



Lam Geotechnics Limited

Contract No. HK/2009/05
Wanchai Development Phase II and Central Wanchai Bypass
Monthly EM&A Report (April 2011)

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, FEP-06/364/2009/A AND FEP-07/364/2009/A

MONTHLY ENVIRONMENTAL MONITORING & AUDIT REPORT

- APRIL 2011 -

CLIENTS:

Civil Engineering and Development
Department

and

Highways Department

PREPARED BY:

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CERTIFIED BY:

Raymond Dai
Environmental Team Leader

DATE:

6 May 2011

Ref.: AACWBIECEM00_0_1334L.11

11 May 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 (April 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, FEP-06/364/2009/A and
FEP-07/364/2009/A**

Reference is made to the Environmental Team's submission of the captioned Monthly Environmental Monitoring and Audit (EM&A) Report for April 2011 dated 6 May 2011.

Please be informed that we have no adverse comment 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 – April 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, FEP-06/364/2009/A and FEP-07/364/2009/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 March 2011 to 27th April 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

- Pile cap construction.

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

- Condition survey / Instrumentation Manholes and Intake Culvert Survey
- Cable detection and excavation of trial pit
- Hoarding and project signboard erection
- Tree transplanting
- Provision of site welfare facilities
- Trial installation of coupler in CR3
- Temporary drainage diversion works
- TTA for Man Po / Man Kwong diversion
- Slip road construction from Man Po Street to Finance Street

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

- Major construction works were completed and Engineer's confirmation for completion of work is under processing in this 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

- 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.

Contract no. HY/2009/19 - Central - Wanchai Bypass Tunnel (North Point Section) and Island Eastern Corridor Link under FEP-07/364/2009/A

- Steel fabrication of temporary working platform

Noise Monitoring

- iii. Noise monitoring during daytime was conducted at M2b - Noon-day gun area; M3a - Tung Lo Wan Fire Station; M4b - Victoria Center; M5b - City Garden, M6 - HK Baptist Church Henrietta Secondary School, M7e and M7w – International Finance Centre eastern and western wing on a weekly basis. No action and limit level exceedances were recorded in the reporting period.
- iv. 24-hour real time noise monitoring was conducted at RTN1 - FEHD Hong Kong Transport Section Whitefield Depot for the piling works in FEHD Whitfield Depot and RTN2 – Tunnel (North Point Section) and Island Eastern Corridor Link. No action and limit level exceedances were recorded in the reporting period.

Air Monitoring

- v. 1-hour and 24-hour Total Suspended Particulates (TSP) monitoring were conducted at CMA1b - Oil Street Community Liaison Centre and CMA2a - Causeway Bay Community Center, MA1e and MA1w – International Finance Centre eastern and western wing on every six days basis. No action and limit level exceedance were recorded in the reporting period.

Complaints, Notifications of Summons and Successful Prosecutions

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

Site Inspections and Audit

- vii. The Environmental Team (ET) conducted weekly site inspections for Contract no. HY/2009/17, HY/2009/18 and HY/2009/19 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

- viii. 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

- Pile cap construction.

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

- Condition survey / Instrumentation Manholes and Intake Culvert Survey
- Cable detection and excavation of trial pit
- Hoarding and project signboard erection
- Tree transplanting
- Provision of site welfare facilities
- Installation of couplers in CR3 site
- Drainage diversion works
- Sheet piling

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

- Major construction works were completed and Engineer's confirmation for completion of work is under processing.

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 coming reporting month.

Contract no. HY/2009/19 - Central - Wanchai Bypass Tunnel (North Point Section) and Island Eastern Corridor Link under FEP-07/364/2009/A

- Steel fabrication of temporary working platform
- Erection of working platform to enable pre-drilling works (Pier F3-14)
- Marine pre-drilling (Pier F3-14)

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, FEP-06/364/2009/A and FEP-07/364/2009/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, FEP-06/364/2009/A and FEP-07/364/2009/A during the period 28th March to 27th April 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 pending to construct one pile cap. In addition, Central - Wanchai Bypass Tunnel (North Point Section) and Island Eastern Corridor Link under HY2009/19 was commenced on 24 April 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	21 April 2011
04/HY/2006	Reconstruction of Bus Terminus near	DP1	September 2010

Contract No.	Contract Title	Associated DP(s)	Construction Commencement Date
	Man Yiu Street and Man Kwong Street		
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
HY/2009/19	Central - Wanchai Bypass Tunnel (North Point Section) and Island Eastern Corridor Link	DP1	24 March 2011

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



Party	Role	Post	Name	Contact No.	Contact Fax
		Environmental Consultant	Mr. Jimmy Cheng	2965 0898	2556 9172
Chun Wo – Leader Joint Venture	Contractor under Contract no. HK/2009/01	Site Agent	Mr. Paul Yu	9456 9819	2634 1626
		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	
Chun Wo – CRGL Joint Venture	Contractor under Contract no. HY/2009/19	Project Manager	Mr. Rayland Lee	3758 8879	2570 8013
		Construction Manager	Mr. William Luk	9610 1101	
		Site Agent	Mr. Cheung Kit Cheung	6909 1555	
		Environmental Officer	Mr. Simon Wong	9281 4346	
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	
		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	

Party	Role	Post	Name	Contact No.	Contact Fax
		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	
		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 this 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

- Major construction work was completed and Engineer's confirmation for completion of work is under processing.

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

- Pile cap construction.

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

- Condition survey / Instrumentation Manholes and Intake Culvert Survey
- Cable detection and excavation of trial pit
- Hoarding and project signboard erection
- Tree transplanting
- Provision of site welfare facilities
- Trial installation of coupler in CR3
- Temporary drainage diversion works

- TTA for Man Po / Man Kwong diversion
- Slip road construction from Man Po Street to Finance 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.

Contract no. HY/2009/19 - Central - Wanchai Bypass Tunnel (North Point Section) and Island Eastern Corridor Link under FEP-07/364/2009/A

- Steel fabrication of temporary working platform

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

- Major construction work was completed and waiting Engineer's formal confirmation for completion of work.

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

- Pile cap construction.

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

- Condition survey / Instrumentation Manholes and Intake Culvert Survey
- Cable detection and excavation of trial pit
- Hoarding and project signboard erection
- Tree transplanting
- Provision of site welfare facilities
- Installation of couplers in CR3 site
- Drainage diversion works
- Sheet piling

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 coming reporting month.

Contract no. HY/2009/19 - Central - Wanchai Bypass Tunnel (North Point Section) and Island Eastern Corridor Link under FEP-07/364/2009/A

- Steel fabrication of temporary working platform
- Erection of working platform to enable pre-drilling works (Pier F3-14)
- Marine pre-drilling (Pier F3-14)

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
Further Environmental Permit	FEP-07/364/2009/A	25 Feb 2011	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 showed 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

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

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 November 2010

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

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

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
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

EP Condition	Submission	Date of Submission
Condition 2.9	Noise Management Plan	01-Mar-11
Condition 2.10	Landscape Plan	26 Jan 2011

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
Water Discharge Licence (Discharge at Portion VII)	WT00008780-2011	22 Mar 2011	22 Mar 2011 to 31 Mar 2016	Valid

Permits and/or Licences	Reference No.	Issued Date	Valid Period/ Expiry Date	Status
Water Discharge Licence (Discharge at Hung Hing Road)	WT00008905-2011	11 Apr 2011	11 Apr 2011 to 30 Apr 2016	Valid

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

EP Condition	Submission	Date of Submission
NIL	NIL	NIL

Contract no. HY/2009/19 - Central - Wanchai Bypass Tunnel (North Point Section) and Island Eastern Corridor Link under FEP-07/364/2009/A

- 3.1.9. The current status on licences and/or permits on environmental protection pertinent and submission under FEP-07/364/2009/A for contract no. HY/2009/19 are shown in **Table 3.14** and **Table 3.15**.

Table 3.14 Cumulative Summary of Valid Licences and Permits under Contract no. HY/2009/19

Permits and/or Licences	Reference No.	Issued Date	Valid Period/ Expiry Date	Status
Further Environmental Permit	FEP-07/364/2009/A	25 Feb 2011	N/A	Valid
Notification of Works Under APCO	326160	24 Jan 2011	N/A	Valid
Registration as a Waste Producer	7012306	10 Feb 2011	N/A	Valid
Registration as Chemical Waste Producer	5213-151-C3654-01	24 Mar 2011	N/A	Valid

Table 3.15 Summary of submission status under FEP-07/364/2009/A

EP Condition	Submission	Date of Submission
NIL	NIL	NIL

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 Stations

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 Stations

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 Stations

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	CWB PRE Site Office *	Causeway Bay
CMA4a	Society for the Prevention of Cruelty to Animals	Wan Chai
CMA5a	Children Garden opposite to Pedestrian Plaza	Wan Chai
MA1e	International Finance Centre (Eastern End of Podium)	Central
MA1w	International Finance Centre (western End of Podium)	Central

* Remarks: As per the ENPC meeting in March 2011, the monitoring stations CMA3a - Future CWB site office at Wanchai Waterfront Promenade was renamed as remark.

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. HY/2009/17 - Central - Wan Chai Bypass (CWB) at FEHD Whitfield Depot - Advanced piling works under FEP-03/364/2009
- Contract no. HY/2009/18 - Central - Wan Chai Bypass (CWB) – Central Interchange under FEP-05/364/2009/A
- Contract no. HY/2009/19 - Central - Wanchai Bypass Tunnel (North Point Section) and Island Eastern Corridor Link under FEP-07/364/2009

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 level 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. Noise monitoring for the Central Interchange works under contract no. HY/2009/18 was commenced on 22 April 2011. The proposed division of noise monitoring stations for Contract no. HY/2009/18 and 04/HY/2006 are summarized in **Table 5.2** below:

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

Station	Description
M7e	International Finance Centre (Eastern End of Podium)
M7w	International Finance Centre (Western End of Podium)

- 5.1.4. No action and limit level exceedance was recorded during day time and restricted hour period on 22 April 2011 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. 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

- 5.1.5. 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

- 5.1.6. 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 5.4** below.

Table 5.4 Noise Monitoring Stations for Contract no. HY/2009/15

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

Contract no. HY/2009/19 - Central - Wanchai Bypass Tunnel (North Point Section) and Island Eastern Corridor Link under FEP-07/364/2009/A

- 5.1.7. Noise monitoring for the tunnel works under contract no. HY/2009/19 was commenced on 24 April 2011. The proposed division of noise monitoring stations are summarized in **Table 5.5** below.

Table 5.5 Noise Monitoring Stations for Contract no. HY/2009/19

Station	Description
M3a	Tung Lo Wan Fire Station
M4b	Victoria Centre

M5b	City Garden
M6	HK Baptist Church Henrietta Secondary School

- 5.1.8. 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**.

5.2 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 and Contract no. HY/2009/19 - Central - Wanchai Bypass Tunnel (North Point Section) and Island Eastern Corridor Link under FEP-07/364/2009/A

- 5.2.1. The proposed division of noise monitoring stations are summarized in **Table 5.6** below. Real time noise monitoring for the piling works under contract no. HY/2009/17 was commenced on 5 October 2010

Table 5.6 Real Time Noise Monitoring Stations for Contract no. HY/2009/17

Location ID	District	Description
RTN1	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**.
- 5.2.3. The proposed division of noise monitoring stations are summarized in **Table 5.7** below. Real time noise monitoring for major construction works under contract no. HY/2009/19 was commenced on 24 April 2011.

Table 5.7 Real Time Noise Monitoring Stations for Contract no. HY/2009/19

Location ID	District	Description
RTN1	Tin Hau	FEHD Hong Kong Transport Section Whitefield Depot
RTN2	North Point	Oil Street Community Liaison Center

- 5.2.4. 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 5.8** below. Air monitoring for the piling works under contract no. HY/2009/17 was commenced on 8 October 2010.

Table 5.8 Air Monitoring Station 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. Air monitoring for the Central Interchange works under contract no. HY/2009/19 was commenced on 21 April 2011. The proposed division of air monitoring stations are summarized in **Table 5.9** below.

Table 5.9 Air Monitoring Stations for Contract no. HY/2009/18

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

- 5.3.4. 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

- 5.3.5. 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 5.10** below.

Table 5.10 Air Monitoring Station 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

- 5.3.6. 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 5.11** below.

Table 5.11 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

- 5.3.7. 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 5.12** below.

Table 5.12 Air Monitoring Station for Contract no. HY/2009/15

Station	Description
CMA3a	CWB PRE Site Office

Contract no. HY/2009/19 - Central - Wanchai Bypass Tunnel (North Point Section) and Island Eastern Corridor Link under FEP-07/364/2009/A

- 5.3.8. The proposed division of air monitoring stations are summarized in **Table 5.13** below. Air monitoring for the tunnel works under contract no. HY/2009/19 was commenced on 26 April 2011.

Table 5.13 Air Monitoring Stations for Contract no. HY/2009/19

Station	Description
CMA1b	Oil St Community Liaison Centre
CMA2a	Causeway Bay Community Centre

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. No Inert C&D waste was recycled in the reporting month. Details of the waste flow table are summarized in **Table 5.14**

Table 5.14 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
Inert C&D materials recycled	NIL	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. 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. 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 5.16**.

Table 5.16 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
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 5.17**.

Table 5.17 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

Waste Type*	Quantity this month, m ³	Cumulative-to-Date, m ³	Disposal / Dumping Grounds
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. Inert C&D and Non-inert C&D waste was disposed of in this reporting month. Details of the waste flow table are summarized in **Table 5.18**.

Table 5.18 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	120.7	225.4	T.K.O. 137
Inert C&D materials recycled	0	0	N/A
Non-inert C&D materials disposed	68.9	118.1	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 5.19**.

Table 5.19 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

Contract no. HY/2009/19 - Central - Wanchai Bypass Tunnel (North Point Section) and Island Eastern Corridor Link under FEP-07/364/2009/A

5.4.7. 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 5.20**.

Table 5.20 Details of Waste Disposal for Contract no. HY/2009/19

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 noise monitoring was undertaken 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 exceedance was recorded 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.

Contract no. HY/2009/19 - Central - Wanchai Bypass Tunnel (North Point Section) and Island Eastern Corridor Link under FEP-07/364/2009/A

6.1.1. No exceedance was recorded 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

6.1.6. No exceedance was recorded in the reporting month.

Contract no. HY/2009/19 - Central - Wanchai Bypass Tunnel (North Point Section) and Island Eastern Corridor Link under FEP-07/364/2009/A

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 air quality monitoring was undertaken in the reporting month.

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

6.1.7. No exceedance was recorded 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)

6.3.3. 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

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

Contract no. HY/2009/19 - Central - Wanchai Bypass Tunnel (North Point Section) and Island Eastern Corridor Link under FEP-07/364/2009/A

6.3.1 No exceedance was recorded 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 (April 2011) of Central Reclamation Phase III the key works in April 2011 are as follows:

- Type A filling in FRAW and FRAE above +2.5mPD
- General filling works above +2.5mPD in IRAE
- Surcharging in FRAW and FRAE
- Construction of cantilever slab at caisson
- Construction of storm and foul drainage and gullies in hinterlands for Road P2, Road D7, and Road D9
- Construction of GPO boundary wall
- Construction of PLA boundary wall
- Construction of Promenade enhancement works
- Construction of buildings at PLA berth
- Road P2 Underpass ramp structures
- Precasting for retaining wall (offsite)
- Installation of cooling mains discharge pipes in FRAE and FRAW
- Bulk excavation to formation level at CWB works
- Construction of CWB structure
- Disposal of material off-site to Government fill banks
- Strengthening of Man Yiu Street Footbridge

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 and filling works at Wan Chai Reclamation Stage 1(WCR1), Advanced piling works at FEHD Whitfield Depot, Central Interchange 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 advance piling works at FEHD Whitfield Depot and slip road construction from Man Po Street to Finance Street at Central 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 advanced piling works at FEHD Whitfield Depot were undertaken and slip road construction from Man Po Street to Finance Street at Central 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, HY/2009/18 and HY/2009/19. No non-conformance was identified during the site audits.

8.0.2. Four 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
110413_01	13-Apr-11	The contractor was reminded to block the tunnel near the entrance of contraction site at Watson Rd. to prevent any silty water discharge outside it	Block all tunnels which is pass thorough construction site to prevent silty water discharge outside	Completion as observed on 20-Apr -11
110413_02	13-Apr-11	Chemical Label shall be stick on the oil drum at piling work area	Stick chemical label on the oil drums	Completion as observed on 20-Apr -11
110413_03	13-Apr-11	Mud was found inside the gully near FEHD, another entrance of construction site, contractor was reminded to place geotextile underneath it.	Place geotextile as a sand filter underneath the gully	Completion as observed on 20-Apr -11

8.0.3. One site inspections for Contract no. HY/2009/18 was 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. HY/2009/18

Item	Date	Observations	Action taken by Contractor	Outcome
110421_01	21-Apr-11	Protect the gullies in order to prevent the materials in construction site going in (bus stop)	Surround all gullies by sand bags.	Completion as observed on 28-Apr -11
110421_02	21-Apr-11	Cover the stockpile well in order to prevent the spread of dust (Proton 5)	Cover all idle stockpiles by tarpaulin	Completion as observed on 28-Apr -11

8.0.4. Four site inspections for Contract no. HY/2009/19 was carried out during this reporting period. The results of these inspections and outcomes are summarized in **Table 8.1**.

Table 8.3 Summary of Environmental Inspections for Contract no. HY/2009/19

Item	Date	Observations	Action taken by Contractor	Outcome
110413_01	13-Apr-11	Proper label should be given o the oil drums	Stick chemical label on the oil drums	Completion as observed on 20-Apr -11
110420_01	20-Apr-11	Stagnant water should be treated in proper way	Stagnant water was removed	Completion as observed on 27-Apr -11



- 8.0.5. Major construction works were completed and Engineer's confirmation for completion of work is under processing in this reporting month. No site inspection for Contract no. 04/HY/2006 was carried out during this reporting period.

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
April 2011	0
Sep 10 to Mar 11	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

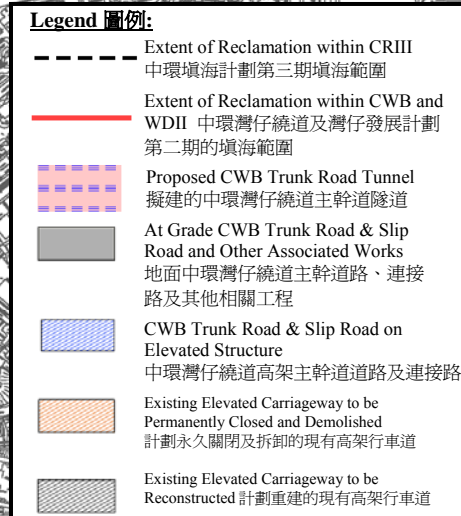
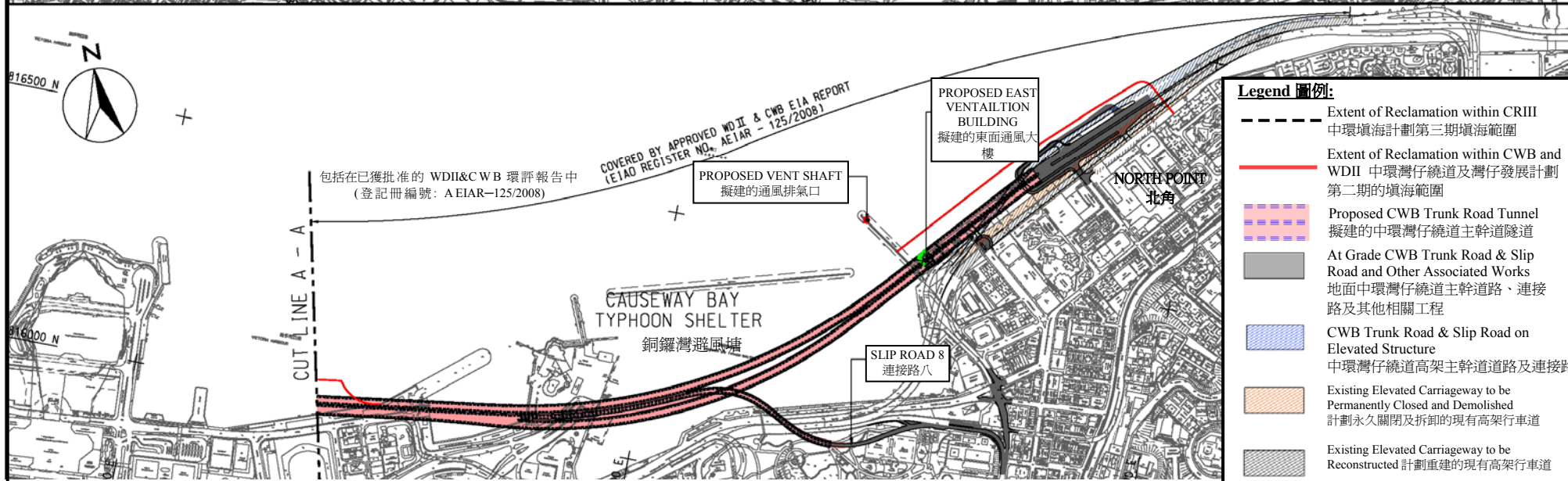
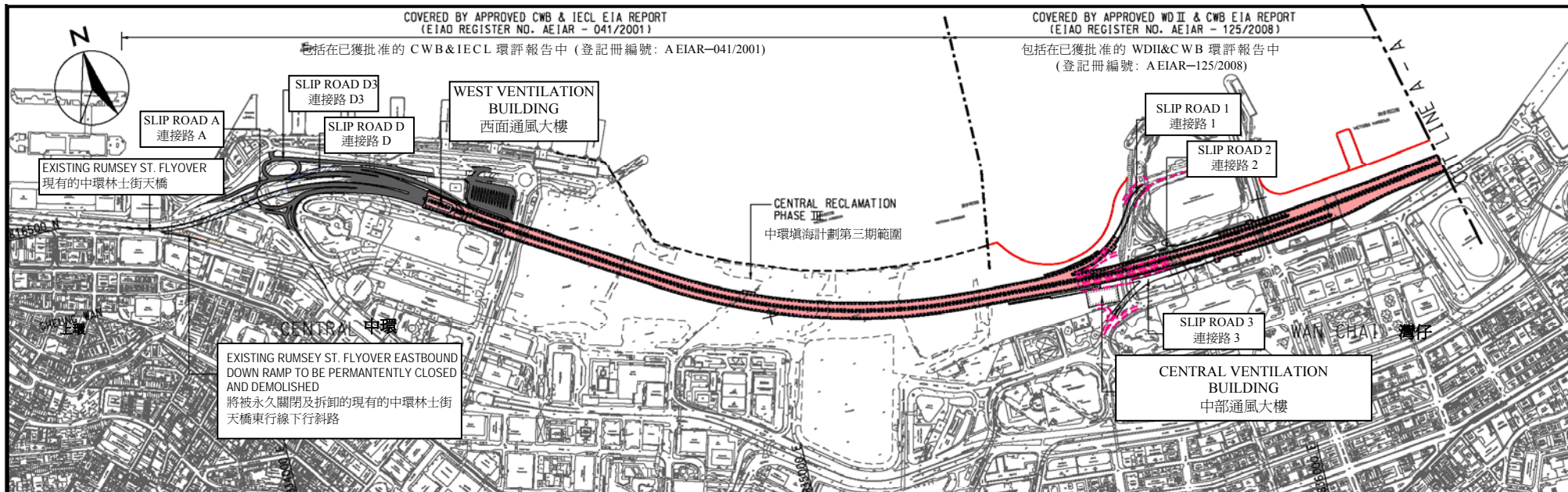
Contract No.	Key Construction Works	Recommended Mitigation Measures
HY/2009/17	<ul style="list-style-type: none"> Pile cap construction 	<ul style="list-style-type: none"> Noise barrier shall be implemented; Watering any dust generating activities; and Improvement of wheel washing facilities Improvement and increasing the number of sedimentation tanks.
HY/2009/18	<ul style="list-style-type: none"> Silp road construction 	<ul style="list-style-type: none"> Idle stockpile shall be covered well.
HY2009/19	<ul style="list-style-type: none"> Installation of working platform and marine pre-drilling 	<ul style="list-style-type: none"> Noise level shall be controlled by reducing drilling rate.

10.0.3. Major construction works for Contract no. 04/HY/2006 were completed and Engineer's confirmation for completion of work is under processing in this reporting month.



Figure 2.1

Project Layout

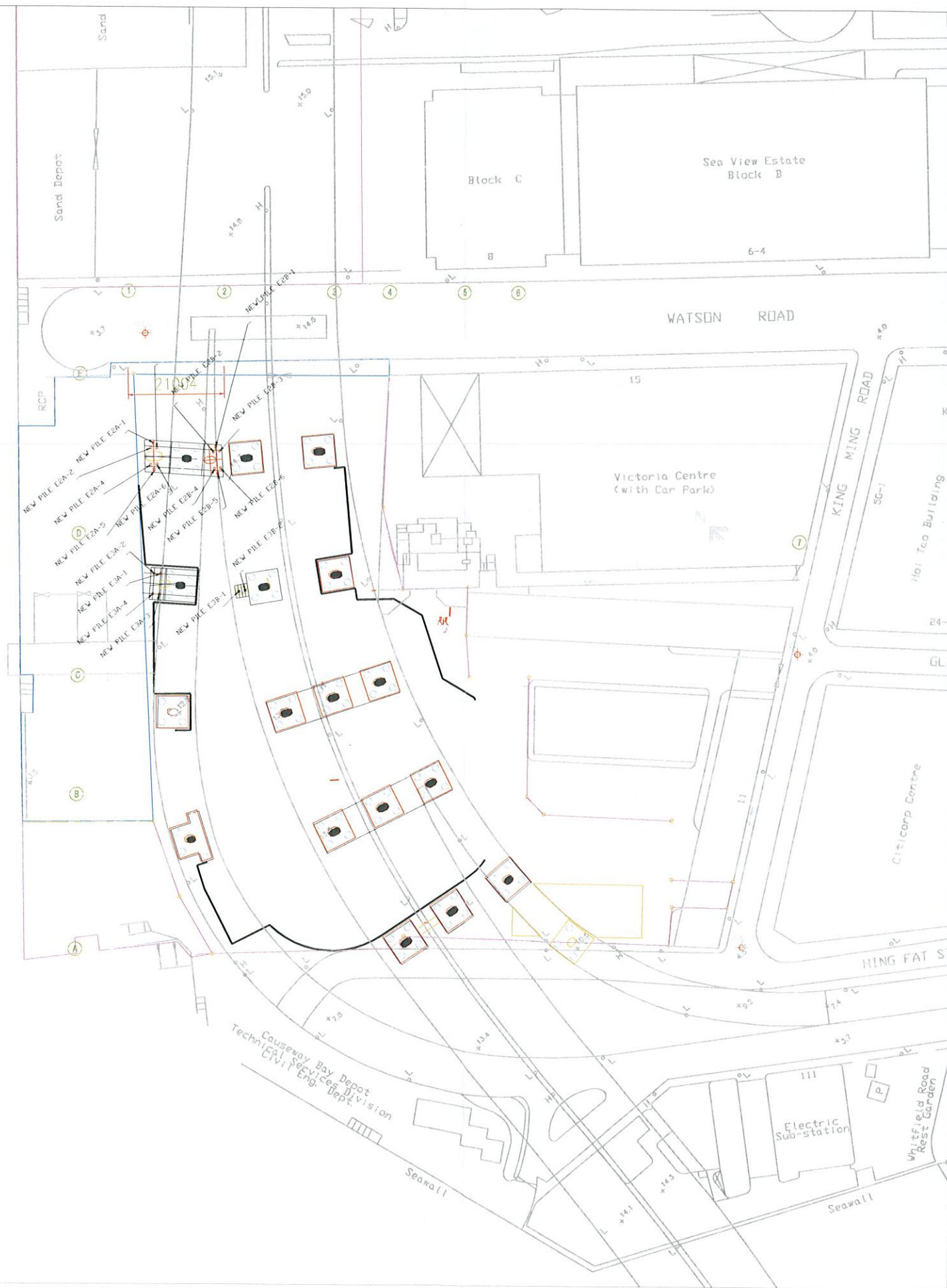


Project Title: Central-Wanchai Bypass (CWB) Including Its Road Tunnel and Slip Roads
 工程項目名稱：中環灣仔繞道包括其行車隧道及連接路

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

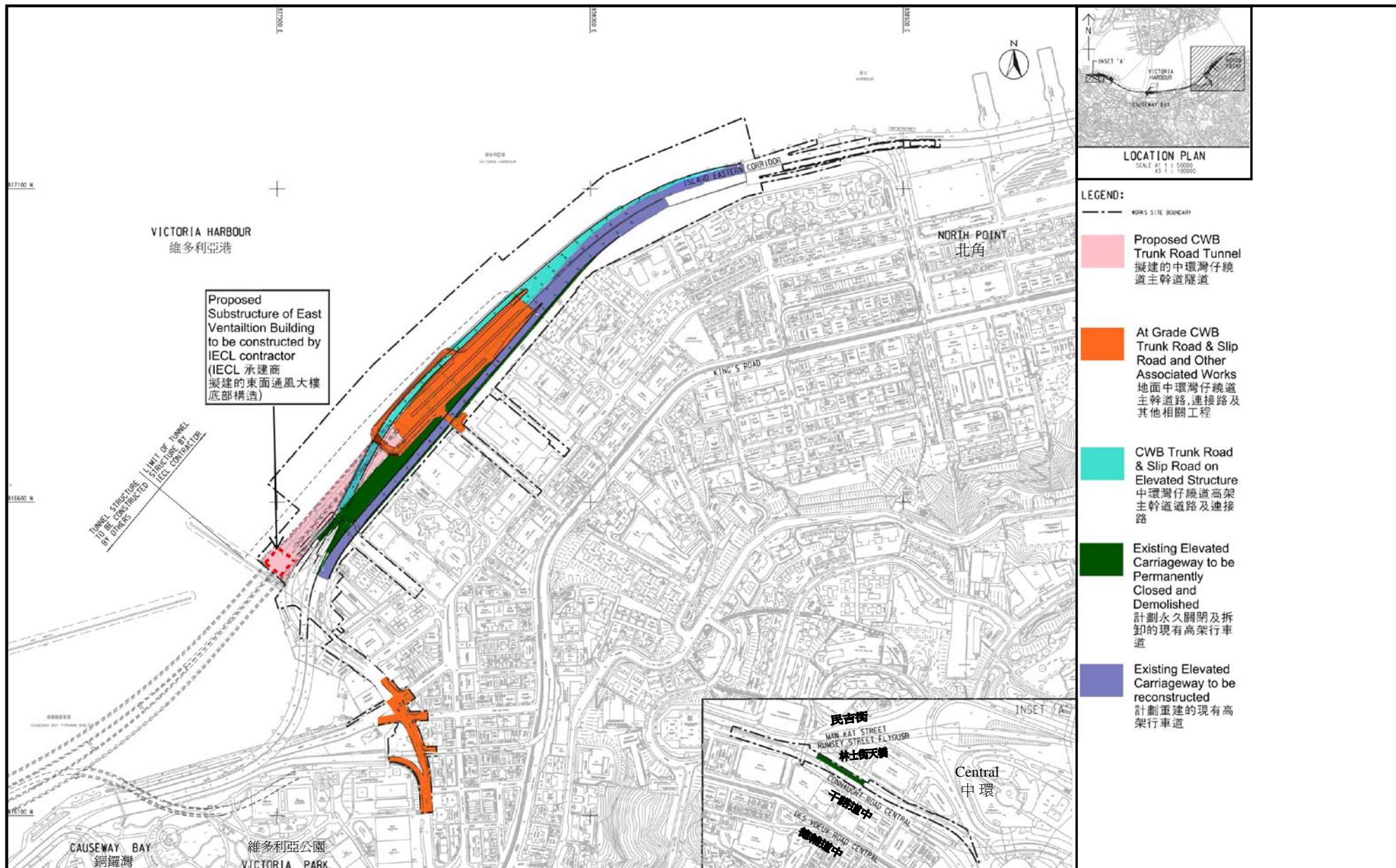
DRAWING NO. 0020

SURVEY DATE 12-06-2010

DRAWN BY KENG

CHECKED BY

SCALE 1:1000 SHEET 1



Project Title: Central-Wanchai Bypass (CWB) – Tunnel (North Point Section) and Island Eastern Corridor Link

工程項目名稱：中環灣仔繞道—北角段隧道及東區走廊連接路

Environmental Permit No. : FEP-07-364/2009/A

環境許可證編號 : FEP-07-364/2009/A

Figure 1b: General Layout Plan

圖 1b: 工程項目佈局圖

(This figure was prepared based on Sketch No.60095653/IEC/DF0006 of Application for Further Environmental Permit (Application No.: FEP-120/2011)
(本圖是根據申請新的環境許可證(申請書編號 FEP-120/2011)圖 60095653/IEC/DF0006 編製)



Figure 2.2

Project Organization Chart



Project Organization Chart

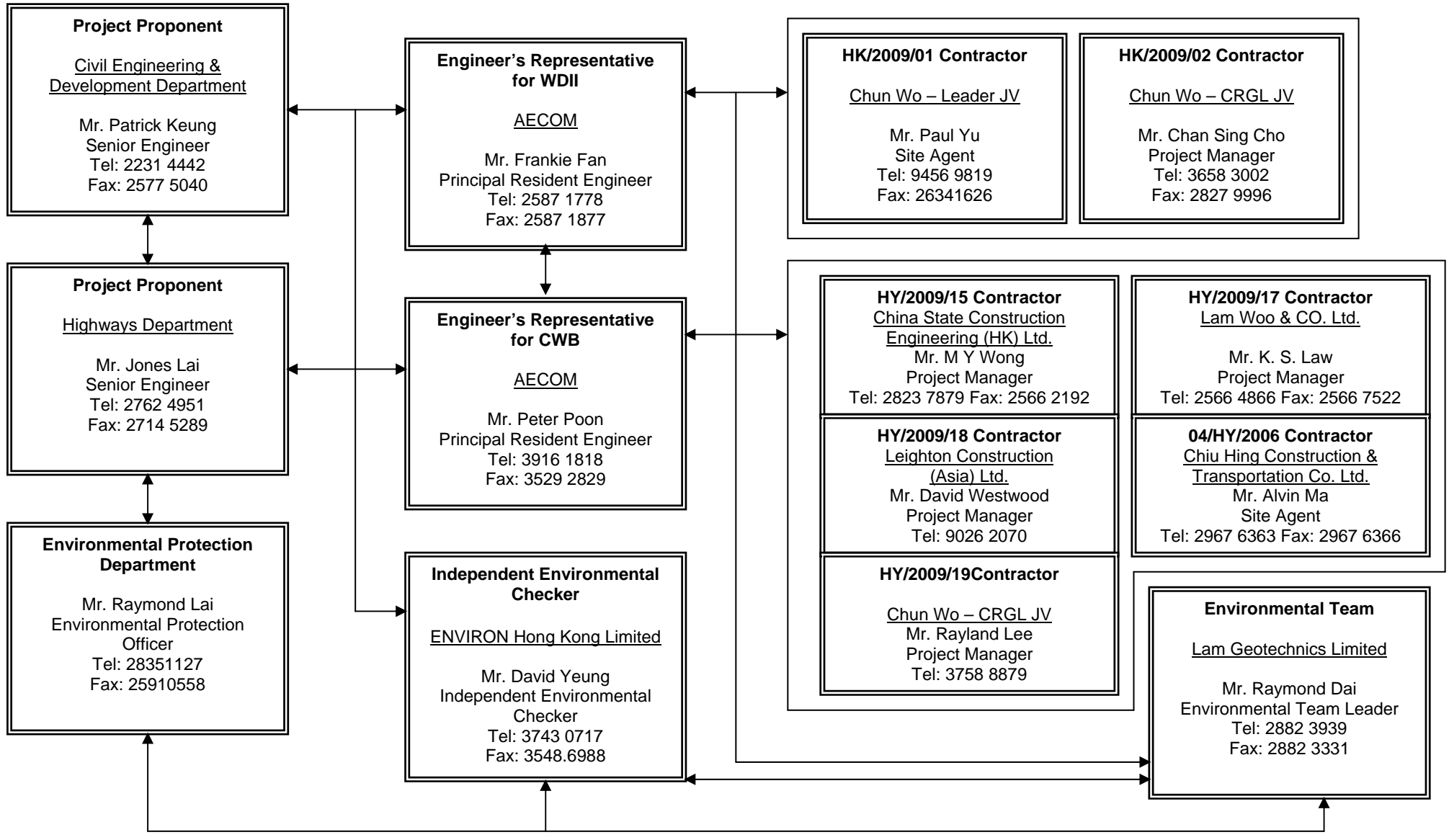
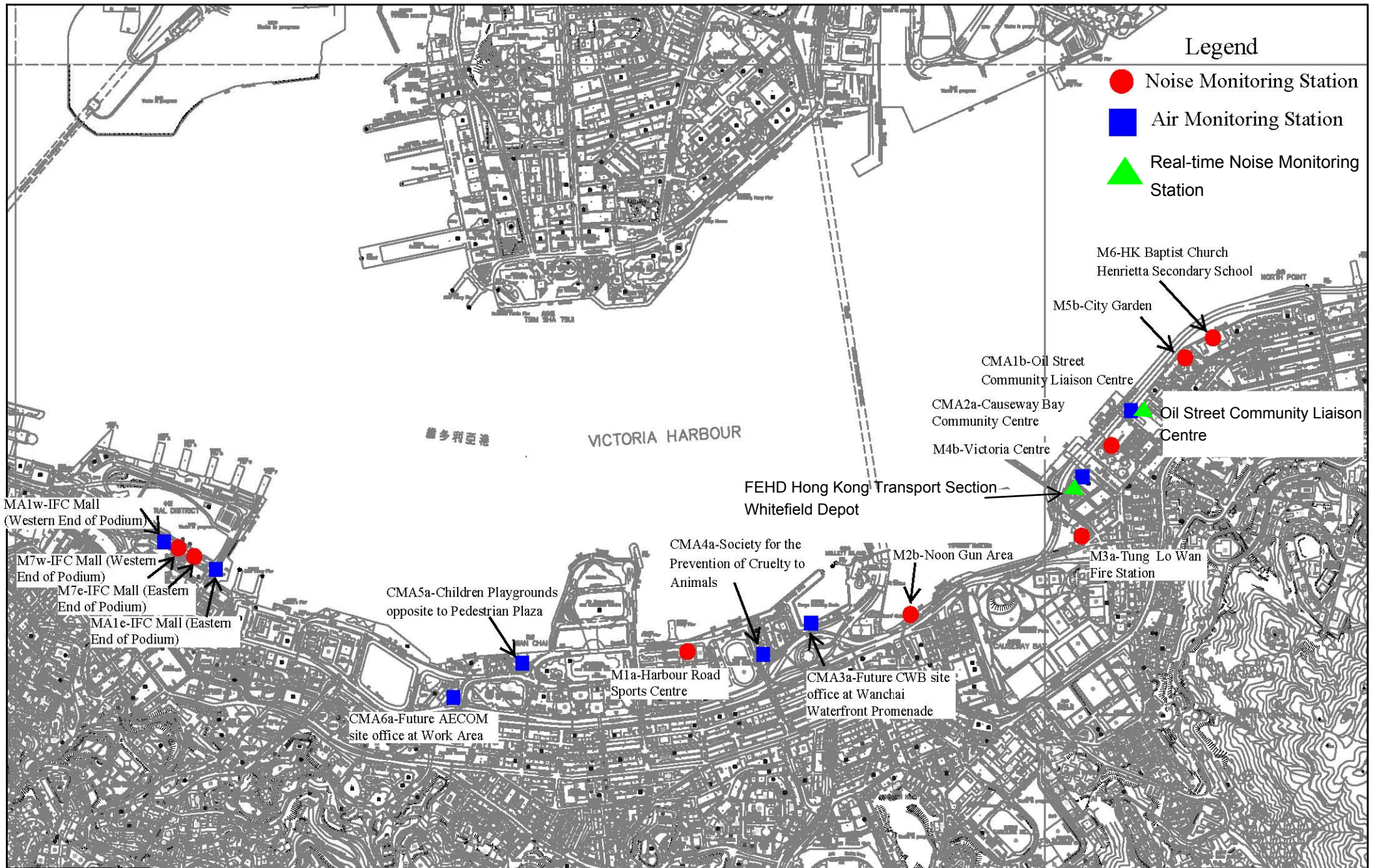




Figure 4.1

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

WDH & 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)/ 70 dB(A)/ 65 dB(A) ^{Note 1}

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.

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
CMA1b	320.1	500	176.7	260
CMA2a	323.4	500	169.5	260
CMA3 _a	311.3	500	171.0	260
CMA4a	312.5	500	171.2	260
CMA5 _a	332.0	500	181.0	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. **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

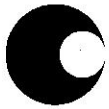
Uncertainty : ± 0.01 dB

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 ± 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.

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.
 VILLAGE OF CLEVELAND, OH 45002
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 513.467.9009 FAX
 WWW.TISCH-ENV.COM

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:

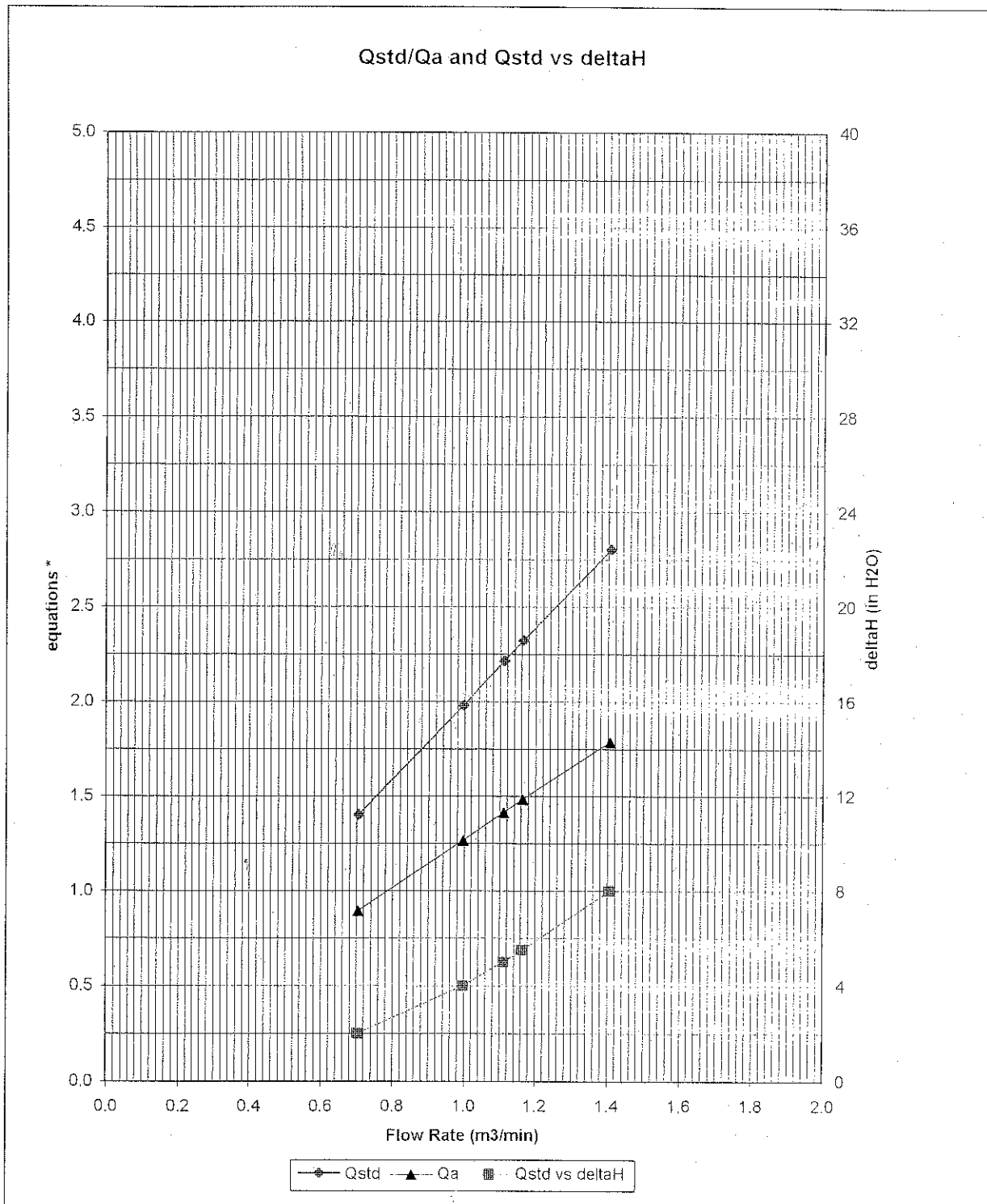
$$Qstd = 1/m \{ [\text{SQRT}(H2O(Pa/760)(298/Ta))] - b \}$$

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



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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. : 2KS100612-7

Page 1 of 2

Calibration of :

Description :	Sound Level Meter	,	Microphone
Manufacture :	Brüel & Kjær		
Type No. :	2250	,	4950
Serial No. :	2722310		2698702

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 : 22 July, 2010

Certificate issued : 22 July, 2010

Calibrated By :

Approved signatory :


Dai Bin


Jacky Leung

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CERTIFICATE OF CALIBRATION

Certificate No. : 2KS100612-7

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 :

Description :	Make & Model :	Serial No. :	Last Cal. Date :	Traceable to:
Brüel & Kjær's Sound Level Meter Calibration System	B&K 9600	CAL2238A	Ver.25.10.1999	
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 : *Dar R M*
Date : 22 July 2010

Checked By : *[Signature]*
Date : 22 July, 2010

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

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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



Lam Geotechnics Limited

Calibration Data for High Volume Sampler (TSP Sampler)

Location : CMA1b
 Equipment no. : EL452

Calibration Date : 05-Mar-11
 Calibration Due Date : 05-May-11

CALIBRATION OF CONTINUOUS FLOW RECORDER

Ambient Condition			
Temperature, T _a	290	Kelvin	Pressure, P _a 1019 mmHg

Orifice Transfer Standard Information					
Equipment No.	EL086	Slope, m _c	2.00300	Intercept, b _c	-0.00500
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 H (inches of water)			Q _{std} (m ³ / min.)	Continuous Flow Recorder, W (CFM)	IC (W(P _a /1013.3x298/T _a) ^{1/2} /35.31)
	(up)	(down)	(difference)	X-axis	Y-axis	Y-axis
1	6.3	6.2	12.5	1.7968	60	60.9928
2	5.1	5.4	10.5	1.6470	53	53.8770
3	4.6	4.3	8.9	1.5165	47	47.7777
4	2.5	2.4	4.9	1.1259	36	36.5957
5	1.5	1.7	3.2	0.9104	26	26.4302

By Linear Regression of Y on X

Slope, m = 37.0414 Intercept, b = -6.6987
 Correlation Coefficient* = 0.9952
 Calibration Accepted = Yes/Ne**

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

** Delete as appropriate.

Remarks :			
Calibrated by	<u>Derek Lo</u>	Checked by	<u>Cherry Mak</u>
Date	<u>05-Mar-11</u>	Date	<u>06-Mar-11</u>



Lam Geotechnics Limited

Calibration Data for High Volume Sampler (TSP Sampler)

Location : CMA2a
 Equipment no. : EL449

Calibration Date : 28-Feb-11
 Calibration Due Date : 28-Apr-11

CALIBRATION OF CONTINUOUS FLOW RECORDER

Ambient Condition			
Temperature, T_a	290	Kelvin	Pressure, P_a
			1019 mmHg

Orifice Transfer Standard Information					
Equipment No.	EL086	Slope, m_c	2.00300	Intercept, b_c	-0.00500
Last Calibration Date	28-Jun-10	$(H \times P_a / 1013.3 \times 298 / T_a)^{1/2}$			
Next Calibration Date	28-Jun-11	$= m_c \times Q_{std} + b_c$			

Calibration of RSP						
Calibration Point	Manometer Reading			Q _{std} (m ³ / min.)	Continuous Flow Recorder, W (CFM)	IC ($(W \times P_a / 1013.3 \times 298 / T_a)^{1/2} / 35.31$)
	H (inches of water)					
		(up)	(down)	(difference)		
1	6.6	6.2	12.8	1.8182	52	52.8604
2	5.3	5.4	10.7	1.6626	47	47.7777
3	4.1	4.3	8.4	1.4734	41	41.6784
4	2.6	2.4	5	1.1373	32	32.5295
5	1.7	1.7	3.4	0.9383	23	23.3806

By Linear Regression of Y on X

Slope, m = 32.3583 Intercept, b = -5.8496

Correlation Coefficient* = 0.9966

Calibration Accepted = Yes/Ne**

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

** Delete as appropriate.

Remarks : _____			
Calibrated by : <u>Derek Lo</u>	Checked by : <u>Cherry Mak</u>		
Date : <u>28-Feb-11</u>	Date : <u>28-Feb-11</u>		



Lam Geotechnics Limited

Calibration Data for High Volume Sampler (TSP Sampler)

Location : IFC-E
 Equipment no. : EL455

Calibration Date : 28-Feb-11
 Calibration Due Date : 28-Apr-11

CALIBRATION OF CONTINUOUS FLOW RECORDER

Ambient Condition			
Temperature, T_a	290	Kelvin	Pressure, P_a
			1019 mmHg

Orifice Transfer Standard Information					
Equipment No.	EL086	Slope, m_c	2.00300	Intercept, b_c	-0.00500
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 H (inches of water)			Q_{std} ($m^3 / min.$) X-axis	Continuous Flow Recorder, W (CFM)	IC ($(W \times P_a / 1013.3 \times 298 / T_a)^{1/2} / 35.31$) Y-axis
	(up)	(down)	(difference)			
1	6	6	12	1.7606	56	56.9266
2	4.8	4.8	9.6	1.5750	50	50.8273
3	3.7	3.7	7.4	1.3831	44	44.7280
4	2.3	2.3	4.6	1.0910	33	33.5460
5	1.4	1.4	2.8	0.8517	22	22.3640

By Linear Regression of Y on X

Slope, m = 37.7292 Intercept, b = -8.5869
 Correlation Coefficient* = 0.9971
 Calibration Accepted = Yes/Ne**

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

** Delete as appropriate.

Remarks :

Calibrated by : Derek Lo
 Date : 28-Feb-11

Checked by : Cherry Mak
 Date : 28-Feb-11



Lam Geotechnics Limited

Calibration Data for High Volume Sampler (TSP Sampler)

Location : IFC-W
 Equipment no. : EL080

Calibration Date : 28-Feb-11
 Calibration Due Date : 28-Apr-11

CALIBRATION OF CONTINUOUS FLOW RECORDER

Ambient Condition			
Temperature, T _a	290	Kelvin	Pressure, P _a 1019 mmHg

Orifice Transfer Standard Information					
Equipment No.	EL086	Slope, m _c	2.00300	Intercept, b _c	-0.00500
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.)	Continuous Flow Recorder, W (CFM)	IC (W(P _a /1013.3x298/T _a) ^{1/2} /35.31)
	H (inches of water)					
		(up)	(down)	(difference)		
1	6.2	6.2	12.4	1.7896	56	56.9266
2	5.4	5.4	10.8	1.6704	50	50.8273
3	4.3	4.3	8.6	1.4908	44	44.7280
4	2.4	2.4	4.8	1.1144	33	33.5460
5	1.4	1.7	3.1	0.8961	22	22.3640

By Linear Regression of Y on X

Slope, m = 36.5034 Intercept, b = -9.1435
 Correlation Coefficient* = 0.9952
 Calibration Accepted = Yes/Ne**

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

** Delete as appropriate.

Remarks :			
Calibrated by	<u>Derek Lo</u>	Checked by	<u>Cherry Mak</u>
Date	<u>28-Feb-11</u>	Date	<u>28-Feb-11</u>



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
April 2011

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
27-Mar	28-Mar 1hr TSP x 3	29-Mar	30-Mar Noise (Day time)	31-Mar	1-Apr 24hr TSP	2-Apr 1hr TSP x 3
3-Apr	4-Apr	5-Apr	6-Apr	7-Apr 24hr TSP Noise (Day time)	8-Apr 1hr TSP x 3	9-Apr
10-Apr	11-Apr	12-Apr Noise (Day time)	13-Apr 24hr TSP	14-Apr 1hr TSP x 3	15-Apr	16-Apr
17-Apr	18-Apr	19-Apr 24hr TSP Noise (Day time)	20-Apr 1hr TSP x 3	21-Apr	22-Apr Noise (Restricted hour)	23-Apr
24-Apr	25-Apr 24hr TSP	26-Apr 1hr TSP x 3	27-Apr Noise (Day time)	28-Apr	29-Apr	30-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
May 2011

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
24-Apr	25-Apr	26-Apr	27-Apr	28-Apr	29-Apr	30-Apr 24hr TSP
1-May	2-May	3-May 1hr TSP x 3	4-May Noise (Day time) Noise (Restricted hr) 1900-2300	5-May	6-May 24hr TSP	7-May 1hr TSP x 3
8-May	9-May	10-May	11-May Noise (Day time) Noise (Restricted hr) 1900-2300	12-May 24hr TSP	13-May 1hr TSP x 3	14-May
15-May	16-May	17-May Noise (Day time) Noise (Restricted hr) 1900-2300	18-May 24hr TSP	19-May 1hr TSP x 3	20-May	21-May
22-May	23-May	24-May 24hr TSP	25-May 1hr TSP x 3 Noise (Day time) Noise (Restricted hr) 1900-2300	26-May	27-May	28-May

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
June 2011

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
						28-May
29-May	30-May 24hr TSP	31-May 1hr TSP x 3	1-Jun	2-Jun Noise (Day time) Noise (Restricted hr) 1900-2300	3-Jun 24hr TSP	4-Jun 1hr TSP x 3
5-Jun	6-Jun	7-Jun	8-Jun Noise (Day time) Noise (Restricted hr) 1900-2300	9-Jun 24hr TSP	10-Jun 1hr TSP x 3	11-Jun
12-Jun	13-Jun	14-Jun Noise (Day time) Noise (Restricted hr) 1900-2300	15-Jun 24hr TSP	16-Jun 1hr TSP x 3	17-Jun	18-Jun
19-Jun	20-Jun	21-Jun 24hr TSP Noise (Day time) Noise (Restricted hr) 1900-2300	22-Jun 1hr TSP x 3	23-Jun	24-Jun	25-Jun
26-Jun	27-Jun 24hr TSP					

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 (majors works were completed, no monitoring was conducted)
 - Contract HK/2009/01: CMA5a (To be commenced when site formation works within reclaimed area)
 - Contract HK/2009/02: CMA4a (To be commenced when site formation works within reclaimed area)
 - Contract nos. HY/2009/17: CMA2a (To be commenced in Oct 2010)
 - Contract nos. HY/2009/15 and HY/2009/19: CMA3a (To be commenced in Nov 2010)
 - Contract HY/2009/18: MA1e and MA1w (Commenced on 22 April 2011)
 - Contract HY/2009/19: MA1e and MA1w (Commenced on 24 March 2011)

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 Monitoring Stations corresponding to active contracts are sub-divided below:
 - Contract HK/2009/01 and HK/2009/02: M1a (To be commenced when Pier demolition work & PTI reconstruction)
 - Contract HY/2009/15: M2b, M3a (Contract to be commenced in Oct 2010)
 - Contract HY/2009/17: M4b (To be commenced when advance piling work start)
 - Contract HY/2009/19: M3a, M4b, M5b, M6 (Commenced on 26 March 2011)
 - Contract 04/HY/2006: M7e, M7w (majors works were completed, no monitoring was conducted)
 - Contract HY/2009/18: M7e, M7w (Commenced on 25 April 2011)
4. Day time noise will be monitored for Leq(30min) during the period between 07:00 and 19:00 for active contract(s).



Appendix 5.2

Noise Monitoring Results and Graphical Presentations



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)								
30/03/11	08:27	Cloudy	67.3	69.6	64.1	-	67	75
07/04/11	08:35	Fine	69.8	70.5	65.7	-	70	75
12/04/11	10:20	Sunny	71.1	72.9	68.4	-	71	75
19/04/11	11:30	Fine	67.5	69.7	63.9	-	68	75
27/04/11	15:50	Haze	66.2	68.0	63.7	-	66	76

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)								
30/03/11	09:09	Cloudy	67.4	69.1	64.0	-	67	75
07/04/11	09:25	Fine	66.9	69.0	64.1	-	67	75
12/04/11	11:00	Sunny	71.0	72.6	68.3	-	71	75
19/04/11	11:30	Fine	67.7	69.9	64.1	-	68	75
27/04/11	16:30	Haze	67.6	70.9	62.8	-	68	75



Noise Monitoring Result

Day Time (0700 - 1900hrs on normal weekdays)

Location: M3a - Tung Lo Wan Fire Station

Date	Time	Weather	Measurement Noise Level			Baseline Level	Construction Noise Level	Limit Level
			Leq	L10	L90	Leq	Leq	Leq
Unit: dB(A), (30-min)								
30/03/11	13:00	Cloudy	66.6	68.5	64.2	-	67	75
07/04/11	13:58	Sunny	65.8	67.3	63.2	-	66	75
12/04/11	14:20	Sunny	67.9	69.6	65.1	-	68	75
19/04/11	17:03	Sunny	70.7	72.7	67.5	-	71	75
27/04/11	10:35	Haze	67.2	69.0	66.5	-	67	75



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)								
30/03/11	13:42	Fine	67.7	69.2	65.5	-	68	75
07/04/11	13:00	Fine	68.3	69.9	65.8	-	68	75
12/04/11	15:05	Sunny	68.9	70.4	66.9	-	69	75
19/04/11	08:52	Fine	69.1	70.3	67.1	-	69	75
27/04/11	11:20	Haze	68.9	70.2	66.9	-	69	75

Location: M5b - City Garden

Date	Time	Weather	Measurement Noise Level			Baseline Level	Construction Noise Level	Limit Level
			Leq	L10	L90	Leq	Leq	Leq
Unit: dB(A), (30min)								
30/03/11	15:15	Cloudy	68.7	70.8	66.3	-	69	75
07/04/11	15:28	Fine	68.2	69.3	66.6	-	68	75
12/04/11	16:41	Sunny	67.8	69.3	65.9	-	68	75
19/04/11	09:42	Fine	68.2	70.2	65.6	-	68	75
27/04/11	13:10	Haze	72.2	74.3	69.7	-	72	75

Location: M6 - HK baptist Church henrietta Secondary School

Date	Time	Weather	Measurement Noise Level			Baseline Level	Construction Noise Level	Limit Level
			Leq	L10	L90	Leq	Leq	Leq
Unit: dB(A), (30-min)								
30/03/11	14:35	Cloudy	72.2	73.6	70.3	70.7	67	70
07/04/11	14:49	Fine	72.0	73.4	69.9	70.7	66	70
12/04/11	16:00	Sunny	72.4	73.9	70.6	70.7	68	70
19/04/11	10:25	Fine	73.1	74.2	70.9	70.7	69	70
27/04/11	14:45	Haze	71.6	73.1	69.6	70.7	64	70



Noise Monitoring Result

Restricted Time (1900 - 2300 hrs on normal weekdays and 0700-2300 on holiday)

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

Date	Time	Weather	Measurement Noise Level			Average Noise Level	Baseline Level	Construction Noise Level	Limit Level
			Leq	L10	L90	Leq	Leq	Leq	Leq
Unit: dB(A), (5-min)									
22/04/11	22:16	Fine	61.4	63.6	58.9	61.7	-	62	70
	22:21		62.0	64.5	58.7				
	22:26		61.7	63.1	60.0				

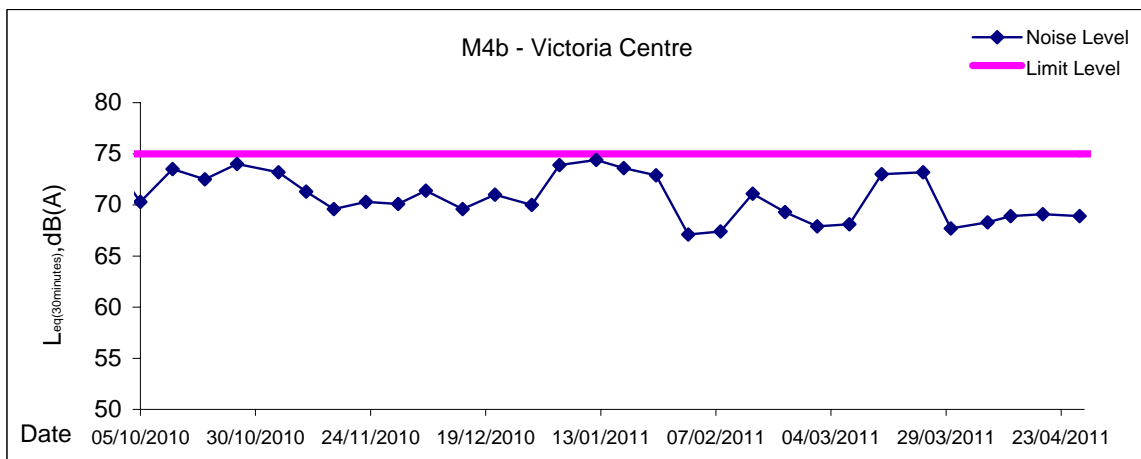
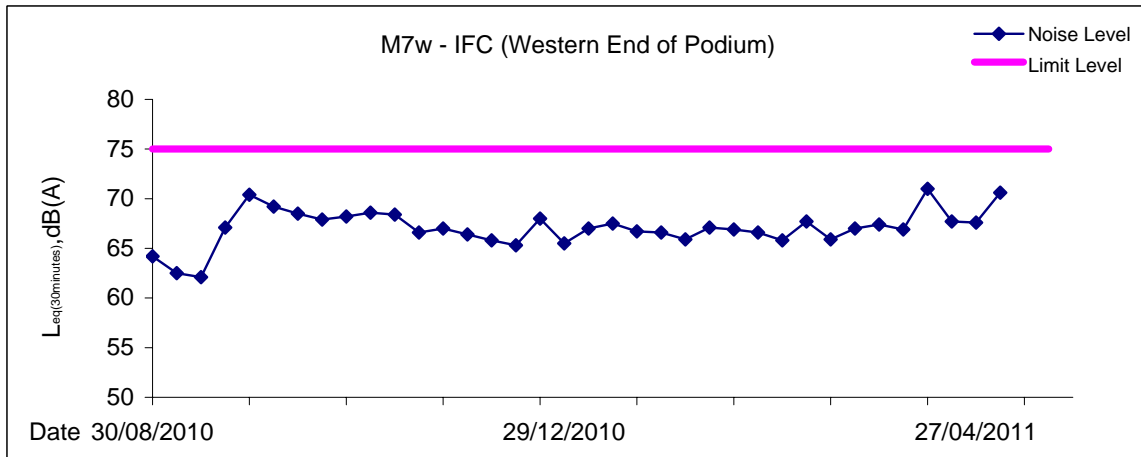
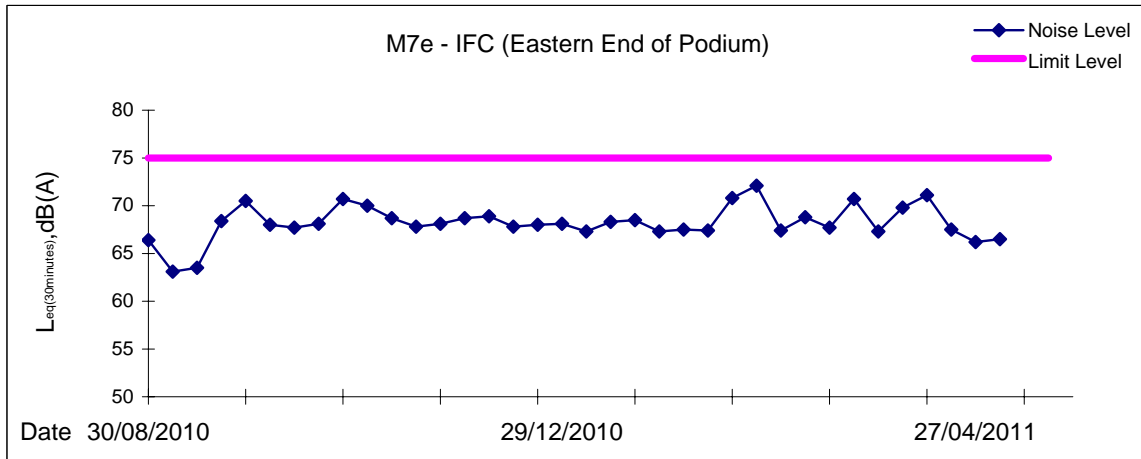
Location: M7w - International Finance Centre (Western End of Podium)

Date	Time	Weather	Measurement Noise Level			Average Noise Level	Baseline Level	Construction Noise Level	Limit Level
			Leq	L10	L90	Leq	Leq	Leq	Leq
Unit: dB(A), (5-min)									
22/04/11	22:40	Fine	65.0	66.0	64.3	64.9	-	65	70
	22:45		64.3	65.9	62.7				
	22:50		65.3	66.4	63.3				



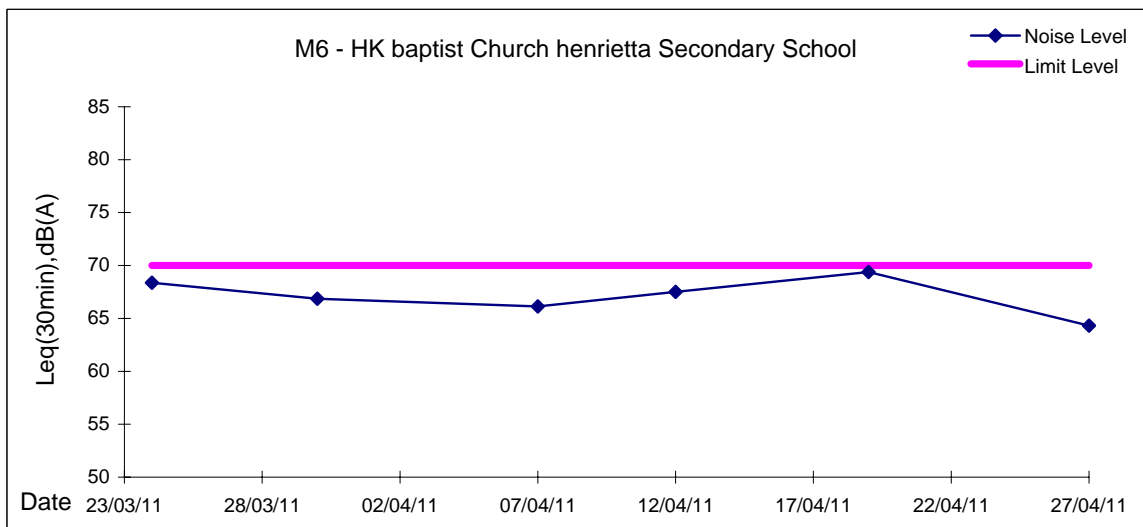
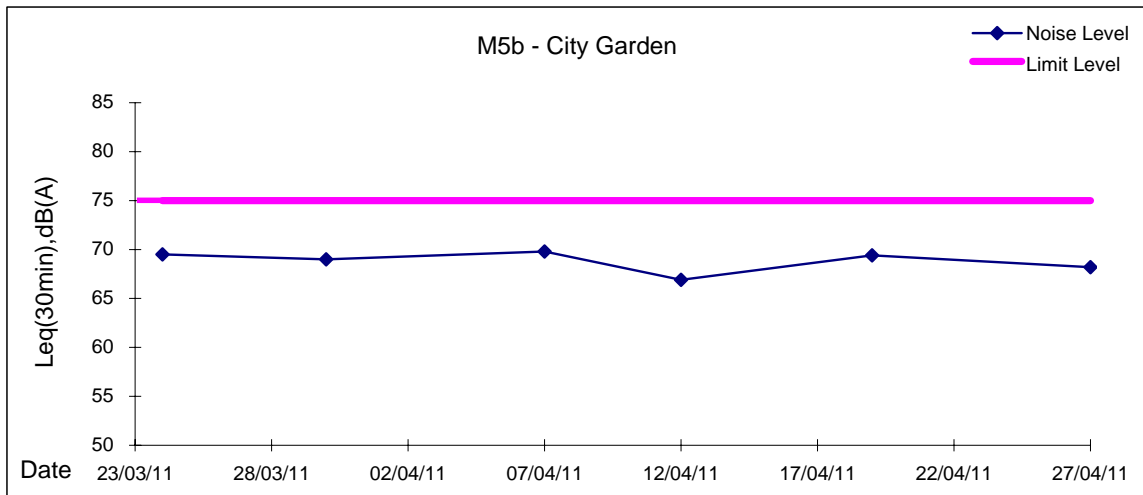
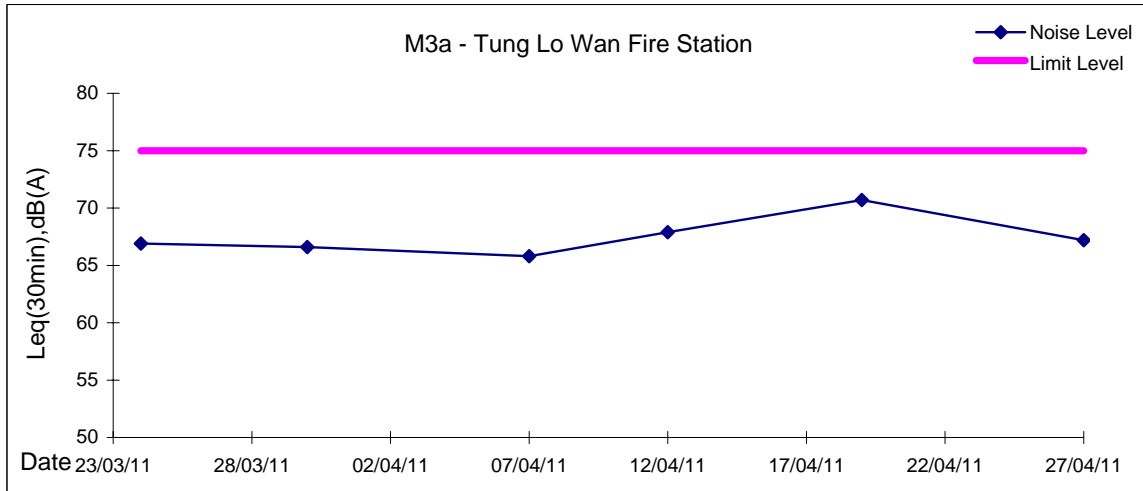
Graphic Presentation of Noise Monitoring Result

Day Time (0700 - 1900hrs on normal weekdays)





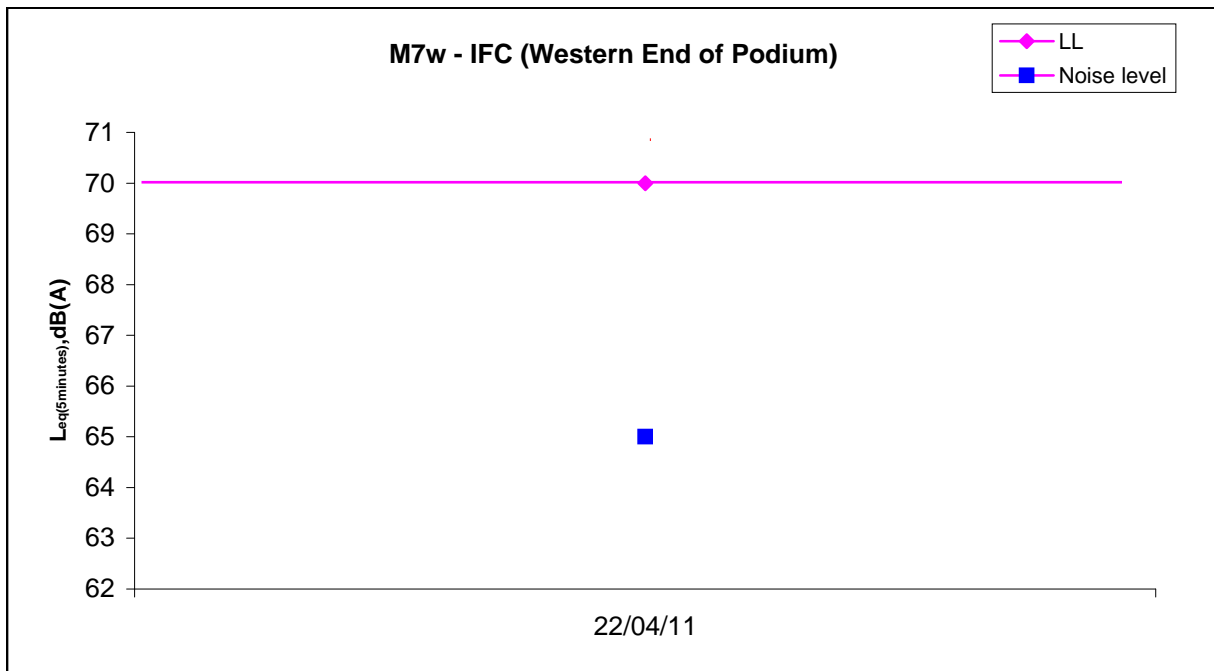
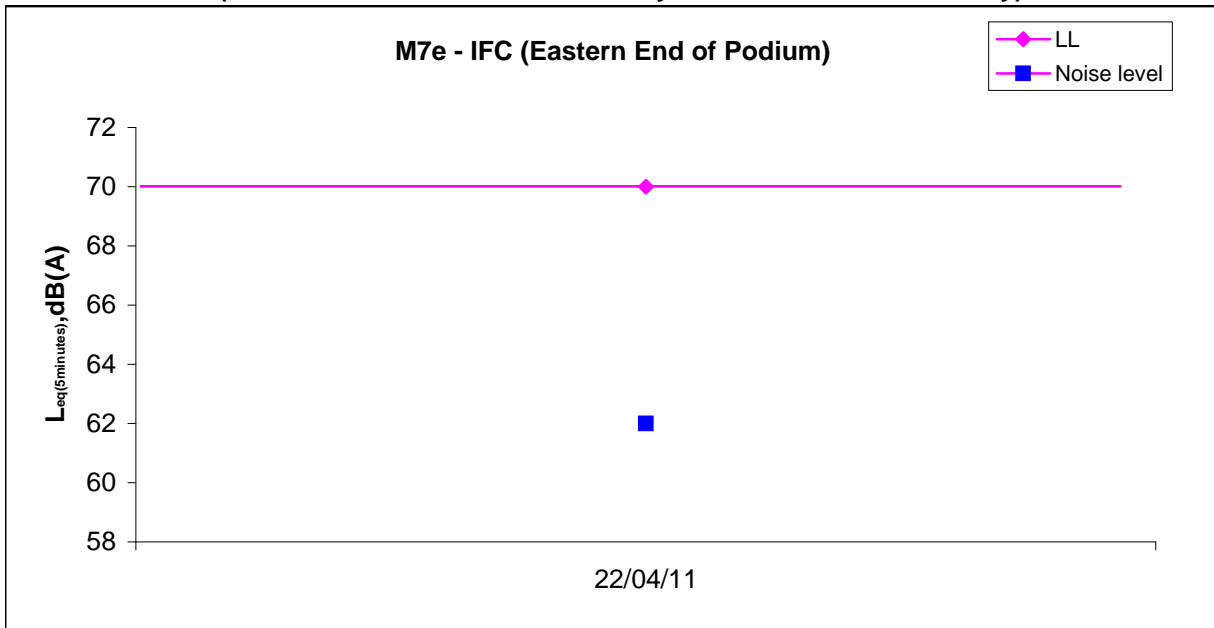
Graphic Presentation of Noise Monitoring Result
Day Time (0700 - 1900hrs on normal weekdays)





Graphic Presentation of Noise Monitoring Result

Restricted Time (1900 - 2300 hrs on normal weekdays and 0700-2300 on holiday)





Appendix 5.3

Air Quality Monitoring Results and Graphical Presentations



Location: CMA1b - Oil St Community Liaison Centre

Report on 24-hour TSP monitoring

Action Level ($\mu\text{g}/\text{m}^3$) - 176.7

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		
01-Apr-11	08:00	Fine	000053	2.7752	2.9718	9072.79	9096.79	24.00	1.49	1.49	1.49	2150	91
07-Apr-11	08:00	Fine	000138	2.7959	2.9942	9098.01	9122.01	24.00	1.49	1.49	1.49	2151	92
13-Apr-11	08:00	Hazy	000117	2.7917	3.0215	9125.01	9149.01	24.00	1.48	1.48	1.48	2131	108
19-Apr-11	08:00	Sunny	000306	2.7493	2.9899	9152.01	9176.01	24.00	1.48	1.48	1.48	2133	113
25-Apr-11	08:00	Sunny	000334	2.7507	2.9467	9182.00	9206.00	24.00	1.48	1.48	1.48	2133	92

Report on 1-hour TSP monitoring

Action Level ($\mu\text{g}/\text{m}^3$) - 320.1

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		
28-Mar-11	08:20	Fine	000090	2.8130	2.8262	9069.79	9070.79	1.00	1.53	1.53	1.53	92	143
28-Mar-11	09:30	Fine	000049	2.7740	2.7866	9070.79	9071.79	1.00	1.53	1.53	1.53	92	137
28-Mar-11	10:35	Fine	000051	2.7658	2.7775	9071.79	9072.79	1.00	1.53	1.53	1.53	92	127
02-Apr-11	09:45	Fine	000149	2.7454	2.7545	90950.02	90951.02	1.00	1.48	1.48	1.48	89	102
02-Apr-11	10:49	Fine	000150	2.7572	2.7657	90906.02	90907.02	1.00	1.48	1.48	1.48	89	96
02-Apr-11	11:52	Fine	000253	2.7130	2.7210	9097.01	9098.01	1.00	1.48	1.48	1.48	89	90
08-Apr-11	08:10	Fine	000129	2.7960	2.8098	9122.01	9123.01	1.00	1.48	1.48	1.48	89	155
08-Apr-11	09:20	Fine	000100	2.7918	2.8022	9123.01	9124.01	1.00	1.48	1.48	1.48	89	117
08-Apr-11	10:30	Fine	000098	2.7895	2.8015	9124.01	9125.01	1.00	1.54	1.48	1.51	91	132
14-Apr-11	08:15	Hazy	000096	2.8139	2.8254	9149.01	9150.01	1.00	1.48	1.48	1.48	89	130
14-Apr-11	09:25	Hazy	000094	2.8018	2.8125	9150.01	9151.01	1.00	1.48	1.48	1.48	89	121
14-Apr-11	10:30	Hazy	000167	2.7406	2.7570	9151.01	9152.01	1.00	1.48	1.48	1.48	89	185
20-Apr-11	09:15	Sunny	000172	2.7450	2.7607	9176.01	9177.01	1.00	1.48	1.48	1.48	89	177
20-Apr-11	10:45	Sunny	000174	2.7587	2.7733	9178.01	9179.01	1.00	1.48	1.48	1.48	89	164
20-Apr-11	13:00	Sunny	000092	2.8047	2.8186	9179.01	9180.01	1.00	1.48	1.48	1.48	89	157
26-Apr-11	09:15	Sunny	000336	2.7449	2.7611	9206.98	9207.98	1.00	1.48	1.48	1.48	89	182
26-Apr-11	10:45	Sunny	000383	2.7667	2.7765	9207.98	9208.98	1.00	1.48	1.48	1.48	89	110
26-Apr-11	13:00	Sunny	000385	2.7406	2.7597	9208.98	9209.98	1.00	1.48	1.48	1.48	89	215

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		
01-Apr-11	08:00	Fine	000310	2.7400	2.9624	13886.00	13910.00	24.00	1.44	1.44	1.44	2079	107
07-Apr-11	08:00	Fine	000257	2.7516	2.9627	13583.00	13607.00	24.00	1.38	1.44	1.41	2037	104
13-Apr-11	08:00	Hazy	000118	2.7960	3.0336	13610.00	13634.01	24.01	1.40	1.40	1.40	2017	118
19-Apr-11	08:00	Sunny	000305	2.7415	3.0239	13637.01	13661.00	23.99	1.40	1.40	1.40	2018	140
25-Apr-11	08:00	Sunny	000335	2.7354	2.9192	13664.00	13688.00	24.00	1.47	1.40	1.43	2065	89

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		
28-Mar-11	08:40	Fine	000091	2.8130	2.8250	13553.00	13554.00	1.00	1.48	1.48	1.48	89	135
28-Mar-11	09:45	Fine	000050	2.7776	2.7900	13554.00	13555.00	1.00	1.48	1.48	1.48	89	139
28-Mar-11	10:45	Fine	000052	2.7896	2.8028	13555.00	13556.00	1.00	1.45	1.45	1.45	87	151
02-Apr-11	09:59	Fine	000260	2.7169	2.7273	13580.00	13581.00	1.00	1.43	1.43	1.43	86	121
02-Apr-11	11:01	Fine	000259	2.7104	2.7188	13581.00	13582.00	1.00	1.43	1.43	1.43	86	98
02-Apr-11	13:03	Fine	000258	2.7287	2.7348	13582.00	13583.00	1.00	1.43	1.43	1.43	86	71
08-Apr-11	08:30	Fine	000101	2.8056	2.8183	13607.00	13608.00	1.00	1.43	1.43	1.43	86	148
08-Apr-11	09:40	Fine	000099	2.7889	2.8005	13608.00	13609.00	1.00	1.43	1.43	1.43	86	135
08-Apr-11	10:40	Fine	000097	2.7835	2.7962	13609.00	13610.00	1.00	1.43	1.43	1.43	86	148
14-Apr-11	08:35	Hazy	000095	2.8037	2.8158	13634.01	13635.01	1.00	1.40	1.40	1.40	84	144
14-Apr-11	09:40	Hazy	000093	2.8163	2.8275	13635.01	13636.01	1.00	1.40	1.40	1.40	84	134
14-Apr-11	10:45	Hazy	000168	2.7352	2.7529	13636.01	13637.01	1.00	1.40	1.40	1.40	84	211
20-Apr-11	09:00	Sunny	000173	2.7451	2.7623	13661.00	13662.00	1.00	1.40	1.40	1.40	84	205
20-Apr-11	09:40	Sunny	000175	2.7445	2.7647	13662.00	13663.00	1.00	1.40	1.40	1.40	84	240
20-Apr-11	10:45	Sunny	000333	2.7483	2.7628	13663.00	13664.00	1.00	1.40	1.40	1.40	84	173
26-Apr-11	08:00	Sunny	000382	2.7534	2.7678	13688.00	13689.00	1.00	1.40	1.40	1.40	84	171
26-Apr-11	09:40	Sunny	000384	2.7320	2.7416	13635.01	13636.01	1.00	1.40	1.40	1.40	84	114
26-Apr-11	10:45	Sunny	000386	2.7423	2.7546	13636.01	13637.01	1.00	1.40	1.40	1.40	84	146



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		
01-Apr-11	08:00	Fine	000314	2.7347	2.9112	6650.80	6674.50	23.70	1.37	1.43	1.40	1995	88
07-Apr-11	08:00	Fine	000120	2.7936	2.9892	6677.50	6701.50	24.00	1.49	1.49	1.49	2151	91
13-Apr-11	08:00	Fine	000325	2.7496	2.9420	6650.80	6674.50	23.70	1.54	1.54	1.54	2189	88
19-Apr-11	08:00	Sunny	000357	2.7511	2.9883	6731.56	6755.56	24.00	1.60	1.60	1.60	2305	103
25-Apr-11	08:00	Sunny	000357	2.7511	2.9662	6734.56	6758.56	24.00	1.60	1.60	1.60	2305	93

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		
28-Mar-11	08:21	Fine	000038	2.6343	2.6415	6647.50	6648.50	1.00	1.50	1.50	1.50	90	80
28-Mar-11	09:30	Fine	000036	2.6379	2.6461	6648.50	6649.50	1.00	1.44	1.44	1.44	87	95
28-Mar-11	11:00	Fine	000308	2.7006	2.7091	6676.50	6677.50	1.00	1.50	1.50	1.50	90	94
02-Apr-11	09:00	Fine	000245	2.7130	2.7193	6674.50	6675.50	1.00	1.60	1.60	1.60	96	65
02-Apr-11	10:00	Fine	000244	2.7317	2.7408	6675.50	6676.50	1.00	1.54	1.54	1.54	93	98
02-Apr-11	11:00	Fine	000121	2.7855	2.7943	6676.50	6677.50	1.00	1.66	1.66	1.66	100	88
08-Apr-11	08:00	Fine	000319	2.7445	2.7628	6701.50	6702.50	1.00	1.54	1.48	1.51	91	202
08-Apr-11	09:06	Fine	000321	2.7587	2.7686	6702.50	6703.50	1.00	1.54	1.48	1.51	91	109
08-Apr-11	10:12	Fine	000323	2.7318	2.7428	6703.50	6704.50	1.00	1.54	1.48	1.51	91	121
14-Apr-11	08:18	Fine	000327	2.7348	2.7433	6728.51	6729.51	1.00	1.48	1.48	1.48	89	96
14-Apr-11	09:20	Fine	000329	2.7676	2.7760	6729.51	6730.51	1.00	1.48	1.48	1.48	89	95
14-Apr-11	10:35	Fine	000301	2.7468	2.7591	6730.51	6731.51	1.00	1.48	1.48	1.48	89	139
20-Apr-11	08:28	Sunny	000303	2.7265	2.7422	6755.57	6756.57	1.00	1.60	1.60	1.60	96	164
20-Apr-11	09:39	Sunny	000355	2.7507	2.7657	6756.57	6757.57	1.00	1.60	1.60	1.60	96	156
20-Apr-11	10:45	Sunny	000356	2.7363	2.7511	6757.57	6758.57	1.00	1.60	1.60	1.60	96	154
26-Apr-11	08:28	Sunny	000358	2.7568	2.7710	6758.57	6759.57	1.00	1.60	1.60	1.60	96	148
26-Apr-11	09:39	Sunny	000360	2.7441	2.7585	6759.57	6760.57	1.00	1.60	1.60	1.60	96	150
26-Apr-11	10:45	Sunny	000362	2.7219	2.7349	6760.57	6761.57	1.00	1.60	1.60	1.60	96	136



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		
01-Apr-11	08:00	Fine	000315	2.7348	2.9432	9798.30	9822.30	24.00	1.35	1.35	1.35	1940	107
07-Apr-11	08:00	Fine	000119	2.7940	2.9892	9825.30	9849.30	24.00	1.35	1.35	1.35	1941	101
13-Apr-11	08:00	Fine	000326	2.7433	2.9741	9852.30	9876.30	24.00	1.34	1.33	1.34	1924	120
19-Apr-11	08:00	Sunny	000304	2.7178	2.9583	9879.30	9903.30	24.00	1.57	1.57	1.57	2262	118
25-Apr-11	08:00	Sunny	000187	2.7408	2.9848	9906.30	9930.30	24.00	1.57	1.57	1.57	2262	107

Report on 1-hour TSP monitoring

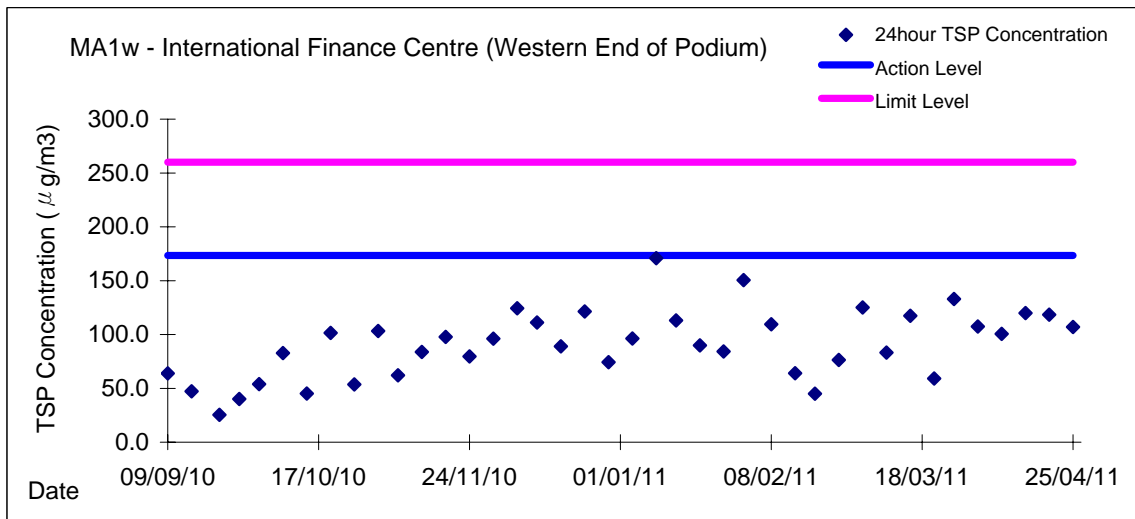
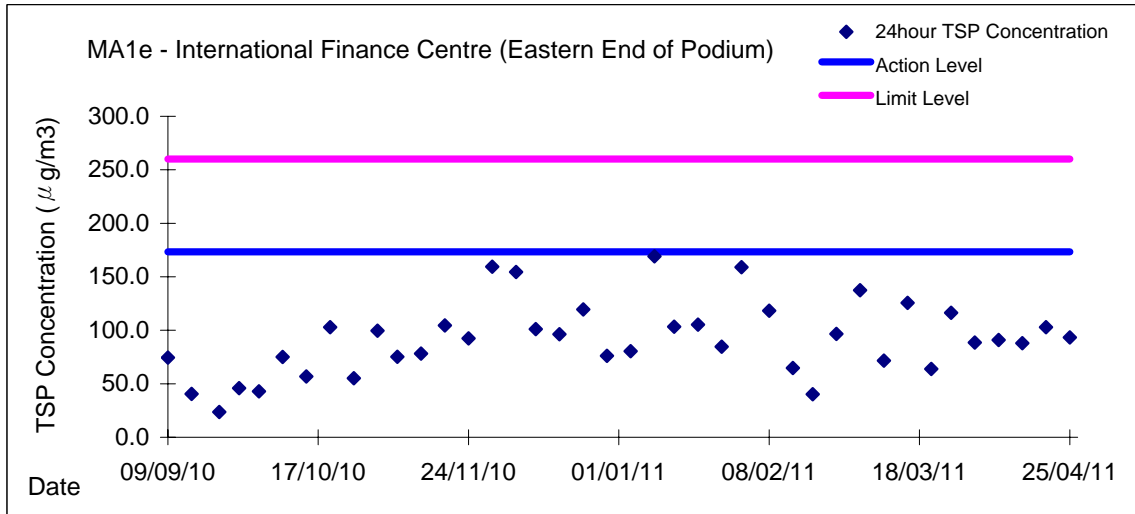
Action Level ($\mu\text{g}/\text{m}^3$) - 325.1

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		
28-Mar-11	08:11	Fine	000039	2.6266	2.6330	9795.30	9796.30	1.00	1.57	1.56	1.57	94	68
28-Mar-11	10:00	Fine	000037	2.6435	2.6528	9796.30	9797.30	1.00	1.56	1.56	1.56	94	99
28-Mar-11	11:00	Fine	000309	2.7204	2.7303	9797.30	9798.30	1.00	1.32	1.50	1.41	85	117
02-Apr-11	09:05	Fine	000122	2.7721	2.7808	9822.30	9823.30	1.00	1.54	1.54	1.54	93	94
02-Apr-11	10:05	Fine	000123	2.8012	2.8119	9823.30	9824.30	1.00	1.54	1.54	1.54	93	116
02-Apr-11	11:05	Fine	000124	2.7885	2.7986	9824.30	9825.30	1.00	1.66	1.66	1.66	100	101
08-Apr-11	08:11	Fine	000320	2.7462	2.7629	9849.30	9850.30	1.00	1.48	1.51	1.50	90	186
08-Apr-11	09:15	Fine	000322	2.7369	2.7453	9850.30	9851.30	1.00	1.42	1.45	1.44	86	97
08-Apr-11	10:22	Fine	000324	2.7308	2.7435	9851.30	9852.30	1.00	1.42	1.42	1.42	85	149
14-Apr-11	08:25	Fine	000328	2.7496	2.7600	9876.30	9877.30	1.00	1.48	1.48	1.48	89	117
14-Apr-11	09:30	Fine	000330	2.7508	2.7635	9877.30	9878.30	1.00	1.48	1.48	1.48	89	143
14-Apr-11	10:45	Fine	000302	2.7169	2.7310	9878.30	9879.30	1.00	1.48	1.48	1.48	89	159
20-Apr-11	08:34	Fine	000352	2.7277	2.7418	9903.30	9904.30	1.00	1.54	1.54	1.54	92	153
20-Apr-11	09:30	Fine	000353	2.7069	2.7212	9904.30	9905.30	1.00	1.54	1.54	1.54	92	155
20-Apr-11	10:45	Fine	000354	2.7358	2.7493	9905.30	9906.30	1.00	1.54	1.54	1.54	92	146
26-Apr-11	08:34	Sunny	000359	2.7463	2.7578	9930.30	9931.30	1.00	1.54	1.54	1.54	92	125
26-Apr-11	09:30	Sunny	000361	2.7505	2.7634	9877.30	9878.30	1.00	1.54	1.54	1.54	92	140
26-Apr-11	10:45	Sunny	000363	2.7369	2.7495	9878.30	9879.30	1.00	1.54	1.54	1.54	92	137

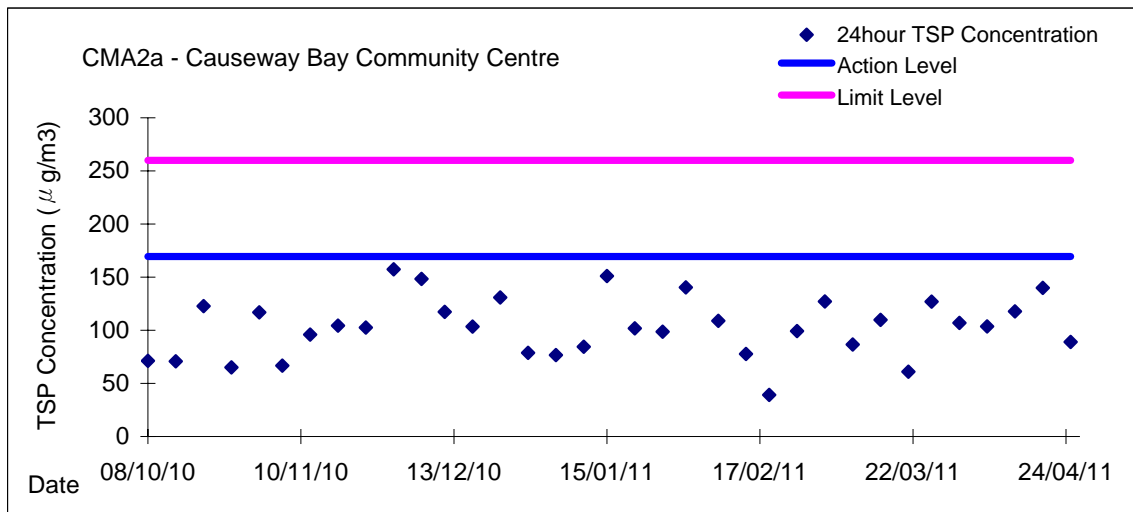
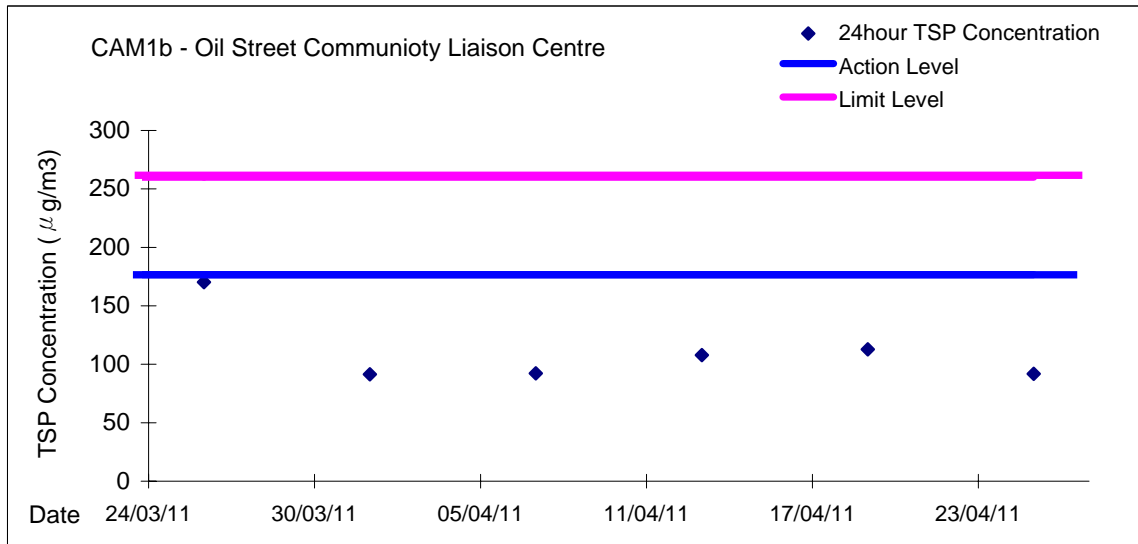


Graphic Presentation of 24 hour TSP Result



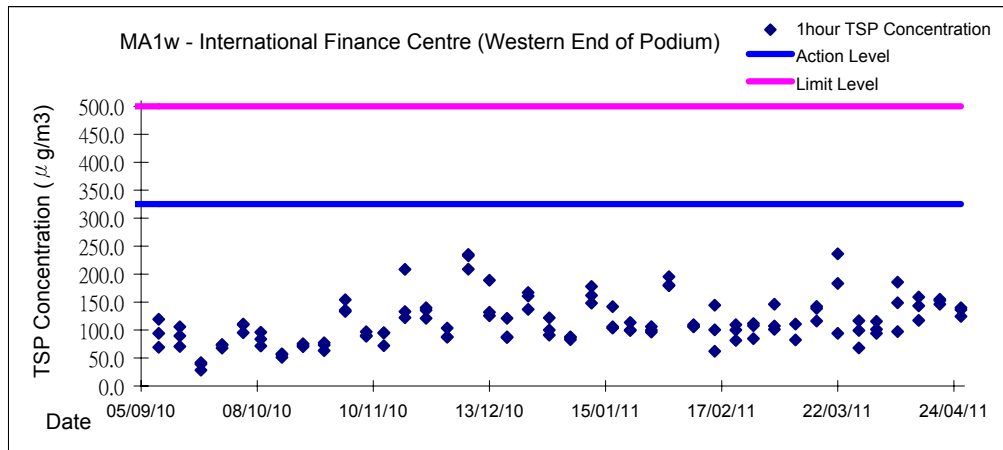
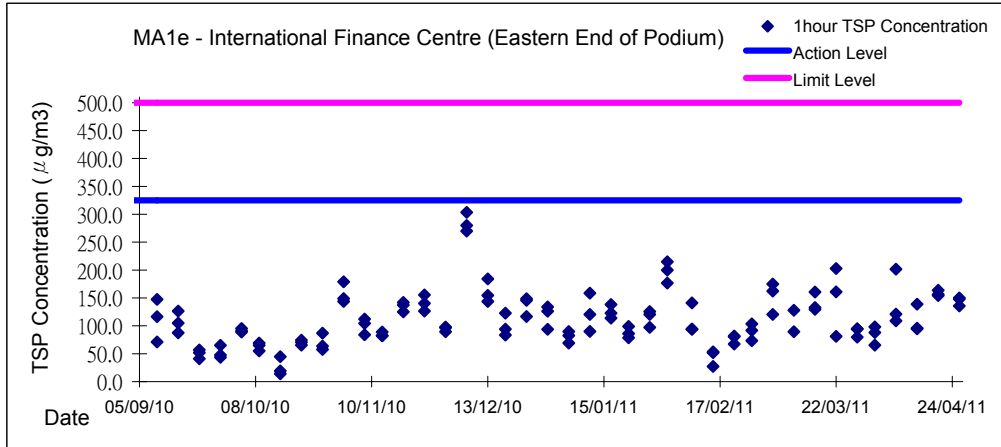


Graphic Presentation of 24 hour TSP Result



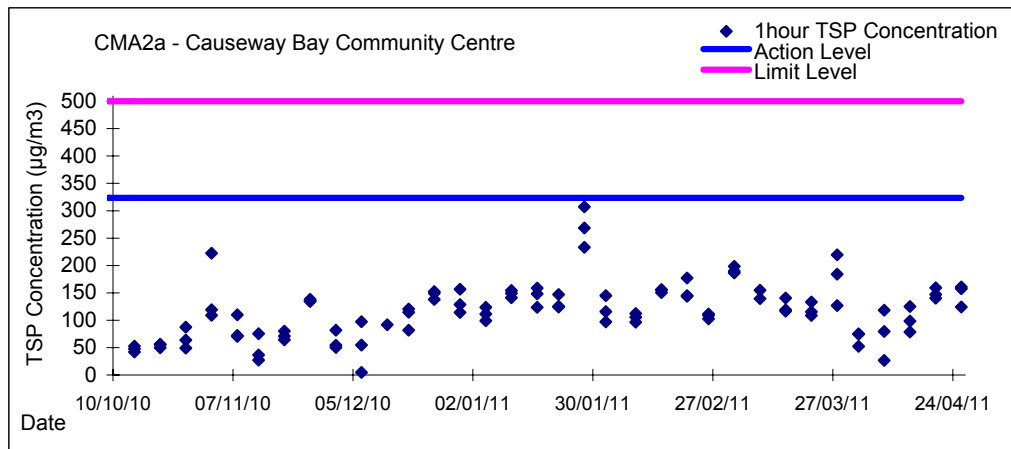
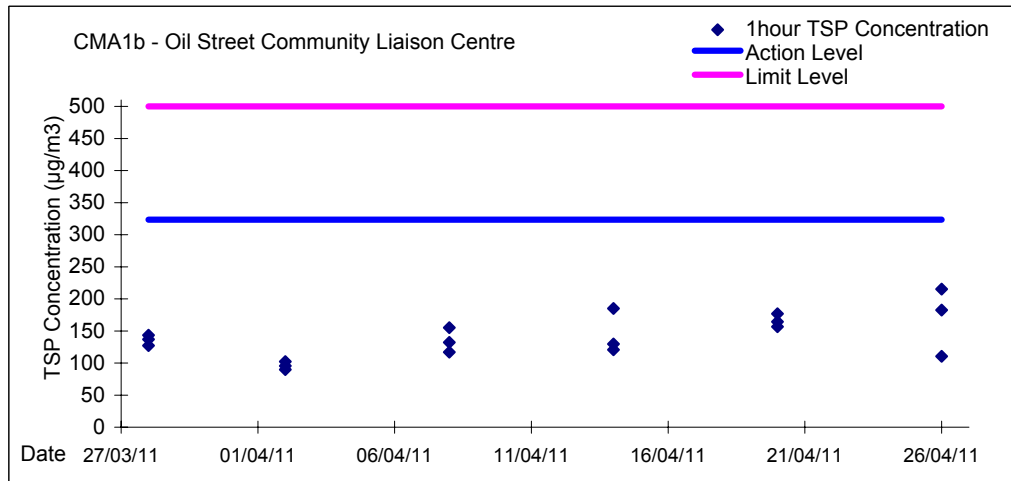


Graphic Presentation of 1 hour TSP Result





Graphic Presentation of 1 hour TSP Result





Appendix 5.4
Real Time Noise Monitoring Results and Graphical Presentations

Real-time Noise Data RTN1 / FEHD Hong Kong Transport Section Whitefield Depot

Table with 7 columns of date-time noise data entries, spanning from 18/04/2011 to 25/04/2011. Each entry consists of a date-time string followed by a numerical noise value.

Real-time Noise Data RTN1 (FEHD Hong Kong Transport Section Whitefield Depot)

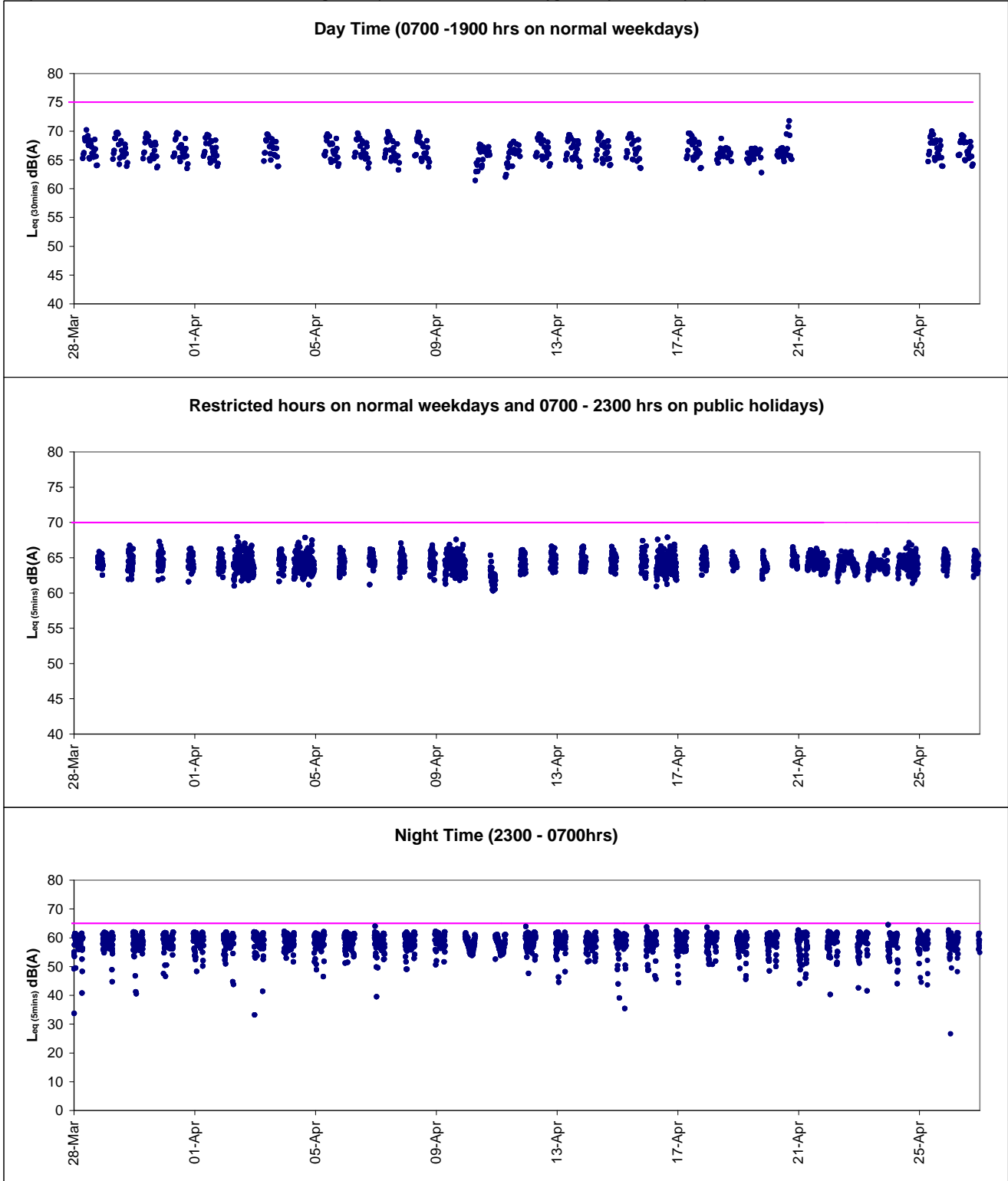
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25/04/2011 04:35 59.2	26/04/2011 05:45 61.5	27/04/2011 06:55 60.0
25/04/2011 04:40 59.7	26/04/2011 05:50 60.0	27/04/2011 23:00 60.7
25/04/2011 04:45 58.3	26/04/2011 05:55 59.8	27/04/2011 23:05 55.9
25/04/2011 04:50 59.5	26/04/2011 06:00 61.6	27/04/2011 23:10 59.1
25/04/2011 04:55 59.6	26/04/2011 06:05 59.8	27/04/2011 23:15 61.5
25/04/2011 05:00 59.7	26/04/2011 06:10 56.1	27/04/2011 23:20 57.8
25/04/2011 05:05 57.9	26/04/2011 06:15 61.0	27/04/2011 23:25 58.2
25/04/2011 05:10 58.7	26/04/2011 06:20 43.6	27/04/2011 23:30 57.2
25/04/2011 05:15 59.2	26/04/2011 06:25 52.1	27/04/2011 23:35 56.4
25/04/2011 05:20 58.2	26/04/2011 06:30 57.5	27/04/2011 23:40 58.6
25/04/2011 05:25 60.3	26/04/2011 06:35 47.5	27/04/2011 23:45 61.5
25/04/2011 05:30 59.5	26/04/2011 06:40 59.3	27/04/2011 23:50 59.2
25/04/2011 05:35 60.8	26/04/2011 06:45 59.4	27/04/2011 23:55 54.9
25/04/2011 05:40 61.0	26/04/2011 06:50 62.1	
25/04/2011 05:45 60.0	26/04/2011 06:55 58.0	
25/04/2011 05:50 60.4	26/04/2011 23:00 56.8	
25/04/2011 05:55 60.1	26/04/2011 23:05 62.1	
25/04/2011 06:00 61.5	26/04/2011 23:10 57.8	
25/04/2011 06:05 60.8	26/04/2011 23:15 62.7	
25/04/2011 06:10 61.1	26/04/2011 23:20 60.7	
25/04/2011 06:15 60.9	26/04/2011 23:25 61.9	
25/04/2011 06:20 61.0	26/04/2011 23:30 61.1	
25/04/2011 06:25 44.0	26/04/2011 23:35 56.8	
25/04/2011 06:30 48.2	26/04/2011 23:40 59.5	
25/04/2011 06:35 56.5	26/04/2011 23:45 57.5	
25/04/2011 06:40 52.2	26/04/2011 23:50 59.8	
25/04/2011 06:45 51.9	26/04/2011 23:55 57.5	
25/04/2011 06:50 48.7	27/04/2011 00:00 53.2	
25/04/2011 06:55 51.3	27/04/2011 00:05 61.2	
25/04/2011 23:00 56.1	27/04/2011 00:10 54.2	
25/04/2011 23:05 58.5	27/04/2011 00:15 52.4	
25/04/2011 23:10 58.0	27/04/2011 00:20 56.2	
25/04/2011 23:15 59.5	27/04/2011 00:25 54.4	
25/04/2011 23:20 59.6	27/04/2011 00:30 61.0	
25/04/2011 23:25 59.2	27/04/2011 00:35 53.1	
25/04/2011 23:30 62.6	27/04/2011 00:40 60.1	
25/04/2011 23:35 59.3	27/04/2011 00:45 26.6	
25/04/2011 23:40 55.4	27/04/2011 00:50 59.1	
25/04/2011 23:45 55.5	27/04/2011 00:55 61.4	
25/04/2011 23:50 51.0	27/04/2011 01:00 61.2	
25/04/2011 23:55 59.0	27/04/2011 01:05 58.1	
26/04/2011 00:00 58.6	27/04/2011 01:10 60.2	
26/04/2011 00:05 61.5	27/04/2011 01:15 58.7	
26/04/2011 00:10 54.3	27/04/2011 01:20 61.6	
26/04/2011 00:15 60.5	27/04/2011 01:25 59.5	
26/04/2011 00:20 55.2	27/04/2011 01:30 49.5	
26/04/2011 00:25 55.9	27/04/2011 01:35 55.8	
26/04/2011 00:30 61.1	27/04/2011 01:40 59.0	
26/04/2011 00:35 61.8	27/04/2011 01:45 58.0	
26/04/2011 00:40 46.2	27/04/2011 01:50 58.2	
26/04/2011 00:45 61.5	27/04/2011 01:55 59.7	
26/04/2011 00:50 61.2	27/04/2011 02:00 60.8	
26/04/2011 00:55 61.3	27/04/2011 02:05 59.3	
26/04/2011 01:00 60.6	27/04/2011 02:10 59.4	
26/04/2011 01:05 60.4	27/04/2011 02:15 58.3	
26/04/2011 01:10 60.8	27/04/2011 02:20 60.3	
26/04/2011 01:15 60.9	27/04/2011 02:25 57.9	
26/04/2011 01:20 59.9	27/04/2011 02:30 59.8	
26/04/2011 01:25 58.4	27/04/2011 02:35 57.5	
26/04/2011 01:30 60.1	27/04/2011 02:40 56.6	
26/04/2011 01:35 44.6	27/04/2011 02:45 60.3	
26/04/2011 01:40 59.1	27/04/2011 02:50 58.9	
26/04/2011 01:45 59.7	27/04/2011 02:55 57.2	
26/04/2011 01:50 58.6	27/04/2011 03:00 56.2	
26/04/2011 01:55 57.9	27/04/2011 03:05 59.1	
26/04/2011 02:00 61.1	27/04/2011 03:10 58.9	
26/04/2011 02:05 60.2	27/04/2011 03:15 58.1	
26/04/2011 02:10 59.5	27/04/2011 03:20 57.8	
26/04/2011 02:15 60.2	27/04/2011 03:25 57.7	
26/04/2011 02:20 59.8	27/04/2011 03:30 57.8	
26/04/2011 02:25 59.4	27/04/2011 03:35 57.9	
26/04/2011 02:30 60.7	27/04/2011 03:40 59.3	
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26/04/2011 02:45 59.5	27/04/2011 03:55 56.4	
26/04/2011 02:50 59.2	27/04/2011 04:00 55.6	
26/04/2011 02:55 59.3	27/04/2011 04:05 56.4	
26/04/2011 03:00 59.2	27/04/2011 04:10 58.1	
26/04/2011 03:05 58.5	27/04/2011 04:15 58.2	
26/04/2011 03:10 59.5	27/04/2011 04:20 56.9	
26/04/2011 03:15 60.4	27/04/2011 04:25 56.6	
26/04/2011 03:20 58.3	27/04/2011 04:30 57.8	
26/04/2011 03:25 57.5	27/04/2011 04:35 58.4	
26/04/2011 03:30 59.5	27/04/2011 04:40 57.9	
26/04/2011 03:35 57.6	27/04/2011 04:45 58.0	
26/04/2011 03:40 58.7	27/04/2011 04:50 57.3	
26/04/2011 03:45 59.3	27/04/2011 04:55 57.3	
26/04/2011 03:50 57.1	27/04/2011 05:00 58.0	
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26/04/2011 04:00 57.2	27/04/2011 05:10 59.4	
26/04/2011 04:05 57.4	27/04/2011 05:15 58.3	
26/04/2011 04:10 58.5	27/04/2011 05:20 60.1	
26/04/2011 04:15 58.3	27/04/2011 05:25 60.0	
26/04/2011 04:20 58.0	27/04/2011 05:30 59.6	
26/04/2011 04:25 56.6	27/04/2011 05:35 59.6	
26/04/2011 04:30 58.2	27/04/2011 05:40 58.6	
26/04/2011 04:35 57.7	27/04/2011 05:45 59.7	
26/04/2011 04:40 56.1	27/04/2011 05:50 61.0	
26/04/2011 04:45 57.9	27/04/2011 05:55 57.9	
26/04/2011 04:50 59.9	27/04/2011 06:00 61.7	
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26/04/2011 05:20 59.8	27/04/2011 06:30 58.4	
26/04/2011 05:25 58.6	27/04/2011 06:35 59.3	
26/04/2011 05:30 58.8	27/04/2011 06:40 61.6	
26/04/2011 05:35 60.1	27/04/2011 06:45 54.3	

Real-time Noise Data RTN2 (Oil Street Community Liaison Centre)

25/04/2011 04:30 54.8	26/04/2011 05:40 57.1	27/04/2011 06:50 59.7
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25/04/2011 04:40 56.1	26/04/2011 05:50 58.8	27/04/2011 23:00 56.8
25/04/2011 04:45 54.8	26/04/2011 05:55 59.6	27/04/2011 23:05 60.2
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25/04/2011 05:10 56.7	26/04/2011 06:20 57.9	27/04/2011 23:30 61.5
25/04/2011 05:15 56.5	26/04/2011 06:25 58.3	27/04/2011 23:35 60.9
25/04/2011 05:20 55.3	26/04/2011 06:30 59.6	27/04/2011 23:40 57.9
25/04/2011 05:25 58.8	26/04/2011 06:35 60.7	27/04/2011 23:45 60.7
25/04/2011 05:30 56.2	26/04/2011 06:40 60.1	27/04/2011 23:50 61.1
25/04/2011 05:35 57.4	26/04/2011 06:45 61.0	27/04/2011 23:55 59.7
25/04/2011 05:40 55.3	26/04/2011 06:50 60.5	
25/04/2011 05:45 56.9	26/04/2011 06:55 60.9	
25/04/2011 05:50 57.3	26/04/2011 23:00 61.5	
25/04/2011 05:55 58.6	26/04/2011 23:05 61.4	
25/04/2011 06:00 57.6	26/04/2011 23:10 59.8	
25/04/2011 06:05 58.1	26/04/2011 23:15 60.1	
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25/04/2011 06:35 48.7	26/04/2011 23:45 60.4	
25/04/2011 06:40 58.8	26/04/2011 23:50 59.5	
25/04/2011 06:45 60.3	26/04/2011 23:55 60.5	
25/04/2011 06:50 60.8	27/04/2011 00:00 59.0	
25/04/2011 06:55 59.5	27/04/2011 00:05 61.3	
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25/04/2011 23:05 60.8	27/04/2011 00:15 59.7	
25/04/2011 23:10 61.0	27/04/2011 00:20 61.7	
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26/04/2011 00:35 60.9	27/04/2011 01:45 59.5	
26/04/2011 00:40 59.0	27/04/2011 01:50 56.4	
26/04/2011 00:45 60.0	27/04/2011 01:55 57.4	
26/04/2011 00:50 57.9	27/04/2011 02:00 56.7	
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26/04/2011 01:05 59.1	27/04/2011 02:15 56.5	
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26/04/2011 01:30 56.8	27/04/2011 02:40 54.4	
26/04/2011 01:35 58.5	27/04/2011 02:45 56.3	
26/04/2011 01:40 56.8	27/04/2011 02:50 56.2	
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26/04/2011 02:15 56.9	27/04/2011 03:25 56.1	
26/04/2011 02:20 58.6	27/04/2011 03:30 55.6	
26/04/2011 02:25 57.0	27/04/2011 03:35 56.7	
26/04/2011 02:30 55.5	27/04/2011 03:40 54.9	
26/04/2011 02:35 56.5	27/04/2011 03:45 56.2	
26/04/2011 02:40 54.6	27/04/2011 03:50 57.6	
26/04/2011 02:45 56.9	27/04/2011 03:55 57.4	
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26/04/2011 02:55 56.5	27/04/2011 04:05 57.1	
26/04/2011 03:00 55.3	27/04/2011 04:10 55.5	
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26/04/2011 03:40 55.9	27/04/2011 04:50 55.9	
26/04/2011 03:45 57.4	27/04/2011 04:55 54.8	
26/04/2011 03:50 57.0	27/04/2011 05:00 54.0	
26/04/2011 03:55 57.2	27/04/2011 05:05 55.7	
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26/04/2011 04:35 55.5	27/04/2011 05:45 56.7	
26/04/2011 04:40 56.5	27/04/2011 05:50 56.2	
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26/04/2011 05:20 54.8	27/04/2011 06:30 59.0	
26/04/2011 05:25 59.3	27/04/2011 06:35 61.3	
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26/04/2011 05:35 56.0	27/04/2011 06:45 59.2	

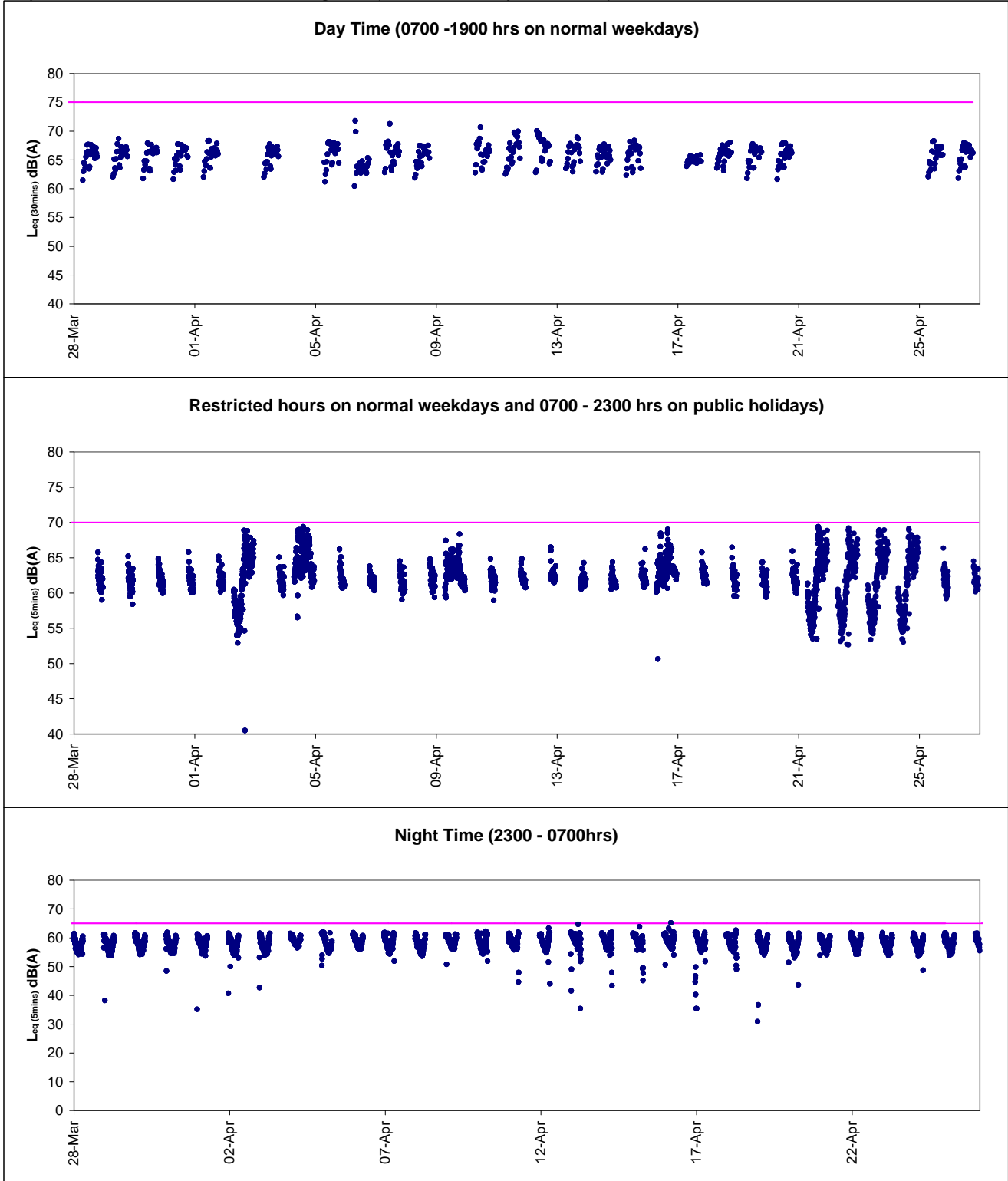


Graphic Presentation of Real Time Noise Monitoring Result (Food and Environmental Hygiene Department Depot)





Graphic Presentation of Real Time Noise Monitoring Result (Oil Street Community Liaison Centre)





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. (The above actions should be taken within 2 working days after the exceedance is identified) 	<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. (The above actions should be taken within 2 working days after the exceedance is identified) 	<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. (The above actions should be taken within 2 working days after the exceedance is identified) 	<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. (The above actions should be taken within 2 working days after the exceedance is identified)



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

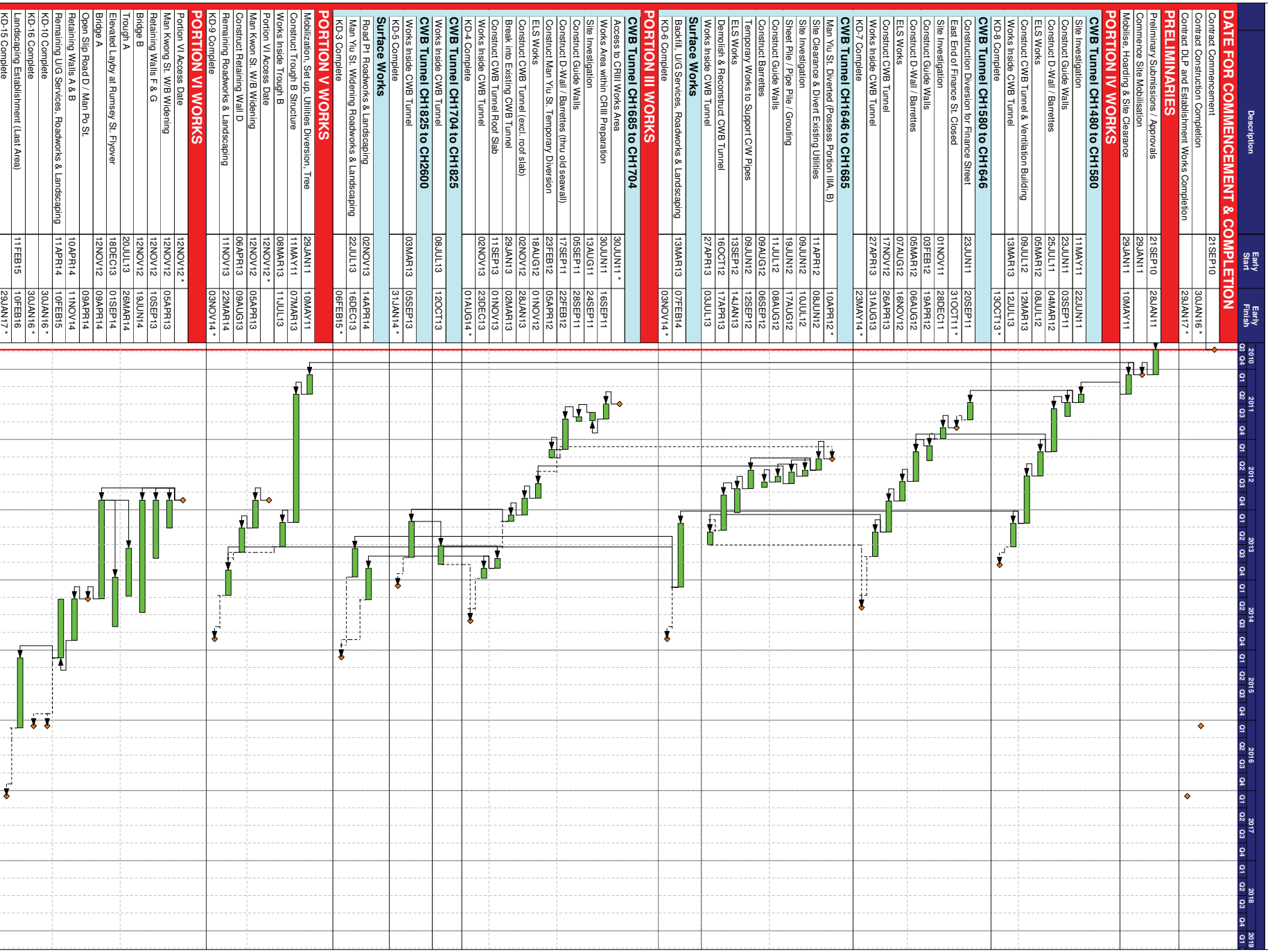
Construction Programme of Individual Contracts

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							■	



Leighton Contractors (Asia) Limited
 High Level Programme
 (Initial Works Programme IWPO)

Activity ID	Activity Name	Rem Dur	Start	Finish	2011																	
					February					March					April				May			
					23	30	06	13	20	27	06	13	20	27	03	10	17	24	01	08	15	
3MRP - Feb 2011 to Mar 2011																						
1 - CONTRACT DATES																						
1.1 - Conditions																						
1100010	Commencement of the Contract	0	20-Jan-11 A																			
1.2 - Possession of Site																						
1200010	Possession to Portion VI	0	20-Jan-11 A																			
2 - PRE-CONSTRUCTION WORKS																						
2.1 - Permit & Licence Application																						
2100010	Application for XP from HyD - Prepare & Submit to Engineer	0	20-Jan-11 A	02-Feb-11																		
2100011	Application for XP from HyD - Engineer Review & Comment	0	03-Feb-11 A	14-Feb-11																		
2100012	Application for XP from HyD - Resubmission	1	15-Feb-11 A	21-Feb-11																		
2100013	Application for XP from HyD - Engineer Submit to HyD	90	22-Feb-11	22-May-11																		
2100025	Co-ordination with UU & other XP Permittee	25	15-Mar-11	08-Apr-11																		
2100028	TTMS Approval by TMLG members	60	09-Apr-11	07-Jun-11																		
2100041	Dumping Permit from EPD - Engineer Review & Comment	12	11-Mar-11	22-Mar-11																		
2100042	Dumping Permit from EPD - Resubmission	7	23-Mar-11	29-Mar-11																		
2100043	Dumping Permit from EPD - Engineer Submit to EPD	177	30-Mar-11	22-Sep-11																		
2100050	Apply for Marine Notice	18	19-Feb-11 A	10-Mar-11																		
2.2 - Contractor's Submission																						
2200010	Site Safety Plan - Prepare & Submit	0	14-Jan-11 A	20-Jan-11																		
2200011	Site Safety Plan - Engineer Review & Comment	0	21-Jan-11 A	17-Feb-11																		
2200013	Site Safety Plan - Engineer 2nd Review & Comment	14	26-Mar-11	08-Apr-11																		
2200014	Site Safety Plan - Final Submission	7	09-Apr-11	15-Apr-11																		
2200015	Site Safety Plan - Engineer Approval	14	16-Apr-11	29-Apr-11																		
2200020	Environmental Management Plan - Prepare & Submit	0	14-Jan-11 A	20-Jan-11																		
2200021	Environmental Management Plan - Engineer Review & Comment	5	21-Jan-11 A	25-Feb-11																		
2200022	Environmental Management Plan - Resubmission	28	26-Feb-11	25-Mar-11																		
2200023	Environmental Management Plan - Engineer Approval	28	26-Mar-11	22-Apr-11																		
2200030	Initial Works Programme Preparation	0	20-Jan-11 A	21-Jan-11																		
2200031	Initial Works Programme - Review & Comment by ER	0	24-Jan-11 A	09-Feb-11																		
2200033	Initial Works Programme - Approval from ER	28	22-Mar-11	18-Apr-11																		
2200041	Detailed Works Programme Preparation	60	19-Apr-11	17-Jun-11																		
2200060	Concrete Ready Mix/Design Mix - Submission	14	02-May-11*	15-May-11																		
2200061	Concrete Ready Mix/Design Mix - ER Review & Comment	14	16-May-11	29-May-11																		
2200070	D-Wall Construction Materials - Submission	21	02-May-11	22-May-11																		
2200080	Bored Piles/H-piles Materials - Submission	28	10-May-11	06-Jun-11																		
2200100	Temp. Drainage management Plan - Submission	28	20-Apr-11	17-May-11																		
2200110	Temp. Drainage management Plan - ER Review & Comment	28	18-May-11	14-Jun-11																		
2.3 - Method Statement / Shop Drawings																						
2300010	MS Preparation for Independent Hydrographic Survey (IHS)	0	27-Jan-11 A	02-Feb-11																		
2300011	MS for IHS - Review & Comment by ER	0	03-Feb-11 A	16-Feb-11																		
2300012	Revise MS for IHS	0	17-Feb-11 A	19-Feb-11																		
2300013	MS for IHS - Approval from ER	6	21-Feb-11	26-Feb-11																		
2300020	MS Marine Pre-drill Platform - Prepare & Submit	19	21-Feb-11	11-Mar-11																		
2300021	MS Marine Pre-drill Platform - Engineer Review & Comment	7	12-Mar-11	18-Mar-11																		
2300022	MS Marine Pre-drill Platform - Resubmission	10	19-Mar-11	28-Mar-11																		
2300023	MS Marine Pre-drill Platform - Engineer Approval	7	29-Mar-11	04-Apr-11																		
2.4 - Contractor's Design and Build Items																						

- Actual Work
- Remaining Work
- Milestone

Contract HY/2009/19

Three Month Rolling Programme (21 Feb - 20 May 2011)

3MRP

3MRP - Feb 2011 to Mar 2011

Page 1 of 2

Activity ID	Activity Name	Rem Dur	Start	Finish	2011																
					February					March					April					May	
					23	30	06	13	20	27	06	13	20	27	03	10	17	24	01	08	15
2400010	Marine Pre-drilling Platform Design - Prep & Submit	36	21-Feb-11	28-Mar-11	Marine Pre-drilling Platform Design - Prep & Submit																
2400011	Marine Pre-drilling Platform Design - ER review & comment	7	29-Mar-11	04-Apr-11	Marine Pre-drilling Platform Design - ER review & comment																
2400012	Marine Pre-drilling Platform Design - Resubmission	7	02-Apr-11	08-Apr-11	Marine Pre-drilling Platform Design - Resubmission																
2400013	Marine Pre-drilling Platform Design - ER Approval	9	09-Apr-11	17-Apr-11	Marine Pre-drilling Platform Design - ER App																
3 - CONSTRUCTION WORKS																					
3.1 - Site Set-up																					
3.1.1 - General																					
3010010	Site mobilization - Contractor's Temporary Office	25	20-Jan-11 A	21-Mar-11	Site mobilization - Contractor's Temporary Office																
3010015	Site mobilization - Initial Surveys & Photographs	0	20-Jan-11 A	20-Feb-11	Site mobilization - Initial Surveys & Photographs																
3010020	Site mobilization - Engineer's Equipment & Services	25	20-Jan-11 A	21-Mar-11	Site mobilization - Engineer's Equipment & Services																
3010025	Site mobilization - Contractor's Staff & Equipments	25	20-Jan-11 A	21-Mar-11	Site mobilization - Contractor's Staff & Equipments																
3010120	Independent hydrographic survey	12	21-Feb-11	05-Mar-11	Independent hydrographic survey																
3.9 - Section X Works																					
3.9.1 - Bridge - Eastbound - Pier F3-F15																					
3910010	Mobilization of Crane Barge & Self Propelled Derick	3	24-Mar-11	26-Mar-11	Mobilization of Crane Barge & Self Propelled Derick																
3910011	Pre-drilling Platform Material Delivery	3	28-Mar-11	30-Mar-11	Pre-drilling Platform Material Delivery																
3910020	Marine pre-drilling platform - Type 3 Deck Fabrication (2 nos.)	12	31-Mar-11	14-Apr-11	Marine pre-drilling platform - Type 3 Deck Fabrica																
3910022	Marine pre-drilling platform - Type 2 Deck Fabrication	9	15-Apr-11	27-Apr-11	Marine pre-drilling platform - T																
3910024	Marine pre-drilling platform - Type 1 Deck Fabrication	9	28-Apr-11	07-May-11	Marine pre-drillin																
3910026	Marine pre-drilling platform - Drive H-pile for F6 & F3 Caps	12	15-Apr-11	30-Apr-11	Marine pre-drilling platform																
3910030	Marine pre-drilling platform - Install Type 3 Deck at F9	12	15-Apr-11	30-Apr-11	Marine pre-drilling platform																
3910035	Marine pre-drilling platform - Install Type 3 Deck at F12	9	02-May-11	11-May-11	Marine pre																
3910040	Marine pre-drilling platform - Install Type 2 Deck at F6	9	12-May-11	21-May-11																	
3910055	Mobilise & Set-up for Marine Pre-drilling	5	12-May-11	17-May-11	M																
3910060	Marine bored pile - Predrilling at F9 Cap (2 of 2)	12	18-May-11	31-May-11																	
3910070	Marine bored pile - Predrilling at F9 Dolphin (2 of 6)	12	18-May-11	31-May-11																	

- Actual Work
- Remaining Work
- Milestone

Contract HY/2009/19

Three Month Rolling Programme (21 Feb - 20 May 2011)

3MRP

3MRP - Feb 2011 to Mar 2011

Page 2 of 2

Activity ID	Activity Name	Rem Dur	Start	Finish	2011																
					March					April				May				June			
					27	06	13	20	27	03	10	17	24	01	08	15	22	29	05	12	19
HY/2009/19 - IWP Status (02) 20 MAR 2011																					
3 - CONSTRUCTION WORKS																					
3.9 - Section X Works																					
3.9.1 - Bridge - Eastbound - Pier F3-F15																					
S08_BRE_080010	Set-up for Marine Work (site possession 20Jan11)	6	24-Mar-11	31-Mar-11																	
S08_BRE_080200	Erect platform for marine predrilling (F3-F14) (12 no) (2 set)	81	31-Mar-11	09-Jul-11																	
S08_BRE_080400	Pre-drilling for 108 nos. Marine Piling (F3-F14) at VI (4set)	81	18-May-11	23-Aug-11																	

Actual Work
 Remaining Work
 Milestone

Contract HY/2009/19
Three Month Rolling Programme (20 Mar - 20 Jun 2011)