



Lam Geotechnics Limited

Contract No. HK/2015/01
Wan Chai Development Phase II and Central Wanchai Bypass
- Sampling, Field Measurement and Testing Works (Stage 3)
Monthly EM&A Report (February 2019)

CONTRACT NO: HK/2015/01

**WANCHAI DEVELOPMENT PHASE II AND CENTRAL
WANCHAI BYPASS
SAMPLING, FIELD MEASUREMENT AND TESTING WORK
(STAGE 3)**

**ENVIRONMENTAL PERMIT NO. EP-376/2009,
FURTHER ENVIRONMENTAL PERMITS NO. FEP-01/376/2009
AND FEP-02/376/2009**

MONTHLY ENVIRONMENTAL MONITORING & AUDIT REPORT

- FEBRUARY 2019 -

CLIENTS:

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CERTIFIED BY:

Raymond Dai
Environmental Team Leader

DATE:

8 March 2019

Ref.: AACWBIECEM00_0_11100L.19

8 March 2019

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

By Post and Fax (2691 2649)

Attention: Mr. Conrad Ng

Dear Mr. Ng,

**Re: Contract No. HK/2015/01
Wan Chai Development Phase II - Central-Wan Chai Bypass
Sampling, Field Measurement and Testing Works (Stage 3)**

**Monthly Environmental Monitoring and Audit Report (February 2019)
for EP-376/2009, FEP-01/376/2009 and FEP-02/376/2009**

Reference is made to the Environmental Team's submission of the captioned Monthly Environmental Monitoring and Audit (EM&A) Report for February 2019 received by e-mail on 7 March 2019 for our review and comment.

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

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

Yours sincerely,



David Yeung
Independent Environmental Checker

c.c.	CEDD	Attn: Mr. Henry Tsang	by fax: 2301 1277
	Lam	Attn: Mr. Raymond Dai	by fax: 2882 3331
	AECOM	Attn: Mr. Francis Leong/ Stephen Lai	by fax: 2691 2649

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EXECUTIVE SUMMARY

- i. This is the Environmental Monitoring and Audit (EM&A) Monthly Report – [February 2019](#) specific for Environmental Permit no. EP-376/2009 and Further Environmental Permits no. FEP-01/376/2009 and FEP-02/376/2009. The EM&A report is prepared by the Environmental Team (ET) employed under Contract No. HK/2015/01 – Wan Chai Development Phase II and Central Wanchai Bypass – Sampling, Field Measurement and Testing Works (Stage 3). This report presents the environmental monitoring findings and information recorded during the period of [27th January 2019 to 26th February 2019](#). The cut-off date of reporting is at 26th 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
- [Drainage](#)
 - [Roadworks](#)

Noise Monitoring

- iii. Noise monitoring was conducted at M1a – Harbour Road Sports Centre.
- iv. With respect to the shift in major construction site portions at Wan Chai North, the noise monitoring station M1a – Harbour Road Sports Centre was finely adjusted from East of Harbour Road Sports Centre to West of Harbour Road Sports Centre on 21 June 2016.
- v. With respect to the demolition of Ex-Harbour Road Sports Centre, the respective noise monitoring station M1a – Harbour Road Sports Centre were finely adjusted on 16 and 25 May 2017 and thereafter to the Footbridge for Harbour Road Sports for noise monitoring.
- vi. [No action or limit level exceedance was recorded on in this reporting month.](#)

Air Quality Monitoring

- vii. 1-hour and 24-hour Total Suspended Particulates (TSP) monitoring were conducted on every six days basis at CMA5b – Pedestrian Plaza and CMA6a – Contractor HK/2012/08 Site Office.
- viii. [No action or limit level exceedance was recorded in this reporting month.](#)

Complaints, Notifications of Summons and Successful Prosecutions

- ix. [No environmental complaint was received in this reporting month.](#)

Site Inspections and Audit

- x. [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

- xi. 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

- Drainage
- Roadworks

1 INTRODUCTION

1.1 Scope of the Report

- 1.1.1. Lam Geotechnics Limited (LGL) has been appointed take up the role as the Environmental Team (ET) under Environmental Permit no. EP-376/2009 and Further Environmental Permits no. FEP-01/376/2009 and FEP-02/376/2009 to implement the Environmental Monitoring and Audit (EM&A) programme as stipulated in the EM&A Manual of the approved Environmental Impact Assessment (EIA) Report for Wan Chai Development Phase II and Central-Wan Chai Bypass (Register No.: AEIAR-458/2008).

This report documents the finding of EM&A works for Environmental Permit (EP) no. EP-376/2009 and Further Environmental Permits no. FEP-01/376/2009 and FEP-02/376/2009, during the period of [27th January 2019 to 26th February 2019](#). The cut-off date of reporting is the 26th 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** ***Environmental Site Audit*** – summarizes the findings of weekly site inspections undertaken within the reporting period, with a review of any relevant follow-up actions within the reporting period.
- Section 9** ***Complaints, Notification of summons and Prosecution*** – summarizes the cumulative statistics on complaints, notification of summons and prosecution
- Section 10** ***Conclusion***

2 PROJECT BACKGROUND

2.1 Background

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

2.2 Scope of the Project and Site Description

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

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

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

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

Table 2.1 Schedule 2 Designated Project under this Project

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

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

2.3 Project Organization and Contact Personnel

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

2.3.2 The proposed project organization and lines of communication with respect to environmental protection works are shown in [Figure 2.2](#). Key personnel and contact particulars are summarized in **Table 2.2**:

Table 2.2 Contact Details of Key Personnel

Party	Role	Post	Name	Contact No.	Contact Fax
AECOM	Engineer's Representative for WDII	Chief Resident Engineer	Ms. Gloria Tang	2587 1778	2587 1877
	Engineer's Representative for CWB	Principal Resident Engineer	Mr. Peter Poon	3922 3388	3912 3010
China State-Build King Joint Venture	Contractor under Contract no. HK/2012/08	Project Director	C. N. LAI	9106 5806	2877 1522
		Site Agent	Mr. George Cheung	9268 1918	
		Environmental Officer	Mr. James Ma	9130 9549	
		Environmental Supervisor	Mr. Y.L. Ho	9856 5669	
Ramboll Hong Kong Limited	Independent Environmental Checker (IEC)	Independent Environmental Checker (IEC)	Mr. David Yeung	3465 2888	3465 2899
Lam Geotechnics Limited	Environmental Team (ET)	Environmental Team Leader (ETL)	Mr. Raymond Dai	2882 3939	2882 3331



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

- Drainage
- Roadworks

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

- Drainage
- Roadworks

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-376/2009	13 Nov 2009	Valid
Further Environmental Permit	FEP-01/376/2009	31 Mar 2015	Valid
Further Environmental Permit	FEP-02/376/2009	1 Aug 2016	Valid

3.1.2. The current status on licences and/or permits on environmental protection pertinent for contract no. HK/2012/08 under FEP-02/376/2009 showed in **Table 3.2** and **Table 3.3**

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
Further Environmental Permit	FEP-01/376/2009	31 Mar 2015	N/A	Valid
	FEP-02/376/2009	1 Aug 2016	N/A	Valid
Notification of Works Under APCO	355439	4 Feb 2013	N/A	Valid
Registration as a Chemical Waste Producer	5213-134-C3790-01	30 Jun 2016	N/A	Valid
Billing Account under Waste Disposal Ordinance	7016883	18 Feb 2013	N/A	Valid
Water Discharge Licence	WT00018470-2014	6 Mar 2014	31 Mar 2019	Valid
Construction Noise Permit	GW-RS1247-18	31 Dec 2018	13 Jan 2019 to 12 Jul 2019	Valid
	GW-RS0913-18	4 Oct 2018	5 Oct 2018 to 4 Apr 2019	Valid

Table 3.3 Summary of submission status under FEP-01/376/2009 Condition

EP Condition	Submission	Date of Submission
Condition 2.9	Noise Management Plan (Rev. 2)	Generally in order as commented by EPD on 27 Oct 2015
Condition 2.10	Landscape Plan (Rev. 0)	Generally in order as commented by EPD on 5 Aug 2015

- 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 STATION

- 4.1.1. The 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 Noise Monitoring Station

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

NOISE MONITORING PARAMETERS, FREQUENCY AND DURATION

- 4.1.2. The construction noise level shall be measured in terms of the A-weighted equivalent continuous sound pressure level (L_{eq}). L_{eq} (30 minutes) shall be used as the monitoring parameter for the time period between 0700 and 1900 hours on normal weekdays. For all other time periods, L_{eq} (5 minutes) shall be employed for comparison with the Noise Control Ordinance (NCO) criteria. Supplementary information for data auditing, statistical results such as L10 and L90 shall also be obtained for reference.
- 4.1.3. Noise monitoring shall be carried out at all the designated monitoring stations. The monitoring frequency shall depend on the scale of the construction activities. The following is an initial guide on the regular monitoring frequency for each station on a weekly basis when noise generating activities are underway:
- One set of measurements between 0700 and 1900 hours on normal weekdays.

MONITORING EQUIPMENT

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

4.2 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
CMA5b	Pedestrian Plaza
CMA6a	WDII PRE 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 m³ per minute adjustable flow range;
 - Equipped with a timing / control device with +/- 5 minutes accuracy for 24 hours operation;
 - Installed with elapsed-time meter with +/- 2 minutes accuracy for 24 hours operation;
 - Capable of providing a minimum exposed area of 406 cm²;
 - Flow control accuracy: +/- 2.5% deviation over 24-hour sampling period;
 - Equipped with a shelter to protect the filter and sampler;
 - Incorporated with an electronic mass flow rate controller or other equivalent devices;
 - Equipped with a flow recorder for continuous monitoring;

- Provided with a peaked roof inlet;
- Incorporated with a manometer;
- Able to hold and seal the filter paper to the sampler housing at horizontal position;
- Easily changeable filter; and
- Capable of operating continuously for a 24-hour period.

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

LABORATORY MEASUREMENT / ANALYSIS

4.2.7. A clean laboratory with constant temperature and humidity control, and equipped with necessary measuring and conditioning instruments to handle the dust samples collected, shall be available for sample analysis, and equipment calibration and maintenance. The laboratory should be HOKLAS accredited.

4.2.8. Filter paper of size 8" x 10" shall be 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 the designated project managed under the contract with 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 The proposed division of noise monitoring station is summarized in **Table 5.1** below.

Table 5.1 Noise Monitoring Station for Contract no. HK/2012/08

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

5.1.2 [No action or limit level exceedance was recorded in this reporting month.](#)

5.1.3 The noise monitoring results measured in this reporting period are reviewed and summarized. Details of the 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
CMA5b	Pedestrian Plaza
CMA6a	WDII PRE Site Office

5.2.2 [No action or limit level exceedance was recorded in this reporting month.](#)



- 5.2.3 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 No Inert and non-inert C&D wastes 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	NIL	NIL
Inert C&D materials recycled, m3	NIL	NIL	NIL
Non-inert C&D materials disposed, m3	NIL	NIL	NIL
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 action or limit level exceedance was recorded in this reporting month.](#)

6.2 Air Quality Monitoring

6.2.1 [No action or limit level exceedance was recorded 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. According to the Condition 3.4 of the EP-376/2009, this section addresses the relevant cumulative construction impact due to the concurrent activities of the current projects including the Central Reclamation Phase III (CRIII), Wan Chai Development Phase II (WDII), Central-WanChai Bypass (CWB), Island Eastern Corridor Link projects (IECL) and Wan Chai Development Phase II – Central – Wan Chai Bypass at Wan Chai East (CWB Tunnel).
- 7.0.2. According to the Final EM&A report of Central Reclamation Phase III (CRIII) for Contract HK 12/02, the major construction activities were completed by end of January 2014 and no construction activities were undertaken thereafter and the water quality monitoring was completed in October 2011. As such, it is considered that there were no cumulative construction impact due to the concurrent activities of the current projects with the Central Reclamation Phase III (CRIII) undertaken by contractor HK12/02 in the reporting month.
- 7.0.3. According to the construction programme of Central-Wanchai Bypass at Wanchai West at the Central Reclamation Phase III area include roadworks, drainage, seawall coping and junction modification were performed in February 2019 reporting period. As no project related exceedance were recorded during the reporting period, cumulative construction impact due to the concurrent activities of the current projects with the Central Reclamation Phase III (CRIII) was considered as insignificant.
- 7.0.4. According to the construction programme of Wan Chai Development Phase II, Central-Wan Chai Bypass and Island Eastern Corridor Link projects, the major construction activities under Wan Chai Development Phase II were road and drains construction and TWCR4 reinstatement at Wan Chai. The major construction activities under Central-Wan Chai Bypass and Island Eastern Corridor Link Projects were ventilation building ABWF works and junction modification at Central; road works, drainage improvement work, utility diversion works and landscape works at Victoria Park; bridge noise enclosure installation works, road works, drainage works, soft landscape works and ventilation building ABWF work at North Point area in the reporting period. In addition, other non-Wan Chai Development Phase II, Central-Wan Chai Bypass and Island Eastern Corridor Link projects were observed undertaken at Wan Chai North and North Point area.
- 7.0.5. No significant air impact from construction activities was anticipated in the reporting month. Besides, no project related exceedance was recorded during the water, air and noise environmental monitoring events in the reporting month. Thus, it is evaluated that the cumulative construction impact from the concurrent projects including Central Reclamation Phase III (CRIII), Wan Chai Development Phase II (WDII), Central-WanChai Bypass (CWB), Island Eastern Corridor Link projects (IECL) was insignificant.



8 ENVIRONMENTAL SITE AUDIT

- 8.0.1. Five site inspections for Contract no. HK/2012/08 were carried out on 29 January, 4, 12, 19 and 26 February 2019 in this reporting period. No observation was found during the reporting month.

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
Commencement works (May 2015) to last reporting month	0
February 2019	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
Total	0	0	0

10 CONCLUSION

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

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

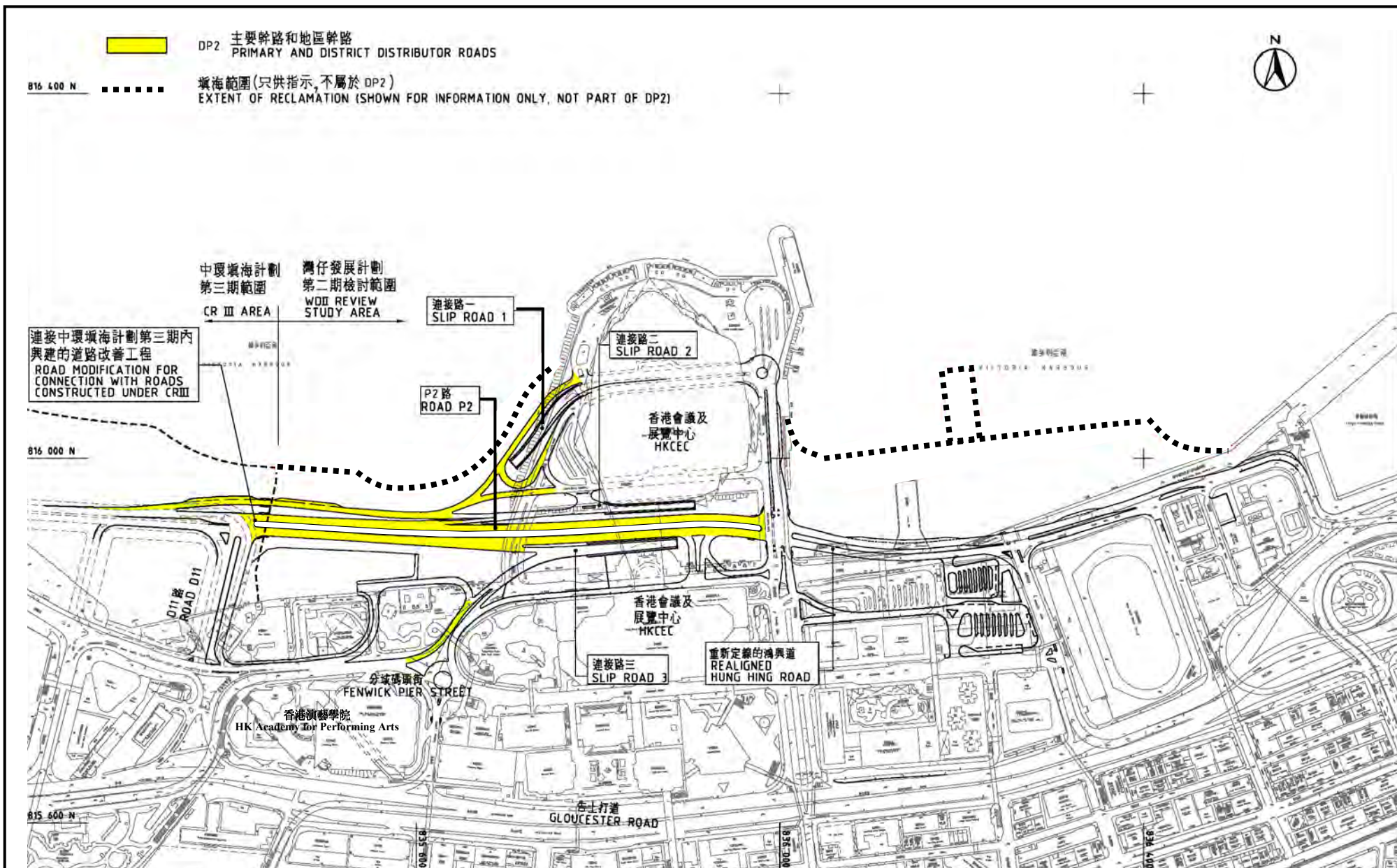
Table 10.1 Summary of Key Construction Activities of Individual Contract(s) to be commenced in Coming Reporting Month

Contract No.	Key Construction Works	Recommended Mitigation Measures
HK/2012/08	<ul style="list-style-type: none"> • Drainage • Roadworks 	<ul style="list-style-type: none"> • Dust control during dust generating works; • Implementation of proper noise pollution control; and • Provision of protection to ensure no runoff out of site area or direct discharge into public drainage system



Figure 2.1

Project Layout



Project Title : Road P2 and other roads which are classified as primary/district distributor roads (referred to as "DP2" in the WDII&CWB EIA Report)

工程項目名稱: P2路及其他分類為主要幹路或地區幹路的道路(WDII&CWB 環評報告內稱 "DP2")

Environmental Permit No.: EP-376/2009

環境許可證編號 : EP-376/2009

Figure 1: Location of the Project

圖 1: 工程項目位置圖

(This figure was prepared based on Figure 1.2b of the WDII&CWB EIA report (Register No.: AEIAR-125/2008))
(本圖是根據 WDII&CWB 環評報告 (登記冊編號 AEIAR-125/2008) 圖 1.2b 編制)



Figure 2.2

Project Organization Chart

Project Organization Chart

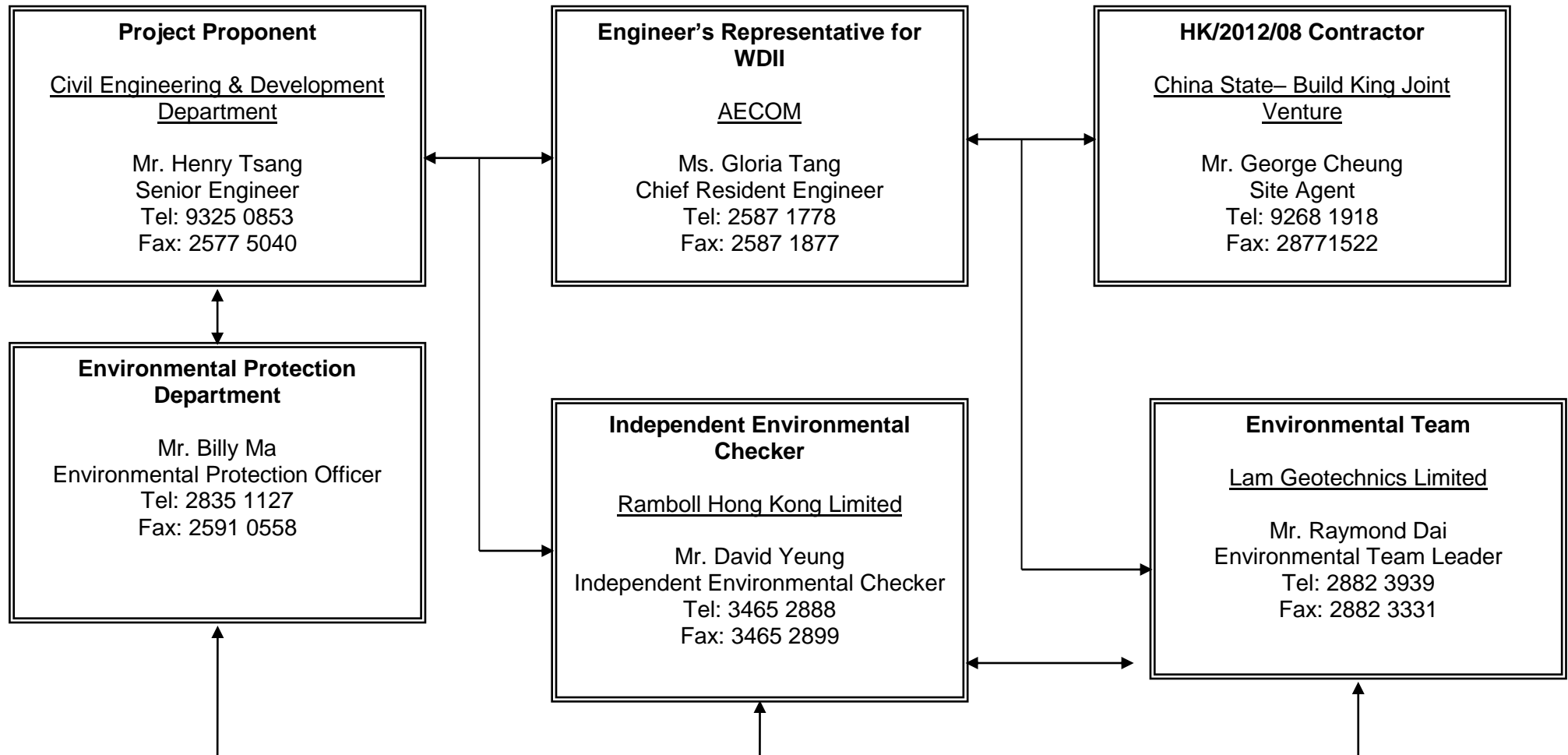


Figure 2.2



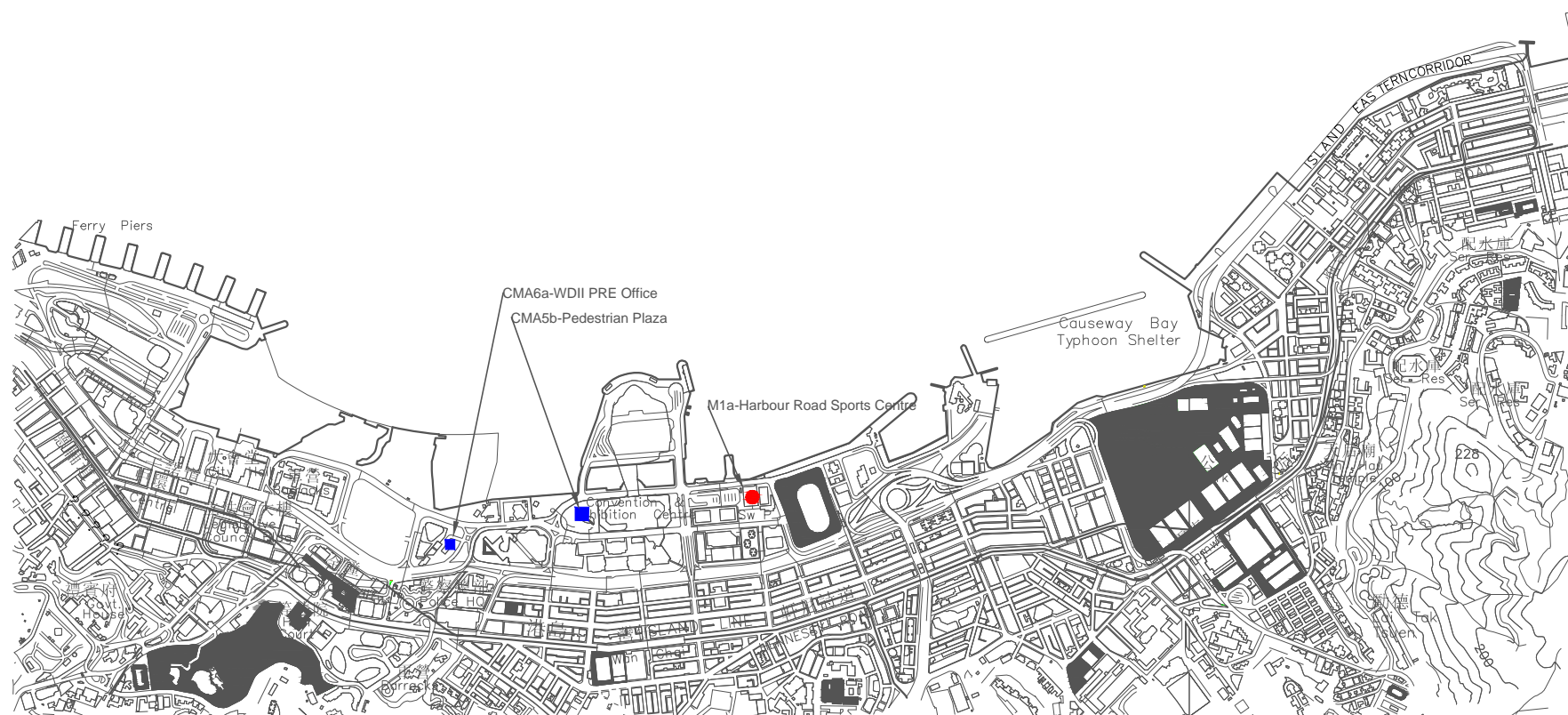
Figure 4.1

Locations of Monitoring Stations

Legend

● Noise Monitoring Station

■ Air Monitoring Station



LOCATIONS OF AIR QUALITY AND NOISE MONITORING STATIONS



Appendix 3.1

Environmental Mitigation Implementation Schedule

Appendix A**Table A13.1 Implementation Schedule for Air Quality Control****Table A13.2 Implementation Schedule for Noise Control****Table A13.3 Implementation Schedule for Water Quality Control****Table A13.4 Implementation Schedule for Waste Management****Table A13.7 Implementation Schedule for Landscape and Visual**

IMPLEMENTATION SCHEDULE OF THE PROPOSED MITIGATION MEASURES

Table A13.1 Implementation Schedule for Air Quality Control

EIA Ref	Environmental Protection Measures / Mitigation Measures	Location / Timing	Implementation Agent	Implementation stage				Relevant Legislation and Guidelines
				Des	C	O	Dec	
Construction Phase								
For the Whole Project								
S3.6.5	Four times a day watering of the work site with active operations.	Work site / during construction	Contractor		√			EIAO-TM
S3.8.1	Implementation of dust suppression measures stipulated in Air Pollution Control (Construction Dust) Regulation. The following mitigation measures, good site practices and a comprehensive dust monitoring and audit programme are recommended to minimise cumulative dust impacts. ▪ Strictly limit the truck speed on site to below 10 km per hour and water spraying to keep the haul roads in wet condition; ▪ Watering during excavation and material handling; ▪ Provision of vehicle wheel and body washing facilities at the exit points of the site, combined with cleaning of public roads where necessary; and ▪ Tarpaulin covering of all dusty vehicle loads transported to, from and between site locations.	Work site / during construction	Contractor		√			

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

Table A13.2 Implementation Schedule for Noise Control

EIA Ref	Environmental Protection Measures / Mitigation Measures	Location / Timing	Implementation Agent	Implementation stage				Relevant Legislation and Guidelines
				Des	C	O	Dec	
Construction Phase								
For the Whole Project								
S4.9.4	Good Site Practice: <ul style="list-style-type: none">Only well-maintained plant shall be operated on-site and plant shall be serviced regularly during the construction program.Silencers or mufflers on construction equipment shall be utilized and shall be properly maintained during the construction program.Mobile plant, if any, shall be sited as far away from NSRs as possible.Machines and plant (such as trucks) that may be in intermittent use shall be shut down between works periods or shall be throttled down to a minimum.Plant known to emit noise strongly in one direction shall, wherever possible, be orientated so that the noise is directed away from the nearby NSRs.Material stockpiles and other structures shall be effectively utilized, wherever practicable, in screening noise from onsite construction activities.	Work site / during construction	Contractor		√			EIAO-TM, NCO
For DP2 – WDII Major Roads (Road P2)								
S4.8.3 – S4.8.4	Use of quiet powered mechanical equipment, movable noise barrier and temporary noise barrier for the following tasks: <ul style="list-style-type: none">Temporary road diversionResurfacingAt-grade roadwork	Work site / during construction	Contractor		√			EIAO-TM, NCO

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

Table A13.3 Implementation Schedule for Water Quality Control

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

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

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

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

Table A13.4 Implementation Schedule for Waste Management

EIA Ref	Environmental Protection Measures / Mitigation Measures	Location / Timing	Implementation Agent	Implementation stage				Relevant Legislation and Guidelines
				Des	C	O	Dec	
Construction Phase								
For the Whole Project								
S6.7.7	<i>Good Site Practices</i> Recommendations for good site practices during the construction activities include: <ul style="list-style-type: none">▪ nomination of an approved person, such as a site manager, to be responsible for good site practices, arrangements for collection and effective disposal to an appropriate facility, of all wastes generated at the site;▪ training of site personnel in proper waste management and chemical waste handling procedures;▪ provision of sufficient waste disposal points and regular collection for disposal;▪ appropriate measures to minimise windblown litter and dust during transportation of waste by either covering trucks or by transporting wastes in enclosed containers;▪ regular cleaning and maintenance programme for drainage systems, sumps and oil interceptors; and▪ a recording system for the amount of wastes generated, recycled and disposed of (including the disposal sites).	Work site / During planning and design stage, and construction stage	Contractor		√			
S.6.7.8	<i>Waste Reduction Measures</i> Recommendations to achieve waste reduction include: <ul style="list-style-type: none">• Sort C&D waste from demolition of the existing waterfront structures to recover	Work site / During planning and design stage, and construction stage	Contractor	√	√			

	<p>recyclable portions such as metals.</p> <ul style="list-style-type: none"> • Segregation and storage of different types of waste in different containers, skips or stockpiles to enhance reuse or recycling of materials and their proper disposal. • Encourage collection of aluminium cans, PET bottles and paper by providing separate labelled bins to enable these wastes to be segregated from other general refuse generated by the work force. • Any unused chemicals or those with remaining functional capacity shall be recycled. • Use of reusable non-timber formwork, such as in casting the tunnel box sections, to reduce the amount of C&D material. • Proper storage and site practices to minimise the potential for damage or contamination of construction materials. • Plan and stock construction materials carefully to minimise amount of waste generated and avoid unnecessary generation of waste. 							
S6.7.10	<p><i>General Refuse</i></p> <p>General refuse shall be stored in enclosed bins or compaction units separate from C&D material. A licensed waste collector shall be employed by the contractor to remove general refuse from the site, separately from C&D material.</p> <p>A collection area shall be provided where wastes can be stored and loaded prior to removal from site. An enclosed and covered area is recommended to reduce the occurrence of 'wind blow' light material.</p>	Work site / During the construction period	Contractor		√			Public Health and Municipal Services Ordinance (Cap. 132)

S6.7.11	<p><i>Chemical Wastes</i> After use, chemical wastes (for example, cleaning fluids, solvents, lubrication oil and fuel) shall be handled according to the Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes. Spent chemicals shall be collected by a licensed collector for disposal at the CWTF or other licensed facility in accordance with the Waste Disposal (Chemical Waste) (General) Regulation.</p>	Work site / During the construction period	Contractor		√			Waste Disposal (Chemical Waste) (General) Regulation Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes
S6.7.12 – S6.7.13	<p><i>Construction and Demolition Material</i> C&D material shall be sorted on-site into inert C&D material (that is, public fill) and C&D waste. All the suitable inert C&D material shall be broken down to 250 mm in size for reuse as public fill in the WDII reclamation. C&D waste, such as wood, glass, plastic, steel and other metals shall be reused or recycled and, as a last resort, disposed of to landfill. A suitable area shall be designated to facilitate the sorting process and a temporary stockpiling area will be required for the separated materials.</p> <p>In order to monitor the disposal of public fill and C&D waste at public fill reception facilities and landfills, respectively, and to control fly tipping, a trip-ticket system shall be included as one of the contractual requirements and implemented by the Environmental Team undertaking the environmental monitoring and audit work. An Independent Environment Checker shall be responsible for auditing the results of the system.</p>	Work site / During the construction period	Contractor and Independent Environmental Checker		√			DEVB TCW No.6/2010; ETWB TCW No. 33/2002; ETWB TCW No. 19/2005
S6.7.14	<p><i>Bentonite Slurry</i> The disposal of residual used bentonite slurry shall follow the good practice guidelines stated</p>	Work site / During the construction period	Contractor		√			ProPECC PN 1/94

	<p>in ProPECC PN 1/94 “Construction Site Drainage” and listed as follows:</p> <ul style="list-style-type: none"> ▪ If the disposal of a certain residual quantity cannot be avoided, the used slurry may be disposed of at the marine spoil grounds subject to obtaining a marine dumping licence from EPD on a case-by-case basis. ▪ If the used bentonite slurry is intended to be disposed of through the public drainage system, it shall be treated to the respective effluent standards applicable to foul sewers, storm drains or the receiving waters as set out in the Technical Memorandum of Standards for Effluents Discharged into Drainage and Sewerage Systems, Inland and Coastal Waters. ▪ If the used bentonite slurry is intended to be disposed to public fill reception facilities, it will be mixed with dry soil on site before disposal. 							
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- Des - Design, C - Construction, O – Operation, and Dec – Decommissioning

Table A13.7 Implementation Schedule for Landscape and Visual

EIA Ref	Environmental Protection Measures / Mitigation Measures	Location / Timing	Implementation Agent	Implementation stage				Relevant Legislation and Guidelines
				Des	C	O	Dec	
Construction Phase								
For the Whole Project								
Table 10.5	CM1 Topsoil, where identified, shall be stripped and stored for re-use in the construction of the soft landscape works, where practical.	Work site / During Construction Phase	Contractor	√	√			EIAO TM
Table 10.5	CM2 Existing trees to be retained on site shall be carefully protected during construction.	Work site / During Construction Phase	Contractor	√	√			EIAO TM
Table 10.5	CM3 Trees unavoidably affected by the works shall be transplanted where practical.	Work site / During Construction Phase	Contractor	√	√			EIAO TM
Table 10.5	CM4 Compensatory tree planting shall be provided to compensate for felled trees.	Work site / During Construction Phase	Contractor	√	√			EIAO TM
Table 10.5	CM5 Control of night-time lighting.	Work site / During Construction Phase	Contractor		√			EIAO TM
Table 10.5	CM6 Erection of decorative screen hoarding compatible with the surrounding setting.	Work site / During Construction Phase	Contractor		√			EIAO TM
For DP2 – WDII Major Roads (Road P2)								
Table 10.5	CM1 Topsoil, where identified, shall be stripped and stored for re-use in the construction of the soft landscape works, where practical.	Work site / During Construction Phase	Contractor	√	√			EIAO TM
Table 10.5	CM2 Existing trees to be retained on site shall be carefully protected during construction.	Work site / During Construction Phase	Contractor	√	√			EIAO TM
Table 10.5	CM3 Trees unavoidably affected by the works shall be transplanted where practical.	Work site / During Construction Phase	Contractor	√	√			EIAO TM
Table 10.5	CM4 Compensatory tree planting shall be provided to compensate for felled trees.	Work site / During Construction Phase	Contractor	√	√			EIAO TM
Table 10.5	CM5 Control of night-time lighting.	Work site / During Construction Phase	Contractor		√			EIAO TM
Table 10.5	CM6 Erection of decorative screen hoarding compatible with the surrounding setting.	Work site / During Construction Phase	Contractor		√			EIAO TM

Operation Phase								
For DP2 – WDII Major Roads (Road P2)								
Table 10.6, Figure 10.5.1-10.5.5	OM1 Aesthetic design of buildings and road-related structures, including viaducts, vent buildings, subways, footbridges and noise barriers and enclosure.	Work site / During Design Stage and Operation Phases	CEDD/HyD		√	√		ETWB TCW 2/2004
Table 10.6, Figure 10.5.1-10.5.5	OM3 Buffer Tree and Shrub Planting to screen proposed roads and associated structures.	Work site / During Design Stage and Operation Phases	CEDD/HyD		√	√		ETWB TCW 2/2004
Table 10.6, Figure 10.5.1-10.5.5	OM5 Aesthetic streetscape design.	Work site / During Design Stage and Operation Phases	CEDD/HyD		√	√		ETWB TCW 2/2004
Table 10.6, Figure 10.5.1-10.5.5	OM6 Aesthetic design of roadside amenity areas	Work site / During Design Stage and Operation Phases	CEDD/HyD		√	√		ETWB TCW 2/2004

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



Appendix 4.1

Action and Limit Level

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

Time Period	Action Level	Limit Level
07:00 - 19:00 hours on normal weekdays	When one documented complaint is received.	75 dB(A)

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

Action and Limit Level for Air Monitoring

Monitoring Locations	1-hour TSP Level in $\mu\text{g}/\text{m}^3$		24-hour TSP Level in $\mu\text{g}/\text{m}^3$	
	Action Level	Limit Level	Action Level	Limit Level
CMA5b Pedestrian Plaza	339.7	500	209.9	260
CMA6a WDII PRE Site Office	333.0	500	207.1	260



Appendix 4.2

Copies of Calibration Certificates



Certificate of Calibration

Calibration Certification Information

Cal. Date: January 24, 2018 **Rootsmeter S/N:** 438320 **Ta:** 293 °K
Operator: Jim Tisch **Pa:** 756.9 mm Hg
Calibration Model #: TE-5025A **Calibrator S/N:** 3166

Run	Vol. Init (m3)	Vol. Final (m3)	ΔVol. (m3)	ΔTime (min)	ΔP (mm Hg)	ΔH (in H2O)
1	1	2	1	1.4430	3.2	2.00
2	3	4	1	1.0270	6.4	4.00
3	5	6	1	0.9220	7.9	5.00
4	7	8	1	0.8780	8.7	5.50
5	9	10	1	0.7270	12.6	8.00

Data Tabulation

Vstd (m3)	Qstd (x-axis)	$\sqrt{\Delta H \left(\frac{Pa}{Pstd} \right) \left(\frac{Tstd}{Ta} \right)}$ (y-axis)	Va	Qa (x-axis)	$\sqrt{\Delta H \left(\frac{Ta}{Pa} \right)}$ (y-axis)
1.0087	0.6990	1.4233	0.9958	0.6901	0.8799
1.0044	0.9780	2.0129	0.9915	0.9655	1.2443
1.0024	1.0872	2.2505	0.9896	1.0733	1.3912
1.0013	1.1404	2.3603	0.9885	1.1259	1.4591
0.9961	1.3701	2.8467	0.9834	1.3526	1.7598
QSTD	m=	2.12231	QA	m=	1.32895
	b=	-0.06016		b=	-0.03719
	r=	0.99999		r=	0.99999

Calculations

Vstd= $\Delta Vol((Pa-\Delta P)/Pstd)(Tstd/Ta)$	Va= $\Delta Vol((Pa-\Delta P)/Pa)$
Qstd= $Vstd/\Delta Time$	Qa= $Va/\Delta Time$
For subsequent flow rate calculations:	
Qstd= $1/m \left(\left(\sqrt{\Delta H \left(\frac{Pa}{Pstd} \right) \left(\frac{Tstd}{Ta} \right)} \right) - b \right)$	Qa= $1/m \left(\left(\sqrt{\Delta H \left(\frac{Ta}{Pa} \right)} \right) - b \right)$

Standard Conditions

Tstd:	298.15 °K
Pstd:	760 mm Hg
Key	
ΔH: calibrator manometer reading (in H2O)	
ΔP: rootsmeter manometer reading (mm Hg)	
Ta: actual absolute temperature (°K)	
Pa: actual barometric pressure (mm Hg)	
b: intercept	
m: slope	

RECALIBRATION

US EPA recommends annual recalibration per 1998
 40 Code of Federal Regulations Part 50 to 51,
 Appendix B to Part 50, Reference Method for the
 Determination of Suspended Particulate Matter in
 the Atmosphere, 9.2.17, page 30



Lam Environmental Services Limited

Calibration Data for High Volume Sampler (TSP Sampler)

Location : CMA5b **Calibration Date** : 19-Dec-18
Equipment no. : HVS010 **Calibration Due Date** : 18-Feb-19

CALIBRATION OF CONTINUOUS FLOW RECORDER

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

Orifice Transfer Standard Information					
Equipment No.	Ori3166	Slope, m _c	2.12231	Intercept, b _c	-0.06016
Last Calibration Date	24-Jan-18	$\left(H \times P_a / 1013.3 \times 298 / T_a \right)^{1/2}$ $= m_c \times Q_{std} + b_c$			
Next Calibration Date	24-Jan-19				

Calibration of TSP						
Calibration Point	Manometer Reading			Q _{std} (m ³ / min.) X-axis	Continuous Flow Recorder, W (CFM)	IC (W(P _a /1013.3x298/T _a) ^{1/2} /35.31) Y-axis
	H (inches of water)					
	(up)	(down)	difference			
1	1.5	1.5	3.0	0.8541	25	25.2956
2	2.8	2.8	5.6	1.1566	34	34.4020
3	3.6	3.6	7.2	1.3076	38	38.4493
4	4.8	4.8	9.6	1.5055	46	46.5439
5	6.0	6.0	12.0	1.6799	54	54.6385

By Linear Regression of Y on X

Slope, m = 35.1088 Intercept, b = -5.8015
 Correlation Coefficient* = 0.9935
 Calibration Accepted = Yes/No**

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

** Delete as appropriate.

Remarks : _____

Calibrated by : Henry Lau **Checked by** : Chan Ka Chun
Date : 19-Dec-18 **Date** : 19-Dec-18



Lam Environmental Services Limited

Calibration Data for High Volume Sampler (TSP Sampler)

Location : CMA5b

Equipment no. : HVS010

Calibration Date : 18-Feb-19

Calibration Due Date : 20-Apr-19

CALIBRATION OF CONTINUOUS FLOW RECORDER

Ambient Condition			
Temperature, T _a	291	Kelvin	Pressure, P _a
			1015 mmHg

Orifice Transfer Standard Information					
Equipment No.	Ori0005	Slope, m _c	1.99861	Intercept, b _c	-0.00882
Last Calibration Date	11-Jan-19	$\left(H \times P_a / 1013.3 \times 298 / T_a \right)^{1/2}$ $= m_c \times Q_{std} + b_c$			
Next Calibration Date	11-Jan-20				

Calibration of TSP						
Calibration Point	Manometer Reading			Q _{std} (m ³ / min.) X-axis	Continuous Flow Recorder, W (CFM)	IC (W(P _a /1013.3x298/T _a) ^{1/2} /35.31) Y-axis
	(up)	(down)	(difference)			
1	1.2	1.2	2.4	0.7895	37	37.4738
2	2.0	2.0	4.0	1.0179	42	42.5378
3	3.1	3.1	6.2	1.2662	50	50.6402
4	4.0	4.0	8.0	1.4377	56	56.7171
5	5.0	5.0	10.0	1.6069	61	61.7811

By Linear Regression of Y on X

Slope, m = 30.4544 Intercept, b = 12.5644

Correlation Coefficient* = 0.9972

Calibration Accepted = Yes/No**

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

** Delete as appropriate.

Remarks : _____

Calibrated by : Henry Lau

Date : 18-Feb-19

Checked by : Chan Ka Chun

Date : 18-Feb-19



Lam Environmental Services Limited

Calibration Data for High Volume Sampler (TSP Sampler)

Location : CMA6a Calibration Date : 19-Dec-18
 Equipment no. : HVS013 Calibration Due Date : 18-Feb-19

CALIBRATION OF CONTINUOUS FLOW RECORDER

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

Orifice Transfer Standard Information					
Equipment No.	Ori3166	Slope, m _c	2.12231	Intercept, b _c	-0.06016
Last Calibration Date	24-Jan-18	$\left(H \times P_a / 1013.3 \times 298 / T_a \right)^{1/2}$ $= m_c \times Q_{std} + b_c$			
Next Calibration Date	24-Jan-19				

Calibration of TSP						
Calibration Point	Manometer Reading			Q _{std} (m ³ / min.) X-axis	Continuous Flow Recorder, W (CFM)	IC (W(P _a /1013.3x298/T _a) ^{1/2} /35.31) Y-axis
	H (inches of water)	(up)	(down) difference			
1	1.4	1.4	2.8	0.8261	28	28.3311
2	2.3	2.3	4.6	1.0509	33	33.3902
3	3.7	3.7	7.4	1.3253	41	41.4848
4	4.8	4.8	9.6	1.5055	46	46.5439
5	6.0	6.0	12.0	1.6799	54	54.6385

By Linear Regression of Y on X

Slope, m = 30.1687 Intercept, b = 2.3363
 Correlation Coefficient* = 0.9927
 Calibration Accepted = Yes/No**

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

** Delete as appropriate.

Remarks : _____

Calibrated by : Henry Lau Checked by : Chan Ka Chun
 Date : 19-Dec-18 Date : 19-Dec-18



Lam Environmental Services Limited

Calibration Data for High Volume Sampler (TSP Sampler)

Location : CMA6a

Equipment no. : HVS013

Calibration Date : 18-Feb-19

Calibration Due Date : 20-Apr-19

CALIBRATION OF CONTINUOUS FLOW RECORDER

Ambient Condition			
Temperature, T _a	291	Kelvin	Pressure, P _a
			1015 mmHg

Orifice Transfer Standard Information					
Equipment No.	Ori0005	Slope, m _c	1.99861	Intercept, b _c	-0.00882
Last Calibration Date	11-Jan-19	$\left(H \times P_a / 1013.3 \times 298 / T_a \right)^{1/2}$ $= m_c \times Q_{std} + b_c$			
Next Calibration Date	11-Jan-20				

Calibration of TSP						
Calibration Point	Manometer Reading			Q _{std} (m ³ / min.) X-axis	Continuous Flow Recorder, W (CFM)	IC (W(P _a /1013.3x298/T _a) ^{1/2} /35.31) Y-axis
	(up)	(down)	(difference)			
1	1.4	1.4	2.8	0.8524	28	28.3585
2	2.1	2.1	4.2	1.0430	37	37.4738
3	3.4	3.4	6.8	1.3259	45	45.5762
4	4.4	4.4	8.8	1.5077	52	52.6658
5	5.5	5.5	11.0	1.6851	59	59.7555

By Linear Regression of Y on X

Slope, m = 36.4334 Intercept, b = -1.9709

Correlation Coefficient* = 0.9972

Calibration Accepted = Yes/No**

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

** Delete as appropriate.

Remarks : _____

Calibrated by : Henry Lau

Date : 18-Feb-19

Checked by : Chan Ka Chun

Date : 18-Feb-19



CERTIFICATE OF CALIBRATION

Certificate No.: 18CA0322 01 Page 1 of 2

Item tested

Description:	Sound Level Meter (Type 1)	Microphone
Manufacturer:	Larson Davis	PCB
Type/Model No.:	LxT1	377B02
Serial/Equipment No.:	0003737	171529
Adaptors used:	-	-

Item submitted by

Customer Name: Lam Geotechnics Ltd.
Address of Customer: -
Request No.: -
Date of receipt: 22-Mar-2018

Date of test: 28-Mar-2018

Reference equipment used in the calibration

Description:	Model:	Serial No.	Expiry Date:	Traceable to:
Multi function sound calibrator	B&K 4226	2288444	08-Sep-2018	CIGISMEC
Signal generator	DS 360	61227	01-Apr-2018	CEPREI

Ambient conditions

Temperature: 21 ± 1 °C
Relative humidity: 50 ± 10 %
Air pressure: 1005 ± 5 hPa

Test specifications

- 1, The Sound Level Meter has been calibrated in accordance with the requirements as specified in BS 7580: Part 1: 1997 and the lab calibration procedure SMTP004-CA-152.
- 2, The electrical tests were performed using an electrical signal substituted for the microphone which was removed and replaced by an equivalent capacitance within a tolerance of $\pm 20\%$.
- 3, The acoustic calibration was performed using an B&K 4226 sound calibrator and corrections was applied for the difference between the free-field and pressure responsiveness of the Sound Level Meter.

Test results

This is to certify that the Sound Level Meter conforms to BS 7580: Part 1: 1997 for the conditions under which the test was performed.

Details of the performed measurements are presented on page 2 of this certificate.

Actual Measurement data are documented on worksheets.

Approved Signatory:



Feng Jun Qi

Date: 06-Apr-2018

Company Chop:



Comments: The results reported in this certificate refer to the condition of the instrument on the date of calibration and carry no implication regarding the long-term stability of the instrument.



CERTIFICATE OF CALIBRATION

(Continuation Page)

Certificate No.: 18CA0322 01

Page 2 of 2

1, Electrical Tests

The electrical tests were performed using an equivalent capacitance substituted for the microphone. The results are given in below with test status and the estimated uncertainties. The "Pass" means the result of the test is inside the tolerances stated in the test specifications. The "-" means the result of test is outside these tolerances.

Test:	Subtest:	Status:	Expanded Uncertainty (dB)	Coverage Factor
Self-generated noise	A	Pass	0.3	2.1
	C	Pass	0.8	
	Lin	Pass	1.6	
Linearity range for Leq	At reference range, Step 5 dB at 4 kHz	Pass	0.3	2.2
	Reference SPL on all other ranges	Pass	0.3	
	2 dB below upper limit of each range	Pass	0.3	
	2 dB above lower limit of each range	Pass	0.3	
	At reference range, Step 5 dB at 4 kHz	Pass	0.3	
Linearity range for SPL	A	Pass	0.3	
	C	Pass	0.3	
	Lin	Pass	0.3	
Time weightings	Single Burst Fast	Pass	0.3	
	Single Burst Slow	Pass	0.3	
Peak response	Single 100µs rectangular pulse	N/A	N/A	
R.M.S. accuracy	Crest factor of 3	Pass	0.3	
Time weighting I	Single burst 5 ms at 2000 Hz	Pass	0.3	
	Repeated at frequency of 100 Hz	Pass	0.3	
Time averaging	1 ms burst duty factor 1/10 ³ at 4kHz	Pass	0.3	
	1 ms burst duty factor 1/10 ⁴ at 4kHz	Pass	0.3	
Pulse range	Single burst 10 ms at 4 kHz	Pass	0.4	
Sound exposure level	Single burst 10 ms at 4 kHz	Pass	0.4	
Overload indication	SPL	Pass	0.3	
	Leq	Pass	0.4	

2, Acoustic tests

The complete sound level meter was calibrated on the reference range using a B&K 4226 acoustic calibrator with 1000Hz and SPL 94 dB. The sensitivity of the sound level meter was adjusted. The test result at 125 Hz and 8000 Hz are given in below with test status and the estimated uncertainties.

Test:	Subtest	Status	Expanded Uncertainty (dB)	Coverage Factor
Acoustic response	Weighting A at 125 Hz	Pass	0.3	
	Weighting A at 8000 Hz	Pass	0.5	

3, Response to associated sound calibrator

N/A

The expanded uncertainties have been calculated in accordance with the ISO Publication "Guide to the expression of uncertainty in measurement", and gives an interval estimated to have a level of confidence of 95%. A coverage factor of 2 is assumed unless explicitly stated.

- End -

Calibrated by:

Fung Chi Yip
28-Mar-2018

Checked by:

Lam Tze Wai
06-Apr-2018

The standard(s) and equipment used in the calibration are traceable to national or international recognised standards and are calibrated on a schedule to maintain the required accuracy level.



CERTIFICATE OF CALIBRATION

Certificate No.: 18CA0213 02

Page 1 of 2

Item tested

Description:	Sound Level Meter (Type 1)	Microphone	Preamp
Manufacturer:	B & K	B & K	B & K
Type/Model No.:	2250	4950	ZC0032
Serial/Equipment No.:	2701778	2755097	19223
Adaptors used:	-	-	-

Item submitted by

Customer Name: Lam Geotechnics Limited.
Address of Customer: -
Request No.: -
Date of receipt: 13-Feb-2018

Date of test: 21-Feb-2018

Reference equipment used in the calibration

Description:	Model:	Serial No.	Expiry Date:	Traceable to:
Multi function sound calibrator	B&K 4226	2288444	08-Sep-2018	CIGISMEC
Signal generator	DS 360	33873	25-Apr-2018	CEPREI
Signal generator	DS 360	61227	01-Apr-2018	CEPREI

Ambient conditions

Temperature: 20 ± 1 °C
Relative humidity: 50 ± 10 %
Air pressure: 1000 ± 5 hPa

Test specifications

1. The Sound Level Meter has been calibrated in accordance with the requirements as specified in BS 7580: Part 1: 1997 and the lab calibration procedure SMTP004-CA-152.
2. The electrical tests were performed using an electrical signal substituted for the microphone which was removed and replaced by an equivalent capacitance within a tolerance of $\pm 20\%$.
3. The acoustic calibration was performed using an B&K 4226 sound calibrator and corrections was applied for the difference between the free-field and pressure responsiveness of the Sound Level Meter.

Test results

This is to certify that the Sound Level Meter conforms to BS 7580: Part 1: 1997 for the conditions under which the test was performed.

Details of the performed measurements are presented on page 2 of this certificate.

Actual Measurement data are documented on worksheets.

Approved Signatory:



Feng Jun Qi

Date: 21-Feb-2018

Company Chop:



Comments: The results reported in this certificate refer to the condition of the instrument on the date of calibration and carry no implication regarding the long-term stability of the instrument.

**CERTIFICATE OF CALIBRATION**

(Continuation Page)

Certificate No.: 18CA0213 02

Page 2 of 2

1. Electrical Tests

The electrical tests were performed using an equivalent capacitance substituted for the microphone. The results are given in below with test status and the estimated uncertainties. The "Pass" means the result of the test is inside the tolerances stated in the test specifications. The "-" means the result of test is outside these tolerances.

Test:	Subtest:	Status:	Expanded Uncertainty (dB)	Coverage Factor
Self-generated noise	A	Pass	0.3	
	C	Pass	0.8	
	Lin	Pass	1.6	
Linearity range for Leq	At reference range, Step 5 dB at 4 kHz	Pass	0.3	
	Reference SPL on all other ranges	Pass	0.3	
	2 dB below upper limit of each range	Pass	0.3	
	2 dB above lower limit of each range	Pass	0.3	
	At reference range, Step 5 dB at 4 kHz	Pass	0.3	
Linearity range for SPL	A	Pass	0.3	
	C	Pass	0.3	
	Lin	Pass	0.3	
Time weightings	Single Burst Fast	Pass	0.3	
	Single Burst Slow	Pass	0.3	
	Single 100µs rectangular pulse	Pass	0.3	
Peak response	Crest factor of 3	Pass	0.3	
R.M.S. accuracy	Single burst 5 ms at 2000 Hz	Pass	0.3	
Time weighting I	Repeated at frequency of 100 Hz	Pass	0.3	
	1 ms burst duty factor 1/10 ³ at 4kHz	Pass	0.3	
Time averaging	1 ms burst duty factor 1/10 ⁴ at 4kHz	Pass	0.3	
	Single burst 10 ms at 4 kHz	Pass	0.4	
Pulse range	Single burst 10 ms at 4 kHz	Pass	0.4	
Sound exposure level	SPL	Pass	0.3	
Overload indication	Leq	Pass	0.4	

2. Acoustic tests

The complete sound level meter was calibrated on the reference range using a B&K 4226 acoustic calibrator with 1000Hz and SPL 94 dB. The sensitivity of the sound level meter was adjusted. The test result at 125 Hz and 8000 Hz are given in below with test status and the estimated uncertainties.

Test:	Subtest	Status	Expanded Uncertainty (dB)	Coverage Factor
Acoustic response	Weighting A at 125 Hz	Pass	0.3	
	Weighting A at 8000 Hz	Pass	0.5	

3. Response to associated sound calibrator

N/A

The expanded uncertainties have been calculated in accordance with the ISO Publication "Guide to the expression of uncertainty in measurement", and gives an interval estimated to have a level of confidence of 95%. A coverage factor of 2 is assumed unless explicitly stated.

Calibrated by:

Date:

Fung Chi Yip
21-Feb-2018

Checked by:

Date:

Lam Tze Wai
21-Feb-2018

The standard(s) and equipment used in the calibration are traceable to national or international recognised standards and are calibrated on a schedule to maintain the required accuracy level.



CERTIFICATE OF CALIBRATION

Certificate No.: 18CA1114 02 Page 1 of 2

Item tested

Description:	Sound Level Meter (Type 1)	Microphone
Manufacturer:	B & K	B & K
Type/Model No.:	2236	4188
Serial/Equipment No.:	2100736	2288941
Adaptors used:	-	-

Item submitted by

Customer Name: Lam Environmental Service Ltd.
 Address of Customer: -
 Request No.: -
 Date of receipt: 14-Nov-2018

Date of test: 15-Nov-2018

Reference equipment used in the calibration

Description:	Model:	Serial No.	Expiry Date:	Traceable to:
Multi function sound calibrator	B&K 4226	2288444	23-Aug-2019	CIGISMEC
Signal generator	DS 360	33873	24-Apr-2019	CEPREI
Signal generator	DS 360	61227	23-Apr-2019	CEPREI

Ambient conditions

Temperature: 20 ± 1 °C
 Relative humidity: 50 ± 10 %
 Air pressure: 1000 ± 5 hPa

Test specifications

- The Sound Level Meter has been calibrated in accordance with the requirements as specified in BS 7580: Part 1: 1997 and the lab calibration procedure SMTP004-CA-152.
- The electrical tests were performed using an electrical signal substituted for the microphone which was removed and replaced by an equivalent capacitance within a tolerance of $\pm 20\%$.
- The acoustic calibration was performed using an B&K 4226 sound calibrator and corrections was applied for the difference between the free-field and pressure responsiveness of the Sound Level Meter.

Test results

This is to certify that the Sound Level Meter conforms to BS 7580: Part 1: 1997 for the conditions under which the test was performed.

Details of the performed measurements are presented on page 2 of this certificate.

Actual Measurement data are documented on worksheets.

Approved Signatory:


 Feng Jung

Date: 15-Nov-2018

Company Chop:



Comments: The results reported in this certificate refer to the condition of the instrument on the date of calibration and carry no implication regarding the long-term stability of the instrument.



CERTIFICATE OF CALIBRATION

(Continuation Page)

Certificate No.: 18CA1114 02

Page 2 of 2

1. Electrical Tests

The electrical tests were performed using an equivalent capacitance substituted for the microphone. The results are given in below with test status and the estimated uncertainties. The "Pass" means the result of the test is inside the tolerances stated in the test specifications. The "-" means the result of test is outside these tolerances.

Test:	Subtest:	Status:	Expanded Uncertainty (dB)	Coverage Factor
Self-generated noise	A	Pass	0.3	2.1
	C	Pass	1.0	
	Lin	Pass	2.0	
Linearity range for Leq	At reference range, Step 5 dB at 4 kHz	Pass	0.3	2.2
	Reference SPL on all other ranges	Pass	0.3	
	2 dB below upper limit of each range	Pass	0.3	
	2 dB above lower limit of each range	Pass	0.3	
Linearity range for SPL	At reference range, Step 5 dB at 4 kHz	Pass	0.3	
	A	Pass	0.3	
	C	Pass	0.3	
	Lin	Pass	0.3	
Time weightings	Single Burst Fast	Pass	0.3	
	Single Burst Slow	Pass	0.3	
Peak response	Single 100µs rectangular pulse	Pass	0.3	
R.M.S. accuracy	Crest factor of 3	Pass	0.3	
Time weighting I	Single burst 5 ms at 2000 Hz	Pass	0.3	
	Repeated at frequency of 100 Hz	Pass	0.3	
Time averaging	1 ms burst duty factor 1/10 ³ at 4kHz	Pass	0.3	
	1 ms burst duty factor 1/10 ⁴ at 4kHz	Pass	0.3	
Pulse range	Single burst 10 ms at 4 kHz	Pass	0.4	
Sound exposure level	Single burst 10 ms at 4 kHz	Pass	0.4	
Overload indication	SPL	Pass	0.3	
	Leq	Pass	0.4	

2. Acoustic tests

The complete sound level meter was calibrated on the reference range using a B&K 4226 acoustic calibrator with 1000Hz and SPL 94 dB. The sensitivity of the sound level meter was adjusted. The test result at 125 Hz and 8000 Hz are given in below with test status and the estimated uncertainties.

Test:	Subtest	Status	Expanded Uncertainty (dB)	Coverage Factor
Acoustic response	Weighting A at 125 Hz	Pass	0.3	
	Weighting A at 8000 Hz	Pass	0.5	

3. Response to associated sound calibrator

N/A

The expanded uncertainties have been calculated in accordance with the ISO Publication "Guide to the expression of uncertainty in measurement", and gives an interval estimated to have a level of confidence of 95%. A coverage factor of 2 is assumed unless explicitly stated.

- End -

Calibrated by:

Date:

Fung Chi Yip
15-Nov-2018

Checked by:

Date:

Shek Kwong Tot
15-Nov-2018

The standard(s) and equipment used in the calibration are traceable to national or international recognised standards and are calibrated on a schedule to maintain the required accuracy level.

Calibration Certificate

Certificate Number 2018010851

Customer:

LAM Environmental Services Ltd
11/F Centre Point
181-185 Gloucester Road
Wanchai, Hong Kong

Model Number CAL200
Serial Number 13098
Test Results Pass
Initial Condition Inoperable
Description Larson Davis CAL200 Acoustic Calibrator

Procedure Number D0001.8386
Technician Scott Montgomery
Calibration Date 29 Oct 2018
Calibration Due
Temperature 23 °C ± 0.3 °C
Humidity 34 %RH ± 3 %RH
Static Pressure 101.2 kPa ± 1 kPa

Evaluation Method The data is acquired by the insert voltage calibration method using the reference microphone's open circuit sensitivity. Data reported in dB re 20 µPa.

Compliance Standards Compliant to Manufacturer Specifications per D0001.8190 and the following standards:
IEC 60942:2017 ANSI S1.40-2006

Issuing lab certifies that the instrument described above meets or exceeds all specifications as stated in the referenced procedure (unless otherwise noted). It has been calibrated using measurement standards traceable to the SI through the National Institute of Standards and Technology (NIST), or other national measurement institutes, and meets the requirements of ISO/IEC 17025:2005. Test points marked with a ‡ in the uncertainties column do not fall within this laboratory's scope of accreditation.

The quality system is registered to ISO 9001:2008.

This calibration is a direct comparison of the unit under test to the listed reference standards and did not involve any sampling plans to complete. No allowance has been made for the instability of the test device due to use, time, etc. Such allowances would be made by the customer as needed.

The uncertainties were computed in accordance with the ISO Guide to the Expression of Uncertainty in Measurement (GUM). A coverage factor of approximately 2 sigma (k=2) has been applied to the standard uncertainty to express the expanded uncertainty at approximately 95% confidence level.

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Standards Used			
Description	Cal Date	Cal Due	Cal Standard
Agilent 34401A DMM	09/06/2018	09/06/2019	001021
Larson Davis Model 2900 Real Time Analyzer	04/10/2018	04/10/2019	001051
Microphone Calibration System	03/07/2018	03/07/2019	005446
1/2" Preamplifier	09/20/2018	09/20/2019	006506
Larson Davis 1/2" Preamplifier 7-pin LEMO	08/07/2018	08/07/2019	006507
1/2 inch Microphone - RI - 200V	05/10/2018	05/10/2019	006510
Pressure Transducer	07/18/2018	07/18/2019	007368

Larson Davis, a division of PCB Piezotronics, Inc
1681 West 820 North
Provo, UT 84601, United States
716-684-0001



LARSON DAVIS
A PCB PIEZOTRONICS DIV.



Appendix 5.1

Monitoring Schedules for Reporting Month and Coming Reporting Month

Contract No. HK/2015/01
Wan Chai Development Phase II and Central-Wan Chai Bypass
Sampling, Field Measurement and Testing Works (Stage 3)

Environmental Monitoring Schedule
February 2019

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

Contract No. HK/2015/01
Wan Chai Development Phase II and Central-Wan Chai Bypass
Sampling, Field Measurement and Testing Works (Stage 3)

Tentative Environmental Monitoring Schedule
March 2019

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



Appendix 5.2

Noise Monitoring Results and Graphical Presentations



Noise Monitoring Result for EP-376/2009

Day Time (0700 - 1900hrs on normal weekdays)

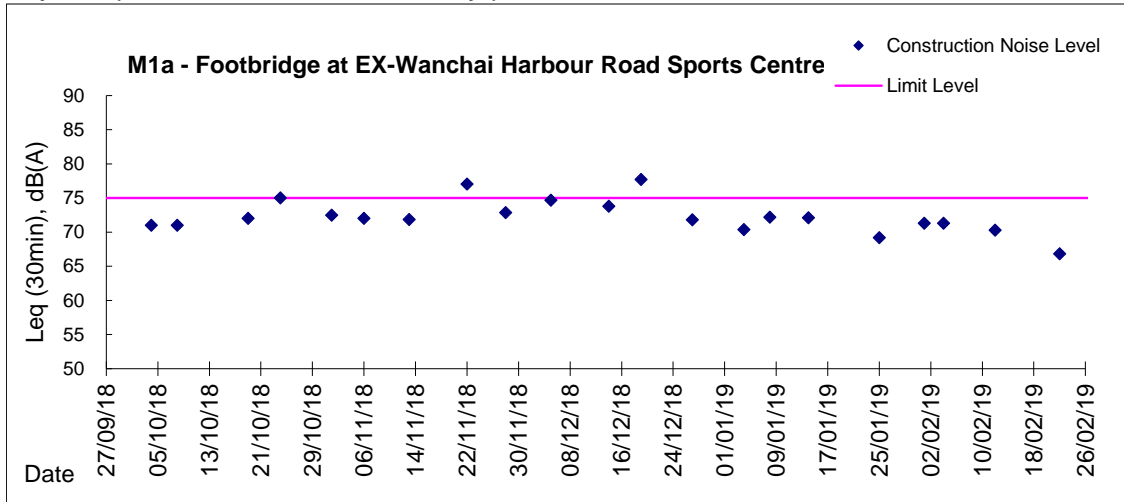
Location: M1a - Footbridge at EX-Wanchai Harbour Road Sports Centre

Date	Time	Weather	Measurement Noise Level			Baseline Level	Construction Noise Level	Limit Level
			Leq	L10	L90	Leq	Leq	Leq
			Unit: dB(A), (30-min)					
01/02/2019	13:00	Fine	71.3	73.6	68.5	73	71	75
04/02/2019	15:30	Fine	71.3	74.6	69.5	73	71	75
12/02/2019	11:24	Fine	70.3	73.0	67.0	73	70	75
22/02/2019	13:00	Fine	73.7	75.4	70.5	73	67	75



Graphic Presentation of Noise Monitoring Result

Day Time (0700 - 1900hrs on normal weekdays)





Appendix 5.3

Air Quality Monitoring Results and Graphical Presentations



Location: CMA5b - Pedestrian Plaza

Report on 24-hour TSP monitoring for EP-376/2009

Action Level - 209.9 µg/m³

Limit Level - 260 µg/m³

Date	Sampling Time	Weather Condition	Filter paper no.	Filter Weight, g		Elapse Time, hr		Sampling Time, hr	Flow Rate, m ³ /min			Total Volume, m ³	TSP Level, µg/m ³
				Initial	Final	Initial	Final		Initial, Q _{si}	Final, Q _{sf}	Average		
28-Jan-19	08:00	Fine	CMA5b_24hr 140337	2.6541	2.8094	11541.92	11565.92	24.00	1.33	1.33	1.33	1916	81.1
02-Feb-19	11:17	Cloudy	CMA5b_24hr 140444	2.6800	2.8023	11572.08	11596.08	24.00	1.22	1.21	1.21	1749	69.9
04-Feb-19	13:30	Cloudy	CMA5b_24hr 140457	2.6921	2.7729	11596.08	11620.08	24.00	1.21	1.21	1.21	1747	46.2
13-Feb-19	08:00	Cloudy	CMA5b_24hr 140496	2.6857	2.7605	11623.09	11647.09	24.00	1.22	1.22	1.22	1752	42.7
19-Feb-19	08:00	Rainy	CMA5b_24hr 140613	2.6390	2.7011	11650.09	11674.09	24.00	0.80	0.79	0.80	1145	54.2
25-Feb-19	08:00	Cloudy	CMA5b_24hr 140625	2.6328	2.6923	11677.09	11701.09	24.00	0.80	0.80	0.80	1153	51.6

Report on 1-hour TSP monitoring for EP-376/2009

Action Level - 339.7 µg/m³

Limit Level - 500 µg/m³

Date	Sampling Time	Weather Condition	Filter paper no.	Filter Weight, g		Elapse Time, hr		Sampling Time, hr	Flow Rate, m ³ /min			Total Volume, m ³	TSP Level, µg/m ³
				Initial	Final	Initial	Final		Initial, Q _{si}	Final, Q _{sf}	Average		
29-Jan-19	09:15	Fine	CMA5b_1hr_1 140355	2.6608	2.6721	11565.92	11566.92	1.00	1.22	1.22	1.22	73	154.5
29-Jan-19	13:00	Fine	CMA5b_1hr_2 140371	2.6661	2.6767	11566.92	11567.92	1.00	1.33	1.33	1.33	80	132.9
29-Jan-19	15:23	Fine	CMA5b_1hr_3 140409	2.6814	2.6948	11567.92	11568.92	1.00	1.33	1.33	1.33	80	168.0
02-Feb-19	08:00	Cloudy	CMA5b_1hr_1 140500	2.6759	2.6806	11569.08	11570.08	1.00	1.22	1.22	1.22	73	64.4
02-Feb-19	09:04	Cloudy	CMA5b_1hr_2 140430	2.6854	2.6894	11570.08	11571.08	1.00	1.22	1.22	1.22	73	54.8
02-Feb-19	10:10	Cloudy	CMA5b_1hr_3 140437	2.6729	2.6785	11571.08	11572.08	1.00	1.22	1.22	1.22	73	76.7
08-Feb-19	08:02	Cloudy	CMA5b_1hr_1 140458	2.6821	2.6853	11620.08	11621.08	1.00	1.21	1.21	1.21	73	44.1
08-Feb-19	09:28	Cloudy	CMA5b_1hr_2 140477	2.6742	2.6766	11621.08	11622.08	1.00	1.21	1.21	1.21	73	33.0
08-Feb-19	10:41	Cloudy	CMA5b_1hr_3 140429	2.6925	2.7014	11622.08	11623.08	1.00	1.21	1.21	1.21	73	122.5
14-Feb-19	08:04	Cloudy	CMA5b_1hr_1 140460	2.7087	2.7117	11647.09	11648.09	1.00	1.22	1.22	1.22	73	41.1
14-Feb-19	09:50	Cloudy	CMA5b_1hr_2 140694	2.6538	2.6593	11648.09	11649.09	1.00	1.22	1.22	1.22	73	75.3
14-Feb-19	13:00	Cloudy	CMA5b_1hr_3 140684	2.6485	2.6543	11649.09	11650.09	1.00	1.22	1.22	1.22	73	79.4
20-Feb-19	08:05	Cloudy	CMA5b_1hr_1 140616	2.6454	2.6490	11674.09	11675.09	1.00	0.79	0.79	0.79	48	75.7
20-Feb-19	09:50	Cloudy	CMA5b_1hr_2 140659	2.6240	2.6305	11675.09	11676.09	1.00	0.79	0.79	0.79	48	136.6
20-Feb-19	13:00	Cloudy	CMA5b_1hr_3 140651	2.6258	2.6313	11676.09	11677.09	1.00	0.79	0.79	0.79	48	115.6
26-Feb-19	08:02	Cloudy	CMA5b_1hr_1 140628	2.6178	2.6200	11701.09	11702.09	1.00	0.80	0.80	0.80	48	45.8
26-Feb-19	10:13	Cloudy	CMA5b_1hr_2 140501	2.6578	2.6621	11702.09	11703.09	1.00	0.80	0.80	0.80	48	89.6
26-Feb-19	13:35	Cloudy	CMA5b_1hr_3 140515	2.6442	2.6538	11703.09	11704.09	1.00	0.80	0.80	0.80	48	200.0



Location: CMA6a - WDII PRE Office

Report on 24-hour TSP monitoring for EP-376/2009

Action Level - 207.1 µg/m³

Limit Level - 260 µg/m³

Date	Sampling Time	Weather Condition	Filter paper no.	Filter Weight, g		Elapse Time, hr		Sampling Time, hr	Flow Rate, m ³ /min			Total Volume, m ³	TSP Level, µg/m ³
				Initial	Final	Initial	Final		Initial, Q _{si}	Final, Q _{sf}	Average		
28-Jan-19	08:00	Fine	CMA6a_24hr_140338	2.6560	2.7388	5208.17	5232.17	24.00	1.22	1.21	1.21	1748	47.4
01-Feb-19	08:00	Cloudy	CMA6a_24hr_140410	2.7093	2.8056	5236.62	5260.62	24.00	1.28	1.21	1.24	1792	53.7
04-Feb-19	08:00	Cloudy	CMA6a_24hr_140452	2.6699	2.7732	5263.63	5287.63	24.00	1.24	1.24	1.24	1784	57.9
13-Feb-19	08:00	Cloudy	CMA6a_24hr_140603	2.6462	2.7141	5290.76	5314.76	24.00	1.15	1.28	1.21	1743	39.0
19-Feb-19	08:00	Rainy	CMA6a_24hr_140615	2.6427	2.6857	5317.76	5341.76	24.00	1.07	1.06	1.06	1532	28.1
25-Feb-19	08:00	Cloudy	CMA6a_24hr_140650	2.6362	2.7099	5344.76	5368.76	24.00	1.18	1.17	1.18	1692	43.5

Report on 1-hour TSP monitoring for EP-376/2009

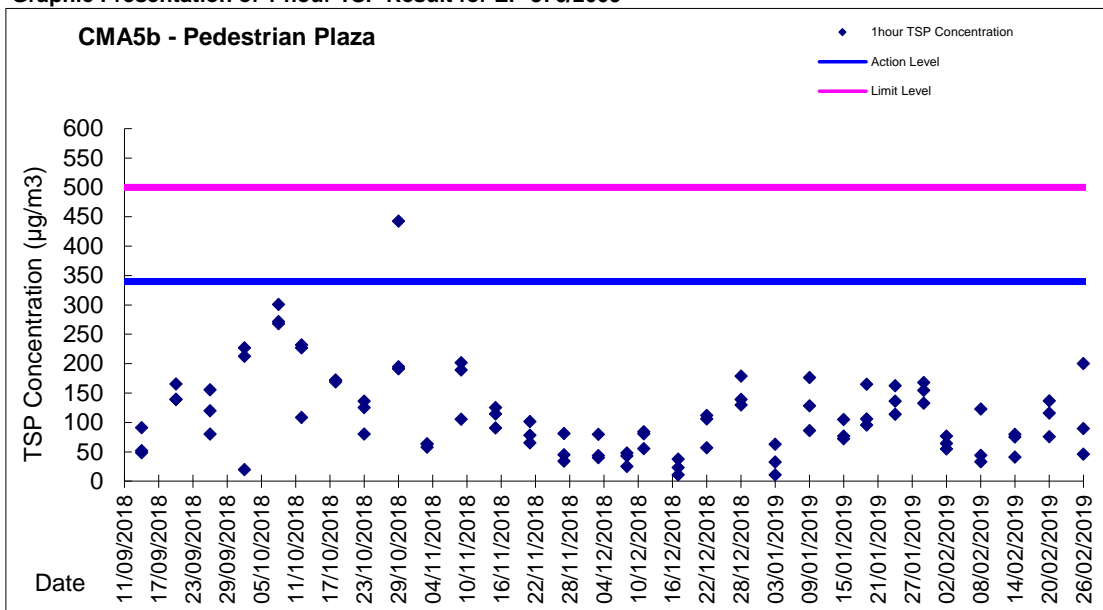
Action Level - 333 µg/m³

Limit Level - 500 µg/m³

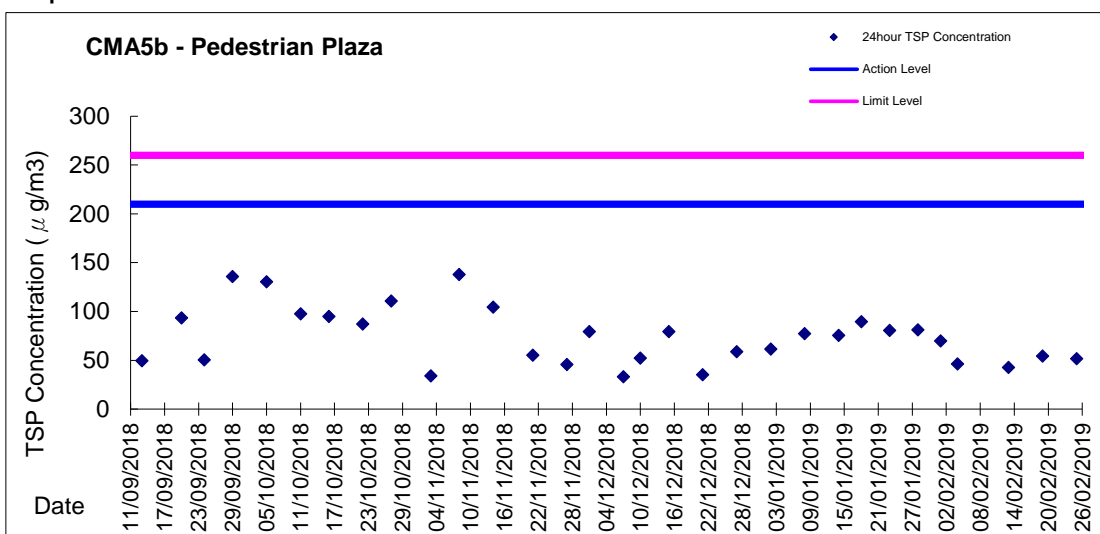
Date	Sampling Time	Weather Condition	Filter paper no.	Filter Weight, g		Elapse Time, hr		Sampling Time, hr	Flow Rate, m ³ /min			Total Volume, m ³	TSP Level, µg/m ³
				Initial	Final	Initial	Final		Initial, Q _{si}	Final, Q _{sf}	Average		
29-Jan-19	09:25	Fine	CMA6a_1hr_1_140356	2.6564	2.6633	5232.17	5233.17	1.00	1.15	1.15	1.15	69	100.1
29-Jan-19	10:45	Fine	CMA6a_1hr_2_140370	2.6620	2.6663	5233.17	5234.17	1.00	1.15	1.15	1.15	69	62.4
29-Jan-19	14:00	Fine	CMA6a_1hr_3_140380	2.6659	2.6747	5234.17	5235.17	1.00	1.15	1.15	1.15	69	127.7
02-Feb-19	08:02	Cloudy	CMA6a_1hr_1_140432	2.6837	2.6870	5260.62	5261.62	1.00	1.28	1.28	1.28	77	43.1
02-Feb-19	09:05	Cloudy	CMA6a_1hr_2_140439	2.6755	2.6777	5261.62	5262.62	1.00	1.15	1.15	1.15	69	32.0
02-Feb-19	10:10	Cloudy	CMA6a_1hr_3_140446	2.6946	2.6993	5262.62	5263.62	1.00	1.15	1.15	1.15	69	68.3
08-Feb-19	08:05	Cloudy	CMA6a_1hr_1_140471	2.6805	2.6865	5287.63	5288.63	1.00	1.20	1.20	1.20	72	83.1
08-Feb-19	09:35	Cloudy	CMA6a_1hr_2_140479	2.6904	2.6922	5288.63	5289.63	1.00	1.14	1.14	1.14	68	26.3
08-Feb-19	10:50	Cloudy	CMA6a_1hr_3_140485	2.6917	2.6990	5289.63	5290.63	1.00	1.20	1.20	1.20	72	101.1
14-Feb-19	08:15	Cloudy	CMA6a_1hr_1_140462	2.6774	2.6784	5314.76	5315.76	1.00	1.18	1.18	1.18	71	14.1
14-Feb-19	10:00	Cloudy	CMA6a_1hr_2_140691	2.6406	2.6425	5315.76	5316.76	1.00	1.15	1.15	1.15	69	27.6
14-Feb-19	13:00	Cloudy	CMA6a_1hr_3_140683	2.6570	2.6583	5316.76	5317.76	1.00	1.18	1.18	1.18	71	18.4
20-Feb-19	08:20	Cloudy	CMA6a_1hr_1_140666	2.6168	2.6214	5341.76	5342.76	1.00	1.06	1.06	1.06	64	72.2
20-Feb-19	10:02	Cloudy	CMA6a_1hr_2_140619	2.6531	2.6584	5342.76	5343.76	1.00	1.11	1.11	1.11	67	79.2
20-Feb-19	13:00	Cloudy	CMA6a_1hr_3_140648	2.6175	2.6220	5343.76	5344.76	1.00	1.06	1.11	1.09	65	68.9
26-Feb-19	08:14	Cloudy	CMA6a_1hr_1_140632	2.6152	2.6186	5368.76	5369.76	1.00	1.17	1.17	1.17	70	48.3
26-Feb-19	10:30	Cloudy	CMA6a_1hr_2_140600	2.6441	2.6481	5369.76	5370.76	1.00	1.17	1.17	1.17	70	56.8
26-Feb-19	13:25	Cloudy	CMA6a_1hr_3_140517	2.6555	2.6640	5370.76	5371.76	1.00	1.17	1.17	1.17	70	120.6



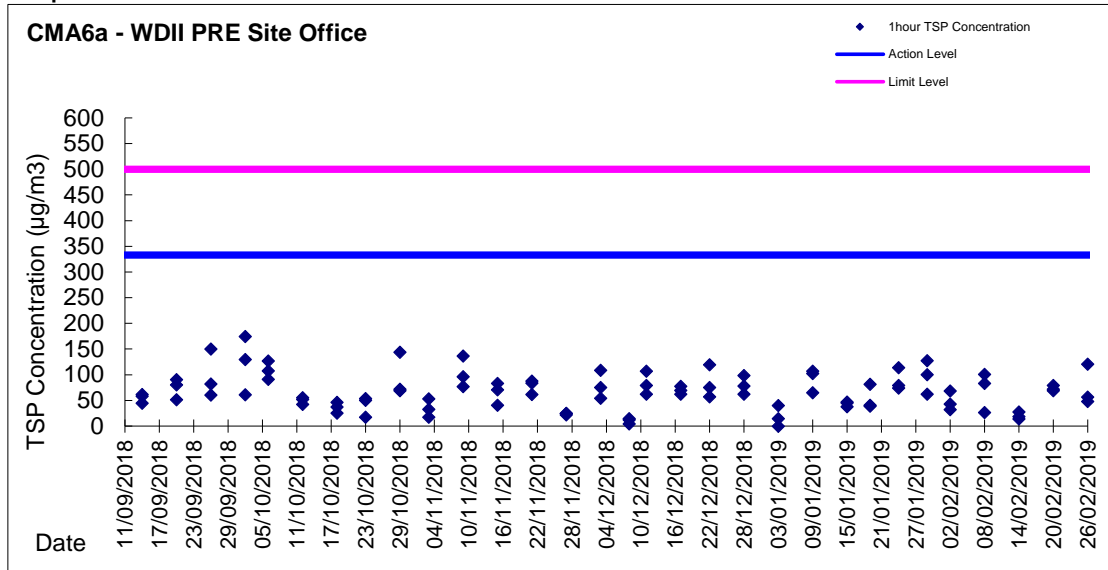
Graphic Presentation of 1 hour TSP Result for EP-376/2009



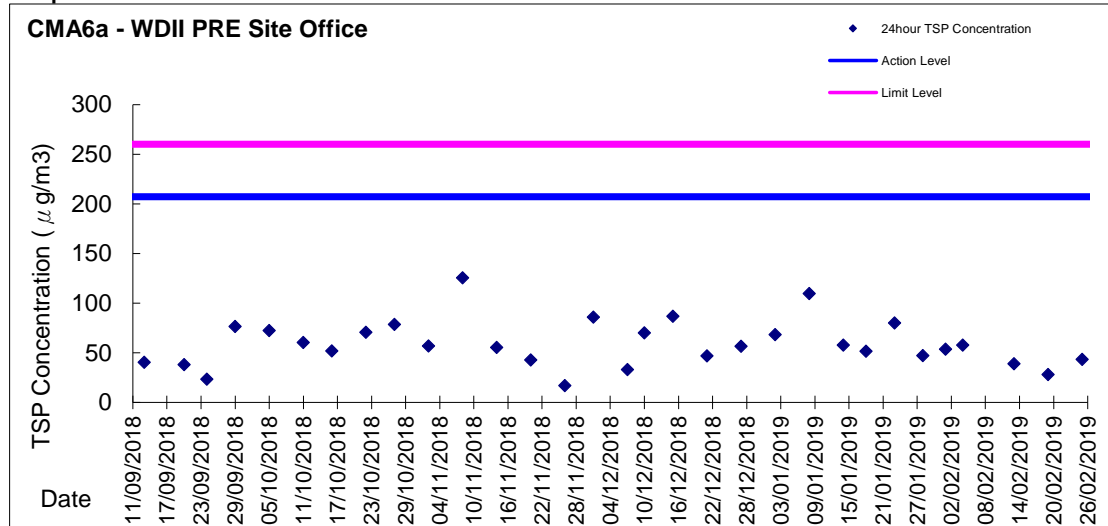
Graphic Presentation of 24 hour TSP Result for EP-376/2009



Graphic Presentation of 1 hour TSP Result for EP-376/2009



Graphic Presentation of 24 hour TSP Result for EP-376/2009





Appendix 6.1

Event Action Plans



Event/Action Plan for Construction Noise

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



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

**Event / Action Plan for Construction Air Quality**

EVENT	ACTION			
	ET	IEC	ER	CONTRACTOR
ACTION LEVEL				
1. Exceedance for one sample	1. Identify source, investigate the causes of exceedance and propose remedial measures; Inform IEC and ER; 2. Repeat measurement to confirm finding; 3. Increase monitoring frequency to daily. (The above actions should be taken within 2 working days after the exceedance is identified)	1. Check monitoring data submitted by ET; 2. Check Contractor's working method. (The above actions should be taken within 2 working days after the exceedance is identified)	1. Notify Contractor. (The above actions should be taken within 2 working days after the exceedance is identified)	1. Rectify any unacceptable practice; 2. Amend working methods if appropriate. (The above actions should be taken within 2 working days after the exceedance is identified)
2. Exceedance for two or more consecutive samples	1. Identify source; 2. Inform IEC and ER; 3. Advise the ER on the effectiveness of the proposed remedial measures; 4. Repeat measurements to confirm findings; 5. Increase monitoring frequency to daily; 6. Discuss with IEC and Contractor on remedial actions required; 7. If exceedance continues, arrange meeting with IEC and ER; 8. If exceedance stops, cease additional monitoring. (The above actions should be taken within 2 working days after the exceedance is identified)	1. Check monitoring data submitted by ET; 2. Check Contractor's working method; 3. Discuss with ET and Contractor on possible remedial measures; 4. Advise the ET on the effectiveness of the proposed remedial measures; 5. Supervise Implementation of remedial measures. (The above actions should be taken within 2 working days after the exceedance is identified)	1. Confirm receipt of notification of failure in writing; 2. Notify Contractor; 3. Ensure remedial measures properly implemented. (The above actions should be taken within 2 working days after the exceedance is identified)	1. Submit proposals for remedial to ER within 3 working days of notification; 2. Implement the agreed proposals; 3. Amend proposal if appropriate. (The above actions should be taken within 2 working days after the exceedance is identified)
LIMIT LEVEL				
1. Exceedance for one sample	1. Identify source, investigate the causes of exceedance and propose remedial measures; Inform ER, Contractor and EPD; 2. Repeat measurement to confirm finding; 3. Increase monitoring frequency to daily; 4. Assess effectiveness of Contractor's remedial actions and keep IEC, EPD and ER informed of the results. (The above actions should be taken within 2 working days after the exceedance is identified)	1. Check monitoring data submitted by ET; 2. Check Contractor's working method; 3. Discuss with ET and Contractor on possible remedial measures; 4. Advise the ER on the effectiveness of the proposed remedial measures; 5. Supervise implementation of remedial measures. (The above actions should be taken within 2 working days after the exceedance is identified)	1. Confirm receipt of notification of failure in writing; 2. Notify Contractor; 3. Ensure remedial measures properly implemented. (The above actions should be taken within 2 working days after the exceedance is identified)	1. Take immediate action to avoid further exceedance; 2. Submit proposals for remedial actions to IEC within 3 working days of notification; 3. Implement the agreed proposals; 4. Amend proposal if appropriate. (The above actions should be taken within 2 working days after the exceedance is identified)
2. Exceedance for two or more consecutive samples	1. Notify IEC, ER, Contractor and EPD; 2. Identify source; 3. Repeat measurement to confirm findings; 4. Increase monitoring frequency to daily; 5. Carry out analysis of Contractor's working procedures to determine possible mitigation to be implemented; 6. Arrange meeting with IEC and ER to discuss the remedial actions to be taken; 7. Assess effectiveness of Contractor's remedial actions and keep IEC, EPD and ER informed of the results; 8. If exceedance stops, cease additional monitoring. (The above actions should be taken within 2 working days after the exceedance is identified)	1. Discuss amongst ER, ET, and Contractor on the potential remedial actions; 2. Review Contractor's remedial actions whenever necessary to assure their effectiveness and advise the ER accordingly; 3. Supervise the implementation of remedial measures.	1. Confirm receipt of notification of failure in writing; 2. Notify Contractor; 3. In consolidation with the IEC, agree with the Contractor on the remedial measures to be implemented; 4. Ensure remedial measures properly implemented; 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. (The above actions should be taken within 2 working days after the exceedance is identified)	1. Take immediate action to avoid further exceedance; 2. Submit proposals for remedial actions to IEC within 3 working days of notification; 3. Implement the agreed proposals; 4. Resubmit proposals if problem still not under control; 5. Stop the relevant portion of works as determined by the ER until the exceedance is abated. (The above actions should be taken within 2 working days after the exceedance is identified)



Event and Action Plan for Marine Water Quality

EVENT	ACTION			
	ET	IEC	ER	CONTRACTOR
Action level being exceeded by one sampling day	Repeat in-situ measurement to confirm findings; Identify source(s) of impact; Inform IEC and Contractor; Check monitoring data, all plant, equipment and Contractor's working methods; Discuss mitigation measures with IEC and Contractor; (The above actions should be taken within 1 working day after the exceedance is identified) Repeat measurement on next day of exceedance.	Discuss with ET and Contractor on the mitigation measures; Review proposals on mitigation measures submitted by Contractor and advise the ER accordingly; Assess the effectiveness of the implemented mitigation measures. (The above actions should be taken within 1 working day after the exceedance is identified)	Discuss with IEC on the proposed mitigation measures; Make agreement on the mitigation measures to be implemented. (The above actions should be taken within 1 working day after the exceedance is identified)	Inform the ER and confirm notification of the non-compliance in writing; Rectify unacceptable practice; Check all plant and equipment; Consider changes of working methods; Discuss with ET and IEC and propose mitigation measures to IEC and ER; Implement the agreed mitigation measures. (The above actions should be taken within 1 working day after the exceedance is identified)
Action level being exceeded by more than one consecutive sampling days	Identify source(s) of impact; Inform IEC and Contractor; Check monitoring data, all plant, equipment and Contractor's working methods; Discuss mitigation measures with IEC and Contractor; Ensure mitigation measures are implemented; Prepare to increase the monitoring frequency to daily; (The above actions should be taken within 1 working day after the exceedance is identified) Repeat measurement on next working day of exceedance.	Discuss with ET and Contractor on the mitigation measures; Review proposals on mitigation measures submitted by Contractor and advise the ER accordingly; Assess the effectiveness of the implemented mitigation measures. (The above actions should be taken within 1 working day after the exceedance is identified)	Discuss with IEC on the proposed mitigation measures; Make agreement on the mitigation measures to be implemented; Assess the effectiveness of the implemented mitigation measures. (The above actions should be taken within 1 working day after the exceedance is identified)	Inform the Engineer and confirm notification of the non-compliance in writing; Rectify unacceptable practice; Check all plant and equipment; Consider changes of working methods; Discuss with ET and IEC and propose mitigation measures to IEC and ER within 3 working days; Implement the agreed mitigation measures. (The above actions should be taken within 1 working day after the exceedance is identified)



EVENT	ACTION			
	ET	IEC	ER	CONTRACTOR
Limit level being exceeded by one sampling day	Repeat in-situ measurement to confirm findings; Identify source(s) of impact; Inform IEC, contractor and EPD; Check monitoring data, all plant, equipment and Contractor's working methods; Discuss mitigation measures with IEC, ER and Contractor; Ensure mitigation measures are implemented; Increase the monitoring frequency to daily until no exceedance of Limit level. (The above actions should be taken within 1 working day after the exceedance is identified)	Discuss with ET and Contractor on the mitigation measures; Review proposals on mitigation measures submitted by Contractor and advise the ER accordingly; Assess the effectiveness of the implemented mitigation measures. (The above actions should be taken within 1 working day after the exceedance is identified)	Discuss with IEC, ET and Contractor on the proposed mitigation measures; Request Contractor to critically review the working methods; Make agreement on the mitigation measures to be implemented; Assess the effectiveness of the implemented mitigation measures. (The above actions should be taken within 1 working day after the exceedance is identified)	Inform the Engineer and confirm notification of the non-compliance in writing; Rectify unacceptable practice; Check all plant and equipment; Consider changes of working methods; Discuss with ET, IEC and ER and propose mitigation measures to IEC and ER within 3 working days; Implement the agreed mitigation measures. (The above actions should be taken within 1 working day after the exceedance is identified)
Limit level being exceeded by more than one consecutive sampling days	Identify source(s) of impact; Inform IEC, contractor and EPD; Check monitoring data, all plant, equipment and Contractor's working methods; Discuss mitigation measures with IEC, ER and Contractor; Ensure mitigation measures are implemented; Increase the monitoring frequency to daily until no exceedance of Limit level for two consecutive days. (The above actions should be taken within 1 working day after the exceedance is identified)	Discuss with ET and Contractor on the mitigation measures; Review proposals on mitigation measures submitted by Contractor and advise the ER accordingly; Assess the effectiveness of the implemented mitigation measures. (The above actions should be taken within 1 working day after the exceedance is identified)	Discuss with IEC, ET and Contractor on the proposed mitigation measures; Request Contractor to critically review the working methods; Make agreement on the mitigation measures to be implemented; Assess the effectiveness of the implemented mitigation measures; Consider and instruct, if necessary, the Contractor to slow down or to stop all or part of the marine work until no exceedance of Limit level. (The above actions should be taken within 1 working day after the exceedance is identified)	Inform the ER and confirm notification of the non-compliance in writing; Rectify unacceptable practice; Check all plant and equipment; Consider changes of working methods; Discuss with ET, IEC and ER and propose mitigation measures to IEC and ER within 3 working days; Implement the agreed mitigation measures; As directed by the Engineer, to slow down or to stop all or part of the marine work or construction activities. (The above actions should be taken within 1 working day after the exceedance is identified)



Event and Action Plan for Odour Patrol

Event	ACTION	
	Person-in-charge of Odour Monitoring	Implementation Agent Identified by CEDD
Action Level		
Exceedance of Action Level	1. Identify source/reason of exceedance; 2. Repeat odour patrol to confirm finding.	1. Carry out investigation to identify the source/reason of exceedance; 2. Rectify any unacceptable practice 3. Implement more mitigation measures if necessary; 4. Inform EPD or MD if exceedance is considered to be caused by expedient connections or floating debris.
Limit Level		
Exceedance of Limit Level	1. Identify source / reason of exceedance; 2. Repeat odour patrol to confirm findings; 3. Increase odour patrol frequency; 4. If exceedance stops, cease additional odour patrol.	1. Carry out investigation to identify the source/reason of exceedance. Investigation shall be completed within 2 weeks; 2. Rectify any unacceptable practice; 3. Formulate remedial actions; 4. Ensure remedial actions properly implemented; 5. If exceedance continues, consider what more/enhanced mitigation measures shall be implemented; 6. Inform EPD or MD if exceedance is considered to be caused by expedient connections or floating debris.



Appendix 6.2

Summary for Notification of Exceedance



Lam Geotechnics Limited

Contract No. HK/2015/01
Wanchai Development Phase II and Central Wanchai Bypass
Sampling, Field Measurement and Testing Work (Stage3)
Summary for Notification of Exceedance

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



Appendix 9.1

Complaint Log



Environmental Complaints Log

Complaint Log No.	Date of Complaint	Received From and Received By	Location of Complainant	Nature of Complaint	Outcome	Status
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Appendix 10.1

Construction Programme of Individual Contracts

Activity ID	Activity Name	Remaining Dur	Early Start	Early Finish	Activity % Complete	2018												2019									
						Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct
SIIIA10279c	Sec III A - section 1 carriageway - sewerage pipe from M/H 8C to F8B (night time): construct sewerage pipe	0	02-Jan-18 A	03-Feb-18 A	100%																						
SIIIA10293	Sec III A - section 1 carriageway - sewerage pipe from M/H F8B - F8A (night time)	6	05-Feb-18 A	26-Feb-18	0%																						
SIIIA10294	Sec III A - section 1 carriageway - sewerage pipe from M/H F8A - F8	8	17-Jan-18 A	28-Feb-18	27.27%																						
SIIIA10295	Sec III A - carriageway - works prior TTA stage 5: excavation and duct laying of TCSS and public lighting	7	18-Jan-18 A	27-Feb-18	0%																						
SIIIA10298	Sec III A - section 1 carriageway - works prior TTA stage 5: road kerb	5	28-Feb-18	05-Mar-18	0%																						
SIIIA10301	Sec III A - section 1 carriageway - works prior TTA stage 5: road formation	2	06-Mar-18	07-Mar-18	0%																						
SIIIA10302	Sec III A - section 1 carriageway - works prior TTA stage 5: laying asphalt	5	08-Mar-18	13-Mar-18	0%																						
SIIIA10303	Sec III A - section 1 carriageway - works prior TTA stage 5: road marking & preparation works	3	14-Mar-18	16-Mar-18	0%																						
SIIIA10310	Sec III A - section 1 carriageway - TTA stage 5: Implementation of TTA Stage 5	1	17-Mar-18	17-Mar-18	0%																						
SIIIA10310a	Sec III A - section 1 carriageway - TTA stage 5: remaining sewerage pipe for M/H F8A - M/H F8	12	19-Mar-18	04-Apr-18	0%																						
SIIIA10310b	Sec III A - section 1 carriageway - TTA stage 5: remaining sewerage pipe for M/H F8A - M/H F8B	18	06-Apr-18	26-Apr-18	0%																						
SIIIA10310c	Sec III A - section 1 carriageway - TTA stage 5: SR1 at-grade road- remove sheetpile at U-trough west	5	19-Mar-18	23-Mar-18	0%																						
SIIIA10310d	Sec III A - section 1 carriageway - TTA stage 5: SR1 at-grade road -remove temp. road access bay 5 of SR1	21	24-Mar-18	21-Apr-18	0%																						
SIIIA10310e	Sec III A - section 1 carriageway - TTA stage 5: SR1 at-grade road -construct upstand wall above Dwall	25	23-Apr-18	23-May-18	0%																						
SIIIA10310f	Sec III A - section 1 carriageway - TTA stage 5: SR1 at-grade road - roadside barrier	14	24-May-18	08-Jun-18	0%																						
SIIIA10310g	Sec III A - section 1 carriageway - TTA stage 5: SR1 at-grade road - road formation	7	09-Jun-18	16-Jun-18	0%																						
SIIIA10310h	Sec III A - section 1 carriageway - TTA stage 5: SR1 at-grade road - laying asphalt with transition slab	14	19-Jun-18	05-Jul-18	0%																						
SIIIA10312	Sec III A - roadwork and utilities section 1 carriageway - Drainage works (L2202 - L2201)	15	19-Mar-18	09-Apr-18	0%																						
SIIIA10312a	Sec III A - roadwork and utilities section 1 carriageway - Drainage works (L1805 - L1801)	15	10-Apr-18	26-Apr-18	0%																						
SIIIA10312b	Sec III A - roadwork and utilities section 1 carriageway - Drainage works (L1805-1807)	12	27-Apr-18	11-May-18	0%																						
SIIIA10313	Sec III A - roadwork and utilities section 1 carriageway - gully pipe (L1807 - L1801)	14	07-May-18	23-May-18	0%																						
SIIIA10320	Sec III A - roadwork and utilities section 1 carriageway - fresh watermain	7	24-May-18	31-May-18	0%																						
SIIIA10340	Sec III A - roadwork and utilities section 1 carriageway - utilities: HEC (80m) along carriageway	14	01-Jun-18	16-Jun-18	0%																						
SIIIA10360	Sec III A - roadwork and utilities section 1 carriageway - road kerb & formation	14	19-Jun-18	05-Jul-18	0%																						
SIIIA10400	Sec III A - roadwork and utilities section 1 carriageway - black top	7	06-Jul-18	13-Jul-18	0%																						
SIIIA10420	Sec III A - Implementation of TTA Stage 7P (Closure of U-turn at Expo Drive)	1	14-Jul-18	14-Jul-18	0%																						
SIIIA10440	Sec III A - roadwork and utilities section 1 carriageway : breaking existing asphalt	10	16-Jul-18	26-Jul-18	0%																						
SIIIA10460	Sec III A - roadwork and utilities section 1 carriageway: road kerb and formation	14	27-Jul-18	11-Aug-18	0%																						
SIIIA10480	Sec III A - roadwork and utilities section 1 carriageway : black top	10	13-Aug-18	23-Aug-18	0%																						
SIIIA10500	Sec III A - roadwork and utilities section 1 carriageway : roadmarking and road furniture	14	24-Aug-18	08-Sep-18	0%																						
Roadwork & Utilities - Section 2 (L1810 - L1807)																											
SIIIA12590	Sec III A - roadwork and utilities section 2 carriageway - black top	0	20-Jan-18 A	27-Jan-18 A	100%																						
Roadwork & Utilities - Section 3 (L1808 - L1102)																											
SIIIA12770	Sec III A - roadwork and utilities section 3 carriageway - utilities: HEC ducting (60m) & crossroad duct (PCCW & HGC)	0	20-Jan-18 A	07-Feb-18 A	100%																						
SIIIA12790	Sec III A - roadwork and utilities section 3 carriageway - road kerb & formation	17	08-Feb-18 A	10-Mar-18	0%																						
SIIIA12810	Sec III A - roadwork and utilities section 3 carriageway - black top	7	12-Mar-18	19-Mar-18	0%																						
Roadwork & Utilities - Section 6 (L1102 - L1411)																											
SIIIA13399	Sec III A - roadwork and utilities section 6 carriageway - gully pipe (L1101 -L1102)	0	12-Jan-18 A	26-Jan-18 A	100%																						
SIIIA13444	Sec III A - roadwork and utilities section 6 carriageway - watermain (road crossing)	0	27-Jan-18 A	03-Feb-18 A	100%																						
SIIIA13445	Sec III A - roadwork and utilities section 6 carriageway - utilities: crossed duct(HEC , HGC, PCCW)	13	05-Feb-18 A	06-Mar-18	0%																						

Activity ID	Activity Name	Remaining Dur	Early Start	Early Finish	Activity % Complete	2018												2019															
						Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct						
SIIIA13450	Sec III A - roadwork and utilities section 6 carriageway - road kerb & formation	18	07-Mar-18	27-Mar-18	0%																												
SIIIA13470	Sec III A - roadwork and utilities section 6 carriageway - black top	7	28-Mar-18	09-Apr-18	0%																												
SIIIA13570	Achievement of Section IIIA of the Works	0		08-Sep-18	0%																												
Section V - Remaining At-Grade Road & Road P2																																	
Roadwork & Utilities																																	
Section 1 (L1504 - L1900)																																	
SV12456	Sec V-Roadwork & Utilities Section 1 - implementation of TTA stage 5E (closure of slow lane at northbound of Expo	0	20-Feb-18*	20-Feb-18	0%																												
SV12460	Sec V - Roadwork & Utilities Section 1 - drainage works (L1902 - L1900)	15	20-Feb-18	08-Mar-18	0%																												
SV12462	Sec V - Roadwork & Utilities Section 1 - gully pipe (L1902 - L1900)	6	09-Mar-18	15-Mar-18	0%																												
SV12464	Sec V - Roadwork & Utilities Section 1 - temp. reinstatement to match with existing Expo Drive	14	16-Mar-18	04-Apr-18	0%																												
SV12466	Sec V - Section 1 - Modification to 2nd stage ITA (V.O. 50) : closure of northbound and maintain one lane at southbound	1	14-Jul-18	14-Jul-18	0%																												
SV12468	Sec V - Roadwork & Utilities Section 1 Carriageway - breaking existing asphalt	7	16-Jul-18	23-Jul-18	0%																												
SV12490	Sec V - Roadwork & Utilities Section 1 Carriageway - Road kerb & formation	10	24-Jul-18	03-Aug-18	0%																												
SV12520	Sec V - Roadwork & Utilities Section 1 Carriageway - Black top	7	04-Aug-18	11-Aug-18	0%																												
SV12522	Sec V - Section 1 - Implementation of TTA for road closure of northbound and southbound of Expo Drive	3	13-Aug-18	15-Aug-18	0%																												
SV12524	Sec V - Section 1 - Northbound & Southbound of Expo Drive : breaking asphalt	14	16-Aug-18	31-Aug-18	0%																												
SV12526	Sec V - Section 1 - Northbound & Southbound of Expo Drive : road kerb & formation	14	01-Sep-18	17-Sep-18	0%																												
SV12528	Sec V - Section 1 - Northbound & Southbound of Expo Drive : black top	7	18-Sep-18	26-Sep-18	0%																												
SV12570	Sec V - Roadwork & Utilities Section 1 footpath - utilities:TCSS	12	29-Dec-17 A	05-Mar-18	60%																												
SV12580	Sec V - Roadwork & Utilities Section 1 footpath - paving block	29	06-Mar-18	12-Apr-18	0%																												
Section 2 (L1510 - L1504)																																	
SV12624	Sec V - Roadwork & Utilities Section 1 Carriageway - road kerb & formation	0	04-Jan-18 A	30-Jan-18 A	100%																												
SV12626	Sec V - Roadwork & Utilities Section 1 Carriageway - black top	13	31-Jan-18 A	06-Mar-18	0%																												
SV12692	Sec V - Roadwork & Utilities Section 2 footpath - U channel	11	17-Jan-18 A	03-Mar-18	21.43%																												
SV12695	Sec V - Roadwork & Utilities Section 2 footpath - Watermain	13	05-Mar-18	19-Mar-18	0%																												
SV12700	Sec V - Roadwork & Utilities Section 2 footpath - utilities: TCSS	16	20-Mar-18	11-Apr-18	0%																												
SV12740	Sec V - Roadwork & Utilities Section 2 footpath - paving block	18	12-Apr-18	03-May-18	0%																												
Section 3 (Culvert L - L1510)																																	
SIV12860	Sec V - Roadwork & Utilities Section 3 footpath - Utilities: TCSS, HGC, PCCW)	30	16-Jan-18 A	26-Mar-18	11.76%																												
SIV12880	Sec V - Roadwork & Utilities Section 3 footpath - Paving block	21	27-Mar-18	24-Apr-18	0%																												
Section 4 (K1106 - Culvert L)																																	
SIV12282	Sec V - Roadwork & Utilities Section 4 Carriageway - Drainage Works (L1311 - Culvert L, L1201 - Culvert L)	10	20-Feb-18	02-Mar-18	0%																												
SIV12300	Sec V - Roadwork & Utilities Section 4 Carriageway - Gully pipe (L1301 - Culvert L, L1201 - Culvert L)	7	03-Mar-18	10-Mar-18	0%																												
SIV12302	Sec V - Roadwork & Utilities Section 4 Carriageway - watermain	6	12-Mar-18	17-Mar-18	0%																												
SIV12305	Sec V - Roadwork & Utilities Section 4 Carriageway - utilities : cross road duct	7	19-Mar-18	26-Mar-18	0%																												
SIV12310	Sec V - Roadwork & Utilities Section 4 Carriageway - Road kerb & formation : between culvert K and culvert L	15	27-Mar-18	17-Apr-18	0%																												
SIV12320	Sec V - Roadwork & Utilities Section 4 Carriageway - Black top : between culvert K and culvert L	10	18-Apr-18	28-Apr-18	0%																												
SIV12340	Sec V - Roadwork & Utilities Section 4 Carriageway - Black top : at west of culvert K	7	20-Feb-18	27-Feb-18	0%																												
SIV12422	Sec V - Roadwork & Utilities Section 4 footpath - Utilities : TCSS	20	20-Feb-18	14-Mar-18	0%																												
SIV12440	Sec V - Roadwork & Utilities Section 4 footpath - Utilities : HGC & PCCW	8	15-Mar-18	23-Mar-18	0%																												

Activity ID	Activity Name	Remaining Dur	Early Start	Early Finish	Activity % Complete	2018												2019															
						Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct						
SIV12460	Sec V - Roadwork & Utilities Section 4 footpath - Paving block	22	24-Mar-18	23-Apr-18	0%																												
SV10300	Achievement of Section V of the Works	0		26-Sep-18	0%																												
Section IV - Slip Road 3																																	
Roadwork & Utilities																																	
Section 1 (L16608 - L1601)																																	
SIV11747	Sec IV - sign gantry DS20 & DS21 footing (type 2): excavation & ELS	4	30-Dec-17 A	23-Feb-18	80.95%																												
SIV11748	Sec IV - sign gantry DS20 & DS21 footing (type 2): footing structure	21	24-Feb-18	20-Mar-18	0%																												
SIV11749	Sec IV - sign gantry DS20 & DS21 footing (type 2): removal of ELS and backfilling	10	21-Mar-18	04-Apr-18	0%																												
SIV11751	Sec IV - sign gantry DS21 footing (type 3): excavation	5	26-Mar-18	03-Apr-18	0%																												
SIV11752	Sec IV - sign gantry DS21 footing (type 3): footing structure	13	04-Apr-18	19-Apr-18	0%																												
SIV11753	Sec IV - sign gantry DS20: install steel frame of gantry D20	14	15-Aug-18	30-Aug-18	0%																												
SIV11760	Sec IV - Roadwork & Utilities at SR3 Section 1 Carriageway - Drainage Works (L1607 - L1601)	0	09-Dec-17 A	26-Jan-18 A	100%																												
SIV11761	Sec IV - Roadwork & Utilities at SR3 Section 1 Carriageway - Drainage Works (L1602 - L2005)	0	20-Jan-18 A	27-Jan-18 A	100%																												
SIV11762	Sec IV - Roadwork & Utilities at SR3 Section 1 Carriageway - Drainage Works (L2103-L2101A)	17	29-Jan-18 A	10-Mar-18	0%																												
SIV11763	Sec IV - Roadwork & Utilities at SR3 Section 1 Carriageway - Drainage Works (L2004 - L2005, L2101 - L2101A)	21	20-Apr-18	15-May-18	0%																												
SIV11764	Sec IV - Roadwork & Utilities at SR3 Section 1 Carriageway - Gully pipe (L1607-L1601)	21	12-Mar-18	09-Apr-18	0%																												
SIV11765	Sec IV - Roadwork & Utilities at SR3 Section 1 Carriageway - Gully pipe (L2004)	7	17-May-18	25-May-18	0%																												
SIV11780	Sec IV - Roadwork & Utilities at SR3 Section 1 Carriageway - Watermain	18	26-May-18	15-Jun-18	0%																												
SIV11800	Sec IV - Roadwork & Utilities at SR3 Section 1 Carriageway - Utilities : TCSS crossroad duct	14	16-Jun-18	04-Jul-18	0%																												
SIV11830	Sec IV - Roadwork & Utilities at SR3 Section 1 Carriageway - Road kerb & formation	24	05-Jul-18	01-Aug-18	0%																												
SIV11840	Sec IV - Roadwork & Utilities at SR3 Section 1 Carriageway - Black top	11	02-Aug-18	14-Aug-18	0%																												
SIV11860	Sec IV - Roadwork & Utilities at SR3 Section 1 footpath - Drainage Works: future connection pipes	7	26-May-18	02-Jun-18	0%																												
SIV11880	Sec IV - Roadwork & Utilities at SR3 Section 1 footpath - watermain	7	04-Jun-18	11-Jun-18	0%																												
SIV11900	Sec IV - Roadwork & Utilities at SR3 Section 1 footpath - utilities: HEC & TCSS	39	12-Jun-18	28-Jul-18	0%																												
SIV11920	Sec IV - Roadwork & Utilities at SR3 Section 1 footpath - paving block	17	30-Jul-18	17-Aug-18	0%																												
Section 2 (L2301 - L2103)																																	
SIV11942	Sec IV - Roadwork & Utilities at SR3 Section 2 Carriageway - Gully pipe (L2301-L2013, L1608-L1609)	0	28-Dec-17 A	23-Jan-18 A	100%																												
SIV11960	Sec IV - Roadwork & Utilities at SR3 Section 2 Carriageway - Watermain	0	24-Jan-18 A	03-Feb-18 A	100%																												
SIV12010	Sec IV - Roadwork & Utilities at SR3 Section 2 Carriageway - Road kerb & formation	20	05-Feb-18 A	14-Mar-18	0%																												
SIV12020	Sec IV - Roadwork & Utilities at SR3 Section 2 Carriageway - Black top	7	15-Mar-18	22-Mar-18	0%																												
SIV12040	Sec IV - Roadwork & Utilities at SR3 Section 2 footpath - Drainage Works: future connection pipes	7	07-Mar-18	14-Mar-18	0%																												
SIV12060	Sec IV - Roadwork & Utilities at SR3 Section 2 footpath - utilities: TCSS	25	15-Mar-18	17-Apr-18	0%																												
SIV12080	Sec IV - Roadwork & Utilities at SR3 Section 2 footpath - paving block	21	18-Apr-18	12-May-18	0%																												
Section 3 (M/H1.6 - L2301)																																	
SIV12092	Sec IV - Roadwork & Utilities at SR3 Section 3 Carriageway - Drainage Works (M/H1.7 - L2301)	38	28-Dec-17 A	09-Apr-18	35.59%																												
SIV12096	Sec IV - Roadwork & Utilities at SR3 Section 3 Carriageway - M1.7-M1.6: construct manholes	0	29-Nov-17 A	24-Jan-18 A	100%																												
SIV12102	Sec IV - Roadwork & Utilities at SR3 Section 3 Carriageway - M1.7-M1.6: demolish existing seawall	0	25-Jan-18 A	08-Feb-18 A	100%																												
SIV12103	Sec IV - Roadwork & Utilities at SR3 Section 3 Carriageway - M1.7-M1.6: ELS	10	09-Feb-18 A	02-Mar-18	0%																												
SIV12104	Sec IV - Roadwork & Utilities at SR3 Section 3 Carriageway - M1.7-M1.6: Construct manhole & pipes	30	03-Mar-18	11-Apr-18	0%																												
SIV12120	Sec IV - Roadwork & Utilities at SR3 Section 3 Carriageway - Drainage Works (M1.6-C1.1-C1.2): ELS,construct MH and	28	12-Apr-18	15-May-18	0%																												

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