



CONTRACT NO: HK/2011/07

WANCHAI DEVELOPMENT PHASE II AND CENTRAL  
WANCHAI BYPASS  
SAMPLING, FIELD MEASUREMENT AND TESTING WORK  
(STAGE 2)

ENVIRONMENTAL PERMIT NO. EP-122/2002/D

MONTHLY ENVIRONMENTAL MONITORING & AUDIT REPORT

- DECEMBER 2013 -

**CLIENTS:**

Civil Engineering and Development  
Department

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**CERTIFIED BY:**

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Environmental Team Leader

**DATE:**

9 January 2014

Ref.: AACWBIECEM00\_0\_4789L.13

9 January 2014

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 Sir,

**Re: Wan Chai Development Phase II and Central-Wan Chai Bypass  
Monthly Environmental Monitoring and Audit Report (December 2013) for  
EP-122/2002/D**

Reference is made to the Environmental Team's submission of the captioned Monthly Environmental Monitoring and Audit (EM&A) Report for December 2013 received by email on 9 January 2014.

Please be informed that we have no adverse comment on the captioned submission. We write to verify the captioned submission in accordance with Condition 4.6 in the captioned Environmental Permit.

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.	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 – December 2013 specific for Environmental Permit no. EP-122/2002/D. The EM&A report is prepared by the Environmental Team (ET) employed under Contract No. HK/2011/07 – Wan Chai Development Phase II and Central Wanchai Bypass – Sampling, Field Measurement and Testing Works (Stage 2). This report presents the environmental monitoring findings and information recorded during the period of December 2013. The cut-off date of reporting is the last day of each reporting month.
- ii. In the reporting month, the principal work activities of the contract are included as follows:  
Contract no. HK/2012/08 – Wan Chai Development Phase II – Central- Wan Chai Bypass at Wan Chai West
  - Site preparation works
  - Site survey
  - Temporary works
  - Concrete breaking
  - Stockpiling of fill materials
  - Culvert K diversion

### Noise Monitoring

- iii. Continuous noise monitoring was conducted at ACL3 – City Hall.
- iv. There were three limit level exceedances recorded on 10, 23 and 27 December 2013 during daytime in the reporting month. The exceedances were concluded as not project-related.
- v. Due to safety concerned, the location of the continuous noise monitoring station at City Hall was finely adjusted to the roof of the City Hall, Low Block on 1 May 2013.

### Air Quality Monitoring

- vi. 1-hour and 24-hour Total Suspended Particulates (TSP) monitoring were conducted on every six days basis at ACL1 – City Hall and ACL2a – Contractor HK/2012/08 Site Office.
- vii. Due to the large scale renovation works at People's Liberation Army Headquarter, a Proposal for Relocation of Air Quality Monitoring Station at People's Liberation Army Headquarter (ACL2) was formally submitted to EPD on 4<sup>th</sup> November, 2013.
- viii. Air Quality Monitoring at ACL2 was temporarily suspended during the period from 14<sup>th</sup> November, 2013 to 3<sup>rd</sup> December, 2013.
- ix. The Proposal for Relocation of Air Quality Monitoring Station at People's Liberation Army Headquarter (ACL2) was approved by EPD on 27 November 2013.

- x. According to the approved proposal for relocation of Air Quality Monitoring station, the action and limit levels of ACL2a shall adopt the reference monitoring result from the baseline air monitoring report for EP/364/2009 in 22 April 2010 in which approved by EPD.
- xi. The air quality monitoring at ACL2a – Contractor HK/2012/08 Site Office was commenced on 7 December 2013.
- xii. No exceedances were recorded in the reporting month.

Complaints, Notifications of Summons and Successful Prosecutions

- xiii. There was no environmental complaint received in this reporting month.

Site Inspections and Audit

- xiv. The Environmental Team (ET) conducted weekly site inspection for Contract no. HK/2012/08 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

- xv. In the coming reporting month, the principal work activities of the contract is anticipated as follows:  
Contract no. HK/2012/08 – Wan Chai Development Phase II – Central- Wan Chai Bypass at Wan Chai West
  - Concrete breaking
  - Stockpiling of fill materials
  - Culvert K diversion

## 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-122/2002/D 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 Central Reclamation Phase III - Studies, Site Investigation, Design and Construction (Register No.: AEIAR-040/2001) since 1 May 2013.

1.1.2. This report documents the finding of EM&A works for Environmental Permit (EP) no. EP-122/2002/D, during the period of [December 2013](#). The cut-off date of reporting is the last day 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 Central Reclamation Phase III - Studies, Site Investigation, Design and Construction (hereafter called “the Project”) are Designated Project (DP) under the Environmental Impact Assessment Ordinance (Cap. 499) (EIAO). The Environmental Impact Assessment (EIA) Reports for Central Reclamation Phase III - Studies, Site Investigation, Design and Construction (Register No. AEIAR-040/2001) has been approved on 31 August 2001.

### 2.2 Scope of the Project and Site Description

2.2.1. The design and construction of Central Reclamation Phase III involves the permanent reclamation and construction and operation of a trunk road and its road tunnel that is shown at ***Figure 2.1***.

2.2.2. The key purpose of the study area encompasses the area of Victoria Harbour to the southeast of the new Outlying Islands Ferry Piers and north of Edinburgh Place and Lung Wui Road. The area extends eastward to Fenwick Pier Street and the Fleet Arcade, and includes the existing GPO, Star Ferry Piers, Queens Pier, City Hall, PLA Headquarters, Hong Kong Red Cross Headquarters building and the Tamar Site. The scope of the Central Reclamation, Phase III includes:

- Reclamation and seawalls, roads and associated services, North Island Line Protection Works and Advance Trunk Road Tunnel (ATRT) for the CWB;
- Reprovisioning of Star Ferry Pier, public landing steps, wallah wallah moorings, and motor boat/launch operators' kiosks;
- External cooling water systems which consist of the cooling water pumping shells for future developments, and the reprovisioning of existing cooling water pumping stations and associated pipework systems and E&M works;
- Reprovisioning of existing Leisure and Cultural Services Department (LCSD)'s facilities;
- Provision of a flood relief path, stormwater culvert extensions, upgrading of hinterland stormwater drainage resulting from the reclamation, demolition of the existing waterfront structures and necessary landscaping;
- The Hong Kong Station Extended Overrun Tunnel (EOT) and associated ventilation structures entrusted for construction within the CRIII works;
- Reprovisioning of the Government Heliport at the Wan Chai PCWA and reprovisioning of the Wan Chai PCWA at Chai Wan Basin.

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 four 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
DP1	Central-Wanchai Bypass (CWB)	Schedule 2, Part I, A.7
DP2	Road P2 and other roads which are classified as primary/district distributor roads	Schedule 2, Part I, A.1
DP3	Reclamation works	Schedule 2, Part I, C.1
DP4	The North Island Line (NIL) Protection Works within CRIII	Schedule 2, Part I, A.7

2.2.4. The designated project work I (DP1) was awarded to China State-Leader Joint Venture HK/2012/08 as part of the Project works by the Civil Engineering and Development Department (CEDD). The construction work under Contract no. HK/2012/08 was commenced on 27 May 2013.

### 2.3 Project Organization and Contact Personnel

2.3.1 Civil Engineering and Development Department is the overall project controllers for the Central Reclamation Phase III Project. 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	Principal Resident Engineer	Mr. Frankie Fan	2587 1778	2587 1877
	Engineer's Representative for CWB	Principal Resident Engineer	Mr. Peter Poon	3922 3388	3912 3010

Party	Role	Post	Name	Contact No.	Contact Fax
China State- Leader JV	Contractor under Contract no. HK/2012/08	Project Director	Mr. Andrew Tse	9137 1811	2877 1522
		Project Manager	Mr. Victor Wu	9193 8871	
		Deputy Project Manager	Mr. Eddie Chung	9189 8118	
		Site Agent	Mr. Paul Lui	9095 7922	
		Environmental Officer	Mr. James Ma	9130 9549	
		Environmental Supervisor	Mr. Ching Man, Chan	6050 4919	
ENVIRON 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

2.3.3 In this reporting month, the principal work activities of the contract is included as follows:

Contract no. HK/2012/08 – Wan Chai Development Phase II – Central- Wan Chai Bypass at Wan Chai West

- Site preparation works
- Site survey
- Temporary works
- Concrete breaking
- Stockpiling of fill materials
- Culvert K diversion

2.3.4 In coming reporting month, the principal work activities of the contract is anticipated as follows:

Contract no. HK/2012/08 – Wan Chai Development Phase II – Central- Wan Chai Bypass at Wan Chai West

- Concrete breaking
- Stockpiling of fill materials
- Culvert K diversion

**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-122/2002/D	1 Sep 2009	Valid

3.1.2. The current status on licences and/or permits on environmental protection pertinent for contract no. HK/2012/08 showed in **Table 3.2**.

**Table 3.2 Cumulative Summary of Valid Licences and Permits under Contract no. HK/2012/08**

Permits and/or Licences	Reference No.	Issued Date	Valid Period/ Expiry Date	Status
Notification of Works Under APCO	355439	4 Feb 2013	N/A	Valid
Registration as a Chemical Waste Producer	5213-134-C3790-01	8 Mar 2013	N/A	Valid
Billing Account under Waste Disposal Ordinance	7016883	18 Feb 2013	18 Jul 2017	Valid
Construction Noise Permit (if any)	GW-RS1357-13	2 Dec 2013	4 Dec 2013 to 1 Jun 2014	Valid

3.1.3. Implementation status of the recommended mitigation measures during this reporting month is presented in **Appendix 3.1**.



## 4 Monitoring Requirements

### 4.1 Noise Monitoring

#### NOISE MONITORING STATIONS

- 4.1.1. The continuous noise monitoring station for the Project is 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 Continuous Noise Monitoring Stations**

District	Station	Description
Central	ACL3	City Hall

#### NOISE MONITORING PARAMETERS, FREQUENCY AND DURATION

- 4.1.2. Continuous 24-hour noise monitoring 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 every day.
- 4.1.3. 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

- 4.1.4. As referred to in the Technical Memorandum <sup>TM</sup> 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.
- 4.1.5. 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.

4.1.6. 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 will be accepted as valid only if the calibration level from before and after the noise measurement agrees to within 1.0 dB.

**4.2 Air Quality Monitoring**

AIR QUALITY MONITORING STATIONS

4.2.1. The air quality 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 Air Quality Monitoring Stations**

Station ID	Description
ACL1	City Hall
ACL2a	Contractor HK/2012/08 Site Office

AIR QUALITY 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 m<sup>3</sup> 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 cm<sup>2</sup>;
- 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 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.

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 equipment 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 designated 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 contract is:

- Contract no. HK/2012/08 – Wan Chai Development Phase II – Central – Wan Chai Bypass at Wan Chai West.

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

**5.1 Noise Monitoring Results**

5.1.1 Due to safety concerned, the location of the continuous noise monitoring station at City Hall was finely adjusted to the roof of the City Hall, Low Block on 1 May 2013.

5.1.2 The proposed division of noise monitoring stations is summarized in Table 5.1 below.

**Table 5.1 Continuous Noise Monitoring Stations for Contract no. HK/2012/08**

Location ID	District	Description
ACL3	Central	City Hall

*Remarks: Continuous noise monitoring results and graphical presentation for ACL3 during restricted hours and night time period are for information only.*

5.1.3 There were three limit level exceedances recorded at ACL3 - City Hall during daytime on 10, 23 and 27 December 2013 in the reporting month.

5.1.4 On 10 Dec 2013, after checking work activities of contractor HK/2012/08, it was found that no major noisy activities were performed during the recorded period. As the exceedance was not continuous, it was considered as non-project related and contributed by nearby traffic noise from Lung Wo Road.

5.1.5 On 23 and 27 Dec 2013, after checking work activities of contractor HK/2012/08, it was found that no major noisy activities were performed during the recorded period. In addition, on-going repairing works of the air conditioning system on the roof of lower block of City Hall adjacent

to monitoring station were noted. The exceedances were not continuous and were considered as non-project related and contributed by adjacent repairing works and nearby traffic.

5.1.6 Continuous 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 5.2**.

**5.2 Air Quality Monitoring Results**

5.2.1 The proposed division of air quality monitoring stations are summarized in **Table 5.2** below.

**Table 5.2 Air Quality Monitoring Station for Contract no. HK/2012/08**

Station	Description
ACL1	City Hall
ACL2a	Contractor HK/2012/08 Site Office

5.2.2 Due to the large scale renovation works at People's Liberation Army Headquarter, a Proposal for Relocation of Air Quality Monitoring Station at People's Liberation Army Headquarter (ACL2) was formally submitted to EPD on 4th November, 2013.

5.2.3 Air Quality Monitoring at ACL2 was temporarily suspended during the period from 14th November, 2013 to 3rd December, 2013.

5.2.4 The Proposal for Relocation of Air Quality Monitoring Station at People's Liberation Army Headquarter (ACL2) was approved by EPD on 27 November 2013.

5.2.5 According to the approved proposal for relocation of Air Quality Monitoring station, the action and limit levels of ACL2a shall adopt the reference monitoring result from the baseline air monitoring report for EP/364/2009 in 22 April 2010 in which approved by EPD.

5.2.6 The air quality monitoring at ACL2a – Contractor HK/2012/08 Site Office was commenced on 7 December 2013.

5.2.7 No action or limit level exceedance was recorded at ACL1 – City Hall and ACL2a – Contractor HK/2012/08 Site Office in the reporting month.

5.2.8 The air quality monitoring results measured in this reporting period are reviewed and summarized. Details of air quality monitoring results and graphical presentation can be referred in **Appendix 5.3**.

### 5.3 Waste Monitoring Results

5.3.1 Only non-inert C&D wastes were disposed in this reporting month. Details of the waste flow table are summarized in **Table 5.3**.

**Table 5.3 Details of Waste Disposal for Contract no. HK/2012/08**

Waste Type	Quantity this month	Cumulative Quantity-to-Date	Disposal / Dumping Grounds
Inert C&D materials disposed, m3	NIL	288	TM38
Inert C&D materials recycled, m3	NIL	NIL	NIL
Non-inert C&D materials disposed, m3	10	95	SENT Landfill
Non-inert C&D materials recycled, m3	NIL	NIL	NIL
Chemical waste disposed, kg	NIL	NIL	NIL

## **6 Compliance Audit**

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

### **6.1 Noise Monitoring**

6.1.1. No exceedance was recorded at ACL3 – City Hall in this reporting month.

### **6.2 Air Quality Monitoring**

6.2.1. No action or limit level exceedance was recorded at ACL1 – City Hall and [ACL2a – Contractor HK/2012/08 Site Office](#) in this reporting month.

### **6.3 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.

### **6.4 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 non-compliance was recorded from the site audits in the reporting period.

## 7 Cumulative Construction Impact due to the Concurrent Projects

- 7.0.1. 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 Monthly EM&A report (November 2013) of Central Reclamation Phase III (CRIII) for Contract HK 12/02, [remaining footpath construction at Edinburgh Place](#) were performed in the December 2013 reporting month. The water quality monitoring was completed in October 2011 and no Project-related exceedance was recorded for air and noise monitoring. It can be concluded that cumulative construction impact due to the concurrent activities of the current projects with the Central Reclamation Phase III (CRIII) undertaken by contractor HK12/02 was insignificant.
- 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 were marine works at HKCEC a reas, cross-harbour Watermains, Fresh Watermains and Cooling Watermains Installations, tunnel works at Wan Chai East. The major construction activities under Central-Wan Chai Bypass and Island Eastern Corridor Link Projects were [ELS work and tunnel water proofing works at TS4 and cut and cover tunnel construction at TPCWAE](#). Bridge construction and tunnel works at [Central Interchange](#), [ELS segment launching works and IEC parapet demolition at North Point area](#). The major environmental impact was water quality impact at Causeway Bay and Wan Chai. Land-based construction activities were [excavation at TS2](#), [ELS work and tunnel water proofing works at TS4](#), [cut and cover tunnel construction at TPCWAE](#), tunnel works at Central and ELS work at North Point and tunnel works at Wan Chai East in the reporting month.
- 7.0.4. The major environmental impacts generated from tunnel works at Central and tunnel works at Wan Chai East, IECL and Causeway Bay Typhoon Shelter were undertaken in the reporting month. No significant air impact from construction activities was anticipated in the reporting month. Besides, no project-related exceedances were recorded during the air and noise environmental monitoring events in the reporting month. Thus, it is evaluated that the cumulative construction impact from the concurrent projects including Wan Chai Development Phase II was insignificant.



**8 Environmental Site Audit**

8.0.1. Five site inspections for Contract no. HK/2012/08 were carried out on 3, 10, 17, 24 and 31 December 2013 in the reporting month. The results of the inspection and outcome are summarized in **Table 8.1**.

**Table 8.1 Summary of Environmental Inspections for Contract no. HK/2012/08**

Item	Date	Observations	Action taken by Contractor	Outcome
131203_01	3-Dec-13	The contractor was reminded to provide an appropriate size of drip tray for the air compressor.	A proper drip tray was provided.	Completion as observed on 10 Dec 2013
131203_02	3-Dec-13	Sand bags should be provided at the edge to prevent drop-off of sediments into the water body.	Sand bags were provided along the edge of the demolished culvert K.	Completion as observed on 10 Dec 2013

**9 COMPLAINTS, NOTIFICATION OF SUMMONS AND PROSECUTION**

9.0.1. No environmental complaint was received in the reporting period.

9.0.2. The details of cumulative complaint log and updated summary of complaints are presented in **Appendix 9.1**

9.0.3. 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
May - November 2013	0
December 2013	0
Total	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	0
Noise	0	0	0
Water	0	0	0
Waste	0	0	0
<b>Total</b>	<b>0</b>	<b>0</b>	<b>0</b>

**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**

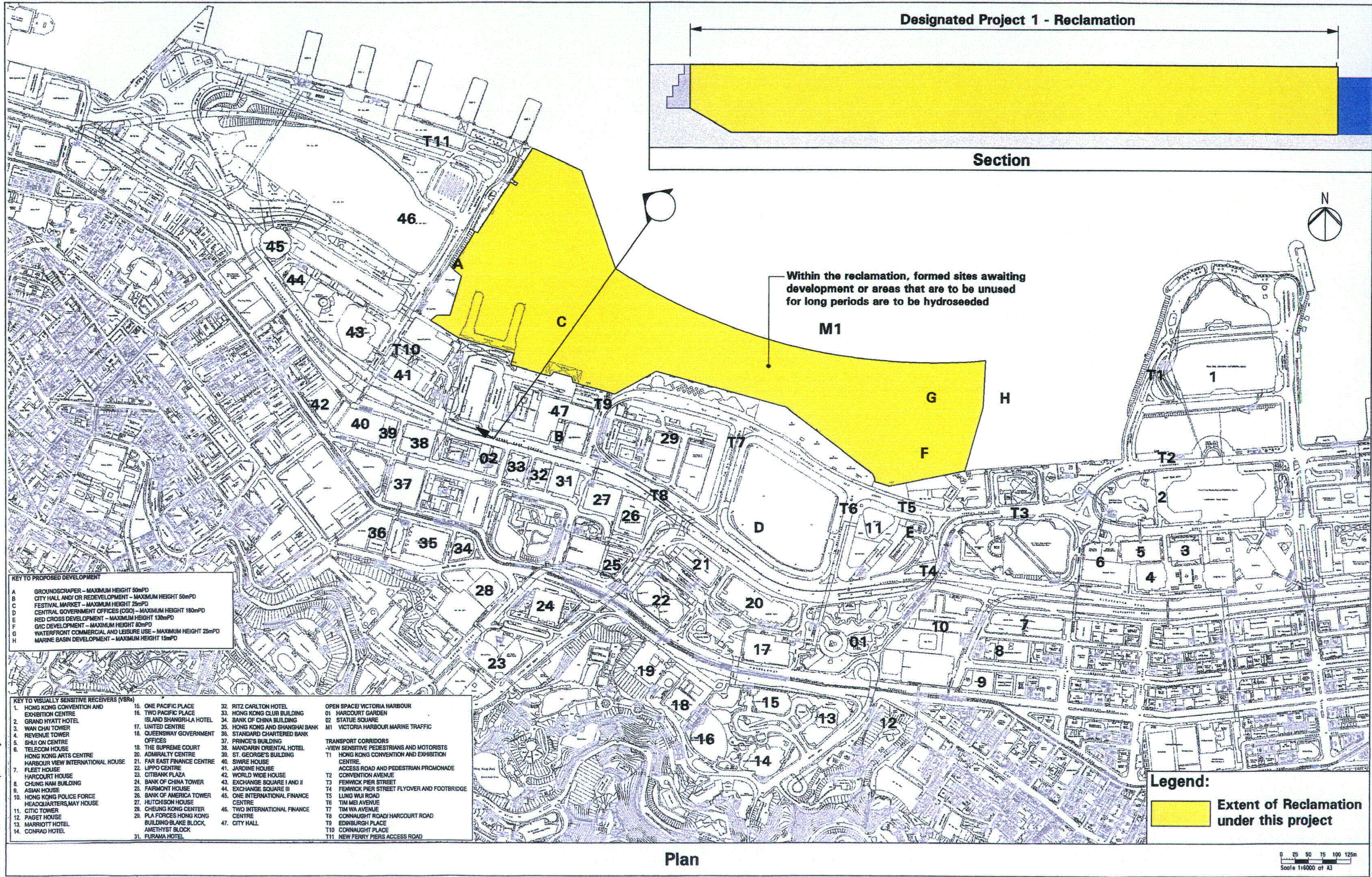
Contract No.	Key Construction Works	Recommended Mitigation Measures
HK/2012/08	<ul style="list-style-type: none"> <li>• Concrete breaking;</li> <li>• Stockpiling of fill materials; and</li> <li>• Culvert K diversion.</li> </ul>	<ul style="list-style-type: none"> <li>• Dust control during dust generating works;</li> <li>• Open stockpiles of construction materials should be covered;</li> <li>• Implementation of proper noise pollution control ;and</li> <li>• Provision of protection to ensure no runoff out of site area or direct discharge into public drainage system.</li> </ul>



***Figure 2.1***

***Project Layout***





**KEY TO PROPOSED DEVELOPMENT**

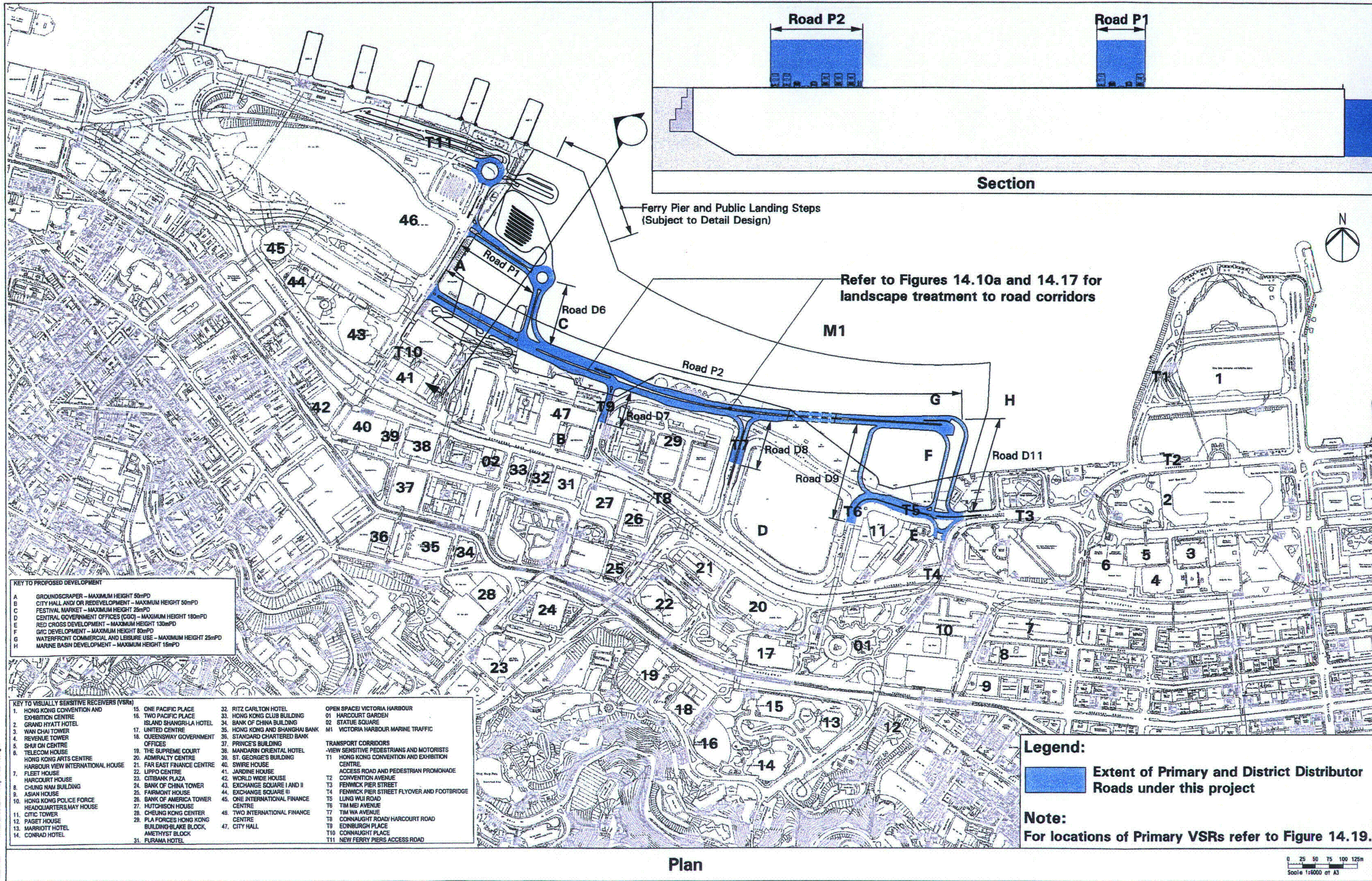
A	GROUNDSCRAPER - MAXIMUM HEIGHT 50mPD
B	CITY HALL AND/OR REDEVELOPMENT - MAXIMUM HEIGHT 50mPD
C	FESTIVAL MARKET - MAXIMUM HEIGHT 25mPD
D	CENTRAL GOVERNMENT OFFICES (CGO) - MAXIMUM HEIGHT 180mPD
E	RED CROSS DEVELOPMENT - MAXIMUM HEIGHT 130mPD
F	G/C DEVELOPMENT - MAXIMUM HEIGHT 80mPD
G	WATERFRONT COMMERCIAL AND LEISURE USE - MAXIMUM HEIGHT 25mPD
H	MARINE BASIN DEVELOPMENT - MAXIMUM HEIGHT 15mPD

**KEY TO VISUALLY SENSITIVE RECEIVERS (VSRs)**

1. HONG KONG CONVENTION AND EXHIBITION CENTRE	15. ONE PACIFIC PLACE	32. RITZ CARLTON HOTEL	OPEN SPACE/ VICTORIA HARBOUR
2. GRAND HYATT HOTEL	16. TWO PACIFIC PLACE	33. HONG KONG CLUB BUILDING	01. HARCOURT GARDEN
3. WAN CHAI TOWER	17. UNITED CENTRE	34. BANK OF CHINA BUILDING	02. STATUE SQUARE
4. REVENUE TOWER	18. QUEENSWAY GOVERNMENT OFFICES	35. HONG KONG AND SHANGHAI BANK	M1. VICTORIA HARBOUR MARINE TRAFFIC
5. SHUI ON CENTRE	19. THE SUPREME COURT	36. STANDARD CHARTERED BANK	
6. TELECOM HOUSE	20. ADMIRALTY CENTRE	37. PRINCE'S BUILDING	TRANSPORT CORRIDORS
7. HONG KONG ARTS CENTRE	21. FAR EAST FINANCE CENTRE	38. MANDARIN ORIENTAL HOTEL	-VIEW SENSITIVE PEDESTRIANS AND MOTORISTS
8. HARBOUR VIEW INTERNATIONAL HOUSE	22. LIPO CENTRE	39. ST. GEORGE'S BUILDING	01. HONG KONG CONVENTION AND EXHIBITION CENTRE
9. FLEET HOUSE	23. CITIBANK PLAZA	40. SWIRE HOUSE	ACCESS ROAD AND PEDESTRIAN PROMONADE
10. HARCOURT HOUSE	24. BANK OF CHINA TOWER	41. JARDINE HOUSE	T2. CONVENTION AVENUE
11. CHUNG NAM BUILDING	25. FAIRMONT HOUSE	42. WORLD WIDE HOUSE	T3. FENWICK PIER STREET
12. ASIAN HOUSE	26. BANK OF AMERICA TOWER	43. EXCHANGE SQUARE I AND II	T4. FENWICK PIER STREET FLYOVER AND FOOTBRIDGE
13. HONG KONG POLICE FORCE HEADQUARTERS, MAY HOUSE	27. HUTCHISON HOUSE	44. EXCHANGE SQUARE III	T5. LUNG WUI ROAD
14. CITIC TOWER	28. CHEUNG KONG CENTER	45. ONE INTERNATIONAL FINANCE CENTRE	T6. TIM MEI AVENUE
15. PAGET HOUSE	29. PLA FORCES HONG KONG BUILDING-BLAKE BLOCK, AMETHYST BLOCK	46. TWO INTERNATIONAL FINANCE CENTRE	T7. TIM WA AVENUE
16. MARRIOTT HOTEL	30. FURAMA HOTEL	47. CITY HALL	T8. CONNAUGHT ROAD/ HARCOURT ROAD
17. CONRAD HOTEL			T9. EDINBURGH PLACE
			T10. CONNAUGHT PLACE
			T11. NEW FERRY PIERS ACCESS ROAD

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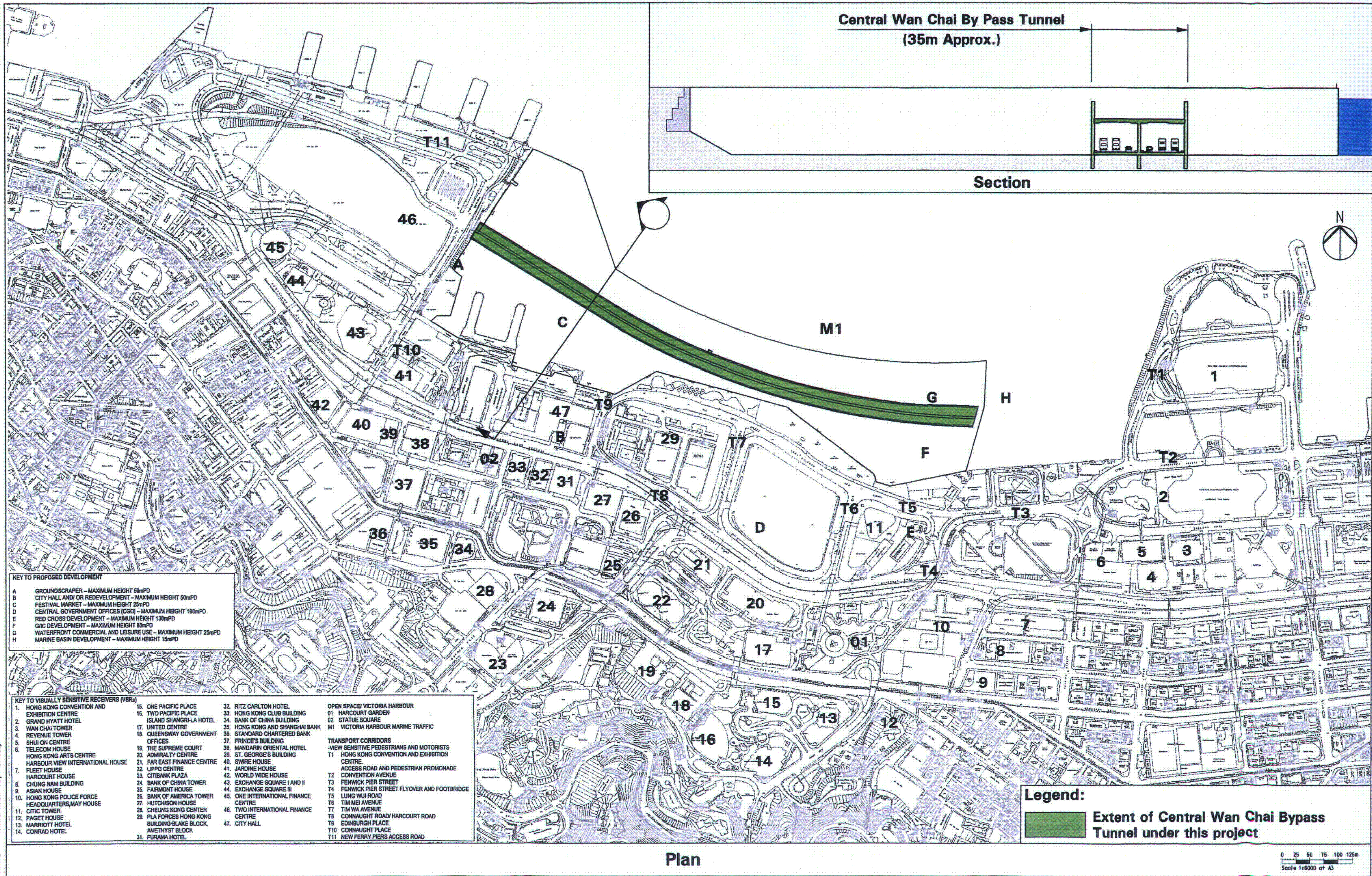




Designated Project 2 - Primary and District Distributor Roads  
Layout Plan and Section

Figure 14.10





**KEY TO PROPOSED DEVELOPMENT**

A	GROUNDSCRAPER - MAXIMUM HEIGHT 50mPD
B	CITY HALL AND/OR REDEVELOPMENT - MAXIMUM HEIGHT 50mPD
C	FESTIVAL MARKET - MAXIMUM HEIGHT 25mPD
D	CENTRAL GOVERNMENT OFFICES (CGO) - MAXIMUM HEIGHT 180mPD
E	RED CROSS DEVELOPMENT - MAXIMUM HEIGHT 130mPD
F	G/VIC DEVELOPMENT - MAXIMUM HEIGHT 80mPD
G	WATERFRONT COMMERCIAL AND LEISURE USE - MAXIMUM HEIGHT 25mPD
H	MARINE BASIN DEVELOPMENT - MAXIMUM HEIGHT 15mPD

**KEY TO VISUALLY SENSITIVE RECEIVERS (VSRs)**

1. HONG KONG CONVENTION AND EXHIBITION CENTRE	15. ONE PACIFIC PLACE	32. RITZ CARLTON HOTEL	OPEN SPACE/ VICTORIA HARBOUR
2. GRAND HYATT HOTEL	16. TWO PACIFIC PLACE	33. HONG KONG CLUB BUILDING	01 HARCOURT GARDEN
3. WAN CHAI TOWER	17. UNITED CENTRE	34. BANK OF CHINA BUILDING	02 STATUE SQUARE
4. REVENUE TOWER	18. QUEENSWAY GOVERNMENT OFFICES	35. HONG KONG AND SHANGHAI BANK	M1 VICTORIA HARBOUR MARINE TRAFFIC
5. SHUI ON CENTRE	19. THE SUPREME COURT	36. STANDARD CHARTERED BANK	TRANSPORT CORRIDORS
6. TELECOM HOUSE	20. ADMIRALTY CENTRE	37. PRINCE'S BUILDING	-VIEW SENSITIVE PEDESTRIANS AND MOTORISTS
7. FLEET HOUSE	21. FAR EAST FINANCE CENTRE	38. MANDARIN ORIENTAL HOTEL	T1 HONG KONG CONVENTION AND EXHIBITION CENTRE
8. HARCOURT HOUSE	22. LIPPO CENTRE	39. ST. GEORGE'S BUILDING	ACCESS ROAD AND PEDESTRIAN PROMENADE CONVENTION AVENUE
9. ASIAN HOUSE	23. CITIBANK PLAZA	40. SWIRE HOUSE	T2
10. HONG KONG POLICE FORCE HEADQUARTERS, MAY HOUSE	24. BANK OF CHINA TOWER	41. JAPANESE HOUSE	T3
11. CITIC TOWER	25. FAIRMONT HOUSE	42. WORLD WIDE HOUSE	T4 FENWICK PIER STREET FLYOVER AND FOOTBRIDGE
12. PAGET HOUSE	26. BANK OF AMERICA TOWER	43. EXCHANGE SQUARE I AND II	T5 LUNG WUI ROAD
13. MARRIOTT HOTEL	27. HUTCHISON HOUSE	44. EXCHANGE SQUARE III	T6 TIM MEI AVENUE
14. CONRAD HOTEL	28. CHEUNG KONG CENTER	45. ONE INTERNATIONAL FINANCE CENTRE	T7 TIM WA AVENUE
	29. PLA FORCES HONG KONG BUILDING-SLAKE BLOCK, AMETHYST BLOCK	46. TWO INTERNATIONAL FINANCE CENTRE	T8 CONNAUGHT ROAD/ HARCOURT ROAD
	31. PURANA HOTEL	47. CITY HALL	T9 EDINBURGH PLACE
			T10 CONNAUGHT PLACE
			T11 NEW FERRY PIERS ACCESS ROAD

**Legend:**

Extent of Central Wan Chai Bypass Tunnel under this project

0 25 50 75 100 125m  
Scale 1:6000 of A3

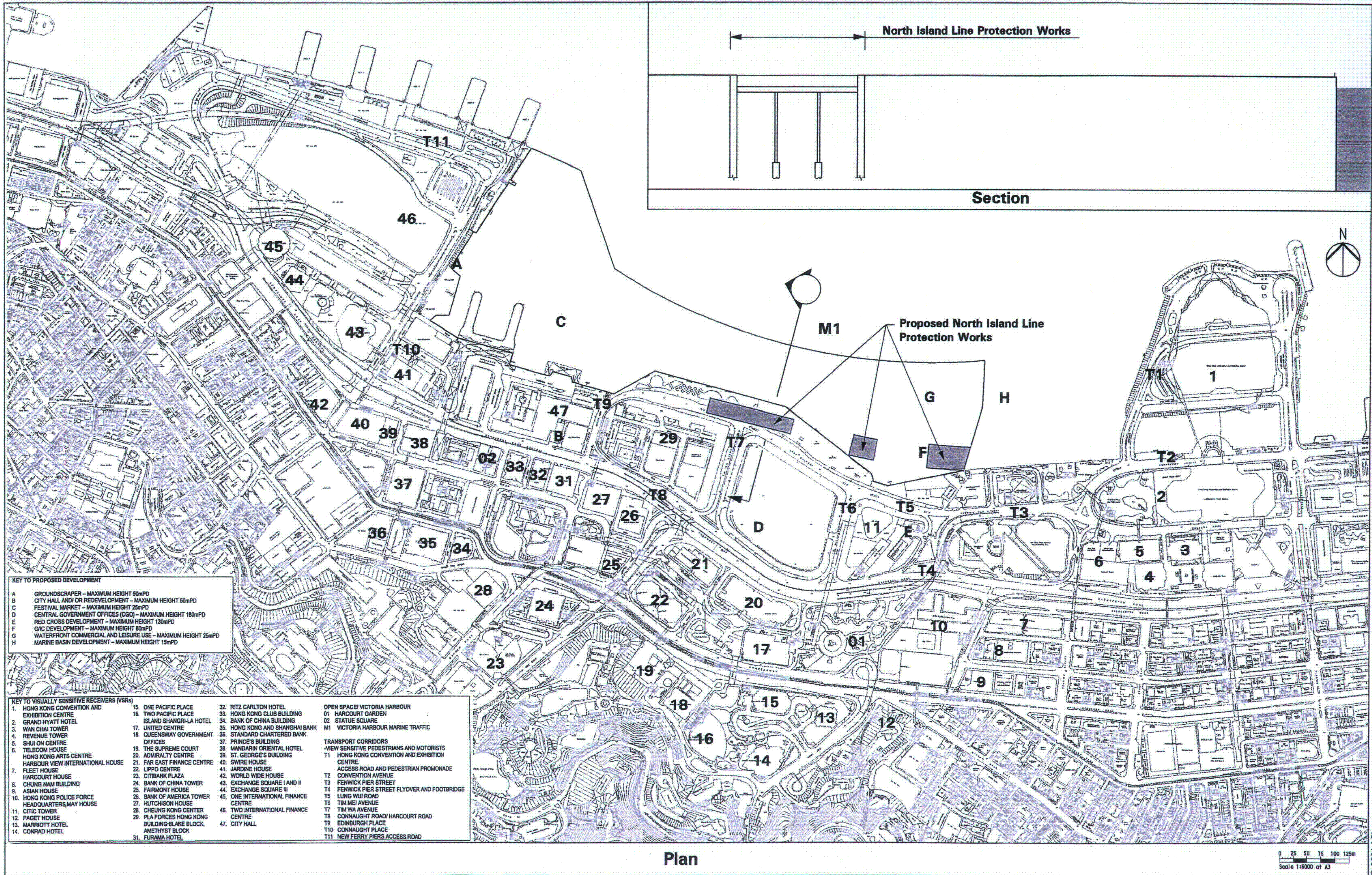
Designated Project 3 - Central Wan Chai Bypass Tunnel  
Layout Plan and Section

Figure 14.11

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**KEY TO PROPOSED DEVELOPMENT**

A	GROUNDSCRAPER - MAXIMUM HEIGHT 50mPD
B	CITY HALL AND/OR REDEVELOPMENT - MAXIMUM HEIGHT 50mPD
C	FESTIVAL MARKET - MAXIMUM HEIGHT 25mPD
D	CENTRAL GOVERNMENT OFFICES (CGO) - MAXIMUM HEIGHT 180mPD
E	RED CROSS DEVELOPMENT - MAXIMUM HEIGHT 130mPD
F	GIC DEVELOPMENT - MAXIMUM HEIGHT 80mPD
G	WATERFRONT COMMERCIAL AND LEISURE USE - MAXIMUM HEIGHT 25mPD
H	MARINE BASIN DEVELOPMENT - MAXIMUM HEIGHT 15mPD

**KEY TO VISUALLY SENSITIVE RECEIVERS (VSRs)**

1. HONG KONG CONVENTION AND EXHIBITION CENTRE	15. ONE PACIFIC PLACE	32. RITZ CARLTON HOTEL	OPEN SPACE/ VICTORIA HARBOUR
2. GRAND HYATT HOTEL	16. TWO PACIFIC PLACE	33. HONG KONG CLUB BUILDING	01. HARCOURT GARDEN
3. WAN CHAI TOWER	17. ISLAND SHANGRI-LA HOTEL	34. BANK OF CHINA BUILDING	02. STATUE SQUARE
4. REVENUE TOWER	18. UNITED CENTRE	35. HONG KONG AND SHANGHAI BANK	M1 VICTORIA HARBOUR MARINE TRAFFIC
5. SHUI ON CENTRE	19. QUEENSWAY GOVERNMENT OFFICES	36. STANDARD CHARTERED BANK	TRANSPORT CORRIDORS
6. TELECOM HOUSE	20. ADMIRALTY CENTRE	37. PRINCE'S BUILDING	-VIEW SENSITIVE PEDESTRIANS AND MOTORISTS
7. HONG KONG ARTS CENTRE	21. FAR EAST FINANCE CENTRE	38. MANDARIN ORIENTAL HOTEL	T1 HONG KONG CONVENTION AND EXHIBITION CENTRE
8. HARBOUR VIEW INTERNATIONAL HOUSE	22. LIPPO CENTRE	39. ST. GEORGE'S BUILDING	ACCESS ROAD AND PEDESTRIAN PROMENADE
9. FLEET HOUSE	23. CITIBANK PLAZA	40. SWIRE HOUSE	T2 CONVENTION AVENUE
10. HARCOURT HOUSE	24. BANK OF CHINA TOWER	41. JARDINE HOUSE	T3 FENWICK PIER STREET
11. CHUNG NAM BUILDING	25. FARMONT HOUSE	42. WORLD WIDE HOUSE	T4 FENWICK PIER STREET FLYOVER AND FOOTBRIDGE
12. ASIAN HOUSE	26. BANK OF AMERICA TOWER	43. EXCHANGE SQUARE I AND II	T5 LUNG WUI ROAD
13. HONG KONG POLICE FORCE HEADQUARTERS, MAY HOUSE	27. HUTCHISON HOUSE	44. EXCHANGE SQUARE III	T6 TIM MEI AVENUE
14. CITIC TOWER	28. CHEUNG KONG CENTER	45. ONE INTERNATIONAL FINANCE CENTRE	T7 TIM WA AVENUE
15. PAGET HOUSE	29. PLA FORCES HONG KONG BUILDING-BLAKE BLOCK	46. TWO INTERNATIONAL FINANCE CENTRE	T8 CONNAUGHT ROAD/ HARCOURT ROAD
16. MARRIOTT HOTEL	30. AMETHYST BLOCK	47. CITY HALL	T9 EDINBURGH PLACE
17. CONRAD HOTEL	31. FURAMA HOTEL		T10 CONNAUGHT PLACE
			T11 NEW FERRY PIERS ACCESS ROAD

Designated Project 4 - North Island Line Protection Works  
Layout Plan and Section

Figure 14.12

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***Figure 2.2***

***Project Organization Chart***



### Project Organization Chart

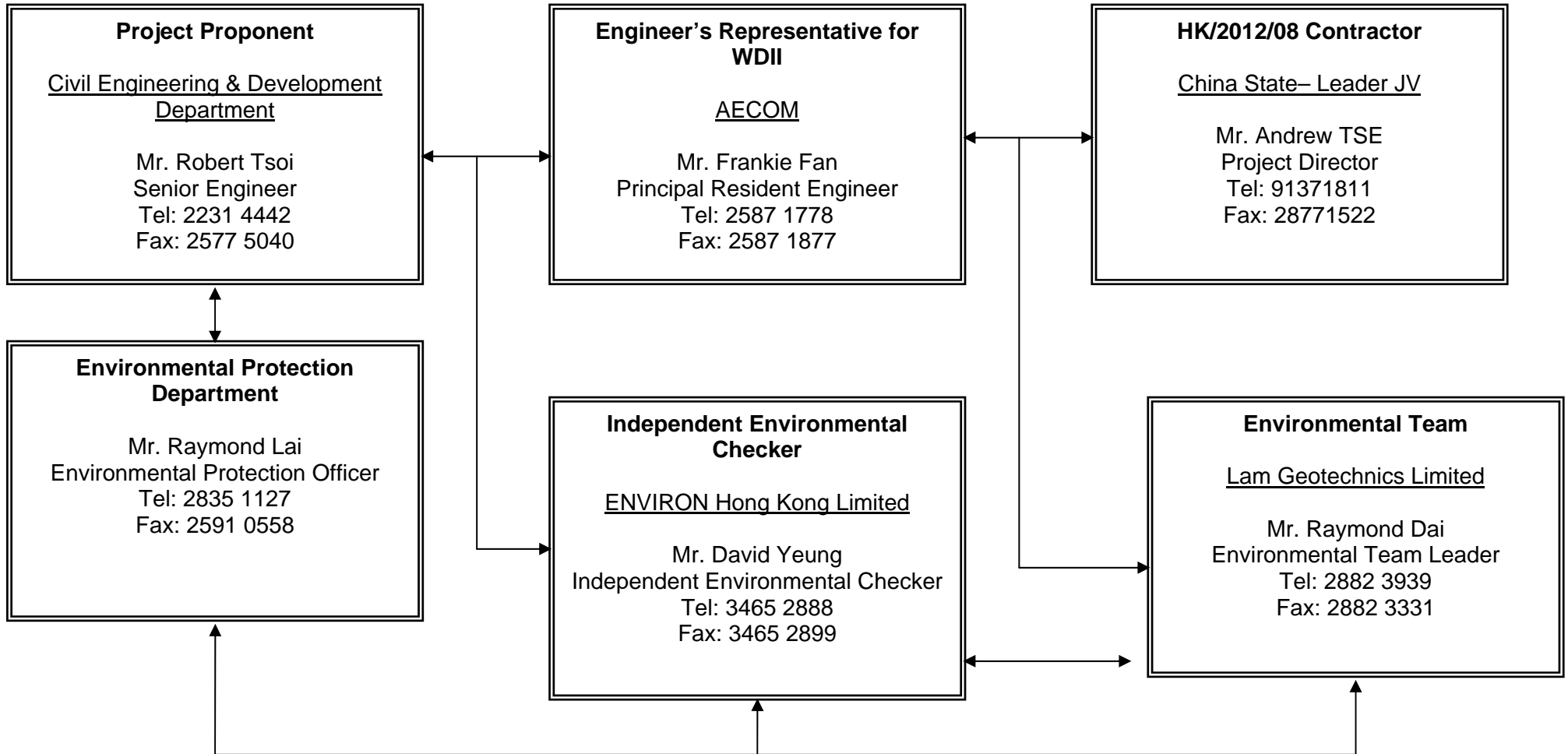


Figure 2.2



***Figure 4.1***

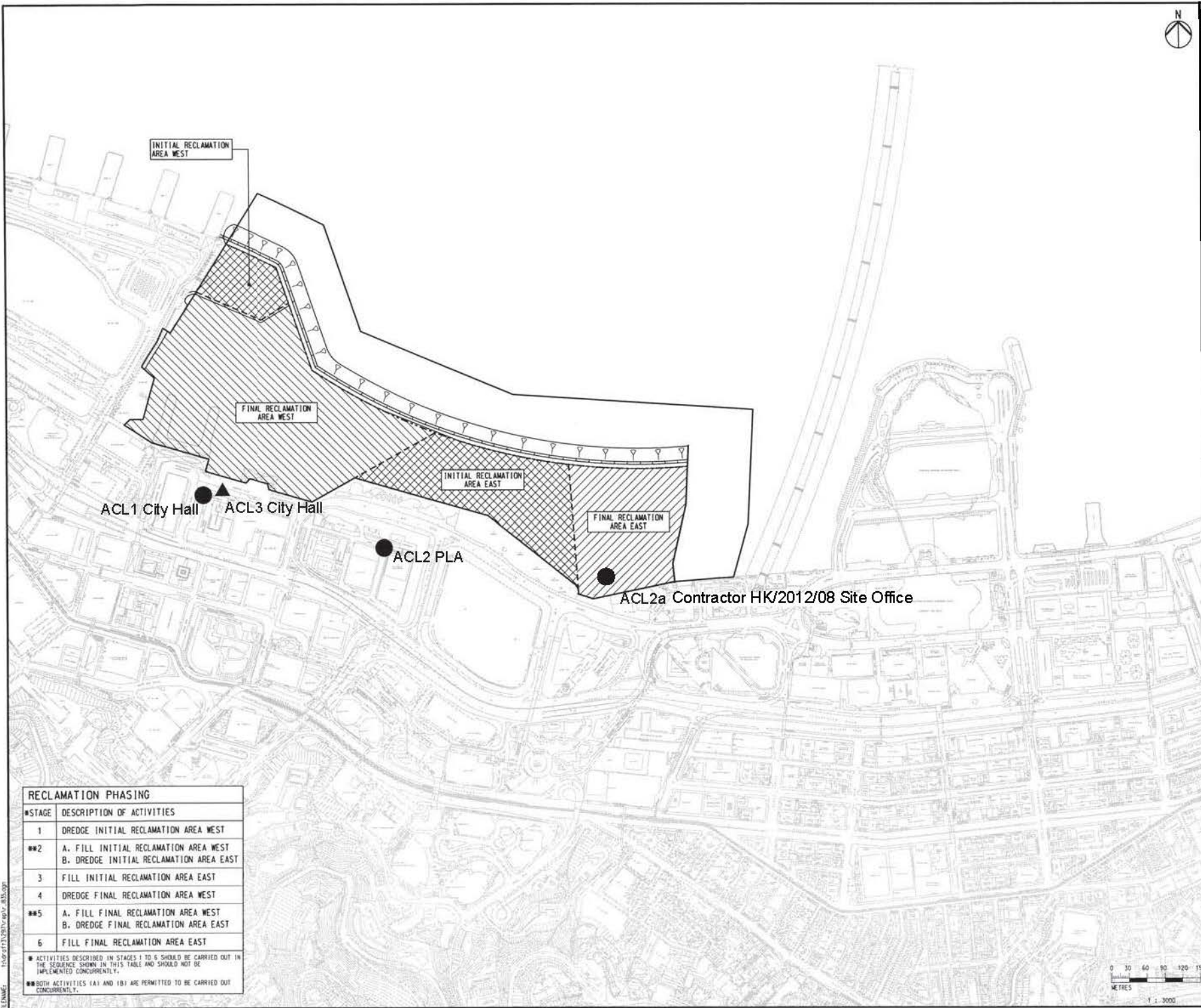
***Locations of Monitoring Stations***



DO NOT SCALE DRAWINGS. VERIFY ALL DIMENSIONS ON SITE

**LEGEND:**

- DUST MONITORING STATIONS
- ▲ NOISE MONITORING STATION



RECLAMATION PHASING	
#STAGE	DESCRIPTION OF ACTIVITIES
1	DREDGE INITIAL RECLAMATION AREA WEST
**2	A. FILL INITIAL RECLAMATION AREA WEST B. DREDGE INITIAL RECLAMATION AREA EAST
3	FILL INITIAL RECLAMATION AREA EAST
4	DREDGE FINAL RECLAMATION AREA WEST
**5	A. FILL FINAL RECLAMATION AREA WEST B. DREDGE FINAL RECLAMATION AREA EAST
6	FILL FINAL RECLAMATION AREA EAST

● ACTIVITIES DESCRIBED IN STAGES 1 TO 6 SHOULD BE CARRIED OUT IN THE SEQUENCE SHOWN IN THIS TABLE AND SHOULD NOT BE IMPLEMENTED CONCURRENTLY.  
 ● BOTH ACTIVITIES (A) AND (B) ARE PERMITTED TO BE CARRIED OUT CONCURRENTLY.



Fig 4.1 Location of monitoring stations

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***Appendix 3.1***

***Environmental Mitigation Implementation Schedule***



### IMPLEMENTATION SCHEDULE OF THE PROPOSED MITIGATION MEASURES

No.	Activity	Mitigation/EIA Recommendations	Responsibility for Implementation	Location Duration completion of measures	Implementation Stage C : Construction D : Design	Permit Conditions apply to	Relevant Guidelines Legislation
1	Operational Traffic Noise*	The openings of ventilation buildings or ventilation shafts should be placed carefully and ideally should be such that they are not facing directly onto any NSR.	Various	Area Wide, Proposals at design stage for Implementation during construction	D/C	N/A	--
2	Operational Air Quality	Air intakes for commercial/G/IC buildings should be placed such that they are at locations where contours indicate AQOs are met.	ArchSD/Private sector +	CRIII During development of sites Completion of CRIII	Development of CRIII	Carry forward to design stage	6
3	Operational Water Quality	Provision of grit traps for surface drainage	TDD's Contractor	New roads and paved areas During construction End of construction	C	P, R, A, C	7
4	Operational Landscape and Visual	Operational stage landscape and visual mitigation measures should include +  <ul style="list-style-type: none"> <li>· Implementation of the Waterfront Promenade, Statue Square Corridor, Historic Corridor, Civic Corridor, Arts and Entertainment Corridor, Streetscape Network, Landscape Decks, and Supplementary Landscape Spaces;</li> <li>· provision of a legible, integrated pedestrian circulation system linking major activity nodes, reinforcing links with adjoining areas, and providing an international quality hard and soft landscape treatment;</li> <li>· provision of a grade separated pedestrian system to minimise vehicular/ pedestrian conflict;</li> <li>· provision of an integrated network of local and regional open spaces for passive and active recreation;</li> <li>· preservation of selected architectural features;</li> <li>· preservation insitu of existing significant vegetation, principally the two Banyan Trees flanking the Tamar Site;</li> <li>· new roads to incorporate suitable streetscape amenity and landscape planting to minimise visual and environmental impacts;</li> </ul>	Various	Area wide, proposals at design stage for implementation during construction	D/C	P	--



No.	Activity	Mitigation/EIA Recommendations	Responsibility for Implementation	Location Duration completion of measures	Implementation Stage C : Construction D : Design	Permit Conditions apply to	Relevant Guidelines Legislation
		<ul style="list-style-type: none"> <li>· existing roads upgraded to 'marry' with the proposed landscape framework;</li> <li>· Hydroseeding of reclamation if there is no immediate use of the site, periphery of the reclamation;</li> <li>· Designated service corridors beneath footpaths to prevent potential impacts upon vegetation during services maintenance;</li> <li>· Sensitively designed colour themes to footpath paving areas; and</li> <li>· Sensitively designed seawall to enhance the recreational value of the future promenade can be included.</li> </ul>	Various	Area wide, proposals at design stage for implementation during construction	D/C	P	--
5	Construction Noise Control Requirements	Use of the following quiet mechanical equipment for construction works : ·air compressor; paver; hand held breaker; breaker, excavator mounted; bulldozer; concrete lorry mixer; concrete pump; crane; dump truck; excavator/ loader; grader; lorry ; poker; road roller; vibratory roller;	TDD's Contractor	Works Area During construction End of construction	C	P, R, A, C	-
		Use of noise barriers (in the form if purpose built site hoarding of 3 - 5 m height and surface density of at least 7 kgm <sup>2</sup> with cranked top) for the following works: · Hong Kong Station Extended Overrun Tunnels to north of Central Barracks. · North Island Line Protection Works to north of Central Barracks; · Road/Drainage Works to north of Central Barracks; · Culvert F Piling Works to north of City Hall.	TDD's Contractor	Work Sites as stated Start of activity stated End of activity stated	C	P, A	
		· Only well-maintained plant should be operated on-site and plant should be serviced regularly during the construction programme.	TDD's Contractor	Works Area During construction End of construction	C	P,R,A,C	4
		· Silencers or mufflers on construction equipment should be utilised and should be properly maintained during the construction programme.	TDD's Contractor	Works Area During construction End of construction	C	P,R,A,C	4
		· Mobile plant, if any, should be sited as far away from noise sensitive facilities as possible.	TDD's Contractor	Works Area During construction End of construction	C	P,R,A,C	4



No.	Activity	Mitigation/EIA Recommendations	Responsibility for Implementation	Location Duration completion of measures	Implementation Stage C : Construction D : Design	Permit Conditions apply to	Relevant Guidelines Legislation
		<ul style="list-style-type: none"> <li>Machines and plant (such as trucks) that may be in intermittent use should be shut down between works periods or should be throttled down to a minimum.</li> </ul>	TDD's Contractor	Works Area During construction End of construction	C	P,R,A,C	4
		<ul style="list-style-type: none"> <li>Plant known to emit noise strongly in one direction should, wherever possible, be orientated so that the noise is directed away from nearby noise sensitive facilities.</li> </ul>	TDD's Contractor	Works Area During construction End of construction	C	P,R,A,C	4
6	Construction Air Quality Control Requirements	<ul style="list-style-type: none"> <li>Material stockpiles and other structures should be effectively utilised, wherever practicable, in screening noise from on-site construction activities.</li> </ul>	TDD's Contractor	Works Area During construction End of construction	C	P,R,A,C	4
		<ul style="list-style-type: none"> <li>Strictly limit truck speed on site to below 10 km per hour and water spraying to keep the haul roads in wet condition.</li> </ul>	TDD's Contractor	Works Area During construction End of construction	C	P,R,A,C	6,7
		<ul style="list-style-type: none"> <li>Twice daily watering of the site with active operations when the weather and the work site are dry.</li> </ul>	TDD's Contractor	Works Area During construction End of construction	C	P,R,A,C	6,7
		<ul style="list-style-type: none"> <li>Watering during excavation and material handling.</li> </ul>	TDD's Contractor	Works Area During construction End of construction	C	P,R,A,C	6,7
		<ul style="list-style-type: none"> <li>Provision of vehicle wheel and body washing facilities at the exit points of the site, combined with cleaning of public roads where necessary.</li> </ul>	TDD's Contractor	Works Area During construction End of construction	C	P,R,A,C	6,7
		<ul style="list-style-type: none"> <li>Tarpaulin covering of all dusty vehicle loads transported to, from and between site locations.</li> </ul>	TDD's Contractor	Works Area During construction End of construction	C	P,R,A,C	6,7
		<ul style="list-style-type: none"> <li>Covers for dusty stockpiles</li> </ul>	TDD's Contractor	Works Area During construction End of construction	C	P,R,A,C	6
		<ul style="list-style-type: none"> <li>All plant shall be maintained to prevent any undue air emissions</li> </ul>	TDD's Contractor	Works Area	C	P,R,A,C	6





No.	Activity	Mitigation/EIA Recommendations	Responsibility for Implementation	Location Duration completion of measures	Implementation Stage C : Construction D : Design	Permit Conditions apply to	Relevant Guidelines Legislation
				During construction End of construction			
7	Construction Water Quality Control Requirements	<p>Specific Measures Associated with Dredging Works</p> <ul style="list-style-type: none"> <li>· the use of closed clamshell (water-tight) grab dredgers to remove seriously contaminated material such that the amount of SS and other pollutants released from the marine mud and pore water can be minimised;</li> <li>· the prohibition of stockpiling of any moderately or seriously contaminated marine sediment, and careful control of stockpiling of any uncontaminated sediment to prevent runoff, resuspension and odour nuisances; and</li> <li>· the control of dredging and bulk reclamation filling rates within acceptable limits. Based upon the construction sequence developed for this study the maximum dredging and filling rates adopted for Final Reclamation Area East were :  Maximum Dredging Rate : 184 m<sup>2</sup>/hour  Maximum Daily Filling Rate : 17,727 m<sup>3</sup>/day  (for bulk reclamation filling)</li> </ul> <p>Maximum dredging and filling rates for other reclamation sites should take account of information contained in Table 10.14 of the EIA Report and envisaged construction sequence.</p> <ul style="list-style-type: none"> <li>· no dredging should take place under very bad weather conditions.</li> </ul>	TDD's Contractor	Whole reclamation area During reclamation works End of reclamation works	C	R	7
		<ul style="list-style-type: none"> <li>· silt curtain around dredging sites to be provided as necessary.</li> </ul> <p>Specific Measure for Marine Disposal of Dredged Materials and Marine Sand Filling Works</p> <ul style="list-style-type: none"> <li>· all vessels should be sized such that adequate clearance is maintained between vessels and the sea bed at all states of the tide to ensure that undue turbidity is not generated by turbulence from vessel movement or propeller wash;</li> <li>· all hopper barges and dredgers should be fitted with tight fitting seals to their bottom openings to prevent leakage of material;</li> <li>· loading of hopper barges should be controlled to prevent splashing of dredged or filling material to the surrounding water, and barges or hoppers should not be filled to a level which will cause the overflow of materials or polluted water during loading or</li> </ul>	TDD's Contractor	Whole reclamation area During reclamation works End of reclamation works	C	R	7

No.	Activity	Mitigation/EIA Recommendations	Responsibility for Implementation	Location Duration completion of measures	Implementation Stage C : Construction D : Design	Permit Conditions apply to	Relevant Guidelines Legislation
		transportation;					
		<ul style="list-style-type: none"> <li>· the works should cause no visible foam, oil, grease, scum, litter or other objectionable matter to be present on the water within the site or dumping grounds;</li> <li>· bulk filling should be carried out, where feasible, behind completed seawall to above high water mark. In general and where physically practical, filling should not be carried out without the seawall having been substantially completed for a distance of 100m – 200m ahead of filling; and</li> <li>· fill materials should comply with technical specification requirements and be taken from approved sources only. The maximum fines content of marine sand should be limited to 5% as assumed in the water quality assessments.</li> <li>· transport of contaminated mud (or filling material) to the marine disposal site (or works site) should, wherever possible, be by split barge of not less than 750 m<sup>3</sup> capacity, well maintained and capable of rapid opening and discharge at the disposal site;</li> <li>· the dredged material should be disposed in the pit by bottom dumping, at a location within the pit specified by the MFC;</li> <li>· discharge should be undertaken rapidly and the hoppers should then immediately be closed. Material adhering to the sides of the hopper should not be washed out of the hopper and the hopper should remain closed until the barge next return to the disposal site;</li> <li>· the dumping vessel is not required to station but will be guided by the site staff managing the disposal facility. The vessel crew should be familiar with such operational procedures;</li> <li>· monitoring of the barge loading to ensure that loss of material does not take place during transportation; and</li> <li>· Transport barges or vessels shall be equipped with automatic self-monitoring devices.</li> </ul>	TDD's Contractor	<p>Whole reclamation area</p> <p>During reclamation works</p> <p>End of reclamation works</p>	C	R	7



No.	Activity	Mitigation/EIA Recommendations	Responsibility for Implementation	Location Duration completion of measures	Implementation Stage C : Construction D : Design	Permit Conditions apply to	Relevant Guidelines Legislation
		<p>Specific Measures Associated with Dredging and Filling Works when CRIII Dredging and Filling Works are being constructed concurrently with WDII Dredging and Filling Works</p> <ul style="list-style-type: none"> <li>· deployment of silt curtains around the dredging and fill release points to contain SS within the construction site during dredging and filling;</li> <li>· deployment of silt screens at the cooling water intakes and WSD salt water intakes to further minimise the intake of SS within the sea water.</li> </ul>	TDD's Contractor	<p>Reclamation Areas as appropriate</p> <p>When CRIII and WDII - Dredging and Filling Works occur concurrently</p> <p>End of Concurrent Works</p>	C	R	-
		<p>Specific Measures Associated with Floating Debris</p> <p>The result of the floating debris simulation has shown that the intermediate layout of the proposed reclamation has potential to trap floating rubbish. Monitoring and control of the construction activities should be taken to prevent the release of construction waste and rubbish from the construction site. Collection of floating debris should be carried out at least once every day by the CRIII Contractor, and more frequently (two or three times per day) at the water body south of the Initial Reclamation Area West and near the cooling water intakes where large substances could block the screens and filter pipes of the intakes and reduce their efficiency. Debris should be collected and taken to landfill sites for disposal.</p>	TDD's Contractor	<p>Whole reclamation area</p> <p>During construction</p> <p>At end of construction</p>	C	R	-
		<p>Specific Measures for Dealing with Culvert L Outfall at Completion of CRIII Eastern Seawall</p> <p>As a mitigation measure, to avoid the accumulation of water borne pollutants within a temporary embayment to the east of CRIII, an impermeable barrier, suspended from a floating boom on the water surface and extending down to the seabed, will be erected by the CRIII Contractor on completion of the CRIII eastern seawall. The barrier will channel the stormwater discharge flows from Culvert L to the outside of the embayment. The CRIII Contractor will maintain this barrier until the WDII Contractor takes possession of this site, whereupon the WDII Contractor will takeover the maintenance of this barrier until the reclamation works in this area are carried out and the new Culvert L extension is constructed.</p>	TDD's Consultant	<p>Culvert L Outfall</p> <p>During Construction</p> <p>To handover to WDII Contractor</p>	C	R	--



No.	Activity	Mitigation/EIA Recommendations	Responsibility for Implementation	Location Duration completion of measures	Implementation Stage C : Construction D : Design	Permit Conditions apply to	Relevant Guidelines Legislation
		<p>Construction Run-off and Drainage</p> <ul style="list-style-type: none"> <li>- Control of Site Surface Runoff:</li> <li>- Surface run-off from construction sites should be discharged into storm drains via adequately designed sand/silt removal facilities such as sand traps, silt traps and sediment basins. Channels or earth bunds or sand bag barriers should be provided on site to properly direct stormwater to such silt removal facilities. Perimeter channels at site boundaries should be provided where necessary. Catchpits and perimeter channels should be constructed in advance of site formation works and earthworks.</li> <li>- Silt removal facilities, channels and manholes should be maintained.</li> <li>- Construction works should be programmed to minimise soil excavation works in rainy seasons (April to September). If excavation in soil cannot be avoided, temporarily exposed slope surfaces should be covered and temporary access roads should be protected by crushed stone or gravel, as excavation proceeds. Intercepting channels should be provided.</li> <li>- Earthworks final surfaces should be well compacted and the subsequent permanent work or surface protection should be carried out immediately after the final surfaces are formed to prevent erosion caused by rainstorms. Appropriate drainage such as intercepting channels should be provided where necessary.</li> <li>- Measures should be taken to minimise the ingress of rainwater into trenches. If excavation of trenches in wet seasons is necessary, they should be dug and backfilled in short sections. Rainwater pumped out from trenches or foundation excavations should be discharged into storm drains via silt removal facilities.</li> <li>- Open stockpiles of construction materials should be covered.</li> <li>- Manholes should be adequately covered and temporarily sealed.</li> </ul>	TDD's Contractor	<p>Works Area</p> <p>During construction</p> <p>End of construction</p>	C	P,R,A,C	7
		<ul style="list-style-type: none"> <li>- Groundwater</li> <li>- Groundwater pumped out of tunnels or caverns should be discharged into storm drains after the removal of silt.</li> </ul>					



No.	Activity	Mitigation/EIA Recommendations	Responsibility for Implementation	Location Duration completion of measures	Implementation Stage C : Construction D : Design	Permit Conditions apply to	Relevant Guidelines Legislation
		<ul style="list-style-type: none"> <li>· Boring and Drilling Water</li> <li>- Water used in ground boring and drilling for site investigation or rock/soil anchoring should as far as practicable be recirculated after sedimentation. Wastewater should be discharged into storm drains via silt removal facilities.</li> <li>· Wastewater from Concrete Batching and Precast Concrete Casting</li> <li>- Wastewater generated from the washing down of mixer trucks and drum mixers and similar equipment should wherever practicable be recycled. The discharge of wastewater should be kept to a minimum.</li> <li>- To prevent pollution from wastewater overflow, the pump sump of any water recycling system should be provided with an on-line standby pump of adequate capacity and with automatic alternating devices.</li> <li>- Under normal circumstances, surplus wastewater may be discharged into foul sewers after treatment in silt removal and pH adjustment facilities (to within the pH range of 6 to 10). Disposal of wastewater into storm drains will require more elaborate treatment.</li> </ul> <p>Surface run-off should be segregated from the concrete mixing and casting yard area as much as possible, and diverted to the stormwater drainage system. Surface run-off contaminated by materials in a concrete mixing area or casting yard should be adequately treated before disposal into stormwater drains.</p>	TDD's Contractor	<p>Work Area</p> <p>During construction</p> <p>End of construction</p>	C	P,R,A,C	7
		<ul style="list-style-type: none"> <li>· Wheel Washing Water</li> <li>- All vehicles and plant should be cleaned before they leave the construction site. A wheel washing bay should be provided at every site exit if practicable and wash-water should have sand and silt settled out or removed before discharging into storm drains. The section of construction road between the wheel washing bay and the public road should be paved with backfall to reduce vehicle tracking of soil and to prevent site run-off from entering public road drains.</li> <li>· Bentonite Slurries</li> <li>- Bentonite slurries should be reconditioned and reused wherever practicable. If the disposal of a certain residual quantity cannot be avoided, the used slurry may be disposed of at the marine spoil site subject to obtaining a marine dumping licence from EPD (on a case-by-case basis).</li> </ul>	TDD's Contractor	<p>Work Area</p> <p>During construction</p> <p>End of construction</p>	C	P,R,A,C	7



No.	Activity	Mitigation/EIA Recommendations	Responsibility for Implementation	Location Duration completion of measures	Implementation Stage C : Construction D : Design	Permit Conditions apply to	Relevant Guidelines Legislation
		<ul style="list-style-type: none"> <li>- If the used bentonite slurry is intended to be disposed of through the public drainage system, it should be treated to the respective effluent standards applicable to foul sewers, storm drains or the receiving waters as set out in the WPCO Technical Memorandum on Effluent Standards.</li> </ul>					
		<ul style="list-style-type: none"> <li>- Wastewater from Building Construction</li> <li>- Before commencing any demolition works, all sewer and drainage connections should be sealed to prevent building debris, soil, sand etc. from entering public sewers/drains.</li> <li>- Wastewater generated from building construction activities including concreting, plastering, internal decoration, cleaning of works and similar activities should not be discharged into the stormwater drainage system. If the wastewater is to be discharged into foul sewers, it should undergo the removal of settleable solids in a silt removal facility, and pH adjustment as necessary.</li> </ul>					
		<ul style="list-style-type: none"> <li>-Licensing of Construction Site Discharges within Water Control Zones</li> <li>-All discharges into any drainage or sewerage systems, or inland or coastal waters, or into the ground (e.g. from septic tanks) within a Water Control Zone are controlled under the Water Pollution control Ordinance (WPCO), except the discharge of domestic sewage into foul sewers or the discharge of unpolluted water into storm drains or into the waters of Hong Kong. Construction site discharges are controlled under the WPCO.</li> <li>-Discharges controlled under the WPCO must comply with the terms and conditions of a valid WPCO licence.</li> </ul>					



No.	Activity	Mitigation/EIA Recommendations	Responsibility for Implementation	Location Duration completion of measures	Implementation Stage C : Construction D : Design	Permit Conditions apply to	Relevant Guidelines Legislation
8.	Construction Waste Control Requirements	<p>Specific Measures Associated with Marine sediments</p> <p>In accordance with the WBTC No. 3/2000, the seriously contaminated material must be dredged and transported with great care. Mitigation measures, including the use of close-grab dredgers, shall be incorporated.</p> <p>The dredged contaminated sediment must be effectively isolated from the environment upon final disposal and shall be disposed of at the East Sha Chau Contaminated Mud Pits.</p>	TDD's Contractor	Whole Reclamation Area During Reclamation Works End of Reclamation Work	C	R	7
		<p>Segregation and Disposal of Wastes</p> <ul style="list-style-type: none"> <li>· inert demolition/construction waste material when deemed suitable for reclamation or land formation should be re-used on-site;</li> <li>· non-inert demolition / construction waste material should be disposed of at landfills;</li> <li>· chemical waste as defined by Schedule 1 of the Waste Disposal (Chemical Waste) (General) Regulation, should be stored in accordance with approved methods defined in the Regulation and Code of Practice and the chemical waste disposed of at the Chemical Waste Treatment Facility located at Tsing Yi or an approved recycler;</li> <li>· general refuse should be recycled where possible or disposed of at public landfill.</li> </ul>	TDD's Contractor	Works Areas During Construction End of Construction	C	P, R, A, C	1,8, 9
		<p>Storage, Collection and Transport of Waste</p> <ul style="list-style-type: none"> <li>· wastes should be handled and stored in a manner which ensures that they are held securely without loss or leakage thereby minimising the potential for pollution. Release of these potential pollutants into marine waters during storage, handling or barge transportation should not be permitted as introduction of polluted waters is likely to have detrimental effects on water quality and water sensitive receivers;</li> <li>· only reputable waste hauliers authorised to collect the specific category of waste concerned should be employed;</li> <li>· appropriate measures should be employed to minimise windblown litter and dust during transportation by using enclosed bins, covering trucks or transporting wastes in enclosed containers;</li> <li>· the necessary waste disposal permits and registrations should be obtained from the appropriate authorities, if they are required, in accordance with the Waste Disposal</li> </ul>	TDD's Contractor	Works Areas During Construction End of Construction	C	P, R, A, C	1, 8, 9



No.	Activity	Mitigation/EIA Recommendations	Responsibility for Implementation	Location Duration completion of measures	Implementation Stage C : Construction D : Design	Permit Conditions apply to	Relevant Guidelines Legislation
		Ordinance (Cap 354), Waste Disposal (Chemical Waste) (General) Regulation (Cap 354) and the Crown Land Ordinance; <ul style="list-style-type: none"> <li>· collection of general refuse should be carried out frequently, preferably daily;</li> <li>· waste should only be disposed of at licensed sites and the civil engineering contractor should develop procedures to ensure that illegal disposal of wastes does not occur;</li> <li>· waste storage areas should be well maintained and cleaned regularly;</li> <li>· records should be maintained of the quantities of wastes generated, recycled and disposed, determined by weighing each load or other method; and</li> <li>· A "trip ticket" system should be implemented, if required by Government.</li> </ul>					
9	Construction Landscape and Visual Control Requirements	Construction stage landscape and visual mitigation measures should include : <ul style="list-style-type: none"> <li>· Minimising contractors accesses and working areas as far as possible;</li> <li>· Protection and retention of existing vegetation where possible in accordance with the Hong Kong Government "A Guide to Tree Planting and Maintenance in Urban Hong Kong, Section 5" Care of Trees on Development Sites' and the Country Parks Ordinance</li> <li>· Transplanting of trees where appropriate;</li> <li>· Advance planting and visual screening;</li> <li>· Conservation of top soil;</li> <li>· Design of the temporary works areas so as to optimise eventual use as promenade and public open space; and</li> <li>· Sensitively designed site hoarding.</li> </ul>	TDD's design consultant	Area wide during design and contract preparation	D	P, R, A, C	11, 12, 13,14
10	Monitoring and Audit	To be carried out in accordance with the Schedule in the EM and A Manual	TDD*/Contractor/ RSS  TDD's design consultant	Works areas During construction End of construction and within one year of operational phase Area wide during design and contract preparation	C/O  D	P, R, A, C  P, R, A, C	1  11,12,13,14





**Relevant Guidelines Legislation**

1. Environmental Impact Assessment Ordinance Technical Memorandum (EIAO)
2. HKPSG
3. ExCo Criteria for ITR
4. Noise Control Ordinance
5. The ProPECC Note PN2/93 (Construction Noise daytime limits)
6. Air Pollution Control Ordinance (APCO)
7. Water Pollution Control Ordinance (WPCO)(Cap. 358)
8. Waste Disposal Ordinance (Cap 354)
9. Waste Disposal (Chemical Waste)(General) Regulation (Cap 354)
10. Land Ordinance (Cap 28)
11. WBTC 25/92 Allocation of Space for Urban Trees
12. WBTC 25/93 Control of Visual Impact of Slopes
13. WBTC 18/94 Management and Maintenance of both Natural Vegetation and Landscape Works
14. WBTC 24/94 and PELBTC 3/94 "Tree Preservation"
15. Antiquities and Monuments Ordinance (Cap 53)

**Permit Conditions apply to**

- P Primary and District Distributor Roads
- R Reclamation
- A North Island Line Protection Works
- C Central and Wanchai Bypass
- + These items should be excluded from any Environmental Permit conditions as these refer to future development of the area (which is not designated under the EIAO), and are not related to reclamation and dredging activities which are designated, and can hence be controlled through EP conditions.
- \* Normally undertaken by a specialist monitoring team employed directly by the proponent and audited by the Environmental Works Checker.



***Appendix 4.1***

***Action and Limit Level***



**Action and Limit Level**

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

<b>Time Period</b>	<b>Action Level</b>	<b>Limit Level</b>
07:00 - 19:00 hours on normal weekdays	When one documented complaint is received.	70 dB(A)

***Action and Limit Level for Air Monitoring***

<b>Monitoring Locations</b>	<b>1-hour TSP Level in <math>\mu\text{g}/\text{m}^3</math></b>		<b>24-hour TSP Level in <math>\mu\text{g}/\text{m}^3</math></b>	
	Action Level	Limit Level	Action Level	Limit Level
<b>ACL1 -</b> City Hall	460	500	163	260
<b>ACL2a -</b> Contract HK/2012/08 Site Office	300.1	500	187.3	260



***Appendix 4.2***

***Copies of Calibration Certificates***



Lam Geotechnics Limited

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

Location : ACL1 Calibration Date : 18-Oct-13  
 Equipment no. : EL222 Calibration Due Dat : 18-Dec-13

**CALIBRATION OF CONTINUOUS FLOW RECORDER**

Ambient Condition			
Temperature, T <sub>a</sub>	302	Kelvin	Pressure, P <sub>a</sub>
			1010 mmHg

Orifice Transfer Standard Information					
Equipment No.	EL086	Slope, m <sub>c</sub>	2.01968	Intercept, b <sub>c</sub>	-0.02746
Last Calibration Date	15-Jul-13	$(H \times P_a / 1013.3 \times 298 / T_a)^{1/2}$ $= m_c \times Q_{std} + b_c$			
Next Calibration Date	15-Jul-14				

Calibration of RSP						
Calibration Point	Manometer Reading			Q <sub>std</sub>	Continuous Flow	IC
	H (inches of water)			(m <sup>3</sup> / min.)	Recorder, W	(W(P <sub>a</sub> /1013.3x298/T <sub>a</sub> ) <sup>1/2</sup> /35.31)
	(up)	(down)	(difference)	X-axis	(CFM)	Y-axis
1	6.1	6.1	12.2	1.7287	62	61.4877
2	4.9	4.9	9.8	1.5508	53	52.5620
3	4.0	4.0	8.0	1.4025	46	45.6199
4	2.5	2.5	5.0	1.1116	33	32.7273
5	1.6	1.6	3.2	0.8920	23	22.8099

By Linear Regression of Y on X

Slope, m = 45.8969 Intercept, b = -18.3277

Correlation Coefficient\* = 0.9997

Calibration Accepted = Yes/No\*\*

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

\*\* Delete as appropriate.

Remarks : \_\_\_\_\_

Calibrated by : Henry Checked by : Derek Lo  
 Date : 18-Oct-13 Date : 18-Oct-13



Lam Geotechnics Limited

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

Location : ACL1  
 Equipment no. : EL222  
 Calibration Date : 18-Dec-13  
 Calibration Due Date : 18-Feb-14

#### CALIBRATION OF CONTINUOUS FLOW RECORDER

Ambient Condition			
Temperature, T <sub>a</sub>	284	Kelvin	Pressure, P <sub>a</sub>
			1020 mmHg

Orifice Transfer Standard Information					
Equipment No.	EL086	Slope, m <sub>c</sub>	2.01968	Intercept, b <sub>c</sub>	-0.02746
Last Calibration Date	15-Jul-13	$\left( \frac{H \times P_a}{1013.3 \times 298 / T_a} \right)^{1/2}$ $= m_c \times Q_{std} + b_c$			
Next Calibration Date	15-Jul-14				

Calibration of RSP						
Calibration Point	Manometer Reading			Q <sub>std</sub> (m <sup>3</sup> / min.) X-axis	Continuous Flow Recorder, W (CFM)	IC (W(P <sub>a</sub> /1013.3x298/T <sub>a</sub> ) <sup>1/2</sup> /35.31) Y-axis
	(up)	(down)	(difference)			
1	6.1	6.1	12.2	1.7910	62	63.7194
2	5.0	5.0	10.0	1.6227	53	54.4698
3	4.0	4.0	8.0	1.4529	45	46.2480
4	2.5	2.5	5.0	1.1514	31	31.8597
5	1.5	1.5	3.0	0.8950	20	20.5546

By Linear Regression of Y on X

Slope, m = 47.9532      Intercept, b = -22.9296

Correlation Coefficient\* = 0.9994

Calibration Accepted = Yes/No\*\*

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

\*\* Delete as appropriate.

Remarks : \_\_\_\_\_

Calibrated by : Henry  
 Date : 18-Dec-13  
 Checked by : Derek Lo  
 Date : 18-Dec-13



Lam Geotechnics Limited

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

Location : ACL2a Calibration Date : 4-Dec-13  
 Equipment no. : EL111 Calibration Due Dat : 4-Feb-14

**CALIBRATION OF CONTINUOUS FLOW RECORDER**

Ambient Condition			
Temperature, T <sub>a</sub>	295	Kelvin	Pressure, P <sub>a</sub>
			1020 mmHg

Orifice Transfer Standard Information					
Equipment No.	EL086	Slope, m <sub>c</sub>	2.01968	Intercept, b <sub>c</sub>	-0.02746
Last Calibration Date	15-Jul-13	$(H \times P_a / 1013.3 \times 298 / T_a)^{1/2}$ $= m_c \times Q_{std} + b_c$			
Next Calibration Date	15-Jul-14				

Calibration of RSP						
Calibration Point	Manometer Reading			Q <sub>std</sub> (m <sup>3</sup> / min.) X-axis	Continuous Flow Recorder, W (CFM)	IC (W(P <sub>a</sub> /1013.3x298/T <sub>a</sub> ) <sup>1/2</sup> /35.31) Y-axis
	(up)	(down)	(difference)			
1	6.2	6.2	12.4	1.7717	61	61.5117
2	4.9	4.9	9.8	1.5766	55	55.4614
3	3.9	3.9	7.8	1.4080	49	49.4111
4	2.5	2.5	5.0	1.1300	40	40.3356
5	1.5	1.5	3.0	0.8784	32	32.2685

By Linear Regression of Y on X

Slope, m = 32.9378 Intercept, b = 3.2344

Correlation Coefficient\* = 0.9999

Calibration Accepted = Yes/No\*\*

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

\*\* Delete as appropriate.

Remarks : \_\_\_\_\_

Calibrated by : Henry Checked by : Derek Lo  
 Date : 4-Dec-13 Date : 4-Dec-13



TISCH ENVIRONMENTAL, INC.  
 145 SOUTH MIAMI AVE.  
 VILLAGE OF CLEVELAND, OH 45002  
 513.467.9000  
 877.263.7610 TOLL FREE  
 513.467.9009 FAX  
 WWW.TISCH-ENV.COM

**AIR POLLUTION MONITORING EQUIPMENT**  
 ORIFICE TRANSFER STANDARD CERTIFICATION WORKSHEET TE-5025A

Date - Jul 15, 2013    Roots-meter S/N    0438320    Ta (K) -    300  
 Operator Tisch    Orifice I.D. -    0005    Pa (mm) -    759.46

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	1.3910	3.2	2.00
2	NA	NA	1.00	0.9830	6.4	4.00
3	NA	NA	1.00	0.8800	7.9	5.00
4	NA	NA	1.00	0.8380	8.8	5.50
5	NA	NA	1.00	0.6930	12.7	8.00

DATA TABULATION

Vstd	(x axis) Qstd	(y axis)	Va	(x axis) Qa	(y axis)
0.9884	0.7106	1.4090	0.9958	0.7159	0.8888
0.9843	1.0013	1.9926	0.9916	1.0087	1.2570
0.9822	1.1161	2.2278	0.9895	1.1244	1.4054
0.9811	1.1708	2.3365	0.9884	1.1795	1.4740
0.9760	1.4084	2.8180	0.9832	1.4188	1.7777
Qstd slope (m) = 2.01968			Qa slope (m) = 1.26469		
intercept (b) = -0.02746			intercept (b) = -0.01732		
coefficient (r) = 0.99999			coefficient (r) = 0.99999		
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:

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

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



# Certificate of Calibration and Conformance

Certificate Number 2013-172795

Instrument Model 831, Serial Number 0003227, was calibrated on 16APR2013. The instrument meets factory specifications per Procedure D0001.8310, ANSI S1.4-1983 (R 2006) Type 1; S1.4A-1985 ; S1.43-1997 Type 1; S1.11-2004 Octave Band Class 1; S1.25-1991; IEC 61672-2002 Class 1; 60651-2001 Type 1; 60804-2000 Type 1; 61260-2001 Class 1; 61252-2002.

**New Instrument**

**Date Calibrated: 16APR2013**

**Calibration due:**

### Calibration Standards Used

MANUFACTURER	MODEL	SERIAL NUMBER	INTERVAL	CAL. DUE	TRACEABILITY NO.
Stanford Research Systems	DS360	61889	12 Months	30JAN2014	61889-013013

Reference Standards are traceable to the National Institute of Standards and Technology (NIST)

### Calibration Environmental Conditions

Temperature: 23 ° Centigrade

Relative Humidity: 30 %

### Affirmations

This Certificate attests that this instrument has been calibrated under the stated conditions with Measurement and Test Equipment (M&TE) Standards traceable to the U.S. National Institute of Standards and Technology (NIST). All of the Measurement Standards have been calibrated to their manufacturers' specified accuracy / uncertainty. Evidence of traceability and accuracy is on file at Provo Engineering & Manufacturing Center. An acceptable accuracy ratio between the Standard(s) and the item calibrated has been maintained. This instrument meets or exceeds the manufacturer's published specification unless noted.

The collective uncertainty of the Measurement Standard used does not exceed 25% of the applicable tolerance for each characteristic calibrated unless otherwise noted.

The results documented in this certificate relate only to the item(s) calibrated or tested. A one year calibration is recommended, however calibration interval assignment and adjustment are the responsibility of the end user. This certificate may not be reproduced, except in full, without the written approval of the issuer.

Tested with PRM831-023959

Signed:   
Technician: Ron Harris

# ~ Certificate of Calibration and Compliance ~

Microphone Model: 377B02

Serial Number: LW135892

Manufacturer: PCB

## Calibration Environmental Conditions

Environmental test conditions as printed on microphone calibration chart.

## Reference Equipment

Manufacturer	Model #	Serial #	PCB Control #	Cal Date	Due Date
Hewlett Packard	34401A	MY41045214	LD-001	3/8/12	3/8/13
Bruel & Kjaer	4192	2657834	CA1270	11/16/12	11/15/13
Newport	BTH-W/N	8410668	CA1187	not required	not required
Larson Davis	PRM915	124	CA-1024	12/6/12	12/6/13
Larson Davis	PRM902	4709	CA1453	10/16/12	10/16/13
Larson Davis	2559LF	3216	CA-883	not required	not required
Larson Davis	ADP005	1	LD-017	not required	not required
Larson Davis	PRM916	127	CA-924	4/4/12	4/4/13
Larson Davis	CAL250	5025	CA1277	3/7/12	3/7/13
Larson Davis	2201	140	CA-891	4/20/12	4/19/13
Larson Davis	2900	1079	CA-521A	6/10/11	6/10/13
Larson Davis	PRA951-4	234	CA1154	9/19/12	9/19/13
0	0	0	0	not required	not required
0	0	0	0	not required	not required

Frequency sweep performed with B&K UA0033 electrostatic actuator.

## Condition of Unit

As Found: N/A

As Left: New unit in tolerance

## Notes

1. Calibration of reference microphone is traceable through PTB.
2. This certificate shall not be reproduced, except in full, without written approval from PCB Piezotronics, Inc.
3. Calibration is performed in compliance with ISO 9001, ISO 10012-1, ANSI/NCCL Z540.3 and ISO 17025.
4. See Manufacturer's Specification Sheet for a detailed listing of performance specifications.
5. Open circuit sensitivity is measured using the insertion voltage method following procedure AT603-5.
6. Measurement uncertainty (95% confidence level with coverage factor of 2) for sensitivity is +/-0.20 dB.
7. Unit calibrated per ACS-20.

Technician: Milton Munger *m/m*

Date: February 25, 2013



3425 Walden Avenue, Depew, New York, 14043

TEL: 888-684-0013 FAX: 716-685-3886 www.pcb.com

ID CAL60-3444681319-486



## ~ Calibration Report ~

Microphone Model: 377B02

Serial Number: LW135892

Description: 1/2" Free-Field Microphone

### Calibration Data

Open Circuit Sensitivity @ 251.2 Hz: 47.69 mV/Pa  
-26.43 dB re 1V/Pa

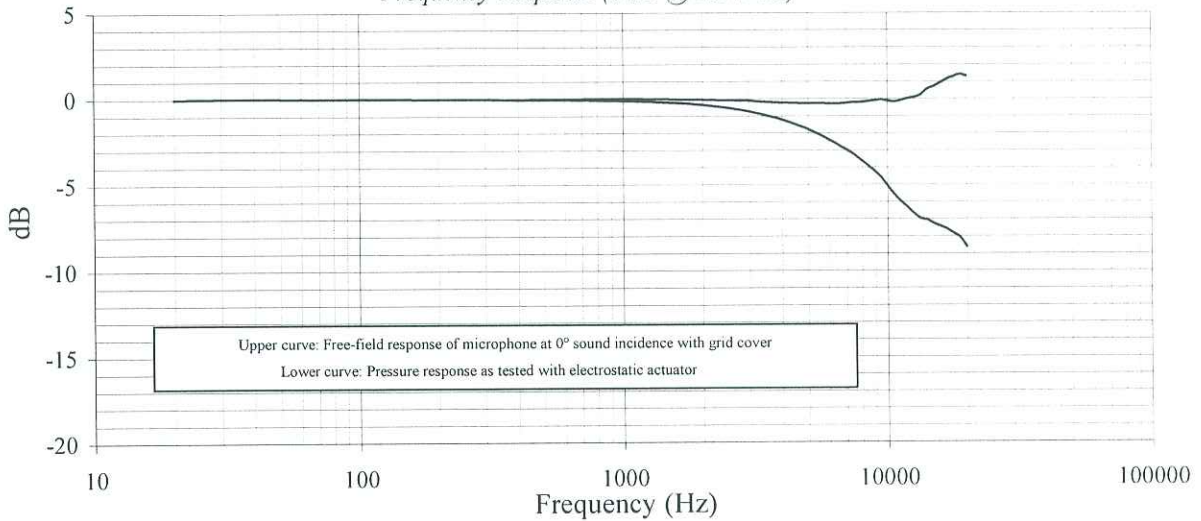
Polarization Voltage, External: 0 V  
Capacitance: 12.6 pF

Temperature: 71 °F (22°C)

Ambient Pressure: 996 mbar

Relative Humidity: 25 %

Frequency Response (0 dB @ 251.2 Hz)



Upper curve: Free-field response of microphone at 0° sound incidence with grid cover  
 Lower curve: Pressure response as tested with electrostatic actuator

Freq (Hz)	Lower (dB)	Upper (dB)	Freq (Hz)	Lower (dB)	Upper (dB)	Freq (Hz)	Lower (dB)	Upper (dB)	Freq (Hz)	Lower (dB)	Upper (dB)
20.0	-0.01	-0.01	1584.9	-0.23	-0.02	6683.4	-2.79	-0.27	-	-	-
25.1	0.02	0.02	1678.8	-0.25	-0.02	7079.5	-3.01	-0.23	-	-	-
31.6	0.04	0.04	1778.3	-0.28	-0.03	7498.9	-3.26	-0.19	-	-	-
39.8	0.04	0.04	1883.7	-0.31	-0.03	7943.3	-3.58	-0.19	-	-	-
50.1	0.03	0.03	1995.3	-0.35	-0.04	8414.0	-3.88	-0.15	-	-	-
63.1	0.03	0.03	2113.5	-0.39	-0.05	8912.5	-4.21	-0.10	-	-	-
79.4	0.02	0.02	2238.7	-0.43	-0.06	9440.6	-4.57	-0.05	-	-	-
100.0	0.02	0.02	2371.4	-0.48	-0.07	10000.0	-5.07	-0.12	-	-	-
125.9	0.02	0.02	2511.9	-0.53	-0.07	10592.5	-5.57	-0.17	-	-	-
158.5	0.01	0.01	2660.7	-0.59	-0.08	11220.2	-5.96	-0.10	-	-	-
199.5	0.01	0.01	2818.4	-0.65	-0.09	11885.0	-6.31	0.01	-	-	-
251.2	0.00	0.00	2985.4	-0.72	-0.10	12589.3	-6.68	0.09	-	-	-
316.2	-0.01	0.00	3162.3	-0.82	-0.14	13335.2	-6.97	0.22	-	-	-
398.1	-0.02	-0.02	3349.7	-0.90	-0.16	14125.4	-7.05	0.54	-	-	-
501.2	-0.03	0.01	3548.1	-1.00	-0.18	14962.4	-7.27	0.70	-	-	-
631.0	-0.04	0.00	3758.4	-1.10	-0.20	15848.9	-7.43	0.92	-	-	-
794.3	-0.07	0.02	3981.1	-1.22	-0.22	16788.0	-7.59	1.13	-	-	-
1000.0	-0.10	0.02	4217.0	-1.34	-0.23	17782.8	-7.83	1.28	-	-	-
1059.3	-0.11	0.02	4466.8	-1.47	-0.24	18836.5	-8.09	1.42	-	-	-
1122.0	-0.12	0.02	4731.5	-1.62	-0.25	19952.6	-8.61	1.32	-	-	-
1188.5	-0.14	0.01	5011.9	-1.78	-0.25	-	-	-	-	-	-
1258.9	-0.15	0.01	5308.8	-1.96	-0.26	-	-	-	-	-	-
1333.5	-0.17	0.01	5623.4	-2.14	-0.26	-	-	-	-	-	-
1412.5	-0.19	0.00	5956.6	-2.35	-0.28	-	-	-	-	-	-
1496.2	-0.21	-0.01	6309.6	-2.56	-0.27	-	-	-	-	-	-

Technician: Milton Munger *mjm*

Date: February 25, 2013



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ID: CAL60-3444681319 486



# Calibration Certificate

Certificate No. **34228**

Page 1 of 2 Pages

**Customer :** Lam Geotechnics Limited

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

**Order No. :** Q31610

**Date of receipt :** 21-Jun-13

## Item Tested

**Description :** Sound Level Calibrator

**Manufacturer :** Rion

**Model :** NC-73

**Serial No. :** 10707358

## Test Conditions

**Date of Test :** 25-Jun-13

**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 manufacturer's 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	30259	NIM-PRC & SCL-HKSAR
S024	Sound Level Calibrator	30620	NIM-PRC & SCL-HKSAR
S041	Universal Counter	28347	SCL-HKSAR
S206	Sound Level Meter	30655	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 :**

  
Liam Wong

**Approved by :**

  
Dorothy Cheuk

**Date:** 25-Jun-13

This Certificate is issued by:

Hong Kong Calibration Ltd.

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

Tel: 2425 8801 Fax: 2425 8646

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# Calibration Certificate

Certificate No. 34228

Page 2 of 2 Pages

Results :

## 1. Level Accuracy (at 1 kHz)

UUT Nominal Value	Measured Value	Mfr's Spec.
94 dB	93.88 dB	$\pm 1$ dB

Uncertainty :  $\pm 0.2$  dB

## 2. Frequency Accuracy

UUT Nominal Value	Measured Value	Mfr's Spec.
1 kHz	0.995 kHz	$\pm 2$ %

Uncertainty :  $\pm 0.1$  %

## 3. Level Stability : 0.0 dB

Uncertainty :  $\pm 0.01$  dB

## 4. Total Harmonic Distortion : $< 0.2$ %

Mfr's Spec. :  $< 3$  %

Uncertainty :  $\pm 2.3$  % of reading

Remark : 1. UUT : Unit-Under-Test

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

3. The above measured values were the mean of 3 measurements.

4. Atmospheric Pressure : 999 hPa

----- END -----





***Appendix 5.1***

***Monitoring Schedules for Reporting Month and Coming Reporting Month***

**Contract No. HK/2011/07  
Wan Chai Development Phase II and Central-Wan Chai Bypass  
Sampling, Field Measurement and Testing Works (Stage 2)**

**Environmental Monitoring Schedule  
December 2013**

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
01-Dec 24hr TSP	02-Dec 1hr TSP	03-Dec	04-Dec	05-Dec	06-Dec	07-Dec 24hr TSP
08-Dec 1hr TSP	09-Dec	10-Dec	11-Dec	12-Dec 24hr TSP	13-Dec	14-Dec 1hr TSP
15-Dec	16-Dec	17-Dec	18-Dec 24hr TSP	19-Dec 1hr TSP	20-Dec	21-Dec
22-Dec 24hr TSP	23-Dec 1hr TSP	24-Dec	25-Dec	26-Dec	27-Dec	28-Dec 24hr TSP
29-Dec 1hr TSP	30-Dec	31-Dec				

**Contract No. HK/2011/07**  
**Wan Chai Development Phase II and Central-Wan Chai Bypass**  
**Sampling, Field Measurement and Testing Works (Stage 2)**  
**Tentative Environmental Monitoring Schedule**  
**January 2014**

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





***Appendix 5.2***

***Continuous Noise Monitoring Results and Graphical Presentations***

















Continuous Noise Monitoring Data

ACL3 (City Hall)

16/12/2013 03:01 54.7	17/12/2013 04:06 55.3	18/12/2013 05:11 55.0	19/12/2013 06:16 57.8	20/12/2013 23:21 59.1	22/12/2013 00:26 56.9
16/12/2013 03:06 54.4	17/12/2013 04:11 55.1	18/12/2013 05:16 55.6	19/12/2013 06:21 57.3	20/12/2013 23:26 58.8	22/12/2013 00:31 57.5
16/12/2013 03:11 55.2	17/12/2013 04:16 55.7	18/12/2013 05:21 55.0	19/12/2013 06:26 57.3	20/12/2013 23:31 59.1	22/12/2013 00:36 55.6
16/12/2013 03:16 54.7	17/12/2013 04:21 56.3	18/12/2013 05:26 54.8	19/12/2013 06:31 58.4	20/12/2013 23:36 59.7	22/12/2013 00:41 55.6
16/12/2013 03:21 55.1	17/12/2013 04:26 56.6	18/12/2013 05:31 55.7	19/12/2013 06:36 58.4	20/12/2013 23:41 58.4	22/12/2013 00:46 55.3
16/12/2013 03:26 54.8	17/12/2013 04:31 56.4	18/12/2013 05:36 55.9	19/12/2013 06:41 57.8	20/12/2013 23:46 58.7	22/12/2013 00:51 55.2
16/12/2013 03:31 54.2	17/12/2013 04:36 55.8	18/12/2013 05:41 56.2	19/12/2013 06:46 57.9	20/12/2013 23:51 58.1	22/12/2013 00:56 55.9
16/12/2013 03:36 54.4	17/12/2013 04:41 55.4	18/12/2013 05:46 57.5	19/12/2013 06:51 59.0	20/12/2013 23:56 57.2	22/12/2013 01:01 55.3
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16/12/2013 05:56 57.1	17/12/2013 07:01 57.8	19/12/2013 08:06 56.9	20/12/2013 09:11 57.7	21/12/2013 02:16 54.8	22/12/2013 03:21 53.8
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16/12/2013 06:56 59.5	18/12/2013 08:01 56.5	19/12/2013 09:06 55.1	20/12/2013 10:11 54.7	21/12/2013 03:16 55.1	22/12/2013 04:21 54.6
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16/12/2013 07:06 58.9	18/12/2013 08:11 56.7	19/12/2013 09:16 55.4	20/12/2013 10:21 55.1	21/12/2013 03:26 55.0	22/12/2013 04:31 53.8
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16/12/2013 07:26 59.1	18/12/2013 08:31 55.7	19/12/2013 09:36 54.8	20/12/2013 10:41 54.8	21/12/2013 03:46 55.3	22/12/2013 04:51 53.8
16/12/2013 07:31 58.5	18/12/2013 08:36 55.5	19/12/2013 09:41 56.8	20/12/2013 10:46 54.9	21/12/2013 03:51 55.0	22/12/2013 04:56 54.3
16/12/2013 07:36 58.9	18/12/2013 08:41 56.4	19/12/2013 09:46 55.3	20/12/2013 10:51 54.3	21/12/2013 03:56 55.2	22/12/2013 05:01 54.0
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16/12/2013 07:46 58.4	18/12/2013 08:51 55.4	19/12/2013 09:56 54.5	20/12/2013 11:01 54.5	21/12/2013 04:06 55.1	22/12/2013 05:11 53.7
16/12/2013 07:51 58.0	18/12/2013 08:56 55.6	19/12/2013 10:01 55.7	20/12/2013 11:06 54.9	21/12/2013 04:11 55.5	22/12/2013 05:16 54.1
16/12/2013 07:56 58.2	18/12/2013 09:01 55.4	19/12/2013 10:06 54.9	20/12/2013 11:11 55.0	21/12/2013 04:16 55.0	22/12/2013 05:21 54.5
17/12/2013 00:01 57.7	18/12/2013 09:06 55.1	19/12/2013 10:11 54.7	20/12/2013 11:16 54.1	21/12/2013 04:21 54.9	22/12/2013 05:26 55.9
17/12/2013 00:06 58.1	18/12/2013 09:11 54.8	19/12/2013 10:16 54.5	20/12/2013 11:21 54.4	21/12/2013 04:26 55.1	22/12/2013 05:31 55.0
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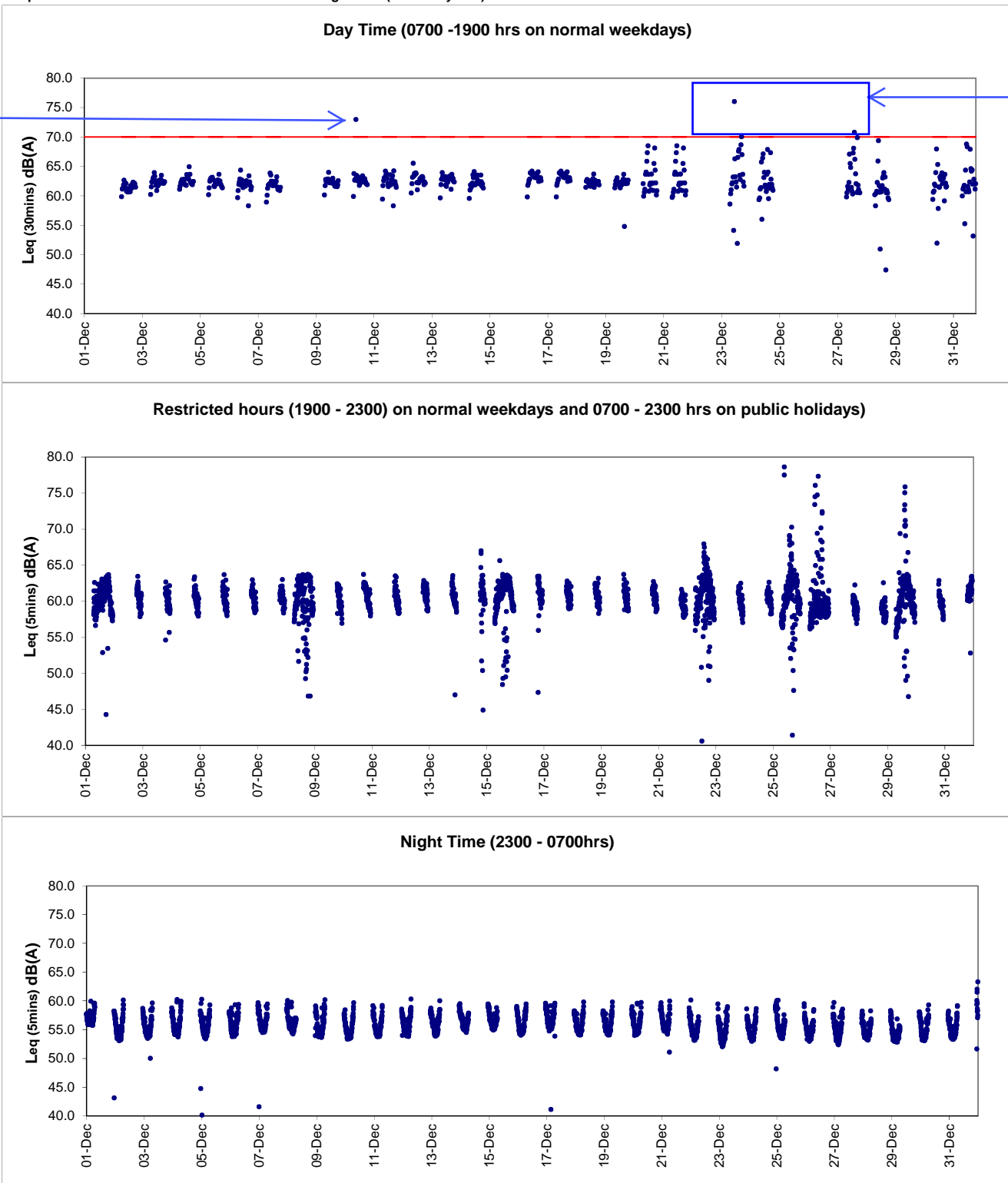
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30/12/2013 04:46 54.2	31/12/2013 05:51 55.1
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30/12/2013 04:56 56.7	31/12/2013 06:01 56.4
30/12/2013 05:01 54.8	31/12/2013 06:06 55.9
30/12/2013 05:06 54.7	31/12/2013 06:11 56.6
30/12/2013 05:11 56.9	31/12/2013 06:16 56.6
30/12/2013 05:16 55.2	31/12/2013 06:21 57.7
30/12/2013 05:21 56.2	31/12/2013 06:26 55.8
30/12/2013 05:26 54.9	31/12/2013 06:31 57.3
30/12/2013 05:31 54.9	31/12/2013 06:36 57.1
30/12/2013 05:36 54.9	31/12/2013 06:41 57.3
30/12/2013 05:41 56.0	31/12/2013 06:46 57.9
30/12/2013 05:46 56.1	31/12/2013 06:51 59.0
30/12/2013 05:51 56.6	31/12/2013 06:56 59.1
30/12/2013 05:56 56.4	31/12/2013 23:01 60.1
30/12/2013 06:01 56.0	31/12/2013 23:06 51.6
30/12/2013 06:06 56.5	31/12/2013 23:11 59.4
30/12/2013 06:11 56.6	31/12/2013 23:16 62.0
30/12/2013 06:16 58.4	31/12/2013 23:21 61.5
30/12/2013 06:21 56.2	31/12/2013 23:26 58.6
30/12/2013 06:26 57.3	31/12/2013 23:31 59.6
30/12/2013 06:31 57.1	31/12/2013 23:36 58.1
30/12/2013 06:36 57.1	31/12/2013 23:41 58.3
30/12/2013 06:41 57.0	31/12/2013 23:46 57.0
30/12/2013 06:46 57.0	31/12/2013 23:51 57.5
30/12/2013 06:51 57.5	31/12/2013 23:56 63.3
30/12/2013 06:56 59.3	
30/12/2013 23:01 57.6	
30/12/2013 23:06 56.7	
30/12/2013 23:11 57.0	
30/12/2013 23:16 56.6	
30/12/2013 23:21 57.9	
30/12/2013 23:26 58.2	
30/12/2013 23:31 57.2	
30/12/2013 23:36 56.6	
30/12/2013 23:41 56.7	
30/12/2013 23:46 56.1	
30/12/2013 23:51 56.5	
30/12/2013 23:56 56.5	
31/12/2013 00:01 56.7	
31/12/2013 00:06 56.0	
31/12/2013 00:11 55.8	
31/12/2013 00:16 55.8	
31/12/2013 00:21 56.3	
31/12/2013 00:26 55.1	
31/12/2013 00:31 55.4	
31/12/2013 00:36 55.3	
31/12/2013 00:41 55.2	
31/12/2013 00:46 55.0	
31/12/2013 00:51 55.2	
31/12/2013 00:56 55.5	
31/12/2013 01:01 55.3	

Graphic Presentation of Continuous Noise Monitoring Result (ACL3-City Hall)



After checking work activities of contractor HK/2012/08, it was found that no major noisy activities were performed during the recorded period. As the exceedance was not continuous, it was considered as non-project related and contributed by nearby traffic noise from Lung Wo Road.

After checking work activities of contractor HK/2012/08, it was found that no major noisy activities were performed during the recorded period. In addition, on-going repairing works of the air conditioning system on the roof of lower block of City Hall adjacent to monitoring station were noted. The exceedances were not continuous and were considered as non-project related and contributed by adjacent repairing works and nearby traffic.



***Appendix 5.3***

***Air Quality Monitoring Results and Graphical Presentations***



Location: ACL1 - City Hall

Report on 24-hour TSP monitoring  
Action Level ( $\mu\text{g}/\text{m}^3$ ) - 163  
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, $\text{m}^3/\text{min}$			Total Volume, $\text{m}^3$	TSP Level, $\mu\text{g}/\text{m}^3$
				Initial	Final	Initial	Final		Initial, $Q_{si}$	Final, $Q_{sf}$	Average		
02-Dec-13	08:00	Fine	006431	2.7378	2.8401	1774.12	1798.12	24.00	1.21	1.20	1.21	1735	59
07-Dec-13	08:00	Fine	006406	2.7084	2.9170	1801.11	1825.11	24.00	1.22	1.22	1.22	1762	118
13-Dec-13	08:00	Cloudy	006486	2.7323	2.9774	1828.11	1852.11	24.00	1.25	1.25	1.25	1795	137
19-Dec-13	08:00	Cloudy	007618	2.6419	2.7306	1855.10	1879.10	24.00	1.29	1.29	1.29	1855	48
23-Dec-13	08:00	Cloudy	007543	2.6310	2.7558	1882.10	1906.10	24.00	1.28	1.28	1.28	1848	68
28-Dec-13	08:00	Fine	007784	2.6432	2.8824	1909.10	1933.10	24.00	1.30	1.30	1.30	1872	128

Report on 1-hour TSP monitoring  
Action Level ( $\mu\text{g}/\text{m}^3$ ) - 460  
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, $\text{m}^3/\text{min}$			Total Volume, $\text{m}^3$	TSP Level, $\mu\text{g}/\text{m}^3$
				Initial	Final	Initial	Final		Initial, $Q_{si}$	Final, $Q_{sf}$	Average		
03-Dec-13	08:25	Fine	006411	2.7061	2.7203	1798.12	1799.12	1.00	1.25	1.25	1.25	75	190
03-Dec-13	09:40	Fine	006405	2.6849	2.6971	1799.12	1800.12	1.00	1.25	1.25	1.25	75	163
03-Dec-13	10:45	Fine	006427	2.7653	2.7751	1800.12	1801.12	1.00	1.25	1.25	1.25	75	131
09-Dec-13	08:25	Fine	006479	2.7602	2.7681	1825.11	1826.11	1.00	1.24	1.24	1.24	74	106
09-Dec-13	09:40	Fine	006482	2.7398	2.7473	1826.11	1827.11	1.00	1.24	1.24	1.24	74	101
09-Dec-13	10:50	Fine	006485	2.7156	2.7249	1827.11	1828.11	1.00	1.24	1.24	1.24	74	125
14-Dec-13	09:12	Rainy	006220	2.6591	2.6656	1852.11	1853.11	1.00	1.25	1.25	1.25	75	87
14-Dec-13	10:17	Rainy	007614	2.6322	2.6418	1853.11	1854.11	1.00	1.25	1.25	1.25	75	128
14-Dec-13	13:00	Rainy	007617	2.6347	2.6439	1854.11	1855.11	1.00	1.25	1.25	1.25	75	123
20-Dec-13	08:17	Cloudy	007648	2.6238	2.6269	1879.10	1880.10	1.00	1.29	1.29	1.29	77	40
20-Dec-13	09:25	Cloudy	007537	2.6369	2.6401	1880.10	1881.10	1.00	1.29	1.29	1.29	77	41
20-Dec-13	10:31	Cloudy	007540	2.6428	2.6465	1881.10	1882.10	1.00	1.29	1.29	1.29	77	48
24-Dec-13	08:17	Rainy	006380	2.6186	2.6300	1906.10	1907.10	1.00	1.28	1.28	1.28	77	148
24-Dec-13	09:25	Rainy	007790	2.6039	2.6111	1907.10	1908.10	1.00	1.28	1.28	1.28	77	94
24-Dec-13	10:31	Rainy	007789	2.6058	2.6126	1908.10	1909.10	1.00	1.28	1.28	1.28	77	88
30-Dec-13	08:46	Fine	007606	2.6703	2.6808	1933.10	1934.10	1.00	1.30	1.30	1.30	78	135
30-Dec-13	09:57	Fine	005938	2.6484	2.6688	1934.10	1935.10	1.00	1.30	1.30	1.30	78	262
30-Dec-13	11:00	Fine	006473	2.7307	2.7408	1935.10	1936.10	1.00	1.30	1.30	1.30	78	130



Location: ACL2a - Contractor HK/2012/08 Site office

Report on 24-hour TSP monitoring  
Action Level ( $\mu\text{g}/\text{m}^3$ ) - 187.3  
Limit Level ( $\mu\text{g}/\text{m}^3$ ) - 260

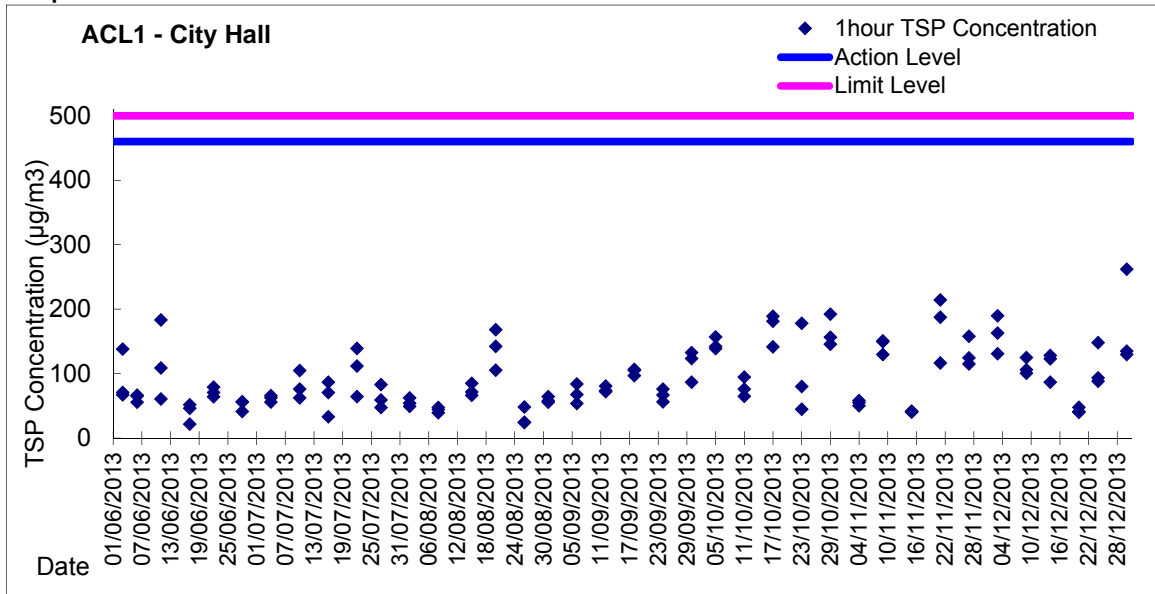
Date	Sampling Time	Weather Condition	Filter paper no.	Filter Weight, g		Elapse Time, hr		Sampling Time, hr	Flow Rate, $\text{m}^3/\text{min}$			Total Volume, $\text{m}^3$	TSP Level, $\mu\text{g}/\text{m}^3$
				Initial	Final	Initial	Final		Initial, $Q_{si}$	Final, $Q_{sf}$	Average		
07-Dec-13	08:00	Fine	006488	2.7457	2.9605	1075.74	1099.74	24.00	1.25	1.25	1.25	1802	119
13-Dec-13	08:00	Cloudy	005801	2.8452	3.1335	1102.73	1126.73	24.00	1.30	1.30	1.30	1871	154
19-Dec-13	08:00	Cloudy	007560	2.6718	2.7726	1129.74	1153.74	24.00	1.14	1.14	1.14	1642	61
23-Dec-13	08:00	Cloudy	06417	2.7552	2.9735	1156.74	1180.74	24.00	1.13	1.13	1.13	1631	134
28-Dec-13	08:00	Fine	006306	2.6188	2.8539	1183.75	1207.75	24.00	1.16	1.16	1.16	1667	141

Report on 1-hour TSP monitoring  
Action Level ( $\mu\text{g}/\text{m}^3$ ) - 300.1  
Limit Level ( $\mu\text{g}/\text{m}^3$ ) - 500

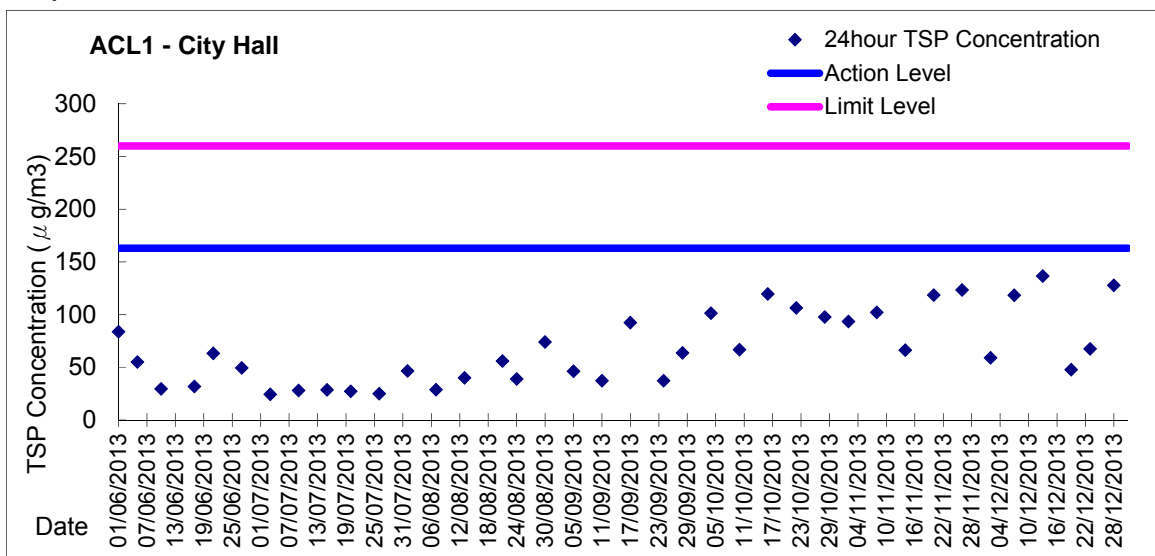
Date	Sampling Time	Weather Condition	Filter paper no.	Filter Weight, g		Elapse Time, hr		Sampling Time, hr	Flow Rate, $\text{m}^3/\text{min}$			Total Volume, $\text{m}^3$	TSP Level, $\mu\text{g}/\text{m}^3$
				Initial	Final	Initial	Final		Initial, $Q_{si}$	Final, $Q_{sf}$	Average		
09-Dec-13	08:27	Fine	005936	2.6407	2.6606	1099.74	1100.74	1.00	1.29	1.29	1.29	78	257
09-Dec-13	09:37	Fine	006213	2.6738	2.6903	1100.74	1101.74	1.00	1.29	1.29	1.29	78	213
09-Dec-13	13:00	Fine	006216	2.6691	2.6796	1101.74	1102.74	1.00	1.29	1.29	1.29	78	135
14-Dec-13	08:38	Rainy	007551	2.6376	2.6497	1126.73	1127.73	1.00	1.25	1.25	1.25	75	161
14-Dec-13	09:42	Rainy	007554	2.6498	2.6595	1127.73	1128.73	1.00	1.30	1.30	1.30	78	124
14-Dec-13	10:50	Rainy	007557	2.6526	2.6578	1128.73	1129.73	1.00	1.30	1.30	1.30	78	67
20-Dec-13	08:23	Cloudy	007563	2.6385	2.6395	1153.74	1154.74	1.00	1.08	1.08	1.08	65	15
20-Dec-13	09:34	Cloudy	007566	2.6705	2.6717	1154.74	1155.74	1.00	1.14	1.14	1.14	68	18
20-Dec-13	10:39	Cloudy	006420	2.7958	2.8028	1155.74	1156.74	1.00	1.14	1.14	1.14	68	102
24-Dec-13	08:30	Rainy	007664	2.6599	2.6682	1180.74	1181.74	1.00	1.13	1.13	1.13	68	122
24-Dec-13	09:35	Rainy	007658	2.6688	2.6765	1181.74	1182.74	1.00	1.13	1.13	1.13	68	113
24-Dec-13	10:40	Rainy	007656	2.6289	2.6361	1182.74	1183.74	1.00	1.13	1.13	1.13	68	106
30-Dec-13	10:18	Fine	006397	2.6829	2.7006	1207.75	1208.75	1.00	1.15	1.15	1.15	69	256
30-Dec-13	13:02	Fine	005979	2.6292	2.6489	1208.75	1209.75	1.00	1.15	1.15	1.15	69	285
30-Dec-13	14:27	Fine	006010	2.6348	2.6540	1209.75	1210.75	1.00	1.15	1.15	1.15	69	277



Graphic Presentation of 1 hour TSP Result



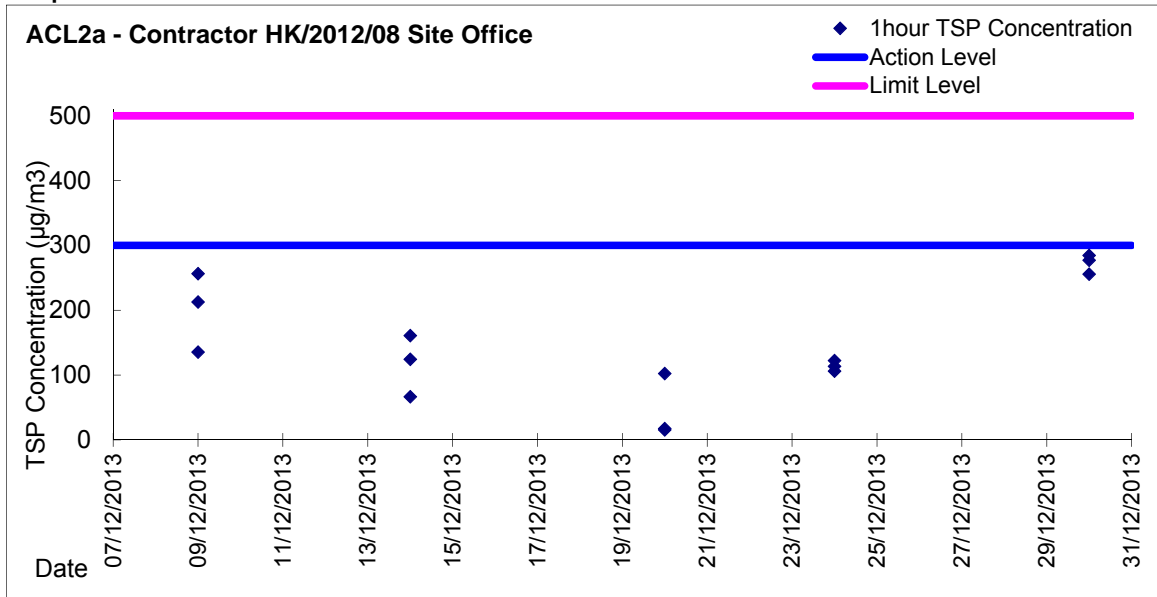
Graphic Presentation of 24 hour TSP Result



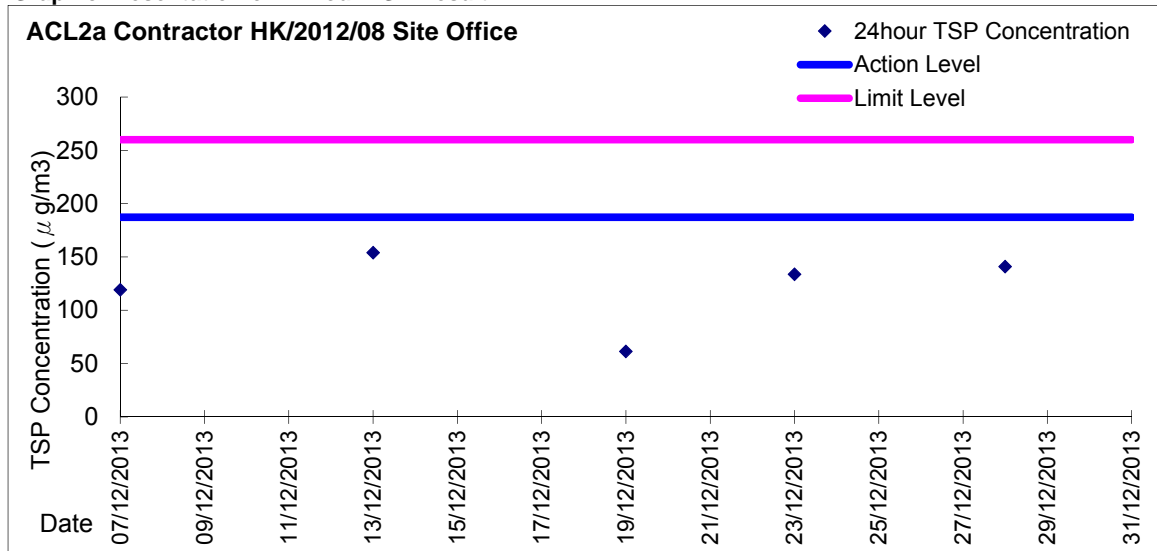




Graphic Presentation of 1 hour TSP Result



Graphic Presentation of 24 hour TSP Result





***Appendix 6.1***

***Event Action Plans***

Central Reclamation Phase III : Environmental Monitoring and Audit - Event and Action Plan for Air and Noise Quality

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

Central Reclamation Phase III : Environmental Monitoring and Audit - Event and Action Plan for Air and Noise Quality

Event and Action Plan for Noise Quality				
Event	Action			
	ET Leader	IC(E)	ER	Contractor
Action Level is reached	<ol style="list-style-type: none"> <li>1. Notify IC(E) and Contractor</li> <li>2. Carry out investigation</li> <li>3. Report the results of the investigation to the IC(E) and Contractor</li> <li>4. Discuss with the Contractor and formulate remedial measures</li> </ol>	<ol style="list-style-type: none"> <li>1. Discuss amongst ER, ET and Contractor on the potential remedial actions</li> <li>2. Review Contractor's remedial actions whenever necessary to assure their effectiveness and advise the ER accordingly</li> <li>3. Supervise the implementation of remedial measures</li> </ol>	<ol style="list-style-type: none"> <li>1. Confirm receipt of notification of failure in writing</li> <li>2. Notify Contractor</li> <li>3. Require Contractor to propose remedial measures for the analyzed noise problem</li> <li>4. Ensure remedial measures are properly implemented</li> </ol>	<ol style="list-style-type: none"> <li>1. Submit noise mitigation proposal to IC(E)</li> <li>2. Implement noise mitigation proposals</li> </ol>
Limit Level is reached	<ol style="list-style-type: none"> <li>1. Notify IC(E), ER, EPD and Contractor</li> <li>2. Identify source</li> <li>3. Repeat measurement to confirm findings</li> <li>4. Carry out analysis of Contractor's working procedures to determine possible mitigation to be implemented</li> <li>5. Inform IC(E), ER and EPD the causes &amp; actions taken for the exceedances</li> <li>6. Assess effectiveness of Contractor's remedial actions and keep IC(E), EPD and ER informed of the results</li> <li>7. If exceedance stops cease additional monitoring</li> </ol>	<ol style="list-style-type: none"> <li>1. Discuss amongst ER, ET and Contractor on the potential remedial actions</li> <li>2. Review Contractor's remedial actions whenever necessary to assure their effectiveness and advise the ER accordingly</li> <li>3. Supervise the implementation of remedial measures</li> </ol>	<ol style="list-style-type: none"> <li>1. Confirm receipt of notification of failure in writing</li> <li>2. Notify Contractor</li> <li>3. Require Contractor to propose remedial measures for the analyzed noise problem</li> <li>4. Ensure remedial measures are properly implemented</li> <li>5. If exceedance continues, consider what portion of the work is responsible and instruct the Contractor to stop that portion or work until the exceedance is abated</li> </ol>	<ol style="list-style-type: none"> <li>1. Take immediate action to avoid further exceedance</li> <li>2. Submit proposals for remedial actions to IC(E) within 3 working days of notification</li> <li>3. Implement the agreed proposals</li> <li>4. Resubmit proposals if problem still not under control</li> <li>5. Stop the relevant portion of works as determined by the ER until the exceedance is abated</li> </ol>



***Appendix 6.2***

***Summary for Notification of Exceedance***



Ref no.	Date	Tidal	Location	Parameters (Unit)	Measured	Action Level	Limit Level	Follow-up action
--	--	--	--	--	--	--	--	--



***Appendix 9.1***

***Complaint Log***



***Environmental Complaints Log***

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





***Appendix 10.1***

***Construction Programme of Individual Contracts***



Activity ID	Activity Name	Orig Dur	Early Start	Early Finish	2013	2014		
					Jan	Feb	Mar	Apr
<b>Updated RWP - Monthly Progress Report (Dec 13) (base on 3M rolling prog 12-2/2014)</b>								
<b>Dredging and Reclamation</b>								
<b>Marine Work Construction</b>								
<b>CRIII - Temporary Diversion of Culvert K</b>								
MAR20040	culvert K - excavate and install ELS	7	22-Nov-13 A	29-Nov-13 A				
MAR20060	culvert K - demolish L-shape parapet wall and railing	2	02-Dec-13 A	05-Dec-13 A				
MAR20080	culvert K - drill cut to existing seawall block	2	03-Dec-13 A	20-Dec-13 A				
MAR20100	culvert K - remove seawall blocks	1	13-Dec-13 A	17-Dec-13 A				
MAR20140	culvert K - saw cut and remove top slab of existing box culvert K	3	01-Dec-13 A	06-Dec-13 A				
MAR20160	culvert K - saw cut and remove side wall of existing box culvert K	2	18-Dec-13 A	18-Dec-13 A				
MAR20180	culvert K - drill and install dowel bars	3	19-Dec-13 A	19-Dec-13 A				
MAR20200	culvert K - erect steel wall formwork and tie for temp wall	3	20-Dec-13 A	23-Dec-13				
MAR20220	culvert K - steel mesh fixing	1	24-Dec-13	24-Dec-13				
MAR20240	culvert K - cast temp wall	1	27-Dec-13	27-Dec-13				
MAR20260	culvert K - demolish box sections above Dwall	10	28-Dec-13	09-Jan-14				
<b>Works for Section Completion</b>								
<b>Construction</b>								
<b>Section II A - CWB Tunnel &amp; Slip Road Structures and Facilities</b>								
<b>CWB CRIII &amp; A1</b>								
<b>CWB CRIII &amp; A1 - Dwall and Pile Construction Construction</b>								
SIIA10600	Sec II A - CWB CRIII - D-wall construction preparation and Silo Setup	37	04-Dec-13 A	29-Jan-14				
SIIA10620	Sec II A - CWB CRIII: predrilling for Dwall and piles	83	04-Dec-13 A	29-Mar-14				
SIIA10640	Sec II A - CWB CRIII: carry out ground pretreatment for Dwall	83	20-Dec-13	04-Apr-14				
SIIA10660	Sec II A - CWB CRIII: construct Guide Wall	40	04-Jan-14	25-Feb-14				
SIIA10680	Sec II A - CWB CRIII: construct DWall and barrette (1.2m thk on rock)	67	07-Feb-14	30-Apr-14				

Data Date:  
20-Dec-13

- Current Milestone
- Actual Work
- Critical Remaining Work
- Remaining Work
- Remaining Level of Effort

**3 Months Rolling Programme for Works at CRIII Area**  
**(Jan 2013 to Mar 2014)**

Date	Revision	Checked	Approved
02-Jan-14	Rev. 0		