

Hip Hing Joint Venture

Hong Kong Convention and
Exhibition Centre Expansion
Project:

*Quarterly Environmental Monitoring
and Audit Report*

(Nov 2008 - Jan 2009)

March 2009

Environmental Resources Management

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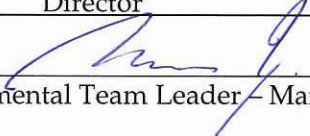
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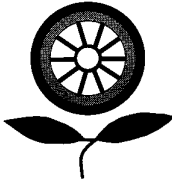
Reference 0050690

For and on behalf of Environmental Resources Management
Approved by: <u>Dr. Robin Kennish</u>
Signed: <u></u>
Position: <u>Director</u>
Certified by: <u></u> (Environmental Team Leader - Marcus Ip)
Date: <u>5 March 2009</u>

This report has been prepared by Environmental Resources Management the trading name of 'ERM Hong-Kong, Limited', with all reasonable skill, care and diligence within the terms of the Contract with the client, incorporating our General Terms and Conditions of Business and taking account of the resources devoted to it by agreement with the client.

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5 March 2009

Maunsell Consultants Asia Ltd
Grand Central Plaza, Tower 2
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Shatin, N.T., Hong Kong

Attn: Ms Vera Chan

Dear Sir/Madam,

Hong Kong Convention Center Expansion Project
Quarterly Environmental Monitoring and Audit Report for November 2008 to January 2009
(Environmental Permit No. EP-239/2006/B)

With reference to the captioned document concerning the Quarterly EM&A report for November 2008 to January 2009 received from ERM dated 3 March 2009, we are pleased to provide our verification for the document pursuant to condition 3 of the Environmental Permit (EP) No. EP-239/2006/B.

Yours faithfully,
Nature & Technologies (HK) Limited

Ir Dr Gabriel C K Lam
Managing Director

cc: - Hong Kong Trade Development Council (Attn: Mr. K. F. Chan)
- Hip Hing Ngo Kee Joint Venture (Attn: Mr. Eric Lau & Mr. William Tam)
- ERM (Attn: Mr. Marcus Ip)

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EXECUTIVE SUMMARY

The construction works for Hong Kong Convention and Exhibition Centre Expansion (previously known as HKCEC Atrium Link Extension) (EIAO Register No: AEIAR-100/2006) commenced on 1 August 2006. This is the tenth quarterly Environmental Monitoring and Audit (EM&A) report presenting the EM&A work carried out during this period from 1 November 2008 to 31 January 2009 in accordance with the EM&A Manual.

Summary of Construction Works undertaken during the Reporting Period

The major construction works taken during the reporting period include the concreting of floor slabs, installation of facade panel/louwer, erection of steel post for west and east facade, installation of partition wall, HVAC, electrical, fire shutter, plumbing and town gas, escalators, smoke curtains, doors, false ceilings and fire services, erection of staircase, water proofing and wall granite works.

Environmental Monitoring and Audit Progress

A summary of the monitoring activities in this reporting period is listed below:

24-hour Total Suspended Particulates (TSP) monitoring	16 times
1-hour TSP monitoring	47 times
Joint environmental site auditing	13 times

Air Quality

Sixteen sets of 24-hour and forty-seven sets of 1-hour TSP monitoring were carried out at the designated monitoring stations (AM1 & AM2) and no exceedance was recorded during this quarter.

Water Quality

Water quality monitoring at the designated monitoring stations (W3, W4 and W5) was not conducted subsequent to the completion of installation of marine piles on 23 April 2007.

Construction Waste Management

The major construction activities undertaken in the reporting period were installation of marine pile, construction of marine platform and pedestrian tunnel. A total of 856.3 tonnes of inert C&D materials and 2,272.95 tonnes of C&D wastes were generated during this quarter. The C&D wastes and inert C&D materials generated from the Project were disposed of at SENT Landfill / Tseung Kwan O Area 137 temporary construction waste sorting facility and the public fill barging point at Quarry Bay respectively. A total of 6 tonnes of steel materials were generated from works over this quarter and sent to

recycler. No chemical waste was collected during the reporting period by licensed chemical waste collector.

Effluent Discharge Sampling

Water sampling was conducted at Discharge Point 2 and 3 on 11 December 2008 to ensure the quality of treated effluent at three designated discharge points complies with the requirements of discharge license. The results show that the effluents were in compliance with the discharge limit stipulated in the Water Discharge Licence.

Environmental Non-conformance

Thirteen weekly joint environmental site audits were carried out by the ET. No non-compliance event is recorded during this quarter.

No environmental complaints or summons were received during this quarter.

1 INTRODUCTION

ERM-Hong Kong, Limited (ERM) was appointed by Hip Hing Joint Venture as the Environmental Team (ET) to implement the Environmental Monitoring and Audit (EM&A) programme for Hong Kong Convention and Exhibition Centre Expansion (previously known as HKCEC Atrium Link Extension) (the Project).

1.1 PURPOSE OF THE REPORT

This is the tenth quarterly EM&A report which summarizes the impact monitoring results and audit findings for the EM&A programme during the reporting period from **1 November 2008 to 31 January 2009**.

1.2 STRUCTURE OF THE REPORT

The structure of the report is as follows:

Section 1 : **Introduction**

details the scope and structure of the report.

Section 2 : **Project Information**

summarizes background and scope of the Project, site description, project organization and contact details, construction programme, the construction works undertaken and the status of Environmental Permits/Licences during the reporting period.

Section 3 : **Environmental Monitoring Requirement**

summarizes the monitoring parameters, monitoring programmes, monitoring methodologies, monitoring frequency, monitoring locations, Action and Limit Levels and Event / Action Plans.

Section 4 : **Implementation Status on Environmental Mitigation Measures**

summarizes the implementation of environmental protection measures during the reporting period.

Section 5 : **Monitoring Results**

summarizes the monitoring results obtained in the reporting period.

Section 6 : **Environmental Non-conformance**

summarizes any environmental exceedance, environmental complaints and environmental summons received within the reporting period.

Section 7: **Review of EM&A Data and EIA Predictions**

compares and contrasts the EM&A data in the reporting period with the EIA predictions and annotates with explanation for any discrepancies.

Section 8: **Conclusion**

2.1 BACKGROUND

The Hong Kong Trade Development Council (HKTDC) is expanding its existing facilities to provide additional space for Hong Kong's leading trade fairs to be held at the Hong Kong Convention and Exhibition Centre (HKCEC). The Project is located in North Wan Chai and will occupy the aerial space between Phase I and Phase II of the HKCEC. The new Atrium Link Extension (ALE) will span across the water channel between Phase I and Phase II of the HKCEC to accommodate 3 main levels of Exhibition Hall Extensions. The level of the main roof of the Extension will be of similar height as that of the podium roof of the Phase I building. A northern row of permanent supporting columns will be located on land close to Expo Drive Central and similarly a southern row will land near to Convention Avenue. There will be no permanent intermediate columns in the waterway.

The major works activities for the ALE will comprise the following:

- Construction and demolition of the temporary footbridge;
- Demolition of the existing Atrium Link;
- Construction and demolition of a temporary working platform;
- Construction of foundations and pile caps for the ALE; and
- Construction of superstructure for the ALE.

The potential environmental impacts of the Project have been studied in the "*Hong Kong Convention and Exhibition Centre, Atrium Link Extension – Environmental Impact Assessment Report*" (EIAO Register No: AEIAR-100/2006). The EIA was approved on 21 April 2006 under the *Environmental Impact Assessment Ordinance* (EIAO). An Environmental Permit (EP-239/2006) for the works was granted on 12 May 2006. An application for variation of the Environmental Permit was made on 25 January 2007, an amended Environmental Permit (EP-239/2006/A) was granted on 12 February 2007. An application for further variation of the Environmental Permit was made on 18 April 2008, and an amended Environmental Permit (EP-239/2006/B) was granted on 12 May 2008. Under the requirements of Condition 3.1 of Environmental Permit EP-239/2006/B, an EM&A programme as set out in the EM&A Manual and its supplement is required to be implemented.

The construction works commenced on 1 August 2006 and are scheduled to be completed by March 2009.

2.2 *SITE DESCRIPTION*

The works areas of the Project are illustrated in *Annex A*.

2.3 *CONSTRUCTION ACTIVITIES*

A summary of the major construction activities undertaken in this quarter is shown in *Table 2.1*. The locations of the construction activities are presented in *Annex B*.

Table 2.1 Summary of Construction Activities Undertaken

Construction Activities Undertaken
<ul style="list-style-type: none">• Floor Structure Installation (L2, L3, L5, L6, L7 & R/F)• Concreting for Floor Slab (L2, L3, L5, L6, L7, L7M & R/F)• Façade Panel/Louvre Installation• Steel Post CHS Erection for Façade• Steel post RHS Erection for Façade• Partition Wall Installation• Staircase Erection• HVAC Installation• Electrical Installation• Fire Shutter Installation• Plumbing and Town Gas Installation• Escalator Installation• Smoke Curtain Installation• Door Installation• Waterproofing works• Wall granite works• False Ceiling Installation• Fire Service Installation

2.4 *PROJECT ORGANISATION*

The Project organisation chart and contact details are shown in *Annex C*.

2.5 *STATUS OF ENVIRONMENTAL APPROVAL DOCUMENTS*

A summary of the relevant permits, licences, and/or notifications on environmental protection for this Project since August 2006 is presented in *Table 2.2*.

Table 2.2 Summary of Environmental Licensing, Notification and Permit Status

Permit/ Licenses/ Notification	Reference	Validity Period	Remarks
Environmental Permit	EP-239/2006/B	Throughout the Contract -	Environmental Permit (EP) EP-239/2006 granted originally on 12 May 2006. Since then the EP have been varied twice. The latest revised EP was issued on 12 May 2008
Notification of Construction Works under Air Pollution Control (Construction Dust) Regulation	--	--	Notification on 23 June 2006
Discharge Licence under Water Pollution Control Ordinance	EP860/W10/XY 0145	N/A	-
Chemical Waste Producer Registration	WPN5213-134-H3125-01	N/A	Chemical waste types: spent paint, acid, alkaline, adhesive, diesel fuel, lubricating oil and bitumen.
Valid Construction Noise Permit for area inside the Atrium Link	GW-RS0713-08 GW-RS0755-08 GW-RS0756-08 GW-RS0758-08 GW-RS0759-08 GW-RS10345-08	Valid from 15 October 2008 to 15 March 2009 Valid from 31 October 2008 to 31 March 2009. Valid from 30 October 2008 to 31 January 2009 Valid from 1 November to 29 December 2008 Valid from 31 October to 31 December 2008 Valid from 31 December 2008 to 31 May 2009	

3.1 AIR QUALITY MONITORING

3.1.1 Monitoring Location

In accordance with the EM&A Manual, sampling for 24-hour and 1-hour Total Suspended Particulates (TSP) levels were conducted at the designated monitoring stations listed in *Table 3.1*. Map and photographs showing the monitoring stations are presented in *Annex D*.

Table 3.1 *Air Monitoring Stations*

Monitoring Station	Description
AM1	Pedestrian Plaza
AM2	Renaissance Harbour View Hotel Hong Kong

3.1.2 Monitoring Parameters, Frequency and Programme

Air quality monitoring was conducted in accordance with the requirements stipulated in the EM&A Manual (*Table 3.2*).

Table 3.2 *TSP Monitoring Parameter and Frequency*

Parameter	Frequency
24-hour TSP	Once per every 6 days
1-hour TSP	3 times per every 6 days

3.1.3 Action and Limit Levels

The Action and Limit levels were established in accordance with the EM&A Manual and are presented in *Table 3.3*.

Table 3.3 *Action and Limit Levels for Air Quality*

Parameter	Air Monitoring Station	Action Level (μgm^{-3})	Limit Level (μgm^{-3})
24-hour TSP	AM1	161	260
	AM2	168	260
1-hour TSP	AM1	327	500
	AM2	329	500

3.1.4 Monitoring Equipment

Continuous 24-hour and 1-hour TSP monitoring were performed using High Volume Samplers (HVS) with appropriate sampling inlets installed, located at the designated monitoring station. The performance specification of HVS complies with the standard method "*Determination of Suspended Particulate Matter in the Atmosphere (High Volume Method)*" as stipulated in *US EPA Standard Title 40, Code of Federation Regulations Chapter 1 (Part 50 Appendix B)*.

Table 3.4 summarizes the equipment that was used in the 24-hour and 1-hour TSP monitoring.

Table 3.4 TSP Monitoring Equipment

Monitoring Station	Equipment	Model (HVS, Calibration Kit)
AM1 (for 24-hr TSP)	HVS, Calibration Kit	GMW-9503, Tisch TE-5025A
AM2 (for 24-hr TSP)	HVS, Calibration Kit	GMW-9795, Tisch TE-5025A
AM1 (for 1-hr TSP)	HVS, Calibration Kit	GMW-9864, Tisch TE-5025A
AM2 (for 1-hr TSP)	HVS, Calibration Kit	GMW-8115, Tisch TE-5025A

3.1.5 Monitoring Methodology

Installation

The HVSs at AM1 and AM2 were placed at about 1.3 m above local ground level and about 4.3 m above local ground respectively. All of the HVSs were free-standing with no obstruction.

The following criteria were considered in the installation of the HVSs:

- horizontal platform with appropriate support to secure the samplers against gusty wind were provided at AM1 & AM2;
- a minimum of 2 m separation from walls, parapets and penthouses was required for rooftop samplers;
- no furnace or incinerator flues were nearby;
- airflow around the sampler was unrestricted; and
- permission was obtained to set up the samplers and to gain access to the monitoring stations.

Preparation of Filter Papers by ETS-Testconsult Ltd

- glass fibre filters were labeled and sufficient filters that were clean and without pinholes were selected;
- all filters were equilibrated in the conditioning environment for 24 hours before weighing. The conditioning environment temperature was around 25 °C and not variable by more than ± 3 °C; the relative humidity (RH) was 40%; and
- ETS-Testconsult Ltd, a HOKLAS accredited laboratory, implements comprehensive quality assurance and quality control programmes.

Field Monitoring

- the power supply was checked to ensure that the HVSs were working properly;
- the filter holder and the area surrounding the filter were cleaned;

- the filter holder was removed by loosening the four bolts and a new filter, with stamped number upward, on a supporting screen was aligned carefully;
- the filter was properly aligned on the screen so that the gasket formed an airtight seal on the outer edges of the filter;
- the swing bolts were fastened to hold the filter holder down to the frame. The pressure applied should be sufficient to avoid air leakage at the edges;
- then the shelter lid was closed and secured with the aluminium strip;
- the HVSs were warmed-up for about 5 minutes to establish run-temperature conditions;
- a new flowrate record sheet was set into the flow recorder;
- the flow rate of the HVSs was checked and adjusted at around 0.6 -1.44 m³/min. The range specified in the EM&A Manual was between 0.6 – 1.7 m³/min;
- the programmable timer was set for a sampling period of 24 hours ± 1 hour, and the starting time, weather condition and the filter number were recorded;
- the initial elapsed time was recorded;
- at the end of sampling, the sampled filter was removed carefully and folded in half length so that only surfaces with collected particulate matter were in contact;
- it was then placed in a clean plastic envelope and sealed;
- all monitoring information was recorded on a standard data sheet; and
- filters were sent to ETS-Testconsult Ltd for analysis.

3.1.6 *Maintenance and Calibration*

The HVSs and their accessories were maintained in good working condition, such as replacing motor brushes routinely and checking electrical wiring to ensure a continuous power supply.

The flow rate of each HVS with mass flow controller was calibrated using an orifice calibrator. Initial calibration of the dust monitoring equipments was conducted upon installation and prior to commissioning. Five-point calibration was carried out for HVSs using Tisch TE-5025A Calibration Kit. The calibration records for the HVSs are given in the respective monthly reports.

3.2 *WATER QUALITY MONITORING*

3.2.1 *Water Quality during Installation and Removal of Marine Piles*

In accordance with the EM&A Manual, the marine water quality monitoring should be conducted at three designated monitoring stations during the installation and removal of temporary marine piles. The installation of temporary marine piles was completed on 23 April 2007 and therefore water quality monitoring for marine pile installation works was not conducted during this quarter.

3.2.2 *Additional Water Quality Monitoring in Marine Channel during Installation and Removal of Marine Piles*

As part of the Application for Variation of Environmental Permit (Application No. VEP-227/2007) submitted on 25 January 2007, the Permit Holder undertook additional water quality monitoring in the marine channel in connection with the installation of temporary marine piles.

The installation of temporary marine piles was completed on 23 April 2007 and four weeks of additional water quality monitoring was also completed on 21 May 2007 after the completion of marine piling works. In accordance with the additional water quality programme submitted to the EPD on 4 April 2007, four weeks of additional water quality monitoring during the dry season was undertaken and was completed on 14 December 2007.

4 IMPLEMENTATION STATUS OF ENVIRONMENTAL PROTECTION REQUIREMENTS

4.1 ENVIRONMENTAL SITE AUDITING

Weekly site inspections were carried out by the ET. Thirteen site inspections were conducted on 3, 13, 22 and 27 November 2008; 4, 11, 19 and 24 December 2008, and 2, 8, 15, 22 and 29 January 2009 respectively. The major construction activities undertaken in the reporting period were the construction of floor structures and interior building features. The Contractor has implemented environmental mitigation measures and requirements as stated in the EIA Report, the Environmental Permit and EM&A Manual. There was no non-compliance event recorded in the reporting period. The implementation status of environmental mitigation and status of relevant required submissions under the EP were reported as part of the monthly EM&A reports⁽¹⁾. Relevant submissions made on these measures and requirements during these reporting periods are summarized in *Annex E*.

4.2 EFFLUENT DISCHARGE SAMPLING

In accordance with the discharge licence issued under WPCO, water sampling should be conducted at least quarterly to ensure the quality of treated effluent at operating discharge points complies with the requirements of discharge license. During the reporting period, effluent sample monitoring was conducted at Discharge Point 2 and 3 on 11 December 2008. The results show that the effluent discharged from the project was in compliance with the discharge limit stipulated in the Water Discharge Licence.

4.3 LANDSCAPE AND VISUAL MONITORING

In accordance with *Section 6.7* of the EM&A Manual, bi-weekly landscape and visual monitoring is required to ensure that the design, implementation and maintenance of landscape and visual mitigation measures are fully achieved. The monitoring has commenced since January 2007 and is conducted by Earthasia Limited. Landscape and visual mitigation measures were implemented by the Contractor and the implementation status is given in *Annex E*.

4.4 EFFECTIVENESS OF MITIGATION MEASURES AND MONITORING

The mitigation measures recommended in the EIA report and required by the EP are considered effective in minimizing environmental impacts.

⁽¹⁾ The Monthly EM&A Reports for November 2008, December 2008 and January 2009 were submitted to the EPD on 20 November 2008, 18 December 2008 and 22 January 2009 respectively.

The EM&A for the Project was conducted as scheduled during the reporting period. No non-compliance events were observed during site audits and no exceedances were recorded during this quarter. The EM&A programme is considered effective.

5.1 *AIR QUALITY*

The monitoring data at AM1 and AM2 were provided by ETS-Testconsult Ltd. 16 sets of 24-hour and 47 sets of 1-hour TSP monitoring were carried out at the designated monitoring stations (AM1 & AM2) during this quarter. The monitoring data for 24-hour TSP and 1-hour TSP with weather conditions and graphical presentations are presented in *Annex F*.

The weather condition during the monitoring period varied from sunny to rainy. The local impacts observed near the monitoring stations were mainly vehicle emissions along Convention Avenue and Fleming Road.

No exceedance of Action and Limit Levels of 24-hour and 1-hour TSP was recorded at the monitoring stations during this quarter. The measured 24-hr TSP ranged from 23 - 160 $\mu\text{g}\text{m}^{-3}$ at AM1 and from 14 - 161 $\mu\text{g}\text{m}^{-3}$ at AM2.

5.2 *WATER QUALITY*

Water quality monitoring was not conducted at the designated monitoring stations (W3, W4 and W5) subsequent to the completion of installation of marine piles on 23 April 2007.

5.3 *WASTE MANAGEMENT*

Waste generated from this Project includes inert construction and demolition (C&D) materials and non-inert C&D wastes. Reference has been made on the Monthly Summary Waste Flow Table prepared by Hip Hing Joint Venture (*Annex G*).

With reference to relevant handling records and trip tickets of this Project, the quantities of different types of waste generated in the reporting period are summarized in *Table 5.1*.

Table 5.1 Quantities of Waste Generated from the Project

Month / Year	Quantity		
	C&D Materials (inert) ^(a)	C&D Wastes (non-inert) ^(b)	Chemical Waste
November 2008	20.0 tonnes	285.55 tonnes (no steel materials were collected and recycled)	0
December 2008	350.5 tonnes	801.55 tonnes (no steel materials were collected and recycled)	0

Month / Year	Quantity		
	C&D Materials (inert) ^(a)	C&D Wastes (non-inert) ^(b)	Chemical Waste
January 2009	485.8 tonnes	1,185.85 tonnes (excluding 6 tonnes of steel materials which were collected and recycled)	0
Total	856.3 tonnes	2,272.95 tonnes (excluding 6 tonnes steel material which were collected and recycled)	0

Notes:

- (a) Inert C&D materials include bricks, concrete, building debris, rubble and excavated soil. No inert C&D materials were reused in this Project. Non-reused inert C&D materials were disposed at the public fill barging point at Quarry Bay.
- (b) C&D wastes include steel materials generated from demolition of footbridge, the existing Atrium Link and working platform, paper / cardboard packaging waste, chemical waste and other wastes such as general refuse. A total of 6 tonnes of steel material were sent to recycler and the remaining C&D wastes other than general refuse were disposed of at SENT Landfill / Tseung Kwan O Area 137 temporary construction waste sorting facility.

A total of 856.3 tonnes of inert C&D materials and 2,272.95 tonnes of C&D wastes were generated during the reporting period. The C&D wastes and inert C&D materials generated from the Project were disposed of at SENT Landfill / Tseung Kwan O Area 137 temporary construction waste sorting facility and the public fill barging point at Quarry Bay respectively. A total of 6 tonnes of steel materials from works were generated and recycled in this quarter. No chemical waste was collected during the reporting period by licensed chemical waste collector.

6 *ENVIRONMENTAL NON-CONFORMANCE*

6.1 *SUMMARY OF ENVIRONMENTAL EXCEEDANCE*

No exceedance of the Action and Limit Levels of 24-hour and 1-hour TSP was recorded at monitoring stations during this quarter.

6.2 *SUMMARY OF ENVIRONMENTAL NON-COMPLIANCE*

No non-compliance event was recorded during this quarter.

6.3 *SUMMARY OF ENVIRONMENTAL COMPLAINT*

No complaint was received during this quarter.

6.4 *SUMMARY OF ENVIRONMENTAL SUMMONS AND PROSECUTION*

There was no summons or prosecution on environmental matters during this quarter.

7.1 AIR QUALITY

Since qualitative assessment of dust impact was conducted during construction phase in the EIA, a comparison was made against monitoring results and the Hong Kong Air Quality Objectives (HKAQO) (Table 7.1).

Table 7.1 Comparison of the HKAQO and Air Quality Monitoring Results

Month	Monitoring Stations	Corresponding ASR in EIA	HKAQO,	Measured 24 hour TSP	
			μgm^{-3} 24 hour ^(a)	Average	Range ⁽²⁾
November 2008	AM1	AM8	260	79	23 - 158
	AM2	AM6	260	70	14 - 161
December 2008	AM1	AM8	260	81	23 - 160
	AM2	AM6	260	72	14 - 161
January 2009	AM1	AM8	260	82	23 - 160
	AM2	AM6	260	73	14 - 161

Notes:

(a) 24-hour TSP criterion under HKAQOs was used.

(b) Average and range of data were calculated for the period of monitoring between the commencement of the construction works and this quarter.

The monitoring results show that the average and range of 24-hour TSP levels measured since the commencement of the construction works were well below the 24-hour TSP criterion in the HKAQO. Recommended mitigation measures in Section 4.24 of EIA were implemented throughout the construction period and were considered effective.

7.2 WATER QUALITY

Water quality monitoring was not conducted at the designated monitoring stations (W3, W4 and W5) subsequent to the completion of installation of marine piles on 23 April 2007. No data were therefore presented for this quarter.

7.3 WASTE MANAGEMENT

The estimated amount of waste generated in this project and the accumulated quantities of waste generated up to the reporting period are presented in Table 7.2. Recommended mitigation measures in Sections 6.35 to 6.41 of the EIA report are implemented during the reporting period. These measures are regarded as effective.

Table 7.2 Comparison of the Estimated Amount and the Actual Amount of Waste Generated

Type of Material	Estimated Amount of C&D Materials in EIA (inert & non-inert)	Accumulated Actual Amount of C&D Materials Recorded ^(a) (inert & non-inert)
Demolition of temp. footbridge	585 tonnes	0 tonne
Demolition of existing Atrium Link	4,680 tonnes	2,681.5 tonnes
Demolition of temp. working platform	390 tonnes	0 tonne
Construction of foundations and pile caps	20,000 tonnes	2,4247.6 tonnes
General Refuse	Insignificant	2,840.9 tonnes
Chemical Waste	Small	288 Litres

Note:
(a) The actual amount of C&D Materials was recorded since the commencement of construction works in August 2006.

7.4 CONCLUSION OF THE REVIEW

The EIA predictions and the monitoring results since the commencement of construction works have been reviewed. The EIA concluded that the Project would not pose adverse impacts to the environment, and the monitoring results also indicated that the construction of the Project did not pose adverse impacts to the environment. Recommendations given in the EIA are also considered to be adequate and effective for minimising the environmental impacts.

This Tenth Quarterly Environmental Monitoring and Audit (EM&A) Report presents the EM&A work undertaken during the period from 1 November 2008 to 31 January 2009 in accordance with the EM&A Manual and the requirement under EP-239/2006B.

Sixteen sets of 24-hour and forty-seven sets of 1-hour TSP monitoring were carried out at the designated monitoring stations (AM1 & AM2) and no exceedance of Action and Limit Levels was recorded at the monitoring stations during this quarter.

No non-compliance event was recorded during this quarter.

No complaint and summons/prosecution was received during this quarter.



Water sampling was conducted at Discharge Point 2 and 3 on 11 December 2008 to ensure the quality of treated effluent at operating discharge points complies with the requirements of discharge license. The results show that the effluents were in compliance with the discharge limit stipulated in the Water Discharge Licence.

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

Annex A

Location of Works Areas

Key

-  Proposed Atrium Link Extension
-  Existing Atrium Link

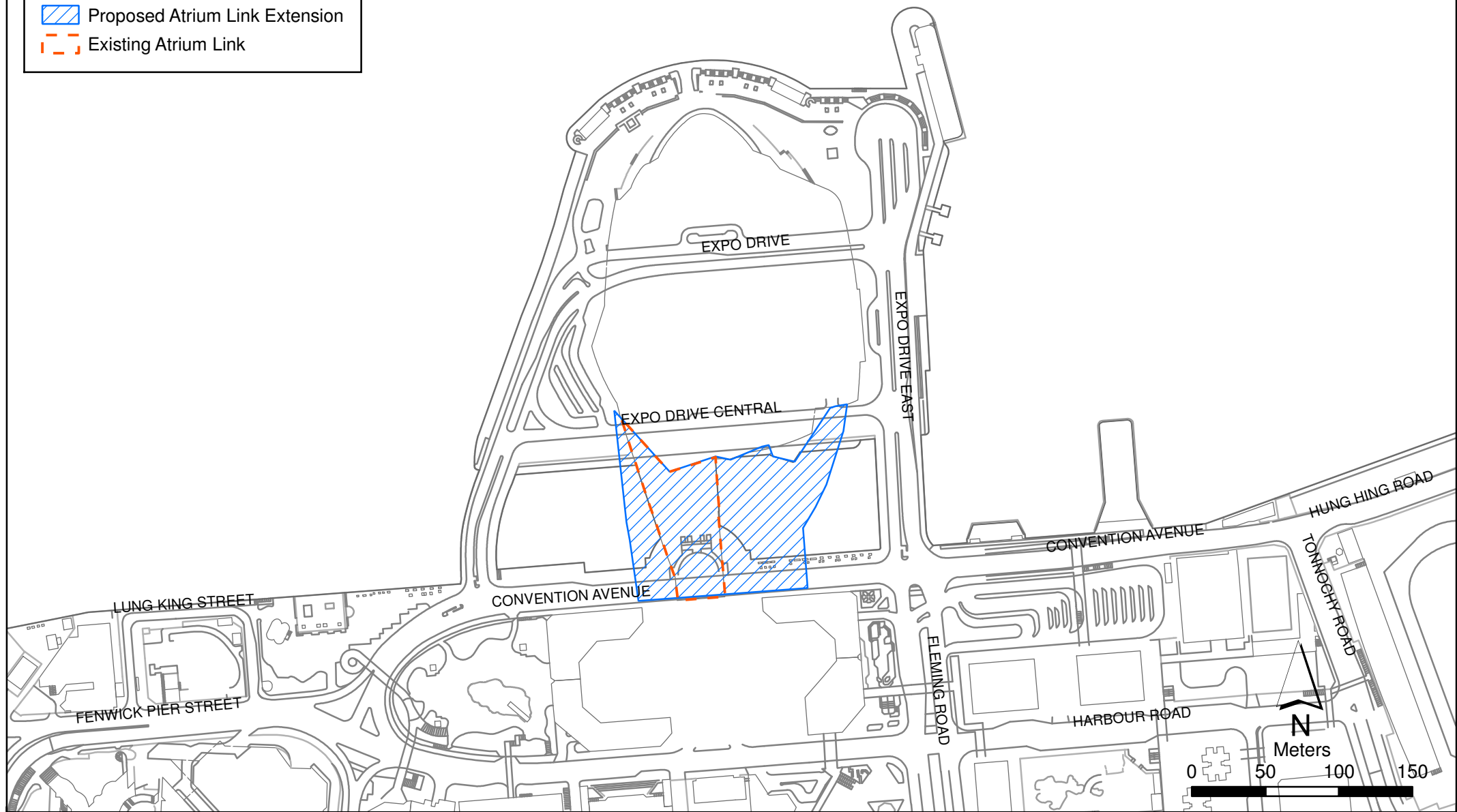


Figure A1

Location of Atrium Link Extension



Annex B

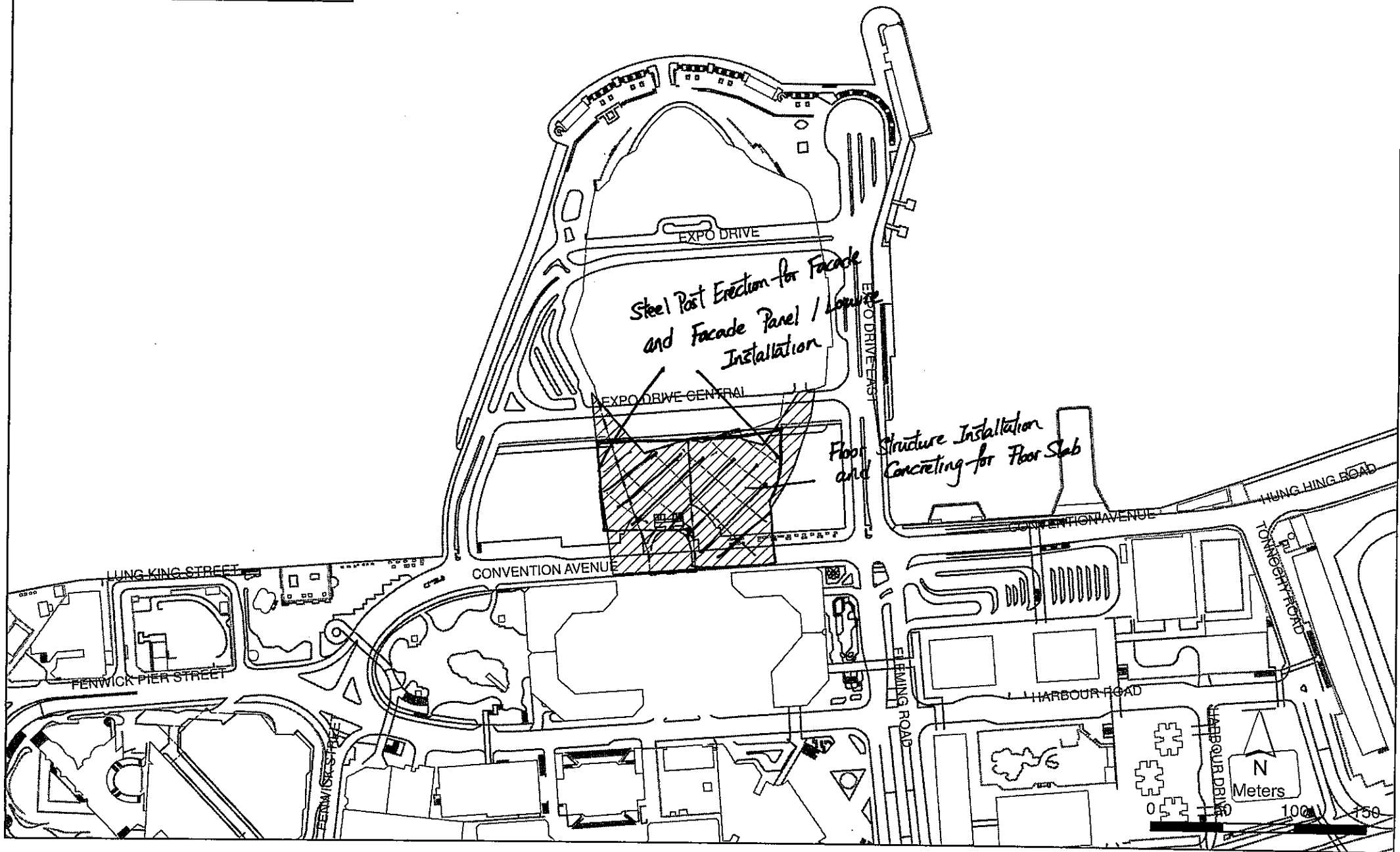
Location of Construction
Activities during the
Reporting Period

Summary of Works for November 2008

Description	Location
Floor Structure Installation (L2, L3, L5, L6, L7 & R/F)	Grid A1-E
Concreting for Floor Slab (L2 - L7, L7M and R/F)	G.L. A1-E
Installation of Façade Panel/Louvre	West and East Façade
Steel CHS Post Erection for Façade	West Façade
Steel Post RHS Erection for Façade	East Façade
Partition Wall	
Staircase Erection	
HVAC Installation	
Electrical Installation	
F.S. Installation	
Plumbing and Town Gas Installation	
Escalator Installation	

Key


-  Proposed Atrium Link Extension
-  Existing Atrium Link



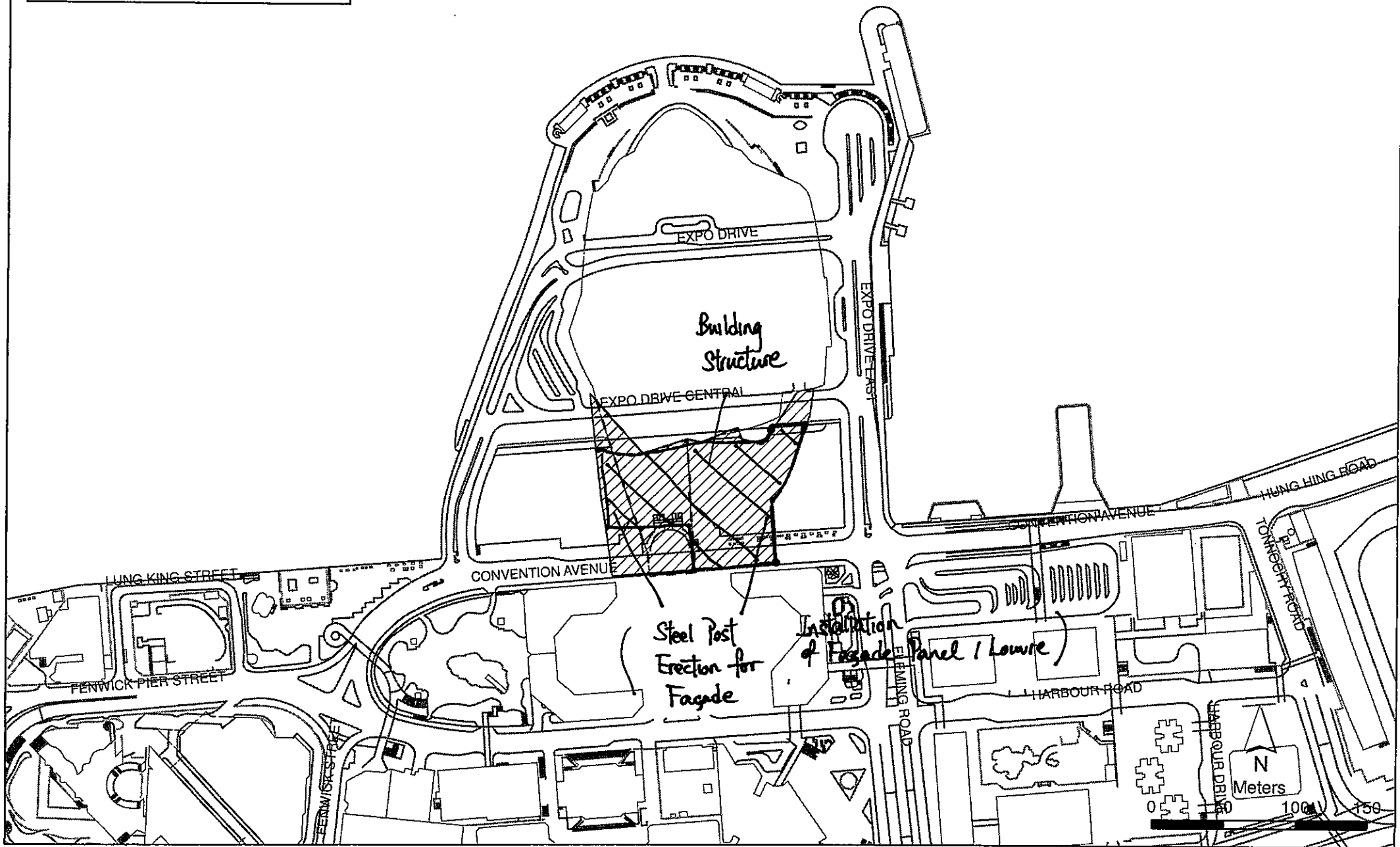
Summary of Works for December 2008

Description	Location
Building Structure	Grid A1-E
Installation of Façade Panel/Louvre	West and East Façade
Steel CHS Post Erection for Façade	West Façade
Steel Post RHS Erection for Façade	East Façade
Partition Wall	
Staircase Erection	
Fire Shutter Installation	
Smoke Curtain Installation	
Door Installation	
Waterproofing (Internal)	
Wall Granite	
False Ceiling	
HVAC Installation	
Electrical Installation	
F.S. Installation	
Plumbing and Town Gas Installation	
Escalator Installation	

Key

 Proposed Atrium Link Extension


 Existing Atrium Link



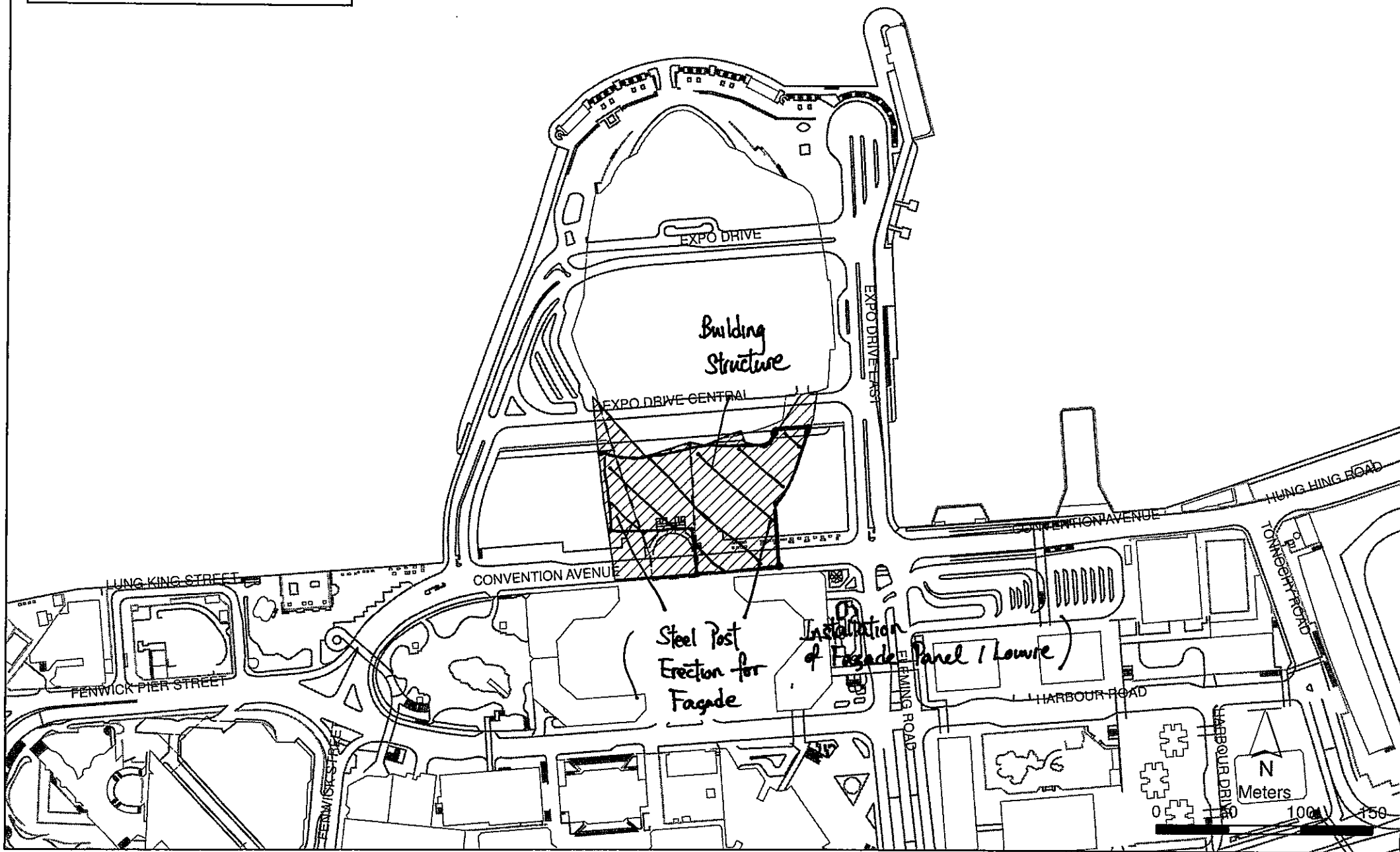
Summary of Works for January 2009

Description	Location
Building Structure	Grid A1-E
Installation of Façade Panel/Louvre	West and East Façade
Steel CHS Post Erection for Façade	West Façade
Steel Post RHS Erection for Façade	East Façade
Partition Wall	
Staircase Erection	
Fire Shutter Installation	
Smoke Curtain Installation	
Door Installation	
Waterproofing (Internal)	
Wall Granite	
False Ceiling	
HVAC Installation	
Electrical Installation	
F.S. Installation	
Plumbing and Town Gas Installation	
Escalator Installation	

Key

 Proposed Atrium Link Extension

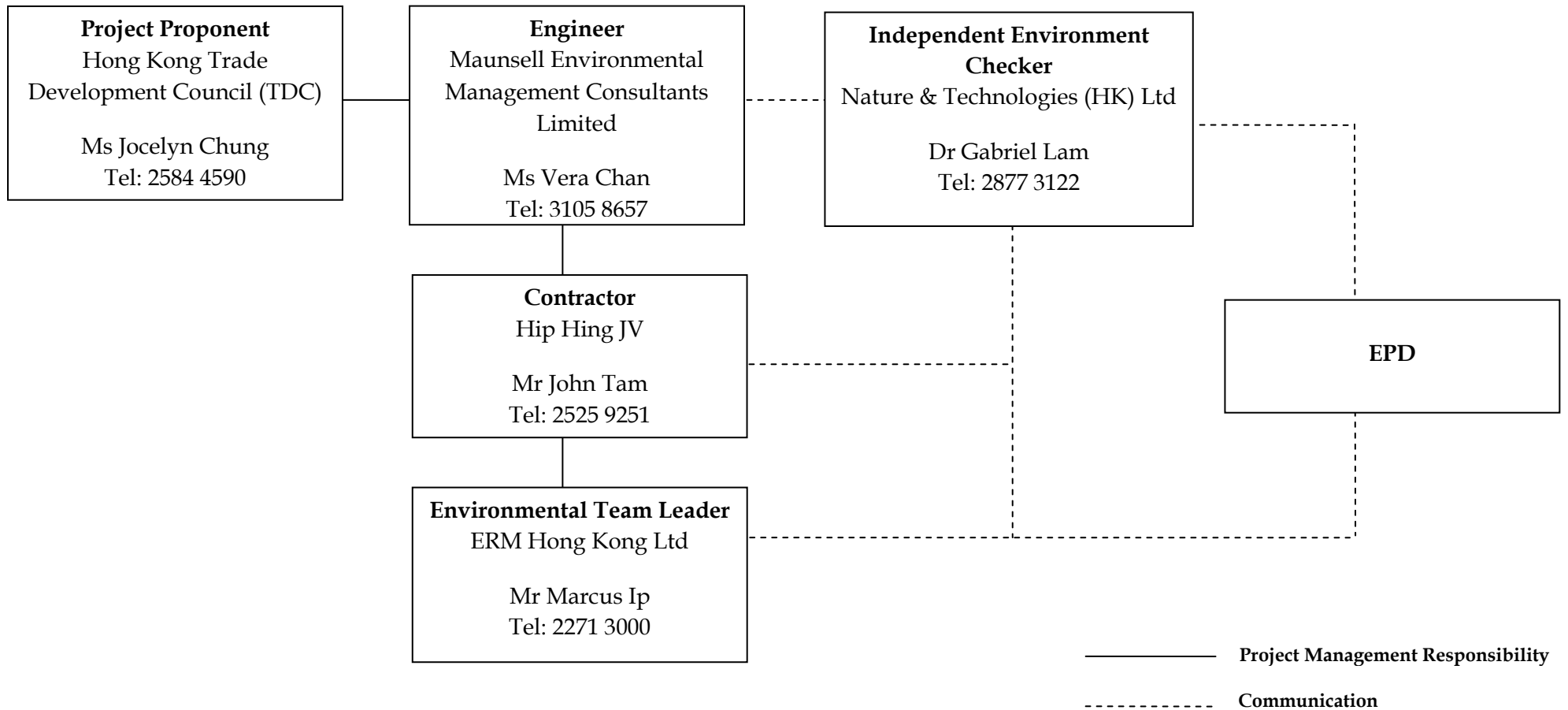
 Existing Atrium Link



Annex C

Project Organization Chart and Contact Detail

Project Organization (with contact details)



Annex D

Locations of Air and Water Quality Monitoring Stations

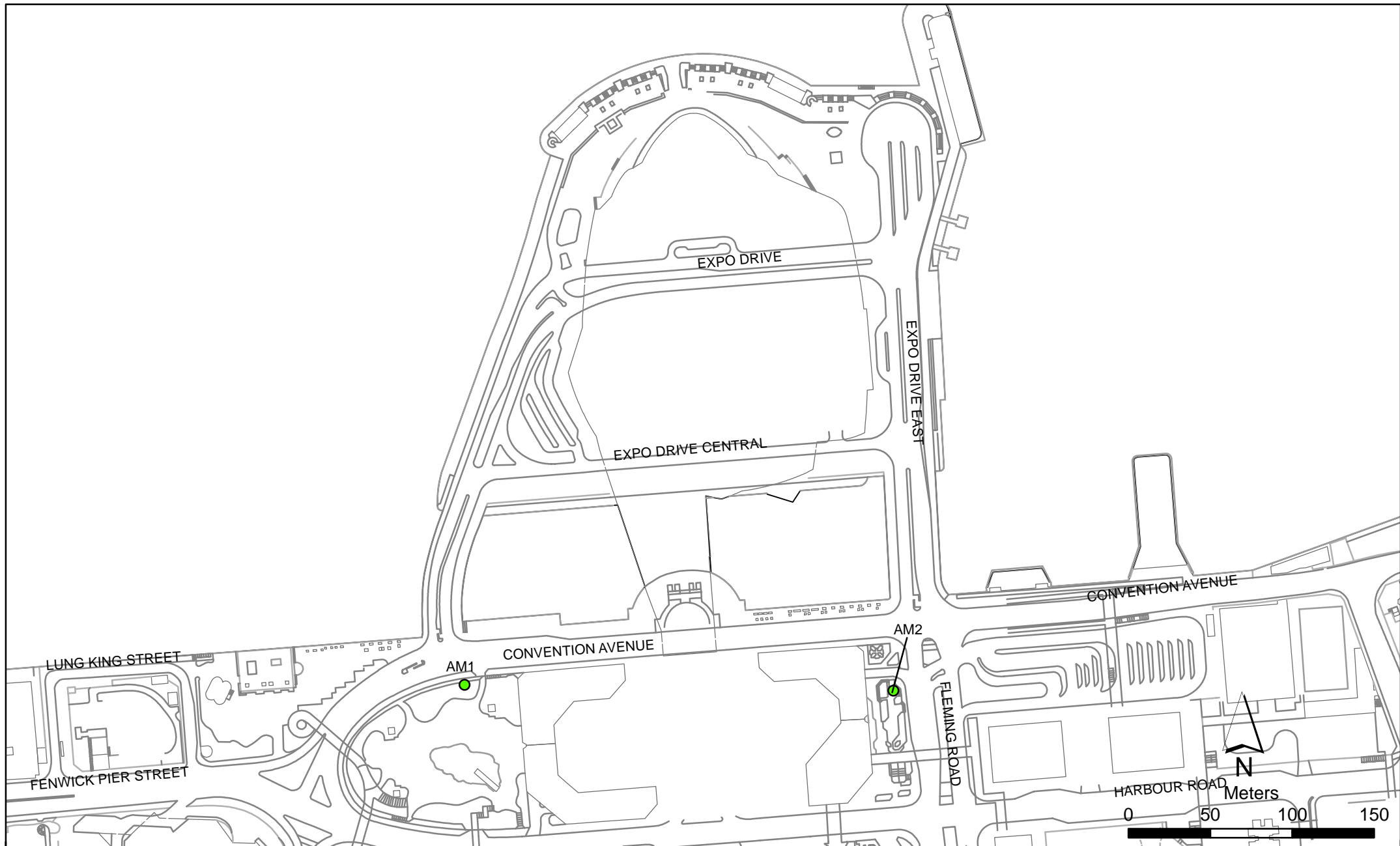


Figure D1

Air Quality Monitoring Station

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Date: 08/09/2006

Environmental
Resources
Management



Water Quality Monitoring Stations (inside Silt Screen)

Monitoring Station	Description	Easting	Northing
W3	Hong Kong Convention and Exhibition Centre Phase I	835852	815908
W4	Wan Chai Tower/Revenue Tower/Immigration Tower	835944	815885
W5	Great Eagle Centre/China Resources Building	835963	815886

Additional Water Quality Monitoring Stations

Monitoring Station	Description	EASTING	NORTHING
C1	Control Station 1	835645	815900
C2	Control Station 2	836014	815926
M1	Monitoring Station 1	835852	815907

KEY

- Water Quality Monitoring Station
- Additional Water Quality Monitoring Station
- Temporary Marine Working Platform
- ▲ Outfall

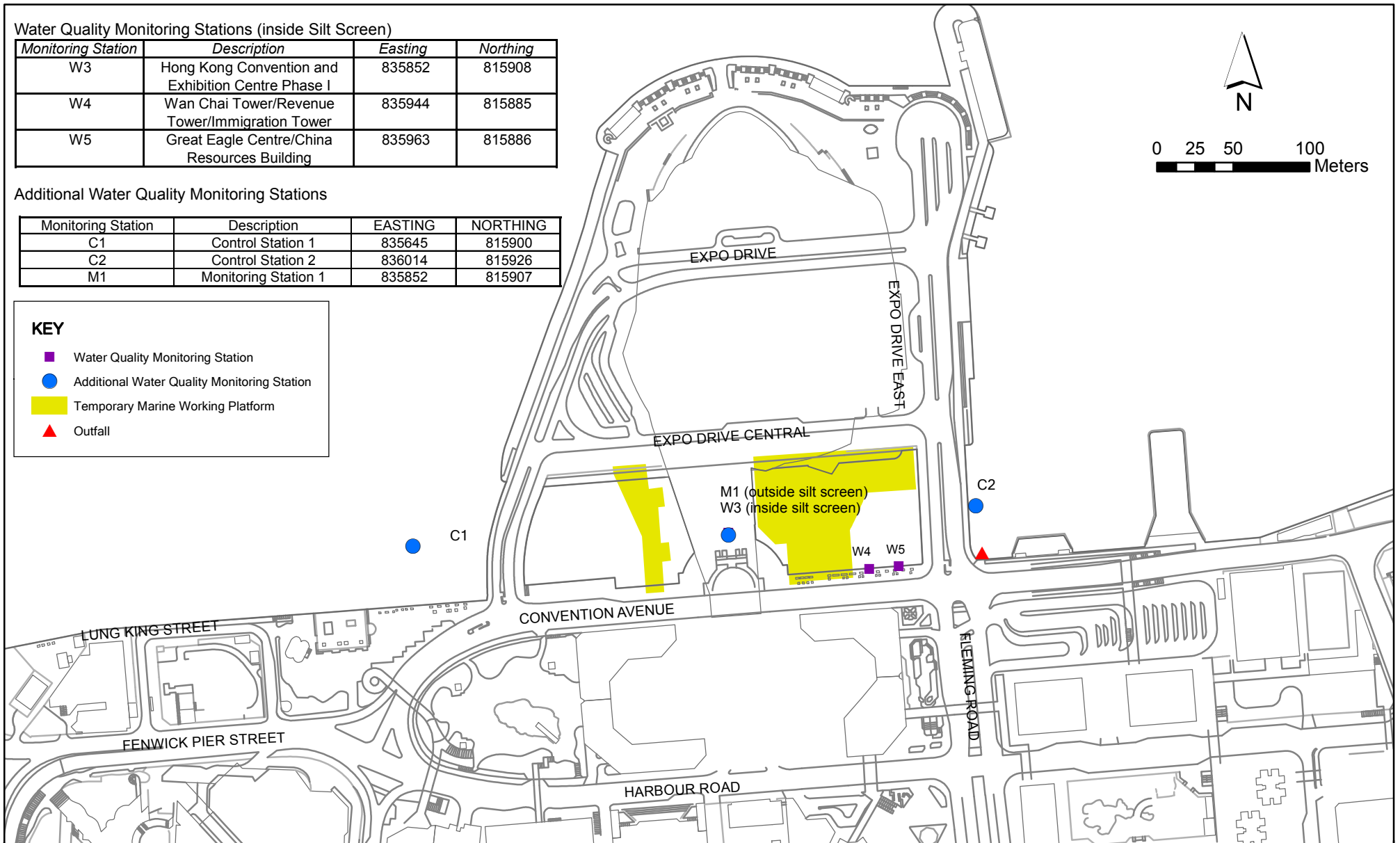


Figure D2

Marine Water Quality Monitoring Stations

Environmental
Resources
Management





Air Quality Monitoring Station (AM1)



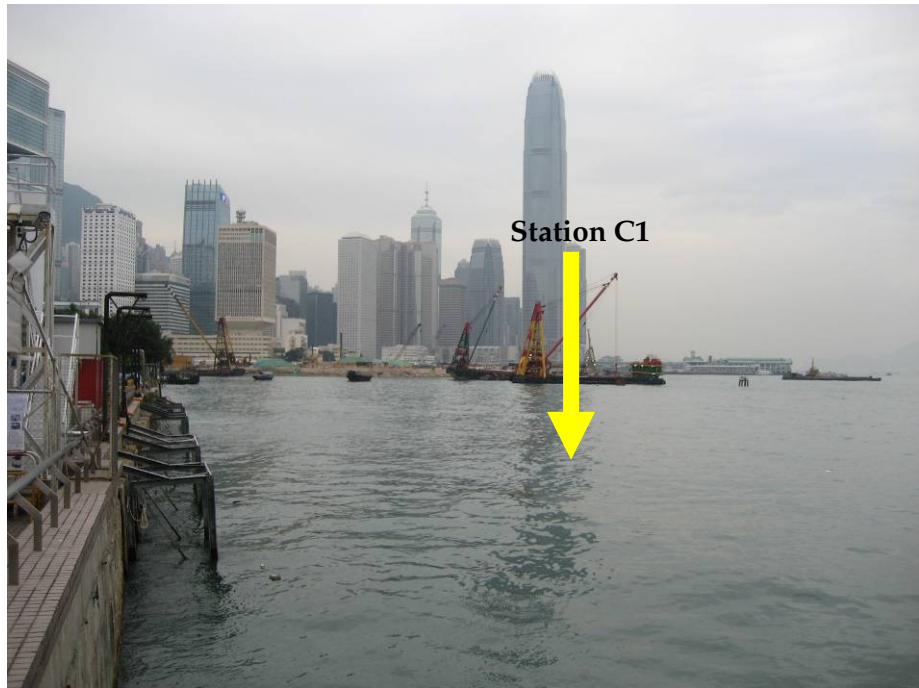
Air Quality Monitoring Station (AM2)



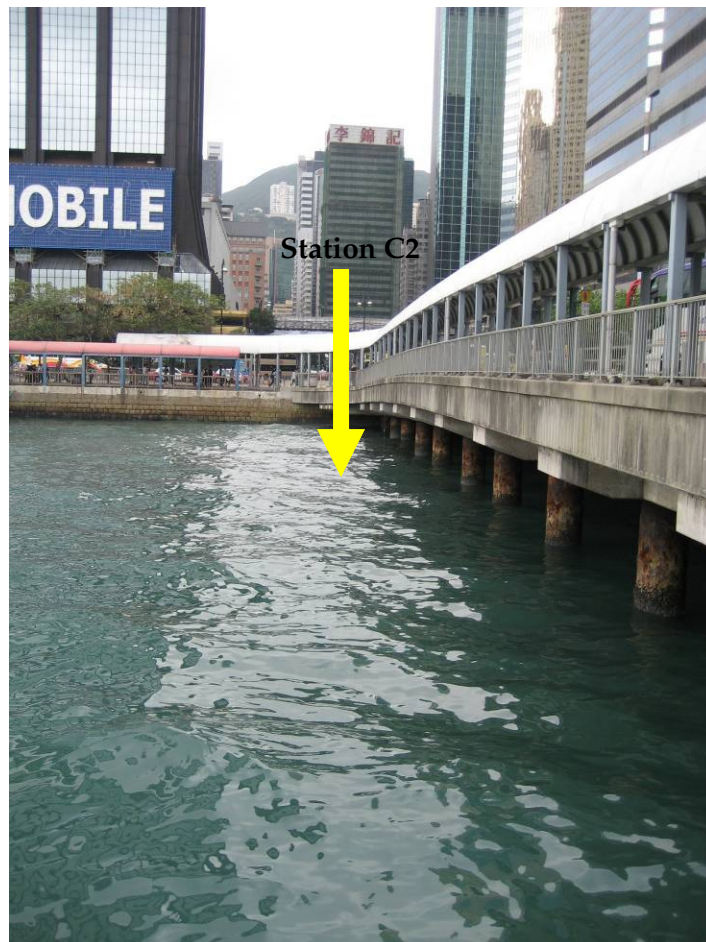
Water Quality Monitoring Location – Station W3



Water Quality Monitoring Location – Stations W4 and W5



Additional Water Quality Monitoring Location – Station C1



Additional Water Quality Monitoring Location – Station C2



Additional Water Quality Monitoring Location – Station M1

Annex E

Summary of Implementation Status

Summary of Mitigation Measures Implementation Schedule

Type of Impact	Environmental Protection Measures	Location/ Timing	Status
<i>Construction Phase</i>			
Air Quality	<p>The Air Pollution Control (Construction Dust) Regulation shall be implemented and good site practices shall be incorporated in the contract clauses to minimize construction dust impact. A number of practical measures are listed below:</p> <ul style="list-style-type: none"> • skip hoist for material transport should be totally enclosed by impervious sheeting; • every vehicle should be washed to remove any dusty materials from its body and wheels before leaving a construction site; • the area where vehicle washing takes place and the section of the road between the washing facilities and the exit point should be paved with concrete, bituminous materials or hardcores; • where a site boundary adjoins a road, streets or other accessible to the public, hoarding of not less than 2.4 m high from ground level should be provided along the entire length except for a site entrance or exit; • every stock of more than 20 bags of cement should be covered entirely by impervious sheeting placed in an area sheltered on the top and the 3 sides; • all dusty materials should be sprayed with water prior to any loading, unloading or transfer operation so as to maintain the dusty materials wet; • the height from which excavated materials dropped should be controlled to a minimum practical height to limit fugitive dust generation from unloading; • the load of dusty materials carried by vehicle leaving a construction site should be covered entirely by clean impervious sheeting to ensure dust materials do not leak from the vehicle; and • instigation of an environmental monitoring auditing program to monitor the construction process in order to enforce controls and modify method of work if dusty conditions arise. 	Work site / during construction	Δ

Summary of Mitigation Measures Implementation Schedule

Type of Impact	Environmental Protection Measures	Location/ Timing	Status
<i>Operational Phase</i>			
Air Quality	Some fresh air intakes of the Hong Kong Convention and Exhibition Centre Phase I, Renaissance Harbour View Hotel and Grand Hyatt Hotel (ASRs A4, A5 and A6) should be re-diverted to the new air vent shaft provided for Atrium Link Extension where fresh air intake located at +55.8mPD.	Location of ASRs A4, A5 & A6 / Design & Operation Stage (Long-term and Interim Scenario)	Measures not required until commencement of operational phase
Air Quality	Monitoring of NO ₂ concentration underneath the Atrium Link Extension should be conducted.	Underneath the deckover / The first six months upon completion of the ALE.	Measures not required until commencement of operational phase
<i>Construction Phase</i>			
Noise	<p>Good Site Practice:</p> <ul style="list-style-type: none"> only well-maintained plant should be operated on-site and plant should be serviced regularly during the construction program; silencers or mufflers on construction equipment should be utilized and should be properly maintained during the construction program; mobile plant, if any, should be sited as far from NSRs as possible; machines and plant (such as trucks) that may be in intermittent use should be shut down between work periods or should be throttled down to a minimum; plant known to emit noise strongly in one direction should, wherever possible, be orientated so that the noise is directed away from the nearby NSRs; and material stockpiles and other structures should be effectively utilised, wherever practicable, in screening noise from on-site construction activities; <p>Environmental audit shall be carried out to ensure that appropriate noise control measures would be properly implemented.</p>	Construction work areas / Construction period	√

Summary of Mitigation Measures Implementation Schedule

Type of Impact	Environmental Protection Measures	Location/ Timing	Status
<i>Operational Phase</i>			
Noise	<p>The following noise reduction measures should be considered as far as practicable during detailed design:</p> <ul style="list-style-type: none"> • choose quieter plant such as those which have been effectively silenced; • include noise levels specification when ordering new plant; • locate fixed plant away from any NSRs as far as practicable; • locate fixed plant in plant rooms with thick walls or specially designed enclosure; • locate noisy machines in basement or a completely separate building; and • develop and implement a regularly scheduled plant maintenance programme in order to maintain controlled level of noise. 	Plant Room / Design and Operation Stage	Relevant design and plant procurement procedures to commence at a later stage
<i>Construction Phase</i>			
Water Quality	There should be no permanent structure in the water channel.	At the ALE sea channel / during operational phase	√
Water Quality	No dredging and no reclamation should be carried out for the Project.	At work sites / during construction phase	√
Water Quality	The marine pile layout as shown in Figure 3 of the Environmental Permit should be adopted. No more than approximately 80 numbers of temporary marine piles should be installed in the ALE sea channel during the construction phase. The dimension of each temporary marine pile should be 800mm nominal diameter. These piles should be driven into position and internal space should not be excavated, i.e. left as soil. No dredging or soil / sediment excavation should be carried out. Marine piles would be removed by reverse driving.	At work sites / during construction phase	√
Water Quality	Two layers of silt curtain should be installed around each of the marine piling and pile extraction locations. The proposed silt curtain should be extended to seabed with sinker blocks and regularly inspected and maintained to ensure it is serviceable.	At marine work sites and nearby seawater intakes / during marine piling and marine pile extraction	The installation of temporary marine piles was completed on 23 April 2007.

Summary of Mitigation Measures Implementation Schedule

Type of Impact	Environmental Protection Measures	Location/ Timing	Status
	<p>All marine works should be carried out in a controlled manner such that release of sediments into the marine environment would be minimized. All wastewater generated from the piling activities should be collected and be treated before controlled discharge. Spoil should also be properly collected for proper disposal.</p>		
Water Quality	<p>In view of the close vicinity of the seawater intakes to the work site, silt screens are recommended to be deployed at the seawater intakes shown in Figure 5.2 of the EIA report during the whole construction period. Silt screens to be provided at seawater intakes should be regularly checked and maintained to ensure that they are serviceable. Refuse collection vessel should be mobilized on a need basis to collect any floating refuse lost from/ trapped at the work site during the construction period.</p>	At seawater intakes / during the whole construction period	<p>The installation of temporary marine piles was completed on 23 April 2007. Silt screens were removed as requested by the intake owners. Silt screens will be reinstalled at seawater intakes prior to the removal of marine piles.</p>
Water Quality	<p>Surface run-off from construction sites should be discharged into storm drains via adequately designed sand/silt removal facilities such as sand traps, silt traps and sedimentation basins. Channels or earth bunds or sand bag barriers should be provided on site to properly direct stormwater to such silt removal facilities. Perimeter channels at site boundaries should be provided where necessary to intercept storm runoff from outside the site so that it will not wash across the site. Catchpits and perimeter channels should be constructed in advance of site formation works and earthworks. Silt removal facilities, channels and manholes should be maintained and the deposited silt and grit should be removed regularly, at the onset of and after each rainstorm to ensure that these facilities are functioning properly at all times. Any practical options for the diversion and re-alignment of drainage should comply with both engineering and environmental requirements in order to ensure adequate hydraulic capacity of all drains. Minimum distances of 100 m should be maintained between the discharge points of construction site runoff and the nearby saltwater intakes.</p>	Works areas / construction period	Δ

Summary of Mitigation Measures Implementation Schedule

Type of Impact	Environmental Protection Measures	Location/ Timing	Status
Water Quality	<p>There is a need to apply to EPD for a discharge license for discharge of effluent from the construction site under the WPCO. The discharge quality must meet the requirements specified in the discharge license. All the runoff and wastewater generated from the works areas should be treated so that it satisfies all the standards listed in the TM-DSS. Reuse and recycling of the treated effluent can minimize water consumption and reduce the effluent discharge volume. The beneficial uses of the treated effluent may include dust suppression, wheel washing and general cleaning. It is anticipated that only a small quantity of wastewater would be generated from the works areas. Any effluent discharge from the construction activities should be diverted away from the sea channel so as to avoid adverse water quality impact. Construction works should be programmed to minimize excavation works in rainy seasons (April to September). If excavation in soil could not be avoided in these months or at any time of year when rainstorms are likely, for the purpose of preventing soil erosion, temporary exposed slope surfaces should be covered e.g. by tarpaulin, and temporary access roads should be protected by crushed stone or gravel, as excavation proceeds. Intercepting channels should be provided (e.g. along the crest / edge of excavation) to prevent storm runoff from washing across exposed soil surfaces. Arrangements should always be in place to ensure that adequate surface protection measures can be safely carried out well before the arrival of a rainstorm.</p>	Works areas / construction period	√
Water Quality	<p>Earthworks final surfaces should be well compacted and the subsequent permanent work or surface protection should be carried out immediately after the final surfaces are formed to prevent erosion caused by rainstorms. Appropriate drainage like intercepting channels should be provided where necessary.</p> <p>Measures should be taken to minimize the ingress of rainwater into trenches. If excavation of trenches in wet seasons is</p>	Works areas / construction period	√

Summary of Mitigation Measures Implementation Schedule

Type of Impact	Environmental Protection Measures	Location/ Timing	Status
	<p>necessary, they should be dug and backfilled in short sections. Rainwater pumped out from trenches or foundation excavations should be discharged into storm drains via silt removal facilities.</p> <p>Open stockpiles of construction materials (e.g. aggregates, sand and fill material) on sites should be covered with tarpaulin or similar fabric during rainstorms. Measures should be taken to prevent the washing away of construction materials, soil, silt or debris into any drainage system.</p> <p>Manholes (including newly constructed ones) should always be adequately covered and temporarily sealed so as to prevent silt, construction materials or debris from getting into the drainage system, and to prevent storm run-off from getting into foul sewers. Discharge of surface run-off into foul sewers must always be prevented in order not to unduly overload the foul sewerage system.</p>		
Water Quality	Good site practices should be adopted to remove rubbish and litter from construction sites so as to prevent the rubbish and litter from spreading from the site area. It is recommended to clean the construction sites on a regular basis.	Works areas / construction period	Δ
Water Quality	Under normal circumstances, groundwater pumped out of wells, etc. for the lowering of ground water level in basement or foundation construction should be discharged into storm drains after the removal of silt in silt removal facilities.	Works areas / construction period	√
Water Quality	Water used in ground boring and drilling or rock /soil anchoring should as far as practicable be re-circulated after sedimentation. When there is a need for final disposal, the wastewater should be discharged into storm drains via silt removal facilities.	Works areas / construction period	√
Water Quality	Wastewater generated from the washing down of mixing trucks and drum mixers and similar equipment should whenever practicable be recycled. The discharge of wastewater should be	Works areas / construction period	√

Summary of Mitigation Measures Implementation Schedule

Type of Impact	Environmental Protection Measures	Location/ Timing	Status
	<p>kept to a minimum.</p> <p>To prevent pollution from wastewater overflow, the pump sump of any water recycling system should be provided with an on-line standby pump of adequate capacity and with automatic alternating devices.</p> <p>Under normal circumstances, surplus wastewater may be discharged into foul sewers after treatment in silt removal and pH adjustment facilities (to within the pH range of 6 to 10). Disposal of wastewater into storm drains will require more elaborate treatment.</p>		
Water Quality	<p>All vehicles and plant should be cleaned before they leave a construction site to ensure no earth, mud, debris and the like is deposited by them on roads.</p> <p>A wheel washing bay should be provided at every site exit if practicable and wash-water should have sand and silt settled out or removed before discharging into storm drains. The section of construction road between the wheel washing bay and the public road should be paved with backfall to reduce vehicle tracking of soil and to prevent site run-off from entering public road drains.</p>	Works areas / construction period	Δ
Water Quality	<p>Bentonite slurries used in diaphragm wall and bore-pile construction should be reconditioned and reused wherever practicable. If the disposal of a certain residual quantity cannot be avoided, the used slurry may be disposed of at the marine spoil grounds subject to obtaining a marine dumping licence from EPD on a case-by-case basis.</p> <p>If the used bentonite slurry is intended to be disposed of through the public drainage system, it should be treated to the respective effluent standards applicable to foul sewer, storm drains or the receiving waters as set out in the WPCO Technical Memorandum on Effluent Standards.</p>	Works areas / construction period	√

Summary of Mitigation Measures Implementation Schedule

Type of Impact	Environmental Protection Measures	Location/ Timing	Status
	<p>Water used in water testing to check leakage of structures and pipes should be reused for other purposes as far as practicable. Surplus unpolluted water could be discharged into storm drains.</p> <p>Sterilization is commonly accomplished by chlorination. Specific advice from EPD should be sought during the design stage of the works with regard to the disposal of the sterilizing water. The sterilizing water should be reused wherever practicable.</p> <p>Discharge of sterilization effluent should be properly pre-treated for compliance with TM/WPCO requirements, such as but not limited to total residual chlorine.</p>	Works areas / construction period	
Water Quality	<p>Effluent discharges from building construction and other construction site activities are subject to WPCO control. Before commencing any demolition works, all sewer and drainage connections should be sealed to prevent building debris, soil, sand etc. from entering public sewers/drains.</p> <p>Wastewater generated from building construction activities including concreting, plastering, internal decoration, cleaning of works and similar activities should not be discharged into the stormwater drainage system. If the wastewater is to be discharged into foul sewers, it should undergo the removal of settleable solids in a silt removal facility, and pH adjustment as necessary.</p>	Works areas / construction period	Δ
Water Quality	<p>Acidic wastewater generated from acid cleaning, etching, pickling and similar activities should be neutralized to within the pH range of 6 to 10 before discharging into foul sewers. If there is no public foul sewer in the vicinity, the neutralized wastewater should be tinkered off site for disposal into foul sewers or treated to a standard acceptable to storm drains and the receiving waters.</p>	Works areas / construction period	No acidic wastewater will be generated.

Summary of Mitigation Measures Implementation Schedule

Type of Impact	Environmental Protection Measures	Location/ Timing	Status
Water Quality	<p>Wastewater collected from canteen kitchens, including that from basins, sinks and floor drains, should be discharged into foul sewer via grease traps capable of providing at least 20 minutes retention during peak flow.</p> <p>Drainage serving an open oil filling point should be connected to storm drains via a petrol interceptors with peak storm bypass.</p> <p>Vehicle and plant servicing areas, vehicle wash bays and lubrication bays should as far as possible be located within roofed areas. The drainage in these covered areas should be connected to foul sewers via a petrol interceptor. Oil leakage or spillage should be contained and cleaned up immediately. Waste oil should be collected and stored for recycling or disposal in accordance with the Waste Disposal Ordinance.</p>	Works areas / construction period	√
Water Quality	<p>It is recommended to provide sufficient chemical toilets in the works areas. The toilet facilities should be more than 30 m from the seafront or any watercourse. A licensed waste collector should be deployed to clean the chemical toilets on a regular basis.</p> <p>Notices should be posted at conspicuous locations to remind the workers not to discharge any sewage or wastewater into the nearby environment. Regular environmental audit on the construction site can provide an effective control of any malpractices and can encourage continual improvement of environmental performance on site.</p>	Works areas / construction period	√
Water Quality	<p>Contractor must register as a chemical waste producer if chemical wastes would be produced from the construction activities. The Waste Disposal Ordinance (Cap 354) and its subsidiary regulations in particular the Waste Disposal (Chemical Waste) (General) Regulation should be observed and complied with for control of chemical wastes.</p>	Works areas / construction period	√
Water	<p>Any service shop and maintenance facilities should be located on</p>	Works areas / construction period	√

Summary of Mitigation Measures Implementation Schedule

Type of Impact	Environmental Protection Measures	Location/ Timing	Status
Quality	<p>hard standings within a bunded area, and sumps and oil interceptors should be provided. Maintenance of vehicles and equipment involving activities with potential for leakage and spillage should only be undertaken within the areas appropriately equipped to control these discharges.</p> <p>Disposal of chemical wastes should be carried out in compliance with the Waste Disposal Ordinance. The Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes published under the Waste Disposal Ordinance details the requirements to deal with chemical wastes. General requirements are given as follows:</p> <ul style="list-style-type: none"> • suitable containers should be used to hold the chemical wastes to avoid leakage or spillage during storage, handling and transport; • chemical waste containers should be suitably labelled, to notify and warn the personnel who are handling the wastes, to avoid accidents; and • storage area should be selected at a safe location on site and adequate space should be allocated to the storage area. 		
Water Quality	<p>To minimize the potential water quality impacts from the construction works located at or near the storm system or seafront, the following mitigation measures should be adopted:</p> <ul style="list-style-type: none"> • the use of less or smaller construction plants may be specified to reduce the disturbance to the seabed; • temporary sewerage system should be designed to prevent wastewater from entering the storm system and sea; • temporary storage of materials (e.g. equipment, filling materials, chemicals and fuel) and temporary stockpile of construction materials should be located well away from any water courses during carrying out of the construction works; • stockpiling of construction materials and dusty materials should be covered and located away from any water courses; • construction debris and spoil should be covered up and/or disposed of as soon as possible to avoid being washed into 	Works areas / construction period	√

Summary of Mitigation Measures Implementation Schedule

Type of Impact	Environmental Protection Measures	Location/ Timing	Status
	<p>the nearby water receivers;</p> <ul style="list-style-type: none"> • construction activities, which generate large amount of wastewater, should be carried out in a distance away from the waterfront, where practicable; • mitigation measures to control site runoff from entering the nearby water environment should be implemented to minimize water quality impacts. Surface channels should be provided along the edge of the waterfront within the work sites to intercept the runoff; • construction effluent, site run-off and sewage should be properly collected and/or treated; • proper shoring may need to be erected in order to prevent soil/mud from slipping into the storm culvert/sea; and • supervisory staff should be assigned to station on site to closely supervise and monitor the works. 		
Water Quality	If monitoring of the treated effluent quality from the Works Areas is required during the construction phase of the Project, the monitoring should be carried out in accordance with the WPCO license which is under the ambit of regional office (RO) of EPD. The contractor should submit detailed monitoring programme to EPD for approval before commencement of the construction activities.	Works areas / construction period	√
Water Quality	Monitoring of the water quality at the seawater intakes inside the ALE sea channel should be conducted.	ALE sea channel / Before construction period and during installation and removal of temporary marine piles.	√
Water Quality	All barges should be fitted with tight seals to their bottom opening to prevent leakage of materials. The decks of all vessels should be kept tidy and free of oil or other substances that might be accidentally or otherwise washed overboard. Loading of barges should be controlled to prevent splashing of materials to the surrounding environment and barges should under no circumstances be filled to a level which would cause overflowing of material or sediment laden water during loading and	Works areas / construction period	No barge will be required for the project.

Summary of Mitigation Measures Implementation Schedule

Type of Impact	Environmental Protection Measures	Location/ Timing	Status
	transportation. All barges should maintain adequate clearance between vessels and the seabed at all states of the tide and should operate at a reduced speeds to ensure that undue turbidity is not generated by turbulence from vessel movement or propeller wash.		
Water Quality	Connection of sewage generated from the ALE will be connected to the existing public sewer. For handling, treatment and disposal of other operational stage effluent, the practices outlined in ProPECC PN 5/93 should be adopted where applicable. Consensus from DSD should be sought on technical details of the drainage and sewerage proposals.	Project site / design and construction period	Relevant works have yet to be commenced / completed
<i>Construction Phase</i>			
Waste	<p>Recommendations for good site practices during the construction activities include:</p> <ul style="list-style-type: none"> • nomination of an approved person, such as a site manager, to be responsible for good site practices, arrangements for collection and effective disposal to an appropriate facility, of all Wastes generated at the site; • training of site personnel in proper waste management and chemical handling procedures; • provision of sufficient waste disposal points and regular collection of waste; • appropriate measures to minimize windblown litter and dust during transportation of waste by either covering trucks or by transporting wastes in enclosed containers; and • regular cleaning and maintenance programme for drainage systems, sumps and oil interceptors. 	Work site / during the construction period	√
Waste	<p>Waste reduction is best achieved at the planning and design stage, as well as by ensuring the implementation of good site practices. Recommendations to achieve waste reduction include:</p> <ul style="list-style-type: none"> • sorting of demolition debris and excavated materials from demolition works to recover reusable/ recyclable portions (ie soil, broken concrete, metal, etc); 	Work site / during the construction period	Δ

Summary of Mitigation Measures Implementation Schedule

Type of Impact	Environmental Protection Measures	Location/ Timing	Status
	<ul style="list-style-type: none"> • segregation and storage of different types of waste in different containers, skips or stockpiles to enhance reuse or recycling of materials and their proper disposal; • encourage collection of aluminum cans by individual collectors by providing separate labeled bins to enable this waste to be segregated from other general refuse generated by the work force; • proper storage and site practices to minimize the potential for damage to contamination of construction materials; and • plan and stock construction materials carefully to minimize amount of waste generated and avoid unnecessary generation of waste. 		
Waste	<p><u>General Refuse</u></p> <p>General refuse should be stored in enclosed bins or compaction units separate from C&D material. A reputable waste collector should be employed by the contractor to remove general refuse from the site, separately from C&D material. Preferably an enclosed and covered area should be provided to reduce the occurrence of 'wind blown' light material.</p>	Work site / during the construction period	Δ
Waste	<p><u>Construction and Demolition Material</u></p> <ul style="list-style-type: none"> • In order to minimize the impact resulting from collection and transportation of C&D material for off-site disposal, the C&D material from the following construction activities should be reused and recycled as far as possible to reduce the net amount of C&D material generated from the Project; • a Waste Management Plan should be prepared in accordance with ETWB TCW No. 19/2005; • a recording system for the amount of wastes generated, recycled and disposed (including the disposal sites) should be proposed; • in order to monitor the disposal of C&D and solid wastes at 	Work site / during the construction period	√

Summary of Mitigation Measures Implementation Schedule

Type of Impact	Environmental Protection Measures	Location/ Timing	Status
	<p>public filling facilities and landfills and to control fly-tipping, a trip-ticket system should be included. One may make reference to ETWB TCW No.31/2004 for details;</p> <ul style="list-style-type: none"> the large amount of C&D waste generated is mainly due to the piling works of large diameter piles' excavation at the sea front site. If however marine sediment is found during pile excavation, the handling and disposal of such wastes will be managed in accordance with the requirements of the DASO and the current ETWB Tech. Circular no. 34/2002. 		
Waste	<p><u>Chemical Wastes</u></p> <p>If chemical wastes are produced at the construction site, the Contractor would be required to register with the EPD as a Chemical Waste Producer and to follow the guidelines stated in the <i>Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes</i>. Good quality containers compatible with the chemical wastes should be used, and incompatible chemicals should be stored separately. Appropriate labels should be securely attached on each chemical waste container indicating the corresponding chemical characteristics of the chemical waste, such as explosives, flammable, oxidizing, irritant, toxic, harmful, corrosive, etc. The Contractor shall use a licensed collector to transport and dispose of the chemical wastes, to either the Chemical Waste Treatment Centre at Tsing Yi, or another licensed facility, in accordance with the Waste Disposal (Chemical Waste) (General) Regulation. For this Project, the amount of chemical wastes produced would be small.</p>	Work site / during the construction period	Δ
<i>Operational Phase</i>			
Waste	<p><u>General Refuse</u></p> <p>Similar to the existing situation, the main waste type generated during the operation stage of the Project will be general refuse generated by the public and staff. These include waste paper, food wrappings and beverage containers. The disposal of future</p>	Work site / during the construction period	Measures not required until commencement of operational phase

Summary of Mitigation Measures Implementation Schedule

Type of Impact	Environmental Protection Measures	Location/ Timing	Status
	waste arisings generated at the HKCEC would follow the existing handling and disposal arrangement. Provided proper arrangements are made with licensed contractors to collect the generated waste, adverse waste-related impact is not anticipated during the operation stage. It is expected that there will be a 5-7% increase ratio in the future operations.		
<i>Construction Phase</i>			
Landscape & Visual	Due consideration of appearance and view to 'hide' the construction through careful use of: (a) hoarding design; (b) temporary partition walls; (c) screen for hotels; and (d) temporary footbridge.	Entire works area and adjacent hotels	√
Landscape & Visual	Due consideration to protect existing trees.	Entire works area	√
Landscape & Visual	Due consideration of visual impact from construction activities: (a) construction workers access to reach construction areas without passing through hotels and existing HKCEC; and (b) construction light.	Entire works area	√
<i>Operational Phase</i>			
Landscape & Visual	Sensitive soft and hard landscape design for exposed rooftop garden and shady covered area underneath the Atrium Link Extension. Maximize greening opportunity via various in-situ planting and potted planting to achieve 30% of the roof area as planting area for the project.	Roof top and area underneath the Atrium Link Extension	Mitigation measures to be implemented during operational phase
Landscape & Visual	Sensitive building architecture to visually reduce the bulkiness of the building structure, to visually break down the scale of the facades, and to create rooftops for greening opportunities.	Building of the Atrium Link Extension	Mitigation measures to be implemented during operational phase

Summary of Mitigation Measures Implementation Schedule

Type of Impact	Environmental Protection Measures	Location/ Timing	Status
Landscape & Visual	Appearance and view considerations: (a) avoid industrial feel of building service elements; (b) interior visual screens for lower levels of the hotels; (c) consider relocation of facilities of interior spaces of hotels; and (d) careful lighting design at roofs and for building façade to avoid night-time glare.	Entire proposed works and adjacent hotels	Mitigation measures to be implemented during operational phase
Landscape & Visual	Transplanting of trees to adjacent locations.	Convention Avenue	Mitigation measures to be implemented during operational phase
Landscape & Visual	Reinstatement of existing waterfront public footpaths along Convention Avenue and the existing open spaces near Fenwick Street.	Convention Avenue and Fenwick Street	Mitigation measures to be implemented during operational phase

Remark:

- √ Compliance of Mitigation Measures
- <> Compliance of Mitigation but need improvement
- x Non-compliance of Mitigation Measures
- ▲ Non-compliance of Mitigation Measures but rectified by Hip Hing JV
- Δ Deficiency of Mitigation Measures but rectified by Hip Hing JV

Annex F

24-hour and 1-hour TSP Monitoring Results

24-hour TSP Monitoring Results

24-hour TSP Monitoring Results at Station AM1 (Nearby The Grand Hyatt)

Date	Filter Weight (g)		Flow Rate (m ³ /min.)		Elapse Time		Sampling Time(hrs.)	Conc. (µg/m ³)	Weather Condition	Ave. Air Temp. (°C)	Particulate weight(g)	Av. flow (m ³ /min)	Total vol. (m ³)
	Initial	Final	Initial	Final	Initial	Final							
01 to 02 Nov 2008	2.8219	2.9679	1.2466	1.2466	14274.37	14298.37	24.0	81	Sunny	26	0.1460	1.2466	1795.10
07 to 08 Nov 2008	2.7484	2.8901	1.3099	1.3099	14301.37	14325.37	24.0	75	Sunny	27	0.1417	1.3099	1886.26
13 to 14 Nov 2008	2.7518	2.9691	1.2466	1.2466	14328.37	14352.37	24.0	121	Sunny	24	0.2173	1.2466	1795.10
19 to 20 Nov 2008	2.7615	2.9751	1.1201	1.1201	14355.37	14379.37	24.0	132	Sunny	20	0.2136	1.1201	1612.94
25 to 26 Nov 2008	2.7871	3.0117	1.2150	1.2150	14382.37	14406.37	24.0	128	Sunny	19	0.2246	1.2150	1749.60
								Min	75				
								Max	132				
								Average	108				

24-hour TSP Monitoring Results at Station AM2 (Nearby Renaissance Harbour View Hotel)

Date	Filter Weight (g)		Flow Rate (m ³ /min.)		Elapse Time		Sampling Time(hrs.)	Conc. (µg/m ³)	Weather Condition	Ave. Air Temp. (°C)	Particulate weight(g)	Av. flow (m ³ /min)	Total vol. (m ³)
	Initial	Final	Initial	Final	Initial	Final							
01 to 02 Nov 2008	2.7679	2.8735	1.1623	1.1623	12602.13	12626.13	24.0	63	Sunny	26	0.1056	1.1623	1673.71
07 to 08 Nov 2008	2.7626	2.8628	1.2379	1.2379	12629.13	12653.13	24.0	56	Sunny	27	0.1002	1.2379	1782.58
13 to 14 Nov 2008	2.7443	2.8790	1.2756	1.2756	12656.13	12680.13	24.0	73	Sunny	24	0.1347	1.2756	1836.86
19 to 20 Nov 2008	2.7729	2.9855	1.2379	1.2379	12683.13	12707.13	24.0	119	Sunny	20	0.2126	1.2379	1782.58
25 to 26 Nov 2008	2.7814	2.9448	1.2001	1.2001	12710.13	12734.13	24.0	95	Sunny	19	0.1634	1.2001	1728.14
								Min	56				
								Max	119				
								Average	81				

1-hour TSP Monitoring Results

1-hour TSP Monitoring Results at Station AM1 (Nearby The Grand Hyatt)

Date	Filter Weight (g)		Flow Rate (m ³ /min.)		Elapse Time		Sampling Time(hrs.)	Conc. (µg/m ³)	Weather Condition	Ave. Air Temp. (°C)	Particulate weight(g)	Av. flow (m ³ /min)	Total vol. (m ³)
	Initial	Final	Initial	Final	Initial	Final							
01 Nov 08	2.7533	2.7670	1.0885	1.0885	14273.37	14274.37	1.00	210	Sunny	26	0.0137	1.0885	65.31
03 Nov 08	2.7763	2.7851	1.0885	1.0885	14298.37	14299.37	1.00	135	Rainy	25	0.0088	1.0885	65.31
05 Nov 08	2.7456	2.7587	1.0885	1.0885	14299.37	14300.37	1.00	201	Rainy	25	0.0131	1.0885	65.31
07 Nov 08	2.7179	2.7265	1.1201	1.1201	14300.37	14301.37	1.00	128	Sunny	27	0.0086	1.1201	67.21
10 Nov 08	2.7742	2.7829	1.2783	1.2783	14325.37	14326.37	1.00	113	Sunny	19	0.0087	1.2783	76.70
12 Nov 08	2.7642	2.7774	1.2466	1.2466	14326.37	14327.37	1.00	176	Sunny	22	0.0132	1.2466	74.80
13 Nov 08	2.7325	2.7410	1.1517	1.1517	14327.37	14328.37	1.00	123	Sunny	24	0.0085	1.1517	69.10
14 Nov 08	2.7573	2.7693	1.3415	1.3415	14352.37	14353.37	1.00	149	Sunny	23	0.0120	1.3415	80.49
17 Nov 08	2.7680	2.7843	1.1517	1.1517	14353.37	14354.37	1.00	236	Sunny	17	0.0163	1.1517	69.10
19 Nov 08	2.7572	2.7721	1.0885	1.0885	14354.37	14355.37	1.00	228	Sunny	20	0.0149	1.0885	65.31
21 Nov 08	2.7227	2.7353	1.1517	1.1517	14379.37	14380.37	1.00	182	Sunny	21	0.0126	1.1517	69.10
24 Nov 08	2.7420	2.7554	1.1201	1.1201	14380.37	14381.37	1.00	199	Sunny	23	0.0134	1.1201	67.21
25 Nov 08	2.7410	2.7542	1.1517	1.1517	14381.37	14382.37	1.00	191	Sunny	19	0.0132	1.1517	69.10
26 Nov 08	2.7594	2.7732	1.2150	1.2150	14406.37	14407.37	1.00	189	Sunny	17	0.0138	1.2150	72.90
28 Nov 08	2.7015	2.7141	1.2466	1.2466	14407.37	14408.37	1.00	168	Sunny	17	0.0126	1.2466	74.80
								Min	113				
								Max	236				
								Average	175				

1-hour TSP Monitoring Results at Station AM2 (Nearby Renaissance Harbour View Hotel)

Date	Filter Weight (g)		Flow Rate (m ³ /min.)		Elapse Time		Sampling Time(hrs.)	Conc. (µg/m ³)	Weather Condition	Ave. Air Temp. (°C)	Particulate weight(g)	Av. flow (m ³ /min)	Total vol. (m ³)
	Initial	Final	Initial	Final	Initial	Final							
01 Nov 08	2.7304	2.7402	0.8602	0.8602	12601.13	12602.13	1.00	190	Sunny	26	0.0098	0.8602	51.61
03 Nov 08	2.7932	2.8029	1.0868	1.0868	12626.13	12627.13	1.00	149	Rainy	25	0.0097	1.0868	65.21
05 Nov 08	2.7500	2.7597	0.8602	0.8602	12627.13	12628.13	1.00	188	Rainy	25	0.0097	0.8602	51.61
07 Nov 08	2.7603	2.7680	1.0112	1.0112	12628.13	12629.13	1.00	127	Sunny	27	0.0077	1.0112	60.67
10 Nov 08	2.7607	2.7659	1.2756	1.2756	12653.13	12654.13	1.00	68	Sunny	19	0.0052	1.2756	76.54
12 Nov 08	2.7619	2.7698	1.3134	1.3134	12654.13	12655.13	1.00	100	Sunny	22	0.0079	1.3134	78.80
13 Nov 08	2.7363	2.7420	1.2756	1.2756	12655.13	12656.13	1.00	74	Sunny	24	0.0057	1.2756	76.54
14 Nov 08	2.7466	2.7562	1.3134	1.3134	12680.13	12681.13	1.00	122	Sunny	23	0.0096	1.3134	78.80
17 Nov 08	2.7529	2.7664	1.2756	1.2756	12681.13	12682.13	1.00	176	Sunny	17	0.0135	1.2756	76.54
19 Nov 08	2.7669	2.7774	1.2756	1.2756	12682.13	12683.13	1.00	137	Sunny	20	0.0105	1.2756	76.54
21 Nov 08	2.7334	2.7446	1.2001	1.2001	12707.13	12708.13	1.00	156	Sunny	21	0.0112	1.2001	72.01
24 Nov 08	2.7380	2.7481	1.2001	1.2001	12708.13	12709.13	1.00	140	Sunny	23	0.0101	1.2001	72.01
25 Nov 08	2.7395	2.7507	1.2001	1.2001	12709.13	12710.13	1.00	156	Sunny	19	0.0112	1.2001	72.01
26 Nov 08	2.7479	2.7604	1.2756	1.2756	12734.13	12735.13	1.00	163	Sunny	17	0.0125	1.2756	76.54
28 Nov 08	2.7533	2.7617	1.1245	1.1245	12735.13	12736.13	1.00	124	Sunny	17	0.0084	1.1245	67.47
								Min	68				
								Max	190				
								Average	138				

Meteorological Data Extracted from King's Park Stations of the Hong Kong Observatory

Date	Weather	King's Park Station				
		Average Air Temperature (°C)	Average Relative Humidity (%)	Total Rainfall (mm)	Wind Direction (Degree)	Average Wind Speed (km/h)
1-Nov-08	Sunny	25.8	83	0.0	100	14.0
3-Nov-08	Rainy	24.7	84	39.5	100	8.1
5-Nov-08	Rainy	25.1	85	0.5	100	12.5
7-Nov-08	Sunny	26.5	83	0.0	100	8.8
10-Nov-08	Sunny	19.4	48	0.0	20	15.0
13-Nov-08	Sunny	22.2	62	0.0	20	7.2
15-Nov-08	Sunny	23.7	77	0.0	100	6.8
17-Nov-08	Sunny	22.9	75	0.0	100	10.6
19-Nov-08	Sunny	18.3	68	0.0	20	13.6
21-Nov-08	Sunny	19.5	62	0.0	100	9.3
22-Nov-08	Sunny	21.1	69	0.0	100	8.1
24-Nov-08	Sunny	23.1	58	0.0	20#	6.9#
27-Nov-08	Sunny	19.3	32	0.0	30	15.8
29-Nov-08	Sunny	17	31	0.0	20	9.5
30-Nov-08	Sunny	17.3	43	0.0	30	7.7

Notes:

- missing (less than 24 hourly observations a day)

NA - not available

Figure G1 - Measured 24-hour TSP Concentration ($\mu\text{g}\text{m}^{-3}$) at AM1

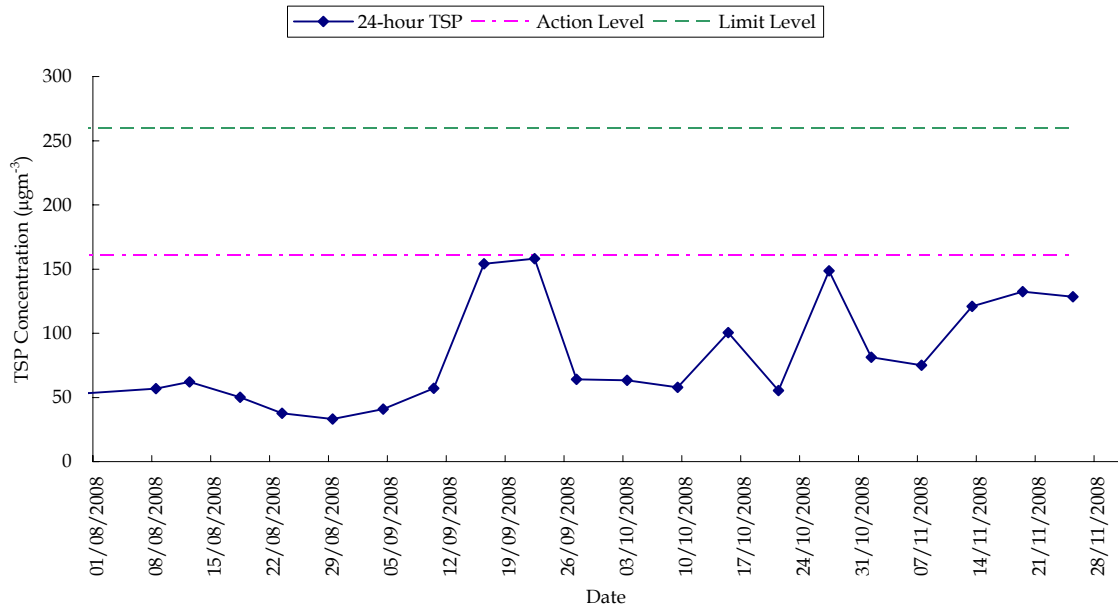


Figure G2 - Measured 24-hour TSP Concentration ($\mu\text{g}\text{m}^{-3}$) at AM2

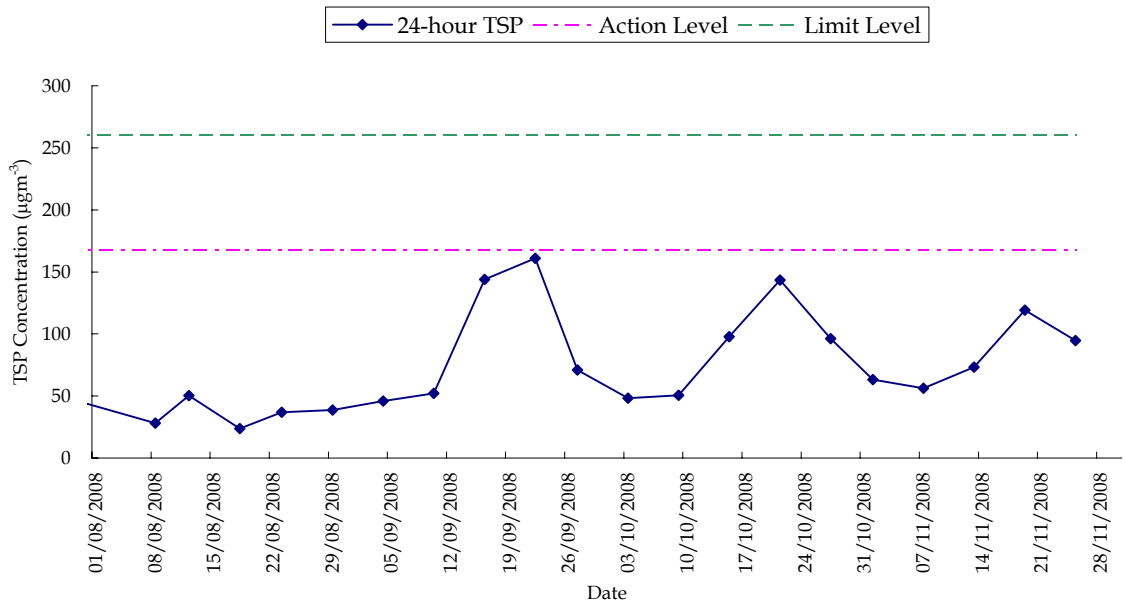


Figure G3 - Measured 1-hour TSP Concentration ($\mu\text{g}\text{m}^{-3}$) at AM1

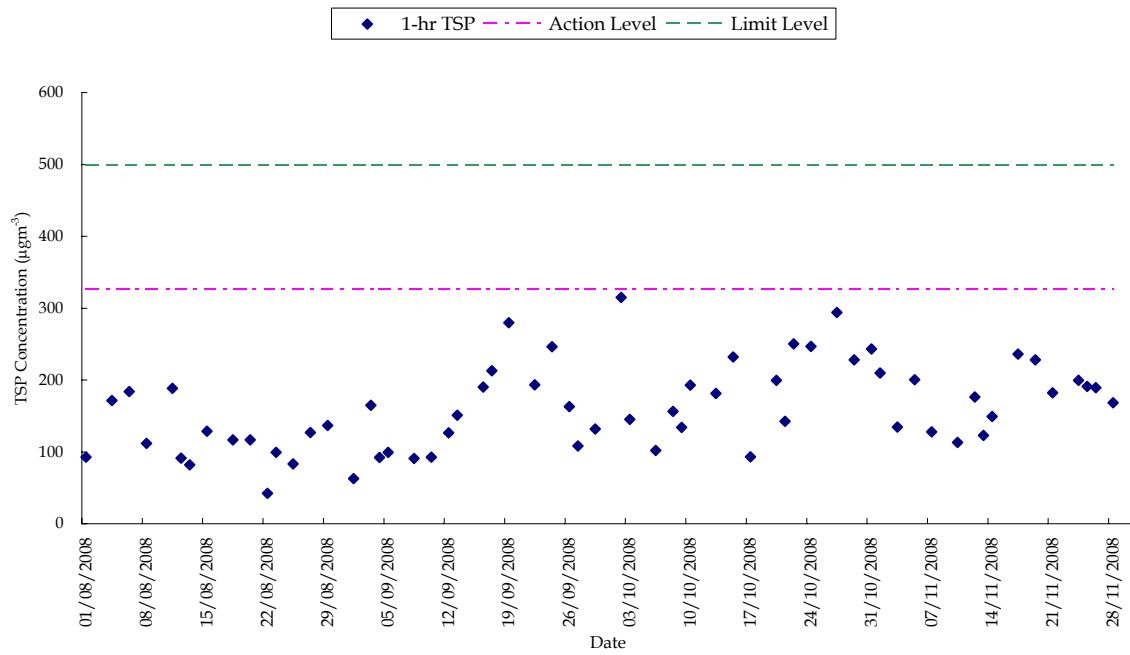
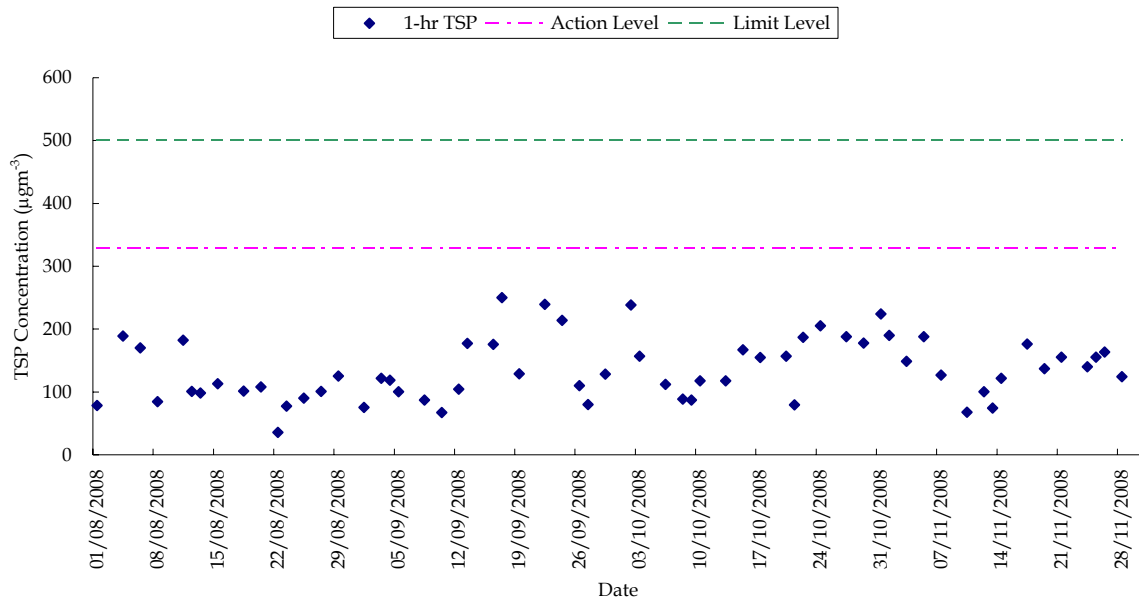


Figure G4 - Measured 1-hour TSP Concentration ($\mu\text{g}\text{m}^{-3}$) at AM2



24-hour TSP Monitoring Results

24-hour TSP Monitoring Results at Station AM1 (Nearby The Grand Hyatt)

Date	Filter Weight (g)		Flow Rate (m ³ /min.)		Elapse Time		Sampling Time(hrs.)	Conc. (µg/m ³)	Weather Condition	Ave. Air Temp. (°C)	Particulate weight(g)	Av. flow (m ³ /min)	Total vol. (m ³)
	Initial	Final	Initial	Final	Initial	Final							
01 to 02 Dec 2008	2.7739	3.0239	1.1201	1.1201	14409.37	14433.37	24.0	155	Sunny	18	0.2500	1.1201	1612.94
06 to 07 Dec 2008	2.7980	3.0200	1.0885	1.0885	14436.37	14460.37	24.0	142	Sunny	15.3	0.2220	1.0885	1567.44
12 to 13 Dec 2008	2.7396	3.0188	1.2150	1.2150	14463.37	14487.37	24.0	160	Sunny	19.5	0.2792	1.2150	1749.60
18 to 19 Dec 2008	2.6942	2.9649	1.2150	1.2150	14490.37	14514.37	24.0	155	Sunny	18.9	0.2707	1.2150	1749.60
24 to 25 Dec 2008	2.7158	2.9020	1.0885	1.0885	14518.37	14542.37	24.0	119	Sunny	18	0.1862	1.0885	1567.44
30 to 31 Dec 2008	2.7235	2.8770	1.1765	1.1765	14544.37	14568.37	24.0	91	Rainy	16.2	0.1535	1.1765	1694.16
								Min	91				
								Max	160				
								Average	137				

24-hour TSP Monitoring Results at Station AM2 (Nearby Renaissance Harbour View Hotel)

Date	Filter Weight (g)		Flow Rate (m ³ /min.)		Elapse Time		Sampling Time(hrs.)	Conc. (µg/m ³)	Weather Condition	Ave. Air Temp. (°C)	Particulate weight(g)	Av. flow (m ³ /min)	Total vol. (m ³)
	Initial	Final	Initial	Final	Initial	Final							
01 to 02 Dec 2008	2.7246	2.9343	1.1623	1.1623	12737.13	12761.13	24.0	125	Sunny	18	0.2097	1.1623	1673.71
06 to 07 Dec 2008	2.7098	2.9047	1.2001	1.2001	12764.13	12788.13	24.0	113	Sunny	15.3	0.1949	1.2001	1728.14
12 to 13 Dec 2008	2.7358	2.9422	1.1245	1.1245	12791.13	12815.13	24.0	127	Sunny	19.5	0.2064	1.1245	1619.28
18 to 19 Dec 2008	2.7423	2.9350	1.1245	1.1245	12818.13	12842.13	24.0	119	Sunny	18.9	0.1927	1.1245	1619.28
24 to 25 Dec 2008	2.7101	2.9503	1.1245	1.1245	12846.13	12870.13	24.0	148	Sunny	18	0.2402	1.1245	1619.28
30 to 31 Dec 2008	2.7411	2.8997	1.2360	1.2360	12872.13	12896.13	24.0	89	Rainy	16.2	0.1586	1.2360	1779.84
								Min	89				
								Max	148				
								Average	120				

1-hour TSP Monitoring Results

1-hour TSP Monitoring Results at Station AM1 (Nearby The Grand Hyatt)

Date	Filter Weight (g)		Flow Rate (m ³ /min.)		Elapse Time		Sampling Time(hrs.)	Conc. (µg/m ³)	Weather Condition	Ave. Air Temp. (°C)	Particulate weight(g)	Av. flow (m ³ /min)	Total vol. (m ³)
	Initial	Final	Initial	Final	Initial	Final							
01 Dec 08	2.7685	2.7882	1.1517	1.1517	14408.37	14409.37	1.00	285	Sunny	18	0.0197	1.1517	69.10
03 Dec 08	2.7589	2.7773	1.1517	1.1517	14433.37	14434.37	1.00	266	Sunny	19.8	0.0184	1.1517	69.10
05 Dec 08	2.7328	2.7480	1.1517	1.1517	14434.37	14435.37	1.00	220	Sunny	17.4	0.0152	1.1517	69.10
06 Dec 08	2.7567	2.7700	1.2150	1.2150	14435.37	14436.37	1.00	182	Sunny	15.3	0.0133	1.2150	72.90
08 Dec 08	2.7789	2.7981	1.2150	1.2150	14460.37	14461.37	1.00	263	Sunny	18.1	0.0192	1.2150	72.90
10 Dec 08	2.7363	2.7516	1.1517	1.1517	14461.37	14462.37	1.00	221	Rainy	19	0.0153	1.1517	69.10
12 Dec 08	2.7071	2.7240	1.1517	1.1517	14462.37	14463.37	1.00	245	Sunny	19.5	0.0169	1.1517	69.10
15 Dec 08	2.6931	2.7109	1.1834	1.1834	14487.37	14488.37	1.00	251	Sunny	16.1	0.0178	1.1834	71.00
17 Dec 08	2.7282	2.7475	1.1834	1.1834	14488.37	14489.37	1.00	272	Sunny	17.7	0.0193	1.1834	71.00
18 Dec 08	2.7435	2.7564	1.1517	1.1517	14489.37	14490.37	1.00	187	Sunny	18.9	0.0129	1.1517	69.10
19 Dec 08	2.7422	2.7530	1.1834	1.1834	14514.37	14515.37	1.00	152	Sunny	19.4	0.0108	1.1834	71.00
22 Dec 08	2.7039	2.7153	1.1201	1.1201	14515.37	14516.37	1.00	170	Sunny	15.9	0.0114	1.1201	67.21
24 Dec 08	2.6898	2.7068	1.1517	1.1517	14516.37	14517.37	1.00	246	Sunny	18	0.0170	1.1517	69.10
24 Dec 08	2.7310	2.7467	1.2150	1.2150	14517.37	14518.37	1.00	215	Sunny	19.6	0.0157	1.2150	72.90
29 Dec 08	2.7133	2.7277	1.1441	1.1441	14542.37	14543.37	1.00	210	Rainy	20.5	0.0144	1.1441	68.65
30 Dec 08	2.7420	2.7523	1.0792	1.0792	14543.37	14544.37	1.00	159	Rainy	16.2	0.0103	1.0792	64.75
31 Dec 08	2.8615	2.8732	1.2090	1.2090	14568.37	14569.37	1.00	161	Rainy	13.9	0.0117	1.2090	72.54
								Min	152				
								Max	285				
								Average	218				

1-hour TSP Monitoring Results at Station AM2 (Nearby Renaissance Harbour View Hotel)

Date	Filter Weight (g)		Flow Rate (m ³ /min.)		Elapse Time		Sampling Time(hrs.)	Conc. (µg/m ³)	Weather Condition	Ave. Air Temp. (°C)	Particulate weight(g)	Av. flow (m ³ /min)	Total vol. (m ³)
	Initial	Final	Initial	Final	Initial	Final							
01 Dec 08	2.7724	2.7889	1.0868	1.0868	12736.13	12737.13	1.00	253	Sunny	18	0.0165	1.0868	65.21
03 Dec 08	2.7512	2.7636	1.1245	1.1245	12761.13	12762.13	1.00	184	Sunny	19.8	0.0124	1.1245	67.47
05 Dec 08	2.7744	2.7854	1.0868	1.0868	12762.13	12763.13	1.00	169	Sunny	17.4	0.0110	1.0868	65.21
06 Dec 08	2.7398	2.7514	1.1245	1.1245	12763.13	12764.13	1.00	172	Sunny	15.3	0.0116	1.1245	67.47
08 Dec 08	2.7482	2.7639	1.0868	1.0868	12788.13	12789.13	1.00	241	Sunny	18.1	0.0157	1.0868	65.21
10 Dec 08	2.7188	2.7317	1.0868	1.0868	12789.13	12790.13	1.00	198	Rainy	19	0.0129	1.0868	65.21
12 Dec 08	2.6882	2.6992	1.0112	1.0112	12790.13	12791.13	1.00	181	Sunny	19.5	0.0110	1.0112	60.67
15 Dec 08	2.6979	2.7088	1.1245	1.1245	12815.13	12816.13	1.00	162	Sunny	16.1	0.0109	1.1245	67.47
17 Dec 08	2.7243	2.7359	1.0490	1.0490	12816.13	12817.13	1.00	184	Sunny	17.7	0.0116	1.0490	62.94
18 Dec 08	2.7256	2.7392	1.0868	1.0868	12817.13	12818.13	1.00	209	Sunny	18.9	0.0136	1.0868	65.21
19 Dec 08	2.7277	2.7363	1.1245	1.1245	12842.13	12843.13	1.00	127	Sunny	19.4	0.0086	1.1245	67.47
22 Dec 08	2.7187	2.7287	1.0868	1.0868	12843.13	12844.13	1.00	153	Sunny	15.9	0.0100	1.0868	65.21
24 Dec 08	2.7291	2.7456	1.1245	1.1245	12844.13	12845.13	1.00	245	Sunny	18	0.0165	1.1245	67.47
24 Dec 08	2.6951	2.7127	1.1623	1.1623	12845.13	12846.13	1.00	252	Sunny	19.6	0.0176	1.1623	69.74
29 Dec 08	2.7396	2.7522	1.2360	1.2360	12870.13	12871.13	1.00	170	Rainy	20.5	0.0126	1.2360	74.16
30 Dec 08	2.7093	2.7207	1.3046	1.3046	12871.13	12872.13	1.00	146	Rainy	16.2	0.0114	1.3046	78.28
31 Dec 08	2.8317	2.8391	1.2017	1.2017	12896.13	12897.13	1.00	103	Rainy	13.9	0.0074	1.2017	72.10
								Min	103				
								Max	253				
								Average	185				

Meteorological Data Extracted from King's Park Stations of the Hong Kong Observatory

Date	Weather	King's Park Station				
		Average Air Temperature (°C)	Average Relative Humidity (%)	Total Rainfall (mm)	Wind Direction (Degree)	Average Wind Speed (km/h)
1-Dec-08	Sunny	18	63	0.0	110	4.9
3-Dec-08	Sunny	19.8	68	0.0	100	9.6
5-Dec-08	Sunny	17.4	44	0.0	20	14.2
6-Dec-08	Sunny	15.3	35	0.0	10	11.0
8-Dec-08	Sunny	18.1	37	0.0	20	7.0
10-Dec-08	Rainy	19	51	0.5	110	7.2
12 Dec 08	Sunny	19.5	74	0.0	100#	12.6#
15-Dec-08	Sunny	16.1	62	0.0	40	8.3
17-Dec-08	Sunny	17.7	65	0.0	100	3.8
18-Dec-08	Sunny	18.9	59	0.0	90	6.6
19-Dec-08	Sunny	19.4	63	0.0	100	10.8
22-Dec-08	Sunny	15.9	53	0.0	10	11.8
24-Dec-08	Sunny	18	58	0.0	10	3.8
24-Dec-08	Sunny	19.6	67	0.0	110	6.3
29-Dec-08	Rainy	20.5	71	1.0	10	7.0
30-Dec-08	Rainy	16.2	81	5.5	10	7.9
31-Dec-08	Rainy	13.9	69	1.0	10	12.8

Notes:

- missing (less than 24 hourly observations a day)

NA - not available

Figure G1 - Measured 24-hour TSP Concentration ($\mu\text{g}\text{m}^{-3}$) at AM1

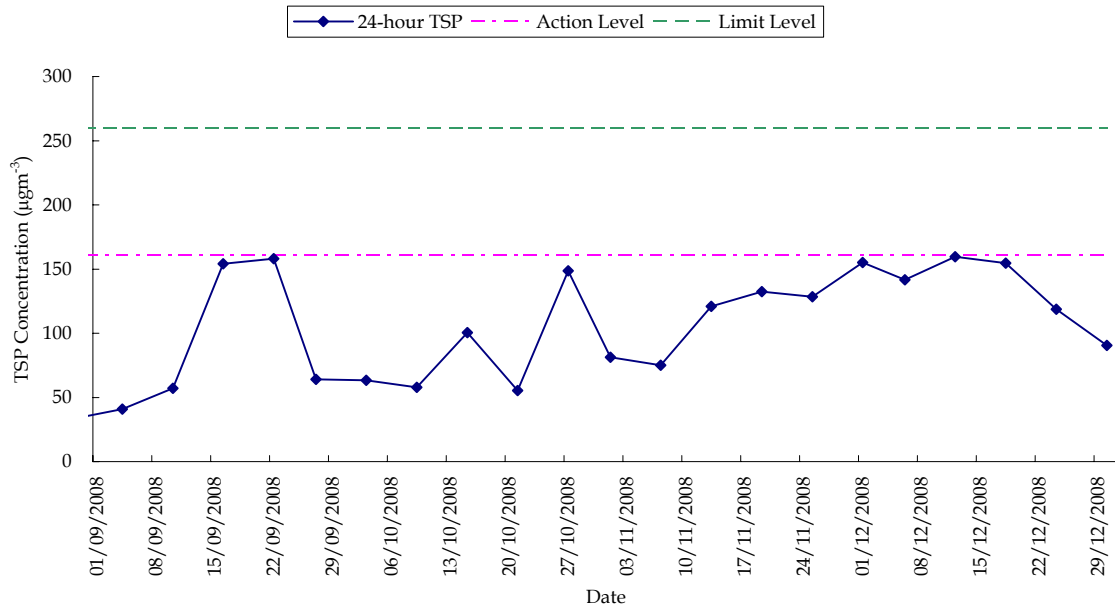


Figure G2 - Measured 24-hour TSP Concentration ($\mu\text{g}\text{m}^{-3}$) at AM2

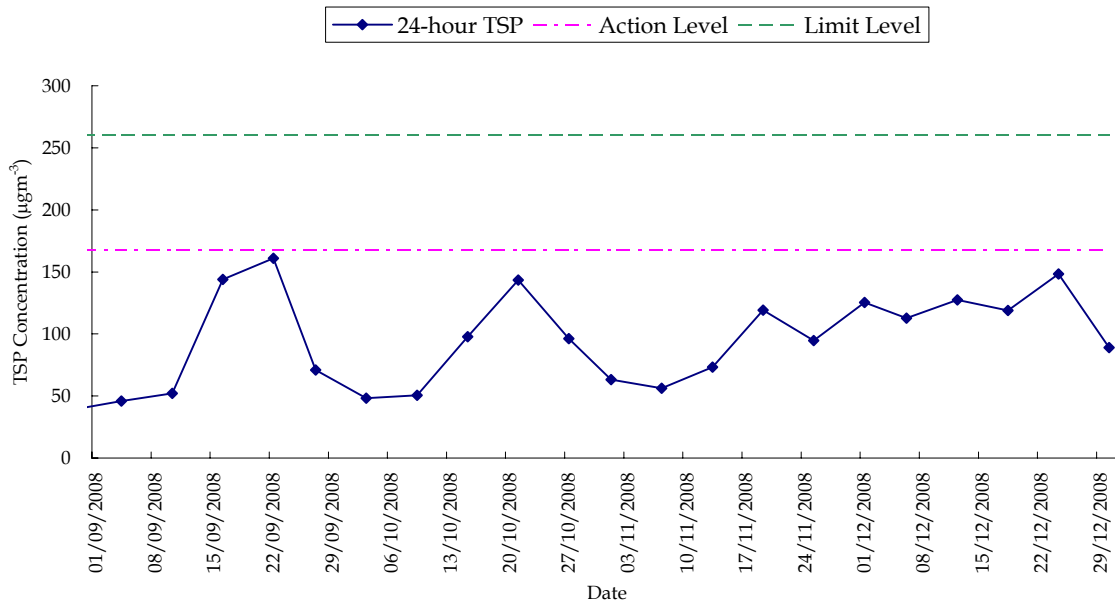


Figure G3 - Measured 1-hour TSP Concentration ($\mu\text{g}\text{m}^{-3}$) at AM1

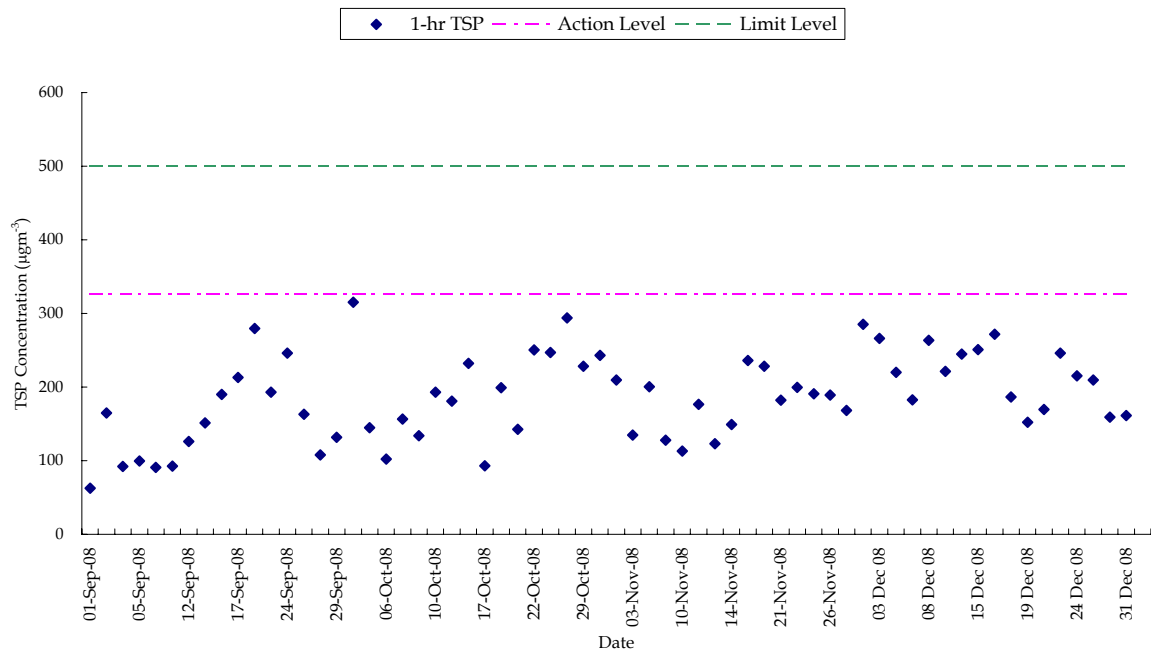
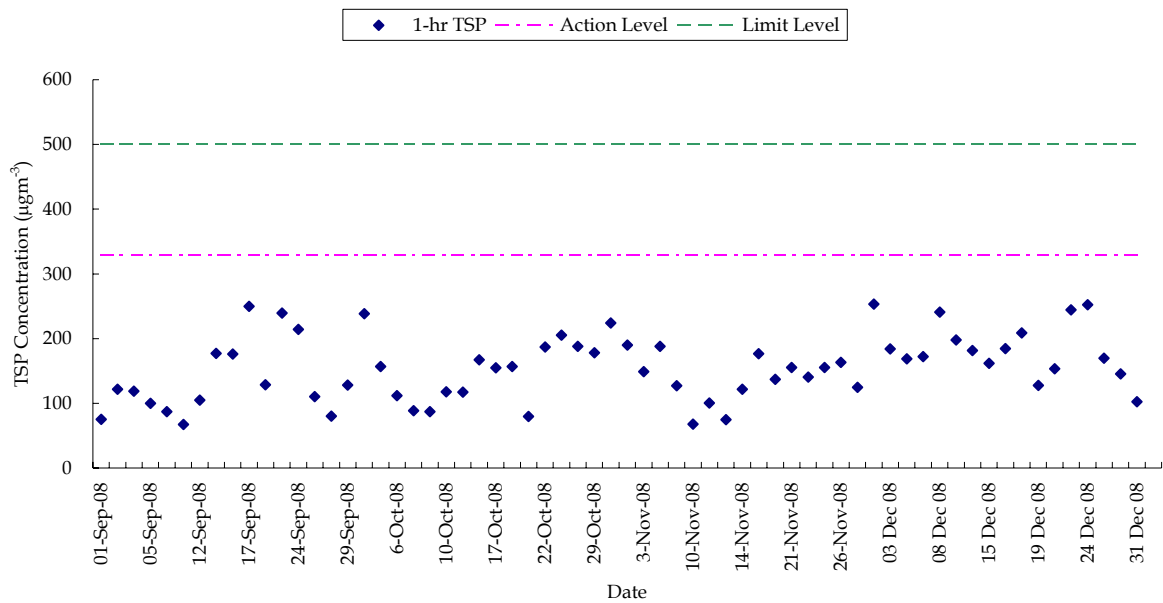


Figure G4 - Measured 1-hour TSP Concentration ($\mu\text{g}\text{m}^{-3}$) at AM2



24-hour TSP Monitoring Results

24-hour TSP Monitoring Results at Station AM1 (Nearby The Grand Hyatt)

Date	Filter Weight (g)		Flow Rate (m ³ /min.)		Elapse Time		Sampling Time(hrs.)	Conc. (µg/m ³)	Weather Condition	Ave. Air Temp. (°C)	Particulate weight(g)	Av. flow (m ³ /min)	Total vol. (m ³)
	Initial	Final	Initial	Final	Initial	Final							
05 Jan 09 to 06 Jan 09	2.8507	3.0156	1.1765	1.1765	14571.37	14595.37	24.0	97	Sunny	17	0.1649	1.1765	1694.16
10 Jan 09 to 11 Jan 09	2.8014	3.0017	1.1765	1.1765	14598.37	14622.37	24.0	118	Sunny	12	0.2003	1.1765	1694.16
16 Jan 09 to 17 Jan 09	2.8169	3.0017	1.1765	1.1765	14625.37	14649.37	24.0	109	Sunny	14	0.1848	1.1765	1694.16
22 Jan 09 to 23 Jan 09	2.8049	3.0079	1.1117	1.1117	14652.37	14676.37	24.0	127	Sunny	19	0.2030	1.1117	1600.85
29 Jan 09 to 30 Jan 09	2.8208	2.9722	1.1765	1.1765	14679.37	14703.37	24.0	89	Sunny	16	0.1514	1.1765	1694.16
								Min	89				
								Max	127				
								Average	108				

24-hour TSP Monitoring Results at Station AM2 (Nearby Renaissance Harbour View Hotel)

Date	Filter Weight (g)		Flow Rate (m ³ /min.)		Elapse Time		Sampling Time(hrs.)	Conc. (µg/m ³)	Weather Condition	Ave. Air Temp. (°C)	Particulate weight(g)	Av. flow (m ³ /min)	Total vol. (m ³)
	Initial	Final	Initial	Final	Initial	Final							
05 Jan 09 to 06 Jan 09	2.8425	3.0322	1.3389	1.3389	12899.13	12923.13	24.0	98	Sunny	17	0.1897	1.3389	1928.02
10 Jan 09 to 11 Jan 09	2.8276	3.0041	1.3732	1.3732	12926.13	12950.13	24.0	89	Sunny	12	0.1765	1.3732	1977.41
16 Jan 09 to 17 Jan 09	2.8006	2.9784	1.4075	1.4075	12953.13	12977.13	24.0	88	Sunny	14	0.1778	1.4075	2026.80
22 Jan 09 to 23 Jan 09	2.8249	3.0918	1.2703	1.2703	12980.13	13004.13	24.0	146	Sunny	19	0.2669	1.2703	1829.23
29 Jan 09 to 30 Jan 09	2.8073	3.0107	1.3389	1.3389	13007.13	13031.13	24.0	105	Sunny	16	0.2034	1.3389	1928.02
								Min	88				
								Max	146				
								Average	105				

1-hour TSP Monitoring Results

1-hour TSP Monitoring Results at Station AM1 (Nearby The Grand Hyatt)

Date	Filter Weight (g)		Flow Rate (m ³ /min.)		Elapse Time		Sampling Time(hrs.)	Conc. (µg/m ³)	Weather Condition	Ave. Air Temp. (°C)	Particulate weight(g)	Av. flow (m ³ /min)	Total vol. (m ³)
	Initial	Final	Initial	Final	Initial	Final							
02 Jan 09	2.8144	2.8276	1.2414	1.2414	14569.37	14570.37	1.00	177	Sunny	14	0.0132	1.2414	74.48
05 Jan 09	2.8202	2.8330	1.1765	1.1765	14570.37	14571.37	1.00	181	Sunny	17	0.0128	1.1765	70.59
07 Jan 09	2.8623	2.8740	1.1441	1.1441	14595.37	14596.37	1.00	170	Sunny	17	0.0117	1.1441	68.65
09 Jan 09	2.8405	2.8545	1.1765	1.1765	14596.37	14597.37	1.00	198	Sunny	12	0.0140	1.1765	70.59
10 Jan 09	2.8278	2.8390	1.1441	1.1441	14597.37	14598.37	1.00	163	Sunny	12	0.0112	1.1441	68.65
12 Jan 09	2.8355	2.8460	1.2090	1.2090	14622.37	14623.37	1.00	145	Sunny	14	0.0105	1.2090	72.54
14 Jan 09	2.8230	2.8396	1.1765	1.1765	14623.37	14624.37	1.00	235	Sunny	12	0.0166	1.1765	70.59
16 Jan 09	2.7836	2.7994	1.1765	1.1765	14624.37	14625.37	1.00	224	Sunny	14	0.0158	1.1765	70.59
19 Jan 09	2.8101	2.8241	1.1765	1.1765	14649.37	14650.37	1.00	198	Sunny	19	0.0140	1.1765	70.59
21 Jan 09	2.7817	2.7960	1.1441	1.1441	14650.37	14651.37	1.00	208	Sunny	20	0.0143	1.1441	68.65
22 Jan 09	2.7905	2.8075	1.1441	1.1441	14651.37	14652.37	1.00	248	Sunny	19	0.0170	1.1441	68.65
23 Jan 09	2.8615	2.8816	1.1765	1.1765	14676.37	14677.37	1.00	285	Sunny	17	0.0201	1.1765	70.59
24 Jan 09	2.8453	2.8589	1.1765	1.1765	14677.37	14678.37	1.00	193	Sunny	11	0.0136	1.1765	70.59
29 Jan 09	2.8314	2.8513	1.1441	1.1441	14678.37	14679.37	1.00	290	Sunny	16	0.0199	1.1441	68.65
30 Jan 09	2.7744	2.7834	1.1765	1.1765	14703.37	14704.37	1.00	127	Sunny	16	0.0090	1.1765	70.59
								Min	127				
								Max	290				
								Average	203				

1-hour TSP Monitoring Results at Station AM2 (Nearby Renaissance Harbour View Hotel)

Date	Filter Weight (g)		Flow Rate (m ³ /min.)		Elapse Time		Sampling Time(hrs.)	Conc. (µg/m ³)	Weather Condition	Ave. Air Temp. (°C)	Particulate weight(g)	Av. flow (m ³ /min)	Total vol. (m ³)
	Initial	Final	Initial	Final	Initial	Final							
02 Jan 09	2.7375	2.7503	1.3389	1.3389	12897.13	12898.13	1.00	159	Sunny	14	0.0128	1.3389	80.33
05 Jan 09	2.8158	2.8365	1.3732	1.3732	12898.13	12899.13	1.00	251	Sunny	17	0.0207	1.3732	82.39
07 Jan 09	2.8535	2.8689	1.3732	1.3732	12923.13	12924.13	1.00	187	Sunny	17	0.0154	1.3732	82.39
09 Jan 09	2.8435	2.8586	1.3732	1.3732	12924.13	12925.13	1.00	183	Sunny	12	0.0151	1.3732	82.39
10 Jan 09	2.8595	2.8729	1.3732	1.3732	12925.13	12926.13	1.00	163	Sunny	12	0.0134	1.3732	82.39
12 Jan 09	2.8435	2.8524	1.3732	1.3732	12950.13	12951.13	1.00	108	Sunny	14	0.0089	1.3732	82.39
14 Jan 09	2.8053	2.8227	1.3732	1.3732	12951.13	12952.13	1.00	211	Sunny	12	0.0174	1.3732	82.39
16 Jan 09	2.8123	2.8299	1.3389	1.3389	12952.13	12953.13	1.00	219	Sunny	14	0.0176	1.3389	80.33
19 Jan 09	2.7953	2.8071	1.3389	1.3389	12977.13	12978.13	1.00	147	Sunny	19	0.0118	1.3389	80.33
21 Jan 09	2.8243	2.8379	1.3046	1.3046	12978.13	12979.13	1.00	174	Sunny	20	0.0136	1.3046	78.28
22 Jan 09	2.8377	2.8603	1.3389	1.3389	12979.13	12980.13	1.00	281	Sunny	19	0.0226	1.3389	80.33
23 Jan 09	2.8148	2.8309	1.3389	1.3389	13004.13	13005.13	1.00	200	Sunny	17	0.0161	1.3389	80.33
24 Jan 09	2.8192	2.8294	1.3732	1.3732	13005.13	13006.13	1.00	124	Sunny	11	0.0102	1.3732	82.39
29 Jan 09	2.7912	2.8085	1.3046	1.3046	13006.13	13007.13	1.00	221	Sunny	16	0.0173	1.3046	78.28
30 Jan 09	2.8094	2.8244	1.3046	1.3046	13031.13	13032.13	1.00	192	Sunny	16	0.0150	1.3046	78.28
								Min	108				
								Max	281				
								Average	188				

Meteorological Data Extracted from King's Park Stations of the Hong Kong Observatory

Date	Weather	King's Park Station				
		Average Air Temperature (°C)	Average Relative Humidity (%)	Total Rainfall (mm)	Wind Direction (Degree)	Average Wind Speed (km/h)
02 Jan 09	Sunny	13.5	50	0.0	90	8.2
05 Jan 09	Sunny	17.2	74	0.0	90	11.5
07 Jan 09	Sunny	17.1	66	0.0	010#	7.0#
09 Jan 09	Sunny	12.3	40	0.0	10	13.5
10 Jan 09	Sunny	12	25	0.0	20	13.3
12 Jan 09	Sunny	14	37	0.0	10	10.7
14 Jan 09	Sunny	12.3	40	0.0	20	6.6
16 Jan 09	Sunny	14.3	64	0.0	100#	8.4#
19 Jan 09	Sunny	19.2	73	0.0	100	9.8
21 Jan 09	Sunny	20.3	71	0.0	100	4.5
22 Jan 09	Sunny	18.6	75	0.0	260	4.5
23 Jan 09	Sunny	16.9	66	0.0	20	10.5
24 Jan 09	Sunny	10.6	47	0.0	10	12.9
29 Jan 09	Sunny	16.4	81	0.0	240	10.5
30 Jan 09	Sunny	16	72	0.0	250	7.1

Notes:

- missing (less than 24 hourly observations a day)

NA - not available

Figure G1 - Measured 24-hour TSP Concentration ($\mu\text{g}\text{m}^{-3}$) at AM1

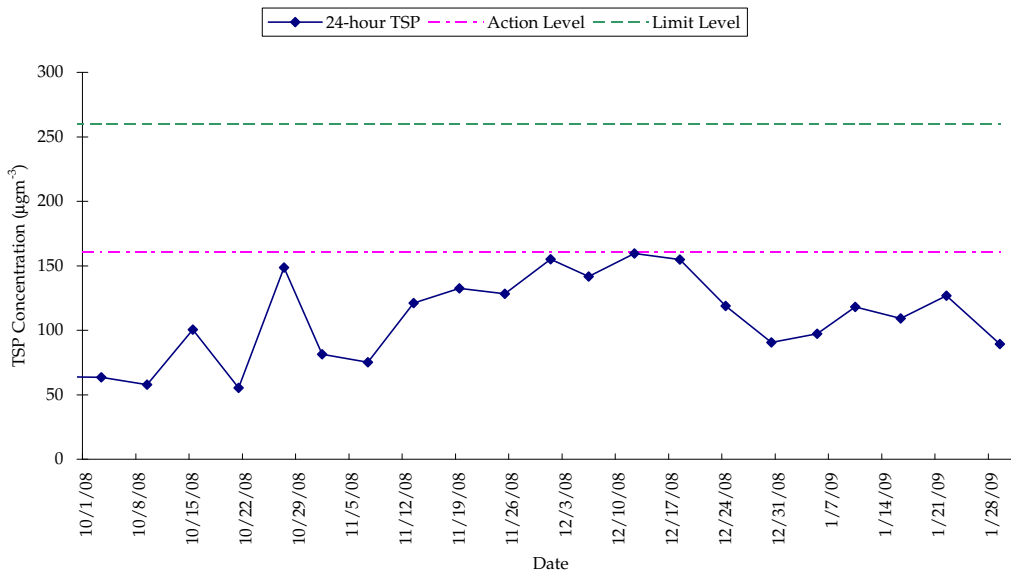


Figure G2 - Measured 24-hour TSP Concentration ($\mu\text{g}\text{m}^{-3}$) at AM2

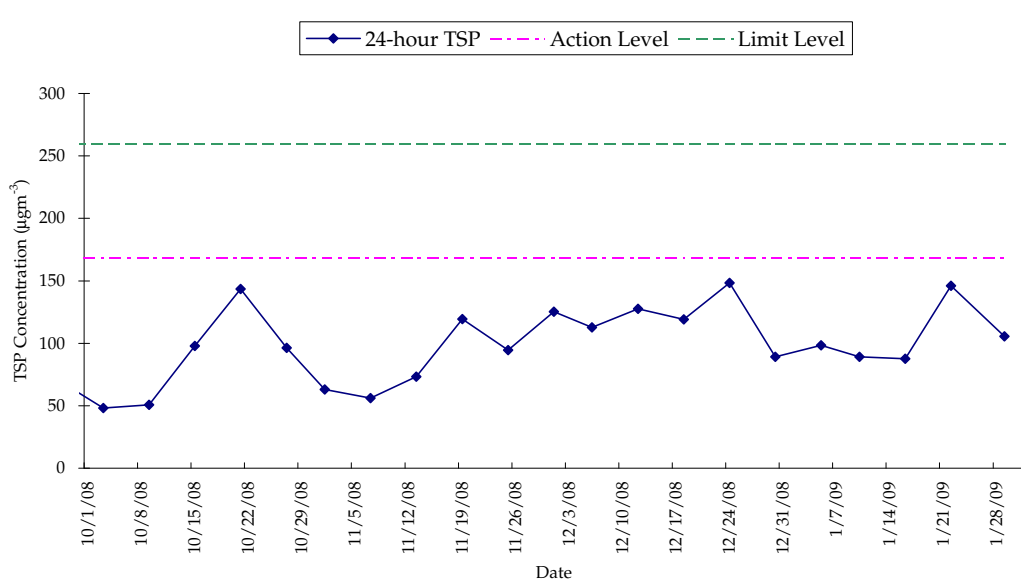


Figure G3 - Measured 1-hour TSP Concentration ($\mu\text{g}\text{m}^{-3}$) at AM1

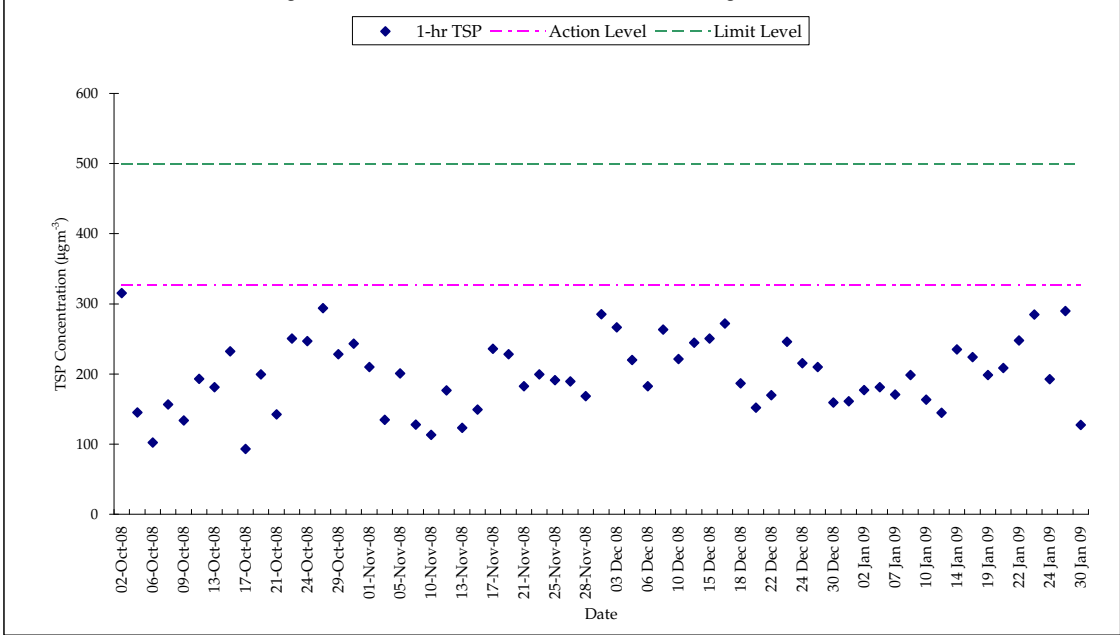
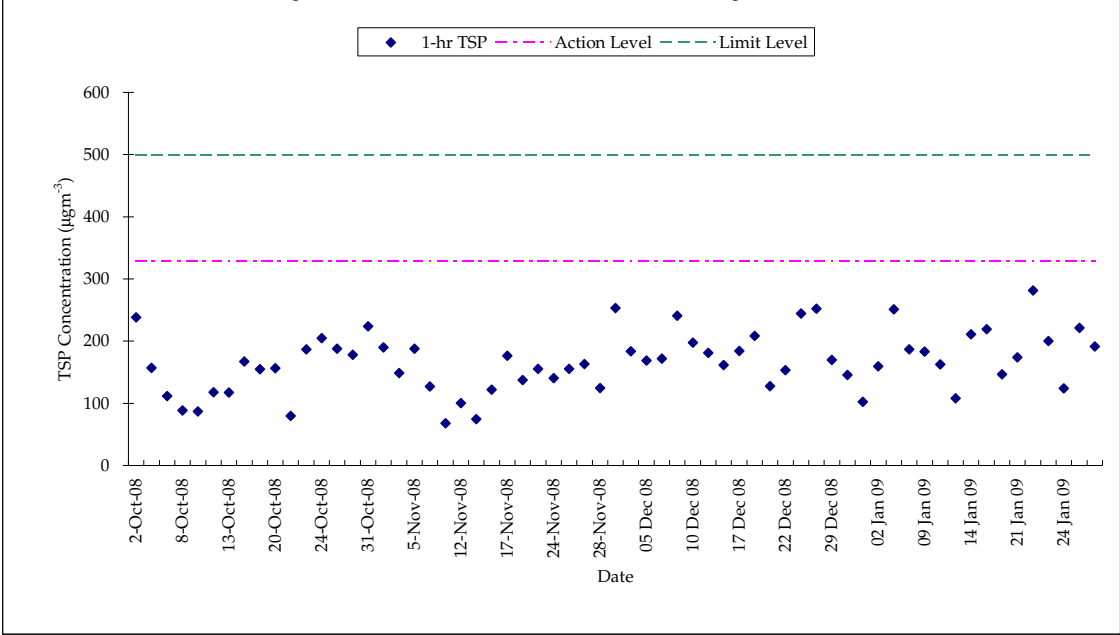


Figure G4 - Measured 1-hour TSP Concentration ($\mu\text{g}\text{m}^{-3}$) at AM2



Annex G

Waste Flow Table

HKCEC – Expansion Project

Name of Project Proponent: HKTDC

Project Commencement Date: 1 Aug 2006

Construction Completion Date: March 2009

Monthly Summary Waste Flow Table for Year 2008

Year	Actual Quantities of inert C&D Materials (in 10 ³ Kg) ⁽¹⁾⁽²⁾					Actual Quantities of C&D Wastes (in 10 ³ Kg) ⁽⁴⁾									
	Total Quantity Generated	Broken Concrete ⁽³⁾	Reused in the Contract	Reused in other Projects ⁽³⁾	Disposed as Public Fill	Steel Materials				Paper/cardboard packaging		Chemical Waste (L)		General refuse	Other waste ⁽⁶⁾
Demolition of existing Atrium Link						Demolition of existing working platform		Recycle	Disposal	Recycle	Disposal	Disposal	Disposal		
(a)	(b)	(c)	(d)	(a)-(b)-(c)-(d)	Recycle	Disposal	Recycle							Disposal	Recycle
January	495	0	0	0	495	10 ⁽⁵⁾	0	0	0	0.2	0.04	0	0	30	122
February	539	0	0	0	539	20 ⁽⁵⁾	0	0	0	0.5	0.02	0	0	33.4	20
March	485	0	0	0	485	5	0	0	0	0.5	0.02	0	0	20.0	59
April	545	0	0	0	545	1	0	0	0	0.5	0.02	0	0	25.0	80
May	35	0	0	0	35	0	0	0	0	1.0	0.05	0	0	28.0	70
June	40	0	0	0	40	0	0	0	0	1.5	0.05	0	0	44.0	63.3
July	83	0	0	0	83	50	0	0	0	1.5	0.05	0	0	67.0	43.8
August	217.5	0	0	0	217.5	60	0	0	0	2.0	0.05	0	0	59.0	257.0
Sep	9.0	0	0	0	9.0	50	0	0	0	2.5	0.05	0	0	74.0	126.7
October	15	0	0	0	15	10	0	0	0	3.0	0.05	0	0	40.0	90.5
November	20	0	0	0	20	0	0	0	0	4.0	0.05	0	0	130.5	151.0
December															
Total	2468.5	0	0	0	2468.5	196 ⁽⁵⁾	0	0	0	20.2	0.40	0	0	510.9	992.8

- Note:
- ⁽¹⁾ Inert C&D materials include bricks, concrete, building debris, rubble and excavated soil.
 - ⁽²⁾ Inert C&D material mainly generated from demolition of atrium link.
 - ⁽³⁾ Broken concrete fro recycling into aggregates.
 - ⁽⁴⁾ C&D wastes include steel materials generated from demolition, paper / cardboard packaging waste, chemical waste and other wastes such as general refuse. Wastes other than general refuse will be disposed of at Tsung Kwan O Area 137 temporary construction waste sorting facility.
 - ⁽⁵⁾ Waste from demolition of steel structure at existing Atrium Link of HKCEC (Phase 2).
 - ⁽⁶⁾ Wastes include materials associated with additional and alternation (A&A) works of HKCEC (e.g. demolition of E&M equipment and finishing materials, bamboo scaffolding) and piling works.

HKCEC – Expansion Project

Name of Project Proponent: HKTDC

Project Commencement Date: 1 Aug 2006

Construction Completion Date: March 2009

Monthly Summary Waste Flow Table for Year 2008

Year	Actual Quantities of inert C&D Materials (in 10 ³ Kg) ⁽¹⁾⁽²⁾					Actual Quantities of C&D Wastes (in 10 ³ Kg) ⁽⁴⁾									
	Total Quantity Generated	Broken Concrete ⁽³⁾	Reused in the Contract	Reused in other Projects ⁽³⁾	Disposed as Public Fill	Steel Materials				Paper/cardboard packaging		Chemical Waste (L)		General refuse	Other waste ⁽⁶⁾
						Demolition of existing Atrium Link		Demolition of existing working platform		Recycle	Disposal	Recycle	Disposal		
(a)	(b)	(c)	(d)	(a)-(b)-(c)-(d)	Recycle	Disposal	Recycle	Disposal	Recycle	Disposal	Recycle	Disposal	Disposal	Disposal	
January	495	0	0	0	495	10 ⁽⁵⁾	0	0	0	0.2	0.04	0	0	30	122
February	539	0	0	0	539	20 ⁽⁵⁾	0	0	0	0.5	0.02	0	0	33.4	20
March	485	0	0	0	485	5	0	0	0	0.5	0.02	0	0	20.0	59
April	545	0	0	0	545	1	0	0	0	0.5	0.02	0	0	25.0	80
May	35	0	0	0	35	0	0	0	0	1.0	0.05	0	0	28.0	70
June	40	0	0	0	40	0	0	0	0	1.5	0.05	0	0	44.0	63.3
July	83	0	0	0	83	50	0	0	0	1.5	0.05	0	0	67.0	43.8
August	217.5	0	0	0	217.5	60	0	0	0	2.0	0.05	0	0	59.0	257.0
Sep	9.0	0	0	0	9.0	50	0	0	0	2.5	0.05	0	0	74.0	126.7
October	15	0	0	0	15	10	0	0	0	3.0	0.05	0	0	40.0	90.5
November	20	0	0	0	20	0	0	0	0	4.0	0.05	0	0	130.5	151.0
December	350.5	0	0	0	350.5	0	0	0	0	3.0	0.05	0	0	462.0	336.5
Total	2819	0	0	0	2819	196 ⁽⁵⁾	0	0	0	23.2	0.45	0	0	972.9	1329.3

Note: ⁽¹⁾ Inert C&D materials include bricks, concrete, building debris, rubble and excavated soil.

⁽²⁾ Inert C&D material mainly generated from demolition of atrium link.

⁽³⁾ Broken concrete fro recycling into aggregates.

⁽⁴⁾ C&D wastes include steel materials generated from demolition, paper / cardboard packaging waste, chemical waste and other wastes such as general refuse. Wastes other than general refuse will be disposed of at Tsung Kwan O Area 137 temporary construction waste sorting facility.

⁽⁵⁾ Waste from demolition of steel structure at existing Atrium Link of HKCEC (Phase 2).

⁽⁶⁾ Wastes include materials associated with additional and alternation (A&A) works of HKCEC (e.g. demolition of E&M equipment and finishing materials, bamboo scaffolding) and piling works.

HKCEC – Expansion Project

Name of Project Proponent: HKTDC

Project Commencement Date: 1 Aug 2006

Construction Completion Date: March 2009

Monthly Summary Waste Flow Table for Year 2009

Year	Actual Quantities of inert C&D Materials (in 10 ³ Kg) ⁽¹⁾⁽²⁾					Actual Quantities of C&D Wastes (in 10 ³ Kg) ⁽⁴⁾									
	Total Quantity Generated	Broken Concrete ⁽³⁾	Reused in the Contract	Reused in other Projects ⁽³⁾	Disposed as Public Fill	Steel Materials				Paper/cardboard packaging		Chemical Waste (L)		General refuse	Other waste ⁽⁶⁾
						Demolition of existing Atrium Link		Demolition of existing working platform		Recycle	Disposal	Recycle	Disposal	Disposal	Disposal
						Recycle	Disposal	Recycle	Disposal						
(a)	(b)	(c)	(d)	(a)-(b)-(c)-(d)	Recycle	Disposal	Recycle	Disposal	Recycle	Disposal	Recycle	Disposal	Disposal	Disposal	
January	485.8	0	0	0	485.8	6 ⁽⁵⁾	0	0	0	0.3	0.05	0	0	815	370.5
February															
March															
April															
May															
June															
July															
August															
Sep															
October															
November															
December															
Total	485.8	0	0	0	485.8	6 ⁽⁵⁾	0	0	0	0.3	0.05	0	0	815	370.5

Note: ⁽¹⁾ Inert C&D materials include bricks, concrete, building debris, rubble and excavated soil.

⁽²⁾ Inert C&D material mainly generated from demolition of atrium link.

⁽³⁾ Broken concrete fro recycling into aggregates.

⁽⁴⁾ C&D wastes include steel materials generated from demolition, paper / cardboard packaging waste, chemical waste and other wastes such as general refuse. Wastes other than general refuse will be disposed of at Tsung Kwan O Area 137 temporary construction waste sorting facility.

⁽⁵⁾ Waste from demolition of steel structure at existing Atrium Link of HKCEC (Phase 2).

⁽⁶⁾ Wastes include materials associated with additional and alternation (A&A) works of HKCEC (e.g. demolition of E&M equipment and finishing materials, bamboo scaffolding) and piling works.

7.1 AIR QUALITY

Since qualitative assessment of dust impact was conducted during construction phase in the EIA, a comparison was made against monitoring results and the Hong Kong Air Quality Objectives (HKAQO) (*Table 7.1*).

Table 7.1 Comparison of the HKAQO and Air Quality Monitoring Results

Month	Monitoring Stations	Corresponding ASR in EIA	HKAQO,	Measured 24 hour TSP	
			μgm^{-3} 24 hour ^(a)	Average	Range ⁽²⁾
November 2008	AM1	AM8	260	79	23 - 158
	AM2	AM6	260	70	14 - 161
December 2008	AM1	AM8	260	81	23 - 160
	AM2	AM6	260	72	14 - 161
January 2009	AM1	AM8	260	82	23 - 160
	AM2	AM6	260	73	14 - 161

Notes:

(a) 24-hour TSP criterion under HKAQOs was used.

(b) Average and range of data were calculated for the period of monitoring between the commencement of the construction works and this quarter.

The monitoring results show that the average and range of 24-hour TSP levels measured since the commencement of the construction works were well below the 24-hour TSP criterion in the HKAQO. Recommended mitigation measures in *Section 4.24* of EIA were implemented throughout the construction period and were considered effective.

7.2 WATER QUALITY

Water quality monitoring was not conducted at the designated monitoring stations (W3, W4 and W5) subsequent to the completion of installation of marine piles on 23 April 2007. No data were therefore presented for this quarter.

7.3 WASTE MANAGEMENT

The estimated amount of waste generated in this project and the accumulated quantities of waste generated up to the reporting period are presented in *Table 7.2*. Recommended mitigation measures in *Sections 6.35 to 6.41* of the EIA report are implemented during the reporting period. These measures are regarded as effective.