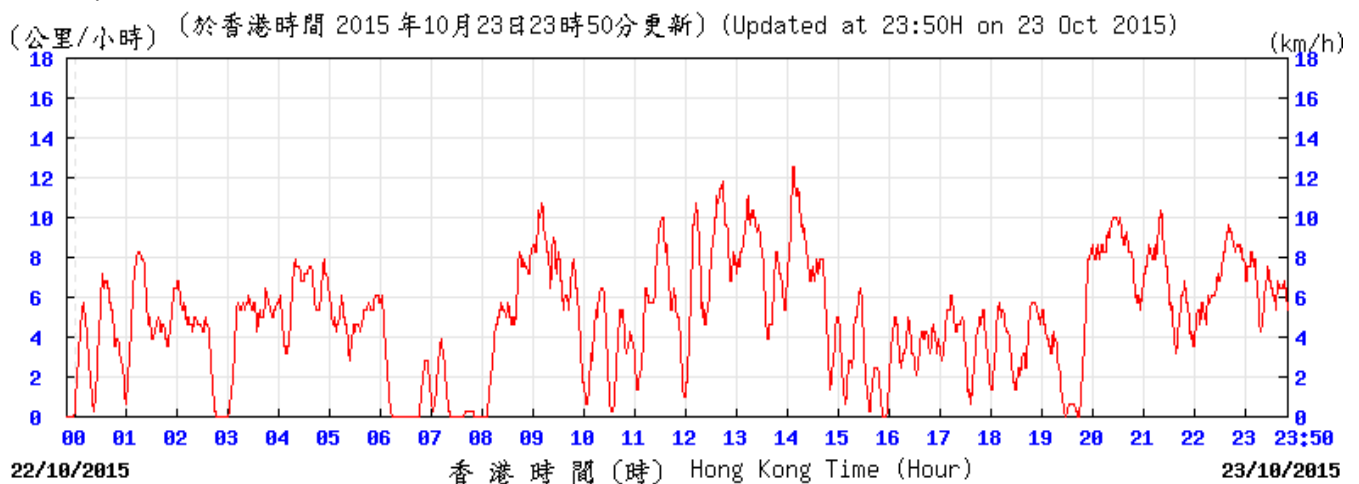
Temperature/Humidity:



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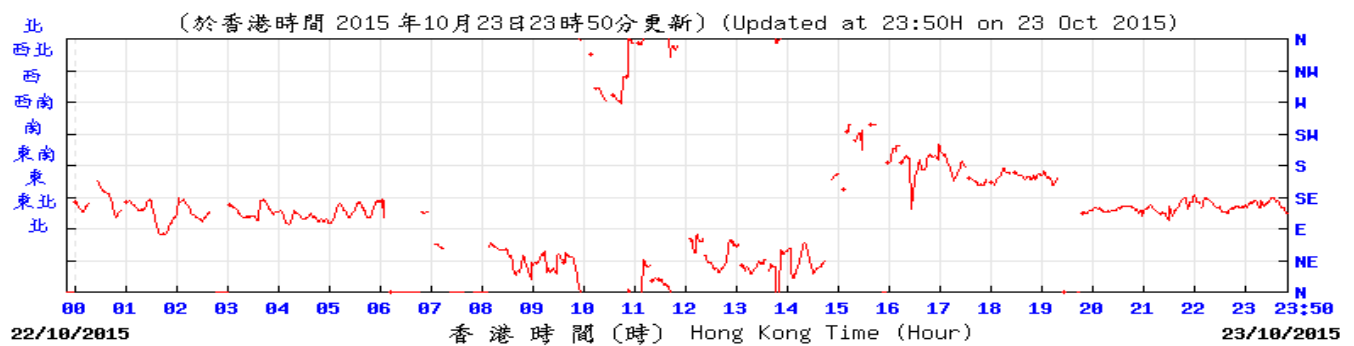
Wind Speed:



KPC

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Wind Direction:



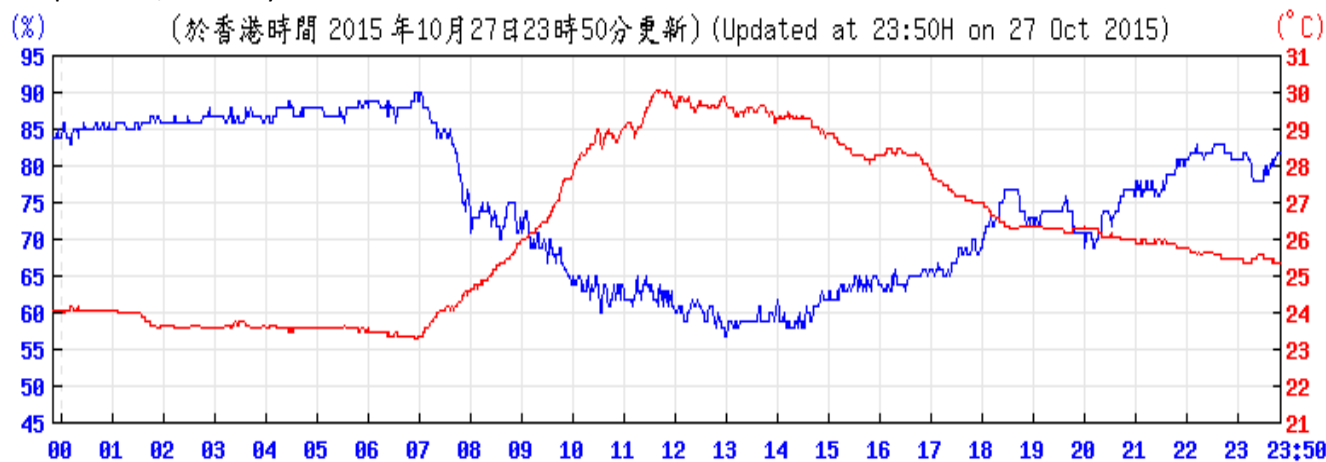
KPC

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APPENDIX G WEATHER INFORMATION EXTRACTED FROM HONG KONG OBSERVATORY KING'S PARK WEATHER STATION (Continued)

**27 October 2015**

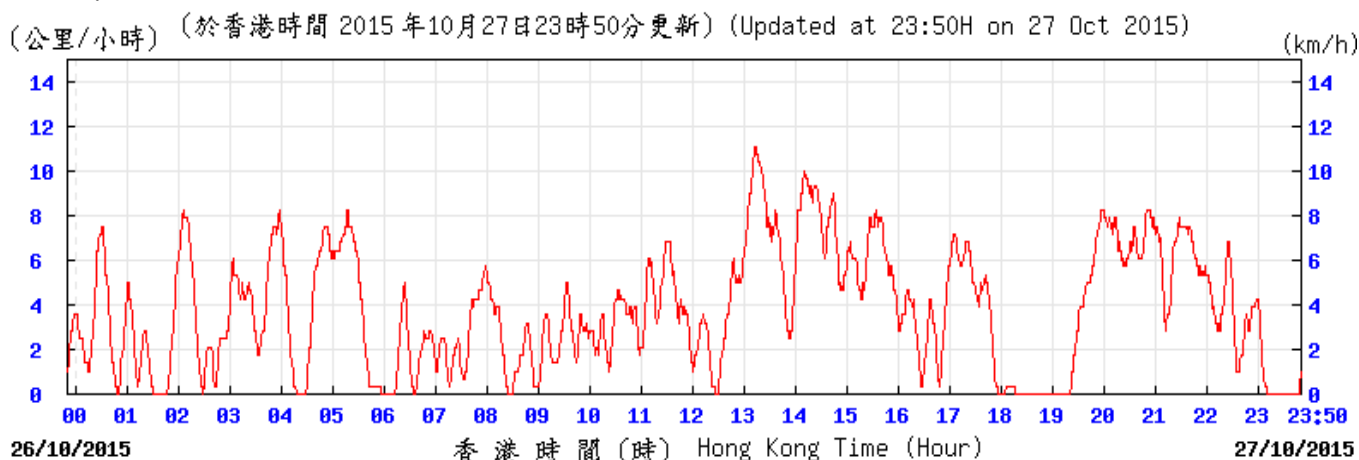
Temperature/Humidity:



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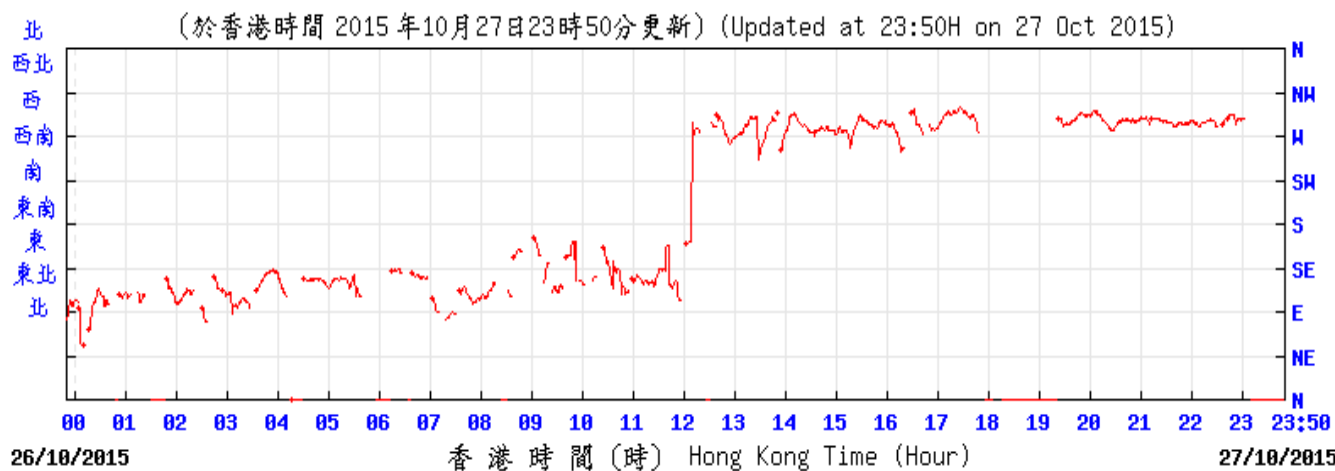
Wind Speed:



KPC

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Wind Direction:



KPC

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APPENDIX G (Continued)

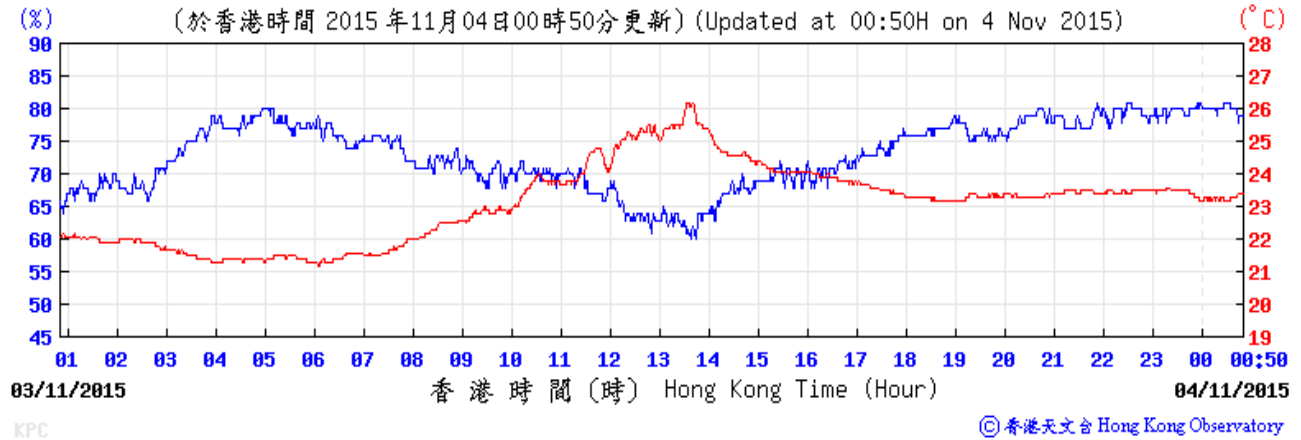
**Daily Total Rainfall at King's Park HKO Weather Monitoring Station - October 2015**

Day	Total Rainfall, mm	24-hr TSP	Noise	Remarks
1	0.3			
2	7			
3	46.4	✓		Result invalid due to insufficient sampling time.
4	38.1			
5	15.6			
6	50.7			
7	5.8			
8	0	✓		Result invalid due to insufficient sampling time.
9	Trace		✓	No rainfall recorded on site during Noise Monitoring
10	1			
11	2			
12	Trace			
13	Trace		✓	No rainfall recorded on site during Noise Monitoring
14	0			
15	0			No rainfall recorded on site during Noise Monitoring
16	0	✓		
17	0			
18	0			
19	0			
20	0		✓	No rainfall recorded on site during Noise Monitoring
21	Trace			
22	0			
23	0	✓		No rainfall recorded on site during Noise Monitoring
24	Trace			
25	0.2			
26	0.7			
27	0	✓	✓	No rainfall recorded on site during Noise Monitoring
28	Trace			
29	Trace			
30	0			
31	0.5			
Mean/Total	168.3			

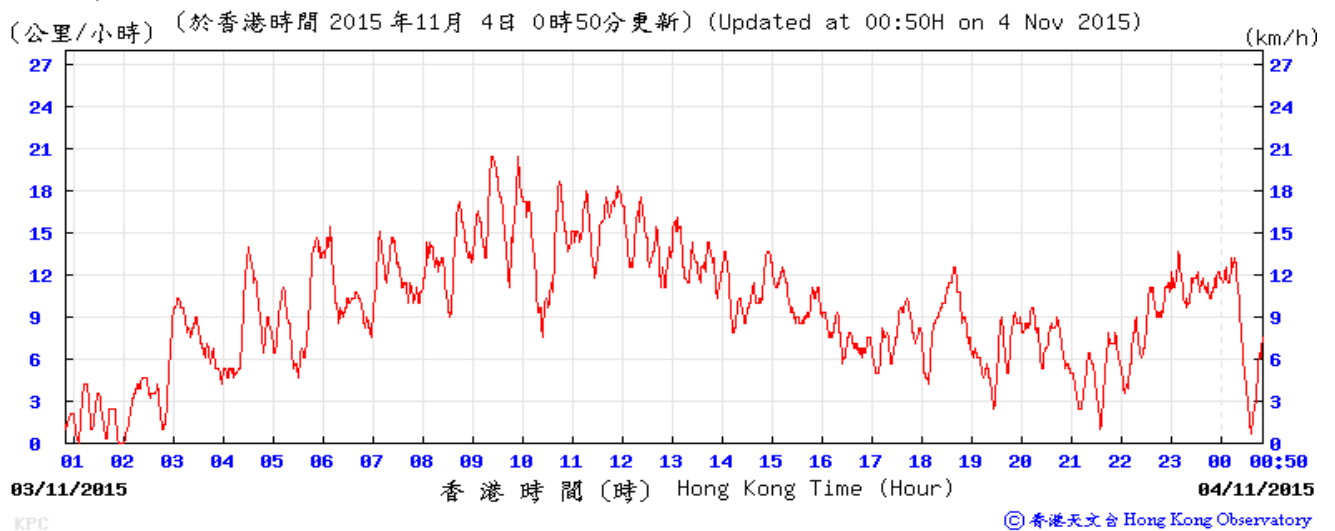
# APPENDIX G WEATHER INFORMATION EXTRACTED FROM HONG KONG OBSERVATORY KING'S PARK WEATHER STATION

## 03 November 2015

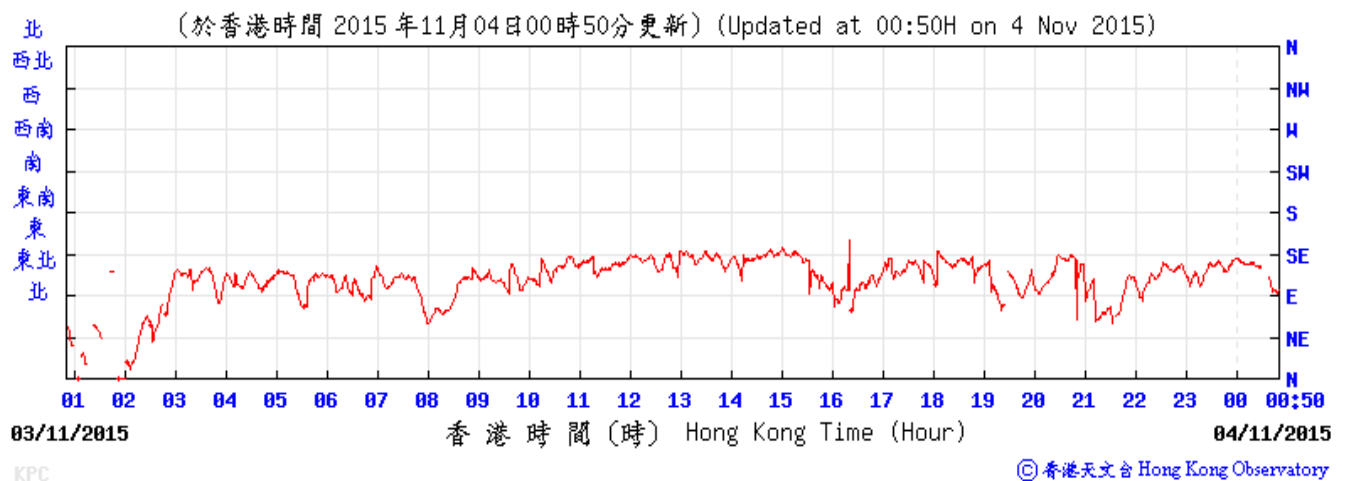
Temperature/Humidity:



Wind Speed:



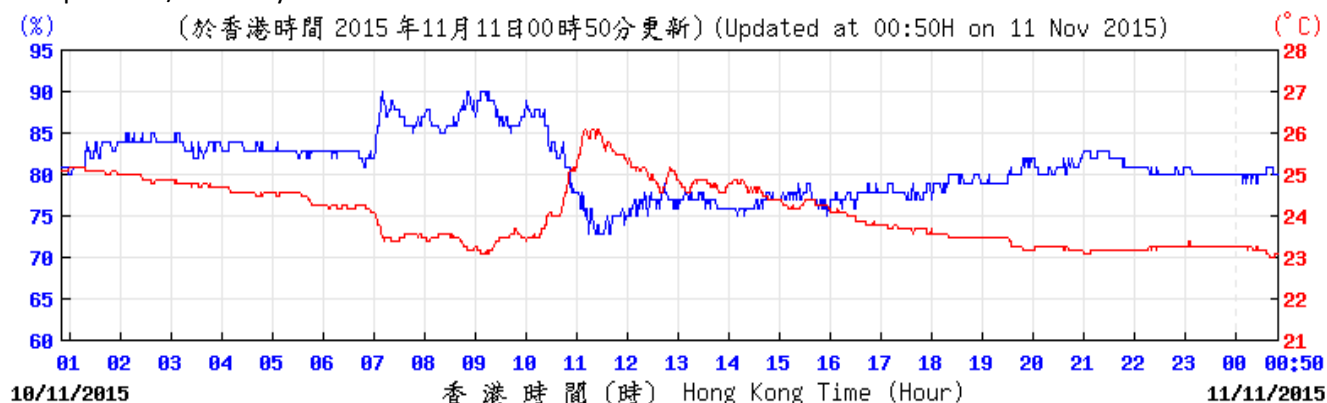
Wind Direction:



APPENDIX G WEATHER INFORMATION EXTRACTED FROM HONG KONG OBSERVATORY KING'S PARK WEATHER STATION (Continued)

**10 November 2015**

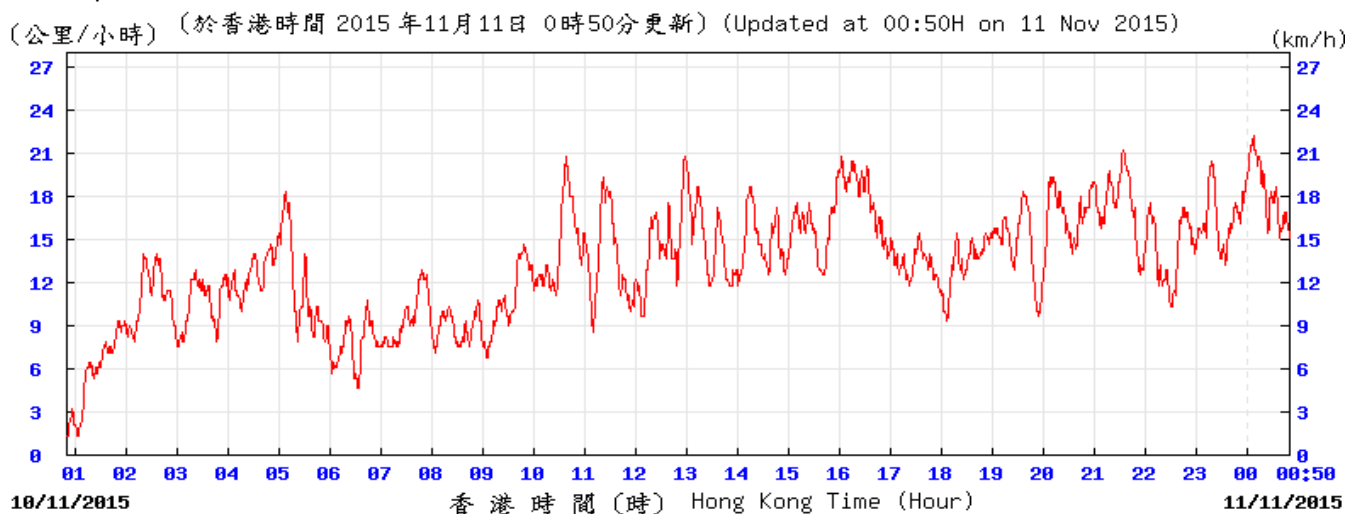
Temperature/Humidity:



KPC

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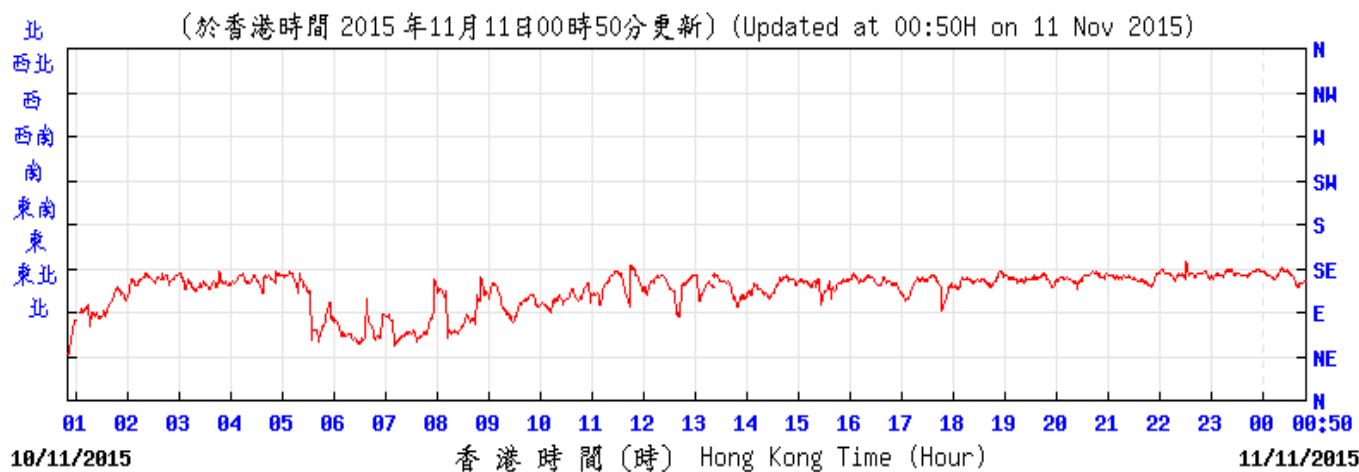
Wind Speed:



KPC

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Wind Direction:

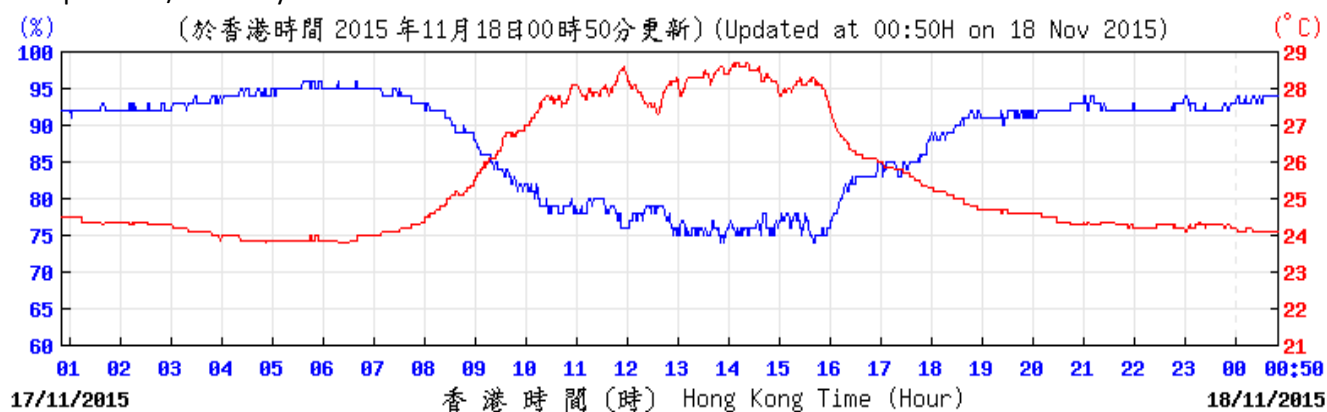


KPC

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**17 November 2015**

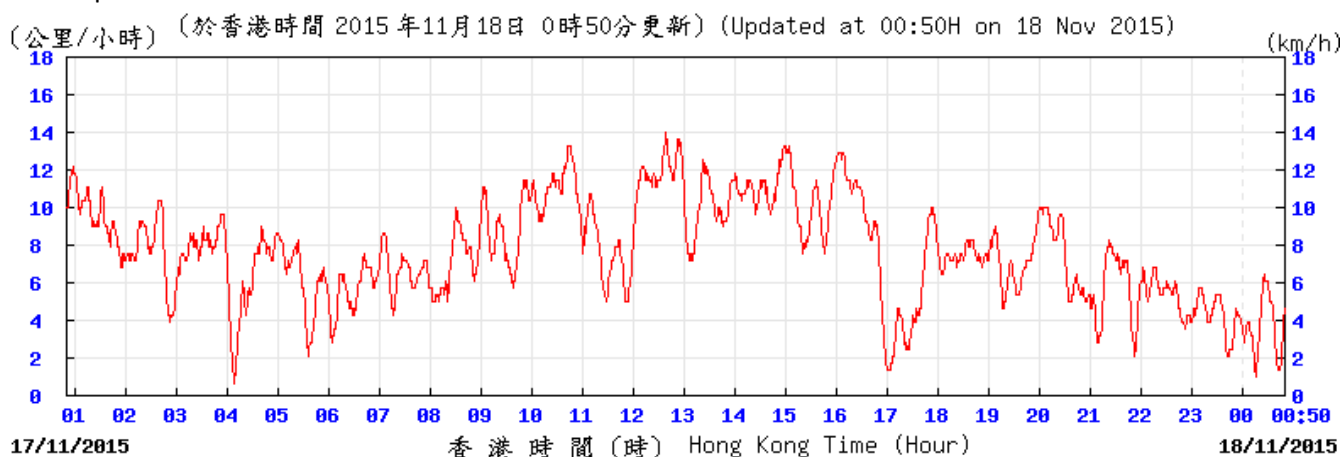
Temperature/Humidity:



KPC

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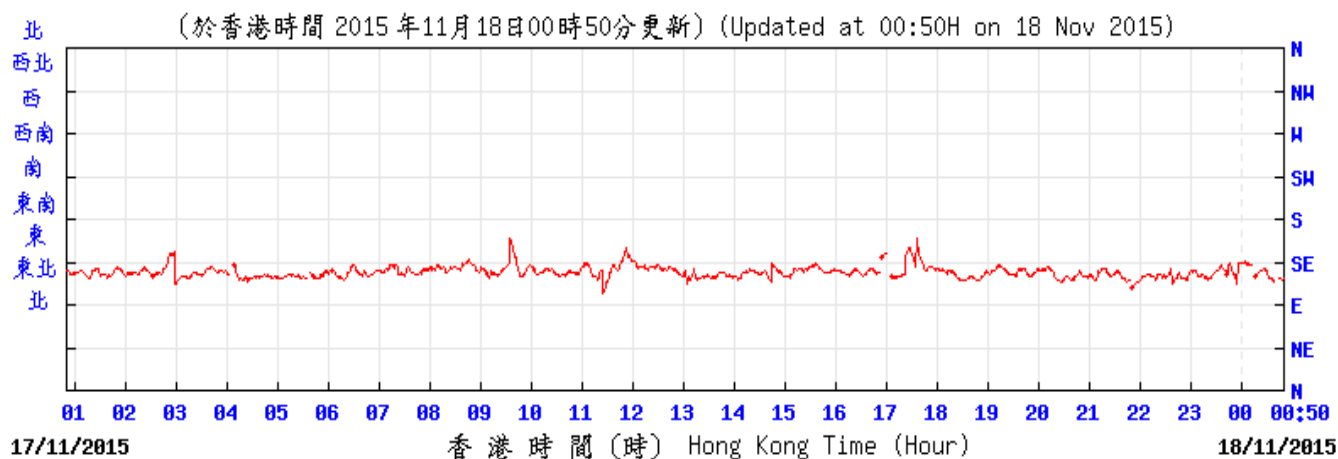
Wind Speed:



KPC

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Wind Direction:

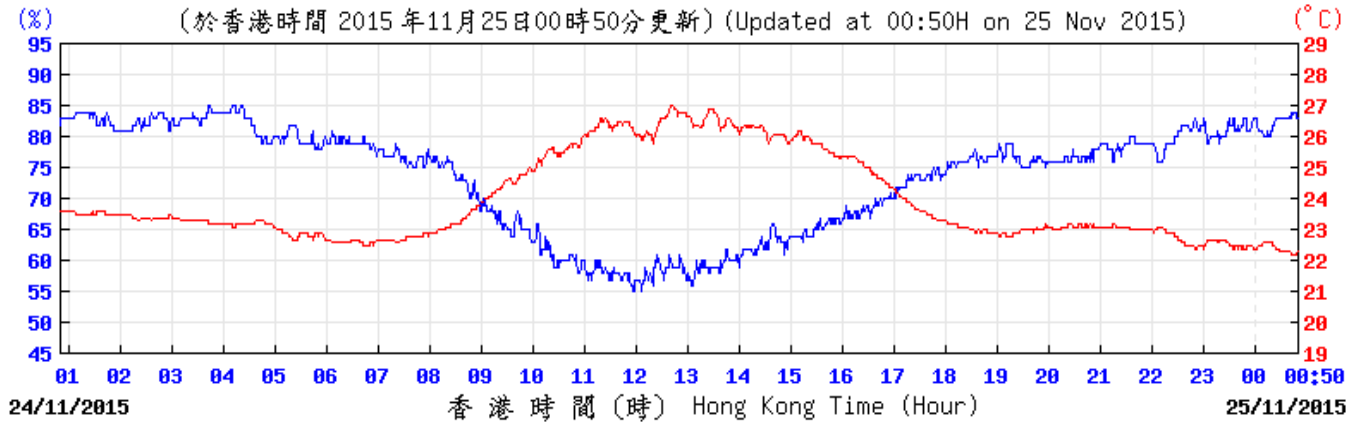


KPC

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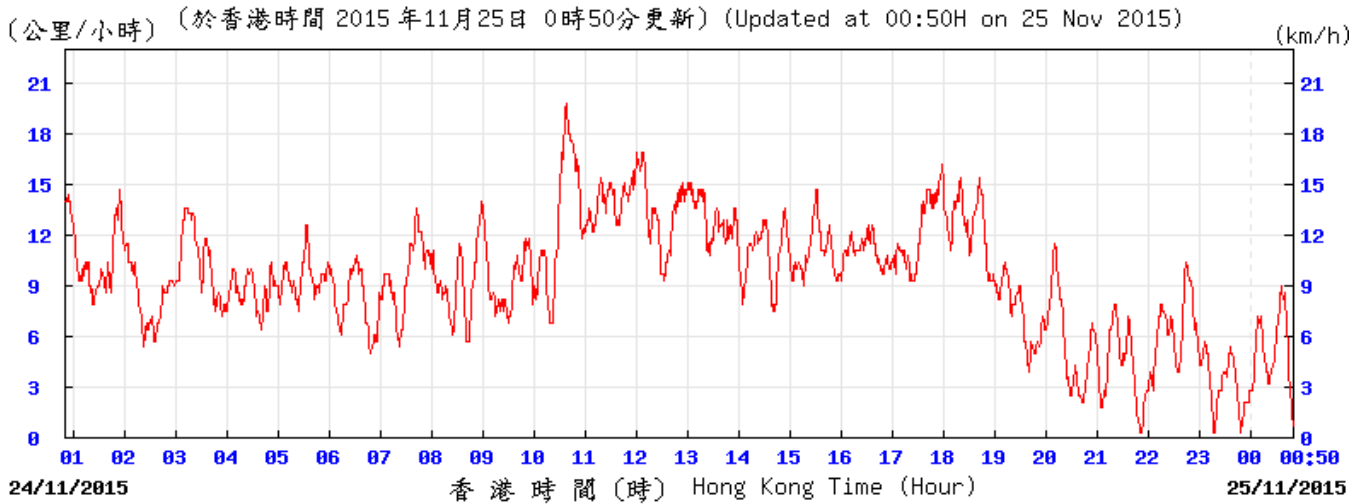
**24 November 2015**

Temperature/Humidity:



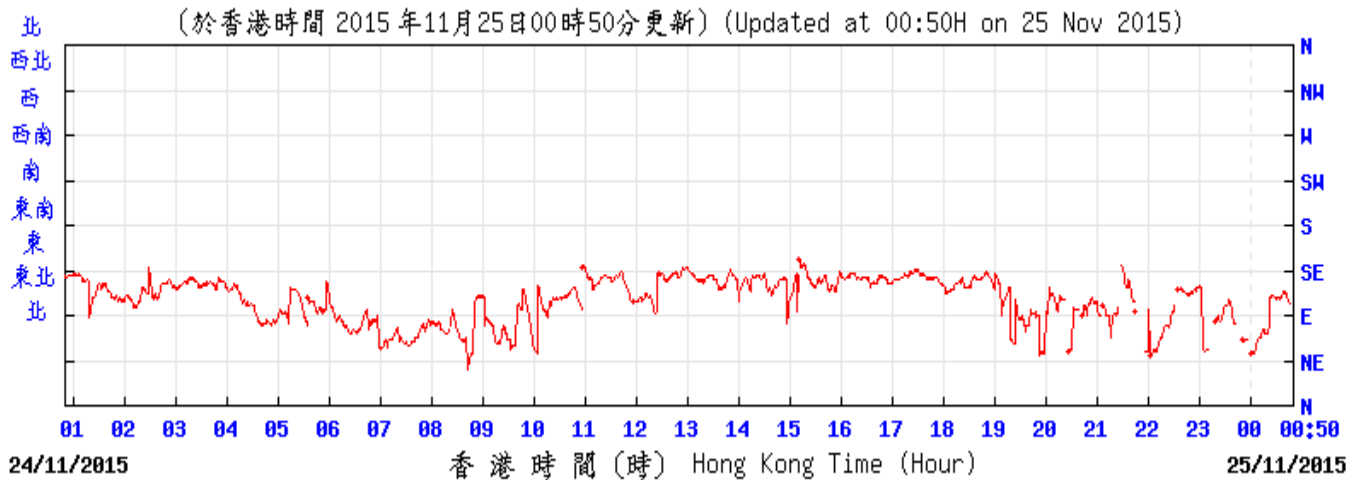
KPC © 香港天文台 Hong Kong Observatory

Wind Speed:



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Wind Direction:



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## APPENDIX G (Continued)

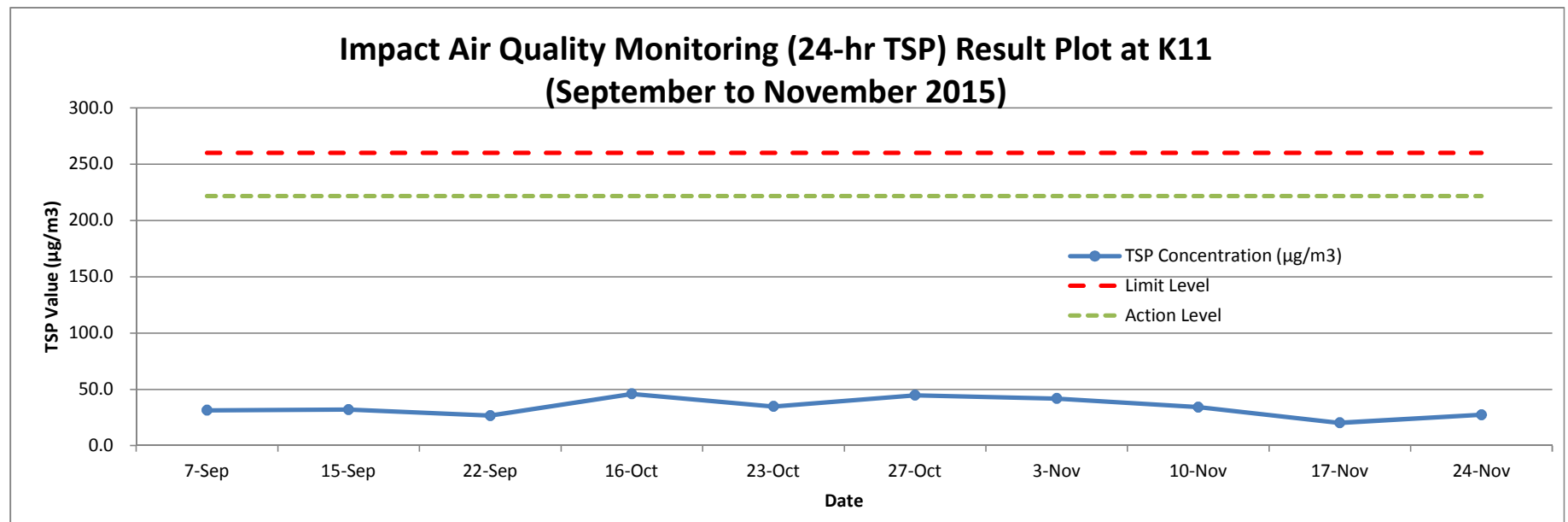
## Daily Total Rainfall at King's Park HKO Weather Monitoring Station - November 2015

Day	Total Rainfall, mm	24-hr TSP	Noise	Remarks
1	0			
2	Trace			
3	Trace	✓	✓	No rainfall perceived on site during Noise Monitoring
4	Trace			
5	Trace			
6	Trace			
7	0.3			
8	Trace			
9	Trace			
10	0.3	✓	✓	No rainfall perceived on site during Noise Monitoring
11	1.1			
12	0.3			
13	10.4			
14	Trace			
15	6.5			
16	3.9			
17	0	✓	✓	No rainfall perceived on site during Noise Monitoring
18	0			
19	Trace			
20	Trace			
21	0			
22	Trace			
23	0			
24	Trace	✓	✓	No rainfall perceived on site during Noise Monitoring
25	0			
26	0			
27	0			
28	0			
29	0			
30	Trace			
Mean/Total	22.8			

## APPENDIX H ENVIRONMENTAL MONITORING RESULTS AND PLOTS

### (a) Impact Air Quality Monitoring (24-hr TSP) Results at K11 (September to November 2015)

Location	Monitoring Date	Start Time	Weather Conditions	Temperature	Elapse Time			Flow Rate (CFM)			TSP Concentration ( $\mu\text{g}/\text{m}^3$ )	Action/Limit Levels
					Initial	Final	Sampling Hours	Initial	Final	Average Flow Rate		
K11	7-Sep-15	0:00	Overcast	26.5	862102	864502	24	37	38	38	31.3	221.6/260
	15-Sep-15	0:00	Sunny	26.6	866002	868402	24	40	40	40	31.8	221.6/260
	22-Sep-15	0:00	Sunny	27.2	868402	870802	24	40	41	41	26.5	221.6/260
	16-Oct-15	0:00	Sunny	23.7	875316	877716	24	42	42	42	45.9	221.6/260
	23-Oct-15	17:12	Sunny	26.5	877723	880000	24	44	45	44.5	34.6	221.6/260
	27-Oct-15	10:30	Sunny	28.9	880000	882400	24	42	43	42.5	44.6	221.6/260
	3-Nov-15	10:43	Sunny	26.8	882401	884801	24	43	44	44	41.6	221.6/260
	10-Nov-15	10:28	Overcast	24.0	884801	887201	24	41	45	43	34.0	221.6/260
	17-Nov-15	10:35	Sunny	27.6	887201	889601	24	41	44	43	20.2	221.6/260
	24-Nov-15	10:31	Sunny	25.5	889601	892001	24	43	45	44	27.2	221.6/260





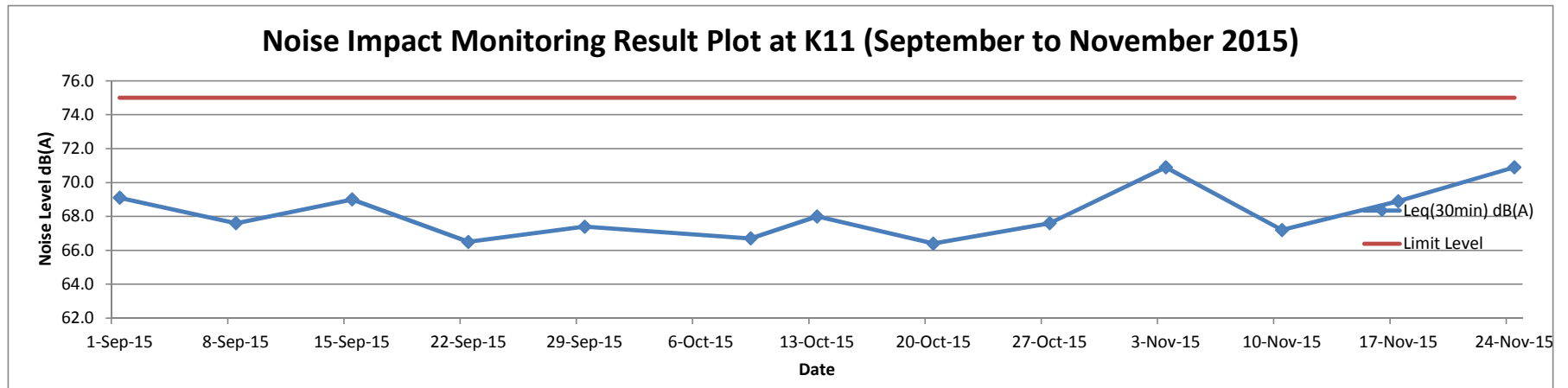
**APPENDIX H ENVIRONMENTAL MONITORING RESULTS AND PLOTS**

**(b) Noise Impact Monitoring Results at K11 (September to November 2015)**

Monitoring Locations	Date	Weather Conditions	Wind Speed (m/s)	Start Time	End Time	Background Level dB(A)	Limit Level dB(A)	Leq(30min) dB(A)	L10(30min) dB(A)	L90(30min) dB(A)
K11 Art Mall	1-Sep-15	Cloudy	2.3	10:07	10:37	65.3	75	69.1	71.0	66.5
	8-Sep-15	Sunny	1.4	10:11	10:41	65.3	75	67.6	68.5	65.5
	15-Sep-15	Sunny	2.8	10:01	10:31	65.3	75	69.0	70.5	67.0
	22-Sep-15	Sunny	1.9	16:57	17:27	65.3	75	66.5	67.5	65.0
	29-Sep-15	Sunny	0.6	10:14	10:44	65.3	75	67.4	68.5	66.0
	9-Oct-15	Sunny	0.5	10:12	10:42	65.3	75	66.7	68.0	65.0
	13-Oct-15	Sunny	0.9	9:52	10:22	65.3	75	68.0	69.0	66.5
	20-Oct-15	Sunny	0.1	9:50	10:20	65.3	75	66.4	67.5	64.5
	27-Oct-15	Sunny	0.4	10:07	10:37	65.3	75	67.6	68.5	66.0
	3-Nov-15	Sunny	2.9	10:51	11:21	65.3	75	70.9	68.5	65.5
	10-Nov-15	Overcast	3.7	10:19	10:49	65.3	75	67.2	68.5	65.5
	17-Nov-15	Sunny	0.2	10:30	11:00	65.3	75	68.9	70.0	67.0
24-Nov-15	Sunny	2.4	11:28	11:58	65.3	75	70.9	75.0	65.0	

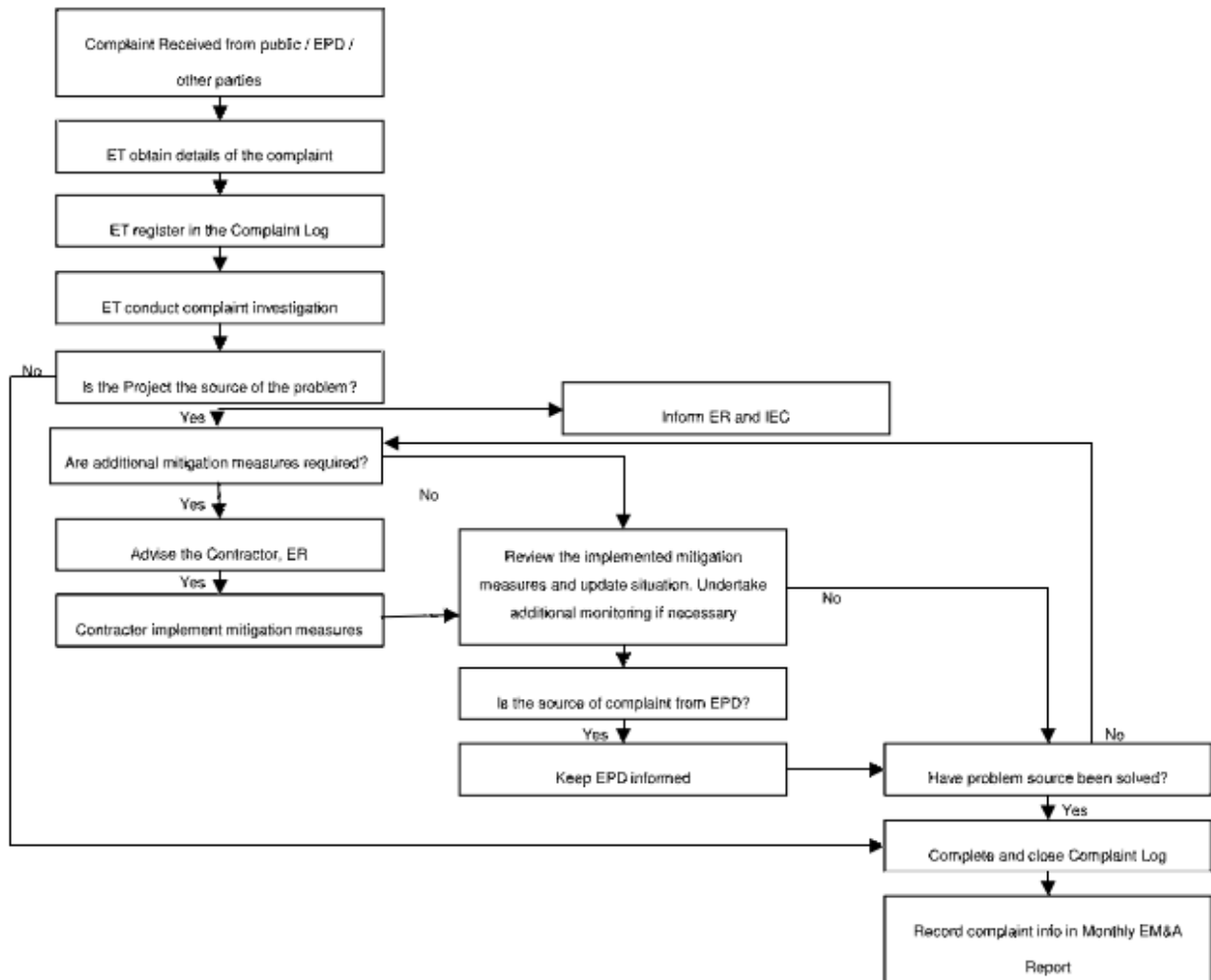
Note:

Red Bold indicates an exceedance of Limit Level



# APPENDIX I

## Complaint Response Procedure



## APPENDIX J

Monthly Summary Waste Flow Table for 2015 (year)

**Contract No:** C3840-13C Tsim Sha Tsui Station Carnarvon Road Subway  
**Date Reported:** 2-December-2015

Month	Actual Quantities of Inert C&D Materials Generated Monthly						Actual Quantities of Non-inert C&D Wastes Generated Monthly					
	Total Quantity Generated	Hard Rocks and Large Broken Concrete	Reused in the Contract	Reused in other Projects	Disposed as Public Fill	Imported Fill	Metals	Paper/ cardboard packaging	Plastics	Chemical Waste	Others, e.g. general refuse	
		(See Note 3)							(see Note 2)			
(in '000m <sup>3</sup> )	(in '000m <sup>3</sup> )	(in '000m <sup>3</sup> )	(in '000m <sup>3</sup> )	(in '000m <sup>3</sup> )	(in '000m <sup>3</sup> )	(in '000kg)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000m <sup>3</sup> /tonne)		
Carried from 2014	0.9342	-	-	-	0.9342	-	-	-	-	-	0.0035	
Jan	0.0682	-	-	-	0.0682	-	-	-	-	-	-	
Feb	0.0418	-	-	-	0.0418	-	-	-	-	-	-	
Mar	0.2563	-	-	-	0.2563	-	-	-	-	-	0.0020	
Apr	0.2182	-	-	-	0.2182	-	-	-	-	-	-	
May	0.1011	-	-	-	0.1011	-	-	-	-	-	-	
June	0.2604	-	-	-	0.2604	-	-	-	-	-	-	
Sub-total	0.9460	-	-	-	0.9460	-	-	-	-	-	0.0020	
July	0.1806	-	-	-	0.1806	-	-	-	-	-	-	
Aug	0.1006	-	-	-	0.1006	-	-	-	-	-	-	
Sept	0.0937	-	-	-	0.0937	-	-	-	-	-	0.0011	
Oct	0.0591	-	-	-	0.0591	-	-	-	-	-	0.0061	
Nov	0.0958	-	-	-	0.0958	-	-	-	-	-	0.0060	
Dec	-	-	-	-	-	-	-	-	-	-	-	
Total	1.4758	-	-	-	1.4758	-	-	-	-	-	0.0152	
Acc. Total	2.4100	(accumulated quantity of the project = carried amount + this year amount)										0.0187

Notes:

- (1) The performance targets are given below:
  - All excavated materials to be sorted for recovering the inert portion of C&D materials, e.g. hard rocks, soil and broken concrete, for reuse on the Site or disposal to designated outlets;
  - All metallic waste to be recovered for collection by recycling contractors;
  - All cardboard and paper packaging (for plant, equipment and materials) to be recovered, properly stockpiled in dry and covered condition to prevent cross contamination;
  - All chemical wastes to be collected and properly disposed of by specialist contractors; and
  - All demolition debris to be stored to recover broken concrete, reinforcement bars, mechanical and electrical fittings, hardware as well as other fitting / materials that have established recycling outlets.
- (2) Plastics refer to plastic bottles/containers, plastic sheets/foam from packaging material.
- (3) Broken concrete for recycling into aggregates.
- (4) The waste flow table shall also include C&D materials that are specified in the Contract to be imported for use at the Site.