

Gammon Construction Limited

Contract No. DC/2007/23
Harbour Area Treatment Scheme
Stage 2A Construction of Sewage
Conveyance System from North
Point to Stonecutters Island:
Seventeenth Quarterly EM&A Report

May 2014

Environmental Resources Management

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Reference 0104887

For and on behalf of ERM-Hong Kong, Limited	
Approved by:	Frank Wan
Signed:	
Position:	Partner
Certified by:	
	(Environmental Team Leader - Winnie Ko)
Date:	22 May 2014

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CE/Harbour Area Treatment Scheme
Drainage Services Department
Sewage Services Branch
Harbour Area Treatment Scheme Division
5/F, Western Magistracy
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20 May 2014
By Post

Attn: Mr. Danny Tang

Dear Sir,

**Agreement No. CE 8/2009(EP)
Harbour Area Treatment Scheme (HATS) Stage 2A
Independent Environmental Checker for Construction Phase – Investigation**

**Contract no. DC/2007/23
Construction of Sewage Conveyance System from North Point to Stonecutters Island
Submission of 17th Quarterly EM&A Report for December 2013 to February 2014**

We refer to the revised 17th Quarterly EM&A Report for December 2013 to February 2014 received on 20 May 2014 via email. We confirm we have no comment on the said report.

Yours faithfully
for MOTT MACDONALD HONG KONG LIMITED



Dr. Anne F Kerr
Independent Environmental Checker

c.c. AECOM
Gammon
ERM

Mr. K Y Chan
Mr. Max Ko
Ms. Winnie Ko

By email
By email
By email

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EXECUTIVE SUMMARY

The construction works of **DC/2007/23 of Harbour Area Treatment Scheme Stage 2A (HATS2A) - Construction of Sewage Conveyance System from North Point to Stonecutters Island (the Project)** had commenced on 1 December 2009. This is the 17th quarterly Environmental Monitoring and Audit (EM&A) report presenting the EM&A work carried out during the period from 1 December 2013 to 28 February 2014 in accordance with the EM&A Manual.

North Point Production and Drop Shafts

Summary of Construction Works undertaken during Reporting Period

The major construction works undertaken included:

- Construction of permanent lining for downpipes at Drop Shaft;
- Construction of lower shaft at Drop Shaft;
- Construction of upper shaft base slab at Drop Shaft;
- Base preparation for tunnelling lining construction at Production Shaft;
- Ongoing assembling for concrete distribution system at Production Shaft;
- Permanent invert and vault lining construction at Production Shaft.

Environmental Monitoring and Audit Progress

A summary of the monitoring activities in this reporting period is listed below:

- | | |
|--|----------|
| • 24-hour averaged TSP Monitoring at each monitoring station (AM1) | 16 sets |
| • 1-hour averaged TSP Monitoring at each monitoring station (AM1) | 48 sets |
| • 24-hour averaged TSP Monitoring at each monitoring station (AM2) | 16 sets |
| • 1-hour averaged TSP Monitoring at each monitoring station (AM2) | 48 sets |
| • Construction Noise Monitoring during Normal Weekdays at NM1 | 13 sets |
| • Construction Noise Monitoring during Restricted Hours at NM1 | 13 times |
| • Joint Environmental Site Inspection | 12 times |
| • Landscape & Visual Monitoring | 3 times |

Environmental Exceedance/Non-conformance/Complaint/Summons and Prosecution

No exceedance of Action and Limit Levels of 1-hr and 24-hr averaged TSP was recorded during the reporting period.

No exceedance of the Noise Limit Levels was recorded at the monitoring station during both normal working hours and restricted hours in the reporting period.

No non-compliance event was recorded during the reporting period.

There was no complaint/summon/prosecution received during the reporting period.

Wan Chai East Production and Drop Shaft

Summary of Construction Works undertaken during Reporting period

The major construction works undertaken included:

- Pre-excavation grouting at Production Shaft;
- Drilling and blasting at Production Shaft;
- Base preparation for tunnelling lining construction at Production Shaft;
- Ongoing assembling for concrete distribution system at Production Shaft;
- Permanent invert and vault lining construction at Production Shaft;
- Construction of upper shaft lining wall at Drop Shaft;
- Construction of upper shaft at Drop Shaft; and
- Installation of vortex pipe at Drop Shaft.

Environmental Monitoring and Audit Progress

A summary of the monitoring activities in this reporting period is listed below:

- | | |
|--|----------|
| • 24-hour averaged TSP Monitoring at AM3 | 16 sets |
| • 1-hour averaged TSP Monitoring at AM3 | 48 sets |
| • Construction Noise Monitoring during Normal Weekdays at NM2 | 13 sets |
| • Construction Noise Monitoring during Restricted hours at NM2 | 13 times |
| • Joint Environmental Site Inspection | 11 times |
| • Landscape & Visual Monitoring | 3 times |

Environmental Exceedance/Non-conformance/Complaint/Summons and Prosecution

No exceedance of Action and Limit Levels of 1-hr and 24-hr average TSP was recorded during the reporting period.

No exceedance of noise limit level was recorded during normal working hours. However, 27 exceedances of noise Limit Level during restricted hours were reported on 8, 17, 22 and 31 December 2013; 5, 14, 19 and 28 January 2014; and 11, 16 and 25 February 2014.

The exceedances were investigated. Referring to the works summary provided by the Contractor, no noisy outdoor construction activity was conducted at the Wan Chai East Production and Drop Shafts during the noise monitoring sessions. Other potential noise sources were also identified in the vicinity (i.e., traffic) to contribute to the measured noise level. In view of no noisy outdoor construction works carried out and contribution from other potential noise source in vicinity (i.e., traffic), it is considered that the exceedances were not due to the Contract 23 construction works. However, the Contractor was reminded to adhere strictly to the Construction Noise Mitigation Plan and to implement all relevant noise mitigation measures to avoid exceedance of noise limit levels or causing nuisance.

No non-compliance event was recorded during the reporting period.

No complaint/ summon/prosecution was received in this reporting period.

Central Drop Shaft

Summary of Construction Works undertaken during the Reporting Period

The major construction works undertaken included:

- Concrete footings on shaft bottom at Drop Shaft; and
- Raise boring at Drop Shaft.

Environmental Monitoring and Audit Progress

A summary of the monitoring activities in this reporting period is listed below:

- | | |
|---|---------|
| • 24-hour averaged TSP Monitoring at AM4 | 16 sets |
| • 1-hour averaged TSP Monitoring at AM4 | 48 sets |
| • Construction Noise Monitoring during Normal Weekdays at NM3 | 13 sets |
| • Joint Environmental Site Inspection | 9 times |
| • Landscape & Visual Monitoring | 3 times |

Environmental Exceedance/Non-conformance/Complaint/Summon and Prosecution

No exceedance of the Action and Limit Levels of the 1-hour and 24-hour averaged TSP was recorded during the reporting period.

No non-compliance event was recorded during the reporting period.

There was no complaint/summon/prosecution received during the reporting period.

Sai Ying Pun Junction Shaft

Summary of Construction Works undertaken during the reporting period

The major construction works undertaken included:

- Pre-excavation grouting; and
- Drilling and blasting

Environmental Monitoring and Audit Progress

A summary of the monitoring activities in this reporting period is listed below:

• 24-hour averaged TSP Monitoring at AM5	12 sets
• 1-hour averaged TSP Monitoring at AM5	39 sets
• Construction Noise Monitoring during Normal Weekdays at NM4	13 sets
• Construction Noise Monitoring during Restricted hours at NM4	13 times
• Joint Environmental Site Inspection	13 times
• Landscape & Visual Monitoring	3 times
• Vibration Monitoring at Western Market	36 sets

In February 2014, 24-hour averaged TSP monitoring data was not acquired due to HVS failure. Furthermore, 1-hour and 24-hour averaged TSP monitoring was suspended between 13 and 28 February 2014 due to power supply failure.

Environmental Exceedance/Non-conformance/Complaint/Summon and Prosecution

No exceedance of the Action and Limit Levels of the 1-hour and 24-hour averaged TSP was recorded during the reporting period

No exceedance of the Noise Limit Levels was recorded at the monitoring station during both normal working hours and restricted hours in the reporting period.

No exceedance of maximum limit for safe vibration level (25 mm/s) was recorded during the reporting period.

No non-compliance event was recorded during the reporting period.

There was no complaint/summon/prosecution received during the reporting period.

Stonecutters Island Production and Riser Shafts

Summary of Construction Works undertaken during the Reporting Period

The major construction works undertaken included:

- Pre-excavation grouting at Production shaft;
- Drilling and blasting at Production shaft;
- Preparation of shaft bottom and formwork for permanent lining at Riser shaft;
- Construction of shaft-tunnel junction formwork at Riser Shaft; and
- Construction of permanent lining at Riser Shaft.

Environmental Monitoring and Audit Progress

A summary of the monitoring activities in this reporting period is listed below:

- | | |
|--|----------|
| • 24-hour averaged TSP Monitoring at AM6 | 16 sets |
| • 1-hour averaged TSP Monitoring at AM6 | 48 sets |
| • Construction Noise Monitoring during Normal Weekdays at NM5 | 13 times |
| • Construction Noise Monitoring during Restricted Hours at NM5 | 13 times |
| • Joint Environmental Site Inspection | 13 times |
| • Landscape & Visual Monitoring | 3 times |

Environmental Exceedance/Non-conformance/Complaint/Summon and Prosecution

No exceedance of Action and Limit Levels of 1-hr and 24-hr averaged TSP was recorded during the reporting period.

No exceedance of the Noise Limit Levels was recorded at the monitoring station during both normal working hours and restricted hours in the reporting period.

No non-compliance event was recorded during the reporting period.

There was no summon/prosecution received during the reporting period.

ERM-Hong Kong, Limited (ERM) has been appointed by Gammon Construction Limited (the Contractor) as the Environmental Team (ET) to undertake the Environmental Monitoring and Audit (EM&A) programme for the Contract - “DC/2007/23 of Harbour Area Treatment Scheme Stage 2A (HATS2A) - Construction of Sewage Conveyance System from North Point to Stonecutters Island” (the Project).

1.1 PURPOSE OF THE REPORT

This is the seventeenth quarterly EM&A report which summarises the impact monitoring results and audit findings for the EM&A programme during the reporting period from **1 December 2013 to 28 February 2014**.

1.2 STRUCTURE OF THE REPORT

The structure of the report is as follows:

Section 1 : Introduction

It details the scope and structure of the report.

Section 2 : Project Information

It summarises the background and scope of the project, site description, project organisation and contact details.

Section 3 : North Point Production and Drop Shafts

- **Construction Activities**

It summarises the construction activities conducted during the reporting period.

- **Status of Environmental Approval Documents**

It summarises the required environmental documents submitted under the relevant EP conditions during the reporting period.

- **Environmental Monitoring Requirement**

It summarises the environmental monitoring including monitoring parameters, programmes, methodologies, frequency, and locations, Action and Limit Levels, Event and Action Plans, environmental mitigation measures as recommended in the EIA report and relevant environmental requirements.

- **Implementation Status on Environmental Mitigation Measures**

It summarises the implementation of environmental protection measures during the reporting period.

- **Monitoring Results**

It summarises the monitoring results obtained in the reporting period.

- **Environmental Site Inspection**

It summarises the audit findings of the weekly site inspections undertaken within the reporting period.

- **Environmental Non-conformance**

It summarises any monitoring exceedance, environmental complaints and environmental summons within the reporting period.

Section 4 : **Wan Chai East Production and Drop Shafts**

- **Construction Activities**

It summarises the construction activities conducted during the reporting period.

- **Status of Environmental Approval Documents**

It summarises the environmental documents submissions under the EP condition during the reporting period.

- **Environmental Monitoring Requirement**

It summarises the environmental monitoring including monitoring parameters, programmes, methodologies, frequency, and locations, Action and Limit Levels, Event and Action Plans, environmental mitigation measures as recommended in the EIA report and relevant environmental requirements.

- **Implementation Status on Environmental Mitigation Measures**

It summarises the implementation of environmental protection measures during the reporting period.

- **Monitoring Results**

It summarises the monitoring results obtained in the reporting period.

- **Environmental Site Inspection**

It summarises the audit findings of the weekly site inspections undertaken within the reporting period.

- **Environmental Non-conformance**

It summarises any monitoring exceedance, environmental complaints and environmental summons within the reporting period.

Section 5 : **Central Drop Shaft**

- **Construction Activities**

It summarises the construction activities conducted during the reporting period.

- **Status of Environmental Approval Documents**

It summarises the environmental documents submissions under the EP condition during the reporting period.

- **Environmental Monitoring Requirement**

It summarises the environmental monitoring including monitoring parameters, programmes, methodologies, frequency and locations, Action and Limit Levels, Event and Action Plans, environmental mitigation measures as recommended in the EIA report and relevant environmental requirements.

- **Implementation Status on Environmental Mitigation Measures**

It summarises the implementation of environmental protection measures during the reporting period.

- **Monitoring Results**
It summarises the monitoring results obtained in the reporting period.
- **Environmental Site Inspection**
It summarises the audit findings of the weekly site inspections undertaken within the reporting period.
- **Environmental Non-conformance**
It summarises any monitoring exceedance, environmental complaints and environmental summons within the reporting period.

Section 6 : **Sai Ying Pun Junction Shaft**

- **Construction Activities**
It summarises the construction activities conducted during the reporting period.
- **Status of Environmental Approval Documents**
It summarises the environmental documents submissions under the EP condition during the reporting period.
- **Environmental Monitoring Requirement**
It summarises the environmental monitoring including monitoring parameters, programmes, methodologies, frequency and locations, Action and Limit Levels, Event and Action Plans, environmental mitigation measures as recommended in the EIA report and relevant environmental requirements.
- **Implementation Status on Environmental Mitigation Measures**
It summarises the implementation of environmental protection measures during the reporting period.
- **Monitoring Results**
It summarises the monitoring results obtained in the reporting period.
- **Environmental Site Inspection**
It summarises the audit findings of the weekly site inspections undertaken within the reporting period.
- **Environmental Non-conformance**
It summarises any monitoring exceedance, environmental complaints and environmental summons within the reporting period.

Section 7 : **Stonecutters Island Production and Riser Shafts**

- **Construction Activities**
It summarises the construction activities conducted during the reporting period.
- **Status of Environmental Approval Documents**
It summarises the environmental documents submissions under the EP condition during the reporting period.
- **Environmental Monitoring Requirement**

It summarises the environmental monitoring including monitoring parameters, programmes, methodologies, frequency and locations, Action and Limit Levels, Event and Action Plans, environmental mitigation measures as recommended in the EIA report and relevant environmental requirements.

- **Implementation Status on Environmental Mitigation Measures**
It summarises the implementation of environmental protection measures during the reporting period.
- **Monitoring Results**
It summarises the monitoring results obtained in the reporting period.
- **Environmental Site Inspection**
It summarises the audit findings of the weekly site inspections undertaken within the reporting period.
- **Environmental Non-conformance**
It summarises any monitoring exceedance, environmental complaints and environmental summons within the reporting period.

Section 8 : **Conclusions**

2.1 BACKGROUND AND GENERAL SITE DESCRIPTION

The Project comprises the construction of production shafts, drop shafts and a riser shaft and approximately 12 km of tunnel excavation from North Point (NP) via Sai Ying Pun (SYP) to Stonecutters Island (SCI). Shafts vary in depth from 140 m to 170 m below ground with 10 - 12 m diameter. Tunnel-face area ranges from 16 m² to 23 m². Embedded drainage pipelines will be installed upon the completion of tunnel excavation.

Construction works to be carried out under this Contract include the following major items:

- construction of sewage conveyance system (SCS) from North Point Preliminary Treatment Works (PTW) to Stonecutters Island Sewage Treatment Works (STW) via Wan Chai East (WCE) Preliminary Treatment Works, Central (CEN) Preliminary Treatment Works and Fung Mat Street Sai Ying Pun junction shaft;
- construction of drop shafts at NP PTW, WCE PTW and CEN PTW;
- construction of riser shafts at SCI STW;
- construction of junction shafts at SYP;
- construction of temporary production shafts at NP, WCE and SCI to provide access for the construction of SCS;
- construction of connection channels, pipes, chambers and tunnels connecting the proposed drop shafts / riser shafts to the facilities of the preliminary treatment works / sewage treatment works;
- carrying out surveys of existing buildings, taking over of existing buildings and installation of new piezometers and ground settlement markers and subsequent vibration monitoring along the alignment of the SCS;
- miscellaneous building, civil, electrical and mechanical works; and
- landscape works.

The potential environmental impacts of the Project have been studied in the "Harbour Area Treatment Scheme (HATS) Stage 2A" (EIAO Register No: AEIAR-121/2008). The EIA was approved on 2 June 2008 under the *Environmental Impact Assessment Ordinance* (EIAO) and an updated Environmental Permit (EP-322/2008/E) for the works was granted on 24 November 2010. An application for a variation of EP was made by Drainage Service Department (DSD) on 21 Sep 2012, and EP-322/2008/F was issued on 10 Oct 2012, which superseded EP-322/2008/E. Under the requirements of Condition 4.1 of Environmental Permit EP-322/2008/F, an EM&A programme as set out in the EM&A Manual is required to be implemented.

The construction works of this Project commenced on 1 December 2009 and are scheduled to be completed by 2014.

The general layout plan of the Project is shown in *Annex A*.

2.2 STATUS OF ENVIRONMENTAL APPROVAL DOCUMENTS AND REQUIRED SUBMISSIONS

A summary of the relevant permits, licences, and/or notifications on environmental protection for this Project since November 2008 is presented in *Table 2.1*.

Table 2.1 *Summary of Environmental Licensing, Notification and Permit Status for the Contract ^(a)*

Permit/ Licences/ Notification	Reference	Validity Period	Remarks
Environmental Permit	EP-322/2008	Expired on 10 July 2009	<ul style="list-style-type: none"> Permit granted on 19 November 2008. Superseded on 10 July 2009.
	EP-322/2008/A	Expired on 2 November 2009	<ul style="list-style-type: none"> Permit granted on 10 July 2009. Superseded on 2 November 2009.
	EP-322/2008/B	Expired on 14 May 2010	<ul style="list-style-type: none"> Permit granted on 2 November 2009. Superseded on 14 May 2010.
	EP-322/2008/C	Expired on 14 July 2010	<ul style="list-style-type: none"> Permit granted on 14 May 2010 Superseded on 14 July 2010.
	EP-322/2008/D	Expired on 24 November 2010	<ul style="list-style-type: none"> Permit granted on 14 July 2010 Superseded on 24 November 2010
	EP-322/2008/E	Expired on 10 Oct 2012	<ul style="list-style-type: none"> Permit granted on 24 November 2010 Superseded on 10 Oct 2012
	EP-322/2008/F	Throughout the Contract	<ul style="list-style-type: none"> Permit granted on 10 Oct 2012
Notification of Construction Works under Air Pollution Control (Construction Dust) Regulation	--	04 August 2009 – 06 November 2013	<ul style="list-style-type: none"> Reference number for Notification Pursuant to APC (Construction Dust) Regulation: 308136
Marine Dumping Permits (b)			
Type 1 Marine Deposit	EP/MD/11-136	20 February 2011 – 29 June 2011	--
Type 2 Marine Deposit	EP/MD/11-118	20 February 2011 – 21 April 2011	-
Type 3 Marine Deposit	8771	23 July 2010 – 22 January 2011	-

Permit/ Licences/ Notification	Reference	Validity Period	Remarks
Note:			
(a)	The status on environmental licensing and permit for each worksite is discussed in the following sections.		
(b)	Marine deposits from all sites have been disposed of in accordance with their respective disposal methods (ie Type 1, 2, or 3 disposal methods), and no further marine deposit is anticipated to generate. When marine deposits are encountered, relevant dumping permits will be obtained and they will be disposed of properly.		

Status of required submissions under the current EP during the reporting period is presented in *Table 2.2*.

Table 2.2 *Status of Required Submission for all Sites*

EP Condition	Submission	Submission Date
Condition 4.4	Submission of 49 th Monthly EM&A Report	14 January 2014
	Submission of 50 th Monthly EM&A Report	14 February 2014
	Submission of 51 th Monthly EM&A Report	13 March 2014

2.3 *PROJECT ORGANISATION*

The project organisational chart and contact details are shown in *Annex B*.

3.1 CONSTRUCTION ACTIVITIES DURING THE REPORTING PERIOD

A summary of the major construction activities undertaken in this reporting period is shown in *Table 3.1*. The locations of the construction activities are shown in *Annex C1*.

Table 3.1 *Summary of Construction Activities Undertaken from 1 December 2013 to 28 February 2014 at North Point Production and Drop Shafts*

Worksite	Construction Activities Undertaken
Production Shaft	<ul style="list-style-type: none"> • Base preparation for tunneling lining construction; • Ongoing assembling for concrete distribution system; and • Permanent invert and vault lining construction
Drop Shaft	<ul style="list-style-type: none"> • Construction of permanent lining for downpipes; • Construction of lower shaft; and • Construction of upper shaft base slab at Drop shaft.

3.2 STATUS OF ENVIRONMENTAL APPROVAL DOCUMENTS

A summary of the relevant permits, licences, and/or notifications on environmental protection for this Project in this reporting period is presented in *Table 3.2*.

Table 3.2 *Summary of Environmental Licensing, Notification and Permit Status at North Point Production and Drop Shafts*

Permit/Licences/Notification	Reference	Validity Period	Remarks
Wastewater Discharge License	North Point PTW Drop Shaft	31 January 2012 - 31 October 2014	--
	WT00005153-2009		
	North Point Production Shaft	9 July 2010 - 31 March 2015	--
Discharge License (Public Car Parking Area, North of North Point Preliminary Treatment Plant)	WT00007055-2010		
		12 April 2012 - 30 April 2017	
Chemical Waste Producer Registration	North Point Production Shaft	Throughout the Contract	--
	5213-153-G2484-01		
Construction Noise Permit (CNP)	North Point Production Shaft	Throughout the Contract	--
	5213-153-G2483-01		
Construction Noise Permit (CNP)	North Point Production Shaft	12 September 2013 - 11 March 2014	--
	GW-RS0913-13		
	North Point PTW Drop Shaft	1 November 2013 - 30 April	--

Permit/ Licences/ Notification	Reference	Validity Period	Remarks
	GW-RS1100-13	2014	

3.3 ENVIRONMENTAL MONITORING REQUIREMENTS

3.3.1 Air Quality Monitoring

Monitoring Location

In accordance with the EM&A Manual, 24-hour and 1-hour averaged Total Suspended Particulates (TSP) levels should be conducted at designated monitoring stations. Since access to some of the proposed monitoring locations stated in the EM&A Manual were rejected or not available, alternative locations, therefore, were proposed and agreed by the Engineer Representative (ER) and Independent Environmental Checker (IEC). Owing to the security issues with the High Volume Sampler (HVS) mounted at the designated monitoring stations CM_NP2 (rooftop of WSD office) especially under adverse weather conditions, an alternative location which is one floor below the rooftop was identified and agreed by ER and IEC in July 2010.

The construction air quality monitoring stations for this Contract are listed in Table 3.3 and shown in Annex C2.

Table 3.3 Construction Phase Air Monitoring Location at North Point Production and Drop Shafts

Worksite	Construction Air Quality Monitoring Stations			
	ID in EM&A Manual	ID	Location	Remark
North Point	-	AM1	Chan's Creative School (formerly known as Madam Chan Wai Chow Memorial School)	• Access for station setup to K.Wah Centre (CM_NP1) and Tin Chiu Street Children's Playground (CM_NP3) was refused.
	CM_NP2	AM2	Hong Kong & Islands Regional Office, WSD	

Monitoring Parameters, Frequency and Programme

Air quality monitoring was conducted in accordance with the requirements stipulated in the EM&A Manual (Table 3.4).

Table 3.4 TSP Monitoring Parameter and Frequency

Parameter	Frequency
24-hour averaged TSP	Once every 6 days
1-hour averaged TSP	3 times every 6 days

Monitoring Equipment

Continuous 24-hour and three 1-hour averaged TSP monitoring were performed using HVS with appropriate sampling inlets installed and located at the designated monitoring station. The performance specification of HVS complied with the standard method “*Determination of Suspended Particulate Matter in the Atmosphere (High Volume Method)*” as stipulated in *US EPA Standard Title 40, Code of Federation Regulations Chapter 1 (Part 50 Appendix B)*. The equipment that was deployed for the 24-hour and 1-hour averaged TSP monitoring is listed in *Annex C5*.

Monitoring Methodology

Installation

The setup locations of the HVSs at monitoring stations were listed in *Table 3.3*. All HVSs were free-standing with no obstruction.

The following criteria were considered in the installation of the HVSs:

- appropriate support to secure the samplers against gusty wind was provided at AM1 and AM2;
- a minimum of 2 m separation from walls, parapets and penthouses was required for rooftop samplers;
- no furnace or incinerator flues was nearby;
- airflow around the sampler was unrestricted; and
- permission was obtained to set up the samplers and to gain access to the monitoring stations.

Preparation of Filter Papers

- glass fibre filters were labelled and filters that were clean and without pinholes were selected;
- all filters were equilibrated in the conditioning environment for 24 hours before weighing. The conditioning environment temperature was around 25 °C and did not net vary by more than ± 3 °C; the relative humidity (RH) was 40%; and
- SGS Hong Kong Ltd, a HOKLAS accredited laboratory, implements comprehensive quality assurance and quality control programmes.

Field Monitoring

- the power supply was checked to ensure that the HVSs were working properly;
- the filter holder and the area surrounding the filter were cleaned;

- the filter holder was removed by loosening the foul bolts and a new filter, with stamped number upward, on a supporting screen was aligned carefully;
- the filter was properly aligned on the screen so that the gasket formed an airtight seal on the outer edges of the filter;
- the swing bolts were fastened to hold the filter holder down to the frame. The pressure applied should be sufficient to avoid air leakage at the edges;
- the shelter lid was closed and secured with an aluminium strip;
- the HVSs were warmed-up for about 5 minutes to establish run-temperature conditions;
- a new flow rate record sheet was set into the flow recorder;
- the flow rates of the HVSs were checked and adjusted to between 1.22 - 1.37 m³min⁻¹ which were within the range specified in the EM&A Manual (ie 0.6 - 1.7 m³min⁻¹);
- the programmable timer was set for a sampling period of 24 hours ± 1 hour, and the starting time, weather condition and the filter number were recorded;
- the initial elapsed time was recorded;
- at the end of sampling, the sampled filter was removed carefully and folded in half so that only surfaces with collected particulate matter were in contact;
- the filter paper was placed in a clean plastic envelope and sealed;
- all monitoring information was recorded on a standard data sheet; and
- filters were sent to SGS Hong Kong Ltd for analysis.

Maintenance and Calibration

- the HVSs and their accessories were maintained in good working condition, such as replacing motor brushes routinely and checking electrical wiring to ensure a continuous power supply; and
- the flow rate of each HVS with a mass flow controller was calibrated using an orifice calibrator. Initial calibrations of the dust monitoring equipment were conducted upon installation and prior to commissioning. Five-point calibration was carried out for HVSs using CM-AIR-43 Calibration Kit. HVSs are calibrated on a bi-monthly basis. The calibration records for the HVSs are given in *Annex H*.

Wind Data Monitoring

The nearest weather station to North Point Production and Drop Shafts is Kai Tak Station. The average wind data (wind speed and wind direction) during the monitoring period were obtained from the meteorological station at Kai Tak of the Hong Kong Observatory (HKO) and are presented in *Annex C5*.

Action and Limit Levels

The Action and Limit levels have been established and are presented in *Table 3.5*.

Table 3.5 *Action and Limit Levels for Air Quality at North Point Production and Drop Shafts*

Parameter	Air Monitoring Station	Action Level, μgm^{-3}	Limit Level, μgm^{-3}
24-hour averaged TSP	AM1	185	260
	AM2	182	260
1-hour averaged TSP	AM1	340	500
	AM2	352	500

Event and Action Plan

The Event and Action Plan (EAP) for air quality monitoring is presented in *Annex I*.

3.3.2 *Noise Monitoring*

Monitoring Location

In accordance with the EM&A Manual, monitoring of construction noise impact should be conducted at the designated monitoring stations. Since access to some of the proposed monitoring locations stated in the EM&A Manual were refused or not available; alternative locations, therefore, were proposed and agreed by the ER and IEC. Construction activities during restricted hours (1900 – 2300 on weekdays and 0700 – 2300 on public holidays and Sundays) commenced in August 2010. Char's Creative School (the noise monitoring station NM1) is not accessible during its closing hours (from 1900 to 0700 on normal week days and from 0000 to 2400 on public holidays as well as Sundays). During these hours, noise monitoring would be conducted on the pedestrian walkway adjacent to the school boundary along Tin Chiu Street, which was agreed by the ER and IEC. The construction noise monitoring location for this Contract is listed in *Table 3.6* and shown in *Annex C2*.

Table 3.6 Construction Phase Noise Monitoring Station at North Point Production and Drop Shafts

Worksite	Proposed Construction Noise Monitoring Station				
	ID in EM&A Manual	ID	Location	Type of Measurement	Remark
North Point	M1	NM1	Rooftop of Chan’s Creative School (formerly known as Madam Chan Wai Chow Memorial School)	Façade	0700 to 1900 on normal weekdays
			Pedestrian walkway adjacent to Chan’s Creative School (formerly known as Madam Chan Wai Chow Memorial School) boundary along Tin Chiu Street	Façade	1900 – 2300 on all days and 0700 – 2300 on general holidays and Sundays

Monitoring Parameters, Frequency and Programme

Weekly construction noise monitoring was conducted in accordance with the requirements stipulated in the EM&A Manual. Additional noise monitoring was also conducted as per the requirement in the EM&A Manual when works were carried out during restricted periods.

The construction noise levels were measured in terms of A-weighted equivalent continuous sound pressure level (L_{eq}) in decibels dB(A). $L_{Aeq(30min)}$ was used as the monitoring parameter for the time period between 0700 – 1900 hours on normal weekdays, and $L_{Aeq(5min)}$ was used as the monitoring parameter for all the restricted periods. Supplementary information (two statistical sound levels L_{10} and L_{90} ; the levels exceeded for 10 and 90 percent of the time respectively) was also recorded during the monitoring for data auditing. The measured noise levels were logged every 5 minutes throughout the impact monitoring period.

Monitoring Equipment and Methodology

Construction noise measurements were conducted in accordance with the calibration and measurement procedures as stated in *Annex – General Calibration and Measurement Procedures of Technical Memorandum on Noise from Construction Work other than Percussive Piling (GW-TM)* issued under the *Noise Control Ordinance (NCO) (Cap.400)*.

The sound level meters and calibrator used for the noise measurement, as listed in *Annex C-6*, comply with IEC 651: 1979 and 804:1985 (Type 1) specification. The calibration certificates of the sound level meters are included in *Annex H*.

Immediately prior to and following the noise measurements, the accuracy of the measurement equipment was checked using an acoustic calibrator generating a known sound pressure level at a known frequency.

Action and Limit Levels

The action and limit levels for noise monitoring during different monitoring periods are summarised in *Table 3.7*.

Table 3.7 *Action and Limit Levels for Noise Monitoring at North Point Production and Drop Shafts*

Noise Monitoring Location	Measurement Parameter	Noise Criteria (dB(A))	Remark
NM1	L _{Aeq} (30mins)	70	During normal teaching period
	L _{Aeq} (30mins)	69 (a)	During the school examination period
	L _{Aeq} (30mins)	75	During school holidays
	L _{Aeq} (5mins)	70	Evening (1900-2300) and Sundays and public holidays (0700-2300)
	L _{Aeq} (5mins)	55	Night-time (2300-0700)
Note:			
(a) With reference to the Baseline Monitoring Report, the average L _{Aeq,30min} measured at NM1 between 0700 and 1900 hours is 69.0 dB(A), exceeded the Limit Level of daytime construction noise during the examination periods (65 dB(A)). Hence it was therefore adopted as the Limit Level during the examination period at NM1.			

Event and Action Plan

The Event and Action Plan (EAP) for noise monitoring is presented in *Annex I*.

3.3.3 Cultural Heritage

No vibration monitoring is required for this reporting period as no blasting of tunnel / shaft works was carried out in the vicinity of the historical buildings listed in the EM&A Manual.

3.3.4 Landscape and Visual Monitoring

In accordance with the EM&A Manual, landscape and visual monitoring is required to ensure that the design, implementation and maintenance of landscape and visual mitigation measures are fully achieved. The landscape and visual monitoring is carried out on site as part of the environmental site inspection. The monitoring procedures and criteria as described in the EM&A Manual were adopted.

Event and Action Plan

The Event and Action Plan (EAP) for landscape and visual monitoring is presented in *Annex I*.

3.4 IMPLEMENTATION STATUS ON ENVIRONMENTAL PROTECTION REQUIREMENTS

The Contractor has implemented environmental mitigation measures and requirements as stated in the EIA Report, Environmental Permit and EM&A Manual. The implementation status during the reporting period is summarized in *Annex C4*.

3.5 MONITORING RESULTS

3.5.1 Air Quality

A total of 16 sets of 24-hour averaged and 48 sets of 1-hour averaged TSP measurements were carried out at both AM1 and AM2 during the reporting period. The monitoring data for 24-hour and 1-hour averaged TSP together with wind data and graphical presentations are presented in *Annex C5*.

The weather condition during the monitoring period varied from sunny, cloudy to fine. The local impacts near the monitoring stations of AM1 to AM2 were mainly associated with vehicle emissions. No exceedance of Action and Limit Levels of 1-hr and 24-hr TSP was recorded during the reporting period.

3.5.2 Noise

A total of 13 sets of 30-minute construction noise measurements were carried out at the monitoring station NM1 during normal weekdays of the reporting period. 13 sets of 3 x 5-minute construction noise measurements were carried out during restricted hours (between 1900 and 0700 hours on weekdays, and any time on Sundays and public holidays) on 3, 8, 17, 22 and 31 December 2013; 5, 14, 19 and 28 January 2014; and 3, 11, 16 and 25 February 2014. No exceedance of the noise limit level was recorded during the reporting period.

The monitoring results together with their graphical presentations are presented in *Annex C6*.

3.5.3 Landscape and Visual

In accordance with the EM&A Manual, monthly landscape and visual monitoring is required to ensure that the design, implementation and maintenance of landscape and visual mitigation measures are fully achieved. The monitoring has commenced since December 2009 during weekly site inspections. There was no major observation during the reporting period.

3.5.4 Cultural Heritage

No vibration monitoring was conducted for this reporting period as the blasting of tunnel/shaft works has not commenced in the vicinity of the historical buildings listed in the EM&A Manual.

3.5.5 Waste Management

Waste generated from this Project includes inert construction and demolition (C&D) materials, non-inert C&D materials and marine deposit. Non-inert C&D materials are made up of general refuse, steel and paper/cardboard packaging materials. Steel materials generated from the project are also grouped into non-inert C&D materials as the materials were not disposed of

with other inert C&D materials. No marine deposit requiring type 1, type 2, or type 3 disposal methods was generated.

The quantity of different types of wastes generated in the reporting period has been shown in the Monthly Summary Waste Flow Table prepared by the Contractor (*Annex J*).

3.6 ENVIRONMENTAL SITE INSPECTION

Weekly site inspections were carried out by the representatives of the Contractor, Engineer and the ET. A total of 12 numbers of site inspections were conducted on 5, 12 and 19 December 2013; 2, 9, 16, 23 and 30 January 2014; and 6, 13, 20 and 27 February 2014. As the representative of the Contractor and Engineer scheduled a site inspection in the afternoon on 27 December 2013, no joint inspection was carried out in the morning. A representative of the IEC joined the site inspection on 30 January 2014 and 27 February 2014. There was no non-compliance recorded during this reporting period.

Observations during site inspections and follow-up actions in the reporting period are presented in *Annex K*. All the follow-up actions requested by IEC and Contractor's ET during the site inspection were undertaken as reported by the Contractor and confirmed in the following weekly site inspection conducted during the reporting period.

3.7 ENVIRONMENTAL NON-CONFORMANCE

3.7.1 Summary of Monitoring Exceedance

No exceedance of the Action and Limit Levels of 1-hour averaged and 24-hour averaged TSP was recorded at monitoring stations during the reporting period.

No exceedance of the Noise Limit Levels was recorded at monitoring station during both normal working hours and restricted hours in the reporting period.

3.7.2 Summary of Environmental Non-Compliance

No non-compliance event was recorded during the reporting period.

3.7.3 Summary of Environmental Complaint

No complaint was received during the reporting period. The cumulative complaints log is shown in *Annex C7*.

3.7.4 Summary of Environmental Summon and Successful Prosecution

No summon or prosecution was received during the reporting period. The cumulative summon and prosecution log is shown in *Annex C7*.

4.1 CONSTRUCTION ACTIVITIES DURING THE REPORTING PERIOD

A summary of the major construction activities undertaken during the reporting period is shown in *Table 4.1*. The locations of the construction activities are shown in *Annex D1*.

Table 4.1 *Summary of Construction Activities Undertaken from 1 December 2013 to 28 February 2014 at Wan Chai East Production and Drop Shafts*

Worksite	Construction Activities Undertaken
Production Shaft	<ul style="list-style-type: none"> • Pre-excavation grouting; and • Drilling and blasting; • Base preparation for tunnelling lining construction; • Ongoing assembling for concrete distribution system; and • Permanent invert and vault lining construction;
Drop Shaft	<ul style="list-style-type: none"> • Construction of upper shaft lining wall; • Construction of upper shaft; and • Installation of vortex pipe.

4.2 STATUS OF ENVIRONMENTAL APPROVAL DOCUMENTS

A summary of the relevant permits, licences, and/or notifications on environmental protection for this Project in this reporting period is presented in *Table 4.2*.

Table 4.2 *Summary of Environmental Licensing, Notification and Permit Status at Wan Chai East Production and Drop Shafts*

Permit/ Licences/ Notification	Reference	Validity Period	Remarks
Wastewater Discharge License	Wan Chai East Production Shaft and Drop Shaft WT00008533-2011	21 February 2011 - 31 October 2014	--
Chemical Waste Producer Registration	Wan Chai East Production Shaft and Drop Shaft 5213-135-G2308-03	Throughout the Contract	--
Construction Noise Permit (CNP)	Wan Chai East Production Shaft GW-RS0859-13	9 August 2013 - 8 February 2014	Superseded by GW-RS0057-14
	Wan Chai East Production Shaft GW-RS0057-14	9 February 2014 - 8 August 2014	--
	Wan Chai East Drop Shaft GW-RS1121-13	17 October 2013 - 14 April 2014	--
	Wan Chai East Drop Shaft (Percussive Piling)	1 December 2013 - 31 May 2014	--

Permit/ Licences/ Notification	Reference	Validity Period	Remarks
	PP-RS0027-13		

4.3 ENVIRONMENTAL MONITORING REQUIREMENTS

4.3.1 Air Quality Monitoring

Monitoring Location

In accordance with the EM&A Manual, 24-hour and 1-hour averaged Total Suspended Particulates (TSP) levels should be conducted at designated monitoring stations. Since access to some of the proposed monitoring locations stated in the EM&A Manual was denied or not available, alternative locations, therefore, were proposed and agreed by the ER and IEC. The construction air quality monitoring station for this Contract is listed in *Table 4.3* and shown in *Annex D2*.

Table 4.3 Construction Phase Air Monitoring Location at Wan Chai East Production and Drop Shafts

Worksite	Construction Air Quality Monitoring Station			
	ID in EM&A Manual	ID	Location	Remark
Wan Chai East	-	AM3	Rooftop of Wan Chai East PTW	<ul style="list-style-type: none"> The rooftop of Society for the Prevention of Cruelty to Animals building (CM_WC1) was crowded with existing facilities (eg water tanks) that setup of HVSs for baseline monitoring was not feasible.

Monitoring Parameters, Frequency and Programme

Air quality monitoring was conducted in accordance with the requirements stipulated in the EM&A Manual (*Table 4.4*).

Table 4.4 TSP Monitoring Parameter and Frequency at Wan Chai East Production and Drop Shafts

Parameter	Frequency
24-hour averaged TSP	Once every 6 days
1-hour averaged TSP	3 times every 6 days

Monitoring Equipment

Continuous 24-hour and 1-hour averaged TSP monitoring were performed using High Volume Samplers (HVS) with appropriate sampling inlets installed, located at the designated monitoring station. The performance specification of HVS complied with the standard method "Determination of Suspended Particulate Matter in the Atmosphere (High Volume Method)" as stipulated in US EPA Standard Title 40, Code of Federation Regulations Chapter 1 (Part 50 Appendix B). The equipment

that was deployed for the 24-hour and 1-hour averaged TSP monitoring is listed in Annex D5. *Monitoring Methodology*.

Installation

The setup location of the HVS at monitoring stations was listed in *Table 4.3*. The HVS was free-standing with no obstruction.

The following criteria were considered in the installation of the HVSs:

- appropriate support to secure the sampler against gusty wind was provided at AM3;
- a minimum of 2 m separation from walls, parapets and penthouses was required for rooftop samplers;
- no furnace or incinerator flues was nearby;
- airflow around the sampler was unrestricted; and
- permission was obtained to set up the samplers and to gain access to the monitoring stations.

Preparation of Filter Papers

- glass fibre filters were labelled and sufficient filters that were clean and without pinholes were selected;
- all filters were equilibrated in the conditioning environment for 24 hours before weighing. The conditioning environment temperature was around 25 °C and not variable by more than ± 3 °C; the relative humidity (RH) was 40%; and
- SGS Hong Kong Ltd, a HOKLAS accredited laboratory, implements comprehensive quality assurance and quality control programmes.

Field Monitoring

- the power supply was checked to ensure that the HVSs were working properly;
- the filter holder and the area surrounding the filter were cleaned;
- the filter holder was removed by loosening the foul bolts and a new filter, with stamped number upward, on a supporting screen was aligned carefully;
- the filter was properly aligned on the screen so that the gasket formed an airtight seal on the outer edges of the filter;
- the swing bolts were fastened to hold the filter holder down to the frame. The pressure applied should be sufficient to avoid air leakage at the edges;

- then the shelter lid was closed and secured with the aluminium strip;
- the HVSs were warmed-up for about 5 minutes to establish run-temperature conditions;
- a new flow rate record sheet was set into the flow recorder;
- the flow rates of the HVSs were checked and adjusted to between 1.22 - 1.37 m³min⁻¹ which were within the range specified in the EM&A Manual (ie 0.6 - 1.7 m³min⁻¹);
- the programmable timer was set for a sampling period of 24 hours ± 1 hour, and the starting time, weather condition and the filter number were recorded;
- the initial elapsed time was recorded;
- at the end of sampling, the sampled filter was removed carefully and folded in half so that only surfaces with collected particulate matter were in contact;
- the filter paper was placed in a clean plastic envelope and sealed;
- all monitoring information was recorded on a standard data sheet; and
- filters were sent to SGS Hong Kong Ltd for analysis.

Maintenance and Calibration

- the HVSs and their accessories were maintained in good working condition, such as replacing motor brushes routinely and checking electrical wiring to ensure a continuous power supply; and
- the flow rate of each HVS with mass flow controller was calibrated using an orifice calibrator. Initial calibrations of the dust monitoring equipment were conducted upon installation and prior to commissioning. Five-point calibration was carried out for HVSs using CM-AIR-43 Calibration Kit. HVSs are calibrated on a bi-monthly basis. The calibration record for the HVS is given in *Annex H*.

Wind Data Monitoring

The nearest weather station to Wan Chai East Production and Drop Shafts is located at King's Park. The average wind data (wind speed and wind direction) during the monitoring period were obtained from the meteorological station at King's Park of the Hong Kong Observatory (HKO) and is presented in *Annex D5*.

Action and Limit Levels

The Action and Limit levels have been established and presented in *Table 4.5*.

Table 4.5 *Action and Limit Levels for Air Quality at Wan Chai East Production and Drop Shafts*

Parameter	Air Monitoring Station	Action Level, μgm^{-3}	Limit Level, μgm^{-3}
24-hour averaged TSP	AM3	181	260
1-hour averaged TSP	AM3	355	500

Event and Action Plan

The Event and Action Plan (EAP) for air quality monitoring is presented in *Annex I*.

4.3.2 *Noise Monitoring*

Monitoring Location

In accordance with the EM&A Manual, monitoring of construction noise impact should be conducted at the designated monitoring stations. Since access to some of the proposed monitoring locations stated in the EM&A Manual was denied or not available, alternative locations were proposed and agreed by the ER and IEC. The construction noise monitoring location for this Contract is listed in *Table 4.6* and shown in *Annex D2*.

Table 4.6 *Construction Phase Noise Monitoring Station at Wan Chai East Production and Drop Shafts*

Worksite	Construction Noise Monitoring Station				
	ID in EM&A Manual	ID	Location	Type of Measurement	Remark
Wan Chai East	-	NM2	Rooftop of Hyde Building	Façade	<ul style="list-style-type: none"> No guaranteed access for equipment set-up due to no caretaker of Kei Wah Building (M2) Alternative location, NM2, is located next to Kei Wah Building and is also the background noise monitoring station in the HATS2A EIA study.

Monitoring Parameters, Frequency and Programme

Weekly construction noise monitoring was conducted in accordance with the requirements stipulated in the EM&A Manual. Additional noise monitoring was also conducted as per required the EM&A Manual when works were carried out during restricted periods. The monitoring programme for this reporting period is shown in *Annex D3*.

The construction noise levels were measured in terms of A-weighted equivalent continuous sound pressure level (L_{eq}) in decibels dB(A).

$L_{Aeq(30min)}$ was used as the monitoring parameter for the time period between 0700 – 1900 hours on normal weekdays, and $L_{Aeq(5min)}$ was used as the monitoring parameter for all restricted periods. Supplementary information for data auditing (two statistical sound levels L_{10} and L_{90} which are the levels exceeded for 10 and 90 percent of the time respectively) was also recorded during the monitoring period for reference. The measured noise levels were logged every 5 minutes throughout the impact monitoring period.

Monitoring Equipment and Methodology

Construction noise measurements were conducted in accordance with the calibration and measurement procedures as stated in *Annex – General Calibration and Measurement Procedures of Technical Memorandum on Noise from Construction Work other than Percussive Piling (GW-TM)* issued under the *Noise Control Ordinance (NCO) (Cap.400)*.

The sound level meters and calibrator used for the noise measurement, as listed in *Annex D6*, complies with IEC 651: 1979 and 804:1985 (Type 1) specification. The calibration certificates of the sound level meters are included in *Annex H*.

Immediately prior to and following the noise measurements, the accuracy of the measurement equipment was checked using an acoustic calibrator generating a known sound pressure level at a known frequency.

Action and Limit Levels

The action and limit levels for noise monitoring during different monitoring periods are summarized in *Table 4.7*.

Table 4.7 *Action and Limit Levels for Noise Monitoring at Wan Chai East Production and Drop Shafts*

Noise Monitoring Location	Measurement Parameter	Noise Criteria (dB(A))	Remark
NM2	$L_{Aeq(30mins)}$	75	Normal working hours during weekdays
	$L_{Aeq(5mins)}$	70	Evening (1900-2300); and Sundays and public holidays (0700-2300)
	$L_{Aeq(5mins)}$	55	Night-time (2300-0700)

Event and Action Plan

The Event and Action Plan (EAP) for noise monitoring is presented in *Annex I*.

4.3.3 Cultural Heritage

No vibration monitoring is required for this reporting period as blasting of tunnel / shaft works was not carried out in the vicinity of the historical buildings listed in EM&A manual.

4.3.4 *Landscape and Visual Monitoring*

In accordance with the EM&A Manual, landscape and visual monitoring is required to ensure that the design, implementation and maintenance of landscape and visual mitigation measures are fully achieved. The landscape and visual monitoring is carried out on site within the environmental site inspection. The monitoring procedures and criteria as described in the EM&A Manual were adopted.

Event and Action Plan

The EAP for landscape and visual monitoring is presented in *Annex I*.

4.4 *IMPLEMENTATION STATUS ON ENVIRONMENTAL PROTECTION REQUIREMENTS*

The Contractor had implemented environmental mitigation measures and requirements as stated in the EIA Report, the Environmental Permit and EM&A Manual. The implementation status during the reporting period is summarized in *Annex D4*.

4.5 *MONITORING RESULTS*

4.5.1 *Air Quality*

A total of 16 sets of 24-hour averaged and 48 sets of 1-hour averaged TSP measurements were carried out at AM3 during the reporting period. The monitoring data for 24-hour TSP and 1-hour TSP together with wind data and graphical presentations are presented in *Annex D5*.

The weather conditions during the monitoring period varied from sunny, fine to cloudy. The local impacts near the monitoring stations of AM3 were mainly associated with vehicle emissions. No exceedance of Action and Limit Levels of 1-hr and 24-hr TSP was recorded during the reporting period.

4.5.2 *Noise*

A total of 13 sets of 30-minute construction noise measurements were carried out at the monitoring station NM2 during normal working hours of weekdays of the reporting period. 13 sets of 3 x 5-minute construction noise measurements were carried out during restricted hours (between 1900 and 0700 hours on weekdays, and any time on Sundays and public holidays) on 3, 8, 17, 22 and 31 December 2013; 5, 14, 19 and 28 January 2014; and 3, 11, 16 and 25 February 2014 during the reporting period. The monitoring results together with graphical presentations are presented in *Annex D6*.

No exceedance of limit level was recorded during normal working hours; nevertheless, 27 numbers of exceedance of the limit level were recorded during restricted hours at NM2, namely on 8, 17, 22 and 31 December 2013; 5, 14, 19 and 28 January 2014; and 11, 16 and 25 February 2014. Investigations

had been conducted to identify the potential causes for the recorded noise level. A summary of the investigation results is presented in *Section 4.7.1*.

4.5.3 *Landscape and Visual*

Implementation and maintenance of landscape and visual mitigation measures are fully achieved and no major findings were observed during the reporting period.

4.5.4 *Cultural Heritage*

No vibration monitoring is required for this reporting period as blasting of tunnel / shaft works was not carried out in the vicinity of the historical buildings listed in EM&A manual.

4.5.5 *Waste Management*

Waste generated from this Project includes inert C&D materials, non-inert C&D materials and marine deposit. Non-inert C&D materials are made up of general refuse, steel and paper/cardboard packaging materials. Steel materials generated from the project are also grouped into non-inert C&D materials as the materials were not disposed of with other inert C&D materials. No marine deposit requiring type 1, type 2, or type 3 disposal methods was generated.

The inert C&D materials and general refuse generated from the Project were disposed of at Tuen Mun Area 38/Tseung Kwan O Area 137 Fill Bank/Chai Wan Barging Point and SENT Landfill, respectively.

The quantity of different types of wastes generated in the reporting period has been shown in the Monthly Summary Waste Flow Table prepared by the Contractor (*Annex J*).

4.6 *ENVIRONMENTAL SITE INSPECTION*

Weekly site inspections were carried out by the representatives of the Contractor, Engineer and ET. 11 site inspections were conducted on 5, 12, 19 and 27 December 2013; 2, 9, 16 and 23 January 2014; and 6, 13 and 20 February 2014. A representative of the IEC participated in the site inspection on 27 December 2013. Due to the scheduled SSEMC meetings on 30 January 2014 and 27 February 2014 immediately after the joint inspections, inspections were not arranged for the WCE site on those days. No non-compliance was recorded during the site inspections.

Observations during site inspections and follow-up actions in the reporting period are presented in *Annex K*. All the follow-up actions requested by IEC and Contractor's ET during the site inspections were undertaken as reported by the Contractor and confirmed in the following weekly site inspection conducted during the reporting period.

4.7 ENVIRONMENTAL NON-CONFORMANCE

4.7.1 *Summary of Monitoring Exceedance*

No exceedance of the Action and Limit Levels of 1-hour TSP and 24-hour averaged TSP were recorded at monitoring stations during the reporting period.

27 numbers of exceedances of noise Limit Level during restricted hours were reported at NM2 on 8, 17, 22 and 31 December 2013; 5, 14, 19 and 28 January 2014; and 11, 16 and 25 February 2014.. The exceedances were investigated and they are detailed in *Annex D7*. Referring to the works summary provided by the Contractor, no noisy outdoor construction activities were conducted at the Wan Chai East Production and Drop Shafts during the noise monitoring sessions. Other potential noise source was also identified in the vicinity (i.e., traffic) to contribute to the measured noise level. In view of no noisy outdoor construction works carried out and contribution from other potential noise sources in vicinity (i.e., traffic), it is considered that the exceedances were not due to the Contract 23 construction works. However, the Contractor was reminded to adhere strictly to the Construction Noise Mitigation Plan and to implement all relevant noise mitigation measures to avoid exceedance of noise limit levels or causing nuisance.

4.7.2 *Summary of Environmental Non-Compliance*

No non-compliance event was recorded during the reporting period.

4.7.3 *Summary of Environmental Complaint*

No complaint was received during the reporting period. The cumulative complaints log is shown in *Annex D8*.

4.7.4 *Summary of Environmental Summon and Successful Prosecution*

No summon or prosecution was received during the reporting period. The cumulative summon and prosecution log is shown in *Annex D8*.

5.1 CONSTRUCTION ACTIVITIES DURING THE REPORTING PERIOD

A summary of the major construction activities undertaken in this reporting period is shown in *Table 5.1*. The location of the construction activities is shown in *Annex E1*.

Table 5.1 *Summary of Construction Activities Undertaken from 1 December 2013 to 28 February 2014 at Central Drop Shaft*

Construction Activities Undertaken
<ul style="list-style-type: none"> • Concrete footings on shaft bottom; and • Raise boring.

5.2 STATUS OF ENVIRONMENTAL APPROVAL DOCUMENTS

A summary of the relevant permits, licences, and/or notifications on environmental protection for this Project in this reporting period is presented in *Table 5.2*.

Table 5.2 *Summary of Environmental Licensing, Notification and Permit Status at Central Drop Shaft*

Permit/ Licences/ Notification	Reference	Validity Period	Remarks
Wastewater Discharge License	Central PTW Drop Shaft WT0005131-2009	09 October 2009 - 31 October 2014	--
Chemical Waste Producer Registration	Central PTW Drop Shaft 5213-115-G2347-06	Throughout the contract	--
Construction Noise Permit (CNP)	Central PTW Drop Shaft GW-RS0904-13	19 August 2013 - 18 February 2014	Superseded by GW-RS-0092-14
	Central PTW Drop Shaft GW-RS0092-14	19 February 2014 - 18 August 2014	--

5.3 ENVIRONMENTAL MONITORING REQUIREMENTS

5.3.1 Air Quality Monitoring

Monitoring Location

In accordance with the EM&A Manual, 24-hour and 1-hour averaged TSP levels should be conducted at designated monitoring stations. Since access to some of the proposed monitoring locations stated in the EM&A Manual were rejected or not available, alternative locations, therefore, were proposed and

agreed by the ER and the IEC. The construction air quality monitoring station for this Contract is listed in *Table 5.3* and shown in *Annex E2*.

Table 5.3 *Construction Phase Air Monitoring Location at Central Drop Shaft*

Worksite	Construction Air Quality Monitoring Station			Remark
	ID in EM&A Manual	ID	Location	
Central	-	AM4_2	A Location within the DSD Central PTW	<ul style="list-style-type: none"> • Access to Sheung Wan Fire Station (CM_C1) was rejected. • All possible locations along Connaught Road West and Connaught Road East have been exhausted and no suitable location is identified due to rejection by the premise owner, security reason, without guaranteed access or inaccessible. AM4 is the alternative location. • Since air monitoring station AM4 has to return to DSD for other Work Contract, AM4_2 is the alternative location to replace AM4.

Monitoring Parameters, Frequency and Programme

Air quality monitoring was conducted in accordance with the requirements stipulated in the EM&A Manual (*Table 5.4*).

Table 5.4 *TSP Monitoring Parameter and Frequency at Central Drop Shaft*

Parameter	Frequency
24-hour averaged TSP	Once every 6 days
1-hour averaged TSP	3 times every 6 days

Monitoring Equipment

Continuous 24-hour and 1-hour TSP monitoring were performed using HVS with appropriate sampling inlets installed, located at the designated monitoring station. The performance specification of HVS complied with the standard method “*Determination of Suspended Particulate Matter in the Atmosphere (High Volume Method)*” as stipulated in *US EPA Standard Title 40, Code of Federation Regulations Chapter 1 (Part 50 Appendix B)*. The equipment that was deployed for the 24-hour and 1-hour average TSP monitoring is listed in *Annex E5*.

Monitoring Methodology

Installation

The setup location of the HVS at monitoring stations was listed in *Table 5.3*. The HVS was free-standing with no obstruction.

The following criteria were considered in the installation of the HVSs:

- appropriate support to secure the samplers against gusty wind were provided at AM4;
- a minimum of 2 m separation from walls, parapets and penthouses was required for rooftop samplers;
- no furnace or incinerator flues were nearby;
- airflow around the sampler was unrestricted; and
- permission was obtained to set up the samplers and to gain access to the monitoring stations.

Preparation of Filter Papers

- glass fibre filters were labelled and sufficient filters that were clean and without pinholes were selected;
- all filters were equilibrated in the conditioning environment for 24 hours before weighing. The conditioning environment temperature was around 25 °C and not variable by more than ± 3 °C; the relative humidity (RH) was 40%; and
- SGS Hong Kong Ltd, a HOKLAS accredited laboratory, implements comprehensive quality assurance and quality control programmes.

Field Monitoring

- the power supply was checked to ensure that the HVSs were working properly;
- the filter holder and the area surrounding the filter were cleaned;
- the filter holder was removed by loosening the foul bolts and a new filter, with stamped number upward, on a supporting screen was aligned carefully;
- the filter was properly aligned on the screen so that the gasket formed an airtight seal on the outer edges of the filter;
- the swing bolts were fastened to hold the filter holder down to the frame. The pressure applied should be sufficient to avoid air leakage at the edges;

- then the shelter lid was closed and secured with the aluminium strip;
- the HVSs were warmed-up for about 5 minutes to establish run-temperature conditions;
- a new flowrate record sheet was set into the flow recorder;
- the flow rates of the HVSs were checked and adjusted to between 1.22 - 1.37 m³min⁻¹ which were within the range specified in the EM&A Manual (i.e. 0.6 - 1.7 m³min⁻¹);
- the programmable timer was set for a sampling period of 24 hours ± 1 hour, and the starting time, weather condition and the filter number were recorded;
- the initial elapsed time was recorded;
- at the end of sampling, the sampled filter was removed carefully and folded in half length so that only surfaces with collected particulate matter were in contact;
- it was then placed in a clean plastic envelope and sealed;
- all monitoring information was recorded on a standard data sheet; and
- filters were sent to SGS Hong Kong Ltd for analysis.

Maintenance and Calibration

- the HVSs and their accessories were maintained in good working condition, such as replacing motor brushes routinely and checking electrical wiring to ensure a continuous power supply; and
- the flow rate of each HVS with mass flow controller were calibrated using an orifice calibrator. Initial calibrations of the dust monitoring equipment were conducted upon installation and prior to commissioning. Five-point calibration was carried out for HVSs using CM-AIR-43 Calibration Kit. HVSs are calibrated on a bi-monthly basis. The calibration record for the HVS is given in *Annex H*.

Wind Data Monitoring

The nearest weather stations to at Central Drop Shaft are King's Park Station and Green Island Station. Average wind data (wind speed and wind direction) during the monitoring period were obtained from the meteorological stations at Green Island and King's Park of the Hong Kong Observatory (HKO) and is presented in *Annex E5*.

Action and Limit Levels

The Action and Limit levels have been established and presented in *Table 5.5*.

Table 5.5 Action and Limit Levels for Air Quality at Central Drop Shaft

Parameter	Air Monitoring Station	Action Level, μgm^{-3}	Limit Level, μgm^{-3}
24-hour TSP	AM4	211	260
1-hour TSP	AM4	393	500

Event and Action Plan

The EAP for air quality monitoring is presented in *Annex I*.

5.3.2 Noise Monitoring

Monitoring Location

In accordance with the EM&A Manual, monitoring of construction noise impact should be conducted at the designated monitoring stations. Since access to some of the proposed monitoring locations stated in the EM&A Manual were rejected or not available; alternative locations, therefore, were proposed and agreed by the ER and the IEC. The construction noise monitoring locations for this Contract are listed in *Table 5.6* and are shown in *Annex E2*.

Table 5.6 Construction Phase Noise Monitoring Station at Central Drop Shaft

Worksite	Construction Noise Monitoring Station				
	ID in EM&A Manual	ID	Location	Type of Measurement	Remark
Central	-	NM3	Rooftop of Goldfield Building	Façade	<ul style="list-style-type: none"> Chi Cheung Building (M4) is not accessible.

Monitoring Parameters, Frequency and Programme

Weekly construction noise monitoring was conducted in accordance with the requirements stipulated in the EM&A Manual. Additional noise monitoring were also conducted as per required in the EM&A Manual when works were carried out during restricted periods.

The construction noise levels were measured in terms of A-weighted equivalent continuous sound pressure level (L_{eq}) in decibels dB(A). $L_{\text{Aeq}(30\text{min})}$ were used as the monitoring parameter for the time period in between 0700 – 1900 hours on normal weekdays, and $L_{\text{Aeq}(5\text{min})}$ were used as the monitoring parameter for all restricted periods. Supplementary information for data auditing, two statistical sound levels L_{10} and L_{90} ; the levels exceeded for 10 and 90 percent of the time respectively, were also recorded during the monitoring for reference. The measured noise levels were logged in every 5 minutes throughout the impact monitoring period.

Monitoring Equipment and Methodology

Construction noise measurements were conducted in accordance with the calibration and measurement procedures as stated in *Annex – General Calibration and Measurement Procedures of Technical Memorandum on Noise from Construction Work other than Percussive Piling (GW-TM)* issued under the *Noise Control Ordinance (NCO) (Cap.400)*.

The sound level meters and calibrator used for the noise measurement, as listed in *Annex E6*, complies with IEC 651: 1979 and 804:1985 (Type 1) specification. The calibration certificates of the sound level meters are included in *Annex H*.

Immediately prior to and following the noise measurements, the accuracy of the measurement equipment was checked using an acoustic calibrator generating a known sound pressure level at a known frequency.

Measurements were accepted as the calibration level from before and after the noise measurement agree to within 1.0 dB.

Action and Limit Levels

The action and limit levels for the noise monitoring during different monitoring periods are summarized in *Table 5.7*.

Table 5.7 *Action and Limit Levels for Noise Monitoring at Central Drop Shaft*

Noise Monitoring Location	Measurement Parameter	Noise Criteria (dB(A))	Remark
NM3	L _{Aeq} (30mins)	75	Normal working hours during weekdays
	L _{Aeq} (5mins)	70	Evening (1900-2300); and Sundays and public holidays (0700-2300)
	L _{Aeq} (5mins)	55	Night-time (2300-0700)

Event and Action Plan

The EAP for noise monitoring is presented in *Annex I*.

5.3.3 *Cultural Heritage*

No vibration monitoring is required for this reporting period as blasting of tunnel / shaft works was not carried out in the vicinity of the historical buildings listed in EM&A manual.

5.3.4 *Landscape and Visual Monitoring*

In accordance with the EM&A Manual, landscape and visual monitoring is required to ensure that the design, implementation and maintenance of landscape and visual mitigation measures are fully achieved. The landscape and visual monitoring is carried out on site within the environmental site

inspection. The monitoring procedures and criteria as described in the EM&A Manual were adopted.

Event and Action Plan

The EAP for landscape and visual monitoring is presented in *Annex I*.

5.4 IMPLEMENTATION STATUS ON ENVIRONMENTAL PROTECTION REQUIREMENTS

The Contractor has implemented environmental mitigation measures and requirements as stated in the EIA Report, the Environmental Permit and EM&A Manual. The implementation status during the reporting period is summarised in *Annex E4*.

5.5 MONITORING RESULTS

5.5.1 Air Quality

A total of 16 sets of 24-hour averaged and 48 sets of 1-hour averaged TSP measurements were carried out at AM4_2 during the reporting period. The monitoring data for 24-hour TSP and 1-hour TSP together with wind data and graphical presentations are presented in *Annex E5*.

The weather conditions during the monitoring period varied from sunny, cloudy to fine. The local impacts near the monitoring stations of AM4 were mainly associated with vehicle emissions. No exceedance of Action and Limit Levels of 1-hr and 24-hr TSP was recorded during the reporting period.

5.5.2 Noise

A total of 13 sets of 30-minute construction noise measurements were carried out at the monitoring station NM3 during normal weekdays of the reporting period. The monitoring results together with graphical presentations are presented in *Annex E6*. The local impacts observed near the monitoring stations of NM3 were traffic noise from Connaught Road Central.

No exceedance of Action and Limit Levels of construction noise was recorded during the reporting period.

5.5.3 Landscape and Visual

Implementation and maintenance of landscape and visual mitigation measures are fully achieved and no major finding was observed during the reporting period.

5.5.4 Cultural Heritage

No vibration monitoring is required for this reporting period as blasting of tunnel / shaft works was not carried out in the vicinity of the historical buildings listed in EM&A manual.

5.5.5 *Waste Management*

Waste generated from this Project includes inert C&D materials, non-inert C&D materials and marine deposit. Non-inert C&D materials are made up of general refuse, steel and paper/cardboard packaging materials. Steel materials generated from the project are also grouped into non-inert C&D materials as the materials were not disposed of with other inert C&D materials. No marine deposit requiring type 1, type 2, or type 3 disposal methods was generated.

The inert C&D materials and general refuse generated from the Project were disposed of at Tuen Mun Area 38/Tseung Kwan O Area 137 Fill Bank/Chai Wan Barging Point and SENT Landfill respectively.

The quantity of different types of wastes generated in the reporting period has been shown in the Monthly Summary Waste Flow Table prepared by the Contractor (*Annex J*).

5.6 *ENVIRONMENTAL SITE INSPECTION*

Weekly site inspections were carried out by the representatives of the Contractor, Engineer and the ET. Nine site inspections were conducted on 5, 12 and 19 December 2013; 2, 9, 16 and 23 January 2014 and 6 and 20 February 2014. Since there was no major construction works taking place on 13 February 2014, no site inspection was conducted on that day. Furthermore, because of the scheduled SSEMCM meetings on 27 December 2013, 30 January 2014 and 27 February 2014 immediately after the joint inspections, inspections were not arranged for the Central site on those days.

Observations during site inspections and follow-up actions in the reporting period are presented in *Annex K*. All the follow-up actions requested by IEC and Contractor's ET during the site inspections were undertaken as reported by the Contractor and confirmed in the following weekly site inspection conducted during the reporting period.

5.7 *ENVIRONMENTAL NON-CONFORMANCE*

5.7.1 *Summary of Monitoring Exceedance*

No exceedance of the Action and Limit Levels of 1-hour TSP and 24-hour averaged TSP were recorded at the monitoring station during the reporting period.

No exceedance of the Action and Limit Levels of noise was recorded at the monitoring station during the reporting period.

5.7.2 *Summary of Environmental Non-Compliance*

No non-compliance event was recorded during the reporting period.

5.7.3 *Summary of Environmental Complaint*

No complaint was received during the reporting period. The cumulative complaints log is shown in *Annex E7*.

5.7.4 *Summary of Environmental Summon and Successful Prosecution*

No summon or prosecution was received during the reporting period. The cumulative summon and prosecution log is shown in *Annex E7*.

6.1 CONSTRUCTION ACTIVITIES DURING THE REPORTING PERIOD

A summary of the major construction activities undertaken in this reporting period is shown in *Table 6.1*. The location of the construction activities is shown in *Annex F1*.

Table 6.1 *Summary of Construction Activities Undertaken from 1 December 2013 to 28 February 2014 at Sai Ying Pun Junction Shaft*

Construction Activities Undertaken
<ul style="list-style-type: none"> • Pre-excavation grouting; and • Drilling and blasting.

6.2 STATUS OF ENVIRONMENTAL APPROVAL DOCUMENTS

A summary of the relevant permits, licences, and/or notifications on environmental protection for this Project in this reporting period is presented in *Table 6.2*.

Table 6.2 *Summary of Environmental Licensing, Notification and Permit Status at Sai Ying Pun Junction Shaft*

Permit/ Licences/ Notification	Reference	Validity Period	Remarks
Wastewater Discharge License	Sai Ying Pun Junction Shaft WT00006884-2010	11 June 2010 - 31 October 2014	--
Chemical Waste Producer Registration	Sai Ying Pun Junction Shaft 5213-112-G2347-05	Throughout the Contractor	--
Construction Noise Permit (CNP)	Sai Ying Pun Junction Shaft GW-RS1120-13	4 November 2013 - 3 April 2014	--

6.3 ENVIRONMENTAL MONITORING REQUIREMENTS

6.3.1 Air Quality Monitoring

Due to contractual arrangements, air quality monitoring was implemented by the Environmental Team of Contract No. DC/2007/24 of Harbour Area Treatment Scheme Stage 2A (HATS2A) - Construction of Sewage Conveyance System from Aberdeen to Stonecutters Island.

Monitoring Location

In accordance with the EM&A Manual, 24-hour and 1-hour averaged TSP levels should be conducted at designated monitoring stations. Since access to some of the proposed monitoring locations stated in the EM&A Manual were

rejected or not available, alternative locations, therefore, were proposed and agreed by the ER and the IEC. The construction air quality monitoring station for this Contract is listed in *Table 6.3* and shown in *Annex F2*.

Table 6.3 *Construction Phase Air Monitoring Location at Sai Ying Pun Junction Shaft*

Worksite	Construction Air Quality Monitoring Station			Remark
	ID in EM&A Manual	ID	Location	
Fung Mat Street	CM_FM1	AM5	Western Wholesale Food Market	-

Monitoring Parameters, Frequency and Programme

Air quality monitoring was conducted in accordance with the requirements stipulated in the EM&A Manual (*Table 6.4*).

Table 6.4 *TSP Monitoring Parameter and Frequency at Sai Ying Pun Junction Shaft*

Parameter	Frequency
24-hour averaged TSP	Once every 6 days
1-hour averaged TSP	3 times every 6 days

Wind Data Monitoring

The nearest weather stations to Sai Ying Pun Junction Shaft are King's Park Station and Green Island Station. Average wind data (wind speed and wind direction) during the monitoring period were obtained from the meteorological stations at King's Park and Green Island of the Hong Kong Observatory (HKO) and are presented in *Annex F5*.

Action and Limit Levels

The Action and Limit levels have been established and presented in *Table 6.5*.

Table 6.5 *Action and Limit Levels for Air Quality at Sai Ying Pun Junction Shaft*

Parameter	Air Monitoring Station	Action Level, μgm^{-3}	Limit Level, μgm^{-3}
24-hour averaged TSP	AM5	188	260
1-hour averaged TSP	AM5	332	500

Event and Action Plan

The EAP for air quality monitoring is presented in *Annex I*.

6.3.2 *Noise Monitoring*

Monitoring Location

In accordance with the EM&A Manual, monitoring of construction noise impact should be conducted at designated monitoring stations. Since access to some of the proposed monitoring locations stated in the EM&A Manual were rejected or not available; alternative locations, therefore, were proposed

and agreed by the ER and the IEC. The construction noise monitoring location for this Contract is listed in *Table 6.6* and is shown in *Annex F2*.

Table 6.6 *Construction Phase Noise Monitoring Station at Sai Ying Pun Junction Shaft*

Worksite	Construction Noise Monitoring Station				
	ID in EM&A Manual	ID	Location	Type of Measurement	Remark
Fung Mat Road	M3	NM4	Rooftop of Block A, Kwan Yick Building Phase III	Façade	-

Monitoring Parameters, Frequency and Programme

Weekly construction noise monitoring was conducted in accordance with the requirements stipulated in the EM&A Manual. Additional noise monitoring were also conducted as per required in the EM&A Manual when works were carried out during restricted periods.

The construction noise levels were measured in terms of A-weighted equivalent continuous sound pressure level (L_{eq}) in decibels dB(A). $L_{Aeq(30min)}$ were used as the monitoring parameter for the time period in between 0700 – 1900 hours on normal weekdays, and $L_{Aeq(5min)}$ were used as the monitoring parameter for all restricted periods. Supplementary information for data auditing, two statistical sound levels L_{10} and L_{90} ; the levels exceeded for 10 and 90 percent of the time respectively, were also recorded during the monitoring for reference. The measured noise levels were logged in every 5 minutes throughout the impact monitoring period.

Monitoring Equipment and Methodology

Construction noise measurements were conducted in accordance with the calibration and measurement procedures as stated in *Annex – General Calibration and Measurement Procedures of Technical Memorandum on Noise from Construction Work other than Percussive Piling (GW-TM)* issued under the *Noise Control Ordinance (NCO) (Cap.400)*.

The sound level meters and calibrator used for the noise measurement, as listed in *Annex F*, complies with IEC 651: 1979 and 804:1985 (Type 1) specification. The calibration certificates of the sound level meters are included in *Annex H*.

Immediately prior to and following the noise measurements, the accuracy of the measurement equipment was checked using an acoustic calibrator generating a known sound pressure level at a known frequency.

Measurements were accepted as the calibration level from before and after the noise measurement agree to within 1.0 dB.

Action and Limit Levels

The action and limit levels for the noise monitoring during different monitoring periods are summarized in *Table 6.7*.

Table 6.7 *Action and Limit Levels for Noise Monitoring at Sai Ying Pun Junction Shaft*

Noise Monitoring Location	Measurement Parameter	Noise Criteria (dB(A))	Remark
NM4	L _{Aeq} (30mins)	75	Normal working hours during weekdays
	L _{Aeq} (5mins)	70	Evening (1900-2300); and Sundays and public holidays (0700-2300)
	L _{Aeq} (5mins)	55	Night-time (2300-0700)

Event and Action Plan

The Event and Action Plan (EAP) for noise monitoring is presented in *Annex I*.

6.3.3 *Cultural Heritage*

In order to prevent potential damage to historical buildings and structures, maximum limits for safe vibration levels have been set at 25 mm/s. This vibration limit has been applied in controlling vibrations due to blasting operations in Hong Kong by CEDD and MTRC. Vibration monitoring shall be undertaken during blasting for tunnel, shafts and effluent conveyance system in the vicinity of the buildings / structures as a requirement of EM&A programme in such a way that a maximum vibration level of 25 mm/s is not exceeded. To ensure that this maximum limit is not exceeded, a monitoring schedule shall be implemented. The monitoring should be undertaken through the use of measures such as tell tales and tilting monitoring points to the historic buildings and structures on a weekly basis. If vibration levels are found to exceed the maximum limit of 25 mm/s, immediate corrective action shall be taken by reducing the rate of forward progress, as necessary, to bring PPV levels within compliance. Monitoring results should be submitted to the engineer in an agreed format within two days of each monitoring undertaken.

6.3.4 *Landscape and Visual Monitoring*

In accordance with the EM&A Manual, landscape and visual monitoring is required to ensure that the design, implementation and maintenance of landscape and visual mitigation measures are fully achieved. The landscape and visual monitoring is carried out on site within the environmental site inspection. The monitoring procedures and criteria as described in the EM&A Manual were adopted.

Event and Action Plan

The EAP for landscape and visual monitoring is presented in *Annex I*.

6.4 *IMPLEMENTATION STATUS ON ENVIRONMENTAL PROTECTION REQUIREMENTS*

The Contractor has implemented environmental mitigation measures and requirements as stated in the EIA Report, the Environmental Permit and EM&A Manual. The implementation status during the reporting period is summarized in *Annex F4*.

6.5 *MONITORING RESULTS*

6.5.1 *Air Quality*

A total of 12 sets of 24-hour and 39 sets of 1-hour TSP measurements were carried out at AM5 during the reporting period. The monitoring data for 24-hour TSP and 1-hour averaged TSP together with wind data and graphical presentations are presented in *Annex F5*. The weather condition during the monitoring period was fine. The local impacts near the monitoring stations of AM5 were mainly associated with vehicle emissions.

In February 2014, 24-hour averaged TSP monitoring data on 7 February 2014 cannot be acquired due to HVS failure. Furthermore, both 1-hour and 24-hour averaged monitoring was suspended between 13 and 28 February 2014 owing to power supply failure.

No exceedance of Action and Limit Levels of 1-hr and 24-hr TSP were recorded during the reporting period.

6.5.2 *Noise*

A total of 13 sets of 30-minute construction noise measurements were carried out at the monitoring station NM4 during normal working hours of weekdays of the reporting period. 13 sets of 3 x 5-minute construction noise measurements were carried out during restricted hours (between 1900 and 0700 hours on weekdays, and any time on Sundays and public holidays) on 3, 8, 17, 22 and 31 December 2013; 5, 14, 19 and 28 January 2014; and 3, 11, 16 and 25 February 2014 during the reporting period. The monitoring results together with graphical presentations are presented in *Annex F6*. The local impacts observed near the monitoring stations of NM4 were noise from traffic movement on nearby roads.

No exceedance of limit level for noise monitoring during both normal and restricted hours were recorded.

6.5.3 *Landscape and Visual*

Implementation and maintenance of landscape and visual mitigation measures are fully achieved and no major findings were observed during the reporting period.

6.5.4 *Cultural Heritage*

Shaft blasting was carried out at tunnel K during the reporting period. In total, 36 sets of vibration monitoring were conducted for Western Market (HATS- 05) on 2, 3, 4, 5, 6, 7, 9, 10, 11, 12, 13, 14, 16, 17, 19 and 20 December 2013 as well as on 2, 3, 4, 6, 7, 8, 9 and 10 January 2014. No exceedance of maximum limit for safe vibration level (25 mm/s) was recorded. The monitoring result is presented in *Annex F8*. No vibration monitoring was conducted in February 2014 as there was no blasting of tunnel / shaft works carried out in the vicinity of the historical buildings listed in the EM&A Manual.

6.5.5 *Waste Management*

Waste generated from this Project includes inert C&D materials, non-inert C&D materials and marine deposit. Non-inert C&D materials are made up of general refuse, steel and paper/cardboard packaging materials. Steel materials generated from the project are also grouped into non-inert C&D materials as the materials were not disposed of with other inert C&D materials. No marine deposit requiring type 1, type 2, or type 3 disposal methods was generated. The inert C&D materials and general refuse generated from the Project were disposed of at Tuen Mun Area 38/Tseung Kwan O Area 137 Fill Bank/Chai Wan Barging Point and SENT Landfill respectively.

The quantity of different types of wastes generated in the reporting period has been shown in the Monthly Summary Waste Flow Table prepared by the Contractor (*Annex J*).

6.6 *ENVIRONMENTAL SITE INSPECTION*

Weekly site inspections were carried out by the representatives of the Contractor, Engineer and the ET. 13 site inspections were conducted on 5, 12, 19 and 27 December 2013; 2, 9, 16, 23 and 30 January 2014; and 6, 13, 20 and 27 February 2014. The representative of the IEC joined the site inspections on 27 December 2013, 30 January 2014 and 27 February 2014. There was no non-compliance recorded during the site inspections. Observations during site inspections and follow-up actions in the reporting period are presented in *Annex K*. All follow-up actions requested by the IEC and the Contractor's ET during the site inspections were undertaken as reported by the Contractor and confirmed in the following weekly site inspection conducted during the reporting period.

6.7 *ENVIRONMENTAL NON-CONFORMANCE*

6.7.1 *Summary of Monitoring Exceedance*

No exceedance of the Action and Limit Levels of 1-hour TSP and 24-hour averaged TSP was recorded at monitoring stations during the reporting period.

No exceedance of the Noise Limit Levels was recorded at monitoring station during both normal working hours and restricted hours in the reporting period.

No exceedance of maximum limit for safe vibration level (25 mm/s) was recorded during the reporting period.

6.7.2 *Summary of Environmental Non-Compliance*

No non-compliance event was recorded during the reporting period.

6.7.3 *Summary of Environmental Complaint*

No complaint was recorded during the reporting period.

The cumulative complaint log is shown in *Annex F7*.

6.7.4 *Summary of Environmental Summon and Successful Prosecution*

No summon or prosecution was received during the reporting period. The cumulative summon and prosecution log is shown in *Annex F7*.

7.1 CONSTRUCTION ACTIVITIES DURING THE REPORTING PERIOD

A summary of the major construction activities undertaken in this reporting period is shown in *Table 7.1*. The locations of the construction activities are shown in *Annex G1*.

Table 7.1 *Summary of Construction Activities Undertaken from 1 December 2013 to 28 February 2014 at Stonecutters Island Production and Riser Shafts*

Construction Activities Undertaken

Riser Shaft

- Preparation of shaft bottom and formwork for permanent lining;
 - Construction of shaft-tunnel junction formwork; and
 - Construction of permanent lining.
-

Production Shaft

- Pre-excavation grouting; and
 - Drilling and blasting;
-

7.2 STATUS OF ENVIRONMENTAL APPROVAL DOCUMENTS

A summary of the relevant permits, licences, and/or notifications on environmental protection for this Project in this reporting period is presented in *Table 7.2*.

Table 7.2 *Summary of Environmental Licensing, Notification and Permit Status at Stonecutters Island Production and Riser Shafts*

Permit/ Licences/ Notification	Reference	Validity Period	Remarks
Wastewater Discharge License	Stonecutters Island Production Shaft and Riser Shaft WT00005069-2009	3 November 2010 – 31 October 2014	--
Chemical Waste Producer Registration	Stonecutters Island Production Shaft and Riser Shaft 5213-269-G2449-07	Throughout the Contract	--
Construction Noise Permit (CNP)	Stonecutters Island Production Shaft and Riser Shaft GW-0692-13	23 October 2013 – 22 April 2014	--
	Stonecutters Island Area K-1 GW-RW0388-13	9 July 2013 – 8 January 2014	Superseded by GW-RW0914-13
	Stonecutters Island Area K-1 GW-RW0914-13	9 January 2014 – 8 July 2014	--

7.3 ENVIRONMENTAL MONITORING REQUIREMENTS

7.3.1 Air Quality Monitoring

Monitoring Location

In accordance with the EM&A Manual, 24-hour and 1-hour averaged TSP levels should be conducted at designated monitoring stations. Since access to some of the proposed monitoring locations stated in the EM&A Manual were rejected or not available, alternative locations, therefore, were proposed and agreed by the ER and the IEC. The construction air quality monitoring station for this Contract is listed in *Table 7.3* and shown in *Annex G2*.

Table 7.3 Construction Phase Air Monitoring Location at Stonecutters Island Production and Riser Shafts

Worksite	Construction Air Quality Monitoring Station			
	ID in EM&A Manual	ID	Location	Remark
SCISTW	-	AM6	Works Site Boundary	<ul style="list-style-type: none"> • Power Access supply for operation of HVS was not feasible to the rooftop of Government Dockyard Offices (CM_SCI1). • For COSCO HIT Terminal (CM_SCI2), access application was verbally rejected. • Club House (CM_SCI3) is blocked by a high building which will affect the dust levels during measurement. • Work Site Boundary (near Ngong Shuen Chau Barracks Group 2 (CM_SCI4) was designed for the HATS2A Disinfection Facilities works and the station is separated by a small hill. • Baseline dust monitoring data measured under HATS2A - Provision of Disinfection Facilities at SCISTW will also be obtained for the establishment of the action level for the impact monitoring.

Monitoring Parameters, Frequency and Programme

Air quality monitoring was conducted in accordance with the requirements stipulated in the EM&A Manual (Table 7.4).

Table 7.4 TSP Monitoring Parameter and Frequency at Stonecutters Island Production and Riser Shafts

Parameter	Frequency
24-hour averaged TSP	Once every 6 days
1-hour averaged TSP	3 times every 6 days

Monitoring Equipment

Continuous 24-hour and 1-hour averaged TSP monitoring were performed using HVS with appropriate sampling inlets installed, located at the designated monitoring station. The performance specification of HVS complied with the standard method “*Determination of Suspended Particulate Matter in the Atmosphere (High Volume Method)*” as stipulated in *US EPA Standard Title 40, Code of Federation Regulations Chapter 1 (Part 50 Appendix B)*. The equipment that was deployed for the 24-hour and 1-hour averaged TSP monitoring is listed in *Annex G5*.

Installation

The setup location of the HVS at monitoring station was listed in *Table 7.3*. The HVS was free-standing with no obstruction.

The following criteria were considered in the installation of the HVSs:

- appropriate support to secure the samplers against gusty wind were provided at AM6;
- a minimum of 2 m separation from walls, parapets and penthouses was required for rooftop samplers;
- no furnace or incinerator flues were nearby;
- airflow around the sampler was unrestricted; and
- permission was obtained to set up the samplers and to gain access to the monitoring stations.

Preparation of Filter Papers

- glass fibre filters were labelled and sufficient filters that were clean and without pinholes were selected;
- all filters were equilibrated in the conditioning environment for 24 hours before weighing. The conditioning environment temperature was around 25 °C and not variable by more than ± 3 °C; the relative humidity (RH) was 40%; and
- SGS Hong Kong Ltd, a HOKLAS accredited laboratory, implements comprehensive quality assurance and quality control programmes.

Field Monitoring

- the power supply was checked to ensure that the HVSs were working properly;
- the filter holder and the area surrounding the filter were cleaned;
- the filter holder was removed by loosening the foul bolts and a new filter, with stamped number upward, on a supporting screen was aligned carefully;
- the filter was properly aligned on the screen so that the gasket formed an airtight seal on the outer edges of the filter;
- the swing bolts were fastened to hold the filter holder down to the frame. The pressure applied should be sufficient to avoid air leakage at the edges;
- then the shelter lid was closed and secured with the aluminium strip;

- the HVSs were warmed-up for about 5 minutes to establish run-temperature conditions;
- a new flowrate record sheet was set into the flow recorder;
- the flow rates of the HVSs were checked and adjusted to between 1.22 - 1.37 m³min⁻¹ which were within the range specified in the EM&A Manual (ie 0.6 - 1.7 m³min⁻¹);
- the programmable timer was set for a sampling period of 24 hours ± 1 hour, and the starting time, weather condition and the filter number were recorded;
- the initial elapsed time was recorded;
- at the end of sampling, the sampled filter was removed carefully and folded in half length so that only surfaces with collected particulate matter were in contact;
- it was then placed in a clean plastic envelope and sealed;
- all monitoring information was recorded on a standard data sheet; and
- filters were sent to SGS Hong Kong Ltd for analysis.

Maintenance and Calibration

- the HVSs and their accessories were maintained in good working condition, such as replacing motor brushes routinely and checking electrical wiring to ensure a continuous power supply; and
- the flow rate of each HVS with mass flow controller were calibrated using an orifice calibrator. Initial calibrations of the dust monitoring equipment were conducted upon installation and prior to commissioning. Five-point calibration was carried out for HVSs using CM-AIR-43 Calibration Kit. HVSs are calibrated on a bi-monthly basis. The calibration record for the HVS is given in *Annex H*.

Wind Data Monitoring

The nearest weather station to Stonecutters Island Production and Riser Shafts is Tsing Yi Station. Average wind data (wind speed and wind direction) during the monitoring period were obtained from the meteorological station at Tsing Yi of the Hong Kong Observatory (HKO) and are presented in *Annex G5*.

Action and Limit Levels

The Action and Limit levels have been established and presented in *Table 7.5*. The baseline air monitoring data (24-hr and 1-hr TSP average) measured under *HATS2A – Provision of Disinfection Facilities at SCISTW (DF)* is also included to establish the Action Level at AM6.

Table 7.5 Action and Limit Levels for Air Quality at Stonecutters Island Production and Riser Shafts

Parameter	Air Monitoring Station	Action Level, μgm^{-3}	Limit Level, μgm^{-3}
24-hour averaged TSP	AM6 (with 24-hr TSP data from DF project)	196	260
1-hour averaged TSP	AM6 (with 1-hr TSP data from DF project)	346	500

Event and Action Plan

The EAP for air quality monitoring is presented in *Annex I*.

7.3.2 Noise Monitoring

Monitoring Location

In accordance with the EM&A Manual, monitoring of construction noise impact should be conducted at the designated monitoring stations. Since access to some of the proposed monitoring locations stated in the EM&A Manual were rejected or not available; alternative locations, therefore, were proposed and agreed by the ER and the IEC. The construction noise monitoring location for this Contract is listed in *Table 7.6* and is shown in *Annex G2*.

Table 7.6 Construction Phase Noise Monitoring Station at Stonecutters Island Production and Riser Shafts

Worksite	Construction Noise Monitoring Station				
	ID in EM&A Manual	ID	Location	Type of Measurement	Remark
SCISTW	-	NM5	A Location near the FSD Diving Rescue and Diving Training Centre near the Site Boundary	Free-Field (3dB(A) was added to the measured results)	<ul style="list-style-type: none"> Access to FSD Fire Rescue and Diving Training Centre (M11) was declined. NM5 is located next to the original proposed location.

Monitoring Parameters, Frequency and Programme

Weekly construction noise monitoring was conducted in accordance with the requirements stipulated in the EM&A Manual. Additional noise monitoring were also conducted as per required in the EM&A Manual when works were carried out during restricted periods.

The construction noise levels were measured in terms of A-weighted equivalent continuous sound pressure level (L_{Aeq}) in decibels dB(A). $L_{Aeq(30min)}$ were used as the monitoring parameter for the time period in between 0700 – 1900 hours on normal weekdays, and $L_{Aeq(5min)}$ were used as the

monitoring parameter for all restricted periods. Supplementary information for data auditing, two statistical sound levels L_{10} and L_{90} ; the levels exceeded for 10 and 90 percent of the time respectively, were also recorded during the monitoring for reference. The measured noise levels were logged every 5 minutes throughout the impact monitoring period.

Monitoring Equipment and Methodology

Construction noise measurements were conducted in accordance with the calibration and measurement procedures as stated in *Annex – General Calibration and Measurement Procedures of Technical Memorandum on Noise from Construction Work other than Percussive Piling (GW-TM)* issued under the *Noise Control Ordinance (NCO) (Cap.400)*.

The sound level meters and calibrator used for the noise measurement, as listed in *Annex G6*, complies with IEC 651: 1979 and 804:1985 (Type 1) specification. The calibration certificates of the sound level meters are included in *Annex H*.

Immediately prior to and following the noise measurements, the accuracy of the measurement equipment was checked using an acoustic calibrator generating a known sound pressure level at a known frequency.

Measurements were accepted as the calibration level from before and after the noise measurement agree to within 1.0 dB. A correction of +3dB(A) was made to the free field measurement at NM5.

Action and Limit Levels

The action and limit levels for the noise monitoring during different monitoring periods are summarized in *Table 7.7*.

Table 7.7 *Action and Limit Levels for Noise Monitoring at Stonecutters Island Production and Riser Shaft*

Noise Monitoring Location	Measurement Parameter	Noise Criteria (dB(A))	Remark
NM5	L_{Aeq} (30mins)	75	Normal working hours during weekdays
	L_{Aeq} (5mins)	70	Evening (1900-2300); and Sundays and public holidays (0700-2300)
	L_{Aeq} (5mins)	55	Night-time (2300-0700)

Event and Action Plan

The EAP for noise monitoring is presented in *Annex I*.

7.3.3 Cultural Heritage

No vibration monitoring is required for this reporting period as blasting of tunnel / shaft works was not carried out in the vicinity of the historical buildings listed in EM&A manual.

7.3.4 *Landscape and Visual Monitoring*

In accordance with the EM&A Manual, landscape and visual monitoring is required to ensure that the design, implementation and maintenance of landscape and visual mitigation measures are fully achieved. The landscape and visual monitoring is carried out on site within the environmental site inspection. The monitoring procedures and criteria as described in the EM&A Manual were adopted.

Event and Action Plan

The Event and Action Plan (EAP) for landscape and visual monitoring is presented in *Annex I*.

7.4 *IMPLEMENTATION STATUS ON ENVIRONMENTAL PROTECTION REQUIREMENTS*

The Contractor has implemented environmental mitigation measures and requirements as stated in the EIA Report, the Environmental Permit and EM&A Manual. The implementation status during the reporting period is summarized in *Annex G4*.

7.5 *MONITORING RESULTS*

7.5.1 *Air Quality*

A total of 16 sets of 24-hour and 48 sets of 1-hour averaged TSP measurements were carried out at AM6 during the reporting period. The monitoring data for 24-hour TSP and 1-hour averaged TSP together with wind data and graphical presentations are presented in *Annex G5*.

The weather condition during the monitoring period varied from sunny to cloudy. The local impacts near the monitoring stations of AM6 were mainly associated with vehicle emissions. No exceedance of Action and Limit Levels of 1-hr and 24-hr TSP was recorded during the reporting period.

7.5.2 *Noise*

A total of 13 sets of 30-minute construction noise measurements were carried out at the monitoring station NM5 during normal weekdays of the reporting period. 13 sets of 3 x 5-minute construction noise measurements were carried out during restricted hours (between 1900 and 0700 hours on weekdays, and any time on Sundays and public holidays) on 1, 10, 15, 24 and 29 December 2013; 7, 12, 21 and 26 January 2014 and 4, 9, 18 and 23 February 2014 during the reporting period. The monitoring results together with graphical presentations are presented in *Annex G6*. The local impacts observed near the monitoring stations of NM5 included operations at the Government Dockyard, other construction sites activities and traffic within the SCI STW in the vicinity.

No exceedance of limit level for noise monitoring during both normal and restricted hours was recorded.

7.5.3 *Landscape and Visual*

Implementation and maintenance of landscape and visual mitigation measures are fully achieved and no major finding was observed during the reporting period.

7.5.4 *Cultural Heritage*

No vibration monitoring is required for this reporting period as blasting of tunnel / shaft works was not carried out in the vicinity of the historical buildings listed in EM&A manual.

7.5.5 *Waste Management*

Waste generated from this Project includes inert C&D materials, non-inert C&D materials and marine deposit. Non-inert C&D materials are made up of general refuse, steel and paper/cardboard packaging materials. Steel materials generated from the project are also grouped into non-inert C&D materials as the materials were not disposed of with other inert C&D materials. No marine deposit requiring type 1, type 2, or type 3 disposal methods was generated. The inert C&D materials and general refuse generated from the Project were disposed of at Tuen Mun Area 38/Tseung Kwan O Area 137 Fill Bank/Chai Wan Barging Point and SENT Landfill respectively.

The quantity of different types of wastes generated in the reporting period has been shown in the Monthly Summary Waste Flow Table prepared by the Contractor (*Annex J*).

7.6 *ENVIRONMENTAL SITE INSPECTION*

Weekly site inspections were carried out by the representatives of the Contractor, Engineer and the ET. 13 site inspections were conducted on 5, 12, 19 and 27 December 2013; 2, 9, 16, 23 and 30 January 2014; and 6, 13, 20 and 27 February 2014. The representative of the IEC joined the site inspections on 27 December 2013, 30 January 2014 and 27 February 2014. There was no non-compliance recorded during the site inspections.

Observations during site inspections and follow-up actions in the reporting period are presented in *Annex K*. All the follow-up actions requested by IEC and Contractor's ET during the site inspection were undertaken as reported by the Contractor and confirmed in the following weekly site inspection conducted during the reporting period.

7.7 ENVIRONMENTAL NON-CONFORMANCE

7.7.1 *Summary of Monitoring Exceedance*

No exceedance of the Action and Limit Levels of 1-hour TSP and 24-hour averaged TSP was recorded at monitoring stations during the reporting period.

No exceedance of Action and Limit Levels for noise monitoring during both normal and restricted hours was recorded.

7.7.2 *Summary of Environmental Non-Compliance*

No non-compliance event was recorded during the reporting period.

7.7.3 *Summary of Environmental Complaint*

No complaint was recorded during the reporting period.

The cumulative complaint log is shown in *Annex G7*.

7.7.4 *Summary of Environmental Summon and Successful Prosecution*

No summon or prosecution was received during the reporting period. The cumulative summon and prosecution log is shown in *Annex G7*.

This Environmental Monitoring and Audit (EM&A) Report presents the EM&A works undertaken during the period from 1 December 2013 to 28 February 2014 in accordance with EM&A Manual and the relevant requirements under EP-322/2008/F. The conclusions for different sites are summarised below.

8.1 NORTH POINT PRODUCTION AND DROP SHAFTS

No exceedance of the Action and Limit Levels of the 1-hour and 24-hour averaged TSP was recorded at the air quality monitoring stations during the reporting period.

No exceedance of Limit Levels for construction noise was recorded at the monitoring station during the reporting period.

No non-compliance event was recorded during the reporting period.

No complaint/summon/prosecution was received during the reporting period.

8.2 WAN CHAI EAST PRODUCTION AND DROP SHAFTS

No exceedance of the Action and Limit Levels of the 1-hour and 24-hour averaged TSP was recorded at the air quality monitoring stations during the reporting period.

No exceedance of noise limit level was recorded during normal working hours but 27 exceedances of noise Limit Level during restricted hours were reported on 8, 17, 22 and 31 December 2013; 5, 14, 19 and 28 January 2014; and 11, 16 and 25 February 2014.

The exceedances were investigated and the information is presented in detail in *Annex D7*. Referring to the works summary provided by the Contractor, no noisy outdoor construction activity was conducted at Wan Chai East Production and Drop Shafts during the noise monitoring sessions. Other potential noise sources were also identified in the vicinity (i.e., traffic) to contribute to the measured noise level. In view of no noisy outdoor construction works carried out and contribution from other potential noise sources in vicinity (i.e., traffic), it is considered that the exceedances were not due to the Contract 23 construction works. However, the Contractor was reminded to adhere strictly to the Construction Noise Mitigation Plan and to implement all relevant noise mitigation measures to avoid exceedance of noise limit levels or causing nuisance.

No non-compliance/event was recorded during the reporting period.

There was no complaint/summon/prosecution received during the reporting period.

8.3 *CENTRAL DROP SHAFT*

No exceedance of the Action and Limit Levels of the 1-hour and 24-hour averaged TSP was recorded at the air quality monitoring stations during the reporting period.

No exceedance of the Action and Limit Levels for construction noise was recorded at the monitoring stations during the reporting period.

No non-compliance event was recorded during the reporting period.

There was no complaint/summon/prosecution received during the reporting period.

8.4 *SAI YING PUN JUNCTION SHAFT*

No exceedance of the Action and Limit Levels of the 1-hour and 24-hour average TSP was recorded at the air quality monitoring stations during the reporting period.

No exceedance of Limit Levels for construction noise was recorded at the monitoring station during the reporting period.

No exceedance of maximum limit for safe vibration level (25 mm/s) was recorded during the reporting period.

No non-compliance event was recorded during the reporting period.

8.5 *STONECUTTERS ISLAND PRODUCTION AND RISER SHAFTS*

No exceedance of the Action and Limit Levels of the 1-hour and 24-hour averaged TSP was recorded at the air quality monitoring stations during the reporting period.

No exceedance of Limit Levels for construction noise was recorded at the monitoring station during the reporting period.

No non-compliance event was recorded during the reporting period.

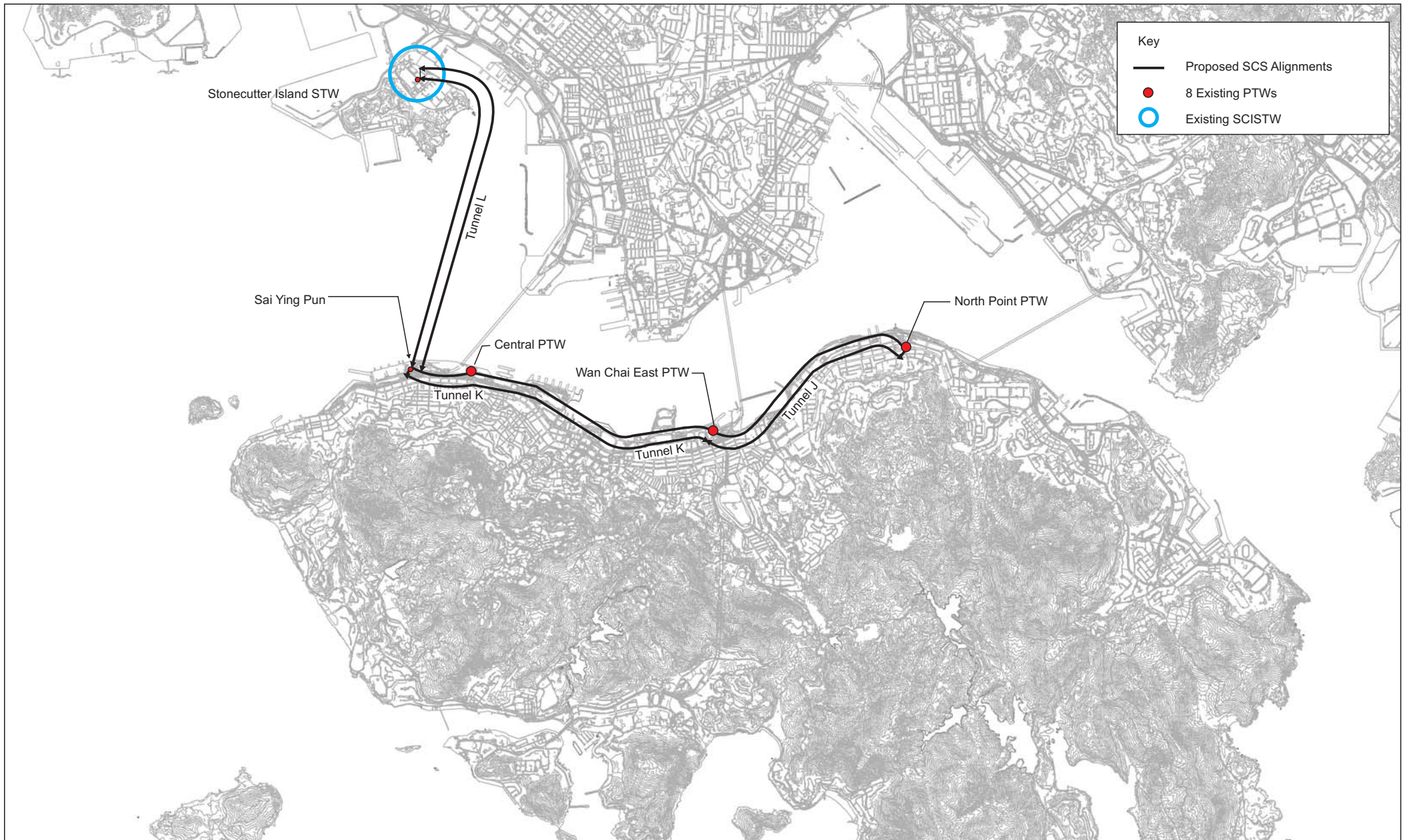
There was no summon/prosecution received during the reporting period.

8.6 *OVERALL*

The ET has followed the EM&A programme to monitor compliance status of environmental requirements and to verify proper implementation of all necessary mitigation measures.

Annex A

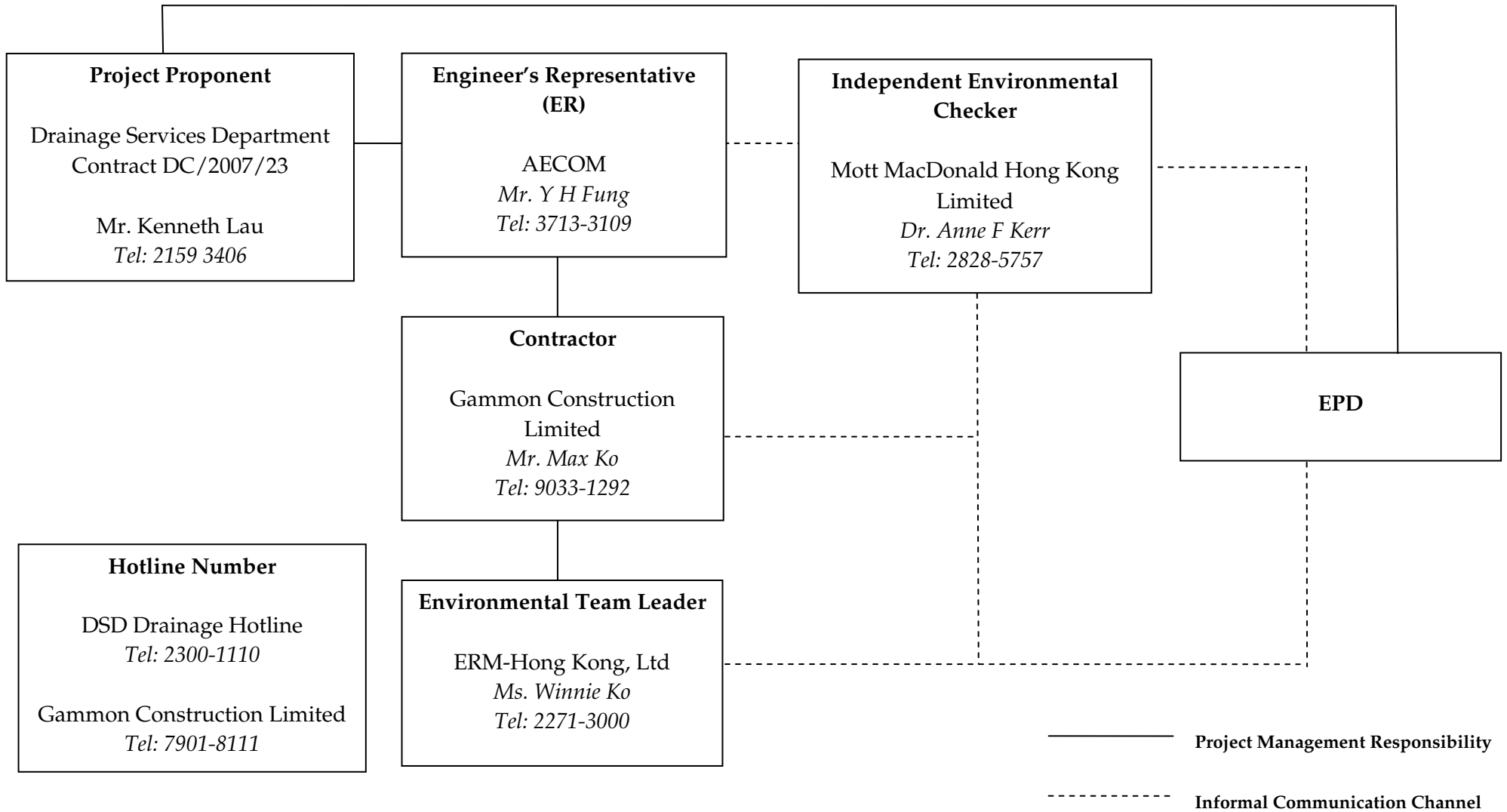
Locations of Works Areas



Annex B

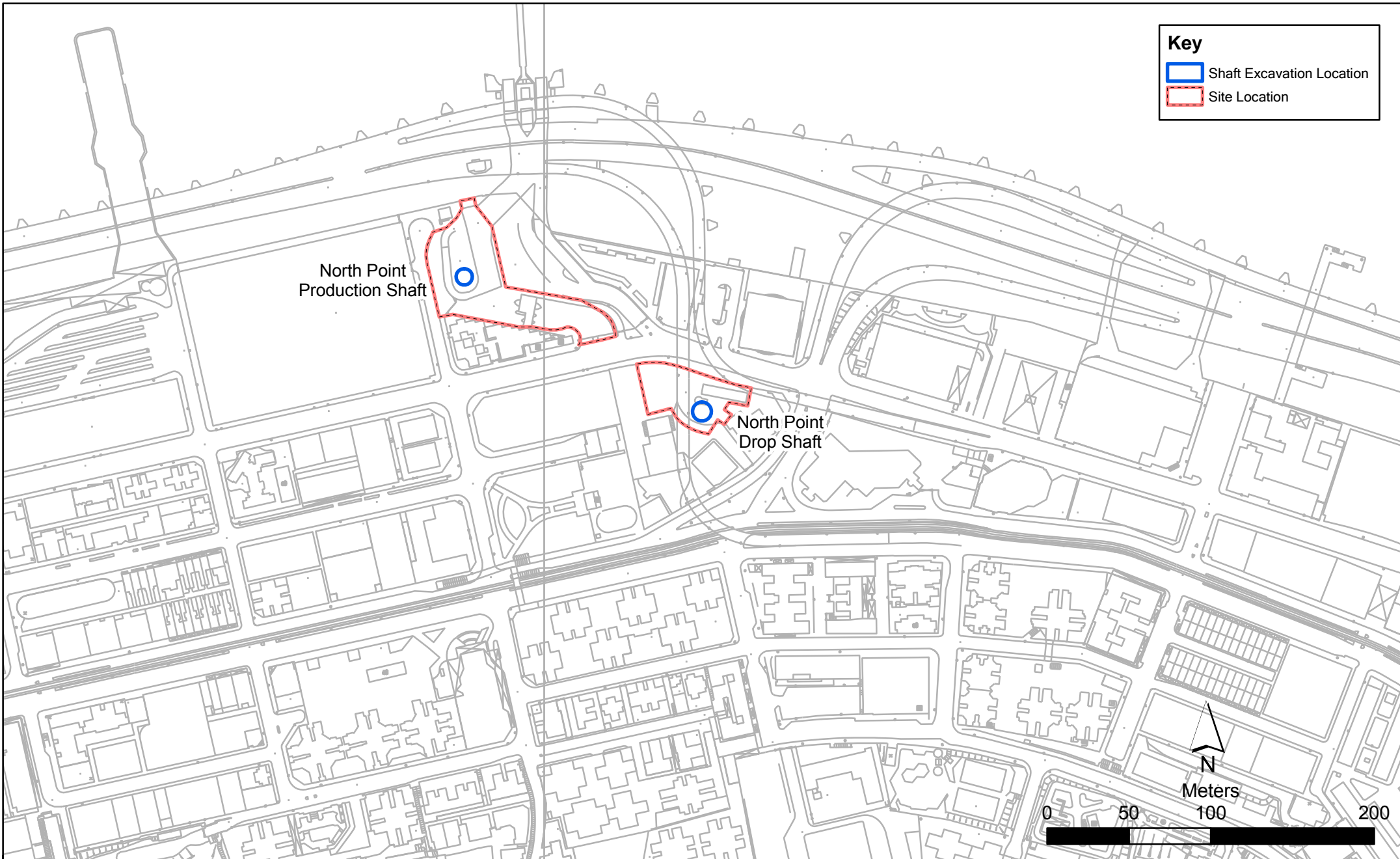
Project Organization Chart and Contact Detail

Project Organization



Annex C

North Point Production and Drop Shafts

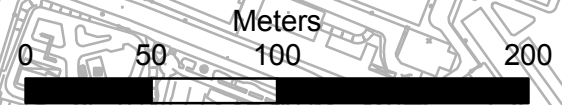


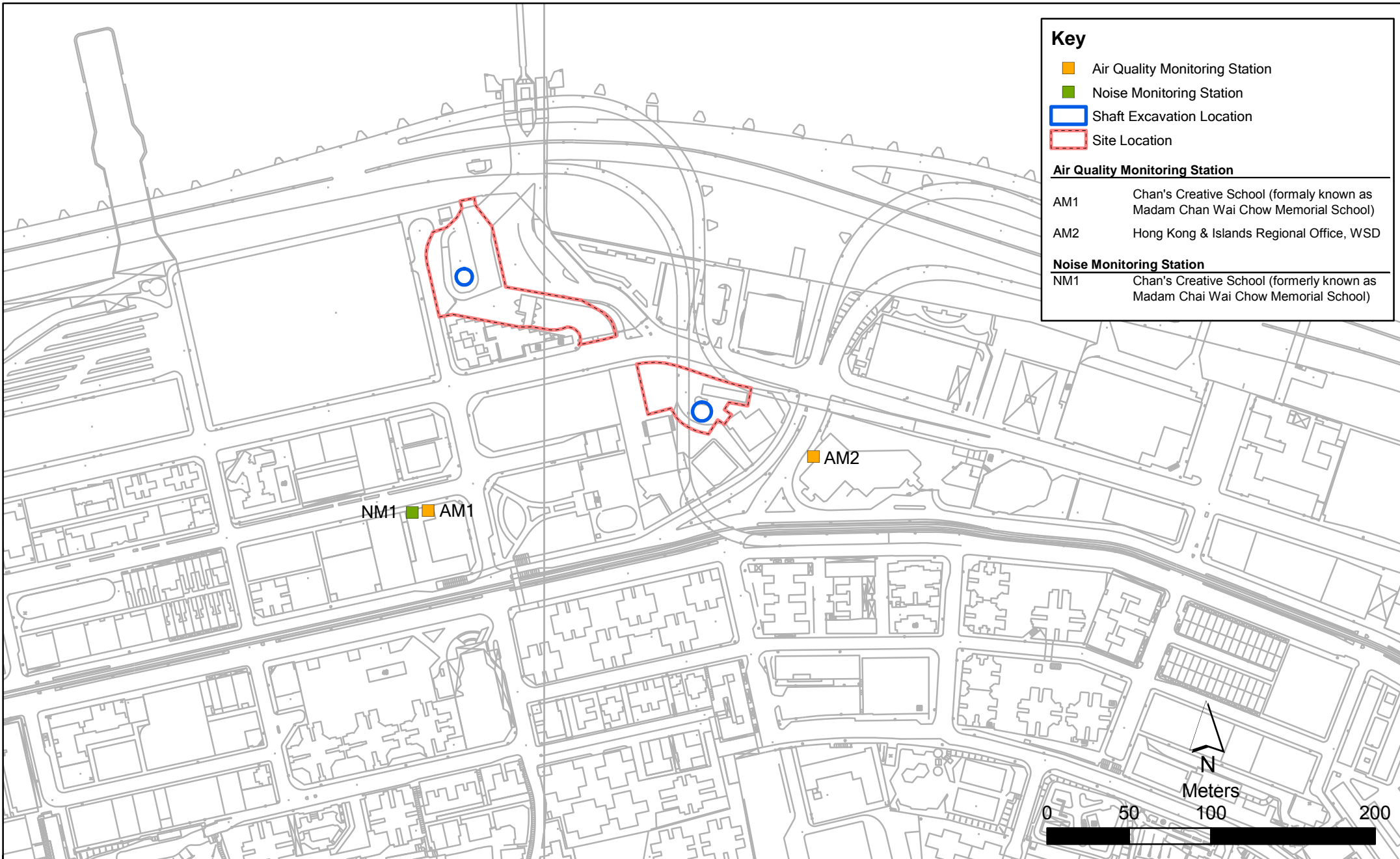
Key

- Shaft Excavation Location
- Site Location

North Point
Production Shaft

North Point
Drop Shaft





Annex C3 Not Used

ANNEX C4 - SUMMARY OF MITIGATION MEASURES IMPLEMENTATION SCHEDULE (DECEMBER 2013)

Type of Impact	Environmental Protection Measures	Location/ Timing	Status
<i>Construction Phase</i>			
Air Quality	<p>The Air Pollution Control (Construction Dust) Regulation shall be implemented and good site practices shall be incorporated in the contract clauses to minimise construction dust impact. Control measures relevant to this Project are listed below:</p> <ul style="list-style-type: none"> • skip hoist for material transport should be totally enclosed by impervious sheeting; • every vehicle should be washed to remove any dusty materials from its body and wheels before leaving a construction site; • the area where vehicle washing takes place and the section of the road between the washing facilities and the exit point should be paved with concrete, bituminous materials or hardcores; • where a site boundary adjoins a road, streets or other accessible to the public, hoarding of not less than 2.4 m high from ground level should be provided along the entire length except for a site entrance or exit; • every stock of more than 20 bags of cement should be covered entirely by impervious sheeting placed in an area sheltered on the top and the 3 sides; • regular watering, with complete coverage, to reduce dust emission from exposed site surfaces and unpaved roads, particularly during dry weather; • site enclosure and covering of any aggregate or dusty material storage piles to reduce emissions. Where this is not practicable owing to frequent usage, watering should be applied to aggregate fines; • open stock piles should be avoided or covered and prevent placing dusty material storage piles near ASRs if possible; • tarpaulin covering of all dusty vehicle loads transported to, from and between site locations; and • instigation of an environmental monitoring auditing program to monitor the construction process in order to enforce controls and modify method of work if dusty conditions arise. 	All work sites / during construction	√

ANNEX C4 - SUMMARY OF MITIGATION MEASURES IMPLEMENTATION SCHEDULE (DECEMBER 2013)

Type of Impact	Environmental Protection Measures	Location/ Timing	Status
Air Quality	<p>The following watering measures for specific site would be required to control the fugitive dust impacts:</p> <ul style="list-style-type: none"> • watering twice per day within the worksites at North Point PTW; and • watering 8 times per day within worksites at the SCS works area at North Point. 	All work sites / during construction	√
<i>Operational Phase</i>			
Air Quality	<p>Good housekeeping for SCISTW and PTWs listed below should be followed to ameliorate any odour impact from the plant and these standard practices should be included in the plant operator manual.</p> <ul style="list-style-type: none"> • Screens should be cleaned regularly to remove any accumulated organic debris • Grit and screening transfer systems should be flushed regularly with water to remove organic debris and grit • Grit and screened materials should be transferred to closed containers to minimise odour escape • Scum and grease collection wells and troughs should be emptied and flushed regularly to prevent putrefaction of accumulated organics • Skim and remove floating solids and grease from primary clarifiers regularly • Frequent sludge withdrawal from tanks is necessary to prevent the production of gases • Sludge cake should be transferred to closed containers • Sludge containers should be flushed with water regularly 	All work sites / during construction	NA. Measures not required until commencement of operational phase
Air Quality	Commissioning tests for all deodorisation system should be included in the Design and Construction Contract Document.	All PTW and SCISTW/ during operational phase	NA. Measures not required until commencement of operational phase
<i>Construction Phase</i>			
Noise	Use of quiet PME, movable barriers and acoustic mats	All work sites / during construction	√

ANNEX C4 - SUMMARY OF MITIGATION MEASURES IMPLEMENTATION SCHEDULE (DECEMBER 2013)

Type of Impact	Environmental Protection Measures	Location/ Timing	Status
Noise	<p>Good Site Practice:</p> <ul style="list-style-type: none"> only well-maintained plant should be operated on-site and plant should be serviced regularly during the construction program; silencers or mufflers on construction equipment should be utilised and should be properly maintained during the construction program; mobile plant, if any, should be sited as far from NSRs as possible; machines and plant (such as trucks) that may be in intermittent use should be shut down between work periods or should be throttled down to a minimum; Air compressors should be properly labelled with valid noise emission labels. plant known to emit noise strongly in one direction should, wherever possible, be orientated so that the noise is directed away from the nearby NSRs; and material stockpiles and other structures should be effectively utilised, wherever practicable, in screening noise from on-site construction activities; <p>Environmental audit shall be carried out to ensure that appropriate noise control measures would be properly implemented.</p>	All work sites / during construction	√
<i>Construction Phase</i>			
Water Quality	<p>Construction Site Runoff and General Construction Activities</p> <p>The mitigation measures as outlined in the ProPECC PN 1/94</p> <p>Construction Site Drainage should be adopted where applicable.</p>	All work sites / during construction	√

ANNEX C4 - SUMMARY OF MITIGATION MEASURES IMPLEMENTATION SCHEDULE (DECEMBER 2013)

Type of Impact	Environmental Protection Measures	Location/ Timing	Status
Water Quality	<p>Effluent Discharge</p> <p>There is a need to apply to EPD for a discharge license for discharge of effluent from the construction site under the WPCO. The discharge quality must meet the requirements specified in the discharge license. If monitoring of the treated effluent quality from the works areas is required during the construction phase of the Project, the monitoring should be carried out in accordance with the WPCO license which is under the ambit of regional office (RO) of EPD. Minimum distances of 100 m should be maintained between the discharge points of construction site effluent and the existing saltwater intakes.</p>	All work sites / during construction	√
Water Quality	<p>Accidental Spillage of Chemicals</p> <p>Contractor must register as a chemical waste producer if chemical wastes would be produced from the construction activities. The Waste Disposal Ordinance (Cap 354) and its subsidiary regulations in particular the Waste Disposal (Chemical Waste) (General) Regulation should be observed and complied with for control of chemical wastes.</p>	All work sites / during construction	√
Water Quality	<p>Any service shop and maintenance facilities should be located on hard standings within a bunded area, and sumps and oil interceptors should be provided. Maintenance of vehicles and equipment involving activities with potential for leakage and spillage should only be undertaken within the areas appropriately equipped to control these discharges.</p>	All work sites / during construction	√

ANNEX C4 - SUMMARY OF MITIGATION MEASURES IMPLEMENTATION SCHEDULE (DECEMBER 2013)

Type of Impact	Environmental Protection Measures	Location/ Timing	Status
Water Quality	<p>Disposal of chemical wastes should be carried out in compliance with the Waste Disposal Ordinance. The Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes published under the Waste Disposal Ordinance details the requirements to deal with chemical wastes.</p> <p>General requirements are given as follows:</p> <ul style="list-style-type: none">• Suitable containers should be used to hold the chemical wastes to avoid leakage or spillage during storage, handling and transport.• Chemical waste containers should be suitably labelled, to notify and warn the personnel who are handling the wastes, to avoid accidents.• Storage area should be selected at a safe location on site and adequate space should be allocated to the storage area.	All work sites / during construction	<>

ANNEX C4 - SUMMARY OF MITIGATION MEASURES IMPLEMENTATION SCHEDULE (DECEMBER 2013)

Type of Impact	Environmental Protection Measures	Location/ Timing	Status
Water Quality	<p>Construction Works in Close Proximity of Storm Drains or Seafront</p> <p>To minimise the potential water quality impacts from the construction works located at or near any watercourse, the practices outlined below should be adopted where applicable.</p> <ul style="list-style-type: none"> • The use of less or smaller construction plants may be specified to reduce the disturbance to the storm water courses or marine environment. • Temporary storage of materials (e.g. equipment, filling materials, chemicals and fuel) and temporary stockpile of construction materials should be located well away from any water courses during carrying out of the construction works. • Stockpiling of construction materials and dusty materials should be covered and located away from any water courses. • Construction debris and spoil should be covered up and/or disposed of as soon as possible to avoid being washed into the nearby water receivers. • Construction activities, which generate large amount of wastewater, should be carried out in a distance away from the waterfront, where practicable. • Proper shoring may need to be erected in order to prevent soil/mud from slipping into the storm culvert or sea 	All work sites / during construction	√

ANNEX C4 - SUMMARY OF MITIGATION MEASURES IMPLEMENTATION SCHEDULE (DECEMBER 2013)

Type of Impact	Environmental Protection Measures	Location/ Timing	Status
<i>Operational Phase</i>			
Water Quality	Dual power supply, standby facilities for the main treatment units and standby equipment parts / accessories should be provided as far as possible at the SCISTW to minimise the chance of emergency discharge.	SCISTW and all the Stage 2 PTWs / Operation Stage	NA. Measures not required until commencement of operational phase
Water Quality	Standby unit(s) and dual (backup) power supply would be provided at all the Stage 2 PTWs to reduce the risk of equipment breakdown at the PTWs.	Stage 2 PTWs / Operation Stage	NA. Measures not required until commencement of operational phase
<i>Construction Phase</i>			
Waste	Reusable steel or concrete panel shutters, fencing and hoarding and signboard should be used as a preferred alternative to items made of wood, to minimise wastage of wood. Attention should be paid to WBTC No. 19/2001 - Metallic Site Hoardings and Signboards to reduce the amount of timber used on construction sites. Metallic alternatives to timber are readily available and should be used rather than new timber. Precast concrete units should be adopted wherever feasible to minimise the use of timber formwork.	All work sites / during the construction period	√
Waste	All waste materials should be segregated into categories covering: <ul style="list-style-type: none"> • excavated materials suitable for reuse on-site; • excavated materials suitable for public filling facilities; • remaining C&D waste for landfill; • chemical waste; and • general refuse for landfill. 	All work sites / during the construction period	√

ANNEX C4 - SUMMARY OF MITIGATION MEASURES IMPLEMENTATION SCHEDULE (DECEMBER 2013)

Type of Impact	Environmental Protection Measures	Location/ Timing	Status
Waste	<p>Recommendations to achieve waste reduction include:</p> <ul style="list-style-type: none"> • Sort C&D waste from demolition of existing facilities to recover recyclable portions such as metals; • 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; and • Proper storage and site practices to minimise the potential for damage or contamination of construction materials. 	All work sites / during the construction period	√
Waste	<p>Recommendations for good site practices during construction activities include:-</p> <ul style="list-style-type: none"> • Nomination of an approved person, such as a site manager, to be responsible for good site practices, arrangements for collection and effective disposal to an appropriate facility, of all wastes generated at the site • Training of site personnel in proper waste management and chemical waste handling procedures • Develop and provide toolbox talk for on-site sorting of C&D materials to enhance worker's awareness in handling, sorting, reuse and recycling of C&D materials. • Provision of sufficient waste disposal points and regular collection of waste • Regular cleaning and maintenance programme for drainage systems, sumps and oil interceptors 	All work sites / during the construction period	√
Waste	Bentonite slurries used in diaphragm wall construction should be reconditioned and reused wherever practicable. The disposal of residual used bentonite slurry should follow the good practice guidelines stated in ProPECC PN 1/94 "Construction Site Drainage".	All work sites / during the construction period	NA

ANNEX C4 - SUMMARY OF MITIGATION MEASURES IMPLEMENTATION SCHEDULE (DECEMBER 2013)

Type of Impact	Environmental Protection Measures	Location/ Timing	Status
Waste	Adequate number of portable toilets at temporary works areas or the PTWs to ensure that sewage from site staff would be properly collected.	All work sites / during the construction period	√
Waste	General refuse should be stored in enclosed bins, skips or compaction units separating from C&D material and disposed of at designated landfill.	All work sites / during the construction period	√
Waste	The recyclable component of the municipal waste generated by the workforce, such as aluminium cans, paper and cleansed plastic containers should be separated from other waste. Provision and collection of recycling bins for different types of recyclable waste should be set up by the Contractor. The Contractor should also be responsible for arranging recycling companies to collect these materials.	All work sites / during the construction period	√
Waste	If chemical wastes are produced at the construction site, the Contractor would be required to register with the EPD as a chemical waste producer and to follow the guidelines stated in the Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes. Good quality containers compatible with the chemical wastes should be used, and incompatible chemicals should be stored separately. Appropriate labels should be securely attached on each chemical waste container indicating the corresponding chemical characteristics of the chemical waste, such as explosive, flammable, oxidising, irritant, toxic, harmful, corrosive, etc. The Contractor shall use a licensed collector to transport and dispose of the chemical wastes, to either the approved Chemical Waste Treatment Centre, or another licensed facility, in accordance with the Waste Disposal (Chemical Waste) (General) Regulation.	All work sites / during the construction period	√

ANNEX C4 - SUMMARY OF MITIGATION MEASURES IMPLEMENTATION SCHEDULE (DECEMBER 2013)

Type of Impact	Environmental Protection Measures	Location/ Timing	Status
Waste	Prior to excavation of the marine deposit layer, the deposit should be tested in accordance with the ETWB TC(W) No. 34/2002 and the results should be presented in a Preliminary Sediment Quality Report. The marine deposit should be disposed of at the disposal site designated by the Marine Fill Committee (MFC) or Director of Environmental Protection (DEP) depending on the test results.	All work sites / during the construction period	√
<i>Construction Phase</i>			
Landscape & Visual	<ul style="list-style-type: none"> • Topsoil, where identified, should be stripped and stored for re-use in the construction of the soft landscape works, where practical. • Existing trees to be retained on site should be carefully protected during construction. • Trees unavoidably affected by the works should be transplanted where practical. • Compensatory tree planting should be provided to compensate for felled trees. • Control of night-time lighting. • Erection of decorative screen hoarding compatible with the surrounding setting. 	All the works areas, PTWs and SCISTW / during the construction period	√
<i>Operational Phase</i>			
Landscape & Visual	<ul style="list-style-type: none"> • Aesthetic design of the façade of PTW and associated structures to harmonise with the surrounding settings. • Shrub and Climbing Plants to soften proposed structures / Roof Greening. • Buffer Tree and Shrub Planting to screen proposed associated structures. • Reinstated of disturbed area 	All the works areas, PTWs and SCISTW / during the construction period	NA. Measures not required until commencement of operational phase
<i>Construction Phase</i>			

ANNEX C4 - SUMMARY OF MITIGATION MEASURES IMPLEMENTATION SCHEDULE (DECEMBER 2013)

Type of Impact	Environmental Protection Measures	Location/ Timing	Status
Cultural Heritage	The construction vibration control limit (ppv of 25mm/s) shall be strictly followed.	Identified historical buildings/structures as mentioned in Tables 15.8 and 15.9. During blasting for tunnel, shafts, effluent conveyance system and disinfection facilities in the vicinity of the buildings/ structures	NA. Vibration monitoring has not been launched during the reporting period.
	Monitoring of vibration limits shall be conducted and reported as a requirement of EM&A programme	Identified historical buildings/structures as mentioned in Tables 15.8 and 15.9. During blasting for tunnel, shafts, effluent conveyance system and disinfection facilities in the vicinity of the buildings/ structures	NA. Vibration monitoring has not been launched during the reporting period.

Remark:

- √ Compliance of Mitigation Measures
- <> Compliance of Mitigation but need improvement
- x Non-compliance of Mitigation Measures
- Δ Deficiency of Mitigation Measures but rectified by the Contractor
- NA Not Applicable

ANNEX C4 - SUMMARY OF MITIGATION MEASURES IMPLEMENTATION SCHEDULE (JANUARY 2014)

Type of Impact	Environmental Protection Measures	Location/ Timing	Status
<i>Construction Phase</i>			
Air Quality	<p>The Air Pollution Control (Construction Dust) Regulation shall be implemented and good site practices shall be incorporated in the contract clauses to minimise construction dust impact. Control measures relevant to this Project are listed below:</p> <ul style="list-style-type: none"> • skip hoist for material transport should be totally enclosed by impervious sheeting; • every vehicle should be washed to remove any dusty materials from its body and wheels before leaving a construction site; • the area where vehicle washing takes place and the section of the road between the washing facilities and the exit point should be paved with concrete, bituminous materials or hardcores; • where a site boundary adjoins a road, streets or other accessible to the public, hoarding of not less than 2.4 m high from ground level should be provided along the entire length except for a site entrance or exit; • every stock of more than 20 bags of cement should be covered entirely by impervious sheeting placed in an area sheltered on the top and the 3 sides; • regular watering, with complete coverage, to reduce dust emission from exposed site surfaces and unpaved roads, particularly during dry weather; • site enclosure and covering of any aggregate or dusty material storage piles to reduce emissions. Where this is not practicable owing to frequent usage, watering should be applied to aggregate fines; • open stock piles should be avoided or covered and prevent placing dusty material storage piles near ASRs if possible; • tarpaulin covering of all dusty vehicle loads transported to, from and between site locations; and • instigation of an environmental monitoring auditing program to monitor the construction process in order to enforce controls and modify method of work if dusty conditions arise. 	All work sites / during construction	<>

ANNEX C4 - SUMMARY OF MITIGATION MEASURES IMPLEMENTATION SCHEDULE (JANUARY 2014)

Type of Impact	Environmental Protection Measures	Location/ Timing	Status
Air Quality	The following watering measures for specific site would be required to control the fugitive dust impacts: <ul style="list-style-type: none"> • watering twice per day within the worksites at North Point PTW; and • watering 8 times per day within worksites at the SCS works area at North Point. 	All work sites / during construction	√
<i>Operational Phase</i>			
Air Quality	Good housekeeping for SCISTW and PTWs listed below should be followed to ameliorate any odour impact from the plant and these standard practices should be included in the plant operator manual. <ul style="list-style-type: none"> • Screens should be cleaned regularly to remove any accumulated organic debris • Grit and screening transfer systems should be flushed regularly with water to remove organic debris and grit • Grit and screened materials should be transferred to closed containers to minimise odour escape • Scum and grease collection wells and troughs should be emptied and flushed regularly to prevent putrefaction of accumulated organics • Skim and remove floating solids and grease from primary clarifiers regularly • Frequent sludge withdrawal from tanks is necessary to prevent the production of gases • Sludge cake should be transferred to closed containers • Sludge containers should be flushed with water regularly 	All work sites / during construction	NA. Measures not required until commencement of operational phase
Air Quality	Commissioning tests for all deodorisation system should be included in the Design and Construction Contract Document.	All PTW and SCISTW/ during operational phase	NA. Measures not required until commencement of operational phase
<i>Construction Phase</i>			
Noise	Use of quiet PME, movable barriers and acoustic mats	All work sites / during construction	√

ANNEX C4 - SUMMARY OF MITIGATION MEASURES IMPLEMENTATION SCHEDULE (JANUARY 2014)

Type of Impact	Environmental Protection Measures	Location/ Timing	Status
Noise	<p>Good Site Practice:</p> <ul style="list-style-type: none"> • only well-maintained plant should be operated on-site and plant should be serviced regularly during the construction program; • silencers or mufflers on construction equipment should be utilised and should be properly maintained during the construction program; • mobile plant, if any, should be sited as far from NSRs as possible; • machines and plant (such as trucks) that may be in intermittent use should be shut down between work periods or should be throttled down to a minimum; • Air compressors should be properly labelled with valid noise emission labels. • plant known to emit noise strongly in one direction should, wherever possible, be orientated so that the noise is directed away from the nearby NSRs; and • material stockpiles and other structures should be effectively utilised, wherever practicable, in screening noise from on-site construction activities; <p>Environmental audit shall be carried out to ensure that appropriate noise control measures would be properly implemented.</p>	All work sites / during construction	√
<i>Construction Phase</i>			
Water Quality	<p>Construction Site Runoff and General Construction Activities</p> <p>The mitigation measures as outlined in the ProPECC PN 1/94 Construction Site Drainage should be adopted where applicable.</p>	All work sites / during construction	√

ANNEX C4 - SUMMARY OF MITIGATION MEASURES IMPLEMENTATION SCHEDULE (JANUARY 2014)

Type of Impact	Environmental Protection Measures	Location/ Timing	Status
Water Quality	<p>Effluent Discharge</p> <p>There is a need to apply to EPD for a discharge license for discharge of effluent from the construction site under the WPCO. The discharge quality must meet the requirements specified in the discharge license. If monitoring of the treated effluent quality from the works areas is required during the construction phase of the Project, the monitoring should be carried out in accordance with the WPCO license which is under the ambit of regional office (RO) of EPD. Minimum distances of 100 m should be maintained between the discharge points of construction site effluent and the existing saltwater intakes.</p>	All work sites / during construction	√
Water Quality	<p>Accidental Spillage of Chemicals</p> <p>Contractor must register as a chemical waste producer if chemical wastes would be produced from the construction activities. The Waste Disposal Ordinance (Cap 354) and its subsidiary regulations in particular the Waste Disposal (Chemical Waste) (General) Regulation should be observed and complied with for control of chemical wastes.</p>	All work sites / during construction	√
Water Quality	<p>Any service shop and maintenance facilities should be located on hard standings within a bunded area, and sumps and oil interceptors should be provided. Maintenance of vehicles and equipment involving activities with potential for leakage and spillage should only be undertaken within the areas appropriately equipped to control these discharges.</p>	All work sites / during construction	√

ANNEX C4 - SUMMARY OF MITIGATION MEASURES IMPLEMENTATION SCHEDULE (JANUARY 2014)

Type of Impact	Environmental Protection Measures	Location/ Timing	Status
Water Quality	<p>Disposal of chemical wastes should be carried out in compliance with the Waste Disposal Ordinance. The Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes published under the Waste Disposal Ordinance details the requirements to deal with chemical wastes.</p> <p>General requirements are given as follows:</p> <ul style="list-style-type: none">• Suitable containers should be used to hold the chemical wastes to avoid leakage or spillage during storage, handling and transport.• Chemical waste containers should be suitably labelled, to notify and warn the personnel who are handling the wastes, to avoid accidents.• Storage area should be selected at a safe location on site and adequate space should be allocated to the storage area.	All work sites / during construction	<>

ANNEX C4 - SUMMARY OF MITIGATION MEASURES IMPLEMENTATION SCHEDULE (JANUARY 2014)

Type of Impact	Environmental Protection Measures	Location/ Timing	Status
Water Quality	<p>Construction Works in Close Proximity of Storm Drains or Seafront</p> <p>To minimise the potential water quality impacts from the construction works located at or near any watercourse, the practices outlined below should be adopted where applicable.</p> <ul style="list-style-type: none"> • The use of less or smaller construction plants may be specified to reduce the disturbance to the storm water courses or marine environment. • Temporary storage of materials (e.g. equipment, filling materials, chemicals and fuel) and temporary stockpile of construction materials should be located well away from any water courses during carrying out of the construction works. • Stockpiling of construction materials and dusty materials should be covered and located away from any water courses. • Construction debris and spoil should be covered up and/or disposed of as soon as possible to avoid being washed into the nearby water receivers. • Construction activities, which generate large amount of wastewater, should be carried out in a distance away from the waterfront, where practicable. • Proper shoring may need to be erected in order to prevent soil/mud from slipping into the storm culvert or sea 	All work sites / during construction	√

ANNEX C4 - SUMMARY OF MITIGATION MEASURES IMPLEMENTATION SCHEDULE (JANUARY 2014)

Type of Impact	Environmental Protection Measures	Location/ Timing	Status
<i>Operational Phase</i>			
Water Quality	Dual power supply, standby facilities for the main treatment units and standby equipment parts / accessories should be provided as far as possible at the SCISTW to minimise the chance of emergency discharge.	SCISTW and all the Stage 2 PTWs / Operation Stage	NA. Measures not required until commencement of operational phase
Water Quality	Standby unit(s) and dual (backup) power supply would be provided at all the Stage 2 PTWs to reduce the risk of equipment breakdown at the PTWs.	Stage 2 PTWs / Operation Stage	NA. Measures not required until commencement of operational phase
<i>Construction Phase</i>			
Waste	Reusable steel or concrete panel shutters, fencing and hoarding and signboard should be used as a preferred alternative to items made of wood, to minimise wastage of wood. Attention should be paid to WBTC No. 19/2001 - Metallic Site Hoardings and Signboards to reduce the amount of timber used on construction sites. Metallic alternatives to timber are readily available and should be used rather than new timber. Precast concrete units should be adopted wherever feasible to minimise the use of timber formwork.	All work sites / during the construction period	√
Waste	All waste materials should be segregated into categories covering: <ul style="list-style-type: none"> • excavated materials suitable for reuse on-site; • excavated materials suitable for public filling facilities; • remaining C&D waste for landfill; • chemical waste; and • general refuse for landfill. 	All work sites / during the construction period	√

ANNEX C4 - SUMMARY OF MITIGATION MEASURES IMPLEMENTATION SCHEDULE (JANUARY 2014)

Type of Impact	Environmental Protection Measures	Location/ Timing	Status
Waste	<p>Recommendations to achieve waste reduction include:</p> <ul style="list-style-type: none"> • Sort C&D waste from demolition of existing facilities to recover recyclable portions such as metals; • 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; and • Proper storage and site practices to minimise the potential for damage or contamination of construction materials. 	All work sites / during the construction period	√
Waste	<p>Recommendations for good site practices during construction activities include:-</p> <ul style="list-style-type: none"> • Nomination of an approved person, such as a site manager, to be responsible for good site practices, arrangements for collection and effective disposal to an appropriate facility, of all wastes generated at the site • Training of site personnel in proper waste management and chemical waste handling procedures • Develop and provide toolbox talk for on-site sorting of C&D materials to enhance worker’s awareness in handling, sorting, reuse and recycling of C&D materials. • Provision of sufficient waste disposal points and regular collection of waste • Regular cleaning and maintenance programme for drainage systems, sumps and oil interceptors 	All work sites / during the construction period	√
Waste	Bentonite slurries used in diaphragm wall construction should be reconditioned and reused wherever practicable. The disposal of residual used bentonite slurry should follow the good practice guidelines stated in ProPECC PN 1/94 “Construction Site Drainage”.	All work sites / during the construction period	NA

ANNEX C4 - SUMMARY OF MITIGATION MEASURES IMPLEMENTATION SCHEDULE (JANUARY 2014)

Type of Impact	Environmental Protection Measures	Location/ Timing	Status
Waste	Adequate number of portable toilets at temporary works areas or the PTWs to ensure that sewage from site staff would be properly collected.	All work sites / during the construction period	√
Waste	General refuse should be stored in enclosed bins, skips or compaction units separating from C&D material and disposed of at designated landfill.	All work sites / during the construction period	√
Waste	The recyclable component of the municipal waste generated by the workforce, such as aluminium cans, paper and cleansed plastic containers should be separated from other waste. Provision and collection of recycling bins for different types of recyclable waste should be set up by the Contractor. The Contractor should also be responsible for arranging recycling companies to collect these materials.	All work sites / during the construction period	√
Waste	If chemical wastes are produced at the construction site, the Contractor would be required to register with the EPD as a chemical waste producer and to follow the guidelines stated in the Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes. Good quality containers compatible with the chemical wastes should be used, and incompatible chemicals should be stored separately. Appropriate labels should be securely attached on each chemical waste container indicating the corresponding chemical characteristics of the chemical waste, such as explosive, flammable, oxidising, irritant, toxic, harmful, corrosive, etc. The Contractor shall use a licensed collector to transport and dispose of the chemical wastes, to either the approved Chemical Waste Treatment Centre, or another licensed facility, in accordance with the Waste Disposal (Chemical Waste) (General) Regulation.	All work sites / during the construction period	√

ANNEX C4 - SUMMARY OF MITIGATION MEASURES IMPLEMENTATION SCHEDULE (JANUARY 2014)

Type of Impact	Environmental Protection Measures	Location/ Timing	Status
Waste	Prior to excavation of the marine deposit layer, the deposit should be tested in accordance with the ETWB TC(W) No. 34/2002 and the results should be presented in a Preliminary Sediment Quality Report. The marine deposit should be disposed of at the disposal site designated by the Marine Fill Committee (MFC) or Director of Environmental Protection (DEP) depending on the test results.	All work sites / during the construction period	√
<i>Construction Phase</i>			
Landscape & Visual	<ul style="list-style-type: none"> • Topsoil, where identified, should be stripped and stored for re-use in the construction of the soft landscape works, where practical. • Existing trees to be retained on site should be carefully protected during construction. • Trees unavoidably affected by the works should be transplanted where practical. • Compensatory tree planting should be provided to compensate for felled trees. • Control of night-time lighting. • Erection of decorative screen hoarding compatible with the surrounding setting. 	All the works areas, PTWs and SCISTW / during the construction period	√
<i>Operational Phase</i>			
Landscape & Visual	<ul style="list-style-type: none"> • Aesthetic design of the façade of PTW and associated structures to harmonise with the surrounding settings. • Shrub and Climbing Plants to soften proposed structures / Roof Greening. • Buffer Tree and Shrub Planting to screen proposed associated structures. • Reinstated of disturbed area 	All the works areas, PTWs and SCISTW / during the construction period	NA. Measures not required until commencement of operational phase
<i>Construction Phase</i>			

ANNEX C4 - SUMMARY OF MITIGATION MEASURES IMPLEMENTATION SCHEDULE (JANUARY 2014)

Type of Impact	Environmental Protection Measures	Location/ Timing	Status
Cultural Heritage	The construction vibration control limit (ppv of 25mm/s) shall be strictly followed.	Identified historical buildings/structures as mentioned in Tables 15.8 and 15.9. During blasting for tunnel, shafts, effluent conveyance system and disinfection facilities in the vicinity of the buildings/ structures	NA. Vibration monitoring has not been launched during the reporting period.
	Monitoring of vibration limits shall be conducted and reported as a requirement of EM&A programme	Identified historical buildings/structures as mentioned in Tables 15.8 and 15.9. During blasting for tunnel, shafts, effluent conveyance system and disinfection facilities in the vicinity of the buildings/ structures	NA. Vibration monitoring has not been launched during the reporting period.

Remark:

- √ Compliance of Mitigation Measures
- <> Compliance of Mitigation but need improvement
- x Non-compliance of Mitigation Measures
- Δ Deficiency of Mitigation Measures but rectified by the Contractor
- NA Not Applicable

ANNEX C4 - SUMMARY OF MITIGATION MEASURES IMPLEMENTATION SCHEDULE (FEBRUARY 2014)

Type of Impact	Environmental Protection Measures	Location/ Timing	Status
<i>Construction Phase</i>			
Air Quality	<p>The Air Pollution Control (Construction Dust) Regulation shall be implemented and good site practices shall be incorporated in the contract clauses to minimise construction dust impact. Control measures relevant to this Project are listed below:</p> <ul style="list-style-type: none"> • skip hoist for material transport should be totally enclosed by impervious sheeting; • every vehicle should be washed to remove any dusty materials from its body and wheels before leaving a construction site; • the area where vehicle washing takes place and the section of the road between the washing facilities and the exit point should be paved with concrete, bituminous materials or hardcores; • where a site boundary adjoins a road, streets or other accessible to the public, hoarding of not less than 2.4 m high from ground level should be provided along the entire length except for a site entrance or exit; • every stock of more than 20 bags of cement should be covered entirely by impervious sheeting placed in an area sheltered on the top and the 3 sides; • regular watering, with complete coverage, to reduce dust emission from exposed site surfaces and unpaved roads, particularly during dry weather; • site enclosure and covering of any aggregate or dusty material storage piles to reduce emissions. Where this is not practicable owing to frequent usage, watering should be applied to aggregate fines; • open stock piles should be avoided or covered and prevent placing dusty material storage piles near ASRs if possible; • tarpaulin covering of all dusty vehicle loads transported to, from and between site locations; and • instigation of an environmental monitoring auditing program to monitor the construction process in order to enforce controls and modify method of work if dusty conditions arise. 	All work sites / during construction	√

ANNEX C4 - SUMMARY OF MITIGATION MEASURES IMPLEMENTATION SCHEDULE (FEBRUARY 2014)

Type of Impact	Environmental Protection Measures	Location/ Timing	Status
Air Quality	<p>The following watering measures for specific site would be required to control the fugitive dust impacts:</p> <ul style="list-style-type: none"> • watering twice per day within the worksites at North Point PTW; and • watering 8 times per day within worksites at the SCS works area at North Point. 	All work sites / during construction	√
<i>Operational Phase</i>			
Air Quality	<p>Good housekeeping for SCISTW and PTWs listed below should be followed to ameliorate any odour impact from the plant and these standard practices should be included in the plant operator manual.</p> <ul style="list-style-type: none"> • Screens should be cleaned regularly to remove any accumulated organic debris • Grit and screening transfer systems should be flushed regularly with water to remove organic debris and grit • Grit and screened materials should be transferred to closed containers to minimise odour escape • Scum and grease collection wells and troughs should be emptied and flushed regularly to prevent putrefaction of accumulated organics • Skim and remove floating solids and grease from primary clarifiers regularly • Frequent sludge withdrawal from tanks is necessary to prevent the production of gases • Sludge cake should be transferred to closed containers • Sludge containers should be flushed with water regularly 	All work sites / during construction	NA. Measures not required until commencement of operational phase
Air Quality	Commissioning tests for all deodorisation system should be included in the Design and Construction Contract Document.	All PTW and SCISTW/ during operational phase	NA. Measures not required until commencement of operational phase
<i>Construction Phase</i>			
Noise	Use of quiet PME, movable barriers and acoustic mats	All work sites / during construction	√

ANNEX C4 - SUMMARY OF MITIGATION MEASURES IMPLEMENTATION SCHEDULE (FEBRUARY 2014)

Type of Impact	Environmental Protection Measures	Location/ Timing	Status
Noise	<p>Good Site Practice:</p> <ul style="list-style-type: none"> • only well-maintained plant should be operated on-site and plant should be serviced regularly during the construction program; • silencers or mufflers on construction equipment should be utilised and should be properly maintained during the construction program; • mobile plant, if any, should be sited as far from NSRs as possible; • machines and plant (such as trucks) that may be in intermittent use should be shut down between work periods or should be throttled down to a minimum; • Air compressors should be properly labelled with valid noise emission labels. • plant known to emit noise strongly in one direction should, wherever possible, be orientated so that the noise is directed away from the nearby NSRs; and • material stockpiles and other structures should be effectively utilised, wherever practicable, in screening noise from on-site construction activities; <p>Environmental audit shall be carried out to ensure that appropriate noise control measures would be properly implemented.</p>	All work sites / during construction	√
<i>Construction Phase</i>			
Water Quality	<p>Construction Site Runoff and General Construction Activities</p> <p>The mitigation measures as outlined in the ProPECC PN 1/94 Construction Site Drainage should be adopted where applicable.</p>	All work sites / during construction	√

ANNEX C4 - SUMMARY OF MITIGATION MEASURES IMPLEMENTATION SCHEDULE (FEBRUARY 2014)

Type of Impact	Environmental Protection Measures	Location/ Timing	Status
Water Quality	<p>Effluent Discharge</p> <p>There is a need to apply to EPD for a discharge license for discharge of effluent from the construction site under the WPCO. The discharge quality must meet the requirements specified in the discharge license. If monitoring of the treated effluent quality from the works areas is required during the construction phase of the Project, the monitoring should be carried out in accordance with the WPCO license which is under the ambit of regional office (RO) of EPD. Minimum distances of 100 m should be maintained between the discharge points of construction site effluent and the existing saltwater intakes.</p>	All work sites / during construction	√
Water Quality	<p>Accidental Spillage of Chemicals</p> <p>Contractor must register as a chemical waste producer if chemical wastes would be produced from the construction activities. The Waste Disposal Ordinance (Cap 354) and its subsidiary regulations in particular the Waste Disposal (Chemical Waste) (General) Regulation should be observed and complied with for control of chemical wastes.</p>	All work sites / during construction	√
Water Quality	<p>Any service shop and maintenance facilities should be located on hard standings within a bunded area, and sumps and oil interceptors should be provided. Maintenance of vehicles and equipment involving activities with potential for leakage and spillage should only be undertaken within the areas appropriately equipped to control these discharges.</p>	All work sites / during construction	√

ANNEX C4 - SUMMARY OF MITIGATION MEASURES IMPLEMENTATION SCHEDULE (FEBRUARY 2014)

Type of Impact	Environmental Protection Measures	Location/ Timing	Status
Water Quality	<p>Disposal of chemical wastes should be carried out in compliance with the Waste Disposal Ordinance. The Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes published under the Waste Disposal Ordinance details the requirements to deal with chemical wastes.</p> <p>General requirements are given as follows:</p> <ul style="list-style-type: none"> • Suitable containers should be used to hold the chemical wastes to avoid leakage or spillage during storage, handling and transport. • Chemical waste containers should be suitably labelled, to notify and warn the personnel who are handling the wastes, to avoid accidents. • Storage area should be selected at a safe location on site and adequate space should be allocated to the storage area. 	All work sites / during construction	√

ANNEX C4 - SUMMARY OF MITIGATION MEASURES IMPLEMENTATION SCHEDULE (FEBRUARY 2014)

Type of Impact	Environmental Protection Measures	Location/ Timing	Status
Water Quality	<p>Construction Works in Close Proximity of Storm Drains or Seafront</p> <p>To minimise the potential water quality impacts from the construction works located at or near any watercourse, the practices outlined below should be adopted where applicable.</p> <ul style="list-style-type: none"> • The use of less or smaller construction plants may be specified to reduce the disturbance to the storm water courses or marine environment. • Temporary storage of materials (e.g. equipment, filling materials, chemicals and fuel) and temporary stockpile of construction materials should be located well away from any water courses during carrying out of the construction works. • Stockpiling of construction materials and dusty materials should be covered and located away from any water courses. • Construction debris and spoil should be covered up and/or disposed of as soon as possible to avoid being washed into the nearby water receivers. • Construction activities, which generate large amount of wastewater, should be carried out in a distance away from the waterfront, where practicable. • Proper shoring may need to be erected in order to prevent soil/mud from slipping into the storm culvert or sea 	All work sites / during construction	√

ANNEX C4 - SUMMARY OF MITIGATION MEASURES IMPLEMENTATION SCHEDULE (FEBRUARY 2014)

Type of Impact	Environmental Protection Measures	Location/ Timing	Status
<i>Operational Phase</i>			
Water Quality	Dual power supply, standby facilities for the main treatment units and standby equipment parts / accessories should be provided as far as possible at the SCISTW to minimise the chance of emergency discharge.	SCISTW and all the Stage 2 PTWs / Operation Stage	NA. Measures not required until commencement of operational phase
Water Quality	Standby unit(s) and dual (backup) power supply would be provided at all the Stage 2 PTWs to reduce the risk of equipment breakdown at the PTWs.	Stage 2 PTWs / Operation Stage	NA. Measures not required until commencement of operational phase
<i>Construction Phase</i>			
Waste	Reusable steel or concrete panel shutters, fencing and hoarding and signboard should be used as a preferred alternative to items made of wood, to minimise wastage of wood. Attention should be paid to WBTC No. 19/2001 - Metallic Site Hoardings and Signboards to reduce the amount of timber used on construction sites. Metallic alternatives to timber are readily available and should be used rather than new timber. Precast concrete units should be adopted wherever feasible to minimise the use of timber formwork.	All work sites / during the construction period	√
Waste	All waste materials should be segregated into categories covering: <ul style="list-style-type: none"> • excavated materials suitable for reuse on-site; • excavated materials suitable for public filling facilities; • remaining C&D waste for landfill; • chemical waste; and • general refuse for landfill. 	All work sites / during the construction period	√

ANNEX C4 - SUMMARY OF MITIGATION MEASURES IMPLEMENTATION SCHEDULE (FEBRUARY 2014)

Type of Impact	Environmental Protection Measures	Location/ Timing	Status
Waste	<p>Recommendations to achieve waste reduction include:</p> <ul style="list-style-type: none"> • Sort C&D waste from demolition of existing facilities to recover recyclable portions such as metals; • 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; and • Proper storage and site practices to minimise the potential for damage or contamination of construction materials. 	All work sites / during the construction period	√
Waste	<p>Recommendations for good site practices during construction activities include:-</p> <ul style="list-style-type: none"> • Nomination of an approved person, such as a site manager, to be responsible for good site practices, arrangements for collection and effective disposal to an appropriate facility, of all wastes generated at the site • Training of site personnel in proper waste management and chemical waste handling procedures • Develop and provide toolbox talk for on-site sorting of C&D materials to enhance worker's awareness in handling, sorting, reuse and recycling of C&D materials. • Provision of sufficient waste disposal points and regular collection of waste • Regular cleaning and maintenance programme for drainage systems, sumps and oil interceptors 	All work sites / during the construction period	√
Waste	Bentonite slurries used in diaphragm wall construction should be reconditioned and reused wherever practicable. The disposal of residual used bentonite slurry should follow the good practice guidelines stated in ProPECC PN 1/94 "Construction Site Drainage".	All work sites / during the construction period	NA

ANNEX C4 - SUMMARY OF MITIGATION MEASURES IMPLEMENTATION SCHEDULE (FEBRUARY 2014)

Type of Impact	Environmental Protection Measures	Location/ Timing	Status
Waste	Adequate number of portable toilets at temporary works areas or the PTWs to ensure that sewage from site staff would be properly collected.	All work sites / during the construction period	√
Waste	General refuse should be stored in enclosed bins, skips or compaction units separating from C&D material and disposed of at designated landfill.	All work sites / during the construction period	√
Waste	The recyclable component of the municipal waste generated by the workforce, such as aluminium cans, paper and cleansed plastic containers should be separated from other waste. Provision and collection of recycling bins for different types of recyclable waste should be set up by the Contractor. The Contractor should also be responsible for arranging recycling companies to collect these materials.	All work sites / during the construction period	√
Waste	If chemical wastes are produced at the construction site, the Contractor would be required to register with the EPD as a chemical waste producer and to follow the guidelines stated in the Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes. Good quality containers compatible with the chemical wastes should be used, and incompatible chemicals should be stored separately. Appropriate labels should be securely attached on each chemical waste container indicating the corresponding chemical characteristics of the chemical waste, such as explosive, flammable, oxidising, irritant, toxic, harmful, corrosive, etc. The Contractor shall use a licensed collector to transport and dispose of the chemical wastes, to either the approved Chemical Waste Treatment Centre, or another licensed facility, in accordance with the Waste Disposal (Chemical Waste) (General) Regulation.	All work sites / during the construction period	<>

ANNEX C4 - SUMMARY OF MITIGATION MEASURES IMPLEMENTATION SCHEDULE (FEBRUARY 2014)

Type of Impact	Environmental Protection Measures	Location/ Timing	Status
Waste	Prior to excavation of the marine deposit layer, the deposit should be tested in accordance with the ETWB TC(W) No. 34/2002 and the results should be presented in a Preliminary Sediment Quality Report. The marine deposit should be disposed of at the disposal site designated by the Marine Fill Committee (MFC) or Director of Environmental Protection (DEP) depending on the test results.	All work sites / during the construction period	√
<i>Construction Phase</i>			
Landscape & Visual	<ul style="list-style-type: none"> • Topsoil, where identified, should be stripped and stored for re-use in the construction of the soft landscape works, where practical. • Existing trees to be retained on site should be carefully protected during construction. • Trees unavoidably affected by the works should be transplanted where practical. • Compensatory tree planting should be provided to compensate for felled trees. • Control of night-time lighting. • Erection of decorative screen hoarding compatible with the surrounding setting. 	All the works areas, PTWs and SCISTW / during the construction period	√
<i>Operational Phase</i>			
Landscape & Visual	<ul style="list-style-type: none"> • Aesthetic design of the façade of PTW and associated structures to harmonise with the surrounding settings. • Shrub and Climbing Plants to soften proposed structures / Roof Greening. • Buffer Tree and Shrub Planting to screen proposed associated structures. • Reinstated of disturbed area 	All the works areas, PTWs and SCISTW / during the construction period	NA. Measures not required until commencement of operational phase
<i>Construction Phase</i>			

ANNEX C4 - SUMMARY OF MITIGATION MEASURES IMPLEMENTATION SCHEDULE (FEBRUARY 2014)

Type of Impact	Environmental Protection Measures	Location/ Timing	Status
Cultural Heritage	The construction vibration control limit (ppv of 25mm/s) shall be strictly followed.	Identified historical buildings/structures as mentioned in Tables 15.8 and 15.9. During blasting for tunnel, shafts, effluent conveyance system and disinfection facilities in the vicinity of the buildings/ structures	NA. Vibration monitoring has not been launched during the reporting period.
	Monitoring of vibration limits shall be conducted and reported as a requirement of EM&A programme	Identified historical buildings/structures as mentioned in Tables 15.8 and 15.9. During blasting for tunnel, shafts, effluent conveyance system and disinfection facilities in the vicinity of the buildings/ structures	NA. Vibration monitoring has not been launched during the reporting period.

Remark:

- √ Compliance of Mitigation Measures
- <> Compliance of Mitigation but need improvement
- x Non-compliance of Mitigation Measures
- Δ Deficiency of Mitigation Measures but rectified by the Contractor
- NA Not Applicable

Annex C5 24-hour and 1-hour TSP Monitoring Results

1-hour TSP Monitoring Results

Station AM1

Date	Start Time	Finish Time	Weather	TSP Concentration ($\mu\text{g}/\text{m}^3$)	Action Level ($\mu\text{g}/\text{m}^3$)	Limit Level ($\mu\text{g}/\text{m}^3$)	Site Conditions / Observations / Remarks	Temperature ($^{\circ}\text{C}$)	Wind Speed * (m/s)	Sampler ID	Filter ID
06-Dec-13	11:40	12:40	Sunny	199	340	500	Construction work in progress	22	<5	GMW GS 2310 (S/N 1808)	8816
	12:42	13:42	Sunny	221	340	500	Construction work in progress	22	<5	GMW GS 2310 (S/N 1808)	8901
	13:44	14:44	Sunny	203	340	500	Construction work in progress	22	<5	GMW GS 2310 (S/N 1808)	8903
12-Dec-13	9:42	10:42	Cloudy	252	340	500	Construction work in progress	20	<5	GMW GS 2310 (S/N 1808)	8914
	10:44	11:44	Cloudy	204	340	500	Construction work in progress	20	<5	GMW GS 2310 (S/N 1808)	8907
	11:46	12:46	Cloudy	233	340	500	Construction work in progress	20	<5	GMW GS 2310 (S/N 1808)	8909
18-Dec-13	9:45	10:45	Sunny	183	340	500	Construction work in progress	15	<5	GMW GS 2310 (S/N 1808)	8913
	10:47	11:47	Sunny	183	340	500	Construction work in progress	15	<5	GMW GS 2310 (S/N 1808)	8916
	11:49	12:49	Sunny	192	340	500	Construction work in progress	15	<5	GMW GS 2310 (S/N 1808)	8917
24-Dec-13	13:20	14:20	Sunny	181	340	500	Construction work in progress	17	<5	GMW GS 2310 (S/N 1808)	8922
	14:22	15:22	Sunny	205	340	500	Construction work in progress	17	<5	GMW GS 2310 (S/N 1808)	9008
	15:24	16:24	Sunny	200	340	500	Construction work in progress	17	<5	GMW GS 2310 (S/N 1808)	9010
30-Dec-13	9:32	10:32	Sunny	223	340	500	Construction work in progress	18	<5	GMW GS 2310 (S/N 1808)	9029
	10:34	11:34	Sunny	216	340	500	Construction work in progress	18	<5	GMW GS 2310 (S/N 1808)	9025
	11:36	12:36	Sunny	217	340	500	Construction work in progress	18	<5	GMW GS 2310 (S/N 1808)	9024
				Min.	181						
				Max.	252						
				Average	207						

* Wind Speed data is presented in the Meteorological Data table

Annex C5 24-hour and 1-hour TSP Monitoring Results

1-hour TSP Monitoring Results

Station AM2

Date	Start Time	Finish Time	Weather	TSP Concentration ($\mu\text{g}/\text{m}^3$)	Action Level ($\mu\text{g}/\text{m}^3$)	Limit Level ($\mu\text{g}/\text{m}^3$)	Site Conditions / Observations / Remarks	Temperature ($^{\circ}\text{C}$)	Wind Speed * (m/s)	Sampler ID	Filter ID
06-Dec-13	12:02	13:02	Sunny	196	352	500	Construction work in progress	22	<5	GMW GS-2310 (S/N 0145)	8814
	13:02	14:02	Sunny	230	352	500	Construction work in progress	22	<5	GMW GS-2310 (S/N 0145)	8815
	14:04	15:04	Sunny	198	352	500	Construction work in progress	22	<5	GMW GS-2310 (S/N 0145)	8902
12-Dec-13	10:00	11:00	Cloudy	184	352	500	Construction work in progress	20	<5	GMW GS-2310 (S/N 0145)	8924
	11:02	12:02	Cloudy	203	352	500	Construction work in progress	20	<5	GMW GS-2310 (S/N 0145)	8906
	12:04	13:04	Cloudy	193	352	500	Construction work in progress	20	<5	GMW GS-2310 (S/N 0145)	8908
18-Dec-13	10:00	11:00	Sunny	172	352	500	Construction work in progress	15	<5	GMW GS-2310 (S/N 0145)	8912
	11:02	12:02	Sunny	186	352	500	Construction work in progress	15	<5	GMW GS-2310 (S/N 0145)	8915
	12:04	13:04	Sunny	197	352	500	Construction work in progress	15	<5	GMW GS-2310 (S/N 0145)	8918
24-Dec-13	13:00	14:00	Sunny	199	352	500	Construction work in progress	17	<5	GMW GS-2310 (S/N 0145)	8923
	14:02	15:02	Sunny	186	352	500	Construction work in progress	17	<5	GMW GS-2310 (S/N 0145)	9009
	15:04	16:04	Sunny	186	352	500	Construction work in progress	17	<5	GMW GS-2310 (S/N 0145)	9030
30-Dec-13	9:50	10:50	Sunny	300	352	500	Construction work in progress	18	<5	GMW GS-2310 (S/N 0145)	9012
	10:52	11:52	Sunny	262	352	500	Construction work in progress	18	<5	GMW GS-2310 (S/N 0145)	9011
	11:54	12:54	Sunny	199	352	500	Construction work in progress	18	<5	GMW GS-2310 (S/N 0145)	9026
			Min.	172							
			Max.	300							
			Average	206							

* Wind Speed data is presented in the Meteorological Data table

Annex C5 24-hour and 1-hour TSP Monitoring Results

1-hour TSP Monitoring Results

Station AM1

Date	Start Time	Finish Time	Weather	TSP Concentration ($\mu\text{g}/\text{m}^3$)	Action Level ($\mu\text{g}/\text{m}^3$)	Limit Level ($\mu\text{g}/\text{m}^3$)	Site Conditions / Observations / Remarks	Temperature ($^{\circ}\text{C}$)	Wind Speed * (m/s)	Sampler ID	Filter ID
04-Jan-14	9:00	10:00	Sunny	204	340	500	Construction work in progress	18	<5	GMW GS 2310 (S/N 1808)	9013
	10:02	11:02	Sunny	205	340	500	Construction work in progress	18	<5	GMW GS 2310 (S/N 1808)	9016
	11:04	12:04	Sunny	195	340	500	Construction work in progress	18	<5	GMW GS 2310 (S/N 1808)	9017
10-Jan-14	9:56	10:56	Fine	193	340	500	Construction work in progress	16	<5	GMW GS 2310 (S/N 1808)	9223
	10:58	11:58	Fine	241	340	500	Construction work in progress	16	<5	GMW GS 2310 (S/N 1808)	9023
	16:00	17:00	Fine	203	340	500	Construction work in progress	16	<5	GMW GS 2310 (S/N 1808)	9021
16-Jan-14	10:20	11:20	Sunny	180	340	500	Construction work in progress	17	<5	GMW GS 2310 (S/N 1808)	9202
	11:22	12:22	Sunny	180	340	500	Construction work in progress	17	<5	GMW GS 2310 (S/N 1808)	9204
	12:24	13:24	Sunny	188	340	500	Construction work in progress	17	<5	GMW GS 2310 (S/N 1808)	9205
22-Jan-14	9:35	10:35	Sunny	169	340	500	Construction work in progress	17	<5	GMW GS 2310 (S/N 1808)	9209
	10:37	11:37	Sunny	197	340	500	Construction work in progress	17	<5	GMW GS 2310 (S/N 1808)	9212
	11:39	12:39	Sunny	178	340	500	Construction work in progress	17	<5	GMW GS 2310 (S/N 1808)	9213
28-Jan-14	9:17	10:17	Sunny	164	340	500	Construction work in progress	20	<5	GMW GS 2310 (S/N 1808)	9216
	10:19	11:19	Sunny	169	340	500	Construction work in progress	20	<5	GMW GS 2310 (S/N 1808)	9271
	11:21	12:21	Sunny	180	340	500	Construction work in progress	20	<5	GMW GS 2310 (S/N 1808)	9219
30-Jan-14	9:00	10:00	Sunny	131	340	500	Construction work in progress	20	<5	GMW GS 2310 (S/N 1808)	9250
	10:02	11:02	Sunny	134	340	500	Construction work in progress	20	<5	GMW GS 2310 (S/N 1808)	9269
	11:04	12:04	Sunny	127	340	500	Construction work in progress	20	<5	GMW GS 2310 (S/N 1808)	9265
			Min.	127							
			Max.	241							
			Average	180							

* Wind Speed data is presented in the Meteorological Data table

Annex C5 24-hour and 1-hour TSP Monitoring Results

1-hour TSP Monitoring Results

Station AM2

	Start	Finish	Weather	TSP Concentration	Action Level	Limit Level	Site Conditions /	Temperature	Wind Speed *	Sampler	Filter
Date	Time	Time		($\mu\text{g}/\text{m}^3$)	($\mu\text{g}/\text{m}^3$)	($\mu\text{g}/\text{m}^3$)	Observations / Remarks	($^{\circ}\text{C}$)	(m/s)	ID	ID
04-Jan-14	9:30	10:30	Sunny	177	352	500	Construction work in progress	18	<5	GMW GS-2310 (S/N 0145)	9014
	10:32	11:32	Sunny	205	352	500	Construction work in progress	18	<5	GMW GS-2310 (S/N 0145)	9015
	11:34	12:34	Sunny	217	352	500	Construction work in progress	18	<5	GMW GS-2310 (S/N 0145)	9018
10-Jan-14	9:20	10:20	Fine	203	352	500	Construction work in progress	16	<5	GMW GS-2310 (S/N 0145)	9224
	10:22	11:22	Fine	196	352	500	Construction work in progress	16	<5	GMW GS-2310 (S/N 0145)	9222
	11:24	12:24	Fine	222	352	500	Construction work in progress	16	<5	GMW GS-2310 (S/N 0145)	9221
16-Jan-14	10:40	11:40	Sunny	105	352	500	Construction work in progress	17	<5	GMW GS-2310 (S/N 0145)	9201
	11:42	12:42	Sunny	172	352	500	Construction work in progress	17	<5	GMW GS-2310 (S/N 0145)	9203
	12:44	13:44	Sunny	173	352	500	Construction work in progress	17	<5	GMW GS-2310 (S/N 0145)	9206
22-Jan-14	9:50	10:50	Sunny	191	352	500	Construction work in progress	17	<5	GMW GS-2310 (S/N 0145)	9210
	10:52	11:52	Sunny	182	352	500	Construction work in progress	17	<5	GMW GS-2310 (S/N 0145)	9211
	11:54	12:54	Sunny	179	352	500	Construction work in progress	17	<5	GMW GS-2310 (S/N 0145)	9214
28-Jan-14	9:33	10:33	Sunny	154	352	500	Construction work in progress	20	<5	GMW GS-2310 (S/N 0145)	9217
	10:35	11:35	Sunny	165	352	500	Construction work in progress	20	<5	GMW GS-2310 (S/N 0145)	9218
	11:37	12:37	Sunny	179	352	500	Construction work in progress	20	<5	GMW GS-2310 (S/N 0145)	9251
30-Jan-14	9:20	10:20	Sunny	95	352	500	Construction work in progress	20	<5	GMW GS-2310 (S/N 0145)	9249
	10:22	11:22	Sunny	126	352	500	Construction work in progress	20	<5	GMW GS-2310 (S/N 0145)	9268
	11:24	12:24	Sunny	112	352	500	Construction work in progress	20	<5	GMW GS-2310 (S/N 0145)	9259
			Min.	95							
			Max.	222							
			Average	170							

* Wind Speed data is presented in the Meteorological Data table

Annex C5 24-hour and 1-hour TSP Monitoring Results

1-hour TSP Monitoring Results

Station AM1

Date	Start Time	Finish Time	Weather	TSP Concentration ($\mu\text{g}/\text{m}^3$)	Action Level ($\mu\text{g}/\text{m}^3$)	Limit Level ($\mu\text{g}/\text{m}^3$)	Site Conditions / Observations / Remarks	Temperature ($^{\circ}\text{C}$)	Wind Speed * (m/s)	Sampler ID	Filter ID
05-Feb-14	14:35	15:35	Fine	148	340	500	Construction work in progress	19	<5	GMW GS 2310 (S/N 1808)	9255
	15:37	16:37	Fine	117	340	500	Construction work in progress	19	<5	GMW GS 2310 (S/N 1808)	9257
	16:39	17:39	Fine	122	340	500	Construction work in progress	19	<5	GMW GS 2310 (S/N 1808)	9263
11-Feb-14	9:20	10:20	Cloudy	176	340	500	Construction work in progress	10	<5	GMW GS 2310 (S/N 1808)	9350
	10:22	11:22	Cloudy	161	340	500	Construction work in progress	10	<5	GMW GS 2310 (S/N 1808)	9260
	11:24	12:24	Cloudy	179	340	500	Construction work in progress	10	<5	GMW GS 2310 (S/N 1808)	9262
17-Feb-14	9:55	10:55	Fine	109	340	500	Construction work in progress	21	<5	GMW GS 2310 (S/N 1808)	9352
	10:52	11:52	Fine	158	340	500	Construction work in progress	21	<5	GMW GS 2310 (S/N 1808)	9354
	11:54	12:54	Fine	150	340	500	Construction work in progress	21	<5	GMW GS 2310 (S/N 1808)	9357
22-Feb-14	9:00	10:00	Fine	126	340	500	Construction work in progress	20	<5	GMW GS 2310 (S/N 1808)	9360
	10:02	11:02	Fine	113	340	500	Construction work in progress	20	<5	GMW GS 2310 (S/N 1808)	9363
	11:04	12:04	Fine	135	340	500	Construction work in progress	20	<5	GMW GS 2310 (S/N 1808)	9367
28-Feb-14	11:45	12:45	Cloudy	113	340	500	Construction work in progress	20	<5	GMW GS 2310 (S/N 1808)	9370
	12:47	13:47	Cloudy	108	340	500	Construction work in progress	20	<5	GMW GS 2310 (S/N 1808)	9369
	13:49	14:49	Cloudy	113	340	500	Construction work in progress	20	<5	GMW GS 2310 (S/N 1808)	9823
			Min.	108							
			Max.	179							
			Average	135							

* Wind Speed data is presented in the Meteorological Data table.

Annex C5 24-hour and 1-hour TSP Monitoring Results

1-hour TSP Monitoring Results

Station AM2

	Start	Finish	Weather	TSP Concentration	Action Level	Limit Level	Site Conditions /	Temperature	Wind Speed *	Sampler	Filter
Date	Time	Time		($\mu\text{g}/\text{m}^3$)	($\mu\text{g}/\text{m}^3$)	($\mu\text{g}/\text{m}^3$)	Observations / Remarks	($^{\circ}\text{C}$)	(m/s)	ID	ID
05-Feb-14	13:45	14:45	Fine	148	352	500	Construction work in progress	19	<5	GMW GS-2310 (S/N 0145)	9254
	14:47	15:47	Fine	133	352	500	Construction work in progress	19	<5	GMW GS-2310 (S/N 0145)	9256
	15:49	16:49	Fine	141	352	500	Construction work in progress	19	<5	GMW GS-2310 (S/N 0145)	9264
11-Feb-14	9:40	10:40	Cloudy	172	352	500	Construction work in progress	10	<5	GMW GS-2310 (S/N 0145)	9349
	10:42	11:42	Cloudy	164	352	500	Construction work in progress	10	<5	GMW GS-2310 (S/N 0145)	9261
	11:44	12:44	Cloudy	175	352	500	Construction work in progress	10	<5	GMW GS-2310 (S/N 0145)	9372
17-Feb-14	10:10	11:10	Fine	129	352	500	Construction work in progress	21	<5	GMW GS-2310 (S/N 0145)	9353
	11:12	12:12	Fine	142	352	500	Construction work in progress	21	<5	GMW GS-2310 (S/N 0145)	9355
	12:14	13:14	Fine	159	352	500	Construction work in progress	21	<5	GMW GS-2310 (S/N 0145)	9356
22-Feb-14	9:20	10:20	Fine	121	352	500	Construction work in progress	20	<5	GMW GS-2310 (S/N 0145)	9361
	10:22	11:22	Fine	137	352	500	Construction work in progress	20	<5	GMW GS-2310 (S/N 0145)	9362
	11:24	12:24	Fine	144	352	500	Construction work in progress	20	<5	GMW GS-2310 (S/N 0145)	9366
28-Feb-14	12:00	13:00	Cloudy	160	352	500	Construction work in progress	20	<5	GMW GS-2310 (S/N 0145)	9368
	13:02	14:02	Cloudy	121	352	500	Construction work in progress	20	<5	GMW GS-2310 (S/N 0145)	9824
	14:04	15:04	Cloudy	139	352	500	Construction work in progress	20	<5	GMW GS-2310 (S/N 0145)	9822
			Min.	121							
			Max.	175							
			Average	146							

* Wind Speed data is presented in the Meteorological Data table.

Annex C5 24-hour and 1-hour TSP Monitoring Results

24-hour TSP Monitoring Results

Station AM1

Start		Finish		Weather	Filter Weight (g)		Elapsed Time Reading		Sampling Time (hrs)	Flow Rate (m ³ /min)			TSP Conc. (µg/m ³)	Action Level (µg/m ³)	Limit Level (µg/m ³)	Observations / Remarks	Sampler ID	Filter ID
Date	Time	Date	Time		Initial	Final	Initial	Final		Initial	Final	Average						
06-Dec-13	14:46	07-Dec-13	14:46	Sunny	2.7921	2.9806	16916.03	16940.03	24.00	1.25	1.25	1.25	105	185	260	Construction work in progress	GMW GS 2310 (S/N 1808)	8904
12-Dec-13	12:48	13-Dec-13	12:48	Cloudy	2.7978	2.9898	16943.03	16967.03	24.00	1.25	1.25	1.25	107	185	260	Construction work in progress	GMW GS 2310 (S/N 1808)	8910
18-Dec-13	10:52	19-Dec-13	10:52	Sunny	2.7965	2.9767	16970.03	16994.03	24.00	1.25	1.25	1.25	100	185	260	Construction work in progress	GMW GS 2310 (S/N 1808)	8919
24-Dec-13	17:10	25-Dec-13	17:10	Sunny	2.7829	2.9711	16997.03	17021.03	24.00	1.25	1.25	1.25	105	185	260	Construction work in progress	GMW GS 2310 (S/N 1808)	8921
30-Dec-13	12:40	31-Dec-13	12:40	Sunny	2.7819	2.8902	17024.03	17048.03	24.00	1.25	1.25	1.25	60	185	260	Construction work in progress	GMW GS 2310 (S/N 1808)	9028
													Min.	60				
													Max.	107				
													Average	95				

24-hour TSP Monitoring Results

Station AM2

Start		Finish		Weather	Filter Weight (g)		Elapsed Time Reading		Sampling Time (hrs)	Flow Rate (m ³ /min)			TSP Conc. (µg/m ³)	Action Level (µg/m ³)	Limit Level (µg/m ³)	Observations / Remarks	Sampler ID	Filter ID
Date	Time	Date	Time		Initial	Final	Initial	Final		Initial	Final	Average						
06-Dec-13	15:06	07-Dec-13	15:06	Sunny	2.7869	2.9771	12553.93	12577.93	24.00	1.27	1.27	1.27	104	182	260	Construction work in progress	GMW GS 2310 (S/N 0145)	8905
12-Dec-13	13:06	13-Dec-13	13:06	Cloudy	2.7923	2.9910	12580.93	12604.93	24.00	1.27	1.27	1.27	109	182	260	Construction work in progress	GMW GS 2310 (S/N 0145)	8911
18-Dec-13	13:06	19-Dec-13	13:06	Sunny	2.7878	2.9655	12607.93	12631.93	24.00	1.27	1.27	1.27	97	182	260	Construction work in progress	GMW GS 2310 (S/N 0145)	8920
24-Dec-13	16:06	25-Dec-13	16:06	Sunny	2.7824	2.9529	12634.93	12658.93	24.00	1.27	1.27	1.27	93	182	260	Construction work in progress	GMW GS 2310 (S/N 0145)	9007
30-Dec-13	12:46	31-Dec-13	12:46	Sunny	2.7833	2.9987	12661.93	12685.93	24.00	1.27	1.27	1.27	118	182	260	Construction work in progress	GMW GS 2310 (S/N 0145)	9027
													Min.	93				
													Max.	118				
													Average	104				

Annex C5 24-hour and 1-hour TSP Monitoring Results

24-hour TSP Monitoring Results

Station AM1

Start		Finish		Weather	Filter Weight (g)		Elapsed Time Reading		Sampling Time (hrs)	Flow Rate (m ³ /min)			TSP Conc. (µg/m ³)	Action Level (µg/m ³)	Limit Level (µg/m ³)	Observations / Remarks	Sampler ID	Filter ID			
Date	Time	Date	Time		Initial	Final	Initial	Final		Initial	Final	Average									
04-Jan-14	12:06	05-Jan-14	12:06	Sunny	2.7851	3.0157	17051.03	17075.03	24.00	1.25	1.25	1.25	128	185	260	Construction work in progress	GMW GS 2310 (S/N 1808)	9019			
10-Jan-14	13:40	11-Jan-14	13:40	Fine	2.7948	2.9891	17078.03	17102.03	24.00	1.25	1.25	1.25	108	185	260	Construction work in progress	GMW GS 2310 (S/N 1808)	9022			
16-Jan-14	13:26	17-Jan-14	13:26	Sunny	2.7923	2.9767	17105.03	17129.03	24.00	1.25	1.25	1.25	102	185	260	Construction work in progress	GMW GS 2310 (S/N 1808)	9208			
22-Jan-14	12:42	23-Jan-14	12:42	Sunny	2.7911	2.9808	17132.03	17156.03	24.00	1.22	1.22	1.22	108	185	260	Construction work in progress	GMW GS 2310 (S/N 1808)	9215			
28-Jan-14	12:23	29-Jan-14	12:23	Sunny	2.8015	2.9417	17159.03	17183.03	24.00	1.22	1.22	1.22	80	185	260	construction work in progress	GMW GS 2310 (S/N 1808)	9252			
30-Jan-14	12:06	31-Jan-14	12:06	Sunny	2.7972	2.9388	17186.03	17210.03	24.00	1.22	1.22	1.22	81	185	260	Construction work in progress	GMW GS 2310 (S/N 1808)	9267			
												Min.	80								
												Max.	128								
												Average	105								

24-hour TSP Monitoring Results

Station AM2

Start		Finish		Weather	Filter Weight (g)		Elapsed Time Reading		Sampling Time (hrs)	Flow Rate (m ³ /min)			TSP Conc. (µg/m ³)	Action Level (µg/m ³)	Limit Level (µg/m ³)	Observations / Remarks	Sampler ID	Filter ID			
Date	Time	Date	Time		Initial	Final	Initial	Final		Initial	Final	Average									
04-Jan-14	12:36	05-Jan-14	12:36	Sunny	2.7877	3.0115	12688.93	12712.93	24.00	1.27	1.27	1.27	122	182	260	Construction work in progress	GMW GS 2310 (S/N 0145)	9020			
10-Jan-14	12:26	11-Jan-14	12:26	Fine	2.7950	2.9915	12715.93	12739.93	24.00	1.27	1.27	1.27	107	182	260	Construction work in progress	GMW GS 2310 (S/N 0145)	9220			
16-Jan-14	13:46	17-Jan-14	13:46	Sunny	2.7840	2.9915	12742.93	12766.93	24.00	1.27	1.27	1.27	113	182	260	Construction work in progress	GMW GS 2310 (S/N 0145)	9207			
22-Jan-14	12:56	23-Jan-14	12:56	Sunny	2.7829	2.9681	12769.93	12793.93	24.00	1.27	1.27	1.27	101	182	260	Construction work in progress	GMW GS 2310 (S/N 0145)	9272			
28-Jan-14	12:40	29-Jan-14	12:40	Sunny	2.7829	2.9422	12796.93	12820.93	24.00	1.23	1.23	1.23	90	182	260	Construction work in progress	GMW GS 2310 (S/N 0145)	9270			
30-Jan-14	12:26	31-Jan-14	12:26	Sunny	2.7959	2.9400	12823.93	12847.93	24.00	1.23	1.23	1.23	81	182	260	Construction work in progress	GMW GS 2310 (S/N 0145)	9266			
												Min.	81								
												Max.	122								
												Average	107								

Annex C5 24-hour and 1-hour TSP Monitoring Results

24-hour TSP Monitoring Results

Station AM1

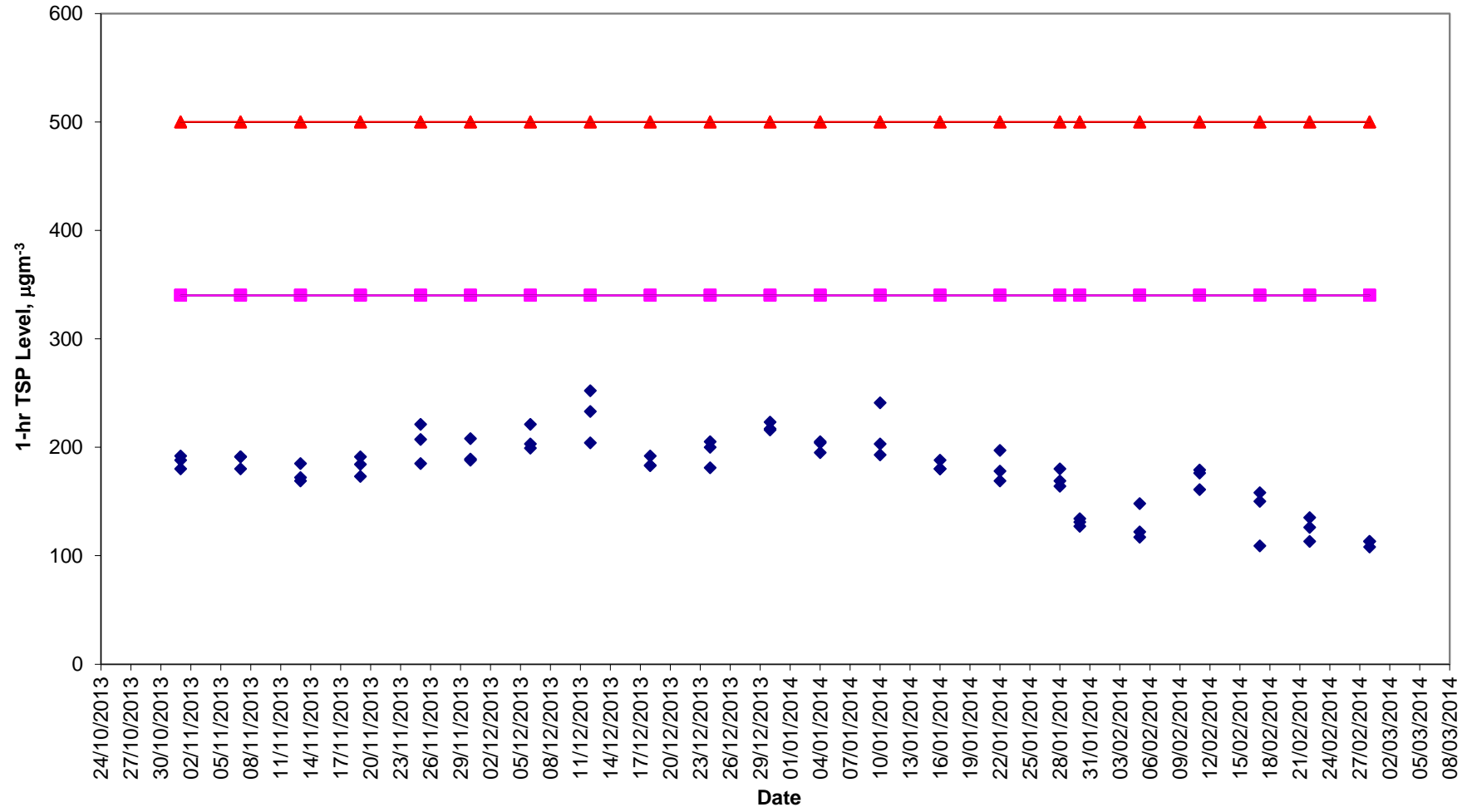
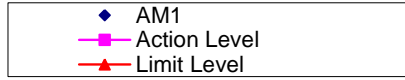
Start		Finish		Weather	Filter Weight (g)		Elapsed Time Reading		Sampling Time (hrs)	Flow Rate (m ³ /min)			TSP Conc. (µg/m ³)	Action Level (µg/m ³)	Limit Level (µg/m ³)	Observations / Remarks	Sampler ID	Filter ID			
Date	Time	Date	Time		Initial	Final	Initial	Final		Initial	Final	Average									
05-Feb-14	17:42	06-Feb-14	17:42	Fine	2.7980	2.9321	17213.03	17237.03	24.00	1.22	1.22	1.22	76	185	260	Construction work in progress	GMW GS 2310 (S/N 1808)	9259			
11-Feb-14	12:26	12-Feb-14	12:26	Cloudy	2.7853	2.9505	17240.03	17264.03	24.00	1.22	1.22	1.22	94	185	260	Construction work in progress	GMW GS 2310 (S/N 1808)	9351			
17-Feb-14	12:56	18-Feb-14	12:56	Fine	2.7851	2.9377	17267.03	17291.03	24.00	1.22	1.22	1.22	87	185	260	Construction work in progress	GMW GS 2310 (S/N 1808)	9358			
22-Feb-14	12:06	23-Feb-14	12:06	Fine	2.7869	2.9441	17294.03	17318.03	24.00	1.22	1.22	1.22	89	185	260	Construction work in progress	GMW GS 2310 (S/N 1808)	9364			
28-Feb-14	14:55	01-Mar-14	14:55	Cloudy	2.8042	2.9500	17321.03	17345.03	24.00	1.22	1.22	1.22	83	185	260	Construction work in progress	GMW GS 2310 (S/N 1808)	9820			
													Min.	76							
													Max.	94							
													Average	86							

24-hour TSP Monitoring Results

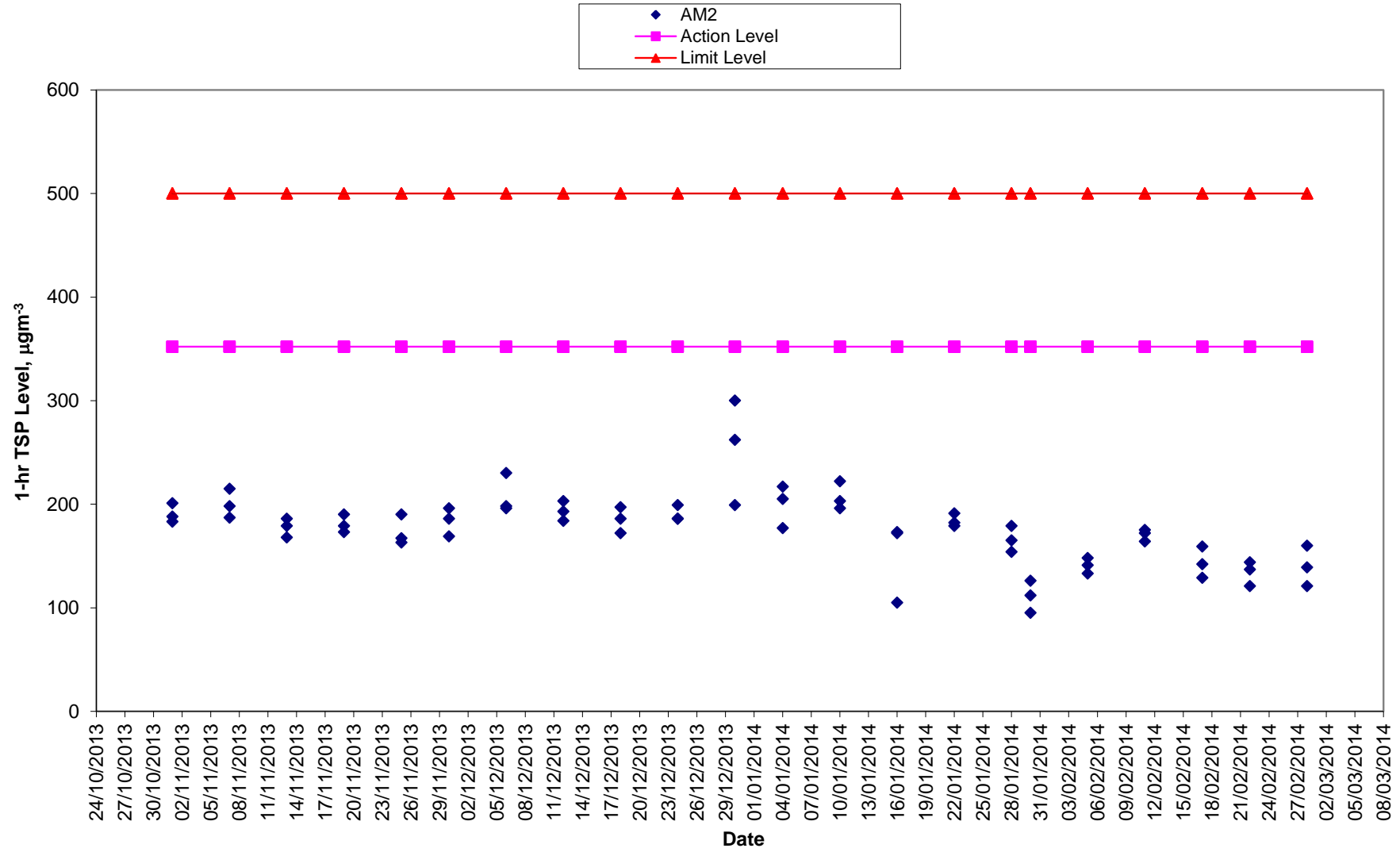
Station AM2

Start		Finish		Weather	Filter Weight (g)		Elapsed Time Reading		Sampling Time (hrs)	Flow Rate (m ³ /min)			TSP Conc. (µg/m ³)	Action Level (µg/m ³)	Limit Level (µg/m ³)	Observations / Remarks	Sampler ID	Filter ID			
Date	Time	Date	Time		Initial	Final	Initial	Final		Initial	Final	Average									
05-Feb-14	10:52	06-Feb-14	10:52	Fine	2.7952	2.9400	12850.93	12874.93	24.00	1.23	1.23	1.23	82	182	260	Construction work in progress	GMW GS 2310 (S/N 0145)	9258			
11-Feb-14	12:46	12-Feb-14	12:46	Cloudy	2.7962	2.9577	12877.93	12901.93	24.00	1.23	1.23	1.23	91	182	260	Construction work in progress	GMW GS 2310 (S/N 0145)	9371			
17-Feb-14	13:20	18-Feb-14	13:20	Fine	2.7869	2.9449	12904.93	12928.93	24.00	1.23	1.23	1.23	89	182	260	Construction work in progress	GMW GS 2310 (S/N 0145)	9359			
22-Feb-14	12:26	23-Feb-14	12:26	Fine	2.7904	2.9388	12931.93	12955.93	24.00	1.23	1.23	1.23	84	182	260	Construction work in progress	GMW GS 2310 (S/N 0145)	9365			
28-Feb-14	11:28	01-Mar-14	11:28	Cloudy	2.8091	2.9595	12958.93	12982.93	24.00	1.23	1.23	1.23	85	182	260	Construction work in progress	GMW GS 2310 (S/N 0145)	9821			
													Min.	82							
													Max.	91							
													Average	86							

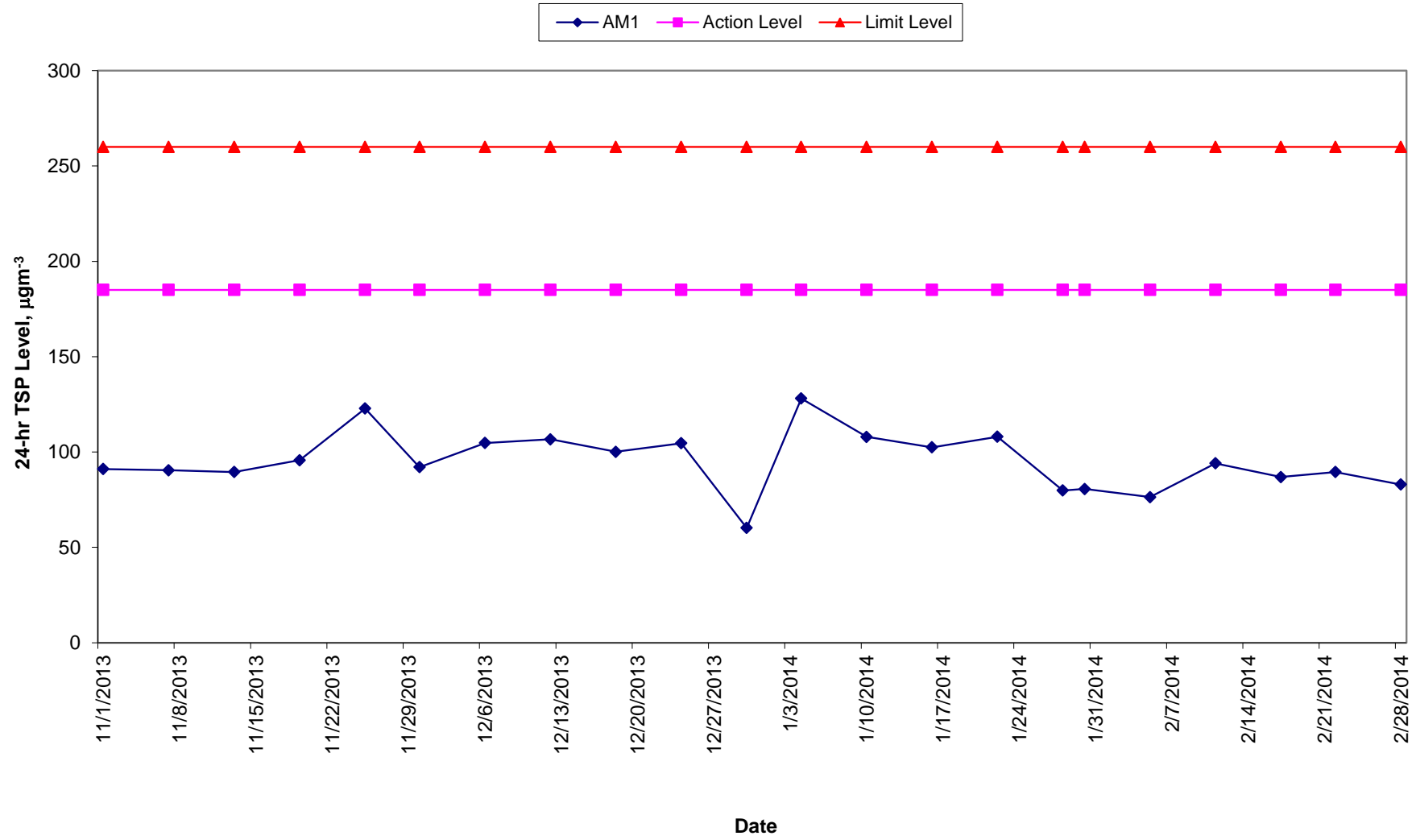
1-hr TSP Levels AM1 (Chan's Creative School)



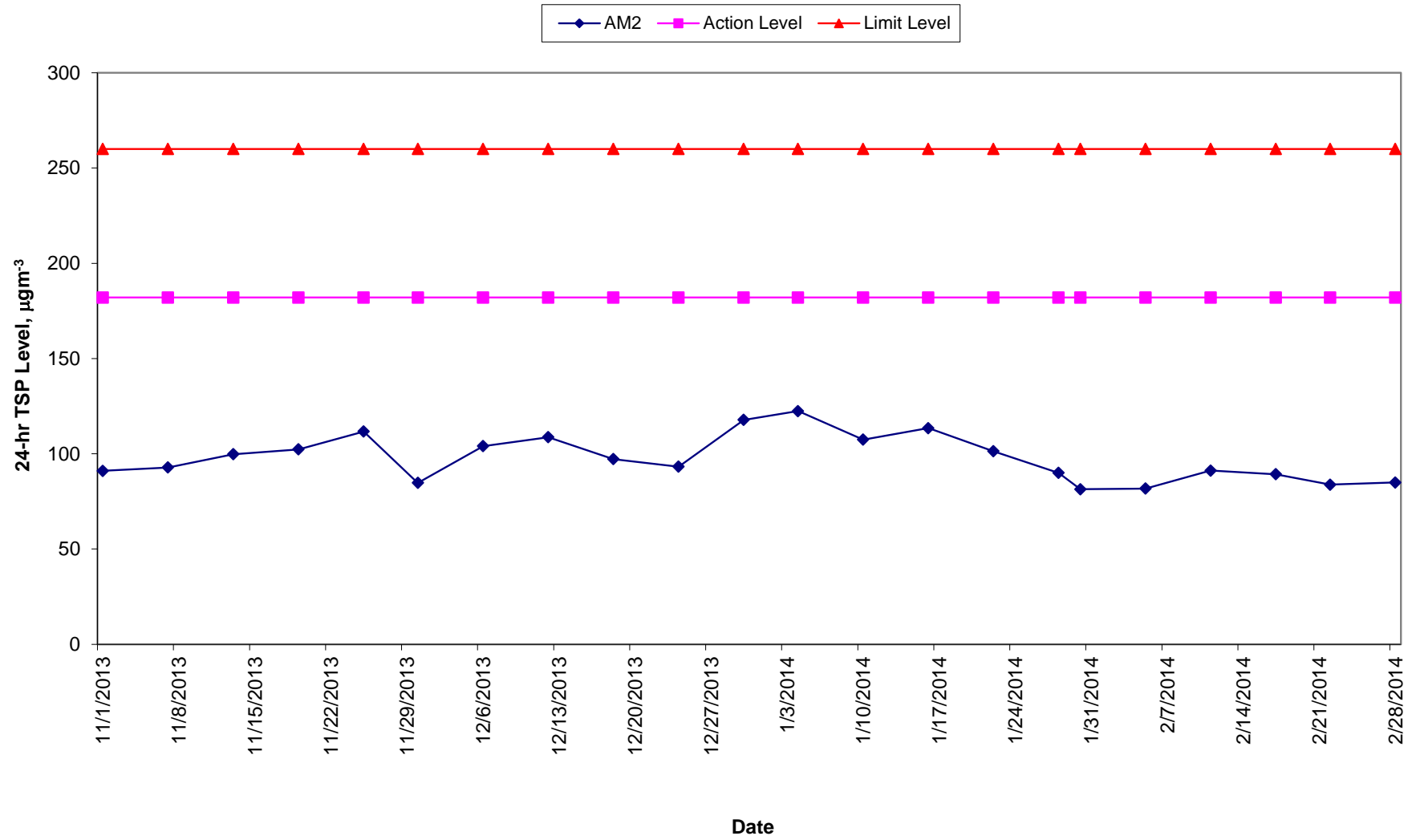
1-hr TSP Levels AM2 (Hong Kong & Island Regional Office, WSD)



24-hr TSP Levels AM1 (Chan's Creative School)



24-hr TSP Levels AM2 (Hong Kong & Island Regional Office, WSD)



Meteorological Data Extracted from the Hong Kong Observatory

King's Park Station						
Date	Weather	Average Air Temperature (°C)	Average Relative Humidity (%)	Total Rainfall (mm)	Average Wind Speed (km/h)	Wind Direction
2013-12-01	Sunny	13	33 - 63	0.0	0 - 12	SE/NE
2013-12-03	Sunny	19	45 - 80	0.0	0 - 14	SE/E
2013-12-06	Sunny	14	33 - 63	0.0	0 - 18	NE
2013-12-08	Sunny	20	64 - 85	Trace	0 - 12	SE
2013-12-09	Sunny	22	50 - 78	0.0	0 - 18	NE
2013-12-10	Cloudy	20	55 - 80	0.0	0 - 20	SE/NE
2013-12-12	Cloudy	18	55 - 72	Trace	4 - 20	SE/E
2013-12-14	Cloudy	19	75 - 99	13.0	0 - 18	SE/E
2013-12-15	Cloudy	17	93 - 99	22.7	0 - 17	E
2013-12-17	Fine	12	88 - 99	27.8	0 - 17	NW/NE
2013-12-18	Sunny	9	58 - 86	0.0	4 - 22	NE/N
2013-12-19	Fine	9	53 - 74	0.0	0 - 16	NE/N
2013-12-20	Sunny	14	54 - 71	0.0	0 - 12	NE
2013-12-22	Sunny	14	52 - 69	0.0	0 - 12	NE/SE
2013-12-24	Cloudy	15	48 - 71	0.0	0 - 12	NE/SE
2013-12-27	Sunny	13	35 - 50	0.0	0 - 23	NE/N
2013-12-29	Sunny	12	39 - 66	0.0	0 - 16	NE/SE
2013-12-30	Sunny	14	34 - 64	0.0	0 - 10	N/W
2013-12-31	Fine	15	35 - 65	0.0	0 - 11	N/W

Tsing Yi Station						
Date	Weather	Average Air Temperature (°C)	Average Relative Humidity (%) *	Total Rainfall (mm)	Average Wind Speed (km/h)	Wind Direction
2013-12-01	Sunny	18	33 - 63	0.0	1 - 12	-
2013-12-03	Sunny	19	45 - 80	0.0	1 - 17	-
2013-12-06	Sunny	18	33 - 63	0.0	1 - 18	-
2013-12-08	Sunny	20	64 - 85	Trace	1 - 18	-
2013-12-09	Sunny	23	50 - 78	0.0	1 - 16	-
2013-12-10	Cloudy	21	55 - 80	0.0	2 - 16	-
2013-12-12	Cloudy	18	55 - 72	Trace	3 - 15	-
2013-12-14	Cloudy	19	75 - 99	13.0	1 - 11	-
2013-12-15	Cloudy	17	93 - 99	22.7	1 - 12	-
2013-12-17	Fine	12	88 - 99	27.8	1 - 22	-
2013-12-18	Sunny	12	58 - 86	0.0	4 - 25	-
2013-12-19	Fine	13	53 - 74	0.0	1 - 18	-
2013-12-20	Sunny	15	54 - 71	0.0	0 - 17	-
2013-12-22	Sunny	14	52 - 69	0.0	1 - 15	-
2013-12-24	Cloudy	15	48 - 71	0.0	1 - 19	-
2013-12-27	Sunny	13	35 - 50	0.0	1 - 22	-
2013-12-29	Sunny	12	39 - 66	0.0	1 - 13	-
2013-12-30	Sunny	13	34 - 64	0.0	1 - 18	-
2013-12-31	Fine	15	35 - 65	0.0	1 - 19	-

Kai Tak Station						
Date	Weather	Average Air Temperature (°C) *	Average Relative Humidity (%) *	Total Rainfall (mm) *	Average Wind Speed (km/h)	Wind Direction
2013-12-01	Sunny	13	33 - 63	0.0	1 - 18	SE/N
2013-12-03	Sunny	19	45 - 80	0.0	1 - 20	SE/NE
2013-12-06	Sunny	13	33 - 63	0.0	1 - 20	SE
2013-12-08	Sunny	19	45 - 80	0.0	1 - 18	SE
2013-12-09	Sunny	14	33 - 63	0.0	1 - 27	NW/E
2013-12-10	Sunny	20	64 - 85	Trace	3 - 18	NE
2013-12-12	Sunny	22	50 - 78	0.0	1 - 19	E
2013-12-14	Cloudy	20	55 - 80	0.0	3 - 25	E
2013-12-15	Cloudy	18	55 - 72	Trace	3 - 24	SE
2013-12-17	Cloudy	19	75 - 99	13.0	1 - 24	NW/N
2013-12-18	Cloudy	17	93 - 99	22.7	3 - 27	NW/N
2013-12-19	Fine	12	88 - 99	27.8	1 - 22	NE/NW
2013-12-20	Sunny	9	58 - 86	0.0	1 - 21	NE
2013-12-22	Fine	9	53 - 74	0.0	2 - 18	NE/E
2013-12-24	Sunny	14	54 - 71	0.0	1 - 15	NW/E

Green Island Station						
Date	Weather	Average Air Temperature (°C) *	Average Relative Humidity (%) *	Total Rainfall (mm) *	Average Wind Speed (km/h)	Wind Direction
2013-12-01	Sunny	13	33 - 63	0.0	-	-
2013-12-03	Sunny	19	45 - 80	0.0	5 - 33	NE
2013-12-06	Sunny	13	33 - 63	0.0	3 - 31	NE/N
2013-12-08	Sunny	19	45 - 80	0.0	11 - 33	NE
2013-12-09	Sunny	14	33 - 63	0.0	3 - 34	NE/N
2013-12-10	Sunny	20	64 - 85	Trace	19 - 43	NE/N
2013-12-12	Sunny	22	50 - 78	0.0	19 - 41	NE
2013-12-14	Cloudy	20	55 - 80	0.0	10 - 43	NE
2013-12-15	Cloudy	18	55 - 72	Trace	9 - 50	NE/N
2013-12-17	Cloudy	19	75 - 99	13.0	15 - 41	N
2013-12-18	Cloudy	17	93 - 99	22.7	26 - 52	NE/N
2013-12-19	Fine	12	88 - 99	27.8	13 - 39	NE/N
2013-12-20	Sunny	9	58 - 86	0.0	1 - 32	NW/N
2013-12-22	Fine	9	53 - 74	0.0	8 - 32	NE/N
2013-12-24	Sunny	14	54 - 71	0.0	6 - 31	NW/N

Meteorological Data Extracted from the Hong Kong Observatory

		King's Park Station				
Date	Weather	Average Air Temperature (°C)	Average Relative Humidity (%)	Total Rainfall (mm)	Average Wind Speed (km/h)	Wind Direction
2014-01-02	Sunny	17	61-88	0.0	0-13	SE
2014-01-04	Sunny	19	40-66	0.0	0-15	NE
2014-01-05	Sunny	17	45-79	0.0	0-18	SE/E
2014-01-07	Cloudy	18	70-90	Trace	0-19	SE
2014-01-08	Cloudy	19	65-95	Trace	0-15	NE/W
2014-01-10	Fine	15	72-81	Trace	6-22	SE
2014-01-12	Sunny	18	60-87	0.0	0-16	SE/NE
2014-01-14	Sunny	14	57-75	0.0	0-16	NE/N
2014-01-16	Sunny	14	57-84	0.0	0-16	SE/E
2014-01-19	Sunny	15	54-81	0.0	0-20	SE/E
2014-01-20	Sunny	17	32-77	0.0	0-19	NE/N
2014-01-21	Fine	15	27-41	0.0	3-24	NE
2014-01-22	Sunny	14	31-64	0.0	0-21	NE/W
2014-01-24	Sunny	16	65-85	0.0	0-19	SE
2014-01-26	Sunny	20	54-84	0.0	0-21	SE/N
2014-01-28	Fine	18	54-86	0.0	0-17	SE
2014-01-30	Sunny	19	63-90	0.0	0-13	SE/W

		Tsing Yi Station				
Date	Weather	Average Air Temperature (°C)	Average Relative Humidity (%) *	Total Rainfall (mm)	Average Wind Speed (km/h)	Wind Direction
2014-01-02	Sunny	17	61-88	0.0	1-12	-
2014-01-04	Sunny	19	40-66	0.0	1-18	-
2014-01-05	Sunny	16	45-79	0.0	1-19	-
2014-01-07	Cloudy	19	70-90	Trace	1-21	-
2014-01-08	Cloudy	20	65-95	Trace	1-28	-
2014-01-10	Fine	15	72-81	Trace	4-18	-
2014-01-12	Sunny	18	60-87	0.0	1-17	-
2014-01-14	Sunny	14	57-75	0.0	2-14	-
2014-01-16	Sunny	15	57-84	0.0	1-22	-
2014-01-19	Sunny	15	54-81	0.0	1-14	-
2014-01-20	Sunny	17	32-77	0.0	1-19	-
2014-01-21	Fine	15	27-41	0.0	2-18	-
2014-01-22	Sunny	14	31-64	0.0	1-12	-
2014-01-24	Sunny	16	65-85	0.0	1-22	-
2014-01-26	Sunny	21	54-84	0.0	0-27	-
2014-01-28	Fine	19	54-86	0.0	1-14	-
2014-01-30	Sunny	19	63-90	0.0	0-8	-

		Kai Tak Station				
Date	Weather	Average Air Temperature (°C) *	Average Relative Humidity (%) *	Total Rainfall (mm) *	Average Wind Speed (km/h)	Wind Direction
2014-01-02	Sunny	17	61-88	0.0	6-28	SE/E
2014-01-04	Sunny	19	40-66	0.0	2-17	NW/NE
2014-01-05	Sunny	17	45-79	0.0	1-24	NE/E
2014-01-07	Cloudy	18	70-90	Trace	4-31	SE/E
2014-01-08	Cloudy	19	65-95	Trace	1-21	SE/NW
2014-01-10	Fine	15	72-81	Trace	11-28	E
2014-01-12	Sunny	18	60-87	0.0	1-17	NW/S/NE
2014-01-14	Sunny	14	57-75	0.0	3-19	NW/NE
2014-01-16	Sunny	14	57-84	0.0	3-24	E
2014-01-19	Sunny	15	54-81	0.0	1-24	NE/E
2014-01-20	Sunny	17	32-77	0.0	1-25	N/S
2014-01-21	Fine	15	27-41	0.0	3-21	N
2014-01-22	Sunny	14	31-64	0.0	1-21	NE/SE
2014-01-24	Sunny	16	65-85	0.0	1-28	E
2014-01-26	Sunny	20	54-84	0.0	1-27	E
2014-01-28	Fine	18	54-86	0.0	1-23	E
2014-01-30	Sunny	19	63-90	0.0	1-16	SE

		Green Island Station				
Date	Weather	Average Air Temperature (°C) *	Average Relative Humidity (%) *	Total Rainfall (mm) *	Average Wind Speed (km/h)	Wind Direction
2014-01-02	Sunny	17	61-88	0.0	0-30	NE
2014-01-04	Sunny	19	40-66	0.0	2-27	NE
2014-01-05	Sunny	17	45-79	0.0	14-41	NE
2014-01-07	Cloudy	18	70-90	Trace	11-53	NE
2014-01-08	Cloudy	19	65-95	Trace	1-37	NE/NW
2014-01-10	Fine	15	72-81	Trace	18-50	NE
2014-01-12	Sunny	18	60-87	0.0	2-40	NE/N
2014-01-14	Sunny	14	57-75	0.0	5-40	NE/N
2014-01-16	Sunny	14	57-84	0.0	11-40	NE
2014-01-19	Sunny	15	54-81	0.0	2-40	NE
2014-01-20	Sunny	17	32-77	0.0	0-40	NE/NW
2014-01-21	Fine	15	27-41	0.0	2-48	NE
2014-01-22	Sunny	14	31-64	0.0	1-36	NE/SW
2014-01-24	Sunny	16	65-85	0.0	17-43	NE
2014-01-26	Sunny	20	54-84	0.0	4-50	NE/N
2014-01-28	Fine	18	54-86	0.0	3-31	NE/SW
2014-01-30	Sunny	19	63-90	0.0	1-15	NE/SW

* King's Park's data
 - Data were not available
 # less than 24 hourly observations per day

Meteorological Data Extracted from the Hong Kong Observatory

King's Park Station						
Date	Weather	Average Air Temperature (°C)	Average Relative Humidity (%)	Total Rainfall (mm)	Average Wind Speed (km/h)	Wind Direction
2014/02/03	Sunny	21	52-83	0.0	0-12	NW
2014/02/04	Cloudy	18	78-86	Trace	0-24	SE
2014/02/05	Fine	17	74-94	Trace	8-25	SE
2014/02/07	Fine	21	76-94	Trace	0-14	N/SE
2014/02/09	Cloudy	14	92-99	13.1	0-23	SE/NE
2014/02/11	Cloudy	9	63-78	13.7	0-14	NE/N
2014/02/16	Fine	14	84-92	Trace	2-22	SE
2014/02/17	Fine	18	84-99	0.0	0-17	SE
2014/02/18	Cloudy	17	75-99	Trace	0-18	W/N
2014/02/21	Fine	14	63-86	0.0	0-27	SE/E
2014/02/22	Fine	15	64-85	0.2	3-24	SE/E
2014/02/23	Fine	17	65-87	0.0	4-22	SE/E
2014/02/25	Fine	19	77-95	0.0	0-21	SE
2014/02/27	Cloudy	20	84-93	Trace	0-19	SE
2014/02/28	Cloudy	18	84-90	Trace	2-20	SE

Tsing Yi Station						
Date	Weather	Average Air Temperature (°C)	Average Relative Humidity (%) *	Total Rainfall (mm)	Average Wind Speed (km/h)	Wind Direction
2014/02/03	Sunny	20	52-83	0.0	0-12	NW/S
2014/02/04	Cloudy	18	78-86	Trace	0-25	SE
2014/02/05	Fine	19	74-94	Trace	2-22	SE
2014/02/07	Fine	21	76-94	Trace	0-15	S/E
2014/02/09	Cloudy	13	92-99	13.1	1-21	N/E
2014/02/11	Cloudy	8	63-78	13.7	1-18	NW
2014/02/16	Fine	16	84-92	Trace	1-25	E
2014/02/17	Fine	20	84-99	0.0	1-23	SE/W
2014/02/18	Cloudy	17	75-99	Trace	1-27	NW
2014/02/21	Fine	13	63-86	0.0	2-24	E
2014/02/22	Fine	16	64-85	0.2	5-22	E
2014/02/23	Fine	18	65-87	0.0	3-22	SE/E
2014/02/25	Fine	20	77-95	0.0	1-22	E
2014/02/27	Cloudy	20	84-93	Trace	0-25	E
2014/02/28	Cloudy	20	84-90	Trace	5-21	E

Kai Tak Station						
Date	Weather	Average Air Temperature (°C) *	Average Relative Humidity (%) *	Total Rainfall (mm) *	Average Wind Speed (km/h)	Wind Direction
2014/02/03	Sunny	21	52-83	0.0	0-14	SE/W
2014/02/04	Cloudy	18	78-86	Trace	1-30	E
2014/02/05	Fine	17	74-94	Trace	10-31	E
2014/02/07	Fine	21	76-94	Trace	1-18	SE/E
2014/02/09	Cloudy	14	92-99	13.1	1-25	SE/NW
2014/02/11	Cloudy	9	63-78	13.7	3-18	NW
2014/02/16	Fine	14	84-92	Trace	9-24	SE
2014/02/17	Fine	18	84-99	0.0	1-18	SE
2014/02/18	Cloudy	17	75-99	Trace	1-28	SE/NW
2014/02/21	Fine	14	63-86	0.0	5-38	E
2014/02/22	Fine	15	64-85	0.2	8-29	E
2014/02/23	Fine	17	65-87	0.0	10-32	E
2014/02/25	Fine	19	77-95	0.0	1-24	SE/E
2014/02/27	Cloudy	20	84-93	Trace	2-27	SE/E
2014/02/28	Cloudy	18	84-90	Trace	6-27	SE

Green Island Station						
Date	Weather	Average Air Temperature (°C) *	Average Relative Humidity (%) *	Total Rainfall (mm) *	Average Wind Speed (km/h)	Wind Direction
2014/02/03	Sunny	21	52-83	0.0	0-28	S/NW
2014/02/04	Cloudy	18	78-86	Trace	1-55	NE
2014/02/05	Fine	17	74-94	Trace	20-50	NE
2014/02/07	Fine	21	76-94	Trace	2-26	S/NE
2014/02/09	Cloudy	14	92-99	13.1	8-50	NE/NW
2014/02/11	Cloudy	9	63-78	13.7	11-36	N
2014/02/16	Fine	14	84-92	Trace	19-50	NE
2014/02/17	Fine	18	84-99	0.0	1-33	NE
2014/02/18	Cloudy	17	75-99	Trace	1-52	NW
2014/02/21	Fine	14	63-86	0.0	23-58	NE
2014/02/22	Fine	15	64-85	0.2	24-62	NE
2014/02/23	Fine	17	65-87	0.0	18-62	NE
2014/02/25	Fine	19	77-95	0.0	13-40	NE
2014/02/27	Cloudy	20	84-93	Trace	2-47	NE
2014/02/28	Cloudy	18	84-90	Trace	21-49	NE

* King's Park's data
 - Data were not available
 # less than 24 hourly observations per day

Annex C6 Noise Monitoring Results

Restricted Hours Noise Monitoring Results ^[1]

Station NM1

Date	Start Time	End Time	Weather	Noise level (dB(A)), 5 min			Major Construction Noise Source(s) Observed	Other Noise Source(s) Observed	Remarks	Temp. (°C)	Wind Speed (m/s)	Noise Meter Model / ID	Calibrator Model / ID
				Leq	L10	L90							
03-Dec-13	21:10	21:15	Fine	67	69	65	Noise from Nearby Playground	Traffic Noise	-	15	1.0	RION- NL31 (S/N 00410224)	RION - NC73 (S/N 10997142)
	21:15	21:20	Fine	66	68	64			-				
	21:20	21:25	Fine	68	71	64			-				
	21:10	21:25	Fine	67	70	64			-				
08-Dec-13	14:55	15:00	Sunny	66	69	65	Noise from Nearby Playground	Traffic Noise	-	14	0.5	RION- NL31 (S/N 00410224)	RION - NC73 (S/N 10997142)
	15:00	15:05	Sunny	68	71	65			-				
	15:05	15:10	Sunny	68	71	65			-				
	14:55	15:10	Sunny	68	70	65			-				
17-Dec-13	19:10	19:15	Fine	69	71	66	-	Traffic Noise	-	12	1.2	RION- NL31 (S/N 00410224)	RION - NC73 (S/N 10997142)
	19:15	19:20	Fine	69	72	67			-				
	14:55	15:00	Fine	68	71	66			-				
	19:10	19:25	Fine	69	71	66			-				
22-Dec-13	11:15	11:20	Sunny	69	71	67	Noise from Nearby Playground	Traffic Noise	-	14	1.0	RION- NL31 (S/N 00410224)	RION - NC73 (S/N 10997142)
	11:20	11:25	Sunny	69	70	67			-				
	11:25	11:30	Sunny	68	70	66			-				
	11:15	11:30	Sunny	69	70	67			-				
31-Dec-13	21:10	21:15	Fine	68	71	65	-	Traffic Noise	-	15	0.5	RION- NL31 (S/N 00410224)	RION - NC73 (S/N 10997142)
	21:15	21:20	Fine	68	71	65			-				
	21:20	21:25	Fine	68	71	65			-				
	21:10	21:25	Fine	68	71	65			-				
			Min.	66									
			Max.	69									

[1] No class was held at the school during all the measurement period.

Annex C6 Noise Monitoring Results

Restricted Hours Noise Monitoring Results ^[1]

Station NM1

Date	Start Time	End Time	Weather	Noise level (dB(A)), 5 min			Major Construction Noise Source(s) Observed	Other Noise Source(s) Observed	Remarks	Temp. (°C)	Wind Speed (m/s)	Noise Meter Model / ID	Calibrator Model / ID
				Leq	L10	L90							
05-Jan-14	16:14	16:19	Sunny	69	71	67		noise from nearby playground	-	17	0.5	RION- NL31 (S/N 00410224)	RION - NC73 (S/N 10997142)
	16:19	16:24	Sunny	69	71	67			-				
	16:24	16:29	Sunny	69	72	67			-				
	16:14	16:29	Sunny	69	71	67			-				
14-Jan-14	21:30	21:35	Fine	69	71	67	Noise from nearby playground	Traffic noise	-	14	1.0	RION- NL31 (S/N 00410224)	RION - NC73 (S/N 10997142)
	21:35	21:40	Fine	68	71	66			-				
	21:40	21:45	Fine	69	71	67			-				
	21:30	21:45	Fine	69	71	67			-				
19-Jan-14	11:16	11:21	Sunny	68	69	63	Noise from nearby playground	Traffic noise	-	15	0.5	RION- NL31 (S/N 00410224)	RION - NC73 (S/N 10997142)
	11:21	11:26	Sunny	68	69	63			-				
	11:26	11:31	Sunny	68	71	64			-				
	11:16	11:31	Sunny	68	70	63			-				
28-Jan-14	19:00	19:05	Fine	67	68	64	Noise from nearby playground	Traffic noise	-	18	0.5	RION- NL31 (S/N 00410224)	RION - NC73 (S/N 10997142)
	19:05	19:10	Fine	68	71	68			-				
	19:10	19:15	Fine	68	70	65			-				
	19:00	19:15	Fine	68	70	64			-				
			Min.	67									
			Max.	69									

[1] No class was held at the school during all the measurement period.

Annex C6 Noise Monitoring Results

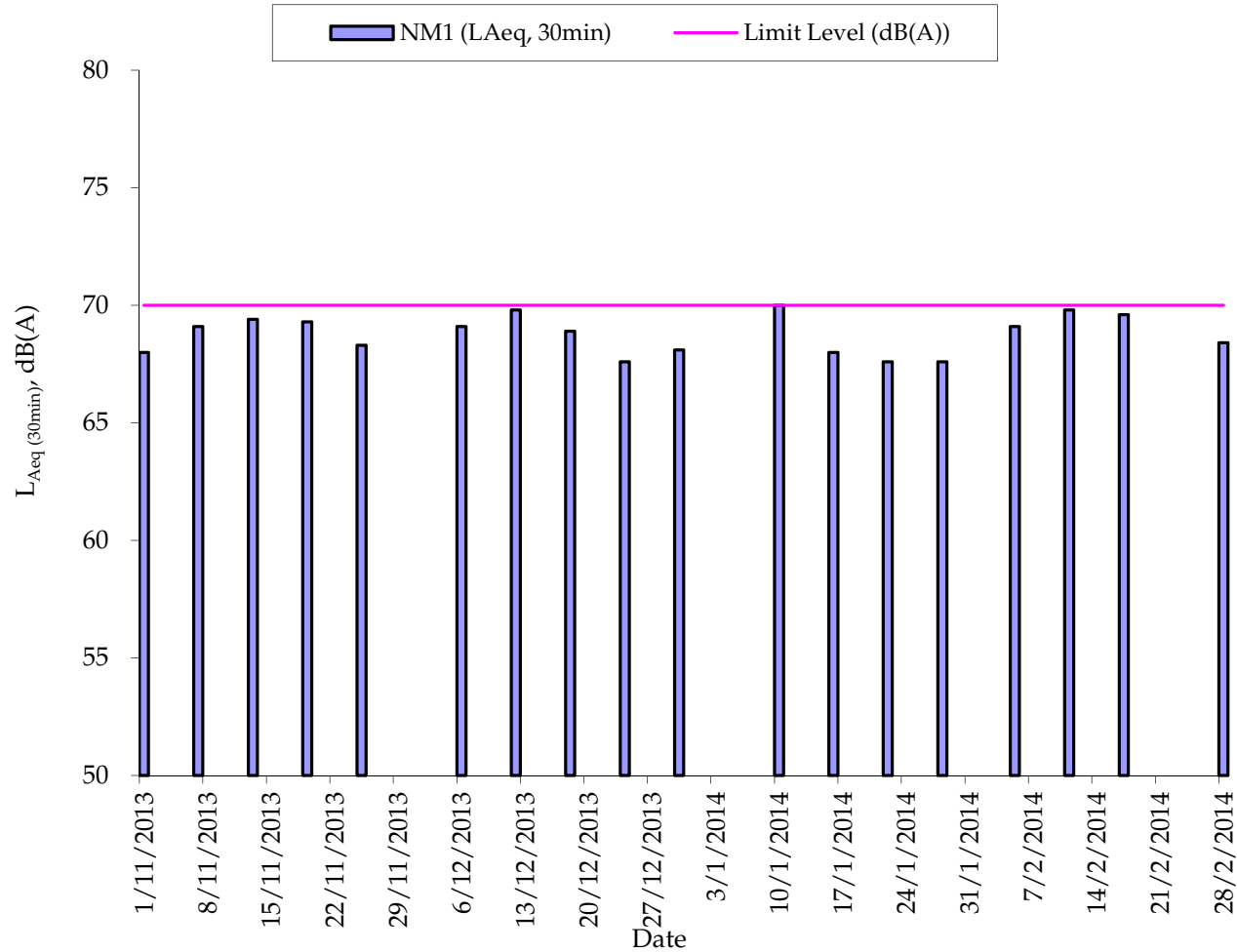
Restricted Hours Noise Monitoring Results ^[1]

Station NM1

Date	Start Time	End Time	Weather	Noise level (dB(A)), 5 min			Major Construction Noise Source(s) Observed	Other Noise Source(s) Observed	Remarks	Temp. (°C)	Wind Speed (m/s)	Noise Meter Model / ID	Calibrator Model / ID
				Leq	L10	L90							
03-Feb-14	15:00	15:05	Sunny	67	68	64	Noise from nearby playground	Traffic noise	-	21	0.5	RION- NL31 (S/N 00410224)	RION - NC73 (S/N 10997142)
	15:05	15:10	Sunny	67	69	64			-				
	15:10	15:15	Sunny	67	69	64			-				
	15:00	15:15	Sunny	67	69	64			-				
11-Feb-14	22:00	22:05	Fine	68	70	65	-	Traffic noise	-	9	0.8	RION- NL31 (S/N 00410224)	RION - NC73 (S/N 10997142)
	22:05	22:10	Fine	68	71	65			-				
	22:10	22:15	Fine	68	71	65			-				
	22:00	22:15	Fine	68	71	65			-				
16-Feb-14	13:15	13:20	Fine	67	69	64	Noise from nearby playground	Traffic noise	-	14	0.5	RION- NL31 (S/N 00410224)	RION - NC73 (S/N 10997142)
	13:20	13:25	Fine	68	70	65			-				
	13:25	13:30	Fine	68	70	64			-				
	13:15	13:30	Fine	68	70	64			-				
25-Feb-14	21:30	21:35	Fine	69	72	66	-	Traffic noise	-	19	0.5	RION- NL31 (S/N 00410224)	RION - NC73 (S/N 10997142)
	21:35	21:40	Fine	68	72	64			-				
	21:40	21:45	Fine	68	71	65			-				
	21:30	21:45	Fine	68	72	65			-				
			Min.	67									
			Max.	69									

[1] No class was held at the school during all the measurement period.

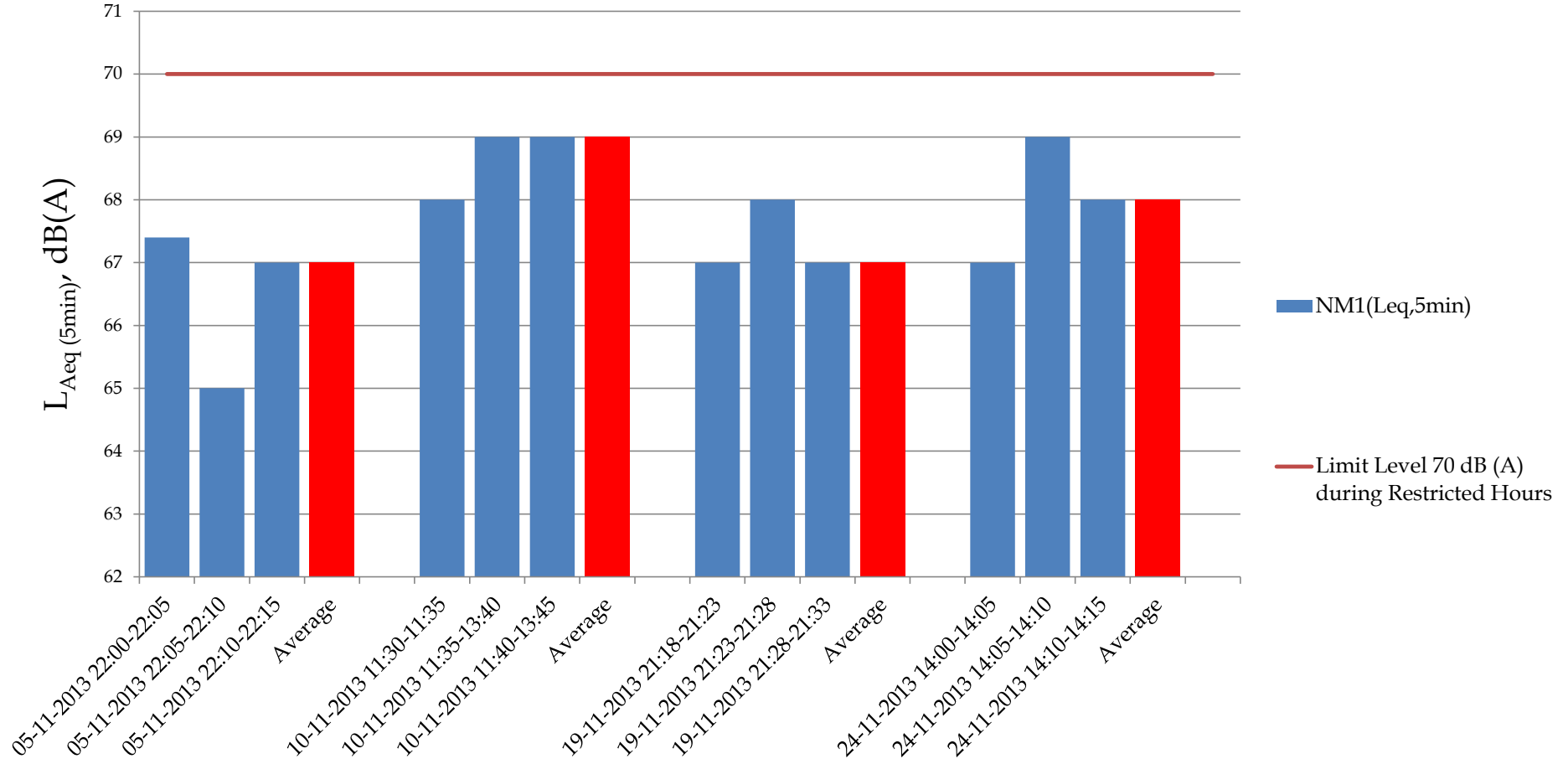
Normal Weekdays Noise Monitoring Results at NM1 ($L_{Aeq, 30min}$)



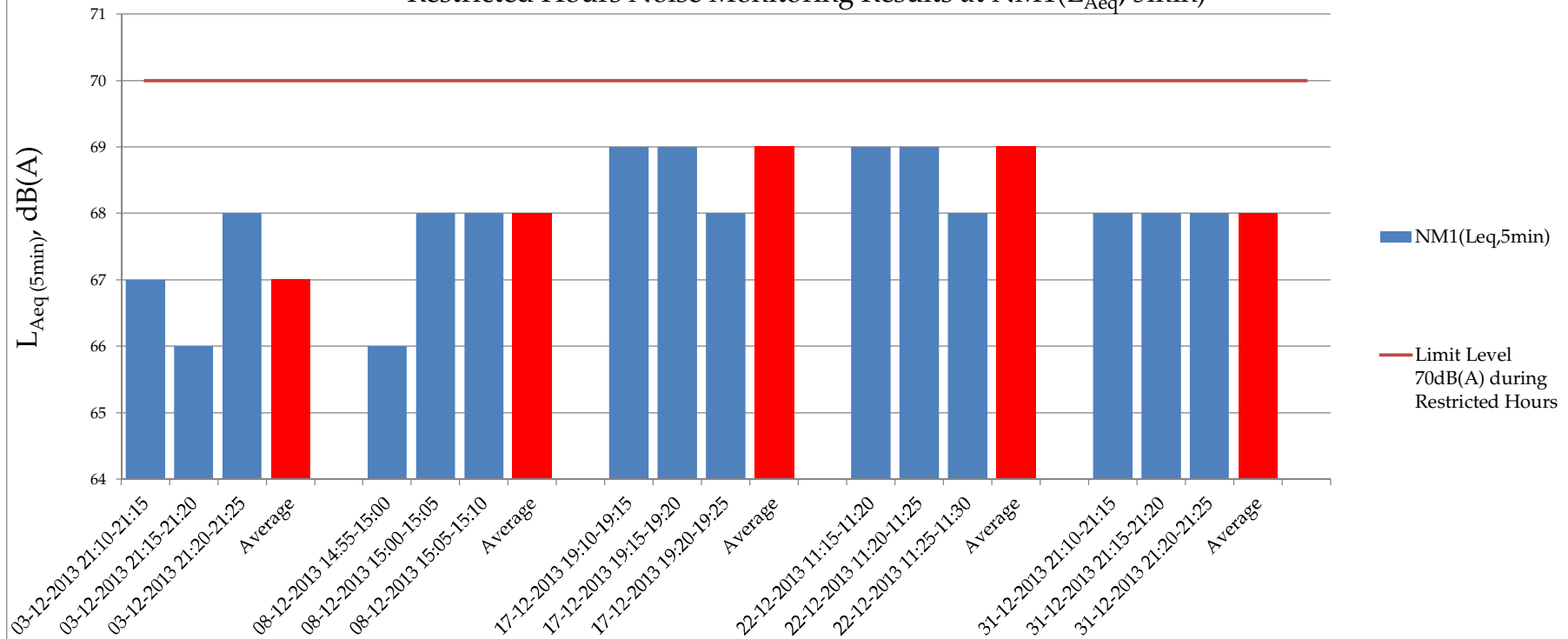
Remark:

- 70 dB(A) was adopted as the Limit Level during school normal teaching period in the reporting period
- 75 dB(A) was adopted as the Limit Level during school holiday in the reporting period

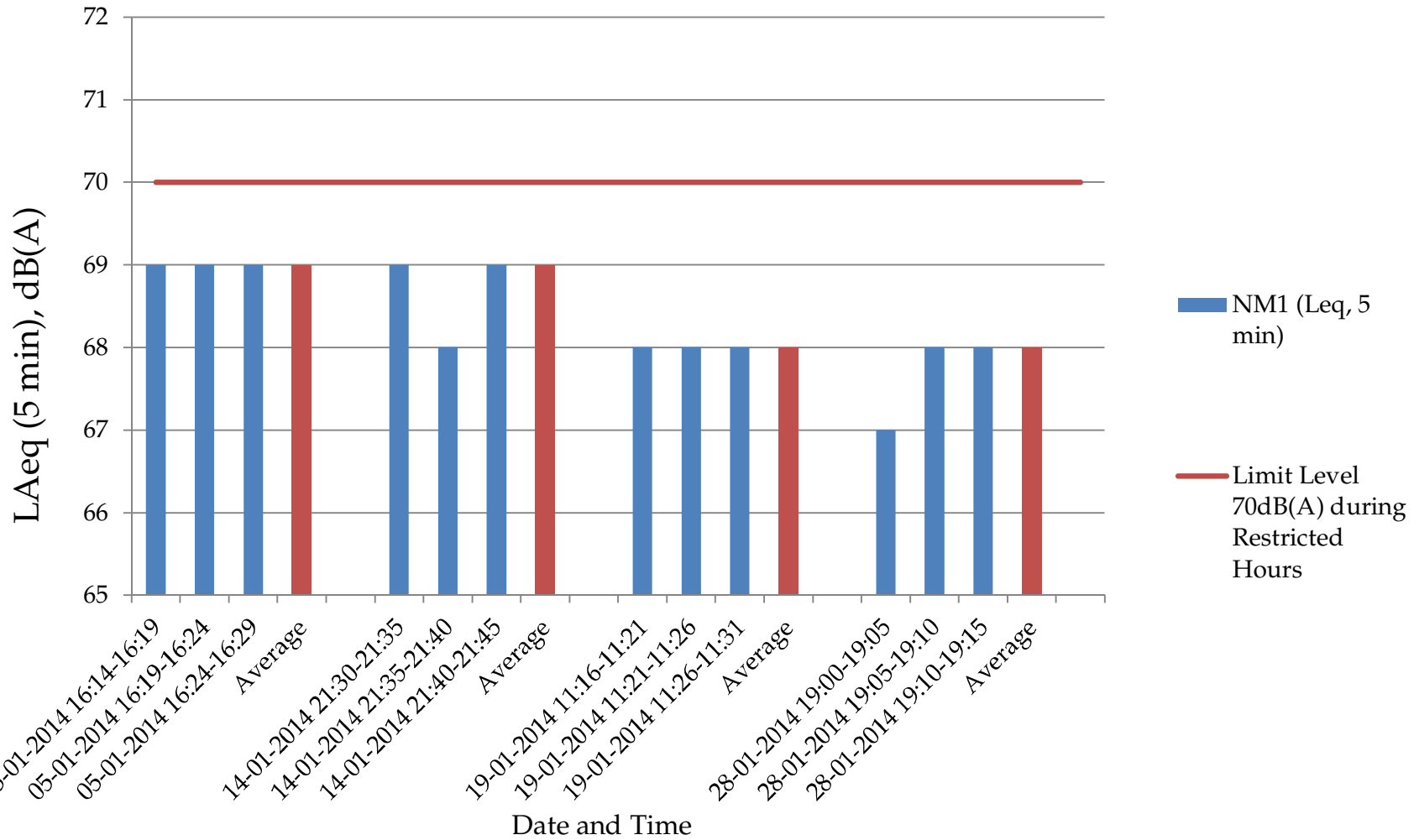
Restricted Hours Noise Monitoring Results at NM1 (L_{Aeq} 5min)



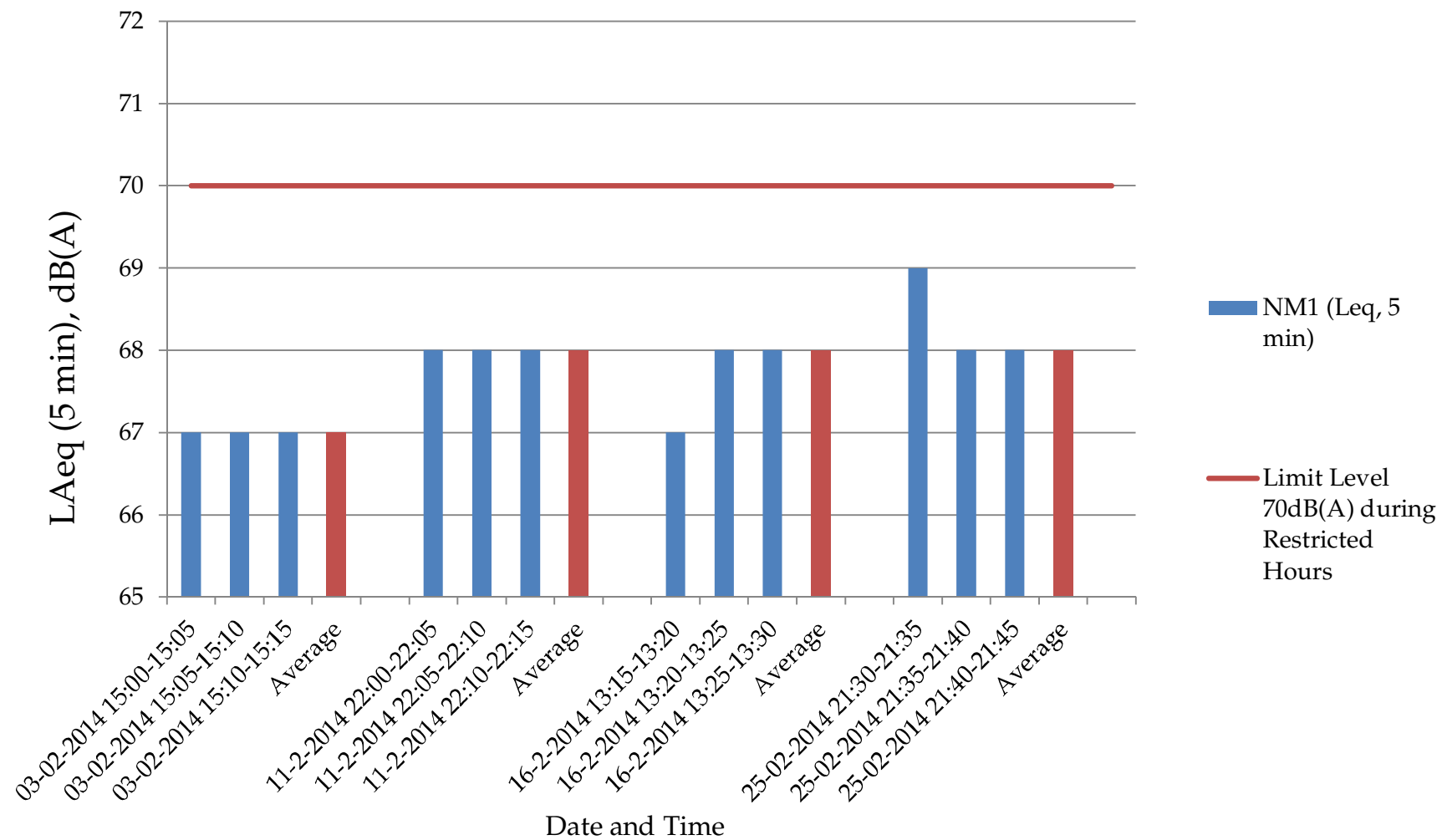
Restricted Hours Noise Monitoring Results at NM1(L_{Aeq}, 5min)



Restricted Noise Monitoring at NM1 (LAeq, 5 min)



Restricted Noise Monitoring at NM1 (LAeq, 5 min)



Annex C7 Cumulative Complaint and Summons/Prosecutions Log

Reporting Month	Number of Complaints in Reporting Month	Number of Summons/Prosecutions in Reporting Month
December 2009	0	0
January 2010	0	0
February 2010	0	0
March 2010	0	0
April 2010	0	0
May 2010	0	0
June 2010	0	0
July 2010	0	0
August 2010	0	0
September 2010	0	0
October 2010	0	0
November 2010	0	0
December 2010	0	0
January 2011	0	0
February 2011	0	0
March 2011	0	0
April 2011	0	0
May 2011	0	0

Annex C7 Cumulative Complaint and Summons/Prosecutions Log

Reporting Month	Number of Complaints in Reporting Month	Number of Summons/Prosecutions in Reporting Month
June 2011	0	0
July 2011	0	0
August 2011	0	0
September 2011	0	0
October 2011	0	0
November 2011	0	0
December 2011	0	0
January 2012	0	0
February 2012	0	0
March 2012	0	0
April 2012	0	0
May 2012	0	0
June 2012	0	0
July 2012	0	0
August 2012	0	0
September 2012	0	0
October 2012	0	0
November 2012	0	0



Annex C7 Cumulative Complaint and Summons/Prosecutions Log

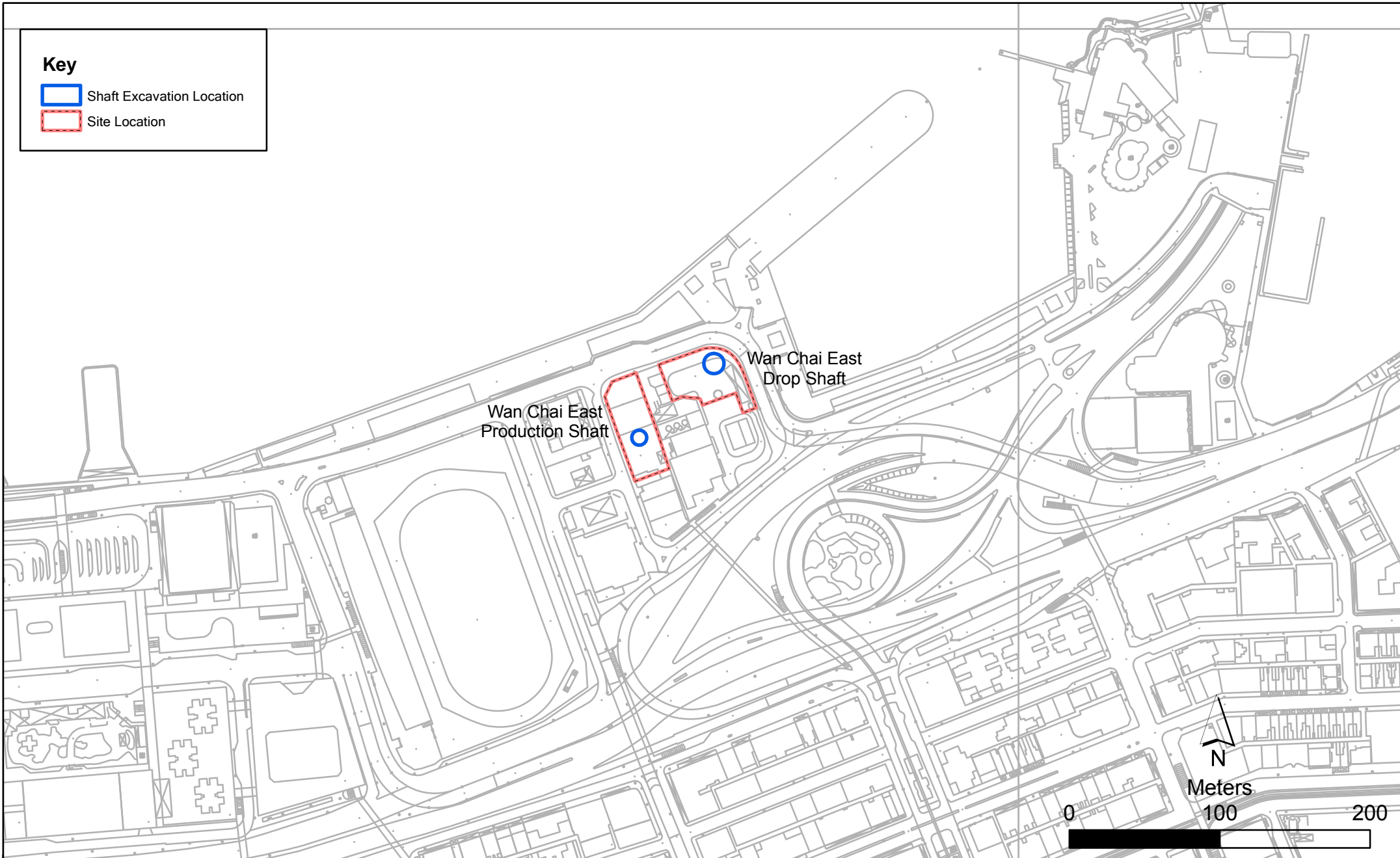
Reporting Month	Number of Complaints in Reporting Month	Number of Summons/Prosecutions in Reporting Month
December 2012	0	0
January 2013	0	0
February 2013	0	0
March 2013	0	0
April 2013	0	0
May 2013	0	0
June 2013	0	0
July 2013	0	0
August 2013	0	0
September 2013	0	0
October 2013	0	0
November 2013	0	0
December 2013	0	0
January 2014	0	0
February 2014	0	0
Overall Total	0	0

Annex D

Wan Chai East Production and Drop Shafts

Key

-  Shaft Excavation Location
-  Site Location



Annex D1





Contract No. DC/2007/23
Harbour Area Treatment Scheme Stage 2A
Construction of Sewage Conveyance System from North Point to Stonecutters Island
Construction Site Locations at Wai Chai East

File: EM&A and proposed station\0104887_Wan Chai.mxd
Date: 29/10/2009

Environmental
Resources
Management



Key

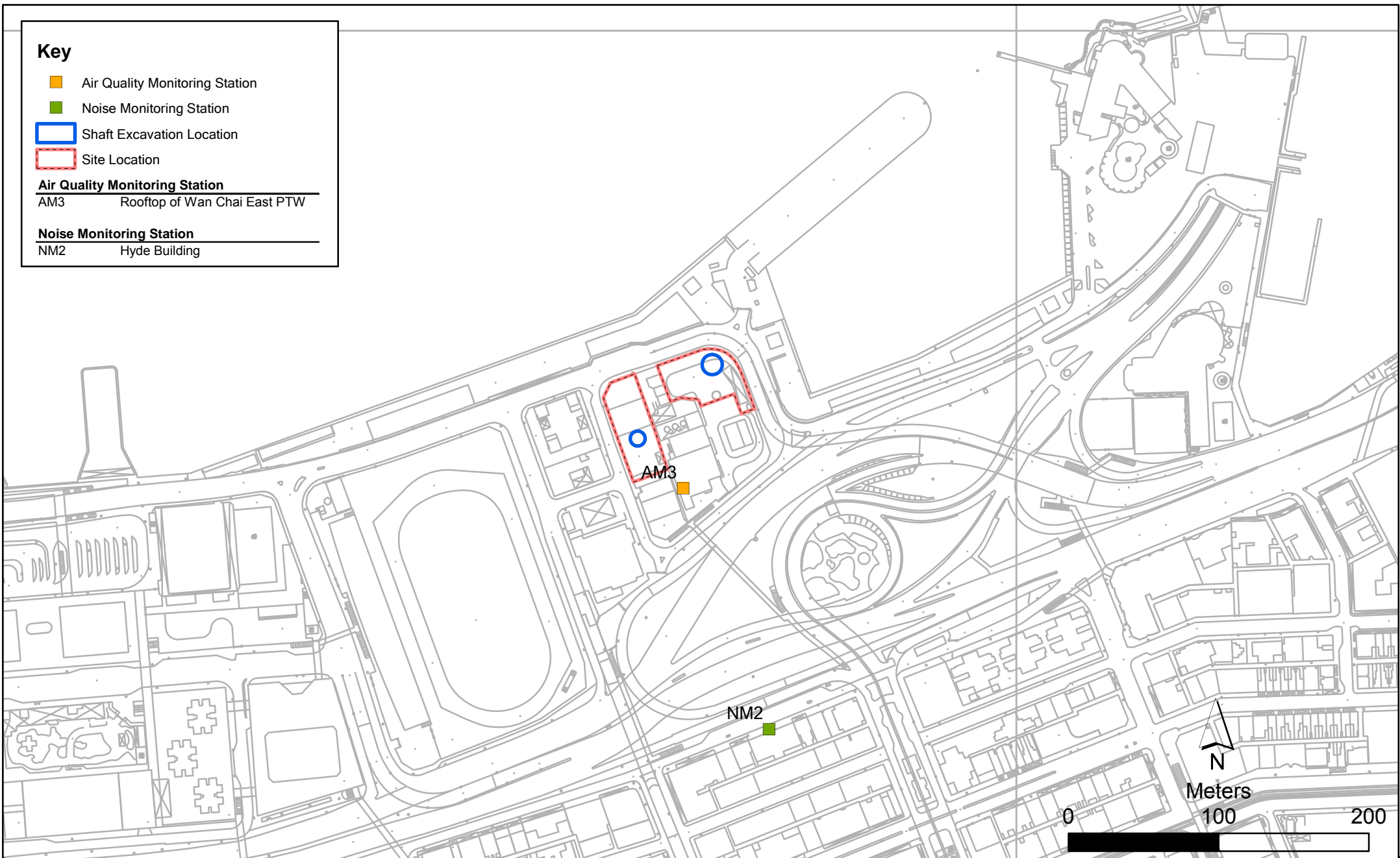
-  Air Quality Monitoring Station
-  Noise Monitoring Station
-  Shaft Excavation Location
-  Site Location

Air Quality Monitoring Station

AM3 Rooftop of Wan Chai East PTW

Noise Monitoring Station

NM2 Hyde Building



Annex D3 Not Used

ANNEX D4 - SUMMARY OF MITIGATION MEASURES IMPLEMENTATION SCHEDULE (DECEMBER 2013)

Type of Impact	Environmental Protection Measures	Location/ Timing	Status
<i>Construction Phase</i>			
Air Quality	<p>The Air Pollution Control (Construction Dust) Regulation shall be implemented and good site practices shall be incorporated in the contract clauses to minimise construction dust impact. Control measures relevant to this Project are listed below:</p> <ul style="list-style-type: none"> • skip hoist for material transport should be totally enclosed by impervious sheeting; • every vehicle should be washed to remove any dusty materials from its body and wheels before leaving a construction site; • the area where vehicle washing takes place and the section of the road between the washing facilities and the exit point should be paved with concrete, bituminous materials or hardcores; • where a site boundary adjoins a road, streets or other accessible to the public, hoarding of not less than 2.4 m high from ground level should be provided along the entire length except for a site entrance or exit; • every stock of more than 20 bags of cement should be covered entirely by impervious sheeting placed in an area sheltered on the top and the 3 sides; • regular watering, with complete coverage, to reduce dust emission from exposed site surfaces and unpaved roads, particularly during dry weather; • site enclosure and covering of any aggregate or dusty material storage piles to reduce emissions. Where this is not practicable owing to frequent usage, watering should be applied to aggregate fines; • open stock piles should be avoided or covered and prevent placing dusty material storage piles near ASRs if possible; • tarpaulin covering of all dusty vehicle loads transported to, from and between site locations; and • instigation of an environmental monitoring auditing program to monitor the construction process in order to enforce controls and modify method of work if dusty conditions arise. 	All work sites / during construction	√

ANNEX D4 - SUMMARY OF MITIGATION MEASURES IMPLEMENTATION SCHEDULE (DECEMBER 2013)

Type of Impact	Environmental Protection Measures	Location/ Timing	Status
Air Quality	<p>The following watering measures for specific site would be required to control the fugitive dust impacts:</p> <ul style="list-style-type: none"> • watering twice per day within the worksites at Wan Chai East PTW; • the barging points should be continuous watering throughout the whole unloading process; and • watering 8 times per day within worksites at the SCS works area at Wan Chai East. 	All work sites / during construction	√
<i>Operational Phase</i>			
Air Quality	<p>Good housekeeping for SCISTW and PTWs listed below should be followed to ameliorate any odour impact from the plant and these standard practices should be included in the plant operator manual.</p> <ul style="list-style-type: none"> • Screens should be cleaned regularly to remove any accumulated organic debris • Grit and screening transfer systems should be flushed regularly with water to remove organic debris and grit • Grit and screened materials should be transferred to closed containers to minimise odour escape • Scum and grease collection wells and troughs should be emptied and flushed regularly to prevent putrefaction of accumulated organics • Skim and remove floating solids and grease from primary clarifiers regularly • Frequent sludge withdrawal from tanks is necessary to prevent the production of gases • Sludge cake should be transferred to closed containers • Sludge containers should be flushed with water regularly 	All work sites / during construction	NA. Measures not required until commencement of operational phase
Air Quality	Commissioning tests for all deodorisation system should be included in the Design and Construction Contract Document.	All PTW and SCISTW/ during operational phase	NA. Measures not required until commencement of operational phase
<i>Construction Phase</i>			
Noise	Use of quiet PME, movable barriers and acoustic mats	All work sites / during construction	√

ANNEX D4 - SUMMARY OF MITIGATION MEASURES IMPLEMENTATION SCHEDULE (DECEMBER 2013)

Type of Impact	Environmental Protection Measures	Location/ Timing	Status
Noise	<p>Good Site Practice:</p> <ul style="list-style-type: none"> • only well-maintained plant should be operated on-site and plant should be serviced regularly during the construction program; • silencers or mufflers on construction equipment should be utilised and should be properly maintained during the construction program; • mobile plant, if any, should be sited as far from NSRs as possible; • machines and plant (such as trucks) that may be in intermittent use should be shut down between work periods or should be throttled down to a minimum; • plant known to emit noise strongly in one direction should, wherever possible, be orientated so that the noise is directed away from the nearby NSRs; and • material stockpiles and other structures should be effectively utilised, wherever practicable, in screening noise from on-site construction activities; <p>Environmental audit shall be carried out to ensure that appropriate noise control measures would be properly implemented.</p>	All work sites / during construction	√
<i>Construction Phase</i>			
Water Quality	<p>Construction Site Runoff and General Construction Activities</p> <p>The mitigation measures as outlined in the ProPECC PN 1/94 Construction Site Drainage should be adopted where applicable.</p>	All work sites / during construction	√

ANNEX D4 - SUMMARY OF MITIGATION MEASURES IMPLEMENTATION SCHEDULE (DECEMBER 2013)

Type of Impact	Environmental Protection Measures	Location/ Timing	Status
Water Quality	<p>Effluent Discharge</p> <p>There is a need to apply to EPD for a discharge license for discharge of effluent from the construction site under the WPCO. The discharge quality must meet the requirements specified in the discharge license. If monitoring of the treated effluent quality from the works areas is required during the construction phase of the Project, the monitoring should be carried out in accordance with the WPCO license which is under the ambit of regional office (RO) of EPD. Minimum distances of 100 m should be maintained between the discharge points of construction site effluent and the existing saltwater intakes.</p>	All work sites / during construction	√
Water Quality	<p>Accidental Spillage of Chemicals</p> <p>Contractor must register as a chemical waste producer if chemical wastes would be produced from the construction activities. The Waste Disposal Ordinance (Cap 354) and its subsidiary regulations in particular the Waste Disposal (Chemical Waste) (General) Regulation should be observed and complied with for control of chemical wastes.</p>	All work sites / during construction	√
Water Quality	<p>Any service shop and maintenance facilities should be located on hard standings within a bunded area, and sumps and oil interceptors should be provided. Maintenance of vehicles and equipment involving activities with potential for leakage and spillage should only be undertaken within the areas appropriately equipped to control these discharges.</p>	All work sites / during construction	<>

ANNEX D4 - SUMMARY OF MITIGATION MEASURES IMPLEMENTATION SCHEDULE (DECEMBER 2013)

Type of Impact	Environmental Protection Measures	Location/ Timing	Status
Water Quality	<p>Disposal of chemical wastes should be carried out in compliance with the Waste Disposal Ordinance. The Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes published under the Waste Disposal Ordinance details the requirements to deal with chemical wastes.</p> <p>General requirements are given as follows:</p> <ul style="list-style-type: none">• Suitable containers should be used to hold the chemical wastes to avoid leakage or spillage during storage, handling and transport.• Chemical waste containers should be suitably labelled, to notify and warn the personnel who are handling the wastes, to avoid accidents.• Storage area should be selected at a safe location on site and adequate space should be allocated to the storage area.	All work sites / during construction	√

ANNEX D4 - SUMMARY OF MITIGATION MEASURES IMPLEMENTATION SCHEDULE (DECEMBER 2013)

Type of Impact	Environmental Protection Measures	Location/ Timing	Status
Water Quality	<p>Construction Works in Close Proximity of Storm Drains or Seafront</p> <p>To minimise the potential water quality impacts from the construction works located at or near any watercourse, the practices outlined below should be adopted where applicable.</p> <ul style="list-style-type: none"> • The use of less or smaller construction plants may be specified to reduce the disturbance to the storm water courses or marine environment. • Temporary storage of materials (e.g. equipment, filling materials, chemicals and fuel) and temporary stockpile of construction materials should be located well away from any water courses during carrying out of the construction works. • Stockpiling of construction materials and dusty materials should be covered and located away from any water courses. • Construction debris and spoil should be covered up and/or disposed of as soon as possible to avoid being washed into the nearby water receivers. • Construction activities, which generate large amount of wastewater, should be carried out in a distance away from the waterfront, where practicable. • Proper shoring may need to be erected in order to prevent soil/mud from slipping into the storm culvert or sea 	All work sites / during construction	√

ANNEX D4 - SUMMARY OF MITIGATION MEASURES IMPLEMENTATION SCHEDULE (DECEMBER 2013)

Type of Impact	Environmental Protection Measures	Location/ Timing	Status
<i>Operational Phase</i>			
Water Quality	Dual power supply, standby facilities for the main treatment units and standby equipment parts / accessories should be provided as far as possible at the SCISTW to minimise the chance of emergency discharge.	SCISTW and all the Stage 2 PTWs / Operation Stage	NA. Measures not required until commencement of operational phase
Water Quality	Standby unit(s) and dual (backup) power supply would be provided at all the Stage 2 PTWs to reduce the risk of equipment breakdown at the PTWs.	Stage 2 PTWs / Operation Stage	NA. Measures not required until commencement of operational phase
<i>Construction Phase</i>			
Waste	Reusable steel or concrete panel shutters, fencing and hoarding and signboard should be used as a preferred alternative to items made of wood, to minimise wastage of wood. Attention should be paid to WBTC No. 19/2001 - Metallic Site Hoardings and Signboards to reduce the amount of timber used on construction sites. Metallic alternatives to timber are readily available and should be used rather than new timber. Precast concrete units should be adopted wherever feasible to minimise the use of timber formwork.	All work sites / during the construction period	√
Waste	All waste materials should be segregated into categories covering: <ul style="list-style-type: none"> • excavated materials suitable for reuse on-site; • excavated materials suitable for public filling facilities; • remaining C&D waste for landfill; • chemical waste; and • general refuse for landfill. 	All work sites / during the construction period	√

ANNEX D4 - SUMMARY OF MITIGATION MEASURES IMPLEMENTATION SCHEDULE (DECEMBER 2013)

Type of Impact	Environmental Protection Measures	Location/ Timing	Status
Waste	<p>Recommendations to achieve waste reduction include:</p> <ul style="list-style-type: none"> Sort C&D waste from demolition of existing facilities to recover recyclable portions such as metals; 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; and Proper storage and site practices to minimise the potential for damage or contamination of construction materials. 	All work sites / during the construction period	√
Waste	<p>Recommendations for good site practices during construction activities include:-</p> <ul style="list-style-type: none"> Nomination of an approved person, such as a site manager, to be responsible for good site practices, arrangements for collection and effective disposal to an appropriate facility, of all wastes generated at the site Training of site personnel in proper waste management and chemical waste handling procedures Develop and provide toolbox talk for on-site sorting of C&D materials to enhance worker's awareness in handling, sorting, reuse and recycling of C&D materials. Provision of sufficient waste disposal points and regular collection of waste Regular cleaning and maintenance programme for drainage systems, sumps and oil interceptors 	All work sites / during the construction period	<>
Waste	Bentonite slurries used in diaphragm wall construction should be reconditioned and reused wherever practicable. The disposal of residual used bentonite slurry should follow the good practice guidelines stated in ProPECC PN 1/94 "Construction Site Drainage".	All work sites / during the construction period	NA

ANNEX D4 - SUMMARY OF MITIGATION MEASURES IMPLEMENTATION SCHEDULE (DECEMBER 2013)

Type of Impact	Environmental Protection Measures	Location/ Timing	Status
Waste	Adequate number of portable toilets at temporary works areas or the PTWs to ensure that sewage from site staff would be properly collected.	All work sites / during the construction period	√
Waste	General refuse should be stored in enclosed bins, skips or compaction units separating from C&D material and disposed of at designated landfill.	All work sites / during the construction period	√
Waste	The recyclable component of the municipal waste generated by the workforce, such as aluminium cans, paper and cleansed plastic containers should be separated from other waste. Provision and collection of recycling bins for different types of recyclable waste should be set up by the Contractor. The Contractor should also be responsible for arranging recycling companies to collect these materials.	All work sites / during the construction period	√
Waste	If chemical wastes are produced at the construction site, the Contractor would be required to register with the EPD as a chemical waste producer and to follow the guidelines stated in the Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes. Good quality containers compatible with the chemical wastes should be used, and incompatible chemicals should be stored separately. Appropriate labels should be securely attached on each chemical waste container indicating the corresponding chemical characteristics of the chemical waste, such as explosive, flammable, oxidising, irritant, toxic, harmful, corrosive, etc. The Contractor shall use a licensed collector to transport and dispose of the chemical wastes, to either the approved Chemical Waste Treatment Centre, or another licensed facility, in accordance with the Waste Disposal (Chemical Waste) (General) Regulation.	All work sites / during the construction period	√

ANNEX D4 - SUMMARY OF MITIGATION MEASURES IMPLEMENTATION SCHEDULE (DECEMBER 2013)

Type of Impact	Environmental Protection Measures	Location/ Timing	Status
Waste	Prior to excavation of the marine deposit layer, the deposit should be tested in accordance with the ETWB TC(W) No. 34/2002 and the results should be presented in a Preliminary Sediment Quality Report. The marine deposit should be disposed of at the disposal site designated by the Marine Fill Committee (MFC) or Director of Environmental Protection (DEP) depending on the test results.	All work sites / during the construction period	√
<i>Construction Phase</i>			
Landscape & Visual	<ul style="list-style-type: none"> • Topsoil, where identified, should be stripped and stored for re-use in the construction of the soft landscape works, where practical. • Existing trees to be retained on site should be carefully protected during construction. • Trees unavoidably affected by the works should be transplanted where practical. • Compensatory tree planting should be provided to compensate for felled trees. • Control of night-time lighting. • Erection of decorative screen hoarding compatible with the surrounding setting. 	All the works areas, PTWs and SCISTW/ during the construction period	√
<i>Operational Phase</i>			
Landscape & Visual	<ul style="list-style-type: none"> • Aesthetic design of the façade of PTW and associated structures to harmonise with the surrounding settings. • Shrub and Climbing Plants to soften proposed structures / Roof Greening. • Buffer Tree and Shrub Planting to screen proposed associated structures. • Reinstated of disturbed area 	All the works areas, PTWs and SCISTW/ during the construction period	NA. Measures not required until commencement of operational phase
<i>Construction Phase</i>			

ANNEX D4 - SUMMARY OF MITIGATION MEASURES IMPLEMENTATION SCHEDULE (DECEMBER 2013)

Type of Impact	Environmental Protection Measures	Location/ Timing	Status
Cultural Heritage	The construction vibration control limit (ppv of 25mm/s) shall be strictly followed.	Identified historical buildings/structures as mentioned in Tables 15.8 and 15.9. During blasting for tunnel, shafts, effluent conveyance system and disinfection facilities in the vicinity of the buildings/ structures	NA. Vibration monitoring has not been launched during the reporting period.
	Monitoring of vibration limits shall be conducted and reported as a requirement of EM&A programme	Identified historical buildings/structures as mentioned in Tables 15.8 and 15.9. During blasting for tunnel, shafts, effluent conveyance system and disinfection facilities in the vicinity of the buildings/ structures	NA. Vibration monitoring has not been launched during the reporting period.

Remark:

- √ Compliance of Mitigation Measures
- <> Compliance of Mitigation but need improvement
- x Non-compliance of Mitigation Measures
- Δ Deficiency of Mitigation Measures but rectified by Gammon Construction Limited
- NA Not Applicable

ANNEX D4 - SUMMARY OF MITIGATION MEASURES IMPLEMENTATION SCHEDULE (JANUARY 2014)

Type of Impact	Environmental Protection Measures	Location/ Timing	Status
<i>Construction Phase</i>			
Air Quality	<p>The Air Pollution Control (Construction Dust) Regulation shall be implemented and good site practices shall be incorporated in the contract clauses to minimise construction dust impact. Control measures relevant to this Project are listed below:</p> <ul style="list-style-type: none"> • skip hoist for material transport should be totally enclosed by impervious sheeting; • every vehicle should be washed to remove any dusty materials from its body and wheels before leaving a construction site; • the area where vehicle washing takes place and the section of the road between the washing facilities and the exit point should be paved with concrete, bituminous materials or hardcores; • where a site boundary adjoins a road, streets or other accessible to the public, hoarding of not less than 2.4 m high from ground level should be provided along the entire length except for a site entrance or exit; • every stock of more than 20 bags of cement should be covered entirely by impervious sheeting placed in an area sheltered on the top and the 3 sides; • regular watering, with complete coverage, to reduce dust emission from exposed site surfaces and unpaved roads, particularly during dry weather; • site enclosure and covering of any aggregate or dusty material storage piles to reduce emissions. Where this is not practicable owing to frequent usage, watering should be applied to aggregate fines; • open stock piles should be avoided or covered and prevent placing dusty material storage piles near ASRs if possible; • tarpaulin covering of all dusty vehicle loads transported to, from and between site locations; and • instigation of an environmental monitoring auditing program to monitor the construction process in order to enforce controls and modify method of work if dusty conditions arise. 	All work sites / during construction	√

ANNEX D4 - SUMMARY OF MITIGATION MEASURES IMPLEMENTATION SCHEDULE (JANUARY 2014)

Type of Impact	Environmental Protection Measures	Location/ Timing	Status
Air Quality	<p>The following watering measures for specific site would be required to control the fugitive dust impacts:</p> <ul style="list-style-type: none"> • watering twice per day within the worksites at Wan Chai East PTW; • the barging points should be continuous watering throughout the whole unloading process; and • watering 8 times per day within worksites at the SCS works area at Wan Chai East. 	All work sites / during construction	√
<i>Operational Phase</i>			
Air Quality	<p>Good housekeeping for SCISTW and PTWs listed below should be followed to ameliorate any odour impact from the plant and these standard practices should be included in the plant operator manual.</p> <ul style="list-style-type: none"> • Screens should be cleaned regularly to remove any accumulated organic debris • Grit and screening transfer systems should be flushed regularly with water to remove organic debris and grit • Grit and screened materials should be transferred to closed containers to minimise odour escape • Scum and grease collection wells and troughs should be emptied and flushed regularly to prevent putrefaction of accumulated organics • Skim and remove floating solids and grease from primary clarifiers regularly • Frequent sludge withdrawal from tanks is necessary to prevent the production of gases • Sludge cake should be transferred to closed containers • Sludge containers should be flushed with water regularly 	All work sites / during construction	NA. Measures not required until commencement of operational phase
Air Quality	Commissioning tests for all deodorisation system should be included in the Design and Construction Contract Document.	All PTW and SCISTW/ during operational phase	NA. Measures not required until commencement of operational phase
<i>Construction Phase</i>			
Noise	Use of quiet PME, movable barriers and acoustic mats	All work sites / during construction	√

ANNEX D4 - SUMMARY OF MITIGATION MEASURES IMPLEMENTATION SCHEDULE (JANUARY 2014)

Type of Impact	Environmental Protection Measures	Location/ Timing	Status
Noise	<p>Good Site Practice:</p> <ul style="list-style-type: none"> only well-maintained plant should be operated on-site and plant should be serviced regularly during the construction program; silencers or mufflers on construction equipment should be utilised and should be properly maintained during the construction program; mobile plant, if any, should be sited as far from NSRs as possible; machines and plant (such as trucks) that may be in intermittent use should be shut down between work periods or should be throttled down to a minimum; plant known to emit noise strongly in one direction should, wherever possible, be orientated so that the noise is directed away from the nearby NSRs; and material stockpiles and other structures should be effectively utilised, wherever practicable, in screening noise from on-site construction activities; <p>Environmental audit shall be carried out to ensure that appropriate noise control measures would be properly implemented.</p>	All work sites / during construction	√
<i>Construction Phase</i>			
Water Quality	<p>Construction Site Runoff and General Construction Activities</p> <p>The mitigation measures as outlined in the ProPECC PN 1/94 Construction Site Drainage should be adopted where applicable.</p>	All work sites / during construction	√

ANNEX D4 - SUMMARY OF MITIGATION MEASURES IMPLEMENTATION SCHEDULE (JANUARY 2014)

Type of Impact	Environmental Protection Measures	Location/ Timing	Status
Water Quality	<p>Effluent Discharge</p> <p>There is a need to apply to EPD for a discharge license for discharge of effluent from the construction site under the WPCO. The discharge quality must meet the requirements specified in the discharge license. If monitoring of the treated effluent quality from the works areas is required during the construction phase of the Project, the monitoring should be carried out in accordance with the WPCO license which is under the ambit of regional office (RO) of EPD. Minimum distances of 100 m should be maintained between the discharge points of construction site effluent and the existing saltwater intakes.</p>	All work sites / during construction	√
Water Quality	<p>Accidental Spillage of Chemicals</p> <p>Contractor must register as a chemical waste producer if chemical wastes would be produced from the construction activities. The Waste Disposal Ordinance (Cap 354) and its subsidiary regulations in particular the Waste Disposal (Chemical Waste) (General) Regulation should be observed and complied with for control of chemical wastes.</p>	All work sites / during construction	√
Water Quality	<p>Any service shop and maintenance facilities should be located on hard standings within a bunded area, and sumps and oil interceptors should be provided. Maintenance of vehicles and equipment involving activities with potential for leakage and spillage should only be undertaken within the areas appropriately equipped to control these discharges.</p>	All work sites / during construction	√

ANNEX D4 - SUMMARY OF MITIGATION MEASURES IMPLEMENTATION SCHEDULE (JANUARY 2014)

Type of Impact	Environmental Protection Measures	Location/ Timing	Status
Water Quality	<p>Disposal of chemical wastes should be carried out in compliance with the Waste Disposal Ordinance. The Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes published under the Waste Disposal Ordinance details the requirements to deal with chemical wastes.</p> <p>General requirements are given as follows:</p> <ul style="list-style-type: none">• Suitable containers should be used to hold the chemical wastes to avoid leakage or spillage during storage, handling and transport.• Chemical waste containers should be suitably labelled, to notify and warn the personnel who are handling the wastes, to avoid accidents.• Storage area should be selected at a safe location on site and adequate space should be allocated to the storage area.	All work sites / during construction	√

ANNEX D4 - SUMMARY OF MITIGATION MEASURES IMPLEMENTATION SCHEDULE (JANUARY 2014)

Type of Impact	Environmental Protection Measures	Location/ Timing	Status
Water Quality	<p>Construction Works in Close Proximity of Storm Drains or Seafront</p> <p>To minimise the potential water quality impacts from the construction works located at or near any watercourse, the practices outlined below should be adopted where applicable.</p> <ul style="list-style-type: none"> • The use of less or smaller construction plants may be specified to reduce the disturbance to the storm water courses or marine environment. • Temporary storage of materials (e.g. equipment, filling materials, chemicals and fuel) and temporary stockpile of construction materials should be located well away from any water courses during carrying out of the construction works. • Stockpiling of construction materials and dusty materials should be covered and located away from any water courses. • Construction debris and spoil should be covered up and/or disposed of as soon as possible to avoid being washed into the nearby water receivers. • Construction activities, which generate large amount of wastewater, should be carried out in a distance away from the waterfront, where practicable. • Proper shoring may need to be erected in order to prevent soil/mud from slipping into the storm culvert or sea 	All work sites / during construction	√

ANNEX D4 - SUMMARY OF MITIGATION MEASURES IMPLEMENTATION SCHEDULE (JANUARY 2014)

Type of Impact	Environmental Protection Measures	Location/ Timing	Status
<i>Operational Phase</i>			
Water Quality	Dual power supply, standby facilities for the main treatment units and standby equipment parts / accessories should be provided as far as possible at the SCISTW to minimise the chance of emergency discharge.	SCISTW and all the Stage 2 PTWs / Operation Stage	NA. Measures not required until commencement of operational phase
Water Quality	Standby unit(s) and dual (backup) power supply would be provided at all the Stage 2 PTWs to reduce the risk of equipment breakdown at the PTWs.	Stage 2 PTWs / Operation Stage	NA. Measures not required until commencement of operational phase
<i>Construction Phase</i>			
Waste	Reusable steel or concrete panel shutters, fencing and hoarding and signboard should be used as a preferred alternative to items made of wood, to minimise wastage of wood. Attention should be paid to WBTC No. 19/2001 - Metallic Site Hoardings and Signboards to reduce the amount of timber used on construction sites. Metallic alternatives to timber are readily available and should be used rather than new timber. Precast concrete units should be adopted wherever feasible to minimise the use of timber formwork.	All work sites / during the construction period	√
Waste	All waste materials should be segregated into categories covering: <ul style="list-style-type: none"> • excavated materials suitable for reuse on-site; • excavated materials suitable for public filling facilities; • remaining C&D waste for landfill; • chemical waste; and • general refuse for landfill. 	All work sites / during the construction period	√

ANNEX D4 - SUMMARY OF MITIGATION MEASURES IMPLEMENTATION SCHEDULE (JANUARY 2014)

Type of Impact	Environmental Protection Measures	Location/ Timing	Status
Waste	<p>Recommendations to achieve waste reduction include:</p> <ul style="list-style-type: none"> Sort C&D waste from demolition of existing facilities to recover recyclable portions such as metals; 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; and Proper storage and site practices to minimise the potential for damage or contamination of construction materials. 	All work sites / during the construction period	√
Waste	<p>Recommendations for good site practices during construction activities include:-</p> <ul style="list-style-type: none"> Nomination of an approved person, such as a site manager, to be responsible for good site practices, arrangements for collection and effective disposal to an appropriate facility, of all wastes generated at the site Training of site personnel in proper waste management and chemical waste handling procedures Develop and provide toolbox talk for on-site sorting of C&D materials to enhance worker's awareness in handling, sorting, reuse and recycling of C&D materials. Provision of sufficient waste disposal points and regular collection of waste Regular cleaning and maintenance programme for drainage systems, sumps and oil interceptors 	All work sites / during the construction period	√
Waste	Bentonite slurries used in diaphragm wall construction should be reconditioned and reused wherever practicable. The disposal of residual used bentonite slurry should follow the good practice guidelines stated in ProPECC PN 1/94 "Construction Site Drainage".	All work sites / during the construction period	NA

ANNEX D4 - SUMMARY OF MITIGATION MEASURES IMPLEMENTATION SCHEDULE (JANUARY 2014)

Type of Impact	Environmental Protection Measures	Location/ Timing	Status
Waste	Adequate number of portable toilets at temporary works areas or the PTWs to ensure that sewage from site staff would be properly collected.	All work sites / during the construction period	√
Waste	General refuse should be stored in enclosed bins, skips or compaction units separating from C&D material and disposed of at designated landfill.	All work sites / during the construction period	√
Waste	The recyclable component of the municipal waste generated by the workforce, such as aluminium cans, paper and cleansed plastic containers should be separated from other waste. Provision and collection of recycling bins for different types of recyclable waste should be set up by the Contractor. The Contractor should also be responsible for arranging recycling companies to collect these materials.	All work sites / during the construction period	√
Waste	If chemical wastes are produced at the construction site, the Contractor would be required to register with the EPD as a chemical waste producer and to follow the guidelines stated in the Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes. Good quality containers compatible with the chemical wastes should be used, and incompatible chemicals should be stored separately. Appropriate labels should be securely attached on each chemical waste container indicating the corresponding chemical characteristics of the chemical waste, such as explosive, flammable, oxidising, irritant, toxic, harmful, corrosive, etc. The Contractor shall use a licensed collector to transport and dispose of the chemical wastes, to either the approved Chemical Waste Treatment Centre, or another licensed facility, in accordance with the Waste Disposal (Chemical Waste) (General) Regulation.	All work sites / during the construction period	√

ANNEX D4 - SUMMARY OF MITIGATION MEASURES IMPLEMENTATION SCHEDULE (JANUARY 2014)

Type of Impact	Environmental Protection Measures	Location/ Timing	Status
Waste	Prior to excavation of the marine deposit layer, the deposit should be tested in accordance with the ETWB TC(W) No. 34/2002 and the results should be presented in a Preliminary Sediment Quality Report. The marine deposit should be disposed of at the disposal site designated by the Marine Fill Committee (MFC) or Director of Environmental Protection (DEP) depending on the test results.	All work sites / during the construction period	√
<i>Construction Phase</i>			
Landscape & Visual	<ul style="list-style-type: none"> • Topsoil, where identified, should be stripped and stored for re-use in the construction of the soft landscape works, where practical. • Existing trees to be retained on site should be carefully protected during construction. • Trees unavoidably affected by the works should be transplanted where practical. • Compensatory tree planting should be provided to compensate for felled trees. • Control of night-time lighting. • Erection of decorative screen hoarding compatible with the surrounding setting. 	All the works areas, PTWs and SCISTW/ during the construction period	√
<i>Operational Phase</i>			
Landscape & Visual	<ul style="list-style-type: none"> • Aesthetic design of the façade of PTW and associated structures to harmonise with the surrounding settings. • Shrub and Climbing Plants to soften proposed structures / Roof Greening. • Buffer Tree and Shrub Planting to screen proposed associated structures. • Reinstated of disturbed area 	All the works areas, PTWs and SCISTW/ during the construction period	NA. Measures not required until commencement of operational phase
<i>Construction Phase</i>			

ANNEX D4 - SUMMARY OF MITIGATION MEASURES IMPLEMENTATION SCHEDULE (JANUARY 2014)

Type of Impact	Environmental Protection Measures	Location/ Timing	Status
Cultural Heritage	The construction vibration control limit (ppv of 25mm/s) shall be strictly followed.	Identified historical buildings/structures as mentioned in Tables 15.8 and 15.9. During blasting for tunnel, shafts, effluent conveyance system and disinfection facilities in the vicinity of the buildings/ structures	NA. Vibration monitoring has not been launched during the reporting period.
	Monitoring of vibration limits shall be conducted and reported as a requirement of EM&A programme	Identified historical buildings/structures as mentioned in Tables 15.8 and 15.9. During blasting for tunnel, shafts, effluent conveyance system and disinfection facilities in the vicinity of the buildings/ structures	NA. Vibration monitoring has not been launched during the reporting period.

Remark:

- √ Compliance of Mitigation Measures
- <> Compliance of Mitigation but need improvement
- x Non-compliance of Mitigation Measures
- Δ Deficiency of Mitigation Measures but rectified by Gammon Construction Limited
- NA Not Applicable

ANNEX D4 - SUMMARY OF MITIGATION MEASURES IMPLEMENTATION SCHEDULE (FEBRUARY 2014)

Type of Impact	Environmental Protection Measures	Location/ Timing	Status
<i>Construction Phase</i>			
Air Quality	<p>The Air Pollution Control (Construction Dust) Regulation shall be implemented and good site practices shall be incorporated in the contract clauses to minimise construction dust impact. Control measures relevant to this Project are listed below:</p> <ul style="list-style-type: none"> • skip hoist for material transport should be totally enclosed by impervious sheeting; • every vehicle should be washed to remove any dusty materials from its body and wheels before leaving a construction site; • the area where vehicle washing takes place and the section of the road between the washing facilities and the exit point should be paved with concrete, bituminous materials or hardcores; • where a site boundary adjoins a road, streets or other accessible to the public, hoarding of not less than 2.4 m high from ground level should be provided along the entire length except for a site entrance or exit; • every stock of more than 20 bags of cement should be covered entirely by impervious sheeting placed in an area sheltered on the top and the 3 sides; • regular watering, with complete coverage, to reduce dust emission from exposed site surfaces and unpaved roads, particularly during dry weather; • site enclosure and covering of any aggregate or dusty material storage piles to reduce emissions. Where this is not practicable owing to frequent usage, watering should be applied to aggregate fines; • open stock piles should be avoided or covered and prevent placing dusty material storage piles near ASRs if possible; • tarpaulin covering of all dusty vehicle loads transported to, from and between site locations; and • instigation of an environmental monitoring auditing program to monitor the construction process in order to enforce controls and modify method of work if dusty conditions arise. 	All work sites / during construction	√

ANNEX D4 - SUMMARY OF MITIGATION MEASURES IMPLEMENTATION SCHEDULE (FEBRUARY 2014)

Type of Impact	Environmental Protection Measures	Location/ Timing	Status
Air Quality	<p>The following watering measures for specific site would be required to control the fugitive dust impacts:</p> <ul style="list-style-type: none"> • watering twice per day within the worksites at Wan Chai East PTW; • the barging points should be continuous watering throughout the whole unloading process; and • watering 8 times per day within worksites at the SCS works area at Wan Chai East. 	All work sites / during construction	√
<i>Operational Phase</i>			
Air Quality	<p>Good housekeeping for SCISTW and PTWs listed below should be followed to ameliorate any odour impact from the plant and these standard practices should be included in the plant operator manual.</p> <ul style="list-style-type: none"> • Screens should be cleaned regularly to remove any accumulated organic debris • Grit and screening transfer systems should be flushed regularly with water to remove organic debris and grit • Grit and screened materials should be transferred to closed containers to minimise odour escape • Scum and grease collection wells and troughs should be emptied and flushed regularly to prevent putrefaction of accumulated organics • Skim and remove floating solids and grease from primary clarifiers regularly • Frequent sludge withdrawal from tanks is necessary to prevent the production of gases • Sludge cake should be transferred to closed containers • Sludge containers should be flushed with water regularly 	All work sites / during construction	NA. Measures not required until commencement of operational phase
Air Quality	Commissioning tests for all deodorisation system should be included in the Design and Construction Contract Document.	All PTW and SCISTW/ during operational phase	NA. Measures not required until commencement of operational phase
<i>Construction Phase</i>			
Noise	Use of quiet PME, movable barriers and acoustic mats	All work sites / during construction	√

ANNEX D4 - SUMMARY OF MITIGATION MEASURES IMPLEMENTATION SCHEDULE (FEBRUARY 2014)

Type of Impact	Environmental Protection Measures	Location/ Timing	Status
Noise	<p>Good Site Practice:</p> <ul style="list-style-type: none"> only well-maintained plant should be operated on-site and plant should be serviced regularly during the construction program; silencers or mufflers on construction equipment should be utilised and should be properly maintained during the construction program; mobile plant, if any, should be sited as far from NSRs as possible; machines and plant (such as trucks) that may be in intermittent use should be shut down between work periods or should be throttled down to a minimum; plant known to emit noise strongly in one direction should, wherever possible, be orientated so that the noise is directed away from the nearby NSRs; and material stockpiles and other structures should be effectively utilised, wherever practicable, in screening noise from on-site construction activities; <p>Environmental audit shall be carried out to ensure that appropriate noise control measures would be properly implemented.</p>	All work sites / during construction	√
<i>Construction Phase</i>			
Water Quality	<p>Construction Site Runoff and General Construction Activities</p> <p>The mitigation measures as outlined in the ProPECC PN 1/94 Construction Site Drainage should be adopted where applicable.</p>	All work sites / during construction	√

ANNEX D4 - SUMMARY OF MITIGATION MEASURES IMPLEMENTATION SCHEDULE (FEBRUARY 2014)

Type of Impact	Environmental Protection Measures	Location/ Timing	Status
Water Quality	<p>Effluent Discharge</p> <p>There is a need to apply to EPD for a discharge license for discharge of effluent from the construction site under the WPCO. The discharge quality must meet the requirements specified in the discharge license. If monitoring of the treated effluent quality from the works areas is required during the construction phase of the Project, the monitoring should be carried out in accordance with the WPCO license which is under the ambit of regional office (RO) of EPD. Minimum distances of 100 m should be maintained between the discharge points of construction site effluent and the existing saltwater intakes.</p>	All work sites / during construction	√
Water Quality	<p>Accidental Spillage of Chemicals</p> <p>Contractor must register as a chemical waste producer if chemical wastes would be produced from the construction activities. The Waste Disposal Ordinance (Cap 354) and its subsidiary regulations in particular the Waste Disposal (Chemical Waste) (General) Regulation should be observed and complied with for control of chemical wastes.</p>	All work sites / during construction	√
Water Quality	<p>Any service shop and maintenance facilities should be located on hard standings within a bunded area, and sumps and oil interceptors should be provided. Maintenance of vehicles and equipment involving activities with potential for leakage and spillage should only be undertaken within the areas appropriately equipped to control these discharges.</p>	All work sites / during construction	√

ANNEX D4 - SUMMARY OF MITIGATION MEASURES IMPLEMENTATION SCHEDULE (FEBRUARY 2014)

Type of Impact	Environmental Protection Measures	Location/ Timing	Status
Water Quality	<p>Disposal of chemical wastes should be carried out in compliance with the Waste Disposal Ordinance. The Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes published under the Waste Disposal Ordinance details the requirements to deal with chemical wastes.</p> <p>General requirements are given as follows:</p> <ul style="list-style-type: none">• Suitable containers should be used to hold the chemical wastes to avoid leakage or spillage during storage, handling and transport.• Chemical waste containers should be suitably labelled, to notify and warn the personnel who are handling the wastes, to avoid accidents.• Storage area should be selected at a safe location on site and adequate space should be allocated to the storage area.	All work sites / during construction	√

ANNEX D4 - SUMMARY OF MITIGATION MEASURES IMPLEMENTATION SCHEDULE (FEBRUARY 2014)

Type of Impact	Environmental Protection Measures	Location/ Timing	Status
Water Quality	<p>Construction Works in Close Proximity of Storm Drains or Seafront</p> <p>To minimise the potential water quality impacts from the construction works located at or near any watercourse, the practices outlined below should be adopted where applicable.</p> <ul style="list-style-type: none"> • The use of less or smaller construction plants may be specified to reduce the disturbance to the storm water courses or marine environment. • Temporary storage of materials (e.g. equipment, filling materials, chemicals and fuel) and temporary stockpile of construction materials should be located well away from any water courses during carrying out of the construction works. • Stockpiling of construction materials and dusty materials should be covered and located away from any water courses. • Construction debris and spoil should be covered up and/or disposed of as soon as possible to avoid being washed into the nearby water receivers. • Construction activities, which generate large amount of wastewater, should be carried out in a distance away from the waterfront, where practicable. • Proper shoring may need to be erected in order to prevent soil/mud from slipping into the storm culvert or sea 	All work sites / during construction	√

ANNEX D4 - SUMMARY OF MITIGATION MEASURES IMPLEMENTATION SCHEDULE (FEBRUARY 2014)

Type of Impact	Environmental Protection Measures	Location/ Timing	Status
<i>Operational Phase</i>			
Water Quality	Dual power supply, standby facilities for the main treatment units and standby equipment parts / accessories should be provided as far as possible at the SCISTW to minimise the chance of emergency discharge.	SCISTW and all the Stage 2 PTWs / Operation Stage	NA. Measures not required until commencement of operational phase
Water Quality	Standby unit(s) and dual (backup) power supply would be provided at all the Stage 2 PTWs to reduce the risk of equipment breakdown at the PTWs.	Stage 2 PTWs / Operation Stage	NA. Measures not required until commencement of operational phase
<i>Construction Phase</i>			
Waste	Reusable steel or concrete panel shutters, fencing and hoarding and signboard should be used as a preferred alternative to items made of wood, to minimise wastage of wood. Attention should be paid to WBTC No. 19/2001 - Metallic Site Hoardings and Signboards to reduce the amount of timber used on construction sites. Metallic alternatives to timber are readily available and should be used rather than new timber. Precast concrete units should be adopted wherever feasible to minimise the use of timber formwork.	All work sites / during the construction period	√
Waste	All waste materials should be segregated into categories covering: <ul style="list-style-type: none"> • excavated materials suitable for reuse on-site; • excavated materials suitable for public filling facilities; • remaining C&D waste for landfill; • chemical waste; and • general refuse for landfill. 	All work sites / during the construction period	√

ANNEX D4 - SUMMARY OF MITIGATION MEASURES IMPLEMENTATION SCHEDULE (FEBRUARY 2014)

Type of Impact	Environmental Protection Measures	Location/ Timing	Status
Waste	<p>Recommendations to achieve waste reduction include:</p> <ul style="list-style-type: none"> Sort C&D waste from demolition of existing facilities to recover recyclable portions such as metals; 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; and Proper storage and site practices to minimise the potential for damage or contamination of construction materials. 	All work sites / during the construction period	√
Waste	<p>Recommendations for good site practices during construction activities include:-</p> <ul style="list-style-type: none"> Nomination of an approved person, such as a site manager, to be responsible for good site practices, arrangements for collection and effective disposal to an appropriate facility, of all wastes generated at the site Training of site personnel in proper waste management and chemical waste handling procedures Develop and provide toolbox talk for on-site sorting of C&D materials to enhance worker's awareness in handling, sorting, reuse and recycling of C&D materials. Provision of sufficient waste disposal points and regular collection of waste Regular cleaning and maintenance programme for drainage systems, sumps and oil interceptors 	All work sites / during the construction period	√
Waste	Bentonite slurries used in diaphragm wall construction should be reconditioned and reused wherever practicable. The disposal of residual used bentonite slurry should follow the good practice guidelines stated in ProPECC PN 1/94 "Construction Site Drainage".	All work sites / during the construction period	NA

ANNEX D4 - SUMMARY OF MITIGATION MEASURES IMPLEMENTATION SCHEDULE (FEBRUARY 2014)

Type of Impact	Environmental Protection Measures	Location/ Timing	Status
Waste	Adequate number of portable toilets at temporary works areas or the PTWs to ensure that sewage from site staff would be properly collected.	All work sites / during the construction period	√
Waste	General refuse should be stored in enclosed bins, skips or compaction units separating from C&D material and disposed of at designated landfill.	All work sites / during the construction period	√
Waste	The recyclable component of the municipal waste generated by the workforce, such as aluminium cans, paper and cleansed plastic containers should be separated from other waste. Provision and collection of recycling bins for different types of recyclable waste should be set up by the Contractor. The Contractor should also be responsible for arranging recycling companies to collect these materials.	All work sites / during the construction period	√
Waste	If chemical wastes are produced at the construction site, the Contractor would be required to register with the EPD as a chemical waste producer and to follow the guidelines stated in the Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes. Good quality containers compatible with the chemical wastes should be used, and incompatible chemicals should be stored separately. Appropriate labels should be securely attached on each chemical waste container indicating the corresponding chemical characteristics of the chemical waste, such as explosive, flammable, oxidising, irritant, toxic, harmful, corrosive, etc. The Contractor shall use a licensed collector to transport and dispose of the chemical wastes, to either the approved Chemical Waste Treatment Centre, or another licensed facility, in accordance with the Waste Disposal (Chemical Waste) (General) Regulation.	All work sites / during the construction period	√

ANNEX D4 - SUMMARY OF MITIGATION MEASURES IMPLEMENTATION SCHEDULE (FEBRUARY 2014)

Type of Impact	Environmental Protection Measures	Location/ Timing	Status
Waste	Prior to excavation of the marine deposit layer, the deposit should be tested in accordance with the ETWB TC(W) No. 34/2002 and the results should be presented in a Preliminary Sediment Quality Report. The marine deposit should be disposed of at the disposal site designated by the Marine Fill Committee (MFC) or Director of Environmental Protection (DEP) depending on the test results.	All work sites / during the construction period	√
<i>Construction Phase</i>			
Landscape & Visual	<ul style="list-style-type: none"> • Topsoil, where identified, should be stripped and stored for re-use in the construction of the soft landscape works, where practical. • Existing trees to be retained on site should be carefully protected during construction. • Trees unavoidably affected by the works should be transplanted where practical. • Compensatory tree planting should be provided to compensate for felled trees. • Control of night-time lighting. • Erection of decorative screen hoarding compatible with the surrounding setting. 	All the works areas, PTWs and SCISTW/ during the construction period	√
<i>Operational Phase</i>			
Landscape & Visual	<ul style="list-style-type: none"> • Aesthetic design of the façade of PTW and associated structures to harmonise with the surrounding settings. • Shrub and Climbing Plants to soften proposed structures / Roof Greening. • Buffer Tree and Shrub Planting to screen proposed associated structures. • Reinstated of disturbed area 	All the works areas, PTWs and SCISTW/ during the construction period	NA. Measures not required until commencement of operational phase
<i>Construction Phase</i>			

ANNEX D4 - SUMMARY OF MITIGATION MEASURES IMPLEMENTATION SCHEDULE (FEBRUARY 2014)

Type of Impact	Environmental Protection Measures	Location/ Timing	Status
Cultural Heritage	The construction vibration control limit (ppv of 25mm/s) shall be strictly followed.	Identified historical buildings/structures as mentioned in Tables 15.8 and 15.9. During blasting for tunnel, shafts, effluent conveyance system and disinfection facilities in the vicinity of the buildings/ structures	NA. Vibration monitoring has not been launched during the reporting period.
	Monitoring of vibration limits shall be conducted and reported as a requirement of EM&A programme	Identified historical buildings/structures as mentioned in Tables 15.8 and 15.9. During blasting for tunnel, shafts, effluent conveyance system and disinfection facilities in the vicinity of the buildings/ structures	NA. Vibration monitoring has not been launched during the reporting period.

Remark:

- √ Compliance of Mitigation Measures
- <> Compliance of Mitigation but need improvement
- x Non-compliance of Mitigation Measures
- Δ Deficiency of Mitigation Measures but rectified by Gammon Construction Limited
- NA Not Applicable

Annex D5 24-hour and 1-hour TSP Monitoring Results

1-hour TSP Monitoring Results

Station AM3

Date	Start Time	Finish Time	Weather	TSP Concentration ($\mu\text{g}/\text{m}^3$)	Action Level ($\mu\text{g}/\text{m}^3$)	Limit Level ($\mu\text{g}/\text{m}^3$)	Site Conditions / Observations / Remarks	Temperature ($^{\circ}\text{C}$)	Wind Speed * (m/s)	Sampler ID	Filter ID
06-Dec-13	8:00	9:00	Sunny	142	355	500	Construction work in progress	22	<5	GMW GS-2310 (S/N 0481)	2251
	9:02	10:02	Sunny	138	355	500	Construction work in progress	22	<5	GMW GS-2310 (S/N 0481)	2252
	10:04	11:04	Sunny	114	355	500	Construction work in progress	22	<5	GMW GS-2310 (S/N 0481)	2254
12-Dec-13	8:00	9:00	Cloudy	117	355	500	Construction work in progress	20	<5	GMW GS-2310 (S/N 0481)	2255
	9:02	10:02	Cloudy	118	355	500	Construction work in progress	20	<5	GMW GS-2310 (S/N 0481)	2257
	10:04	11:04	Cloudy	136	355	500	Construction work in progress	20	<5	GMW GS-2310 (S/N 0481)	2258
18-Dec-13	11:40	12:40	Sunny	171	355	500	Construction work in progress	15	<5	GMW GS-2310 (S/N 0481)	2221
	12:42	13:42	Sunny	106	355	500	Construction work in progress	15	<5	GMW GS-2310 (S/N 0481)	2259
	13:46	14:46	Sunny	109	355	500	Construction work in progress	15	<5	GMW GS-2310 (S/N 0481)	2260
24-Dec-13	8:00	9:00	Sunny	121	355	500	Construction work in progress	17	<5	GMW GS-2310 (S/N 0481)	2222
	9:02	10:02	Sunny	99	355	500	Construction work in progress	17	<5	GMW GS-2310 (S/N 0481)	2261
	10:04	11:04	Sunny	134	355	500	Construction work in progress	17	<5	GMW GS-2310 (S/N 0481)	2263
30-Dec-13	11:40	12:40	Sunny	152	355	500	Construction work in progress	18	<5	GMW GS-2310 (S/N 0481)	2264
	12:42	13:42	Sunny	110	355	500	Construction work in progress	18	<5	GMW GS-2310 (S/N 0481)	2266
	13:44	14:44	Sunny	149	355	500	Construction work in progress	18	<5	GMW GS-2310 (S/N 0481)	2267
			Min.	99							
			Max.	171							
			Average	128							

* Wind Speed data is presented in the Meteorological Data table

Annex D5 24-hour and 1-hour TSP Monitoring Results

1-hour TSP Monitoring Results

Station AM3

	Start	Finish	Weather	TSP Concentration	Action Level	Limit Level	Site Conditions /	Temperature	Wind Speed *	Sampler	Filter
Date	Time	Time		($\mu\text{g}/\text{m}^3$)	($\mu\text{g}/\text{m}^3$)	($\mu\text{g}/\text{m}^3$)	Observations / Remarks	($^{\circ}\text{C}$)	(m/s)	ID	ID
04-Jan-14	11:40	12:40	Sunny	146	355	500	Construction work in progress	18	<5	GMW GS-2310 (S/N 0481)	2268
	12:42	13:42	Sunny	172	355	500	Construction work in progress	18	<5	GMW GS-2310 (S/N 0481)	2269
	13:44	14:44	Sunny	143	355	500	Construction work in progress	18	<5	GMW GS-2310 (S/N 0481)	2270
10-Jan-14	11:40	12:40	Fine	112	355	500	Construction work in progress	16	<5	GMW GS-2310 (S/N 0481)	2292
	12:42	13:42	Fine	136	355	500	Construction work in progress	16	<5	GMW GS-2310 (S/N 0481)	2293
	13:44	14:44	Fine	107	355	500	Construction work in progress	16	<5	GMW GS-2310 (S/N 0481)	2295
16-Jan-14	8:00	9:00	Sunny	129	355	500	Construction work in progress	17	<5	GMW GS-2310 (S/N 0481)	2296
	9:05	10:05	Sunny	121	355	500	Construction work in progress	17	<5	GMW GS-2310 (S/N 0481)	2298
	10:07	11:07	Sunny	116	355	500	Construction work in progress	17	<5	GMW GS-2310 (S/N 0481)	2299
22-Jan-14	8:00	9:00	Sunny	112	355	500	Construction work in progress	17	<5	GMW GS-2310 (S/N 0481)	2300
	9:02	10:02	Sunny	117	355	500	Construction work in progress	17	<5	GMW GS-2310 (S/N 0481)	2302
	10:04	11:04	Sunny	139	355	500	Construction work in progress	17	<5	GMW GS-2310 (S/N 0481)	2303
28-Jan-14	11:50	12:50	Sunny	110	355	500	Construction work in progress	20	<5	GMW GS-2310 (S/N 0481)	2305
	12:52	13:52	Sunny	102	355	500	Construction work in progress	20	<5	GMW GS-2310 (S/N 0481)	2306
	13:54	14:54	Sunny	145	355	500	Construction work in progress	20	<5	GMW GS-2310 (S/N 0481)	2307
30-Jan-14	11:40	12:40	Sunny	113	355	500	Construction work in progress	20	<5	GMW GS-2310 (S/N 0481)	2309
	12:42	13:42	Sunny	138	355	500	Construction work in progress	20	<5	GMW GS-2310 (S/N 0481)	2310
	13:44	14:44	Sunny	105	355	500	Construction work in progress	20	<5	GMW GS-2310 (S/N 0481)	2321
			Min.	102							
			Max.	172							
			Average	126							

* Wind Speed data is presented in the Meteorological Data table

Annex D5 24-hour and 1-hour TSP Monitoring Results

1-hour TSP Monitoring Results

Station AM3

	Start	Finish	Weather	TSP Concentration	Action Level	Limit Level	Site Conditions /	Temperature	Wind Speed *	Sampler	Filter
Date	Time	Time		($\mu\text{g}/\text{m}^3$)	($\mu\text{g}/\text{m}^3$)	($\mu\text{g}/\text{m}^3$)	Observations / Remarks	($^{\circ}\text{C}$)	(m/s)	ID	ID
05-Feb-14	11:40	12:40	Fine	72	355	500	Construction work in progress	19	<5	GMW GS-2310 (S/N 0481)	2322
	12:42	13:42	Fine	117	355	500	Construction work in progress	19	<5	GMW GS-2310 (S/N 0481)	2323
	13:45	14:45	Fine	132	355	500	Construction work in progress	19	<5	GMW GS-2310 (S/N 0481)	2325
11-Feb-14	11:42	12:42	Cloudy	145	355	500	Construction work in progress	10	<5	GMW GS-2310 (S/N 0481)	2326
	12:44	13:44	Cloudy	116	355	500	Construction work in progress	10	<5	GMW GS-2310 (S/N 0481)	2328
	13:46	14:46	Cloudy	113	355	500	Construction work in progress	10	<5	GMW GS-2310 (S/N 0481)	2327
17-Feb-14	8:30	9:30	Fine	109	355	500	Construction work in progress	21	<5	GMW GS-2310 (S/N 0481)	2341
	9:32	10:32	Fine	95	355	500	Construction work in progress	21	<5	GMW GS-2310 (S/N 0481)	2342
	10:34	11:34	Fine	201	355	500	Construction work in progress	21	<5	GMW GS-2310 (S/N 0481)	2343
22-Feb-14	11:40	12:40	Fine	109	355	500	Construction work in progress	20	<5	GMW GS-2310 (S/N 0481)	2344
	12:42	13:42	Fine	117	355	500	Construction work in progress	20	<5	GMW GS-2310 (S/N 0481)	2345
	13:44	14:44	Fine	112	355	500	Construction work in progress	20	<5	GMW GS-2310 (S/N 0481)	2347
28-Feb-14	8:00	9:00	Cloudy	139	355	500	Construction work in progress	20	<5	GMW GS-2310 (S/N 0481)	2348
	9:02	10:02	Cloudy	171	355	500	Construction work in progress	20	<5	GMW GS-2310 (S/N 0481)	2349
	10:04	11:04	Cloudy	161	355	500	Construction work in progress	20	<5	GMW GS-2310 (S/N 0481)	2361
			Min.	72							
			Max.	201							
			Average	127							

* Wind Speed data is presented in the Meteorological Data table.

Annex D5 24-hour and 1-hour TSP Monitoring Results

24-hour TSP Monitoring Results

Station AM3

Start		Finish		Weather	Filter Weight (g)		Elapsed Time Reading		Sampling Time (hrs)	Flow Rate (m ³ /min)			TSP Conc. (µg/m ³)	Action Level (µg/m ³)	Limit Level (µg/m ³)	Observations / Remarks	Sampler ID	Filter ID		
Date	Time	Date	Time		Initial	Final	Initial	Final		Initial	Final	Average								
06-Dec-13	11:06	07-Dec-13	11:06	Sunny	2.7955	2.9525	9221.3200	9245.3200	24.00	1.21	1.21	1.21	90	181	260	construction work in progress	GMW GS 2310 (S/N 0481)	2253		
12-Dec-13	11:06	13-Dec-13	11:06	Cloudy	2.7777	2.9592	9248.3200	9272.3200	24.00	1.21	1.21	1.21	104	181	260	construction work in progress	GMW GS 2310 (S/N 0481)	2256		
18-Dec-13	14:10	19-Dec-13	14:10	Sunny	2.7912	2.9482	9275.3200	9299.3200	24.00	1.21	1.21	1.21	90	181	260	construction work in progress	GMW GS 2310 (S/N 0481)	2223		
24-Dec-13	11:10	25-Dec-13	11:10	Sunny	2.7829	2.9909	9302.3200	9326.3200	24.00	1.21	1.21	1.21	119	181	260	construction work in progress	GMW GS 2310 (S/N 0481)	2262		
30-Dec-13	14:50	31-Dec-13	14:50	Sunny	2.7774	2.9400	9329.3200	9353.3200	24.00	1.21	1.21	1.21	93	181	260	construction work in progress	GMW GS 2310 (S/N 0481)	2265		
												Min.	90							
												Max.	119							
												Average	99							

Annex D5 24-hour and 1-hour TSP Monitoring Results

24-hour TSP Monitoring Results

Station AM3

Start		Finish		Weather	Filter Weight (g)		Elapsed Time Reading		Sampling Time (hrs)	Flow Rate (m ³ /min)			TSP Conc. (µg/m ³)	Action Level (µg/m ³)	Limit Level (µg/m ³)	Observations / Remarks	Sampler ID	Filter ID			
Date	Time	Date	Time		Initial	Final	Initial	Final		Initial	Final	Average									
04-Jan-14	14:46	05-Jan-14	14:46	Sunny	2.7854	2.9717	9356.32	9380.32	24.00	1.21	1.21	1.21	107	181	260	construction work in progress	GMW GS 2310 (S/N 0481)	2291			
10-Jan-14	14:50	11-Jan-14	14:50	Fine	2.8032	2.9900	9383.32	9407.32	24.00	1.21	1.21	1.21	107	181	260	construction work in progress	GMW GS 2310 (S/N 0481)	2294			
16-Jan-14	11:09	17-Jan-14	11:09	Sunny	2.7985	2.9911	9410.32	9434.32	24.00	1.21	1.21	1.21	111	181	260	construction work in progress	GMW GS 2310 (S/N 0481)	2297			
22-Jan-14	11:06	23-Jan-14	11:06	Sunny	2.7951	2.9738	9437.32	9461.32	24.00	1.21	1.21	1.21	103	181	260	construction work in progress	GMW GS 2310 (S/N 0481)	2301			
28-Jan-14	15:00	29-Jan-14	15:00	Sunny	2.7890	2.9626	9464.32	9488.32	24.00	1.21	1.21	1.21	100	181	260	construction work in progress	GMW GS 2310 (S/N 0481)	2304			
30-Jan-14	14:46	31-Jan-14	14:46	Sunny	2.7525	2.8801	9491.32	9515.32	24.00	1.21	1.21	1.21	73	181	260	construction work in progress	GMW GS 2310 (S/N 0481)	2308			
												Min.	73								
												Max.	111								
												Average	100								

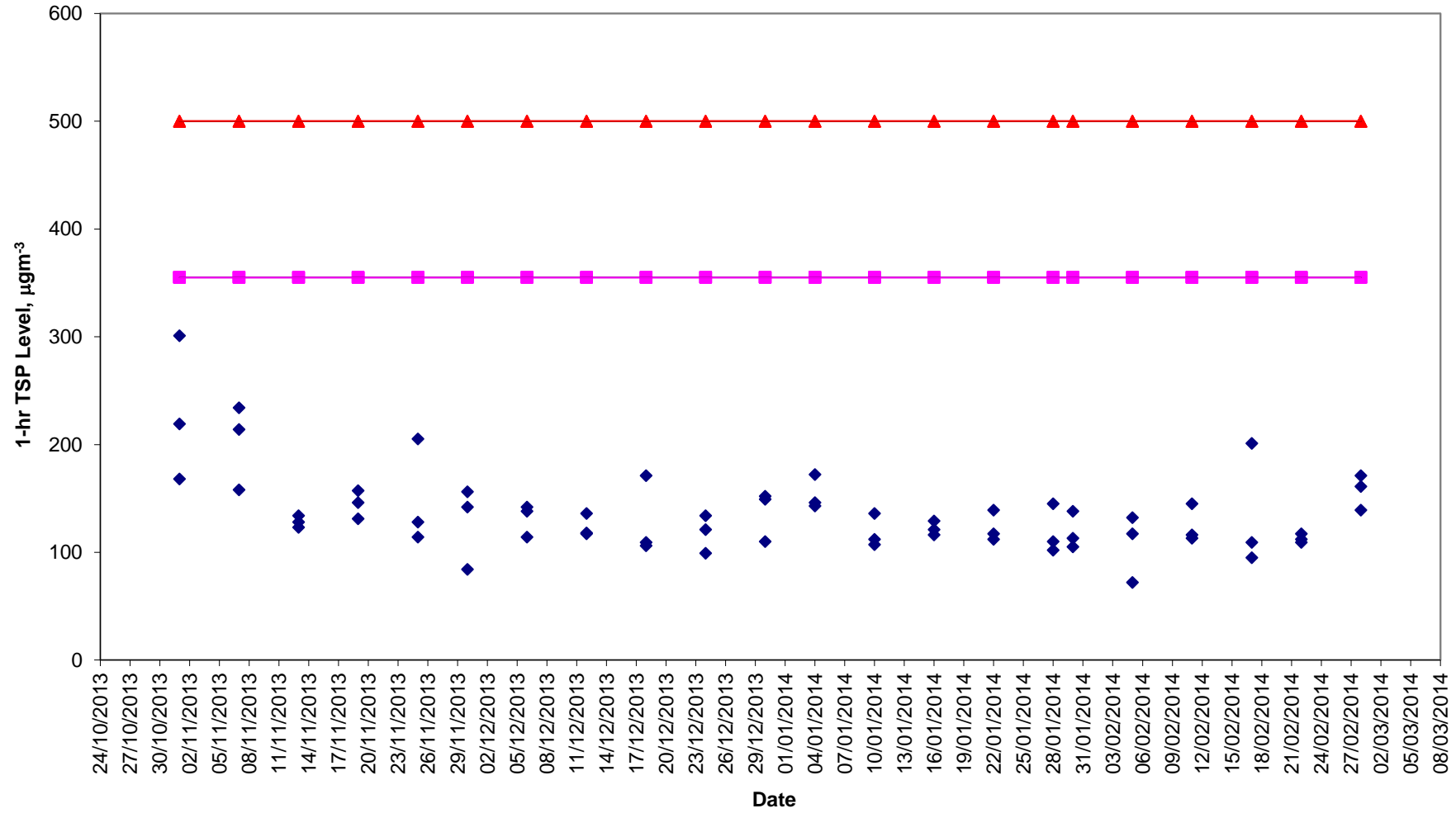
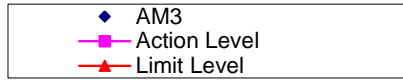
Annex D5 24-hour and 1-hour TSP Monitoring Results

24-hour TSP Monitoring Results

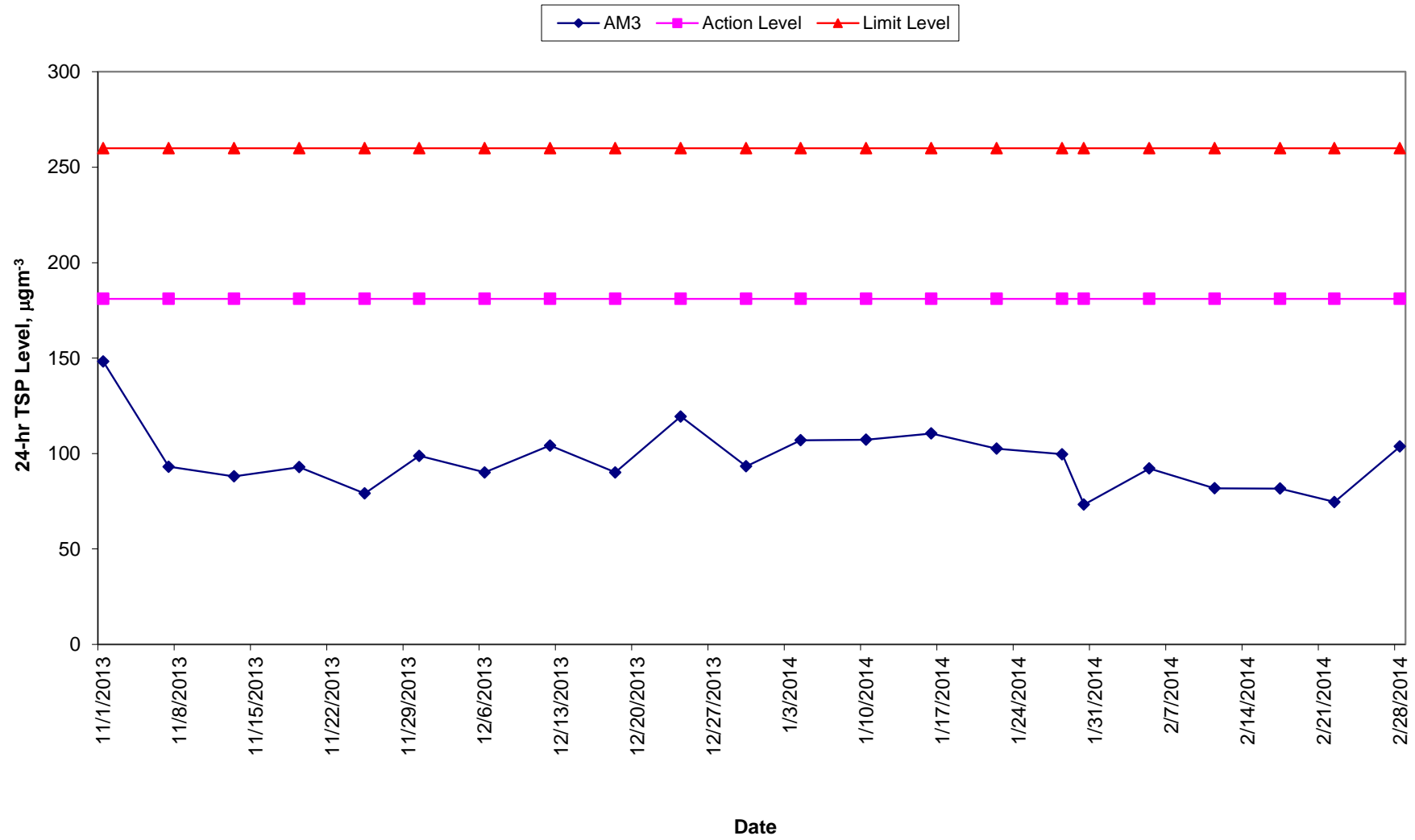
Station AM3

Start		Finish		Weather	Filter Weight (g)		Elapsed Time Reading		Sampling Time (hrs)	Flow Rate (m ³ /min)			TSP Conc. (µg/m ³)	Action Level (µg/m ³)	Limit Level (µg/m ³)	Observations / Remarks	Sampler ID	Filter ID			
Date	Time	Date	Time		Initial	Final	Initial	Final		Initial	Final	Average									
05-Feb-14	14:47	06-Feb-14	14:47	Fine	2.7406	2.9011	9518.32	9542.32	24.00	1.21	1.21	1.21	92	181	260	construction work in progress	GMW GS 2310 (S/N 0481)	2324			
11-Feb-14	14:48	12-Feb-14	14:48	Cloudy	2.7617	2.9042	9545.32	9569.32	24.00	1.21	1.21	1.21	82	181	260	construction work in progress	GMW GS 2310 (S/N 0481)	2329			
17-Feb-14	11:40	18-Feb-14	11:40	Fine	2.7720	2.9143	9572.32	9596.32	24.00	1.21	1.21	1.21	82	181	260	construction work in progress	GMW GS 2310 (S/N 0481)	2330			
22-Feb-14	14:46	23-Feb-14	14:46	Fine	2.7900	2.9200	9599.32	9623.32	24.00	1.21	1.21	1.21	75	181	260	construction work in progress	GMW GS 2310 (S/N 0481)	2346			
28-Feb-14	11:06	01-Mar-14	11:06	Cloudy	2.7990	2.9797	9626.32	9650.32	24.00	1.21	1.21	1.21	104	181	260	construction work in progress	GMW GS 2310 (S/N 0481)	2350			
												Min.	75								
												Max.	104								
												Average	87								

1-hr TSP Level AM3 (Wan Chai East PTW)



24-hr TSP Level AM3 (Wan Chai East PTW)



Meteorological Data Extracted from the Hong Kong Observatory

King's Park Station						
Date	Weather	Average Air Temperature (°C)	Average Relative Humidity (%)	Total Rainfall (mm)	Average Wind Speed (km/h)	Wind Direction
2013-12-01	Sunny	13	33 - 63	0.0	0 - 12	SE/NE
2013-12-03	Sunny	19	45 - 80	0.0	0 - 14	SE/E
2013-12-06	Sunny	14	33 - 63	0.0	0 - 18	NE
2013-12-08	Sunny	20	64 - 85	Trace	0 - 12	SE
2013-12-09	Sunny	22	50 - 78	0.0	0 - 18	NE
2013-12-10	Cloudy	20	55 - 80	0.0	0 - 20	SE/NE
2013-12-12	Cloudy	18	55 - 72	Trace	4 - 20	SE/E
2013-12-14	Cloudy	19	75 - 99	13.0	0 - 18	SE/E
2013-12-15	Cloudy	17	93 - 99	22.7	0 - 17	E
2013-12-17	Fine	12	88 - 99	27.8	0 - 17	NW/NE
2013-12-18	Sunny	9	58 - 86	0.0	4 - 22	NE/N
2013-12-19	Fine	9	53 - 74	0.0	0 - 16	NE/N
2013-12-20	Sunny	14	54 - 71	0.0	0 - 12	NE
2013-12-22	Sunny	14	52 - 69	0.0	0 - 12	NE/SE
2013-12-24	Cloudy	15	48 - 71	0.0	0 - 12	NE/SE
2013-12-27	Sunny	13	35 - 50	0.0	0 - 23	NE/N
2013-12-29	Sunny	12	39 - 66	0.0	0 - 16	NE/SE
2013-12-30	Sunny	14	34 - 64	0.0	0 - 10	N/W
2013-12-31	Fine	15	35 - 65	0.0	0 - 11	N/W

Tsing Yi Station						
Date	Weather	Average Air Temperature (°C)	Average Relative Humidity (%) *	Total Rainfall (mm)	Average Wind Speed (km/h)	Wind Direction
2013-12-01	Sunny	18	33 - 63	0.0	1 - 12	-
2013-12-03	Sunny	19	45 - 80	0.0	1 - 17	-
2013-12-06	Sunny	18	33 - 63	0.0	1 - 18	-
2013-12-08	Sunny	20	64 - 85	Trace	1 - 18	-
2013-12-09	Sunny	23	50 - 78	0.0	1 - 16	-
2013-12-10	Cloudy	21	55 - 80	0.0	2 - 16	-
2013-12-12	Cloudy	18	55 - 72	Trace	3 - 15	-
2013-12-14	Cloudy	19	75 - 99	13.0	1 - 11	-
2013-12-15	Cloudy	17	93 - 99	22.7	1 - 12	-
2013-12-17	Fine	12	88 - 99	27.8	1 - 22	-
2013-12-18	Sunny	12	58 - 86	0.0	4 - 25	-
2013-12-19	Fine	13	53 - 74	0.0	1 - 18	-
2013-12-20	Sunny	15	54 - 71	0.0	0 - 17	-
2013-12-22	Sunny	14	52 - 69	0.0	1 - 15	-
2013-12-24	Cloudy	15	48 - 71	0.0	1 - 19	-
2013-12-27	Sunny	13	35 - 50	0.0	1 - 22	-
2013-12-29	Sunny	12	39 - 66	0.0	1 - 13	-
2013-12-30	Sunny	13	34 - 64	0.0	1 - 18	-
2013-12-31	Fine	15	35 - 65	0.0	1 - 19	-

Kai Tak Station						
Date	Weather	Average Air Temperature (°C) *	Average Relative Humidity (%) *	Total Rainfall (mm) *	Average Wind Speed (km/h)	Wind Direction
2013-12-01	Sunny	13	33 - 63	0.0	1 - 18	SE/N
2013-12-03	Sunny	19	45 - 80	0.0	1 - 20	SE/NE
2013-12-06	Sunny	13	33 - 63	0.0	1 - 20	SE
2013-12-08	Sunny	19	45 - 80	0.0	1 - 18	SE
2013-12-09	Sunny	14	33 - 63	0.0	1 - 27	NW/E
2013-12-10	Sunny	20	64 - 85	Trace	3 - 18	NE
2013-12-12	Sunny	22	50 - 78	0.0	1 - 19	E
2013-12-14	Cloudy	20	55 - 80	0.0	3 - 25	E
2013-12-15	Cloudy	18	55 - 72	Trace	3 - 24	SE
2013-12-17	Cloudy	19	75 - 99	13.0	1 - 24	NW/N
2013-12-18	Cloudy	17	93 - 99	22.7	3 - 27	NW/N
2013-12-19	Fine	12	88 - 99	27.8	1 - 22	NE/NW
2013-12-20	Sunny	9	58 - 86	0.0	1 - 21	NE
2013-12-22	Fine	9	53 - 74	0.0	2 - 18	NE/E
2013-12-24	Sunny	14	54 - 71	0.0	1 - 15	NW/E

Green Island Station						
Date	Weather	Average Air Temperature (°C) *	Average Relative Humidity (%) *	Total Rainfall (mm) *	Average Wind Speed (km/h)	Wind Direction
2013-12-01	Sunny	13	33 - 63	0.0	-	-
2013-12-03	Sunny	19	45 - 80	0.0	5 - 33	NE
2013-12-06	Sunny	13	33 - 63	0.0	3 - 31	NE/N
2013-12-08	Sunny	19	45 - 80	0.0	11 - 33	NE
2013-12-09	Sunny	14	33 - 63	0.0	3 - 34	NE/N
2013-12-10	Sunny	20	64 - 85	Trace	19 - 43	NE/N
2013-12-12	Sunny	22	50 - 78	0.0	19 - 41	NE
2013-12-14	Cloudy	20	55 - 80	0.0	10 - 43	NE
2013-12-15	Cloudy	18	55 - 72	Trace	9 - 50	NE/N
2013-12-17	Cloudy	19	75 - 99	13.0	15 - 41	N
2013-12-18	Cloudy	17	93 - 99	22.7	26 - 52	NE/N
2013-12-19	Fine	12	88 - 99	27.8	13 - 39	NE/N
2013-12-20	Sunny	9	58 - 86	0.0	1 - 32	NW/N
2013-12-22	Fine	9	53 - 74	0.0	8 - 32	NE/N
2013-12-24	Sunny	14	54 - 71	0.0	6 - 31	NW/N

Meteorological Data Extracted from the Hong Kong Observatory

		King's Park Station				
Date	Weather	Average Air Temperature (°C)	Average Relative Humidity (%)	Total Rainfall (mm)	Average Wind Speed (km/h)	Wind Direction
2014-01-02	Sunny	17	61-88	0.0	0-13	SE
2014-01-04	Sunny	19	40-66	0.0	0-15	NE
2014-01-05	Sunny	17	45-79	0.0	0-18	SE/E
2014-01-07	Cloudy	18	70-90	Trace	0-19	SE
2014-01-08	Cloudy	19	65-95	Trace	0-15	NE/W
2014-01-10	Fine	15	72-81	Trace	6-22	SE
2014-01-12	Sunny	18	60-87	0.0	0-16	SE/NE
2014-01-14	Sunny	14	57-75	0.0	0-16	NE/N
2014-01-16	Sunny	14	57-84	0.0	0-16	SE/E
2014-01-19	Sunny	15	54-81	0.0	0-20	SE/E
2014-01-20	Sunny	17	32-77	0.0	0-19	NE/N
2014-01-21	Fine	15	27-41	0.0	3-24	NE
2014-01-22	Sunny	14	31-64	0.0	0-21	NE/W
2014-01-24	Sunny	16	65-85	0.0	0-19	SE
2014-01-26	Sunny	20	54-84	0.0	0-21	SE/N
2014-01-28	Fine	18	54-86	0.0	0-17	SE
2014-01-30	Sunny	19	63-90	0.0	0-13	SE/W

		Tsing Yi Station				
Date	Weather	Average Air Temperature (°C)	Average Relative Humidity (%) *	Total Rainfall (mm)	Average Wind Speed (km/h)	Wind Direction
2014-01-02	Sunny	17	61-88	0.0	1-12	-
2014-01-04	Sunny	19	40-66	0.0	1-18	-
2014-01-05	Sunny	16	45-79	0.0	1-19	-
2014-01-07	Cloudy	19	70-90	Trace	1-21	-
2014-01-08	Cloudy	20	65-95	Trace	1-28	-
2014-01-10	Fine	15	72-81	Trace	4-18	-
2014-01-12	Sunny	18	60-87	0.0	1-17	-
2014-01-14	Sunny	14	57-75	0.0	2-14	-
2014-01-16	Sunny	15	57-84	0.0	1-22	-
2014-01-19	Sunny	15	54-81	0.0	1-14	-
2014-01-20	Sunny	17	32-77	0.0	1-19	-
2014-01-21	Fine	15	27-41	0.0	2-18	-
2014-01-22	Sunny	14	31-64	0.0	1-12	-
2014-01-24	Sunny	16	65-85	0.0	1-22	-
2014-01-26	Sunny	21	54-84	0.0	0-27	-
2014-01-28	Fine	19	54-86	0.0	1-14	-
2014-01-30	Sunny	19	63-90	0.0	0-8	-

		Kai Tak Station				
Date	Weather	Average Air Temperature (°C) *	Average Relative Humidity (%) *	Total Rainfall (mm) *	Average Wind Speed (km/h)	Wind Direction
2014-01-02	Sunny	17	61-88	0.0	6-28	SE/E
2014-01-04	Sunny	19	40-66	0.0	2-17	NW/NE
2014-01-05	Sunny	17	45-79	0.0	1-24	NE/E
2014-01-07	Cloudy	18	70-90	Trace	4-31	SE/E
2014-01-08	Cloudy	19	65-95	Trace	1-21	SE/NW
2014-01-10	Fine	15	72-81	Trace	11-28	E
2014-01-12	Sunny	18	60-87	0.0	1-17	NW/S/NE
2014-01-14	Sunny	14	57-75	0.0	3-19	NW/NE
2014-01-16	Sunny	14	57-84	0.0	3-24	E
2014-01-19	Sunny	15	54-81	0.0	1-24	NE/E
2014-01-20	Sunny	17	32-77	0.0	1-25	N/S
2014-01-21	Fine	15	27-41	0.0	3-21	N
2014-01-22	Sunny	14	31-64	0.0	1-21	NE/SE
2014-01-24	Sunny	16	65-85	0.0	1-28	E
2014-01-26	Sunny	20	54-84	0.0	1-27	E
2014-01-28	Fine	18	54-86	0.0	1-23	E
2014-01-30	Sunny	19	63-90	0.0	1-16	SE

		Green Island Station				
Date	Weather	Average Air Temperature (°C) *	Average Relative Humidity (%) *	Total Rainfall (mm) *	Average Wind Speed (km/h)	Wind Direction
2014-01-02	Sunny	17	61-88	0.0	0-30	NE
2014-01-04	Sunny	19	40-66	0.0	2-27	NE
2014-01-05	Sunny	17	45-79	0.0	14-41	NE
2014-01-07	Cloudy	18	70-90	Trace	11-53	NE
2014-01-08	Cloudy	19	65-95	Trace	1-37	NE/NW
2014-01-10	Fine	15	72-81	Trace	18-50	NE
2014-01-12	Sunny	18	60-87	0.0	2-40	NE/N
2014-01-14	Sunny	14	57-75	0.0	5-40	NE/N
2014-01-16	Sunny	14	57-84	0.0	11-40	NE
2014-01-19	Sunny	15	54-81	0.0	2-40	NE
2014-01-20	Sunny	17	32-77	0.0	0-40	NE/NW
2014-01-21	Fine	15	27-41	0.0	2-48	NE
2014-01-22	Sunny	14	31-64	0.0	1-36	NE/SW
2014-01-24	Sunny	16	65-85	0.0	17-43	NE
2014-01-26	Sunny	20	54-84	0.0	4-50	NE/N
2014-01-28	Fine	18	54-86	0.0	3-31	NE/SW
2014-01-30	Sunny	19	63-90	0.0	1-15	NE/SW

* King's Park's data
 - Data were not available
 # less than 24 hourly observations per day

Meteorological Data Extracted from the Hong Kong Observatory

King's Park Station						
Date	Weather	Average Air Temperature (°C)	Average Relative Humidity (%)	Total Rainfall (mm)	Average Wind Speed (km/h)	Wind Direction
2014/02/03	Sunny	21	52-83	0.0	0-12	NW
2014/02/04	Cloudy	18	78-86	Trace	0-24	SE
2014/02/05	Fine	17	74-94	Trace	8-25	SE
2014/02/07	Fine	21	76-94	Trace	0-14	N/SE
2014/02/09	Cloudy	14	92-99	13.1	0-23	SE/NE
2014/02/11	Cloudy	9	63-78	13.7	0-14	NE/N
2014/02/16	Fine	14	84-92	Trace	2-22	SE
2014/02/17	Fine	18	84-99	0.0	0-17	SE
2014/02/18	Cloudy	17	75-99	Trace	0-18	W/N
2014/02/21	Fine	14	63-86	0.0	0-27	SE/E
2014/02/22	Fine	15	64-85	0.2	3-24	SE/E
2014/02/23	Fine	17	65-87	0.0	4-22	SE/E
2014/02/25	Fine	19	77-95	0.0	0-21	SE
2014/02/27	Cloudy	20	84-93	Trace	0-19	SE
2014/02/28	Cloudy	18	84-90	Trace	2-20	SE

Tsing Yi Station						
Date	Weather	Average Air Temperature (°C)	Average Relative Humidity (%) *	Total Rainfall (mm)	Average Wind Speed (km/h)	Wind Direction
2014/02/03	Sunny	20	52-83	0.0	0-12	NW/S
2014/02/04	Cloudy	18	78-86	Trace	0-25	SE
2014/02/05	Fine	19	74-94	Trace	2-22	SE
2014/02/07	Fine	21	76-94	Trace	0-15	S/E
2014/02/09	Cloudy	13	92-99	13.1	1-21	N/E
2014/02/11	Cloudy	8	63-78	13.7	1-18	NW
2014/02/16	Fine	16	84-92	Trace	1-25	E
2014/02/17	Fine	20	84-99	0.0	1-23	SE/W
2014/02/18	Cloudy	17	75-99	Trace	1-27	NW
2014/02/21	Fine	13	63-86	0.0	2-24	E
2014/02/22	Fine	16	64-85	0.2	5-22	E
2014/02/23	Fine	18	65-87	0.0	3-22	SE/E
2014/02/25	Fine	20	77-95	0.0	1-22	E
2014/02/27	Cloudy	20	84-93	Trace	0-25	E
2014/02/28	Cloudy	20	84-90	Trace	5-21	E

Kai Tak Station						
Date	Weather	Average Air Temperature (°C) *	Average Relative Humidity (%) *	Total Rainfall (mm) *	Average Wind Speed (km/h)	Wind Direction
2014/02/03	Sunny	21	52-83	0.0	0-14	SE/W
2014/02/04	Cloudy	18	78-86	Trace	1-30	E
2014/02/05	Fine	17	74-94	Trace	10-31	E
2014/02/07	Fine	21	76-94	Trace	1-18	SE/E
2014/02/09	Cloudy	14	92-99	13.1	1-25	SE/NW
2014/02/11	Cloudy	9	63-78	13.7	3-18	NW
2014/02/16	Fine	14	84-92	Trace	9-24	SE
2014/02/17	Fine	18	84-99	0.0	1-18	SE
2014/02/18	Cloudy	17	75-99	Trace	1-28	SE/NW
2014/02/21	Fine	14	63-86	0.0	5-38	E
2014/02/22	Fine	15	64-85	0.2	8-29	E
2014/02/23	Fine	17	65-87	0.0	10-32	E
2014/02/25	Fine	19	77-95	0.0	1-24	SE/E
2014/02/27	Cloudy	20	84-93	Trace	2-27	SE/E
2014/02/28	Cloudy	18	84-90	Trace	6-27	SE

Green Island Station						
Date	Weather	Average Air Temperature (°C) *	Average Relative Humidity (%) *	Total Rainfall (mm) *	Average Wind Speed (km/h)	Wind Direction
2014/02/03	Sunny	21	52-83	0.0	0-28	S/NW
2014/02/04	Cloudy	18	78-86	Trace	1-55	NE
2014/02/05	Fine	17	74-94	Trace	20-50	NE
2014/02/07	Fine	21	76-94	Trace	2-26	S/NE
2014/02/09	Cloudy	14	92-99	13.1	8-50	NE/NW
2014/02/11	Cloudy	9	63-78	13.7	11-36	N
2014/02/16	Fine	14	84-92	Trace	19-50	NE
2014/02/17	Fine	18	84-99	0.0	1-33	NE
2014/02/18	Cloudy	17	75-99	Trace	1-52	NW
2014/02/21	Fine	14	63-86	0.0	23-58	NE
2014/02/22	Fine	15	64-85	0.2	24-62	NE
2014/02/23	Fine	17	65-87	0.0	18-62	NE
2014/02/25	Fine	19	77-95	0.0	13-40	NE
2014/02/27	Cloudy	20	84-93	Trace	2-47	NE
2014/02/28	Cloudy	18	84-90	Trace	21-49	NE

* King's Park's data
 - Data were not available
 # less than 24 hourly observations per day

Annex C6 Noise Monitoring Results

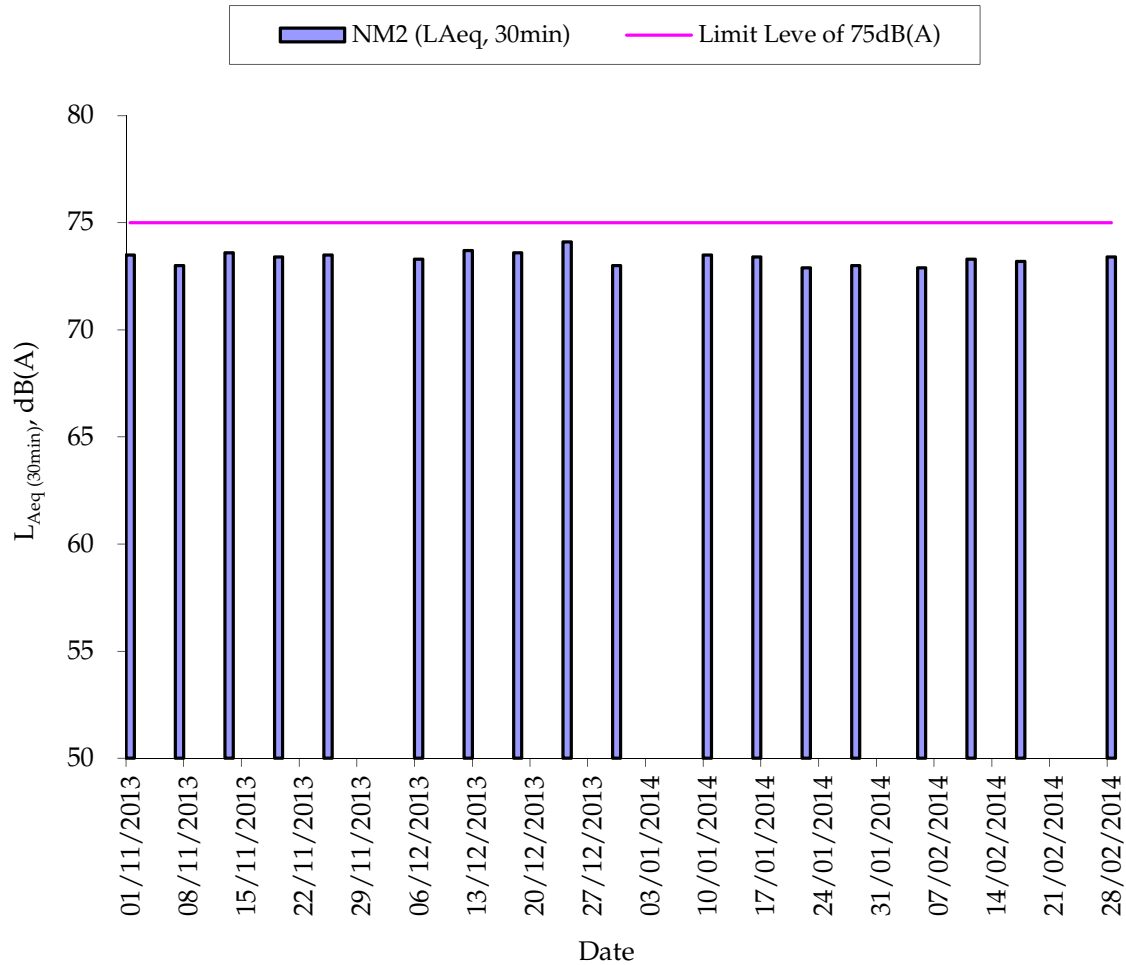
Restricted Hours Noise Monitoring Results ^[1]

Station NM1

Date	Start Time	End Time	Weather	Noise level (dB(A)), 5 min			Major Construction Noise Source(s) Observed	Other Noise Source(s) Observed	Remarks	Temp. (°C)	Wind Speed (m/s)	Noise Meter Model / ID	Calibrator Model / ID
				Leq	L10	L90							
05-Jan-14	16:14	16:19	Sunny	69	71	67		noise from nearby playground	-	17	0.5	RION- NL31 (S/N 00410224)	RION - NC73 (S/N 10997142)
	16:19	16:24	Sunny	69	71	67			-				
	16:24	16:29	Sunny	69	72	67			-				
	16:14	16:29	Sunny	69	71	67			-				
14-Jan-14	21:30	21:35	Fine	69	71	67	Noise from nearby playground	Traffic noise	-	14	1.0	RION- NL31 (S/N 00410224)	RION - NC73 (S/N 10997142)
	21:35	21:40	Fine	68	71	66			-				
	21:40	21:45	Fine	69	71	67			-				
	21:30	21:45	Fine	69	71	67			-				
19-Jan-14	11:16	11:21	Sunny	68	69	63	Noise from nearby playground	Traffic noise	-	15	0.5	RION- NL31 (S/N 00410224)	RION - NC73 (S/N 10997142)
	11:21	11:26	Sunny	68	69	63			-				
	11:26	11:31	Sunny	68	71	64			-				
	11:16	11:31	Sunny	68	70	63			-				
28-Jan-14	19:00	19:05	Fine	67	68	64	Noise from nearby playground	Traffic noise	-	18	0.5	RION- NL31 (S/N 00410224)	RION - NC73 (S/N 10997142)
	19:05	19:10	Fine	68	71	68			-				
	19:10	19:15	Fine	68	70	65			-				
	19:00	19:15	Fine	68	70	64			-				
			Min.	67									
			Max.	69									

[1] No class was held at the school during all the measurement period.

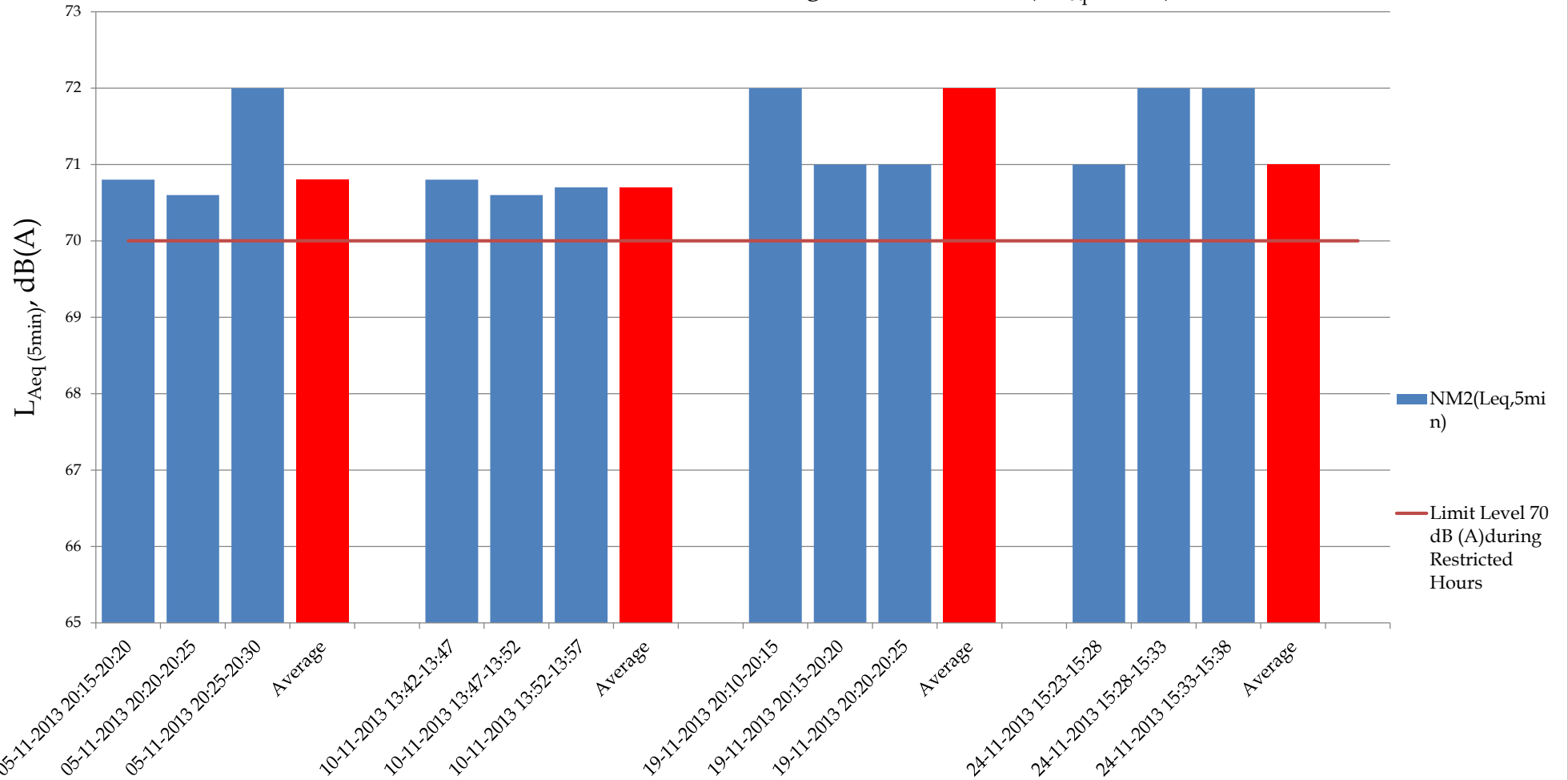
Normal Weekdays Noise Monitoring Results at NM2 ($L_{Aeq, 30min}$)



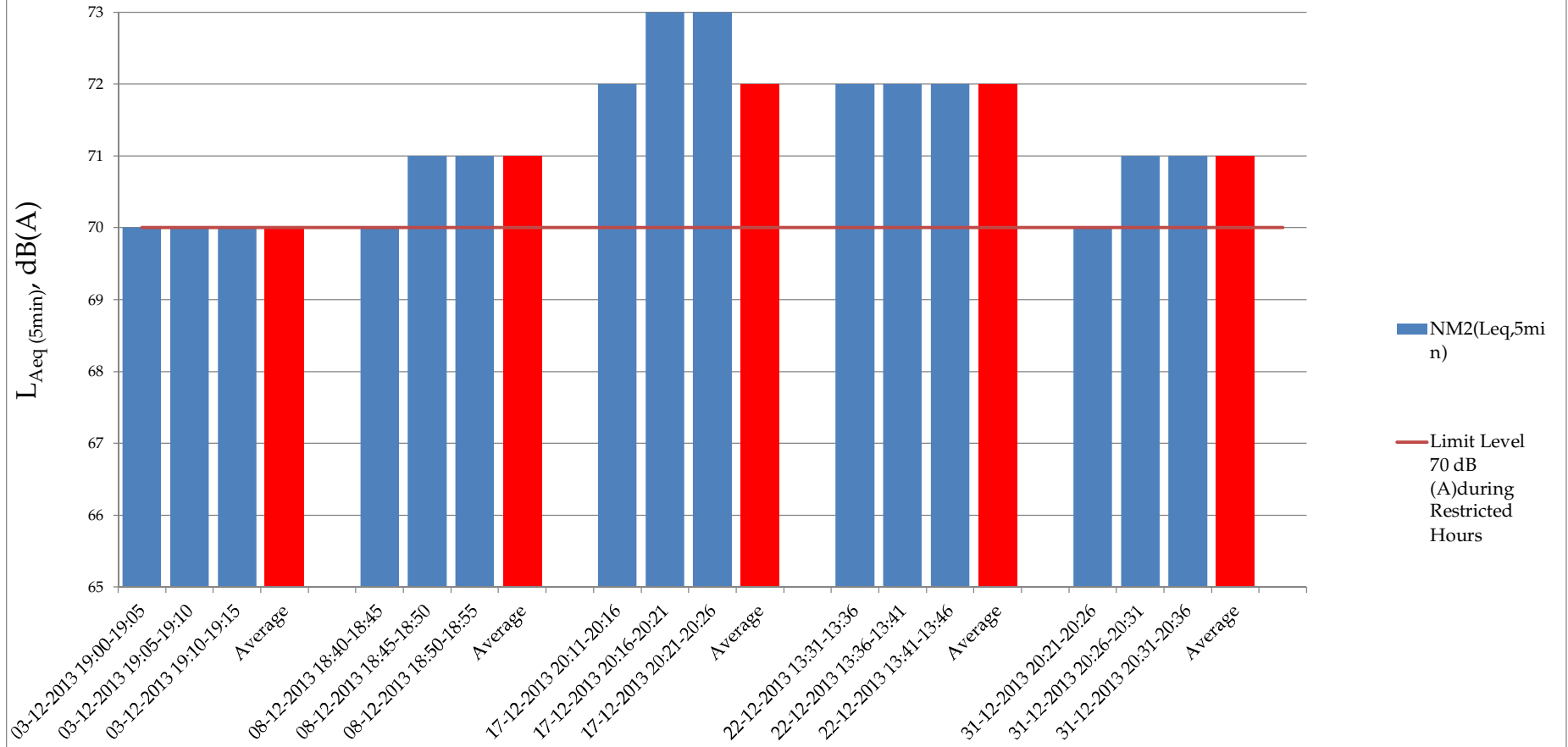
Remark:

- 75dB(A) was adopted as the Limit Level during normal weekdays in the reporting period

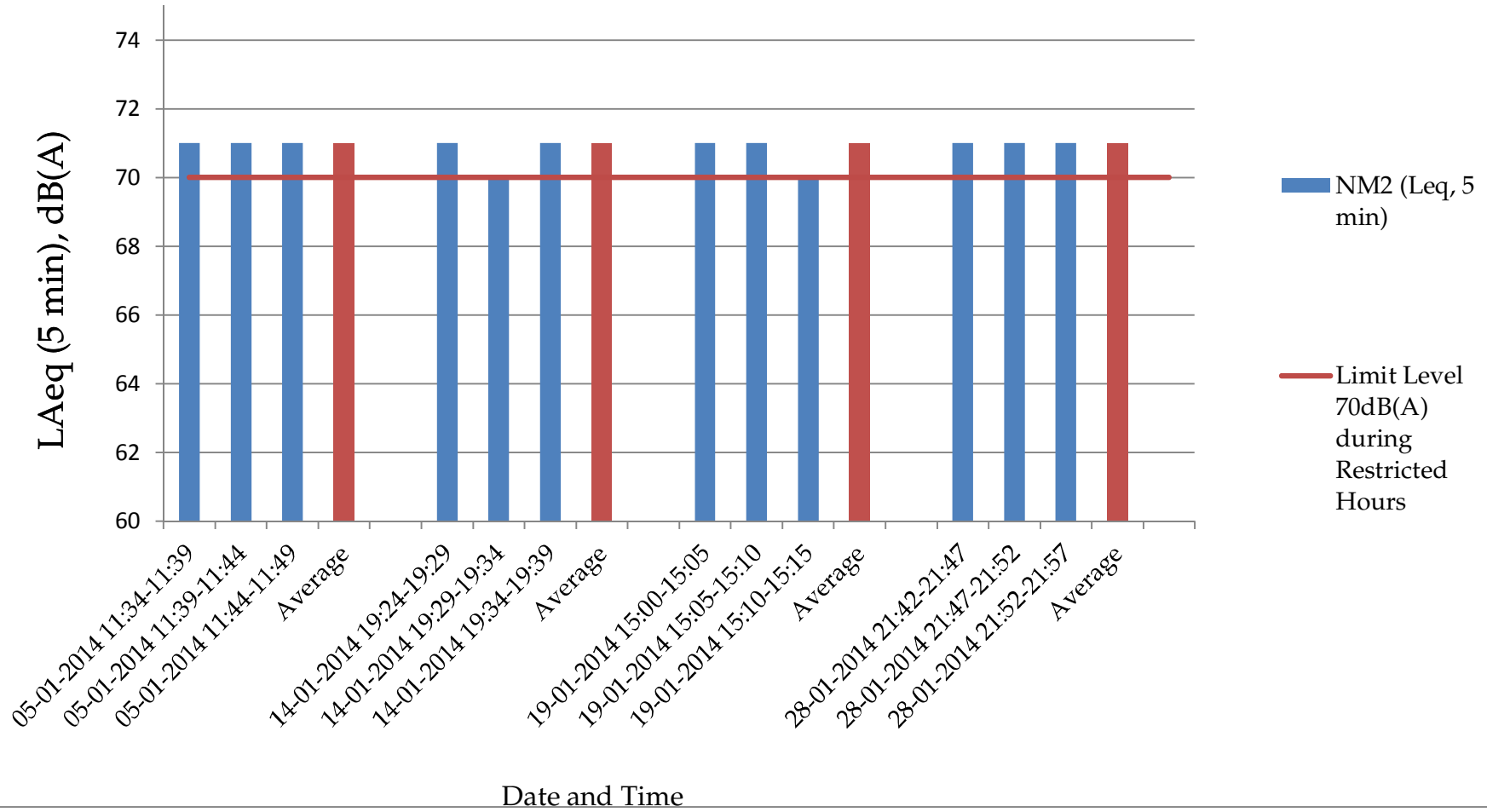
Restricted Hours Noise Monitoring Results at NM2 (L_{Aeq} , 5min)



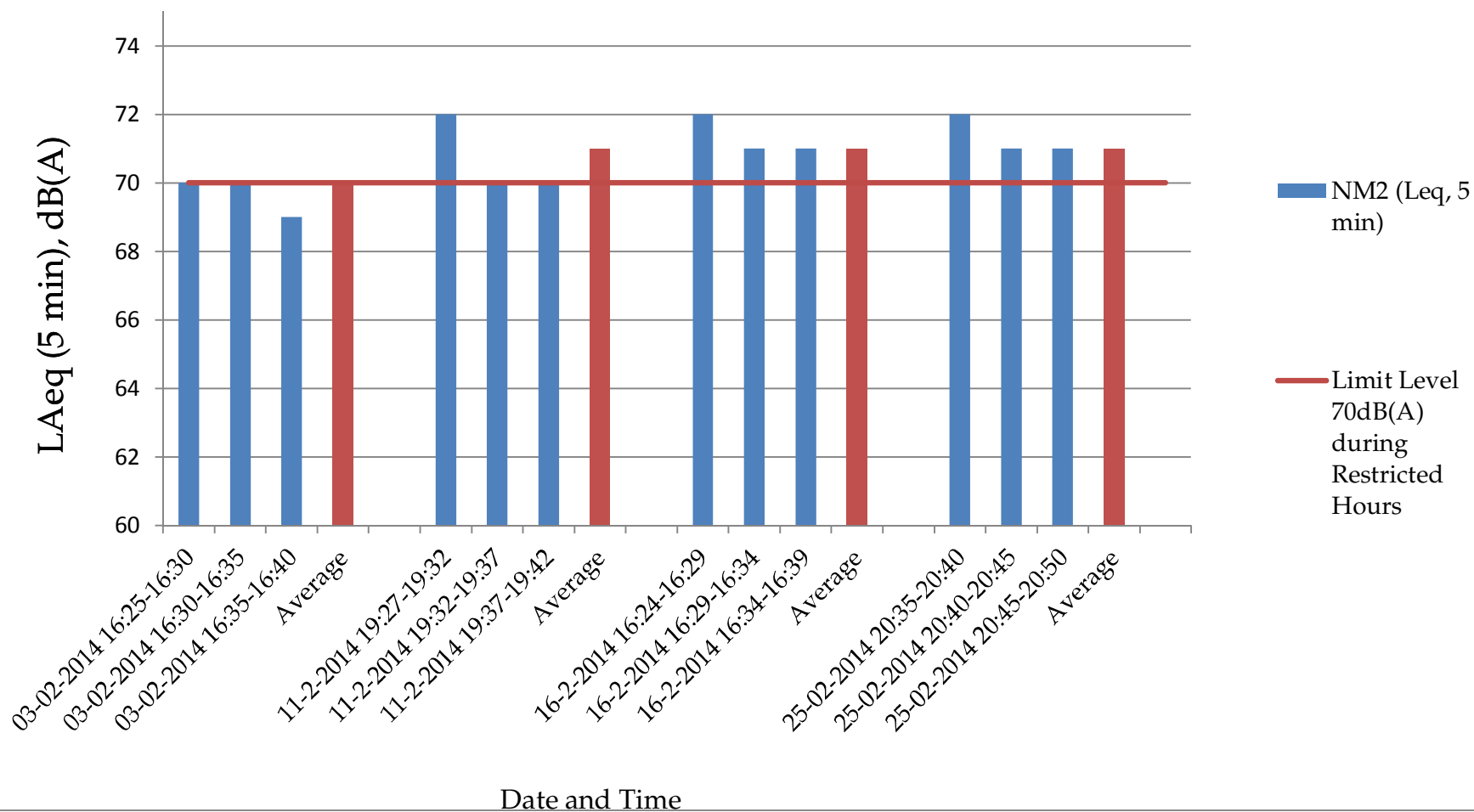
Restricted Hours Noise Monitoring Results at NM2 (L_{Aeq} 5min)



Restricted Noise Monitoring at NM2 (LAeq, 5 min)



Restricted Noise Monitoring at NM2 (LAeq, 5 min)



Annex D7

Summary of Exceedance Investigation

NOTIFICATION OF EXCEEDANCE and
INVESTIGATION REPORT

Log No.	2007/23/Noise/209
Date	8 December 2013 (Sunday) (18:45 - 18:50); (18:50 - 18:55)
Monitoring Station	NM2 (Rooftop of Hyde Building in Wanchai)
Worksite	Wan Chai East Production and Drop Shafts
Parameter	L_{Aeq} (5min)
Action Level	Not applicable for construction works during restricted hours
Limit Level	70 dB (A)
Maximum Measured Levels	70.9 dB (A) - (18:45 - 18:50); and 70.5 dB (A) - (18:50 - 18:55).
Possible Reason for Action or Limit Level Non-compliance	<p>According to the works summary provided by the Contractor, no works had been performed outside the noise enclosure. Other activities that took place during the noise monitoring session included cleaning and housekeeping; cleaning of CIFA pump and concrete pipelines, re-mixers in the casting area; operation of tally control room, alimak operation, electrical systems, kibble winder, gantry crane, and lift; and equipment repairing, cleaning and maintenance. These activities were carried out inside the noise enclosure.</p> <p>It was observed no outdoor construction activities at the Wan Chai East Production and Drop Shafts during the noise monitoring session. This is consistent with the works summary provided by the Contractor showing no outdoor construction activities that have taken place during the same period.</p> <p>Other potential noise source was also identified in the vicinity (i.e., traffic) to contribute to the measured noise level.</p> <p>In view of no outdoor construction works was carried out and contribution from other potential noise source in vicinity (ie, traffic), it is considered that the exceedances were not due to the Contract 23 construction works.</p>
Actions Taken / To Be Taken	<p>Since the exceedances were not attributable to the Contract 23 construction works, no action is therefore required.</p> <p>However, a number of residential buildings and other noise sensitive receivers are located near the Site, the Contractor is reminded to adhere strictly to the Construction Noise Mitigation Plan and to implement all relevant noise mitigation measures recommended or specified in the EIA, EM&A Manual, EMP, Method Statements, General and Particular Specifications of this Project to avoid exceedance of noise limit levels or causing noise nuisance.</p> <p>The Contractor is also reminded to ensure that the construction plant deployed for the works during restricted hours is in strict compliance with the relevant Construction Noise Permit (CNP) granted.</p>
Remarks	-

NOTIFICATION OF EXCEEDANCE and
INVESTIGATION REPORT

Log No.	2007/23/Noise/210
Date	17 December 2013 (Tuesday) (20:11 – 20:16); (20:16 – 20:21); (20:21 – 20:26)
Monitoring Station	NM2 (Rooftop of Hyde Building in Wanchai)
Worksite	Wan Chai East Production and Drop Shafts
Parameter	L_{Aeq} (5min)
Action Level	Not applicable for construction works during restricted hours
Limit Level	70 dB (A)
Maximum Measured Levels	71.9 dB (A) – (20:11 – 20:16); 72.5 dB (A) – (20:16 – 20:21); and 72.7 dB (A) – (20:21 – 20:26).
Possible Reason for Action or Limit Level Non-compliance	<p>According to the works summary provided by the Contractor, no works had been performed outside the noise enclosure. Other activities that took place during the noise monitoring session included cleaning and housekeeping; blasting; tipping of shuttle cars from dayshift muck; concrete blinding; repairing of a shuttle car; operation of tally control room, alimak operation, electrical systems, kibble winder, gantry crane, and lift; and equipment repairing, cleaning and maintenance. These activities were carried out inside the noise enclosure.</p> <p>It was observed no outdoor construction activities at the Wan Chai East Production and Drop Shafts during the noise monitoring session. This is consistent with the works summary provided by the Contractor showing no outdoor construction activities that have taken place during the same period.</p> <p>Other potential noise source was also identified in the vicinity (i.e., traffic) to contribute to the measured noise level.</p> <p>In view of no outdoor construction works was carried out and contribution from other potential noise source in vicinity (ie, traffic), it is considered that the exceedances were not due to the Contract 23 construction works.</p>
Actions Taken / To Be Taken	<p>Since the exceedances were not attributable to the Contract 23 construction works, no action is therefore required.</p> <p>However, a number of residential buildings and other noise sensitive receivers are located near the Site, the Contractor is reminded to adhere strictly to the Construction Noise Mitigation Plan and to implement all relevant noise mitigation measures recommended or specified in the EIA, EM&A Manual, EMP, Method Statements, General and Particular Specifications of this Project to avoid exceedance of noise limit levels or causing noise nuisance.</p> <p>The Contractor is also reminded to ensure that the construction plant deployed for the works during restricted hours is in strict compliance with the relevant Construction Noise Permit (CNP) granted.</p>
Remarks	-

NOTIFICATION OF EXCEEDANCE and
INVESTIGATION REPORT

Log No.	2007/23/Noise/211
Date	22 December 2013 (Sunday) (13:31 - 13:36); (13:36 - 13:41); (13:41 - 13:46)
Monitoring Station	NM2 (Rooftop of Hyde Building in Wanchai)
Worksite	Wan Chai East Production and Drop Shafts
Parameter	L_{Aeq} (5min)
Action Level	Not applicable for construction works during restricted hours
Limit Level	70 dB (A)
Maximum Measured Levels	71.9 dB (A) - (13:31 - 13:36); 71.7 dB (A) - (13:36 - 13:41); and 71.5 dB (A) - (13:41 - 13:46).
Possible Reason for Action or Limit Level Non-compliance	<p>According to the works summary provided by the Contractor, no works had been performed outside the noise enclosure. Other activities that took place during the noise monitoring session included cleaning and housekeeping; inserting of packers and measuring of water inflow; drilling of full grout fan; operation of tally control room, alimak operation, electrical systems, kibble winder, gantry crane, and lift; and equipment repairing, cleaning and maintenance. These activities were carried out inside the noise enclosure.</p> <p>It was observed no outdoor construction activities at the Wan Chai East Production and Drop Shafts during the noise monitoring session. This is consistent with the works summary provided by the Contractor showing no outdoor construction activities that have taken place during the same period.</p> <p>Other potential noise source was also identified in the vicinity (i.e., traffic) to contribute to the measured noise level.</p> <p>In view of no outdoor construction works was carried out and contribution from other potential noise source in vicinity (ie, traffic), it is considered that the exceedances were not due to the Contract 23 construction works.</p>
Actions Taken / To Be Taken	<p>Since the exceedances were not attributable to the Contract 23 construction works, no action is therefore required.</p> <p>However, a number of residential buildings and other noise sensitive receivers are located near the Site, the Contractor is reminded to adhere strictly to the Construction Noise Mitigation Plan and to implement all relevant noise mitigation measures recommended or specified in the EIA, EM&A Manual, EMP, Method Statements, General and Particular Specifications of this Project to avoid exceedance of noise limit levels or causing noise nuisance.</p> <p>The Contractor is also reminded to ensure that the construction plant deployed for the works during restricted hours is in strict compliance with the relevant Construction Noise Permit (CNP) granted.</p>
Remarks	-



Harbour Area Treatment Scheme (HATS) Stage 2A
Contract No. DC/2007/23
Construction of Sewage Conveyance from North Point to
Stonecutters Island



NOTIFICATION OF EXCEEDANCE and
INVESTIGATION REPORT

Log No.	2007/23/Noise/212
Date	31 December 2013 (Tuesday) (20:26 – 20:31); (20:31 – 20:36)
Monitoring Station	NM2 (Rooftop of Hyde Building in Wanchai)
Worksite	Wan Chai East Production and Drop Shafts
Parameter	L_{Aeq} (5min)
Action Level	Not applicable for construction works during restricted hours
Limit Level	70 dB (A)
Maximum Measured Levels	70.6 dB (A) – (20:26 – 20:31); and 70.6 dB (A) – (20:31 – 20:36).
Possible Reason for Action or Limit Level Non-compliance	<p>According to the works summary provided by the Contractor, no works had been performed outside the noise enclosure. Other activities that took place during the noise monitoring session included cleaning and housekeeping; defuming; checking of newly blasted face; destroying of spare detonators; operation of tally control room, alimak operation, electrical systems, kibble winder, gantry crane, and lift; and equipment repairing, cleaning and maintenance. These activities were carried out inside the noise enclosure.</p> <p>It was observed no outdoor construction activities at the Wan Chai East Production and Drop Shafts during the noise monitoring session. This is consistent with the works summary provided by the Contractor showing no outdoor construction activities that have taken place during the same period.</p> <p>Other potential noise source was also identified in the vicinity (i.e., traffic) to contribute to the measured noise level.</p> <p>In view of no outdoor construction works was carried out and contribution from other potential noise source in vicinity (ie, traffic), it is considered that the exceedances were not due to the Contract 23 construction works.</p>
Actions Taken / To Be Taken	<p>Since the exceedances were not attributable to the Contract 23 construction works, no action is therefore required.</p> <p>However, a number of residential buildings and other noise sensitive receivers are located near the Site, the Contractor is reminded to adhere strictly to the Construction Noise Mitigation Plan and to implement all relevant noise mitigation measures recommended or specified in the EIA, EM&A Manual, EMP, Method Statements, General and Particular Specifications of this Project to avoid exceedance of noise limit levels or causing noise nuisance.</p> <p>The Contractor is also reminded to ensure that the construction plant deployed for the works during restricted hours is in strict compliance with the relevant Construction Noise Permit (CNP) granted.</p>
Remarks	-



Harbour Area Treatment Scheme (HATS) Stage 2A
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Construction of Sewage Conveyance from North Point to
Stonecutters Island



NOTIFICATION OF EXCEEDANCE and
INVESTIGATION REPORT

Log No.	2007/23/Noise/213
Date	5 January 2014 (Sunday) (11:34 - 11:39); (11:39 - 11:44); (11:44 - 11:49)
Monitoring Station	NM2 (Rooftop of Hyde Building in Wanchai)
Worksite	Wan Chai East Production and Drop Shafts
Parameter	L _{Aeq} (5min)
Action Level	Not applicable for construction works during restricted hours
Limit Level	70 dB (A)
Maximum Measured Levels	70.9 dB (A) - (11:34 - 11:39) 70.9 dB (A) - (11:39 - 11:44); and 71.0 dB (A) - (11:44 - 11:49).
Possible Reason for Action or Limit Level Non-compliance	<p>According to the works summary provided by the Contractor, no works had been performed outside the noise enclosure. Other activities that took place during the noise monitoring session included cleaning and housekeeping; pulling of shuttering forms on top of concrete lining; drilling of blastholes; operation of tally control room, alimak operation, electrical systems, kibble winder, gantry crane, and lift; and equipment repairing, cleaning and maintenance. These activities were carried out inside the noise enclosure.</p> <p>It was observed no outdoor construction activities at the Wan Chai East Production and Drop Shafts during the noise monitoring session. This is consistent with the works summary provided by the Contractor showing no outdoor construction activities that have taken place during the same period.</p> <p>Other potential noise source was also identified in the vicinity (i.e., traffic) to contribute to the measured noise level.</p> <p>In view of no outdoor construction works was carried out and contribution from other potential noise source in vicinity (ie, traffic), it is considered that the exceedances were not due to the Contract 23 construction works.</p>
Actions Taken / To Be Taken	<p>Since the exceedances were not attributable to the Contract 23 construction works, no action is therefore required.</p> <p>However, a number of residential buildings and other noise sensitive receivers are located near the Site, the Contractor is reminded to adhere strictly to the Construction Noise Mitigation Plan and to implement all relevant noise mitigation measures recommended or specified in the EIA, EM&A Manual, EMP, Method Statements, General and Particular Specifications of this Project to avoid exceedance of noise limit levels or causing noise nuisance.</p> <p>The Contractor is also reminded to ensure that the construction plant deployed for the works during restricted hours is in strict compliance with the relevant Construction Noise Permit (CNP) granted.</p>
Remarks	-

NOTIFICATION OF EXCEEDANCE and
INVESTIGATION REPORT

Log No.	2007/23/Noise/214
Date	14 January 2014 (Tuesday) (19:24 - 19:29); (19:34 - 19:39)
Monitoring Station	NM2 (Rooftop of Hyde Building in Wanchai)
Worksite	Wan Chai East Production and Drop Shafts
Parameter	L _{Aeq} (5min)
Action Level	Not applicable for construction works during restricted hours
Limit Level	70 dB (A)
Maximum Measured Levels	70.6 dB (A) - (19:24 - 19:29); and 70.6 dB (A) - (19:34 - 19:39).
Possible Reason for Action or Limit Level Non-compliance	<p>According to the works summary provided by the Contractor, no works had been performed outside the noise enclosure. Other activities that took place during the noise monitoring session included cleaning and housekeeping; preparation of diam hoseline, removal of ventilation bags, service pipes and moving of pit bottom; connecting the rigid pipe, flexible and scissor pipes to concrete distribution system and moving; cleaning of lifter holes and pipping out of water; preparation of explosives and charging of blastholes; operation of tally control room, alimak operation, electrical systems, kibble winder, gantry crane, and lift; and equipment repairing, cleaning and maintenance. These activities were carried out inside the noise enclosure.</p> <p>It was observed no outdoor construction activities at the Wan Chai East Production and Drop Shafts during the noise monitoring session. This is consistent with the works summary provided by the Contractor showing no outdoor construction activities that have taken place during the same period.</p> <p>Other potential noise source was also identified in the vicinity (i.e., traffic) to contribute to the measured noise level.</p> <p>In view of no outdoor construction works was carried out and contribution from other potential noise source in vicinity (ie, traffic), it is considered that the exceedances were not due to the Contract 23 construction works.</p>
Actions Taken/ To Be Taken	<p>Since the exceedances were not attributable to the Contract 23 construction works, no action is therefore required.</p> <p>However, a number of residential buildings and other noise sensitive receivers are located near the Site, the Contractor is reminded to adhere strictly to the Construction Noise Mitigation Plan and to implement all relevant noise mitigation measures recommended or specified in the EIA, EM&A Manual, EMP, Method Statements, General and Particular Specifications of this Project to avoid exceedance of noise limit levels or causing noise nuisance.</p> <p>The Contractor is also reminded to ensure that the construction plant deployed for the works during restricted hours is in strict compliance with the relevant Construction Noise Permit (CNP) granted.</p>
Remarks	-



Harbour Area Treatment Scheme (HATS) Stage 2A
Contract No. DC/2007/23
Construction of Sewage Conveyance from North Point to
Stonecutters Island



NOTIFICATION OF EXCEEDANCE and
INVESTIGATION REPORT

Log No.	2007/23/Noise/215
Date	19 January 2014 (Sunday) (15:00 – 15:05); (15:05 – 15:10)
Monitoring Station	NM2 (Rooftop of Hyde Building in Wanchai)
Worksite	Wan Chai East Production and Drop Shafts
Parameter	L_{Aeq} (5min)
Action Level	Not applicable for construction works during restricted hours
Limit Level	70 dB (A)
Maximum Measured Levels	70.7 dB (A) – (15:00 – 15:05); and 70.7 dB (A) – (15:05 – 15:10).
Possible Reason for Action or Limit Level Non-compliance	<p>According to the works summary provided by the Contractor, no works had been performed outside the noise enclosure. Other activities that took place during the noise monitoring session included cleaning and housekeeping; cleaning of slickline, concrete pump, agitator and sandbagging concrete washout to the cast invert and delivery to the shaft dump station; excavation of dam; concreting and formworks; operation of tally control room, alimak operation, electrical systems, kibble winder, gantry crane, and lift; and underground equipment repairing, cleaning and maintenance. These activities were carried out inside the noise enclosure.</p> <p>It was observed no outdoor construction activities at the Wan Chai East Production and Drop Shafts during the noise monitoring session. This is consistent with the works summary provided by the Contractor showing no outdoor construction activities that have taken place during the same period.</p> <p>Other potential noise source was also identified in the vicinity (i.e., traffic) to contribute to the measured noise level.</p> <p>In view of no outdoor construction works was carried out and contribution from other potential noise source in vicinity (ie, traffic), it is considered that the exceedances were not due to the Contract 23 construction works.</p>
Actions Taken / To Be Taken	<p>Since the exceedances were not attributable to the Contract 23 construction works, no action is therefore required.</p> <p>However, a number of residential buildings and other noise sensitive receivers are located near the Site, the Contractor is reminded to adhere strictly to the Construction Noise Mitigation Plan and to implement all relevant noise mitigation measures recommended or specified in the EIA, EM&A Manual, EMP, Method Statements, General and Particular Specifications of this Project to avoid exceedance of noise limit levels or causing noise nuisance.</p> <p>The Contractor is also reminded to ensure that the construction plant deployed for the works during restricted hours is in strict compliance with the relevant Construction Noise Permit (CNP) granted.</p>
Remarks	-

NOTIFICATION OF EXCEEDANCE and
INVESTIGATION REPORT

Log No.	2007/23/Noise/216
Date	28 January 2014 (Tuesday) (21:42 – 21:47); (21:47 – 21:52); (21:52 – 21:57)
Monitoring Station	NM2 (Rooftop of Hyde Building in Wanchai)
Worksite	Wan Chai East Production and Drop Shafts
Parameter	L _{Aeq} (5min)
Action Level	Not applicable for construction works during restricted hours
Limit Level	70 dB (A)
Maximum Measured Levels	70.6 dB (A) – (21:42 – 21:47); 70.6 dB (A) – (21:47 – 21:52); and 70.5 dB (A) – (21:52 – 21:57)
Possible Reason for Action or Limit Level Non-compliance	<p>According to the works summary provided by the Contractor, no works had been performed outside the noise enclosure. Other activities that took place during the noise monitoring session included cleaning and housekeeping; adjustment of the invert formwork to desired placement by extending the screw jacks, measuring of gaps from survey offset points; drilling and installation of bolts support; fixing of mechanics and assembly of air supply outlet valves; installation of air hoses for each vibrators; scaling of underbreaks at collar and walls; post blast inspection; destroying of spare detonator; mobilising of HaggLoader; setting; operation of tally control room, alimak operation, electrical systems, kibble winder, gantry crane, and lift; and underground equipment repairing, cleaning and maintenance. These activities were carried out inside the noise enclosure.</p> <p>It was observed no outdoor construction activities at the Wan Chai East Production and Drop Shafts during the noise monitoring session. This is consistent with the works summary provided by the Contractor showing no outdoor construction activities that have taken place during the same period.</p> <p>Other potential noise source was also identified in the vicinity (i.e., traffic) to contribute to the measured noise level.</p> <p>In view of no outdoor construction works was carried out and contribution from other potential noise source in vicinity (ie, traffic), it is considered that the exceedances were not due to the Contract 23 construction works.</p>
Actions Taken / To Be Taken	<p>Since the exceedances were not attributable to the Contract 23 construction works, no action is therefore required.</p> <p>However, a number of residential buildings and other noise sensitive receivers are located near the Site, the Contractor is reminded to adhere strictly to the Construction Noise Mitigation Plan and to implement all relevant noise mitigation measures recommended or specified in the EIA, EM&A Manual, EMP, Method Statements, General and Particular Specifications of this Project to avoid exceedance of noise limit levels or causing noise nuisance.</p> <p>The Contractor is also reminded to ensure that the construction plant deployed for the works during restricted hours is in strict compliance with the relevant Construction Noise Permit (CNP) granted.</p>



Harbour Area Treatment Scheme (HATS) Stage 2A
Contract No. DC/2007/23
Construction of Sewage Conveyance from North Point to
Stonecutters Island



NOTIFICATION OF EXCEEDANCE and
INVESTIGATION REPORT

Log No.	2007/23/Noise/217
Date	11 February 2014 (Tuesday) (19:27 - 19:32)
Monitoring Station	NM2 (Rooftop of Hyde Building in Wanchai)
Worksite	Wan Chai East Production and Drop Shafts
Parameter	L _{Aeq} (5min)
Action Level	Not applicable for construction works during restricted hours
Limit Level	70 dB (A)
Maximum Measured Levels	72.4 dB (A) - (19:27 - 19:32)
Possible Reason for Action or Limit Level Non-compliance	<p>According to the works summary provided by the Contractor, no works had been performed outside the noise enclosure. Other activities that took place during the noise monitoring session included cleaning and housekeeping; drilling blastface; charging blastface; blasting; cleaning under vault shutter; checking hydraulic jacksby mechanic; vault shutter shift; choking of concrete pipes shift to shutter car with help of welder and setting concrete clear by jumbo reamer drill; operation of tally control room, alimak operation, electrical systems, kibble winder, gantry crane, and lift; and underground equipment repairing, cleaning and maintenance. These activities were carried out inside the noise enclosure.</p> <p>It was observed no outdoor construction activities at the Wan Chai East Production and Drop Shafts during the noise monitoring session. This is consistent with the works summary provided by the Contractor showing no outdoor construction activities that have taken place during the same period.</p> <p>Other potential noise source was also identified in the vicinity (i.e., traffic) to contribute to the measured noise level.</p> <p>In view of no outdoor construction works was carried out and contribution from other potential noise source in vicinity (ie, traffic), it is considered that the exceedance was not due to the Contract 23 construction works.</p>
Actions Taken/ To Be Taken	<p>Since the exceedance was not attributable to the Contract 23 construction works, no action is therefore required.</p> <p>However, a number of residential buildings and other noise sensitive receivers are located near the Site, the Contractor is reminded to adhere strictly to the Construction Noise Mitigation Plan and to implement all relevant noise mitigation measures recommended or specified in the EIA, EM&A Manual, EMP, Method Statements, General and Particular Specifications of this Project to avoid exceedance of noise limit levels or causing noise nuisance.</p> <p>The Contractor is also reminded to ensure that the construction plant deployed for the works during restricted hours is in strict compliance with the relevant Construction Noise Permit (CNP) granted.</p>
Remarks	-

NOTIFICATION OF EXCEEDANCE and
INVESTIGATION REPORT

Log No.	2007/23/Noise/218
Date	16 February 2014 (Sunday) (16:24 – 16:29);(16:29 – 16:34); and (16:34 – 16:39)
Monitoring Station	NM2 (Rooftop of Hyde Building in Wanchai)
Worksite	Wan Chai East Production and Drop Shafts
Parameter	L _{Aeq} (5min)
Action Level	Not applicable for construction works during restricted hours
Limit Level	70 dB (A)
Maximum Measured Levels	71.6 dB (A) –(16:24 – 16:29) 71.1 dB (A) –(16:29 – 16:34); and 71.1 dB (A) –(16:34 – 16:39).
Possible Reason for Action or Limit Level Non-compliance	<p>According to the works summary provided by the Contractor, no works had been performed outside the noise enclosure. Other activities that took place during the noise monitoring session included cleaning and housekeeping; drilling for eye bolts; installation of vent cable and extension of ventilation bags; drilling of blastface; balancing of invert shutter jack; invert shutter cleaning; oiling; existing invert concrete face chipping; groutint for two vault shutter; operation of tally control room, alimak operation, electrical systems, kibble winder, gantry crane, and lift; and underground equipment repairing, cleaning and maintenance. These activities were carried out inside the noise enclosure.</p> <p>It was observed no outdoor construction activities at the Wan Chai East Production and Drop Shafts during the noise monitoring session. This is consistent with the works summary provided by the Contractor showing no outdoor construction activities that have taken place during the same period.</p> <p>Other potential noise source was also identified in the vicinity (i.e., traffic) to contribute to the measured noise level.</p> <p>In view of no outdoor construction works was carried out and contribution from other potential noise source in vicinity (ie, traffic), it is considered that the exceedance were not due to the Contract 23 construction works.</p>
Actions Taken/ To Be Taken	<p>Since the exceedance were not attributable to the Contract 23 construction works, no action is therefore required.</p> <p>However, a number of residential buildings and other noise sensitive receivers are located near the Site, the Contractor is reminded to adhere strictly to the Construction Noise Mitigation Plan and to implement all relevant noise mitigation measures recommended or specified in the EIA, EM&A Manual, EMP, Method Statements, General and Particular Specifications of this Project to avoid exceedance of noise limit levels or causing noise nuisance.</p> <p>The Contractor is also reminded to ensure that the construction plant deployed for the works during restricted hours is in strict compliance with the relevant Construction Noise Permit (CNP) granted.</p>
Remarks	-

NOTIFICATION OF EXCEEDANCE and
INVESTIGATION REPORT

Log No.	2007/23/Noise/219
Date	25 February 2014 (Tuesday) (20:35 – 20:40);(20:40 – 20:45); and (20:45 – 20:50)
Monitoring Station	NM2 (Rooftop of Hyde Building in Wanchai)
Worksite	Wan Chai East Production and Drop Shafts
Parameter	L _{Aeq} (5min)
Action Level	Not applicable for construction works during restricted hours
Limit Level	70 dB (A)
Maximum Measured Levels	71.1 dB (A) –(20:35 – 20:40) 71.3 dB (A) –(20:40 – 20:45); and 71.3 dB (A) – (20:45 – 20:50).
Possible Reason for Action or Limit Level Non-compliance	<p>According to the works summary provided by the Contractor, no works had been performed outside the noise enclosure. Other activities that took place during the noise monitoring session included cleaning and housekeeping; cleaning of lifter holes of blastholes; vault concrete operation at passing bay plu area; cleaning of remixer, pumping and pipeline at Tunnel J5; operation of tally control room, alimak operation, electrical systems, kibble winder, gantry crane, and lift; and underground equipment repairing, cleaning and maintenance. These activities were carried out inside the noise enclosure.</p> <p>It was observed no outdoor construction activities at the Wan Chai East Production and Drop Shafts during the noise monitoring session. This is consistent with the works summary provided by the Contractor showing no outdoor construction activities that have taken place during the same period.</p> <p>Other potential noise source was also identified in the vicinity (i.e., traffic) to contribute to the measured noise level.</p> <p>In view of no outdoor construction works was carried out and contribution from other potential noise source in vicinity (ie, traffic), it is considered that the exceedance were not due to the Contract 23 construction works.</p>
Actions Taken/ To Be Taken	<p>Since the exceedance were not attributable to the Contract 23 construction works, no action is therefore required.</p> <p>However, a number of residential buildings and other noise sensitive receivers are located near the Site, the Contractor is reminded to adhere strictly to the Construction Noise Mitigation Plan and to implement all relevant noise mitigation measures recommended or specified in the EIA, EM&A Manual, EMP, Method Statements, General and Particular Specifications of this Project to avoid exceedance of noise limit levels or causing noise nuisance.</p> <p>The Contractor is also reminded to ensure that the construction plant deployed for the works during restricted hours is in strict compliance with the relevant Construction Noise Permit (CNP) granted.</p>
Remarks	-

Annex D8 Cumulative Complaint and Summons/Prosecutions Log

Reporting Month	Number of Complaints in Reporting Month	Number of Summons/Prosecutions in Reporting Month
December 2009	0	0
January 2010	0	0
February 2010	0	0
March 2010	0	0
April 2010	0	0
May 2010	0	0
June 2010	0	0
July 2010	0	0
August 2010	0	0
September 2010	0	0
October 2010	0	0
November 2010	0	0
December 2010	0	0
January 2011	0	0
February 2011	0	0
March 2011	0	0
April 2011	0	0
May 2011	0	0

Annex D8 Cumulative Complaint and Summons/Prosecutions Log

Reporting Month	Number of Complaints in Reporting Month	Number of Summons/Prosecutions in Reporting Month
June 2011	0	0
July 2011	0	0
August 2011	0	0
September 2011	0	0
October 2011	0	0
November 2011	1	0
December 2011	0	0
January 2012	0	0
February 2012	0	0
March 2012	0	0
April 2012	0	0
May 2012	0	0
June 2012	0	0
July 2012	0	0
August 2012	0	0
September 2012	0	0
October 2012	0	0
November 2012	0	0

Annex D8 Cumulative Complaint and Summons/Prosecutions Log

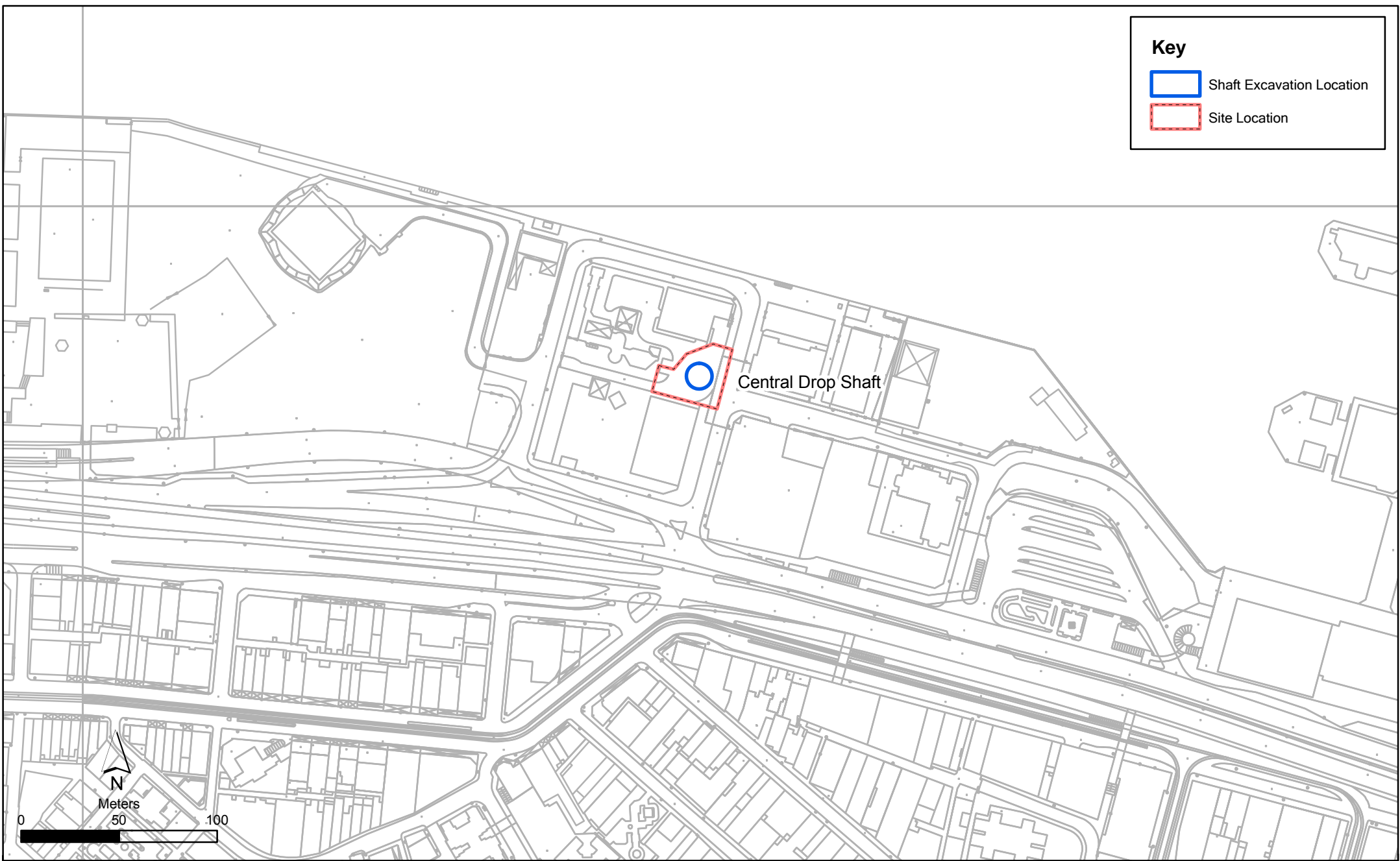
Reporting Month	Number of Complaints in Reporting Month	Number of Summons/Prosecutions in Reporting Month
December 2012	0	0
January 2013	0	0
February 2013	0	0
March 2013	0	0
April 2013	0	0
May 2013	0	0
June 2013	0	0
July 2013	0	0
August 2013	0	0
September 2013	0	0
October 2013	0	0
November 2013	0	0
December 2013	0	0
January 2014	0	0
February 2014	0	0
Overall Total	1	0

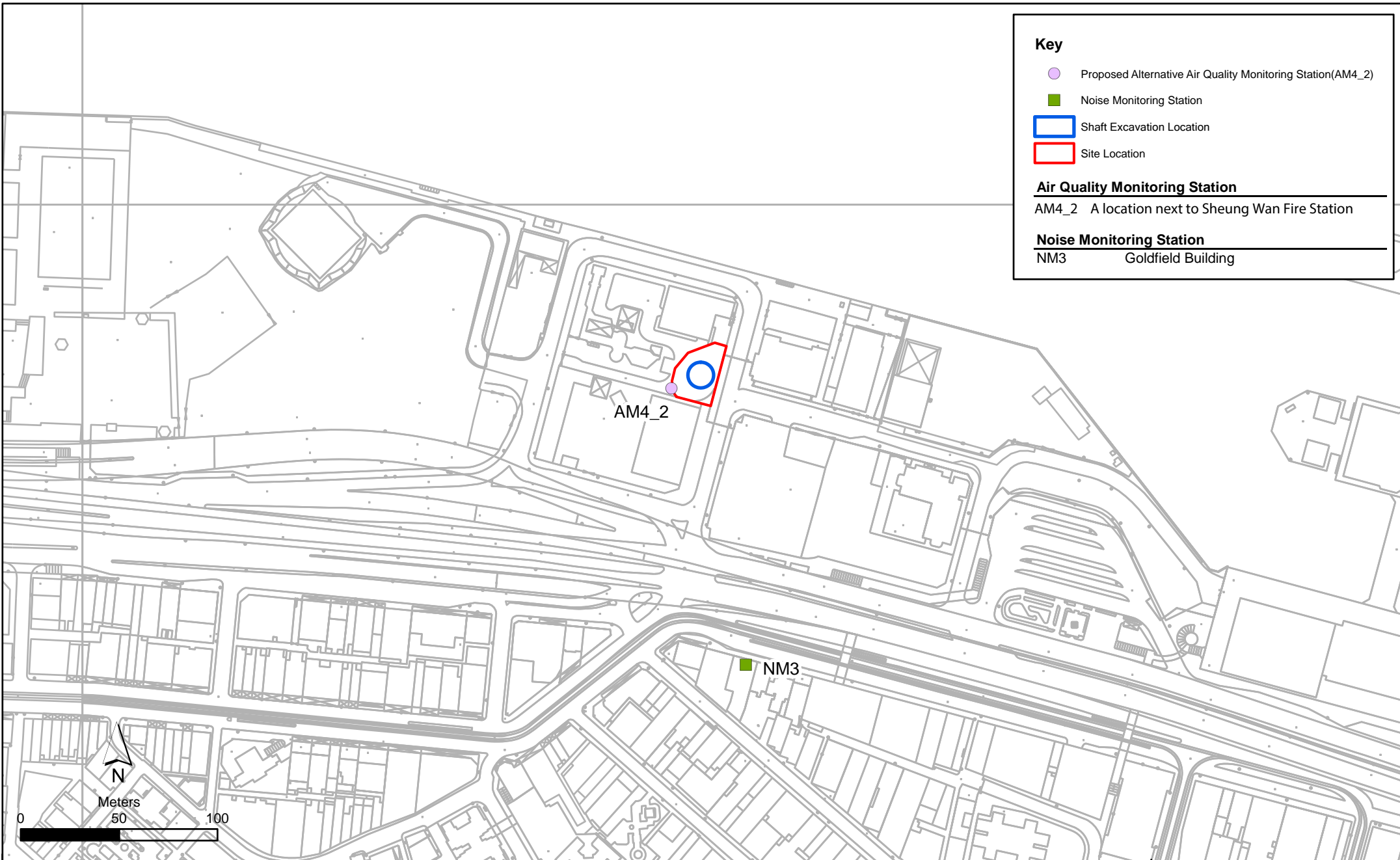
Annex E

Central Drop Shaft

Key

-  Shaft Excavation Location
-  Site Location





Key

- Proposed Alternative Air Quality Monitoring Station (AM4_2)
- Noise Monitoring Station
- Shaft Excavation Location
- Site Location

Air Quality Monitoring Station

AM4_2 A location next to Sheung Wan Fire Station

Noise Monitoring Station

NM3 Goldfield Building

Annex E2

Contract No. DC/2007/23
 Harbour Area Treatment Scheme Stage 2A
 Construction of Sewage Conveyance System from North Point to Stonecutters Island
Impact Air Quality & Noise Monitoring Stations (Central)

Environmental Resources Management



File: EM&A and proposed stations\
 0104887_Centra_NMAM_Annex_Oct2012.mxd
 Date: 10-Oct-12

Annex E3 Not Used

ANNEX E4 - SUMMARY OF MITIGATION MEASURES IMPLEMENTATION SCHEDULE (DECEMBER 2013)

Type of Impact	Environmental Protection Measures	Location/ Timing	Status
<i>Construction Phase</i>			
Air Quality	<p>The Air Pollution Control (Construction Dust) Regulation shall be implemented and good site practices shall be incorporated in the contract clauses to minimise construction dust impact. Control measures relevant to this Project are listed below:</p> <ul style="list-style-type: none"> • skip hoist for material transport should be totally enclosed by impervious sheeting; • every vehicle should be washed to remove any dusty materials from its body and wheels before leaving a construction site; • the area where vehicle washing takes place and the section of the road between the washing facilities and the exit point should be paved with concrete, bituminous materials or hardcores; • where a site boundary adjoins a road, streets or other accessible to the public, hoarding of not less than 2.4 m high from ground level should be provided along the entire length except for a site entrance or exit; • every stock of more than 20 bags of cement should be covered entirely by impervious sheeting placed in an area sheltered on the top and the 3 sides; • regular watering, with complete coverage, to reduce dust emission from exposed site surfaces and unpaved roads, particularly during dry weather; • site enclosure and covering of any aggregate or dusty material storage piles to reduce emissions. Where this is not practicable owing to frequent usage, watering should be applied to aggregate fines; • open stock piles should be avoided or covered and prevent placing dusty material storage piles near ASRs if possible; • tarpaulin covering of all dusty vehicle loads transported to, from and between site locations; and • instigation of an environmental monitoring auditing program to monitor the construction process in order to enforce controls and modify method of work if dusty conditions arise. 	All work sites / during construction	√
Air Quality	<p>The following watering measures for specific site would be required to control the fugitive dust impacts:</p> <ul style="list-style-type: none"> • watering four times per day within worksites at the Central PTW. 	All work sites / during construction	√
<i>Operational Phase</i>			

ANNEX E4 - SUMMARY OF MITIGATION MEASURES IMPLEMENTATION SCHEDULE (DECEMBER 2013)

Type of Impact	Environmental Protection Measures	Location/ Timing	Status
Air Quality	<p>Good housekeeping for SCISTW and PTWs listed below should be followed to ameliorate any odour impact from the plant and these standard practices should be included in the plant operator manual.</p> <ul style="list-style-type: none"> • Screens should be cleaned regularly to remove any accumulated organic debris • Grit and screening transfer systems should be flushed regularly with water to remove organic debris and grit • Grit and screened materials should be transferred to closed containers to minimise odour escape • Scum and grease collection wells and troughs should be emptied and flushed regularly to prevent putrefaction of accumulated organics • Skim and remove floating solids and grease from primary clarifiers regularly • Frequent sludge withdrawal from tanks is necessary to prevent the production of gases • Sludge cake should be transferred to closed containers • Sludge containers should be flushed with water regularly 	All work sites / during construction	NA. Measures not required until commencement of operational phase
Air Quality	Commissioning tests for all deodorisation system should be included in the Design and Construction Contract Document.	All PTW and SCISTW/ during operational phase	NA. Measures not required until commencement of operational phase
<i>Construction Phase</i>			
Noise	Use of quiet PME, movable barriers and acoustic mats	All work sites / during construction	√

ANNEX E4 - SUMMARY OF MITIGATION MEASURES IMPLEMENTATION SCHEDULE (DECEMBER 2013)

Type of Impact	Environmental Protection Measures	Location/ Timing	Status
Noise	<p>Good Site Practice:</p> <ul style="list-style-type: none"> only well-maintained plant should be operated on-site and plant should be serviced regularly during the construction program; silencers or mufflers on construction equipment should be utilised and should be properly maintained during the construction program; mobile plant, if any, should be sited as far from NSRs as possible; machines and plant (such as trucks) that may be in intermittent use should be shut down between work periods or should be throttled down to a minimum; plant known to emit noise strongly in one direction should, wherever possible, be orientated so that the noise is directed away from the nearby NSRs; and material stockpiles and other structures should be effectively utilised, wherever practicable, in screening noise from on-site construction activities; <p>Environmental audit shall be carried out to ensure that appropriate noise control measures would be properly implemented.</p>	All work sites / during construction	√
<i>Construction Phase</i>			
Water Quality	<p>Construction Site Runoff and General Construction Activities</p> <p>The mitigation measures as outlined in the ProPECC PN 1/94 Construction Site Drainage should be adopted where applicable.</p>	All work sites / during construction	√
Water Quality	<p>Effluent Discharge</p> <p>There is a need to apply to EPD for a discharge licence for discharge of effluent from the construction site under the WPCO. The discharge quality must meet the requirements specified in the discharge licence. If monitoring of the treated effluent quality from the works areas is required during the construction phase of the Project, the monitoring should be carried out in accordance with the WPCO license which is under the ambit of regional office (RO) of EPD. Minimum distances of 100 m should be maintained between the discharge points of construction site effluent and the existing saltwater intakes.</p>	All work sites / during construction	√

ANNEX E4 - SUMMARY OF MITIGATION MEASURES IMPLEMENTATION SCHEDULE (DECEMBER 2013)

Type of Impact	Environmental Protection Measures	Location/ Timing	Status
Water Quality	Accidental Spillage of Chemicals Contractor must register as a chemical waste producer if chemical wastes would be produced from the construction activities. The Waste Disposal Ordinance (Cap 354) and its subsidiary regulations in particular the Waste Disposal (Chemical Waste) (General) Regulation should be observed and complied with for control of chemical wastes.	All work sites / during construction	√
Water Quality	Any service shop and maintenance facilities should be located on hard standings within a bunded area, and sumps and oil interceptors should be provided. Maintenance of vehicles and equipment involving activities with potential for leakage and spillage should only be undertaken within the areas appropriately equipped to control these discharges.	All work sites / during construction	√
Water Quality	Disposal of chemical wastes should be carried out in compliance with the Waste Disposal Ordinance. The Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes published under the Waste Disposal Ordinance details the requirements to deal with chemical wastes. General requirements are given as follows: <ul style="list-style-type: none"> • Suitable containers should be used to hold the chemical wastes to avoid leakage or spillage during storage, handling and transport. • Chemical waste containers should be suitably labelled, to notify and warn the personnel who are handling the wastes, to avoid accidents. • Storage area should be selected at a safe location on site and adequate space should be allocated to the storage area. 	All work sites / during construction	√

ANNEX E4 - SUMMARY OF MITIGATION MEASURES IMPLEMENTATION SCHEDULE (DECEMBER 2013)

Type of Impact	Environmental Protection Measures	Location/ Timing	Status
Water Quality	<p>Construction Works in Close Proximity of Storm Drains or Seafront</p> <p>To minimise the potential water quality impacts from the construction works located at or near any watercourse, the practices outlined below should be adopted where applicable.</p> <ul style="list-style-type: none"> • The use of less or smaller construction plants may be specified to reduce the disturbance to the storm water courses or marine environment. • Temporary storage of materials (e.g. equipment, filling materials, chemicals and fuel) and temporary stockpile of construction materials should be located well away from any water courses during carrying out of the construction works. • Stockpiling of construction materials and dusty materials should be covered and located away from any water courses. • Construction debris and spoil should be covered up and/or disposed of as soon as possible to avoid being washed into the nearby water receivers. • Construction activities, which generate large amount of wastewater, should be carried out in a distance away from the waterfront, where practicable. • Proper shoring may need to be erected in order to prevent soil/mud from slipping into the storm culvert or sea 	All work sites / during construction	√

ANNEX E4 - SUMMARY OF MITIGATION MEASURES IMPLEMENTATION SCHEDULE (DECEMBER 2013)

Type of Impact	Environmental Protection Measures	Location/ Timing	Status
<i>Operational Phase</i>			
Water Quality	Dual power supply, standby facilities for the main treatment units and standby equipment parts / accessories should be provided as far as possible at the SCISTW to minimise the chance of emergency discharge.	SCISTW and all the Stage 2 PTWs / Operation Stage	NA. Measures not required until commencement of operational phase
Water Quality	Standby unit(s) and dual (backup) power supply would be provided at all the Stage 2 PTWs to reduce the risk of equipment breakdown at the PTWs.	Stage 2 PTWs / Operation Stage	NA. Measures not required until commencement of operational phase
<i>Construction Phase</i>			
Waste	Reusable steel or concrete panel shutters, fencing and hoarding and signboard should be used as a preferred alternative to items made of wood, to minimise wastage of wood. Attention should be paid to WBTC No. 19/2001 - Metallic Site Hoardings and Signboards to reduce the amount of timber used on construction sites. Metallic alternatives to timber are readily available and should be used rather than new timber. Precast concrete units should be adopted wherever feasible to minimise the use of timber formwork.	All work sites / during the construction period	√
Waste	All waste materials should be segregated into categories covering: <ul style="list-style-type: none"> • excavated materials suitable for reuse on-site; • excavated materials suitable for public filling facilities; • remaining C&D waste for landfill; • chemical waste; and • general refuse for landfill. 	All work sites / during the construction period	√

ANNEX E4 - SUMMARY OF MITIGATION MEASURES IMPLEMENTATION SCHEDULE (DECEMBER 2013)

Type of Impact	Environmental Protection Measures	Location/ Timing	Status
Waste	<p>Recommendations to achieve waste reduction include:</p> <ul style="list-style-type: none"> Sort C&D waste from demolition of existing facilities to recover recyclable portions such as metals; 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; and Proper storage and site practices to minimise the potential for damage or contamination of construction materials. 	All work sites / during the construction period	√
Waste	<p>Recommendations for good site practices during construction activities include:-</p> <ul style="list-style-type: none"> Nomination of an approved person, such as a site manager, to be responsible for good site practices, arrangements for collection and effective disposal to an appropriate facility, of all wastes generated at the site Training of site personnel in proper waste management and chemical waste handling procedures Develop and provide toolbox talk for on-site sorting of C&D materials to enhance worker's awareness in handling, sorting, reuse and recycling of C&D materials. Provision of sufficient waste disposal points and regular collection of waste Regular cleaning and maintenance programme for drainage systems, sumps and oil interceptors 	All work sites / during the construction period	√
Waste	Bentonite slurries used in diaphragm wall construction should be reconditioned and reused wherever practicable. The disposal of residual used bentonite slurry should follow the good practice guidelines stated in ProPECC PN 1/94 "Construction Site Drainage".	All work sites / during the construction period	NA
Waste	Adequate number of portable toilets at temporary works areas or the PTWs to ensure that sewage from site staff would be properly collected.	All work sites / during the construction period	√

ANNEX E4 - SUMMARY OF MITIGATION MEASURES IMPLEMENTATION SCHEDULE (DECEMBER 2013)

Type of Impact	Environmental Protection Measures	Location/ Timing	Status
Waste	General refuse should be stored in enclosed bins, skips or compaction units separating from C&D material and disposed of at designated landfill.	All work sites / during the construction period	√
Waste	The recyclable component of the municipal waste generated by the workforce, such as aluminium cans, paper and cleansed plastic containers should be separated from other waste. Provision and collection of recycling bins for different types of recyclable waste should be set up by the Contractor. The Contractor should also be responsible for arranging recycling companies to collect these materials.	All work sites / during the construction period	√
Waste	If chemical wastes are produced at the construction site, the Contractor would be required to register with the EPD as a chemical waste producer and to follow the guidelines stated in the Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes. Good quality containers compatible with the chemical wastes should be used, and incompatible chemicals should be stored separately. Appropriate labels should be securely attached on each chemical waste container indicating the corresponding chemical characteristics of the chemical waste, such as explosive, flammable, oxidising, irritant, toxic, harmful, corrosive, etc. The Contractor shall use a licensed collector to transport and dispose of the chemical wastes, to either the approved Chemical Waste Treatment Centre, or another licensed facility, in accordance with the Waste Disposal (Chemical Waste) (General) Regulation.	All work sites / during the construction period	√
Waste	Prior to excavation of the marine deposit layer, the deposit should be tested in accordance with the ETWB TC(W) No. 34/2002 and the results should be presented in a Preliminary Sediment Quality Report. The marine deposit should be disposed of at the disposal site designated by the Marine Fill Committee (MFC) or Director of Environmental Protection (DEP) depending on the test results.	All work sites / during the construction period	√
<i>Construction Phase</i>			

ANNEX E4 - SUMMARY OF MITIGATION MEASURES IMPLEMENTATION SCHEDULE (DECEMBER 2013)

Type of Impact	Environmental Protection Measures	Location/ Timing	Status
Landscape & Visual	<ul style="list-style-type: none"> • Topsoil, where identified, should be stripped and stored for re-use in the construction of the soft landscape works, where practical. • Existing trees to be retained on site should be carefully protected during construction. • Trees unavoidably affected by the works should be transplanted where practical. • Compensatory tree planting should be provided to compensate for felled trees. • Control of night-time lighting. • Erection of decorative screen hoarding compatible with the surrounding setting. 	All the works areas, PTWs and SCISTW/ during the construction period	√
<i>Operational Phase</i>			
Landscape & Visual	<ul style="list-style-type: none"> • Aesthetic design of the façade of PTW and associated structures to harmonise with the surrounding settings. • Shrub and Climbing Plants to soften proposed structures / Roof Greening. • Buffer Tree and Shrub Planting to screen proposed associated structures. • Reinstated of disturbed area 	All the works areas, PTWs and SCISTW/ during the construction period	NA. Measures not required until commencement of operational phase
<i>Construction Phase</i>			
Cultural Heritage	The construction vibration control limit (ppv of 25mm/s) shall be strictly followed.	Identified historical buildings/structures as mentioned in Tables 15.8 and 15.9. During blasting for tunnel, shafts, effluent conveyance system and disinfection facilities in the vicinity of the buildings/ structures	NA. Vibration monitoring has not been launched during the reporting period.

ANNEX E4 - SUMMARY OF MITIGATION MEASURES IMPLEMENTATION SCHEDULE (DECEMBER 2013)

Type of Impact	Environmental Protection Measures	Location/ Timing	Status
	Monitoring of vibration limits shall be conducted and reported as a requirement of EM&A programme	Identified historical buildings/structures as mentioned in Tables 15.8 and 15.9. During blasting for tunnel, shafts, effluent conveyance system and disinfection facilities in the vicinity of the buildings/ structures	NA. Vibration monitoring has not been launched during the reporting period.

Remark:

- √ Compliance of Mitigation Measures
- <> Compliance of Mitigation but need improvement
- x Non-compliance of Mitigation Measures
- Δ Deficiency of Mitigation Measures but rectified by Gammon Construction Limited
- NA Not Applicable

ANNEX E4 - SUMMARY OF MITIGATION MEASURES IMPLEMENTATION SCHEDULE (JANUARY 2014)

Type of Impact	Environmental Protection Measures	Location/ Timing	Status
<i>Construction Phase</i>			
Air Quality	<p>The Air Pollution Control (Construction Dust) Regulation shall be implemented and good site practices shall be incorporated in the contract clauses to minimise construction dust impact. Control measures relevant to this Project are listed below:</p> <ul style="list-style-type: none"> • skip hoist for material transport should be totally enclosed by impervious sheeting; • every vehicle should be washed to remove any dusty materials from its body and wheels before leaving a construction site; • the area where vehicle washing takes place and the section of the road between the washing facilities and the exit point should be paved with concrete, bituminous materials or hardcores; • where a site boundary adjoins a road, streets or other accessible to the public, hoarding of not less than 2.4 m high from ground level should be provided along the entire length except for a site entrance or exit; • every stock of more than 20 bags of cement should be covered entirely by impervious sheeting placed in an area sheltered on the top and the 3 sides; • regular watering, with complete coverage, to reduce dust emission from exposed site surfaces and unpaved roads, particularly during dry weather; • site enclosure and covering of any aggregate or dusty material storage piles to reduce emissions. Where this is not practicable owing to frequent usage, watering should be applied to aggregate fines; • open stock piles should be avoided or covered and prevent placing dusty material storage piles near ASRs if possible; • tarpaulin covering of all dusty vehicle loads transported to, from and between site locations; and • instigation of an environmental monitoring auditing program to monitor the construction process in order to enforce controls and modify method of work if dusty conditions arise. 	All work sites / during construction	√
Air Quality	<p>The following watering measures for specific site would be required to control the fugitive dust impacts:</p> <ul style="list-style-type: none"> • watering four times per day within worksites at the Central PTW. 	All work sites / during construction	√
<i>Operational Phase</i>			

ANNEX E4 - SUMMARY OF MITIGATION MEASURES IMPLEMENTATION SCHEDULE (JANUARY 2014)

Type of Impact	Environmental Protection Measures	Location/ Timing	Status
Air Quality	<p>Good housekeeping for SCISTW and PTWs listed below should be followed to ameliorate any odour impact from the plant and these standard practices should be included in the plant operator manual.</p> <ul style="list-style-type: none"> • Screens should be cleaned regularly to remove any accumulated organic debris • Grit and screening transfer systems should be flushed regularly with water to remove organic debris and grit • Grit and screened materials should be transferred to closed containers to minimise odour escape • Scum and grease collection wells and troughs should be emptied and flushed regularly to prevent putrefaction of accumulated organics • Skim and remove floating solids and grease from primary clarifiers regularly • Frequent sludge withdrawal from tanks is necessary to prevent the production of gases • Sludge cake should be transferred to closed containers • Sludge containers should be flushed with water regularly 	All work sites / during construction	NA. Measures not required until commencement of operational phase
Air Quality	Commissioning tests for all deodorisation system should be included in the Design and Construction Contract Document.	All PTW and SCISTW/ during operational phase	NA. Measures not required until commencement of operational phase
<i>Construction Phase</i>			
Noise	Use of quiet PME, movable barriers and acoustic mats	All work sites / during construction	√

ANNEX E4 - SUMMARY OF MITIGATION MEASURES IMPLEMENTATION SCHEDULE (JANUARY 2014)

Type of Impact	Environmental Protection Measures	Location/ Timing	Status
Noise	<p>Good Site Practice:</p> <ul style="list-style-type: none"> only well-maintained plant should be operated on-site and plant should be serviced regularly during the construction program; silencers or mufflers on construction equipment should be utilised and should be properly maintained during the construction program; mobile plant, if any, should be sited as far from NSRs as possible; machines and plant (such as trucks) that may be in intermittent use should be shut down between work periods or should be throttled down to a minimum; plant known to emit noise strongly in one direction should, wherever possible, be orientated so that the noise is directed away from the nearby NSRs; and material stockpiles and other structures should be effectively utilised, wherever practicable, in screening noise from on-site construction activities; <p>Environmental audit shall be carried out to ensure that appropriate noise control measures would be properly implemented.</p>	All work sites / during construction	√
<i>Construction Phase</i>			
Water Quality	<p>Construction Site Runoff and General Construction Activities</p> <p>The mitigation measures as outlined in the ProPECC PN 1/94</p> <p>Construction Site Drainage should be adopted where applicable.</p>	All work sites / during construction	√
Water Quality	<p>Effluent Discharge</p> <p>There is a need to apply to EPD for a discharge licence for discharge of effluent from the construction site under the WPCO. The discharge quality must meet the requirements specified in the discharge licence. If monitoring of the treated effluent quality from the works areas is required during the construction phase of the Project, the monitoring should be carried out in accordance with the WPCO license which is under the ambit of regional office (RO) of EPD. Minimum distances of 100 m should be maintained between the discharge points of construction site effluent and the existing saltwater intakes.</p>	All work sites / during construction	√

ANNEX E4 - SUMMARY OF MITIGATION MEASURES IMPLEMENTATION SCHEDULE (JANUARY 2014)

Type of Impact	Environmental Protection Measures	Location/ Timing	Status
Water Quality	Accidental Spillage of Chemicals Contractor must register as a chemical waste producer if chemical wastes would be produced from the construction activities. The Waste Disposal Ordinance (Cap 354) and its subsidiary regulations in particular the Waste Disposal (Chemical Waste) (General) Regulation should be observed and complied with for control of chemical wastes.	All work sites / during construction	√
Water Quality	Any service shop and maintenance facilities should be located on hard standings within a bunded area, and sumps and oil interceptors should be provided. Maintenance of vehicles and equipment involving activities with potential for leakage and spillage should only be undertaken within the areas appropriately equipped to control these discharges.	All work sites / during construction	√
Water Quality	Disposal of chemical wastes should be carried out in compliance with the Waste Disposal Ordinance. The Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes published under the Waste Disposal Ordinance details the requirements to deal with chemical wastes. General requirements are given as follows: <ul style="list-style-type: none"> • Suitable containers should be used to hold the chemical wastes to avoid leakage or spillage during storage, handling and transport. • Chemical waste containers should be suitably labelled, to notify and warn the personnel who are handling the wastes, to avoid accidents. • Storage area should be selected at a safe location on site and adequate space should be allocated to the storage area. 	All work sites / during construction	<>

ANNEX E4 - SUMMARY OF MITIGATION MEASURES IMPLEMENTATION SCHEDULE (JANUARY 2014)

Type of Impact	Environmental Protection Measures	Location/ Timing	Status
Water Quality	<p>Construction Works in Close Proximity of Storm Drains or Seafront</p> <p>To minimise the potential water quality impacts from the construction works located at or near any watercourse, the practices outlined below should be adopted where applicable.</p> <ul style="list-style-type: none"> • The use of less or smaller construction plants may be specified to reduce the disturbance to the storm water courses or marine environment. • Temporary storage of materials (e.g. equipment, filling materials, chemicals and fuel) and temporary stockpile of construction materials should be located well away from any water courses during carrying out of the construction works. • Stockpiling of construction materials and dusty materials should be covered and located away from any water courses. • Construction debris and spoil should be covered up and/or disposed of as soon as possible to avoid being washed into the nearby water receivers. • Construction activities, which generate large amount of wastewater, should be carried out in a distance away from the waterfront, where practicable. • Proper shoring may need to be erected in order to prevent soil/mud from slipping into the storm culvert or sea 	All work sites / during construction	√

ANNEX E4 - SUMMARY OF MITIGATION MEASURES IMPLEMENTATION SCHEDULE (JANUARY 2014)

Type of Impact	Environmental Protection Measures	Location/ Timing	Status
<i>Operational Phase</i>			
Water Quality	Dual power supply, standby facilities for the main treatment units and standby equipment parts / accessories should be provided as far as possible at the SCISTW to minimise the chance of emergency discharge.	SCISTW and all the Stage 2 PTWs / Operation Stage	NA. Measures not required until commencement of operational phase
Water Quality	Standby unit(s) and dual (backup) power supply would be provided at all the Stage 2 PTWs to reduce the risk of equipment breakdown at the PTWs.	Stage 2 PTWs / Operation Stage	NA. Measures not required until commencement of operational phase
<i>Construction Phase</i>			
Waste	Reusable steel or concrete panel shutters, fencing and hoarding and signboard should be used as a preferred alternative to items made of wood, to minimise wastage of wood. Attention should be paid to WBTC No. 19/2001 - Metallic Site Hoardings and Signboards to reduce the amount of timber used on construction sites. Metallic alternatives to timber are readily available and should be used rather than new timber. Precast concrete units should be adopted wherever feasible to minimise the use of timber formwork.	All work sites / during the construction period	√
Waste	All waste materials should be segregated into categories covering: <ul style="list-style-type: none"> • excavated materials suitable for reuse on-site; • excavated materials suitable for public filling facilities; • remaining C&D waste for landfill; • chemical waste; and • general refuse for landfill. 	All work sites / during the construction period	√

ANNEX E4 - SUMMARY OF MITIGATION MEASURES IMPLEMENTATION SCHEDULE (JANUARY 2014)

Type of Impact	Environmental Protection Measures	Location/ Timing	Status
Waste	<p>Recommendations to achieve waste reduction include:</p> <ul style="list-style-type: none"> Sort C&D waste from demolition of existing facilities to recover recyclable portions such as metals; 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; and Proper storage and site practices to minimise the potential for damage or contamination of construction materials. 	All work sites / during the construction period	√
Waste	<p>Recommendations for good site practices during construction activities include:-</p> <ul style="list-style-type: none"> Nomination of an approved person, such as a site manager, to be responsible for good site practices, arrangements for collection and effective disposal to an appropriate facility, of all wastes generated at the site Training of site personnel in proper waste management and chemical waste handling procedures Develop and provide toolbox talk for on-site sorting of C&D materials to enhance worker's awareness in handling, sorting, reuse and recycling of C&D materials. Provision of sufficient waste disposal points and regular collection of waste Regular cleaning and maintenance programme for drainage systems, sumps and oil interceptors 	All work sites / during the construction period	√
Waste	Bentonite slurries used in diaphragm wall construction should be reconditioned and reused wherever practicable. The disposal of residual used bentonite slurry should follow the good practice guidelines stated in ProPECC PN 1/94 "Construction Site Drainage".	All work sites / during the construction period	NA
Waste	Adequate number of portable toilets at temporary works areas or the PTWs to ensure that sewage from site staff would be properly collected.	All work sites / during the construction period	√

ANNEX E4 - SUMMARY OF MITIGATION MEASURES IMPLEMENTATION SCHEDULE (JANUARY 2014)

Type of Impact	Environmental Protection Measures	Location/ Timing	Status
Waste	General refuse should be stored in enclosed bins, skips or compaction units separating from C&D material and disposed of at designated landfill.	All work sites / during the construction period	√
Waste	The recyclable component of the municipal waste generated by the workforce, such as aluminium cans, paper and cleansed plastic containers should be separated from other waste. Provision and collection of recycling bins for different types of recyclable waste should be set up by the Contractor. The Contractor should also be responsible for arranging recycling companies to collect these materials.	All work sites / during the construction period	√
Waste	If chemical wastes are produced at the construction site, the Contractor would be required to register with the EPD as a chemical waste producer and to follow the guidelines stated in the Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes. Good quality containers compatible with the chemical wastes should be used, and incompatible chemicals should be stored separately. Appropriate labels should be securely attached on each chemical waste container indicating the corresponding chemical characteristics of the chemical waste, such as explosive, flammable, oxidising, irritant, toxic, harmful, corrosive, etc. The Contractor shall use a licensed collector to transport and dispose of the chemical wastes, to either the approved Chemical Waste Treatment Centre, or another licensed facility, in accordance with the Waste Disposal (Chemical Waste) (General) Regulation.	All work sites / during the construction period	√
Waste	Prior to excavation of the marine deposit layer, the deposit should be tested in accordance with the ETWB TC(W) No. 34/2002 and the results should be presented in a Preliminary Sediment Quality Report. The marine deposit should be disposed of at the disposal site designated by the Marine Fill Committee (MFC) or Director of Environmental Protection (DEP) depending on the test results.	All work sites / during the construction period	√
<i>Construction Phase</i>			

ANNEX E4 - SUMMARY OF MITIGATION MEASURES IMPLEMENTATION SCHEDULE (JANUARY 2014)

Type of Impact	Environmental Protection Measures	Location/ Timing	Status
Landscape & Visual	<ul style="list-style-type: none"> • Topsoil, where identified, should be stripped and stored for re-use in the construction of the soft landscape works, where practical. • Existing trees to be retained on site should be carefully protected during construction. • Trees unavoidably affected by the works should be transplanted where practical. • Compensatory tree planting should be provided to compensate for felled trees. • Control of night-time lighting. • Erection of decorative screen hoarding compatible with the surrounding setting. 	All the works areas, PTWs and SCISTW/ during the construction period	√
<i>Operational Phase</i>			
Landscape & Visual	<ul style="list-style-type: none"> • Aesthetic design of the façade of PTW and associated structures to harmonise with the surrounding settings. • Shrub and Climbing Plants to soften proposed structures / Roof Greening. • Buffer Tree and Shrub Planting to screen proposed associated structures. • Reinstated of disturbed area 	All the works areas, PTWs and SCISTW/ during the construction period	NA. Measures not required until commencement of operational phase
<i>Construction Phase</i>			
Cultural Heritage	The construction vibration control limit (ppv of 25mm/s) shall be strictly followed.	Identified historical buildings/structures as mentioned in Tables 15.8 and 15.9. During blasting for tunnel, shafts, effluent conveyance system and disinfection facilities in the vicinity of the buildings/ structures	NA. Vibration monitoring has not been launched during the reporting period.

ANNEX E4 - SUMMARY OF MITIGATION MEASURES IMPLEMENTATION SCHEDULE (JANUARY 2014)

Type of Impact	Environmental Protection Measures	Location/ Timing	Status
	Monitoring of vibration limits shall be conducted and reported as a requirement of EM&A programme	Identified historical buildings/structures as mentioned in Tables 15.8 and 15.9. During blasting for tunnel, shafts, effluent conveyance system and disinfection facilities in the vicinity of the buildings/ structures	NA. Vibration monitoring has not been launched during the reporting period.

Remark:

- √ Compliance of Mitigation Measures
- <> Compliance of Mitigation but need improvement
- x Non-compliance of Mitigation Measures
- Δ Deficiency of Mitigation Measures but rectified by Gammon Construction Limited
- NA Not Applicable

ANNEX E4 - SUMMARY OF MITIGATION MEASURES IMPLEMENTATION SCHEDULE (FEBRUARY 2014)

Type of Impact	Environmental Protection Measures	Location/ Timing	Status
<i>Construction Phase</i>			
Air Quality	<p>The Air Pollution Control (Construction Dust) Regulation shall be implemented and good site practices shall be incorporated in the contract clauses to minimise construction dust impact. Control measures relevant to this Project are listed below:</p> <ul style="list-style-type: none"> • skip hoist for material transport should be totally enclosed by impervious sheeting; • every vehicle should be washed to remove any dusty materials from its body and wheels before leaving a construction site; • the area where vehicle washing takes place and the section of the road between the washing facilities and the exit point should be paved with concrete, bituminous materials or hardcores; • where a site boundary adjoins a road, streets or other accessible to the public, hoarding of not less than 2.4 m high from ground level should be provided along the entire length except for a site entrance or exit; • every stock of more than 20 bags of cement should be covered entirely by impervious sheeting placed in an area sheltered on the top and the 3 sides; • regular watering, with complete coverage, to reduce dust emission from exposed site surfaces and unpaved roads, particularly during dry weather; • site enclosure and covering of any aggregate or dusty material storage piles to reduce emissions. Where this is not practicable owing to frequent usage, watering should be applied to aggregate fines; • open stock piles should be avoided or covered and prevent placing dusty material storage piles near ASRs if possible; • tarpaulin covering of all dusty vehicle loads transported to, from and between site locations; and • instigation of an environmental monitoring auditing program to monitor the construction process in order to enforce controls and modify method of work if dusty conditions arise. 	All work sites / during construction	√
Air Quality	<p>The following watering measures for specific site would be required to control the fugitive dust impacts:</p> <ul style="list-style-type: none"> • watering four times per day within worksites at the Central PTW. 	All work sites / during construction	√
<i>Operational Phase</i>			

ANNEX E4 - SUMMARY OF MITIGATION MEASURES IMPLEMENTATION SCHEDULE (FEBRUARY 2014)

Type of Impact	Environmental Protection Measures	Location/ Timing	Status
Air Quality	<p>Good housekeeping for SCISTW and PTWs listed below should be followed to ameliorate any odour impact from the plant and these standard practices should be included in the plant operator manual.</p> <ul style="list-style-type: none"> • Screens should be cleaned regularly to remove any accumulated organic debris • Grit and screening transfer systems should be flushed regularly with water to remove organic debris and grit • Grit and screened materials should be transferred to closed containers to minimise odour escape • Scum and grease collection wells and troughs should be emptied and flushed regularly to prevent putrefaction of accumulated organics • Skim and remove floating solids and grease from primary clarifiers regularly • Frequent sludge withdrawal from tanks is necessary to prevent the production of gases • Sludge cake should be transferred to closed containers • Sludge containers should be flushed with water regularly 	All work sites / during construction	NA. Measures not required until commencement of operational phase
Air Quality	Commissioning tests for all deodorisation system should be included in the Design and Construction Contract Document.	All PTW and SCISTW/ during operational phase	NA. Measures not required until commencement of operational phase
<i>Construction Phase</i>			
Noise	Use of quiet PME, movable barriers and acoustic mats	All work sites / during construction	√

ANNEX E4 - SUMMARY OF MITIGATION MEASURES IMPLEMENTATION SCHEDULE (FEBRUARY 2014)

Type of Impact	Environmental Protection Measures	Location/ Timing	Status
Noise	<p>Good Site Practice:</p> <ul style="list-style-type: none"> only well-maintained plant should be operated on-site and plant should be serviced regularly during the construction program; silencers or mufflers on construction equipment should be utilised and should be properly maintained during the construction program; mobile plant, if any, should be sited as far from NSRs as possible; machines and plant (such as trucks) that may be in intermittent use should be shut down between work periods or should be throttled down to a minimum; plant known to emit noise strongly in one direction should, wherever possible, be orientated so that the noise is directed away from the nearby NSRs; and material stockpiles and other structures should be effectively utilised, wherever practicable, in screening noise from on-site construction activities; <p>Environmental audit shall be carried out to ensure that appropriate noise control measures would be properly implemented.</p>	All work sites / during construction	√
<i>Construction Phase</i>			
Water Quality	<p>Construction Site Runoff and General Construction Activities</p> <p>The mitigation measures as outlined in the ProPECC PN 1/94 Construction Site Drainage should be adopted where applicable.</p>	All work sites / during construction	<>
Water Quality	<p>Effluent Discharge</p> <p>There is a need to apply to EPD for a discharge licence for discharge of effluent from the construction site under the WPCO. The discharge quality must meet the requirements specified in the discharge licence. If monitoring of the treated effluent quality from the works areas is required during the construction phase of the Project, the monitoring should be carried out in accordance with the WPCO license which is under the ambit of regional office (RO) of EPD. Minimum distances of 100 m should be maintained between the discharge points of construction site effluent and the existing saltwater intakes.</p>	All work sites / during construction	√

ANNEX E4 - SUMMARY OF MITIGATION MEASURES IMPLEMENTATION SCHEDULE (FEBRUARY 2014)

Type of Impact	Environmental Protection Measures	Location/ Timing	Status
Water Quality	Accidental Spillage of Chemicals Contractor must register as a chemical waste producer if chemical wastes would be produced from the construction activities. The Waste Disposal Ordinance (Cap 354) and its subsidiary regulations in particular the Waste Disposal (Chemical Waste) (General) Regulation should be observed and complied with for control of chemical wastes.	All work sites / during construction	√
Water Quality	Any service shop and maintenance facilities should be located on hard standings within a bunded area, and sumps and oil interceptors should be provided. Maintenance of vehicles and equipment involving activities with potential for leakage and spillage should only be undertaken within the areas appropriately equipped to control these discharges.	All work sites / during construction	√
Water Quality	Disposal of chemical wastes should be carried out in compliance with the Waste Disposal Ordinance. The Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes published under the Waste Disposal Ordinance details the requirements to deal with chemical wastes. General requirements are given as follows: <ul style="list-style-type: none"> • Suitable containers should be used to hold the chemical wastes to avoid leakage or spillage during storage, handling and transport. • Chemical waste containers should be suitably labelled, to notify and warn the personnel who are handling the wastes, to avoid accidents. • Storage area should be selected at a safe location on site and adequate space should be allocated to the storage area. 	All work sites / during construction	<>

ANNEX E4 - SUMMARY OF MITIGATION MEASURES IMPLEMENTATION SCHEDULE (FEBRUARY 2014)

Type of Impact	Environmental Protection Measures	Location/ Timing	Status
Water Quality	<p>Construction Works in Close Proximity of Storm Drains or Seafront</p> <p>To minimise the potential water quality impacts from the construction works located at or near any watercourse, the practices outlined below should be adopted where applicable.</p> <ul style="list-style-type: none"> • The use of less or smaller construction plants may be specified to reduce the disturbance to the storm water courses or marine environment. • Temporary storage of materials (e.g. equipment, filling materials, chemicals and fuel) and temporary stockpile of construction materials should be located well away from any water courses during carrying out of the construction works. • Stockpiling of construction materials and dusty materials should be covered and located away from any water courses. • Construction debris and spoil should be covered up and/or disposed of as soon as possible to avoid being washed into the nearby water receivers. • Construction activities, which generate large amount of wastewater, should be carried out in a distance away from the waterfront, where practicable. • Proper shoring may need to be erected in order to prevent soil/mud from slipping into the storm culvert or sea 	All work sites / during construction	√

ANNEX E4 - SUMMARY OF MITIGATION MEASURES IMPLEMENTATION SCHEDULE (FEBRUARY 2014)

Type of Impact	Environmental Protection Measures	Location/ Timing	Status
<i>Operational Phase</i>			
Water Quality	Dual power supply, standby facilities for the main treatment units and standby equipment parts / accessories should be provided as far as possible at the SCISTW to minimise the chance of emergency discharge.	SCISTW and all the Stage 2 PTWs / Operation Stage	NA. Measures not required until commencement of operational phase
Water Quality	Standby unit(s) and dual (backup) power supply would be provided at all the Stage 2 PTWs to reduce the risk of equipment breakdown at the PTWs.	Stage 2 PTWs / Operation Stage	NA. Measures not required until commencement of operational phase
<i>Construction Phase</i>			
Waste	Reusable steel or concrete panel shutters, fencing and hoarding and signboard should be used as a preferred alternative to items made of wood, to minimise wastage of wood. Attention should be paid to WBTC No. 19/2001 - Metallic Site Hoardings and Signboards to reduce the amount of timber used on construction sites. Metallic alternatives to timber are readily available and should be used rather than new timber. Precast concrete units should be adopted wherever feasible to minimise the use of timber formwork.	All work sites / during the construction period	√
Waste	All waste materials should be segregated into categories covering: <ul style="list-style-type: none"> • excavated materials suitable for reuse on-site; • excavated materials suitable for public filling facilities; • remaining C&D waste for landfill; • chemical waste; and • general refuse for landfill. 	All work sites / during the construction period	√

ANNEX E4 - SUMMARY OF MITIGATION MEASURES IMPLEMENTATION SCHEDULE (FEBRUARY 2014)

Type of Impact	Environmental Protection Measures	Location/ Timing	Status
Waste	<p>Recommendations to achieve waste reduction include:</p> <ul style="list-style-type: none"> Sort C&D waste from demolition of existing facilities to recover recyclable portions such as metals; 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; and Proper storage and site practices to minimise the potential for damage or contamination of construction materials. 	All work sites / during the construction period	√
Waste	<p>Recommendations for good site practices during construction activities include:-</p> <ul style="list-style-type: none"> Nomination of an approved person, such as a site manager, to be responsible for good site practices, arrangements for collection and effective disposal to an appropriate facility, of all wastes generated at the site Training of site personnel in proper waste management and chemical waste handling procedures Develop and provide toolbox talk for on-site sorting of C&D materials to enhance worker's awareness in handling, sorting, reuse and recycling of C&D materials. Provision of sufficient waste disposal points and regular collection of waste Regular cleaning and maintenance programme for drainage systems, sumps and oil interceptors 	All work sites / during the construction period	√
Waste	Bentonite slurries used in diaphragm wall construction should be reconditioned and reused wherever practicable. The disposal of residual used bentonite slurry should follow the good practice guidelines stated in ProPECC PN 1/94 "Construction Site Drainage".	All work sites / during the construction period	NA
Waste	Adequate number of portable toilets at temporary works areas or the PTWs to ensure that sewage from site staff would be properly collected.	All work sites / during the construction period	√

ANNEX E4 - SUMMARY OF MITIGATION MEASURES IMPLEMENTATION SCHEDULE (FEBRUARY 2014)

Type of Impact	Environmental Protection Measures	Location/ Timing	Status
Waste	General refuse should be stored in enclosed bins, skips or compaction units separating from C&D material and disposed of at designated landfill.	All work sites / during the construction period	√
Waste	The recyclable component of the municipal waste generated by the workforce, such as aluminium cans, paper and cleansed plastic containers should be separated from other waste. Provision and collection of recycling bins for different types of recyclable waste should be set up by the Contractor. The Contractor should also be responsible for arranging recycling companies to collect these materials.	All work sites / during the construction period	√
Waste	If chemical wastes are produced at the construction site, the Contractor would be required to register with the EPD as a chemical waste producer and to follow the guidelines stated in the Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes. Good quality containers compatible with the chemical wastes should be used, and incompatible chemicals should be stored separately. Appropriate labels should be securely attached on each chemical waste container indicating the corresponding chemical characteristics of the chemical waste, such as explosive, flammable, oxidising, irritant, toxic, harmful, corrosive, etc. The Contractor shall use a licensed collector to transport and dispose of the chemical wastes, to either the approved Chemical Waste Treatment Centre, or another licensed facility, in accordance with the Waste Disposal (Chemical Waste) (General) Regulation.	All work sites / during the construction period	√
Waste	Prior to excavation of the marine deposit layer, the deposit should be tested in accordance with the ETWB TC(W) No. 34/2002 and the results should be presented in a Preliminary Sediment Quality Report. The marine deposit should be disposed of at the disposal site designated by the Marine Fill Committee (MFC) or Director of Environmental Protection (DEP) depending on the test results.	All work sites / during the construction period	√
<i>Construction Phase</i>			

ANNEX E4 - SUMMARY OF MITIGATION MEASURES IMPLEMENTATION SCHEDULE (FEBRUARY 2014)

Type of Impact	Environmental Protection Measures	Location/ Timing	Status
Landscape & Visual	<ul style="list-style-type: none"> • Topsoil, where identified, should be stripped and stored for re-use in the construction of the soft landscape works, where practical. • Existing trees to be retained on site should be carefully protected during construction. • Trees unavoidably affected by the works should be transplanted where practical. • Compensatory tree planting should be provided to compensate for felled trees. • Control of night-time lighting. • Erection of decorative screen hoarding compatible with the surrounding setting. 	All the works areas, PTWs and SCISTW/ during the construction period	√
<i>Operational Phase</i>			
Landscape & Visual	<ul style="list-style-type: none"> • Aesthetic design of the façade of PTW and associated structures to harmonise with the surrounding settings. • Shrub and Climbing Plants to soften proposed structures / Roof Greening. • Buffer Tree and Shrub Planting to screen proposed associated structures. • Reinstated of disturbed area 	All the works areas, PTWs and SCISTW/ during the construction period	NA. Measures not required until commencement of operational phase
<i>Construction Phase</i>			
Cultural Heritage	The construction vibration control limit (ppv of 25mm/s) shall be strictly followed.	Identified historical buildings/structures as mentioned in Tables 15.8 and 15.9. During blasting for tunnel, shafts, effluent conveyance system and disinfection facilities in the vicinity of the buildings/ structures	NA. Vibration monitoring has not been launched during the reporting period.

ANNEX E4 - SUMMARY OF MITIGATION MEASURES IMPLEMENTATION SCHEDULE (FEBRUARY 2014)

Type of Impact	Environmental Protection Measures	Location/ Timing	Status
	Monitoring of vibration limits shall be conducted and reported as a requirement of EM&A programme	Identified historical buildings/structures as mentioned in Tables 15.8 and 15.9. During blasting for tunnel, shafts, effluent conveyance system and disinfection facilities in the vicinity of the buildings/ structures	NA. Vibration monitoring has not been launched during the reporting period.

Remark:

- √ Compliance of Mitigation Measures
- <> Compliance of Mitigation but need improvement
- x Non-compliance of Mitigation Measures
- Δ Deficiency of Mitigation Measures but rectified by Gammon Construction Limited
- NA Not Applicable

Annex E5 24-hour and 1-hour TSP Monitoring Results

1-hour TSP Monitoring Results

Station AM4_2

	Start	Finish	Weather	TSP Concentration	Action Level	Limit Level	Site Conditions /	Temperature	Wind Speed *	Sampler ID	Filter ID
Date	Time	Time		($\mu\text{g}/\text{m}^3$)	($\mu\text{g}/\text{m}^3$)	($\mu\text{g}/\text{m}^3$)	Observations / Remarks	($^{\circ}\text{C}$)	(m/s)		
06-Dec-13	11:40	12:40	Sunny	134	393	500	Construction work in progress	22	<5	GMW GS-2310 (S/N 9315)	2279
	12:42	13:42	Sunny	173	393	500	Construction work in progress	22	<5	GMW GS-2310 (S/N 9315)	2241
	13:50	14:50	Sunny	119	393	500	Construction work in progress	22	<5	GMW GS-2310 (S/N 9315)	2242
12-Dec-13	11:40	12:40	Cloudy	221	393	500	Construction work in progress	20	<5	GMW GS-2310 (S/N 9315)	2245
	12:42	13:42	Cloudy	173	393	500	Construction work in progress	20	<5	GMW GS-2310 (S/N 9315)	2246
	13:45	14:45	Cloudy	134	393	500	Construction work in progress	20	<5	GMW GS-2310 (S/N 9315)	2244
18-Dec-13	8:00	9:00	Sunny	124	393	500	Construction work in progress	15	<5	GMW GS-2310 (S/N 9315)	2247
	9:02	10:02	Sunny	242	393	500	Construction work in progress	15	<5	GMW GS-2310 (S/N 9315)	2249
24-Dec-13	10:10	11:10	Sunny	122	393	500	Construction work in progress	15	<5	GMW GS-2310 (S/N 9315)	2250
	11:40	12:40	Sunny	283	393	500	Construction work in progress	17	<5	GMW GS-2310 (S/N 9315)	2272
	12:42	13:42	Sunny	217	393	500	Construction work in progress	17	<5	GMW GS-2310 (S/N 9315)	2273
	13:44	14:44	Sunny	242	393	500	Construction work in progress	17	<5	GMW GS-2310 (S/N 9315)	2274
30-Dec-13	8:00	9:00	Sunny	158	393	500	Construction work in progress	18	<5	GMW GS-2310 (S/N 9315)	2275
	9:02	10:02	Sunny	163	393	500	Construction work in progress	18	<5	GMW GS-2310 (S/N 9315)	2277
	10:04	11:04	Sunny	246	393	500	Construction work in progress	18	<5	GMW GS-2310 (S/N 9315)	2278
			Min.	119							
			Max.	283							
			Average	183							

* Wind Speed data is presented in the Meteorological Data table

Annex E5 24-hour and 1-hour TSP Monitoring Results

1-hour TSP Monitoring Results

Station AM4_2

	Start	Finish	Weather	TSP Concentration	Action Level	Limit Level	Site Conditions /	Temperature	Wind Speed *	Sampler ID	Filter ID
Date	Time	Time		($\mu\text{g}/\text{m}^3$)	($\mu\text{g}/\text{m}^3$)	($\mu\text{g}/\text{m}^3$)	Observations / Remarks	($^{\circ}\text{C}$)	(m/s)		
04-Jan-14	8:00	9:00	Sunny	253	393	500	Construction work in progress	18	<5	GMW GS-2310 (S/N 9315)	2280
	9:02	10:02	Sunny	253	393	500	Construction work in progress	18	<5	GMW GS-2310 (S/N 9315)	2281
	10:04	11:04	Sunny	325	393	500	Construction work in progress	18	<5	GMW GS-2310 (S/N 9315)	2282
10-Jan-14	8:00	9:00	Fine	191	393	500	Construction work in progress	16	<5	GMW GS-2310 (S/N 9315)	2283
	9:10	10:10	Fine	286	393	500	Construction work in progress	16	<5	GMW GS-2310 (S/N 9315)	2285
	10:12	11:12	Fine	182	393	500	Construction work in progress	16	<5	GMW GS-2310 (S/N 9315)	2286
16-Jan-14	11:45	12:45	Sunny	128	393	500	Construction work in progress	17	<5	GMW GS-2310 (S/N 9315)	2287
	12:47	13:47	Sunny	150	393	500	Construction work in progress	17	<5	GMW GS-2310 (S/N 9315)	2288
	13:50	14:50	Sunny	291	393	500	Construction work in progress	17	<5	GMW GS-2310 (S/N 9315)	2290
22-Jan-14	11:40	12:40	Sunny	237	393	500	Construction work in progress	17	<5	GMW GS-2310 (S/N 9315)	2312
	12:42	13:42	Sunny	148	393	500	Construction work in progress	17	<5	GMW GS-2310 (S/N 9315)	2313
	13:50	14:50	Sunny	190	393	500	Construction work in progress	17	<5	GMW GS-2310 (S/N 9315)	2314
28-Jan-14	8:00	9:00	Sunny	141	393	500	Construction work in progress	20	<5	GMW GS-2310 (S/N 9315)	2315
	9:02	10:02	Sunny	207	393	500	Construction work in progress	20	<5	GMW GS-2310 (S/N 9315)	2317
	10:10	11:10	Sunny	137	393	500	Construction work in progress	20	<5	GMW GS-2310 (S/N 9315)	2318
30-Jan-14	8:00	9:00	Sunny	200	393	500	Construction work in progress	20	<5	GMW GS-2310 (S/N 9315)	2319
	9:02	10:02	Sunny	144	393	500	Construction work in progress	20	<5	GMW GS-2310 (S/N 9315)	2331
	10:04	11:04	Sunny	157	393	500	Construction work in progress	20	<5	GMW GS-2310 (S/N 9315)	2332
			Min.	128							
			Max.	325							
			Average	201							

* Wind Speed data is presented in the Meteorological Data table

Annex E5 24-hour and 1-hour TSP Monitoring Results

1-hour TSP Monitoring Results

Station AM4_2

	Start	Finish	Weather	TSP Concentration	Action Level	Limit Level	Site Conditions /	Temperature	Wind Speed *	Sampler ID	Filter ID
Date	Time	Time		($\mu\text{g}/\text{m}^3$)	($\mu\text{g}/\text{m}^3$)	($\mu\text{g}/\text{m}^3$)	Observations / Remarks	($^{\circ}\text{C}$)	(m/s)		
05-Feb-14	8:00	9:00	Fine	116	393	500	Construction work in progress	19	<5	GMW GS-2310 (S/N 9315)	2334
	9:02	10:02	Fine	117	393	500	Construction work in progress	19	<5	GMW GS-2310 (S/N 9315)	2335
	10:05	11:05	Fine	185	393	500	Construction work in progress	19	<5	GMW GS-2310 (S/N 9315)	2336
11-Feb-14	8:00	9:00	Cloudy	141	393	500	Construction work in progress	10	<5	GMW GS-2310 (S/N 9315)	2337
	9:02	10:02	Cloudy	171	393	500	Construction work in progress	10	<5	GMW GS-2310 (S/N 9315)	2738
	10:10	11:10	Cloudy	85	393	500	Construction work in progress	10	<5	GMW GS-2310 (S/N 9315)	2339
17-Feb-14	12:20	13:20	Fine	134	393	500	Construction work in progress	21	<5	GMW GS-2310 (S/N 9315)	2351
	13:22	14:22	Fine	173	393	500	Construction work in progress	21	<5	GMW GS-2310 (S/N 9315)	2353
	14:30	15:30	Fine	121	393	500	Construction work in progress	21	<5	GMW GS-2310 (S/N 9315)	2354
22-Feb-14	8:00	9:00	Fine	113	393	500	Construction work in progress	20	<5	GMW GS-2310 (S/N 9315)	2356
	9:02	10:02	Fine	142	393	500	Construction work in progress	20	<5	GMW GS-2310 (S/N 9315)	2357
	10:04	11:04	Fine	149	393	500	Construction work in progress	20	<5	GMW GS-2310 (S/N 9315)	2358
28-Feb-14	11:40	12:40	Cloudy	190	393	500	Construction work in progress	20	<5	GMW GS-2310 (S/N 9315)	2359
	12:42	13:42	Cloudy	171	393	500	Construction work in progress	20	<5	GMW GS-2310 (S/N 9315)	2360
	13:44	14:44	Cloudy	176	393	500	Construction work in progress	20	<5	GMW GS-2310 (S/N 9315)	2371
			Min.	85							
			Max.	190							
			Average	146							

* Wind Speed data is presented in the Meteorological Data table.

Annex E5 24-hour and 1-hour TSP Monitoring Results

24-hour TSP Monitoring Results

Station AM4_2

Start		Finish		Weather	Filter Weight (g)		Elapsed Time Reading		Sampling Time (hrs)	Flow Rate (m ³ /min)			TSP Conc. (µg/m ³)	Action Level (µg/m ³)	Limit Level (µg/m ³)	Observations / Remarks	Sampler ID	Filter ID			
Date	Time	Date	Time		Initial	Final	Initial	Final		Initial	Final	Average									
06-Dec-13	14:55	07-Dec-13	14:55	Sunny	2.7323	2.8922	18123.8500	18147.8500	24.00	1.22	1.22	1.22	91	211	260	construction work in progress	GMW GS 2310 (S/N 9315)	2240			
12-Dec-13	14:50	13-Dec-13	14:50	Cloudy	2.7957	2.9715	18150.8500	18174.8500	24.00	1.22	1.22	1.22	100	211	260	construction work in progress	GMW GS 2310 (S/N 9315)	2243			
18-Dec-13	11:12	19-Dec-13	11:12	Sunny	2.7857	2.9648	18177.8500	18201.8500	24.00	1.22	1.22	1.22	102	211	260	construction work in progress	GMW GS 2310 (S/N 9315)	2248			
24-Dec-13	15:00	25-Dec-13	15:00	Sunny	2.7561	2.9485	18204.8500	18228.8500	24.00	1.22	1.22	1.22	110	211	260	construction work in progress	GMW GS 2310 (S/N 9315)	2271			
30-Dec-13	11:10	31-Dec-13	11:10	Sunny	2.8029	2.9944	18231.8500	18255.8500	24.00	1.22	1.22	1.22	109	211	260	construction work in progress	GMW GS 2310 (S/N 9315)	2276			
												Min.	91								
												Max.	110								
												Average	102								

Annex E5 24-hour and 1-hour TSP Monitoring Results

24-hour TSP Monitoring Results

Station AM4_2

Start		Finish		Weather	Filter Weight (g)		Elapsed Time Reading		Sampling Time (hrs)	Flow Rate (m ³ /min)			TSP Conc. (µg/m ³)	Action Level (µg/m ³)	Limit Level (µg/m ³)	Observations / Remarks	Sampler ID	Filter ID		
Date	Time	Date	Time		Initial	Final	Initial	Final		Initial	Final	Average								
04-Jan-14	11:05	05-Jan-14	11:05	Sunny	2.7821	2.9998	18258.85	18282.85	24.00	1.22	1.22	1.22	124	211	260	construction work in progress	GMW GS 2310 (S/N 9315)	2279		
10-Jan-14	11:14	11-Jan-14	11:14	Fine	2.7577	3.0005	18285.85	18309.85	24.00	1.22	1.22	1.22	138	211	260	construction work in progress	GMW GS 2310 (S/N 9315)	2284		
16-Jan-14	14:55	17-Jan-14	14:55	Sunny	2.8026	3.0022	18312.85	18336.85	24.00	1.22	1.22	1.22	114	211	260	construction work in progress	GMW GS 2310 (S/N 9315)	2289		
22-Jan-14	14:52	23-Jan-14	14:52	Sunny	2.7472	2.9285	18339.85	18363.85	24.00	1.24	1.24	1.24	102	211	260	construction work in progress	GMW GS 2310 (S/N 9315)	2311		
28-Jan-14	11:12	29-Jan-14	11:12	Sunny	2.7570	2.9117	18366.85	18390.85	24.00	1.24	1.24	1.24	87	211	260	construction work in progress	GMW GS 2310 (S/N 9315)	2316		
30-Jan-14	11:06	31-Jan-14	11:06	Sunny	2.7705	2.8800	18393.85	18417.85	24.00	1.24	1.24	1.24	61	211	260	construction work in progress	GMW GS 2310 (S/N 9315)	2320		
												Min.	61							
												Max.	138							
												Average	113							

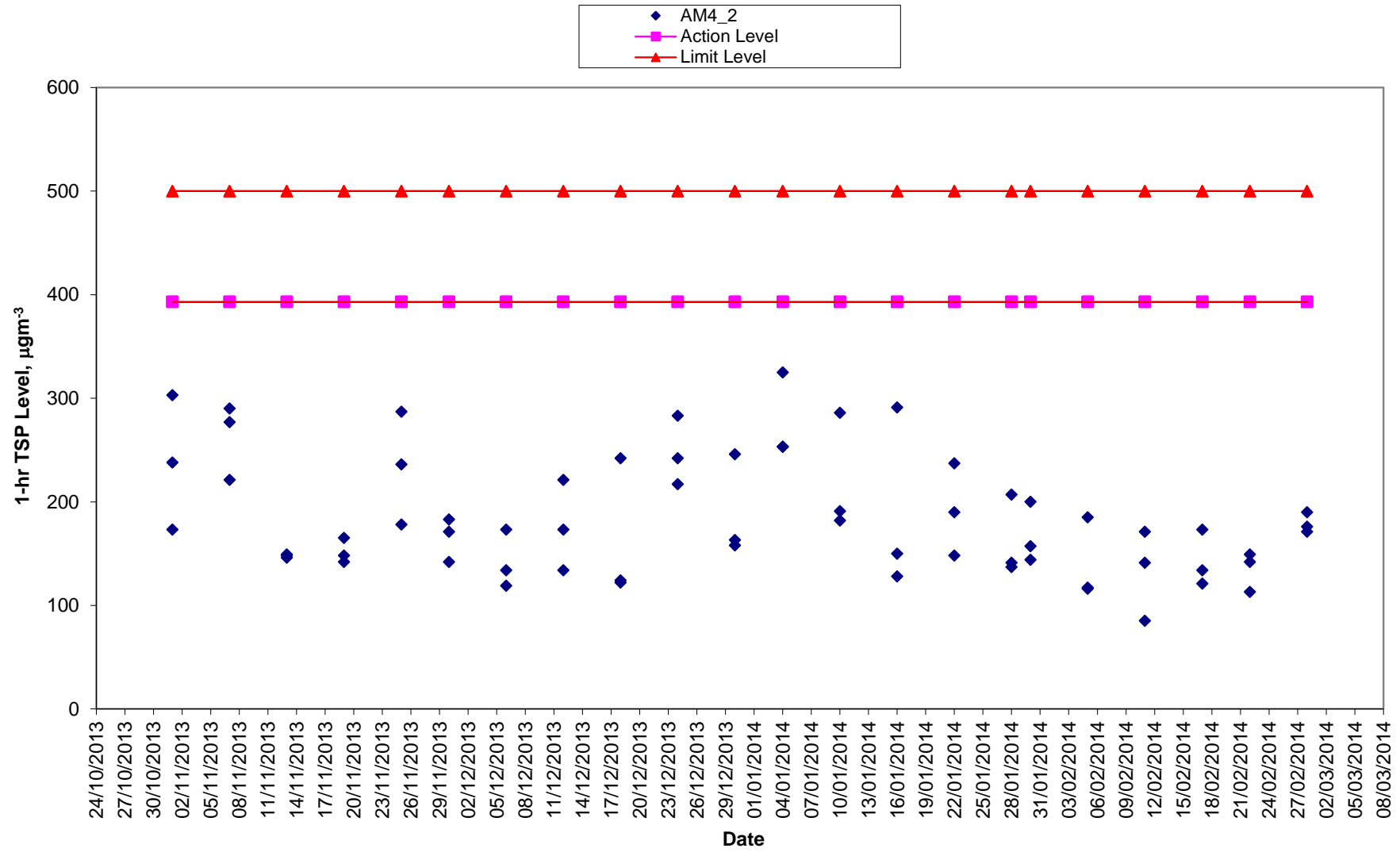
Annex E5 24-hour and 1-hour TSP Monitoring Results

24-hour TSP Monitoring Results

Station AM4_2

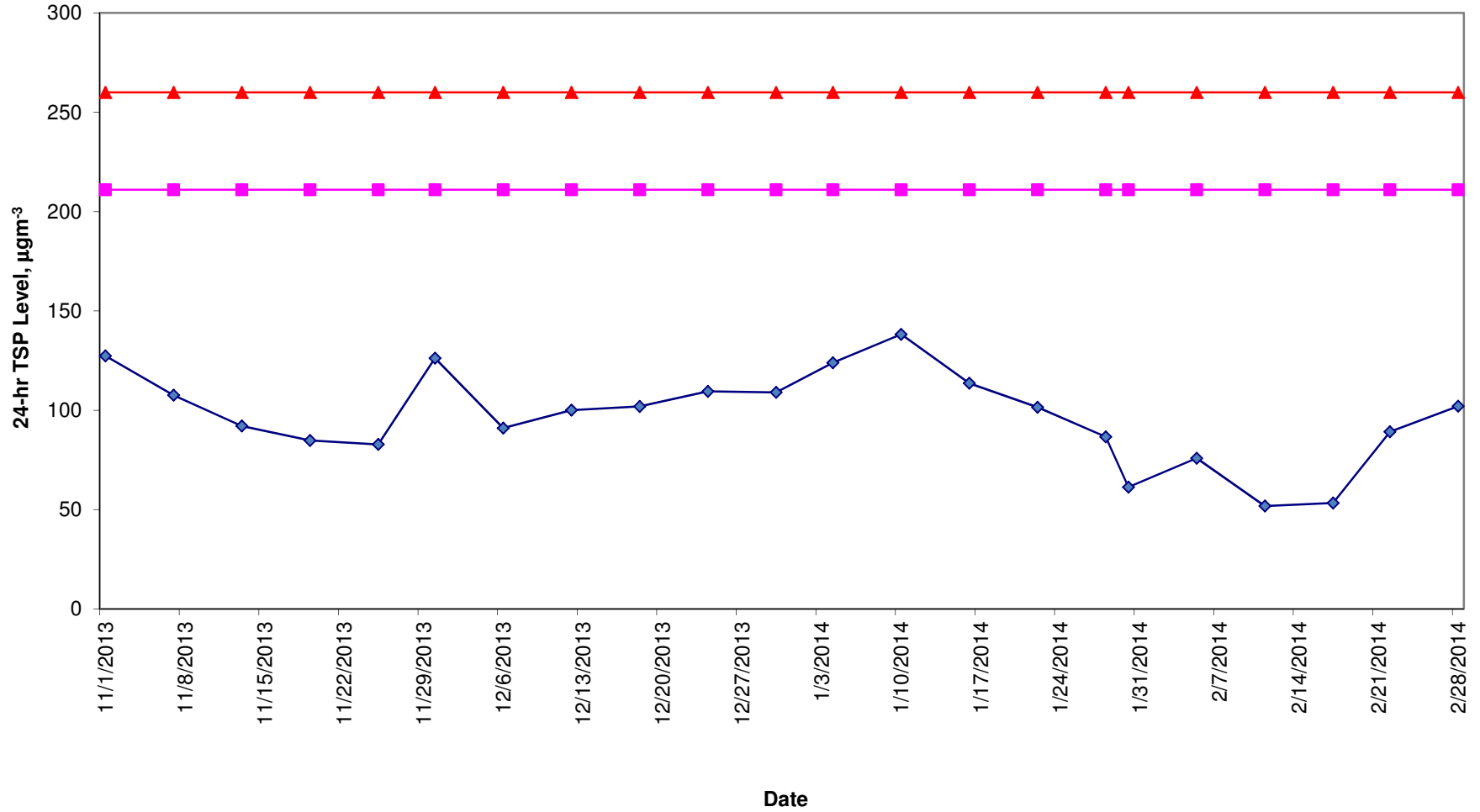
Start		Finish		Weather	Filter Weight (g)		Elapsed Time Reading		Sampling Time (hrs)	Flow Rate (m ³ /min)			TSP Conc. (µg/m ³)	Action Level (µg/m ³)	Limit Level (µg/m ³)	Observations / Remarks	Sampler ID	Filter ID		
Date	Time	Date	Time		Initial	Final	Initial	Final		Initial	Final	Average								
05-Feb-14	11:07	06-Feb-14	11:07	Fine	2.7806	2.9161	18420.85	18444.85	24.00	1.24	1.24	1.24	76	211	260	construction work in progress	GMW GS 2310 (S/N 9315)	2333		
11-Feb-14	11:15	12-Feb-14	11:15	Cloudy	2.7717	2.8642	18447.85	18471.85	24.00	1.24	1.24	1.24	52	211	260	construction work in progress	GMW GS 2310 (S/N 9315)	2340		
17-Feb-14	15:32	18-Feb-14	15:32	Fine	2.7943	2.8895	18474.85	18498.85	24.00	1.24	1.24	1.24	53	211	260	construction work in progress	GMW GS 2310 (S/N 9315)	2352		
22-Feb-14	11:06	23-Feb-14	11:06	Fine	2.7869	2.9461	18501.85	18525.85	24.00	1.24	1.24	1.24	89	211	260	construction work in progress	GMW GS 2310 (S/N 9315)	2355		
28-Feb-14	14:55	01-Mar-14	14:55	Cloudy	2.7778	2.9600	18528.85	18552.85	24.00	1.24	1.24	1.24	102	211	260	construction work in progress	GMW GS 2310 (S/N 0481)	2372		
												Min.	52							
												Max.	102							
												Average	74							

1-hr TSP Level AM4_2 (A Location within DSD Central PTW)



24-hr TSP Level
AM4_2 (A Location within DSD Central PTW)

AM4_2 Action Level Limit Level



Meteorological Data Extracted from the Hong Kong Observatory

King's Park Station						
Date	Weather	Average Air Temperature (°C)	Average Relative Humidity (%)	Total Rainfall (mm)	Average Wind Speed (km/h)	Wind Direction
2013-12-01	Sunny	13	33 - 63	0.0	0 - 12	SE/NE
2013-12-03	Sunny	19	45 - 80	0.0	0 - 14	SE/E
2013-12-06	Sunny	14	33 - 63	0.0	0 - 18	NE
2013-12-08	Sunny	20	64 - 85	Trace	0 - 12	SE
2013-12-09	Sunny	22	50 - 78	0.0	0 - 18	NE
2013-12-10	Cloudy	20	55 - 80	0.0	0 - 20	SE/NE
2013-12-12	Cloudy	18	55 - 72	Trace	4 - 20	SE/E
2013-12-14	Cloudy	19	75 - 99	13.0	0 - 18	SE/E
2013-12-15	Cloudy	17	93 - 99	22.7	0 - 17	E
2013-12-17	Fine	12	88 - 99	27.8	0 - 17	NW/NE
2013-12-18	Sunny	9	58 - 86	0.0	4 - 22	NE/N
2013-12-19	Fine	9	53 - 74	0.0	0 - 16	NE/N
2013-12-20	Sunny	14	54 - 71	0.0	0 - 12	NE
2013-12-22	Sunny	14	52 - 69	0.0	0 - 12	NE/SE
2013-12-24	Cloudy	15	48 - 71	0.0	0 - 12	NE/SE
2013-12-27	Sunny	13	35 - 50	0.0	0 - 23	NE/N
2013-12-29	Sunny	12	39 - 66	0.0	0 - 16	NE/SE
2013-12-30	Sunny	14	34 - 64	0.0	0 - 10	N/W
2013-12-31	Fine	15	35 - 65	0.0	0 - 11	N/W

Tsing Yi Station						
Date	Weather	Average Air Temperature (°C)	Average Relative Humidity (%) *	Total Rainfall (mm)	Average Wind Speed (km/h)	Wind Direction
2013-12-01	Sunny	18	33 - 63	0.0	1 - 12	-
2013-12-03	Sunny	19	45 - 80	0.0	1 - 17	-
2013-12-06	Sunny	18	33 - 63	0.0	1 - 18	-
2013-12-08	Sunny	20	64 - 85	Trace	1 - 18	-
2013-12-09	Sunny	23	50 - 78	0.0	1 - 16	-
2013-12-10	Cloudy	21	55 - 80	0.0	2 - 16	-
2013-12-12	Cloudy	18	55 - 72	Trace	3 - 15	-
2013-12-14	Cloudy	19	75 - 99	13.0	1 - 11	-
2013-12-15	Cloudy	17	93 - 99	22.7	1 - 12	-
2013-12-17	Fine	12	88 - 99	27.8	1 - 22	-
2013-12-18	Sunny	12	58 - 86	0.0	4 - 25	-
2013-12-19	Fine	13	53 - 74	0.0	1 - 18	-
2013-12-20	Sunny	15	54 - 71	0.0	0 - 17	-
2013-12-22	Sunny	14	52 - 69	0.0	1 - 15	-
2013-12-24	Cloudy	15	48 - 71	0.0	1 - 19	-
2013-12-27	Sunny	13	35 - 50	0.0	1 - 22	-
2013-12-29	Sunny	12	39 - 66	0.0	1 - 13	-
2013-12-30	Sunny	13	34 - 64	0.0	1 - 18	-
2013-12-31	Fine	15	35 - 65	0.0	1 - 19	-

Kai Tak Station						
Date	Weather	Average Air Temperature (°C) *	Average Relative Humidity (%) *	Total Rainfall (mm) *	Average Wind Speed (km/h)	Wind Direction
2013-12-01	Sunny	13	33 - 63	0.0	1 - 18	SE/N
2013-12-03	Sunny	19	45 - 80	0.0	1 - 20	SE/NE
2013-12-06	Sunny	13	33 - 63	0.0	1 - 20	SE
2013-12-08	Sunny	19	45 - 80	0.0	1 - 18	SE
2013-12-09	Sunny	14	33 - 63	0.0	1 - 27	NW/E
2013-12-10	Sunny	20	64 - 85	Trace	3 - 18	NE
2013-12-12	Sunny	22	50 - 78	0.0	1 - 19	E
2013-12-14	Cloudy	20	55 - 80	0.0	3 - 25	E
2013-12-15	Cloudy	18	55 - 72	Trace	3 - 24	SE
2013-12-17	Cloudy	19	75 - 99	13.0	1 - 24	NW/N
2013-12-18	Cloudy	17	93 - 99	22.7	3 - 27	NW/N
2013-12-19	Fine	12	88 - 99	27.8	1 - 22	NE/NW
2013-12-20	Sunny	9	58 - 86	0.0	1 - 21	NE
2013-12-22	Fine	9	53 - 74	0.0	2 - 18	NE/E
2013-12-24	Sunny	14	54 - 71	0.0	1 - 15	NW/E

Green Island Station						
Date	Weather	Average Air Temperature (°C) *	Average Relative Humidity (%) *	Total Rainfall (mm) *	Average Wind Speed (km/h)	Wind Direction
2013-12-01	Sunny	13	33 - 63	0.0	-	-
2013-12-03	Sunny	19	45 - 80	0.0	5 - 33	NE
2013-12-06	Sunny	13	33 - 63	0.0	3 - 31	NE/N
2013-12-08	Sunny	19	45 - 80	0.0	11 - 33	NE
2013-12-09	Sunny	14	33 - 63	0.0	3 - 34	NE/N
2013-12-10	Sunny	20	64 - 85	Trace	19 - 43	NE/N
2013-12-12	Sunny	22	50 - 78	0.0	19 - 41	NE
2013-12-14	Cloudy	20	55 - 80	0.0	10 - 43	NE
2013-12-15	Cloudy	18	55 - 72	Trace	9 - 50	NE/N
2013-12-17	Cloudy	19	75 - 99	13.0	15 - 41	N
2013-12-18	Cloudy	17	93 - 99	22.7	26 - 52	NE/N
2013-12-19	Fine	12	88 - 99	27.8	13 - 39	NE/N
2013-12-20	Sunny	9	58 - 86	0.0	1 - 32	NW/N
2013-12-22	Fine	9	53 - 74	0.0	8 - 32	NE/N
2013-12-24	Sunny	14	54 - 71	0.0	6 - 31	NW/N

Meteorological Data Extracted from the Hong Kong Observatory

		King's Park Station				
Date	Weather	Average Air Temperature (°C)	Average Relative Humidity (%)	Total Rainfall (mm)	Average Wind Speed (km/h)	Wind Direction
2014-01-02	Sunny	17	61-88	0.0	0-13	SE
2014-01-04	Sunny	19	40-66	0.0	0-15	NE
2014-01-05	Sunny	17	45-79	0.0	0-18	SE/E
2014-01-07	Cloudy	18	70-90	Trace	0-19	SE
2014-01-08	Cloudy	19	65-95	Trace	0-15	NE/W
2014-01-10	Fine	15	72-81	Trace	6-22	SE
2014-01-12	Sunny	18	60-87	0.0	0-16	SE/NE
2014-01-14	Sunny	14	57-75	0.0	0-16	NE/N
2014-01-16	Sunny	14	57-84	0.0	0-16	SE/E
2014-01-19	Sunny	15	54-81	0.0	0-20	SE/E
2014-01-20	Sunny	17	32-77	0.0	0-19	NE/N
2014-01-21	Fine	15	27-41	0.0	3-24	NE
2014-01-22	Sunny	14	31-64	0.0	0-21	NE/W
2014-01-24	Sunny	16	65-85	0.0	0-19	SE
2014-01-26	Sunny	20	54-84	0.0	0-21	SE/N
2014-01-28	Fine	18	54-86	0.0	0-17	SE
2014-01-30	Sunny	19	63-90	0.0	0-13	SE/W

		Tsing Yi Station				
Date	Weather	Average Air Temperature (°C)	Average Relative Humidity (%) *	Total Rainfall (mm)	Average Wind Speed (km/h)	Wind Direction
2014-01-02	Sunny	17	61-88	0.0	1-12	-
2014-01-04	Sunny	19	40-66	0.0	1-18	-
2014-01-05	Sunny	16	45-79	0.0	1-19	-
2014-01-07	Cloudy	19	70-90	Trace	1-21	-
2014-01-08	Cloudy	20	65-95	Trace	1-28	-
2014-01-10	Fine	15	72-81	Trace	4-18	-
2014-01-12	Sunny	18	60-87	0.0	1-17	-
2014-01-14	Sunny	14	57-75	0.0	2-14	-
2014-01-16	Sunny	15	57-84	0.0	1-22	-
2014-01-19	Sunny	15	54-81	0.0	1-14	-
2014-01-20	Sunny	17	32-77	0.0	1-19	-
2014-01-21	Fine	15	27-41	0.0	2-18	-
2014-01-22	Sunny	14	31-64	0.0	1-12	-
2014-01-24	Sunny	16	65-85	0.0	1-22	-
2014-01-26	Sunny	21	54-84	0.0	0-27	-
2014-01-28	Fine	19	54-86	0.0	1-14	-
2014-01-30	Sunny	19	63-90	0.0	0-8	-

		Kai Tak Station				
Date	Weather	Average Air Temperature (°C) *	Average Relative Humidity (%) *	Total Rainfall (mm) *	Average Wind Speed (km/h)	Wind Direction
2014-01-02	Sunny	17	61-88	0.0	6-28	SE/E
2014-01-04	Sunny	19	40-66	0.0	2-17	NW/NE
2014-01-05	Sunny	17	45-79	0.0	1-24	NE/E
2014-01-07	Cloudy	18	70-90	Trace	4-31	SE/E
2014-01-08	Cloudy	19	65-95	Trace	1-21	SE/NW
2014-01-10	Fine	15	72-81	Trace	11-28	E
2014-01-12	Sunny	18	60-87	0.0	1-17	NW/S/NE
2014-01-14	Sunny	14	57-75	0.0	3-19	NW/NE
2014-01-16	Sunny	14	57-84	0.0	3-24	E
2014-01-19	Sunny	15	54-81	0.0	1-24	NE/E
2014-01-20	Sunny	17	32-77	0.0	1-25	N/S
2014-01-21	Fine	15	27-41	0.0	3-21	N
2014-01-22	Sunny	14	31-64	0.0	1-21	NE/SE
2014-01-24	Sunny	16	65-85	0.0	1-28	E
2014-01-26	Sunny	20	54-84	0.0	1-27	E
2014-01-28	Fine	18	54-86	0.0	1-23	E
2014-01-30	Sunny	19	63-90	0.0	1-16	SE

		Green Island Station				
Date	Weather	Average Air Temperature (°C) *	Average Relative Humidity (%) *	Total Rainfall (mm) *	Average Wind Speed (km/h)	Wind Direction
2014-01-02	Sunny	17	61-88	0.0	0-30	NE
2014-01-04	Sunny	19	40-66	0.0	2-27	NE
2014-01-05	Sunny	17	45-79	0.0	14-41	NE
2014-01-07	Cloudy	18	70-90	Trace	11-53	NE
2014-01-08	Cloudy	19	65-95	Trace	1-37	NE/NW
2014-01-10	Fine	15	72-81	Trace	18-50	NE
2014-01-12	Sunny	18	60-87	0.0	2-40	NE/N
2014-01-14	Sunny	14	57-75	0.0	5-40	NE/N
2014-01-16	Sunny	14	57-84	0.0	11-40	NE
2014-01-19	Sunny	15	54-81	0.0	2-40	NE
2014-01-20	Sunny	17	32-77	0.0	0-40	NE/NW
2014-01-21	Fine	15	27-41	0.0	2-48	NE
2014-01-22	Sunny	14	31-64	0.0	1-36	NE/SW
2014-01-24	Sunny	16	65-85	0.0	17-43	NE
2014-01-26	Sunny	20	54-84	0.0	4-50	NE/N
2014-01-28	Fine	18	54-86	0.0	3-31	NE/SW
2014-01-30	Sunny	19	63-90	0.0	1-15	NE/SW

* King's Park's data
 - Data were not available
 # less than 24 hourly observations per day

Meteorological Data Extracted from the Hong Kong Observatory

King's Park Station						
Date	Weather	Average Air Temperature (°C)	Average Relative Humidity (%)	Total Rainfall (mm)	Average Wind Speed (km/h)	Wind Direction
2014/02/03	Sunny	21	52-83	0.0	0-12	NW
2014/02/04	Cloudy	18	78-86	Trace	0-24	SE
2014/02/05	Fine	17	74-94	Trace	8-25	SE
2014/02/07	Fine	21	76-94	Trace	0-14	N/SE
2014/02/09	Cloudy	14	92-99	13.1	0-23	SE/NE
2014/02/11	Cloudy	9	63-78	13.7	0-14	NE/N
2014/02/16	Fine	14	84-92	Trace	2-22	SE
2014/02/17	Fine	18	84-99	0.0	0-17	SE
2014/02/18	Cloudy	17	75-99	Trace	0-18	W/N
2014/02/21	Fine	14	63-86	0.0	0-27	SE/E
2014/02/22	Fine	15	64-85	0.2	3-24	SE/E
2014/02/23	Fine	17	65-87	0.0	4-22	SE/E
2014/02/25	Fine	19	77-95	0.0	0-21	SE
2014/02/27	Cloudy	20	84-93	Trace	0-19	SE
2014/02/28	Cloudy	18	84-90	Trace	2-20	SE

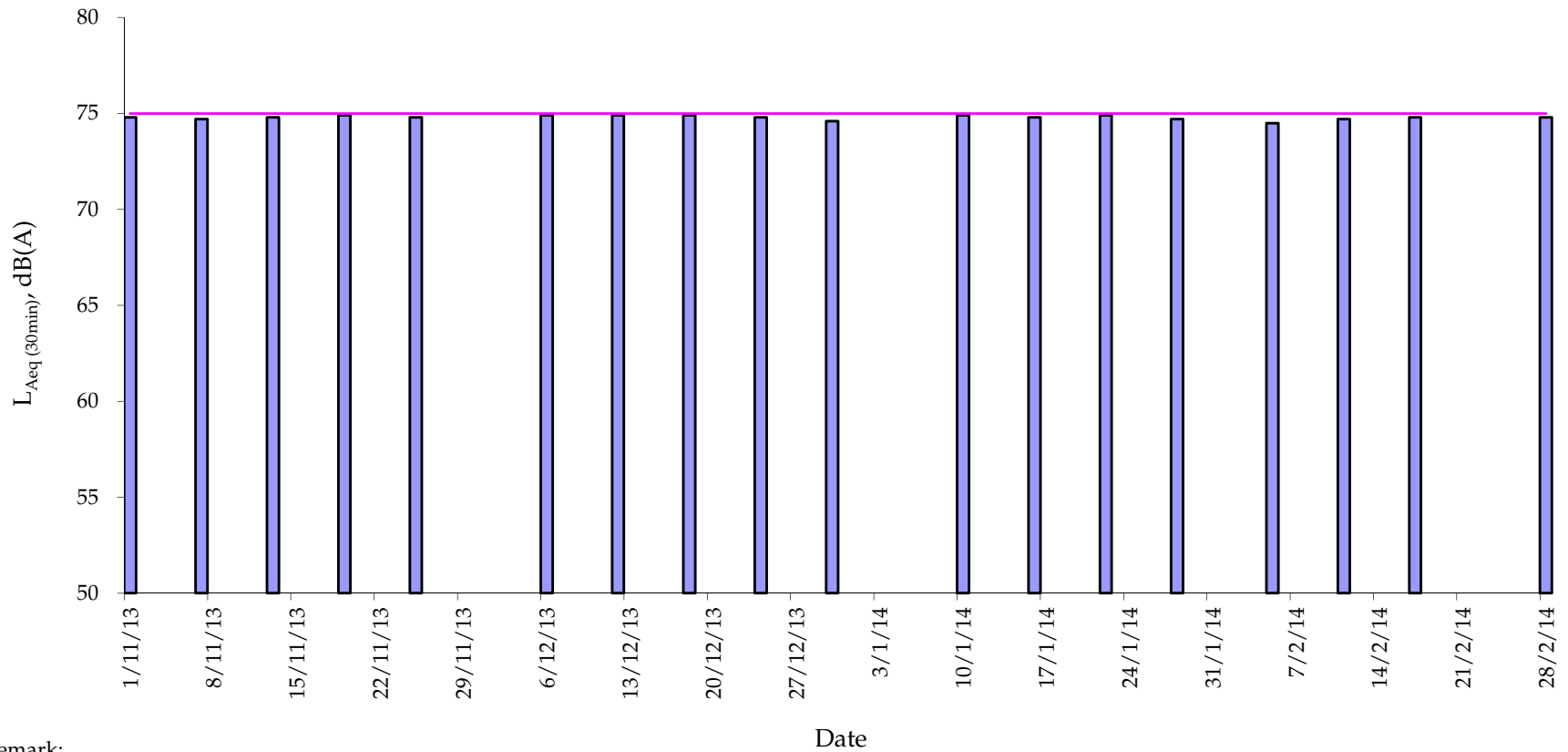
Tsing Yi Station						
Date	Weather	Average Air Temperature (°C)	Average Relative Humidity (%) *	Total Rainfall (mm)	Average Wind Speed (km/h)	Wind Direction
2014/02/03	Sunny	20	52-83	0.0	0-12	NW/S
2014/02/04	Cloudy	18	78-86	Trace	0-25	SE
2014/02/05	Fine	19	74-94	Trace	2-22	SE
2014/02/07	Fine	21	76-94	Trace	0-15	S/E
2014/02/09	Cloudy	13	92-99	13.1	1-21	N/E
2014/02/11	Cloudy	8	63-78	13.7	1-18	NW
2014/02/16	Fine	16	84-92	Trace	1-25	E
2014/02/17	Fine	20	84-99	0.0	1-23	SE/W
2014/02/18	Cloudy	17	75-99	Trace	1-27	NW
2014/02/21	Fine	13	63-86	0.0	2-24	E
2014/02/22	Fine	16	64-85	0.2	5-22	E
2014/02/23	Fine	18	65-87	0.0	3-22	SE/E
2014/02/25	Fine	20	77-95	0.0	1-22	E
2014/02/27	Cloudy	20	84-93	Trace	0-25	E
2014/02/28	Cloudy	20	84-90	Trace	5-21	E

Kai Tak Station						
Date	Weather	Average Air Temperature (°C) *	Average Relative Humidity (%) *	Total Rainfall (mm) *	Average Wind Speed (km/h)	Wind Direction
2014/02/03	Sunny	21	52-83	0.0	0-14	SE/W
2014/02/04	Cloudy	18	78-86	Trace	1-30	E
2014/02/05	Fine	17	74-94	Trace	10-31	E
2014/02/07	Fine	21	76-94	Trace	1-18	SE/E
2014/02/09	Cloudy	14	92-99	13.1	1-25	SE/NW
2014/02/11	Cloudy	9	63-78	13.7	3-18	NW
2014/02/16	Fine	14	84-92	Trace	9-24	SE
2014/02/17	Fine	18	84-99	0.0	1-18	SE
2014/02/18	Cloudy	17	75-99	Trace	1-28	SE/NW
2014/02/21	Fine	14	63-86	0.0	5-38	E
2014/02/22	Fine	15	64-85	0.2	8-29	E
2014/02/23	Fine	17	65-87	0.0	10-32	E
2014/02/25	Fine	19	77-95	0.0	1-24	SE/E
2014/02/27	Cloudy	20	84-93	Trace	2-27	SE/E
2014/02/28	Cloudy	18	84-90	Trace	6-27	SE

Green Island Station						
Date	Weather	Average Air Temperature (°C) *	Average Relative Humidity (%) *	Total Rainfall (mm) *	Average Wind Speed (km/h)	Wind Direction
2014/02/03	Sunny	21	52-83	0.0	0-28	S/NW
2014/02/04	Cloudy	18	78-86	Trace	1-55	NE
2014/02/05	Fine	17	74-94	Trace	20-50	NE
2014/02/07	Fine	21	76-94	Trace	2-26	S/NE
2014/02/09	Cloudy	14	92-99	13.1	8-50	NE/NW
2014/02/11	Cloudy	9	63-78	13.7	11-36	N
2014/02/16	Fine	14	84-92	Trace	19-50	NE
2014/02/17	Fine	18	84-99	0.0	1-33	NE
2014/02/18	Cloudy	17	75-99	Trace	1-52	NW
2014/02/21	Fine	14	63-86	0.0	23-58	NE
2014/02/22	Fine	15	64-85	0.2	24-62	NE
2014/02/23	Fine	17	65-87	0.0	18-62	NE
2014/02/25	Fine	19	77-95	0.0	13-40	NE
2014/02/27	Cloudy	20	84-93	Trace	2-47	NE
2014/02/28	Cloudy	18	84-90	Trace	21-49	NE

* King's Park's data
 - Data were not available
 # less than 24 hourly observations per day

Normal Weekdays Noise Monitoring Results at NM3 ($L_{Aeq, 30min}$)



Remark:

- 75dB(A) was adopted as the Limit Level during normal weekdays in the reporting period

Annex E7 Cumulative Complaint and Summons/Prosecutions Log

Reporting Month	Number of Complaints in Reporting Month	Number of Summons/Prosecutions in Reporting Month
December 2009	0	0
January 2010	0	0
February 2010	0	0
March 2010	0	0
April 2010	0	0
May 2010	0	0
June 2010	0	0
July 2010	0	0
August 2010	0	0
September 2010	0	0
October 2010	0	0
November 2010	0	0
December 2010	0	0
January 2011	0	0
February 2011	0	0
March 2011	0	0
April 2011	0	0
May 2011	0	0

Annex E7 Cumulative Complaint and Summons/Prosecutions Log

Reporting Month	Number of Complaints in Reporting Month	Number of Summons/Prosecutions in Reporting Month
June 2011	0	0
July 2011	0	0
August 2011	0	0
September 2011	0	0
October 2011	0	0
November 2011	0	0
December 2011	0	0
January 2012	0	0
February 2012	0	0
March 2012	0	0
April 2012	0	0
May 2012	0	0
June 2012	0	0
July 2012	0	0
August 2012	0	0
September 2012	0	0
October 2012	0	0
November 2012	0	0



Annex E7 Cumulative Complaint and Summons/Prosecutions Log

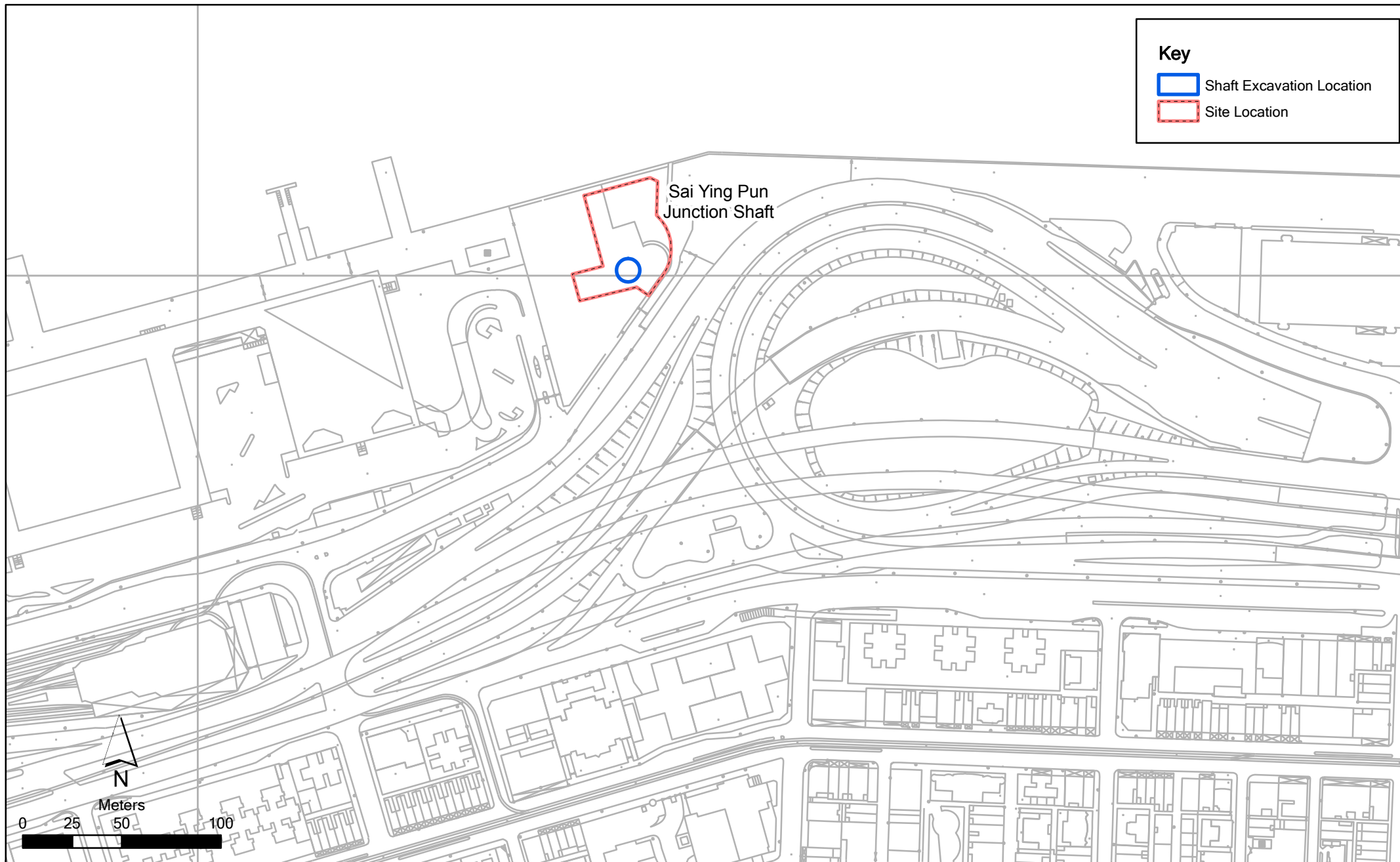
Reporting Month	Number of Complaints in Reporting Month	Number of Summons/Prosecutions in Reporting Month
December 2012	0	0
January 2013	0	0
February 2013	0	0
March 2013	0	0
April 2013	0	0
May 2013	0	0
June 2013	0	0
July 2013	0	0
August 2013	0	0
September 2013	0	0
October 2013	0	0
November 2013	0	0
December 2013	0	0
January 2014	0	0
February 2014	0	0
Overall Total	0	0

Annex F

Sai Ying Pun Junction Shaft

Key

-  Shaft Excavation Location
-  Site Location



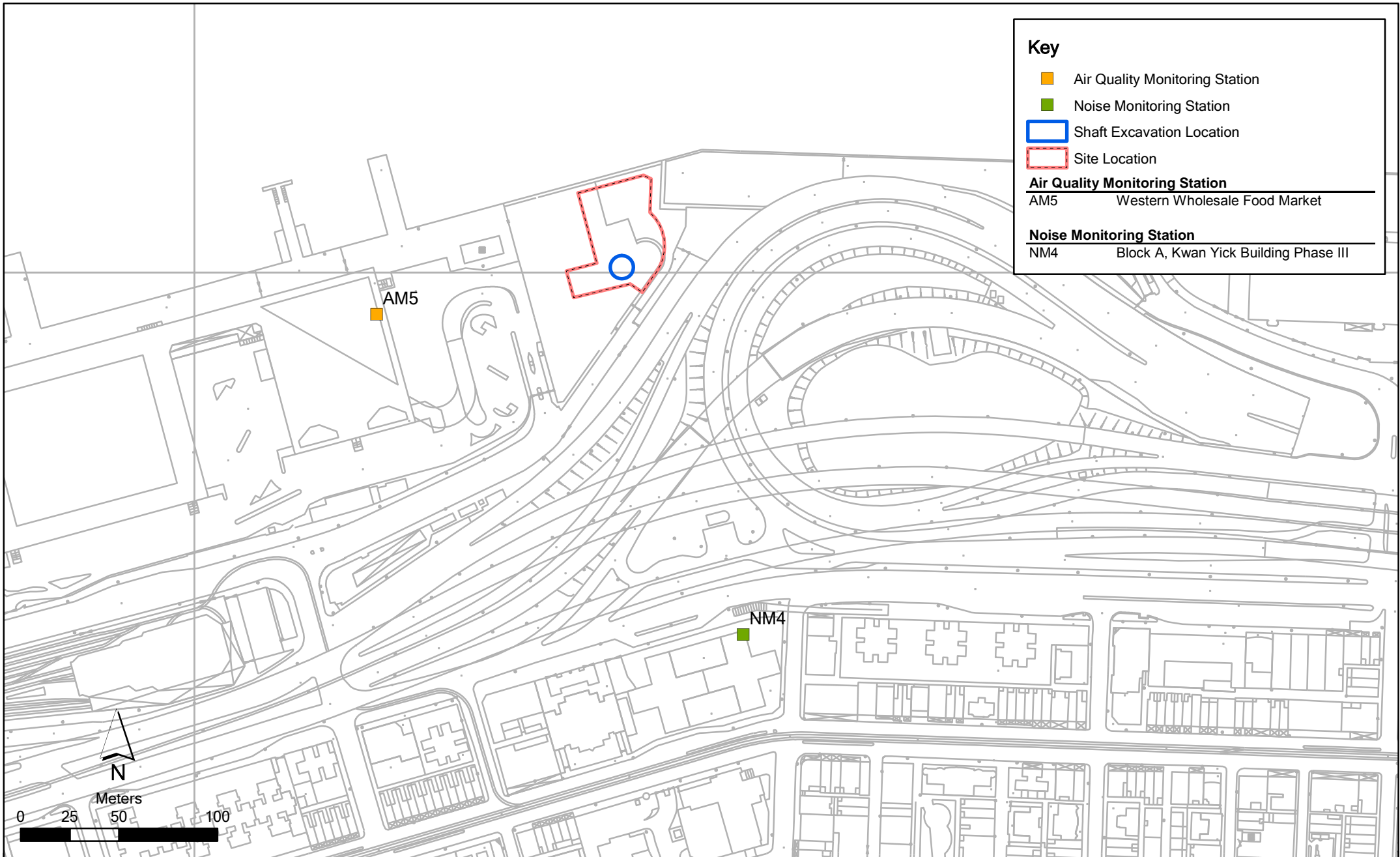
Annex F1

Contract No. DC/2007/23
Harbour Area Treatment Scheme Stage 2A
Construction of Sewage Conveyance System from North Point to Stonecutters Island
Construction Site Locations at Sai Ying Pun

File: EM&A and proposed station\0104887_Sai Ying Pun.mxd
Date: 03/03/2010

**Environmental
Resources
Management**





Key

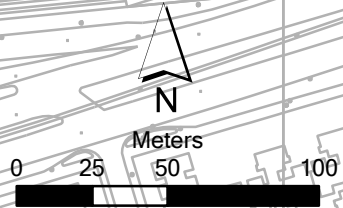
- Air Quality Monitoring Station
- Noise Monitoring Station
- Shaft Excavation Location
- Site Location

Air Quality Monitoring Station

AM5 Western Wholesale Food Market

Noise Monitoring Station

NM4 Block A, Kwan Yick Building Phase III



Annex F2

Contract No. DC/2007/23
 Harbour Area Treatment Scheme Stage 2A
 Construction of Sewage Conveyance System from North Point to Stonecutters Island
Impact Air Quality & Noise Monitoring Stations (Fung Mat Road)

**Environmental
 Resources
 Management**



File: EM&A and proposed station/
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 Date: 03/03/2010

Annex F3 Not Used

ANNEX F4 - SUMMARY OF MITIGATION MEASURES IMPLEMENTATION SCHEDULE (DECEMBER 2013)

Type of Impact	Environmental Protection Measures	Location/ Timing	Status
<i>Construction Phase</i>			
Air Quality	<p>The Air Pollution Control (Construction Dust) Regulation shall be implemented and good site practices shall be incorporated in the contract clauses to minimise construction dust impact. Control measures relevant to this Project are listed below:</p> <ul style="list-style-type: none"> • skip hoist for material transport should be totally enclosed by impervious sheeting; • every vehicle should be washed to remove any dusty materials from its body and wheels before leaving a construction site; • the area where vehicle washing takes place and the section of the road between the washing facilities and the exit point should be paved with concrete, bituminous materials or hardcores; • where a site boundary adjoins a road, streets or other accessible to the public, hoarding of not less than 2.4 m high from ground level should be provided along the entire length except for a site entrance or exit; • every stock of more than 20 bags of cement should be covered entirely by impervious sheeting placed in an area sheltered on the top and the 3 sides; • regular watering, with complete coverage, to reduce dust emission from exposed site surfaces and unpaved roads, particularly during dry weather; • site enclosure and covering of any aggregate or dusty material storage piles to reduce emissions. Where this is not practicable owing to frequent usage, watering should be applied to aggregate fines; • open stock piles should be avoided or covered and prevent placing dusty material storage piles near ASRs if possible; • tarpaulin covering of all dusty vehicle loads transported to, from and between site locations; and • instigation of an environmental monitoring auditing program to monitor the construction process in order to enforce controls and modify method of work if dusty conditions arise. 	All work sites / during construction	√

ANNEX F4 - SUMMARY OF MITIGATION MEASURES IMPLEMENTATION SCHEDULE (DECEMBER 2013)

Type of Impact	Environmental Protection Measures	Location/ Timing	Status
Air Quality	The following watering measures for specific site would be required to control the fugitive dust impacts: <ul style="list-style-type: none"> watering twice per day within the worksites at Fung Mat Road Site; the barging points should be continuous watering throughout the whole unloading process. 	All work sites / during construction	√
<i>Operational Phase</i>			
Air Quality	Good housekeeping for SCISTW and PTWs listed below should be followed to ameliorate any odour impact from the plant and these standard practices should be included in the plant operator manual. <ul style="list-style-type: none"> Screens should be cleaned regularly to remove any accumulated organic debris Grit and screening transfer systems should be flushed regularly with water to remove organic debris and grit Grit and screened materials should be transferred to closed containers to minimise odour escape Scum and grease collection wells and troughs should be emptied and flushed regularly to prevent putrefaction of accumulated organics Skim and remove floating solids and grease from primary clarifiers regularly Frequent sludge withdrawal from tanks is necessary to prevent the production of gases Sludge cake should be transferred to closed containers Sludge containers should be flushed with water regularly 	All work sites / during construction	NA. Measures not required until commencement of operational phase
Air Quality	Commissioning tests for all deodorisation system should be included in the Design and Construction Contract Document.	All PTW and SCISTW/ during operational phase	NA. Measures not required until commencement of operational phase
<i>Construction Phase</i>			
Noise	Use of quiet PME, movable barriers and acoustic mats	All work sites / during construction	√

ANNEX F4 - SUMMARY OF MITIGATION MEASURES IMPLEMENTATION SCHEDULE (DECEMBER 2013)

Type of Impact	Environmental Protection Measures	Location/ Timing	Status
Noise	<p>Good Site Practice:</p> <ul style="list-style-type: none"> only well-maintained plant should be operated on-site and plant should be serviced regularly during the construction program; silencers or mufflers on construction equipment should be utilised and should be properly maintained during the construction program; mobile plant, if any, should be sited as far from NSRs as possible; machines and plant (such as trucks) that may be in intermittent use should be shut down between work periods or should be throttled down to a minimum; plant known to emit noise strongly in one direction should, wherever possible, be orientated so that the noise is directed away from the nearby NSRs; and material stockpiles and other structures should be effectively utilised, wherever practicable, in screening noise from on-site construction activities; <p>Environmental audit shall be carried out to ensure that appropriate noise control measures would be properly implemented.</p>	All work sites / during construction	√
<i>Construction Phase</i>			
Water Quality	Construction Site Runoff and General Construction Activities The mitigation measures as outlined in the ProPECC PN 1/94 Construction Site Drainage should be adopted where applicable.	All work sites / during construction	√
Water Quality	<p>Effluent Discharge</p> <p>There is a need to apply to EPD for a discharge licence for discharge of effluent from the construction site under the WPCO. The discharge quality must meet the requirements specified in the discharge licence. If monitoring of the treated effluent quality from the works areas is required during the construction phase of the Project, the monitoring should be carried out in accordance with the WPCO license which is under the ambit of regional office (RO) of EPD. Minimum distances of 100 m should be maintained between the discharge points of construction site effluent and the existing saltwater intakes.</p>	All work sites / during construction	√

ANNEX F4 - SUMMARY OF MITIGATION MEASURES IMPLEMENTATION SCHEDULE (DECEMBER 2013)

Type of Impact	Environmental Protection Measures	Location/ Timing	Status
Water Quality	Accidental Spillage of Chemicals Contractor must register as a chemical waste producer if chemical wastes would be produced from the construction activities. The Waste Disposal Ordinance (Cap 354) and its subsidiary regulations in particular the Waste Disposal (Chemical Waste) (General) Regulation should be observed and complied with for control of chemical wastes.	All work sites / during construction	√
Water Quality	Any service shop and maintenance facilities should be located on hard standings within a bunded area, and sumps and oil interceptors should be provided. Maintenance of vehicles and equipment involving activities with potential for leakage and spillage should only be undertaken within the areas appropriately equipped to control these discharges.	All work sites / during construction	√
Water Quality	Disposal of chemical wastes should be carried out in compliance with the Waste Disposal Ordinance. The Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes published under the Waste Disposal Ordinance details the requirements to deal with chemical wastes. General requirements are given as follows: <ul style="list-style-type: none"> • Suitable containers should be used to hold the chemical wastes to avoid leakage or spillage during storage, handling and transport. • Chemical waste containers should be suitably labelled, to notify and warn the personnel who are handling the wastes, to avoid accidents. • Storage area should be selected at a safe location on site and adequate space should be allocated to the storage area. 	All work sites / during construction	<>

ANNEX F4 - SUMMARY OF MITIGATION MEASURES IMPLEMENTATION SCHEDULE (DECEMBER 2013)

Type of Impact	Environmental Protection Measures	Location/ Timing	Status
Water Quality	<p>Construction Works in Close Proximity of Storm Drains or Seafront</p> <p>To minimise the potential water quality impacts from the construction works located at or near any watercourse, the practices outlined below should be adopted where applicable.</p> <ul style="list-style-type: none"> • The use of less or smaller construction plants may be specified to reduce the disturbance to the storm water courses or marine environment. • Temporary storage of materials (e.g. equipment, filling materials, chemicals and fuel) and temporary stockpile of construction materials should be located well away from any water courses during the construction works. • Stockpiles of construction materials and dusty materials should be covered and located away from any water courses. • Construction debris and spoil should be covered up and/or disposed of as soon as possible to avoid being washed into the nearby water receivers. • Construction activities, which generate a large amount of wastewater, should be carried out in a distance away from the waterfront, where practicable. • Proper shoring may need to be erected in order to prevent soil/mud from slipping into the storm culvert or sea 	All work sites / during construction	√

ANNEX F4 - SUMMARY OF MITIGATION MEASURES IMPLEMENTATION SCHEDULE (DECEMBER 2013)

Type of Impact	Environmental Protection Measures	Location/ Timing	Status
<i>Operational Phase</i>			
Water Quality	Dual power supply, standby facilities for the main treatment units and standby equipment parts / accessories should be provided as far as possible at the SCISTW to minimise the chance of emergency discharge.	SCISTW and all the Stage 2 PTWs / Operation Stage	NA. Measures not required until commencement of operational phase
Water Quality	Standby unit(s) and dual (backup) power supply would be provided at all the Stage 2 PTWs to reduce the risk of equipment breakdown at the PTWs.	Stage 2 PTWs / Operation Stage	NA. Measures not required until commencement of operational phase
<i>Construction Phase</i>			
Waste	Reusable steel or concrete panel shutters, fencing and hoarding and signboard should be used as a preferred alternative to items made of wood, to minimise wastage of wood. Attention should be paid to WBTC No. 19/2001 - Metallic Site Hoardings and Signboards to reduce the amount of timber used on construction sites. Metallic alternatives to timber are readily available and should be used rather than new timber. Precast concrete units should be adopted wherever feasible to minimise the use of timber formwork.	All work sites / during the construction period	√
Waste	All waste materials should be segregated into categories covering: <ul style="list-style-type: none"> • excavated materials suitable for reuse on-site; • excavated materials suitable for public filling facilities; • remaining C&D waste for landfill; • chemical waste; and • general refuse for landfill. 	All work sites / during the construction period	√

ANNEX F4 - SUMMARY OF MITIGATION MEASURES IMPLEMENTATION SCHEDULE (DECEMBER 2013)

Type of Impact	Environmental Protection Measures	Location/ Timing	Status
Waste	<p>Recommendations to achieve waste reduction include:</p> <ul style="list-style-type: none"> Sort C&D waste from demolition of existing facilities to recover recyclable portions such as metals; 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; and Proper storage and site practices to minimise the potential for damage or contamination of construction materials. 	All work sites / during the construction period	√
Waste	<p>Recommendations for good site practices during construction activities include:-</p> <ul style="list-style-type: none"> Nomination of an approved person, such as a site manager, to be responsible for good site practices, arrangements for collection and effective disposal to an appropriate facility, of all wastes generated at the site Training of site personnel in proper waste management and chemical waste handling procedures Develop and provide toolbox talk for on-site sorting of C&D materials to enhance worker's awareness in handling, sorting, reuse and recycling of C&D materials. Provision of sufficient waste disposal points and regular collection of waste Regular cleaning and maintenance programme for drainage systems, sumps and oil interceptors 	All work sites / during the construction period	<>
Waste	Bentonite slurries used in diaphragm wall construction should be reconditioned and reused wherever practicable. The disposal of residual used bentonite slurry should follow the good practice guidelines stated in ProPECC PN 1/94 "Construction Site Drainage".	All work sites / during the construction period	NA
Waste	Adequate number of portable toilets at temporary works areas or the PTWs to ensure that sewage from site staff would be properly collected.	All work sites / during the construction period	√

ANNEX F4 - SUMMARY OF MITIGATION MEASURES IMPLEMENTATION SCHEDULE (DECEMBER 2013)

Type of Impact	Environmental Protection Measures	Location/ Timing	Status
Waste	General refuse should be stored in enclosed bins, skips or compaction units separating from C&D material and disposed of at designated landfill.	All work sites / during the construction period	√
Waste	The recyclable component of the municipal waste generated by the workforce, such as aluminium cans, paper and cleansed plastic containers should be separated from other waste. Provision and collection of recycling bins for different types of recyclable waste should be set up by the Contractor. The Contractor should also be responsible for arranging recycling companies to collect these materials.	All work sites / during the construction period	√
Waste	If chemical wastes are produced at the construction site, the Contractor would be required to register with the EPD as a chemical waste producer and to follow the guidelines stated in the Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes. Good quality containers compatible with the chemical wastes should be used, and incompatible chemicals should be stored separately. Appropriate labels should be securely attached on each chemical waste container indicating the corresponding chemical characteristics of the chemical waste, such as explosive, flammable, oxidising, irritant, toxic, harmful, corrosive, etc. The Contractor shall use a licensed collector to transport and dispose of the chemical wastes, to either the approved Chemical Waste Treatment Centre, or another licensed facility, in accordance with the Waste Disposal (Chemical Waste) (General) Regulation.	All work sites / during the construction period	√
Waste	Prior to excavation of the marine deposit layer, the deposit should be tested in accordance with the ETWB TC(W) No. 34/2002 and the results should be presented in a Preliminary Sediment Quality Report. The marine deposit should be disposed of at the disposal site designated by the Marine Fill Committee (MFC) or Director of Environmental Protection (DEP) depending on the test results.	All work sites / during the construction period	√
<i>Construction Phase</i>			

ANNEX F4 - SUMMARY OF MITIGATION MEASURES IMPLEMENTATION SCHEDULE (DECEMBER 2013)

Type of Impact	Environmental Protection Measures	Location/ Timing	Status
Landscape & Visual	<ul style="list-style-type: none"> • Topsoil, where identified, should be stripped and stored for re-use in the construction of the soft landscape works, where practical. • Existing trees to be retained on site should be carefully protected during construction. • Trees unavoidably affected by the works should be transplanted where practical. • Compensatory tree planting should be provided to compensate for felled trees. • Control of night-time lighting. • Erection of decorative screen hoarding compatible with the surrounding setting. 	All the works areas, PTWs and SCISTW/ during the construction period	√
<i>Operational Phase</i>			
Landscape & Visual	<ul style="list-style-type: none"> • Aesthetic design of the façade of PTW and associated structures to harmonise with the surrounding settings. • Shrub and Climbing Plants to soften proposed structures / Roof Greening. • Buffer Tree and Shrub Planting to screen proposed associated structures. • Reinstated of disturbed area 	All the works areas, PTWs and SCISTW/ during the construction period	NA. Measures not required until commencement of operational phase
<i>Construction Phase</i>			
Cultural Heritage	The construction vibration control limit (ppv of 25mm/s) shall be strictly followed.	Identified historical buildings/structures as mentioned in Tables 15.8 and 15.9. During blasting for tunnel, shafts, effluent conveyance system and disinfection facilities in the vicinity of the buildings/ structures	√

ANNEX F4 - SUMMARY OF MITIGATION MEASURES IMPLEMENTATION SCHEDULE (DECEMBER 2013)

Type of Impact	Environmental Protection Measures	Location/ Timing	Status
	Monitoring of vibration limits shall be conducted and reported as a requirement of EM&A programme	Identified historical buildings/structures as mentioned in Tables 15.8 and 15.9. During blasting for tunnel, shafts, effluent conveyance system and disinfection facilities in the vicinity of the buildings/structures	√

Remark:

- √ Compliance of Mitigation Measures
- <> Compliance of Mitigation but need improvement
- x Non-compliance of Mitigation Measures
- Δ Deficiency of Mitigation Measures but rectified by Gammon Construction Limited
- NA Not Applicable

ANNEX F4 - SUMMARY OF MITIGATION MEASURES IMPLEMENTATION SCHEDULE (JANUARY 2014)

Type of Impact	Environmental Protection Measures	Location/ Timing	Status
<i>Construction Phase</i>			
Air Quality	<p>The Air Pollution Control (Construction Dust) Regulation shall be implemented and good site practices shall be incorporated in the contract clauses to minimise construction dust impact. Control measures relevant to this Project are listed below:</p> <ul style="list-style-type: none"> • skip hoist for material transport should be totally enclosed by impervious sheeting; • every vehicle should be washed to remove any dusty materials from its body and wheels before leaving a construction site; • the area where vehicle washing takes place and the section of the road between the washing facilities and the exit point should be paved with concrete, bituminous materials or hardcores; • where a site boundary adjoins a road, streets or other accessible to the public, hoarding of not less than 2.4 m high from ground level should be provided along the entire length except for a site entrance or exit; • every stock of more than 20 bags of cement should be covered entirely by impervious sheeting placed in an area sheltered on the top and the 3 sides; • regular watering, with complete coverage, to reduce dust emission from exposed site surfaces and unpaved roads, particularly during dry weather; • site enclosure and covering of any aggregate or dusty material storage piles to reduce emissions. Where this is not practicable owing to frequent usage, watering should be applied to aggregate fines; • open stock piles should be avoided or covered and prevent placing dusty material storage piles near ASRs if possible; • tarpaulin covering of all dusty vehicle loads transported to, from and between site locations; and • instigation of an environmental monitoring auditing program to monitor the construction process in order to enforce controls and modify method of work if dusty conditions arise. 	All work sites / during construction	√

ANNEX F4 - SUMMARY OF MITIGATION MEASURES IMPLEMENTATION SCHEDULE (JANUARY 2014)

Type of Impact	Environmental Protection Measures	Location/ Timing	Status
Air Quality	<p>The following watering measures for specific site would be required to control the fugitive dust impacts:</p> <ul style="list-style-type: none"> watering twice per day within the worksites at Fung Mat Road Site; the barging points should be continuous watering throughout the whole unloading process. 	All work sites / during construction	√
<i>Operational Phase</i>			
Air Quality	<p>Good housekeeping for SCISTW and PTWs listed below should be followed to ameliorate any odour impact from the plant and these standard practices should be included in the plant operator manual.</p> <ul style="list-style-type: none"> Screens should be cleaned regularly to remove any accumulated organic debris Grit and screening transfer systems should be flushed regularly with water to remove organic debris and grit Grit and screened materials should be transferred to closed containers to minimise odour escape Scum and grease collection wells and troughs should be emptied and flushed regularly to prevent putrefaction of accumulated organics Skim and remove floating solids and grease from primary clarifiers regularly Frequent sludge withdrawal from tanks is necessary to prevent the production of gases Sludge cake should be transferred to closed containers Sludge containers should be flushed with water regularly 	All work sites / during construction	NA. Measures not required until commencement of operational phase
Air Quality	Commissioning tests for all deodorisation system should be included in the Design and Construction Contract Document.	All PTW and SCISTW/ during operational phase	NA. Measures not required until commencement of operational phase
<i>Construction Phase</i>			
Noise	Use of quiet PME, movable barriers and acoustic mats	All work sites / during construction	√

ANNEX F4 - SUMMARY OF MITIGATION MEASURES IMPLEMENTATION SCHEDULE (JANUARY 2014)

Type of Impact	Environmental Protection Measures	Location/ Timing	Status
Noise	<p>Good Site Practice:</p> <ul style="list-style-type: none"> only well-maintained plant should be operated on-site and plant should be serviced regularly during the construction program; silencers or mufflers on construction equipment should be utilised and should be properly maintained during the construction program; mobile plant, if any, should be sited as far from NSRs as possible; machines and plant (such as trucks) that may be in intermittent use should be shut down between work periods or should be throttled down to a minimum; plant known to emit noise strongly in one direction should, wherever possible, be orientated so that the noise is directed away from the nearby NSRs; and material stockpiles and other structures should be effectively utilised, wherever practicable, in screening noise from on-site construction activities; <p>Environmental audit shall be carried out to ensure that appropriate noise control measures would be properly implemented.</p>	All work sites / during construction	√
<i>Construction Phase</i>			
Water Quality	Construction Site Runoff and General Construction Activities The mitigation measures as outlined in the ProPECC PN 1/94 Construction Site Drainage should be adopted where applicable.	All work sites / during construction	√
Water Quality	<p>Effluent Discharge</p> <p>There is a need to apply to EPD for a discharge licence for discharge of effluent from the construction site under the WPCO. The discharge quality must meet the requirements specified in the discharge licence. If monitoring of the treated effluent quality from the works areas is required during the construction phase of the Project, the monitoring should be carried out in accordance with the WPCO license which is under the ambit of regional office (RO) of EPD. Minimum distances of 100 m should be maintained between the discharge points of construction site effluent and the existing saltwater intakes.</p>	All work sites / during construction	√

ANNEX F4 - SUMMARY OF MITIGATION MEASURES IMPLEMENTATION SCHEDULE (JANUARY 2014)

Type of Impact	Environmental Protection Measures	Location/ Timing	Status
Water Quality	Accidental Spillage of Chemicals Contractor must register as a chemical waste producer if chemical wastes would be produced from the construction activities. The Waste Disposal Ordinance (Cap 354) and its subsidiary regulations in particular the Waste Disposal (Chemical Waste) (General) Regulation should be observed and complied with for control of chemical wastes.	All work sites / during construction	√
Water Quality	Any service shop and maintenance facilities should be located on hard standings within a bunded area, and sumps and oil interceptors should be provided. Maintenance of vehicles and equipment involving activities with potential for leakage and spillage should only be undertaken within the areas appropriately equipped to control these discharges.	All work sites / during construction	√
Water Quality	Disposal of chemical wastes should be carried out in compliance with the Waste Disposal Ordinance. The Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes published under the Waste Disposal Ordinance details the requirements to deal with chemical wastes. General requirements are given as follows: <ul style="list-style-type: none"> • Suitable containers should be used to hold the chemical wastes to avoid leakage or spillage during storage, handling and transport. • Chemical waste containers should be suitably labelled, to notify and warn the personnel who are handling the wastes, to avoid accidents. • Storage area should be selected at a safe location on site and adequate space should be allocated to the storage area. 	All work sites / during construction	√

ANNEX F4 - SUMMARY OF MITIGATION MEASURES IMPLEMENTATION SCHEDULE (JANUARY 2014)

Type of Impact	Environmental Protection Measures	Location/ Timing	Status
Water Quality	<p>Construction Works in Close Proximity of Storm Drains or Seafront</p> <p>To minimise the potential water quality impacts from the construction works located at or near any watercourse, the practices outlined below should be adopted where applicable.</p> <ul style="list-style-type: none"> • The use of less or smaller construction plants may be specified to reduce the disturbance to the storm water courses or marine environment. • Temporary storage of materials (e.g. equipment, filling materials, chemicals and fuel) and temporary stockpile of construction materials should be located well away from any water courses during the construction works. • Stockpiles of construction materials and dusty materials should be covered and located away from any water courses. • Construction debris and spoil should be covered up and/or disposed of as soon as possible to avoid being washed into the nearby water receivers. • Construction activities, which generate a large amount of wastewater, should be carried out in a distance away from the waterfront, where practicable. • Proper shoring may need to be erected in order to prevent soil/mud from slipping into the storm culvert or sea 	All work sites / during construction	√

ANNEX F4 - SUMMARY OF MITIGATION MEASURES IMPLEMENTATION SCHEDULE (JANUARY 2014)

Type of Impact	Environmental Protection Measures	Location/ Timing	Status
<i>Operational Phase</i>			
Water Quality	Dual power supply, standby facilities for the main treatment units and standby equipment parts / accessories should be provided as far as possible at the SCISTW to minimise the chance of emergency discharge.	SCISTW and all the Stage 2 PTWs / Operation Stage	NA. Measures not required until commencement of operational phase
Water Quality	Standby unit(s) and dual (backup) power supply would be provided at all the Stage 2 PTWs to reduce the risk of equipment breakdown at the PTWs.	Stage 2 PTWs / Operation Stage	NA. Measures not required until commencement of operational phase
<i>Construction Phase</i>			
Waste	Reusable steel or concrete panel shutters, fencing and hoarding and signboard should be used as a preferred alternative to items made of wood, to minimise wastage of wood. Attention should be paid to WBTC No. 19/2001 - Metallic Site Hoardings and Signboards to reduce the amount of timber used on construction sites. Metallic alternatives to timber are readily available and should be used rather than new timber. Precast concrete units should be adopted wherever feasible to minimise the use of timber formwork.	All work sites / during the construction period	√
Waste	All waste materials should be segregated into categories covering: <ul style="list-style-type: none"> • excavated materials suitable for reuse on-site; • excavated materials suitable for public filling facilities; • remaining C&D waste for landfill; • chemical waste; and • general refuse for landfill. 	All work sites / during the construction period	√

ANNEX F4 - SUMMARY OF MITIGATION MEASURES IMPLEMENTATION SCHEDULE (JANUARY 2014)

Type of Impact	Environmental Protection Measures	Location/ Timing	Status
Waste	<p>Recommendations to achieve waste reduction include:</p> <ul style="list-style-type: none"> Sort C&D waste from demolition of existing facilities to recover recyclable portions such as metals; 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; and Proper storage and site practices to minimise the potential for damage or contamination of construction materials. 	All work sites / during the construction period	√
Waste	<p>Recommendations for good site practices during construction activities include:-</p> <ul style="list-style-type: none"> Nomination of an approved person, such as a site manager, to be responsible for good site practices, arrangements for collection and effective disposal to an appropriate facility, of all wastes generated at the site Training of site personnel in proper waste management and chemical waste handling procedures Develop and provide toolbox talk for on-site sorting of C&D materials to enhance worker's awareness in handling, sorting, reuse and recycling of C&D materials. Provision of sufficient waste disposal points and regular collection of waste Regular cleaning and maintenance programme for drainage systems, sumps and oil interceptors 	All work sites / during the construction period	√
Waste	Bentonite slurries used in diaphragm wall construction should be reconditioned and reused wherever practicable. The disposal of residual used bentonite slurry should follow the good practice guidelines stated in ProPECC PN 1/94 "Construction Site Drainage".	All work sites / during the construction period	NA
Waste	Adequate number of portable toilets at temporary works areas or the PTWs to ensure that sewage from site staff would be properly collected.	All work sites / during the construction period	√

ANNEX F4 - SUMMARY OF MITIGATION MEASURES IMPLEMENTATION SCHEDULE (JANUARY 2014)

Type of Impact	Environmental Protection Measures	Location/ Timing	Status
Waste	General refuse should be stored in enclosed bins, skips or compaction units separating from C&D material and disposed of at designated landfill.	All work sites / during the construction period	√
Waste	The recyclable component of the municipal waste generated by the workforce, such as aluminium cans, paper and cleansed plastic containers should be separated from other waste. Provision and collection of recycling bins for different types of recyclable waste should be set up by the Contractor. The Contractor should also be responsible for arranging recycling companies to collect these materials.	All work sites / during the construction period	√
Waste	If chemical wastes are produced at the construction site, the Contractor would be required to register with the EPD as a chemical waste producer and to follow the guidelines stated in the Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes. Good quality containers compatible with the chemical wastes should be used, and incompatible chemicals should be stored separately. Appropriate labels should be securely attached on each chemical waste container indicating the corresponding chemical characteristics of the chemical waste, such as explosive, flammable, oxidising, irritant, toxic, harmful, corrosive, etc. The Contractor shall use a licensed collector to transport and dispose of the chemical wastes, to either the approved Chemical Waste Treatment Centre, or another licensed facility, in accordance with the Waste Disposal (Chemical Waste) (General) Regulation.	All work sites / during the construction period	√
Waste	Prior to excavation of the marine deposit layer, the deposit should be tested in accordance with the ETWB TC(W) No. 34/2002 and the results should be presented in a Preliminary Sediment Quality Report. The marine deposit should be disposed of at the disposal site designated by the Marine Fill Committee (MFC) or Director of Environmental Protection (DEP) depending on the test results.	All work sites / during the construction period	√
<i>Construction Phase</i>			

ANNEX F4 - SUMMARY OF MITIGATION MEASURES IMPLEMENTATION SCHEDULE (JANUARY 2014)

Type of Impact	Environmental Protection Measures	Location/ Timing	Status
Landscape & Visual	<ul style="list-style-type: none"> • Topsoil, where identified, should be stripped and stored for re-use in the construction of the soft landscape works, where practical. • Existing trees to be retained on site should be carefully protected during construction. • Trees unavoidably affected by the works should be transplanted where practical. • Compensatory tree planting should be provided to compensate for felled trees. • Control of night-time lighting. • Erection of decorative screen hoarding compatible with the surrounding setting. 	All the works areas, PTWs and SCISTW/ during the construction period	√
<i>Operational Phase</i>			
Landscape & Visual	<ul style="list-style-type: none"> • Aesthetic design of the façade of PTW and associated structures to harmonise with the surrounding settings. • Shrub and Climbing Plants to soften proposed structures / Roof Greening. • Buffer Tree and Shrub Planting to screen proposed associated structures. • Reinstated of disturbed area 	All the works areas, PTWs and SCISTW/ during the construction period	NA. Measures not required until commencement of operational phase
<i>Construction Phase</i>			
Cultural Heritage	The construction vibration control limit (ppv of 25mm/s) shall be strictly followed.	Identified historical buildings/structures as mentioned in Tables 15.8 and 15.9. During blasting for tunnel, shafts, effluent conveyance system and disinfection facilities in the vicinity of the buildings/ structures	√

ANNEX F4 - SUMMARY OF MITIGATION MEASURES IMPLEMENTATION SCHEDULE (JANUARY 2014)

Type of Impact	Environmental Protection Measures	Location/ Timing	Status
	Monitoring of vibration limits shall be conducted and reported as a requirement of EM&A programme	Identified historical buildings/structures as mentioned in Tables 15.8 and 15.9. During blasting for tunnel, shafts, effluent conveyance system and disinfection facilities in the vicinity of the buildings/structures	√

Remark:

- √ Compliance of Mitigation Measures
- <> Compliance of Mitigation but need improvement
- x Non-compliance of Mitigation Measures
- Δ Deficiency of Mitigation Measures but rectified by Gammon Construction Limited
- NA Not Applicable

ANNEX F4 - SUMMARY OF MITIGATION MEASURES IMPLEMENTATION SCHEDULE (FEBRUARY 2014)

Type of Impact	Environmental Protection Measures	Location/ Timing	Status
<i>Construction Phase</i>			
Air Quality	<p>The Air Pollution Control (Construction Dust) Regulation shall be implemented and good site practices shall be incorporated in the contract clauses to minimise construction dust impact. Control measures relevant to this Project are listed below:</p> <ul style="list-style-type: none"> • skip hoist for material transport should be totally enclosed by impervious sheeting; • every vehicle should be washed to remove any dusty materials from its body and wheels before leaving a construction site; • the area where vehicle washing takes place and the section of the road between the washing facilities and the exit point should be paved with concrete, bituminous materials or hardcores; • where a site boundary adjoins a road, streets or other accessible to the public, hoarding of not less than 2.4 m high from ground level should be provided along the entire length except for a site entrance or exit; • every stock of more than 20 bags of cement should be covered entirely by impervious sheeting placed in an area sheltered on the top and the 3 sides; • regular watering, with complete coverage, to reduce dust emission from exposed site surfaces and unpaved roads, particularly during dry weather; • site enclosure and covering of any aggregate or dusty material storage piles to reduce emissions. Where this is not practicable owing to frequent usage, watering should be applied to aggregate fines; • open stock piles should be avoided or covered and prevent placing dusty material storage piles near ASRs if possible; • tarpaulin covering of all dusty vehicle loads transported to, from and between site locations; and • instigation of an environmental monitoring auditing program to monitor the construction process in order to enforce controls and modify method of work if dusty conditions arise. 	All work sites / during construction	√

ANNEX F4 - SUMMARY OF MITIGATION MEASURES IMPLEMENTATION SCHEDULE (FEBRUARY 2014)

Type of Impact	Environmental Protection Measures	Location/ Timing	Status
Air Quality	<p>The following watering measures for specific site would be required to control the fugitive dust impacts:</p> <ul style="list-style-type: none"> • watering twice per day within the worksites at Fung Mat Road Site; • the barging points should be continuous watering throughout the whole unloading process. 	All work sites / during construction	√
<i>Operational Phase</i>			
Air Quality	<p>Good housekeeping for SCISTW and PTWs listed below should be followed to ameliorate any odour impact from the plant and these standard practices should be included in the plant operator manual.</p> <ul style="list-style-type: none"> • Screens should be cleaned regularly to remove any accumulated organic debris • Grit and screening transfer systems should be flushed regularly with water to remove organic debris and grit • Grit and screened materials should be transferred to closed containers to minimise odour escape • Scum and grease collection wells and troughs should be emptied and flushed regularly to prevent putrefaction of accumulated organics • Skim and remove floating solids and grease from primary clarifiers regularly • Frequent sludge withdrawal from tanks is necessary to prevent the production of gases • Sludge cake should be transferred to closed containers • Sludge containers should be flushed with water regularly 	All work sites / during construction	NA. Measures not required until commencement of operational phase
Air Quality	Commissioning tests for all deodorisation system should be included in the Design and Construction Contract Document.	All PTW and SCISTW/ during operational phase	NA. Measures not required until commencement of operational phase
<i>Construction Phase</i>			
Noise	Use of quiet PME, movable barriers and acoustic mats	All work sites / during construction	√

ANNEX F4 - SUMMARY OF MITIGATION MEASURES IMPLEMENTATION SCHEDULE (FEBRUARY 2014)

Type of Impact	Environmental Protection Measures	Location/ Timing	Status
Noise	<p>Good Site Practice:</p> <ul style="list-style-type: none"> only well-maintained plant should be operated on-site and plant should be serviced regularly during the construction program; silencers or mufflers on construction equipment should be utilised and should be properly maintained during the construction program; mobile plant, if any, should be sited as far from NSRs as possible; machines and plant (such as trucks) that may be in intermittent use should be shut down between work periods or should be throttled down to a minimum; plant known to emit noise strongly in one direction should, wherever possible, be orientated so that the noise is directed away from the nearby NSRs; and material stockpiles and other structures should be effectively utilised, wherever practicable, in screening noise from on-site construction activities; <p>Environmental audit shall be carried out to ensure that appropriate noise control measures would be properly implemented.</p>	All work sites / during construction	√
<i>Construction Phase</i>			
Water Quality	Construction Site Runoff and General Construction Activities The mitigation measures as outlined in the ProPECC PN 1/94 Construction Site Drainage should be adopted where applicable.	All work sites / during construction	√
Water Quality	<p>Effluent Discharge</p> <p>There is a need to apply to EPD for a discharge licence for discharge of effluent from the construction site under the WPCO. The discharge quality must meet the requirements specified in the discharge licence. If monitoring of the treated effluent quality from the works areas is required during the construction phase of the Project, the monitoring should be carried out in accordance with the WPCO license which is under the ambit of regional office (RO) of EPD. Minimum distances of 100 m should be maintained between the discharge points of construction site effluent and the existing saltwater intakes.</p>	All work sites / during construction	√

ANNEX F4 - SUMMARY OF MITIGATION MEASURES IMPLEMENTATION SCHEDULE (FEBRUARY 2014)

Type of Impact	Environmental Protection Measures	Location/ Timing	Status
Water Quality	Accidental Spillage of Chemicals Contractor must register as a chemical waste producer if chemical wastes would be produced from the construction activities. The Waste Disposal Ordinance (Cap 354) and its subsidiary regulations in particular the Waste Disposal (Chemical Waste) (General) Regulation should be observed and complied with for control of chemical wastes.	All work sites / during construction	√
Water Quality	Any service shop and maintenance facilities should be located on hard standings within a bunded area, and sumps and oil interceptors should be provided. Maintenance of vehicles and equipment involving activities with potential for leakage and spillage should only be undertaken within the areas appropriately equipped to control these discharges.	All work sites / during construction	√
Water Quality	Disposal of chemical wastes should be carried out in compliance with the Waste Disposal Ordinance. The Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes published under the Waste Disposal Ordinance details the requirements to deal with chemical wastes. General requirements are given as follows: <ul style="list-style-type: none"> • Suitable containers should be used to hold the chemical wastes to avoid leakage or spillage during storage, handling and transport. • Chemical waste containers should be suitably labelled, to notify and warn the personnel who are handling the wastes, to avoid accidents. • Storage area should be selected at a safe location on site and adequate space should be allocated to the storage area. 	All work sites / during construction	<>

ANNEX F4 - SUMMARY OF MITIGATION MEASURES IMPLEMENTATION SCHEDULE (FEBRUARY 2014)

Type of Impact	Environmental Protection Measures	Location/ Timing	Status
Water Quality	<p>Construction Works in Close Proximity of Storm Drains or Seafront</p> <p>To minimise the potential water quality impacts from the construction works located at or near any watercourse, the practices outlined below should be adopted where applicable.</p> <ul style="list-style-type: none"> • The use of less or smaller construction plants may be specified to reduce the disturbance to the storm water courses or marine environment. • Temporary storage of materials (e.g. equipment, filling materials, chemicals and fuel) and temporary stockpile of construction materials should be located well away from any water courses during the construction works. • Stockpiles of construction materials and dusty materials should be covered and located away from any water courses. • Construction debris and spoil should be covered up and/or disposed of as soon as possible to avoid being washed into the nearby water receivers. • Construction activities, which generate a large amount of wastewater, should be carried out in a distance away from the waterfront, where practicable. • Proper shoring may need to be erected in order to prevent soil/mud from slipping into the storm culvert or sea 	All work sites / during construction	√

ANNEX F4 - SUMMARY OF MITIGATION MEASURES IMPLEMENTATION SCHEDULE (FEBRUARY 2014)

Type of Impact	Environmental Protection Measures	Location/ Timing	Status
<i>Operational Phase</i>			
Water Quality	Dual power supply, standby facilities for the main treatment units and standby equipment parts / accessories should be provided as far as possible at the SCISTW to minimise the chance of emergency discharge.	SCISTW and all the Stage 2 PTWs / Operation Stage	NA. Measures not required until commencement of operational phase
Water Quality	Standby unit(s) and dual (backup) power supply would be provided at all the Stage 2 PTWs to reduce the risk of equipment breakdown at the PTWs.	Stage 2 PTWs / Operation Stage	NA. Measures not required until commencement of operational phase
<i>Construction Phase</i>			
Waste	Reusable steel or concrete panel shutters, fencing and hoarding and signboard should be used as a preferred alternative to items made of wood, to minimise wastage of wood. Attention should be paid to WBTC No. 19/2001 - Metallic Site Hoardings and Signboards to reduce the amount of timber used on construction sites. Metallic alternatives to timber are readily available and should be used rather than new timber. Precast concrete units should be adopted wherever feasible to minimise the use of timber formwork.	All work sites / during the construction period	√
Waste	All waste materials should be segregated into categories covering: <ul style="list-style-type: none"> • excavated materials suitable for reuse on-site; • excavated materials suitable for public filling facilities; • remaining C&D waste for landfill; • chemical waste; and • general refuse for landfill. 	All work sites / during the construction period	√

ANNEX F4 - SUMMARY OF MITIGATION MEASURES IMPLEMENTATION SCHEDULE (FEBRUARY 2014)

Type of Impact	Environmental Protection Measures	Location/ Timing	Status
Waste	<p>Recommendations to achieve waste reduction include:</p> <ul style="list-style-type: none"> Sort C&D waste from demolition of existing facilities to recover recyclable portions such as metals; 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; and Proper storage and site practices to minimise the potential for damage or contamination of construction materials. 	All work sites / during the construction period	√
Waste	<p>Recommendations for good site practices during construction activities include:-</p> <ul style="list-style-type: none"> Nomination of an approved person, such as a site manager, to be responsible for good site practices, arrangements for collection and effective disposal to an appropriate facility, of all wastes generated at the site Training of site personnel in proper waste management and chemical waste handling procedures Develop and provide toolbox talk for on-site sorting of C&D materials to enhance worker's awareness in handling, sorting, reuse and recycling of C&D materials. Provision of sufficient waste disposal points and regular collection of waste Regular cleaning and maintenance programme for drainage systems, sumps and oil interceptors 	All work sites / during the construction period	√
Waste	Bentonite slurries used in diaphragm wall construction should be reconditioned and reused wherever practicable. The disposal of residual used bentonite slurry should follow the good practice guidelines stated in ProPECC PN 1/94 "Construction Site Drainage".	All work sites / during the construction period	NA
Waste	Adequate number of portable toilets at temporary works areas or the PTWs to ensure that sewage from site staff would be properly collected.	All work sites / during the construction period	√

ANNEX F4 - SUMMARY OF MITIGATION MEASURES IMPLEMENTATION SCHEDULE (FEBRUARY 2014)

Type of Impact	Environmental Protection Measures	Location/ Timing	Status
Waste	General refuse should be stored in enclosed bins, skips or compaction units separating from C&D material and disposed of at designated landfill.	All work sites / during the construction period	√
Waste	The recyclable component of the municipal waste generated by the workforce, such as aluminium cans, paper and cleansed plastic containers should be separated from other waste. Provision and collection of recycling bins for different types of recyclable waste should be set up by the Contractor. The Contractor should also be responsible for arranging recycling companies to collect these materials.	All work sites / during the construction period	√
Waste	If chemical wastes are produced at the construction site, the Contractor would be required to register with the EPD as a chemical waste producer and to follow the guidelines stated in the Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes. Good quality containers compatible with the chemical wastes should be used, and incompatible chemicals should be stored separately. Appropriate labels should be securely attached on each chemical waste container indicating the corresponding chemical characteristics of the chemical waste, such as explosive, flammable, oxidising, irritant, toxic, harmful, corrosive, etc. The Contractor shall use a licensed collector to transport and dispose of the chemical wastes, to either the approved Chemical Waste Treatment Centre, or another licensed facility, in accordance with the Waste Disposal (Chemical Waste) (General) Regulation.	All work sites / during the construction period	√
Waste	Prior to excavation of the marine deposit layer, the deposit should be tested in accordance with the ETWB TC(W) No. 34/2002 and the results should be presented in a Preliminary Sediment Quality Report. The marine deposit should be disposed of at the disposal site designated by the Marine Fill Committee (MFC) or Director of Environmental Protection (DEP) depending on the test results.	All work sites / during the construction period	√
<i>Construction Phase</i>			

ANNEX F4 - SUMMARY OF MITIGATION MEASURES IMPLEMENTATION SCHEDULE (FEBRUARY 2014)

Type of Impact	Environmental Protection Measures	Location/ Timing	Status
Landscape & Visual	<ul style="list-style-type: none"> • Topsoil, where identified, should be stripped and stored for re-use in the construction of the soft landscape works, where practical. • Existing trees to be retained on site should be carefully protected during construction. • Trees unavoidably affected by the works should be transplanted where practical. • Compensatory tree planting should be provided to compensate for felled trees. • Control of night-time lighting. • Erection of decorative screen hoarding compatible with the surrounding setting. 	All the works areas, PTWs and SCISTW/ during the construction period	√
<i>Operational Phase</i>			
Landscape & Visual	<ul style="list-style-type: none"> • Aesthetic design of the façade of PTW and associated structures to harmonise with the surrounding settings. • Shrub and Climbing Plants to soften proposed structures / Roof Greening. • Buffer Tree and Shrub Planting to screen proposed associated structures. • Reinstated of disturbed area 	All the works areas, PTWs and SCISTW/ during the construction period	NA. Measures not required until commencement of operational phase
<i>Construction Phase</i>			
Cultural Heritage	The construction vibration control limit (ppv of 25mm/s) shall be strictly followed.	Identified historical buildings/structures as mentioned in Tables 15.8 and 15.9. During blasting for tunnel, shafts, effluent conveyance system and disinfection facilities in the vicinity of the buildings/ structures	√

ANNEX F4 - SUMMARY OF MITIGATION MEASURES IMPLEMENTATION SCHEDULE (FEBRUARY 2014)

Type of Impact	Environmental Protection Measures	Location/ Timing	Status
	Monitoring of vibration limits shall be conducted and reported as a requirement of EM&A programme	Identified historical buildings/structures as mentioned in Tables 15.8 and 15.9. During blasting for tunnel, shafts, effluent conveyance system and disinfection facilities in the vicinity of the buildings/structures	√

Remark:

- √ Compliance of Mitigation Measures
- <> Compliance of Mitigation but need improvement
- x Non-compliance of Mitigation Measures
- Δ Deficiency of Mitigation Measures but rectified by Gammon Construction Limited
- NA Not Applicable

Annex F5 24-hour and 1-hour TSP Monitoring Results

1-hour TSP Monitoring Results

Station AM5

Date	Start Time	Finish Time	Weather	TSP Concentration (µg/m3)	Action Level (µg/m3)	Limit Level (µg/m3)	Site Conditions / Observations / Remarks	Temperature (°C)	Wind Speed (m/s)	Sampler ID	Filter ID
03-Dec-13	8:00	9:00	Fine	318	332	500	Operation of crane truck	19	<5	Western Wholesale Food Market	1724
	9:20	10:20	Fine	152	332	500	Operation of crane truck	19	<5	Western Wholesale Food Market	1725
	10:40	11:40	Fine	143	332	500	Operation of crane truck	19	<5	Western Wholesale Food Market	1726
09-Dec-13	14:13	15:13	Fine	317	332	500	Operation of crane truck	22	<5	Western Wholesale Food Market	1731
	15:30	16:30	Fine	267	332	500	Operation of crane truck	22	<5	Western Wholesale Food Market	1732
	16:43	17:43	Fine	315	332	500	Operation of crane truck	22	<5	Western Wholesale Food Market	1733
13-Dec-13	8:00	9:00	Fine	157	332	500	Aqua Sed. cleaning	19	<5	Western Wholesale Food Market	1738
	9:26	10:26	Fine	266	332	500	Aqua Sed. cleaning	19	<5	Western Wholesale Food Market	1739
	10:50	11:50	Fine	233	332	500	Aqua Sed. cleaning	19	<5	Western Wholesale Food Market	1740
19-Dec-13	8:00	9:00	Fine	91	332	500	Loading	12	<5	Western Wholesale Food Market	1745
	9:16	10:16	Fine	262	332	500	Loading	12	<5	Western Wholesale Food Market	1746
	10:30	11:30	Fine	230	332	500	Loading	12	<5	Western Wholesale Food Market	1747
24-Dec-13	8:00	9:00	Fine	221	332	500	Loading	15	<5	Western Wholesale Food Market	1752
	13:38	14:38	Fine	83	332	500	Loading	15	<5	Western Wholesale Food Market	1753
	14:48	15:48	Fine	236	332	500	Loading	15	<5	Western Wholesale Food Market	1754
30-Dec-13	13:33	14:33	Fine	218	332	500	Loading	13.8	<5	Western Wholesale Food Market	1759
	14:40	15:40	Fine	273	332	500	Loading	13.8	<5	Western Wholesale Food Market	1760
	15:50	16:50	Fine	223	332	500	Loading	13.8	<5	Western Wholesale Food Market	1761
			Min.	83							
			Max.	318							
			Average	222							

* Wind Speed data is presented in the Meteorological Data table

Annex F5 24-hour and 1-hour TSP Monitoring Results

1-hour TSP Monitoring Results

Station AM5

Date	Start Time	Finish Time	Weather	TSP Concentration (µg/m3)	Action Level (µg/m3)	Limit Level (µg/m3)	Site Conditions / Observations / Remarks	Temperature (°C)	Wind Speed (m/s)	Sampler ID	Filter ID
03-Jan-14	8:00	9:00	Fine	186	332	500	Loading concrete and operation of crane truck	20	<5	Western Wholesale Food Market	1766
	10:06	11:06	Fine	184	332	500	Loading concrete and operation of crane truck	20	<5	Western Wholesale Food Market	1767
	11:10	12:10	Fine	165	332	500	Loading concrete and operation of crane truck	20	<5	Western Wholesale Food Market	1768
09-Jan-14	13:36	14:36	Fine	116	332	500	Loading concrete and operation of dump truck	16	<5	Western Wholesale Food Market	1773
	14:43	15:43	Fine	138	332	500	Loading concrete and operation of dump truck	16	<5	Western Wholesale Food Market	1774
	15:55	16:55	Fine	160	332	500	Loading concrete and operation of dump truck	16	<5	Western Wholesale Food Market	1775
15-Jan-14	13:07	14:07	Fine	90	332	500	Loading concrete	13	<5	Western Wholesale Food Market	1780
	14:15	15:15	Fine	137	332	500	Loading concrete	13	<5	Western Wholesale Food Market	1781
	15:30	16:30	Fine	160	332	500	Loading concrete	13	<5	Western Wholesale Food Market	1782
21-Jan-14	8:00	9:00	Fine	170	332	500	Loading concrete	15	<5	Western Wholesale Food Market	1787
	13:10	14:10	Fine	121	332	500	Loading concrete	15	<5	Western Wholesale Food Market	1788
	14:22	15:22	Fine	143	332	500	Loading concrete	15	<5	Western Wholesale Food Market	1789
27-Jan-14	8:00	9:00	Fine	265	332	500	Loading concrete	16	<5	Western Wholesale Food Market	1794
	14:00	15:00	Fine	112	332	500	Loading concrete	16	<5	Western Wholesale Food Market	1795
	15:06	16:06	Fine	115	332	500	Loading concrete	16	<5	Western Wholesale Food Market	1796
30-Jan-14	10:55	11:55	Fine	131	332	500	Loading concrete	19	<5	Western Wholesale Food Market	1801
	12:00	13:00	Fine	111	332	500	Loading concrete	19	<5	Western Wholesale Food Market	1802
	13:06	14:06	Fine	239	332	500	Loading concrete	19	<5	Western Wholesale Food Market	1803
			Min.	90							
			Max.	265							
			Average	152							

* Wind Speed data is presented in the Meteorological Data table

Annex F5 24-hour and 1-hour TSP Monitoring Results

1-hour TSP Monitoring Results

Station AM5

Date	Start Time	Finish Time	Weather	TSP Concentration (µg/m3)	Action Level (µg/m3)	Limit Level (µg/m3)	Site Conditions / Observations / Remarks	Temperature (°C)	Wind Speed (m/s)	Sampler ID	Filter ID
5-Feb-14	10:16	11:16	Fine	54	332	500	Loading concrete	17	<5	Western Wholesale Food Market	1808
	11:23	12:23	Fine	48	332	500	Loading concrete	17	<5	Western Wholesale Food Market	1809
	12:35	13:35	Fine	35	332	500	Loading concrete	17	<5	Western Wholesale Food Market	1810
7-Feb-14	9:54	10:54	Fine	65	332	500	Loading concrete	20	<5	Western Wholesale Food Market	1815
	11:00	12:00	Fine	82	332	500	Loading concrete	20	<5	Western Wholesale Food Market	1816
	12:06	13:06	Fine	132	332	500	Loading concrete	20	<5	Western Wholesale Food Market	1817
13-Feb-14	--	--	--	--	332	500	--	--	--	Western Wholesale Food Market	--
	--	--	--	--	332	500	--	--	--	Western Wholesale Food Market	--
	--	--	--	--	332	500	--	--	--	Western Wholesale Food Market	--
19-Feb-14	--	--	--	--	332	500	--	--	--	Western Wholesale Food Market	--
	--	--	--	--	332	500	--	--	--	Western Wholesale Food Market	--
	--	--	--	--	332	500	--	--	--	Western Wholesale Food Market	--
24-Feb-14	--	--	--	--	332	500	--	--	--	Western Wholesale Food Market	--
	--	--	--	--	332	500	--	--	--	Western Wholesale Food Market	--
	--	--	--	--	332	500	--	--	--	Western Wholesale Food Market	--
28-Feb-14	--	--	--	--	332	500	--	--	--	Western Wholesale Food Market	--
	--	--	--	--	332	500	--	--	--	Western Wholesale Food Market	--
	--	--	--	--	332	500	--	--	--	Western Wholesale Food Market	--
				Min.	35						
				Max.	132						
				Average	69						

- * Monitoring was suspended from 13 to 28 February 2014 due to power supply failure.
- * Wind Speed data is presented in the Meteorological Data table.

Annex F5 24-hour and 1-hour TSP Monitoring Results

24-hour TSP Monitoring Results

Station AM5

Start		Finish		Weather	Filter Weight (g)		Elapsed Time Reading		Sampling Time (hrs)	Flow Rate (m ³ /min)			TSP Conc. (µg/m ³)	Action Level (µg/m ³)	Limit Level (µg/m ³)	Observations / Remarks	Sampler ID	Filter ID
Date	Time	Date	Time		Initial	Final	Initial	Final		Initial	Final	Average						
03-Dec-13	13:00	04-Dec-13	13:00	Fine	2.7793	3.0313	595.25	619.25	24.00	1.2119	1.2119	1.2119	144.4	189	260	Tunnel Works	Western Wholesale Food Market	1720
09-Dec-13	13:00	10-Dec-13	13:00	Fine	2.7773	3.1	622.24	646.24	24.00	1.2035	1.2035	1.2035	186.2	189	260	Tunnel Works	Western Wholesale Food Market	1734
13-Dec-13	13:00	14-Dec-13	13:00	Fine	2.8026	3.1187	649.23	673.23	24.00	1.2107	1.2107	1.21071	181.3	189	260	Tunnel Works	Western Wholesale Food Market	1741
19-Dec-13	13:00	20-Dec-13	13:00	Fine	2.7749	2.9492	676.22	700.22	24.00	1.2505	1.2505	1.2505	96.8	189	260	Tunnel Works	Western Wholesale Food Market	1748
24-Dec-13	13:00	25-Dec-13	13:00	Fine	2.7942	3.111	703.22	727.22	24.00	1.2457	1.2457	1.2457	176.6	189	260	Tunnel Works	Western Wholesale Food Market	1755
30-Dec-13	16:55	31-Dec-13	16:55	Fine	2.7918	3.0712	730.22	754.22	24.00	1.2230	1.2230	1.2230	158.6	188.5	260	Tunnel Works	Western Wholesale Food Market	1762
													Min.	96.8				
													Max.	186				
													Average	157				

Annex F5 24-hour and 1-hour TSP Monitoring Results

24-hour TSP Monitoring Results

Station AM5

Start		Finish		Weather	Filter Weight (g)		Elapsed Time Reading		Sampling Time (hrs)	Flow Rate (m ³ /min)			TSP Conc. (µg/m ³)	Action Level (µg/m ³)	Limit Level (µg/m ³)	Observations / Remarks	Sampler	
Date	Time	Date	Time		Initial	Final	Initial	Final		Initial	Final	Average					ID	ID
03-Jan-14	12:30	04-Jan-14	12:30	Fine	2.7915	3.1095	757.22	781.22	24.00	1.2085	1.2085	1.2085	183	188.5	260	Tunnel Works	Western Wholesale Food Market	1759
09-Jan-14	17:02	10-Jan-14	17:02	Fine	2.7689	3.0182	784.21	808.21	24.00	1.2201	1.2201	1.2201	142	188.5	260	Tunnel Works	Western Wholesale Food Market	1776
15-Jan-14	16:43	16-Jan-14	16:43	Fine	2.767	2.9683	811.21	835.21	24.00	1.2257	1.2257	1.2257	114	188.5	260	Tunnel Works	Western Wholesale Food Market	1783
21-Jan-14	15:30	22-Jan-14	15:30	Fine	2.7718	3.1014	838.24	862.24	24.00	1.2325	1.2325	1.2325	186	188.5	260	Tunnel Works	Western Wholesale Food Market	1790
27-Jan-14	16:15	28-Jan-14	16:15	Fine	2.7811	2.9535	865.24	889.24	24.00	1.2796	1.2796	1.2796	94	188.5	260	Tunnel Works	Western Wholesale Food Market	1797
29-Jan-14	10:50	30-Jan-14	10:50	Fine	2.7935	2.8656	889.24	913.24	24.00	1.2759	1.2759	1.2759	39	188.5	260	Tunnel Works	Western Wholesale Food Market	1804
													Min.	39				
													Max.	186				
													Average	144				

Annex F5 24-hour and 1-hour TSP Monitoring Results

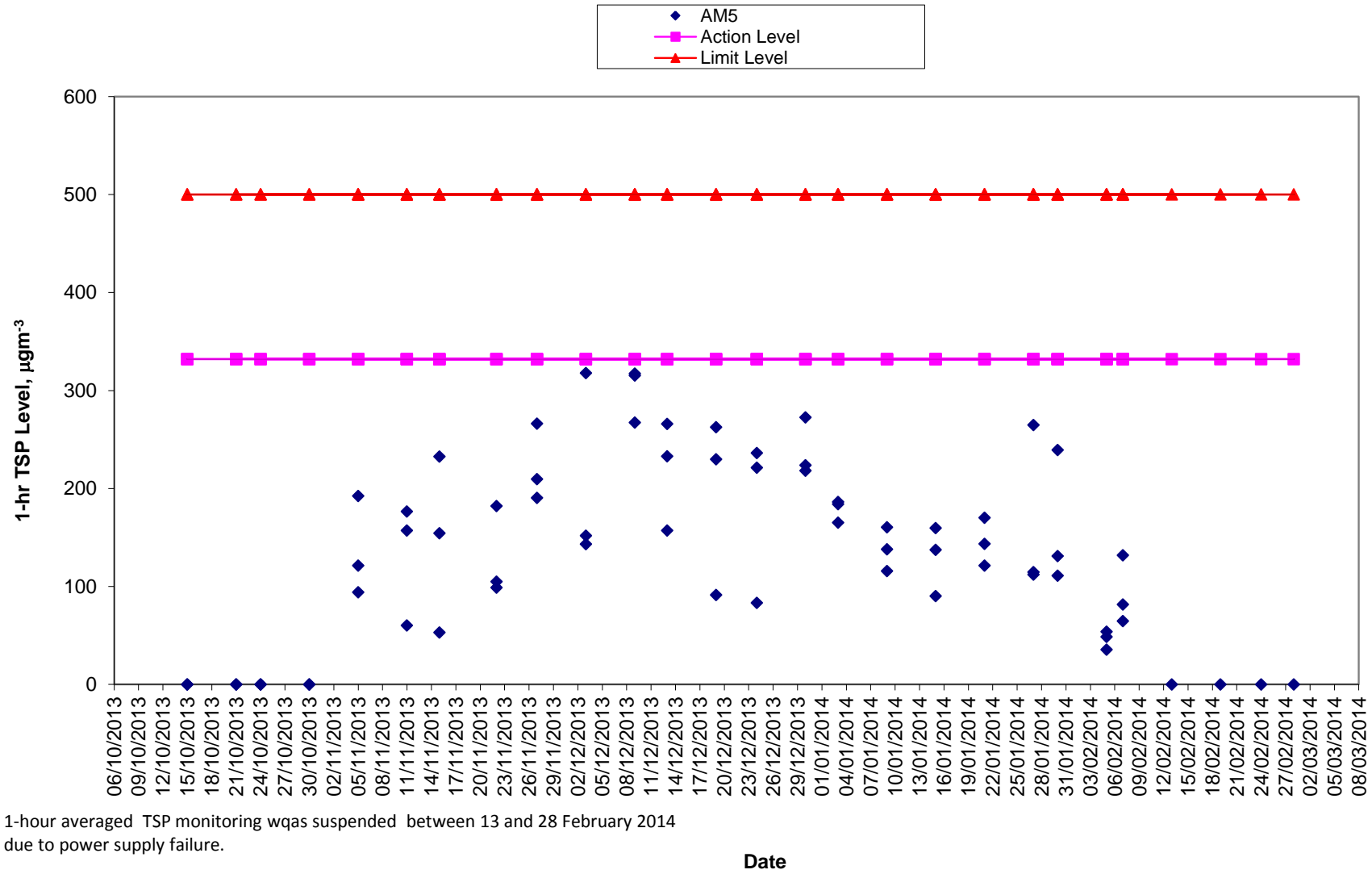
24-hour TSP Monitoring Results

Station AM5

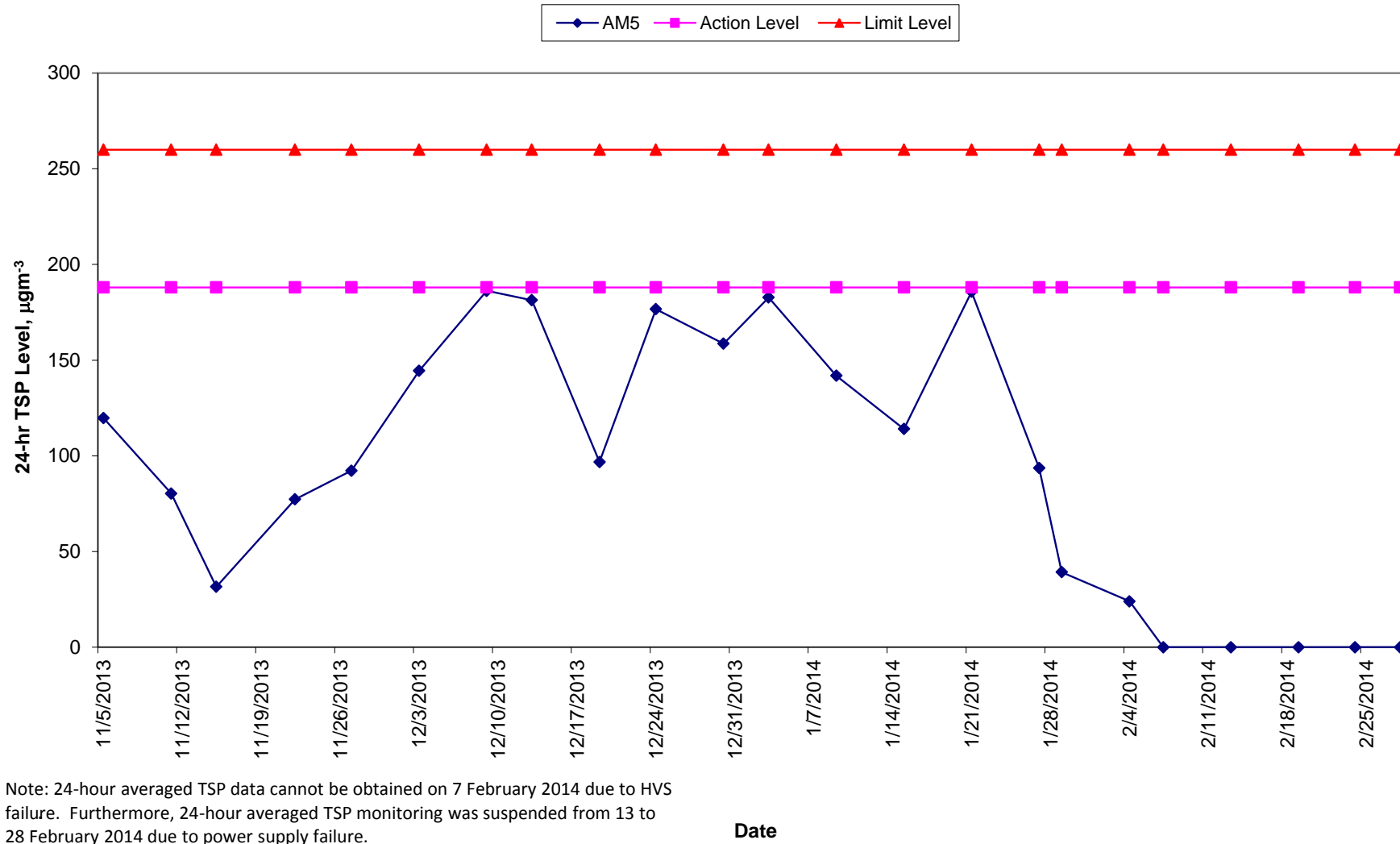
Start		Finish		Weather	Filter Weight (g)		Elapsed Time Reading		Sampling Time (hrs)	Flow Rate (m ³ /min)			TSP Conc. (µg/m ³)	Action Level (µg/m ³)	Limit Level (µg/m ³)	Observations / Remarks	Sampler ID	Filter ID		
Date	Time	Date	Time		Initial	Final	Initial	Final		Initial	Final	Average								
4-Feb-14	9:00	5-Feb-14	9:00	Fine	2.7708	2.8144	916.24	940.24	24.00	1.2713	1.2713	1.2713	24	189	260	Tunnel Works	Western Wholesale Food Market	1811		
7-Feb-14	--	--	--	--	--	--	--	--	--	--	--	--	--	189	260	--	Western Wholesale Food Market	--		
13-Feb-14	--	--	--	--	--	--	--	--	--	--	--	--	--	189	260	--	Western Wholesale Food Market	--		
19-Feb-14	--	--	--	--	--	--	--	--	--	--	--	--	--	189	260	--	Western Wholesale Food Market	--		
24-Feb-14	--	--	--	--	--	--	--	--	--	--	--	--	--	189	260	--	Western Wholesale Food Market	--		
28-Feb-14	--	--	--	--	--	--	--	--	--	--	--	--	--	189	260	--	Western Wholesale Food Market	--		
												Min	24							
												Max.	24							
												Average	24							

- * 24-hour averaged TSP Monitoring on 7 February 2014 could not be acquired due to HVS failure.
- * Monitoring was suspended from 13 to 28 February 2014 due to power supply failure.

1-hr TSP Level AM5 (AFCD Western Wholesale Food Market)



24-hr TSP Level AM5 (AFCD Western Wholesale Food Market)



Note: 24-hour averaged TSP data cannot be obtained on 7 February 2014 due to HVS failure. Furthermore, 24-hour averaged TSP monitoring was suspended from 13 to 28 February 2014 due to power supply failure.

Meteorological Data Extracted from the Hong Kong Observatory

King's Park Station						
Date	Weather	Average Air Temperature (°C)	Average Relative Humidity (%)	Total Rainfall (mm)	Average Wind Speed (km/h)	Wind Direction
2013-12-01	Sunny	13	33 - 63	0.0	0 - 12	SE/NE
2013-12-03	Sunny	19	45 - 80	0.0	0 - 14	SE/E
2013-12-06	Sunny	14	33 - 63	0.0	0 - 18	NE
2013-12-08	Sunny	20	64 - 85	Trace	0 - 12	SE
2013-12-09	Sunny	22	50 - 78	0.0	0 - 18	NE
2013-12-10	Cloudy	20	55 - 80	0.0	0 - 20	SE/NE
2013-12-12	Cloudy	18	55 - 72	Trace	4 - 20	SE/E
2013-12-14	Cloudy	19	75 - 99	13.0	0 - 18	SE/E
2013-12-15	Cloudy	17	93 - 99	22.7	0 - 17	E
2013-12-17	Fine	12	88 - 99	27.8	0 - 17	NW/NE
2013-12-18	Sunny	9	58 - 86	0.0	4 - 22	NE/N
2013-12-19	Fine	9	53 - 74	0.0	0 - 16	NE/N
2013-12-20	Sunny	14	54 - 71	0.0	0 - 12	NE
2013-12-22	Sunny	14	52 - 69	0.0	0 - 12	NE/SE
2013-12-24	Cloudy	15	48 - 71	0.0	0 - 12	NE/SE
2013-12-27	Sunny	13	35 - 50	0.0	0 - 23	NE/N
2013-12-29	Sunny	12	39 - 66	0.0	0 - 16	NE/SE
2013-12-30	Sunny	14	34 - 64	0.0	0 - 10	N/W
2013-12-31	Fine	15	35 - 65	0.0	0 - 11	N/W

Tsing Yi Station						
Date	Weather	Average Air Temperature (°C)	Average Relative Humidity (%) *	Total Rainfall (mm)	Average Wind Speed (km/h)	Wind Direction
2013-12-01	Sunny	18	33 - 63	0.0	1 - 12	-
2013-12-03	Sunny	19	45 - 80	0.0	1 - 17	-
2013-12-06	Sunny	18	33 - 63	0.0	1 - 18	-
2013-12-08	Sunny	20	64 - 85	Trace	1 - 18	-
2013-12-09	Sunny	23	50 - 78	0.0	1 - 16	-
2013-12-10	Cloudy	21	55 - 80	0.0	2 - 16	-
2013-12-12	Cloudy	18	55 - 72	Trace	3 - 15	-
2013-12-14	Cloudy	19	75 - 99	13.0	1 - 11	-
2013-12-15	Cloudy	17	93 - 99	22.7	1 - 12	-
2013-12-17	Fine	12	88 - 99	27.8	1 - 22	-
2013-12-18	Sunny	12	58 - 86	0.0	4 - 25	-
2013-12-19	Fine	13	53 - 74	0.0	1 - 18	-
2013-12-20	Sunny	15	54 - 71	0.0	0 - 17	-
2013-12-22	Sunny	14	52 - 69	0.0	1 - 15	-
2013-12-24	Cloudy	15	48 - 71	0.0	1 - 19	-
2013-12-27	Sunny	13	35 - 50	0.0	1 - 22	-
2013-12-29	Sunny	12	39 - 66	0.0	1 - 13	-
2013-12-30	Sunny	13	34 - 64	0.0	1 - 18	-
2013-12-31	Fine	15	35 - 65	0.0	1 - 19	-

Kai Tak Station						
Date	Weather	Average Air Temperature (°C) *	Average Relative Humidity (%) *	Total Rainfall (mm) *	Average Wind Speed (km/h)	Wind Direction
2013-12-01	Sunny	13	33 - 63	0.0	1 - 18	SE/N
2013-12-03	Sunny	19	45 - 80	0.0	1 - 20	SE/NE
2013-12-06	Sunny	13	33 - 63	0.0	1 - 20	SE
2013-12-08	Sunny	19	45 - 80	0.0	1 - 18	SE
2013-12-09	Sunny	14	33 - 63	0.0	1 - 27	NW/E
2013-12-10	Sunny	20	64 - 85	Trace	3 - 18	NE
2013-12-12	Sunny	22	50 - 78	0.0	1 - 19	E
2013-12-14	Cloudy	20	55 - 80	0.0	3 - 25	E
2013-12-15	Cloudy	18	55 - 72	Trace	3 - 24	SE
2013-12-17	Cloudy	19	75 - 99	13.0	1 - 24	NW/N
2013-12-18	Cloudy	17	93 - 99	22.7	3 - 27	NW/N
2013-12-19	Fine	12	88 - 99	27.8	1 - 22	NE/NW
2013-12-20	Sunny	9	58 - 86	0.0	1 - 21	NE
2013-12-22	Fine	9	53 - 74	0.0	2 - 18	NE/E
2013-12-24	Sunny	14	54 - 71	0.0	1 - 15	NW/E

Green Island Station						
Date	Weather	Average Air Temperature (°C) *	Average Relative Humidity (%) *	Total Rainfall (mm) *	Average Wind Speed (km/h)	Wind Direction
2013-12-01	Sunny	13	33 - 63	0.0	-	-
2013-12-03	Sunny	19	45 - 80	0.0	5 - 33	NE
2013-12-06	Sunny	13	33 - 63	0.0	3 - 31	NE/N
2013-12-08	Sunny	19	45 - 80	0.0	11 - 33	NE
2013-12-09	Sunny	14	33 - 63	0.0	3 - 34	NE/N
2013-12-10	Sunny	20	64 - 85	Trace	19 - 43	NE/N
2013-12-12	Sunny	22	50 - 78	0.0	19 - 41	NE
2013-12-14	Cloudy	20	55 - 80	0.0	10 - 43	NE
2013-12-15	Cloudy	18	55 - 72	Trace	9 - 50	NE/N
2013-12-17	Cloudy	19	75 - 99	13.0	15 - 41	N
2013-12-18	Cloudy	17	93 - 99	22.7	26 - 52	NE/N
2013-12-19	Fine	12	88 - 99	27.8	13 - 39	NE/N
2013-12-20	Sunny	9	58 - 86	0.0	1 - 32	NW/N
2013-12-22	Fine	9	53 - 74	0.0	8 - 32	NE/N
2013-12-24	Sunny	14	54 - 71	0.0	6 - 31	NW/N

Meteorological Data Extracted from the Hong Kong Observatory

		King's Park Station				
Date	Weather	Average Air Temperature (°C)	Average Relative Humidity (%)	Total Rainfall (mm)	Average Wind Speed (km/h)	Wind Direction
2014-01-02	Sunny	17	61-88	0.0	0-13	SE
2014-01-04	Sunny	19	40-66	0.0	0-15	NE
2014-01-05	Sunny	17	45-79	0.0	0-18	SE/E
2014-01-07	Cloudy	18	70-90	Trace	0-19	SE
2014-01-08	Cloudy	19	65-95	Trace	0-15	NE/W
2014-01-10	Fine	15	72-81	Trace	6-22	SE
2014-01-12	Sunny	18	60-87	0.0	0-16	SE/NE
2014-01-14	Sunny	14	57-75	0.0	0-16	NE/N
2014-01-16	Sunny	14	57-84	0.0	0-16	SE/E
2014-01-19	Sunny	15	54-81	0.0	0-20	SE/E
2014-01-20	Sunny	17	32-77	0.0	0-19	NE/N
2014-01-21	Fine	15	27-41	0.0	3-24	NE
2014-01-22	Sunny	14	31-64	0.0	0-21	NE/W
2014-01-24	Sunny	16	65-85	0.0	0-19	SE
2014-01-26	Sunny	20	54-84	0.0	0-21	SE/N
2014-01-28	Fine	18	54-86	0.0	0-17	SE
2014-01-30	Sunny	19	63-90	0.0	0-13	SE/W

		Tsing Yi Station				
Date	Weather	Average Air Temperature (°C)	Average Relative Humidity (%) *	Total Rainfall (mm)	Average Wind Speed (km/h)	Wind Direction
2014-01-02	Sunny	17	61-88	0.0	1-12	-
2014-01-04	Sunny	19	40-66	0.0	1-18	-
2014-01-05	Sunny	16	45-79	0.0	1-19	-
2014-01-07	Cloudy	19	70-90	Trace	1-21	-
2014-01-08	Cloudy	20	65-95	Trace	1-28	-
2014-01-10	Fine	15	72-81	Trace	4-18	-
2014-01-12	Sunny	18	60-87	0.0	1-17	-
2014-01-14	Sunny	14	57-75	0.0	2-14	-
2014-01-16	Sunny	15	57-84	0.0	1-22	-
2014-01-19	Sunny	15	54-81	0.0	1-14	-
2014-01-20	Sunny	17	32-77	0.0	1-19	-
2014-01-21	Fine	15	27-41	0.0	2-18	-
2014-01-22	Sunny	14	31-64	0.0	1-12	-
2014-01-24	Sunny	16	65-85	0.0	1-22	-
2014-01-26	Sunny	21	54-84	0.0	0-27	-
2014-01-28	Fine	19	54-86	0.0	1-14	-
2014-01-30	Sunny	19	63-90	0.0	0-8	-

		Kai Tak Station				
Date	Weather	Average Air Temperature (°C) *	Average Relative Humidity (%) *	Total Rainfall (mm) *	Average Wind Speed (km/h)	Wind Direction
2014-01-02	Sunny	17	61-88	0.0	6-28	SE/E
2014-01-04	Sunny	19	40-66	0.0	2-17	NW/NE
2014-01-05	Sunny	17	45-79	0.0	1-24	NE/E
2014-01-07	Cloudy	18	70-90	Trace	4-31	SE/E
2014-01-08	Cloudy	19	65-95	Trace	1-21	SE/NW
2014-01-10	Fine	15	72-81	Trace	11-28	E
2014-01-12	Sunny	18	60-87	0.0	1-17	NW/S/NE
2014-01-14	Sunny	14	57-75	0.0	3-19	NW/NE
2014-01-16	Sunny	14	57-84	0.0	3-24	E
2014-01-19	Sunny	15	54-81	0.0	1-24	NE/E
2014-01-20	Sunny	17	32-77	0.0	1-25	N/S
2014-01-21	Fine	15	27-41	0.0	3-21	N
2014-01-22	Sunny	14	31-64	0.0	1-21	NE/SE
2014-01-24	Sunny	16	65-85	0.0	1-28	E
2014-01-26	Sunny	20	54-84	0.0	1-27	E
2014-01-28	Fine	18	54-86	0.0	1-23	E
2014-01-30	Sunny	19	63-90	0.0	1-16	SE

		Green Island Station				
Date	Weather	Average Air Temperature (°C) *	Average Relative Humidity (%) *	Total Rainfall (mm) *	Average Wind Speed (km/h)	Wind Direction
2014-01-02	Sunny	17	61-88	0.0	0-30	NE
2014-01-04	Sunny	19	40-66	0.0	2-27	NE
2014-01-05	Sunny	17	45-79	0.0	14-41	NE
2014-01-07	Cloudy	18	70-90	Trace	11-53	NE
2014-01-08	Cloudy	19	65-95	Trace	1-37	NE/NW
2014-01-10	Fine	15	72-81	Trace	18-50	NE
2014-01-12	Sunny	18	60-87	0.0	2-40	NE/N
2014-01-14	Sunny	14	57-75	0.0	5-40	NE/N
2014-01-16	Sunny	14	57-84	0.0	11-40	NE
2014-01-19	Sunny	15	54-81	0.0	2-40	NE
2014-01-20	Sunny	17	32-77	0.0	0-40	NE/NW
2014-01-21	Fine	15	27-41	0.0	2-48	NE
2014-01-22	Sunny	14	31-64	0.0	1-36	NE/SW
2014-01-24	Sunny	16	65-85	0.0	17-43	NE
2014-01-26	Sunny	20	54-84	0.0	4-50	NE/N
2014-01-28	Fine	18	54-86	0.0	3-31	NE/SW
2014-01-30	Sunny	19	63-90	0.0	1-15	NE/SW

* King's Park's data
 - Data were not available
 # less than 24 hourly observations per day

Meteorological Data Extracted from the Hong Kong Observatory

King's Park Station						
Date	Weather	Average Air Temperature (°C)	Average Relative Humidity (%)	Total Rainfall (mm)	Average Wind Speed (km/h)	Wind Direction
2014/02/03	Sunny	21	52-83	0.0	0-12	NW
2014/02/04	Cloudy	18	78-86	Trace	0-24	SE
2014/02/05	Fine	17	74-94	Trace	8-25	SE
2014/02/07	Fine	21	76-94	Trace	0-14	N/SE
2014/02/09	Cloudy	14	92-99	13.1	0-23	SE/NE
2014/02/11	Cloudy	9	63-78	13.7	0-14	NE/N
2014/02/16	Fine	14	84-92	Trace	2-22	SE
2014/02/17	Fine	18	84-99	0.0	0-17	SE
2014/02/18	Cloudy	17	75-99	Trace	0-18	W/N
2014/02/21	Fine	14	63-86	0.0	0-27	SE/E
2014/02/22	Fine	15	64-85	0.2	3-24	SE/E
2014/02/23	Fine	17	65-87	0.0	4-22	SE/E
2014/02/25	Fine	19	77-95	0.0	0-21	SE
2014/02/27	Cloudy	20	84-93	Trace	0-19	SE
2014/02/28	Cloudy	18	84-90	Trace	2-20	SE

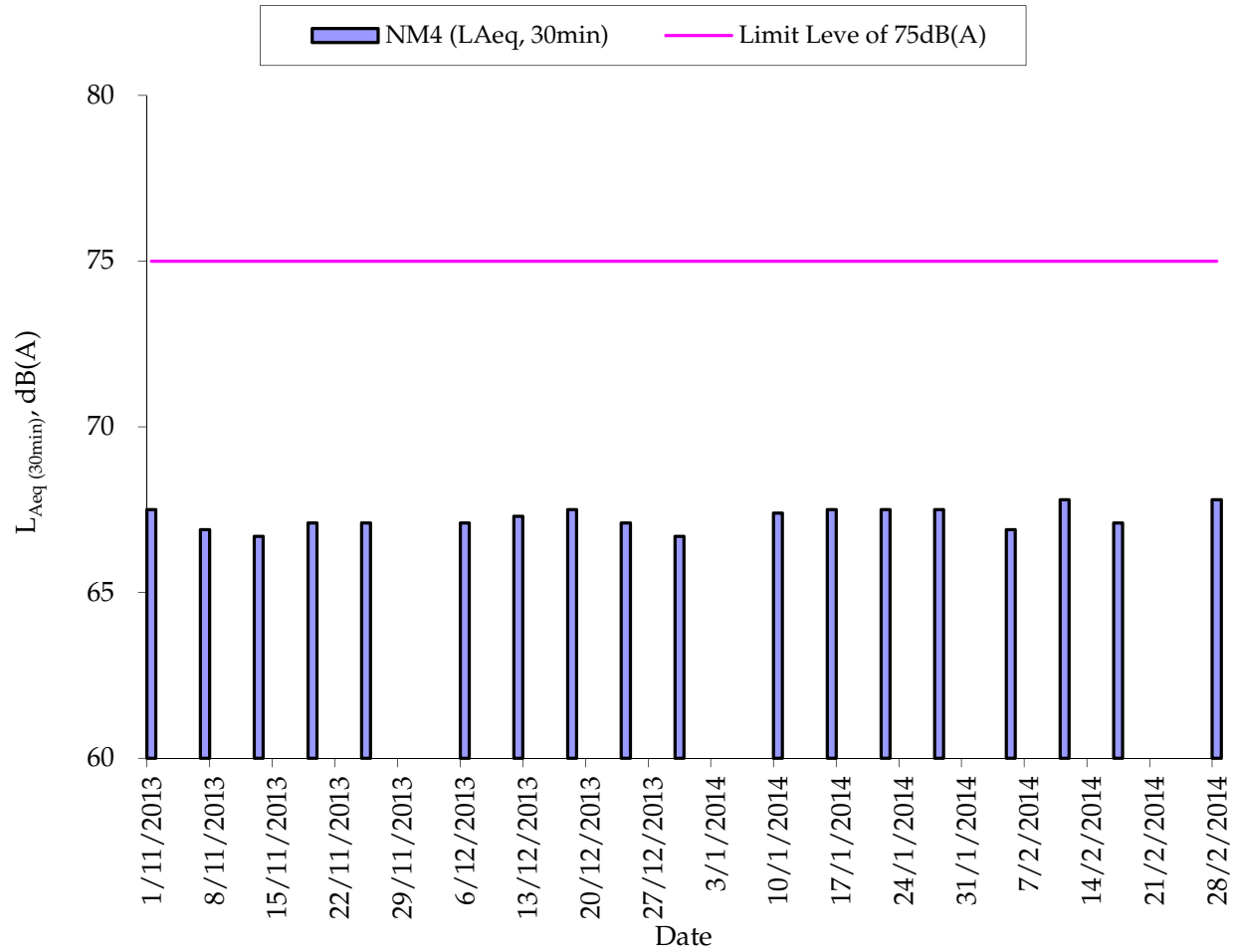
Tsing Yi Station						
Date	Weather	Average Air Temperature (°C)	Average Relative Humidity (%) *	Total Rainfall (mm)	Average Wind Speed (km/h)	Wind Direction
2014/02/03	Sunny	20	52-83	0.0	0-12	NW/S
2014/02/04	Cloudy	18	78-86	Trace	0-25	SE
2014/02/05	Fine	19	74-94	Trace	2-22	SE
2014/02/07	Fine	21	76-94	Trace	0-15	S/E
2014/02/09	Cloudy	13	92-99	13.1	1-21	N/E
2014/02/11	Cloudy	8	63-78	13.7	1-18	NW
2014/02/16	Fine	16	84-92	Trace	1-25	E
2014/02/17	Fine	20	84-99	0.0	1-23	SE/W
2014/02/18	Cloudy	17	75-99	Trace	1-27	NW
2014/02/21	Fine	13	63-86	0.0	2-24	E
2014/02/22	Fine	16	64-85	0.2	5-22	E
2014/02/23	Fine	18	65-87	0.0	3-22	SE/E
2014/02/25	Fine	20	77-95	0.0	1-22	E
2014/02/27	Cloudy	20	84-93	Trace	0-25	E
2014/02/28	Cloudy	20	84-90	Trace	5-21	E

Kai Tak Station						
Date	Weather	Average Air Temperature (°C) *	Average Relative Humidity (%) *	Total Rainfall (mm) *	Average Wind Speed (km/h)	Wind Direction
2014/02/03	Sunny	21	52-83	0.0	0-14	SE/W
2014/02/04	Cloudy	18	78-86	Trace	1-30	E
2014/02/05	Fine	17	74-94	Trace	10-31	E
2014/02/07	Fine	21	76-94	Trace	1-18	SE/E
2014/02/09	Cloudy	14	92-99	13.1	1-25	SE/NW
2014/02/11	Cloudy	9	63-78	13.7	3-18	NW
2014/02/16	Fine	14	84-92	Trace	9-24	SE
2014/02/17	Fine	18	84-99	0.0	1-18	SE
2014/02/18	Cloudy	17	75-99	Trace	1-28	SE/NW
2014/02/21	Fine	14	63-86	0.0	5-38	E
2014/02/22	Fine	15	64-85	0.2	8-29	E
2014/02/23	Fine	17	65-87	0.0	10-32	E
2014/02/25	Fine	19	77-95	0.0	1-24	SE/E
2014/02/27	Cloudy	20	84-93	Trace	2-27	SE/E
2014/02/28	Cloudy	18	84-90	Trace	6-27	SE

Green Island Station						
Date	Weather	Average Air Temperature (°C) *	Average Relative Humidity (%) *	Total Rainfall (mm) *	Average Wind Speed (km/h)	Wind Direction
2014/02/03	Sunny	21	52-83	0.0	0-28	S/NW
2014/02/04	Cloudy	18	78-86	Trace	1-55	NE
2014/02/05	Fine	17	74-94	Trace	20-50	NE
2014/02/07	Fine	21	76-94	Trace	2-26	S/NE
2014/02/09	Cloudy	14	92-99	13.1	8-50	NE/NW
2014/02/11	Cloudy	9	63-78	13.7	11-36	N
2014/02/16	Fine	14	84-92	Trace	19-50	NE
2014/02/17	Fine	18	84-99	0.0	1-33	NE
2014/02/18	Cloudy	17	75-99	Trace	1-52	NW
2014/02/21	Fine	14	63-86	0.0	23-58	NE
2014/02/22	Fine	15	64-85	0.2	24-62	NE
2014/02/23	Fine	17	65-87	0.0	18-62	NE
2014/02/25	Fine	19	77-95	0.0	13-40	NE
2014/02/27	Cloudy	20	84-93	Trace	2-47	NE
2014/02/28	Cloudy	18	84-90	Trace	21-49	NE

* King's Park's data
 - Data were not available
 # less than 24 hourly observations per day

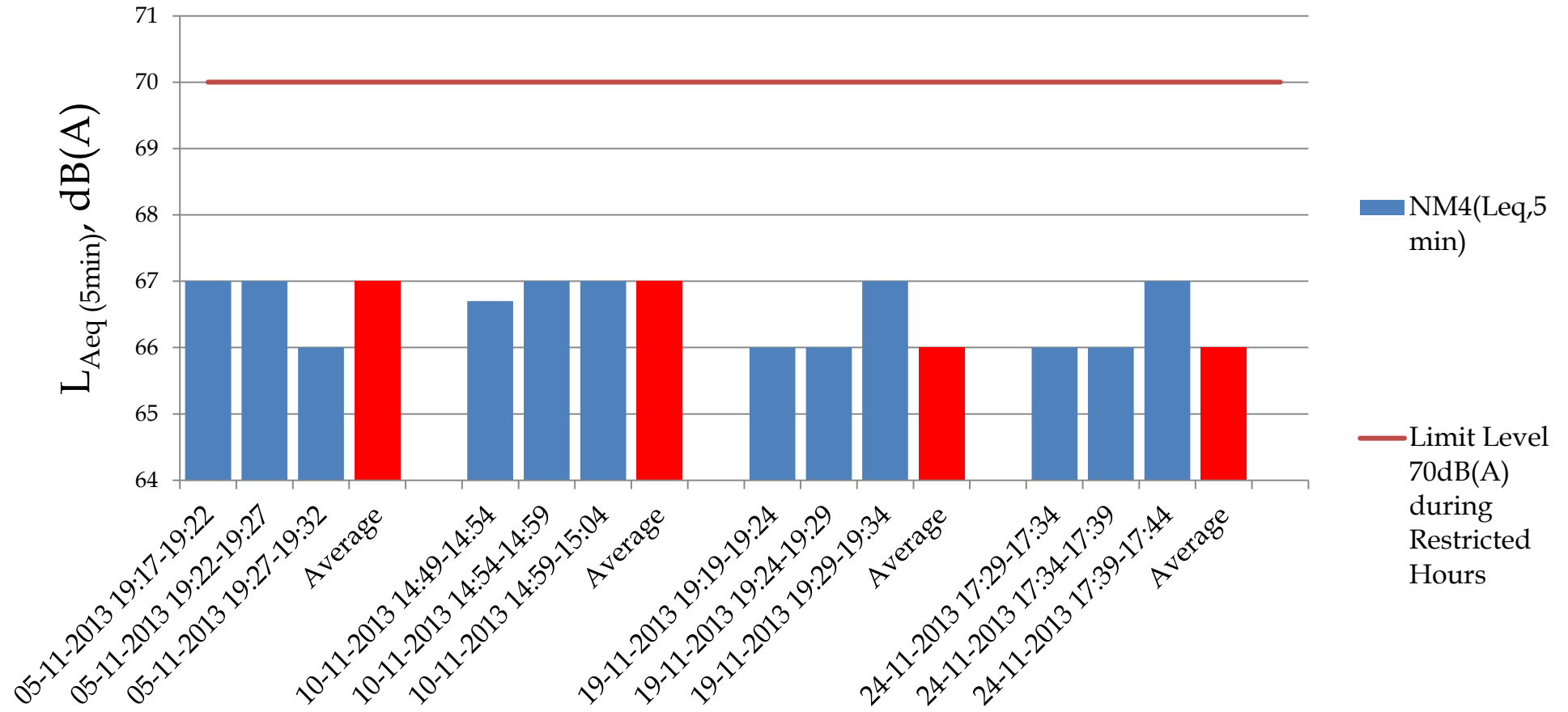
Normal Weekdays Noise Monitoring Results at NM4 ($L_{Aeq, 30min}$)



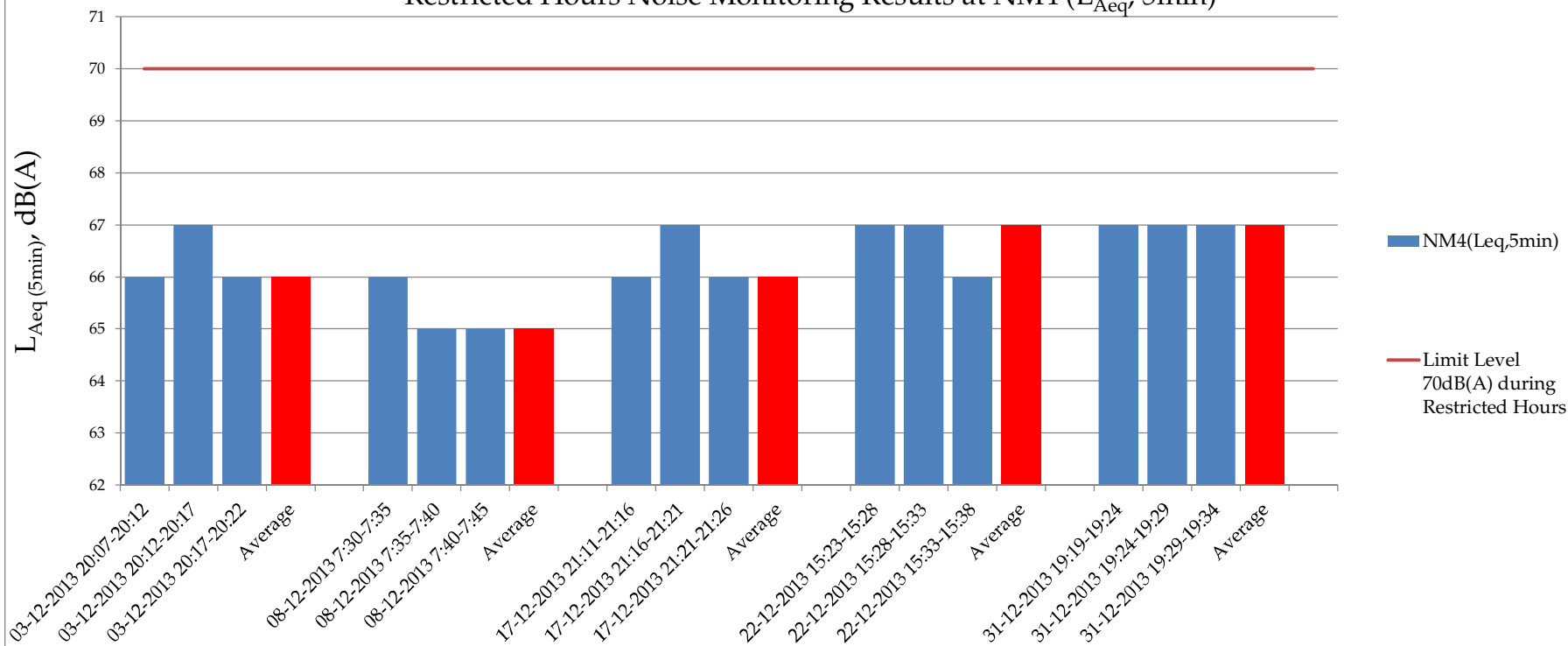
Remark:

- 75dB(A) was adopted as the Limit Level during normal weekdays in the reporting period

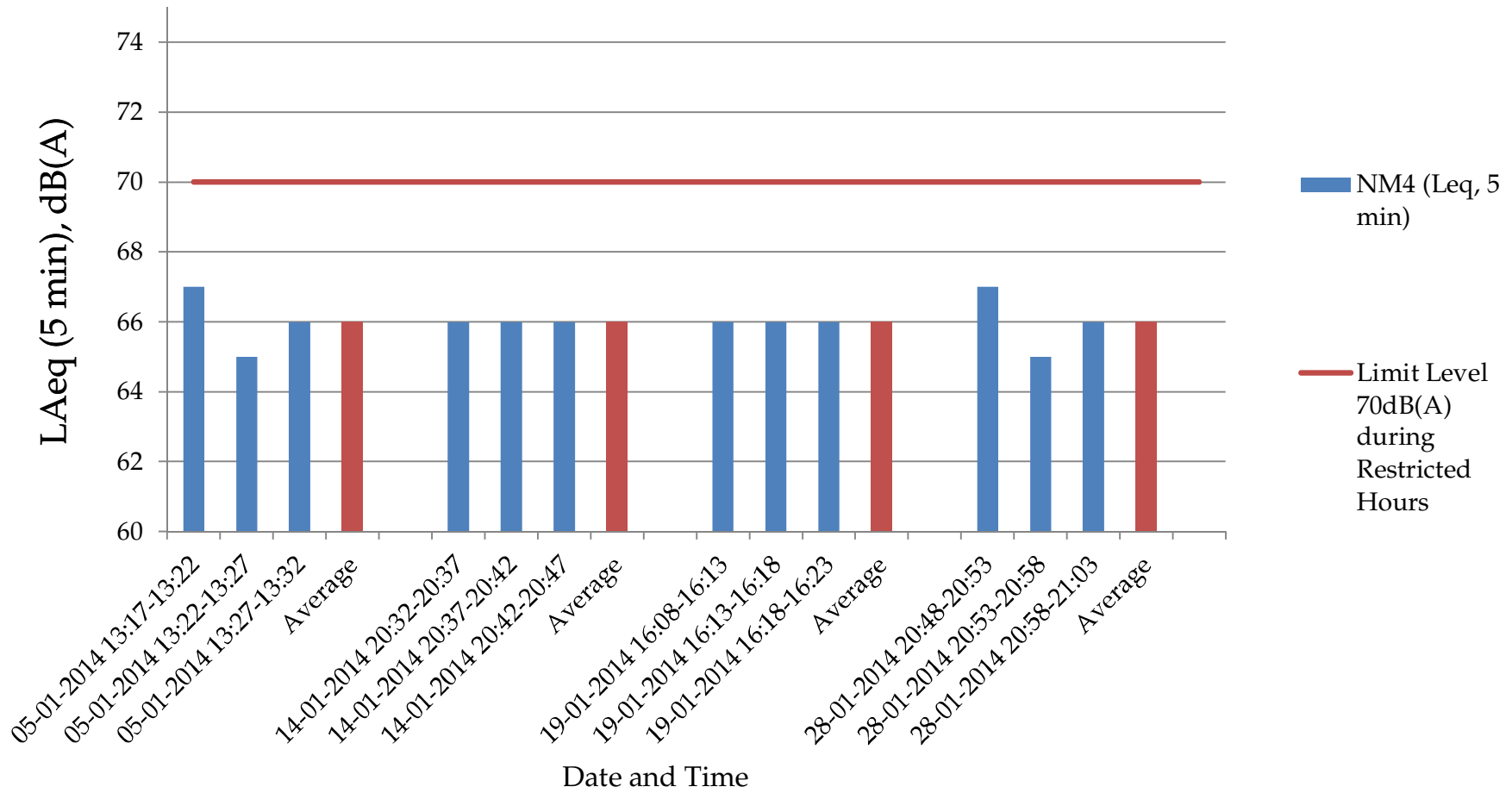
Restricted Hours Noise Monitoring Results at NM4 (L_{Aeq} , 5min)



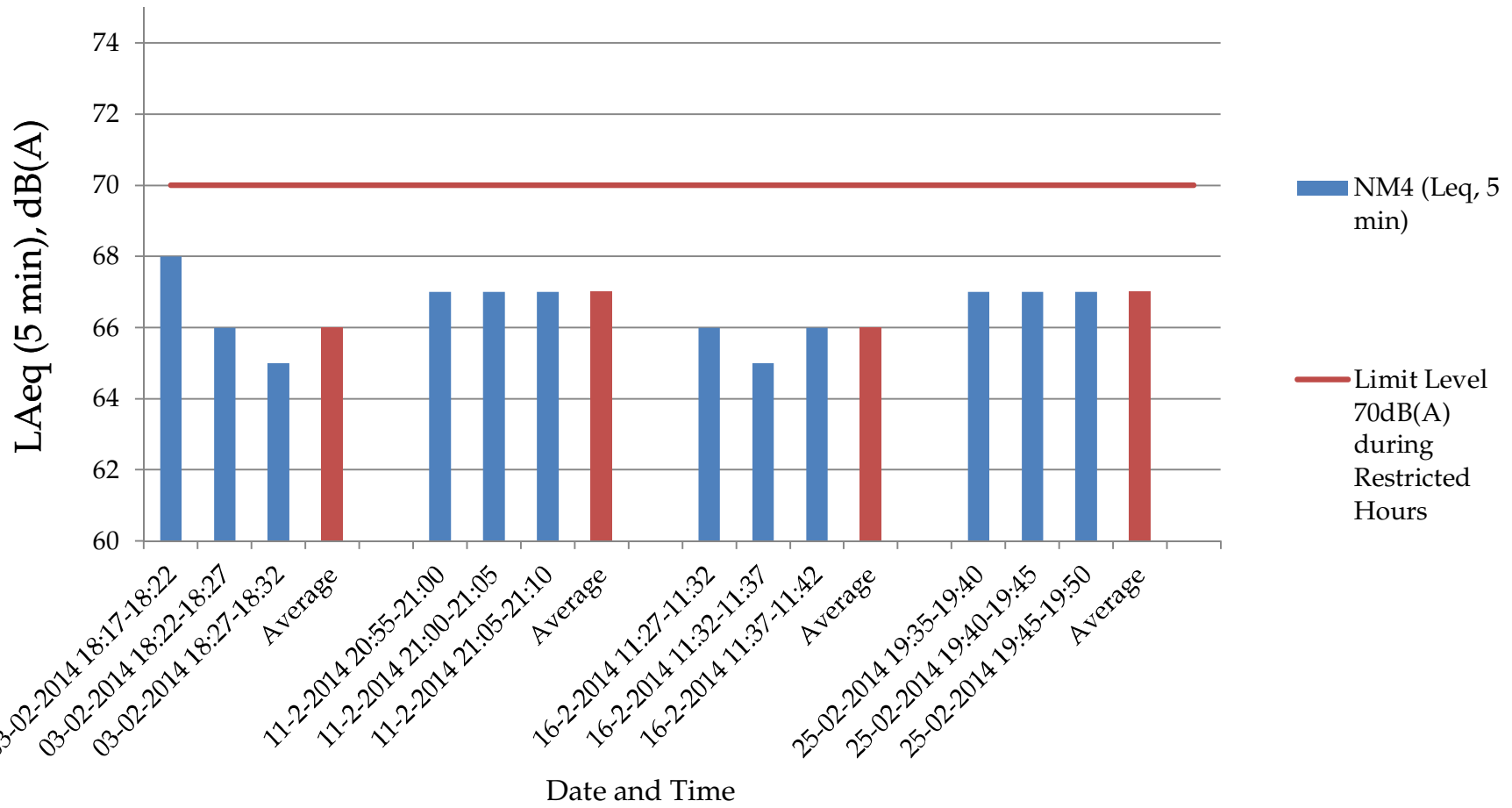
Restricted Hours Noise Monitoring Results at NM4 (L_{Aeq} 5min)



Restricted Noise Monitoring at NM4 (LAeq, 5 min)



Restricted Noise Monitoring at NM4 (LAeq, 5 min)



Annex F7 Cumulative Complaint and Summons/Prosecutions Log

Reporting Month	Number of Complaints in Reporting Month	Number of Summons/Prosecutions in Reporting Month
December 2009	0	0
January 2010	0	0
February 2010	1	0
March 2010	0	0
April 2010	1	0
May 2010	2	0
June 2010	0	0
July 2010	1	0
August 2010	0	0
September 2010	0	0
October 2010	0	0
November 2010	0	0
December 2010	0	0
January 2011	0	0
February 2011	0	0
March 2011	0	0
April 2011	0	0
May 2011	0	0

Annex F7 Cumulative Complaint and Summons/Prosecutions Log

Reporting Month	Number of Complaints in Reporting Month	Number of Summons/Prosecutions in Reporting Month
June 2011	0	0
July 2011	0	0
August 2011	0	0
September 2011	0	0
October 2011	0	0
November 2011	0	0
December 2011	0	0
January 2012	0	0
February 2012	0	0
March 2012	0	0
April 2012	1	0
May 2012	0	0
June 2012	0	0
July 2012	0	0
August 2012	0	0
September 2012	0	0
October 2012	0	0
November 2012	0	0

Annex F7 Cumulative Complaint and Summons/Prosecutions Log

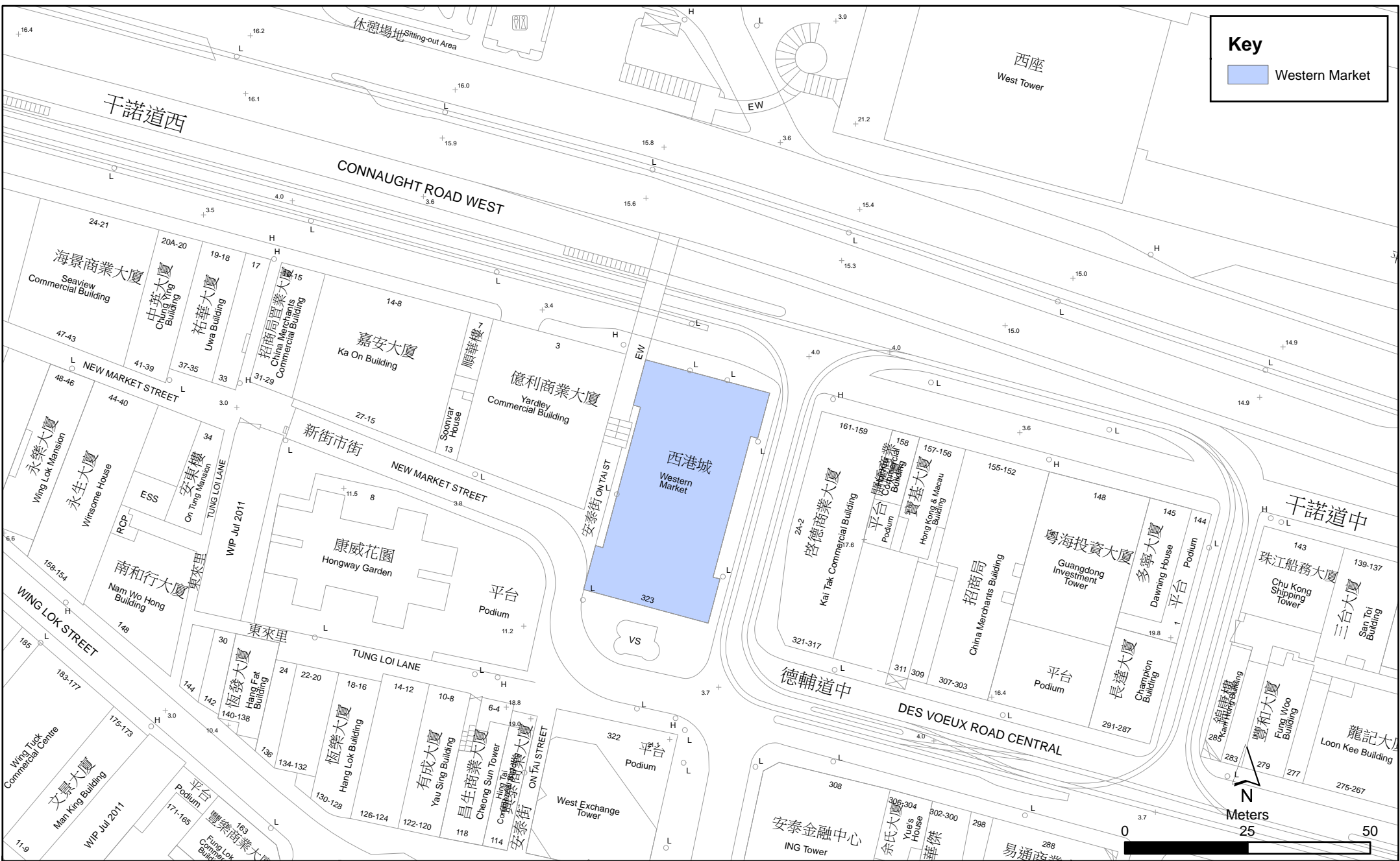
Reporting Month	Number of Complaints in Reporting Month	Number of Summons/Prosecutions in Reporting Month
December 2012	1	0
January 2013	0	0
February 2013	0	0
March 2013	0	0
April 2013	0	0
May 2013	0	0
June 2013	0	0
July 2013	0	0
August 2013	0	0
September 2013	0	0
October 2013	0	0
November 2013	0	0
December 2013	0	0
January 2014	0	0
February 2014	0	0
Overall Total	7	0

Annex F8

Vibration Monitoring Reports

Key

Western Market



Annex F8

Western Market

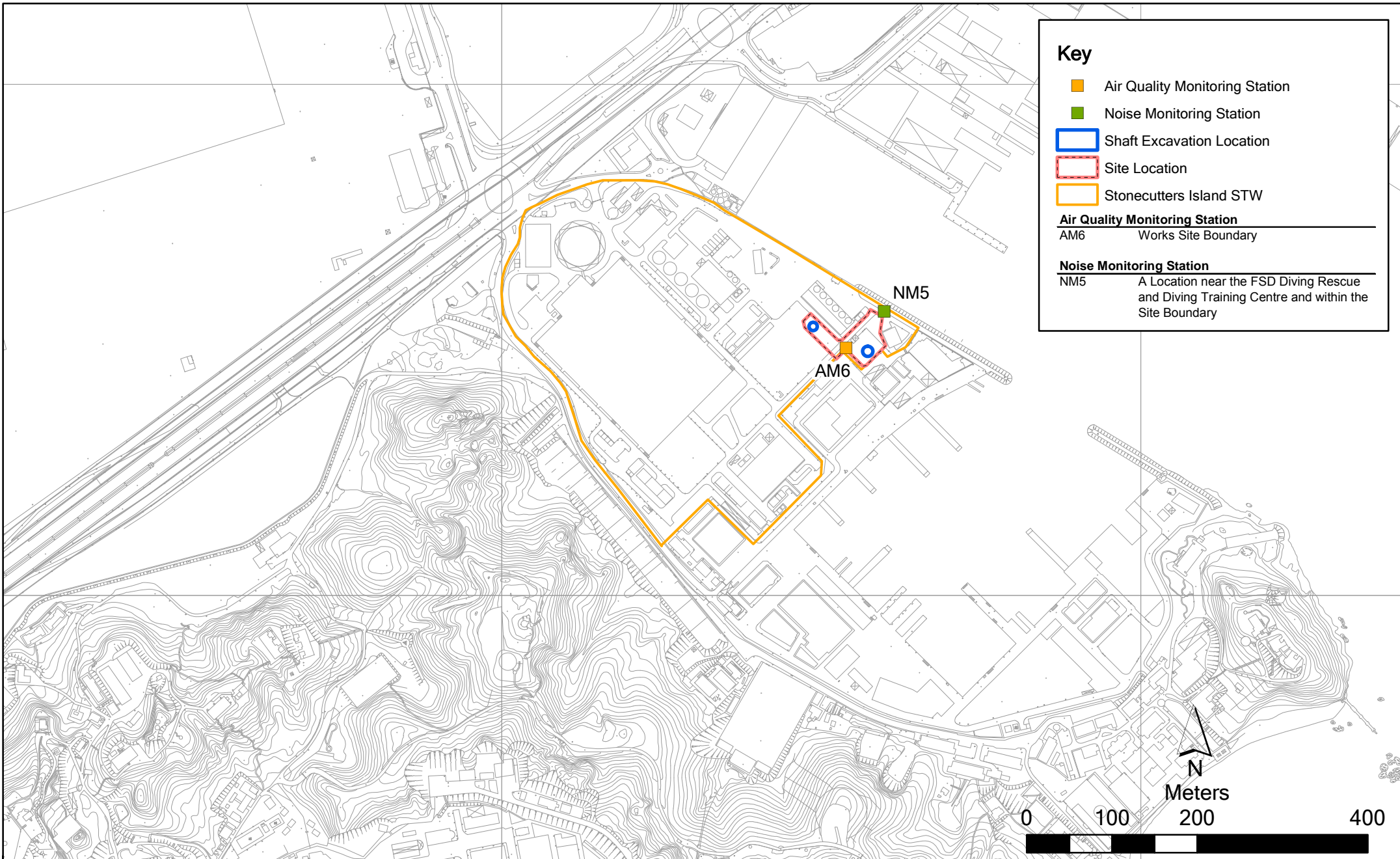
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Date: 13/1/2014

Environmental Resources Management



Annex G

Stonecutters Island Production and Riser Shafts



Key

- Air Quality Monitoring Station
- Noise Monitoring Station
- Shaft Excavation Location
- Site Location
- Stonecutters Island STW

Air Quality Monitoring Station
AM6 Works Site Boundary

Noise Monitoring Station
NM5 A Location near the FSD Diving Rescue and Diving Training Centre and within the Site Boundary

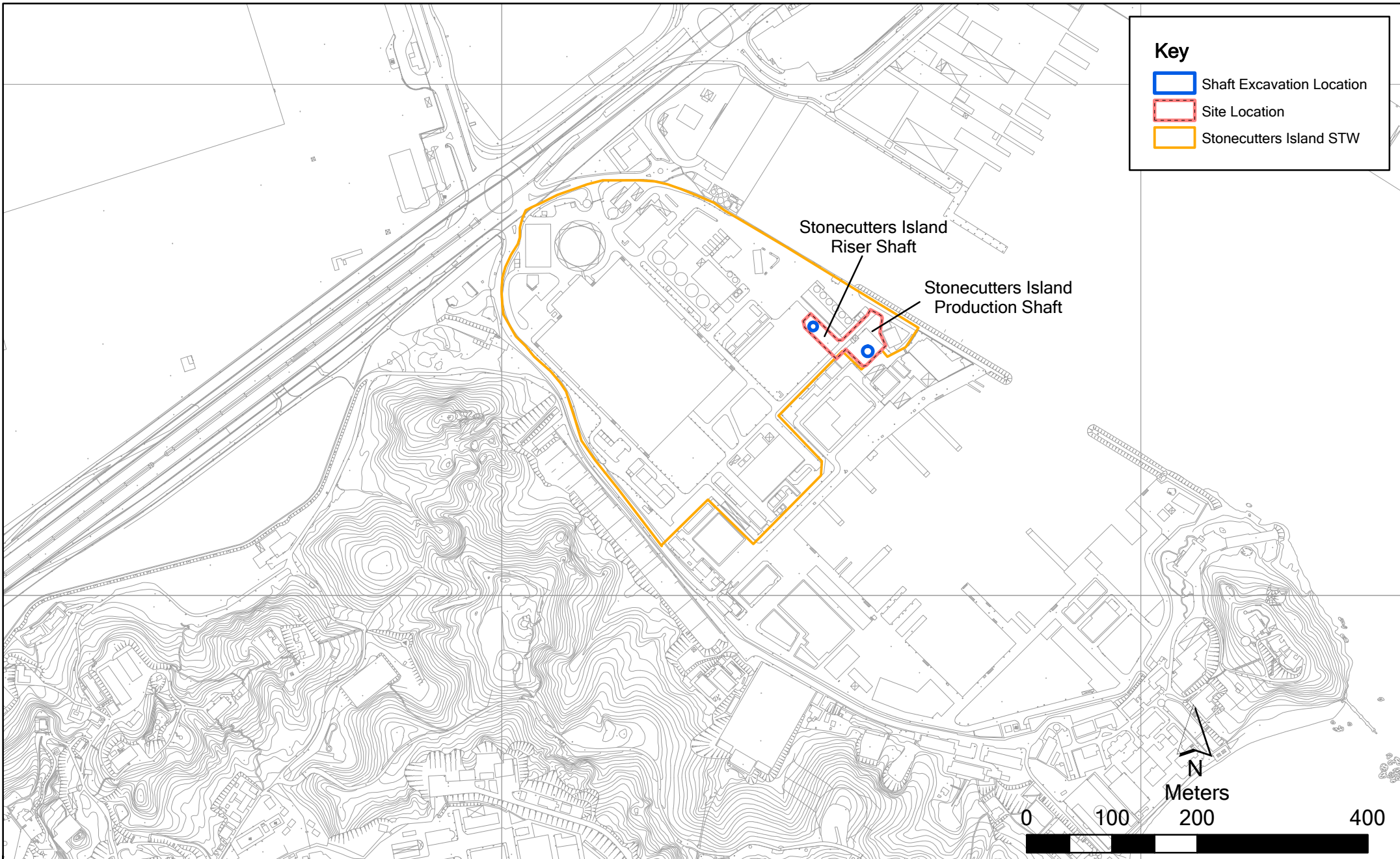
Annex G2

Contract No. DC/2007/23
 Harbour Area Treatment Scheme Stage 2A
 Construction of Sewage Conveyance System from North Point to Stonecutters Island
Impact Air Quality & Noise Monitoring Station (Stonecutters Island STW)

File: EM&A and proposed station
 0104887_Stonecutters Island_NMAM.mxd
 Date: 03/03/2010

**Environmental
 Resources
 Management**





Annex G1

Contract No. DC/2007/23
 Harbour Area Treatment Scheme Stage 2A
 Construction of Sewage Conveyance System from North Point to Stonecutters Island
Construction Site Locations at Stonecutters Island STW

File: EM&A and proposed station
 0104887_Stonecutters Island.mxd
 Date: 03/03/2010

Environmental
 Resources
 Management



Annex G3 Not Used

ANNEX G4 - SUMMARY OF MITIGATION MEASURES IMPLEMENTATION SCHEDULE (DECEMBER 2013)

Type of Impact	Environmental Protection Measures	Location/ Timing	Status
<i>Construction Phase</i>	<p>The Air Pollution Control (Construction Dust) Regulation shall be implemented and good site practices shall be incorporated in the contract clauses to minimise construction dust impact. Control measures relevant to this Project are listed below:</p> <ul style="list-style-type: none"> • skip hoist for material transport should be totally enclosed by impervious sheeting; • every vehicle should be washed to remove any dusty materials from its body and wheels before leaving a construction site; • the area where vehicle washing takes place and the section of the road between the washing facilities and the exit point should be paved with concrete, bituminous materials or hardcores; • where a site boundary adjoins a road, streets or other accessible to the public, hoarding of not less than 2.4 m high from ground level should be provided along the entire length except for a site entrance or exit; • every stock of more than 20 bags of cement should be covered entirely by impervious sheeting placed in an area sheltered on the top and the 3 sides; • regular watering, with complete coverage, to reduce dust emission from exposed site surfaces and unpaved roads, particularly during dry weather; • site enclosure and covering of any aggregate or dusty material storage piles to reduce emissions. Where this is not practicable owing to frequent usage, watering should be applied to aggregate fines; • open stock piles should be avoided or covered and prevent placing dusty material storage piles near ASRs if possible; • tarpaulin covering of all dusty vehicle loads transported to, from and between site locations; and • instigation of an environmental monitoring auditing program to monitor the construction process in order to enforce controls and modify method of work if dusty conditions arise. 	All work sites / during construction	√

ANNEX G4 - SUMMARY OF MITIGATION MEASURES IMPLEMENTATION SCHEDULE (DECEMBER 2013)

Type of Impact	Environmental Protection Measures	Location/ Timing	Status
Air Quality	<p>The following watering measures for specific site would be required to control the fugitive dust impacts:</p> <ul style="list-style-type: none"> the barging points should be continuous watering throughout the whole unloading process; and watering 8 times per day within worksites at the SCS works area at SCISTW and the Disinfection Facilities of SCISTW. 	All work sites / during construction	√
<i>Operational Phase</i>			
Air Quality	<p>Good housekeeping for SCISTW and PTWs listed below should be followed to ameliorate any odour impact from the plant and these standard practices should be included in the plant operator manual.</p> <ul style="list-style-type: none"> Screens should be cleaned regularly to remove any accumulated organic debris Grit and screening transfer systems should be flushed regularly with water to remove organic debris and grit Grit and screened materials should be transferred to closed containers to minimise odour escape Scum and grease collection wells and troughs should be emptied and flushed regularly to prevent putrefaction of accumulated organics Skim and remove floating solids and grease from primary clarifiers regularly Frequent sludge withdrawal from tanks is necessary to prevent the production of gases Sludge cake should be transferred to closed containers Sludge containers should be flushed with water regularly 	All work sites / during construction	NA. Measures not required until commencement of operational phase
Air Quality	To avoid excessive extraction of the foul air from the drop shafts of the sedimentation tanks and also from the effluent flume structure of SCISTW to deodorisation system, the extraction vent(s) of the deodorisation system should be located away from the top openings of the drop shafts.	SCISTW /during operational phase	NA. Measures not required until commencement of operational phase
Air Quality	Commissioning tests for all deodorisation system should be included in the Design and Construction Contract Document.	All PTW and SCISTW/ during operational phase	NA. Measures not required until commencement of operational phase
<i>Construction Phase</i>			

ANNEX G4 - SUMMARY OF MITIGATION MEASURES IMPLEMENTATION SCHEDULE (DECEMBER 2013)

Type of Impact	Environmental Protection Measures	Location/ Timing	Status
Noise	Use of quiet PME, movable barriers and acoustic mats	All work sites / during construction	√
Noise	<p>Good Site Practice:</p> <ul style="list-style-type: none"> • only well-maintained plant should be operated on-site and plant should be serviced regularly during the construction program; • silencers or mufflers on construction equipment should be utilised and should be properly maintained during the construction program; • mobile plant, if any, should be sited as far from NSRs as possible; • machines and plant (such as trucks) that may be in intermittent use should be shut down between work periods or should be throttled down to a minimum; • plant known to emit noise strongly in one direction should, wherever possible, be orientated so that the noise is directed away from the nearby NSRs; and • material stockpiles and other structures should be effectively utilised, wherever practicable, in screening noise from on-site construction activities; <p>Environmental audit shall be carried out to ensure that appropriate noise control measures would be properly implemented.</p>	All work sites / during construction	√
<i>Construction Phase</i>			
Water Quality	Construction Site Runoff and General Construction Activities. The mitigation measures as outlined in the ProPECC PN 1/94 Construction Site Drainage should be adopted where applicable.	All work sites / during construction	√

ANNEX G4 - SUMMARY OF MITIGATION MEASURES IMPLEMENTATION SCHEDULE (DECEMBER 2013)

Type of Impact	Environmental Protection Measures	Location/ Timing	Status
Water Quality	<p>Effluent Discharge</p> <p>There is a need to apply to EPD for a discharge licence for discharge of effluent from the construction site under the WPCO. The discharge quality must meet the requirements specified in the discharge licence. If monitoring of the treated effluent quality from the works areas is required during the construction phase of the Project, the monitoring should be carried out in accordance with the WPCO license which is under the ambit of regional office (RO) of EPD. Minimum distances of 100 m should be maintained between the discharge points of construction site effluent and the existing saltwater intakes.</p>	All work sites / during construction	√
Water Quality	<p>Accidental Spillage of Chemicals</p> <p>Contractor must register as a chemical waste producer if chemical wastes would be produced from the construction activities. The Waste Disposal Ordinance (Cap 354) and its subsidiary regulations in particular the Waste Disposal (Chemical Waste) (General) Regulation should be observed and complied with for control of chemical wastes.</p>	All work sites / during construction	√
Water Quality	<p>Any service shop and maintenance facilities should be located on hard standings within a bunded area, and sumps and oil interceptors should be provided. Maintenance of vehicles and equipment involving activities with potential for leakage and spillage should only be undertaken within the areas appropriately equipped to control these discharges.</p>	All work sites / during construction	√
Water Quality	<p>Disposal of chemical wastes should be carried out in compliance with the Waste Disposal Ordinance. The Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes published under the Waste Disposal Ordinance details the requirements to deal with chemical wastes.</p> <p>General requirements are given as follows:</p> <ul style="list-style-type: none"> • Suitable containers should be used to hold the chemical wastes to avoid leakage or spillage during storage, handling and transport. • Chemical waste containers should be suitably labelled, to notify and warn the personnel who are handling the wastes, to avoid accidents. • Storage area should be selected at a safe location on site and adequate space should be allocated to the storage area. 	All work sites / during construction	<>

ANNEX G4 - SUMMARY OF MITIGATION MEASURES IMPLEMENTATION SCHEDULE (DECEMBER 2013)

Type of Impact	Environmental Protection Measures	Location/ Timing	Status
Water Quality	Construction Works in Close Proximity of Storm Drains or Seafront	All work sites / during construction	√
	<p>To minimise the potential water quality impacts from the construction works located at or near any watercourse, the practices outlined below should be adopted where applicable.</p> <ul style="list-style-type: none"> • The use of less or smaller construction plants may be specified to reduce the disturbance to the storm water courses or marine environment. • Temporary storage of materials (e.g. equipment, filling materials, chemicals and fuel) and temporary stockpile of construction materials should be located well away from any water courses during carrying out of the construction works. • Stockpiling of construction materials and dusty materials should be covered and located away from any water courses. • Construction debris and spoil should be covered up and/or disposed of as soon as possible to avoid being washed into the nearby water receivers. • Construction activities, which generate large amount of wastewater, should be carried out in a distance away from the waterfront, where practicable. • Proper shoring may need to be erected in order to prevent soil/mud from slipping into the storm culvert or sea 		

ANNEX G4 - SUMMARY OF MITIGATION MEASURES IMPLEMENTATION SCHEDULE (DECEMBER 2013)

Type of Impact	Environmental Protection Measures	Location/ Timing	Status
Water Quality	Temporary Sewage Bypass	SCISTW/ construction period	√
	<p>It is recommended that the temporary sewage bypass required for (i) the modification to the existing pumping station at SCISTW and (ii) the interconnection between the existing main pumping station and the new pumping station on Stonecutters Island, if needed, should be scheduled at the same time as far as practicable in order to minimise the temporary discharge duration. It is also recommended that all the modification and interconnection to the existing facilities (including the modification to the existing NWKPS) should be programmed to avoid temporary sewage bypass in wet or bathing season (March to October) to minimise the potential impacts. Relevant government departments including EPD and LCSD should be informed of the planned sewage bypass prior to any discharge. During the sewage bypass period, water quality monitoring should be carried out at the water sensitive receivers to quantify the water quality impacts and to determine when the baseline water quality conditions are restored. Also, a framework of the response procedures has been formulated to minimise the impact of temporary discharges. Details are provided in the standalone EM&A Manual.</p>		
<i>Operational Phase</i>			
Water Quality	Dual power supply, standby facilities for the main treatment units and standby equipment parts / accessories should be provided as far as possible at the SCISTW to minimise the chance of emergency discharge.	SCISTW and all the Stage 2 PTWs / Operation Stage	NA. Measures not required until commencement of operational phase
Water Quality	The response procedure and monitoring requirements for emergency discharge as stated in EM&A Manual should be followed.	SCISTW / Operation Stage	NA. Measures not required until commencement of operational phase
Water Quality	In case of total power outage of the dechlorination plant, the uninterruptible power supply (UPS) system to be provided would switch the power supply of the sodium bisulphite dosing pump to a backup battery almost instantaneously, allowing continuous dosage of sodium bisulphite for at least half an hour so that sufficient time can be provided for shutting down the chlorination plant to avoid the possibility of discharge of chlorinated effluent.	SCISTW / Operation Stage	NA. Measures not required until commencement of operational phase

ANNEX G4 - SUMMARY OF MITIGATION MEASURES IMPLEMENTATION SCHEDULE (DECEMBER 2013)

Type of Impact	Environmental Protection Measures	Location/ Timing	Status
Water Quality	The model predicted that if Stage 2B is not implemented for HATS in 2021 as scheduled, the nutrient contents (both P and N) in the marine water would ultimately increase to exceed the baseline Stage 1 level when the HATS flow is reaching its design capacity of 2.45M m3/day. It is recommended that the future review study for Stage 2B should review the validity of the model predictions provided in this EIA and confirm the need of enhanced nutrient removal for HATS after 2021.	SCISTW / Operation Stage	NA. Measures not required until commencement of operational phase
Water Quality	It should be noted that the mixing zone for TIN predicted for Stage 2B was large with an area of about 30 km2 and the area of exceedance would encroach on the nearby water sensitive receivers (e.g. Ma Wan Fish Culture Zone). This is due to the elevated oxidised nitrogen assumed for the proposed nitrification process at Stage 2B as well as the increased HATS effluent flow assumed for Stage 2B. It is recommended that these water quality issues should be further investigated / assessed under the future EIA for Stage 2B. Further mitigation measures / alternative treatment designs should also be considered under the future EIA for Stage 2B to mitigate / minimise the potential TIN exceedances.	SCISTW / Operation Stage	NA. Measures not required until commencement of operational phase
<i>Construction Phase</i>			
Waste	Reusable steel or concrete panel shutters, fencing and hoarding and signboard should be used as a preferred alternative to items made of wood, to minimise wastage of wood. Attention should be paid to WBTC No. 19/2001 - Metallic Site Hoardings and Signboards to reduce the amount of timber used on construction sites. Metallic alternatives to timber are readily available and should be used rather than new timber. Precast concrete units should be adopted wherever feasible to minimise the use of timber formwork.	All work sites / during the construction period	√
Waste	All waste materials should be segregated into categories covering: <ul style="list-style-type: none"> • excavated materials suitable for reuse on-site; • excavated materials suitable for public filling facilities; • remaining C&D waste for landfill; • chemical waste; and • general refuse for landfill. 	All work sites / during the construction period	√

ANNEX G4 - SUMMARY OF MITIGATION MEASURES IMPLEMENTATION SCHEDULE (DECEMBER 2013)

Type of Impact	Environmental Protection Measures	Location/ Timing	Status
Waste	<p>Recommendations to achieve waste reduction include:</p> <ul style="list-style-type: none"> Sort C&D waste from demolition of existing facilities to recover recyclable portions such as metals; 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; and Proper storage and site practices to minimise the potential for damage or contamination of construction materials. 	All work sites / during the construction period	√
Waste	<p>Recommendations for good site practices during construction activities include:-</p> <ul style="list-style-type: none"> Nomination of an approved person, such as a site manager, to be responsible for good site practices, arrangements for collection and effective disposal to an appropriate facility, of all wastes generated at the site. Training of site personnel in proper waste management and chemical waste handling procedures. Develop and provide toolbox talk for on-site sorting of C&D materials to enhance worker's awareness in handling, sorting, reuse and recycling of C&D materials. Provision of sufficient waste disposal points and regular collection of waste. Regular cleaning and maintenance programme for drainage systems, sumps and oil interceptors. 	All work sites / during the construction period	<>
Waste	Bentonite slurries used in diaphragm wall construction should be reconditioned and reused wherever practicable. The disposal of residual used bentonite slurry should follow the good practice guidelines stated in ProPECC PN 1/94 "Construction Site Drainage".	All work sites / during the construction period	NA
Waste	Adequate number of portable toilets at temporary works areas or the PTWs to ensure that sewage from site staff would be properly collected.	All work sites / during the construction period	√

ANNEX G4 - SUMMARY OF MITIGATION MEASURES IMPLEMENTATION SCHEDULE (DECEMBER 2013)

Type of Impact	Environmental Protection Measures	Location/ Timing	Status
Waste	General refuse should be stored in enclosed bins, skips or compaction units separating from C&D material and disposed of at designated landfill.	All work sites / during the construction period	√
Waste	The recyclable component of the municipal waste generated by the workforce, such as aluminium cans, paper and cleansed plastic containers should be separated from other waste. Provision and collection of recycling bins for different types of recyclable waste should be set up by the Contractor. The Contractor should also be responsible for arranging recycling companies to collect these materials.	All work sites / during the construction period	√
Waste	If chemical wastes are produced at the construction site, the Contractor would be required to register with the EPD as a chemical waste producer and to follow the guidelines stated in the Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes. Good quality containers compatible with the chemical wastes should be used, and incompatible chemicals should be stored separately. Appropriate labels should be securely attached on each chemical waste container indicating the corresponding chemical characteristics of the chemical waste, such as explosive, flammable, oxidising, irritant, toxic, harmful, corrosive, etc. The Contractor shall use a licensed collector to transport and dispose of the chemical wastes, to either the approved Chemical Waste Treatment Centre, or another licensed facility, in accordance with the Waste Disposal (Chemical Waste) (General) Regulation.	All work sites / during the construction period	√
Waste	Prior to excavation of the marine deposit layer, the deposit should be tested in accordance with the ETWB TC(W) No. 34/2002 and the results should be presented in a Preliminary Sediment Quality Report. The marine deposit should be disposed of at the disposal site designated by the Marine Fill Committee (MFC) or Director of Environmental Protection (DEP) depending on the test results.	All work sites / during the construction period	√
<i>Operation Phase</i>			

ANNEX G4 - SUMMARY OF MITIGATION MEASURES IMPLEMENTATION SCHEDULE (DECEMBER 2013)

Type of Impact	Environmental Protection Measures	Location/ Timing	Status
Waste	The sludge tanks should be air-tighten. Rotating brushes or other alternative devises should be installed at the upper frame of the sludge tank washing facilities to provide better cleaning of the surface around the top loading opening of the sludge tanks. Prior to making such provision, the top covers of the sludge transfer tanks should be water cleaned manually after unloading.	SCISTW / Operation Stage	NA. Measures not required until commencement of operational phase
Waste	Since the air tightness of tankers highly relies on the effectiveness of rubber seals at the loading openings and unloading doors, odour leakage from tankers are commonly resulted from the aging rubber seals. It is recommended to develop a preventive maintenance programme for rubber seals of loading openings and unloading doors of sludge transfer tanks to ensure the tightness of covers and doors. Rubber seals should be regularly replaced within its design life as specified by suppliers.	SCISTW / Operation Stage	NA. Measures not required until commencement of operational phase
<i>Construction Phase</i>			
Landscape & Visual	<ul style="list-style-type: none"> • Topsoil, where identified, should be stripped and stored for re-use in the construction of the soft landscape works, where practical. • Existing trees to be retained on site should be carefully protected during construction. • Trees unavoidably affected by the works should be transplanted where practical. • Compensatory tree planting should be provided to compensate for felled trees. • Control of night-time lighting. • Erection of decorative screen hoarding compatible with the surrounding setting. 	All the works areas, PTWs and SCISTW/ during the construction period	√
<i>Operational Phase</i>			
Landscape & Visual	<ul style="list-style-type: none"> • Aesthetic design of the façade of PTW and associated structures to harmonise with the surrounding settings. • Shrub and Climbing Plants to soften proposed structures / Roof Greening. • Buffer Tree and Shrub Planting to screen proposed associated structures. • Reinstated of disturbed area 	All the works areas, PTWs and SCISTW/ during the construction period	NA. Measures not required until commencement of operational phase

ANNEX G4 - SUMMARY OF MITIGATION MEASURES IMPLEMENTATION SCHEDULE (DECEMBER 2013)

Type of Impact	Environmental Protection Measures	Location/ Timing	Status
<i>Construction Phase</i>	•		
Cultural Heritage	The construction vibration control limit (ppv of 25mm/s) shall be strictly followed.	Identified historical buildings/structures as mentioned in Tables 15.10 and 15.11. During blasting for tunnel, shafts, effluent conveyance system and disinfection facilities in the vicinity of the buildings/ structures	NA. Vibration monitoring has not been launched during the reporting period.

Remark:

- √ Compliance of Mitigation Measures
- <> Compliance of Mitigation but need improvement
- x Non-compliance of Mitigation Measures
- Δ Deficiency of Mitigation Measures but rectified by Gammon Construction Limited
- NA Not Applicable

ANNEX G4 - SUMMARY OF MITIGATION MEASURES IMPLEMENTATION SCHEDULE (JANUARY 2014)

Type of Impact	Environmental Protection Measures	Location/ Timing	Status
<i>Construction Phase</i>			
Air Quality	<p>The Air Pollution Control (Construction Dust) Regulation shall be implemented and good site practices shall be incorporated in the contract clauses to minimise construction dust impact. Control measures relevant to this Project are listed below:</p> <ul style="list-style-type: none"> • skip hoist for material transport should be totally enclosed by impervious sheeting; • every vehicle should be washed to remove any dusty materials from its body and wheels before leaving a construction site; • the area where vehicle washing takes place and the section of the road between the washing facilities and the exit point should be paved with concrete, bituminous materials or hardcores; • where a site boundary adjoins a road, streets or other accessible to the public, hoarding of not less than 2.4 m high from ground level should be provided along the entire length except for a site entrance or exit; • every stock of more than 20 bags of cement should be covered entirely by impervious sheeting placed in an area sheltered on the top and the 3 sides; • regular watering, with complete coverage, to reduce dust emission from exposed site surfaces and unpaved roads, particularly during dry weather; • site enclosure and covering of any aggregate or dusty material storage piles to reduce emissions. Where this is not practicable owing to frequent usage, watering should be applied to aggregate fines; • open stock piles should be avoided or covered and prevent placing dusty material storage piles near ASRs if possible; • tarpaulin covering of all dusty vehicle loads transported to, from and between site locations; and • instigation of an environmental monitoring auditing program to monitor the construction process in order to enforce controls and modify method of work if dusty conditions arise. 	All work sites / during construction	√

ANNEX G4 - SUMMARY OF MITIGATION MEASURES IMPLEMENTATION SCHEDULE (JANUARY 2014)

Type of Impact	Environmental Protection Measures	Location/ Timing	Status
Air Quality	<p>The following watering measures for specific site would be required to control the fugitive dust impacts:</p> <ul style="list-style-type: none"> the barging points should be continuous watering throughout the whole unloading process; and watering 8 times per day within worksites at the SCS works area at SCISTW and the Disinfection Facilities of SCISTW. 	All work sites / during construction	√
<i>Operational Phase</i>			
Air Quality	<p>Good housekeeping for SCISTW and PTWs listed below should be followed to ameliorate any odour impact from the plant and these standard practices should be included in the plant operator manual.</p> <ul style="list-style-type: none"> Screens should be cleaned regularly to remove any accumulated organic debris Grit and screening transfer systems should be flushed regularly with water to remove organic debris and grit Grit and screened materials should be transferred to closed containers to minimise odour escape Scum and grease collection wells and troughs should be emptied and flushed regularly to prevent putrefaction of accumulated organics Skim and remove floating solids and grease from primary clarifiers regularly Frequent sludge withdrawal from tanks is necessary to prevent the production of gases Sludge cake should be transferred to closed containers Sludge containers should be flushed with water regularly 	All work sites / during construction	NA. Measures not required until commencement of operational phase
Air Quality	To avoid excessive extraction of the foul air from the drop shafts of the sedimentation tanks and also from the effluent flume structure of SCISTW to deodorisation system, the extraction vent(s) of the deodorisation system should be located away from the top openings of the drop shafts.	SCISTW /during operational phase	NA. Measures not required until commencement of operational phase
Air Quality	Commissioning tests for all deodorisation system should be included in the Design and Construction Contract Document.	All PTW and SCISTW/ during operational phase	NA. Measures not required until commencement of operational phase
<i>Construction Phase</i>			

ANNEX G4 - SUMMARY OF MITIGATION MEASURES IMPLEMENTATION SCHEDULE (JANUARY 2014)

Type of Impact	Environmental Protection Measures	Location/ Timing	Status
Noise	Use of quiet PME, movable barriers and acoustic mats	All work sites / during construction	√
Noise	<p>Good Site Practice:</p> <ul style="list-style-type: none"> • only well-maintained plant should be operated on-site and plant should be serviced regularly during the construction program; • silencers or mufflers on construction equipment should be utilised and should be properly maintained during the construction program; • mobile plant, if any, should be sited as far from NSRs as possible; • machines and plant (such as trucks) that may be in intermittent use should be shut down between work periods or should be throttled down to a minimum; • plant known to emit noise strongly in one direction should, wherever possible, be orientated so that the noise is directed away from the nearby NSRs; and • material stockpiles and other structures should be effectively utilised, wherever practicable, in screening noise from on-site construction activities; <p>Environmental audit shall be carried out to ensure that appropriate noise control measures would be properly implemented.</p>	All work sites / during construction	√
<i>Construction Phase</i>			
Water Quality	Construction Site Runoff and General Construction Activities. The mitigation measures as outlined in the ProPECC PN 1/94 Construction Site Drainage should be adopted where applicable.	All work sites / during construction	√

ANNEX G4 - SUMMARY OF MITIGATION MEASURES IMPLEMENTATION SCHEDULE (JANUARY 2014)

Type of Impact	Environmental Protection Measures	Location/ Timing	Status
Water Quality	<p>Effluent Discharge</p> <p>There is a need to apply to EPD for a discharge licence for discharge of effluent from the construction site under the WPCO. The discharge quality must meet the requirements specified in the discharge licence. If monitoring of the treated effluent quality from the works areas is required during the construction phase of the Project, the monitoring should be carried out in accordance with the WPCO license which is under the ambit of regional office (RO) of EPD. Minimum distances of 100 m should be maintained between the discharge points of construction site effluent and the existing saltwater intakes.</p>	All work sites / during construction	√
Water Quality	<p>Accidental Spillage of Chemicals</p> <p>Contractor must register as a chemical waste producer if chemical wastes would be produced from the construction activities. The Waste Disposal Ordinance (Cap 354) and its subsidiary regulations in particular the Waste Disposal (Chemical Waste) (General) Regulation should be observed and complied with for control of chemical wastes.</p>	All work sites / during construction	√
Water Quality	<p>Any service shop and maintenance facilities should be located on hard standings within a bunded area, and sumps and oil interceptors should be provided. Maintenance of vehicles and equipment involving activities with potential for leakage and spillage should only be undertaken within the areas appropriately equipped to control these discharges.</p>	All work sites / during construction	<>
Water Quality	<p>Disposal of chemical wastes should be carried out in compliance with the Waste Disposal Ordinance. The Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes published under the Waste Disposal Ordinance details the requirements to deal with chemical wastes.</p> <p>General requirements are given as follows:</p> <ul style="list-style-type: none"> • Suitable containers should be used to hold the chemical wastes to avoid leakage or spillage during storage, handling and transport. • Chemical waste containers should be suitably labelled, to notify and warn the personnel who are handling the wastes, to avoid accidents. • Storage area should be selected at a safe location on site and adequate space should be allocated to the storage area. 	All work sites / during construction	<>

ANNEX G4 - SUMMARY OF MITIGATION MEASURES IMPLEMENTATION SCHEDULE (JANUARY 2014)

Type of Impact	Environmental Protection Measures	Location/ Timing	Status
Water Quality	<p>Construction Works in Close Proximity of Storm Drains or Seafront</p> <p>To minimise the potential water quality impacts from the construction works located at or near any watercourse, the practices outlined below should be adopted where applicable.</p> <ul style="list-style-type: none"> • The use of less or smaller construction plants may be specified to reduce the disturbance to the storm water courses or marine environment. • Temporary storage of materials (e.g. equipment, filling materials, chemicals and fuel) and temporary stockpile of construction materials should be located well away from any water courses during carrying out of the construction works. • Stockpiling of construction materials and dusty materials should be covered and located away from any water courses. • Construction debris and spoil should be covered up and/or disposed of as soon as possible to avoid being washed into the nearby water receivers. • Construction activities, which generate large amount of wastewater, should be carried out in a distance away from the waterfront, where practicable. • Proper shoring may need to be erected in order to prevent soil/mud from slipping into the storm culvert or sea 	All work sites / during construction	√

ANNEX G4 - SUMMARY OF MITIGATION MEASURES IMPLEMENTATION SCHEDULE (JANUARY 2014)

Type of Impact	Environmental Protection Measures	Location/ Timing	Status
Water Quality	Temporary Sewage Bypass	SCISTW/ construction period	√
	<p>It is recommended that the temporary sewage bypass required for (i) the modification to the existing pumping station at SCISTW and (ii) the interconnection between the existing main pumping station and the new pumping station on Stonecutters Island, if needed, should be scheduled at the same time as far as practicable in order to minimise the temporary discharge duration. It is also recommended that all the modification and interconnection to the existing facilities (including the modification to the existing NWKPS) should be programmed to avoid temporary sewage bypass in wet or bathing season (March to October) to minimise the potential impacts. Relevant government departments including EPD and LCSD should be informed of the planned sewage bypass prior to any discharge. During the sewage bypass period, water quality monitoring should be carried out at the water sensitive receivers to quantify the water quality impacts and to determine when the baseline water quality conditions are restored. Also, a framework of the response procedures has been formulated to minimise the impact of temporary discharges. Details are provided in the standalone EM&A Manual.</p>		
<i>Operational Phase</i>			
Water Quality	Dual power supply, standby facilities for the main treatment units and standby equipment parts / accessories should be provided as far as possible at the SCISTW to minimise the chance of emergency discharge.	SCISTW and all the Stage 2 PTWs / Operation Stage	NA. Measures not required until commencement of operational phase
Water Quality	The response procedure and monitoring requirements for emergency discharge as stated in EM&A Manual should be followed.	SCISTW / Operation Stage	NA. Measures not required until commencement of operational phase
Water Quality	In case of total power outage of the dechlorination plant, the uninterruptible power supply (UPS) system to be provided would switch the power supply of the sodium bisulphite dosing pump to a backup battery almost instantaneously, allowing continuous dosage of sodium bisulphite for at least half an hour so that sufficient time can be provided for shutting down the chlorination plant to avoid the possibility of discharge of chlorinated effluent.	SCISTW / Operation Stage	NA. Measures not required until commencement of operational phase

ANNEX G4 - SUMMARY OF MITIGATION MEASURES IMPLEMENTATION SCHEDULE (JANUARY 2014)

Type of Impact	Environmental Protection Measures	Location/ Timing	Status
Water Quality	The model predicted that if Stage 2B is not implemented for HATS in 2021 as scheduled, the nutrient contents (both P and N) in the marine water would ultimately increase to exceed the baseline Stage 1 level when the HATS flow is reaching its design capacity of 2.45M m3/day. It is recommended that the future review study for Stage 2B should review the validity of the model predictions provided in this EIA and confirm the need of enhanced nutrient removal for HATS after 2021.	SCISTW / Operation Stage	NA. Measures not required until commencement of operational phase
Water Quality	It should be noted that the mixing zone for TIN predicted for Stage 2B was large with an area of about 30 km2 and the area of exceedance would encroach on the nearby water sensitive receivers (e.g. Ma Wan Fish Culture Zone). This is due to the elevated oxidised nitrogen assumed for the proposed nitrification process at Stage 2B as well as the increased HATS effluent flow assumed for Stage 2B. It is recommended that these water quality issues should be further investigated / assessed under the future EIA for Stage 2B. Further mitigation measures / alternative treatment designs should also be considered under the future EIA for Stage 2B to mitigate / minimise the potential TIN exceedances.	SCISTW / Operation Stage	NA. Measures not required until commencement of operational phase
<i>Construction Phase</i>			
Waste	Reusable steel or concrete panel shutters, fencing and hoarding and signboard should be used as a preferred alternative to items made of wood, to minimise wastage of wood. Attention should be paid to WBTC No. 19/2001 - Metallic Site Hoardings and Signboards to reduce the amount of timber used on construction sites. Metallic alternatives to timber are readily available and should be used rather than new timber. Precast concrete units should be adopted wherever feasible to minimise the use of timber formwork.	All work sites / during the construction period	√
Waste	All waste materials should be segregated into categories covering: <ul style="list-style-type: none"> excavated materials suitable for reuse on-site; excavated materials suitable for public filling facilities; remaining C&D waste for landfill; chemical waste; and general refuse for landfill. 	All work sites / during the construction period	√

ANNEX G4 - SUMMARY OF MITIGATION MEASURES IMPLEMENTATION SCHEDULE (JANUARY 2014)

Type of Impact	Environmental Protection Measures	Location/ Timing	Status
Waste	<p>Recommendations to achieve waste reduction include:</p> <ul style="list-style-type: none"> Sort C&D waste from demolition of existing facilities to recover recyclable portions such as metals; 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; and Proper storage and site practices to minimise the potential for damage or contamination of construction materials. 	All work sites / during the construction period	√
Waste	<p>Recommendations for good site practices during construction activities include:-</p> <ul style="list-style-type: none"> Nomination of an approved person, such as a site manager, to be responsible for good site practices, arrangements for collection and effective disposal to an appropriate facility, of all wastes generated at the site. Training of site personnel in proper waste management and chemical waste handling procedures. Develop and provide toolbox talk for on-site sorting of C&D materials to enhance worker's awareness in handling, sorting, reuse and recycling of C&D materials. Provision of sufficient waste disposal points and regular collection of waste. Regular cleaning and maintenance programme for drainage systems, sumps and oil interceptors. 	All work sites / during the construction period	√
Waste	Bentonite slurries used in diaphragm wall construction should be reconditioned and reused wherever practicable. The disposal of residual used bentonite slurry should follow the good practice guidelines stated in ProPECC PN 1/94 "Construction Site Drainage".	All work sites / during the construction period	NA
Waste	Adequate number of portable toilets at temporary works areas or the PTWs to ensure that sewage from site staff would be properly collected.	All work sites / during the construction period	√

ANNEX G4 - SUMMARY OF MITIGATION MEASURES IMPLEMENTATION SCHEDULE (JANUARY 2014)

Type of Impact	Environmental Protection Measures	Location/ Timing	Status
Waste	General refuse should be stored in enclosed bins, skips or compaction units separating from C&D material and disposed of at designated landfill.	All work sites / during the construction period	√
Waste	The recyclable component of the municipal waste generated by the workforce, such as aluminium cans, paper and cleansed plastic containers should be separated from other waste. Provision and collection of recycling bins for different types of recyclable waste should be set up by the Contractor. The Contractor should also be responsible for arranging recycling companies to collect these materials.	All work sites / during the construction period	√
Waste	If chemical wastes are produced at the construction site, the Contractor would be required to register with the EPD as a chemical waste producer and to follow the guidelines stated in the Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes. Good quality containers compatible with the chemical wastes should be used, and incompatible chemicals should be stored separately. Appropriate labels should be securely attached on each chemical waste container indicating the corresponding chemical characteristics of the chemical waste, such as explosive, flammable, oxidising, irritant, toxic, harmful, corrosive, etc. The Contractor shall use a licensed collector to transport and dispose of the chemical wastes, to either the approved Chemical Waste Treatment Centre, or another licensed facility, in accordance with the Waste Disposal (Chemical Waste) (General) Regulation.	All work sites / during the construction period	√
Waste	Prior to excavation of the marine deposit layer, the deposit should be tested in accordance with the ETWB TC(W) No. 34/2002 and the results should be presented in a Preliminary Sediment Quality Report. The marine deposit should be disposed of at the disposal site designated by the Marine Fill Committee (MFC) or Director of Environmental Protection (DEP) depending on the test results.	All work sites / during the construction period	√
<i>Operation Phase</i>			

ANNEX G4 - SUMMARY OF MITIGATION MEASURES IMPLEMENTATION SCHEDULE (JANUARY 2014)

Type of Impact	Environmental Protection Measures	Location/ Timing	Status
Waste	The sludge tanks should be air-tighten. Rotating brushes or other alternative devises should be installed at the upper frame of the sludge tank washing facilities to provide better cleaning of the surface around the top loading opening of the sludge tanks. Prior to making such provision, the top covers of the sludge transfer tanks should be water cleaned manually after unloading.	SCISTW / Operation Stage	NA. Measures not required until commencement of operational phase
Waste	Since the air tightness of tankers highly relies on the effectiveness of rubber seals at the loading openings and unloading doors, odour leakage from tankers are commonly resulted from the aging rubber seals. It is recommended to develop a preventive maintenance programme for rubber seals of loading openings and unloading doors of sludge transfer tanks to ensure the tightness of covers and doors. Rubber seals should be regularly replaced within its design life as specified by suppliers.	SCISTW / Operation Stage	NA. Measures not required until commencement of operational phase
<i>Construction Phase</i>			
Landscape & Visual	<ul style="list-style-type: none"> • Topsoil, where identified, should be stripped and stored for re-use in the construction of the soft landscape works, where practical. • Existing trees to be retained on site should be carefully protected during construction. • Trees unavoidably affected by the works should be transplanted where practical. • Compensatory tree planting should be provided to compensate for felled trees. • Control of night-time lighting. • Erection of decorative screen hoarding compatible with the surrounding setting. 	All the works areas, PTWs and SCISTW/	√ during the construction period
<i>Operational Phase</i>			
Landscape & Visual	<ul style="list-style-type: none"> • Aesthetic design of the façade of PTW and associated structures to harmonise with the surrounding settings. • Shrub and Climbing Plants to soften proposed structures / Roof Greening. • Buffer Tree and Shrub Planting to screen proposed associated structures. • Reinstated of disturbed area 	All the works areas, PTWs and SCISTW/	NA. Measures not required until commencement of operational phase

ANNEX G4 - SUMMARY OF MITIGATION MEASURES IMPLEMENTATION SCHEDULE (JANUARY 2014)

Type of Impact	Environmental Protection Measures	Location/ Timing	Status
<i>Construction Phase</i>	•		
Cultural Heritage	The construction vibration control limit (ppv of 25mm/s) shall be strictly followed.	Identified historical buildings/structures as mentioned in Tables 15.10 and 15.11. During blasting for tunnel, shafts, effluent conveyance system and disinfection facilities in the vicinity of the buildings/ structures	NA. Vibration monitoring has not been launched during the reporting period.

Remark:

- √ Compliance of Mitigation Measures
- <> Compliance of Mitigation but need improvement
- x Non-compliance of Mitigation Measures
- Δ Deficiency of Mitigation Measures but rectified by Gammon Construction Limited
- NA Not Applicable

ANNEX G4 - SUMMARY OF MITIGATION MEASURES IMPLEMENTATION SCHEDULE (FEBRUARY 2014)

Type of Impact	Environmental Protection Measures	Location/ Timing	Status
<i>Construction Phase</i>			
Air Quality	<p>The Air Pollution Control (Construction Dust) Regulation shall be implemented and good site practices shall be incorporated in the contract clauses to minimise construction dust impact. Control measures relevant to this Project are listed below:</p> <ul style="list-style-type: none"> • skip hoist for material transport should be totally enclosed by impervious sheeting; • every vehicle should be washed to remove any dusty materials from its body and wheels before leaving a construction site; • the area where vehicle washing takes place and the section of the road between the washing facilities and the exit point should be paved with concrete, bituminous materials or hardcores; • where a site boundary adjoins a road, streets or other accessible to the public, hoarding of not less than 2.4 m high from ground level should be provided along the entire length except for a site entrance or exit; • every stock of more than 20 bags of cement should be covered entirely by impervious sheeting placed in an area sheltered on the top and the 3 sides; • regular watering, with complete coverage, to reduce dust emission from exposed site surfaces and unpaved roads, particularly during dry weather; • site enclosure and covering of any aggregate or dusty material storage piles to reduce emissions. Where this is not practicable owing to frequent usage, watering should be applied to aggregate fines; • open stock piles should be avoided or covered and prevent placing dusty material storage piles near ASRs if possible; • tarpaulin covering of all dusty vehicle loads transported to, from and between site locations; and • instigation of an environmental monitoring auditing program to monitor the construction process in order to enforce controls and modify method of work if dusty conditions arise. 	All work sites / during construction	√

ANNEX G4 - SUMMARY OF MITIGATION MEASURES IMPLEMENTATION SCHEDULE (FEBRUARY 2014)

Type of Impact	Environmental Protection Measures	Location/ Timing	Status
Air Quality	<p>The following watering measures for specific site would be required to control the fugitive dust impacts:</p> <ul style="list-style-type: none"> the barging points should be continuous watering throughout the whole unloading process; and watering 8 times per day within worksites at the SCS works area at SCISTW and the Disinfection Facilities of SCISTW. 	All work sites / during construction	√
<i>Operational Phase</i>			
Air Quality	<p>Good housekeeping for SCISTW and PTWs listed below should be followed to ameliorate any odour impact from the plant and these standard practices should be included in the plant operator manual.</p> <ul style="list-style-type: none"> Screens should be cleaned regularly to remove any accumulated organic debris Grit and screening transfer systems should be flushed regularly with water to remove organic debris and grit Grit and screened materials should be transferred to closed containers to minimise odour escape Scum and grease collection wells and troughs should be emptied and flushed regularly to prevent putrefaction of accumulated organics Skim and remove floating solids and grease from primary clarifiers regularly Frequent sludge withdrawal from tanks is necessary to prevent the production of gases Sludge cake should be transferred to closed containers Sludge containers should be flushed with water regularly 	All work sites / during construction	NA. Measures not required until commencement of operational phase
Air Quality	To avoid excessive extraction of the foul air from the drop shafts of the sedimentation tanks and also from the effluent flume structure of SCISTW to deodorisation system, the extraction vent(s) of the deodorisation system should be located away from the top openings of the drop shafts.	SCISTW /during operational phase	NA. Measures not required until commencement of operational phase
Air Quality	Commissioning tests for all deodorisation system should be included in the Design and Construction Contract Document.	All PTW and SCISTW/ during operational phase	NA. Measures not required until commencement of operational phase
<i>Construction Phase</i>			

ANNEX G4 - SUMMARY OF MITIGATION MEASURES IMPLEMENTATION SCHEDULE (FEBRUARY 2014)

Type of Impact	Environmental Protection Measures	Location/ Timing	Status
Noise	Use of quiet PME, movable barriers and acoustic mats	All work sites / during construction	√
Noise	<p>Good Site Practice:</p> <ul style="list-style-type: none"> • only well-maintained plant should be operated on-site and plant should be serviced regularly during the construction program; • silencers or mufflers on construction equipment should be utilised and should be properly maintained during the construction program; • mobile plant, if any, should be sited as far from NSRs as possible; • machines and plant (such as trucks) that may be in intermittent use should be shut down between work periods or should be throttled down to a minimum; • plant known to emit noise strongly in one direction should, wherever possible, be orientated so that the noise is directed away from the nearby NSRs; and • material stockpiles and other structures should be effectively utilised, wherever practicable, in screening noise from on-site construction activities; <p>Environmental audit shall be carried out to ensure that appropriate noise control measures would be properly implemented.</p>	All work sites / during construction	√
<i>Construction Phase</i>			
Water Quality	Construction Site Runoff and General Construction Activities. The mitigation measures as outlined in the ProPECC PN 1/94 Construction Site Drainage should be adopted where applicable.	All work sites / during construction	√

ANNEX G4 - SUMMARY OF MITIGATION MEASURES IMPLEMENTATION SCHEDULE (FEBRUARY 2014)

Type of Impact	Environmental Protection Measures	Location/ Timing	Status
Water Quality	<p>Effluent Discharge</p> <p>There is a need to apply to EPD for a discharge licence for discharge of effluent from the construction site under the WPCO. The discharge quality must meet the requirements specified in the discharge licence. If monitoring of the treated effluent quality from the works areas is required during the construction phase of the Project, the monitoring should be carried out in accordance with the WPCO license which is under the ambit of regional office (RO) of EPD. Minimum distances of 100 m should be maintained between the discharge points of construction site effluent and the existing saltwater intakes.</p>	All work sites / during construction	√
Water Quality	<p>Accidental Spillage of Chemicals</p> <p>Contractor must register as a chemical waste producer if chemical wastes would be produced from the construction activities. The Waste Disposal Ordinance (Cap 354) and its subsidiary regulations in particular the Waste Disposal (Chemical Waste) (General) Regulation should be observed and complied with for control of chemical wastes.</p>	All work sites / during construction	<>
Water Quality	<p>Any service shop and maintenance facilities should be located on hard standings within a bunded area, and sumps and oil interceptors should be provided. Maintenance of vehicles and equipment involving activities with potential for leakage and spillage should only be undertaken within the areas appropriately equipped to control these discharges.</p>	All work sites / during construction	√
Water Quality	<p>Disposal of chemical wastes should be carried out in compliance with the Waste Disposal Ordinance. The Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes published under the Waste Disposal Ordinance details the requirements to deal with chemical wastes.</p> <p>General requirements are given as follows:</p> <ul style="list-style-type: none"> • Suitable containers should be used to hold the chemical wastes to avoid leakage or spillage during storage, handling and transport. • Chemical waste containers should be suitably labelled, to notify and warn the personnel who are handling the wastes, to avoid accidents. • Storage area should be selected at a safe location on site and adequate space should be allocated to the storage area. 	All work sites / during construction	<>

ANNEX G4 - SUMMARY OF MITIGATION MEASURES IMPLEMENTATION SCHEDULE (FEBRUARY 2014)

Type of Impact	Environmental Protection Measures	Location/ Timing	Status
Water Quality	<p>Construction Works in Close Proximity of Storm Drains or Seafront</p> <p>To minimise the potential water quality impacts from the construction works located at or near any watercourse, the practices outlined below should be adopted where applicable.</p> <ul style="list-style-type: none"> • The use of less or smaller construction plants may be specified to reduce the disturbance to the storm water courses or marine environment. • Temporary storage of materials (e.g. equipment, filling materials, chemicals and fuel) and temporary stockpile of construction materials should be located well away from any water courses during carrying out of the construction works. • Stockpiling of construction materials and dusty materials should be covered and located away from any water courses. • Construction debris and spoil should be covered up and/or disposed of as soon as possible to avoid being washed into the nearby water receivers. • Construction activities, which generate large amount of wastewater, should be carried out in a distance away from the waterfront, where practicable. • Proper shoring may need to be erected in order to prevent soil/mud from slipping into the storm culvert or sea 	All work sites / during construction	√

ANNEX G4 - SUMMARY OF MITIGATION MEASURES IMPLEMENTATION SCHEDULE (FEBRUARY 2014)

Type of Impact	Environmental Protection Measures	Location/ Timing	Status
Water Quality	Temporary Sewage Bypass	SCISTW/ construction period	√
	<p>It is recommended that the temporary sewage bypass required for (i) the modification to the existing pumping station at SCISTW and (ii) the interconnection between the existing main pumping station and the new pumping station on Stonecutters Island, if needed, should be scheduled at the same time as far as practicable in order to minimise the temporary discharge duration. It is also recommended that all the modification and interconnection to the existing facilities (including the modification to the existing NWKPS) should be programmed to avoid temporary sewage bypass in wet or bathing season (March to October) to minimise the potential impacts. Relevant government departments including EPD and LCSD should be informed of the planned sewage bypass prior to any discharge. During the sewage bypass period, water quality monitoring should be carried out at the water sensitive receivers to quantify the water quality impacts and to determine when the baseline water quality conditions are restored. Also, a framework of the response procedures has been formulated to minimise the impact of temporary discharges. Details are provided in the standalone EM&A Manual.</p>		
<i>Operational Phase</i>			
Water Quality	Dual power supply, standby facilities for the main treatment units and standby equipment parts / accessories should be provided as far as possible at the SCISTW to minimise the chance of emergency discharge.	SCISTW and all the Stage 2 PTWs / Operation Stage	NA. Measures not required until commencement of operational phase
Water Quality	The response procedure and monitoring requirements for emergency discharge as stated in EM&A Manual should be followed.	SCISTW / Operation Stage	NA. Measures not required until commencement of operational phase
Water Quality	In case of total power outage of the dechlorination plant, the uninterruptible power supply (UPS) system to be provided would switch the power supply of the sodium bisulphite dosing pump to a backup battery almost instantaneously, allowing continuous dosage of sodium bisulphite for at least half an hour so that sufficient time can be provided for shutting down the chlorination plant to avoid the possibility of discharge of chlorinated effluent.	SCISTW / Operation Stage	NA. Measures not required until commencement of operational phase

ANNEX G4 - SUMMARY OF MITIGATION MEASURES IMPLEMENTATION SCHEDULE (FEBRUARY 2014)

Type of Impact	Environmental Protection Measures	Location/ Timing	Status
Water Quality	The model predicted that if Stage 2B is not implemented for HATS in 2021 as scheduled, the nutrient contents (both P and N) in the marine water would ultimately increase to exceed the baseline Stage 1 level when the HATS flow is reaching its design capacity of 2.45M m3/day. It is recommended that the future review study for Stage 2B should review the validity of the model predictions provided in this EIA and confirm the need of enhanced nutrient removal for HATS after 2021.	SCISTW / Operation Stage	NA. Measures not required until commencement of operational phase
Water Quality	It should be noted that the mixing zone for TIN predicted for Stage 2B was large with an area of about 30 km2 and the area of exceedance would encroach on the nearby water sensitive receivers (e.g. Ma Wan Fish Culture Zone). This is due to the elevated oxidised nitrogen assumed for the proposed nitrification process at Stage 2B as well as the increased HATS effluent flow assumed for Stage 2B. It is recommended that these water quality issues should be further investigated / assessed under the future EIA for Stage 2B. Further mitigation measures / alternative treatment designs should also be considered under the future EIA for Stage 2B to mitigate / minimise the potential TIN exceedances.	SCISTW / Operation Stage	NA. Measures not required until commencement of operational phase
<i>Construction Phase</i>			
Waste	Reusable steel or concrete panel shutters, fencing and hoarding and signboard should be used as a preferred alternative to items made of wood, to minimise wastage of wood. Attention should be paid to WBTC No. 19/2001 - Metallic Site Hoardings and Signboards to reduce the amount of timber used on construction sites. Metallic alternatives to timber are readily available and should be used rather than new timber. Precast concrete units should be adopted wherever feasible to minimise the use of timber formwork.	All work sites / during the construction period	√
Waste	All waste materials should be segregated into categories covering: <ul style="list-style-type: none"> excavated materials suitable for reuse on-site; excavated materials suitable for public filling facilities; remaining C&D waste for landfill; chemical waste; and general refuse for landfill. 	All work sites / during the construction period	√

ANNEX G4 - SUMMARY OF MITIGATION MEASURES IMPLEMENTATION SCHEDULE (FEBRUARY 2014)

Type of Impact	Environmental Protection Measures	Location/ Timing	Status
Waste	<p>Recommendations to achieve waste reduction include:</p> <ul style="list-style-type: none"> Sort C&D waste from demolition of existing facilities to recover recyclable portions such as metals; 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; and Proper storage and site practices to minimise the potential for damage or contamination of construction materials. 	All work sites / during the construction period	√
Waste	<p>Recommendations for good site practices during construction activities include:-</p> <ul style="list-style-type: none"> Nomination of an approved person, such as a site manager, to be responsible for good site practices, arrangements for collection and effective disposal to an appropriate facility, of all wastes generated at the site. Training of site personnel in proper waste management and chemical waste handling procedures. Develop and provide toolbox talk for on-site sorting of C&D materials to enhance worker's awareness in handling, sorting, reuse and recycling of C&D materials. Provision of sufficient waste disposal points and regular collection of waste. Regular cleaning and maintenance programme for drainage systems, sumps and oil interceptors. 	All work sites / during the construction period	<>
Waste	Bentonite slurries used in diaphragm wall construction should be reconditioned and reused wherever practicable. The disposal of residual used bentonite slurry should follow the good practice guidelines stated in ProPECC PN 1/94 "Construction Site Drainage".	All work sites / during the construction period	NA
Waste	Adequate number of portable toilets at temporary works areas or the PTWs to ensure that sewage from site staff would be properly collected.	All work sites / during the construction period	√

ANNEX G4 - SUMMARY OF MITIGATION MEASURES IMPLEMENTATION SCHEDULE (FEBRUARY 2014)

Type of Impact	Environmental Protection Measures	Location/ Timing	Status
Waste	General refuse should be stored in enclosed bins, skips or compaction units separating from C&D material and disposed of at designated landfill.	All work sites / during the construction period	√
Waste	The recyclable component of the municipal waste generated by the workforce, such as aluminium cans, paper and cleansed plastic containers should be separated from other waste. Provision and collection of recycling bins for different types of recyclable waste should be set up by the Contractor. The Contractor should also be responsible for arranging recycling companies to collect these materials.	All work sites / during the construction period	√
Waste	If chemical wastes are produced at the construction site, the Contractor would be required to register with the EPD as a chemical waste producer and to follow the guidelines stated in the Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes. Good quality containers compatible with the chemical wastes should be used, and incompatible chemicals should be stored separately. Appropriate labels should be securely attached on each chemical waste container indicating the corresponding chemical characteristics of the chemical waste, such as explosive, flammable, oxidising, irritant, toxic, harmful, corrosive, etc. The Contractor shall use a licensed collector to transport and dispose of the chemical wastes, to either the approved Chemical Waste Treatment Centre, or another licensed facility, in accordance with the Waste Disposal (Chemical Waste) (General) Regulation.	All work sites / during the construction period	<>
Waste	Prior to excavation of the marine deposit layer, the deposit should be tested in accordance with the ETWB TC(W) No. 34/2002 and the results should be presented in a Preliminary Sediment Quality Report. The marine deposit should be disposed of at the disposal site designated by the Marine Fill Committee (MFC) or Director of Environmental Protection (DEP) depending on the test results.	All work sites / during the construction period	√
<i>Operation Phase</i>			

ANNEX G4 - SUMMARY OF MITIGATION MEASURES IMPLEMENTATION SCHEDULE (FEBRUARY 2014)

Type of Impact	Environmental Protection Measures	Location/ Timing	Status
Waste	The sludge tanks should be air-tighten. Rotating brushes or other alternative devises should be installed at the upper frame of the sludge tank washing facilities to provide better cleaning of the surface around the top loading opening of the sludge tanks. Prior to making such provision, the top covers of the sludge transfer tanks should be water cleaned manually after unloading.	SCISTW / Operation Stage	NA. Measures not required until commencement of operational phase
Waste	Since the air tightness of tankers highly relies on the effectiveness of rubber seals at the loading openings and unloading doors, odour leakage from tankers are commonly resulted from the aging rubber seals. It is recommended to develop a preventive maintenance programme for rubber seals of loading openings and unloading doors of sludge transfer tanks to ensure the tightness of covers and doors. Rubber seals should be regularly replaced within its design life as specified by suppliers.	SCISTW / Operation Stage	NA. Measures not required until commencement of operational phase
<i>Construction Phase</i>			
Landscape & Visual	<ul style="list-style-type: none"> • Topsoil, where identified, should be stripped and stored for re-use in the construction of the soft landscape works, where practical. • Existing trees to be retained on site should be carefully protected during construction. • Trees unavoidably affected by the works should be transplanted where practical. • Compensatory tree planting should be provided to compensate for felled trees. • Control of night-time lighting. • Erection of decorative screen hoarding compatible with the surrounding setting. 	All the works areas, PTWs and SCISTW/ during the construction period	√
<i>Operational Phase</i>			
Landscape & Visual	<ul style="list-style-type: none"> • Aesthetic design of the façade of PTW and associated structures to harmonise with the surrounding settings. • Shrub and Climbing Plants to soften proposed structures / Roof Greening. • Buffer Tree and Shrub Planting to screen proposed associated structures. • Reinstated of disturbed area 	All the works areas, PTWs and SCISTW/ during the construction period	NA. Measures not required until commencement of operational phase

ANNEX G4 - SUMMARY OF MITIGATION MEASURES IMPLEMENTATION SCHEDULE (FEBRUARY 2014)

Type of Impact	Environmental Protection Measures	Location/ Timing	Status
<i>Construction Phase</i>	•		
Cultural Heritage	The construction vibration control limit (ppv of 25mm/s) shall be strictly followed.	Identified historical buildings/structures as mentioned in Tables 15.10 and 15.11. During blasting for tunnel, shafts, effluent conveyance system and disinfection facilities in the vicinity of the buildings/ structures	NA. Vibration monitoring has not been launched during the reporting period.

Remark:

- √ Compliance of Mitigation Measures
- <> Compliance of Mitigation but need improvement
- x Non-compliance of Mitigation Measures
- Δ Deficiency of Mitigation Measures but rectified by Gammon Construction Limited
- NA Not Applicable

Annex G5 24-hour and 1-hour TSP Monitoring Results

1-hour TSP Monitoring Results

Station AM6

Date	Start Time	Finish Time	Weather	TSP Concentration ($\mu\text{g}/\text{m}^3$)	Action Level ($\mu\text{g}/\text{m}^3$)	Limit Level ($\mu\text{g}/\text{m}^3$)	Site Conditions / Observations / Remarks	Temperature ($^{\circ}\text{C}$)	Wind Speed * (m/s)	Sampler ID	Filter ID
03-Dec-13	13:00	14:00	Sunny	205	346	500	Construction work in progress	20	<5	GMW GS-2310 (S/N 1254)	8881
	14:02	15:02	Sunny	323	346	500	Construction work in progress	20	<5	GMW GS-2310 (S/N 1254)	8882
	15:04	16:04	Sunny	194	346	500	Construction work in progress	20	<5	GMW GS-2310 (S/N 1254)	8883
09-Dec-13	13:15	14:15	Sunny	207	346	500	Construction work in progress	21	<5	GMW GS-2310 (S/N 1254)	8885
	14:17	15:17	Sunny	231	346	500	Construction work in progress	21	<5	GMW GS-2310 (S/N 1254)	8886
	15:19	16:19	Sunny	209	346	500	Construction work in progress	21	<5	GMW GS-2310 (S/N 1254)	8887
14-Dec-13	13:25	14:25	Cloudy	220	346	500	Construction work in progress	18	<5	GMW GS-2310 (S/N 1254)	8889
	14:27	15:27	Cloudy	227	346	500	Construction work in progress	18	<5	GMW GS-2310 (S/N 1254)	8890
	15:29	16:29	Cloudy	219	346	500	Construction work in progress	18	<5	GMW GS-2310 (S/N 1254)	8891
20-Dec-13	9:00	10:00	Sunny	191	346	500	Construction work in progress	11	<5	GMW GS-2310 (S/N 1254)	8893
	10:02	11:02	Sunny	211	346	500	Construction work in progress	11	<5	GMW GS-2310 (S/N 1254)	8894
	11:04	12:04	Sunny	203	346	500	Construction work in progress	11	<5	GMW GS-2310 (S/N 1254)	8895
27-Dec-13	13:05	14:05	Sunny	317	346	500	Construction work in progress	13	<5	GMW GS-2310 (S/N 1254)	8897
	14:07	15:07	Sunny	292	346	500	Construction work in progress	13	<5	GMW GS-2310 (S/N 1254)	8898
	15:09	16:09	Sunny	287	346	500	Construction work in progress	13	<5	GMW GS-2310 (S/N 1254)	8899
			Min.	191							
			Max.	323							
			Average	236							

* Wind Speed data is presented in the Meteorological Data table

Annex G5 24-hour and 1-hour TSP Monitoring Results

1-hour TSP Monitoring Results

Station AM6

	Start	Finish	Weather	TSP Concentration	Action Level	Limit Level	Site Conditions /	Temperature	Wind Speed *	Sampler ID	Filter ID
Date	Time	Time		($\mu\text{g}/\text{m}^3$)	($\mu\text{g}/\text{m}^3$)	($\mu\text{g}/\text{m}^3$)	Observations / Remarks	($^{\circ}\text{C}$)	(m/s)		
02-Jan-14	8:40	9:40	Sunny	239	346	500	Construction work in progress	20	<5	GMW GS-2310 (S/N 1254)	9173
	9:42	10:42	Sunny	244	346	500	Construction work in progress	20	<5	GMW GS-2310 (S/N 1254)	9174
	10:44	11:44	Sunny	228	346	500	Construction work in progress	20	<5	GMW GS-2310 (S/N 1254)	9175
08-Jan-14	14:35	15:35	Cloudy	227	346	500	Construction work in progress	19	<5	GMW GS-2310 (S/N 1254)	9177
	15:37	16:37	Cloudy	223	346	500	Construction work in progress	19	<5	GMW GS-2310 (S/N 1254)	9178
	16:39	17:39	Cloudy	220	346	500	Construction work in progress	19	<5	GMW GS-2310 (S/N 1254)	9179
14-Jan-14	14:00	15:00	Sunny	193	346	500	Construction work in progress	15	<5	GMW GS-2310 (S/N 1254)	9181
	15:02	16:02	Sunny	201	346	500	Construction work in progress	15	<5	GMW GS-2310 (S/N 1254)	9182
	16:04	17:04	Sunny	340	346	500	Construction work in progress	15	<5	GMW GS-2310 (S/N 1254)	9183
20-Jan-14	12:40	13:40	Sunny	183	346	500	Construction work in progress	14	<5	GMW GS-2310 (S/N 1254)	9185
	13:42	14:42	Sunny	194	346	500	Construction work in progress	14	<5	GMW GS-2310 (S/N 1254)	9186
	14:44	15:44	Sunny	172	346	500	Construction work in progress	14	<5	GMW GS-2310 (S/N 1254)	9187
24-Jan-14	8:50	9:50	Sunny	180	346	500	Construction work in progress	18	<5	GMW GS-2310 (S/N 1254)	9189
	9:52	10:52	Sunny	186	346	500	Construction work in progress	18	<5	GMW GS-2310 (S/N 1254)	9190
	10:54	11:54	Sunny	194	346	500	Construction work in progress	18	<5	GMW GS-2310 (S/N 1254)	9191
30-Jan-14	11:20	12:20	Sunny	185	346	500	Construction work in progress	18	<5	GMW GS-2310 (S/N 1254)	9193
	12:22	13:22	Sunny	184	346	500	Construction work in progress	18	<5	GMW GS-2310 (S/N 1254)	9194
	13:24	14:24	Sunny	183	346	500	Construction work in progress	18	<5	GMW GS-2310 (S/N 1254)	9195
				Min.	172						
				Max.	340						
				Average	210						

* Wind Speed data is presented in the Meteorological Data table

Annex G5 24-hour and 1-hour TSP Monitoring Results

1-hour TSP Monitoring Results

Station AM6

	Start	Finish	Weather	TSP Concentration	Action Level	Limit Level	Site Conditions /	Temperature	Wind Speed *	Sampler ID	Filter ID
Date	Time	Time		($\mu\text{g}/\text{m}^3$)	($\mu\text{g}/\text{m}^3$)	($\mu\text{g}/\text{m}^3$)	Observations / Remarks	($^{\circ}\text{C}$)	(m/s)		
05-Feb-14	11:38	12:38	Cloudy	187	346	500	Construction work in progress	17	<5	GMW GS-2310 (S/N 1254)	9157
	12:40	13:40	Cloudy	115	346	500	Construction work in progress	17	<5	GMW GS-2310 (S/N 1254)	9165
	13:42	14:42	Cloudy	186	346	500	Construction work in progress	17	<5	GMW GS-2310 (S/N 1254)	9166
11-Feb-14	10:20	11:20	Cloudy	208	346	500	Construction work in progress	9	<5	GMW GS-2310 (S/N 1254)	9161
	11:22	12:22	Cloudy	206	346	500	Construction work in progress	9	<5	GMW GS-2310 (S/N 1254)	9162
	12:24	13:24	Cloudy	198	346	500	Construction work in progress	9	<5	GMW GS-2310 (S/N 1254)	9163
17-Feb-14	8:00	9:00	Cloudy	190	346	500	Construction work in progress	18	<5	GMW GS-2310 (S/N 1254)	9167
	9:02	10:02	Cloudy	217	346	500	Construction work in progress	18	<5	GMW GS-2310 (S/N 1254)	9168
21-Feb-14	10:04	11:04	Cloudy	184	346	500	Construction work in progress	18	<5	GMW GS-2310 (S/N 1254)	9169
	13:10	14:10	Fine	202	346	500	Construction work in progress	16	<5	GMW GS-2310 (S/N 1254)	9171
	14:12	15:12	Fine	205	346	500	Construction work in progress	16	<5	GMW GS-2310 (S/N 1254)	9172
27-Feb-14	15:14	16:14	Fine	214	346	500	Construction work in progress	16	<5	GMW GS-2310 (S/N 1254)	9325
	13:13	14:13	Cloudy	193	346	500	Construction work in progress	22	<5	GMW GS-2310 (S/N 1254)	9331
	14:15	15:15	Cloudy	202	346	500	Construction work in progress	22	<5	GMW GS-2310 (S/N 1254)	9332
	15:17	16:17	Cloudy	197	346	500	Construction work in progress	22	<5	GMW GS-2310 (S/N 1254)	9333
			Min.	115							
			Max.	217							
			Average	194							

* Wind Speed data is presented in the Meteorological Data table.

Annex G5 24-hour and 1-hour TSP Monitoring Results

24-hour TSP Monitoring Results

Station AM6

Start		Finish		Weather	Filter Weight (g)		Elapsed Time Reading		Sampling Time (hrs)	Flow Rate (m ³ /min)			TSP Conc. (µg/m ³)	Action Level (µg/m ³)	Limit Level (µg/m ³)	Observations / Remarks	Sampler ID	Filter ID			
Date	Time	Date	Time		Initial	Final	Initial	Final		Initial	Final	Average									
03-Dec-13	16:06	04-Dec-13	16:06	Sunny	2.7956	2.9988	12624.03	12648.03	24.00	1.25	1.25	1.25	113	196	260	Construction work in progress	GMW GS 2310 (S/N 1254)	8884			
09-Dec-13	16:21	10-Dec-13	16:21	Sunny	2.7904	3.0077	12651.03	12675.03	24.00	1.25	1.25	1.25	121	196	260	Construction work in progress	GMW GS 2310 (S/N 1254)	8888			
14-Dec-13	16:31	15-Dec-13	16:31	Cloudy	2.7871	3.0191	12678.03	12702.03	24.00	1.25	1.25	1.25	129	196	260	Construction work in progress	GMW GS 2310 (S/N 1254)	8891			
20-Dec-13	12:06	21-Dec-13	12:06	Sunny	2.7931	2.9987	12705.03	12729.03	24.00	1.25	1.25	1.25	114	196	260	Construction work in progress	GMW GS 2310 (S/N 1254)	8896			
27-Dec-13	16:11	28-Dec-13	16:11	Sunny	2.7957	3.0221	12732.03	12756.03	24.00	1.25	1.25	1.25	126	196	260	Construction work in progress	GMW GS 2310 (S/N 1254)	8900			
												Min.	113								
												Max.	129								
												Average	121								

Annex G5 24-hour and 1-hour TSP Monitoring Results

24-hour TSP Monitoring Results

Station AM6

Start		Finish		Weather	Filter Weight (g)		Elapsed Time Reading		Sampling Time (hrs)	Flow Rate (m ³ /min)			TSP Conc. (µg/m ³)	Action Level (µg/m ³)	Limit Level (µg/m ³)	Observations / Remarks	Sampler ID	Filter ID					
Date	Time	Date	Time		Initial	Final	Initial	Final		Initial	Final	Average											
02-Jan-14	11:46	03-Jan-14	11:46	Sunny	2.7881	2.9821	12759.03	12783.03	24.00	1.25	1.25	1.25	108	196	260	Construction work in progress	GMW GS 2310 (S/N 1254)	9176					
08-Jan-14	17:41	09-Jan-14	17:41	Cloudy	2.7912	3.0212	12786.03	12810.03	24.00	1.25	1.25	1.25	128	196	260	Construction work in progress	GMW GS 2310 (S/N 1254)	9180					
14-Jan-14	17:06	15-Jan-14	17:06	Sunny	2.7934	3.0101	12813.03	12837.03	24.00	1.25	1.25	1.25	120	196	260	Construction work in progress	GMW GS 2310 (S/N 1254)	9184					
20-Jan-14	15:46	21-Jan-14	15:46	Sunny	2.7865	2.9779	12840.03	12864.03	24.00	1.22	1.22	1.22	109	196	260	Construction work in progress	GMW GS 2310 (S/N 1254)	9188					
24-Jan-14	11:56	25-Jan-14	11:56	Sunny	2.7911	2.9672	12867.03	12891.03	24.00	1.22	1.22	1.22	100	196	260	Construction work in progress	GMW GS 2310 (S/N 1254)	9192					
30-Jan-14	14:26	31-Jan-14	14:26	Sunny	2.7821	2.9456	12894.03	12918.03	24.00	1.22	1.22	1.22	93	196	260	Construction work in progress	GMW GS 2310 (S/N 1254)	9196					
												Min.	93										
												Max.	128										
												Average	110										

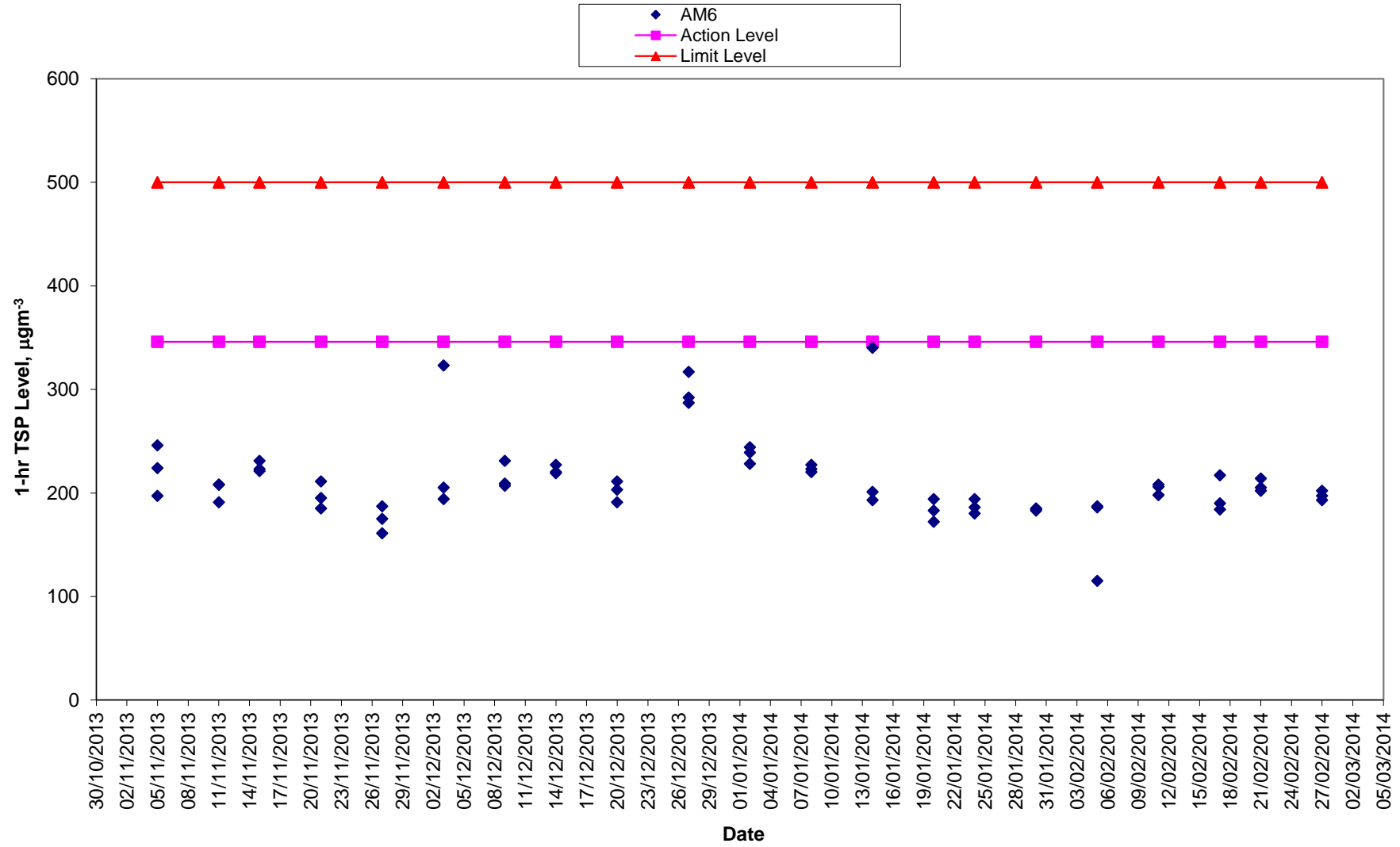
Annex G5 24-hour and 1-hour TSP Monitoring Results

24-hour TSP Monitoring Results

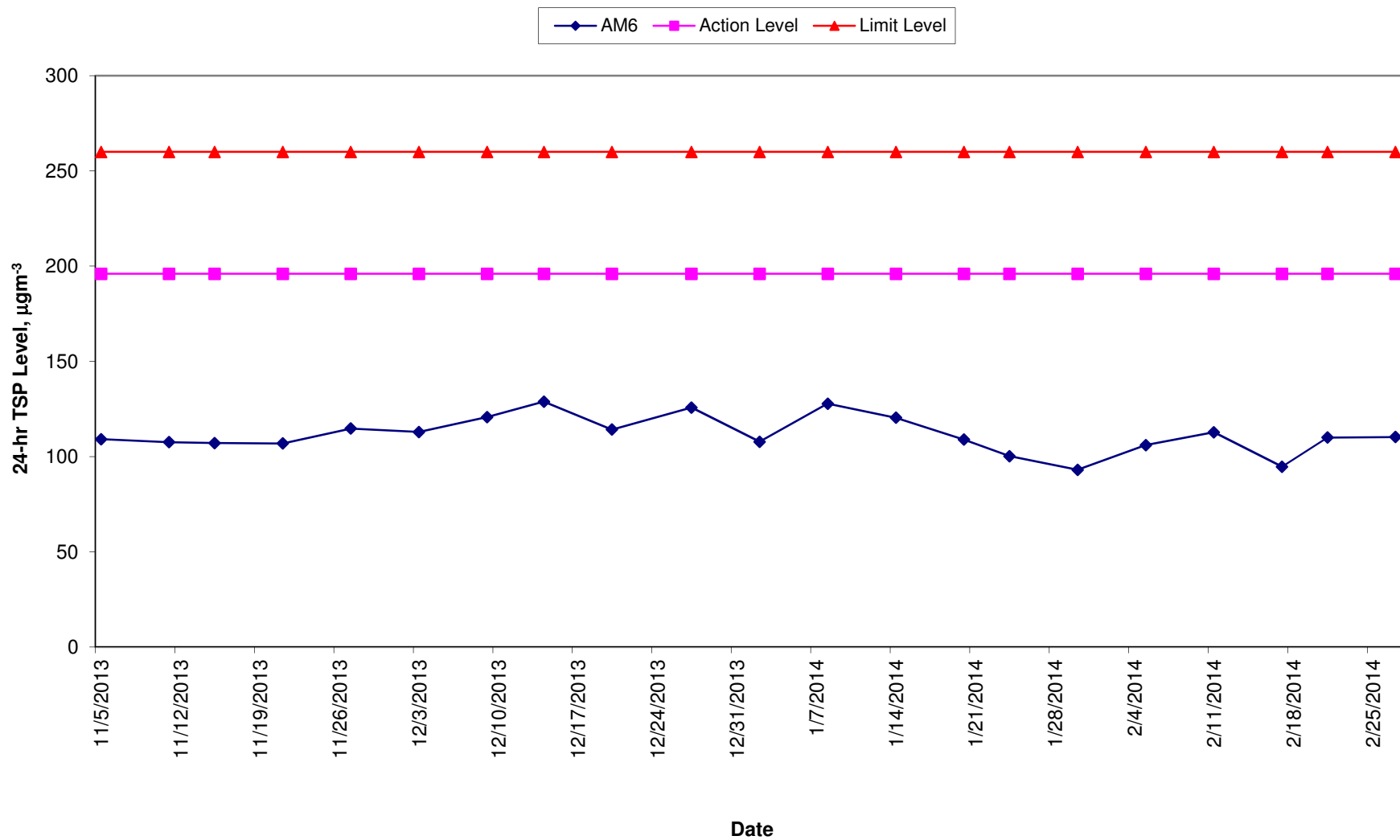
Station AM6

Start		Finish		Weather	Filter Weight (g)		Elapsed Time Reading		Sampling Time (hrs)	Flow Rate (m ³ /min)			TSP Conc. (µg/m ³)	Action Level (µg/m ³)	Limit Level (µg/m ³)	Observations / Remarks	Sampler ID	Filter ID
Date	Time	Date	Time		Initial	Final	Initial	Final		Initial	Final	Average						
05-Feb-14	14:44	06-Feb-14	14:44	Cloudy	2.7948	2.9811	12921.03	12945.03	24.00	1.22	1.22	1.22	106	196	260	Construction work in progress	GMW GS 2310 (S/N 1254)	9160
11-Feb-14	13:26	12-Feb-14	13:26	Cloudy	2.7919	2.9901	12948.03	12972.03	24.00	1.22	1.22	1.22	113	196	260	Construction work in progress	GMW GS 2310 (S/N 1254)	9164
17-Feb-14	11:06	18-Feb-14	11:06	Cloudy	2.7942	2.9606	12975.03	12999.03	24.00	1.22	1.22	1.22	95	196	260	Construction work in progress	GMW GS 2310 (S/N 1254)	9170
21-Feb-14	16:16	22-Feb-14	16:16	Fine	2.7969	2.9902	13002.03	13026.03	24.00	1.22	1.22	1.22	110	196	260	Construction work in progress	GMW GS 2310 (S/N 1254)	9326
27-Feb-14	16:19	28-Feb-14	16:19	Cloudy	2.7971	2.9909	13029.03	13053.03	24.00	1.22	1.22	1.22	110	196	260	Construction work in progress	GMW GS 2310 (S/N 1254)	9334
												Min.	95					
												Max.	113					
												Average	107					

1-hr TSP Level AM6 (Stonecutters Island Sewage Treatment Works)



24-hr TSP Level AM6 (Stonecutters Island Sewage Treatment Works)



Meteorological Data Extracted from the Hong Kong Observatory

King's Park Station						
Date	Weather	Average Air Temperature (°C)	Average Relative Humidity (%)	Total Rainfall (mm)	Average Wind Speed (km/h)	Wind Direction
2013-12-01	Sunny	13	33 - 63	0.0	0 - 12	SE/NE
2013-12-03	Sunny	19	45 - 80	0.0	0 - 14	SE/E
2013-12-06	Sunny	14	33 - 63	0.0	0 - 18	NE
2013-12-08	Sunny	20	64 - 85	Trace	0 - 12	SE
2013-12-09	Sunny	22	50 - 78	0.0	0 - 18	NE
2013-12-10	Cloudy	20	55 - 80	0.0	0 - 20	SE/NE
2013-12-12	Cloudy	18	55 - 72	Trace	4 - 20	SE/E
2013-12-14	Cloudy	19	75 - 99	13.0	0 - 18	SE/E
2013-12-15	Cloudy	17	93 - 99	22.7	0 - 17	E
2013-12-17	Fine	12	88 - 99	27.8	0 - 17	NW/NE
2013-12-18	Sunny	9	58 - 86	0.0	4 - 22	NE/N
2013-12-19	Fine	9	53 - 74	0.0	0 - 16	NE/N
2013-12-20	Sunny	14	54 - 71	0.0	0 - 12	NE
2013-12-22	Sunny	14	52 - 69	0.0	0 - 12	NE/SE
2013-12-24	Cloudy	15	48 - 71	0.0	0 - 12	NE/SE
2013-12-27	Sunny	13	35 - 50	0.0	0 - 23	NE/N
2013-12-29	Sunny	12	39 - 66	0.0	0 - 16	NE/SE
2013-12-30	Sunny	14	34 - 64	0.0	0 - 10	N/W
2013-12-31	Fine	15	35 - 65	0.0	0 - 11	N/W

Tsing Yi Station						
Date	Weather	Average Air Temperature (°C)	Average Relative Humidity (%) *	Total Rainfall (mm)	Average Wind Speed (km/h)	Wind Direction
2013-12-01	Sunny	18	33 - 63	0.0	1 - 12	-
2013-12-03	Sunny	19	45 - 80	0.0	1 - 17	-
2013-12-06	Sunny	18	33 - 63	0.0	1 - 18	-
2013-12-08	Sunny	20	64 - 85	Trace	1 - 18	-
2013-12-09	Sunny	23	50 - 78	0.0	1 - 16	-
2013-12-10	Cloudy	21	55 - 80	0.0	2 - 16	-
2013-12-12	Cloudy	18	55 - 72	Trace	3 - 15	-
2013-12-14	Cloudy	19	75 - 99	13.0	1 - 11	-
2013-12-15	Cloudy	17	93 - 99	22.7	1 - 12	-
2013-12-17	Fine	12	88 - 99	27.8	1 - 22	-
2013-12-18	Sunny	12	58 - 86	0.0	4 - 25	-
2013-12-19	Fine	13	53 - 74	0.0	1 - 18	-
2013-12-20	Sunny	15	54 - 71	0.0	0 - 17	-
2013-12-22	Sunny	14	52 - 69	0.0	1 - 15	-
2013-12-24	Cloudy	15	48 - 71	0.0	1 - 19	-
2013-12-27	Sunny	13	35 - 50	0.0	1 - 22	-
2013-12-29	Sunny	12	39 - 66	0.0	1 - 13	-
2013-12-30	Sunny	13	34 - 64	0.0	1 - 18	-
2013-12-31	Fine	15	35 - 65	0.0	1 - 19	-

Kai Tak Station						
Date	Weather	Average Air Temperature (°C) *	Average Relative Humidity (%) *	Total Rainfall (mm) *	Average Wind Speed (km/h)	Wind Direction
2013-12-01	Sunny	13	33 - 63	0.0	1 - 18	SE/N
2013-12-03	Sunny	19	45 - 80	0.0	1 - 20	SE/NE
2013-12-06	Sunny	13	33 - 63	0.0	1 - 20	SE
2013-12-08	Sunny	19	45 - 80	0.0	1 - 18	SE
2013-12-09	Sunny	14	33 - 63	0.0	1 - 27	NW/E
2013-12-10	Sunny	20	64 - 85	Trace	3 - 18	NE
2013-12-12	Sunny	22	50 - 78	0.0	1 - 19	E
2013-12-14	Cloudy	20	55 - 80	0.0	3 - 25	E
2013-12-15	Cloudy	18	55 - 72	Trace	3 - 24	SE
2013-12-17	Cloudy	19	75 - 99	13.0	1 - 24	NW/N
2013-12-18	Cloudy	17	93 - 99	22.7	3 - 27	NW/N
2013-12-19	Fine	12	88 - 99	27.8	1 - 22	NE/NW
2013-12-20	Sunny	9	58 - 86	0.0	1 - 21	NE
2013-12-22	Fine	9	53 - 74	0.0	2 - 18	NE/E
2013-12-24	Sunny	14	54 - 71	0.0	1 - 15	NW/E

Green Island Station						
Date	Weather	Average Air Temperature (°C) *	Average Relative Humidity (%) *	Total Rainfall (mm) *	Average Wind Speed (km/h)	Wind Direction
2013-12-01	Sunny	13	33 - 63	0.0	-	-
2013-12-03	Sunny	19	45 - 80	0.0	5 - 33	NE
2013-12-06	Sunny	13	33 - 63	0.0	3 - 31	NE/N
2013-12-08	Sunny	19	45 - 80	0.0	11 - 33	NE
2013-12-09	Sunny	14	33 - 63	0.0	3 - 34	NE/N
2013-12-10	Sunny	20	64 - 85	Trace	19 - 43	NE/N
2013-12-12	Sunny	22	50 - 78	0.0	19 - 41	NE
2013-12-14	Cloudy	20	55 - 80	0.0	10 - 43	NE
2013-12-15	Cloudy	18	55 - 72	Trace	9 - 50	NE/N
2013-12-17	Cloudy	19	75 - 99	13.0	15 - 41	N
2013-12-18	Cloudy	17	93 - 99	22.7	26 - 52	NE/N
2013-12-19	Fine	12	88 - 99	27.8	13 - 39	NE/N
2013-12-20	Sunny	9	58 - 86	0.0	1 - 32	NW/N
2013-12-22	Fine	9	53 - 74	0.0	8 - 32	NE/N
2013-12-24	Sunny	14	54 - 71	0.0	6 - 31	NW/N

Meteorological Data Extracted from the Hong Kong Observatory

		King's Park Station				
Date	Weather	Average Air Temperature (°C)	Average Relative Humidity (%)	Total Rainfall (mm)	Average Wind Speed (km/h)	Wind Direction
2014-01-02	Sunny	17	61-88	0.0	0-13	SE
2014-01-04	Sunny	19	40-66	0.0	0-15	NE
2014-01-05	Sunny	17	45-79	0.0	0-18	SE/E
2014-01-07	Cloudy	18	70-90	Trace	0-19	SE
2014-01-08	Cloudy	19	65-95	Trace	0-15	NE/W
2014-01-10	Fine	15	72-81	Trace	6-22	SE
2014-01-12	Sunny	18	60-87	0.0	0-16	SE/NE
2014-01-14	Sunny	14	57-75	0.0	0-16	NE/N
2014-01-16	Sunny	14	57-84	0.0	0-16	SE/E
2014-01-19	Sunny	15	54-81	0.0	0-20	SE/E
2014-01-20	Sunny	17	32-77	0.0	0-19	NE/N
2014-01-21	Fine	15	27-41	0.0	3-24	NE
2014-01-22	Sunny	14	31-64	0.0	0-21	NE/W
2014-01-24	Sunny	16	65-85	0.0	0-19	SE
2014-01-26	Sunny	20	54-84	0.0	0-21	SE/N
2014-01-28	Fine	18	54-86	0.0	0-17	SE
2014-01-30	Sunny	19	63-90	0.0	0-13	SE/W

		Tsing Yi Station				
Date	Weather	Average Air Temperature (°C)	Average Relative Humidity (%) *	Total Rainfall (mm)	Average Wind Speed (km/h)	Wind Direction
2014-01-02	Sunny	17	61-88	0.0	1-12	-
2014-01-04	Sunny	19	40-66	0.0	1-18	-
2014-01-05	Sunny	16	45-79	0.0	1-19	-
2014-01-07	Cloudy	19	70-90	Trace	1-21	-
2014-01-08	Cloudy	20	65-95	Trace	1-28	-
2014-01-10	Fine	15	72-81	Trace	4-18	-
2014-01-12	Sunny	18	60-87	0.0	1-17	-
2014-01-14	Sunny	14	57-75	0.0	2-14	-
2014-01-16	Sunny	15	57-84	0.0	1-22	-
2014-01-19	Sunny	15	54-81	0.0	1-14	-
2014-01-20	Sunny	17	32-77	0.0	1-19	-
2014-01-21	Fine	15	27-41	0.0	2-18	-
2014-01-22	Sunny	14	31-64	0.0	1-12	-
2014-01-24	Sunny	16	65-85	0.0	1-22	-
2014-01-26	Sunny	21	54-84	0.0	0-27	-
2014-01-28	Fine	19	54-86	0.0	1-14	-
2014-01-30	Sunny	19	63-90	0.0	0-8	-

		Kai Tak Station				
Date	Weather	Average Air Temperature (°C) *	Average Relative Humidity (%) *	Total Rainfall (mm) *	Average Wind Speed (km/h)	Wind Direction
2014-01-02	Sunny	17	61-88	0.0	6-28	SE/E
2014-01-04	Sunny	19	40-66	0.0	2-17	NW/NE
2014-01-05	Sunny	17	45-79	0.0	1-24	NE/E
2014-01-07	Cloudy	18	70-90	Trace	4-31	SE/E
2014-01-08	Cloudy	19	65-95	Trace	1-21	SE/NW
2014-01-10	Fine	15	72-81	Trace	11-28	E
2014-01-12	Sunny	18	60-87	0.0	1-17	NW/S/NE
2014-01-14	Sunny	14	57-75	0.0	3-19	NW/NE
2014-01-16	Sunny	14	57-84	0.0	3-24	E
2014-01-19	Sunny	15	54-81	0.0	1-24	NE/E
2014-01-20	Sunny	17	32-77	0.0	1-25	N/S
2014-01-21	Fine	15	27-41	0.0	3-21	N
2014-01-22	Sunny	14	31-64	0.0	1-21	NE/SE
2014-01-24	Sunny	16	65-85	0.0	1-28	E
2014-01-26	Sunny	20	54-84	0.0	1-27	E
2014-01-28	Fine	18	54-86	0.0	1-23	E
2014-01-30	Sunny	19	63-90	0.0	1-16	SE

		Green Island Station				
Date	Weather	Average Air Temperature (°C) *	Average Relative Humidity (%) *	Total Rainfall (mm) *	Average Wind Speed (km/h)	Wind Direction
2014-01-02	Sunny	17	61-88	0.0	0-30	NE
2014-01-04	Sunny	19	40-66	0.0	2-27	NE
2014-01-05	Sunny	17	45-79	0.0	14-41	NE
2014-01-07	Cloudy	18	70-90	Trace	11-53	NE
2014-01-08	Cloudy	19	65-95	Trace	1-37	NE/NW
2014-01-10	Fine	15	72-81	Trace	18-50	NE
2014-01-12	Sunny	18	60-87	0.0	2-40	NE/N
2014-01-14	Sunny	14	57-75	0.0	5-40	NE/N
2014-01-16	Sunny	14	57-84	0.0	11-40	NE
2014-01-19	Sunny	15	54-81	0.0	2-40	NE
2014-01-20	Sunny	17	32-77	0.0	0-40	NE/NW
2014-01-21	Fine	15	27-41	0.0	2-48	NE
2014-01-22	Sunny	14	31-64	0.0	1-36	NE/SW
2014-01-24	Sunny	16	65-85	0.0	17-43	NE
2014-01-26	Sunny	20	54-84	0.0	4-50	NE/N
2014-01-28	Fine	18	54-86	0.0	3-31	NE/SW
2014-01-30	Sunny	19	63-90	0.0	1-15	NE/SW

* King's Park's data
 - Data were not available
 # less than 24 hourly observations per day

Meteorological Data Extracted from the Hong Kong Observatory

King's Park Station						
Date	Weather	Average Air Temperature (°C)	Average Relative Humidity (%)	Total Rainfall (mm)	Average Wind Speed (km/h)	Wind Direction
2014/02/03	Sunny	21	52-83	0.0	0-12	NW
2014/02/04	Cloudy	18	78-86	Trace	0-24	SE
2014/02/05	Fine	17	74-94	Trace	8-25	SE
2014/02/07	Fine	21	76-94	Trace	0-14	N/SE
2014/02/09	Cloudy	14	92-99	13.1	0-23	SE/NE
2014/02/11	Cloudy	9	63-78	13.7	0-14	NE/N
2014/02/16	Fine	14	84-92	Trace	2-22	SE
2014/02/17	Fine	18	84-99	0.0	0-17	SE
2014/02/18	Cloudy	17	75-99	Trace	0-18	W/N
2014/02/21	Fine	14	63-86	0.0	0-27	SE/E
2014/02/22	Fine	15	64-85	0.2	3-24	SE/E
2014/02/23	Fine	17	65-87	0.0	4-22	SE/E
2014/02/25	Fine	19	77-95	0.0	0-21	SE
2014/02/27	Cloudy	20	84-93	Trace	0-19	SE
2014/02/28	Cloudy	18	84-90	Trace	2-20	SE

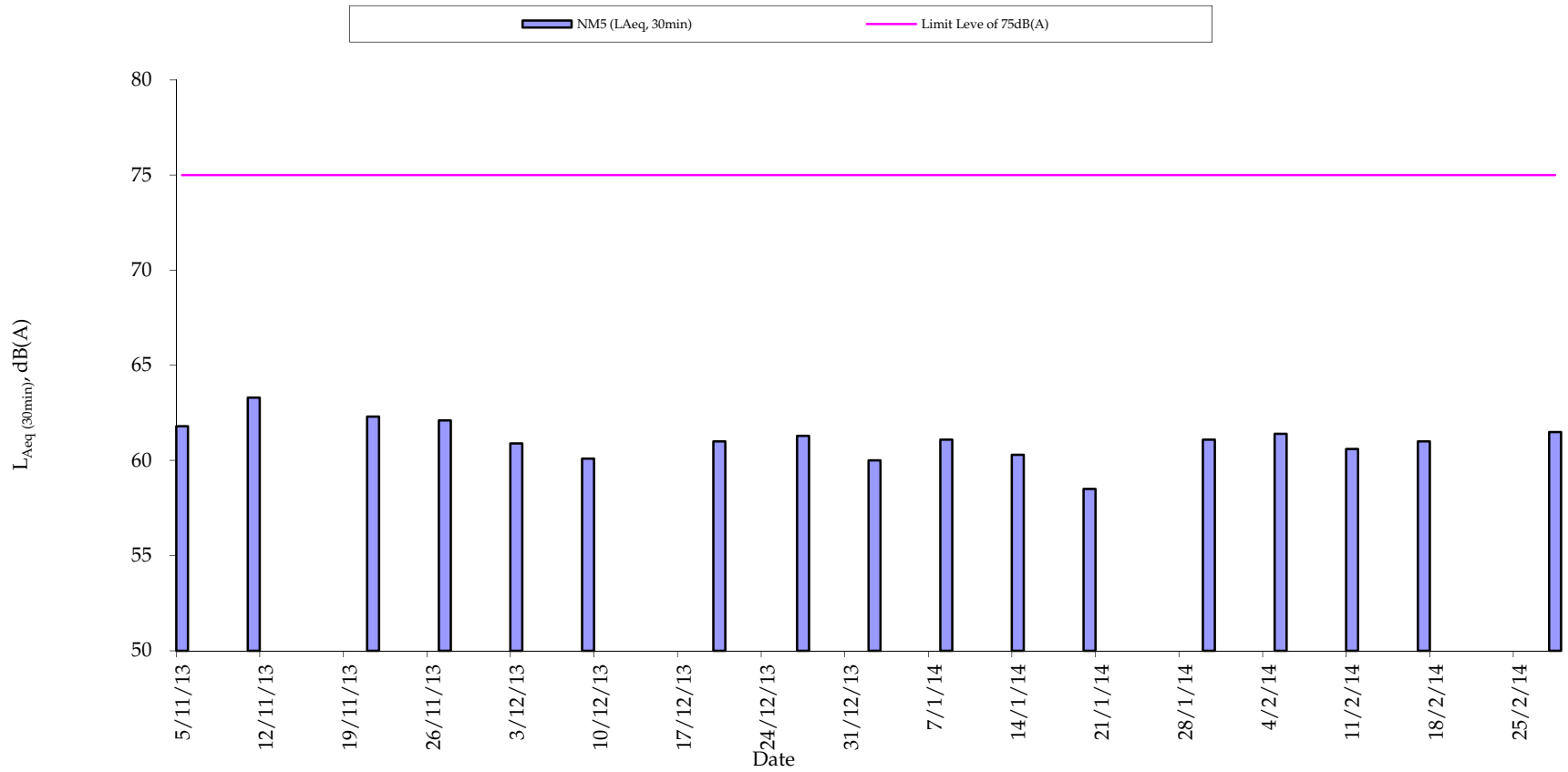
Tsing Yi Station						
Date	Weather	Average Air Temperature (°C)	Average Relative Humidity (%) *	Total Rainfall (mm)	Average Wind Speed (km/h)	Wind Direction
2014/02/03	Sunny	20	52-83	0.0	0-12	NW/S
2014/02/04	Cloudy	18	78-86	Trace	0-25	SE
2014/02/05	Fine	19	74-94	Trace	2-22	SE
2014/02/07	Fine	21	76-94	Trace	0-15	S/E
2014/02/09	Cloudy	13	92-99	13.1	1-21	N/E
2014/02/11	Cloudy	8	63-78	13.7	1-18	NW
2014/02/16	Fine	16	84-92	Trace	1-25	E
2014/02/17	Fine	20	84-99	0.0	1-23	SE/W
2014/02/18	Cloudy	17	75-99	Trace	1-27	NW
2014/02/21	Fine	13	63-86	0.0	2-24	E
2014/02/22	Fine	16	64-85	0.2	5-22	E
2014/02/23	Fine	18	65-87	0.0	3-22	SE/E
2014/02/25	Fine	20	77-95	0.0	1-22	E
2014/02/27	Cloudy	20	84-93	Trace	0-25	E
2014/02/28	Cloudy	20	84-90	Trace	5-21	E

Kai Tak Station						
Date	Weather	Average Air Temperature (°C) *	Average Relative Humidity (%) *	Total Rainfall (mm) *	Average Wind Speed (km/h)	Wind Direction
2014/02/03	Sunny	21	52-83	0.0	0-14	SE/W
2014/02/04	Cloudy	18	78-86	Trace	1-30	E
2014/02/05	Fine	17	74-94	Trace	10-31	E
2014/02/07	Fine	21	76-94	Trace	1-18	SE/E
2014/02/09	Cloudy	14	92-99	13.1	1-25	SE/NW
2014/02/11	Cloudy	9	63-78	13.7	3-18	NW
2014/02/16	Fine	14	84-92	Trace	9-24	SE
2014/02/17	Fine	18	84-99	0.0	1-18	SE
2014/02/18	Cloudy	17	75-99	Trace	1-28	SE/NW
2014/02/21	Fine	14	63-86	0.0	5-38	E
2014/02/22	Fine	15	64-85	0.2	8-29	E
2014/02/23	Fine	17	65-87	0.0	10-32	E
2014/02/25	Fine	19	77-95	0.0	1-24	SE/E
2014/02/27	Cloudy	20	84-93	Trace	2-27	SE/E
2014/02/28	Cloudy	18	84-90	Trace	6-27	SE

Green Island Station						
Date	Weather	Average Air Temperature (°C) *	Average Relative Humidity (%) *	Total Rainfall (mm) *	Average Wind Speed (km/h)	Wind Direction
2014/02/03	Sunny	21	52-83	0.0	0-28	S/NW
2014/02/04	Cloudy	18	78-86	Trace	1-55	NE
2014/02/05	Fine	17	74-94	Trace	20-50	NE
2014/02/07	Fine	21	76-94	Trace	2-26	S/NE
2014/02/09	Cloudy	14	92-99	13.1	8-50	NE/NW
2014/02/11	Cloudy	9	63-78	13.7	11-36	N
2014/02/16	Fine	14	84-92	Trace	19-50	NE
2014/02/17	Fine	18	84-99	0.0	1-33	NE
2014/02/18	Cloudy	17	75-99	Trace	1-52	NW
2014/02/21	Fine	14	63-86	0.0	23-58	NE
2014/02/22	Fine	15	64-85	0.2	24-62	NE
2014/02/23	Fine	17	65-87	0.0	18-62	NE
2014/02/25	Fine	19	77-95	0.0	13-40	NE
2014/02/27	Cloudy	20	84-93	Trace	2-47	NE
2014/02/28	Cloudy	18	84-90	Trace	21-49	NE

* King's Park's data
 - Data were not available
 # less than 24 hourly observations per day

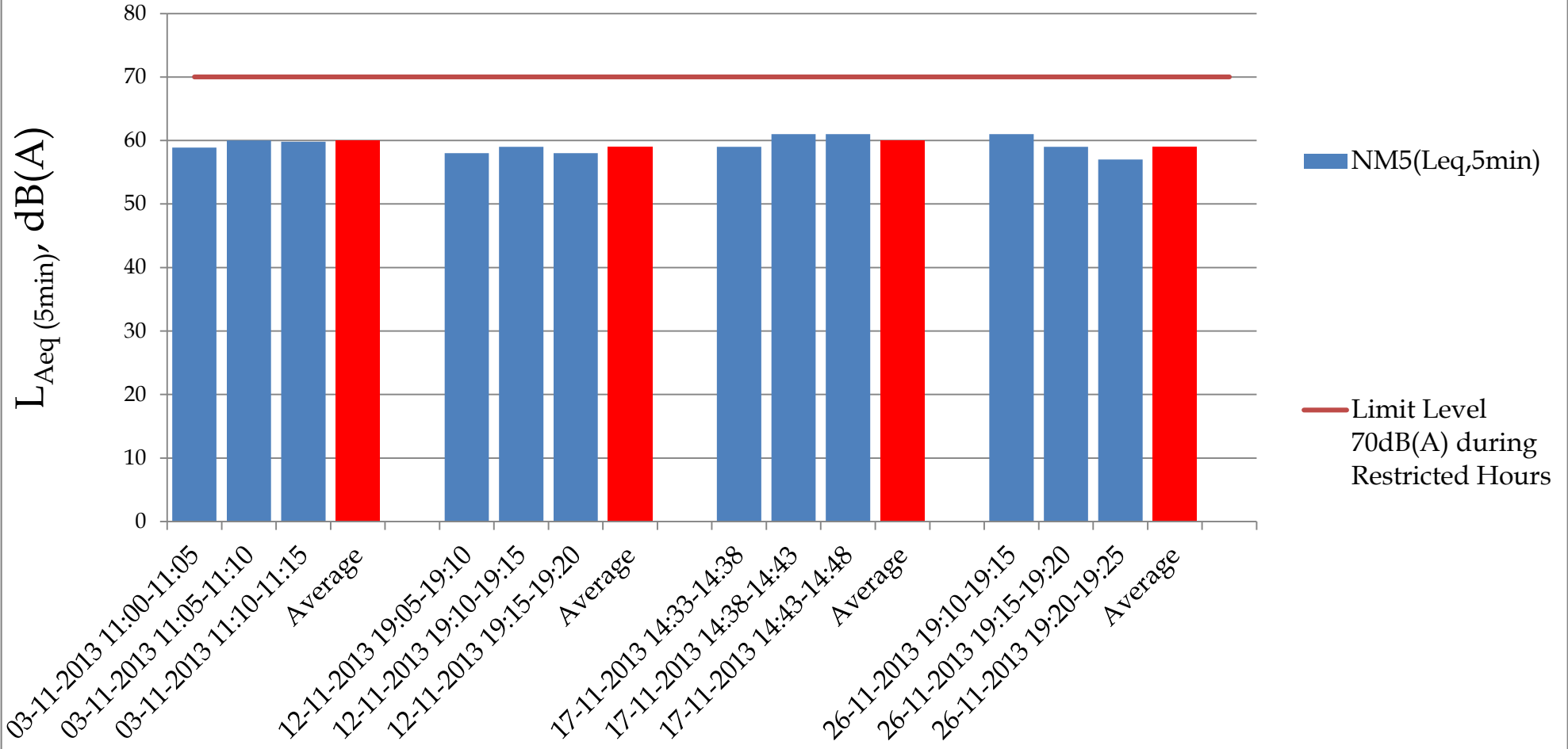
Nromal Weekdays Noise Monitoring Results at NM5 ($L_{Aeq, 30min}$)



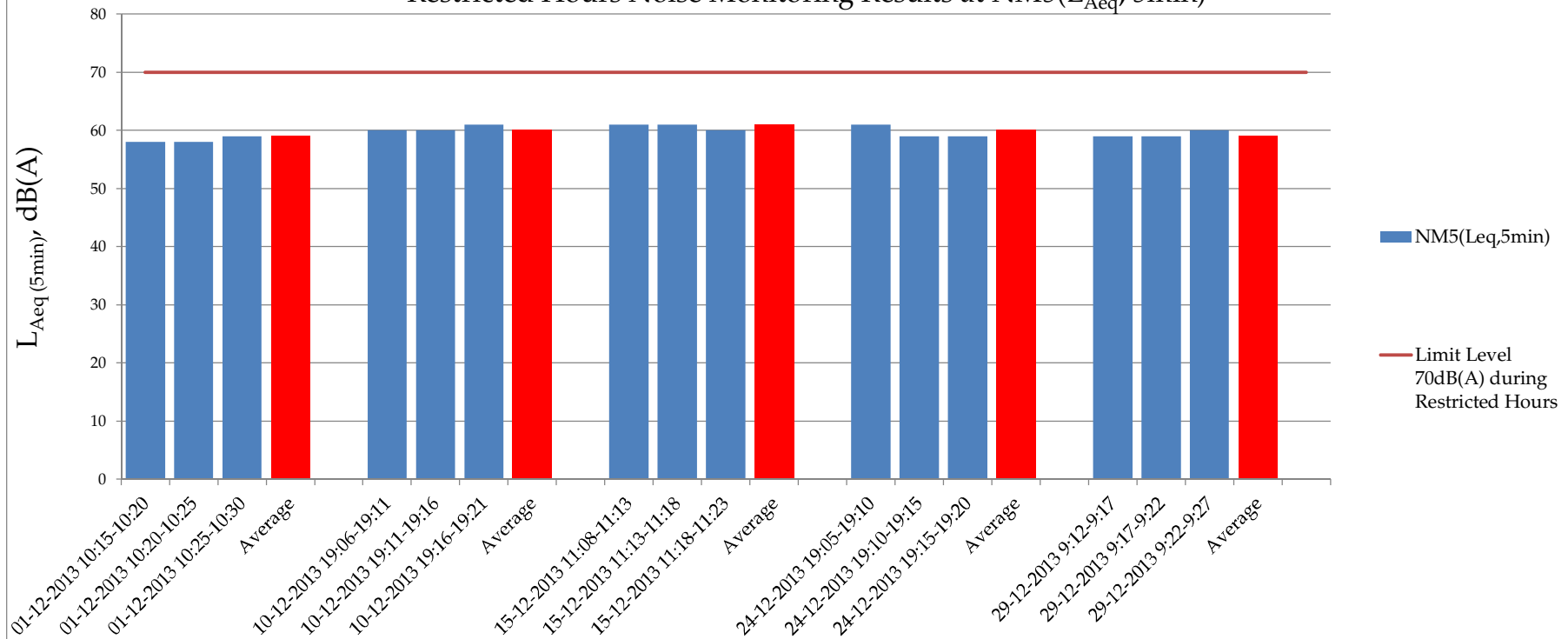
Remark:

- 75dB(A) was adopted as the Limit Level during normal weekdays in the reporting period

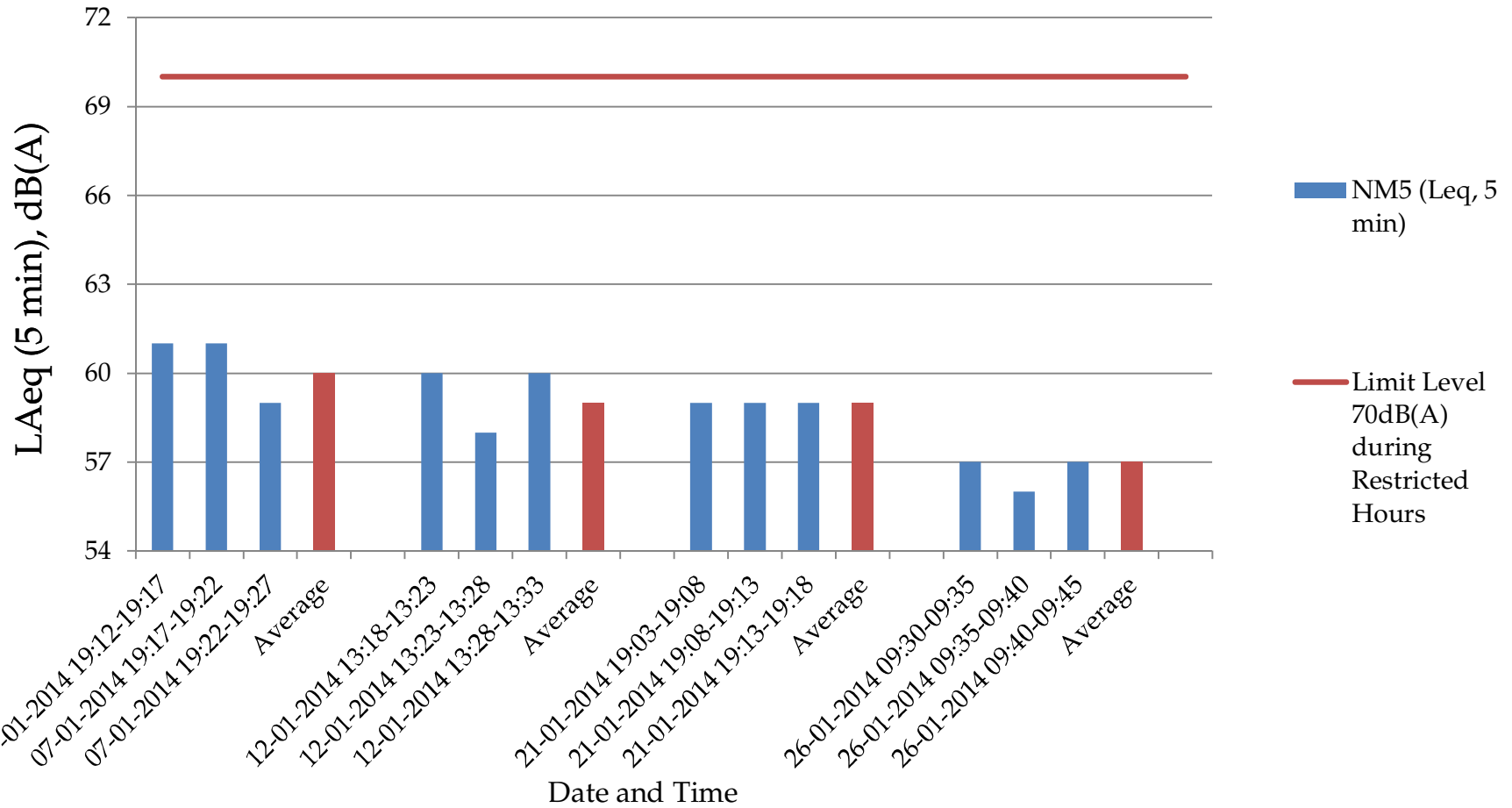
Restricted Hours Noise Monitoring Results at NM5 (L_{Aeq} 5min)



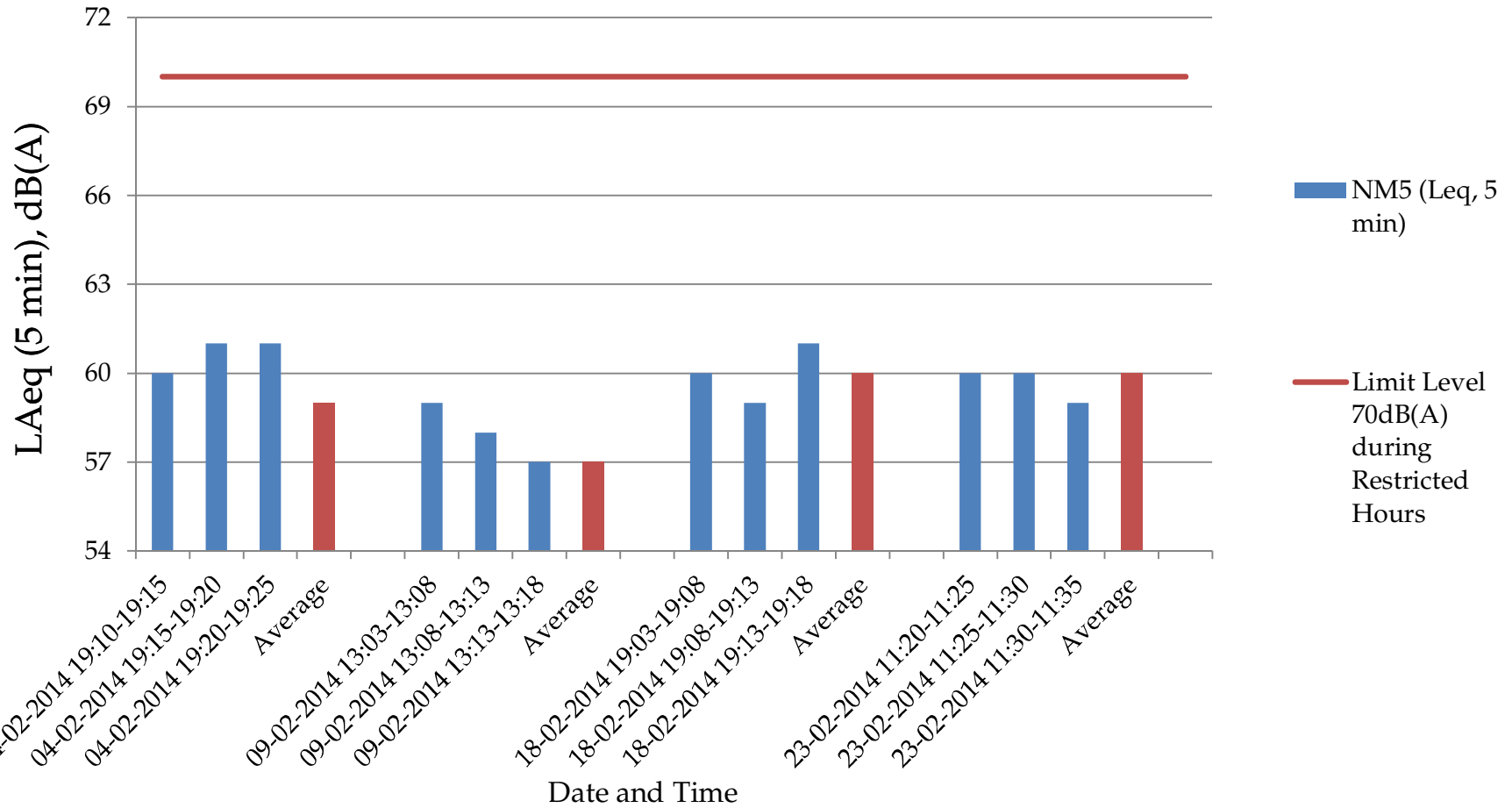
Restricted Hours Noise Monitoring Results at NM5(L_{Aeq}, 5min)



Restricted Noise Monitoring at NM5 (LAeq, 5 min)



Restricted Noise Monitoring at NM5 (LAeq, 5 min)



Annex G7 Cumulative Complaint and Summons/Prosecutions Log

Reporting Month	Number of Complaints in Reporting Month	Number of Summons/Prosecutions in Reporting Month
December 2009	0	0
January 2010	0	0
February 2010	0	0
March 2010	0	0
April 2010	0	0
May 2010	0	0
June 2010	0	0
July 2010	0	0
August 2010	0	0
September 2010	0	0
October 2010	0	0
November 2010	0	0
December 2010	0	0
January 2011	0	0
February 2011	0	0
March 2011	0	0
April 2011	0	0
May 2011	0	0

Annex G7 Cumulative Complaint and Summons/Prosecutions Log

Reporting Month	Number of Complaints in Reporting Month	Number of Summons/Prosecutions in Reporting Month
June 2011	0	0
July 2011	0	0
August 2011	0	0
September 2011	0	0
October 2011	0	0
November 2011	0	0
December 2011	0	0
January 2012	0	0
February 2012	0	0
March 2012	0	0
April 2012	0	0
May 2012	0	0
June 2012	0	0
July 2012	0	0
August 2012	0	0
September 2012	0	0
October 2012	0	0
November 2012	0	0

Annex G7 Cumulative Complaint and Summons/Prosecutions Log

Reporting Month	Number of Complaints in Reporting Month	Number of Summons/Prosecutions in Reporting Month
December 2012	0	0
January 2013	0	0
February 2013	0	0
March 2013	0	0
April 2013	0	0
May 2013	0	0
June 2013	0	0
July 2013	1	0
August 2013	0	0
September 2013	0	0
October 2013	0	0
November 2013	0	0
December 2013	0	0
January 2014	0	0
February 2014	0	0
Overall Total	1	0

Annex H

Calibration Reports for HVSs and Sound Level Meters for All Sites

TSP Monitoring Equipment

Monitoring Station ID	Location	Monitoring Equipment		Last Calibration Date	Next Calibration Date
<i>24-hr and 1-hr TSP</i>		HVS	Calibrator		
AM1	Chan's Creative School (formerly known as Madam Chan Wai Chow Memorial School)	GMW GS-2310 (S/N 1808)	CM-AIR-43 (S/N 0438320)	18 November 2013	18 January 2014
AM1	Chan's Creative School (formerly known as Madam Chan Wai Chow Memorial School)	GMW GS-2310 (S/N 1808)	CM-AIR-43 (S/N 0438320)	18 January 2014	18 March 2014
AM2	Rooftop of Hong Kong & Islands Regional Office, WSD	GMW GS-2310 (S/N 0145)	CM-AIR-43 (S/N 0438320)	18 November 2013	18 January 2014
AM2	Rooftop of Hong Kong & Islands Regional Office, WSD	GMW GS-2310 (S/N 0145)	CM-AIR-43 (S/N 0438320)	18 January 2014	18 March 2014
AM3	Rooftop of Wan Chai East PTW	GMW GS-2310 (S/N 0481)	CM-AIR-43 (S/N 0438320)	18 November 2013	18 January 2014
AM3	Rooftop of Wan Chai East PTW	GMW GS-2310 (S/N 0481)	CM-AIR-43 (S/N 0438320)	18 January 2014	18 March 2014
AM4_2	A location next to Sheung Wan Fire Station	GMW GS-2310 (S/N 9315)	CM-AIR-43 (S/N 0438320)	18 November 2013	18 January 2014
AM4_2	A location next to Sheung Wan Fire Station	GMW GS-2310 (S/N 9315)	CM-AIR-43 (S/N 0438320)	18 January 2014	18 March 2014
AM5	Western Wholesale Food Market	TE-5170 (S/N 2146)	CM-AIR-43 (S/N 0438320)	22 November 2013	22 January 2014
AM5	Western Wholesale Food Market	TE-5170 (S/N 2146)	CM-AIR-43 (S/N 0438320)	18 January 2014	18 March 2014

Monitoring Station ID	Location	Monitoring Equipment		Last Calibration Date	Next Calibration Date
AM6	Works Site Boundary	GMW GS-2310 (S/N 1254)	CM-AIR-43 (S/N 0438320)	18 November 2013	18 January 2014
AM6	Works Site Boundary	GMW GS-2310 (S/N 1254)	CM-AIR-43 (S/N 0438320)	18 January 2014	18 March 2014

Monitoring Equipment

Monitoring Station ID	Monitoring Equipment	Model & Serial No.	Last Calibration Date	Next Calibration Date
NM1 – NM5 ^(a)	Calibrator	Rion NC-73 (S/N 10997142)	12 July 2013	12 July 2014
	Sound Level Meter	Rion NL-31 (S/N 00410224)	14 June 2013	14 June 2014

Remarks

Monitoring Station ID	Location
NM1	Rooftop of Chan's Creative School (formerly known as Madam Chan Wai Chow Memorial School)
NM2	Rooftop of Hyde Building
NM3	Rooftop of Goldfield Building
NM4	Rooftop of Block A, Kwan Yick Building Phase III
NM5	A Location near the FSD Diving Rescue and Diving Training Centre near the Site Boundary

High-Volume TSP Sampler
5-Point Calibration Record

Location : AM1
Calibrated by : K.T.Ho
Date : 18/11/2013

Sampler

Model : GMWS-2310 ACCU-VOL
Serial Number : S/N 1808

Calibration Orifice and Standard Calibration Relationship

Serial Number : 2323
Service Date : 26 Dec 2012
Slope (m) : 2.09107
Intercept (b) : -0.02838
Correlation Coefficient(r) : 0.99996

Standard Condition

Pstd (hpa) : 1013
Tstd (K) : 298.18

Calibration Condition

Pa (hpa) : 1018
Ta(K) : 295

Resistance Plate		dH [green liquid] (inch water)	Z	X=Qstd (cubic meter/min)	IC	Y
1	18 holes	11.6	3.403	1.642	62	61.95
2	13 holes	9.4	3.063	1.478	55	54.95
3	10 holes	6.3	2.508	1.213	45	44.96
4	7 holes	4.9	2.212	1.071	39	38.97
5	5 holes	2.7	1.642	0.799	27	26.98

Sampler Calibration Relationship

Slope(m): 41.078 Intercept(b): -5.395 Correlation Coefficient(r): 0.9995

Checked by: Magnum Fan

Date: 22/11/2013

High-Volume TSP Sampler
5-Point Calibration Record

Location : AM1
Calibrated by : K.T.Ho
Date : 18/01/2014

Sampler

Model : GMWS-2310 ACCU-VOL
Serial Number : S/N 1808

Calibration Orifice and Standard Calibration Relationship

Serial Number : 2454
Service Date : 12 Mar 2013
Slope (m) : 2.05818
Intercept (b) : 0.01929
Correlation Coefficient(r) : 0.99991

Standard Condition

Pstd (hpa) : 1013
Tstd (K) : 298.18

Calibration Condition

Pa (hpa) : 1026
Ta(K) : 291

Resistance Plate		dH [green liquid] (inch water)	Z	X=Qstd (cubic meter/min)	IC	Y
1	18 holes	11.6	3.469	1.676	62	63.14
2	13 holes	9.3	3.106	1.500	54	55.00
3	10 holes	6.5	2.596	1.252	44	44.81
4	7 holes	4.9	2.254	1.086	38	38.70
5	5 holes	2.8	1.704	0.819	27	27.50

Sampler Calibration Relationship

Slope(m): 41.147 Intercept(b): -6.282 Correlation Coefficient(r): 0.9995

Checked by: Magnum Fan

Date: 22/01/2014

High-Volume TSP Sampler
5-Point Calibration Record

Location : AM2
Calibrated by : K.T.Ho
Date : 18/11/2013

Sampler

Model : GMWS-2310 ACCU-VOL
Serial Number : S/N 0145

Calibration Orifice and Standard Calibration Relationship

Serial Number : 2323
Service Date : 26 Dec 2012
Slope (m) : 2.09107
Intercept (b) : -0.02838
Correlation Coefficient(r) : 0.99996

Standard Condition

Pstd (hpa) : 1013
Tstd (K) : 298.18

Calibration Condition

Pa (hpa) : 1018
Ta(K) : 295

Resistance Plate	dH [green liquid] (inch water)	Z	X=Qstd (cubic meter/min)	IC	Y
1 18 holes	10.3	3.1907	1.539	57	56.67
2 13 holes	8.5	2.899	1.400	52	51.70
3 10 holes	6.6	2.554	1.235	45	44.74
4 7 holes	4.4	2.085	1.011	35	34.80
5 5 holes	2.3	1.508	0.735	24	23.86

Sampler Calibration Relationship

Slope(m): 41.347 Intercept(b): -6.559 Correlation Coefficient(r): 0.9996

Checked by: Magnum Fan

Date: 22/11/2013

High-Volume TSP Sampler
5-Point Calibration Record

Location : AM2
 Calibrated by : K.T.Ho
 Date : 18/01/2014

Sampler

Model : GMWS-2310 ACCU-VOL
 Serial Number : S/N 0145

Calibration Orifice and Standard Calibration Relationship

Serial Number : 2454
 Service Date : 12 Mar 2013
 Slope (m) : 2.05818
 Intercept (b) : 0.01929
 Correlation Coefficient(r) : 0.99991

Standard Condition

Pstd (hpa) : 1013
 Tstd (K) : 298.18

Calibration Condition

Pa (hpa) : 1026
 Ta(K) : 291

Resistance Plate	dH [green liquid] (inch water)	Z	X=Qstd (cubic meter/min)	IC	Y
1 18 holes	10.4	3.284	1.586	58	59.07
2 13 holes	8.4	2.952	1.425	51	51.94
3 10 holes	6.6	2.616	1.262	45	45.83
4 7 holes	4.4	2.136	1.029	34	34.63
5 5 holes	2.3	1.545	0.741	23	23.42

Sampler Calibration Relationship

Slope(m):42.442 Intercept(b): -8.314 Correlation Coefficient(r): 0.9996

Checked by: Magnum Fan

Date: 22/01/2014

High-Volume TSP Sampler
5-Point Calibration Record

Location : AM3
 Calibrated by : K.T.Ho
 Date : 18/11/2013

Sampler

Model : GMWS-2310 ACCU-VOL
 Serial Number : S/N 0481

Calibration Orifice and Standard Calibration Relationship

Serial Number : 2323
 Service Date : 26 Dec 2012
 Slope (m) : 2.09107
 Intercept (b) : -0.02838
 Correlation Coefficient(r) : 0.99996

Standard Condition

Pstd (hpa) : 1013
 Tstd (K) : 298.18

Calibration Condition

Pa (hpa) : 1018
 Ta(K) : 295

Resistance Plate		dH [green liquid] (inch water)	Z	X=Qstd (cubic meter/min)	IC	Y
1	18 holes	11.5	3.371	1.626	63	62.63
2	13 holes	8.9	2.966	1.432	55	54.68
3	10 holes	7.1	2.649	1.280	48	47.72
4	7 holes	4.7	2.155	1.044	36	35.79
5	5 holes	2.9	1.693	0.823	27	26.84

Sampler Calibration Relationship

Slope(m):45.419 Intercept(b): -10.838 Correlation Coefficient(r): 0.9993

Checked by: Magnum Fan

Date: 22/11/2013

High-Volume TSP Sampler
5-Point Calibration Record

Location : AM3
 Calibrated by : K.T.Ho
 Date : 18/01/2014

Sampler

Model : GMWS-2310 ACCU-VOL
 Serial Number : S/N 0481

Calibration Orifice and Standard Calibration Relationship

Serial Number : 2454
 Service Date : 12 Mar 2013
 Slope (m) : 2.05818
 Intercept (b) : 0.01929
 Correlation Coefficient(r) : 0.99991

Standard Condition

Pstd (hpa) : 1013
 Tstd (K) : 298.18

Calibration Condition

Pa (hpa) : 1026
 Ta(K) : 291

Resistance Plate		dH [green liquid] (inch water)	Z	X=Qstd (cubic meter/min)	IC	Y
1	18 holes	11.5	3.454	1.669	63	64.16
2	13 holes	8.8	3.021	1.459	54	55.00
3	10 holes	7.0	2.695	1.300	47	47.87
4	7 holes	4.7	2.208	1.063	36	36.66
5	5 holes	2.8	1.704	0.819	26	26.48

Sampler Calibration Relationship

Slope(m): 44.701 Intercept(b): -10.370 Correlation Coefficient(r): 0.9998

Checked by: Magnum Fan

Date: 22/01/2014

High-Volume TSP Sampler
5-Point Calibration Record

Location : AM4_2
 Calibrated by : K.T.Ho
 Date : 18/11/2013

Sampler

Model : GMWS-2310 ACCU-VOL
 Serial Number : S/N 9315

Calibration Orifice and Standard Calibration Relationship

Serial Number : 2323
 Service Date : 26 Dec 2012
 Slope (m) : 2.09107
 Intercept (b) : -0.02838
 Correlation Coefficient(r) : 0.99996

Standard Condition

Pstd (hpa) : 1013
 Tstd (K) : 298.18

Calibration Condition

Pa (hpa) : 1018
 Ta(K) : 295

Resistance Plate	dH [green liquid] (inch water)	Z	X=Qstd (cubic meter/min)	IC	Y
1 18 holes	10.5	3.209	1.548	61	60.40
2 13 holes	8.5	2.887	1.394	54	53.47
3 10 holes	6.8	2.582	1.248	47	46.54
4 7 holes	4.6	2.124	1.029	39	38.62
5 5 holes	2.6	1.596	0.777	27	26.74

Sampler Calibration Relationship

Slope(m):43.055 Intercept(b): -6.486 Correlation Coefficient(r): 0.9991

Checked by: Magnum Fan

Date: 22/11/2013

High-Volume TSP Sampler
5-Point Calibration Record

Location : AM4_2
 Calibrated by : K.T.Ho
 Date : 18/01/2014

Sampler

Model : GMWS-2310 ACCU-VOL
 Serial Number : S/N 9315

Calibration Office and Standard Calibration Relationship

Serial Number : 2454
 Service Date : 12 Mar 2013
 Slope (m) : 2.05818
 Intercept (b) : 0.01929
 Correlation Coefficient(r) : 0.99991

Standard Condition

Pstd (hpa) : 1013
 Tstd (K) : 298.18

Calibration Condition

Pa (hpa) : 1026
 Ta(K) : 291

Resistance Plate	dH [green liquid] (inch water)	Z	X=Qstd (cubic meter/min)	IC	Y
1 18 holes	10.4	3.284	1.586	62	63.14
2 13 holes	8.4	2.952	1.425	56	57.03
3 10 holes	6.7	2.636	1.271	48	48.88
4 7 holes	4.6	2.184	1.052	39	39.72
5 5 holes	2.7	1.673	0.804	28	28.52

Sampler Calibration Relationship

Slope(m):44.641 Intercept(b): -7.343 Correlation Coefficient(r): 0.9993

Checked by: Magnum Fan

Date: 22/01/2014

High-Volume TSP Sampler
5-Point Calibration Record

Location : Sai Ying Pun
 Calibrated by : K.T.Ho
 Date : 22/11/2013

Sampler

Model : TE-5170
 Serial Number : S/N 2146

Calibration Orifice and Standard Calibration Relationship

Serial Number : 2323
 Service Date : 26 Dec 2012
 Slope (m) : 2.09107
 Intercept (b) : -0.02838
 Correlation Coefficient(r) : 0.99996

Standard Condition

Pstd (hpa) : 1013
 Tstd (K) : 298.18

Calibration Condition

Pa (hpa) : 1018
 Ta(K) : 294

Resistance Plate	dH [green liquid] (inch water)	Z	X=Qstd (cubic meter/min)	IC	Y
1 18 holes	10.8	3.317	1.600	60	60.56
2 13 holes	9.3	3.078	1.485	55	55.51
3 10 holes	7.8	2.819	1.362	50	50.46
4 7 holes	4.8	2.211	1.071	39	39.36
5 5 holes	2.8	1.689	0.821	28	28.26

Sampler Calibration Relationship

Slope(m): 40.991 Intercept(b): -5.037 Correlation Coefficient(r): 0.9996

Checked by: Magnum Fan

Date: 26/11/2013

High-Volume TSP Sampler
5-Point Calibration Record

Location : Sai Ying Pun
Calibrated by : K.T.Ho
Date : 18/01/2014

Sampler

Model : TE-5170
Serial Number : S/N 2146

Calibration Orifice and Standard Calibration Relationship

Serial Number : 2454
Service Date : 12 Mar 2013
Slope (m) : 2.05818
Intercept (b) : 0.01929
Correlation Coefficient(r) : 0.99991

Standard Condition

Pstd (hpa) : 1013
Tstd (K) : 298.18

Calibration Condition

Pa (hpa) : 1026
Ta(K) : 281

Resistance Plate	dH [green liquid] (inch water)	Z	X=Qstd (cubic meter/min)	IC	Y
1 18 holes	10.4	3.343	1.615	58	60.13
2 13 holes	8.6	3.040	1.468	52	53.91
3 10 holes	6.7	2.683	1.294	46	47.69
4 7 holes	4.5	2.199	1.059	37	38.36
5 5 holes	2.6	1.672	0.803	27	28.00

Sampler Calibration Relationship

Slope(m): 39.289 Intercept(b): -3.411 Correlation Coefficient(r): 0.9995

Checked by: Magnum Fan

Date: 22/01/2014

High-Volume TSP Sampler
5-Point Calibration Record9

Location : AM6
Calibrated by : P.F. Yeung
Date : 18/11/2013

Sampler

Model : GMWS-2310 ACCU-VOL
Serial Number : S/N 1254

Calibration Orifice and Standard Calibration Relationship

Serial Number : 2323
Service Date : 26 Dec 2012
Slope (m) : 2.09107
Intercept (b) : -0.02838
Correlation Coefficient(r) : 0.99996

Standard Condition

Pstd (hpa) : 1013
Tstd (K) : 298.18

Calibration Condition

Pa (hpa) : 1018
Ta(K) : 295

Resistance Plate		dH [green liquid] (inch water)	Z	X=Qstd (cubic meter/min)	IC	Y
1	18 holes	10.2	3.191	1.540	57	56.95
2	13 holes	8.5	2.913	1.407	51	50.96
3	10 holes	6.5	2.547	1.232	45	44.96
4	7 holes	4.5	2.119	1.027	38	37.97
5	5 holes	2.8	1.672	0.813	30	29.97

Sampler Calibration Relationship

Slope(m): 36.430 Intercept(b): 0.313 Correlation Coefficient(r): 0.9992

Checked by: Magnum Fan

Date: 22/11/2013

High-Volume TSP Sampler
5-Point Calibration Record9

Location : AM6
 Calibrated by : P.F. Yeung
 Date : 18/01/2014

Sampler

Model : GMWS-2310 ACCU-VOL
 Serial Number : S/N 1254

Calibration Orifice and Standard Calibration Relationship

Serial Number : 2323
 Service Date : 26 Dec 2012
 Slope (m) : 2.09107
 Intercept (b) : -0.02838
 Correlation Coefficient(r) : 0.99996

Standard Condition

Pstd (hpa) : 1013
 Tstd (K) : 298.18

Calibration Condition

Pa (hpa) : 1026
 Ta(K) : 291

Resistance Plate		dH [green liquid] (inch water)	Z	X=Qstd (cubic meter/min)	IC	Y
1	18 holes	10.8	3.347	1.617	58	59.07
2	13 holes	8.5	2.969	1.433	52	52.96
3	10 holes	6.8	2.656	1.281	45	45.83
4	7 holes	4.5	2.160	1.040	36	36.66
5	5 holes	3.2	1.822	0.875	30	30.55

Sampler Calibration Relationship

Slope(m):39.082 Intercept(b):-3.815 Correlation Coefficient(r):0.9991

Checked by: Magnum Fan

Date: 22/01/2014



TISCH ENVIRONMENTAL, INC.
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AIR POLLUTION MONITORING EQUIPMENT

ORIFICE TRANSFER STANDARD CERTIFICATION WORKSHEET TE-5025A

Date - Dec 26, 2012 Rootsmeter S/N 0438320 Ta (K) - 295
 Operator Tisch Orifice I.D. - 2323 Pa (mm) - 753.11

PLATE OR Run #	VOLUME START (m3)	VOLUME STOP (m3)	DIFF VOLUME (m3)	DIFF TIME (min)	METER	ORFICE
					DIFF Hg (mm)	DIFF H2O (in.)
1	NA	NA	1.00	1.4440	3.2	2.00
2	NA	NA	1.00	1.0240	6.4	4.00
3	NA	NA	1.00	0.9120	8.0	5.00
4	NA	NA	1.00	0.8720	8.8	5.50
5	NA	NA	1.00	0.7200	12.8	8.00

DATA TABULATION

Vstd	(x axis) Qstd	(y axis)	Va	(x axis) Qa	(y axis)
0.9967	0.6902	1.4149	0.9957	0.6896	0.8851
0.9925	0.9693	2.0010	0.9915	0.9683	1.2517
0.9903	1.0858	2.2372	0.9893	1.0847	1.3995
0.9893	1.1345	2.3464	0.9883	1.1334	1.4678
0.9840	1.3666	2.8299	0.9830	1.3652	1.7702
Qstd slope (m) = 2.09107			Qa slope (m) = 1.30939		
intercept (b) = -0.02838			intercept (b) = -0.01775		
coefficient (r) = 0.99996			coefficient (r) = 0.99996		
y axis = SQRT[H2O(Pa/760)(298/Ta)]			x axis = SQRT[H2O(Ta/Pa)]		

CALCULATIONS

Vstd = Diff. Vol [(Pa-Diff. Hg)/760] (298/Ta)
 Qstd = Vstd/Time

Va = Diff Vol [(Pa-Diff Hg)/Pa]
 Qa = Va/Time

For subsequent flow rate calculations:

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

Certificate of Calibration

校正證書

Certificate No. : C133573
證書編號

ITEM TESTED / 送檢項目 (Job No. / 序引編號 : IC13-1422)

Description / 儀器名稱 : Sound Level Meter
Manufacturer / 製造商 : Rion
Model No. / 型號 : NL-31
Serial No. / 編號 : 00410224
Supplied By / 委託者 : Envirotech Services Co.
Shop 6, G/F., Casio Mansion, 209 Shaukeiwan Road,
Hong Kong

TEST CONDITIONS / 測試條件

Temperature / 溫度 : $(23 \pm 2)^{\circ}\text{C}$ Relative Humidity / 相對濕度 : $(55 \pm 20)\%$
Line Voltage / 電壓 : ---

TEST SPECIFICATIONS / 測試規範

Calibration check

DATE OF TEST / 測試日期 : 14 June 2013

TEST RESULTS / 測試結果

The results apply to the particular unit-under-test only.
All results are within manufacturer's specification.
The results are detailed in the subsequent page(s).

The test equipment used for calibration are traceable to National Standards via :

- The Government of The Hong Kong Special Administrative Region Standard & Calibration Laboratory
- Rohde & Schwarz Laboratory, Germany
- Fluke Everett Service Center, USA
- Agilent Technologies, USA

Tested By : 
測試 : K C Lee

Certified By : 
核證 : K K Wong

Date of Issue : 17 June 2013
簽發日期

The test equipment used for calibration are traceable to the Nation Standards as specified in this certificate. This certificate shall not be reproduced except in full, without the prior written approval of this laboratory.

本證書所載校正用之測試器材均可溯源至國際標準。局部複印本證書需先獲本實驗室所書面批准。

Certificate of Calibration

校正證書

Certificate No. : C133573
證書編號

- The unit-under-test (UUT) was allowed to stabilize in the laboratory for over 12 hours, and switched on to warm up for over 10 minutes before the commencement of the test.
- Self-calibration was performed before the test.
- The results presented are the mean of 3 measurements at each calibration point.
- Test equipment :

Equipment ID	Description	Certificate No.
CL280	40 MHz Arbitrary Waveform Generator	C130019
CL281	Multifunction Acoustic Calibrator	DC110233

- Test procedure : MA101N.
- Results :

6.1 Sound Pressure Level

6.1.1 Reference Sound Pressure Level

UUT Setting				Applied Value		UUT Reading (dB)	IEC 61672 Class 1 Spec. (dB)
Range (dB)	Mode	Frequency Weighting	Time Weighting	Level (dB)	Freq. (kHz)		
30 - 120	L _A	A	Fast	94.00	1	93.6	± 1.1

6.1.2 Linearity

UUT Setting				Applied Value		UUT Reading (dB)
Range (dB)	Mode	Frequency Weighting	Time Weighting	Level (dB)	Freq. (kHz)	
30 - 120	L _A	A	Fast	94.00	1	93.6 (Ref.)
				104.00		103.6
				114.00		113.6

IEC 61672 Class 1 Spec. : ± 0.6 dB per 10 dB step and ± 1.1 dB for overall different.

6.2 Time Weighting

UUT Setting				Applied Value		UUT Reading (dB)	IEC 61672 Class 1 Spec. (dB)
Range (dB)	Mode	Frequency Weighting	Time Weighting	Level (dB)	Freq. (kHz)		
30 - 120	L _A	A	Fast	94.00	1	93.6	Ref.
			Slow			93.5	± 0.3

The test equipment used for calibration are traceable to the Nation Standards as specified in this certificate. This certificate shall not be reproduced except in full, without the prior written approval of this laboratory.

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Certificate of Calibration 校正證書

Certificate No. : C133573
證書編號

6.3 Frequency Weighting

6.3.1 A-Weighting

UUT Setting				Applied Value		UUT Reading (dB)	IEC 61672 Class 1 Spec. (dB)
Range (dB)	Mode	Frequency Weighting	Time Weighting	Level (dB)	Freq.		
30 - 120	L _A	A	Fast	94.00	63 Hz	67.3	-26.2 ± 1.5
					125 Hz	77.3	-16.1 ± 1.5
					250 Hz	84.9	-8.6 ± 1.4
					500 Hz	90.3	-3.2 ± 1.4
					1 kHz	93.6	Ref.
					2 kHz	94.9	+1.2 ± 1.6
					4 kHz	94.8	+1.0 ± 1.6
					8 kHz	92.6	-1.1 (+2.1 ; -3.1)
					12.5 kHz	89.7	-4.3 (+3.0 ; -6.0)

6.3.2 C-Weighting

UUT Setting				Applied Value		UUT Reading (dB)	IEC 61672 Class 1 Spec. (dB)
Range (dB)	Mode	Frequency Weighting	Time Weighting	Level (dB)	Freq.		
30 - 120	L _C	C	Fast	94.00	63 Hz	92.7	-0.8 ± 1.5
					125 Hz	93.4	-0.2 ± 1.5
					250 Hz	93.6	0.0 ± 1.4
					500 Hz	93.7	0.0 ± 1.4
					1 kHz	93.7	Ref.
					2 kHz	93.5	-0.2 ± 1.6
					4 kHz	93.0	-0.8 ± 1.6
					8 kHz	90.7	-3.0 (+2.1 ; -3.1)
					12.5 kHz	87.9	-6.2 (+3.0 ; -6.0)

Remarks : - UUT Microphone Model No. : UC-53A & S/N : 307154

- Mfr's Spec. : IEC 61672 Class 1

- Uncertainties of Applied Value : 94 dB : 63 Hz - 125 Hz : ± 0.35 dB
 250 Hz - 500 Hz : ± 0.30 dB
 1 kHz : ± 0.20 dB
 2 kHz - 4 kHz : ± 0.35 dB
 8 kHz : ± 0.45 dB
 12.5 kHz : ± 0.70 dB
 104 dB : 1 kHz : ± 0.10 dB (Ref. 94 dB)
 114 dB : 1 kHz : ± 0.10 dB (Ref. 94 dB)

- The uncertainties are for a confidence probability of not less than 95 %.

Note :

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

The test equipment used for calibration are traceable to the Nation Standards as specified in this certificate. This certificate shall not be reproduced except in full, without the prior written approval of this laboratory.

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Certificate of Calibration

校正證書

Certificate No. : C134307
證書編號**ITEM TESTED / 送檢項目 (Job No. / 序引編號 : IC13-1709)**

Description / 儀器名稱 : Sound Level Calibrator
Manufacturer / 製造商 : Rion
Model No. / 型號 : NC-73
Serial No. / 編號 : 10997142
Supplied By / 委託者 : Envirotech Services Co.
Shop 6, G/F., Casio Mansion, 209 Shaukeiwan Road,
Hong Kong

TEST CONDITIONS / 測試條件

Temperature / 溫度 : (23 ± 2)°C
Line Voltage / 電壓 : ---
Relative Humidity / 相對濕度 : (55 ± 20)%

TEST SPECIFICATIONS / 測試規範

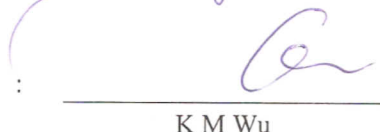
Calibration check

DATE OF TEST / 測試日期 : 12 July 2013**TEST RESULTS / 測試結果**

The results apply to the particular unit-under-test only.
All results are within manufacturer's specification.
The results are detailed in the subsequent page(s).

The test equipment used for calibration are traceable to National Standards via :

- The Government of The Hong Kong Special Administrative Region Standard & Calibration Laboratory
- Rohde & Schwarz Laboratory, Germany
- Fluke Everett Service Center, USA
- Agilent Technologies, USA

Tested By
測試
K C LeeCertified By
核證
K M WuDate of Issue
簽發日期

15 July 2013

The test equipment used for calibration are traceable to the Nation Standards as specified in this certificate. This certificate shall not be reproduced except in full, without the prior written approval of this laboratory.

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Certificate of Calibration

校正證書

Certificate No. : C134307
證書編號

- The unit-under-test (UUT) was allowed to stabilize in the laboratory for over 12 hours before the commencement of the test.
- The results presented are the mean of 3 measurements at each calibration point.
- Test equipment :

Equipment ID	Description	Certificate No.
CL130	Universal Counter	C133632
CL281	Multifunction Acoustic Calibrator	DC130171
TST150A	Measuring Amplifier	C120886

- Test procedure : MA100N.
- Results :

5.1 Sound Level Accuracy

UUT Nominal Value	Measured Value (dB)	Mfr's Spec. (dB)	Uncertainty of Measured Value (dB)
94 dB, 1 kHz	93.7	± 0.5	± 0.2

5.2 Frequency Accuracy

UUT Nominal Value (kHz)	Measured Value (kHz)	Mfr's Spec.	Uncertainty of Measured Value (Hz)
1	0.988	1 kHz ± 2 %	± 1

Remark : The uncertainties are for a confidence probability of not less than 95 %.

Note :

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

Annex I

Event / Action Plans for Air
Quality, Noise and
Landscape and Visual
Monitoring for All Sites

Table I1 *Event Action Plan for Air Quality Monitoring*

Action Level/Limit Level	Environmental Team Leader (ETL)	Independent Environmental Checker (IEC)	Engineer's Representative (ER)	Contractor
<i>Action Level</i>				
Exceedance for one sample	<ul style="list-style-type: none"> • Identify source, investigate the causes of exceedance and propose remedial measures; • Inform IEC and ER; • Repeat measurement to confirm finding; and, • Increase monitoring frequency to daily. 	<ul style="list-style-type: none"> • Check monitoring data submitted by ET; and, • Check Contractor's working method. 	<ul style="list-style-type: none"> • Notify Contractor 	<ul style="list-style-type: none"> • Rectify any unacceptable practice; and, • Amend working methods if appropriate.
Exceedance for two or more consecutive samples	<ul style="list-style-type: none"> • Identify source; • Inform IEC and ER; • Advise the ER on the effectiveness of the proposed remedial measures; • Repeat measurements to confirm findings; • Increase monitoring frequency to daily; and, • Discuss with IEC and Contractor on remedial actions required; 	<ul style="list-style-type: none"> • Check monitoring data submitted by ET; • Check Contractor's working method; • Discuss with ET and Contractor on possible remedial measures; • Advise the ET on the effectiveness of the proposed remedial measures; and, • Supervise Implementation of remedial measures. 	<ul style="list-style-type: none"> • Confirm receipt of notification of failure in writing; • Notify Contractor, and, • Ensure remedial measures properly implemented. 	<ul style="list-style-type: none"> • Submit proposals for remedial to ER within 3 working days of notification; • Implement the agreed proposals; • Amend proposal if appropriate.

Action Level/Limit Level	Environmental Team Leader (ETL)	Independent Environmental Checker (IEC)	Engineer's Representative (ER)	Contractor
<i>Limit Level</i>				
Exceedance for one sample	<ul style="list-style-type: none"> Identify source, investigate the causes of exceedance and propose remedial measures; Inform ER, Contractor and EPD; Repeat measurement to confirm finding; Increase monitoring frequency to daily; and, Assess effectiveness of Contractor's remedial actions and keep IEC, EPD and ER informed of the results. 	<ul style="list-style-type: none"> Check monitoring data submitted by ET; Check Contractor's working method; Discuss with ET and Contractor on possible remedial measures; Advise the ER on the effectiveness of the proposed remedial measures; and, Supervise implementation of remedial measures. 	<ul style="list-style-type: none"> Confirm receipt of notification of failure in writing; Notify Contractor; and, Ensure remedial measures properly implemented. 	<ul style="list-style-type: none"> Take immediate action to avoid further exceedance; Submit proposals for remedial actions to IEC within 3 working days of notification; Implement the agreed proposals; and, Amend proposal if appropriate.
Exceedance for two or more consecutive samples	<ul style="list-style-type: none"> Notify IEC, ER, Contractor and EPD; Identify source; Repeat measurement to confirm findings; Increase monitoring frequency to daily; Carry out analysis of Contractor's working procedures to determine possible mitigation to be implemented; Arrange meeting with IEC and ER to discuss the remedial actions to be taken; Assess effectiveness of Contractor's remedial actions and keep IEC, EPD and ER informed of the results; and, If exceedance stops, cease additional monitoring. 	<ul style="list-style-type: none"> Check monitoring data submitted by ET; Check Contractor's working method; Discuss amongst ER, ET, and Contractor on the potential remedial actions; Review Contractor's remedial actions whenever necessary to assure their effectiveness and advise the ER accordingly; and, Supervise the implementation of remedial measures. 	<ul style="list-style-type: none"> Confirm receipt of notification of failure in writing; Notify Contractor; In consultation with the IEC, agree with the Contractor on the remedial measures to be implemented; Ensure remedial measures properly implemented; and, 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. 	<ul style="list-style-type: none"> Take immediate action to avoid further exceedance; Submit proposals for remedial actions to IEC within 3 working days of notification; Implement the agreed proposals; Resubmit proposals if problem still not under control; and, Stop the relevant portion of works as determined by the ER until the exceedance is abated.

Table I2 *Event Action Plan for Noise Monitoring*

Action Level/Limit Level	Environmental Team Leader (ETL)	Independent Environmental Checker (IEC)	Engineer's Representative (ER)	Contractor
Action Level being exceeded	<ul style="list-style-type: none"> • Notify ER, IEC and Contractor; • Carry out investigation; • Report the results of investigation to the IEC, ER and Contractor; • Discuss with the IEC and Contractor on remedial measures required; and, • Increase monitoring frequency to check mitigation effectiveness. 	<ul style="list-style-type: none"> • Review the investigation results submitted by the ET; • Review the proposed remedial measures by the Contractor and advise the ER accordingly; and, • Advise the ER on the effectiveness of the proposed remedial measures. 	<ul style="list-style-type: none"> • Confirm receipt of notification of failure in writing; • Notify Contractor; • In consultation with the IEC, agree with the Contractor on the remedial measures to be implemented; and, • Supervise the implementation of remedial measures. 	<ul style="list-style-type: none"> • Submit noise mitigation proposals to IEC and ER; and, • Implement noise mitigation proposals.

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

Table I3 *Event and Action Plan for Landscape and Visual Impact - Construction Phase*

Action Level	Environmental Team Leader (ETL)	Independent Environmental Checker (IEC)	Engineer's Representative (ER)	Contractor
Non-conformity on one occasion	Identify source Inform the IEC and the ER Discuss remedial actions with the IEC, the ER and the Contractor Monitor remedial action until rectification has been completed	Check report Check the Contractor's working method Discuss with the ER and the Contractor on possible remedial measures Advise the ER on effectiveness of proposed remedial measures	Notify the Contractor Ensure remedial measures are properly implemented	Amend working methods Rectify damage and undertake remedial measures or any necessary replacement
Repeated Non-conformity	Identify source Inform the IEC and the ER Increase monitoring (site audit) frequency Discuss remedial actions with the IEC, the ER and the Contractor Monitor remedial actions until rectification has been completed If exceedance stops, cease additional monitoring (site audit)	Check report Check the Contractor's working method Discuss with the ER and the Contractor on possible remedial measures Advise the ER on effectiveness of proposed remedial measures Supervise implementation of remedial measures	Notify the Contractor Ensure remedial measures are properly implemented	Amend working methods Rectify damage and undertake remedial measures or any necessary replacement

Annex J

Waste Flow Table

Harbour Area Treatment Scheme Stage 2A – Construction of Sewage Conveyance System from North Point to Stonecutters Island

Contract No. : DC/2007/23

Monthly Summary Waste Flow Table for 2009 (year)

Month	Actual Quantities of Inert C&D Materials Generated Monthly					Actual Quantities of C&D Wastes Generated Monthly					
	Total Quantity Generated	Broken Concrete (see Note 4)	Reused in the Contract	Reused in other Projects	Disposed as Public Fill	Metals (see Note 2)	Paper/ cardboard packaging (see Note 2)	Plastics (see Note 3)	Chemical Waste	Others, e.g. general refuse	
	(in '000m ³)	(in '000m ³)	(in '000m ³)	(in '000m ³)	(in '000m ³)	(in '000kg)	(in '000kg)	(in '000kg)	(in'000kg / '000L)	(in '000m ³)	
Jan											
Feb											
Mar											
Apr											
May											
June											
Sub-total											
July	0	0	0	0	0	0	0	0	0	0	
Aug	0	0	0	0	0	0	0	0	0	0	
Sept	0.016	0	0	0	Dry	Wet	0	0	0	0	0.068
					0.016	0					
Oct	0.523	0	0	0	0.523	0	0	0	0	0	0.086
Nov	2.331	0	0	0	2.275	0.056	99.2	0.036	0	0	0.129
Dec	3.803	0	0	0	3.004	0.799	1	0	0	0	0.120
Total	6.673	0	0	0	5.818	0.855	100.2	0.036	0	0	0.403

- Notes:
- (1) The waste flow table shall also include C&D materials that are specified in the Contract to be imported for use at the Site.
 - (2) Metal and paper/cardboard packaging will be collected by recycler for recycling.
 - (3) Plastics refer to plastic bottles/containers, plastic sheets/foam from packaging material and the wastes are collected by recycler for recycling.
 - (4) Broken concrete for recycling into aggregates
 - (5) If necessary, use the conversion factor: 1 full load of dumping truck being equivalent to 6.5 m³ by volume.
 - (6) For chemical waste, the actual quantities of empty paint cans will be in kilogram (kg) and spent lubrication oil will be in litre (L).

Harbour Area Treatment Scheme Stage 2A – Construction of Sewage Conveyance System from North Point to Stonecutters Island
Contract No. : DC/2007/23
Monthly Summary Waste Flow Table for 2010 (year)

Month	Actual Quantities of Inert C&D Materials Generated Monthly						Actual Quantities of C&D Wastes Generated Monthly				
	Total Quantity Generated	Broken Concrete (see Note 4)	Reused in the Contract	Reused in other Projects	Disposed as Public Fill		Metals (see Note 2)	Paper/ cardboard packaging (see Note 2)	Plastics (see Note 3)	Chemical Waste	Others, e.g. general refuse
	(in '000m ³)	(in '000m ³)	(in '000m ³)	(in '000m ³)	(in '000m ³)		(in '000kg)	(in '000kg)	(in '000kg)	(in'000kg / '000L)	(in '000m ³)
Jan	5.341	0	0	0	Dry 3.066	Wet 2.275	0	0.144	0	0.8	0.178
Feb	3.328	0	0	0	1.541	1.787	0	0	0	0	0.167
Mar	4.486	0	0	0	2.019	2.467	0	0.09	0	0	0.148
Apr	4.864	0	0	0	1.756	3.108	0	0.054	0	0	0.160
May	7.092	0	0	0	3.383	3.709	0	0.144	0	0.3	0.157
June	6.190	0	0	0	1.083	5.107	0	0.09	0	0.4	0.455
Sub-total	31.301	0	0	0	12.848	18.453	0	0.522	0	1.5	1.265
July	5.031	0	0	0	1.006	4.025	0	0.162	0	0	0.212
Aug	5.140	0	0	0.23	1.970	2.940	0	0.09	0	0.4	0.312
Sept	3.593	0.15	0	0.35	1.771	1.322	0	0.09	0	1	0.146
Oct	2.324	0	0	0	1.429	0.895	0	0.144	0	0	0.078
Nov	5.927	0	0	0	4.383	1.544	0	0	0	0.8	0.078
Dec	4.963	0	0	0	4.840	0.123	0	0.072	0	0	0.078
Total	58.279	0.15	0	0.58	28.247	29.302	0	1.080	0	3.7	2.169

- Notes:
- (1) The waste flow table shall also include C&D materials that are specified in the Contract to be imported for use at the Site.
 - (2) Metal and paper/cardboard packaging will be collected by recycler for recycling.
 - (3) Plastics refer to plastic bottles/containers, plastic sheets/foam from packaging material and the wastes are collected by recycler for recycling.
 - (4) Broken concrete for recycling into aggregates
 - (5) If necessary, use the conversion factor: 1 full load of dumping truck being equivalent to 6.5 m³ by volume.
 - (6) For chemical waste, the actual quantities of empty paint cans will be in kilogram (kg) and spent lubrication oil will be in litre (L).

Harbour Area Treatment Scheme Stage 2A – Construction of Sewage Conveyance System from North Point to Stonecutters Island
Contract No. : DC/2007/23
Monthly Summary Waste Flow Table for 2011 (year)

Month	Actual Quantities of Inert C&D Materials Generated Monthly						Actual Quantities of C&D Wastes Generated Monthly				
	Total Quantity Generated	Broken Concrete (see Note 4)	Reused in the Contract	Reused in other Projects	Disposed as Public Fill		Metals (see Note 2)	Paper/ cardboard packaging (see Note 2)	Plastics (see Note 3)	Chemical Waste	Others, e.g. general refuse
	(in '000m ³)	(in '000m ³)	(in '000m ³)	(in '000m ³)	(in '000m ³)		(in '000kg)	(in '000kg)	(in '000kg)	(in'000kg / '000L)	(in '000m ³)
Jan	8.423	0	0	0	Dry 8.236	Wet 0.187	0	0.09	0	1.2	0.124
Feb	7.794	0	0	0.799	6.814	0.181	0	0.09	0	0	0.138
Mar	9.641	0	0	0.576	9.007	0.058	0	0.19	0	0	0.059
Apr	8.841	0	0	2.014	6.730	0.097	0	0.09	0	0.2	0.069
May	5.416	0	0	0.887	4.280	0.249	0	0.09	0	0	0.077
June	7.507	0	0	0.665	6.245	0.597	0	0.337	0.028	1.0	0.072
Sub-total	47.622	0	0	4.941	41.312	1.369	0	0.887	0.028	2.4	0.539
July	5.31	0	0	2.372	2.795	0.143	0	0.162	0	0	0.109
Aug	5.381	0	0	2.553	2.530	0.298	0	0.248	0.035	0.4	0.097
Sept	6.963	0	0	2.814	3.974	0.175	0	0.289	0.032	0	0.155
Oct	5.330	0	0	0.794	4.385	0.151	0	0.254	0.015	0	0.128
Nov	5.009	0	0	0.995	3.760	0.254	0	0.270	0	0.6	0.116
Dec	5.429	0	0.159	1.430	3.522	0.318	0	0.216	0	0	0.117
Total	81.044	0	0.159	15.899	62.278	2.708	0	2.326	0.11	3.4	1.261

- Notes:
- (1) The waste flow table shall also include C&D materials that are specified in the Contract to be imported for use at the Site.
 - (2) Metal and paper/cardboard packaging will be collected by recycler for recycling.
 - (3) Plastics refer to plastic bottles/containers, plastic sheets/foam from packaging material and the wastes are collected by recycler for recycling.
 - (4) Broken concrete for recycling into aggregates
 - (5) If necessary, use the conversion factor: 1 full load of dumping truck being equivalent to 6.5 m³ by volume.
 - (6) For chemical waste, the actual quantities of empty paint cans will be in kilogram (kg) and spent lubrication oil will be in litre (L).

Harbour Area Treatment Scheme Stage 2A – Construction of Sewage Conveyance System from North Point to Stonecutters Island

Contract No. : DC/2007/23

Monthly Summary Waste Flow Table for 2012 (year)

Month	Actual Quantities of Inert C&D Materials Generated Monthly						Actual Quantities of C&D Wastes Generated Monthly				
	Total Quantity Generated	Broken Concrete (see Note 4)	Reused in the Contract	Reused in other Projects	Disposed as Public Fill		Metals (see Note 2)	Paper/ cardboard packaging (see Note 2)	Plastics (see Note 3)	Chemical Waste	Others, e.g. general refuse
	(in '000m ³)	(in '000m ³)	(in '000m ³)	(in '000m ³)	(in '000m ³)		(in '000kg)	(in '000kg)	(in '000kg)	(in'000kg / '000L)	(in '000m ³)
Jan	6.208	0	0	1.615	Dry	Wet	0	0.108	0	0.4	0.117
					4.277	0.316					
Feb	6.006	0	0	0.443	5.148	0.415	0	0.108	0	0	0.063
Mar	8.370	0	0	1.226	6.871	0.273	0	0.108	0	0	0.181
Apr	8.899	0	0	1.101	7.581	0.217	0	0.036	0	0	0.685
May	6.789	0	0	0.716	5.931	0.142	0	0.108	0	0.4	0.103
June	7.585	0	0.021	5.565	1.786	0.213	0.014	0.256	0	0.0	0.197
Sub-total	43.857	0	0.021	10.666	31.594	1.576	0.014	0.724	0	0.8	1.346
July	9.128	0	0	5.240	3.730	0.158	8.356	0.055	0	0.8	0.171
Aug	5.756	0	0	3.836	1.640	0.280	0.008	0.062	0	0.2	0.126
Sept	7.809	0	0.172	2.103	5.062	0.472	0.007	0.172	0	0.4	0.105
Oct	12.073	0	0	7.279	4.427	0.367	0.007	0.028	0	0	0.123
Nov	16.713	0	0	15.626	0.853	0.234	0.005	0.303	0	1.6	0.088
Dec	16.760	0	0	16.362	0.192	0.206	0.005	0.102	0	0.8	0.111
Total	112.096	0	0.193	61.112	47.498	3.293	8.402	1.446	0	4.6	2.070

- Notes:
- (1) The waste flow table shall also include C&D materials that are specified in the Contract to be imported for use at the Site.
 - (2) Metal and paper/cardboard packaging will be collected by recycler for recycling.
 - (3) Plastics refer to plastic bottles/containers, plastic sheets/foam from packaging material and the wastes are collected by recycler for recycling.
 - (4) Broken concrete for recycling into aggregates
 - (5) If necessary, use the conversion factor: 1 full load of dumping truck being equivalent to 6.5 m³ by volume.
 - (6) For chemical waste, the actual quantities of empty paint cans will be in kilogram (kg) and spent lubrication oil will be in litre (L) and will be collected by licensed collector.
 - (7) Inert C&D Materials shall be dumped at Chai Wan Barging Point, TKO Area 137 and Tuen Mun Area 38 and General refuses shall be dumped at SENT.

Harbour Area Treatment Scheme Stage 2A – Construction of Sewage Conveyance System from North Point to Stonecutters Island

Contract No. : DC/2007/23

Monthly Summary Waste Flow Table for 2013 (year)

Month	Actual Quantities of Inert C&D Materials Generated Monthly						Actual Quantities of C&D Wastes Generated Monthly				
	Total Quantity Generated	Broken Concrete (see Note 4)	Reused in the Contract	Reused in other Projects	Disposed as Public Fill		Metals (see Note 2)	Paper/ cardboard packaging (see Note 2)	Plastics (see Note 3)	Chemical Waste	Others, e.g. general refuse
	(in '000m ³)	(in '000m ³)	(in '000m ³)	(in '000m ³)	(in '000m ³)		(in '000kg)	(in '000kg)	(in '000kg)	(in'000kg / '000L)	(in '000m ³)
Jan	13.689	0	0	12.331	Dry	Wet	0.005	0.030	0	0.4	0.129
					1.141	0.217					
Feb	15.098	0	0	5.320	9.521	0.257	0.005	0.181	0	0.4	0.078
Mar	17.449	0	0	9.229	8.005	0.215	0	0.111	0	0	0.110
Apr	17.440	0	0	9.884	7.097	0.459	0.003	0.155	0	0	0.142
May	15.293	0	0	7.911	7.006	0.376	0.001	0.101	0	1.8	0.120
June	19.809	0	0	9.620	9.872	0.317	0.001	0.100	0	0.4	0.198
Sub-total	98.778	0	0	54.295	42.642	1.841	0.015	0.678	0	3	0.777
July	19.977	0	0	14.009	5.613	0.355	0.004	0.145	0	0.4	0.178
Aug	18.468	0	0	12.644	5.365	0.459	0.002	0.074	0	0	0.206
Sept	21.668	0	0	14.693	6.690	0.285	0.005	0.155	0	0.2	0.224
Oct	18.939	0	0	13.895	4.623	0.421	0.003	0.108	0	0	0.182
Nov	19.797	0	0	17.751	1.688	0.358	0.004	0.072	0	1	0.150
Dec	15.749	0.016	0	14.306	1.034	0.393	0.005	0.144	0	0.4	0.129
Total	213.376	0.016	0	141.593	67.655	4.112	0.038	1.376	0	5	1.846

- Notes:
- (1) The waste flow table shall also include C&D materials that are specified in the Contract to be imported for use at the Site.
 - (2) Metal and paper/cardboard packaging will be collected by recycler for recycling.
 - (3) Plastics refer to plastic bottles/containers, plastic sheets/foam from packaging material and the wastes are collected by recycler for recycling.
 - (4) Broken concrete for recycling into aggregates
 - (5) If necessary, use the conversion factor: 1 full load of dumping truck being equivalent to 6.5 m³ by volume.
 - (6) For chemical waste, the actual quantities of empty paint cans will be in kilogram (kg) and spent lubrication oil will be in litre (L) and will be collected by licensed collector.
 - (7) Inert C&D Materials shall be dumped at Chai Wan Barging Point, TKO Area 137 and Tuen Mun Area 38 and General refuses shall be dumped at SENT.

Harbour Area Treatment Scheme Stage 2A – Construction of Sewage Conveyance System from North Point to Stonecutters Island

Contract No. : DC/2007/23

Monthly Summary Waste Flow Table for 2014 (year)

Month	Actual Quantities of Inert C&D Materials Generated Monthly						Actual Quantities of C&D Wastes Generated Monthly				
	Total Quantity Generated	Broken Concrete (see Note 4)	Reused in the Contract	Reused in other Projects	Disposed as Public Fill		Metals (see Note 2)	Paper/ cardboard packaging (see Note 2)	Plastics (see Note 3)	Chemical Waste	Others, e.g. general refuse
	(in '000m ³)	(in '000m ³)	(in '000m ³)	(in '000m ³)	(in '000m ³)		(in '000kg)	(in '000kg)	(in '000kg)	(in'000kg / '000L)	(in '000m ³)
Jan	14.837	0	0	13.864	Dry 0.324	Wet 0.649	0.007	0.054	0	0.4	0.099
Feb	14.772	0	0	12.084	1.636	1.052	0.006	0	0	0	0.152
Mar	0	0	0	0	0	0	0	0	0	0	0
Apr	0	0	0	0	0	0	0	0	0	0	0
May	0	0	0	0	0	0	0	0	0	0	0
June	0	0	0	0	0	0	0	0	0	0	0
Sub-total	29.609	0	0	25.948	1.960	1.701	0.013	0.054	0	0.4	0.251
July	0	0	0	0	0	0	0	0	0	0	0
Aug	0	0	0	0	0	0	0	0	0	0	0
Sept	0	0	0	0	0	0	0	0	0	0	0
Oct	0	0	0	0	0	0	0	0	0	0	0
Nov	0	0	0	0	0	0	0	0	0	0	0
Dec	0	0	0	0	0	0	0	0	0	0	0
Total	29.609	0	0	25.948	1.960	1.701	0.013	0.054	0	0.4	0.251

- Notes:
- (1) The waste flow table shall also include C&D materials that are specified in the Contract to be imported for use at the Site.
 - (2) Metal and paper/cardboard packaging will be collected by recycler for recycling.
 - (3) Plastics refer to plastic bottles/containers, plastic sheets/foam from packaging material and the wastes are collected by recycler for recycling.
 - (4) Broken concrete for recycling into aggregates
 - (5) If necessary, use the conversion factor: 1 full load of dumping truck being equivalent to 6.5 m³ by volume.
 - (6) For chemical waste, the actual quantities of empty paint cans will be in kilogram (kg) and spent lubrication oil will be in litre (L) and will be collected by licensed collector.
 - (7) Inert C&D Materials shall be dumped at Chai Wan Barging Point, TKO Area 137 and Tuen Mun Area 38 and General refuses shall be dumped at SENT.

Annex K

Summary of Observations
and Follow-up Actions of
Environmental Site
Inspections for All Sites

Annex K Summary of Site Inspections Observations and Follow-ups

Inspection date: 5 December 2013

Follow-up Actions Taken after Previous Site Audit

North Point Production Shaft

- Waste skip beside the chemical waste storage had been cleared.

Wan Chai East Production Shaft

- Chemical mixture accumulated beside the chemical waste storage had been removed.

Sai Ying Pun Production Shaft

- Garbage stored next to chemical waste storage had been removed.

Stonecutters Island Production Shaft

- Two chemical drums beside the noise enclosure had been removed.
- General refuse was still observed in the drip tray beside the wastewater treatment facility. The Contractor was further reminded to clean up the drip tray and ensure regular maintenance for the drip tray.
- Grease observed on the access road at the opposite of the wastewater treatment facility had been removed.

Observations and Recommendations

North Point Production Shaft

- A chemical drum was observed without drip tray in the workshop area. The Contractor was reminded to provide drip tray or move it to the chemical storage area.

Stonecutters Island Production Shaft

- General refuse in the drip tray beside the wastewater treatment facility had been removed.

Inspection date: 12 December 2013

Follow-up Actions Taken after Previous Site Audit

North Point Production Shaft

- The chemical drum observed without drip tray in the workshop area had been removed.

Stonecutters Island Production Shaft

- General refuse in the drip tray beside the wastewater treatment facility had been removed.

Observations and Recommendations

- Nil

Inspection date: 19 December 2013

Follow-up Actions Taken after Previous Site Audit

- Nil

Observations and Recommendations

Sai Ying Pun Production Shaft

- General waste was observed overloading in the waste skip beside the Wastewater Treatment Facility. The Contractor was reminded to collect the waste frequently.

Wan Chai East Production Shaft

- General waste was observed accumulating in the waste skip beside the Chemical Storage Area. The Contractor was reminded to clear the waste skip frequently..

Inspection date: 27 December 2013

Follow-up Actions Taken after Previous Site Audit

Sai Ying Pun Production Shaft

- Wastes had been cleared up in the waste skip beside the Wastewater Treatment Facility by the Contractor.

Wan Chai East Production Shaft

- Wastes had been removed in the waste skip beside the Chemical Storage Area by the Contractor. .

Observations and Recommendations

Stonecutter Islands Production Shaft

- Two free-standing chemical drums were found next to the generator room. The Contractor was reminded to provide the chemical drums with drip tray to prevent leakage.
- The Contractor was reminded to remove tree leaves in the drainage gullies next to the Wastewater Treatment Facility to prevent blockage.

Sai Ying Pun Production Shaft

- Several free-standing chemical containers had been found beside the Category 7 DG Store. The Contractor was reminded to store dangerous chemicals in proper designated area. If the chemicals found are not dangerous, the Contractor should provide drip trays for the chemical containers to prevent leakage.

Wan Chai East Production Shaft

- The Contractor was reminded to remove oil stains found on the ground and dispose of the oil stains as chemical waste.

Annex K Summary of Site Inspections Observations and Follow-ups

Inspection date: 2 January 2014

Follow-up Actions Taken after Previous Site Audit

Stonecutters Island Production Shaft

- Two free-standing chemical drums found next to the generator room had been removed.
- Tree leaves in the drainage gullied had been substantially removed. Continuous effort will be paid by the Contractor to remove tree leaves inside the drainage gullies.

Sai Ying Pun Production Shaft

- The free-standing chemical containers found beside the Category 7 DG Store had been removed.

Wan Chai East Production Shaft

- Oil stains on the ground had been removed.

Observations and Recommendations

Stonecutters Island Production Shaft

- The Contractor was reminded to provide free-standing chemical containers located next to the wastewater treatment facility to prevent leakage.

Central Drop Shaft

- A chemical container was observed drip tray near the site entrance. The Contractor was reminded to provide a drip tray for it so as to rule out potential leakage.

North Point Production Shaft

- Chemical drum without drip trap was observed stored next to the noise enclosure. The Contractor was reminded to provide drip trap for the chemical drum.

North Point Drop Shaft

- Demolished dusty material was observed stored without proper cover. The Contractor was reminded to provide tarpaulin sheet to cover the material.

Inspection date: 9 January 2014

Follow-up Actions Taken after Previous Site Audit

Stonecutters Island Production Shaft

- The free-standing chemical containers located next to the wastewater treatment facility had been removed.

Central Drop Shaft

- The free-standing chemical container near the site entrance had been removed.

North Point Production Shaft

- Chemical drum without drip tray observed next to the noise enclosure had been removed.

North Point Drop Shaft

- Demolished dusty material observed without proper cover had been removed.

Observations and Recommendations

Stonecutters Island Production Shaft

- A chain was observed dripping oil in the storage hub next to the workshop. The Contractor was reminded to remove the oil stains and dispose of the oil stains properly as chemical wastes. The Contractor was also reminded to place impervious sheetings on the affected area to avert further leakage onto the ground.
- A chemical drum was observed placed on the rooftop of the workshop. The Contractor was reminded to place the chemical drum on flat surface and provide it with a drip tray to rule out potential leakage.

Inspection date: 16 January 2014

Follow-up Actions Taken after Previous Site Audit

Stonecutters Island Production Shaft

- The Contractor had disposed of the oil stains properly; and
- The Contractor had removed the chemical drum on the rooftop of the workshop.

Observations and Recommendations

- There was no major observation during the site inspection in all works areas.

Inspection date: 23 January 2014

Follow-up Actions Taken after Previous Site Audit

- There was no major observation during the site inspection in all works areas.

Observations and Recommendations

- Patches of oil stain were observed next to an air compressor in the works area. The oil stains may be possibly attributed to the moving of machines or equipment. The Contractor was reminded to remove and dispose of the oil stains properly as chemical wastes. The Contractor was also reminded to take extra care when traversing the works area with equipment or machines which may be oil-dripping.

Inspection date: 30 January 2014

Follow-up Actions Taken after Previous Site Audit

- Oil stains near the air compressor had been removed.

Observations and Recommendations

Stonecutter Islands Production Shaft

- The Contractor was reminded to remove stagnant water found in the drain in the works area;
- The Contractor was reminded to provide drip trays for a free-standing chemical container next to the noise enclosure; and
- Two chemical waste containers were placed at the fringe of the bund of the chemical waste storage area. The Contractor was reminded to place the chemical waste containers within the bund of the chemical waste storage area.

North Point Production Shaft

- The Contractor was reminded to provide drip trays for free-standing chemical containers in the storage area.

Annex K Summary of Site Inspections Observations and Follow-ups

Inspection date: 6 February 2014

Follow-up Actions Taken after Previous Site Audit

Stonecutter Islands Production Shaft

- Stagnant water found in the drain in the last site inspection had been removed.
- The free-standing chemical container placed next to the noise enclosure had been removed; and
- The chemical wastes containers had been placed within the bund of the chemical wastes storage area.

North Point Production Shaft

- Chemical containers near the storage area were removed.

Observations and Recommendations

Stonecutters Island Production Shaft

- A chemical waste drum was observed next to the waste water treatment facility. The Contractor was reminded to place it in the chemical waste storage area; and
- A chemical container was found on the rooftop of the workshop. The Contractor was reminded to place the container on flat surface and within drip tray so as to avert potential leakage.

Sai Ying Pun Production Shaft

- Two containers with oil residue were placed beside the waste water treatment facility. The Contractor was reminded to provide them with drip trays; otherwise, they should be properly stored in designated storage area or be disposed of properly as chemical waste.

Central Drop Shaft

- Two chemical containers without drip trays were observed near the site entrance. The Contractor was reminded to provide them with drip trays to prevent leakage.

Wan Chai East Production Shaft

- Turbid water was observed in the drainage channel along the site entrance. The Contractor was reminded to pump out and treat the turbid water via the wastewater treatment facility before discharge off-site.

Inspection date: 13 February 2014

Follow-up Actions Taken after Previous Site Audit

Stonecutters Island Production Shaft

- The chemical waste drum placed next to the waste water treatment facility had been relocated to the chemical waste storage area;
- The chemical container found on the rooftop of the workshop had been placed on flat surface and within drip tray.

Sai Ying Pun Production Shaft

- The containers with oil residue placed beside the waste water treatment facility were relocated to designated chemical storage area.

Central Drop Shaft

- The chemical containers near the site entrance were empty and were removed from the works area.

Wan Chai East Production Shaft

- Turbid water in the drainage channel along the site entrance was pumped out and treated via the wastewater treatment facility before discharge off-site.

Observations and Recommendations

Sai Ying Pun Production Shaft

- Chemical containers were observed without drip trays in various locations. The Contractor was reminded to place the free-standing chemical containers in secondary containment to prevent potential leakage.

Inspection date: 20 February 2014

Follow-up Actions Taken after Previous Site Audit

Sai Ying Pun Production Shaft

- The Contractor had provided drip trays for the free-standing chemical containers in the works area.

Observations and Recommendations

Stonecutters Island Production Shaft

- A chemical container was placed on the rooftop of the workshop. The Contractor was reminded to place the container on flat surface and within drip tray to prevent leakage;
- The Contractor was reminded to clean up the rubbish in the tree protection zone and to maintain a decent house-keeping practice; and
- Stagnant water was found in the drip tray behind the noise enclosure. The Contractor was reminded to remove the stagnant water and retain a sufficient capacity of the drip tray.

Sai Ying Pun Production Shaft

- Chemical containers were observed without drip tray next to the waste water treatment facility. The Contractor was reminded to place them back to the drip trays after use.

Central Drop Shaft

- Free-standing chemical containers were found next to the generator. The Contractor was reminded to provide sufficient drip trays for chemical containers to prevent leakage.

Wan Chai East Production Shaft

- Mixtures of chemicals were observed accumulating inside the chemical storage area. The Contractor was reminded to remove the accumulated chemical mixtures.

Inspection date: 27 February 2014

Follow-up Actions Taken after Previous Site Audit

Stonecutters Island Production Shaft

- The chemical container placed on the rooftop still remained intact. The Contractor was further reminded to place the container on flat surface and within drip tray to prevent leakage;
- The rubbish in the tree protection zone was cleaned up; and
- Stagnant water found in the drip tray behind the noise enclosure was removed.

Sai Ying Pun Production Shaft

- Chemical containers were removed from the works area.

Central Drop Shaft

- The construction site was not inspected. The item will be checked in subsequent site inspection.

Wan Chai East Production Shaft

- The construction site was not inspected. The item will be checked in next site inspection.

Observations and Recommendations

Stonecutters Island Production Shaft

- Some liquid was found on the floor of the workshop. The Contractor was reminded to check if such liquid was oil. If so, the Contractor should remove the oil stains and dispose of it properly as chemical waste.

Sai Ying Pun Production Shaft

- The Contractor was reminded to provide chemical containers with drip trays to prevent leakage; and
- The Contractor was reminded to remove stagnant water found in the drain behind the noise enclosure.

North Point Production Shaft

- The Contractor was reminded to store the waste batteries properly in designated chemical waste storage area