



CONTRACT NO: HK/2009/05

WANCHAI DEVELOPMENT PHASE II AND CENTRAL
WANCHAI BYPASS
SAMPLING, FIELD MEASUREMENT AND TESTING WORK
(STAGE 1)

ENVIRONMENTAL PERMIT NO. EP-364/2009/A,
FURTHER ENVIRONMENTAL PERMIT NOS. FEP-01/364/2009,
FEP-02/364/2009, FEP-03/364/2009, FEP-04/364/2009/A, FEP-
05/364/2009/A AND FEP-06/364/2009/A

MONTHLY ENVIRONMENTAL MONITORING & AUDIT REPORT

- JANUARY 2011 -

CLIENTS:

Civil Engineering and Development
Department

and

Highways Department

PREPARED BY:

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CERTIFIED BY:

Raymond Dai
Environmental Team Leader

DATE:

4 February 2011

Ref.: AACWBIECEM00_0_0957L.11

11 February 2011

AECOM Asia Company Limited
8/F, Tower 2
Grand Central Plaza
138 Shatin Rural Committee Road,
Shatin, New Territories,
Hong Kong

By Post and Fax (2691 2649)

Attention: Mr. Kelvin CHENG

Dear Sir,

**Re: Wan Chai Development Phase II and Central-Wan Chai Bypass
Monthly Environmental Monitoring and Audit Report (January 2011)
for EP-364/2009/A, FEP-01/364/2009, FEP-02/364/2009, FEP-03/364/2009,
FEP-04/364/2009/A, FEP-05/364/2009/A and FEP-06/364/2009/A**

Reference is made to the Environmental Team's submission of the captioned Monthly Environmental Monitoring and Audit (EM&A) Report for January 2011 dated 10 February 2011.

Please be informed that we have no adverse comments on the captioned submission. We write to verify the captioned submission in accordance with Condition 3.4 in the captioned Environmental Permits.

Thank you very much for your kind attention and please do not hesitate to contact the undersigned should you have any queries.

Yours sincerely,



David Yeung
Independent Environmental Checker

c.c.	HyD	Mr. Jones Lai	by fax: 2714 5289
	CEDD	Mr. Patrick Keung	by fax: 2577 5040
	AECOM	Mr. Francis Leong / Mr. Stephen Lai	by fax: 2691 2649
	Lam	Mr. Raymond Dai	by fax: 2882 3331

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EXECUTIVE SUMMARY

- i. This is the Environmental Monitoring and Audit (EM&A) Monthly Report – January 2011 specific for Environmental Permit no. EP-364/2009/A, Further Environmental Permit nos. FEP-01/364/2009, FEP-02-364/2009, FEP-03-364/2009, FEP-04/364/2009/A, FEP-05/364/2009/A and FEP-06/364/2009/A. The EM&A report is prepared by the Environmental Team (ET) employed under Contract No. HK/2009/05 –Wanchai Development Phase II and Central Wanchai Bypass. This report presents the environmental monitoring findings and information recorded during the period 28th December 2010 to 27th January 2011. The cut-off date of reporting is at 27th of each reporting month.
- ii. In the reporting month, the principal work activities of individual contracts are included as follows:

Contract no. HY/2009/17 - Central - Wan Chai Bypass (CWB) at FEHD Whitfield Depot - Advanced piling works under FEP-03/364/2009

- Piling Works.

Contract no. HY/2009/18 - Central - Wan Chai Bypass (CWB) - Central Interchange under FEP-05/364/2009/A

- No major construction activity was undertaken in reporting month. Only preparation works was commenced in the reporting month.
- Condition survey / Instrumentation Manholes Survey
- Cable detection and excavation of trial pit
- Hoarding erection
- Erection of CLC
- Tree transplanting
- Trial installation of coupler in CR3

Contract no. 04/HY/2006 - Reconstruction of Bus Terminus near Man Yiu Street and Man Kwong Street under FEP-04/364/2009/A

- Modification of bus bays at the bus terminus
- Modification of traffic island at Man Yiu Street
- Resurfacing Works at Man Kwong Street

Contract no. HK/2009/01 - Wan Chai Development Phase II - Central - Wan Chai Bypass at Hong Kong Convention and Exhibition Centre - Tunnel Works under FEP-02/364/2009

- No major construction activity was undertaken in reporting month.

Contract no. HK/2009/02 - Wan Chai Development Phase II - Central - Wan Chai Bypass at Wan Chai East (CWB Tunnel) under FEP-01/364/2009

- No major construction activity was undertaken in reporting month.

Contract no. HY/2009/15 - Central-Wanchai Bypass – Tunnel (Causeway Bay Typhoon Shelter Section) under FEP-06/364/2009/A

- No major construction activity was undertaken in reporting month.

Noise Monitoring

- iii. Noise monitoring during daytime was conducted at the International Finance Centre (eastern and western podium) on a weekly basis. No action and limit level exceedances were recorded in the reporting period.
- iv. Noise monitoring during daytime was conducted at Victoria Center on a weekly basis. No action and limit level exceedances were recorded in the reporting period.
- v. 24-hour real time noise monitoring was conducted at FEHD Hong Kong Transport Section Whitefield Depot for the piling works in FEHD Whitfield Depot. No action and limit level exceedances were recorded in the reporting month.

Air Monitoring

- vi. 1-hour and 24-hour Total Suspended Particulates (TSP) monitoring were conducted at International Finance Centre (eastern and western podium) on every six days basis. No action and limit level exceedance were recorded in the reporting period.
- vii. 1-hour and 24-hour Total Suspended Particulates (TSP) monitoring were conducted at Causeway Bay Community Center on every six days basis. No action and limit level exceedance were recorded in the reporting period.

Complaints, Notifications of Summons and Successful Prosecutions

- viii. No complaint, notification of summons and prosecution was recorded in the reporting month.

Site Inspections and Audit

- ix. The Environmental Team (ET) conducted weekly site inspections for Contract nos. HY/2009/17 and 04/HY/2006 in this reporting period. The Contractors rectified major observations and recommendations made during the audit sessions. No non-conformance was identified during the site inspections.

Future Key Issues

- x. In coming reporting month, the principal work activities of individual contracts are anticipated as follows:

Contract no. HY/2009/17 - Central - Wan Chai Bypass (CWB) at FEHD Whitfield Depot - Advanced piling works under FEP-03/364/2009

- Piling Works

Contract no. HY/2009/18 - Central - Wan Chai Bypass (CWB) – Central Interchange under FEP-05/364/2009/A



- No major construction activity was undertaken in next reporting month. Only preparation works was commenced.
- Condition survey / Instrumentation Manholes Survey
- Cable detection and excavation of trial pit
- Hoarding and project signboard erection
- Erection of CLC
- Tree transplanting
- Provision of site welfare facilities
- Trial installation of coupler in CR3

Contract no. 04/HY/2006 - Reconstruction of Bus Terminus near Man Yiu Street and Man Kwong Street under FEP-04/364/2009/A

- Resurfacing Works at Man Yiu Street
- Construction of Planting Area at Man Kwong Street

Contract no. HK/2009/01 - Wan Chai Development Phase II - Central - Wan Chai Bypass at Hong Kong Convention and Exhibition Centre - Tunnel Works under FEP-02/364/2009

- No major construction activities are anticipated in coming reporting month.

Contract no. HK/2009/02 - Wan Chai Development Phase II - Central - Wan Chai Bypass at Wan Chai East (CWB Tunnel) under FEP-01/364/2009

- No major construction activities are anticipated in coming reporting month.

Contract no. HY/2009/15 - Central-Wanchai Bypass – Tunnel (Causeway Bay Typhoon Shelter Section) under FEP-06/364/2009/A

- No major construction activity was undertaken in reporting month.

1. INTRODUCTION

1.1 Scope of the Report

- 1.1.1. Lam Geotechnics Limited (LGL) has been appointed to work as the Environmental Team (ET) under Environmental Permit no. EP-364/2009A and Further Environmental permit nos. FEP-01/364/2009, FEP-02/364/2009, FEP-03/364/2009, FEP-04/364/2009/A, FEP-05/364/2009/A and FEP-06/364/2009/A to implement the Environmental Monitoring and Audit (EM&A) programme as stipulated in the EM&A Manual of the approved Environmental Impact Assessment (EIA) Report for Wan Chai Development phase II and Central-Wan Chai Bypass (Register No.: AEIAR-125/2008) and in the EM&A Manual of the approved EIA Report for Central-Wan Chai Bypass and Island Eastern Corridor Link (Register No. AEIAR-014/2001).
- 1.1.2. This report presents the environmental monitoring and auditing work carried out in accordance to the Section 10.3 of EM&A Manual and “*Environmental Monitoring and Audit Requirements*” under Particular Specification Section 27.
- 1.1.3. This report documents the finding of EM&A works for Environmental Permit (EP) no. EP-364/2009/A, Further Environmental Permit (FEP) nos. FEP-01-364/2009, FEP-02/364/2009, FEP-03/364/2009, FEP-04/364/2009/A, FEP-05/364/2009/A and FEP-06/364/2009/A during the period 28th December to 27th January 2011. The cut-off date of reporting is at 27th of each reporting month.

1.2 Structure of the Report

- Section 1** ***Introduction*** – details the scope and structure of the report.
- Section 2** ***Project Background*** – summarizes background and scope of the project, site description, project organization and contact details of key personnel during the reporting period.
- Section 3** ***Status of Regulatory Compliance*** – summarizes the status of valid Environmental Permits / Licenses during the reporting period.
- Section 4** ***Monitoring Requirements*** – summarizes all monitoring parameters, monitoring methodology and equipment, monitoring locations, monitoring frequency, criteria and respective event and action plan and monitoring programmes.
- Section 5** ***Monitoring Results*** – summarizes the monitoring results obtained in the reporting period.
- Section 6** ***Compliance Audit*** – summarizes the auditing of monitoring results, all exceedances environmental parameters.
- Section 7** ***Cumulative Construction Impact due to the Concurrent Projects*** –



summarizes the relevant cumulative construction impact due to the concurrent activities of the concurrent Projects.

Section 8 ***Site Inspection*** – summarizes the findings of weekly site inspections undertaken within the reporting period, with a review of any relevant follow-up actions within the reporting period.

Section 9 ***Complaints, Notification of summons and Prosecution*** – summarizes the cumulative statistics on complaints, notification of summons and prosecution

Section 10 ***Conclusion***

2. PROJECT BACKGROUND

2.1 Background

2.1.1. “Wan Chai Development phase II and Central-Wan Chai Bypass” and “Central-Wan Chai Bypass and Island Eastern Corridor Link” (hereafter called “the Project”) are Designed Project (DP) under the Environmental Impact Assessment Ordinance (Cap. 499) (EIAO). The Environmental Impact Assessment (EIA) Reports for Central-Wan Chai Bypass and Island Eastern Corridor Link (Register No. AEIAR-041/2001) and Wan Chai Development phase II and Central-Wan Chai Bypass (Register No.: AEIAR-125/2008) have been approved on 31 August 2001 and 11 December 2008 respectively.

2.1.2. The key purpose of Wan Chai Development Phase II (WDII) is to provide land at Wan Chai North and North Point for construction of the Central-Wan Chai Bypass and Island Eastern Corridor Link (CWB). Land formed under the project will be developed as a world-class waterfront promenade joining that at the new Central waterfront for public enjoyment.

2.1.3. There is a compelling and present need for the CWB to provide relief to the very congested east-west Connaught Road Central/Harcourt Road / Gloucester Road Corridor (the Corridor) which is currently operating beyond its capacity. The CWB will provide relief to the existing congestion along the Corridor and cater for the anticipated growth of traffic on Hong Kong Island. Without the CWB and its access roads, there will not be sufficient capacity to serve the heavy traffic demands at both strategic and local levels.

2.2 Scope of the Project and Site Description

2.2.1. Design and Construction of Central – Wan Chai Bypass and Island Eastern Corridor Link under the Project involves the construction and operation of a trunk road and its road tunnel more than 800m in length between portals that is shown at **Figure 2.1**.

2.2.2. The study area encompasses existing developments from Central to North Point. The scope of the Central-Wanchai Bypass (CWB) and Island Eastern Corridor Link (IECL) includes:

- A dual three-lane trunk road, approximately 4.5 km in length, and tunnel approximately 3.7 km in length defined from the connection with the existing Rumsey Street Flyover in Central, through to a connection with the existing Island Eastern Corridor to the east of the Causeway Bay Typhoon Shelter (CBTS);
- The Central Interchange near the Rumsey Street Flyover to provide road connections to the Central area;
- Tunnel control buildings and ventilation buildings;
- Slip roads to connect the CWB to the local road system in the Wan Chai North and Causeway Bay area;
- Associated road lighting, road signing, traffic control and surveillance system; and
- Other associated works.

2.2.3. The project also contains various Schedule 2 DPs that, under the EIAO, require Environmental Permits (EPs) to be granted by the DEP before they may be either constructed or operated. **Table 2.1** summarises the five individual DPs under this Project. **Figure 2.1** shows the locations of these Schedule 2 DPs.

Table 2.1 Schedule 2 Designated Projects under this Project

Item	Designated Project	EIAO Reference	Reason for inclusion
DP1	Central-Wanchai Bypass (CWB) including its road tunnel and slip roads	Schedule 2, Part I, A.1 and A.7	Trunk road and road tunnel more than 800 m in length
DP2	Road P2 and other roads which are classified as primary/district distributor roads	Schedule 2, Part I, A.1	Primary / district distributor roads
DP3	Reclamation works including associated dredging works	Schedule 2, Part I, C.1 and C.12	Reclamation more than 5 ha in size and a dredging operation less than 100 m from a seawater intake point
DP5	Wan Chai East Sewage Outfall	Schedule 2, Part I, F.5 and F.6	Submarine sewage pipelines with a total diameter more than 1,200 mm and include a submarine sewage outfall
DP6	Dredging for the Cross-harbour Water Mains from Wan Chai to Tsim Sha Tsui	Schedule 2, Part I, C.12	A dredging operation less than 100 m from a seawater intake point

2.3 Division of the Project Responsibility

2.3.1. Due to the multi-contract nature of the Project, there are a number of contracts sub-dividing the whole works area into different work areas to be commenced. Contractors of individual contracts will be required by the EP holder to apply Further Environmental Permits such that the impact monitoring stations are sub-divided accordingly to facilitate the implementation of EM&A programme and to streamline the EM&A reporting for individual FEP holders correspondingly.

2.3.2. In the reporting month, advance piling work at FEHD Whitfield Depot under Contract no. HY/2009/17 was commenced on 5 October 2010 and completed on 20 January 2011. The details of individual contracts are summarized in **Table 2.2**.

Table 2.2 Details of Individual Contracts under the Project

Contract No.	Contract Title	Associated DP(s)	Construction Commencement Date
HY/2009/17	Central - Wan Chai Bypass (CWB) at FEHD Whitfield Depot - Advanced piling works.	DP1	5 October 2010
HY/2009/18	Central - Wan Chai Bypass (CWB) – Central Interchange	DP1	Anticipated to be commenced in January 2011
04/HY/2006	Reconstruction of Bus Terminus near Man Yiu Street and Man Kwong Street	DP1	September 2010

Contract No.	Contract Title	Associated DP(s)	Construction Commencement Date
HK/2009/01	Wan Chai Development Phase II - Central - Wan Chai Bypass at Hong Kong Convention and Exhibition Centre - Tunnel Works	DP1, DP2	Pending
HK/2009/02	Wan Chai Development Phase II - Central - Wan Chai Bypass at Wan Chai East(CWB Tunnel) (CWB Tunnel)	DP1	Pending
HY/2009/15	Central-Wanchai Bypass – Tunnel (Causeway Bay Typhoon Shelter Section)	DP1	Pending

2.4 Project Organization and Contact Personnel

2.4.1. Civil Engineering and Development Department and Highways Department are the overall project controllers for the Wan Chai Development Phase II and Central-Wan Chai Bypass respectively. For the construction phase of the Project, Project Engineer, Contractor(s), Environmental Team and Independent Environmental Checker are appointed to manage and control environmental issues.

2.4.2. The proposed project organization and lines of communication with respect to environmental protection works are shown in **Figure 2.2**. Key personnel and contact particulars are summarized in **Table 2.3**:

Table 2.3 Contact Details of Key Personnel

Party	Role	Post	Name	Contact No.	Contact Fax
AECOM	Engineer for WDII	Principal Resident Engineer	Mr. Frankie Fan	2587 1778	2587 1877
	Engineer for CWB	Principal Resident Engineer	Mr. Peter Poon	3916 1818	3529 2829
Lam Woo & CO., LTD.	Contractor under Contract no. HY/2009/17	Project Manager	Mr. K. S. Law	9090 1378	2566 7522
		Construction Manager / Sub Agent	Mr. Joe Tsang	9725-5874	
		Site Agent	Mr. Daniel Chan	9372 0495	
		Environmental Officer	Mr. Andy Mak	6461 3065	
Chiu Hing Construction & Transportation Co. Ltd.	Contractor under Contract no. 04/HY/2006	Contract Manager	Mr. Frederick Tsui	2967 6363	2967 6366
		Senior Site Agent	Mr. Alvin Ma	2967 6363	2967 6366
		Environmental Consultant	Mr. Jimmy Cheng	2965 0898	2556 9172
Chun Wo –	Contractor	Site Agent	Mr. Paul Yu	9456 9819	2634 1626



Party	Role	Post	Name	Contact No.	Contact Fax
Leader Joint Venture	under Contract no. HK/2009/01	Operation Manager	Mr. Ho Wing Tai	9306 1356	
		Construction Manager	Mr. David Wong	9653 8635	
		Construction Manager	Mr. Wilson Lau	5183 1270	
		Construction Manager	Mr. Alex Tsang	9194 9383	
		Environmental Officer (Compliance Manager)	Mr. Ho Wing Tai	9306 1356	
		Environmental Engineer	Mr. Ken Yang	9262 6791	
Chun Wo – CRGL Joint Venture	Contractor under Contract no. HK/2009/02	Project Manager	Mr. Chan Sing Cho	3658 3002	2827 9996
		Site Agent	Mr. Eric Lam	3658-3048	
		Deputy Site Agent	Mr. Anthony Wu	3658-3004	
		Environmental Officer (Compliance Manager)	Mr. Barry Leung	3658 3031	
		Environmental Engineer	Ms. Flora Ng	3658-3064	
Leighton Contractors (Asia) Limited	Contractor under Contract no. HY/2009/18	Site Agent	Mr. Brian Gillon	2214 7700	2140 6799
		Deputy Site Agent	Mr. Desmond Sze	2214 7703	
		Quality & Env. Manager	Mr. Stephen Moc	2214 7720	
		Environmental Officer	Mr. Anfernee Chow	2214 7721	
		Environmental Supervisor	Mr. Dennis Yu	2214 7738	
China State Construction Engineering (HK) Ltd.	Contractor under Contract no. HY/2009/15	Project Manager	Mr. M Y Wong	2823 7879	2566 2192
		Site Agent	Mr. Leung Kwok Yiu	9026 8808	
		Head of construction	Mr. Simon Tang	9022 6060	
		Construction Manager	Mr. C K Kwok	9779 2162	
		Assistant Construction Manager (East)	Mr. Gene Cheung	6105 4880	

Party	Role	Post	Name	Contact No.	Contact Fax
		Assistant Construction Manager (West)	Mr. Tony Chiu	9090 0606	
		Section Agent (East)	Mr. Jason Chan	9254 1635	
		Section Agent (West)	Mr. Tang Ka Tung	9473 4771	
		Environmental Manager	Ms. Anna Yu	9473 1945	
		Environmental Officer	Mr Kelven Yip	9669 5447	
ENVIRON Hong Kong Limited	Independent Environmental Checker (IEC)	Independent Environmental Checker (IEC)	Mr. David Yeung	3743 0788	3548 6988
Lam Geotechnics Limited	Environmental Team (ET)	Environmental Team Leader (ETL)	Mr. Raymond Dai	2882 3939	2882 3331

2.4.3. In the reporting month, the principal work activities of individual contracts are included as follows:

Contract no. 04/HY/2006 – Reconstruction of Bus Terminus near Man Yiu Street and Man Kwong Street under FEP-04/364/2009/A

- Modification of bus bays at the bus terminus
- Modification of traffic island at Man Yiu Street
- Resurfacing Works at Man Kwong Street

Contract no. HY/2009/17 - Central - Wan Chai Bypass (CWB) at FEHD Whitfield Depot - Advanced piling works under FEP-03/364/2009

- Piling Works

Contract no. HY/2009/18 - Central - Wan Chai Bypass (CWB) - Central Interchange under FEP-05/364/2009/A

- No major construction activity was undertaken in reporting month. Only preparation works was commenced in the reporting month.
- Condition survey / Instrumentation Manholes Survey
- Cable detection and excavation of trial pit
- Hoarding erection
- Erection of CLC
- Tree transplanting
- Trial installation of coupler in CR3

Contract no. HK/2009/01 - Wan Chai Development Phase II - Central - Wan Chai Bypass at Hong Kong Convention and Exhibition Centre - Tunnel Works under FEP-02/364/2009

- No major construction activity was undertaken in reporting month.

Contract no. HK/2009/02 - Wan Chai Development Phase II - Central - Wan Chai Bypass at Wan Chai East (CWB Tunnel) under FEP-01/364/2009

- No major construction activity was undertaken in reporting month.

Contract no. HY/2009/15 - Central-Wanchai Bypass – Tunnel (Causeway Bay Typhoon Shelter Section) under FEP-06/364/2009/A

- No major construction activity was undertaken in reporting month.

2.4.4. In coming reporting month, the principal work activities of individual contracts are anticipated as follows:

Contract no. 04/HY/2006 – Reconstruction of Bus Terminus near Man Yiu Street and Man Kwong Street under FEP-04/364/2009/A

- Resurfacing Works at Man Yiu Street
- Construction of Planting Area at Man Kwong Street

Contract no. HY/2009/17 - Central - Wan Chai Bypass (CWB) at FEHD Whitfield Depot - Advanced piling works under FEP-03/364/2009

- Piling Works.

Contract no. HY/2009/18 - Central - Wan Chai Bypass (CWB) – Central Interchange under FEP-05/364/2009/A

- No major construction activity was undertaken in next reporting month. Only preparation works was commenced.
- Condition survey / Instrumentation Manholes Survey
- Cable detection and excavation of trial pit
- Hoarding and project signboard erection
- Erection of CLC
- Tree transplanting
- Provision of site welfare facilities
- Trial installation of coupler in CR3

Contract no. HK/2009/01 - Wan Chai Development Phase II - Central - Wan Chai Bypass at Hong Kong Convention and Exhibition Centre - Tunnel Works under FEP-02/364/2009

- No major construction activity is anticipated in coming reporting month.

Contract no. HK/2009/02 - Wan Chai Development Phase II - Central - Wan Chai Bypass at Wan Chai East (CWB Tunnel) under FEP-01/364/2009

- No major construction activity is anticipated in coming reporting month.

Contract no. HY/2009/15 - Central-Wanchai Bypass – Tunnel (Causeway Bay Typhoon Shelter Section) under FEP-06/364/2009/A



- No major construction activity was undertaken in reporting month.

3. STATUS OF REGULATORY COMPLIANCE

3.1 Status of Environmental Licensing and Permitting under the Project

3.1.1. A summary of the current status on licences and/or permits on environmental protection pertinent to the Project is shown in **Table 3.1**.

Table 3.1 Summary of the current status on licences and/or permits on environmental protection pertinent to the Project

Permits and/or Licences	Reference No.	Issued Date	Status
Environmental Permit	EP-356/2009	30 Jul 2009	Valid
Environmental Permit	EP-364/2009	17 Aug 2009	Superseded
Environmental Permit	EP-364/2009/A	4 Aug 2010	Valid
Environmental Permit	EP-376/2009	13 Nov 2010	Valid
Further Environmental Permit	FEP-01/356/2009	18 Feb 2010	Valid
Further Environmental Permit	FEP-02/356/2009	24 Mar 2010	Valid
Further Environmental Permit	FEP-03/356/2009	24 Mar 2010	Valid
Further Environmental Permit	FEP-04/356/2009	15 Nov 2010	Valid
Further Environmental Permit	FEP-01/364/2009	24 Mar 2010	Valid
Further Environmental Permit	FEP-02/364/2009	21 Apr 2010	Valid
Further Environmental Permit	FEP-03/364/2009	12 July 2010	Valid
Further Environmental Permit	FEP-04/364/2009/A	14 Oct 2010	Valid
Further Environmental Permit	FEP-05/364/2009/A	15 Nov 2010	Valid
Further Environmental Permit	FEP-06/364/2009/A	22 Nov 2010	Valid

3.1.2. Due to the multi-contract nature of the Project, the status of permits and/or licences under the individual contract(s) are presented as below:

Contract no. HY/2009/17 - Central - Wan Chai Bypass (CWB) at FEHD Whitfield Depot - Advanced piling works under FEP-03/364/2009

3.1.3. Summary of the current status on licences and/or permits on environmental protection pertinent and submission under FEP-03/364/2009 for contract no. HY/2009/17 are shown in **Table 3.2** and **Table 3.3**.

Table 3.2 Cumulative Summary of Valid Licences and Permits under Contract no. HY/2009/17

Permits and/or Licences	Reference No.	Issued Date	Valid Period/ Expiry Date	Status
Further Environmental Permit	FEP-03/364/2009	12 Jul 2010	N/A	Valid
Notification of Works Under APCO	319348	13 Jul 2010	N/A	Valid
Discharge Licence	WT00007212-2010	5 Aug 2010	5 Aug 2010 – 31 Aug 2015	Valid
Registration as a Waste Producer	5213-151-L2608-05	13 May 2010	N/A	Valid
Billing Account under Waste Disposal Ordinance	7010400	16 Mar 2010	N/A	Valid

Table 3.3 Summary of submission status under FEP-03/364/2009 Condition

EP Condition	Submission	Date of Submission
Condition 2.6	Management Organization of Main Construction Companies	18 September 2010
Conditions 2.7 and 2.8	Submission of works schedule and location plan	1 September 2010
Condition 2.9	Noise Management Plan	1 September 2010

Contract no. 04/HY/2006 – Reconstruction of Bus Terminus near Man Yiu Street and Man Kwong Street under FEP-04/364/2009/A

- 3.1.4. Summary of the current status on licences and/or permits on environmental protection pertinent and submission under FEP-04/364/2009/A for contract no. 04/HY/2006 are shown in **Table 3.4** and **Table 3.5**.

Table 3.4 Cumulative Summary of Valid Licences and Permits under Contract no. 04/HY/2006

Permits and/or Licences	Reference No.	Issued Date	Valid Period/ Expiry Date	Status
Further Environmental Permit	FEP-04/364/2009/A	14 Oct 2010	N/A	Valid
Notification of Works Under APCO	322225	7 Oct 2010	N/A	Valid
Billing Account under Waste Disposal Ordinance	7005123	9 Mar 2007	N/A	Valid

Table 3.5 Summary of submission status under FEP-04/364/2009/A Condition

EP Condition	Submission	Date of Submission
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EP Condition	Submission	Date of Submission
Condition 2.6	Management Organization of Main Construction Companies	11 June 2010
Conditions 2.7 and 2.8	Submission of works schedule and location plan	11 June 2010 and 5 August 2010
Condition 2.9	Noise Management Plan	19 October 2010
Condition 2.10	Landscape Plan	26 Nov 10

Contract no. HK/2009/01 - Wan Chai Development Phase II - Central - Wan Chai Bypass at Hong Kong Convention and Exhibition Centre - Tunnel Works under FEP-02/364/2009

3.1.5. Summary of the current status on licences and/or permits on environmental protection pertinent and submission under FEP-02/364/2009 for contract no. HK/2009/01 are shown in **Table 3.6** and **Table 3.7**

Table 3.6 Cumulative Summary of Valid Licences and Permits under Contract no. HK/2009/01

Permits and/or Licences	Reference No.	Issued Date	Valid Period/ Expiry Date	Status
Further Environmental Permit	FEP-02/356/2009	24 Mar 2010	N/A	Valid
Further Environmental Permit	FEP-02/364/2009	21 Apr 2010	N/A	Valid
Notification of Works Under APCO	313088	6 Jan 2010	N/A	Valid
Discharge Licence	WT00006220-2010	18 Mar 2010	31 Mar 2015	Valid
Billing Account under Waste Disposal Ordinance	7010069	21 Jan 2010	N/A	Valid
Registration as a Chemical Waste Producer	WPN5213-134-C3585-01	21 Jan 2010	N/A	Valid

Table 3.7 Summary of submission status under FEP-02/364/2009 Condition

EP Condition	Submission	Date of Submission
NIL	NIL	NIL

Contract no. HK/2009/02 - Wan Chai Development Phase II - Central - Wan Chai Bypass at Wan Chai East (CWB Tunnel) under FEP-01/364/2009

3.1.6. Summary of the current status on licences and/or permits on environmental protection pertinent and submission under FEP-01/364/2009 for contract no. HK/2009/02 are shown in **Table 3.8** and **Table 3.9**.

Table 3.8 Cumulative Summary of Valid Licences and Permits under Contract no. HK/2009/02

Permits and/or Licences	Reference No.	Issued Date	Valid Period/ Expiry Date	Status
Further Environmental Permit	FEP-03/356/2009	24 Mar 2010	N/A	Valid
	FEP-01/364/2009	24 Mar 2010	N/A	Valid
Notification of Works Under APCO	313962	2 Feb 2010	N/A	Valid
Discharge Licence	WT00006249-2010	22 Mar 2010	31 Mar 2015	Valid
	WT00006436-2010	15 Apr 2010	30 Apr 2015	Valid
	WT00006673-2010	14 May 2010	31 Mar 2015	Valid
	WT00006757-2010	28 May 2010	31 May 2015	Valid
	WT00007129-2010	28 July 2010	31 Jul 2015	Valid
Billing Account under Waste Disposal Ordinance	7010255	10 Feb 2010	N/A	Valid
Registration as Chemical Waste Producer	WPN5213-135-C3593-01	10 Mar 2010	N/A	Valid
	WPN5213-839-C3593-02	22 Sep 2010	N/A	Valid

Table 3.9 Summary of submission status under FEP-01/364/2009 Condition

EP Condition	Submission	Date of Submission
NIL	NIL	NIL

Contract no. HY/2009/18 - Central - Wan Chai Bypass (CWB) – Central Interchange under FEP-05/364/2009/A

- 3.1.7. Summary of the current status on licences and/or permits on environmental protection pertinent and submission under FEP-05/364/2009A for contract no. HY/2009/18 are shown in Table 3.10 and Table 3.11.

Table 3.10 Cumulative Summary of Valid Licences and Permits under Contract no. HY/2009/18

Permits and/or Licences	Reference No.	Issued Date	Valid Period/ Expiry Date	Status
Further Environmental Permit	FEP-05/364/2009/A	15 Nov 2010	N/A	Valid

Permits and/or Licences	Reference No.	Issued Date	Valid Period/ Expiry Date	Status
Notification of Works Under APCO	322293	07 Oct 2010	N/A	Valid
Discharge Licence	WT00008229-2011	13 Jan 2011	31 Jan 2016	Valid
Billing Account under Waste Disposal Ordinance	7011587	11-Oct-10	N/A	Valid
Registration as a Waste Producer	WPN: 8335-121-L1048-04	17 Dec 2010	N/A	Valid

Table 3.11 Summary of submission status under FEP-05/364/2009/A Condition

EP Condition	Submission	Date of Submission
NIL	NIL	NIL

Contract no. HY/2009/15 - Central-Wanchai Bypass – Tunnel (Causeway Bay Typhoon Shelter Section) under FEP-06/364/2009/A

- 3.1.8. Summary of the current status on licences and/or permits on environmental protection pertinent and submission under FEP-06/364/2009/A for contract no. HY/2009/15 are shown in **Table 3.12** and **Table 3.13**

Table 3.12 Cumulative Summary of Valid Licences and Permits under Contract no. HY/2009/15

Permits and/or Licences	Reference No.	Issued Date	Valid Period/ Expiry Date	Status
Further Environmental Permit	FEP-04/356/2009	22 Nov 2010	N/A	Valid
	FEP-06/364/2009/A	22 Nov 2010	N/A	Valid
Notification of Works Under APCO	321822	24 Sep 2010	N/A	Valid
Billing Account under Waste Disposal Ordinance	7011553	30 Sep 2010	N/A	Valid

Table 3.13 Summary of submission status under FEP-06/364/2009/A Condition

EP Condition	Submission	Date of Submission
NIL	NIL	NIL



- 3.1.9. Implementation status of the recommended mitigation measures during this reporting period is presented in **Appendix 3.1.**

4. Monitoring Requirements

4.1 Noise Monitoring

NOISE MONITORING STATIONS

4.1.1. The noise monitoring stations for the Project are listed and shown in **Table 4.1** and **Figure 4.1**. **Appendix 4.1** shows the established Action/Limit Levels for the monitoring works.

Table 4.1 Noise Monitoring Station

Station	Description
M1a	Harbour Road Sports Centre
M2b	Noon Gun Area
M3a	Tung Lo Wan Fire Station
M4b	Victoria Centre
M5b	City Garden
M6	HK Baptist Church Henrietta Secondary School
M7e	International Finance Centre (Eastern End of Podium)
M7w	International Finance Centre (Western End of Podium)

REAL TIME NOISE MONITORING STATIONS

4.1.2. The noise monitoring stations for the Project are listed and shown in **Table 4.2** and **Figure 4.1**. **Appendix 4.1** shows the established Action/Limit Levels for the monitoring works.

Table 4.2 Real Time Noise Monitoring Station

District	Station	Description
Tin Hau	RTN1	FEHD Hong Kong Transport Section Whitefield Depot
North Point	RTN2	Oil Street Community Liaison Centre

NOISE MONITORING PARAMETERS, FREQUENCY AND DURATION

4.1.3. The construction noise level shall be measured in terms of the A-weighted equivalent continuous sound pressure level (L_{eq}). $L_{eq(30\text{ minutes})}$ shall be used as the monitoring parameter for the time period between 0700 and 1900 hours on normal weekdays. For all other time periods, $L_{eq(5\text{ minutes})}$ shall be employed for comparison with the Noise Control Ordinance (NCO) criteria. Supplementary information for data auditing, statistical results such as L_{10} and L_{90} shall also be obtained for reference.

4.1.4. Noise monitoring shall be carried out at all the designated monitoring stations. The monitoring frequency shall depend on the scale of the construction activities. The following is an initial

guide on the regular monitoring frequency for each station on a weekly basis when noise generating activities are underway:

- One set of measurements between 0700 and 1900 hours on normal weekdays.

4.1.5. Real time noise shall be carried out at the designated monitoring stations. The following is an initial guide on the regular monitoring frequency for each station on a 24 hours daily basis when noise generating activities are underway:

- One set of measurements between 0700 and 1900 hours on normal weekdays.
- One set of measurements between 1900 and 2300 hours on normal weekdays and 0700 and 2300 hours on public holidays.
- One set of measurements between 2300 and 0700 hours on next day on everyday.

4.1.6. If construction works are extended to include works during the hours of 1900 – 0700 as well as public holidays and Sundays, additional weekly impact monitoring shall be carried out during respective restricted hours periods. Applicable permits under NCO shall be obtained by the Contractor.

MONITORING EQUIPMENT

4.1.7. As referred to in the Technical Memorandum TM issued under the NCO, sound level meters in compliance with the International Electrotechnical Commission Publications 651: 1979 (Type 1) and 804: 1985 (Type 1) specifications shall be used for carrying out the noise monitoring. Immediately prior to and following each noise measurement the accuracy of the sound level meter shall be checked using an acoustic calibrator generating a known sound pressure level at a known frequency. Measurements may be accepted as valid only if the calibration level from before and after the noise measurement agree to within 1.0 dB.

4.1.8. Noise measurements shall not be made in fog, rain, wind with a steady speed exceeding 5 m/s or wind with gusts exceeding 10 m/s. The wind speed shall be checked with a portable wind speed meter capable of measuring the wind speed in m/s.

4.1.9. The sound level meter shall be checked using an acoustic calibrator generating a known sound pressure level at a known frequency before deployment to the site and during each site visit. Measurements may be accepted as valid only if the calibration level from before and after the noise measurement agree to within 1.0 dB.

4.2 Air Monitoring

AIR QUALITY MONITORING STATIONS

4.2.1. The air monitoring stations for the Project are listed and shown in **Table 4.3** and **Figure 4.1**. **Appendix 4.1** shows the established Action/Limit Levels for the monitoring works.

Table 4.3 Air Monitoring Station

Station ID	Monitoring Location	Description
CMA1b	Oil Street Community Liaison Centre	North Point
CMA2a	Causeway Bay Community Centre	Causeway Bay

Station ID	Monitoring Location	Description
CMA3a	Future CWB site office at Wanchai Waterfront Promenade	Causeway Bay
CMA4a	Society for the Prevention of Cruelty to Animals	Wan Chai
CMA5a	Children Playgrounds opposite to Pedestrian Plaza	Wan Chai
MA1e	International Finance Centre (Eastern End of Podium)	Central
MA1w	International Finance Centre (western End of Podium)	Central

AIR MONITORING PARAMETERS, FREQUENCY AND DURATION

- 4.2.2. One-hour and 24-hour TSP levels should be measured to indicate the impacts of construction dust on air quality. The 24-hour TSP levels shall be measured by following the standard high volume sampling method as set out in the Title 40 of the Code of Federal Regulations, Chapter 1 (Part 50), Appendix B.
- 4.2.3. All relevant data including temperature, pressure, weather conditions, elapsed-time meter reading for the start and stop of the sampler, identification and weight of the filter paper, and any other local atmospheric factors affecting or affected by site conditions, etc., shall be recorded down in detail.
- 4.2.4. For regular impact monitoring, the sampling frequency of at least once in every six-days, shall be strictly observed at all the monitoring stations for 24-hour TSP monitoring. For 1-hour TSP monitoring, the sampling frequency of at least three times in every six-days should be undertaken when the highest dust impact occurs.

SAMPLING PROCEDURE AND MONITORING EQUIPMENT

- 4.2.5. High volume samplers (HVSs) in compliance with the following specifications shall be used for carrying out the 1-hour and 24-hour TSP monitoring:
 - 0.6 - 1.7 m³ per minute adjustable flow range;
 - Equipped with a timing / control device with +/- 5 minutes accuracy for 24 hours operation;
 - Installed with elapsed-time meter with +/- 2 minutes accuracy for 24 hours operation;
 - Capable of providing a minimum exposed area of 406 cm²;
 - Flow control accuracy: +/- 2.5% deviation over 24-hour sampling period;
 - Equipped with a shelter to protect the filter and sampler;
 - Incorporated with an electronic mass flow rate controller or other equivalent devices;
 - Equipped with a flow recorder for continuous monitoring;
 - Provided with a peaked roof inlet;
 - Incorporated with a manometer;
 - Able to hold and seal the filter paper to the sampler housing at horizontal position;
 - Easily changeable filter; and
 - Capable of operating continuously for a 24-hour period.

- 4.2.6. Initial calibration of dust monitoring equipment shall be conducted upon installation and thereafter at bi-monthly intervals. The transfer standard shall be traceable to the internationally recognized primary standard and be calibrated annually. The concern parties such as IEC shall properly document the calibration data for future reference. All the data should be converted into standard temperature and pressure condition.

LABORATORY MEASUREMENT / ANALYSIS

- 4.2.7. A clean laboratory with constant temperature and humidity control, and equipped with necessary measuring and conditioning instruments to handle the dust samples collected, shall be available for sample analysis, and equipment calibration and maintenance. The laboratory should be HOKLAS accredited.
- 4.2.8. Filter paper of size 8" x 10" shall be labeled before sampling. It shall be a clean filter paper with no pinholes, and shall be conditioned in a humidity-controlled chamber for over 24-hours and be pre-weighed before use for the sampling.
- 4.2.9. After sampling, the filter paper loaded with dust shall be kept in a clean and tightly sealed plastic bag. The filter paper shall then be returned to the laboratory for reconditioning in the humidity controlled chamber followed by accurate weighing by an electronic balance with readout down to 0.1 mg. The balance shall be regularly calibrated against a traceable standard.
- 4.2.10. All the collected samples shall be kept in a good condition for 6 months before disposal.
- 4.2.11. Current calibration certificates of equipments are presented in **Appendix 4.2.**

5. MONITORING RESULTS

5.0.1. The environmental monitoring will be implemented based on the division of works areas of each designed project managed under different contracts with separate FEP applied by individual contractors. Overall layout showing work areas of various contracts, latest status of work commencement and monitoring stations is shown in **Figure 2.1** and **Figure 4.1**. The monitoring results are presented in according to the Individual Contract(s).

5.0.2. In the reporting month, the concurrent contracts are as follows:

- Contract no. 04/HY/2006 –Reconstruction of Bus Terminus near Man Yiu Street and Man Kwong Street under FEP-04/364/2009/A.
- Contract no. HY/2009/17 - Central - Wan Chai Bypass (CWB) at FEHD Whitfield Depot - Advanced piling works under FEP-03/364/2009

5.0.3. The environment monitoring schedules for reporting month and coming month are presented in **Appendix 5.1**.

5.1 Noise Monitoring Results

Contract no. HY/2009/17 –Central - Wan Chai Bypass (CWB) at FEHD Whitfield Depot - Advanced piling works under FEP-03/364/2009

5.1.1. The proposed division of noise monitoring stations for Contract no. HY/2009/17 are summarized in **Table 5.1** below:

Table 5.1 Noise Monitoring Stations for Contract no. HY/2009/17

Station	Description
M4b	Victoria Centre

5.1.2. No action and limit exceedance was recorded during day time and restricted hour period in the reporting month. Noise monitoring results measured in this reporting period are reviewed and summarized. Details of noise monitoring results and graphical presentation can be referred in **Appendix 5.2**.

Contract no. 04/HY/2006 – Reconstruction of Bus Terminus near Man Yiu Street and Man Kwong Street under FEP-04/364/2009/A and Contract no. HY/2009/18 - Central - Wan Chai Bypass (CWB) – Central Interchange under FEP-05/364/2009/A

5.1.3. The proposed division of noise monitoring stations for Contract no. 04/HY/2006 and Contract no. HY/2009/18 are summarized in **Table 5.2** below:

Table 5.2 Noise Monitoring Stations for Contract no. 04/HY/2006 and HY/2009/18

Station	Description
M7e	International Finance Centre (Eastern End of Podium)

Station	Description
M7w	International Finance Centre (Western End of Podium)

- 5.1.4. No exceedance was recorded in the reporting month. Noise monitoring results measured in this reporting period are reviewed and summarized. Details of noise monitoring results and graphical presentation can be referred in **Appendix 5.2**.
- 5.1.5. The commencement of major construction works for Contract no. HY/2009/18 under FEP-05/364/2009A is pending. Only preparation works was commenced in the reporting month.

Contract no. HK/2009/01 - Wan Chai Development Phase II - Central - Wan Chai Bypass at Hong Kong Convention and Exhibition Centre - Tunnel Works under FEP-02/364/2009 and Contract no. HK/2009/02 - Wan Chai Development Phase II - Central - Wan Chai Bypass at Wan Chai East (CWB Tunnel) under FEP-01/364/2009

- 5.1.6. The commencement of construction works for Contract no. HK/2009/01 and HK/2009/02 under FEP-02/364/2009 and FEP-01/364/2009 respectively are pending. The proposed division of noise monitoring stations are summarized in **Table 5.3** below.

Table 5.3 Noise Monitoring Station for Contract nos. HK/2009/01 and HK/2009/02

Station	Description
M1a	Harbour Road Sports Centre

Contract no. HY/2009/15 - Central-Wanchai Bypass – Tunnel (Causeway Bay Typhoon Shelter Section) under FEP-06/364/2009/A

- 5.1.7. The commencement of construction works for Contract no. HY/2009/15 under FEP-06/364/2009/A is pending. The proposed division of noise monitoring stations are summarized in **Table 5.3** below.

Table 5.4 Noise Monitoring Station for Contract nos. HY/2009/15

Station	Description
M2b	Noon Gun Area
M3a	Tung Lo Wan Fire Station

5.2 Real Time Noise Monitoring Results

Contract no. HY/2009/17 –Central - Wan Chai Bypass (CWB) at FEHD Whitfield Depot - Advanced piling works under FEP-03/364/2009

- 5.2.1. The proposed division of noise monitoring stations are summarized in **Table 5.5** below. Real time noise monitoring for the piling works under contract no. HY/2009/17 was commenced on 5 October 2010

Table 5.5 Real Time Noise Monitoring Station for Contract no. HY/2009/17

District	Description
Tin Hau	FEHD Hong Kong Transport Section Whitefield Depot

5.2.2. No exceedance was recorded in the reporting month. Real time noise monitoring results measured in this reporting period are reviewed and summarized. Details of real time noise monitoring results and graphical presentation can be referred to **Appendix 5.4**.

5.3 Air Monitoring Results

Contract no. HY/2009/17 –Central - Wan Chai Bypass (CWB) at FEHD Whitfield Depot - Advanced piling works under FEP-03/364/2009

5.3.1. The proposed division of air monitoring stations are summarized in **Table 5.6** below. Air monitoring for the piling works under contract no. HY/2009/17 was commenced on 8 October 2010.

Table 5.6 Air Monitoring Stations for Contract no. HY/2009/17

Station	Description
CMA2a	Causeway Bay Community Centre

5.3.2. No exceedance was recorded in the reporting month. Air quality monitoring results measured in this reporting period are reviewed and summarized. Details of air monitoring results and graphical presentation can be referred in **Appendix 5.3**.

Contract no. 04/HY/2006 – Reconstruction of Bus Terminus near Man Yiu Street and Man Kwong Street under FEP-04/364/2009/A and Contract no. HY/2009/18 - Central - Wan Chai Bypass (CWB) – Central Interchange under FEP-05/364/2009/A

5.3.3. The proposed division of air monitoring stations are summarized in **Table 5.7** below.

Table 5.7 Air Monitoring Stations for Contract no. 04/HY/2006 and HY/2009/18

Station	Description
MA1e	International Finance Centre (Eastern End of Podium)
MA1w	International Finance Centre (Western End of Podium)

5.3.4. No exceedance was recorded in the reporting month. Air quality monitoring results measured in this reporting period are reviewed and summarized. Details of air monitoring results and graphical presentation can be referred in **Appendix 5.3**.

5.3.5. The commencement of major construction works for Contract no. HY/2009/18 under FEP-05/364/2009A is pending. Only preparation works was commenced in the reporting month.

Contract no. HK/2009/01 - Wan Chai Development Phase II - Central - Wan Chai Bypass at Hong Kong Convention and Exhibition Centre - Tunnel Works under FEP-02/364/2009

- 5.3.6. Air quality monitoring will be commenced depending on the commencement of work for Contract no. HK/2009/01 under FEP-02/364/2009. The proposed division of air monitoring stations are summarized in **Table 5.8** below.

Table 5.8 Air Monitoring Stations for Contract no. HK/2009/01

Station	Description
CMA5a	Children Playgrounds opposite to Pedestrian Plaza

Contract no. HK/2009/02 - Wan Chai Development Phase II - Central - Wan Chai Bypass at Wan Chai East (CWB Tunnel) under FEP-01/364/2009

- 5.3.7. Air quality monitoring will be commenced depending on the commencement of work for Contract no. HK/2009/02 under FEP-01/364/2009. The proposed division of air monitoring stations are summarized in **Table 5.9** below.

Table 5.9 Air Monitoring Station for Contract no. HK/2009/02

Station	Description
CMA4a	Society for the Prevention of Cruelty to Animals

Contract no. HY/2009/15 - Central-Wanchai Bypass – Tunnel (Causeway Bay Typhoon Shelter Section) under FEP-06/364/2009/A

- 5.3.8. Air quality monitoring will be commenced depending on the commencement of work for Contract no. HY/2009/15 under FEP-06/364/2009/A. The proposed division of air monitoring stations are summarized in **Table 5.10** below.

Table 5.10 Air Monitoring Station for Contract no. HY/2009/15

Station	Description
CMA3a	CWB site office at Wanchai Waterfront Promenade

5.4 Waste Monitoring Results

Contract no. HY/2009/17 –Central - Wan Chai Bypass (CWB) at FEHD Whitfield Depot - Advanced piling works under FEP-03/364/2009

- 5.4.1. Inert C&D waste was recycled in the reporting month. Details of the waste flow table are summarized in **Table 5.11**

Table 5.11 Details of Waste Disposal for Contract no. HY/2009/17

Waste Type	Quantity this month, m ³	Cumulative Quantity-to-Date, m ³	Disposal / Dumping Grounds
Inert C&D materials disposed	NIL	NIL	N/A

Waste Type	Quantity this month, m ³	Cumulative Quantity-to-Date, m ³	Disposal / Dumping Grounds
Inert C&D materials recycled	317.80	1354.82	N/A
Non-inert C&D materials disposed	NIL	NIL	N/A
Non-inert C&D materials recycled	NIL	NIL	N/A
Chemical waste disposed	N/A	N/A	N/A

Contract no. 04/HY/2006 – Reconstruction of Bus Terminus near Man Yiu Street and Man Kwong Street under FEP-04/364/2009/A

- 5.4.2. Inert C&D waste was disposed of in this reporting month. Details of the waste flow table are summarized in **Table 5.12**.

Table 5.12 Details of Waste Disposal for Contract no. 04/HY/2006

Waste Type*	Quantity this month, m ³	Cumulative-to-Date, m ³	Disposal / Dumping Grounds
Inert C&D materials disposed	NIL	1288.5	Chai Wan and T.K.O. 137
Inert C&D materials recycled	NIL	NIL	N/A
Non-inert C&D materials disposed	NIL	NIL	N/A
Non-inert C&D materials recycled	NIL	NIL	N/A
Chemical waste disposed	NIL	NIL	N/A

Contract nos. HK/2009/01 - Wan Chai Development Phase II - Central - Wan Chai Bypass at Hong Kong Convention and Exhibition Centre - Tunnel Works under FEP-02/364/2009

- 5.4.3. No inert and non-inert C&D waste was disposed of in this reporting month. Details of the waste flow table are summarized in **Table 5.13**.

Table 5.13 Details of Waste Disposal for Contract no. HK/2009/01

Waste Type*	Quantity this month, m ³	Cumulative-to-Date, m ³	Disposal / Dumping Grounds
Inert C&D materials disposed	NIL	NIL	N/A
Inert C&D materials recycled	NIL	NIL	N/A
Non-inert C&D materials disposed	NIL	NIL	N/A
Non-inert C&D materials recycled	NIL	NIL	N/A

Waste Type*	Quantity this month, m ³	Cumulative-to-Date. m ³	Disposal / Dumping Grounds
Chemical waste disposed	NIL	NIL	N/A

Contract no. HK/2009/02 - Wan Chai Development Phase II - Central - Wan Chai Bypass at Wan Chai East (CWB Tunnel) under FEP-01/364/2009

5.4.4. No inert and no-inert C&D waste was disposed of in this reporting month. Details of the waste flow table are summarized in **Table 5.14**.

Table 5.14 Details of Waste Disposal for Contract no. HK/2009/02

Waste Type*	Quantity this month, m ³	Cumulative-to-Date. m ³	Disposal / Dumping Grounds
Inert C&D materials disposed	NIL	NIL	N/A
Inert C&D materials recycled	NIL	NIL	N/A
Non-inert C&D materials disposed	NIL	NIL	N/A
Non-inert C&D materials recycled	NIL	NIL	N/A
Chemical waste disposed	NIL	NIL	N/A

Contract no. HY/2009/18 - Central - Wan Chai Bypass (CWB) – Central Interchange under FEP-05/364/2009/A

5.4.5. No inert and no-inert C&D waste was disposed of in this reporting month. Details of the waste flow table are summarized in **Table 5.15**.

Table 5.15 Details of Waste Disposal for Contract no. HY/2009/18

Waste Type*	Quantity this month, m ³	Cumulative-to-Date. m ³	Disposal / Dumping Grounds
Inert C&D materials disposed	0	0	N/A
Inert C&D materials recycled	0	0	N/A
Non-inert C&D materials disposed	37.3	37.3	SENT Landfill
Non-inert C&D materials recycled	0	0	N/A
Chemical waste disposed	0	0	N/A

Contract no. HY/2009/15 - Central-Wanchai Bypass – Tunnel (Causeway Bay Typhoon Shelter Section) under FEP-06/364/2009/A

5.4.6. No inert and no-inert C&D waste was disposed of in this reporting month. Details of the waste flow table are summarized in **Table 5.16**.

Table 5.16 Details of Waste Disposal for Contract no. HY/2009/15

Waste Type*	Quantity this month, m ³	Cumulative-to-Date. m ³	Disposal / Dumping Grounds
Inert C&D materials disposed	NIL	NIL	N/A
Inert C&D materials recycled	NIL	NIL	N/A
Non-inert C&D materials disposed	NIL	NIL	N/A
Non-inert C&D materials recycled	NIL	NIL	N/A
Chemical waste disposed	NIL	NIL	N/A

6. Compliance Audit

6.0.1. The Event Action Plan for construction noise, air qualities are presented in **Appendix 6.1**.

6.1 Noise Monitoring

Contract no. HY/2009/17 – Central - Wan Chai Bypass (CWB) at FEHD Whitfield Depot - Advanced piling works under FEP-03/364/2009

6.1.1. No exceedance was recorded in the reporting month.

Contract no. 04/HY/2006 – Reconstruction of Bus Terminus near Man Yiu Street and Man Kwong Street under FEP-04/364/2009/A

6.1.2. No exceedance was recorded in the reporting month.

Contract no. HY/2009/18 - Central - Wan Chai Bypass (CWB) – Central Interchange under FEP-05/364/2009/A

6.1.3. No noise monitoring was undertaken in the reporting month.

Contract nos. HK/2009/01 - Wan Chai Development Phase II - Central - Wan Chai Bypass at Hong Kong Convention and Exhibition Centre - Tunnel Works and HK/2009/02 - Wan Chai Development Phase II - Central - Wan Chai Bypass at Wan Chai East (CWB Tunnel)

6.1.4. No noise monitoring was undertaken in the reporting month.

Contract no. HY/2009/15 - Central-Wanchai Bypass – Tunnel (Causeway Bay Typhoon Shelter Section) under FEP-06/364/2009/A

6.1.5. No noise monitoring was undertaken in the reporting month.

6.2 Real Time Noise Monitoring

Contract no. HY/2009/17 – Central - Wan Chai Bypass (CWB) at FEHD Whitfield Depot - Advanced piling works under FEP-03/364/2009

6.2.1. No exceedance was recorded in the reporting month.

6.3 Air Monitoring

Contract no. HY/2009/17 – Central - Wan Chai Bypass (CWB) at FEHD Whitfield Depot - Advanced piling works under FEP-03/364/2009

6.3.1. No exceedance was recorded in the reporting month.

Contract no. 04/HY/2006 – Reconstruction of Bus Terminus near Man Yiu Street and Man Kwong Street under FEP-04/364/2009/A

6.3.2. No exceedance was recorded in the reporting month.

Contract no. HY/2009/18 - Central - Wan Chai Bypass (CWB) – Central Interchange under FEP-05/364/2009/A

6.3.3. No air quality monitoring was undertaken in the reporting month.

Contract nos. HK/2009/01 - Wan Chai Development Phase II - Central - Wan Chai Bypass at Hong Kong Convention and Exhibition Centre - Tunnel Works and HK/2009/02 - Wan Chai Development Phase II - Central - Wan Chai Bypass at Wan Chai East(CWB Tunnel)

6.3.4. No air quality monitoring was undertaken in the reporting month.

Contract no. HY/2009/15 - Central-Wanchai Bypass – Tunnel (Causeway Bay Typhoon Shelter Section) FEP-06/364/2009/A

6.3.5. No air quality monitoring was undertaken in the reporting month.

6.4 Review of the Reasons for and the Implications of Non-compliance

6.3.1. There was no non-compliance from the site audits in the reporting period. The observations and recommendations made in each individual site audit session were presented in Section 8.

6.3.2. No project-related non-compliance from monitoring was recorded in the reporting month.

6.5 Summary of action taken in the event of and follow-up on non-compliance

6.4.1. There was no particular action taken since no project-related non-compliance was recorded from the site audits and environmental monitoring in the reporting period.

7. Cumulative Construction Impact due to the Concurrent Projects

7.0.1. According to Condition 3.4 of the EP-364/2009/A, this section addresses the relevant cumulative construction impact due to the concurrent activities of the current projects including the Central Reclamation Phase III (CRIII), Wan Chai Development Phase II (WDII), Central-WanChai Bypass (CWB) and Island Eastern Corridor Link projects (IECL).

7.0.2. From the Monthly EM&A report (December 2010) of Central Reclamation Phase III the key works in January 2011 are as follows:

- Architectural works and commissioning tests at Pier 7;
- Wet Trades and Architectural works at the Lower, middle and upper decks of Pier 8 and steel frame for roof glazing;
- CTB installation of clock into the clock tower, architectural and E & M works & link bridge construction;
- Piling (Socket H-Pile & Rock Anchors) and tie beam works at Public Pier West;
- Testing and Commissioning of Pump Station P5.1;
- Electricity Cable laying to Piers and to ESBs S11.1 & S11.2 (temporary);
- MYS Footbridge – cross head construction and steel frame fabrication (off Site);
- MYS storm drainage, sewers, watermains and roadworks to pier areas;
- MYS Laying of 800 dia. Cooling Main;
- MYS Existing Culvert F – preparation for desilting and stabilisation works for culvert.
- MYS Culvert F Extension –preparation for piling for Bay 1;
- General filling works above +2.5mpd in IRAE;
- In situ work to caisson and pumping stations' seawall copings;
- Internal E&M works to IRAE pump stations;
- ESB (S8.1 & S9.1) –Installation of generators and cabling works;
- ESB (S11.1 & S11.2) –ABWF and E&M works;
- Culvert J piling and structural works;
- Bored piling at Eastern Seawall and;
- Cooling water main construction in Lung Wui Road, Edinburgh Place and in IRAE.

7.0.3. According to the construction programme of Wan Chai Development Phase II, Central-Wan Chai Bypass and Island Eastern Corridor Link projects, the major construction activity under Wan Chai Development Phase II was the filling works at North Point Reclamation Stage 1(NPR1), dredging works at Wan Chai Reclamation Stage 1(WCR1), Advanced piling works at FEHD Whitfield Depot and cross-harbour water mains in the reporting month. The major environmental impact was water quality impact at North Point and Wan Chai. Land-based construction activity was only the modification works of bus terminus near Man Yiu Street and Man Kwong Street under CWB and advance piling works at FEHD Whitfield Depot in the reporting month.

7.0.4. The major environmental impacts generated from the Central Reclamation Phase III were located along the coastline of Central and Admiralty while modification works of bus terminus near Man Yiu Street and Man Kwong Street under CWB and advanced piling works at FEHD Whitfield Depot were undertaken in the reporting month. No significant air, noise impact were anticipated in the reporting month. Besides, no environmental monitoring exceedance was recorded from the Project in the reporting month. Thus, it is evaluated that the cumulative



construction impact from the concurrent projects including Wan Chai Development Phase II and Central Reclamation Phase III was insignificant.

8. Environmental Site Audit

8.0.1. During this reporting month, weekly environmental site audits were conducted for Contracts no. HY/2009/17 and 04/HY/2006. No non-conformance was identified during the site audits.

8.0.2. **Five** site inspections for Contract no. HY/2009/17 were carried out during this reporting period. The results of these inspections and outcomes are summarized in **Table 8.1**.

Table 8.1 Summary of Environmental Inspections for Contract no. HY/2009/17

Item	Date	Observations	Action taken by Contractor	Outcome
101228_01	28-Dec-10	The contractor was reminded to use more sedimentation tanks for treating silty water at the exit of construction site. As one tank is not enough withstand the high flow rate	Increase the number of sedimentation tank	Completion as observed on 4-1-11
101228_02	28/12/2010	Drip tray shall be provide for chemical storage, if it is not practicable, place tarpaulin under the chemical and surrounded by sand bags	Provide drip tray for chemical storage	Completion as observed on 4-1-11
101228_03	28-Dec-10	Cement bags over 20 packs shall be covered	Cover Cement by fabric fiber	Completion as observed on 4-1-11
110104_01	04-Jan-11	The contractor is reminded to enhance the enclosure of the sieve grouting plant after finishing the material transport	Enhance the enclosure of grouting plant	Completion as observed on 12-1-11
110112_01	12-Jan-11	The contractor is reminded implementing of wheel washing facilities as soon as practicable. As mud was found at the exit of the construction site	Increase the rate of wheel washing facilities construction	Completion as observed on 18-1-11
110125_01	25-Jan-11	To prevent silty water overflow North Point Reclamation drainage outfall. The contractor is reminded to use an idle sedimentation tank near the using one.	Increase the number of use of sedimentation tank	Completion as observed on 1-2-11

8.0.3. **Five** site inspections for Contract no. 04/HY/2006 were carried out during this reporting period. The results of these inspections and outcomes are summarized in Table 8.2.

Table 8.2 Summary of Environmental Inspections for Contract no. 04/HY/2006

Item	Date	Observations	Action taken by Contractor	Outcome
101230_01	30-Dec-10	Drip tray shall be provide and gather the chemical storage	provide drip tray for gathering and	Completion as observed on 03-



Item	Date	Observations	Action taken by Contractor	Outcome
			storage chemical	Jan-11

9. COMPLAINTS, NOTIFICATION OF SUMMONS AND PROSECUTION

9.0.1. No complaint, notification of summons and prosecution was received in the reporting month. The details of cumulative complaint log and updated summary of complaints are presented in ***Appendix 9.1.***

9.0.2. Cumulative statistic on complaints and successful prosecutions are summarized in **Table 9.1** and **Table 9.2** respectively.

Table 9.1 Cumulative Statistics on Complaints

Reporting Period	No. of Complaints
January 2011	0
Project-to-Date	0

Table 9.2 Cumulative Statistics on Successful Prosecutions

Environmental Parameters	Cumulative No. Brought Forward	No. of Successful Prosecutions this month (Offence Date)	Cumulative No. Project-to-Date
Air	-	0	0
Noise	-	0	0
Water	-	0	0
Waste	-	0	0
Total	-	0	0

10. CONCLUSION

10.0.1. The EM&A programme was carried out in accordance with the EM&A Manual requirements, minor alterations to the programme proposed were made in response to changing circumstances.

10.0.2. The scheduled construction activities and the recommended mitigation measures for the coming month are listed in **Table 10.1**. The construction programmes of individual contracts are provided in **Appendix 10.1**.

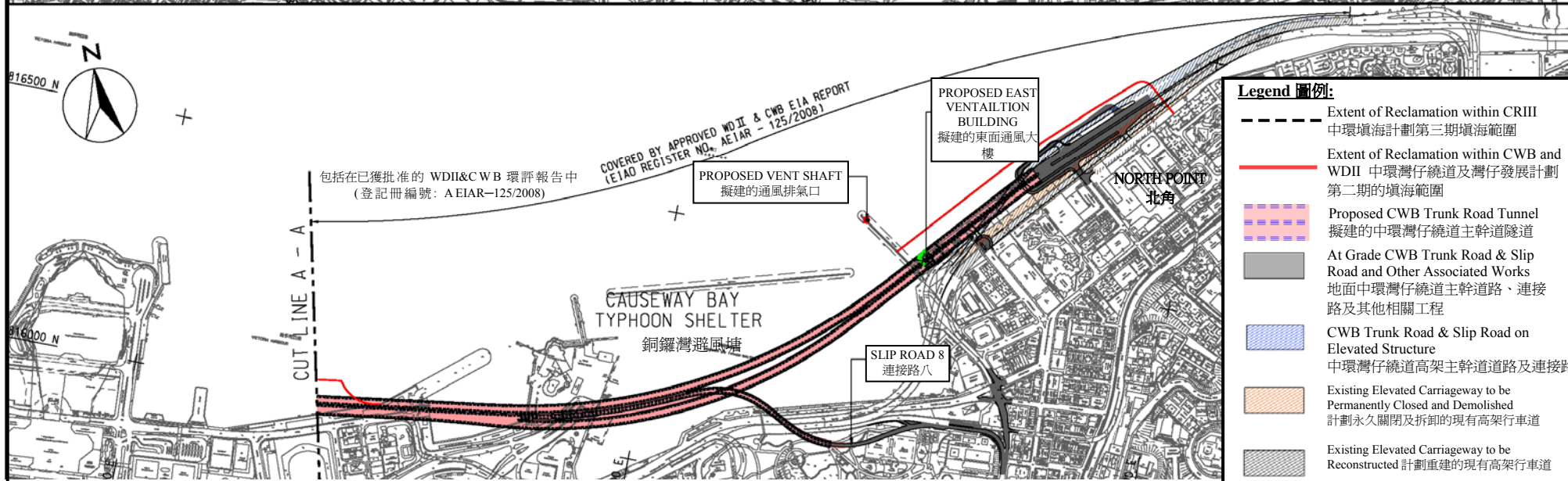
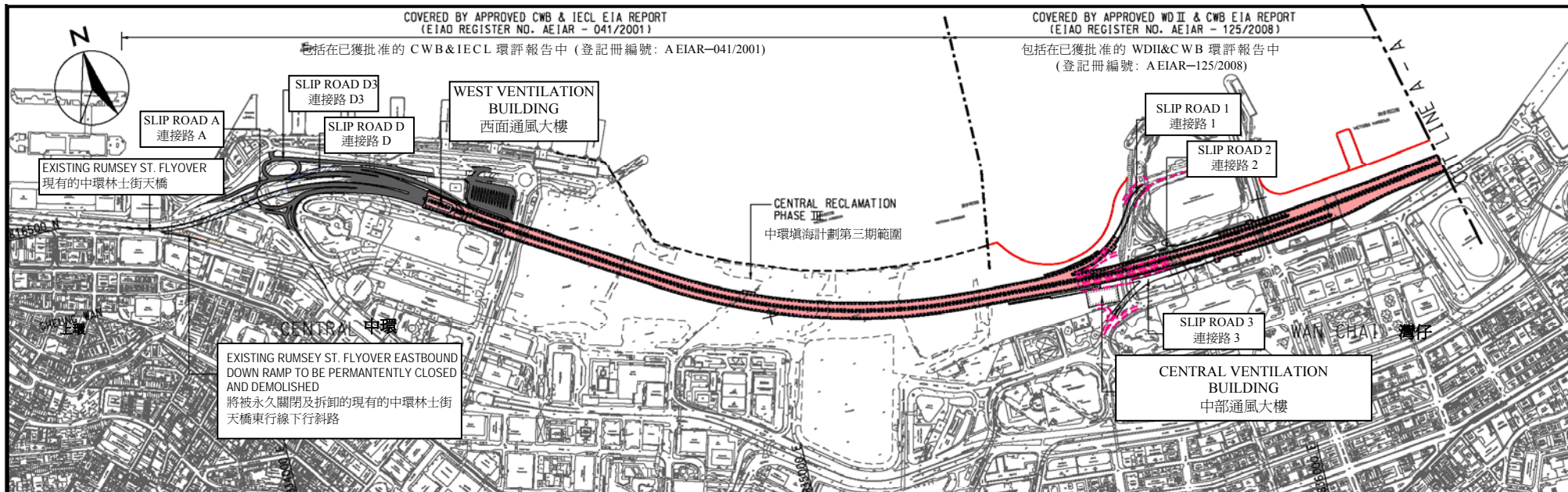
Table 10.1 Summary of Key Construction Activities of Individual Contract(s) to be commenced in Coming Reporting Month

Contract No.	Key Construction Works	Recommended Mitigation Measures
HY/2009/17	<ul style="list-style-type: none"> Drilling, installation steel H-Pile & grouting 	<ul style="list-style-type: none"> Noise barrier shall be implemented; Watering any dust generating activities; and Improvement of wheel washing facilities Improvement and increasing the number of sedimentation tanks.
04/HY/2006	<ul style="list-style-type: none"> N/A 	<ul style="list-style-type: none"> N/A



Figure 2.1

Project Layout



- Legend 圖例:**
- Extent of Reclamation within CR/II 中環填海計劃第三期填海範圍
 - Extent of Reclamation within CWB and WD/II 中環灣仔繞道及灣仔發展計劃第二期的填海範圍
 - Proposed CWB Trunk Road Tunnel 擬建的中環灣仔繞道主幹道隧道
 - At Grade CWB Trunk Road & Slip Road and Other Associated Works 地面中環灣仔繞道主幹道路、連接路及其他相關工程
 - CWB Trunk Road & Slip Road on Elevated Structure 中環灣仔繞道高架主幹道道路及連接路
 - Existing Elevated Carriageway to be Permanently Closed and Demolished 計劃永久關閉及拆卸的現有高架行車道
 - Existing Elevated Carriageway to be Reconstructed 計劃重建的現有高架行車道

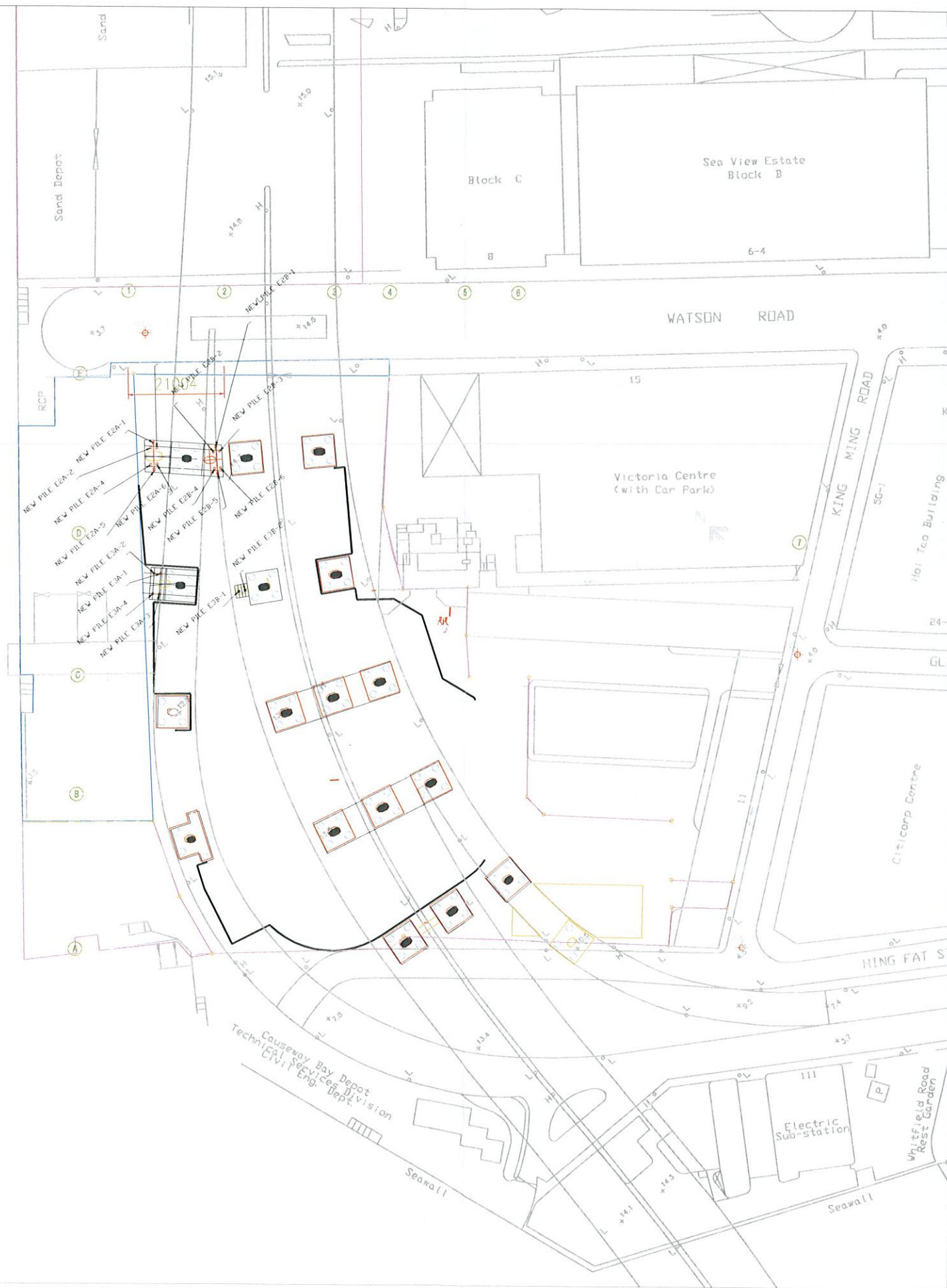


Project Title: Central-Wanchai Bypass (CWB) Including Its Road Tunnel and Slip Roads
 工程項目名稱：中環灣仔繞道包括其行車隧道及連接路

Environmental Permit No. : EP-364/2009/A
 環境許可證編號 : EP-364/2009/A

Figure 1: Location of the Project
 圖 1: 工程項目位置

(This figure was prepared on Figure 1.1 of the Application for Environmental Permit (Application No.: AEP-364/2009))
 (本圖是根據環境許可證的申請(申請書編號 AEP-364/2009 圖 1.1 編製)



1 Co-ordinates are relative to Hong Kong Metric Grid (1980)

Legend:

REV.	DATE	DESCRIPTION	CHK BY	AUTH BY

Highways Department 路政署
Major Works Project Management Office

CENTRAL - WAN CHAI BYPASS AND IEC LIN

PWP ITEM NO. 579 TH K
計劃項目編號

Project:
CENTRAL - WAN CHAI BYPASS - FEH WHITFIELD DEPOT RE-PROVISIONING WORKS



Drawing Title
PILING PLAN FOR MODIFIED ICE BRIDGE

Contractor
LAM WOO & COMPANY LIMITED

DRAWING NO. 0020

SURVEY DATE 12-06-2010

DRAWN BY KENG

CHECKED BY

SCALE 1:1000 SHEET 1



Figure 2.2

Project Organization Chart



Project Organization Chart

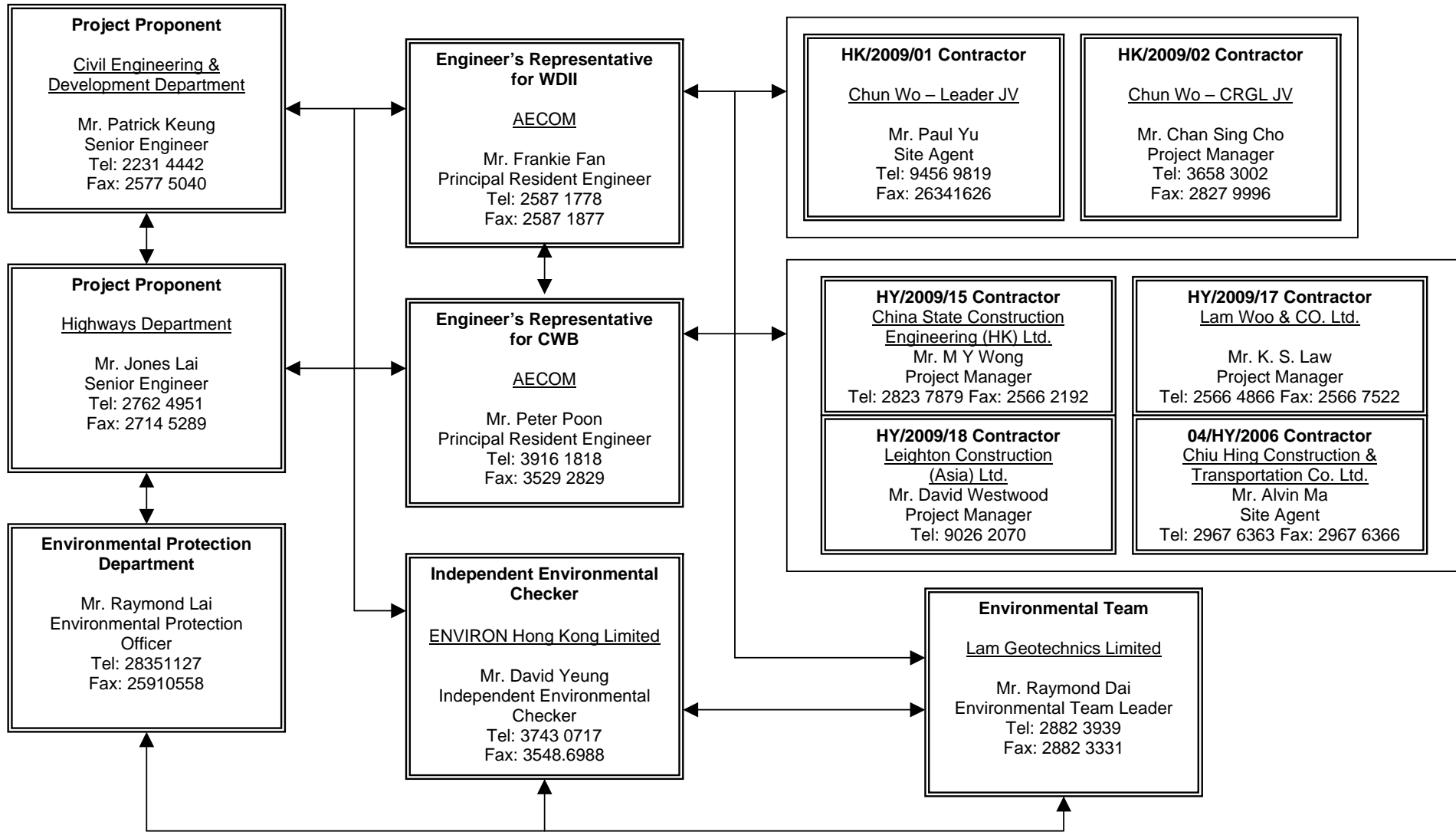
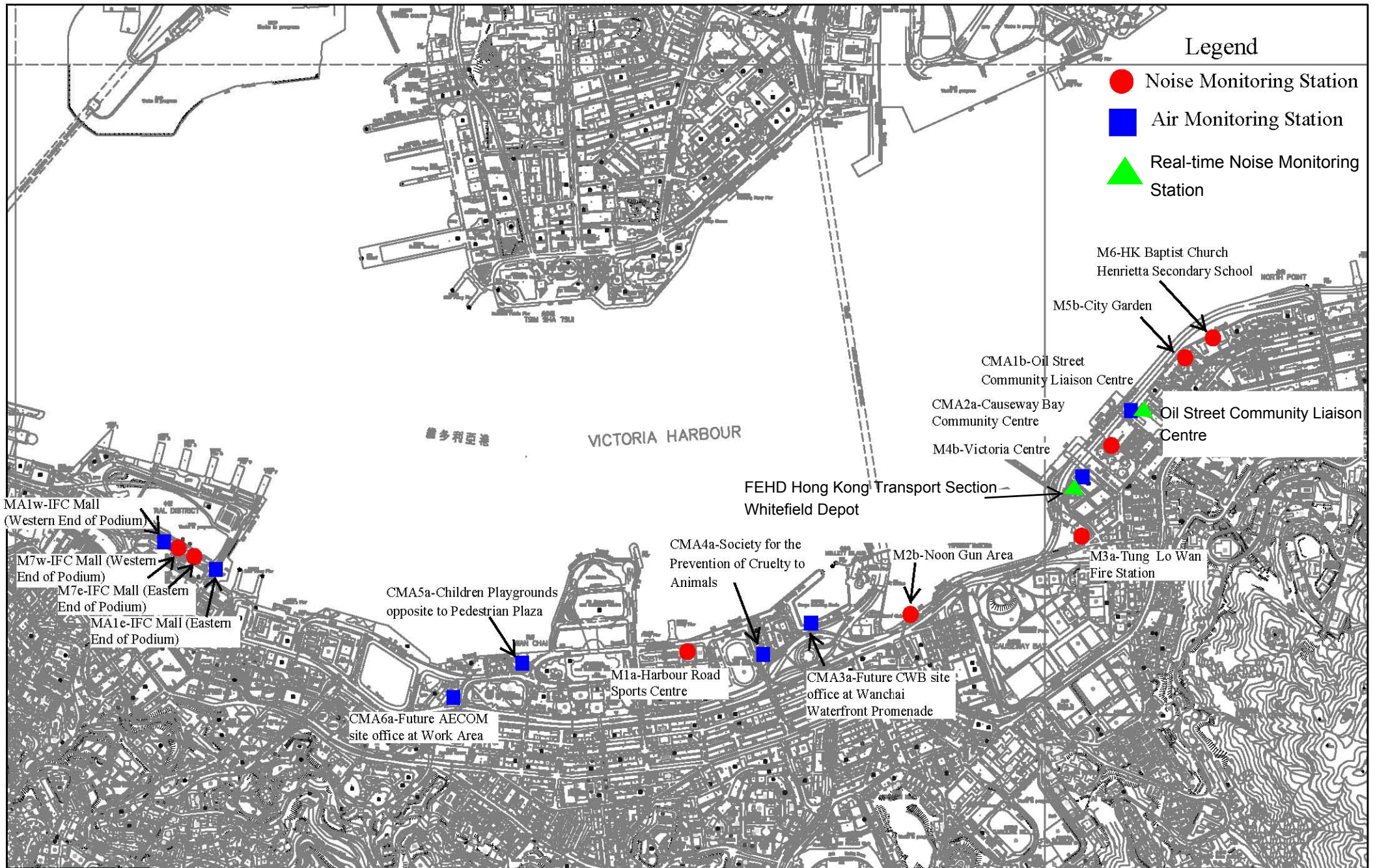




Figure 4.1

Locations of Monitoring Stations



Location plan of Environmental Monitoring Stations



Appendix 3.1

Environmental Mitigation Implementation Schedule

IMPLEMENTATION SCHEDULE OF THE PROPOSED MITIGATION MEASURES

Table A.1 Implementation Schedule for Air Quality Control

WDII & CWB EIA Report Ref	Environmental Protection Measures / Mitigation Measures	Location / Timing	Implementation Agent	Implementation Stages*				Relevant Legislation and Guidelines
				Des	C	O	Dec	
Construction Phase								
S3.6.5	Four times a day watering of the work site with active operations.	Work site / during construction	Contractor		√			EIAO-TM
S3.8.1	Implementation of dust suppression measures stipulated in Air Pollution Control (Construction Dust) Regulation. The following mitigation measures, good site practices and a comprehensive dust monitoring and audit programme are recommended to minimise cumulative dust impacts. <ul style="list-style-type: none"> Strictly limit the truck speed on site to below 10 km per hour and water spraying to keep the haul roads in wet condition; Watering during excavation and material handling; Provision of vehicle wheel and body washing facilities at the exit points of the site, combined with cleaning of public roads where necessary; and Tarpaulin covering of all dusty vehicle loads transported to, from and between site locations. 	Work site / during construction	Contractor		√			
Operational Phase								
S3.6.53 – S3.6.54	The design parameters of the East and Central Ventilation Buildings as set in Tables 3.10 and 3.11 of Volume 1 of the WDII & CWB EIA Report.	East and Central Ventilation Buildings / During operation of the Trunk Road	HyD			√		
S3.10.2	Air quality monitoring for the operation performance of the East Ventilation Building and associated East Vent Shaft will be conducted.	East Vent Shaft / During operation of the East Ventilation Building and associated East Vent Shaft	HyD			√		EIAO-TM

* Des - Design, C - Construction, O – Operation, and Dec - Decommissioning

Table A.2 Implementation Schedule for Noise Control

WDII & CWB EIA Report Ref	Environmental Protection Measures / Mitigation Measures	Location / Timing	Implementation Agent	Implementation Stages*				Relevant Legislation and Guidelines
				Des	C	O	Dec	
Construction Phase								
S4.9.3	<p>Good Site Practice:</p> <ul style="list-style-type: none"> Only well-maintained plant shall be operated on-site and plant shall be serviced regularly during the construction program. Silencers or mufflers on construction equipment shall be utilized and shall be properly maintained during the construction program. Mobile plant, if any, shall be sited as far away from NSRs as possible. Machines and plant (such as trucks) that may be in intermittent use shall be shut down between works periods or shall be throttled down to a minimum. Plant known to emit noise strongly in one direction shall, wherever possible, be orientated so that the noise is directed away from the nearby NSRs. Material stockpiles and other structures shall be effectively utilized, wherever practicable, in screening noise from on-site construction activities. 	Work Sites / During Construction	Contractor		√			EIAO-TM, NCO
S4.8.1 – S4.8.11	<p>Use of quiet powered mechanical equipment, movable noise barrier and temporary noise barrier for the following tasks:</p> <ul style="list-style-type: none"> Slip road 8 tunnel Construction of diaphragm wall and substructures of the tunnel approach ramp Excavation Construction of slabs Backfill 	Work Sites / During Construction	Contractor		√			EIAO-TM, NCO

WDII & CWB EIA Report Ref	Environmental Protection Measures / Mitigation Measures	Location / Timing	Implementation Agent	Implementation Stages*				Relevant Legislation and Guidelines
				Des	C	O	Dec	
	<ul style="list-style-type: none"> Demolition and construction of substructures for the IEC Demolition works of existing piers and crossheads of the marine section of the existing IEC <p>Use of PME grouping for the following tasks:</p> <ul style="list-style-type: none"> At-grade road construction Substructure for IECL connection 							
Operation Phase								
S4.8.12 – S4.8.23	<p>For Existing NSRs</p> <ul style="list-style-type: none"> about 235m length of noise semi-enclosure with transparent panel covering the westbound slip road from the IEC about 230m length of noise semi-enclosure with transparent panel covering the main carriageways (eastbound and westbound) of the CWB and IEC about 135m length of 5.5m high cantilevered noise barrier with 4.5m cantilever inclined at 45° with transparent panel on the eastbound slip road to the IEC (amended under EP-364/2009/A) about 95m length of 5.5m high cantilevered noise barrier with 1m cantilever inclined at 45° with transparent panel on the eastbound slip road to the IEC about 350m length of 3.5m high vertical noise barrier with transparent panel on the eastbound slip road to the IEC low noise road surfacing for the trunk road (except tunnel section and beneath the landscaped deck at the eastern portal area)) with speed limit of 70 km/hour 	Near North Point / Before commencement of operation of road project	HyD	√	√	√		EIAO-TM

WDH & CWB EIA Report Ref	Environmental Protection Measures / Mitigation Measures	Location / Timing	Implementation Agent	Implementation Stages*				Relevant Legislation and Guidelines
				Des	C	O	Dec	
	<p>For Future/Planned NSRs</p> <ul style="list-style-type: none"> • about 265m length of noise semi-enclosure with transparent panel covering the westbound slip road from the IEC • The openable windows of the temple, if any, should be orientated so as to avoid direct line of sight to the existing Victoria Park Road as far as practicable. 	<p>In between the Electric Centre (next to City Garden) and CDA(1) site / Before occupation of Planned NSRs in CDA and CDA(1) sites.</p> <p>Near Causeway Bay Fire Station / During detailed design of the re-provisioned Tin Hau Temple</p>	<p>HyD</p> <p>Project Proponent for the re-provisioned Tin Hau Temple</p>	√	√ #			

* Des - Design, C - Construction, O – Operation, and Dec - Decommissioning

Only the steel frame for this section of noise semi-enclosure would be erected in advance during the construction of the westbound slip road.

Table A.4 Implementation Schedule for Waste Management

WDII & CWB EIA Report Ref	Environmental Protection Measures / Mitigation Measures	Location / Timing	Implementation Agent	Implementation Stages*				Relevant Legislation and Guidelines
				Des	C	O	Dec	
Construction Phase								
S6.5.14	Floating Refuse During the construction phase, the project proponent's contractor will be responsible for the collection of any refuse within their works area. Floating booms will be provided on the water surface to confine the refuse from the working barges as well as to avoid the accumulation of pollutants within temporary embayment as mentioned in Table D9.3.	Work site / During the construction period	Contractor		√			
S6.6.1	Good Site Practices Recommendations for good site practices during the construction activities include: <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 waste handling procedures; • provision of sufficient waste disposal points and regular collection for disposal; • appropriate measures to minimise windblown litter and dust during transportation of waste by either covering trucks or by transporting wastes in enclosed containers; • regular cleaning and maintenance programme for drainage systems, sumps and oil interceptors; and • a recording system for the amount of wastes generated, recycled and disposed of (including the disposal sites). 	Work site / During the construction period	Contractor		√			Waste Disposal Ordinance (Cap.354)

WDII & CWB EIA Report Ref	Environmental Protection Measures / Mitigation Measures	Location / Timing	Implementation Agent	Implementation Stages*				Relevant Legislation and Guidelines
				Des	C	O	Dec	
S6.6.2	<p><i>Waste Reduction Measures</i></p> <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"> • 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; • to encourage collection of aluminium cans, PET bottles and paper, separate labelled bins shall be provided to segregate these wastes from other general refuse generated by the work force; • any unused chemicals or those with remaining functional capacity shall be recycled; • use of reusable non-timber formwork, such as in casting the tunnel box sections, to reduce the amount of C&D material. • prior to disposal of C&D waste, it is recommended that wood, steel and other metals shall be separated for re-use and / or recycling to minimise the quantity of waste to be disposed of to landfill; • proper storage and site practices to minimise the potential for damage or contamination of construction materials; and • plan and stock construction materials carefully to minimise amount of waste generated and avoid unnecessary generation of waste. 	Work site / During planning and design stage, and construction stage	Contractor	√	√			

WDII & CWB EIA Report Ref	Environmental Protection Measures / Mitigation Measures	Location / Timing	Implementation Agent	Implementation Stages*				Relevant Legislation and Guidelines
				Des	C	O	Dec	
S6.6.4	<p><i>General Refuse</i></p> <p>General refuse shall be stored in enclosed bins or compaction units separate from C&D material. A licensed waste collector shall be employed by the contractor to remove general refuse from the site, separately from C&D material.</p> <p>A collection area shall be provided where wastes can be stored and loaded prior to removal from site. An enclosed and covered area is recommended to reduce the occurrence of 'wind blow' light material.</p>	Work site / During the construction period	Contractor		√			Public Health and Municipal Services Ordinance (Cap. 132)
S6.6.5	<p><i>Chemical Wastes</i></p> <p>After use, chemical wastes (for example, cleaning fluids, solvents, lubrication oil and fuel) shall be handled according to the Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes. Spent chemicals shall be collected by a licensed collector for disposal at the CWTF or other licensed facility in accordance with the Waste Disposal (Chemical Waste) (General) Regulation.</p>	Work site / During the construction period	Contractor		√			<p>Waste Disposal (Chemical Waste) (General) Regulation</p> <p>Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes</p>
S6.6.6	<p><i>Construction and Demolition Material</i></p> <p>C&D material shall be sorted on-site into inert C&D material (that is, public fill) and C&D waste. All the suitable inert C&D material shall be broken down to 250 mm in size for reuse as public fill in the WDII reclamation. C&D waste, such as wood, glass, plastic, steel and other metals shall be reused or recycled and, as a last resort, disposed of to landfill. A suitable area shall be designated to facilitate the sorting process and a temporary stockpiling area will be required for the separated materials.</p>	Work site / During the construction period	Contractor		√			ETWB TCW No. 33/2002, 31/2004, 19/2005

WDII & CWB EIA Report Ref	Environmental Protection Measures / Mitigation Measures	Location / Timing	Implementation Agent	Implementation Stages*				Relevant Legislation and Guidelines
				Des	C	O	Dec	
S6.6.7	In order to monitor the disposal of public fill and C&D waste at public fill reception facilities and landfills, respectively, and to control fly tipping, a trip-ticket system shall be included as one of the contractual requirements and implemented by the Environmental Team undertaking the environmental monitoring and audit work. An Independent Environment Checker shall be responsible for auditing the results of the system.	Work site / During the construction period	Contractor and Independent Environmental Checker		√			ETWB TCW No. 31/2004
S6.6.8	<p><i>Bentonite Slurry</i></p> <p>The disposal of residual used bentonite slurry shall follow the good practice guidelines stated in ProPECC PN 1/94 “Construction Site Drainage” and listed as follows:</p> <ul style="list-style-type: none"> • 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. • If the used bentonite slurry is intended to be disposed of through the public drainage system, it shall be treated to the respective effluent standards applicable to foul sewers, storm drains or the receiving waters as set out in the Technical Memorandum of Standards for Effluents Discharged into Drainage and Sewerage Systems, Inland and Coastal Waters. • If the used bentonite slurry is intended to be disposed to public fill reception facilities, it will be mixed with dry soil on site before disposal. 	Work site / During the construction period	Contractor		√			ProPECC PN 1/94

* Des - Design, C - Construction, O – Operation, and Dec - Decommissioning

Table A.5 Implementation Schedule for Land Contamination

WDII & CWB EIA Report Ref	Environmental Protection Measures / Mitigation Measures	Location / Timing	Implementation Agent	Implementation Stages*				Relevant Legislation and Guidelines
				Des	C	O	Dec	
Construction and Operation Phase								
S.7.1.1	As no potential contaminative land uses were identified within the Study Area, adverse land contamination impacts associated with the construction and operation of the Project is not expected. As such, environmental protection and mitigation measures are considered not necessary and will not be covered in this EM&A Manual.	-	-					-

* Des - Design, C - Construction, O – Operation, and Dec - Decommissioning

Table A.7 Implementation Schedule for Landscape and Visual

WDII & CWB EIA Report Ref	Environmental Protection Measures / Mitigation Measures	Location / Timing	Implementation Agent	Implementation Stages*				Relevant Legislation and Guidelines
				Des	C	O	Dec	
Construction Phase								
Table 10.5	CM1 Topsoil, where identified, shall be stripped and stored for re-use in the construction of the soft landscape works, where practical.	Work site / During Construction Phase	Contractor	√	√			EIAO TM
Table 10.5	CM2 Existing trees to be retained on site shall be carefully protected during construction.	Work site / During Construction Phase	Contractor	√	√			EIAO TM
Table 10.5	CM3 Trees unavoidably affected by the works shall be transplanted where practical.	Work site / During Construction Phase	Contractor	√	√			EIAO TM
Table 10.5	CM4 Compensatory tree planting shall be provided to compensate for felled trees.	Work site / During Construction Phase	Contractor	√	√			EIAO TM
Table 10.5	CM5 Control of night-time lighting.	Work site / During Construction Phase	Contractor		√			EIAO TM
Table 10.5	CM6 Erection of decorative screen hoarding compatible with the surrounding setting.	Work site / During Construction Phase	Contractor		√			EIAO TM
Operation Phase								
Table 10.6, Figure 10.5.1-10.5.5	OM1 Aesthetic design of buildings and road-related structures, including viaducts, vent buildings, subways, footbridges and noise barriers and enclosure.	Work site / During Design Stage and Operation Phases	HyD	√	√	√		ETWB TCW 2/2004
Table 10.6, Figure 10.5.1-10.5.5	OM3 Buffer Tree and Shrub Planting to screen proposed roads and associated structures.	Work site / During Design Stage and Operation Phases	HyD	√	√	√		ETWB TCW 2/2004
Table 10.6, Figure 10.5.1-10.5.5	OM5 Aesthetic streetscape design.	Work site / During Design Stage and Operation Phases	HyD	√	√	√		ETWB TCW 2/2004
Table 10.6, Figure 10.5.1-10.5.5	OM6 Aesthetic design of roadside amenity areas.	Work site / During Design Stage and Operation Phases	HyD	√	√	√		ETWB TCW 2/2004

*Des - Design, C - Construction, O – Operation, and Dec - Decommissioning



Appendix 4.1

Action and Limit Level

**Action and Limit Level***Action and Limit Level for Noise Monitoring*

Time Period	Action Level	Limit Level
07:00 – 19:00 hours on normal weekdays	When one documented complaint is received.	75 dB(A) ^{Note 1}

Action and Limit Level for Real Time Noise Monitoring

Time Period	Action Level	Limit Level
07:00 – 19:00 hours on normal weekdays	When one documented complaint is received.	75 dB(A) ^{Note 2}
19:00 – 23:00 hours on normal weekdays and public holiday	When one documented complaint is received.	70 dB(A) ^{Note 3}
23:00 – 07:00 at next day on everyday	When one documented complaint is received.	65 dB(A)

Note 1:

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

Note 2:

- 70dB(A) and 65 dB(A) for schools during normal teaching periods and school examination periods, respectively.

Note 3:

- If works are to be carried out during the restricted hours, the conditions stipulated in the Construction Noise Permit (CNP) issued by the Noise Control Authority have to be followed.

Action and Limit Level for Air Monitoring

Monitoring Location	1-hour TSP Level in $\mu\text{g}/\text{m}^3$		24-hour TSP Level in $\mu\text{g}/\text{m}^3$	
	Action Level	Limit Level	Action Level	Limit Level
CMA1a	320.1	500	176.7	260
CMA2a	323.4	500	169.5	260
CMA3	311.3	500	171.0	260
CMA4a	312.5	500	171.2	260
CMA5	332.0	500	181.0	260
CMA6	300.1	500	187.3	260
MA1e	325.1	500	173.4	260
MA1w	325.1	500	173.4	260

-



Appendix 4.2

Copies of Calibration Certificates



Calibration Certificate

Certificate No. **96128**

Page **1** of **2** Pages

Customer : Lam Environmental Services Ltd

Address : 11/F, Centre Point, 181-185 Gloucester Road, Wanchai, Hong Kong.

Order No. : Q92434

Date of receipt : 24-Nov-09

Item Tested

Description : Sound Level Calibrator (EL469)

Manufacturer : ACO

Model : --

Serial No. : 050213

Test Conditions

Date of Test : 26-Nov-09

Supply Voltage : --

Ambient Temperature : (23 ± 3)°C

Relative Humidity : (50 ± 25) %

Test Specifications

Calibration check.

Ref. Document/Procedure: F21, Z02.

Test Results

All results were within the IEC 942 Class 1 specification after adjustment.

The results are shown in the attached page(s).

Main Test equipment used:


<u>Equipment No.</u>	<u>Description</u>	<u>Cert. No.</u>	<u>Due Date</u>	<u>Traceable to</u>
S014	Spectrum Analyzer	93091	18-Jun-10	NIM-PRC & SCL-HKSAR
S024	Sound Level Calibrator	93758	16-Jul-10	NIM-PRC & SCL-HKSAR
S041	Universal Counter	94005	6-Aug-10	SCL-HKSAR
S206	Sound Level Meter	93966	5-Aug-10	SCL-HKSAR

The values given in this Calibration Certificate only relate to the values measured at the time of the test and any uncertainties quoted will not include allowance for the equipment long term drift, variations with environmental changes, vibration and shock during transportation, overloading, mis-handling, or the capability of any other laboratory to repeat the measurement. Hong Kong Calibration Ltd. shall not be liable for any loss or damage resulting from the use of the equipment.

The test equipment used for calibration are traceable to International System of Units (SI).

The test results apply to the above Unit-Under-Test only

Calibrated by : 
P.F. Wong

Approved by : 
Dorothy Cheuk

Date: 27-Nov-09

This Certificate is issued by:

Hong Kong Calibration Ltd.

Unit 8B, 24/F., Well Fung Industrial Centre, No. 58-76, Ta Chuen Ping Street, Kwai Chung, NT, Hong Kong.

Tel: 2425 8801 Fax: 2425 8646

Calibration Certificate

Certificate No. **96128**

Page 2 of 2 Pages

Results :

1. Level

UUT Nominal Value (dB)	Measured Value (dB)		IEC 942 Class 1 Spec.
	Before adjust.	After adjust.	
94	*93.52	94.11	± 0.3 dB

The above measured values are the mean of 3 measurements.

Uncertainty : ± 0.1 dB

2. Frequency

UUT Nominal Value	Measured Value	IEC 942 Class 1 Spec.
1 kHz	1.016 kHz	± 2 %

Uncertainty : ± 3.6 x 10⁻⁶

3. Level Stability : 0.0 dB

IEC 942 Class 1 Spec. : ± 0.1 dB

Uncertainty : ± 0.01 dB

4. Total Harmonic Distortion : < 2.9 %

IEC 942 Class 1 Spec. : < 3 %

Uncertainty : ± 2.3 % of reading

Remark : 1. UUT : Unit-Under-Test

2. The uncertainty claimed is for a confidence probability of not less than 95%.

3. Atmospheric Pressure : 1010 hPa.

4. *Out of Specification.

----- END -----



Calibration Certificate

Certificate No. **96127**

Page 1 of 4 Pages

Customer : Lam Environmental Services Ltd

Address : 11/F, Centre Point, 181-185 Gloucester Road, Wanchai, Hong Kong.

Order No. : Q92434

Date of receipt : 24-Nov-09

Item Tested

Description : Precision Integrating Sound Level Meter

Manufacturer : ACO

Model : Type 6224

Serial No. : 30148

Test Conditions

Date of Test : 26-Nov-09

Supply Voltage : --

Ambient Temperature : (23 ± 3)°C

Relative Humidity : (50 ± 25) %

Test Specifications

Calibration check.

Ref. Document/Procedure: Z01.

Test Results

All results were within the IEC 651 Type 1 & 804 Type I Specification.

The results are shown in the attached page(s).

Main Test equipment used:

<u>Equipment No.</u>	<u>Description</u>	<u>Cert. No.</u>	<u>Due Date</u>	<u>Traceable to</u>
S017	Multi-Function Generator	C081456	18-Mar-10	SCL-HKSAR
S024	Sound Level Calibrator	93758	16-Jul-10	NIM-PRC & SCL-HKSAR

The values given in this Calibration Certificate only relate to the values measured at the time of the test and any uncertainties quoted will not include allowance for the equipment long term drift, variations with environmental changes, vibration and shock during transportation, overloading, mis-handling, or the capability of any other laboratory to repeat the measurement. Hong Kong Calibration Ltd. shall not be liable for any loss or damage resulting from the use of the equipment.

The test equipment used for calibration are traceable to International System of Units (SI).

The test results apply to the above Unit-Under-Test only

Calibrated by : 
P.F. Wong

Approved by : 
Dorothy Cheuk

Date: 27-Nov-09

This Certificate is issued by:
Hong Kong Calibration Ltd.

Unit 8B, 24/F., Well Fung Industrial Centre, No. 58-76, Ta Chuen Ping Street, Kwai Chung, NT, Hong Kong.
Tel: 2425 8801 Fax: 2425 8646

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Calibration Certificate

Certificate No. **96127**

Page 2 of 4 Pages

Results :

1. SPL Accuracy

UUT Setting			Applied Value (dB)	UUT Reading (dB)
Level Range (dB)	Weight	Time Const.		
20 – 100	L _A	Fast	94.03	94.3
		Slow		94.3
	L _C	Fast		94.3
30 – 120	L _A	Fast	94.03	94.5
		Slow		94.5
	L _C	Fast		94.5
30 – 120	L _A	Fast	113.97	114.2
		Slow		114.2
	L _C	Fast		114.2

IEC 651 Type 1 Spec. : ± 0.7 dB

Uncertainty : ± 0.1 dB

2. Level Stability : 0.0 dB

IEC 651 Type 1 Spec. : ± 0.3 dB

Uncertainty : ± 0.01 dB

3. Linearity

3.1 Level Linearity

UUT Range (dB)	Applied Value (dB)	UUT Rdg (dB)	Variation (dB)	IEC 651 Type 1 Spec. (Primary Indicator Range)
140	114.0	114.6	+0.1	± 0.7 dB
130	104.0	104.7	+0.2	
120	94.0	94.5 (Ref.)	--	
110	84.0	84.5	0.0	
100	74.0	74.2	-0.3	
90	64.0	64.0	-0.5	
80	54.0	54.0	-0.5	

Uncertainty : ± 0.1 dB

Calibration Certificate

Certificate No. **96127**

Page 3 of 4 Pages

3.2 Differential level linearity

UUT Range	Applied Value (dB)	UUT Rdg (dB)	Variation (dB)	IEC 651 Type 1 Spec.
120	84.0	84.4	-0.1	± 0.4
	94.0	94.5 (Ref.)	--	
	95.0	95.5	0.0	± 0.2
	104.0	104.5	0.0	± 0.3
	105.0	105.5	0.0	± 1.0

Uncertainty : ± 0.1 dB

4. Frequency Weighting

A weighting

Frequency	Attenuation (dB)	IEC 651 Type 1 Spec.
31.5 Hz	-39.0	- 39.4 dB, ± 1.5 dB
63 Hz	-25.8	- 26.2 dB, ± 1.5 dB
125 Hz	-15.7	- 16.1 dB, ± 1 dB
250 Hz	-8.3	- 8.6 dB, ± 1 dB
500 Hz	-3.0	- 3.2 dB, ± 1 dB
1 kHz	0.0 (Ref)	0 dB, ± 1 dB
2 kHz	+1.2	+ 1.2 dB, ± 1 dB
4 kHz	+0.8	+ 1.0 dB, ± 1 dB
8 kHz	-1.3	- 1.1 dB, + 1.5 dB ~ -3 dB
16 kHz	-5.9	- 6.6 dB, + 3 dB ~ - ∞

Uncertainty : ± 0.1 dB



Calibration Certificate

Certificate No. 96127

Page 4 of 4 Pages

4. Time Averaging

Applied Burst duty Factor	Applied Leq Value (dB)	UUT Reading (dB)	IEC 804 Type 1 Spec.
continuous	40.0	40.0	--
1/10	40.0	39.9	± 0.5 dB
1/10 ²	40.0	40.1	
1/10 ³	40.0	40.2	± 1.0 dB
1/10 ⁴	40.0	40.3	

Uncertainty : ± 0.1 dB

Remark : 1. UUT : Unit-Under-Test

2. The uncertainty claimed is for a confidence probability of not less than 95%.

3. Atmospheric Pressure : 1 010 hPa.

----- END -----



Calibration Certificate

Certificate No. **03250A**

Page 1 of 3 Pages

Customer : Lam Geotechnics Limited

Address : 11/F., Centre Point, 181-185 Gloucester Road, Wanchai, Hong Kong

Order No. : Q01282

Date of receipt : 14-Jun-10

Item Tested

Description : Precision Integrating Sound Level Meter

Manufacturer : ONO SOKKI

Model : LA-5110

Serial No. : 72302293

Test Conditions

Date of Test : 21-Jun-10

Supply Voltage : --

Ambient Temperature : (23 ± 3)°C

Relative Humidity : (50 ± 25) %

Test Specifications

Calibration check.

Ref. Document/Procedure: Z01.

Test Results

All results were within the IEC 651 Type 1 & IEC 804 Class 1 specification.

The results are shown in the attached page(s).

Main Test equipment used:


<u>Equipment No.</u>	<u>Description</u>	<u>Cert. No.</u>	<u>Traceable to</u>
S017	Multi-Function Generator	C101623	SCL-HKSAR
S024	Sound Level Calibrator	93758	NIM-PRC & SCL-HKSAR

The values given in this Calibration Certificate only relate to the values measured at the time of the test and any uncertainties quoted will not include allowance for the equipment long term drift, variations with environmental changes, vibration and shock during transportation, overloading, mis-handling, or the capability of any other laboratory to repeat the measurement. Hong Kong Calibration Ltd. shall not be liable for any loss or damage resulting from the use of the equipment.

The test equipment used for calibration are traceable to International System of Units (SI).

The test results apply to the above Unit-Under-Test only

Calibrated by : 
P. F. Wong

Approved by : 
Dorothy Cheuk

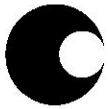
This Certificate is issued by:

Hong Kong Calibration Ltd.

Unit 8B, 24/F., Well Fung Industrial Centre, No. 58-76, Ta Chuen Ping Street, Kwai Chung, NT, Hong Kong.

Tel: 2425 8801 Fax: 2425 8646

Date: 8-Oct-10



Calibration Certificate

Certificate No. **03250A**

Page 2 of 3 Pages

Results :

1. SPL Accuracy

UUT Setting		Frequency Weighting	Dynamic Characteristic	Applied Value (dB)	UUT Reading (dB)
Level Range	Filter				
40 - 100 dB	OFF	A	FAST	94.03	94.0
			SLOW		94.0
		C	FAST		94.0
60 - 120 dB	OFF	A	FAST	94.03	94.0
			SLOW		94.0
		C	FAST		94.0
60 - 120 dB	OFF	A	FAST	113.97	113.9
			SLOW		113.9
		C	FAST		113.9

IEC 651 Type 1 Spec. : ± 0.7 dB

Uncertainty : ± 0.1 dB

2. Level Stability : 0.0 dB

IEC 651 Type 1 Spec. : ± 0.3 dB

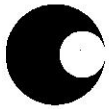
Uncertainty : ± 0.01 dB

3. Linearity

3.1 Level Linearity

UUT Range (dB)	Applied Value (dB)	UUT Reading (dB)	Variation (dB)	IEC 651 Type 1 Spec. (Primary Indicator Range)
130	114.0	114.1	+0.1	± 0.7 dB
130	104.0	104.1	+0.1	
120	94.0	94.0 (Ref.)	--	
110	84.0	84.0	0.0	
100	74.0	74.1	+0.1	
90	64.0	64.1	+0.1	
80	54.0	54.0	0.0	

Uncertainty : ± 0.1 dB



Calibration Certificate

Certificate No. 03250A

Page 3 of 3 Pages

3.2 Differential level linearity

UUT Range (dB)	Applied Value (dB)	UUT Reading (dB)	Variation (dB)	IEC 651 Type 1 Spec.
120	84.0	84.0	0.0	± 0.4
	94.0	94.0 (Ref.)	--	
	95.0	95.0	0.0	± 0.2

Uncertainty : ± 0.1 dB

4. Frequency Weighting

A weighting

Frequency	Attenuation (dB)	IEC 651 Type 1 Spec.
31.5 Hz	-40.5	- 39.4 dB, ± 1.5 dB
63 Hz	-26.9	- 26.2 dB, ± 1.5 dB
125 Hz	-16.9	- 16.1 dB, ± 1 dB
250 Hz	-9.1	- 8.6 dB, ± 1 dB
500 Hz	-3.5	- 3.2 dB, ± 1 dB
1 kHz	0.0 (Ref.)	0 dB, ± 1 dB
2 kHz	+1.5	+ 1.2 dB, ± 1 dB
5 kHz	+1.2	+ 1.0 dB, ± 1 dB
8 kHz	-1.0	- 1.1 dB, + 1.5 dB ~ - 3 dB
16 kHz	-7.0	- 6.6 dB, + 3 dB ~ ∞

Uncertainty : ± 0.1 dB

5. Time Averaging

Applied Burst duty Factor	Applied Leq Value (dB)	UUT Reading (dB)	IEC 804 Type 1 Spec.
continuous	40.0	40.0	--
1/10	40.0	40.0	± 0.5 dB
1/10 ²	40.0	40.0	
1/10 ³	40.0	40.1	± 1.0 dB
1/10 ⁴	40.0	39.9	

Uncertainty : ± 0.1 dB

Remarks : 1. UUT : Unit-Under-Test

2. The uncertainty claimed is for a confidence probability of not less than 95%.

3. Atmospheric Pressure : 1 000 hPa.

4. This certificate is supersede our former certificate no. 03250.

----- END -----



Calibration Certificate

Certificate No. 03445

Page 1 of 2 Pages

Customer : Lam Geotechnics Limited

Address : 11/F., Centre Point, 181-185 Gloucester Road, Wanchai, Hong Kong

Order No. : Q01282

Date of receipt : 14-Jun-10

Item Tested

Description : Sound Level Calibrator (EL078)

Manufacturer : ONO SOKKI

Model : SC-2110

Serial No. : 00393

Test Conditions

Date of Test : 21-Jun-10

Supply Voltage : --

Ambient Temperature : (23 ± 3)°C

Relative Humidity : (50 ± 25) %

Test Specifications

Calibration check.

Ref. Document/Procedure: Z02.

Test Results

All results were within the IEC 942 Class 2 specification.

The results are shown in the attached page(s).

Main Test equipment used:


<u>Equipment No.</u>	<u>Description</u>	<u>Cert. No.</u>	<u>Due Date</u>	<u>Traceable to</u>
S024	Sound Level Calibrator	93758	16-Jul-10	NIM-PRC & SCL-HKSAR
S041	Universal Counter	94005	6-Aug-10	SCL-HKSAR

The values given in this Calibration Certificate only relate to the values measured at the time of the test and any uncertainties quoted will not include allowance for the equipment long term drift, variations with environmental changes, vibration and shock during transportation, overloading, mis-handling, or the capability of any other laboratory to repeat the measurement. Hong Kong Calibration Ltd. shall not be liable for any loss or damage resulting from the use of the equipment.

The test equipment used for calibration are traceable to International System of Units (SI).

The test results apply to the above Unit-Under-Test only

Calibrated by : 
P. F. Wong

Approved by : 
Dorothy Cheuk

This Certificate is issued by:

Hong Kong Calibration Ltd.

Unit 8B, 24/F., Well Fung Industrial Centre, No. 58-76, Ta Chuen Ping Street, Kwai Chung, NT, Hong Kong.

Tel: 2425 8801 Fax: 2425 8846

Date: 25-Jun-10



Calibration Certificate

Certificate No. 03445

Page 2 of 2 Pages

Results :

1. Level Accuracy (at 1 kHz)

UUT Nominal Value (dB)	Measured Value (dB)	IEC 942 Class 2 Spec.
94	94.05	± 0.5 dB

Uncertainty : ± 0.2 dB

2. Frequency Accuracy

UUT Nominal Value (kHz)	Measured Value (kHz)	IEC 942 Class 2 Spec.
1	0.998	± 4 %

Uncertainty : ± 0.1 %

3. Level Stability : 0.0 dB

IEC 942 Class 2 Spec. : ± 1.2 dB

Uncertainty : ± 0.01 dB

4. Total Harmonic Distortion : < 1.2 %

IEC 942 Class 1 Spec. : < 3 %

Uncertainty : ± 2.3 % of reading

Remark : 1. UUT : Unit-Under-Test

2. The above measured values are the mean of 3 measurements.

3. The uncertainty claimed is for a confidence probability of not less than 95%.

4. Atmospheric Pressure : 1 000 hPa.

----- END -----



Calibration Certificate

Certificate No. **06680**

Page 1 of 4 Pages

Customer : Lam Geotechnics Limited

Address : 11/F, Centre Point, 181-185 Gloucester Road, Wanchai, Hong Kong.

Order No. : Q02553

Date of receipt : 18-Nov-10

Item Tested

Description : Precision Integrating Sound Level Meter

Manufacturer : ACO

Model : Type 6224

Serial No. : 050112

Test Conditions

Date of Test : 19-Nov-10

Supply Voltage : --

Ambient Temperature : $(23 \pm 3)^\circ\text{C}$

Relative Humidity : $(50 \pm 25) \%$

Test Specifications

Calibration check.

Ref. Document/Procedure: Z01.

Test Results

All results were within the IEC 651 Type 1 & 804 Type I Specification.


The results are shown in the attached page(s).

Main Test equipment used:

<u>Equipment No.</u>	<u>Description</u>	<u>Cert. No.</u>	<u>Traceable to</u>
S017A	Multi-Function Generator	00804	SCL-HKSAR
S024	Sound Level Calibrator	04062	NIM-PRC & SCL-HKSAR

The values given in this Calibration Certificate only relate to the values measured at the time of the test and any uncertainties quoted will not include allowance for the equipment long term drift, variations with environmental changes, vibration and shock during transportation, overloading, mis-handling, or the capability of any other laboratory to repeat the measurement. Hong Kong Calibration Ltd. shall not be liable for any loss or damage resulting from the use of the equipment.

The test equipment used for calibration are traceable to International System of Units (SI).
The test results apply to the above Unit-Under-Test only

Calibrated by : 
P. F. Wong

Approved by : 
Dorothy Cheuk

This Certificate is issued by:
Hong Kong Calibration Ltd.
Unit 8B, 24/F., Well Fung Industrial Centre, No. 58-76, Ta Chuen Ping Street, Kwai Chung, NT, Hong Kong.
Tel: 2425 8801 Fax: 2425 8646

Date: 23-Nov-10



Calibration Certificate

Certificate No. **06680**

Page 2 of 4 Pages

Results :

1. SPL Accuracy

UUT Setting			Applied Value (dB)	UUT Reading (dB)
Level Range (dB)	Weight	Time Const.		
20 – 100	L _A	Fast	94.0	94.3
		Slow		94.3
	L _C	Fast		94.3
30 – 120	L _A	Fast	94.0	94.4
		Slow		94.4
	L _C	Fast		94.4
30 – 120	L _A	Fast	114.0	94.3
		Slow		94.3
	L _C	Fast		94.3

IEC 651 Type 1 Spec. : ± 0.7 dB

Uncertainty : ± 0.1 dB

2. Level Stability : 0.0 dB

IEC 651 Type 1 Spec. : ± 0.3 dB

Uncertainty : ± 0.01 dB

3. Linearity

3.1 Level Linearity

UUT Range (dB)	Applied Value (dB)	UUT Rdg (dB)	Variation (dB)	IEC 651 Type 1 Spec. (Primary Indicator Range)
140	114.0	114.5	+0.1	± 0.7 dB
130	104.0	104.4	0.0	
120	94.0	94.4 (Ref.)	--	
110	84.0	84.1	-0.3	
100	74.0	74.2	-0.2	
90	64.0	64.1	-0.3	
80	54.0	54.1	-0.3	

Uncertainty : ± 0.1 dB



Calibration Certificate

Certificate No. **06680**

Page 3 of 4 Pages

3.2 Differential level linearity

UUT Range (dB)	Applied Value (dB)	UUT Rdg (dB)	Variation (dB)	IEC 651 Type 1 Spec.
120	84.0	84.1	-0.3	± 0.4
	94.0	94.4 (Ref.)	- -	
	95.0	95.4	0.0	± 0.2

Uncertainty : ± 0.1 dB

4. Frequency Weighting

A weighting

Frequency	Attenuation (dB)	IEC 651 Type 1 Spec.
31.5 Hz	-39.3	- 39.4 dB, ± 1.5 dB
63 Hz	-26.2	- 26.2 dB, ± 1.5 dB
125 Hz	-16.1	- 16.1 dB, ± 1 dB
250 Hz	-8.7	- 8.6 dB, ± 1 dB
500 Hz	-3.3	- 3.2 dB, ± 1 dB
1 kHz	0.0 (Ref)	0 dB, ± 1 dB
2 kHz	+1.3	+ 1.2 dB, ± 1 dB
4 kHz	+0.9	+ 1.0 dB, ± 1 dB
8 kHz	-1.2	- 1.1 dB, + 1.5 dB ~ -3 dB
16 kHz	-5.8	- 6.6 dB, + 3 dB ~ - ∞

Uncertainty : ± 0.1 dB



Calibration Certificate

Certificate No. 06680

Page 4 of 4 Pages

4. Time Averaging

Applied Burst duty Factor	Applied Leq Value (dB)	UUT Reading (dB)	IEC 804 Type 1 Spec.
continuous	40.0	40.0	--
1/10	40.0	39.9	± 0.5 dB
1/10 ²	40.0	39.9	
1/10 ³	40.0	40.3	± 1.0 dB
1/10 ⁴	40.0	40.3	

Uncertainty : ± 0.1 dB

- Remark : 1. UUT : Unit-Under-Test
2. The uncertainty claimed is for a confidence probability of not less than 95%.
3. Atmospheric Pressure : 1 009 hPa.

----- END -----



Calibration Certificate

Certificate No. **06681**

Page 1 of 2 Pages

Customer : Lam Geotechnics Limited

Address : 11/F, Centre Point, 181-185 Gloucester Road, Wanchai, Hong Kong.

Order No. : Q02553

Date of receipt : 18-Nov-10

Item Tested

Description : Sound Level Calibrator (EL469)

Manufacturer : ACO

Model : --

Serial No. : 050213

Test Conditions

Date of Test : 19-Nov-10

Supply Voltage : --

Ambient Temperature : $(23 \pm 3)^{\circ}\text{C}$

Relative Humidity : $(50 \pm 25) \%$

Test Specifications

Calibration check.

Ref. Document/Procedure: F21, Z02.

Test Results

All results were within the IEC 942 Class 1 specification.

The results are shown in the attached page(s).

Main Test equipment used:


<u>Equipment No.</u>	<u>Description</u>	<u>Cert. No.</u>	<u>Traceable to</u>
S014	Spectrum Analyzer	03926	NIM-PRC & SCL-HKSAR
S024	Sound Level Calibrator	04062	NIM-PRC & SCL-HKSAR
S041	Universal Counter	04461	SCL-HKSAR
S206	Sound Level Meter	04462	SCL-HKSAR

The values given in this Calibration Certificate only relate to the values measured at the time of the test and any uncertainties quoted will not include allowance for the equipment long term drift, variations with environmental changes, vibration and shock during transportation, overloading, mis-handling, or the capability of any other laboratory to repeat the measurement. Hong Kong Calibration Ltd. shall not be liable for any loss or damage resulting from the use of the equipment.

The test equipment used for calibration are traceable to International System of Units (SI).

The test results apply to the above Unit-Under-Test only

Calibrated by : 
P. F. Wong

Approved by : 
Dorothy Cheuk

Date: 23-Nov-10



Calibration Certificate

Certificate No. 06681

Page 2 of 2 Pages

Results :

1. Level

UUT Nominal Value (dB)	Measured Value (dB)	IEC 942 Class 1 Spec.
94	94.22	± 0.3 dB

The above measured values are the mean of 3 measurements.

Uncertainty : ± 0.1 dB

2. Frequency

UUT Nominal Value	Measured Value	IEC 942 Class 1 Spec.
1 kHz	0.9834 kHz	± 2 %

Uncertainty : ± 3.6 x 10⁻⁶

3. Level Stability : 0.0 dB

IEC 942 Class 1 Spec. : ± 0.1 dB

Uncertainty : ± 0.01 dB

4. Total Harmonic Distortion : < 0.2 %

IEC 942 Class 1 Spec. : < 3 %

Uncertainty : ± 2.3 % of reading

Remark : 1. UUT : Unit-Under-Test

2. The uncertainty claimed is for a confidence probability of not less than 95%.

3. Atmospheric Pressure : 1 009 hPa.

----- END -----



TISCH ENVIRONMENTAL, INC.
 145 SOUTH MIAMI AVE.
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AIR POLLUTION MONITORING EQUIPMENT

ORIFICE TRANSFER STANDARD CERTIFICATION WORKSHEET TE-5025A

Date - Jun 28, 2010 Rootsometer S/N 9833620 Ta (K) - 298
 Operator Tisch Orifice I.D. - 0005 Pa (mm) - 745.49

PLATE OR Run #	VOLUME START (m3)	VOLUME STOP (m3)	DIFF VOLUME (m3)	DIFF TIME (min)	METER	ORFICE
					DIFF Hg (mm)	DIFF H2O (in.)
1	NA	NA	1.00	1.3860	3.2	2.00
2	NA	NA	1.00	0.9740	6.4	4.00
3	NA	NA	1.00	0.8730	7.9	5.00
4	NA	NA	1.00	0.8320	8.8	5.50
5	NA	NA	1.00	0.6850	12.7	8.00

DATA TABULATION

Vstd	(x axis) Qstd	(y axis)	Va	(x axis) Qa	(y axis)
0.9767	0.7047	1.4006	0.9957	0.7184	0.8941
0.9725	0.9985	1.9808	0.9914	1.0179	1.2645
0.9704	1.1116	2.2146	0.9893	1.1332	1.4137
0.9693	1.1650	2.3227	0.9882	1.1877	1.4828
0.9641	1.4075	2.8013	0.9829	1.4349	1.7883
Qstd slope (m) = 1.99628			Qa slope (m) = 1.25003		
intercept (b) = -0.00699			intercept (b) = -0.00446		
coefficient (r) = 0.99995			coefficient (r) = 0.99995		
y axis = SQRT[H2O(Pa/760)(298/Ta)]			y axis = SQRT[H2O(Ta/Pa)]		

CALCULATIONS

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

$$Qstd = Vstd / \text{Time}$$

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

$$Qa = Va / \text{Time}$$

For subsequent flow rate calculations:

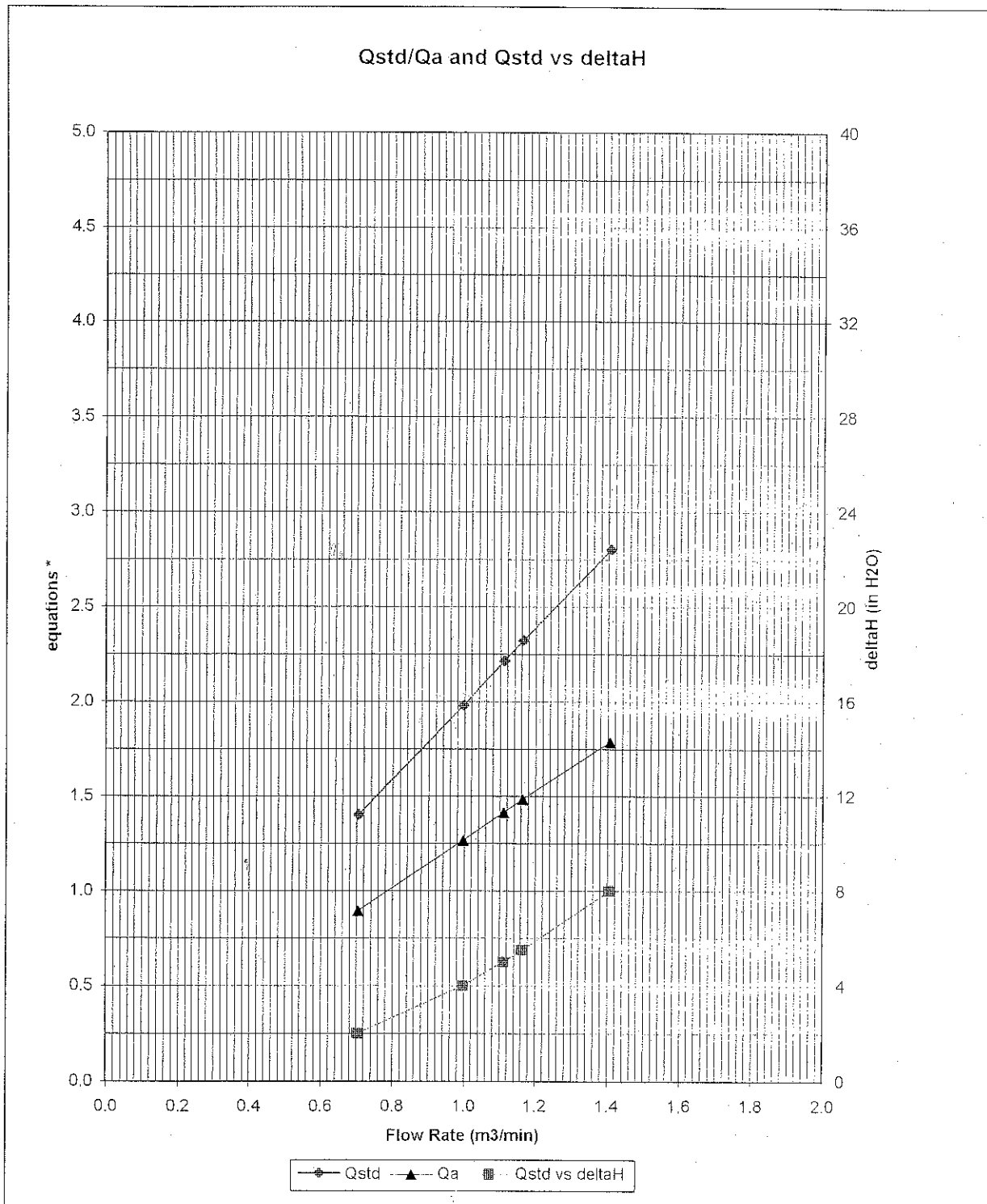
$$Qstd = 1/m \{ [\text{SQRT}(H2O(Pa/760)(298/Ta))] - b \}$$

$$Qa = 1/m \{ [\text{SQRT} H2O(Ta/Pa)] - b \}$$



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AIR POLLUTION MONITORING EQUIPMENT



* y-axis equations:

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

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

#0005

CERTIFICATE OF CALIBRATION**Certificate No. :** 2KS100705-2**Page 1 of 2****Calibration of :**

Description :	Sound Level Meter	,	Microphone
Manufacture :	Brüel & Kjær		
Type No. :	2250	,	4950
Serial No. :	2722311		2698703

Client :

Lam Geotechnics Limited
11/F, Centre Point
181-185 Gloucester Road
Wanchai
Hong Kong

Calibration Conditions :

Air Temperature :	23	°C
Air Pressure :	101.9	kPa
Relative Humidity :	62	%

Test Specifications :

The Sound Level Meter has been calibrated in accordance with the requirements as specified in IEC 60651 and IEC 60804 type 1, and vendor specific procedures.

The measurements has been performed with the assistance of :
Brüel & Kjær's Sound Level Meter Calibration System B&K 9600 CAL2238A, Ver.25.10.1999
The standard(s) and instrument(s) used in the calibration are traceable to international standard and are calibrated on a schedule which is adjusted to maintain the required accuracy level.

Test Result :

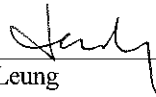
A list of the performed (sub) tests is stated on page 2 of this certificate. Actual Measurement are documented on worksheet.

Date of Calibration : 03 Aug, 2010

Certificate issued : 03 Aug, 2010

Calibrated By :

Approved signatory :


Dai Bin
Jacky Leung

Reproduction of the complete certificate is allowed. Parts of the certificate may only be reproduced after written permission.

CERTIFICATE OF CALIBRATION

Certificate No. : 2KS100705-2

Page 2 of 2

Results :

List of performed (sub) test with test status:

“OK” Means the result of the (sub)test is Inside the tolerances stated in the test specifications.

“ - ” Means the result of the (sub)test is Outside these tolerances.

Test :	Subtest :	Status :
Noise	A	OK
Noise	C	OK
Noise	Lin	OK
Frequency Weighting	A	OK
Frequency Weighting	C	OK
Frequency Weighting	Lin	OK
Level Range Control	1000 Hz	OK
Linearity Range	SPL 10dB 4000 Hz	OK
Linearity Range	SPL 1dB 1000 Hz	OK
Linearity Range	Leq	OK
Linearity Range	SEL	OK
RMS Detector	CF 3	OK
RMS Detector	CF 5	OK
RMS Detector	CF 10	OK
RMS Detector	Symmetry	OK
Time Weighting	Difference Indication	OK
Time Weighting	Single Burst FAST	OK
Time Weighting	Single Burst SLOW	OK
Time Weighting	Single Burst IMPULSE	OK
Time Weighting	Repetitive Burst	OK
Time Weighting	Peak	OK
Time Averaging		OK
Pulse Range		OK
Overload	SPL	OK
Overload	SEL	OK
Acoustic Response	A	OK
Acoustic Response	Lin	OK

Calibration Equipment :

Brüel & Kjær's Sound Level Meter Calibration System B&K 9600 CAL2238A, Ver.25.10.1999

Description :	Make & Model :	Serial No. :	Last Cal. Date :	Traceable to:
Digital Multi-meter	Datron 1281	27361	30 Sept, 2009	HKSCS (HOKLAS)
Sine/Noise Generator	B&K 1049	1314978	Test	B&K Conformance
Test Waveform Generator	B&K 5918	1482949	Test	B&K Conformance
Acoustical Calibrator	B&K 4226	1843103	11 Aug 2009	NPL via B&K (DANAK)

Calibrated By : *Dai & M*
Date : 03 Aug 2010

Checked By : *Janly*
Date : 03 Aug, 2010

**Calibration Data for High Volume Sampler (TSP Sampler)**

Location : IFC-E
 Equipment no. : EL455

Calibration Date : 29-Oct-10
 Calibration Due Date : 29-Dec-10

CALIBRATION OF CONTINUOUS FLOW RECORDER

Ambient Condition			
Temperature, T_a	304	Kelvin	Pressure, P_a
			1012 mmHg

Orifice Transfer Standard Information					
Equipment No.	EL086	Slope, m_c	1.99628	Intercept, b_c	-0.06990
Last Calibration Date	28-Jun-10	$\left(H \times P_a / 1013.3 \times 298 / T_a \right)^{1/2}$ $= m_c \times Q_{std} + b_c$			
Next Calibration Date	28-Jun-11				

Calibration of RSP						
Calibration Point	Manometer Reading			Q_{std} ($m^3 / min.$) X-axis	Continuous Flow Recorder, W (CFM)	IC ($W(P_a/1013.3 \times 298/T_a)^{1/2}/35.31$) Y-axis
	(up)	(down)	(difference)			
1	6.45	6.45	12.9	1.8152	63	62.3352
2	5.1	5.1	10.2	1.6180	55	54.4196
3	4	4	8	1.4369	47	46.5040
4	2.55	2.55	5.1	1.1543	34	33.6412
5	1.6	1.55	3.1	0.9077	22	21.7678

By Linear Regression of Y on X

Slope, m = 44.8283 Intercept, b = -18.4175
 Correlation Coefficient* = 0.9995
 Calibration Accepted = Yes/No**

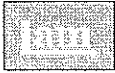
* if Correlation Coefficient < 0.990, check and recalibration again.

** Delete as appropriate.

Remarks : _____

Calibrated by : Derek Lo
 Date : 29-Oct-10

Checked by : Cherry Mak
 Date : 29-Oct-10



Calibration Data for High Volume Sampler (TSP Sampler)

Location : IFC-E Calibration Date : 28-Dec-10
 Equipment no. : EL455 Calibration Due Date : 28-Feb-11

CALIBRATION OF CONTINUOUS FLOW RECORDER

Ambient Condition			
Temperature, T _a	293	Kelvin	Pressure, P _a
			1020 mmHg

Orifice Transfer Standard Information					
Equipment No.	EL086	Slope, m _c	1.99628	Intercept, b _c	-0.06990
Last Calibration Date	28-Jun-10	$(H \times P_a / 1013.3 \times 298 / T_a)^{1/2}$			
Next Calibration Date	28-Jun-11	= m _c × Q _{std} + b _c			

Calibration of RSP						
Calibration Point	Manometer Reading			Q _{std} (m ³ / min.) X-axis	Continuous Flow Recorder, W (CFM)	IC <small>(W(P_a/1013.3x298/T_a)^{1/2}/35.31)</small> Y-axis
	H (inches of water)					
	(up)	(down)	(difference)			
1	6.3	6.3	12.6	1.8342	59	59.6977
2	5.0	5.0	10.0	1.6378	53	53.6267
3	3.9	3.9	7.8	1.4506	46	46.5439
4	2.6	2.6	5.2	1.1908	34	34.4020
5	1.6	1.6	3.2	0.9417	24	24.2838

By Linear Regression of Y on X

Slope, m = 40.5207 Intercept, b = -13.4648
 Correlation Coefficient* = 0.9978
 Calibration Accepted = Yes/No**

* if Correlation Coefficient < 0.990, check and recalibration again.

** Delete as appropriate.

Remarks : _____

Calibrated by : Derek Lo Checked by : Cherry Mak
 Date : 28-Dec-10 Date : 28-Dec-10



Calibration Data for High Volume Sampler (TSP Sampler)

Location : IFC-W
 Equipment no. : EL080

Calibration Date : 29-Oct-10
 Calibration Due Date : 29-Dec-10

CALIBRATION OF CONTINUOUS FLOW RECORDER

Ambient Condition			
Temperature, T _a	304	Kelvin	Pressure, P _a
			1012 mmHg

Orifice Transfer Standard Information					
Equipment No.	EL086	Slope, m _c	1.99628	Intercept, b _c	-0.06990
Last Calibration Date	28-Jun-10	$(H \times P_a / 1013.3 \times 298 / T_a)^{1/2}$ $= m_c \times Q_{std} + b_c$			
Next Calibration Date	28-Jun-11				

Calibration of RSP						
Calibration Point	Manometer Reading			Q _{std} (m ³ / min.) X-axis	Continuous Flow Recorder, W (CFM)	IC Y-axis <small>(W(P_a/1013.3x298/T_a)^{1/2}/35.31)</small>
	H (inches of water)					
	(up)	(down)	(difference)			
1	6.25	6.25	12.5	1.7874	52	51.4512
2	5.0	5.0	10.0	1.6024	44	43.5357
3	3.85	3.85	7.7	1.4104	37	36.6095
4	2.5	2.5	5	1.1433	28	27.7045
5	1.6	1.55	3.1	0.9077	18	17.8100

By Linear Regression of Y on X

Slope, m = 37.4079 Intercept, b = -15.8351

Correlation Coefficient* = 0.9991

Calibration Accepted = Yes/No**

* if Correlation Coefficient < 0.990, check and recalibration again.

** Delete as appropriate.

Remarks : _____

Calibrated by : Derek Lo
 Date : 29-Oct-10

Checked by : Cherry Mak
 Date : 29-Oct-10

**Calibration Data for High Volume Sampler (TSP Sampler)**

Location : IFC-W Calibration Date : 28-Dec-10
 Equipment no. : EL080 Calibration Due Date : 28-Feb-11

CALIBRATION OF CONTINUOUS FLOW RECORDER

Ambient Condition			
Temperature, T _a	293	Kelvin	Pressure, P _a
			1020 mmHg

Orifice Transfer Standard Information					
Equipment No.	EL086	Slope, m _c	1.99628	Intercept, b _c	-0.06990
Last Calibration Date	28-Jun-10	$(H \times P_a / 1013.3 \times 298 / T_a)^{1/2}$ $= m_c \times Q_{std} + b_c$			
Next Calibration Date	28-Jun-11				

Calibration of RSP						
Calibration Point	Manometer Reading			Q _{std} (m ³ / min.) X-axis	Continuous Flow Recorder, W (CFM)	IC (W(P _a /1013.3x298/T _a) ^{1/2} /35.31) Y-axis
	(up)	(down)	(difference)			
1	6.2	6.2	12.4	1.8198	55	55.6504
2	5.0	5.0	10.0	1.6378	49	49.5794
3	3.8	3.8	7.6	1.4323	40	40.4730
4	2.5	2.5	5.0	1.1684	30	30.3547
5	1.6	1.6	3.2	0.9417	21	21.2483

By Linear Regression of Y on X

Slope, m = 39.5777 Intercept, b = -15.9482
 Correlation Coefficient* = 0.9995
 Calibration Accepted = Yes/No**

* if Correlation Coefficient < 0.990, check and recalibration again.

** Delete as appropriate.

Remarks : _____

Calibrated by : Derek Lo Checked by : Cherry Mak
 Date : 28-Dec-10 Date : 28-Dec-10

**Calibration Data for High Volume Sampler (TSP Sampler)**

Location : CMA2a
 Equipment no. : EL449

Calibration Date : 29-Oct-10
 Calibration Due Date : 29-Dec-10

CALIBRATION OF CONTINUOUS FLOW RECORDER

Ambient Condition			
Temperature, T_a	305	Kelvin	Pressure, P_a
			1008 mmHg

Orifice Transfer Standard Information					
Equipment No.	EL086 (Serial no. 9833620)	Slope, m_c	1.99628	Intercept, b_c	-0.06990
Last Calibration Date	28-Jun-10	$\left(H \times P_a / 1013.3 \times 298 / T_a \right)^{1/2}$ $= m_c \times Q_{std} + b_c$			
Next Calibration Date	28-Jun-11				

Calibration of RSP						
Calibration Point	Manometer Reading			Q_{std} ($m^3 / min.$) X-axis	Continuous Flow Recorder, W (CFM)	IC ($W(P_a/1013.3 \times 298/T_a)^{1/2}/35.31$) Y-axis
	(up)	(down)	(difference)			
1	6.55	6.55	13.1	1.8225	52	51.2652
2	5.2	5.2	10.4	1.6276	45	44.3641
3	3.95	3.95	7.9	1.4231	40	39.4348
4	2.5	2.5	5	1.1393	30	29.5761
5	1.5	1.5	3.0	0.8904	21	20.7033

By Linear Regression of Y on X

Slope, m = 32.3499 Intercept, b = -7.5929
 Correlation Coefficient* = 0.9984
 Calibration Accepted = Yes/No**

* if Correlation Coefficient < 0.990, check and recalibration again.

** Delete as appropriate.

Remarks : _____

Calibrated by : Derek Lo
 Date : 29-Oct-10

Checked by : Cherry Mak
 Date : 29-Oct-10

**Calibration Data for High Volume Sampler (TSP Sampler)**

Location : CMA2a Calibration Date : 28-Dec-10
 Equipment no. : EL449 Calibration Due Date : 28-Feb-11

CALIBRATION OF CONTINUOUS FLOW RECORDER

Ambient Condition			
Temperature, T _a	293	Kelvin	Pressure, P _a
			1020 mmHg

Orifice Transfer Standard Information					
Equipment No.	EL086	Slope, m _c	1.99628	Intercept, b _c	-0.06990
Last Calibration Date	28-Jun-10	$(H \times P_a / 1013.3 \times 298 / T_a)^{1/2}$ $= m_c \times Q_{std} + b_c$			
Next Calibration Date	28-Jun-11				

Calibration of RSP						
Calibration Point	Manometer Reading			Q _{std} (m ³ / min.) X-axis	Continuous Flow Recorder, W (CFM)	IC (W(P _a /1013.3x298/T _a) ^{1/2} /35.31) Y-axis
	(up)	(down)	(difference)			
1	6.5	6.5	13.0	1.8625	52	52.6149
2	5.2	5.2	10.4	1.6696	47	47.5558
3	4.0	4.0	8.0	1.4686	40	40.4730
4	2.6	2.6	5.2	1.1908	30	30.3547
5	1.5	1.5	3.0	0.9129	18	18.2128

By Linear Regression of Y on X

Slope, m = 36.4116 Intercept, b = -13.8945

Correlation Coefficient* = 0.9967

Calibration Accepted = Yes/No**

* if Correlation Coefficient < 0.990, check and recalibration again.

** Delete as appropriate.

Remarks : _____

Calibrated by : Derek Lo Checked by : Cherry Mak
 Date : 28-Dec-10 Date : 28-Dec-10



Appendix 5.1

Monitoring Schedules for Reporting Month and Coming Reporting Month

Contract No. HK/2009/05
Wan Chai Development Phase II and Central-Wan Chai Bypass
Sampling, Field Measurement and Testing Works (Stage 1)
Tentative Environmental Monitoring Schedule
January 2011

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
26-Dec	27-Dec	28-Dec	29-Dec 24hr TSP Noise (Day time) Noise (Restricted hr) 1900-2000	30-Dec 1hr TSP x 3	31-Dec	01-Jan
02-Jan	03-Jan	04-Jan 24hr TSP Noise (Day time) Noise (Restricted hr) 1900-2000	05-Jan 1hr TSP x 3	06-Jan	07-Jan	08-Jan
09-Jan	10-Jan 24hr TSP	11-Jan 1hr TSP x 3	12-Jan Noise (Day time) Noise (Restricted hr) 1900-2000	13-Jan	14-Jan	15-Jan 24hr TSP
16-Jan	17-Jan 1hr TSP x 3	18-Jan Noise (Day time) Noise (Restricted hr) 1900-2000	19-Jan	20-Jan	21-Jan 24hr TSP	22-Jan 1hr TSP x 3
23-Jan	24-Jan	25-Jan Noise (Day time) Noise (Restricted hr) 1900-2000	26-Jan	27-Jan 24hr TSP	28-Jan 1hr TSP x 3	29-Jan

**Contract No. HK/2009/05
Wan Chai Development Phase II and Central-Wan Chai Bypass
Sampling, Field Measurement and Testing Works (Stage 1)**

**Tentative Environmental Monitoring Schedule
February 201 1**

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
23-Jan	24-Jan	25-Jan Noise (Day time) Noise (Restricted hr) 1900-2000	26-Jan	27-Jan 24hr TSP	28-Jan 1hr TSP x 3	29-Jan
30-Jan	31-Jan	01-Feb 24hr TSP Noise (Day time) Noise (Restricted hr) 1900-2000	02-Feb 1hr TSP x 3	03-Feb	04-Feb	05-Feb
06-Feb	07-Feb	08-Feb 24hr TSP Noise (Day time) Noise (Restricted hr) 1900-2000	09-Feb 1hr TSP x 3	10-Feb	11-Feb	12-Feb
13-Feb	14-Feb 24hr TSP	15-Feb 1hr TSP x 3	16-Feb	17-Feb Noise (Day time) Noise (Restricted hr) 1900-2000	18-Feb	19-Feb 24hr TSP
20-Feb	21-Feb 1hr TSP x 3	22-Feb Noise (Day time) Noise (Restricted hr) 1900-2000	23-Feb	24-Feb	25-Feb 24hr TSP	26-Feb 1hr TSP x 3
27-Feb	28-Feb	01-Mar Noise (Day time) Noise (Restricted hr) 1900-2000	02-Mar	03-Mar 24hr TSP	04-Mar 1hr TSP x 3	05-Mar

Contract No. HK/2009/05
Wan Chai Development Phase II and Central-Wan Chai Bypass
Sampling, Field Measurement and Testing Works (Stage 1)
Tentative Environmental Monitoring Schedule
March 2011

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
27-Feb	28-Feb	01-Mar Noise (Day time) Noise (Restricted hr) 1900-2000	02-Mar	03-Mar 24hr TSP	04-Mar 1hr TSP x 3	05-Mar
06-Mar	07-Mar	08-Mar Noise (Day time) Noise (Restricted hr) 1900-2000	09-Mar 24hr TSP	10-Mar 1hr TSP x 3	11-Mar	12-Mar
13-Mar	14-Mar	15-Mar 24hr TSP Noise (Day time) Noise (Restricted hr) 1900-2000	16-Mar 1hr TSP x 3	17-Mar	18-Mar	19-Mar
20-Mar	21-Mar 24hr TSP	22-Mar 1hr TSP x 3	23-Mar	24-Mar Noise (Day time) Noise (Restricted hr) 1900-2000	25-Mar	26-Mar 24hr TSP
27-Mar	28-Mar	29-Mar	30-Mar	31-Mar	01-Apr	02-Apr

Contract No. HK/2009/05
Wan Chai Development Phase II and Central-Wan Chai Bypass
Sampling, Field Measurement and Testing Works (Stage 1)
Tentative Environmental Monitoring Schedule
January 2011

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
--------	--------	---------	-----------	----------	--------	----------

Remarks (Air)

1. Cut-off date is at the 27th of each reporting month
2. Actual monitoring will subject to change due to any safety concern or adverse weather condition.
3. Air Quality Monitoring Stations corresponding to active contracts are sub-divided below
 - Contract 04/HY/2006: MA1e and MA1w
 - Contract HK/2009/01: CMA5a (To be commenced when commencement of major works under FEP-02/364/2009 begun)
 - Contract HK/2009/02: CMA4a (To be commenced when commencement of major works under FEP-01/364/209 begun)
 - Contract HY/2009/15: CMA3a (To be commenced when commencement of major works under FEP-06/364/209/A begun)
 - Contract HY/2009/17: CMA2a
 - Contract HY/2009/18: MA1e and MA1w (To be commenced when commencement of major works under FEP-05/364/209/A begun)

Remarks (Noise)

1. Cut-off date is at the 27th of each reporting month
2. Actual monitoring will subject to change due to any safety concern or adverse weather condition.
3. Noise Quality Monitoring Stations corresponding to active contracts are sub-divided below
 - Contract 04/HY/2006: M7e and M7w
 - Contract HK/2009/01 and HK/2009/02: M1a (To be commenced when commencement of major works under FEP-02/364/2009 & FEP-01/364/2009 begun)
 - Contract HY/2009/15: M2b (To be commenced when commencement of major works under FEP-06/364/209/A begun)
 - Contract HY/2009/17: M4b
 - Contract HY/2009/18: M7e and M7w (To be commenced when commencement of major works under FEP-05/364/209/A begun)
4. Day time noise will be monitored for Leq(30min) during the period between 07:00 and 19:00 for active contract(s).
5. Restricted hours noise (i.e. outside 07:00-19:00 of normal weekday) will be monitored for 3 nos. Leq(5min) as per the relevant Construction Noise Permit(s) in force for the followin contract(s): Contracts HY/2009/11 and HK/2009/02



Appendix 5.2

Noise Monitoring Results and Graphical Presentations



Noise Monitoring Result

Day Time (0700 - 1900hrs on normal weekdays)

Location: M4b - Victoria Centre

Date	Time	Weather	Measurement Noise Level			Baseline Noise Level	Construction Noise Level	Limit Level
			Leq	L10	L90	Leq	Leq	Leq
Unit: dB(A), (30min)								
29/12/10	13:42	Sunny	70.0	71.6	67.6	-	70	75
04/01/11	13:46	Cloudy	73.9	77.2	70.6	-	74	75
12/01/11	13:10	Cloudy	74.4	76.2	70.3	-	74	75
18/01/11	13:38	Sunny	73.6	76.8	69.4	-	74	75
25/01/11	13:40	Sunny	72.9	75.0	69.8	-	73	75



Noise Monitoring Result

Day Time (0700 - 1900hrs on normal weekdays)

Location: M7e - International Finance Centre (Eastern End of Podium)

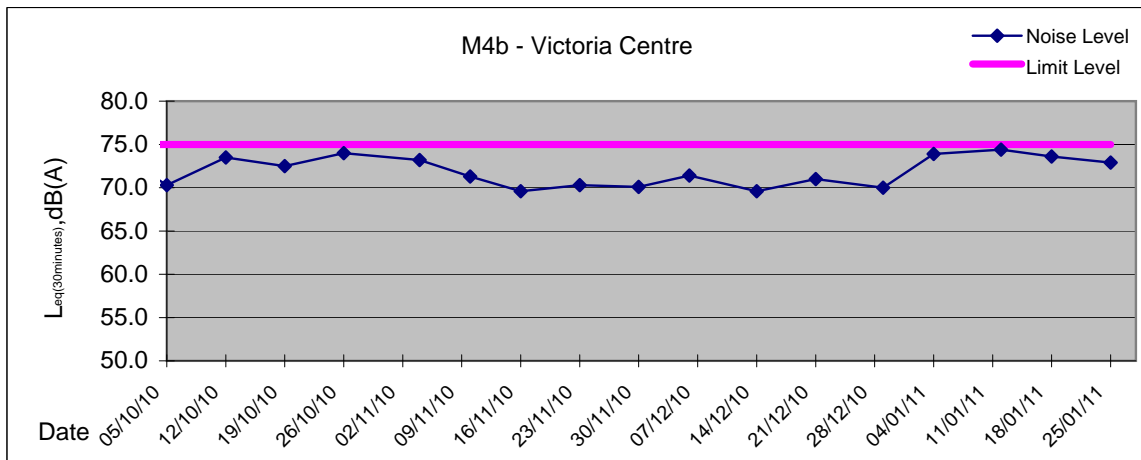
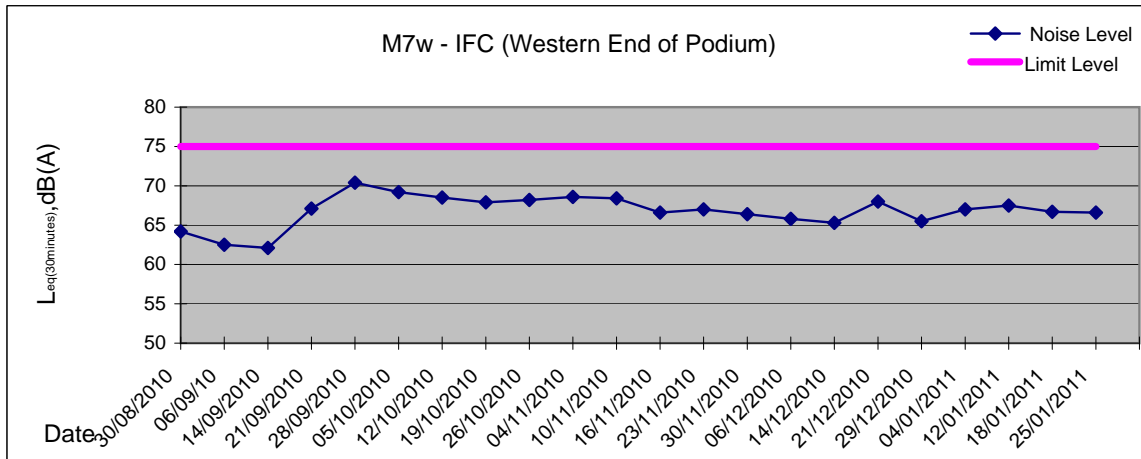
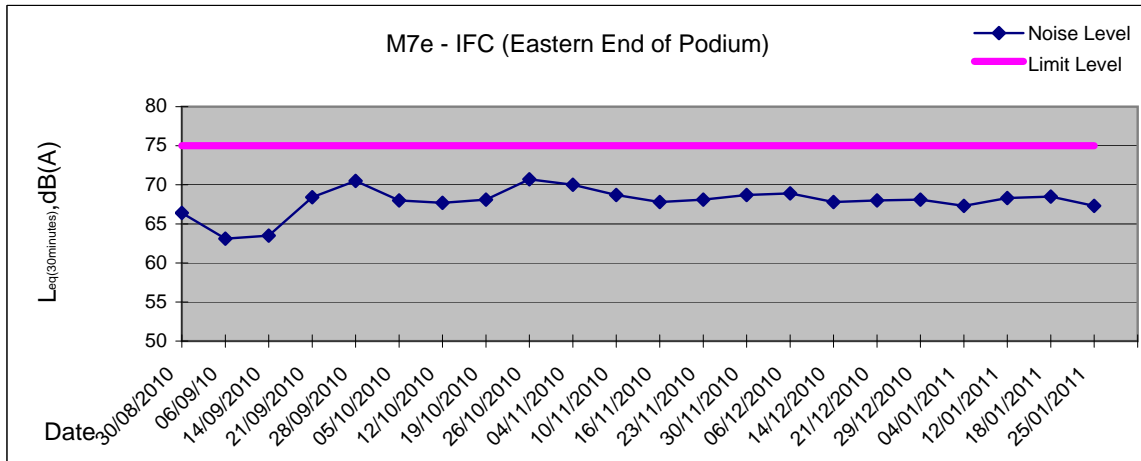
Date	Time	Weather	Measurement Noise Level			Baseline Level	Construction Noise Level	Limit Level
			Leq	L10	L90	Leq	Leq	Leq
Unit: dB(A), (30-min)								
29/12/10	08:50	Fine	68.1	70.3	64.4	-	68	75
04/01/11	08:49	Cloudy	67.3	69.5	64.3	-	67	75
12/01/11	08:47	Cloudy	68.3	70.4	65.1	-	68	75
18/01/11	09:10	Cloudy	68.5	71.2	64.5	-	69	75
25/01/11	08:56	Hazy	67.3	69.4	64.1	-	67	75

Location: M7w - International Finance Centre (Western End of Podium)

Date	Time	Weather	Measurement Noise Level			Baseline Level	Construction Noise Level	Limit Level
			Leq	L10	L90	Leq	Leq	Leq
Unit: dB(A), (30-min)								
29/12/10	09:28	Fine	65.5	67.3	63.0	-	66	75
04/01/11	09:29	Cloudy	67.0	68.5	64.2	-	67	75
12/01/11	08:08	Cloudy	67.5	69.4	63.0	-	68	75
18/01/11	09:45	Fine	66.7	68.8	63.6	-	67	75
25/01/11	09:32	Hazy	66.6	68.7	63.7	-	67	75



Graphic Presentation of Noise Monitoring Result
Day Time (0700 - 1900hrs on normal weekdays)





Appendix 5.3

Air Quality Monitoring Results and Graphical Presentations



Location: MA1e - International Finance Centre (Eastern Wing)

Report on 24-hour TSP monitoring

Action Level ($\mu\text{g}/\text{m}^3$) - 173.4
Limit Level ($\mu\text{g}/\text{m}^3$) - 260

Date	Sampling Time	Weather Condition	Filter paper no.	Filter Weight, g		Elapse Time, hr		Sampling Time, hr	Flow Rate, m^3/min			Total Volume, m^3	TSP Level, $\mu\text{g}/\text{m}^3$
				Initial	Final	Initial	Final		Initial, Q_{si}	Final, Q_{sf}	Average		
29-Dec-10	08:00	Fine	201833	2.7934	2.9266	6218.58	6242.58	24.00	1.22	1.22	1.22	1750	76
04-Jan-11	08:00	Hazy	201934	2.7503	2.9021	6245.47	6269.46	23.99	1.31	1.31	1.31	1885	81
10-Jan-11	08:00	Hazy	201957	2.7207	3.0564	6272.46	6296.46	24.00	1.38	1.38	1.38	1985	169
15-Jan-11	08:00	Hazy	201996	2.7166	2.8966	6326.46	6350.46	24.00	1.21	1.21	1.21	1741	103
21-Jan-11	08:00	Cloudy	201986	2.7333	2.9393	6326.46	6350.46	24.00	1.36	1.36	1.36	1955	105
27-Jan-11	08:00	Hazy	202057	2.8672	3.0291	6353.46	6377.46	24.00	1.33	1.33	1.33	1912	85

Report on 1-hour TSP monitoring

Action Level ($\mu\text{g}/\text{m}^3$) - 325.1
Limit Level ($\mu\text{g}/\text{m}^3$) - 500

Date	Sampling Time	Weather Condition	Filter paper no.	Filter Weight, g		Elapse Time, hr		Sampling Time, hr	Flow Rate, m^3/min			Total Volume, m^3	TSP Level, $\mu\text{g}/\text{m}^3$
				Initial	Final	Initial	Final		Initial, Q_{si}	Final, Q_{sf}	Average		
30-Dec-10	08:40	Fine	201919	2.7581	2.7653	6242.58	6243.58	1.00	1.28	1.28	1.28	77	94
30-Dec-10	09:48	Fine	201919	2.7668	2.7771	6243.58	6244.58	1.00	1.28	1.28	1.28	77	134
30-Dec-10	10:59	Fine	201936	2.7556	2.7653	6244.58	6245.58	1.00	1.28	1.28	1.28	77	126
05-Jan-11	08:50	Hazy	201952	2.7359	2.7432	6269.46	6270.46	1.00	1.36	1.35	1.35	81	90
05-Jan-11	10:19	Hazy	201940	2.7593	2.7660	6270.46	6271.46	1.00	1.35	1.35	1.35	81	83
05-Jan-11	13:00	Hazy	201950	2.7334	2.7390	6271.46	6272.46	1.00	1.35	1.35	1.35	81	69
11-Jan-11	09:02	Hazy	202004	2.8802	2.8897	6296.46	6297.46	1.00	1.31	1.31	1.31	79	121
11-Jan-11	13:00	Hazy	202005	2.8667	2.8792	6297.46	6298.46	1.00	1.31	1.31	1.31	79	159
11-Jan-11	14:06	Hazy	202012	2.8506	2.8577	6298.46	6299.46	1.00	1.31	1.31	1.31	79	90
17-Jan-11	08:20	Hazy	201976	2.7445	2.7552	6323.46	6324.46	1.00	1.29	1.29	1.29	77	138
17-Jan-11	09:40	Hazy	201988	2.7352	2.7447	6324.46	6325.46	1.00	1.29	1.29	1.29	77	123
17-Jan-11	10:45	Hazy	201984	2.7371	2.7459	6325.46	6326.46	1.00	1.29	1.29	1.29	77	114
22-Jan-11	09:44	Cloudy	202053	2.8570	2.8652	6350.46	6351.46	1.00	1.38	1.38	1.38	83	99
22-Jan-11	10:52	Cloudy	202054	2.8637	2.8702	6351.46	6352.46	1.00	1.38	1.38	1.38	83	79
22-Jan-11	12:00	Cloudy	202055	2.8650	2.8720	6352.46	6353.46	1.00	1.36	1.36	1.36	81	86



Location: MA1w - International Finance Centre (Western Wing)

Report on 24-hour TSP monitoring

Action Level ($\mu\text{g}/\text{m}^3$) - 173.4
 Limit Level ($\mu\text{g}/\text{m}^3$) - 260

Date	Sampling Time	Weather Condition	Filter paper no.	Filter Weight, g		Elapse Time, hr		Sampling Time, hr	Flow Rate, m^3/min			Total Volume, m^3	TSP Level, $\mu\text{g}/\text{m}^3$
				Initial	Final	Initial	Final		Initial, Q_{si}	Final, Q_{sf}	Average		
29-Dec-10	08:00	Fine	201834	2.7856	2.9425	9360.91	9384.91	24.00	1.47	1.47	1.47	2110	74
04-Jan-11	08:00	Hazy	201946	2.7379	2.9439	9387.91	9411.91	24.00	1.50	1.47	1.49	2141	96
10-Jan-11	08:00	Hazy	201942	2.7337	3.1018	9417.31	9441.31	24.00	1.50	1.50	1.50	2154	171
15-Jan-11	08:00	Hazy	201997	2.7158	2.9494	6326.46	6350.46	24.00	1.43	1.43	1.43	2065	113
21-Jan-11	08:00	Cloudy	201987	2.7340	2.9117	9471.31	9495.31	24.00	1.44	1.31	1.37	1978	90
27-Jan-11	08:00	Hazy	202056	2.8730	3.0286	9498.31	9522.31	24.00	1.28	1.28	1.28	1846	84

Report on 1-hour TSP monitoring

Action Level ($\mu\text{g}/\text{m}^3$) - 325.1
 Limit Level ($\mu\text{g}/\text{m}^3$) - 500

Date	Sampling Time	Weather Condition	Filter paper no.	Filter Weight, g		Elapse Time, hr		Sampling Time, hr	Flow Rate, m^3/min			Total Volume, m^3	TSP Level, $\mu\text{g}/\text{m}^3$
				Initial	Final	Initial	Final		Initial, Q_{si}	Final, Q_{sf}	Average		
30-Dec-10	08:50	Fine	201918	2.7647	2.7735	9384.91	9385.91	1.00	1.47	1.47	1.47	88	100
30-Dec-10	09:59	Fine	201920	2.7664	2.7744	9385.91	9386.91	1.00	1.47	1.47	1.47	88	91
30-Dec-10	11:08	Fine	201935	2.7468	2.7575	9386.91	9387.91	1.00	1.47	1.47	1.47	88	122
05-Jan-11	13:00	Hazy	201951	2.7321	2.7386	9411.91	9412.91	1.00	1.30	1.30	1.30	78	83
05-Jan-11	14:11	Hazy	201948	2.7354	2.7424	9412.91	9413.91	1.00	1.33	1.33	1.33	80	88
05-Jan-11	15:18	Hazy	201947	2.7482	2.7551	9413.91	9414.91	1.00	1.33	1.33	1.33	80	87
11-Jan-11	09:12	Hazy	201990	2.7337	2.7457	9441.31	9442.31	1.00	1.35	1.35	1.35	81	148
11-Jan-11	13:00	Hazy	201993	2.7299	2.7443	9442.31	9443.31	1.00	1.35	1.35	1.35	81	178
11-Jan-11	14:14	Hazy	201995	2.7171	2.7302	9443.31	9444.31	1.00	1.35	1.35	1.35	81	162
17-Jan-11	08:10	Hazy	201977	2.7332	2.7450	9468.31	9469.31	1.00	1.35	1.42	1.39	83	142
17-Jan-11	09:30	Hazy	201982	2.7291	2.7379	9469.31	9470.31	1.00	1.35	1.42	1.39	83	106
17-Jan-11	10:35	Hazy	201985	2.7350	2.7436	9470.31	9471.31	1.00	1.35	1.42	1.39	83	103
22-Jan-11	09:24	Cloudy	202050	2.8615	2.8698	9495.31	9496.31	1.00	1.40	1.36	1.38	83	100
22-Jan-11	10:32	Cloudy	202051	2.8613	2.8707	9496.31	9497.31	1.00	1.40	1.36	1.38	83	114
22-Jan-11	11:38	Cloudy	202052	2.8548	2.8633	9497.31	9498.31	1.00	1.45	1.41	1.43	86	99

Location: CMA2a - Causeway Bay Community Centre

Report on 24-hour TSP monitoring

Action Level ($\mu\text{g}/\text{m}^3$) - 169.5

Limit Level ($\mu\text{g}/\text{m}^3$) - 260

Date	Sampling Time	Weather Condition	Filter paper no.	Filter Weight, g		Elapse Time, hr		Sampling Time, hr	Flow Rate, m^3/min			Total Volume, m^3	TSP Level, $\mu\text{g}/\text{m}^3$
				Initial	Final	Initial	Final		Initial, Q_{si}	Final, Q_{sf}	Average		
29-Dec-10	08:00	Fine	201865	2.8042	2.9750	13100.10	13124.10	24.00	1.51	1.51	1.51	2168	79
04-Jan-11	08:00	Hazy	201930	2.7493	2.9171	13127.10	13151.14	24.04	1.51	1.52	1.52	2188	77
10-Jan-11	08:00	Hazy	201941	2.7375	2.9154	13154.14	13178.12	23.98	1.46	1.46	1.46	2105	85
15-Jan-11	08:00	Hazy	201966	2.7325	3.0555	13181.12	13205.12	24.00	1.48	1.48	1.48	2138	151
21-Jan-11	08:00	Hazy	202019	2.8690	3.0863	13208.12	13232.12	24.00	1.48	1.48	1.48	2134	102
27-Jan-11	08:00	Hazy	202027	2.8435	3.0480	13233.99	13257.99	24.00	1.44	1.44	1.44	2072	99

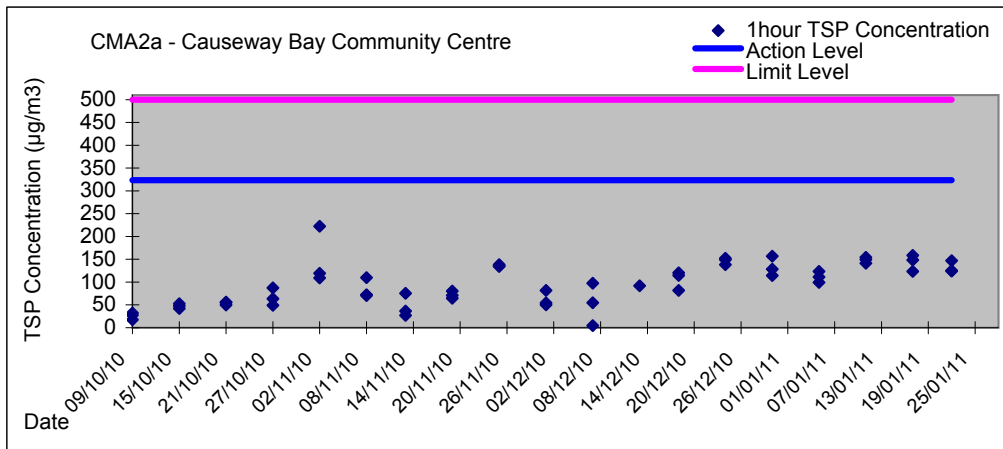
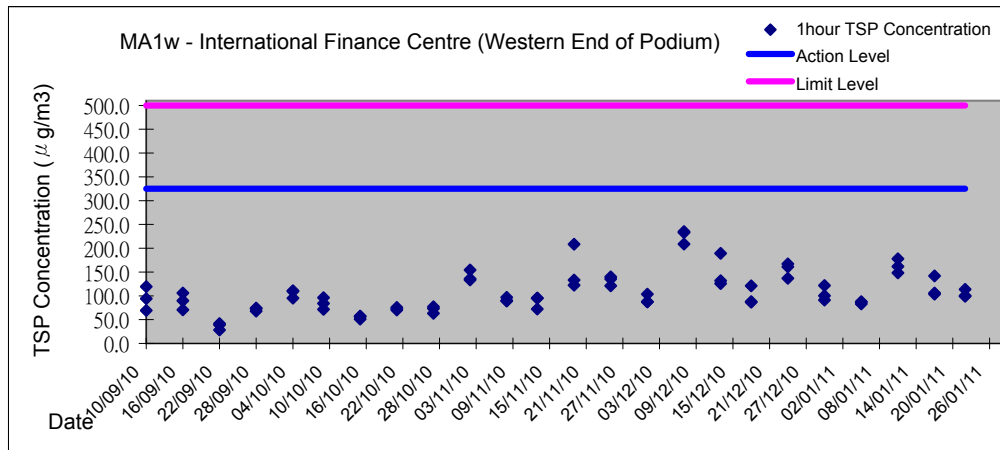
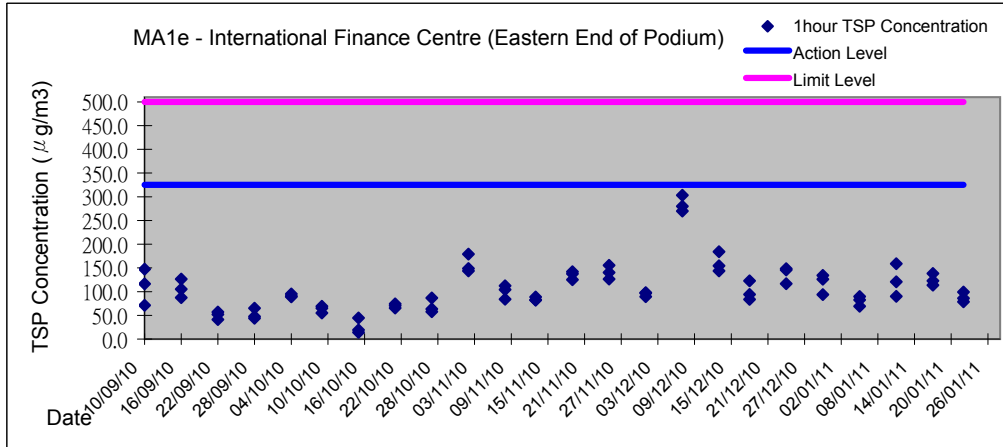
Report on 1-hour TSP monitoring

Action Level ($\mu\text{g}/\text{m}^3$) - 323.4

Limit Level ($\mu\text{g}/\text{m}^3$) - 500

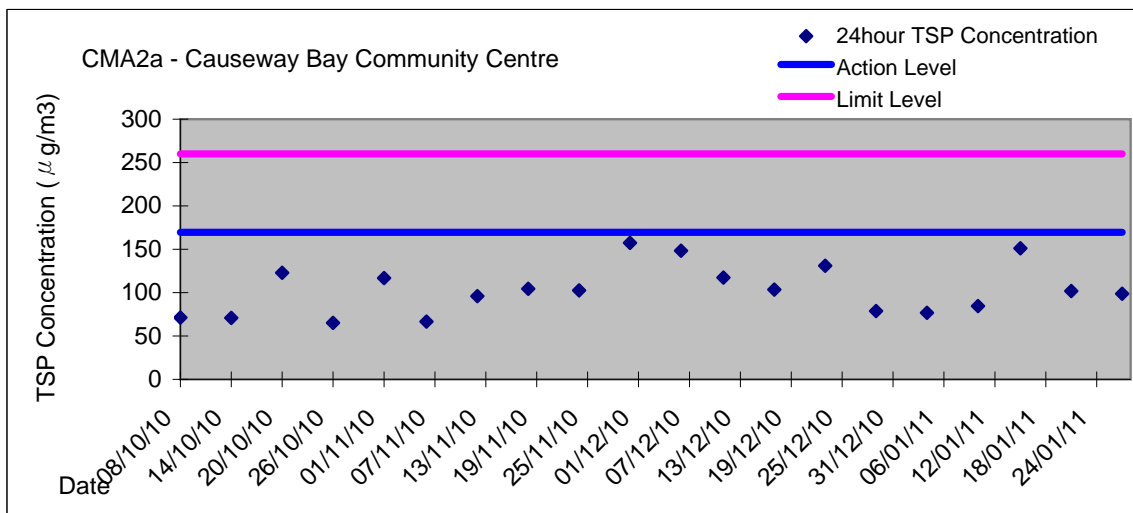
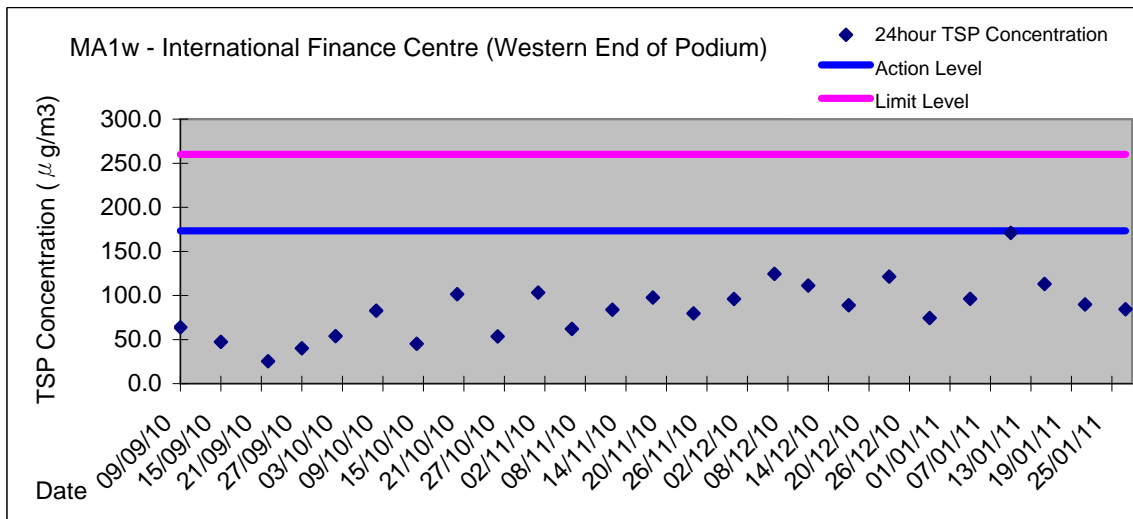
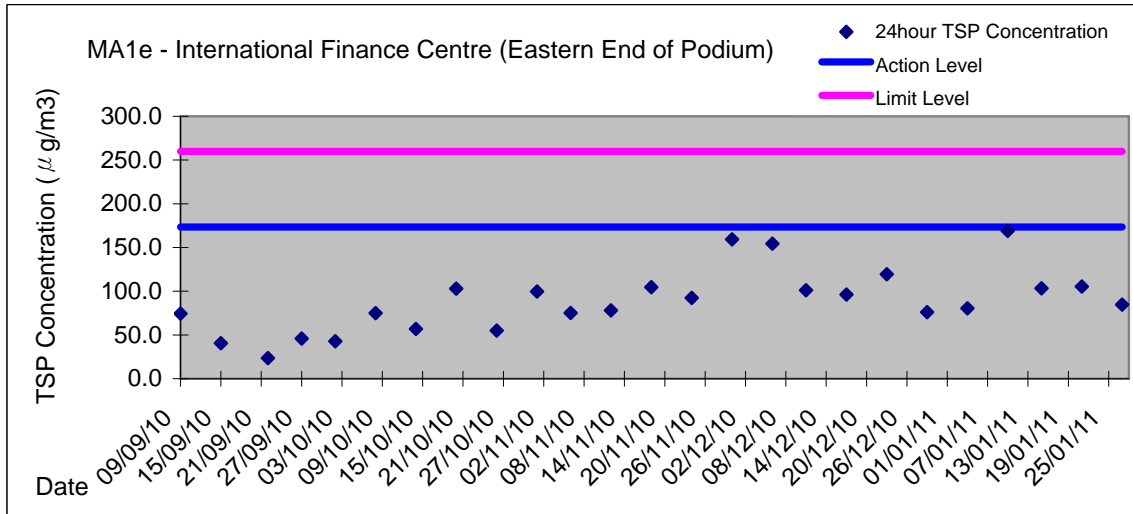
Date	Sampling Time	Weather Condition	Filter paper no.	Filter Weight, g		Elapse Time, hr		Sampling Time, hr	Flow Rate, m^3/min			Total Volume, m^3	TSP Level, $\mu\text{g}/\text{m}^3$
				Initial	Final	Initial	Final		Initial, Q_{si}	Final, Q_{sf}	Average		
30-Dec-10	10:51	Fine	201921	2.7581	2.7711	13124.10	13125.10	1.00	1.51	1.51	1.51	90	144
30-Dec-10	13:00	Fine	201923	2.7657	2.7817	13125.10	13126.10	1.00	1.51	1.51	1.51	90	177
30-Dec-10	14:27	Fine	201927	2.7563	2.7694	13126.10	13127.10	1.00	1.51	1.51	1.51	90	145
05-Jan-11	08:15	Hazy	201954	2.7277	2.7370	13151.14	13152.14	1.00	1.51	1.51	1.51	91	103
05-Jan-11	09:20	Hazy	201955	2.7278	2.7377	13152.14	13153.14	1.00	1.51	1.51	1.51	91	109
05-Jan-11	13:00	Hazy	201956	2.7212	2.7313	13153.14	13154.14	1.00	1.51	1.51	1.51	91	111
11-Jan-11	08:20	Hazy	202000	2.7155	2.7336	13178.12	13179.12	1.00	1.52	1.52	1.52	91	199
11-Jan-11	09:30	Hazy	202001	2.7212	2.7382	13179.12	13180.12	1.00	1.52	1.52	1.52	91	187
11-Jan-11	10:50	Hazy	202002	2.7183	2.7356	13180.12	13181.12	1.00	1.52	1.52	1.52	91	190
17-Jan-11	08:15	Hazy	201972	2.7458	2.7599	13205.12	13206.12	1.00	1.52	1.52	1.52	91	155
17-Jan-11	09:30	Hazy	201973	2.7569	2.7710	13206.12	13207.12	1.00	1.52	1.52	1.52	91	155
17-Jan-11	10:48	Hazy	201974	2.7499	2.7626	13207.12	13208.12	1.00	1.52	1.52	1.52	91	139
22-Jan-11	09:30	Hazy	202037	2.8665	2.8795	13232.12	13233.12	1.00	1.54	1.54	1.54	93	141
22-Jan-11	11:05	Hazy	202040	2.8620	2.8730	13233.12	13234.12	1.00	1.54	1.54	1.54	93	119
22-Jan-11	13:00	Hazy	202041	2.8617	2.8725	13234.12	13235.12	1.00	1.54	1.54	1.54	93	117

Graphic Presentation of 1 hour TSP Result





Graphic Presentation of 24 hour TSP Result



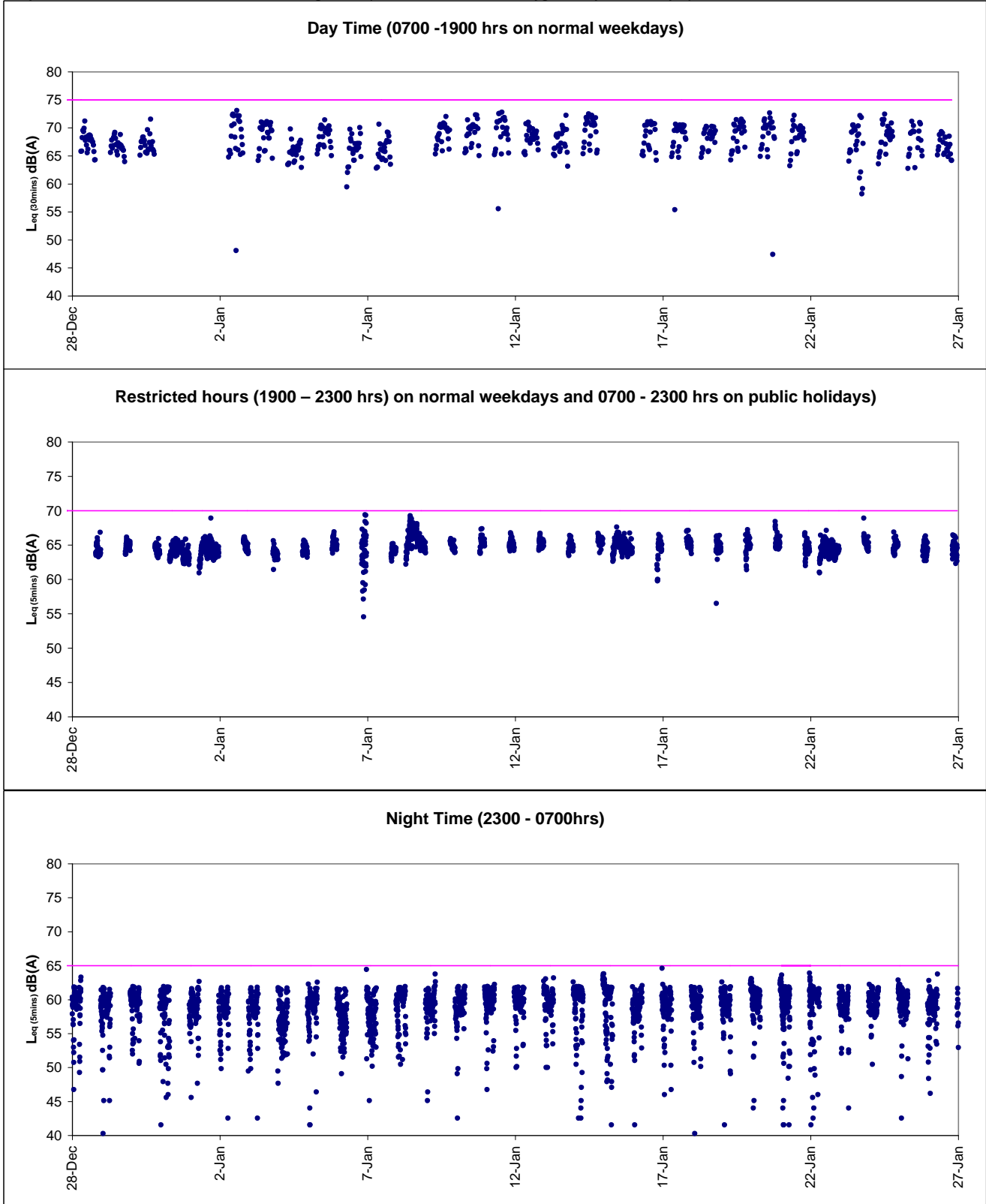


Appendix 5.4

Real Time Noise Monitoring Results and Graphical Presentations



Graphic Presentation of Real Time Noise Monitoring Result (Food and Environmental Hygiene Department Depot)





Appendix 6.1

Event Action Plans



Event/Action Plan for Construction Noise

EVENT	ACTION			
	ET	IEC	ER	CONTRACTOR
Action Level being exceeded	<ol style="list-style-type: none">1. Notify ER, IEC and Contractor;2. Carry out investigation;3. Report the results of investigation to the IEC, ER and Contractor;4. Discuss with the IEC and Contractor on remedial measures required;5. Increase monitoring frequency to check mitigation effectiveness. <p>(The above actions should be taken within 2 working days after the exceedance is identified)</p>	<ol style="list-style-type: none">1. Review the investigation results submitted by the ET;2. Review the proposed remedial measures by the Contractor and advise the ER accordingly;3. Advise the ER on the effectiveness of the proposed remedial measures. <p>(The above actions should be taken within 2 working days after the exceedance is identified)</p>	<ol style="list-style-type: none">1. Confirm receipt of notification of failure in writing;2. Notify Contractor;3. In consolidation with the IEC, agree with the Contractor on the remedial measures to be implemented;4. Supervise the implementation of remedial measures. <p>(The above actions should be taken within 2 working days after the exceedance is identified)</p>	<ol style="list-style-type: none">1. Submit noise mitigation proposals to IEC and ER;2. Implement noise mitigation proposals. <p>(The above actions should be taken within 2 working days after the exceedance is identified)</p>



EVENT	ACTION			
	ET	IEC	ER	CONTRACTOR
Limit Level being exceeded	<ol style="list-style-type: none"> 1. Inform IEC, ER, Contractor and EPD; 2. Repeat measurements to confirm findings; 3. Increase monitoring frequency; 4. Identify source and investigate the cause of exceedance; 5. Carry out analysis of Contractor's working procedures; 6. Discuss with the IEC, Contractor and ER on remedial measures required; 7. Assess effectiveness of Contractor's remedial actions and keep IEC, EPD and ER informed of the results; 8. If exceedance stops, cease additional monitoring. <p>(The above actions should be taken within 2 working days after the exceedance is identified)</p>	<ol style="list-style-type: none"> 1. Discuss amongst ER, ET, and Contractor on the potential remedial actions; 2. Review Contractor's remedial actions whenever necessary to assure their effectiveness and advise the ER accordingly. <p>(The above actions should be taken within 2 working days after the exceedance is identified)</p>	<ol style="list-style-type: none"> 1. Confirm receipt of notification of failure in writing; 2. Notify Contractor; 3. In consolidation with the IEC, agree with the Contractor on the remedial measures to be implemented; 4. Supervise the implementation of remedial measures; 5. If exceedance continues, consider stopping the Contractor to continue working on that portion of work which causes the exceedance until the exceedance is abated. <p>(The above actions should be taken within 2 working days after the exceedance is identified)</p>	<ol style="list-style-type: none"> 1. Take immediate action to avoid further exceedance; 2. Submit proposals for remedial actions to IEC and ER within 3 working days of notification; 3. Implement the agreed proposals; 4. Submit further proposal if problem still not under control; 5. Stop the relevant portion of works as instructed by the ER until the exceedance is abated. <p>(The above actions should be taken within 2 working days after the exceedance is identified)</p>



Event / Action Plan for Construction Air Quality

EVENT	ACTION			
	ET	IEC	ER	CONTRACTOR
ACTION LEVEL				
1. Exceedance for one sample	<ol style="list-style-type: none"> Identify source, investigate the causes of exceedance and propose remedial measures; Inform IEC and ER; Repeat measurement to confirm finding; Increase monitoring frequency to daily. (The above actions should be taken within 2 working days after the exceedance is identified)	<ol style="list-style-type: none"> Check monitoring data submitted by ET; Check Contractor's working method. (The above actions should be taken within 2 working days after the exceedance is identified)	<ol style="list-style-type: none"> Notify Contractor. (The above actions should be taken within 2 working days after the exceedance is identified)	<ol style="list-style-type: none"> Rectify any unacceptable practice; Amend working methods if appropriate. (The above actions should be taken within 2 working days after the exceedance is identified)
2. Exceedance for two or more consecutive samples	<ol style="list-style-type: none"> Identify source; Inform IEC and ER; Advise the ER on the effectiveness of the proposed remedial measures; Repeat measurements to confirm findings; Increase monitoring frequency to daily; Discuss with IEC and Contractor on remedial actions required; If exceedance continues, arrange meeting with IEC and ER; If exceedance stops, cease additional monitoring. (The above actions should be taken within 2 working days after the exceedance is identified)	<ol style="list-style-type: none"> Check monitoring data submitted by ET; Check Contractor's working method; Discuss with ET and Contractor on possible remedial measures; Advise the ET on the effectiveness of the proposed remedial measures; Supervise Implementation of remedial measures. (The above actions should be taken within 2 working days after the exceedance is identified)	<ol style="list-style-type: none"> Confirm receipt of notification of failure in writing; Notify Contractor; Ensure remedial measures properly implemented. (The above actions should be taken within 2 working days after the exceedance is identified)	<ol style="list-style-type: none"> Submit proposals for remedial to ER within 3 working days of notification; Implement the agreed proposals; Amend proposal if appropriate. (The above actions should be taken within 2 working days after the exceedance is identified)
LIMIT LEVEL				
1. Exceedance for one sample	<ol style="list-style-type: none"> Identify source, investigate the causes of exceedance and propose remedial measures; Inform ER, Contractor and EPD; Repeat measurement to confirm finding; Increase monitoring frequency to daily; Assess effectiveness of Contractor's remedial actions and keep IEC, EPD and ER informed of the results. (The above actions should be taken within 2 working days after the exceedance is identified)	<ol style="list-style-type: none"> Check monitoring data submitted by ET; Check Contractor's working method; Discuss with ET and Contractor on possible remedial measures; Advise the ER on the effectiveness of the proposed remedial measures; Supervise implementation of remedial measures. (The above actions should be taken within 2 working days after the exceedance is identified)	<ol style="list-style-type: none"> Confirm receipt of notification of failure in writing; Notify Contractor; Ensure remedial measures properly implemented. (The above actions should be taken within 2 working days after the exceedance is identified)	<ol style="list-style-type: none"> Take immediate action to avoid further exceedance; Submit proposals for remedial actions to IEC within 3 working days of notification; Implement the agreed proposals; Amend proposal if appropriate. (The above actions should be taken within 2 working days after the exceedance is identified)
2. Exceedance for two or more consecutive samples	<ol style="list-style-type: none"> Notify IEC, ER, Contractor and EPD; Identify source; Repeat measurement to confirm findings; Increase monitoring frequency to daily; Carry out analysis of Contractor's working procedures to determine possible mitigation to be implemented; Arrange meeting with IEC and ER to discuss the remedial actions to be taken; Assess effectiveness of Contractor's remedial actions and keep IEC, EPD and ER informed of the results; If exceedance stops, cease additional monitoring. (The above actions should be taken within 2 working days after the exceedance is identified)	<ol style="list-style-type: none"> Discuss amongst ER, ET, and Contractor on the potential remedial actions; Review Contractor's remedial actions whenever necessary to assure their effectiveness and advise the ER accordingly; Supervise the implementation of remedial measures. 	<ol style="list-style-type: none"> Confirm receipt of notification of failure in writing; Notify Contractor; In consolidation with the IEC, agree with the Contractor on the remedial measures to be implemented; Ensure remedial measures properly implemented; If exceedance continues, consider what portion of the work is responsible and instruct the Contractor to stop that portion of work until the exceedance is abated. (The above actions should be taken within 2 working days after the exceedance is identified)	<ol style="list-style-type: none"> Take immediate action to avoid further exceedance; Submit proposals for remedial actions to IEC within 3 working days of notification; Implement the agreed proposals; Resubmit proposals if problem still not under control; Stop the relevant portion of works as determined by the ER until the exceedance is abated. (The above actions should be taken within 2 working days after the exceedance is identified)



Appendix 9.1

Complaint Log



Environmental Complaints Log

No environmental complaint was received in the reporting month.

Complaint Log No.	Date of Complaint	Received From and Received By	Location of Complainant	Nature of Complaint	Outcome	Status
-	-	-	-	-	-	-



Appendix 10.1

Construction Programme of Individual Contracts

Contract no. HY/2009/17

Contract Title : Central - Wan Chai Bypass - FEHD Whitfield Depot Re-provisioning Works

Works Schedule for the Advance Piling Works

ACTIVITY	Duration	START	FINISH	2010						2011
				July	August	September	October	November	December	January
<u>Submissions before Commencement of Piling Works</u>										
Notification of Commencement Date of Construction	1	16/7/2010	16/7/2010	◆						
Organization Chart of Environmental Management Team	1	16/7/2010	16/7/2010	◆						
Works Schedule	1	16/7/2010	16/7/2010	◆						
Location and Layout Plan	1	31/8/2010	31/8/2010			◆				
Construction Noise Management Plan	1	31/8/2010	31/8/2010			◆				
<u>Installation of Piles</u>										
Plants Set-up	7	24/9/2010	30/9/2010				■			
Installation of pipes E3b	70	2/10/2010	10/12/2010				■			
Installation of pipes E3a	60	2/10/2010	30/11/2010				■			
Installation of pipes E2a	60	12/10/2010	10/12/2010				■			
Installation of pipes E2b	70	14/10/2010	22/12/2010				■			
Testing	14	23/12/2010	6/1/2011						■	

HY/2009/18
Central - Wan Chai Bypass (Central Interchange)

