



Lam Geotechnics Limited

Contract No. HY/2019/18
Wan Chai Development Phase II and Central Wanchai Bypass
- Sampling, Field Measurement and Testing Works (Stage 4)
Quarterly EM&A Report (May 2022 – Jul 2022)

CONTRACT NO: HY/2019/18
WANCHAI DEVELOPMENT PHASE II AND CENTRAL
WANCHAI BYPASS
SAMPLING, FIELD MEASUREMENT AND TESTING WORK
(STAGE 4)

ENVIRONMENTAL PERMIT NO. EP-376/2009,

QUARTERLY ENVIRONMENTAL MONITORING
AND AUDIT REPORT

- MAY 2022 TO JULY 2022 -

CLIENTS:

**Civil Engineering and Development
Department**

PREPARED BY:

Lam Geotechnics Limited

Telephone: (852) 2882-3939
Facsimile: (852) 2882-3331
E-mail: info@lamenviro.com
Website: <http://www.lamenviro.com>

CHECKED BY:

Raymond Dai
Environmental Team Leader

DATE:

13 September 2022

13 September 2022

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

By Post and Fax (2691 2649)

Attention: Mr. Conrad Ng

Dear Mr. Ng,

**Re: Wan Chai Development Phase II and Central-Wan Chai Bypass
Quarterly Environmental Monitoring and Audit Report (May 2022 to
July 2022) for EP-376/2009**

Reference is made to the Environmental Team's submission of the captioned Quarterly Environmental Monitoring and Audit (EM&A) Report received by email on 13 September 2022 for our review and comment.

Please be informed that we have no adverse comment on the captioned submission.

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

Yours sincerely,



David Yeung
Independent Environmental Checker

c.c.	CEDD	Attn: Mr. Jimmy Ling	by fax: 2301 1277
	AECOM	Attn: Mr. S. K. Lo	by fax: 2587 1877
	AECOM	Attn: Mr. Francis Leong/ Stephen Lai	by fax: 2691 2649
	Lam	Attn: Mr. Raymond Dai	by fax: 2882 3331



TABLE OF CONTENTS

EXECUTIVE SUMMARY..... 3

1. INTRODUCTION..... 4

 1.1 Scope of the Report 4

 1.2 Structure of the Report..... 4

2. PROJECT BACKGROUND..... 5

 2.1 Background 5

 2.2 Scope of the Project and Site Description 5

 2.3 Project Organization and Contact Personnel..... 6

3. MONITORING REQUIREMENTS 7

 3.1. Noise Monitoring 7

 3.2. Air Quality Monitoring..... 8

4. MONITORING RESULTS..... 10

 4.1. Noise Monitoring Results 10

 4.2. Air Quality Monitoring Results..... 10

5. COMPLIANCE AUDIT 12

 5.1. Noise Monitoring 12

 5.2. Air Quality Monitoring..... 12

 5.3. Site Audit..... 12

 5.4. Review of the Reasons for and the Implications of Non-compliance..... 12

 5.5. Summary of action taken in the event of and follow-up on non-compliance 12

6. COMPLAINTS, NOTIFICATION OF SUMMONS AND PROSECUTION..... 13

7. CUMULATIVE CONSTRUCTION IMPACT DUE TO THE CONCURRENT PROJECTS..... 14

8. CONCLUSION 15

LIST OF TABLES

Table 1	<i>Principal Work Activities in the reporting period</i>
Table 2.1	<i>Schedule 2 Designated Projects under this Project</i>
Table 2.2	<i>Contact Details of Key Personnel</i>
Table 3.1	<i>Noise Monitoring Stations</i>
Table 3.2	<i>Air Monitoring Stations</i>
Table 4.1	<i>Noise Monitoring Stations for Contract no. HK/2012/08</i>
Table 4.2	<i>Air Monitoring Station for Contract no. HK/2012/08</i>
Table 4.3	<i>Details of Waste Disposal for Contract no. HK/2012/08</i>
Table 6.1	<i>Cumulative Statistics on Complaints</i>
Table 6.2	<i>Cumulative Statistics on Successful Prosecutions</i>

LIST OF FIGURES

<u>Figure 2.1</u>	Project Layout
<u>Figure 2.2</u>	Project Organization Chart
<u>Figure 3.1</u>	Locations of Environmental Monitoring Stations and Sensitive Receivers

LIST OF APPENDICES

<u>Appendix 2.1</u>	Environmental Mitigation Implementation Schedule
<u>Appendix 3.1</u>	Action and Limit Level
<u>Appendix 5.1</u>	Event Action Plans
<u>Appendix 6.1</u>	Complaint Log

EXECUTIVE SUMMARY

This is the Quarterly Environmental Monitoring and Audit (EM&A) Report – [May 2022](#) to [July 2022](#) specific for Environmental Permit no. EP-376/2009. The EM&A report is prepared by the Environmental Team (ET) employed under Contract No. HY/2019/18 – Wan Chai Development Phase II and Central Wanchai Bypass – Sampling, Field Measurement and Testing Works (Stage 4). This report presents the environmental monitoring and audit findings and information during the period from [27th April 2022](#) to [26th July 2022](#). The cut-off date of reporting is at 26th of each reporting period

Noise Monitoring

- ii. Noise monitoring was conducted at M1a – Harbour Road Sports Centre.
- iii. With respect to the shift in major construction site portions at Wan Chai North, the noise monitoring station M1a – Harbour Road Sports Centre was finely adjusted from East of Harbour Road Sports Centre to West of Harbour Road Sports Centre on 21 June 2016.
- iv. With respect to the demolition of Ex-Harbour Road Sports Centre, the respective noise monitoring station M1a – Harbour Road Sports Centre were finely adjusted on 16 and 25 May 2017 and thereafter to the Footbridge for Harbour Road Sports for noise monitoring.
- v. With respect to WDII RSS confirmed that the remaining works under HK/2012/08 would be tree planting works at EP-376/2009 area only, considered that no adverse noise impact would be contributed by the tree planting works, the respective noise monitoring at noise monitoring station M1a - Footbridge at EX-Wanchai Harbour Road Sports Centre was temporary suspended from 27 March 2019 onwards.

Air Quality Monitoring

- vi. 1-hour and 24-hour Total Suspended Particulates (TSP) monitoring were conducted on every six days basis at CMA5b - Pedestrian Plaza and CMA6a – Contractor HK/2012/08 Site Office.
- vii. With respect to WDII RSS confirmed that the remaining works under HK/2012/08 would be tree planting works at EP-376/2009 area only, considered that no adverse air quality impact would be contributed by the tree planting works, the respective air quality monitoring at monitoring stations CMA5b – Pedestrian Plaza and CMA6a – Contractor HK/2012/08 Site Office, were temporary suspended from 27 March 2019 onwards.

Complaints, Notifications of Summons and Successful Prosecutions

- viii. [There was no environmental complaint recorded in this reporting quarter.](#)

1. INTRODUCTION

1.1 Scope of the Report

1.1.1. Lam Geotechnics Limited (LGL) has been appointed take up the role as the Environmental Team (ET) under Environmental Permit no. EP-376/2009 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).

This report documents the finding of EM&A works for Environmental Permit (EP) no. EP-376/2009, during the period [27th April 2022](#) to [26th July 2022](#). The cut-off date of reporting is the 26th of each reporting period.

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 ***Monitoring Requirements*** – summarizes all monitoring parameters, monitoring locations, monitoring frequency, duration and action plan.

Section 4 ***Monitoring Results*** – summarizes the monitoring results obtained in the reporting period.

Section 5 ***Compliance Audit*** – summarizes the auditing of monitoring results, all exceedances environmental parameters.

Section 6 ***Complaints, Notification of summons and Prosecution*** – summarizes the cumulative statistics on complaints, notification of summons and prosecution

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 ***Conclusion***

2. PROJECT BACKGROUND

2.1 Background

2.1.1 Wan Chai Development phase II and Central-Wan Chai Bypass (hereafter called “the Project”) are Designated Project (DP) under the Environmental Impact Assessment Ordinance (Cap. 499) (EIAO). The Environmental Impact Assessment (EIA) Report for Wan Chai Development phase II and Central-Wan Chai Bypass (Register No.: AEIAR-125/2008) has been approved on 11 December 2008.

2.2 Scope of the Project and Site Description

2.2.1. The design and construction of Wan Chai Development Phase II and Central Wanchai Bypass involves the construction and operation of primary and district distributor roads that is shown at [Figure 2.1](#).

2.2.2. The key purpose of the study area encompasses the Wan Chai harbourfront area. The area starts at the boundary of Central Reclamation Phase III (CRIII) at the west and connects to the existing Hung Hing Road at the east. The scope of the project includes:

- A dual 2-lane primary distributor road, Road P2, approximately 0.6km in length; and
- Other new primary and district distributor roads connecting to the slip roads of the Central-Wan Chai Bypass with a total length of approximately 0.7km.

2.2.3. The project also contains various Schedule 2 DP 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 DP under this Project. [Figure 2.1](#) shows the locations of these Schedule 2 DP.

Table 2.1 Schedule 2 Designated Project under this Project

Item	Designated Project	EIAO Reference
DP2	Road P2 and other roads which are classified as primary/district distributor roads	Schedule 2, Part I, A.1

2.2.4. The designated project work II (DP2) was awarded to China State-Build King Joint Venture HK/2012/08 – Wan Chai Development Phase II Central – Wan Chai Bypass at Wan Chai West as part of the Project works by the Civil Engineering and Development Department (CEDD). The construction work under EP-376/2009 by Contract no. HK/2012/08 was commenced on 13 May 2015.

2.3 Project Organization and Contact Personnel

2.3.1 Civil Engineering and Development Department and Highway 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.

2.3.2 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 2.2**:

Table 2.2 Contact Details of Key Personnel

Party	Role	Post	Name	Contact No.	Contact Fax
AECOM	Engineer’s Representative for WDII	Senior Resident Engineer	Mr. S.K. Lo	3519 9033	2587 1877
Ramboll Hong Kong Limited	Independent Environmental Checker (IEC)	Independent Environmental Checker (IEC)	Mr. David Yeung	3465 2888	3465 2899
Lam Geotechnics Limited	Environmental Team (ET)	Environmental Team Leader (ETL)	Mr. Raymond Dai	2882 3939	2882 3331

3. MONITORING REQUIREMENTS

3.1. Noise Monitoring

NOISE MONITORING STATION

3.1.1. The noise monitoring station for the Project is listed and shown in **Table 3.1** and **Figure 3.1**. [Appendix 3.1](#) shows the established Action/Limit Levels for the monitoring works.

Table 3.1 Noise Monitoring Station

District	Station	Description
Wan Chai	M1a	Footbridge for Ex-Harbour Road Sports Centre

NOISE MONITORING PARAMETERS, FREQUENCY AND DURATION

3.1.2. 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 L10 and L90 shall also be obtained for reference.

3.1.3. 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.

MONITORING EQUIPMENT

3.1.4. 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 agrees to within 1.0 dB.

3.1.5. 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.

3.2. Air Quality Monitoring

AIR QUALITY MONITORING STATIONS

3.2.1. The air monitoring stations for the Project are listed and shown in **Table 3.2** and **Figure 3.1**. **Appendix 3.1** shows the established Action/Limit Levels for the monitoring works.

Table 3.2 Air Quality Monitoring Stations

Station ID	Monitoring Location
CMA5b	Pedestrian Plaza
CMA6a	WDII PRE Site Office

AIR MONITORING PARAMETERS, FREQUENCY AND DURATION

3.2.2. 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.

3.2.3. 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.

3.2.4. 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

3.2.5. 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.

3.2.6. 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

3.2.7. 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.

3.2.8. Filter paper of size 8" x 10" shall be labelled 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.

3.2.9. 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.

3.2.10. All the collected samples shall be kept in a good condition for 6 months before disposal.

4. MONITORING RESULTS

4.0.1. Overall layout showing work areas of various contracts, latest status of work commencement and monitoring stations is shown in **Figure 2.1** and **Figure 3.1**

4.1. Noise Monitoring Results

4.1.1 Noise monitoring for project works under EP-376/2009 was commenced on 19 May 2015.

4.1.2 The proposed division of noise monitoring station is summarized in **Table 4.1** below.

Table 4.1 Noise Monitoring Station for Contract no. HK/2012/08

Location ID	District	Description
M1a	Wan Chai	Footbridge for Ex-Harbour Road Sports Centre

4.1.3 With respect to WDII RSS confirmed that the remaining works under HK/2012/08 would be tree planting works at EP-376/2009 area only, considered that no adverse noise impact would be contributed by the tree planting works, the respective noise monitoring at noise monitoring station M1a - Footbridge at EX-Wanchai Harbour Road Sports Centre was temporary suspended from 27 March 2019 onwards.

4.1.4 The noise monitoring results measured in this reporting period are reviewed and summarized. Details of continuous noise monitoring results and graphical presentation can be referred to **Appendix 4.1**

4.2. Air Quality Monitoring Results

4.2.1 Air Quality monitoring for project works under EP-376/2009 was commenced on 16 May 2015.

4.2.2 The proposed division of air quality monitoring stations are summarized in **Table 4.2** below.

Table 4.2 Air Quality Monitoring Station for Contract no. HK/2012/08

Station	Description
CMA5b	Pedestrian Plaza
CMA6a	WDII PRE Site Office

4.2.3 With respect to WDII RSS confirmed that the remaining works under HK/2012/08 would be tree planting works at EP-376/2009 area only, considered that no adverse air quality impact would be contributed by the tree planting works, the respective air quality monitoring at air



quality monitoring stations CMA5b – Pedestrian Plaza and CMA6a – Contractor HK/2012/08 Site Office were temporary suspended from 27 March 2019 onwards.

5. COMPLIANCE AUDIT

5.0.1. The Event Action Plan for construction noise and air quality are presented in [Appendix 5.1](#).

5.1. Noise Monitoring

5.1.1 With respect to WDII RSS confirmed that the remaining works under HK/2012/08 would be tree planting works at EP-376/2009 area only, considered that no adverse noise impact would be contributed by the tree planting works, the respective noise monitoring at noise monitoring station M1a - Footbridge at EX-Wanchai Harbour Road Sports Centre was temporary suspended from 27 March 2019 onwards.

5.2. Air Quality Monitoring

5.2.1 With respect to WDII RSS confirmed that the remaining works under HK/2012/08 would be tree planting works at EP-376/2009 area only, considered that no adverse air quality impact would likely be contributed by the tree planting works, the respective air quality monitoring at air quality monitoring stations CMA5b – Pedestrian Plaza and CMA6a – Contractor HK/2012/08 Site Office were temporary suspended from 27 March 2019 onwards.

5.3. Site Audit

5.3.1 As WDII RSS confirmation of construction works completion on 1 April 2020 and agreed with IEC on 3 April 2020, the weekly environmental site inspection for Contract no.HK/2012/08 under EP-376/2009 was suspended from 3 April 2020 onward.

5.4. Review of the Reasons for and the Implications of Non-compliance

5.4.1 As WDII RSS confirmation of construction works completion on 1 April 2020 and agreed with IEC on 3 April 2020, the weekly environmental site inspection for Contract no.HK/2012/08 under EP-376/2009 was suspended from 3 April 2020 onward.

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

5.5.1 As WDII RSS confirmation of construction works completion on 1 April 2020 and agreed with IEC on 3 April 2020, the weekly environmental site inspection for Contract no.HK/2012/08 under EP-376/2009 was suspended from 3 April 2020 onward.

6. COMPLAINTS, NOTIFICATION OF SUMMONS AND PROSECUTION

- 6.0.1. No environmental complaint received in this reporting quarter.
- 6.0.2. The details of cumulative complaint log and summary of complaints are presented in [Appendix 6.1](#).
- 6.0.3. No notification of summons or prosecution was received in the reporting period. Cumulative statistic on complaints and successful prosecutions are summarized in **Table 6.1** and **Table 6.2** respectively.

Table 6.1 Cumulative Statistics on Complaints

Reporting Period	No. of Complaints
Commencement works (May 2015) to last reporting quarter	0
May 2022 to July 2022	0
Project-to-Date	0

Table 6.2 Cumulative Statistics on Successful Prosecutions

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

7. CUMULATIVE CONSTRUCTION IMPACT DUE TO THE CONCURRENT PROJECTS

- 7.0.1. According to the Condition 3.4 of the EP-376/2009, 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), Island Eastern Corridor Link projects (IECL) and Wan Chai Development Phase II – Central – Wan Chai Bypass at Wan Chai East (CWB Tunnel).
- 7.0.2. According to the Final EM&A report of Central Reclamation Phase III (CRIII) for Contract HK 12/02, the major construction activities were completed by end of January 2014 and no construction activities were undertaken thereafter and the water quality monitoring was completed in October 2011. As such, it is considered that there were no cumulative construction impact due to the concurrent activities of the current projects with the Central Reclamation Phase III (CRIII) undertaken by contractor HK12/02 in the reporting period.
- 7.0.3. According to the Final EM&A Reports of EP-122/2002/E, EP-356/2009, FEP-01/356/2009, FEP-02/356/2009, FEP-03/356/2009, FEP-04/356/2009, FEP-05/356/2009, FEP-06/356/2009, FEP-07/356/2009 and FEP-08/356/2009, the construction works at these areas of the above EPs and FEPs were completed. In view of the above, the cumulative construction impact due to the Central Reclamation Phase III (CRIII), Wan Chai Development Phase II (WDII) and Central-Wan Chai Bypass was not anticipated.
- 7.0.4. The major construction activities under Central-Wan Chai Bypass and Island Eastern Corridor Link Projects were installation of green roof irrigation system, lightning protection system for noise enclosure and additional lighting at open area in the reporting period. In addition, other non-Wan Chai Development Phase II, Central-Wan Chai Bypass and Island Eastern Corridor Link projects were observed undertaken at Wan Chai North and North Point area.
- 7.0.5. As relevant site mitigation measures for air quality and construction noise were implemented, no significant air quality impact and noise impact from construction activities was concluded in the reporting period. Besides, no construction work was conducted at EP-376 area in the reporting period. Thus, it is evaluated that the cumulative construction impact from the concurrent projects including Wan Chai Development Phase II (WDII), Central- WanChai Bypass (CWB), Island Eastern Corridor Link projects (IECL) was insignificant.



8. CONCLUSION

- 8.0.1. 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.

- 8.0.2. No non-compliance and no prosecutions were received during the reporting period.



Figure 2.1

Project Layout



Figure 2.2

Project Organization Chart



Project Organization Chart

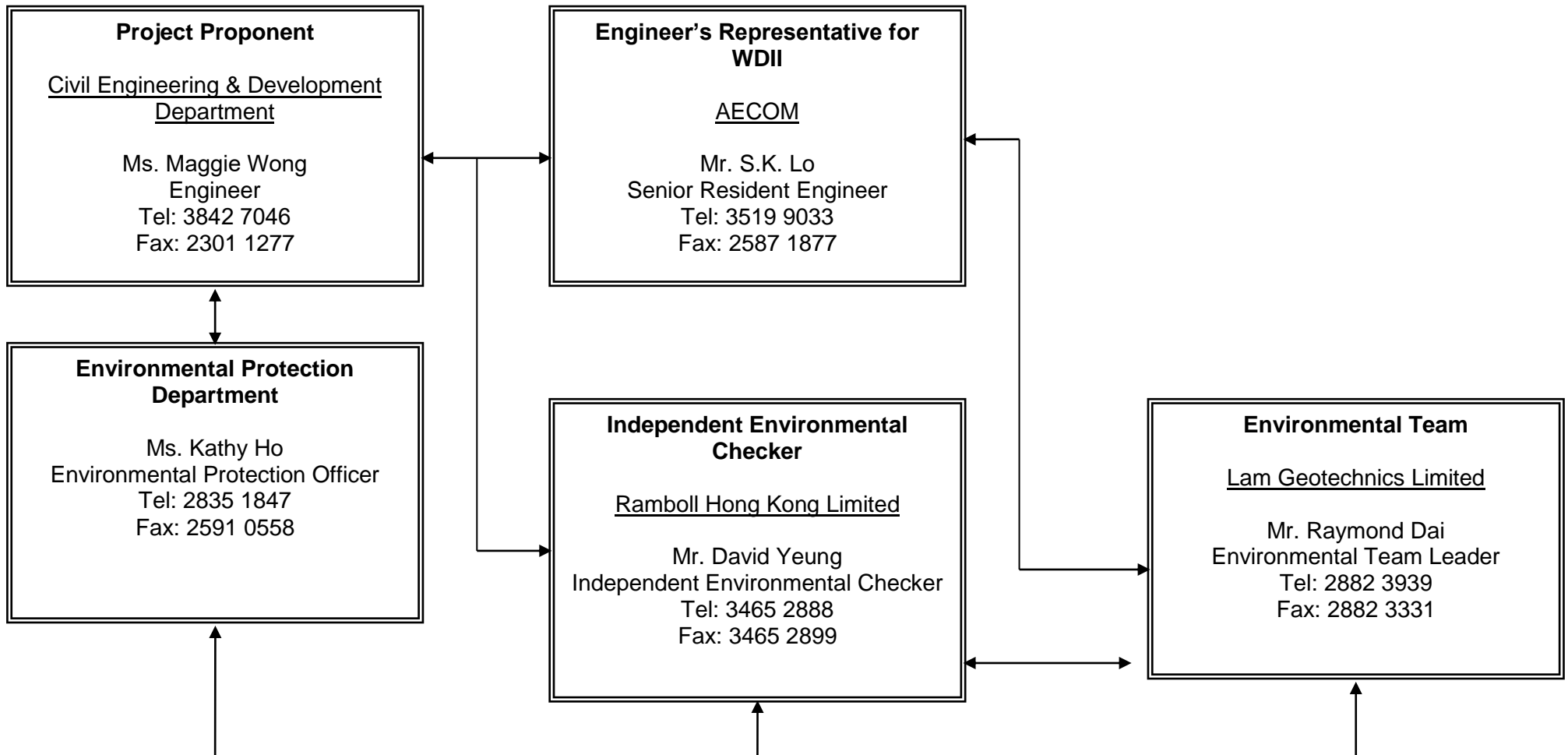


Figure 2.2



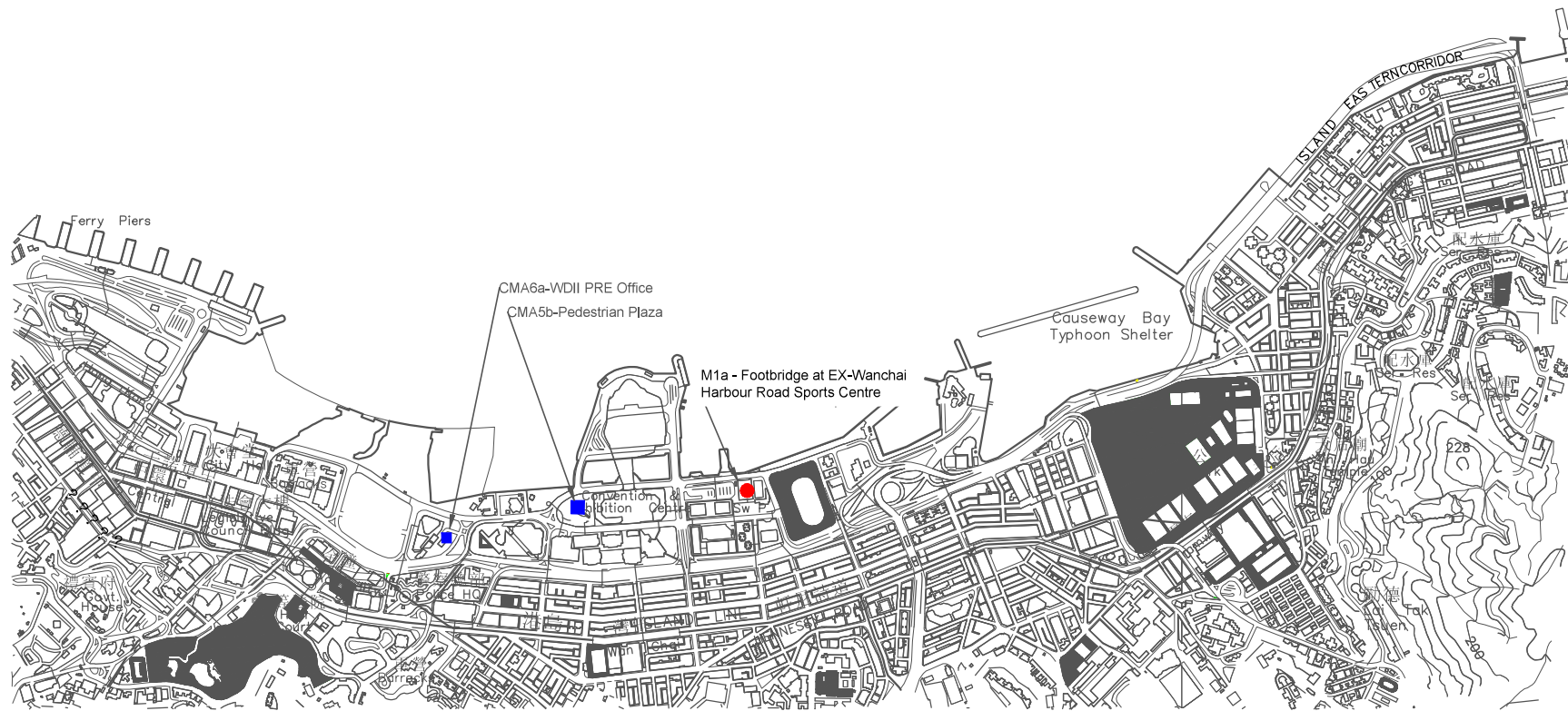
Figure 3.1

Locations of Environmental Monitoring Stations and Sensitive Recievers

Legend

● Noise Monitoring Station

■ Air Monitoring Station



LOCATIONS OF AIR QUALITY AND NOISE MONITORING STATIONS



Appendix 2.1

Environmental Mitigation Implementation Schedule

Appendix A

Table A13.1 Implementation Schedule for Air Quality Control

Table A13.2 Implementation Schedule for Noise Control

Table A13.3 Implementation Schedule for Water Quality Control

Table A13.4 Implementation Schedule for Waste Management

Table A13.7 Implementation Schedule for Landscape and Visual

IMPLEMENTATION SCHEDULE OF THE PROPOSED MITIGATION MEASURES

Table A13.1 Implementation Schedule for Air Quality Control

EIA Ref	Environmental Protection Measures / Mitigation Measures	Location / Timing	Implementation Agent	Implementation Status	Relevant Legislation and Guidelines
Construction Phase					
<i>For the Whole Project</i>					
S3.6.5	Four times a day watering of the work site with active operations.	Work site / during construction	Contractor	Implemented during Construction Stage	EIAO-TM
S3.8.1	<p>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.</p> <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	Implemented during Construction Stage	

Table A13.2 Implementation Schedule for Noise Control

EIA Ref	Environmental Protection Measures / Mitigation Measures	Location / Timing	Implementation Agent	Implementation Status	Relevant Legislation and Guidelines
Construction Phase					
<i>For the Whole Project</i>					
S4.9.4	Good Site Practice: <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 onsite construction activities. 	Work site / during construction	Contractor	Implemented during Construction Stage	EIAO-TM, NCO
<i>For DP2 – WDII Major Roads (Road P2)</i>					
S4.8.3 – S4.8.4	Use of quiet powered mechanical equipment, movable noise barrier and temporary noise barrier for the following tasks: <ul style="list-style-type: none"> ▪ Temporary road diversion ▪ Resurfacing ▪ At-grade roadwork 	Work site / during construction	Contractor	Implemented during Construction Stage	EIAO-TM, NCO

Table A13.3 Implementation Schedule for Water Quality Control

EIA Ref	Environmental Protection Measures / Mitigation Measures	Location / Timing	Implementation Agent	Implementation Status	Relevant Legislation and Guidelines
Construction Phase					
<i>For the Whole Project</i>					
S5.8	<p><i>Construction Runoff and Drainage</i></p> <ul style="list-style-type: none"> ▪ use of sediment traps, wheel washing facilities for vehicles leaving the site, and adequate maintenance of drainage systems to prevent flooding and overflow; ▪ Permanent drainage channels shall incorporate sediment basins or traps and baffles to enhance deposition rates. The design of efficient silt removal facilities shall be based on the guidelines in Appendix A1 of ProPECC PN 1/94; ▪ a sediment tank constructed from pre-formed individual cells of approximately 6 - 8 m3 capacity can be used for settling ground water prior to disposal; ▪ Oil interceptors shall be provided in the drainage system for the tunnels and regularly cleaned to prevent the release of oils and grease into the storm water drainage system after accidental spillages. The interceptor shall have a bypass to prevent flushing during periods of heavy rain; precautions and actions to be taken when a rainstorm is imminent or forecast, and during or after rainstorms. Particular attention shall be paid to the control of any silty surface runoff during storm events; ▪ On-site drainage system shall be installed prior to the commencement of other construction activities. Sediment traps shall be 	Work site / during construction	Contractor	Implemented during Construction Stage	ProPECC PN 1/94; WPCO (TM-DSS)

	<p>installed in order to minimise the sediment loading of the effluent prior to discharge;</p> <ul style="list-style-type: none"> ▪ All temporary and permanent drainage pipes and culverts provided to facilitate runoff discharge shall be adequately designed for the controlled release of storm flows. All sediment control measures shall be regularly inspected and maintained to ensure proper and efficient operation at all times and particularly following rain storms. ▪ The temporarily diverted drainage shall be reinstated to its original condition when the construction work is finished or the temporary diversion is no longer required. ▪ All fuel tanks and store areas shall be provided with locks and be sited on sealed areas, within bunds of a capacity equal to 110% of the storage capacity. ▪ Minimum distances of 100 m shall be maintained between the storm water discharges and the existing or planned WSD flushing water intakes during construction phase. 				
S5.8	<p><i>Sewage from Construction Work Force</i> Construction work force sewage discharges on site shall be connected to the existing trunk sewer or sewage treatment facilities. The construction sewage shall be handled by portable chemical toilets prior to the commission of the on-site sewer system. Appropriate numbers of portable toilets shall be provided by a licensed contractor to serve the large number of construction workers over the construction site. The Contractor shall also be responsible for waste disposal and maintenance practices.</p>	Work site / during construction	Contractor	Implemented during Construction Stage	ProPECC PN 1/94; WPCO (TM-DSS)

S5.8	<i>Floating Debris and Refuse</i> Collection and removal of floating refuse shall be performed at regular intervals on a daily basis. The contractor shall be responsible for keeping the water within the site boundary and the neighbouring water free from rubbish.	Work site and adjacent water / During the construction period.	Contractor	Implemented during Construction Stage	WPCO
S5.8	<i>Storm Water Discharges</i> Minimum distances of 100 m shall be maintained between the existing or planned stormwater discharges and the existing or planned WSD flushing water intakes.	Work site and adjacent water / During the design and construction period.	Contractor	Implemented during Construction Stage	WPCO

Table A13.4 Implementation Schedule for Waste Management

EIA Ref	Environmental Protection Measures / Mitigation Measures	Location / Timing	Implementation Agent	Implementation Status	Relevant Legislation and Guidelines
Construction Phase					
<i>For the Whole Project</i>					
S6.7.7	<p><i>Good Site Practices</i> Recommendations for good site practices during the construction activities include:</p> <ul style="list-style-type: none"> ▪ nomination of an approved person, such as a site manager, to be responsible for good site practices, arrangements for collection and effective disposal to an appropriate facility, of all wastes generated at the site; ▪ training of site personnel in proper waste management and chemical 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 planning and design stage, and construction stage	Contractor	Implemented during Construction Stage	
S.6.7.8	<p><i>Waste Reduction Measures</i> Recommendations to achieve waste reduction include:</p> <ul style="list-style-type: none"> • Sort C&D waste from demolition of the existing waterfront structures to recover recyclable portions such as metals. 	Work site / During planning and design stage, and construction stage	Contractor	Implemented during Construction Stage	

	<ul style="list-style-type: none"> • Segregation and storage of different types of waste in different containers, skips or stockpiles to enhance reuse or recycling of materials and their proper disposal. • Encourage collection of aluminium cans, PET bottles and paper by providing separate labelled bins to enable these wastes to be segregated 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. • Proper storage and site practices to minimise the potential for damage or contamination of construction materials. • Plan and stock construction materials carefully to minimise amount of waste generated and avoid unnecessary generation of waste. 				
<p>S6.7.10</p>	<p><i>General Refuse</i> 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>	<p>Work site / During the construction period</p>	<p>Contractor</p>	<p>Implemented during Construction Stage</p>	<p>Public Health and Municipal Services Ordinance (Cap. 132)</p>

S6.7.11	<p><i>Chemical Wastes</i> 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	Implemented during Construction Stage	Waste Disposal (Chemical Waste) (General) Regulation Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes
S6.7.12 – S6.7.13	<p><i>Construction and Demolition Material</i> 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> <p>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.</p>	Work site / During the construction period	Contractor and Independent Environmental Checker	Implemented during Construction Stage	DEVB TCW No.6/2010; ETWB TCW No. 33/2002; ETWB TCW No. 19/2005
S6.7.14	<p><i>Bentonite Slurry</i> The disposal of residual used bentonite slurry shall follow the good practice guidelines stated</p>	Work site / During the construction period	Contractor	Implemented during Construction Stage	ProPECC PN 1/94

	<p>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. 				
--	---	--	--	--	--

Table A13.7 Implementation Schedule for Landscape and Visual

EIA Ref	Environmental Protection Measures / Mitigation Measures	Location / Timing	Implementation Agent	Implementation Status	Relevant Legislation and Guidelines
Construction Phase					
<i>For the Whole Project</i>					
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	Implemented during Construction Stage	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	Implemented during Construction Stage	EIAO TM
Table 10.5	CM3 Trees unavoidably affected by the works shall be transplanted where practical.	Work site / During Construction Phase	Contractor	Implemented during Construction Stage	EIAO TM
Table 10.5	CM4 Compensatory tree planting shall be provided to compensate for felled trees.	Work site / During Construction Phase	Contractor	Implemented during Construction Stage	EIAO TM
Table 10.5	CM5 Control of night-time lighting.	Work site / During Construction Phase	Contractor	Implemented during Construction Stage	EIAO TM
Table 10.5	CM6 Erection of decorative screen hoarding compatible with the surrounding setting.	Work site / During Construction Phase	Contractor	Implemented during Construction Stage	EIAO TM
<i>For DP2 – WDII Major Roads (Road P2)</i>					
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	Implemented during Construction Stage	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	Implemented during Construction Stage	EIAO TM
Table 10.5	CM3 Trees unavoidably affected by the works shall be transplanted where practical.	Work site / During Construction Phase	Contractor	Implemented during Construction Stage	EIAO TM
Table 10.5	CM4 Compensatory tree planting shall be provided to compensate for felled trees.	Work site / During Construction Phase	Contractor	Implemented during Construction Stage	EIAO TM
Table 10.5	CM5 Control of night-time lighting.	Work site / During Construction Phase	Contractor	Implemented during Construction Stage	EIAO TM
Table 10.5	CM6 Erection of decorative screen hoarding compatible with the surrounding setting.	Work site / During Construction Phase	Contractor	Implemented during Construction Stage	EIAO TM

Operation Phase					
<i>For DP2 – WDII Major Roads (Road P2)</i>					
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	CEDD/HyD	To be implemented during Operation Stage	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	CEDD/HyD	To be implemented during Operation Stage	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	CEDD/HyD	To be implemented during Operation Stage	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	CEDD/HyD	To be implemented during Operation Stage	ETWB TCW 2/2004



Appendix 3.1

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)

*Notes: If works are to be carried out during restricted hours, the conditions stipulated in the Construction Noise Permit (CNP) issued by the Noise Control Authority have to be followed.
The Limit level shall be 70 dB(A) and 65 dB(A) for educational institute during normal teaching periods and school examination periods, respectively.

Action and Limit Level for Air Monitoring

Monitoring Locations	1-hour TSP Level in µg/m³		24-hour TSP Level in µg/m³	
	Action Level	Limit Level	Action Level	Limit Level
CMA5b Pedestrian Plaza	339.7	500	209.9	260
CMA6a WDII PRE Site Office	333.0	500	207.1	260



Appendix 5.1

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	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)	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)	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)	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 6.1

Complaint Log



Environmental Complaints Log

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