

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:
Seventh Quarterly EM&A Report

September 2011

Environmental Resources Management

21/F Lincoln House
979 King's Road
Taikoo Place
Island East, Hong Kong
Telephone: (852) 2271 3000
Facsimile: (852) 2723 5660
E-mail: post.hk@erm.com
<http://www.erm.com>



Our ref KMY/AFK/FY/TK/bw/T261332/22.01/L-0257
T 2828 5757
E Anne.Kerr@mottmac.com.hk
Your ref

CE/Harbour Area Treatment Scheme
Drainage Services Department
Sewage Services Branch
Harbour Area Treatment Scheme Division
5/F, Western Magistracy
2A Pokfulam Road, Hong Kong

27 September 2011
By Fax (2833 9162) and 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 7th Quarterly EM&A Report for June to August 2011

We refer to the revised 7th Quarterly EM&A Report for June to August 2011 received on 26 September 2011 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. Y H Fung
Mr. Max Ko
Ms. Winnie Ko

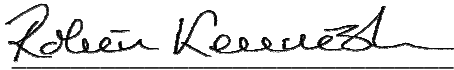

By email
By email
By email

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:
Seventh Quarterly EM&A Report

September 2011

Reference 0104887

For and on behalf of ERM-Hong Kong, Limited	
Approved by:	<u>Dr Robin Kennish</u>
Signed:	<u></u>
Position:	<u>Director</u>
Certified by:	<u></u> (Environmental Team Leader – Winnie Ko)
Date:	<u>27 September 2011</u>



Our ref KMY/AFK/FY/TK/bw/T261332/22.01/L-0257
T 2828 5757
E Anne.Kerr@mottmac.com.hk
Your ref

CE/Harbour Area Treatment Scheme
Drainage Services Department
Sewage Services Branch
Harbour Area Treatment Scheme Division
5/F, Western Magistracy
2A Pokfulam Road, Hong Kong

27 September 2011
By Fax (2833 9162) and 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 7th Quarterly EM&A Report for June to August 2011

We refer to the revised 7th Quarterly EM&A Report for June to August 2011 received on 26 September 2011 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. Y H Fung
Mr. Max Ko
Ms. Winnie Ko

By email
By email
By email

CONTENTS

1	INTRODUCTION	1
1.1	<i>PURPOSE OF THE REPORT</i>	1
1.2	<i>STRUCTURE OF THE REPORT</i>	1
2	PROJECT INFORMATION	5
2.1	<i>BACKGROUND AND GENERAL SITE DESCRIPTION</i>	5
2.2	<i>STATUS OF ENVIRONMENTAL APPROVAL DOCUMENTS AND REQUIRED SUBMISSIONS</i>	6
2.3	<i>PROJECT ORGANISATION</i>	7
3	NORTH POINT PRODUCTION AND DROP SHAFTS	8
3.1	<i>CONSTRUCTION ACTIVITIES DURING THE REPORTING PERIOD</i>	8
3.2	<i>STATUS OF ENVIRONMENTAL APPROVAL DOCUMENTS</i>	8
3.3	<i>ENVIRONMENTAL MONITORING REQUIREMENTS</i>	9
3.3.1	<i>Air Quality Monitoring</i>	9
3.3.2	<i>Noise Monitoring</i>	12
3.3.3	<i>Cultural Heritage</i>	14
3.3.4	<i>Landscape and Visual Monitoring</i>	14
3.4	<i>IMPLEMENTATION STATUS ON ENVIRONMENTAL PROTECTION REQUIREMENTS</i>	14
3.5	<i>MONITORING RESULTS</i>	15
3.5.1	<i>Air Quality</i>	15
3.5.2	<i>Noise</i>	15
3.5.3	<i>Landscape and Visual</i>	15
3.5.4	<i>Cultural Heritage</i>	16
3.5.5	<i>Waste Management</i>	16
3.6	<i>ENVIRONMENTAL SITE INSPECTION</i>	16
3.7	<i>ENVIRONMENTAL NON-CONFORMANCE</i>	17
3.7.1	<i>Summary of Monitoring Exceedance</i>	17
3.7.2	<i>Summary of Environmental Non-Compliance</i>	22
3.7.3	<i>Summary of Environmental Complaint</i>	22
3.7.4	<i>Summary of Environmental Summon and Successful Prosecution</i>	22
4	WAN CHAI EAST PRODUCTION AND DROP SHAFTS	23
	<i>CONSTRUCTION ACTIVITIES</i>	23
4.1	<i>DURING THE REPORTING PERIOD</i>	23
4.2	<i>STATUS OF ENVIRONMENTAL APPROVAL DOCUMENTS</i>	23
4.3	<i>ENVIRONMENTAL MONITORING REQUIREMENTS</i>	24
4.3.1	<i>Air Quality Monitoring</i>	24
4.3.2	<i>Noise Monitoring</i>	27
4.3.3	<i>Cultural Heritage</i>	29
4.3.4	<i>Landscape and Visual Monitoring</i>	29
4.4	<i>IMPLEMENTATION STATUS ON ENVIRONMENTAL PROTECTION REQUIREMENTS</i>	29
4.5	<i>MONITORING RESULTS</i>	29
4.5.1	<i>Air Quality</i>	29
4.5.2	<i>Noise</i>	30

4.5.3	<i>Landscape and Visual</i>	30
4.5.4	<i>Cultural Heritage</i>	30
4.5.5	<i>Waste Management</i>	30
4.6	ENVIRONMENTAL SITE INSPECTION	31
4.7	ENVIRONMENTAL NON-CONFORMANCE	33
4.7.1	<i>Summary of Monitoring Exceedance</i>	33
4.7.2	<i>Summary of Environmental Non-Compliance</i>	39
4.7.3	<i>Summary of Environmental Complaint</i>	39
4.7.4	<i>Summary of Environmental Summon and Successful Prosecution</i>	39
5	CENTRAL DROP SHAFT	40
5.1	CONSTRUCTION ACTIVITIES DURING THE REPORTING PERIOD	40
5.2	STATUS OF ENVIRONMENTAL APPROVAL DOCUMENTS	40
5.3	ENVIRONMENTAL MONITORING REQUIREMENTS	40
5.3.1	<i>Air Quality Monitoring</i>	40
5.3.2	<i>Noise Monitoring</i>	44
5.3.3	<i>Cultural Heritage</i>	45
5.3.4	<i>Landscape and Visual Monitoring</i>	45
5.4	IMPLEMENTATION STATUS ON ENVIRONMENTAL PROTECTION REQUIREMENTS	46
5.5	MONITORING RESULTS	46
5.5.1	<i>Air Quality</i>	46
5.5.2	<i>Noise</i>	46
5.5.3	<i>Landscape and Visual</i>	46
5.5.4	<i>Cultural Heritage</i>	46
5.5.5	<i>Waste Management</i>	46
5.6	ENVIRONMENTAL SITE INSPECTION	47
5.7	ENVIRONMENTAL NON-CONFORMANCE	48
5.7.1	<i>Summary of Monitoring Exceedance</i>	48
5.7.2	<i>Summary of Environmental Non-Compliance</i>	48
5.7.3	<i>Summary of Environmental Complaint</i>	48
5.7.4	<i>Summary of Environmental Summon and Successful Prosecution</i>	48
6	SAI YING PUN JUNCTION SHAFT	49
6.1	CONSTRUCTION ACTIVITIES DURING THE REPORTING PERIOD	49
6.2	STATUS OF ENVIRONMENTAL APPROVAL DOCUMENTS	49
6.3	ENVIRONMENTAL MONITORING REQUIREMENTS	49
6.3.1	<i>Air Quality Monitoring</i>	49
6.3.2	<i>Noise Monitoring</i>	51
6.3.3	<i>Cultural Heritage</i>	52
6.3.4	<i>Landscape and Visual Monitoring</i>	52
6.4	IMPLEMENTATION STATUS ON ENVIRONMENTAL PROTECTION REQUIREMENTS	53
6.5	MONITORING RESULTS	53
6.5.1	<i>Air Quality</i>	53
6.5.2	<i>Noise</i>	53
6.5.3	<i>Landscape and Visual</i>	53
6.5.4	<i>Cultural Heritage</i>	53
6.5.5	<i>Waste Management</i>	54
6.6	ENVIRONMENTAL SITE INSPECTION	54
6.7	ENVIRONMENTAL NON-CONFORMANCE	56
6.7.1	<i>Summary of Monitoring Exceedance</i>	56

6.7.2	<i>Summary of Environmental Non-Compliance</i>	59
6.7.3	<i>Summary of Environmental Complaint</i>	59
6.7.4	<i>Summary of Environmental Summon and Successful Prosecution</i>	59
7	STONECUTTERS ISLAND PRODUCTION AND RISER SHAFTS	60
7.1	<i>CONSTRUCTION ACTIVITIES DURING THE REPORTING PERIOD</i>	60
7.2	<i>STATUS OF ENVIRONMENTAL APPROVAL DOCUMENTS</i>	60
7.3	<i>ENVIRONMENTAL MONITORING REQUIREMENTS</i>	61
7.3.1	<i>Air Quality Monitoring</i>	61
7.3.2	<i>Noise Monitoring</i>	64
7.3.3	<i>Cultural Heritage</i>	66
7.3.4	<i>Landscape and Visual Monitoring</i>	66
7.4	<i>IMPLEMENTATION STATUS ON ENVIRONMENTAL PROTECTION REQUIREMENTS</i>	67
7.5	<i>MONITORING RESULTS</i>	67
7.5.1	<i>Air Quality</i>	67
7.5.2	<i>Noise</i>	67
7.5.3	<i>Landscape and Visual</i>	68
7.5.4	<i>Cultural Heritage</i>	68
7.5.5	<i>Waste Management</i>	68
7.6	<i>ENVIRONMENTAL SITE INSPECTION</i>	69
7.7	<i>ENVIRONMENTAL NON-CONFORMANCE</i>	71
7.7.1	<i>Summary of Monitoring Exceedance</i>	71
7.7.2	<i>Summary of Environmental Non-Compliance</i>	73
7.7.3	<i>Summary of Environmental Complaint</i>	73
7.7.4	<i>Summary of Environmental Summon and Successful Prosecution</i>	73
8	CONCLUSIONS	74
8.1	<i>NORTH POINT PRODUCTION AND DROP SHAFT</i>	74
8.2	<i>WAN CHAI EAST PRODUCTION AND DROP SHAFTS</i>	74
8.3	<i>CENTRAL DROP SHAFT</i>	75
8.4	<i>SAI YING PUN JUNCTION SHAFT</i>	75
8.5	<i>STONECUTTERS ISLAND PRODUCTION AND RISER SHAFTS</i>	75
8.6	<i>OVERALL</i>	76

LIST OF TABLES

Table 2.1	<i>Summary of Environmental Licensing, Notification and Permit Status for the Contract (a)</i>
Table 2.2	<i>Status of Required Submission for all Sites</i>
Table 3.1	<i>Summary of Construction Activities Undertaken from 1 June 2011 to 31 August 2011 at North Point Production and Drop Shafts</i>
Table 3.2	<i>Summary of Environmental Licensing, Notification and Permit Status at North Point Production and Drop Shafts</i>
Table 3.3	<i>Construction Phase Air Monitoring Location at North Point Production and Drop Shafts</i>
Table 3.4	<i>TSP Monitoring Parameter and Frequency</i>
Table 3.5	<i>TSP Monitoring Equipment for North Point Production and Drop Shafts Sites</i>
Table 3.6	<i>Action and Limit Levels for Air Quality at North Point Production and Drop Shafts</i>
Table 3.7	<i>Construction Phase Noise Monitoring Station at North Point Production and Drop Shafts</i>
Table 3.8	<i>Noise Monitoring Equipment at North Point Production and Drop Shafts</i>
Table 3.9	<i>Action and Limit Levels for Noise Monitoring at North Point Production and Drop Shafts</i>
Table 3.10	<i>Quantities of Waste Generated from the Project for all Sites</i>
Table 3.11	<i>Summary of Record of Exceedance at North Point Production and Drop Shafts</i>
Table 4.1	<i>Summary of Construction Activities Undertaken from 1 June 2011 to 31 August 2011 at Wan Chai East Production and Drop Shafts</i>
Table 4.2	<i>Summary of Environmental Licensing, Notification and Permit Status at Wan Chai East Production and Drop Shafts</i>
Table 4.3	<i>Construction Phase Air Monitoring Location at Wan Chai East Production and Drop Shafts</i>
Table 4.4	<i>TSP Monitoring Parameter and Frequency at Wan Chai East Production and Drop Shafts</i>
Table 4.5	<i>TSP Monitoring Equipment at Wan Chai East Production and Drop Shafts</i>
Table 4.6	<i>Action and Limit Levels for Air Quality at Wan Chai East Production and Drop Shafts</i>
Table 4.8	<i>Noise Monitoring Equipment at Wan Chai East Production and Drop Shafts</i>
Table 4.9	<i>Action and Limit Levels for Noise Monitoring at Wan Chai East Production and Drop Shafts</i>
Table 4.10	<i>Quantities of Waste Generated from the Project for all Sites</i>
Table 4.11	<i>Summary of Record of Exceedance at Wan Chai East Production and Drop Shafts</i>
Table 5.1	<i>Summary of Construction Activities Undertaken from 1 June 2011 to 31 August 2011 at Central Drop Shaft</i>
Table 5.2	<i>Summary of Environmental Licensing, Notification and Permit Status at Central Drop Shaft</i>
Table 5.3	<i>Construction Phase Air Monitoring Location at Central Drop Shaft</i>
Table 5.4	<i>TSP Monitoring Parameter and Frequency at Central Drop Shaft</i>
Table 5.5	<i>TSP Monitoring Equipment at Central Drop Shaft</i>
Table 5.6	<i>Action and Limit Levels for Air Quality at Central Drop Shaft</i>
Table 5.7	<i>Construction Phase Noise Monitoring Station at Central Drop Shaft</i>
Table 5.8	<i>Noise Monitoring Equipment at Central Drop Shaft</i>
Table 5.9	<i>Action and Limit Levels for Noise Monitoring at Central Drop Shaft</i>
Table 5.10	<i>Quantities of Waste Generated from the Project for all Sites</i>

Table 6.1	<i>Summary of Construction Activities Undertaken from 1 June 2011 to 31 August 2011 at Sai Ying Pun Junction Shaft</i>
Table 6.2	<i>Summary of Environmental Licensing, Notification and Permit Status at Sai Ying Pun Junction Shaft</i>
Table 6.3	<i>Construction Phase Air Monitoring Location at Sai Ying Pun Junction Shaft</i>
Table 6.4	<i>TSP Monitoring Parameter and Frequency at Sai Ying Pun Junction Shaft</i>
Table 6.5	<i>Action and Limit Levels for Air Quality at Sai Ying Pun Junction Shaft</i>
Table 6.6	<i>Construction Phase Noise Monitoring Station at Sai Ying Pun Junction Shaft</i>
Table 6.7	<i>Noise Monitoring Equipment at Sai Ying Pun Junction Shaft</i>
Table 6.8	<i>Action and Limit Levels for Noise Monitoring at Sai Ying Pun Junction Shaft</i>
Table 6.9	<i>Quantities of Waste Generated from the Project for all Sites</i>
Table 6.10	<i>Summary of Complaint Received</i>
Table 7.1	<i>Summary of Construction Activities Undertaken from 1 June 2011 to 31 August 2011 at Stonecutters Island Production and Riser Shafts</i>
Table 7.2	<i>Summary of Environmental Licensing, Notification and Permit Status at Stonecutters Island Production and Riser Shafts</i>
Table 7.3	<i>Construction Phase Air Monitoring Location at Stonecutters Island Production and Riser Shafts</i>
Table 7.4	<i>TSP Monitoring Parameter and Frequency at Stonecutters Island Production and Riser Shafts</i>
Table 7.5	<i>TSP Monitoring Equipment at Stonecutters Island Production and Riser Shafts</i>
Table 7.6	<i>Action and Limit Levels for Air Quality at Stonecutters Island Production and Riser Shafts</i>
Table 7.7	<i>Construction Phase Noise Monitoring Station at Stonecutters Island Production and Riser Shafts</i>
Table 7.8	<i>Noise Monitoring Equipment at Stonecutters Island Production and Riser Shafts</i>
Table 7.9	<i>Action and Limit Levels for Noise Monitoring at Stonecutters Island Production and Riser Shaft</i>
Table 7.10	<i>Quantities of Waste Generated from the Project for all Sites</i>

LIST OF ANNEXES

Annex A	Location of Works Areas
Annex B	Project Organization Chart and Contact Detail
Annex C	North Point Production and Drop Shaft
Annex C1	<i>Locations of Construction Activities during the Reporting period</i>
Annex C2	<i>Locations of Air Quality and Noise Monitoring Stations</i>
Annex C3	<i>Summary of Implementation Status</i>
Annex C4	<i>24-hour and 1-hour TSP Monitoring Results</i>
Annex C5	<i>Noise Monitoring Results</i>
Annex C6	<i>Cumulative Complaints and Summons/Prosecutions Log</i>
Annex D	Wan Chai East Production and Drop Shaft
Annex D1	<i>Locations of Construction Activities during the Reporting period</i>
Annex D2	<i>Locations of Air Quality and Noise Monitoring Stations</i>
Annex D3	<i>Summary of Implementation Status</i>
Annex D4	<i>24-hour and 1-hour TSP Monitoring Results</i>
Annex D5	<i>Noise Monitoring Results</i>
Annex D6	<i>Cumulative Complaints and Summons/Prosecutions Log</i>
Annex E	Central Drop Shaft
Annex E1	<i>Locations of Construction Activities during the Reporting period</i>
Annex E2	<i>Locations of Air Quality and Noise Monitoring Stations</i>
Annex E3	<i>Summary of Implementation Status</i>
Annex E4	<i>24-hour and 1-hour TSP Monitoring Results</i>
Annex E5	<i>Noise Monitoring Results</i>
Annex E6	<i>Cumulative Complaints and Summons/Prosecutions Log</i>
Annex F	Sai Ying Pun Junction Shaft
Annex F1	<i>Locations of Construction Activities during the Reporting period</i>
Annex F2	<i>Locations of Air Quality and Noise Monitoring Stations</i>
Annex F3	<i>Summary of Implementation Status</i>
Annex F4	<i>24-hour and 1-hour TSP Monitoring Results</i>
Annex F5	<i>Noise Monitoring Results</i>
Annex F6	<i>Cumulative Complaints and Summons/Prosecutions Log</i>
Annex G	Stonecutters Island Production and Riser Shaft
Annex G1	<i>Locations of Construction Activities during the Reporting period</i>
Annex G2	<i>Locations of Air Quality and Noise Monitoring Stations</i>
Annex G3	<i>Summary of Implementation Status</i>
Annex G4	<i>24-hour and 1-hour TSP Monitoring Results</i>
Annex G5	<i>Noise Monitoring Results</i>
Annex G6	<i>Cumulative Complaints and Summons/Prosecutions Log</i>

- Annex H Calibration Reports for HVSs and Sound Level Meters for All Sites
- Annex I Event / Action Plans for Air Quality, Noise and Landscape and Visual Monitoring
- Annex J Waste Flow Table for All Sites

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 7th quarterly Environmental Monitoring and Audit (EM&A) report presenting the EM&A works carried out during the period from 1 June 2011 to 31 August 2011 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:

- Rock blast and pre-excavation grouting at North Point Production Shaft; and
- Shaft sinking at North Point Production Shaft.

Environmental Monitoring and Audit Progress

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

- | | |
|---|----------|
| • 24-hour average TSP Monitoring at each monitoring station (AM1 and AM2) | 16 sets |
| • 1-hour average TSP Monitoring at each monitoring station (AM1 and AM2) | 48 sets |
| • Construction Noise Monitoring during Normal Weekdays at NM1 | 13 sets |
| • Construction Noise Monitoring during Restricted Hours at NM1 | 14 times |
| • Joint Environmental Site Inspection | 12 times |
| • Landscape & Visual Monitoring | 3 times |

Air Quality

16 sets of 24-hour average TSP and 48 sets of 1-hr average TSP measurements have been taken at each of the designated monitoring stations during the reporting period. No exceedance was recorded during the reporting period.

Noise

13 sets of Leq (30-minute) construction noise measurements were taken at the monitoring station NM1 during normal weekdays of the reporting period. 14 sets of 3 x Leq (5-minute) construction noise measurements were taken during restricted hours (between 0700 and 2300 hours on Sundays and public holidays) during the reporting period. Exceedances of limit level were recorded on 3, 17, and 30 June 2011; 15 and 29 July 2011; and 4, 16, and 30 August 2011.

Landscape & Visual

Landscape and visual monitoring has commenced in December 2009. Details of the audit findings and implementation status are presented in *Section 3.5.3*.

Cultural Heritage

No vibration monitoring was required to be conducted for this reporting period as the blasting of tunnel / shaft works has not started.

Waste Management

Wastes generated from this Project include inert construction and demolition (C&D) materials and non-inert C&D materials. A total of 17,296.08 tonnes of inert C&D materials, 77.93 tonnes of non-inert C&D materials, 1,040 litres of chemical waste were generated during the reporting period. No marine deposit requiring Type 1, Type 2, or Type 3 disposal methods were generated during the reporting period. Non-inert C&D materials are made up of general refuse, steel materials and paper/cardboard packaging materials. 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. 9,278.67 tonnes of inert C&D material generated during the reporting period were sent to Lam Tei Quarry for use during the reporting period. Paper/cardboard packaging generated was sent to recyclers for recycling.

Environmental Site Inspection

12 weekly joint environmental site inspections were carried out by representatives of the Contractor, the Engineer and the Environmental Team (ET). Details of the audit findings and implementation status are presented in *Section 3.6*.

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

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

8 exceedances of noise Limit Level during restricted hours was reported at NM1 on 3, 17, and 30 June 2011; 15 and 29 July 2011; and 4, 16, and 30 August 2011.

The exceedances were investigated and road traffic noise has been identified as the likely cause for such. Although the exceedance was not caused by the Project, the Contractor was 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.

No non-compliance events were recorded during the reporting period.

There were no complaints/summons/prosecutions 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:

- Rock blast and pre-excavation grouting at Wan Chai East Production Shaft;
- Shaft sinking at Wan Chai East Production Shaft;
- Tunnel lateral development at Wan Chai East Production Shaft; and
- Pre-excavation drilling and grouting at Wan Chai East Drop Shaft.

Environmental Monitoring and Audit Progress

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

- | | |
|--|----------|
| • 24-hour average TSP Monitoring at AM3 | 16 sets |
| • 1-hour average TSP Monitoring at AM3 | 48 sets |
| • Construction Noise Monitoring during Normal Weekdays at NM2 | 13 sets |
| • Construction Noise Monitoring during Restricted hours at NM2 | 14 times |
| • Joint Environmental Site Inspection | 11 times |
| • Landscape & Visual Monitoring | 3 times |

Air Quality

16 sets of 24-hour average TSP and 48 sets of 1-hr average TSP measurements were taken at the designated monitoring stations during the reporting period. No exceedance was recorded during the reporting period.

Noise

13 sets of Leq (30-minute) construction noise measurements were taken at the monitoring station NM2 during normal weekdays of the reporting period. 14 sets of 3 x Leq (5-minute) construction noise measurements were taken during restricted hours (between 0700 and 2300 hours on Sundays and public holidays) during the reporting period. Exceedances of limit level were recorded on 3, 17, and 30 June 2011; 15, 24, and 29 July 2011; and 4, 16, and 30 August 2011.

Landscape & Visual

Landscape and visual monitoring has commenced in December 2009. The recommended landscape and visual mitigation measures have been fully implemented and maintained. Details of the audit findings and implementation status are presented in *Section 4.5.3*.

Cultural Heritage

No vibration monitoring was required to be conducted for this reporting period as the blasting of tunnel / shaft works has not started.

Waste Management

Wastes generated from this Project include inert construction and demolition (C&D) materials and non-inert C&D materials. A total of 17,296.08 tonnes of inert C&D materials, 77.93 tonnes of non-inert C&D materials, 1,040 litres of chemical waste were generated during the reporting period. No marine deposit requiring Type 1, Type 2, or Type 3 disposal methods were generated during the reporting period. Non-inert C&D materials are made up of general refuse, steel materials and paper/cardboard packaging materials. 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. 9,278.67 tonnes of inert C&D material generated during the reporting period were sent to Lam Tei Quarry for use during the reporting period. Paper/cardboard packaging generated was sent to recyclers for recycling.

Environmental Site Inspection

11 weekly joint environmental site inspections were carried out by representatives of the Contractor, the Engineer and the Environmental Team (ET). Details of the audit findings and implementation status are presented in *Section 4.6*.

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

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

9 exceedances of noise Limit Level during restricted hours was reported at NM2 on 3, 17, and 30 June 2011; 15, 24, and 29 July 2011; and 4, 16, and 30 August 2011.

The exceedances were investigated and road traffic noise has been identified as the likely cause for such. Although the exceedance was not caused by the Project, the Contractor was 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.

No non-compliance events were recorded during the reporting period.

There were no complaints/summons/prosecutions received during the reporting period.

Central Drop Shaft

Summary of Construction Works undertaken during the Reporting Period

The major construction works undertaken included:

- Steelwork preparation and installation.

Environmental Monitoring and Audit Progress

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

- | | |
|---|---------|
| • 24-hour average TSP Monitoring at AM4 | 16 sets |
| • 1-hour average 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 |

Air Quality

16 sets of 24-hour average TSP and 48 sets of 1-hr average TSP measurements were taken at the designated monitoring station during the reporting period. No exceedance was recorded during the reporting period.

Noise

13 sets of Leq (30-minute) construction noise measurements were carried out at the monitoring station NM3 during normal weekdays of the reporting period. No exceedance was recorded during the reporting period.

Landscape & Visual

Landscape and visual monitoring has commenced in December 2009. Details of the audit findings and implementation status are presented in *Section 5.5.3*.

Cultural Heritage

No vibration monitoring was required to be conducted for this reporting period as the blasting of tunnel / shaft works has not started.

Waste Management

Wastes generated from this Project include inert construction and demolition (C&D) materials and non-inert C&D materials. A total of 17,296.08 tonnes of inert C&D materials, 77.93 tonnes of non-inert C&D materials, 1,040 litres of chemical waste were generated during the reporting period. No marine deposite requiring Type 1, Type 2, or Type 3 disposal methods were generated during the reporting period. Non-inert C&D materials are made up of general refuse, steel materials and paper/cardboard packaging materials. 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. 9,278.67 tonnes of inert C&D material generated during the reporting period were sent to Lam Tei Quarry for use during the reporting period. Paper/cardboard packaging generated was sent to recyclers for recycling.

Environmental Site Inspection

9 weekly joint environmental site inspections were carried out by representatives of the Contractor, the Engineer and the Environmental Team (ET). Details of the audit findings and implementation status are presented in *Section 5.6*.

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

No air quality exceedances were recorded during the reporting period.

No non-compliance events were recorded during the reporting period.

There were no complaints/summons/prosecutions 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:

- Shaft sinking; and
- Rock-blast and pre-excavation grouting.

Environmental Monitoring and Audit Progress

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

- | | |
|--|----------|
| • 24-hour average TSP Monitoring at AM5 | 17 sets |
| • 1-hour average TSP Monitoring at AM5 | 51 sets |
| • Construction Noise Monitoring during Normal Weekdays at NM4 | 13 sets |
| • Construction Noise Monitoring during Restricted hours at NM4 | 8 times |
| • Joint Environmental Site Inspection | 12 times |
| • Landscape & Visual Monitoring | 3 times |

Air Quality

17 sets of 24-hour average TSP and 51 sets of 1-hr average TSP measurements were taken at the designated monitoring station during the reporting period. No exceedance was recorded during the reporting period.

Noise

13 sets of Leq (30-minute) construction noise measurements were carried out at the monitoring station NM4 during normal weekdays of the reporting period. 8 sets of 3 x Leq (5-minute) construction noise measurements were taken during restricted hours (between 0700 and 2300 hours on Sundays and public holidays) during the reporting period. Exceedances of limit level were recorded on 15 and 29 July 2011; and 4, 16, and 30 August 2011.

Landscape & Visual

Landscape and visual monitoring has commenced in December 2009. Details of the audit findings and implementation status are presented in *Section 6.5.3*.

Cultural Heritage

No vibration monitoring was required to be conducted for this reporting period as the blasting of tunnel / shaft works has not started.

Waste Management

Wastes generated from this Project include inert construction and demolition (C&D) materials and non-inert C&D materials. A total of 17,296.08 tonnes of inert C&D materials, 77.93 tonnes of non-inert C&D materials, 1,040 litres of chemical waste were generated during the reporting period. No marine

deposite requiring Type 1, Type 2, or Type 3 disposal methods were generated during the reporting period. Non-inert C&D materials are made up of general refuse, steel materials and paper/cardboard packaging materials. 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. 9,278.67 tonnes of inert C&D material generated during the reporting period were sent to Lam Tei Quarry for use during the reporting period. Paper/cardboard packaging generated was sent to recyclers for recycling.

Environmental Site Inspection

12 weekly joint environmental site inspections were carried out by representatives of the Contractor, the Engineer and the Environmental Team (ET). Details of the audit findings and implementation status are presented in *Section 6.6*.

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

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

5 exceedances of noise Limit Level during restricted hours was reported at NM4 on 15 and 29 July 2011; and 4, 16, and 30 August 2011.

The exceedances were investigated and road traffic and ship noise has been identified as the likely cause for such. Although the exceedance was not caused by the Project, the Contractor was 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.

No non-compliance events were recorded during the reporting period.

There were no complaints/summons/prosecutions 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:

- Shaft sinking at Stonecutters Island Production Shaft;
- Construction of noise enclosure at Stonecutters Island Production Shaft;
- Rock blast and pre-excavation grouting at Stonecutters Island Production Shaft;
- Construction of connection adit at Stonecutters Island Riser Shaft; and
- Pre-excavation grouting at Stonecutters Island Riser Shaft.

Environmental Monitoring and Audit Progress

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

- | | |
|--|----------|
| • 24-hour average TSP Monitoring at AM6 | 17 sets |
| • 1-hour average TSP Monitoring at AM6 | 51 sets |
| • Construction Noise Monitoring during Normal Weekdays at NM5 | 14 times |
| • Construction Noise Monitoring during Restricted Hours at NM5 | 13 times |
| • Joint Environmental Site Inspection | 13 times |
| • Landscape & Visual Monitoring | 3 times |

Air Quality

17 sets of 24-hour average TSP and 51 sets of 1-hr average TSP measurements were taken at the designated monitoring station during the reporting period. No exceedance was recorded during the reporting period.

Noise

14 sets of Leq (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 Leq (5-minute) construction noise measurements were carried out during the restricted hours (between 0700 and 1900 hours on Sundays and public holidays) during the reporting period. Exceedances of limit level were recorded on 19 July 2011; and 9 and 23 August 2011.

Landscape & Visual

Landscape and visual monitoring has commenced in December 2009. Details of the audit findings and implementation status are presented in *Section 7.5.3*.

Cultural Heritage

No vibration monitoring was required to be conducted for this reporting period as the blasting of tunnel / shaft works has not started.

Waste Management

Wastes generated from this Project include inert construction and demolition (C&D) materials and non-inert C&D materials. A total of 17,296.08 tonnes of inert C&D materials, 77.93 tonnes of non-inert C&D materials, 1,040 litres of chemical waste were generated during the reporting period. No marine deposit requiring Type 1, Type 2, or Type 3 disposal methods were generated during the reporting period. Non-inert C&D materials are made up of general refuse, steel materials and paper/cardboard packaging materials. 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. 9,278.67 tonnes of inert C&D material generated during the reporting period were sent to Lam Tei Quarry for use during the reporting period. Paper/cardboard packaging generated was sent to recyclers for recycling.

Environmental Site Inspection

13 weekly joint environmental site inspections were carried out by representatives of the Contractor, the Engineer and the Environmental Team (ET). Details of the audit findings and implementation status are presented in *Section 7.6*.

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

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

3 exceedances of noise Limit Level during restricted hours was reported at NM5 on 19 July 2011; and 9 and 23 August 2011.

The exceedances were investigated and environmental noise in the vicinity of the Site has been identified as the likely cause for such. Although the exceedance was not caused by the Project, the Contractor was 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.

No non-compliance events were recorded during the reporting period.

There were no complaints/summons/prosecutions 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 7th quarterly EM&A report which summarizes the impact monitoring results and audit findings for the EM&A programme during the reporting period from **1 June 2011 to 31 August 2011**.

1.2 STRUCTURE OF THE REPORT

The structure of the report is as follows:

Section 1 : Introduction

Details the scope and structure of the report.

Section 2 : Project Information

Summarizes the background and scope of the project, site description, project organization and contact details

Section 3 : North Point Production and Drop Shafts

- **Construction Activities**

Summarizes the construction activities conducted during the reporting period.

- **Status of Environmental Approval Documents**

Summarizes the required environmental submissions under the relevant EP conditions during the reporting period.

- **Environmental Monitoring Requirement**

Summarizes the environmental monitoring including monitoring parameters, monitoring programmes, monitoring methodologies, monitoring frequency, monitoring 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**

Summarizes the implementation of environmental protection measures during the reporting period.

- **Monitoring Results**

Summarizes the monitoring results obtained in the reporting period.

- **Environmental Site Inspection**

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

- **Environmental Non-conformance**

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

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

- **Construction Activities**

Summarizes the construction activities conducted during the reporting period.

- **Status of Environmental Approval Documents**

Summarizes the environmental documents submissions under the EP condition during the reporting period.

- **Environmental Monitoring Requirement**

summarizes the environmental monitoring including monitoring parameters, monitoring programmes, monitoring methodologies, monitoring frequency, monitoring 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**

Summarizes the implementation of environmental protection measures during the reporting period.

- **Monitoring Results**

Summarizes the monitoring results obtained in the reporting period.

- **Environmental Site Inspection**

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

- **Environmental Non-conformance**

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

Section 5 : **Central Drop Shaft**

- **Construction Activities**

Summarizes the construction activities conducted during the reporting period.

- **Status of Environmental Approval Documents**

Summarizes the environmental documents submissions under the EP condition during the reporting period.

- **Environmental Monitoring Requirement**

summarizes the environmental monitoring including monitoring parameters, monitoring programmes, monitoring methodologies, monitoring frequency, monitoring 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**

Summarizes the implementation of environmental protection measures during the reporting period.

- **Monitoring Results**

Summarizes the monitoring results obtained in the reporting period.

- **Environmental Site Inspection**

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

- **Environmental Non-conformance**

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

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

- **Construction Activities**

Summarizes the construction activities conducted during the reporting period.

- **Status of Environmental Approval Documents**

Summarizes the environmental documents submissions under the EP condition during the reporting period.

- **Environmental Monitoring Requirement**

summarizes the environmental monitoring including monitoring parameters, monitoring programmes, monitoring methodologies, monitoring frequency, monitoring 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**

Summarizes the implementation of environmental protection measures during the reporting period.

- **Monitoring Results**

Summarizes the monitoring results obtained in the reporting period.

- **Environmental Site Inspection**

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

- **Environmental Non-conformance**

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

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

- **Construction Activities**

Summarizes the construction activities conducted during the reporting period.

- **Status of Environmental Approval Documents**

Summarizes the environmental documents submissions under the EP condition during the reporting period.

- **Environmental Monitoring Requirement**

summarizes the environmental monitoring including monitoring parameters, monitoring programmes, monitoring methodologies, monitoring frequency, monitoring 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**

Summarizes the implementation of environmental protection measures during the reporting period.

- **Monitoring Results**

Summarizes the monitoring results obtained in the reporting period.

- **Environmental Site Inspection**

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

- **Environmental Non-conformance**

Summarizes 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 riser shaft and approximately 12 km of tunnel excavation from North Point via Sai Ying Pun to Stonecutters Island. Shafts vary in depth from 140 m and 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 (NP PTW) to Stonecutters Island Sewage Treatment Works (SCI STW) via Wan Chai East Preliminary Treatment Works (WCE PTW), Central Preliminary Treatment Works (CEN PTW) and Fung Mat Street Sai Ying Pun (SYP) junction shaft;
- construction of drop shafts at NP PTW, WCE PTW and CEN PTW;
- construction of riser shaft at SCI STW;
- construction of junction shaft 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 tunnel connecting the proposed drop shafts / riser shaft to the facilities of the preliminary treatment works / sewage treatment works;
- carrying out survey of existing buildings, taking over of existing and installation of new piezometers and ground settlement markers and subsequent monitoring thereof and 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. Under the requirements of Condition 4.1 of Environmental Permit EP-322/2008/E, 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 December 2009 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	Throughout the Contract	<ul style="list-style-type: none"> Permit granted on 24 November 2010
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			
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	No marine dumping permit is required as marine deposits requiring Type 3 disposal is not anticipated.

Permit/ Licences/ Notification	Reference	Validity Period	Remarks
			Should marine deposits require Type 3 disposal, Type 3 disposal permit will be applied.
Note:			
(a) The status on environmental licensing and permit for each worksite is discussed in the following sections.			

Status of required submissions under the 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 1.11	Notification on Commencement of Construction of the Project	17 November 2009
Condition 2.3	Notification on Management Organization of the Main Construction Company	18 September 2009
Condition 4.3	Submission of Baseline Monitoring Report (final version incorporating comments from EPD)	18 December 2009
Condition 4.4	Submission of 19 th Monthly EM&A Report	15 July 2011
	Submission of 20 th Monthly EM&A Report	12 August 2011
	Submission of 21 th Monthly EM&A Report	15 September 2011

2.3 *PROJECT ORGANISATION*

The project organization 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 June 2011 to 31 August 2011 at North Point Production and Drop Shafts*

Worksite	Construction Activities Undertaken
Production Shaft	<ul style="list-style-type: none"> • Shaft sinking • Rock blast and pre-excavation grouting
Drop Shaft	<ul style="list-style-type: none"> • Nil

3.2 STATUS OF ENVIRONMENTAL APPROVAL DOCUMENTS

A summary of the relevant permits, licences, and/or notifications on environmental protection for this Project since December 2009 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 WT00005153-2009	12 October 2009 - 31 October 2014	--
	North Point Production Shaft WT00007055-2010	9 July 2010 - 31 March 2015	--
Chemical Waste Producer Registration	North Point Production Shaft 5213-153-G2484-01	--	--
	North Point PTW Drop Shaft 5213-153-G2483-01	--	--
Construction Noise Permit	North Point Production Shaft GW-RS1050-10	26 November 2010 – 25 May 2011	Superseded by GW-RS0418-11
	North Point Production Shaft GW-RS0418-11	12 May 2011 – 11 November 2011	--
	North Point PTW Drop Shaft GW-RS0057-10	1 February 2010 - 31 July 2010	Superseded by GW-RS0610-10
	North Point PTW Drop Shaft GW-RS0610-10	31 July 2010 – 30 January 2011	No CNP is required as no construction works will take place during

Permit/ Licences/ Notification	Reference	Validity Period	Remarks
			restricted hours

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 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 ER and the IEC. Due to security issue of the High Volume Sampler (HVS) mounted on the existing monitoring location (rooftop of WSD office) especially under adverse weather conditions, an alternative location which is one floor below the existing 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 rejected.
	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 TSP	Once in every 6 days
1-hour TSP	3 times in every 6 days

Monitoring Equipment

Continuous 24-hour and three 1-hour TSP monitoring were performed using High Volume Samplers (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)*. Table 3.5 summarizes the equipment that were deployed for the 24-hour and 1-hour TSP monitoring respectively.

Table 3.5 TSP Monitoring Equipment for North Point Production and Drop Shafts Sites

Monitoring Station	Monitoring Equipment (HVS and Calibrator)
<i>24-hr and 1-hr TSP</i>	
AM1	GMW GS-2310 (S/N 1808), CM-AIR-43 (S/N 9833620) or CM-AIR-43 (S/N 0438320)
AM2	GMW GS-2310 (S/N 0145), CM-AIR-43 (S/N 9833620) or CM-AIR-43 (S/N 0438320)

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 were 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 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 folder 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 equipments 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. 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 C4*.

Action and Limit Levels

The Action and Limit levels have been established and presented in *Table 3.6*.

Table 3.6 *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 TSP	AM1	185	260
	AM2	182	260
1-hour 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 rejected or not available; alternative locations, therefore, were proposed and agreed by the ER and the IEC. Construction activities during restricted hours (1900 – 2300 on weekdays and 0700 – 2300 on public holidays and Sundays) have commenced in August 2010. As the constraint of Chan’s Creative School’s schedule (closed from 1900 to 0700 on normal week days and from 0000 to 2400 on public holidays as well as Sundays), the school (noise monitoring station NM1) is not accessible during restricted hours and noise monitoring during restricted hours would therefore be conducted on the pedestrian walkway adjacent to the school boundary along Tin Chiu Street, which was agreed by ER and IEC. The construction noise monitoring location for this Contract is listed in *Table 3.7* and is shown in *Annex C2*.

Table 3.7 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	Restricted hours

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). $L_{eq(30min)}$ were used as the monitoring parameter for the time period in between 0700 – 1900 hours on normal weekdays, and $L_{eq(5min)}$ 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 *Table 3.8*, complies with IEC 651: 1979 and 804:1985 (Type 1) specification. The calibration certificates of the sound level meters are included in *Annex H*.

Table 3.8 Noise Monitoring Equipment at North Point Production and Drop Shafts

Monitoring Station	Monitoring Equipment (Sound Level Metre and Calibrator)
NM1	<ul style="list-style-type: none"> Calibrator: Rion NC-73 (S/N 10997142) Sound Level Meters: Rion NL-31 (S/N 00983400)

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 noise monitoring during different monitoring periods are summarized in *Table 3.9*.

Table 3.9 *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 _{eq} (30mins)	70	During normal teaching period
	L _{eq} (30mins)	69 (a)	During the school examination period
	L _{eq} (30mins)	75	During school holidays
	L _{eq} (5mins)	70	Evening (1900-2300); and Sundays and public holidays (0700-2300)
	L _{eq} (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), exceeding the Limit Level of daytime construction noise during examination periods (65 dB(A)), it will therefore be 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.

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 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*.

3.4 *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 C3*.

3.5 *MONITORING RESULTS*

3.5.1 *Air Quality*

A total of 16 sets of 24-hour and 48 sets of 1-hour TSP measurements were carried out at each of AM1 and AM2 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 C4*.

The weather condition during the monitoring period varied from sunny to rainy. 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 were 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. 14 sets of 3 x 5-minute construction noise measurements were carried out during restricted hours (between 0700 and 1900 hours on Sundays and public holidays) on 3, 12, 17, 26, and 30 June 2011; 10, 15, 24, and 29 July 2011 ; and 4, 7, 16, 21, and 30 August 2011 in the reporting period. The monitoring results together with graphical presentations are presented in *Annex C5*. The local impacts observed near the monitoring stations of NM1 included traffic noise from King's Road, Java Road and nearby roads; school bell rings; student noise and the construction works by other parties undertaken in the vicinity. The local impacts during restricted hours observed included traffic noise from King's Road, Java Road and nearby roads and the construction works by other parties undertaken in the vicinity.

Exceedances of the limit level for noise monitoring during restricted hours were recorded on 3, 17, and 30 June 2011; 15 and 29 July 2011; and 4, 16, and 30 August 2011 at NM1. Investigations have been conducted to review the potential causes for the noise level recorded. A summary of the investigation results is presented in *Section 3.7.1*.

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. No major findings were observed 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 have not started.

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. Reference has been made on the Monthly Summary Waste Flow Table prepared by the Contractor (*Annex J*).

The waste statistics provided in this section represent the cumulative quantity of wastes generated from all sites in this Project. With reference to relevant handling records and trip tickets of this Project, the quantities of different types of waste generated in the reporting period are summarised in *Table 3.10*. 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. 747 kg of paper/cardboard packaging and 63 kg of plastics were generated during the reporting period.

Table 3.10 Quantities of Waste Generated from the Project for all Sites

Month / Year	Quantity					
	C&D Materials (inert) ^(a)	C&D Materials (non-inert) ^(b)	Chemical Waste	Marine Deposit		
				Type 1 disposal	Type 2 disposal	Type 3 disposal
June 2011 – August 2011	17,296.08 tonnes	77.93 tonnes	1,040 L	0 m ³	0 m ³	0 tonnes

Notes:

- (a) Inert C&D materials include bricks, concrete, building debris, rubble and excavated soil. No inert C&D material was reused in this Project during the reporting period. Non-reused inert C&D materials were disposed of at the Tuen Mun Area 38/Tseung Kwan O Area 137 Fill Bank/ Chai Wan Barging Point. In addition, 9,278.67 tonnes of broken rock has been transferred to Lam Tei Quarry for use
- (b) Non-inert C&D materials include steel, paper / cardboard packaging waste, plastics and other wastes such as general refuse. Steel materials generated from the project are grouped into non-inert C&D materials as the materials were not disposed of with other inert C&D materials. The non-inert C&D materials other than steel and paper/cardboard packaging were disposed of at SENT Landfill. No steel material, 747 kg of paper/cardboard packaging, and 63 kg of plastics were sent to recyclers for recycling during the reporting period.

3.6 ENVIRONMENTAL SITE INSPECTION

Weekly site inspections were carried out by the representatives of the Contractor, Engineer and the ET. 12 site inspections were conducted on 2, 9, 16, 23, and 30 June 2011; 7, 14, and 21 July 2011; and 4, 11, 18, and 25 August

2011. Representative of the IEC joined the site inspection on 30 June 2011, and 25 August 2011. Due to the scheduled SSEMC meeting on 27 July 2011 immediately after the joint inspection, inspection was not arranged for the sites on that day. There was no non-compliance recorded during this reporting period.

Major findings and recommendations are summarized as follows:

North Point Production Shaft

- On 23 June, the general refuse skid was full and some refuse was found near the skid. The Contractor was reminded to have the waste skid cleared frequently.
- On 30 June, chemical tank without drip tray and warning label was observed inside the noise enclosure. The Contractor was reminded to provide drip tray and warning label for the chemical tank.
- On 30 June, chemical tanks without drip tray were observed under the sedimentation tank. The Contractor was reminded to provide drip trays for the tanks.
- On 21 July, access towards chemical waste storage was found to be blocked. The Contractor was reminded to provide proper access to the chemical waste storage when access to the chemical waste storage is needed.
- On 21 July, stagnant water was found on top of two chemical drums at the chemical storage area. The Contractor removed the stagnant water immediately. The Contractor was also reminded to remove all stagnant water after raining.
- On 4 August, cement in opened bags was observed without being covered by impervious sheeting. The Contractor was reminded that impervious sheeting shall be provided to avoid dust impact.

North Point Drop Shaft

- On 23 June, stagnant water with moss growing was observed near the portable office. The Contractor was reminded to clear any stagnant water after raining. The stagnant water observed was cleared immediately by the Contractor.
- On 14 July, stagnant water was observed near the entrance of the site. The Contractor was reminded to remove the stagnant water to avoid mosquito breeding after the rain stops.

Follow-up actions were undertaken as reported by the Contractor and observed in the site inspection conducted in 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 and 24-hour TSP were recorded at monitoring stations during the reporting period.

8 exceedances of noise criteria during restricted hours was reported at NM1 on 3, 17, and 30 June 2011; 15 and 29 July 2011; and 4, 16, and 30 August 2011. Investigations into the incident was made and concluded that the road traffic noise in the vicinity of the Project was the major cause of the noise levels recorded. Although the exceedance was not caused by the Project, the Contractor of this Project was 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.

Table 3.11 *Summary of Record of Exceedance at North Point Production and Drop Shafts and Investigations into the incidents*

Station	Record of Exceedance	Result of Investigation
NM1	Exceedance of Limit Level on 4 June 2011 (00:03 - 00:18) ^[a]	<p>Observations during the noise monitoring session indicated that no outdoor construction activities at North Point Production and Drop Shafts have taken place. It is therefore considered that the measured noise level was attributable to the traffic noise from Java Road.</p> <p>With reference to the works summary provided by the Contractor, no construction activities took place during the monitoring session at North Point Drop Shaft. The construction works taking place during the noise monitoring session included controlling tally room and confined space access; operating kibble winder; drilling of the grout holes; routine works and miscellaneous activities at North Point Production Shaft. These activities were considered relatively quiet in nature, and were carried out inside the noise enclosure. Since all works were carried out according to the Construction Noise Permits (CNP GW-RS1050-10), it is believed that the exceedance observed is considered attributable to the road traffic noise measured at the Site and is non-project related.</p>

Station	Record of Exceedance	Result of Investigation
NM1	Exceedance of Limit Level on 17 June 2011 (23:06 - 23:21)	<p>The ET observed no outdoor construction activities at the North Point 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 construction activities that took place during the noise monitoring session included controlling tally room and confined space access; safety meeting and gas testing; winder operations; drilling of the blasting holes PN-049; housekeeping and miscellaneous works at North Point Production Shaft. These activities are relatively quiet in nature, and were carried out inside the noise enclosure.</p> <p>Since all works were carried out according to the conditions of the Construction Noise Permits (CNP GW-RS1050-10), it is believed that the exceedance measured is considered attributable to the road traffic noise from nearby roads and is considered non-project related.</p>
NM1	Exceedance of Limit Level on 30 June 2011 (23:29 - 23:44)	<p>The ET observed no outdoor construction activities at the North Point 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 construction activities that took place during the noise monitoring session included controlling tally room and confined space access; grouting the probe hole PN-P06-04 and grout hole PN-G06-10; and repair of drill rig at North Point Production Shaft. These activities are relatively quiet in nature, and were carried out inside the noise enclosure.</p> <p>Since all works were carried out according to the conditions of the Construction Noise Permits (CNP GW-RS1050-10), it is believed that the exceedance measured is considered attributable to the road traffic noise from nearby roads and is considered non-project related.</p>

Station	Record of Exceedance	Result of Investigation
NM1	Exceedance of Limit Level on 15 July 2011 (23:00 - 23:15)	<p>The ET observed no outdoor construction activities at the North Point 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 construction activities that took place during the noise monitoring session included access controlling at tally room for confined space; mucking out from shaft bottom; drilling and installing 7 nos. rock dowel for mapping; stockpiling C&D materials at spoil bunker at North Point Production Shaft. These activities are relatively quiet in nature, and were carried out inside the noise enclosure.</p> <p>Since all works were carried out according to the conditions of the Construction Noise Permits (CNP GW-RS1050-10), it is believed that the exceedance measured is considered attributable to the road traffic noise from nearby roads and is considered non-project related.</p>
NM1	Exceedance of Limit Level on 29 July 2011 (23:08 – 23:23)	<p>The ET observed no outdoor construction activities at the North Point 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 construction activities that took place during the noise monitoring session included access control at tally room for confined space; drilling the grout hole PN-G07-10, 11, 12, 13, 14 and grout the grout hole PN-G07-02 and probe hole PN-P07-01, 02, 03 at North Point Production Shaft. These activities are relatively quiet in nature, and were carried out inside the noise enclosure.</p> <p>Since all the works were inherently not noisy and were carried out inside the noise enclosure according to the conditions of the Construction Noise Permits (CNP GW-RS1050-10), it can reasonably believe that the exceedance measured is considered attributable to the road traffic noise from nearby roads and is considered non-project related.</p>

Station	Record of Exceedance	Result of Investigation
NM1	Exceedance of Limit Level on 4 August 2011 (23:12 - 23:37)	<p>It was observed no outdoor construction activities at the North Point Production and Drop Shafts during the noise monitoring session. This was consistent with the works summary provided by the Contractor showing no outdoor construction activities that have taken place during the same period.</p> <p>According to the works summary provided by the Contractor, construction activities that took place during the noise monitoring session included access control at tally room for confined space; drilling blast holes PN-063; stockpiling C&D materials at spoil bunker; mucking out from shaft bottom and preparation work for drill the blast holes(PN-063) at North Point Production Shaft. These activities were relatively quiet in nature, and were carried out inside the noise enclosure.</p> <p>Since all the works were inherently not noisy and were carried out inside the noise enclosure according to the conditions of the Construction Noise Permits (CNP GW-RS1050-10), it can reasonably believe that the exceedance measured was considered attributable to the road traffic noise from nearby roads and is considered non-project related.</p>
NM1	Exceedance of Limit Level on 16 August 2011 (23:10 – 23:25)	<p>It was observed no outdoor construction activities at the North Point Production and Drop Shafts during the noise monitoring session. This was consistent with the works summary provided by the Contractor showing no outdoor construction activities that have taken place during the same period.</p> <p>According to the works summary provided by the Contractor, construction activities that took place during the noise monitoring session included access control at tally room for confined space; winder operations and miscellaneous activities including equipment and electrical maintenance at North Point Production Shaft. These activities were relatively quiet in nature, and were carried out inside the noise enclosure.</p> <p>Since all the works were inherently not noisy and were carried out inside the noise enclosure according to the conditions of the Construction Noise Permits (CNP GW-RS1050-10), it can reasonably believe that the exceedance measured was considered attributable to the road traffic noise from nearby roads and is considered non-project related.</p>

Station	Record of Exceedance	Result of Investigation
NM1	Exceedance of Limit Level on 30 August 2011 (23:50 – 00:05)	<p>It was observed no outdoor construction activities at the North Point 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>According to the works summary provided by the Contractor, construction activities that took place during the noise monitoring session included access control at tally room for confined space; winder operations, drilling of rock bolts and miscellaneous activities including equipment and electrical maintenance at North Point Production Shaft. These activities are relatively quiet in nature, and were carried out inside the noise enclosure.</p> <p>Since all the works were inherently not noisy and were carried out inside the noise enclosure according to the conditions of the Construction Noise Permits (CNP GW-RS1050-10), it can reasonably believe that the exceedance measured is considered attributable to the road traffic noise from nearby roads and is considered non-project related.</p>

Note:

[a] Restricted hour noise monitoring scheduled on 3 June 2011 was conducted on 4 June 2011 at 00:03 - 00:18.

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 C6*.

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 C6*.

4.1 CONSTRUCTION ACTIVITIES DURING THE REPORTING PERIOD

A summary of the major construction activities undertaken in this 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 June 2011 to 31 August 2011 at Wan Chai East Production and Drop Shafts*

Worksite	Construction Activities Undertaken
Production Shaft	<ul style="list-style-type: none"> • Shaft sinking • Rock blast and pre-excavation grouting • Tunnel lateral development
Drop Shaft	<ul style="list-style-type: none"> • Pre-excavation drilling and grouting

4.2 STATUS OF ENVIRONMENTAL APPROVAL DOCUMENTS

A summary of the relevant permits, licences, and/or notifications on environmental protection for this Project since December 2009 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 WT00007023-2010	13 July 2010 - 31 October 2014	Superseded by WT00008533-2011
	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	--	--
Construction Noise Permit	Wan Chai East Drop Shaft GW-RS0618-10	20 July 2010 - 18 January 2011	Superseded by GW-RS0745-11
	Wan Chai East Drop Shaft GW-RS0745-11	11 August 2011 - 9 February 2012	--
	Wan Chai East Production Shaft GW-RS0971-10	1 November 2010 - 31 May 2011	Superseded by GW-RS0350-11
	Wan Chai East Production Shaft GW-RS0350-11	1 May 2011 - 31 October 2011	

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 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 ER and the 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			Remark
	ID in EM&A Manual	ID	Location	
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 is 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 TSP	Once in every 6 days
1-hour TSP	3 times in every 6 days

Monitoring Equipment

Continuous 24-hour and 1-hour 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). Table 4.5 summarizes the equipment that was deployed for the 24-hour and 1-hour TSP monitoring.

Table 4.5 TSP Monitoring Equipment at Wan Chai East Production and Drop Shafts

Monitoring Station	Monitoring Equipment (HVS and Calibrator)
<i>24-hr and 1-hr TSP</i>	
AM3	GMW GS-2310 (S/N 0481), CM-AIR-43 (S/N 9833620) or CM-AIR-43 (S/N 0438320)

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 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 equipments 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 King's Park Station. 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 are presented in *Annex D4*.

Action and Limit Levels

The Action and Limit levels have been established and presented in *Table 4.6*.

Table 4.6 *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 TSP	AM3	181	260
1-hour 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 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 4.7* and is shown in *Annex D2*.

Table 4.7 *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 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). $L_{eq(30min)}$ were used as the monitoring parameter for the time period in between 0700 – 1900 hours on normal weekdays, and $L_{eq(5min)}$ 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 *Table 4.8*, complies with IEC 651: 1979 and 804:1985 (Type 1) specification. The calibration certificates of the sound level meters are included in *Annex H*.

Table 4.8 *Noise Monitoring Equipment at Wan Chai East Production and Drop Shafts*

Monitoring Station	Monitoring Equipment (Sound Level Metre and Calibrator)
NM2	<ul style="list-style-type: none">• Calibrator: Rion NC-73 (S/N 10997142)• Sound Level Meters: Rion NL-31 (S/N 00983400)

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 noise monitoring during different monitoring periods are summarized in *Table 4.9*.

Table 4.9 *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 _{eq} (30mins)	75	Normal working hours during weekdays
	L _{eq} (5mins)	70	Evening (1900-2300); and Sundays and public holidays (0700-2300)
	L _{eq} (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 no blasting of tunnel / shaft works was carried out.

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

4.4 *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 D3*.

4.5 *MONITORING RESULTS*

4.5.1 *Air Quality*

A total of 16 sets of 24-hour and 48 sets of 1-hour 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 D4*.

The weather condition during the monitoring period varied from sunny to rainy. 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 were 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. 14 sets of 3 x 5-minute construction noise measurements were carried out during restricted hours (between 0700 and 1900 hours on Sundays and public holidays) on 3, 12, 17, 26, and 30 June 2011; 10, 15, 24, and 29 July 2011; and 4, 7, 16, 21, and 30 August 2011 during the reporting period. The monitoring results together with graphical presentations are presented in *Annex D5*. The local impacts observed near the monitoring stations of NM2 were noise from traffic movement on Gloucester Road and Hung Hing Road and occasional helicopter landing on the helipad at Hung Hing Road.

Exceedances of the limit level were recorded for 9 sets of noise measurements during restricted hours at NM2 on 3, 17, and 30 June 2011; 15, 24, and 29 July 2011; and 4, 16, and 30 August 2011. Investigations have been conducted to review the potential causes for the noise level recorded. 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 was conducted for this reporting period as the blasting of tunnel / shaft works have not started.

4.5.5 *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. Reference has been made on the Monthly Summary Waste Flow Table prepared by the Contractor (*Annex J*).

The waste statistics provided in this section represent the cumulative quantity of wastes generated from all sites in this Project. With reference to relevant handling records and trip tickets of this Project, the quantities of different types of waste generated in the reporting period are summarised in *Table 4.10*.

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. 747 kg of paper/cardboard packaging and 63 kg of plastics were generated during the reporting period.

Table 4.10 Quantities of Waste Generated from the Project for all Sites

Month / Year	Quantity					
	C&D Materials (inert) ^(a)	C&D Materials (non-inert) ^(b)	Chemical Waste	Marine Deposit		
				Type 1 disposal	Type 2 disposal	Type 3 disposal
June 2011 – August 2011	17,296.08 tonnes	77.93 tonnes	1,040 L	0 m ³	0 m ³	0 tonnes

Notes:

- (a) Inert C&D materials include bricks, concrete, building debris, rubble and excavated soil. No inert C&D material was reused in this Project during the reporting period. Non-reused inert C&D materials were disposed of at the Tuen Mun Area 38/Tseung Kwan O Area 137 Fill Bank/ Chai Wan Barging Point. In addition, 9,278.67 tonnes of broken rock has been transferred to Lam Tei Quarry for use
- (b) Non-inert C&D materials include steel, paper / cardboard packaging waste, plastics and other wastes such as general refuse. Steel materials generated from the project are grouped into non-inert C&D materials as the materials were not disposed of with other inert C&D materials. The non-inert C&D materials other than steel and paper/cardboard packaging were disposed of at SENT Landfill. No steel material, 747 kg of paper/cardboard packaging, and 63 kg of plastics were sent to recyclers for recycling during the reporting period.

4.6

ENVIRONMENTAL SITE INSPECTION

Weekly site inspections were carried out by the representatives of the Contractor, Engineer and the ET. 11 site inspections were conducted 2, 9, 16, and 23 June 2011; 7, 14, and 21 July 2011; and 4, 11, 18, and 25 August 2011. The representative of the IEC joined the site inspection on 25 August 2011. Due to the scheduled SSEMCM meetings on 30 June 2011 and July 27 2011 immediately after the joint inspection, inspection was not arranged for the WCE site on those days. There was no non-compliance recorded during the site inspections.

Major findings and recommendations are summarized as follows:

Wan Chan East Production Shaft

- On 2 June, labelling were observed absent in some containers at the chemical store. It was recommended that proper labelling have to be provided to all chemicals in accordance with the *Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes*.
- On 2 June, stagnant water is observed at the side of a portable container at some low areas. The Contractor was recommended to remove the stagnant water to avoid mosquito breeding. The Contractor also mentioned that they will fill the low area with concrete to avoid accumulation of water in those areas.
- On 9 June, some sand was observed near the chemical storage area, and the Contractor advised that the sand was used to cover up chemical spills.

The Contractor was recommended to clear the sand piles, and label and store it as chemical waste in accordance with the *Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes*.

- On 9 June, a bucket of chemical waste was observed behind the noise enclosure and the Contractor was reminded to label and store all chemical waste properly in accordance with the *Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes*.
- On 9 June, general refuse such as plastic bag, packaging, and cigarette butts were observed at a retained tree. The Contractor was reminded that retained trees have to be protected carefully and general refuse should go to the general refuse bin. Refresher training was also recommended to the workers on general waste disposal.
- On 9 June, stagnant water was found on a H-pile. The Contractor was reminded to clear stagnant water after raining to avoid mosquito breeding.
- On 16 June, a chemical drum at the chemical store is found without proper labelling. The Contractor was recommended to clear the sand piles, and label and store it as chemical waste in accordance with the *Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes*.
- On 7 July, general refuse was observed at the drip tray at the chemical store. The Contractor was recommended to remove the general refuse and provide refresher training to construction workers on waste segregation. General refuse contaminated with chemical waste should be disposed of in accordance with the *Code of Practice on the Packaging, Handling and Storage of Chemical Wastes*.
- On 14 July, unclear labelling was observed on several chemical drums at the chemical storage area. The Contractor was reminded to provide proper labelling to all containers.
- On 21 July, plastic containers for transferring chemicals at the chemical storage area were observed to be lacking proper labelling. The Contractor was recommended to provide labelling when they are in use to avoid accidental mixing of chemicals.
- On 21 July, some concrete debris was found near a retained tree. The Contractor was recommended to clear the concrete as soon as possible and provide refresher sessions on tree protection to on-site workers when necessary.
- On 21 July, stagnant water was found at various spots within the Site. The Contractor was reminded to clear all stagnant water after raining.
- On 4 August, stagnant water was observed at various spots within the site. The Contractor was reminded to clear off any stagnant water after floor washing in the morning.
- On 18 August, stagnant water was observed to the left of the entrance after floor washing in the morning. The Contractor was reminded to clear off stagnant water after raining or floor washing.
- On 18 August, a can was found near the shoe washing area. The Contractor disposed of the can in the recycling bin immediately. The Contractor was recommended to provide toolbox training to site workers on segregation of waste when necessary.

- On 25 August, oil was observed on the floor near the work station outside the noise enclosure. The Contractor was reminded to remove the oil and disposed of as chemical waste properly.

Wan Chai East Drop Shaft

- On 9 June, a bucket of liquid was found underneath the Wetsep. The nature of the liquid was undetermined as it was difficult to gain access near the bucket during the site walk. It was recommended, however, that if the liquid is found to be water, it should be cleared to avoid mosquito breeding; and if the liquid is determined to be chemical waste, it should be labelled and stored properly in accordance with the *Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes*.
- On 9 June, air-conditioner at the portable office was found to be dripping water. The Contractor was advised to install a tube to direct the water to the nearby drainage channel and reduce the possibility of having stagnant water below the air-conditioner.
- On 23 June, a mobile crane was observed emitting black smoke for a short period of time. The Contractor was reminded to arrange checking of the equipment and any maintenance work that may require.
- On 14 July, a tire was found placed on top of a tarpaulin sheet that was used to cover stockpiling materials. The Contractor was recommended to remove the tire to avoid potential formation of stagnant water inside the tire on top of the tarpaulin sheet
- On 21 July, stagnant water was found at various spots within the Site. The Contractor was reminded to clear all stagnant water after raining.
- On 21 July, the air conditioner of the portable office was observed to be dripping with water. The Contractor has promised to provide a tube to divert the water or provide other mitigation measures.
- On 4 August, empty drink bottles were found on the site. The Contractor removed the empty bottles and put them into the recycling bin for plastic immediately. The Contractor was recommended to provide refresher sessions to on-site workers on waste segregation.
- On 11 August, stagnant water was observed within the site after heavy rain overnight. The Contractor was reminded to clear off stagnant water after raining.

Follow-up actions were undertaken as reported by the Contractor and observed in the weekly site inspection conducted in 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 TSP were recorded at monitoring stations during the reporting period.

9 exceedances of noise Limit Level during restricted hours was reported at NM2 on 3, 17, and 30 June 2011; 15, 24, and 29 July 2011; and 4, 16, and 30 August 2011. Investigations into the incident was made and concluded that

the road traffic noise in the vicinity of the Project was the major cause of the noise levels recorded. Although the exceedance was not caused by the Project, the Contractor of this Project was 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.

Table 4.11 *Summary of Record of Exceedance at Wan Chai East Production and Drop Shafts and Investigations into the incidents*

Station	Record of Exceedance	Result of Investigation
NM2	Exceedance of Limit Level on 4 June 2011 (06:28 - 06:43) ^[a]	<p>Observations during the noise monitoring indicated that there were no outdoor construction activities at Wan Chai East Production and Drop Shafts. It is therefore considered that the measured noise level was attributable to the traffic noise from Gloucester Road.</p> <p>With reference to the works summary provided by the Contractor, no work was taking place during the monitoring period at the Drop Shaft, and all construction works took place inside the noise enclosure at the Production Shaft.</p> <p>Construction work carried out at the Production Shaft during the monitoring period was installing service pipes and ventilation ducts. This work is considered relatively quiet in nature. These activities are considered not related to the noise exceedance.</p> <p>Based on the above, the exceedance observed is considered attributable to the road traffic noise recorded at the Site and is non-project related.</p>
NM2	Exceedance of Limit Level on 18 June 2011 (06:33 - 06:48) ^[b]	<p>The ET 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 construction activities that took place during the noise monitoring session were cleaning and blowing; controlling tally room and confined space access; sedimentation tank monitoring, equipment maintenance and housekeeping; winder, gantry and stage hoist operation; and site supervision. These activities are relatively quiet in nature, and were carried out inside the noise enclosure.</p> <p>Based on the above, the exceedance observed is considered attributable to the road traffic noise in the vicinity of the Site and is non-project related.</p>

Station	Record of Exceedance	Result of Investigation
NM2	Exceedance of Limit Level on 1 July 2011 (06:16 -06:31) ^[c]	<p>The ET 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 construction activities that took place during the noise monitoring session were mucking out, kibble dumping, housekeeping; site, shaft and equipment maintenance; controlling tally room and confined space access; winder, gantry, stage hoist and general lifting operation; muck bin chute clearing and piling; and site supervision. These activities are relatively quiet in nature, and were carried out inside the noise enclosure.</p> <p>Based on the above, the exceedance observed is considered attributable to the road traffic noise recorded at the Site and is non-project related.</p>
NM2	Exceedance of Limit Level on 16 July 2011 (06:42 - 06:57) ^[d]	<p>The ET 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 construction activities that took place during the noise monitoring session were mucking out; winder and gantry crane operations; general lifting works; controlling tally room and confined space; shaft lightings, pumps, compressors, wetsep and electrical installations monitoring & maintenance; equipment repair, servicing and maintenance; site supervision. These activities are relatively quiet in nature, and were carried out inside the noise enclosure.</p> <p>Based on the above, the exceedance observed is considered attributable to the road traffic noise in the vicinity of the Site and is non-project related.</p>
NM2	Exceedance of Limit Level on 24 July 2011 (09:50 - 10:05)	<p>The ET 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 construction activities that took place during the noise monitoring session were site monitoring only. These activities are relatively quiet in nature.</p> <p>Based on the above, the exceedance observed is considered attributable to the road traffic noise in the vicinity of the Site and is non-project related.</p>

Station	Record of Exceedance	Result of Investigation
NM2	Exceedance of Limit Level on 30 July 2011 (06:40 -06:55) ^[e]	<p>The ET 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 construction activities that took place during the noise monitoring session included preparation for charging and waiting for explosives; equipment repairing, servicing, maintenance and fabrication; operating winder and gantry crane; general lifting works; tally and confined space entry controlling; shaft lightings, pumps, compressors, wetsep and electrical installations monitoring and maintenance. These activities are relatively quiet in nature, and were carried out inside the noise enclosure.</p> <p>Based on the above, the exceedance observed is considered attributable to the road traffic noise in the vicinity of the Site and is non-project related.</p>
NM2	Exceedance of Limit Level on 5 August 2011 (06:39 - 06:54) ^[f]	<p>It was observed no outdoor construction activities at the Wan Chai East Production and Drop Shafts during the noise monitoring session. This was consistent with the works summary provided by the Contractor showing finishing works and supervision of works that were the only outdoor construction activities that have taken place during the same period.</p> <p>According to the works summary provided by the Contractor, construction activities that took place during the noise monitoring session included swing chute breakdown; equipment repair, servicing maintenance and fabrication; winder and gantry crane operations; general lifting works; tally and confined space entry control; shaft lightings, pump, compressors, sedimentation tank and electrical installations monitoring and maintenance; and site supervision. These activities were relatively quiet in nature, and were carried out inside the noise enclosure.</p> <p>Based on the above, the exceedance observed is considered attributable to the road traffic noise in the vicinity of the Site and is non-project related.</p>

Station	Record of Exceedance	Result of Investigation
NM2	Exceedance of Limit Level on 17 August 2011 (03:51 - 04:06) ^[g]	<p>It was observed no outdoor construction activities at the Wan Chai East Production and Drop Shafts during the noise monitoring session. This was consistent with the works summary provided by the Contractor showing no outdoor construction activities that have taken place during the same period.</p> <p>According to the works summary provided by the Contractor, construction activities that took place during the noise monitoring session included drilling of blast holes APWK-005; shaft lighting, sedimentation tank, plant and electrical installations monitoring and maintenance; equipment repair, servicing, fabrication and maintenance; winder and gantry crane operations; general lifting works; controlling access of tally room and confined space and site supervision. These activities were carried out inside the noise enclosure.</p> <p>Based on the above, the exceedance observed is considered attributable to the road traffic noise in the vicinity of the Site and is non-project related.</p>
NM2	Exceedance of Limit Level on 31 August 2011 (05:53 -06:08) ^[h]	<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>According to the works summary provided by the Contractor, construction activities that took place during the noise monitoring session included fixing of all unused hoses, cleaning and housekeeping at the bottom of the shaft and sinking stage; shaft lighting, pumps, compressors, wetsep and electrical installations monitoring and maintenance; equipment repair, servicing, fabrication and maintenance; winder operations; general lifting works; and controlling access of tally room and confined space and site supervision. These activities were carried out inside the noise enclosure.</p> <p>Based on the above, the exceedance observed is considered attributable to the road traffic noise in the vicinity of the Site and is non-project related.</p>

Station	Record of Exceedance	Result of Investigation
Note:		
[a]	Restricted hour noise monitoring scheduled on 3 June 2011 was conducted on 4 June 2011 at 06:28 - 06:43. 06:33 - 06:48	
[b]	Restricted hour noise monitoring scheduled on 17 June 2011 was conducted on 18 June 2011 at 06:33 - 06:48.	
[c]	Restricted hour noise monitoring scheduled on 30 June 2011 was conducted on 1 July 2011 at 06:35 - 06:50.	
[d]	Restricted hour noise monitoring scheduled on 15 July 2011 was conducted on 16 July 2011 at 06:42 - 06:57 hrs.	
[e]	Restricted hour noise monitoring scheduled on 29 July 2011 was conducted on 30 July 2011 at 06:40 - 06:55 hrs.	
[f]	Restricted hour noise monitoring scheduled on 4 August 2011 was conducted on 5 August 2011 at 06:39 - 06:54.	
[g]	Restricted hour noise monitoring scheduled on 16 August 2011 was conducted on 17 August 2011 at 03:51 - 04:06.	
[h]	Restricted hour noise monitoring scheduled on 30 August 2011 was conducted on 31 August 2011 at 05:53 - 06:08.	

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 D6*.

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 D6*.

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 June 2011 to 31 August 2011 at Central Drop Shaft

Construction Activities Undertaken
<ul style="list-style-type: none"> Steelwork preparation and installation

5.2 STATUS OF ENVIRONMENTAL APPROVAL DOCUMENTS

A summary of the relevant permits, licences, and/or notifications on environmental protection for this Project since December 2009 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	--	--
Construction Noise Permit	Central Drop Shaft GW-RS0042-11	14 January 2011 – 4 July 2011	--

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 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 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	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.

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 TSP	Once in every 6 days
1-hour TSP	3 times in every 6 days

Monitoring Equipment

Continuous 24-hour and 1-hour 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). Table 5.5 summarizes the equipment that was deployed for the 24-hour and 1-hour TSP monitoring.

Table 5.5 TSP Monitoring Equipment at Central Drop Shaft

Monitoring Station	Monitoring Equipment (HVS and Calibrator)
<i>24-hr and 1-hr TSP</i>	
AM4	GMW GS-2310 (S/N 9315), CM-AIR-43 (S/N 9833620) or CM-AIR-43 (S/N 0438320)

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 (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 equipments 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 E4*.

Action and Limit Levels

The Action and Limit levels have been established and presented in *Table 5.6*.

Table 5.6 *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 Event and Action Plan (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 5.7* and are shown in *Annex E2*.

Table 5.7 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	• 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). $L_{eq(30min)}$ were used as the monitoring parameter for the time period in between 0700 – 1900 hours on normal weekdays, and $L_{eq(5min)}$ 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 *Table 5.8*, complies with IEC 651: 1979 and 804:1985 (Type 1) specification. The calibration certificates of the sound level meters are included in *Annex H*.

Table 5.8 *Noise Monitoring Equipment at Central Drop Shaft*

Monitoring Station	Monitoring Equipment (Sound Level Metre and Calibrator)
NM3	<ul style="list-style-type: none"> • Calibrator: RION - NC73 (S/N 10997142) • Sound Level Meters: Rion NL-31 (S/N 00983400)

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 5.9*.

Table 5.9 *Action and Limit Levels for Noise Monitoring at Central Drop Shaft*

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

Event and Action Plan

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

5.3.3 *Cultural Heritage*

No vibration monitoring is required for this reporting period as no blasting of tunnel / shaft works was carried out.

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 Event and Action Plan (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 summarized in *Annex E3*.

5.5 *MONITORING RESULTS*

5.5.1 *Air Quality*

A total of 16 sets of 24-hour and 48 sets of 1-hour TSP measurements were carried out at AM4 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 E4*.

The weather condition during the monitoring period varied from sunny 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 were 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 E5*. 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 findings were observed during the reporting period.

5.5.4 *Cultural Heritage*

No vibration monitoring was conducted for this reporting period as the blasting of tunnel / shaft works have not started.

5.5.5 *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. Reference has been made on the Monthly Summary Waste Flow Table prepared by the Contractor (*Annex J*).

The waste statistics provided in this section represent the cumulative quantity of wastes generated from all sites in this Project. With reference to relevant handling records and trip tickets of this Project, the quantities of different types of waste generated in the reporting period are summarised in *Table 5.10*. 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. 747 kg of paper/cardboard packaging and 63 kg of plastics were generated during the reporting period.

Table 5.10 *Quantities of Waste Generated from the Project for all Sites*

Month / Year	Quantity					
	C&D Materials (inert) ^(a)	C&D Materials (non-inert) ^(b)	Chemical Waste	Marine Deposit		
				Type 1 disposal	Type 2 disposal	Type 3 disposal
June 2011 – August 2011	17,296.08 tonnes	77.93 tonnes	1,040 L	0 m ³	0 m ³	0 tonnes

Notes:

(a) Inert C&D materials include bricks, concrete, building debris, rubble and excavated soil. No inert C&D material was reused in this Project during the reporting period. Non-reused inert C&D materials were disposed of at the Tuen Mun Area 38/Tseung Kwan O Area 137 Fill Bank/ Chai Wan Barging Point. In addition, 9,278.67 tonnes of broken rock has been transferred to Lam Tei Quarry for use.

(b) Non-inert C&D materials include steel, paper / cardboard packaging waste, plastics and other wastes such as general refuse. Steel materials generated from the project are grouped into non-inert C&D materials as the materials were not disposed of with other inert C&D materials. The non-inert C&D materials other than steel and paper/cardboard packaging were disposed of at SENT Landfill. No steel material, 747 kg of paper/cardboard packaging, and 63 kg of plastics were sent to recyclers for recycling during the reporting period.

5.6

ENVIRONMENTAL SITE INSPECTION

Weekly site inspections were carried out by the representatives of the Contractor, Engineer and the ET. 9 site inspections were conducted on 2, 9, and 16 June 2011; 7, 14, and 21 July 2011; and 4, 11, and 18 August 2011. Since no work was undertaken during the week of 19 – 25 June 2011 and the construction site was locked, site inspection was not arranged on 23 June 2011. Due to the scheduled SSEMC meeting on 30 June 2011, 27 July 2011, and 25 August 2011 immediately after the joint inspection, inspection was not arranged for the CEN site on those days.

Major findings and recommendations are summarized as follows:

- On 7 July, oil stain was observed on the ground near the bar bending machine. The Contractor was reminded to remove the oil stain.

- On 7 July, large amount of oil was observed under the shaft. The Contractor was reminded to remove the oil and to dispose of the waste as chemical waste using licensed chemical waste collector immediately.
- On 11 August, large amount of stagnant water was observed on the ground and at the bottom of the shaft after heavy rain overnight. The Contractor was reminded to remove the stagnant water.
- On 18 August, stagnant water was observed on the tarpaulin sheets and inside tanks. The Contractor was reminded to remove the stagnant water after raining or washing.

Follow-up actions were undertaken as reported by the Contractor and observed in the site inspection conducted in 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 TSP were recorded at monitoring stations during the reporting period.

No exceedance of the Action and Limit Levels of noise was recorded at monitoring stations 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 E6*.

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 E6*.

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 June 2011 to 31 August 2011 at Sai Ying Pun Junction Shaft*

Construction Activities Undertaken
<ul style="list-style-type: none"> • Shaft sinking • Rock blast and pre-excavation grouting

6.2 STATUS OF ENVIRONMENTAL APPROVAL DOCUMENTS

A summary of the relevant permits, licences, and/or notifications on environmental protection for this Project since December 2009 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	--	--
Construction Noise Permit	Sai Ying Pun Junction Shaft GW-RS0518-11	1 June 2011 – 22 November 2011	Superseded by GW-RS0665-11
	Sai Ying Pun Junction Shaft GW-RS0665-11	19 July 2011 – 6 January 2012	--

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 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 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 TSP	Once in every 6 days
1-hour TSP	3 times in 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 F4*.

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 TSP	AM5	188	260
1-hour TSP	AM5	332	500

Event and Action Plan

The Event and Action Plan (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 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 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). $L_{eq(30min)}$ were used as the monitoring parameter for the time period in between 0700 – 1900 hours on normal weekdays, and $L_{eq(5min)}$ 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 *Table 6.7*, complies with IEC 651: 1979 and 804:1985 (Type 1) specification. The calibration certificates of the sound level meters are included in *Annex H*.

Table 6.7 *Noise Monitoring Equipment at Sai Ying Pun Junction Shaft*

Monitoring Station	Monitoring Equipment (Sound Level Metre and Calibrator)
NM4	<ul style="list-style-type: none"> • Calibrator: RION - NC73 (S/N 10997142) • Sound Level Meters: Rion NL-31 (S/N 00983400)

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 6.8*.

Table 6.8 *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 _{eq} (30mins)	75	Normal working hours during weekdays
	L _{eq} (5mins)	70	Evening (1900-2300); and Sundays and public holidays (0700-2300)
	L _{eq} (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*

No vibration monitoring is required for this reporting period as no blasting of tunnel / shaft works was carried out.

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 Event and Action Plan (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 F3*.

6.5 *MONITORING RESULTS*

6.5.1 *Air Quality*

A total of 17 sets of 24-hour and 51 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 TSP together with wind data and graphical presentations are presented in *Annex F4*.

The weather condition during the monitoring period varied from sunny to fine. The local impacts near the monitoring stations of AM5 were mainly associated with vehicle emissions.

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. 8 sets of 3 x 5-minute construction noise measurements were carried out during restricted hours (between 0700 and 1900 hours on Sundays and public holidays) on 15, 24, and 29 July 2011; and 4, 7, 16, 21, and 30 August 2011 during the reporting period. The monitoring results together with graphical presentations are presented in *Annex F5*. The local impacts observed near the monitoring stations of NM4 were noise from traffic movement on nearby roads.

Exceedances of the limit level were recorded for 5 sets of noise measurements during restricted hours at NM4 on 15 and 29 July 2011; and 4, 16, and 30 August 2011. Investigations have been conducted to review the potential causes for the noise level recorded. A summary of the investigation results is presented in *Section 6.7.1*.

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*

No vibration monitoring was conducted for this reporting period as the blasting of tunnel / shaft works have not started.

6.5.5

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. Reference has been made on the Monthly Summary Waste Flow Table prepared by the Contractor (*Annex J*).

The waste statistics provided in this section represent the cumulative quantity of wastes generated from all sites in this Project. With reference to relevant handling records and trip tickets of this Project, the quantities of different types of waste generated in the reporting period are summarised in *Table 6.9*. 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. 747 kg of paper/cardboard packaging and 63 kg of plastics were generated during the reporting period.

Table 6.9 Quantities of Waste Generated from the Project for all Sites

Month / Year	Quantity					
	C&D Materials (inert) ^(a)	C&D Materials (non-inert) ^(b)	Chemical Waste	Type 1 disposal	Type 2 disposal	Type 3 disposal
June 2011 – August 2011	17,296.08 tonnes	77.93 tonnes	1,040 L	0 m ³	0 m ³	0 tonnes

Notes:

(a) Inert C&D materials include bricks, concrete, building debris, rubble and excavated soil. No inert C&D material was reused in this Project during the reporting period. Non-reused inert C&D materials were disposed of at the Tuen Mun Area 38/Tseung Kwan O Area 137 Fill Bank/ Chai Wan Barging Point. In addition, 9,278.67 tonnes of broken rock has been transferred to Lam Tei Quarry for use

(b) Non-inert C&D materials include steel, paper / cardboard packaging waste, plastics and other wastes such as general refuse. Steel materials generated from the project are grouped into non-inert C&D materials as the materials were not disposed of with other inert C&D materials. The non-inert C&D materials other than steel and paper/cardboard packaging were disposed of at SENT Landfill. No steel material, 747 kg of paper/cardboard packaging, and 63 kg of plastics were sent to recyclers for recycling during the reporting period.

6.6

ENVIRONMENTAL SITE INSPECTION

Weekly site inspections were carried out by the representatives of the Contractor, Engineer and the ET. 12 site inspections were conducted on 2, 9, 16, 23, and 30 June 2011; 7, 14, 21, and 27 July 2011; and 4, 11, and 18 August 2011. The representative of the IEC joined the site inspection on 30 June 2011 and 27 July 2011. Due to the scheduled SSEMC meeting on 25 August 2011 immediately after the joint inspection, inspection was not arranged for the

SYP site on that day. There was no non-compliance recorded during the site inspections.

There was no non-compliance recorded during the site inspections.

Major findings and recommendations are summarized as follows:

- On 9 June, some general refuse was observed inside the mud pit. The Contractor was reminded to remove the refuse and maintain good house keeping practice.
- On 9 June, the air-conditioner at the new site office was found dripping with water. The Contractor was advised to install a tube to direct the water to the nearby drainage channel.
- On 16 June, some chemical was observed leaking from the fully filled drip tray at chemical waste storage tank. The Contractor was reminded to remove the chemical waste and dispose of the waste as chemical waste using licensed chemical waste collector immediately. In addition, the contractor was suggested to well cover the drip tray to prevent rain water filled up the tray and cause leakage.
- On 23 June, general refuse was observed in the mud pit. The Contractor was reminded to remove the general refuse immediately.
- On 23 June, chemical storage tanks were observed without drip tray under the sedimentation tank. The Contractor was reminded to provide drip trays for the tanks to prevent spillage of chemical..
- On 30 June, general refuse was observed inside recycle bins. The Contractor was reminded to segregate the waste.
- On 30 June, the wheel washer was observed to be fully filled with mud. The Contractor was reminded to remove the mud.
- On 30 June, the drip trays inside the chemical storage tank and near the noise enclosure were observed fully filled with rain water. The Contractor was reminded to remove the water in order to prevent overflow of chemical.
- On 30 June, a bottle of chemical without drip tray was observed near the noise enclosure. The Contractor was reminded to put the bottle back onto a drip tray to prevent leakage.
- On 30 June, the air-conditioner at the new site office was found dripping with water. The Contractor was advised to install a tube to direct the water to the nearby drainage channel.
- On 14 July, oil was observed on the ground near the entrance of noise enclosure. The Contractor was reminded to remove the oil and to dispose of it as chemical waste.
- On 27 July, chemical drums without drip tray were observed outside the noise enclosure. The Contractor was reminded to provide a drip tray for the oil drums to prevent leakage of chemical.
- On 27 July, general refuse was observed inside the recycle waste container. The Contractor was reminded to separate the general refuse from recycle waste and to store in designated area.
- On 27 July, stagnant water was observed near the entrance and under the cargo near the electricity generator. The Contractor was reminded to remove the stagnant water to prevent breeding of mosquito.

- On 27 July, the air-conditioner at the site office was found dripping with water. The Contractor was advised to install a tube to direct the water to the nearby drainage channel.
- On 4 August, the air-conditioner at the site office was found dripping with water. The Contractor was advised to install a tube to direct the water to the nearby drainage channel.
- On 4 August, stagnant water was observed at the site boundary. The Contractor was reminded to remove the stagnant water..
- On 11 August, the sediment storage tank was full. The Contractor was suggested to clear the sediment.
- On 18 August, stagnant water was observed at the back yard of the site office. The Contractor was reminded to remove the stagnant water.
- On 18 August, the air-conditioner at the back of the new site office was found dripping with water. The Contractor was suggested installing a tube to direct the water to the nearby drainage channel.

Follow-up actions were undertaken as reported by the Contractor and observed in the weekly site inspection conducted in 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 TSP were recorded at monitoring stations during the reporting period.

5 exceedances of noise Limit Level during restricted hours was reported at NM4 on 15 and 29 July 2011; and 4, 16, and 30 August 2011. Investigations into the incident was made and concluded that the road traffic noise in the vicinity of the Project was the major cause of the noise levels recorded. Although the exceedance was not caused by the Project, the Contractor of this Project was 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.

Table 6.10 *Summary of Record of Exceedance at Sai Ying Pun Junction Shaft and Investigations into the incidents*

Station	Record of Exceedance	Result of Investigation
NM4	Exceedance of Limit Level on 16 July 2011 (06:02 - 06:17) ^[a]	<p>The ET observed no outdoor construction activities at the Sai Ying Pun junction shaft 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 construction activities that took place during the noise monitoring session were general site work and house keeping; winder and stage hoist operation; pumping water at shaft bottom; gantry crane operation; controlling at tally room for confined space. These activities are relatively quiet in nature, and were carried out inside the noise enclosure.</p> <p>Based on the above, the exceedance observed is considered attributable to the road traffic noise and ship noise in the vicinity of the Site and is non-project related.</p>
NM4	Exceedance of Limit Level on 30 July 2011 (06:01 -06:16) ^[b]	<p>The ET observed no outdoor construction activities at the Sai Ying Pun junction shaft 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 construction activities that took place during the noise monitoring session included general site work and house keeping work; winder and stage hoist operation; pumping of water at shaft bottom; controlling access of tally room for confined space; gantry crane operation and cleaning for the expose the rock surface. These activities are relatively quiet in nature, and were carried out inside the noise enclosure.</p> <p>Based on the above, the exceedance observed is considered attributable to the road traffic noise and ship noise in the vicinity of the Site and is non-project related.</p>

Station	Record of Exceedance	Result of Investigation
NM4	Exceedance of Limit Level on 5 August 2011 (06:00 - 06:15) ^[c]	<p>It was observed no outdoor construction activities at the Sai Ying Pun junction shaft 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>According to the works summary provided by the Contractor, construction activity that took place during the noise monitoring session was pumping of water at shaft bottom. This activity is relatively quiet in nature, and was carried out inside the noise enclosure.</p> <p>Based on the above, the exceedance observed is considered attributable to the road traffic noise and ship noise in the vicinity of the Site and is non-project related.</p>
NM4	Exceedance of Limit Level on 17 August 2011 (06:40 -06:55) ^[d]	<p>It was observed no outdoor construction activities at the Sai Ying Pun junction shaft 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>According to the works summary provided by the Contractor, construction activities that took place during the noise monitoring session included general site work and house keeping work; winder/stage hoist operation; pumping of water at shaft bottom; installation of support of ladder way platform; preparation work for bunton installation; gantry crane operation; access controlling at tally room and confined space. These activities were relatively quiet in nature, and were carried out inside the noise enclosure.</p> <p>Based on the above, the exceedance observed is considered attributable to the road traffic noise and ship noise in the vicinity of the Site and is non-project related.</p>
NM4	Exceedance of Limit Level on 31 August 2011 (23:00 -23:15)	<p>It was observed no outdoor construction activities at the Sai Ying Pun junction shaft during the noise monitoring session. This is consistent with the works summary provided by the Contractor showing no construction activities took place during the same period.</p> <p>Based on the above, the exceedance observed is considered attributable to the road traffic noise and ship noise in the vicinity of the Site and is non-project related.</p>

Station	Record of Exceedance	Result of Investigation
Note:		
[a]	Restricted hour noise monitoring scheduled on 15 July 2011 was conducted on 16 July 2011 at 06:02 - 06:17.	
[b]	Restricted hour noise monitoring scheduled on 29 July 2011 was conducted on 30 July 2011 at 06:01 - 06:16.	
[c]	Restricted hour noise monitoring scheduled on 4 August 2011 was conducted on 5 August 2011 at 06:00 - 06:15.	
[d]	Restricted hour noise monitoring scheduled on 16 August 2011 was conducted on 17 August 2011 at 06:40 - 06:55.	

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 received during the reporting period. The cumulative complaints log is shown in *Annex F6*.

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 F6*.

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 June 2011 to 31 August 2011 at Stonecutters Island Production and Riser Shafts*

Construction Activities Undertaken	
<i>Riser Shaft</i>	
•	Construction of connection adit
•	Pre-excavation grouting
<i>Production Shaft</i>	
•	Shaft sinking
•	Construction of noise enclosure
•	Rock blast and pre-excavation grouting

7.2 STATUS OF ENVIRONMENTAL APPROVAL DOCUMENTS

A summary of the relevant permits, licences, and/or notifications on environmental protection for this Project since December 2009 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	11 August 2010 - 31 October 2014	--
Chemical Waste Producer Registration	Stonecutters Island Production Shaft and Riser Shaft 5213-269-G2449-07	--	--
Construction Noise Permit	Stonecutters Island Production Shaft and Riser Shaft GW-RW0148-11	2 March 2011 – 31 August 2011	Superseded by GW-RW0304-11
	Stonecutters Island Production Shaft and Riser Shaft GW-RW0304-11	30 April 2011 – 27 October 2011	Superseded by GW-RW0518-11
	Stonecutters Island Production Shaft and Riser Shaft GW-RW0518-11	1 June 2011 – 22 November 2011	Superseded by GW-RW0458-11

Stonecutters Island	19 July 2011 –	--
Production Shaft and Riser Shaft	6 January 2012	
GW-RW0458-11		

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 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 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			Remark
	ID in EM&A Manual	ID	Location	
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 deteriorate 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 TSP	Once in every 6 days
1-hour TSP	3 times in every 6 days

Monitoring Equipment

Continuous 24-hour and 1-hour 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). Table 7.5 summarizes the equipment that was deployed for the 24-hour and 1-hour TSP monitoring.

Table 7.5 *TSP Monitoring Equipment at Stonecutters Island Production and Riser Shafts*

Monitoring Station	Monitoring Equipment (HVS and Calibrator)
<i>24-hr and 1-hr TSP</i>	
AM6	GMW GS-2310 (S/N 1254), CM-AIR-43 (S/N 9833620) or CM-AIR-43 (S/N 0438320)

Monitoring Methodology

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 folder 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 equipments 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 G4*.

Action and Limit Levels

The Action and Limit levels have been established and presented in *Table 7.6*. 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 7.6 *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 TSP	AM6 (with 24-hr TSP data from DF project)	196	260
1-hour TSP	AM6 (with 1-hr TSP data from DF project)	346	500

Event and Action Plan

The Event and Action Plan (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 7.7* and is shown in *Annex G2*.

Table 7.7 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 rejected. 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_{eq}) in decibels dB(A). $L_{eq(30min)}$ were used as the monitoring parameter for the time period in between 0700 – 1900 hours on normal weekdays, and $L_{eq(5min)}$ 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 *Table 7.8*, complies with IEC 651: 1979 and 804:1985 (Type 1) specification. The calibration certificates of the sound level meters are included in *Annex H*.

Table 7.8 *Noise Monitoring Equipment at Stonecutters Island Production and Riser Shafts*

Monitoring Station	Monitoring Equipment (Sound Level Metre and Calibrator)
NM5	<ul style="list-style-type: none"> • Calibrator: Rion NC-73 (S/N 10786708) or RION - NC73 (S/N 10997142) • Sound Level Meters: Rion NL-31 (S/N 00320533) or Rion NL-31 (S/N 00983400)

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 7.9*.

Table 7.9 *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 _{eq} (30mins)	75	Normal working hours during weekdays
	L _{eq} (5mins)	70	Evening (1900-2300); and Sundays and public holidays (0700-2300)
	L _{eq} (5mins)	55	Night-time (2300-0700)

Event and Action Plan

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

7.3.3 *Cultural Heritage*

No vibration monitoring is required for this reporting period as no blasting of tunnel / shaft works was carried out.

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 G3*.

7.5 MONITORING RESULTS

7.5.1 Air Quality

A total of 17 sets of 24-hour and 51 sets of 1-hour TSP measurements were carried out at AM6 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 G4*.

The weather condition during the monitoring period varied from sunny to rainy. 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 were recorded during the reporting period.

7.5.2 Noise

A total of 14 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 0700 and 1900 hours on Sundays and public holidays) on 5, 12, 19, and 26 June 2011; 3, 10, 17, 19, and 31 July 2011; and 9, 14, 23, and 28 August 2011 during the reporting period. The monitoring results together with graphical presentations are presented in *Annex G5*. 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.

Exceedances of the limit level for noise monitoring during restricted hours were recorded on 19 July 2011; and 9 and 23 August 2011 at NM5. Investigations have been conducted to review the potential causes for the noise level recorded. A summary of the investigation results is presented in *Section 7.7.1*.

7.5.3 *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.

7.5.4 *Cultural Heritage*

No vibration monitoring was conducted for this reporting period as the blasting of tunnel / shaft works have not started.

7.5.5 *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. Reference has been made on the Monthly Summary Waste Flow Table prepared by the Contractor (*Annex J*).

The waste statistics provided in this section represent the cumulative quantity of wastes generated from all sites in this Project. With reference to relevant handling records and trip tickets of this Project, the quantities of different types of waste generated in the reporting period are summarised in *Table 7.10*. 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. 747 kg of paper/cardboard packaging and 63 kg of plastics were generated during the reporting period.

Table 7.10 Quantities of Waste Generated from the Project for all Sites

Month / Year	Quantity					
	C&D Materials (inert) ^(a)	C&D Materials (non-inert) ^(b)	Chemical Waste	Marine Deposit		
				Type 1 disposal	Type 2 disposal	Type 3 disposal
June 2011 – August 2011	17,296.08 tonnes	77.93 tonnes	1,040 L	0 m ³	0 m ³	0 tonnes

Notes:

- (a) Inert C&D materials include bricks, concrete, building debris, rubble and excavated soil. No inert C&D material was reused in this Project during the reporting period. Non-reused inert C&D materials were disposed of at the Tuen Mun Area 38/Tseung Kwan O Area 137 Fill Bank/ Chai Wan Barging Point. In addition, 9,278.67 tonnes of broken rock has been transferred to Lam Tei Quarry for use
- (b) Non-inert C&D materials include steel, paper / cardboard packaging waste, plastics and other wastes such as general refuse. Steel materials generated from the project are grouped into non-inert C&D materials as the materials were not disposed of with other inert C&D materials. The non-inert C&D materials other than steel and paper/cardboard packaging were disposed of at SENT Landfill. No steel material, 747 kg of paper/cardboard packaging, and 63 kg of plastics were sent to recyclers for recycling during the reporting period.

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 2, 9, 16, 23, and 30 June 2011; 7, 14, 21, and 27 July 2011; and 4, 11, 18, and 25 August 2011. The representative of the IEC joined the site inspection on 30 June 2011, 27 July 2011, and 25 August 2011. There was no non-compliance recorded during the site inspections.

Major findings and recommendations are summarized as follows:

Riser Shaft

- On 2 June, it was observed that black smoke emitted from the air-compressor near the riser shaft. The Contractor was reminded to provide necessary maintenance to the air-compressor.
- On 2 June, it was observed that the earth bund near the noise enclosure was broken. The Contractor was reminded to repair the earth bund to prevent the surface runoff wash across the site.
- On 16 June, chemical drums containing hydraulic oil was observed without drip tray inside the noise enclosure. The Contractor was reminded to provide drip tray for the drums to prevent spillage of chemical.
- On 23 June, stagnant water was observed on the tarpaulin sheet near the production shaft. The Contractor was reminded to remove the stagnant water immediately.
- On 23 June, chemical drums without labelling were observed in the chemical waste tank near the production shaft. The Contractor was reminded to label the chemical drums with suitable labels.

- On 30 June, oil leakage from a hole of a drip tray was observed near the riser shaft. The Contractor was reminded to remove the oil by absorbent and to seal the hole of the drip tray immediately.
- On 7 July, stagnant water was observed on tarpaulin sheet near the site boundary and construction material storage area. The Contractor was reminded to remove the stagnant water to prevent breeding of mosquito.
- On 14 July, stagnant water and oil were observed on the ground near the site boundary. The Contractor was reminded to remove the stagnant water and remove the oil as chemical waste.
- On 11 August, stagnant water was observed on the tarpaulin sheet near the riser shaft. The Contractor was reminded to clear the stagnant water to prevent breeding of mosquito.
- On 11 August, oil was observed on the ground near the entrance of noise enclosure. The Contractor was reminded to remove the oil and to dispose of it as chemical waste.
- On 18 August, chemical storage tank without label was observed near the Riser Shaft. The Contractor was reminded to provide proper label for the storage tank.
- On 25 August, stagnant water was observed inside a skip near Riser Shaft. The Contractor was reminded to remove the stagnant to prevent breeding of mosquito.
- On 25 August, a tube with oil inside was observed at the site boundary near the Riser Shaft. The Contractor was reminded to remove the tube and store it chemical storage area.
- On 25 August, it was observed that a cable was hanged on the branch of a tree near the noise enclosure. The contractor was reminded to remove the cable in order to protect the tree.

Production Shaft

- On 23 June, oil spillage was observed inside the noise enclosure. The Contractor was reminded to remove the oil immediately by absorbent and to dispose of the absorbent as chemical waste.
- On 23 June, stagnant water was observed in the general refuse container. The Contractor was reminded to remove the stagnant water immediately.
- On 7 July, a chemical drum without drip tray was observed inside the noise enclosure. The Contractor was reminded to provide a drip tray for the oil drum to prevent leakage of chemical.
- On 7 July, general refuse and construction material was observed placing near the root of trees. The Contractor was suggested to remove the general refuse and the materials in order to protect the trees.
- On 14 July, cables were observed hanging on the branches of retained trees. The Contractor was reminded to remove the cables to prevent damaging the trees.
- On 21 July, oil was observed on the 2/F of noise enclosure near the muffle. The Contractor was reminded to remove the oil immediately.
- On 27 July, oil was observed on the ground near the winder inside the noise enclosure. The Contractor was reminded to remove the oil and dispose of as chemical waste immediately.

- On 4 August, general refuse was observed inside the mud pit. The Contractor was reminded to remove the general refuse.
- On 4 August, a metal can filled with wasted oil was observed near the mud pit. The Contractor was reminded to remove the metal can and to dispose of as chemical waste.
- On 4 August, a rope was observed tied on the trunk of a tree next to the noise enclosure. The Contractor was reminded to remove the rope in order to protect the tree.

Follow-up actions were undertaken as reported by the Contractor and observed in the site inspection conducted in 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 TSP were recorded at monitoring stations during the reporting period.

3 exceedances of noise Limit Level during restricted hours was reported at NM5 on 19 July 2011; and 9 and 23 August 2011. Investigations into the incident was made and concluded that the road traffic noise in the vicinity of the Project was the major cause of the noise levels recorded. Although the exceedance was not caused by the Project, the Contractor of this Project was 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.

Table 7.11 *Summary of Record of Exceedance at Stonecutters Island Production and Riser Shafts and Investigations into the incidents*

Station	Record of Exceedance	Result of Investigation
NM5	Exceedance of Limit Level on 19 July 2011 (23:03 - 23:18)	<p>The ET observed no outdoor construction activities at the Stonecutter Island Production and Riser 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 construction activities that took place during the noise monitoring session were drilling rock hole and splitting. These activities are relatively quiet in nature, and were carried out inside the noise enclosure.</p> <p>Based on the above, the exceedance observed is considered probably attributable to the environmental noise in the vicinity of the Site and is non-project related.</p>
NM5	Exceedance of Limit Level on 9 August 2011 (23:10 - 23:25)	<p>It was observed no outdoor construction activities at the Stonecutter Island Production and Riser 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>According to the works summary provided by the Contractor, construction activities that took place during the noise monitoring session included traffic controlling; checking sedimentation tank; controlling access of restricted area; providing shaft access; setting up and grouting of C10. These activities are relatively quiet in nature, and were carried out inside the noise enclosure.</p> <p>Based on the above, the exceedance observed is considered probably attributable to the environmental noise in the vicinity of the Site and is non-project related.</p>

Station	Record of Exceedance	Result of Investigation
NM5	Exceedance of Limit Level on 23 August 2011 (23:02 - 23:17)	<p>It was observed no outdoor construction activities at the Stonecutter Island Production and Riser 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>According to the works summary provided by the Contractor, construction activities that took place during the noise monitoring session included moving down sinking stage and concrete pump. These activities are relatively quiet in nature, and were carried out inside the noise enclosure.</p> <p>Based on the above, the exceedance observed is considered probably attributable to the environmental noise in the vicinity of the Site and is non-project related.</p>

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 received during the reporting period. The cumulative complaint log is shown in *Annex G6*.

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 G6*.

This Environmental Monitoring and Audit (EM&A) Report presents the EM&A works undertaken during the period from 1 June 2011 to 31 August 2011 in accordance with EM&A Manual and the relevant requirements under EP-322/2008/E. The conclusions for different sites are summarised below.

8.1 NORTH POINT PRODUCTION AND DROP 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.

8 exceedances of noise Limit Level during restricted hours were reported at NM1 on 3, 17, and 30 June 2011; 15 and 29 July 2011; and 4, 16, and 30 August 2011.

The exceedances were investigated and road traffic noise has been identified as the likely cause for such. 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 events were recorded during the reporting period.

There were no complaints/summons/prosecutions 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 average TSP was recorded at the air quality monitoring stations during the reporting period.

9 exceedances of noise Limit Level during restricted hours was reported at NM2 on 3, 17, and 30 June 2011; 15, 24, and 29 July 2011; and 4, 16, and 30 August 2011.

The exceedances were investigated and road traffic noise has been identified as the likely cause for such. 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 events were recorded during the reporting period.

There were no complaints/summons/prosecutions 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 average 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 events were recorded during the reporting period.

There were no complaints/summons/prosecutions 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.

5 exceedances of noise Limit Level during restricted hours was reported at NM4 on 15 and 29 July 2011; and 4, 16, and 30 August 2011.

The exceedances were investigated and road traffic has been identified as the likely cause for such. 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 events were recorded during the reporting period.

There were no complaints/summons/prosecutions received 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 average TSP was recorded at the air quality monitoring stations during the reporting period.

3 exceedances of noise Limit Level during restricted hours was reported at NM4 on 19 July 2011; and 9 and 23 August 2011.

The exceedances were investigated and environmental noise in the vicinity of the Site has been identified as the likely cause for such. 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 events were recorded during the reporting period.

There were no complaints/summons/prosecutions received during the reporting period.

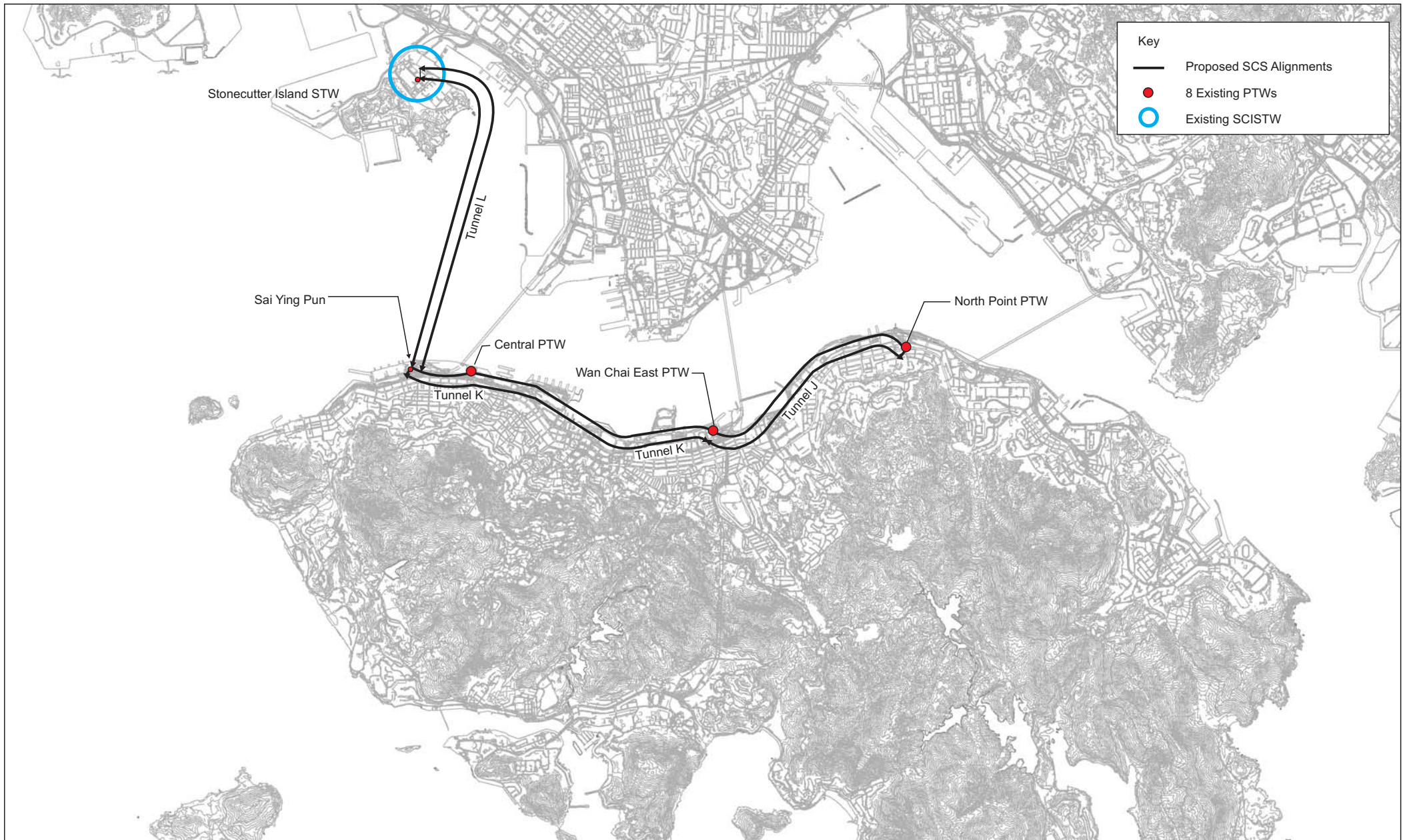
8.6

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

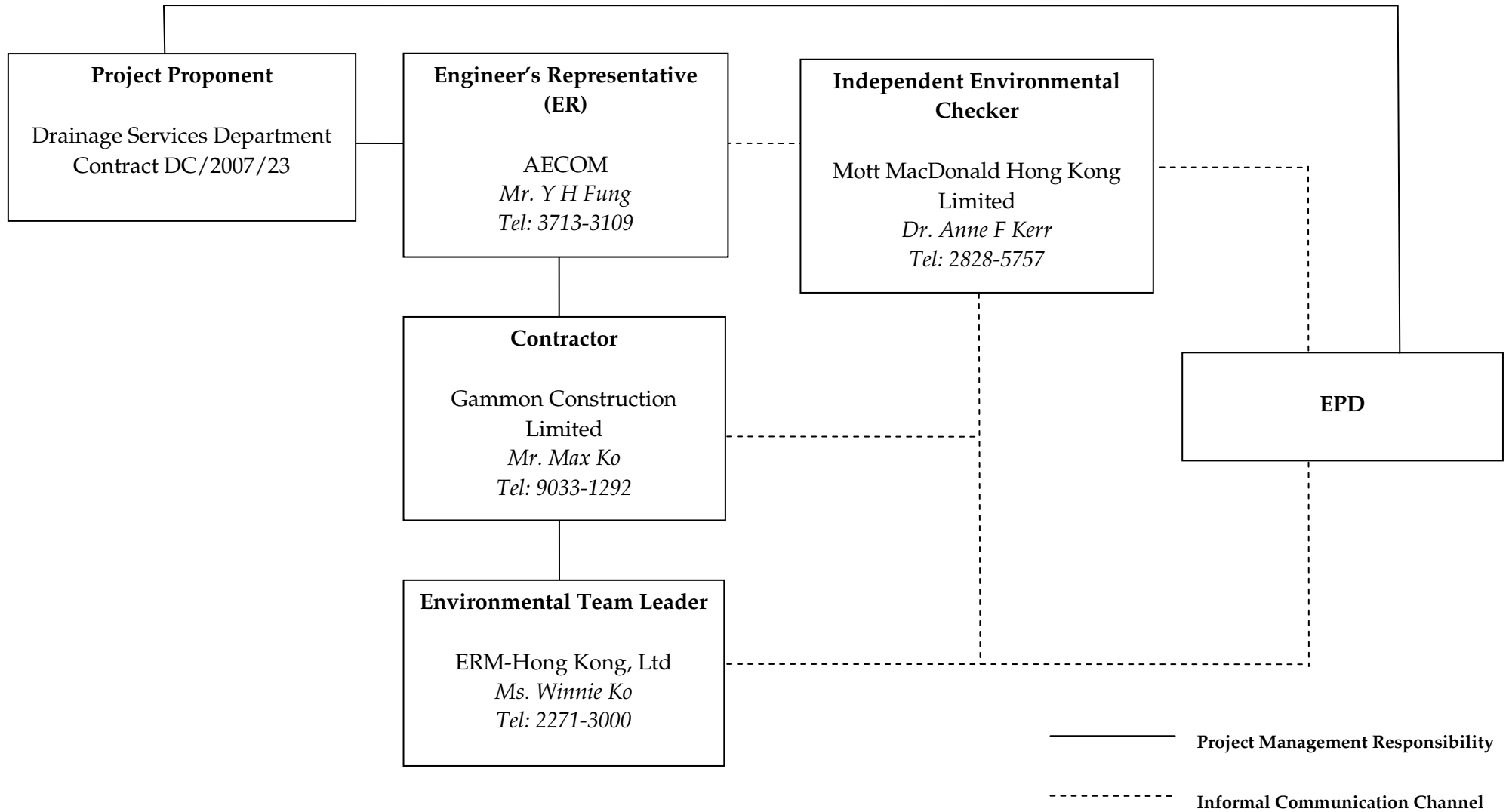
Locations of Works Areas



Annex B

Project Organization Chart and Contact Detail



Project Organization

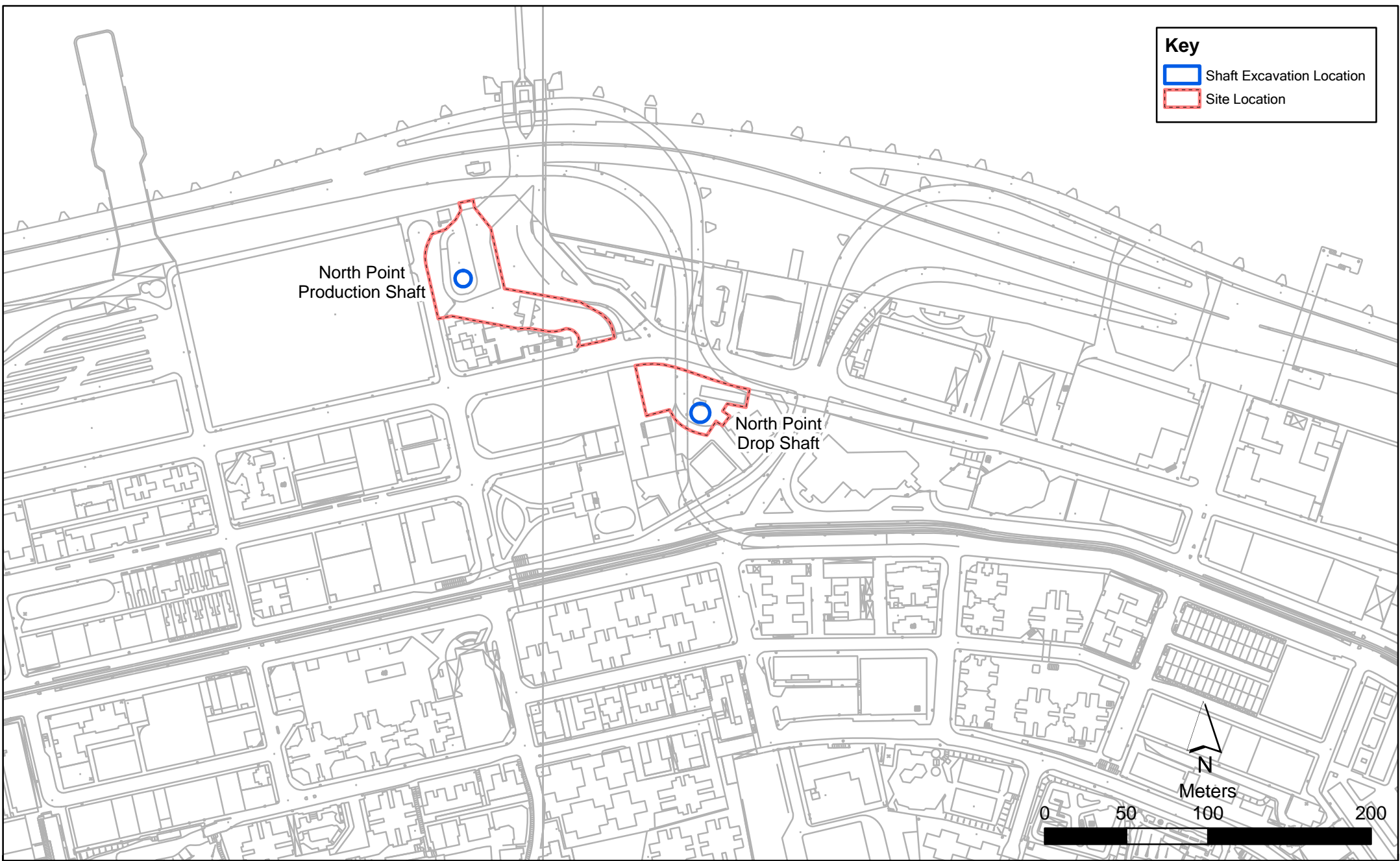


Annex C

North Point Production and Drop Shafts

Key

-  Shaft Excavation Location
-  Site Location



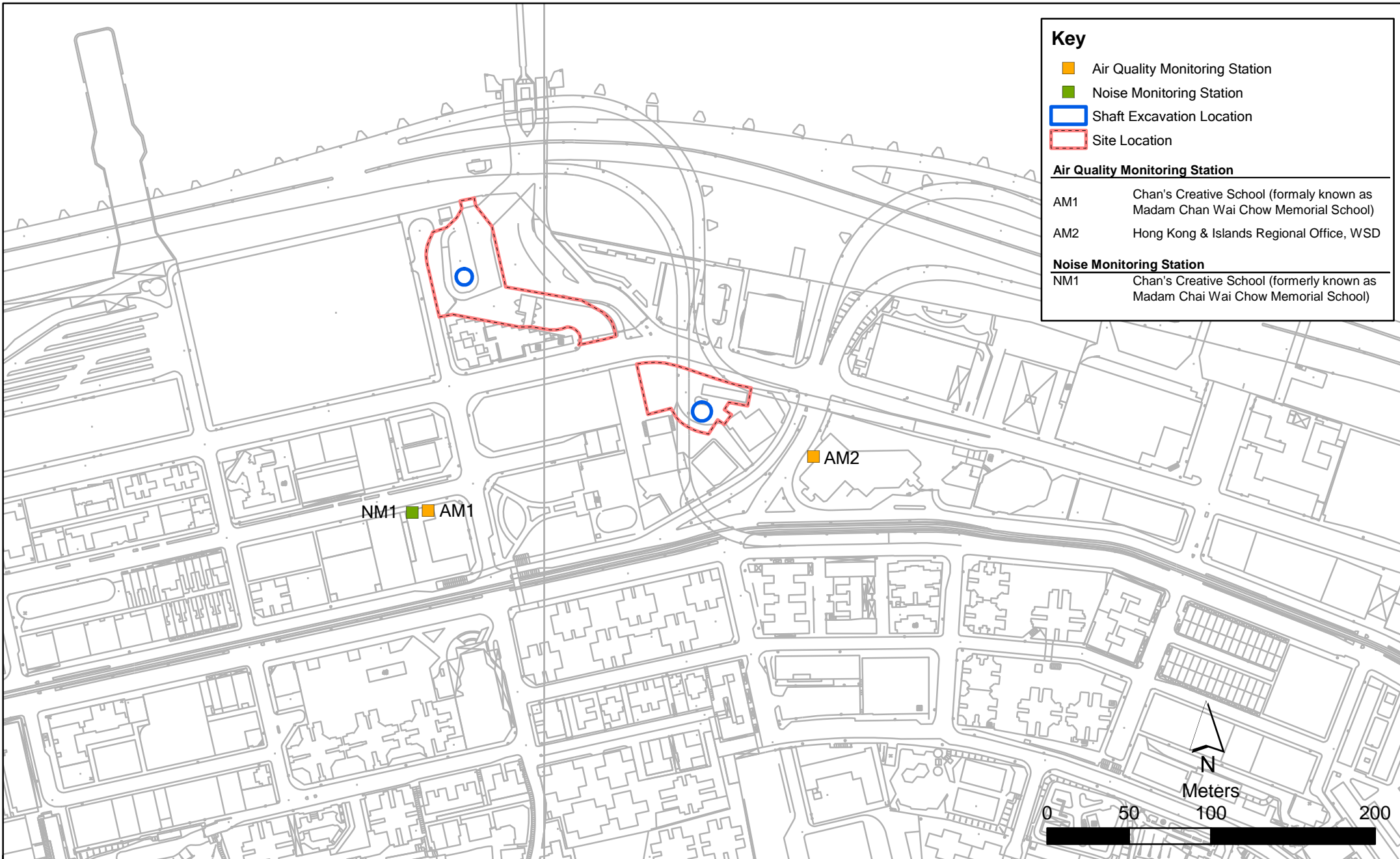
Annex C1

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 North Point

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

**Environmental
 Resources
 Management**





ANNEX C3 - SUMMARY OF MITIGATION MEASURES IMPLEMENTATION SCHEDULE

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 minimize 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 C3 - SUMMARY OF MITIGATION MEASURES IMPLEMENTATION SCHEDULE

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 minimize 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 deodorization system should be included in the Design and Construction Contract Document.	All PTW and SCISTW/ during operational phase	
<i>Construction Phase</i>			
Noise	Use of quiet PME, movable barriers and acoustic mats	All work sites / during construction	√

ANNEX C3 - SUMMARY OF MITIGATION MEASURES IMPLEMENTATION SCHEDULE

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 utilized 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 C3 - SUMMARY OF MITIGATION MEASURES IMPLEMENTATION SCHEDULE

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	<>

ANNEX C3 - SUMMARY OF MITIGATION MEASURES IMPLEMENTATION SCHEDULE

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 C3 - SUMMARY OF MITIGATION MEASURES IMPLEMENTATION SCHEDULE

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 minimize 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 C3 - SUMMARY OF MITIGATION MEASURES IMPLEMENTATION SCHEDULE

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 minimize 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 minimize 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 C3 - SUMMARY OF MITIGATION MEASURES IMPLEMENTATION SCHEDULE

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	√

ANNEX C3 - SUMMARY OF MITIGATION MEASURES IMPLEMENTATION SCHEDULE

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, oxidizing, 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 C3 - SUMMARY OF MITIGATION MEASURES IMPLEMENTATION SCHEDULE

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 harmonize 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 C3 - SUMMARY OF MITIGATION MEASURES IMPLEMENTATION SCHEDULE

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 C4 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
01-Jun-11	9:00	10:00	Sunny	161	340	500	Construction work in progress	30	<5	1808	8937
	10:02	11:02	Sunny	156	340	500	Construction work in progress	30	<5	1808	8939
	11:04	12:04	Sunny	171	340	500	Construction work in progress	30	<5	1808	8941
07-Jun-11	10:20	11:20	Fine	118	340	500	Construction work in progress	30	<5	1808	9024
	11:22	12:22	Fine	138	340	500	Construction work in progress	30	<5	1808	9025
	12:25	13:25	Fine	124	340	500	Construction work in progress	30	<5	1808	9027
13-Jun-11	9:35	10:35	Fine	140	340	500	Construction work in progress	30	<5	1808	9124
	10:37	11:37	Fine	144	340	500	Construction work in progress	30	<5	1808	9030
	11:39	12:39	Fine	160	340	500	Construction work in progress	30	<5	1808	9033
18-Jun-11	9:00	10:00	Sunny	114	340	500	Construction work in progress	30	<5	1808	9129
	10:02	11:02	Sunny	242	340	500	Construction work in progress	30	<5	1808	9034
	11:04	12:04	Sunny	146	340	500	Construction work in progress	30	<5	1808	9036
24-Jun-11	8:05	9:05	Sunny	165	340	500	Construction work in progress	30	<5	1808	9039
	9:07	10:07	Sunny	126	340	500	Construction work in progress	30	<5	1808	9043
	10:10	11:10	Sunny	167	340	500	Construction work in progress	30	<5	1808	9044
30-Jun-11	10:25	11:25	Cloudy	136	340	500	Construction work in progress	29	<5	1808	9130
	11:27	12:27	Cloudy	104	340	500	Construction work in progress	29	<5	1808	9132
	12:30	13:30	Cloudy	106	340	500	Construction work in progress	29	<5	1808	9135
				Min.	104						
				Max.	242						
				Average	145						

* Wind Speed data is presented in the Meteorological Data table

Annex C4 24-hour and 1-hour TSP Monitoring Results

1-hour TSP Monitoring Results

Station AM1

Date	Start Time	Finish Time	Weather	TSP Concentration (µg/m ³)	Action Level (µg/m ³)	Limit Level (µg/m ³)	Site Conditions / Observations / Remarks	Temperature (°C)	Wind Speed * (m/s)	Sampler ID	Filter ID
06-Jul-11	9:50	10:50	Sunny	144	340	500	Construction work in progress	32	<5	1808	9141
	10:52	11:52	Sunny	144	340	500	Construction work in progress	32	<5	1808	9139
	11:54	12:54	Sunny	161	340	500	Construction work in progress	32	<5	1808	9145
12-Jul-11	9:03	10:03	Cloudy	104	340	500	Construction work in progress	30	<5	1808	9223
	10:05	11:05	Cloudy	126	340	500	Construction work in progress	30	<5	1808	9226
	11:07	12:07	Cloudy	131	340	500	Construction work in progress	30	<5	1808	9228
18-Jul-11	9:35	10:35	Cloudy	156	340	500	Construction work in progress	30	<5	1808	9231
	10:38	11:38	Cloudy	162	340	500	Construction work in progress	30	<5	1808	9233
	11:40	12:40	Cloudy	183	340	500	Construction work in progress	30	<5	1808	9234
23-Jul-11	9:00	10:00	Sunny	109	340	500	Construction work in progress	32	<5	1808	9081
	10:02	11:02	Sunny	117	340	500	Construction work in progress	32	<5	1808	9082
	11:04	12:04	Sunny	129	340	500	Construction work in progress	32	<5	1808	9083
29-Jul-11	9:50	10:50	Fine	121	340	500	Construction work in progress	28	<5	1808	9237
	10:52	11:52	Fine	90	340	500	Construction work in progress	28	<5	1808	9242
	11:54	12:54	Fine	113	340	500	Construction work in progress	28	<5	1808	9243
			Min.	90							
			Max.	183							
			Average	133							

* Wind Speed data is presented in the Meteorological Data table

Annex C4 24-hour and 1-hour TSP Monitoring Results

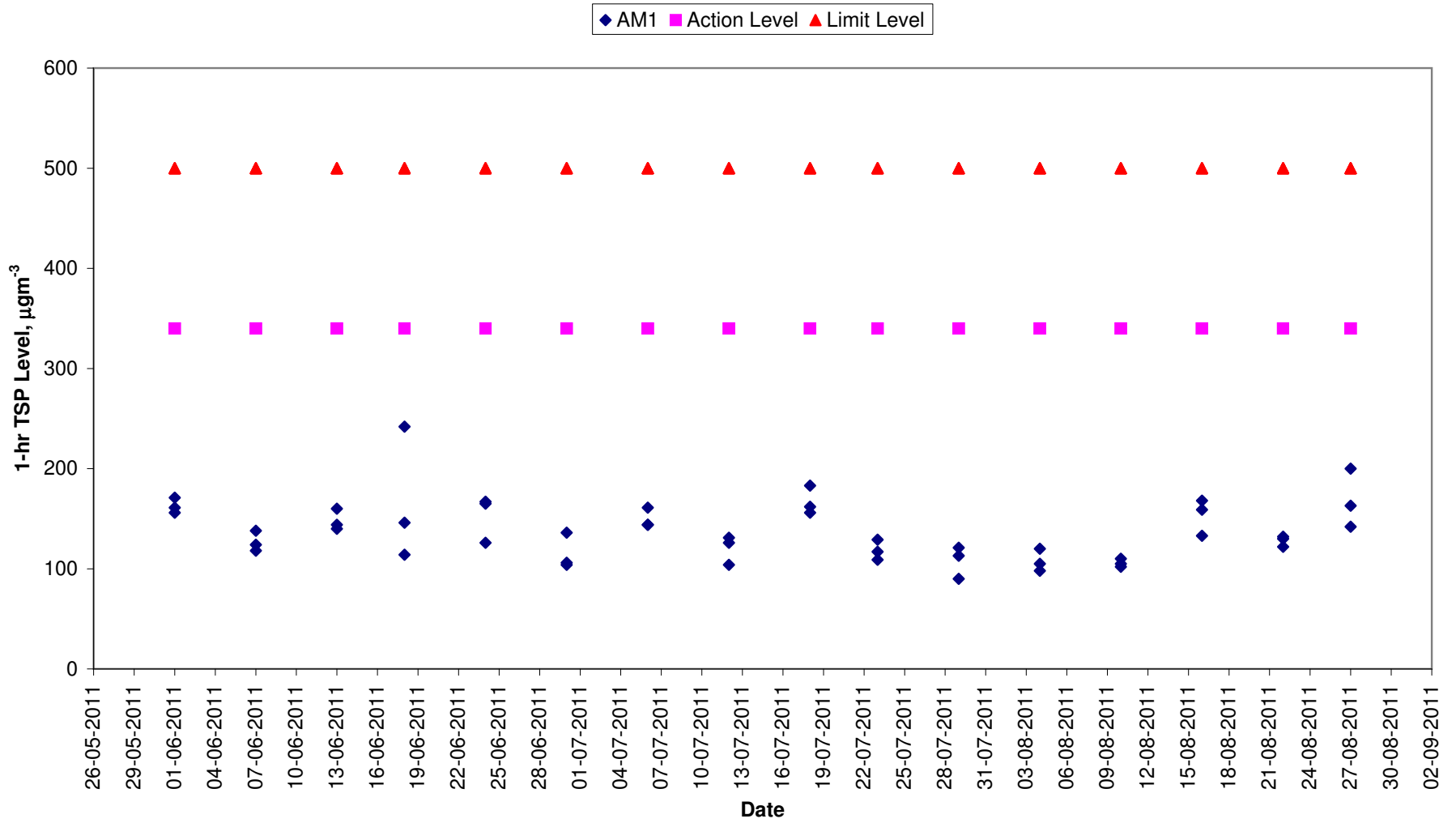
1-hour TSP Monitoring Results

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-Aug-11	10:10	11:10	Sunny	120	340	500	Construction work in progress	32	<5	1808	9430
	11:12	12:12	Sunny	98	340	500	Construction work in progress	32	<5	1808	9433
	12:14	13:14	Sunny	105	340	500	Construction work in progress	32	<5	1808	9434
10-Aug-11	11:35	12:35	Rainy	105	340	500	Construction work in progress	29	<5	1808	9438
	12:38	13:38	Rainy	110	340	500	Construction work in progress	29	<5	1808	9440
	13:40	14:40	Rainy	102	340	500	Construction work in progress	29	<5	1808	9450
16-Aug-11	9:56	10:56	Sunny	133	340	500	Construction work in progress	31	<5	1808	9444
	10:58	11:58	Sunny	159	340	500	Construction work in progress	31	<5	1808	9447
	12:00	13:00	Sunny	168	340	500	Construction work in progress	31	<5	1808	9449
22-Aug-11	11:45	12:45	Sunny	130	340	500	Construction work in progress	31	<5	1808	9528
	12:47	13:47	Sunny	132	340	500	Construction work in progress	31	<5	1808	9529
	13:49	14:49	Sunny	122	340	500	Construction work in progress	31	<5	1808	9531
27-Aug-11	9:00	10:00	Sunny	163	340	500	Construction work in progress	31	<5	1808	9536
	10:02	11:02	Sunny	200	340	500	Construction work in progress	31	<5	1808	9537
	11:04	12:04	Sunny	142	340	500	Construction work in progress	31	<5	1808	9539
				Min.	98						
				Max.	200						
				Average	133						

* Wind Speed data is presented in the Meteorological Data table

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



Annex C4 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
01-Jun-11	9:20	10:20	Sunny	182	352	500	Construction work in progress	30	<5	0145	8938
	10:22	11:22	Sunny	163	352	500	Construction work in progress	30	<5	0145	8940
	11:25	12:25	Sunny	168	352	500	Construction work in progress	30	<5	0145	8839
07-Jun-11	10:50	11:50	Fine	120	352	500	Construction work in progress	30	<5	0145	9023
	11:52	12:52	Fine	140	352	500	Construction work in progress	30	<5	0145	9026
	12:55	13:55	Fine	131	352	500	Construction work in progress	30	<5	0145	8943
13-Jun-11	9:55	10:55	Fine	143	352	500	Construction work in progress	30	<5	0145	9123
	10:57	11:57	Fine	154	352	500	Construction work in progress	30	<5	0145	9126
	12:00	13:00	Fine	152	352	500	Construction work in progress	30	<5	0145	9031
18-Jun-11	9:20	10:20	Sunny	145	352	500	Construction work in progress	30	<5	0145	9128
	10:22	11:22	Sunny	215	352	500	Construction work in progress	30	<5	0145	9046
	11:24	12:24	Sunny	150	352	500	Construction work in progress	30	<5	0145	9035
24-Jun-11	8:25	9:25	Sunny	183	352	500	Construction work in progress	30	<5	0145	9040
	9:27	10:27	Sunny	183	352	500	Construction work in progress	30	<5	0145	9042
	10:30	11:30	Sunny	163	352	500	Construction work in progress	30	<5	0145	9146
30-Jun-11	10:50	11:50	Cloudy	171	352	500	Construction work in progress	29	<5	0145	9131
	11:52	12:52	Cloudy	171	352	500	Construction work in progress	29	<5	0145	9133
	12:55	13:55	Cloudy	152	352	500	Construction work in progress	29	<5	0145	9134
				Min.	120						
				Max.	215						
				Average	160						

* Wind Speed data is presented in the Meteorological Data table

Annex C4 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-Jul-11	10:10	11:10	Sunny	138	352	500	Construction work in progress	32	<5	0145	9138
	11:12	12:12	Sunny	125	352	500	Construction work in progress	32	<5	0145	9143
	12:14	13:14	Sunny	153	352	500	Construction work in progress	32	<5	0145	9144
12-Jul-11	9:25	10:25	Cloudy	112	352	500	Construction work in progress	30	<5	0145	9224
	10:28	11:28	Cloudy	117	352	500	Construction work in progress	30	<5	0145	9225
	11:30	12:30	Cloudy	136	352	500	Construction work in progress	30	<5	0145	9227
18-Jul-11	9:52	10:52	Cloudy	208	352	500	Construction work in progress	30	<5	0145	9232
	10:55	11:55	Cloudy	183	352	500	Construction work in progress	30	<5	0145	9230
	11:58	12:58	Cloudy	163	352	500	Construction work in progress	30	<5	0145	9245
23-Jul-11	9:20	10:20	Sunny	192	352	500	Construction work in progress	32	<5	0145	9084
	10:22	11:22	Sunny	128	352	500	Construction work in progress	32	<5	0145	9085
	11:24	12:24	Sunny	125	352	500	Construction work in progress	32	<5	0145	9086
29-Jul-11	9:30	10:30	Fine	143	352	500	Construction work in progress	28	<5	0145	9238
	10:32	11:32	Fine	138	352	500	Construction work in progress	28	<5	0145	9241
	11:34	12:34	Fine	122	352	500	Construction work in progress	28	<5	0145	9244
				Min.	112						
				Max.	208						
				Average	146						

* Wind Speed data is presented in the Meteorological Data table

Annex C4 24-hour and 1-hour TSP Monitoring Results

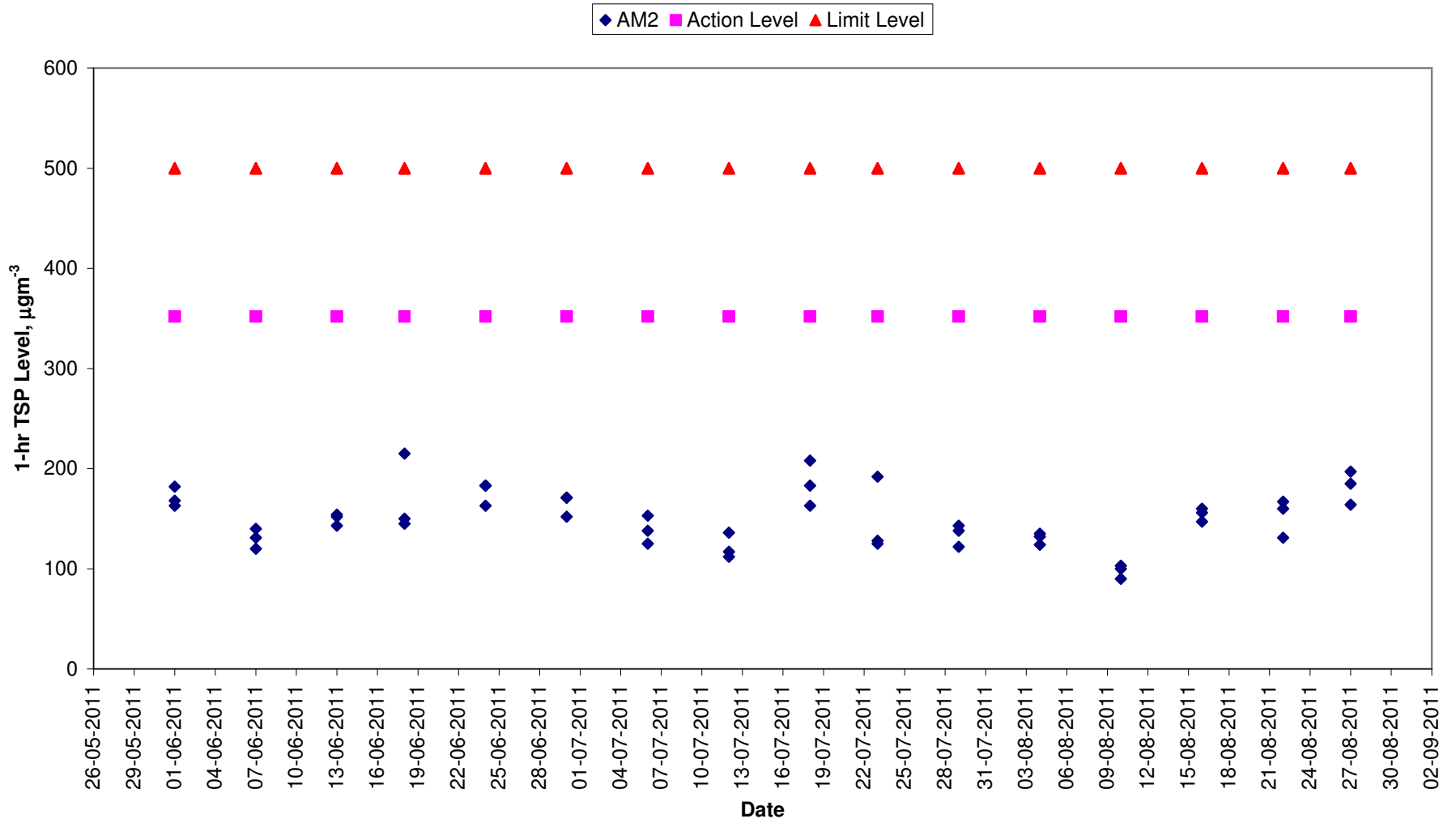
1-hour TSP Monitoring Results

Station AM2

Date	Start Time	Finish Time	Weather	TSP Concentration (µg/m ³)	Action Level (µg/m ³)	Limit Level (µg/m ³)	Site Conditions / Observations / Remarks	Temperature (°C)	Wind Speed * (m/s)	Sampler ID	Filter ID
04-Aug-11	10:40	11:40	Sunny	135	352	500	Construction work in progress	32	<5	0145	9431
	11:42	12:42	Sunny	124	352	500	Construction work in progress	32	<5	0145	9432
	12:45	13:45	Sunny	132	352	500	Construction work in progress	32	<5	0145	9435
10-Aug-11	12:00	13:00	Rainy	103	352	500	Construction work in progress	29	<5	0145	9437
	13:03	14:03	Rainy	90	352	500	Construction work in progress	29	<5	0145	9439
	14:05	15:05	Rainy	100	352	500	Construction work in progress	29	<5	0145	9441
16-Aug-11	9:30	10:30	Sunny	160	352	500	Construction work in progress	31	<5	0145	9445
	10:32	11:32	Sunny	156	352	500	Construction work in progress	31	<5	0145	9446
	11:34	12:34	Sunny	147	352	500	Construction work in progress	31	<5	0145	9448
22-Aug-11	12:00	13:00	Sunny	131	352	500	Construction work in progress	31	<5	0145	9527
	13:02	14:02	Sunny	160	352	500	Construction work in progress	31	<5	0145	9530
	14:04	15:04	Sunny	167	352	500	Construction work in progress	31	<5	0145	9532
27-Aug-11	9:15	10:15	Sunny	185	352	500	Construction work in progress	31	<5	0145	9535
	10:17	11:17	Sunny	164	352	500	Construction work in progress	31	<5	0145	9538
	11:20	12:20	Sunny	197	352	500	Construction work in progress	31	<5	0145	9540
				Min.	90						
				Max.	197						
				Average	143						

* Wind Speed data is presented in the Meteorological Data table

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



Annex C4 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								
01-Jun-11	12:10	02-Jun-11	12:10	Sunny	2.8265	2.9715	12742.03	12766.03	24.00	1.20	1.20	1.20	84	185	260	Construction work in progress	1808	8944		
07-Jun-11	13:30	08-Jun-11	13:30	Fine	2.8639	3.0127	12769.03	12793.03	24.00	1.20	1.20	1.20	86	185	260	Construction work in progress	1808	9029		
13-Jun-11	12:42	14-Jun-11	12:42	Fine	2.8394	2.9906	12796.03	12820.03	24.00	1.20	1.20	1.20	88	185	260	Construction work in progress	1808	9127		
18-Jun-11	12:06	19-Jun-11	12:06	Sunny	2.8229	2.9700	12823.03	12847.03	24.00	1.20	1.20	1.20	85	185	260	Construction work in progress	1808	9038		
24-Jun-11	12:00	25-Jun-11	12:00	Sunny	2.8149	2.9570	12850.03	12874.03	24.00	1.20	1.20	1.20	82	185	260	Construction work in progress	1808	9041		
30-Jun-11	13:32	01-Jul-11	13:32	Cloudy	2.8308	2.9441	12877.03	12901.03	24.00	1.20	1.20	1.20	66	185	260	Construction work in progress	1808	9136		
												Min.	66							
												Max.	88							
												Average	82							

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								
01-Jun-11	12:30	02-Jun-11	12:30	Sunny	2.8639	2.9967	13316.93	13340.93	24.00	1.21	1.21	1.21	76	182	260	Construction work in progress	0145	8942		
07-Jun-11	13:55	08-Jun-11	13:55	Fine	2.8452	2.9984	13344.93	13368.93	24.00	1.21	1.21	1.21	88	182	260	Construction work in progress	0145	9028		
13-Jun-11	13:02	14-Jun-11	13:02	Fine	2.8934	3.0500	13371.93	13395.93	24.00	1.21	1.21	1.21	90	182	260	Construction work in progress	0145	9032		
18-Jun-11	12:26	19-Jun-11	12:26	Sunny	2.8118	2.9749	13398.93	13422.93	24.00	1.21	1.21	1.21	94	182	260	Construction work in progress	0145	9037		
24-Jun-11	12:20	25-Jun-11	12:20	Sunny	2.8107	2.9446	13425.93	13449.93	24.00	1.21	1.21	1.21	77	182	260	Construction work in progress	0145	9045		
30-Jun-11	14:00	01-Jul-11	14:00	Cloudy	2.8701	2.9914	13452.93	13476.93	24.00	1.21	1.21	1.21	70	182	260	Construction work in progress	0145	9137		
												Min.	70							
												Max.	94							
												Average	82							

Annex C4 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-Jul-11	12:56	07-Jul-11	12:56	Sunny	2.8447	2.9772	12904.03	12928.03	24.00	1.20	1.20	1.20	77	185	260	Construction work in progress	1808	9140		
12-Jul-11	12:10	13-Jul-11	12:10	Cloudy	2.8338	2.9610	12931.03	12955.03	24.00	1.20	1.20	1.20	74	185	260	Construction work in progress	1808	9246		
18-Jul-11	12:42	19-Jul-11	12:42	Cloudy	2.8201	2.9557	12958.03	12982.03	24.00	1.20	1.20	1.20	78	185	260	Construction work in progress	1808	9236		
23-Jul-11	12:06	24-Jul-11	12:06	Sunny	2.8359	2.9598	12985.03	13009.03	24.00	1.24	1.24	1.24	69	185	260	Construction work in progress	1808	9239		
29-Jul-11	14:06	30-Jul-11	14:06	Fine	2.8594	3.0007	13012.03	13036.03	24.00	1.24	1.24	1.24	79	185	260	Construction work in progress	1808	9452		
												Min.	69							
												Max.	79							
												Average	75							

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-Jul-11	13:16	07-Jul-11	13:16	Sunny	2.8823	3.0124	13479.93	13503.93	24.00	1.21	1.21	1.21	75	182	260	Construction work in progress	0145	9142		
12-Jul-11	12:33	13-Jul-11	12:33	Cloudy	2.8440	2.9669	13506.93	13530.93	24.00	1.21	1.21	1.21	71	182	260	Construction work in progress	0145	9229		
18-Jul-11	13:00	19-Jul-11	13:00	Cloudy	2.8103	2.9667	13533.93	13557.93	24.00	1.21	1.21	1.21	90	182	260	Construction work in progress	0145	9235		
23-Jul-11	12:28	24-Jul-11	12:28	Sunny	2.8460	2.9778	13560.93	13584.93	24.00	1.20	1.20	1.20	76	182	260	Construction work in progress	0145	9240		
29-Jul-11	12:35	30-Jul-11	12:35	Fine	2.8222	2.9727	13587.93	13611.93	24.00	1.20	1.20	1.20	87	182	260	Construction work in progress	0145	9429		
												Min.	71							
												Max.	90							
												Average	80							

Annex C4 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-Aug-11	13:16	05-Aug-11	13:16	Sunny	2.8019	2.9441	13039.03	13063.03	24.00	1.24	1.24	1.24	80	185	260	Construction work in progress	1808	9436			
10-Aug-11	14:45	11-Aug-11	14:45	Rainy	2.8134	2.9221	13066.03	13090.03	24.00	1.24	1.24	1.24	61	185	260	Construction work in progress	1808	9443			
16-Aug-11	13:40	17-Aug-11	13:40	Sunny	2.8595	3.0112	13093.03	13117.03	24.00	1.24	1.24	1.24	85	185	260	Construction work in progress	1808	9526			
22-Aug-11	14:50	23-Aug-11	14:50	Sunny	2.8866	3.0127	13120.03	13144.03	24.00	1.24	1.24	1.24	71	185	260	Construction work in progress	1808	9533			
27-Aug-11	12:06	28-Aug-11	12:06	Sunny	2.8634	3.0191	13147.03	13171.03	24.00	1.24	1.24	1.24	87	185	260	Construction work in progress	1808	9541			
												Min.	61								
												Max.	87								
												Average	77								

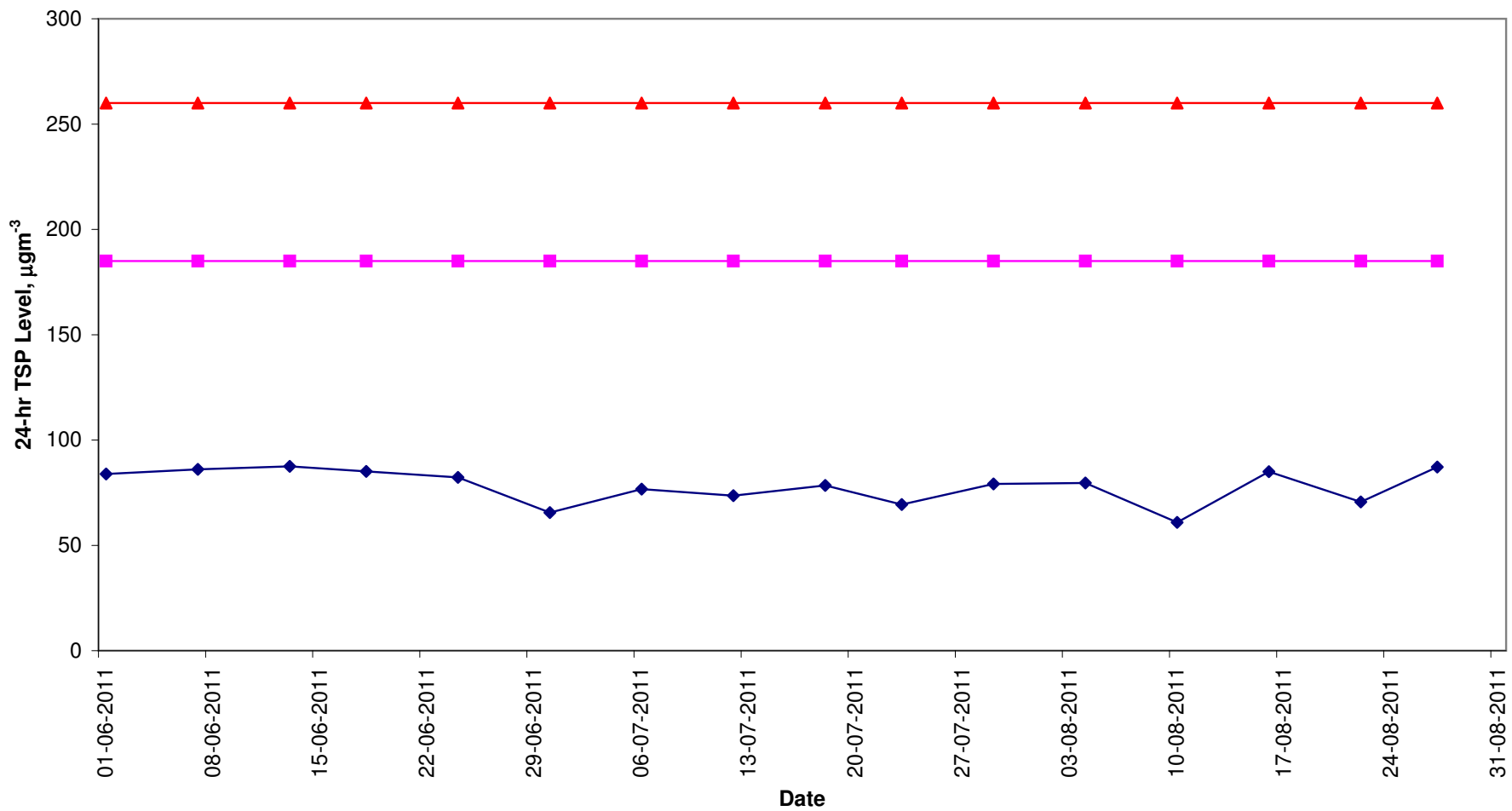
24-hour TSP Monitoring Results

Station AM2

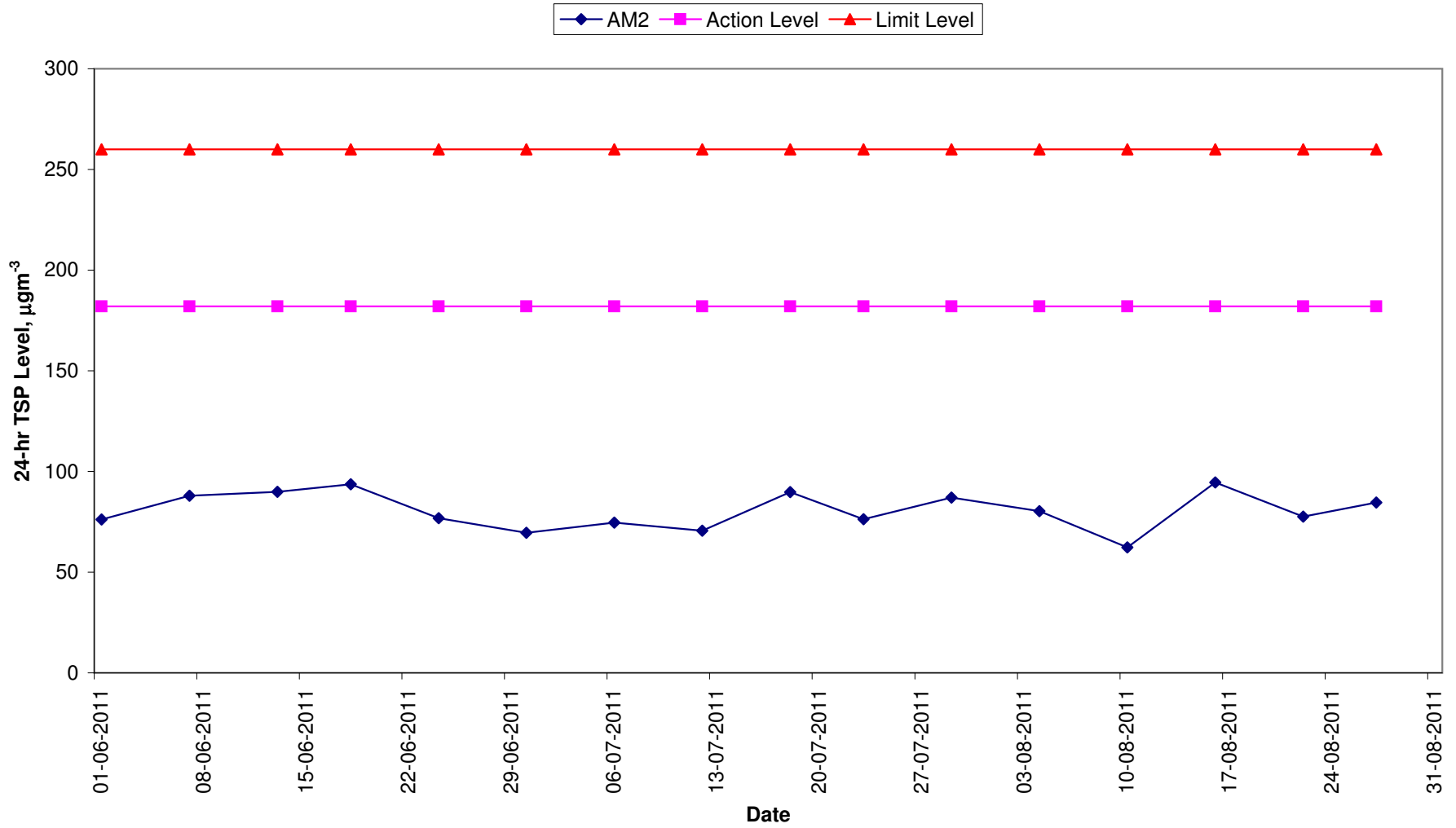
Start		Finish		Weather	Filter Weight (g)		Elapsed Time Reading		Sampling Time (hrs)	Flow Rate (m ³ /min)			TSP Conc. (µg/m ³)	Action Level (µg/m ³)	Limit Level (µg/m ³)	Observations / Remarks	Sampler ID	Filter ID			
Date	Time	Date	Time		Initial	Final	Initial	Final		Initial	Final	Average									
04-Aug-11	13:47	05-Aug-11	13:47	Sunny	2.8118	2.9505	13614.93	13638.93	24.00	1.20	1.20	1.20	80	182	260	Construction work in progress	0145	9451			
10-Aug-11	15:10	11-Aug-11	15:10	Rainy	2.8075	2.9151	13641.93	13665.93	24.00	1.20	1.20	1.20	62	182	260	Construction work in progress	0145	9442			
16-Aug-11	12:36	17-Aug-11	12:36	Sunny	2.8227	2.9860	13668.93	13692.93	24.00	1.20	1.20	1.20	95	182	260	Construction work in progress	0145	9525			
22-Aug-11	15:06	23-Aug-11	15:06	Sunny	2.8565	2.9906	13695.93	13719.93	24.00	1.20	1.20	1.20	78	182	260	Construction work in progress	0145	9534			
27-Aug-11	12:25	28-Aug-11	12:25	Sunny	2.8439	2.9900	13722.93	13746.93	24.00	1.20	1.20	1.20	85	182	260	Construction work in progress	0145	9542			
												Min.	62								
												Max.	95								
												Average	80								

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

AM1 Action Level Limit Level



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



Meteorological Data Extracted from the Hong Kong Observatory

Date	Weather	King's Park Station				
		Average Air Temperature (°C)	Average Relative Humidity (%)	Total Rainfall (mm)	Average Wind Speed (km/h)	Wind Direction
01-06-2011	Sunny	28	55-84	0.0	0-12	SW
02-06-2011	Sunny	28	70-84	0.0	0-14	SW
03-06-2011	Sunny	28	62-84	0.0	0-13	NE
04-06-2011	Sunny	29	64-84	0.0	0-14	S
05-06-2011	Sunny	30	68-83	0.0	0-17	S
07-06-2011	Fine	30	68-80	Trace	0-17	SW
08-06-2011	Sunny	30	69-86	Trace	0-18	W
10-06-2011	Sunny	29	58-84	0.0	0-16	SE
12-06-2011	Fine	26	76-98	28.4	0-21	W
13-06-2011	Fine	29	74-90	5.9	0-14	W
14-06-2011	Fine	29	66-83	2.4	0-14	SW
16-06-2011	Sunny	26	80-98	64.7	0-21	S
17-06-2011	Cloudy	28	88-98	77.5	0-18	E
18-06-2011	Fine	29	65-91	1.2	0-18	E
19-06-2011	Sunny	30	67-90	Trace	1-18	E
20-06-2011	Sunny	30	58-87	0.0	0-18	E
22-06-2011	Cloudy	27	83-97	41.4	0-30	SE
24-06-2011	Sunny	28	76-91	0.6	7-28	SE
26-06-2011	Sunny	29	74-87	Trace	1-16	W
28-06-2011	Cloudy	27	83-98	106.6	0-15	W
30-06-2011	Cloudy	27	80-98	5.3	0-22	SE

Date	Weather	Tsing Yi Station				
		Average Air Temperature (°C)	Average Relative Humidity (%) *	Total Rainfall (mm)	Average Wind Speed (km/h)	Wind Direction
01-06-2011	Sunny	28	55-84	0.0	0-18	SE
02-06-2011	Sunny	28	70-84	0.0	0-15	SE
03-06-2011	Sunny	28	62-84	0.0	2-14	SE
04-06-2011	Sunny	29	64-84	0.0	3-18	SE
05-06-2011	Sunny	30	68-83	0.0	2-16	SE
07-06-2011	Fine	30	68-80	Trace	3-15	SE
08-06-2011	Sunny	30	69-86	Trace	2-18	SE
10-06-2011	Sunny	30	58-84	0.0	1-20	SE
12-06-2011	Fine	26	76-98	28.4	0-21	SE
13-06-2011	Fine	29	74-90	5.9	0-21	SE
14-06-2011	Fine	30	66-83	2.4	0-18	SE
16-06-2011	Sunny	27	80-98	64.7	3-26	SE
17-06-2011	Cloudy	28	88-98	77.5	0-30	SE
18-06-2011	Fine	30	65-91	1.2	1-23	SE
19-06-2011	Sunny	30	67-90	Trace	3-23	SE
20-06-2011	Sunny	31	58-87	0.0	0-19	SE
22-06-2011	Cloudy	27	83-97	41.4	4-25	SE
24-06-2011	Sunny	28	76-91	0.6	3-27	SE
26-06-2011	Sunny	28	74-87	Trace	1-16	SE
28-06-2011	Cloudy	27	83-98	106.6	0-18	SE
30-06-2011	Cloudy	28	80-98	5.3	0-32	SE

Date	Weather	Kai Tak Station				
		Average Air Temperature (°C) *	Average Relative Humidity (%) *	Total Rainfall (mm) *	Average Wind Speed (km/h)	Wind Direction
01-06-2011	Sunny	28	55-84	0.0	0-25	E
02-06-2011	Sunny	28	70-84	0.0	0-18	SW
03-06-2011	Sunny	28	62-84	0.0	0-22	SE
04-06-2011	Sunny	29	64-84	0.0	0-12	SW
05-06-2011	Sunny	30	68-83	0.0	0-15	SE
07-06-2011	Fine	30	68-80	Trace	0-17	SW
08-06-2011	Sunny	30	69-86	Trace	1-18	SW
10-06-2011	Sunny	29	58-84	0.0	0-27	SE
12-06-2011	Fine	26	76-98	28.4	0-23	W
13-06-2011	Fine	29	74-90	5.9	0-15	SE
14-06-2011	Fine	29	66-83	2.4	0-13	S
16-06-2011	Sunny	26	80-98	64.7	0-27	S
17-06-2011	Cloudy	28	88-98	77.5	0-27	SE
18-06-2011	Fine	29	65-91	1.2	0-23	SE
19-06-2011	Sunny	30	67-90	Trace	4-25	SE
20-06-2011	Sunny	30	58-87	0.0	6-23	SE
22-06-2011	Cloudy	27	83-97	41.4	5-48	E
24-06-2011	Sunny	28	76-91	0.6	13-34	E
26-06-2011	Sunny	29	74-87	Trace	0-22	SW
28-06-2011	Cloudy	27	83-98	106.6	0-24	SW
30-06-2011	Cloudy	27	80-98	5.3	0-30	E

Date	Weather	Green Island Station				
		Average Air Temperature (°C) *	Average Relative Humidity (%) *	Total Rainfall (mm) *	Average Wind Speed (km/h)	Wind Direction
01-06-2011	Sunny	28	55-84	0.0	4-37	NE
02-06-2011	Sunny	28	70-84	0.0	3-30	S
03-06-2011	Sunny	28	62-84	0.0	9-25	S
04-06-2011	Sunny	29	64-84	0.0	9-26	S
05-06-2011	Sunny	30	68-83	0.0	12-28	S
07-06-2011	Fine	30	68-80	Trace	14-31	S
08-06-2011	Sunny	30	69-86	Trace	9-30	S
10-06-2011	Sunny	29	58-84	0.0	0-34	S
12-06-2011	Fine	26	76-98	28.4	0-35	S
13-06-2011	Fine	29	74-90	5.9	3-32	S
14-06-2011	Fine	29	66-83	2.4	0-33	S
16-06-2011	Sunny	26	80-98	64.7	5-40	S
17-06-2011	Cloudy	28	88-98	77.5	5-43	NE
18-06-2011	Fine	29	65-91	1.2	3-30	E
19-06-2011	Sunny	30	67-90	Trace	8-29	SE
20-06-2011	Sunny	30	58-87	0.0	3-30	S
22-06-2011	Cloudy	27	83-97	41.4	18-53	NE
24-06-2011	Sunny	28	76-91	0.6	13-40	NE
26-06-2011	Sunny	29	74-87	Trace	5-30	W
28-06-2011	Cloudy	27	83-98	106.6	2-40	W
30-06-2011	Cloudy	27	80-98	5.3	1-55	SE

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

Meteorological Data Extracted from the Hong Kong Observatory

Date	Weather	King's Park Station				
		Average Air Temperature (°C)	Average Relative Humidity (%)	Total Rainfall (mm)	Average Wind Speed (km/h)	Wind Direction
03-07-2011	Sunny	30	66-83	Trace	0-13	SW
04-07-2011	Sunny	30	64-83	0.0	0-15	W
06-07-2011	Sunny	30	58-82	0.0	0-16	W
09-07-2011	Sunny	30	65-86	0.0	2-15	W
10-07-2011	Sunny	30	63-89	Trace	0-15	W
12-07-2011	Cloudy	28	79-95	10.9	0-14	SW
15-07-2011	Cloudy	27	86-98	34.9	0-18	E
17-07-2011	Fine	28	72-91	0.2	0-15	W
18-07-2011	Cloudy	28	74-90	4.3	0-15	W
19-07-2011	Cloudy	28	74-95	5.6	0-14	W
21-07-2011	Fine	29	66-90	0.0	0-14	W
22-07-2011	Sunny	29	64-97	4.2	0-14	W
23-07-2011	Sunny	29	60-88	0.0	0-15	S
24-07-2011	Sunny	29	65-88	0.0	0-16	W
27-07-2011	Sunny	30	60-88	Trace	3-18	E
28-07-2011	Sunny	30	61-82	Trace	0-21	SW
29-07-2011	Fine	28	76-95	12.4	0-31	E
30-07-2011	Fine	29	76-90	Trace	0-28	E
31-07-2011	Sunny	29	67-89	0.0	0-17	E

Date	Weather	Tsing Yi Station				
		Average Air Temperature (°C)	Average Relative Humidity (%) *	Total Rainfall (mm)	Average Wind Speed (km/h)	Wind Direction
03-07-2011	Sunny	30	66-83	Trace	4-16	SE
04-07-2011	Sunny	30	64-83	0.0	1-15	SE
06-07-2011	Sunny	30	58-82	0.0	0-14	SE
09-07-2011	Sunny	30	65-86	0.0	0-15	SE
10-07-2011	Sunny	31	63-89	Trace	0-14	SE
12-07-2011	Cloudy	28	79-95	10.9	0-21	SE
15-07-2011	Cloudy	28	86-98	34.9	0-15	E
17-07-2011	Fine	28	72-91	0.2	0-24	W
18-07-2011	Cloudy	28	74-90	4.3	0-16	SE
19-07-2011	Cloudy	27	74-95	5.6	0-15	SE
21-07-2011	Fine	28	66-90	0.0	0-14	SE
22-07-2011	Sunny	29	64-97	4.2	0-18	SE
23-07-2011	Sunny	29	60-88	0.0	0-17	SE
24-07-2011	Sunny	29	65-88	0.0	0-13	SE
27-07-2011	Sunny	31	60-88	Trace	1-18	SE
28-07-2011	Sunny	30	61-82	Trace	0-25	SE
29-07-2011	Fine	28	76-95	12.4	3-25	SE
30-07-2011	Fine	29	76-90	Trace	2-26	SE
31-07-2011	Sunny	30	67-89	0.0	3-26	SE

Date	Weather	Kai Tak Station				
		Average Air Temperature (°C) *	Average Relative Humidity (%) *	Total Rainfall (mm) *	Average Wind Speed (km/h)	Wind Direction
03-07-2011	Sunny	30	66-83	Trace	1-16	S
04-07-2011	Sunny	30	64-83	0.0	1-16	SW
06-07-2011	Sunny	30	58-82	0.0	1-20	SW
09-07-2011	Sunny	30	65-86	0.0	4-19	SW
10-07-2011	Sunny	30	63-89	Trace	0-21	SW
12-07-2011	Cloudy	28	79-95	10.9	0-22	S
15-07-2011	Cloudy	27	86-98	34.9	0-24	SE
17-07-2011	Fine	28	72-91	0.2	3-30	SW
18-07-2011	Cloudy	28	74-90	4.3	0-24	SW
19-07-2011	Cloudy	28	74-95	5.6	0-19	SW
21-07-2011	Fine	29	66-90	0.0	0-16	SW
22-07-2011	Sunny	29	64-97	4.2	0-17	SW
23-07-2011	Sunny	29	60-88	0.0	0-18	SE
24-07-2011	Sunny	29	65-88	0.0	0-13	SW
27-07-2011	Sunny	30	60-88	Trace	3-19	SE
28-07-2011	Sunny	30	61-82	Trace	0-21	E
29-07-2011	Fine	28	76-95	12.4	5-40	E
30-07-2011	Fine	29	76-90	Trace	6-29	E
31-07-2011	Sunny	29	67-89	0.0	2-20	E

Date	Weather	Green Island Station				
		Average Air Temperature (°C) *	Average Relative Humidity (%) *	Total Rainfall (mm) *	Average Wind Speed (km/h)	Wind Direction
03-07-2011	Sunny	30	66-83	Trace	14-27	S
04-07-2011	Sunny	30	64-83	0.0	10-27	S
06-07-2011	Sunny	30	58-82	0.0	1-25	S
09-07-2011	Sunny	30	65-86	0.0	3-25	S
10-07-2011	Sunny	30	63-89	Trace	3-27	S
12-07-2011	Cloudy	28	79-95	10.9	0-28	S
15-07-2011	Cloudy	27	86-98	34.9	0-31	NE
17-07-2011	Fine	28	72-91	0.2	11-38	SW
18-07-2011	Cloudy	28	74-90	4.3	4-28	S
19-07-2011	Cloudy	28	74-95	5.6	0-27	S
21-07-2011	Fine	29	66-90	0.0	6-27	S
22-07-2011	Sunny	29	64-97	4.2	10-31	SE
23-07-2011	Sunny	29	60-88	0.0	8-26	N
24-07-2011	Sunny	29	65-88	0.0	0-23	NW
27-07-2011	Sunny	30	60-88	Trace	5-30	NE
28-07-2011	Sunny	30	61-82	Trace	0-35	NE
29-07-2011	Fine	28	76-95	12.4	10-60	NE
30-07-2011	Fine	29	76-90	Trace	5-30	NE
31-07-2011	Sunny	29	67-89	0.0	3-27	NE

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

Meteorological Data Extracted from the Hong Kong Observatory

Date	Weather	King's Park Station				
		Average Air Temperature (°C)	Average Relative Humidity (%)	Total Rainfall (mm)	Average Wind Speed (km/h)	Wind Direction
02-08-2011	Sunny	28	55-89	0.0	0-14	W
03-08-2011	Sunny	30	58-89	0.0	4-15	W
04-08-2011	Sunny	30	62-88	0.0	1-15	W
07-08-2011	Fine	31	56-87	0.0	0-16	W
08-08-2011	Fine	29	68-93	22.1	0-18	W
09-08-2011	Fine	28	73-96	9.9	0-16	W
10-08-2011	Cloudy	27	85-97	60.5	0-16	E
13-08-2011	Sunny	30	60-84	0.0	0-16	W
14-08-2011	Sunny	30	50-86	Trace	0-15	W
15-08-2011	Sunny	30	66-86	0.0	0-16	W
16-08-2011	Sunny	30	61-90	8.5	0-16	W
19-08-2011	Sunny	30	62-88	0.0	0-18	E
21-08-2011	Sunny	30	70-87	Trace	0-15	E
22-08-2011	Sunny	29	74-90	1.4	0-12	W
23-08-2011	Fine	30	64-86	0.0	0-12	W
25-08-2011	Sunny	29	67-92	13.7	0-15	W
27-08-2011	Sunny	30	59-90	5.2	0-14	W
28-08-2011	Sunny	31	60-80	0.0	0-14	W
30-08-2011	Fine	31	52-83	0.0	0-18	W
31-08-2011	Sunny	31	51-82	0.5	0-18	W

Date	Weather	Tsing Yi Station				
		Average Air Temperature (°C)	Average Relative Humidity (%) *	Total Rainfall (mm)	Average Wind Speed (km/h)	Wind Direction
02-08-2011	Sunny	30	55-89	0.0	0-14	S
03-08-2011	Sunny	29	58-89	0.0	0-14	NW
04-08-2011	Sunny	29	62-88	0.0	0-14	NW
07-08-2011	Fine	30	56-87	0.0	0-14	S
08-08-2011	Fine	29	68-93	22.1	0-16	S
09-08-2011	Fine	28	73-96	9.9	2-16	SE
10-08-2011	Cloudy	27	85-97	60.5	1-15	E
13-08-2011	Sunny	29	60-84	0.0	0-14	SE
14-08-2011	Sunny	29	50-86	Trace	0-14	E
15-08-2011	Sunny	29	66-86	0.0	0-12	SE
16-08-2011	Sunny	29	61-90	8.5	0-14	SE
19-08-2011	Sunny	31	62-88	0.0	0-21	E
21-08-2011	Sunny	29	70-87	Trace	0-21	NW
22-08-2011	Sunny	29	74-90	1.4	0-21	S
23-08-2011	Fine	29	64-86	0.0	0-15	SE
25-08-2011	Sunny	29	67-92	13.7	0-14	W
27-08-2011	Sunny	30	59-90	5.2	0-14	SW
28-08-2011	Sunny	30	60-80	0.0	0-21	NW
30-08-2011	Fine	30	52-83	0.0	0-21	NW
31-08-2011	Sunny	32	51-82	0.5	0-21	NW

Date	Weather	Kai Tak Station				
		Average Air Temperature (°C) *	Average Relative Humidity (%) *	Total Rainfall (mm) *	Average Wind Speed (km/h)	Wind Direction
02-08-2011	Sunny	28	55-89	0.0	0-14	SW
03-08-2011	Sunny	30	58-89	0.0	4-18	W
04-08-2011	Sunny	30	62-88	0.0	6-17	W
07-08-2011	Fine	31	56-87	0.0	2-14	SW
08-08-2011	Fine	29	68-93	22.1	0-24	SW
09-08-2011	Fine	28	73-96	9.9	0-16	SW
10-08-2011	Cloudy	27	85-97	60.5	0-21	E
13-08-2011	Sunny	30	60-84	0.0	0-14	SE
14-08-2011	Sunny	30	50-86	Trace	0-14	SE
15-08-2011	Sunny	30	66-86	0.0	0-12	SE
16-08-2011	Sunny	30	61-90	8.5	0-14	N
19-08-2011	Sunny	30	62-88	0.0	2-16	E
21-08-2011	Sunny	30	70-87	Trace	2-18	SE
22-08-2011	Sunny	29	74-90	1.4	0-18	SE
23-08-2011	Fine	30	64-86	0.0	0-15	SE
25-08-2011	Sunny	29	67-92	13.7	1-18	S
27-08-2011	Fine	30	59-90	5.2	0-18	SE
28-08-2011	Sunny	31	60-80	0.0	0-15	NW
30-08-2011	Fine	31	52-83	0.0	0-25	W
31-08-2011	Sunny	31	51-82	0.5	3-27	W

Date	Weather	Green Island Station				
		Average Air Temperature (°C) *	Average Relative Humidity (%) *	Total Rainfall (mm) *	Average Wind Speed (km/h)	Wind Direction
02-08-2011	Sunny	28	55-89	0.0	0-24	SW
03-08-2011	Sunny	30	58-89	0.0	0-24	NW
04-08-2011	Sunny	30	62-88	0.0	0-27	S
07-08-2011	Fine	31	56-87	0.0	0-24	S
08-08-2011	Fine	29	68-93	22.1	0-40	S
09-08-2011	Fine	28	73-96	9.9	3-33	S
10-08-2011	Cloudy	27	85-97	60.5	0-21	SE
13-08-2011	Sunny	30	60-84	0.0	1-21	S
14-08-2011	Sunny	30	50-86	Trace	0-24	S
15-08-2011	Sunny	30	66-86	0.0	3-21	S
16-08-2011	Sunny	30	61-90	8.5	1-24	S
19-08-2011	Sunny	30	62-88	0.0	3-27	NE
21-08-2011	Sunny	30	70-87	Trace	0-27	NE
22-08-2011	Sunny	29	74-90	1.4	0-25	S
23-08-2011	Fine	30	64-86	0.0	1-21	S
25-08-2011	Sunny	29	67-92	13.7	0-21	NW
27-08-2011	Sunny	30	59-90	5.2	0-24	S
28-08-2011	Sunny	31	60-80	0.0	0-24	NW
30-08-2011	Fine	31	52-83	0.0	3-27	NW
31-08-2011	Sunny	31	51-82	0.5	3-21	NW

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

Annex C5 Noise Monitoring Results

Daytime Noise Monitoring Results

Station NM1

Date	Start Time	End Time	Weather	Noise level (dB(A)), 30 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							
01-Jun-11	8:20	8:50	Sunny	66.5	68.6	63.7	Noise from nearby playground	Mainly Traffic noise	-	28	0.2	RION- NL31 (S/N 00983400)	RION - NC73 (S/N 10997142)
07-Jun-11	9:45	10:15	Fine	65.8	66.0	63.0	No outdoor Construction noise	Mainly Traffic noise	-	30	0.5	RION- NL31 (S/N 00983400)	RION - NC73 (S/N 10997142)
13-Jun-11	9:00	9:30	Sunny	66.7	68.7	64.3	Noise from nearby playground	Mainly Traffic noise	-	26	0.2	RION- NL31 (S/N 00983400)	RION - NC73 (S/N 10997142)
24-Jun-11	11:20	11:50	Sunny	66.9	68.8	64.0	Noise from nearby playground, Traffic noise	Mainly Traffic noise	-	27	0.3	RION- NL31 (S/N 00983400)	RION - NC73 (S/N 10997142)
30-Jun-11	9:50	10:20	Cloudy	67.4	69.5	65.0	-	Mainly Traffic noise	-	27	0.3	RION- NL31 (S/N 00983400)	RION - NC73 (S/N 10997142)
				Min.	65.8								
				Max.	67.4								

Annex C5 Noise Monitoring Results

Daytime Noise Monitoring Results

Station NM1

Date	Start Time	End Time	Weather	Noise level (dB(A)), 30 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							
06-Jul-11	9:16	9:46	Sunny	67.1	69.0	64.8	Noise from nearby playground	Mainly Traffic noise	-	32	0.2	RION- NL31 (S/N 00983400)	RION - NC73 (S/N 10997142)
12-Jul-11	8:30	9:00	Cloudy	67.5	70.4	65.6	No outdoor Construction noise	Mainly Traffic noise	-	30	0.3	RION- NL31 (S/N 00983400)	RION - NC73 (S/N 10997142)
18-Jul-11	9:00	9:30	Cloudy	67.8	69.2	65.1	No outdoor Construction noise	Mainly Traffic noise	-	30	0.2	RION- NL31 (S/N 00983400)	RION - NC73 (S/N 10997142)
29-Jul-11	13:20	13:50	Fine	66.9	69.0	64.1	Noise from nearby playground	Mainly Traffic noise	-	28	0.2	RION- NL31 (S/N 00983400)	RION - NC73 (S/N 10997142)
				Min.	66.9								
				Max.	67.8								

Annex C5 Noise Monitoring Results

Daytime Noise Monitoring Results

Station NM1

Date	Start Time	End Time	Weather	Noise level (dB(A)), 30 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							
04-Aug-11	9:35	10:05	Sunny	68.5	70.2	65.7	-	Mainly Traffic noise	-	32	0.4	RION- NL31 (S/N 00983400)	RION - NC73 (S/N 10997142)
10-Aug-11	11:00	11:30	Cloudy	65.5	68.4	64.0	No outdoor Construction noise	Mainly Traffic noise	-	29	0.2	RION- NL31 (S/N 00983400)	RION - NC73 (S/N 10997142)
16-Aug-11	13:05	13:35	Sunny	66.7	68.7	64.2	No outdoor Construction noise	Mainly Traffic noise	-	31	0.2	RION- NL31 (S/N 00983400)	RION - NC73 (S/N 10997142)
22-Aug-11	11:10	11:40	Sunny	66.6	68.2	64.0	-	Mainly Traffic noise	-	31	0.2	RION- NL31 (S/N 00983400)	RION - NC73 (S/N 10997142)
				Min.	65.5								
				Max.	68.5								

Annex C5 Noise Monitoring Results

Restricted Hours Noise Monitoring Results ^{[1][2]}

Station NM1

Date	Start Time	End Time	Weather	Noise level (dB(A)), 5 min			Major Construction Noise Source(s)	Other Noise Source(s)	Remarks	Temp. (°C)	Wind Speed (m/s)	Noise Meter Model / ID	Calibrator Model / ID
				Leq	L10	L90							
04-Jun-11	0:03	0:08	Fine	63.7	66.5	58.4	-	Mainly traffic noise	-	29	0.3	RION- NL31 (S/N 00983400)	RION - NC73 (S/N 10997142)
	0:08	0:13	Fine	62.9	65.6	58.7			-				
	0:13	0:18	Fine	63.1	66.5	59.0			-				
	0:03	0:18	Fine	63.2	66.2	58.7			-				
12-Jun-11	9:16	9:21	Fine	62.2	66.1	59.4	-	Mainly traffic noise	-	26	0.2	RION- NL31 (S/N 00983400)	RION - NC73 (S/N 10997142)
	9:21	9:26	Fine	62.2	64.5	59.3			-				
	9:26	9:31	Fine	63.5	66.5	60.0			-				
	9:16	9:31	Fine	62.7	65.8	59.6			-				
17-Jun-11	23:06	23:11	Cloudy	63.8	66.4	59.2	-	Mainly traffic noise	-	28	0.3	RION- NL31 (S/N 00983400)	RION - NC73 (S/N 10997142)
	23:11	23:16	Cloudy	63.7	66.1	60.0			-				
	23:16	23:21	Cloudy	64.0	66.7	60.6			-				
	23:06	23:21	Cloudy	63.8	66.4	60.0			-				
26-Jun-11	10:10	10:15	Sunny	65.8	69.5	67.6	-	Mainly traffic noise	-	29	0.2	RION- NL31 (S/N 00983400)	RION - NC73 (S/N 10997142)
	10:15	10:20	Sunny	65.5	69.1	67.2			-				
	10:20	10:25	Sunny	65.6	69.3	67.4			-				
	10:10	10:25	Sunny	65.6	69.3	67.4			-				
30-Jun-11	23:29	23:34	Fine	63.6	64.5	60.8	-	Mainly traffic noise	-	29	0.3	RION- NL31 (S/N 00983400)	RION - NC73 (S/N 10997142)
	23:34	23:39	Fine	63.2	65.1	60.5			-				
	23:39	23:44	Fine	65.4	68.3	61.6			-				
	23:29	23:44	Fine	64.2	66.3	61.0			-				
				Min.	62.2								
				Max.	65.8								

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

[2] The monitoring data on 4 June morning are for the restricted hour of previous day (3 June)

Annex C5 Noise Monitoring Results

Restricted Hours Noise Monitoring Results ^{[1][2]}

Station NM1

Date	Start Time	End Time	Weather	Noise level (dB(A)), 5 min			Major Construction Noise Source(s)	Other Noise Source(s)	Remarks	Temp. (°C)	Wind Speed (m/s)	Noise Meter Model / ID	Calibrator Model / ID
				Leq	L10	L90							
10-Jul-11	10:15	10:20	Sunny	60.6	63.3	56.8	-	Mainly traffic noise	-	32	0.2	RION- NL31 (S/N 00983400)	RION - NC73 (S/N 10997142)
	10:20	10:25	Sunny	60.4	61.8	56.5			-				
	10:25	10:30	Sunny	59.3	62.2	55.9			-				
	10:15	10:30	Sunny	60.1	62.5	56.4			-				
15-Jul-11	23:00	23:05	Cloudy	62.3	64.3	59.8	-	Mainly traffic noise	-	30	0.2	RION- NL31 (S/N 00983400)	RION - NC73 (S/N 10997142)
	23:05	23:10	Cloudy	63.9	66.5	59.5			-				
	23:10	23:15	Cloudy	63.7	66.0	60.0			-				
	23:00	23:15	Cloudy	63.4	65.7	59.8			-				
24-Jul-11	11:12	11:17	Sunny	67.6	69.5	63.9	Noise from nearby playground	Mainly traffic noise	-	29	0.2	RION- NL31 (S/N 00983400)	RION - NC73 (S/N 10997142)
	11:17	11:22	Sunny	68.5	70.3	64.3			-				
	11:22	11:27	Sunny	68.5	70.4	64.9			-				
	11:12	11:27	Sunny	68.2	70.1	64.4			-				
29-Jul-11	23:08	23:13	Fine	62.5	64.5	60.3	-	Mainly traffic noise	-	29	0.4	RION- NL31 (S/N 00983400)	RION - NC73 (S/N 10997142)
	23:13	23:18	Fine	62.6	65.0	60.7			-				
	23:18	23:23	Fine	63.1	64.7	61.0			-				
	23:08	23:23	Fine	62.7	64.7	60.7			-				
				Min.	59.3								
				Max.	68.5								

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

Annex C5 Noise Monitoring Results

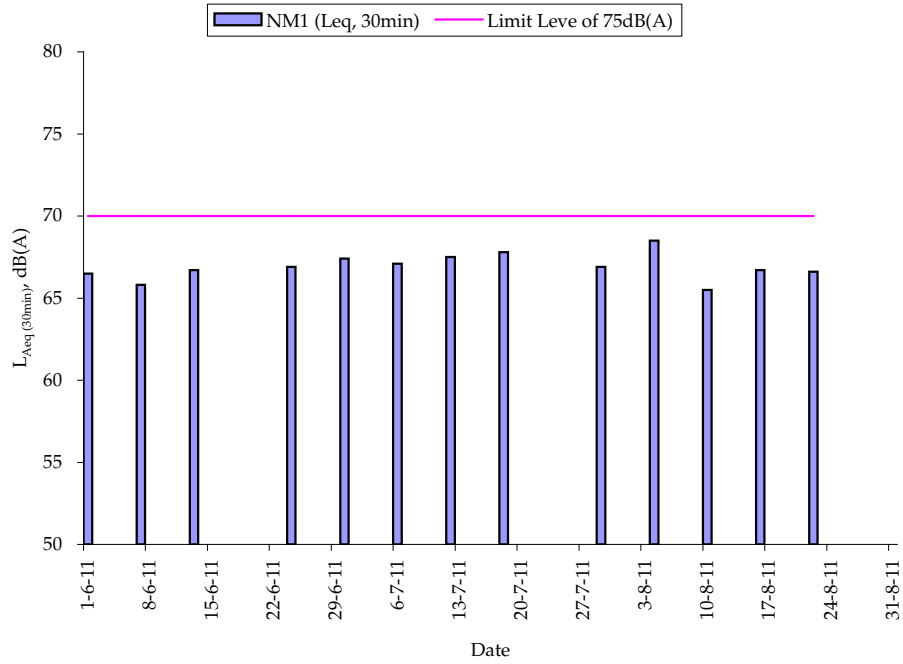
Restricted Hours Noise Monitoring Results ^[1]

Station NM1

Date	Start Time	End Time	Weather	Noise level (dB(A)), 5 min			Major Construction Noise Source(s)	Other Noise Source(s)	Remarks	Temp. (°C)	Wind Speed (m/s)	Noise Meter Model / ID	Calibrator Model / ID
				Leq	L10	L90							
04-Aug-11	23:22	23:27	Fine	61.2	62.9	56.6	-	Mainly traffic noise	-	32	0.2	RION- NL31 (S/N 00983400)	RION - NC73 (S/N 10997142)
	23:27	23:32	Fine	61.8	63.2	56.8			-				
	23:32	23:37	Fine	61.5	62.9	56.4			-				
	23:22	23:37	Fine	61.5	63.0	56.6			-				
07-Aug-11	9:20	9:25	Fine	66.3	68.0	64.2	-	Mainly traffic noise	-	32	0.2	RION- NL31 (S/N 00983400)	RION - NC73 (S/N 10997142)
	9:25	9:30	Fine	67.9	69.4	64.4			-				
	9:30	9:35	Fine	66.7	67.1	65.6			-				
	9:20	9:35	Fine	67.0	68.3	64.8			-				
16-Aug-11	23:10	23:15	Fine	62.1	63.8	56.7	-	Mainly traffic noise	-	31	0.3	RION- NL31 (S/N 00983400)	RION - NC73 (S/N 10997142)
	23:15	23:20	Fine	61.5	63.7	56.9			-				
	23:20	23:25	Fine	61.2	63.3	57.0			-				
	23:10	23:25	Fine	61.6	63.6	56.9			-				
21-Aug-11	14:12	14:17	Sunny	68.7	70.0	66.0	Noise from nearby playground	Mainly traffic noise	-	31	0.2	RION- NL31 (S/N 00983400)	RION - NC73 (S/N 10997142)
	14:17	14:22	Sunny	67.1	68.8	65.5			-				
	14:22	14:27	Sunny	66.2	67.7	64.6			-				
	14:12	14:27	Sunny	67.5	68.9	65.4			-				
30-Aug-11	23:50	23:55	Fine	61.5	62.5	56.6	-	Mainly traffic noise	-	31	0.2	RION- NL31 (S/N 00983400)	RION - NC73 (S/N 10997142)
	23:55	0:00	Fine	62.1	63.8	57.0			-				
	0:00	0:05	Fine	60.9	62.1	56.9			-				
	23:50	0:05	Fine	61.5	62.9	56.8			-				
				Min.	60.9								
				Max.	68.7								

[1] No class was held at the school during all of the monitoring sessions within the reporting month.

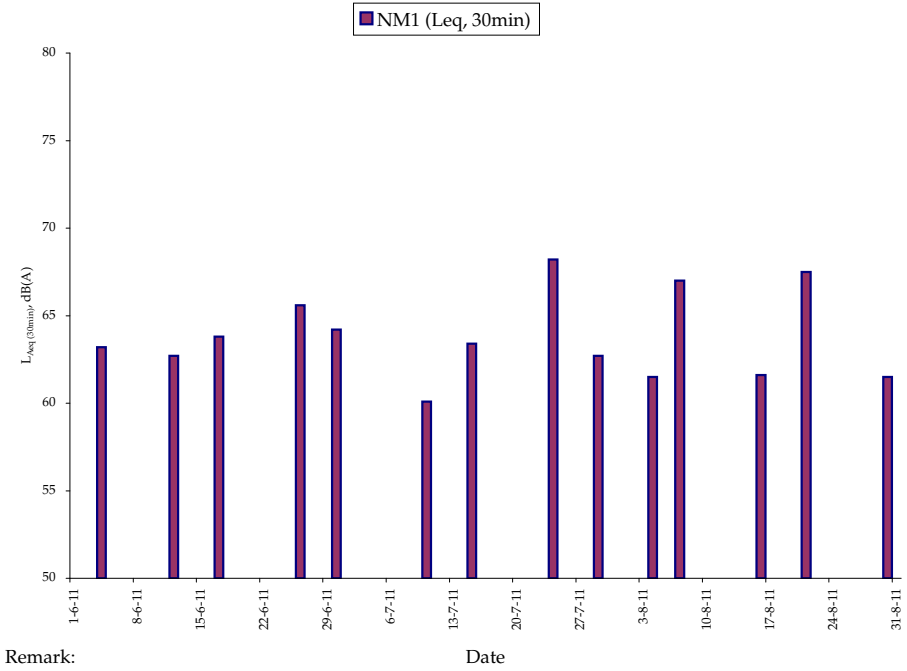
Noise Monitoring Results at NM1 ($L_{eq, 30min}$)



Remark:

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

Restricted Hours Noise Monitoring Results at NM1 ($L_{eq, 30min}$)



Remark:

- 69dB(A) was adopted as the Limit Level during school examination period in the reporting period
- 70dB(A) was adopted as the Limit Level during school normal teaching period in the reporting period
- 55dB(A) was adopted as the Limit Level during night time in the reporting period

Annex C6 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 C6 Cumulative Complaint and Summons/Prosecutions Log

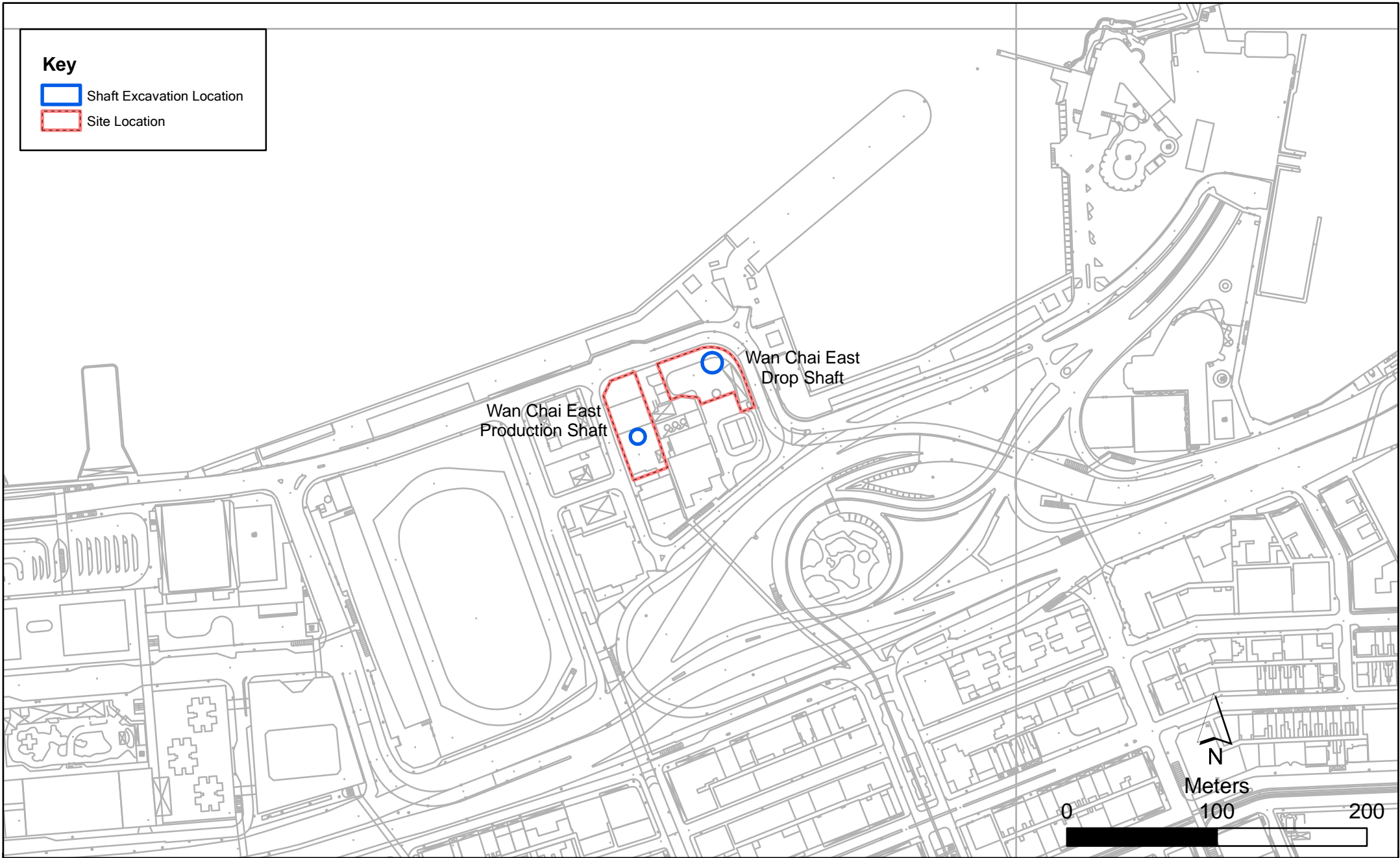
Reporting Month	Number of Complaints in Reporting Month	Number of Summons/Prosecutions in Reporting Month
June 2011	0	0
July 2011	0	0
August 2011	0	0
Overall Total	0	0

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

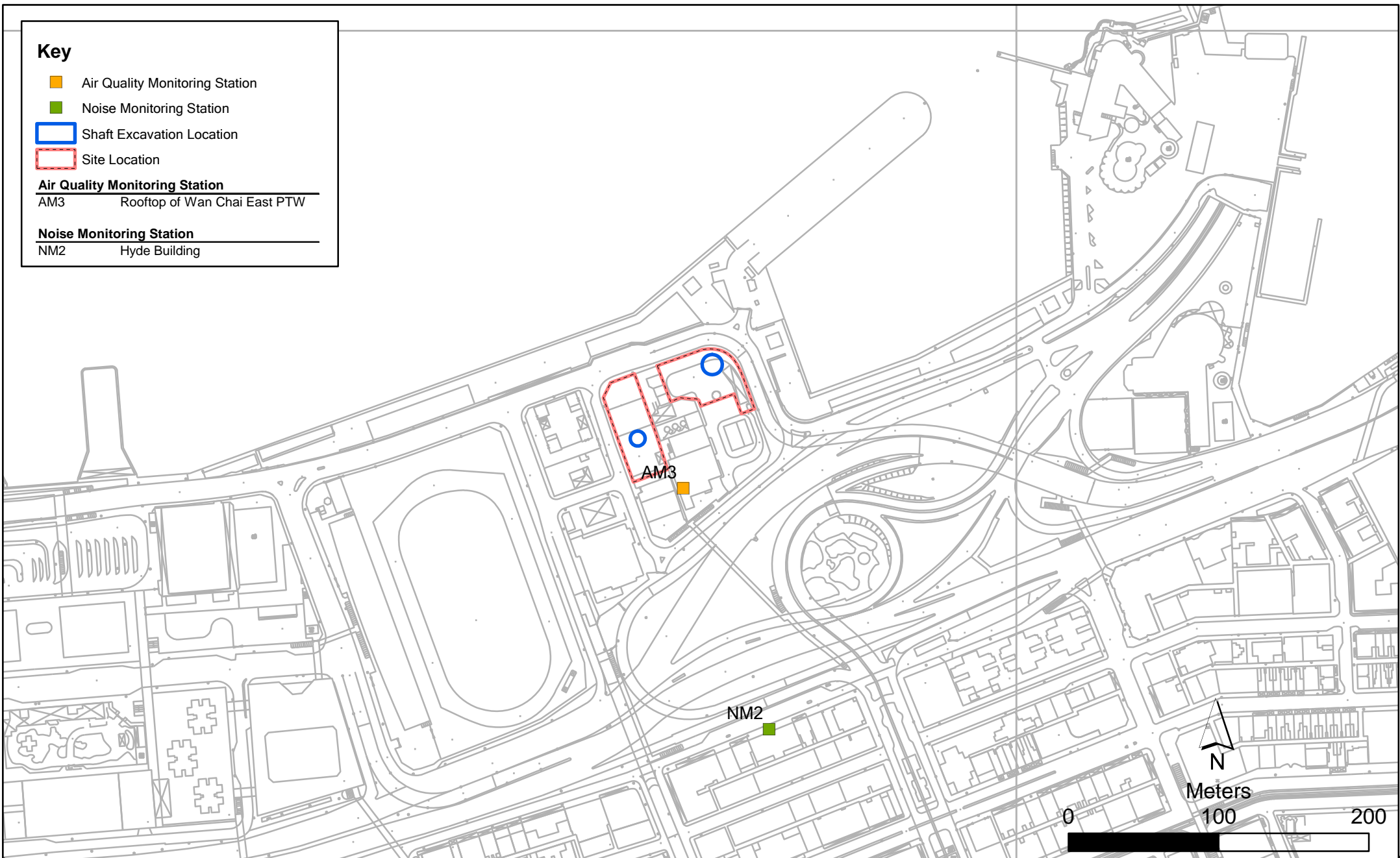
-  Air Quality Monitoring Station
-  Noise Monitoring Station
-  Shaft Excavation Location
-  Site Location

Air Quality Monitoring Station

AM3 Rooftop of Wan Chai East PTW

Noise Monitoring Station

NM2 Hyde Building



ANNEX D3 - SUMMARY OF MITIGATION MEASURES IMPLEMENTATION SCHEDULE

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 minimize 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 D3 - SUMMARY OF MITIGATION MEASURES IMPLEMENTATION SCHEDULE

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 minimize 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 deodorization 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 D3 - SUMMARY OF MITIGATION MEASURES IMPLEMENTATION SCHEDULE

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 utilized 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 D3 - SUMMARY OF MITIGATION MEASURES IMPLEMENTATION SCHEDULE

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	√

ANNEX D3 - SUMMARY OF MITIGATION MEASURES IMPLEMENTATION SCHEDULE

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 D3 - SUMMARY OF MITIGATION MEASURES IMPLEMENTATION SCHEDULE

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 minimize 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 D3 - SUMMARY OF MITIGATION MEASURES IMPLEMENTATION SCHEDULE

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 minimize 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 minimize 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 D3 - SUMMARY OF MITIGATION MEASURES IMPLEMENTATION SCHEDULE

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	√

ANNEX D3 - SUMMARY OF MITIGATION MEASURES IMPLEMENTATION SCHEDULE

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, oxidizing, 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 D3 - SUMMARY OF MITIGATION MEASURES IMPLEMENTATION SCHEDULE

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 harmonize 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 D3 - SUMMARY OF MITIGATION MEASURES IMPLEMENTATION SCHEDULE

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 24-hour and 1-hour TSP Monitoring Results

1-hour TSP Monitoring Results

Station AM3

Date	Start Time	Finish Time	Weather	TSP Concentration (µg/m ³)	Action Level (µg/m ³)	Limit Level (µg/m ³)	Site Conditions / Observations / Remarks	Temperature (°C)	Wind Speed * (m/s)	Sampler ID	Filter ID
04-Jun-11	12:00	13:00	Sunny	121	355	500	Construction work in progress	30	<5	0481	0988
	13:02	14:02	Sunny	110	355	500	Construction work in progress	30	<5	0481	0989
	14:04	15:04	Sunny	143	355	500	Construction work in progress	30	<5	0481	0990
10-Jun-11	8:25	9:25	Sunny	106	355	500	Construction work in progress	30	<5	0481	0991
	9:27	10:27	Sunny	127	355	500	Construction work in progress	30	<5	0481	0993
	10:38	11:38	Sunny	103	355	500	Construction work in progress	30	<5	0481	0994
16-Jun-11	8:30	9:30	Rainy	101	355	500	Construction work in progress	28	<5	0481	0995
	9:32	10:32	Rainy	123	355	500	Construction work in progress	28	<5	0481	0996
	10:35	11:35	Rainy	152	355	500	Construction work in progress	28	<5	0481	1012
22-Jun-11	8:00	9:00	Rainy	139	355	500	Construction work in progress	27	<5	0481	1013
	9:02	10:02	Rainy	120	355	500	Construction work in progress	28	<5	0481	1015
	10:04	11:04	Rainy	145	355	500	Construction work in progress	28	<5	0481	1016
28-Jun-11	8:00	9:00	Cloudy	113	355	500	Construction work in progress	29	<5	0481	1017
	9:01	10:01	Cloudy	98	355	500	Construction work in progress	29	<5	0481	1019
	10:02	11:02	Cloudy	109	355	500	Construction work in progress	29	<5	0481	1020
				Min.	98						
				Max.	152						
				Average	121						

* Wind Speed data is presented in the Meteorological Data table

Annex D4 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
04-Jul-11	12:00	13:00	Sunny	169	355	500	Construction work in progress	32	<5	0481	1031
	13:02	14:02	Sunny	142	355	500	Construction work in progress	32	<5	0481	1033
	14:08	15:08	Sunny	146	355	500	Construction work in progress	32	<5	0481	1034
09-Jul-11	11:50	12:50	Sunny	145	355	500	Construction work in progress	32	<5	0481	1035
	12:52	13:52	Sunny	125	355	500	Construction work in progress	32	<5	0481	1037
	13:54	14:54	Sunny	131	355	500	Construction work in progress	32	<5	0481	1039
15-Jul-11	8:00	9:00	Rainy	101	355	500	Construction work in progress	28	<5	0481	1040
	9:02	10:02	Cloudy	138	355	500	Construction work in progress	28	<5	0481	1051
	10:04	11:04	Cloudy	116	355	500	Construction work in progress	28	<5	0481	1054
21-Jul-11	8:00	9:00	Fine	157	355	500	Construction work in progress	31	<5	0481	1055
	9:02	10:02	Fine	120	355	500	Construction work in progress	31	<5	0481	1056
	10:06	11:06	Fine	145	355	500	Construction work in progress	31	<5	0481	1057
27-Jul-11	12:00	13:00	Sunny	123	355	500	Construction work in progress	32	<5	0481	1058
	13:02	14:02	Sunny	105	355	500	Construction work in progress	32	<5	0481	1060
	14:04	15:04	Sunny	100	355	500	Construction work in progress	32	<5	0481	9310
				Min.	100						
				Max.	169						
				Average	131						

* Wind Speed data is presented in the Meteorological Data table

Annex D4 24-hour and 1-hour TSP Monitoring Results

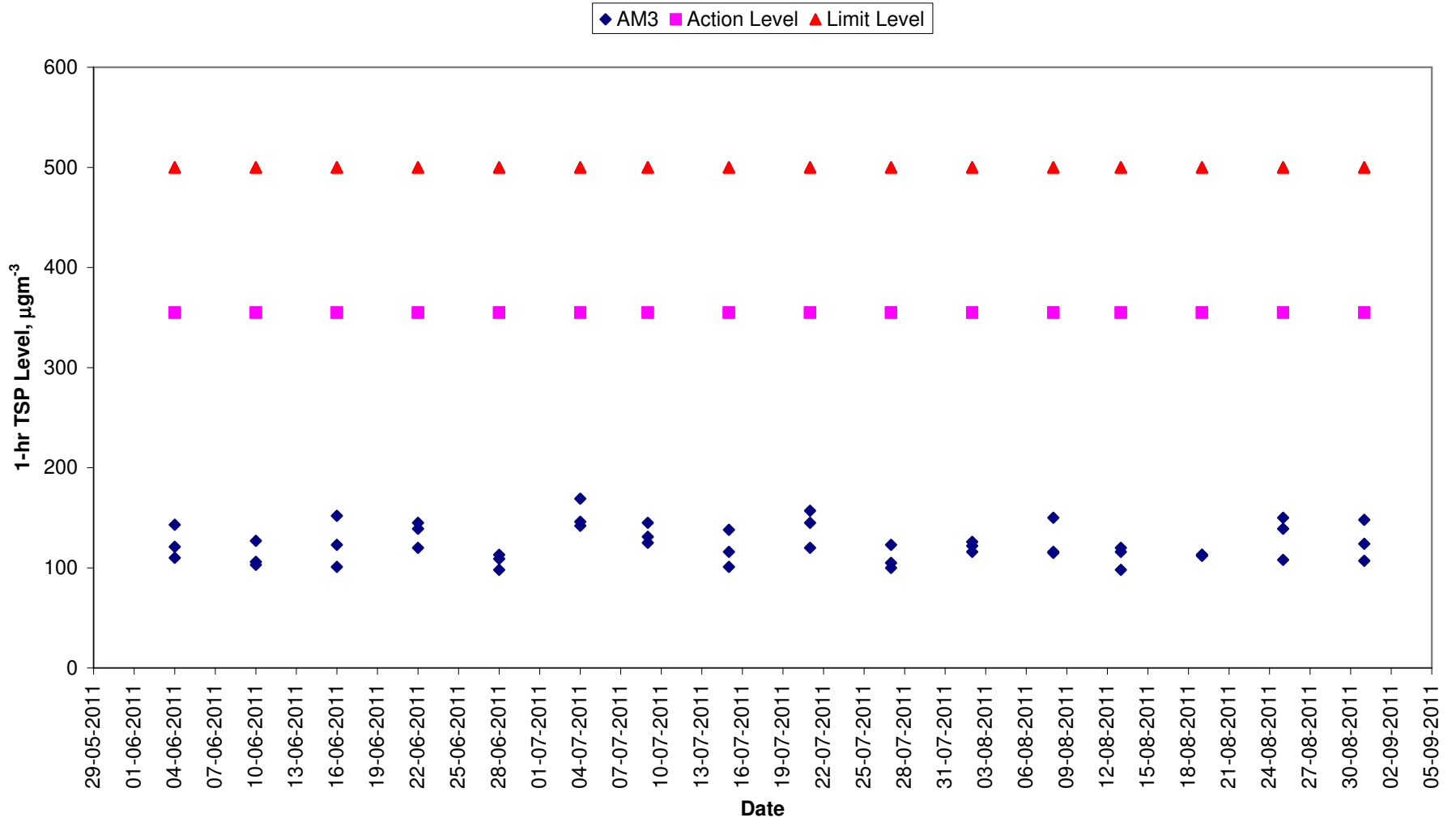
1-hour TSP Monitoring Results

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
02-Aug-11	12:10	13:10	Sunny	122	355	500	Construction work in progress	31	<5	0481	9309
	13:12	14:12	Sunny	126	355	500	Construction work in progress	31	<5	0481	1081
	14:20	15:20	Sunny	116	355	500	Construction work in progress	31	<5	0481	1082
08-Aug-11	12:10	13:10	Fine	116	355	500	Construction work in progress	32	<5	0481	1083
	13:12	14:12	Fine	115	355	500	Construction work in progress	32	<5	0481	1085
	14:15	15:15	Fine	150	355	500	Construction work in progress	32	<5	0481	1086
13-Aug-11	8:40	9:40	Sunny	98	355	500	Construction work in progress	30	<5	0481	1087
	9:42	10:42	Sunny	116	355	500	Construction work in progress	30	<5	0481	1089
	10:44	11:44	Sunny	120	355	500	Construction work in progress	30	<5	0481	1091
19-Aug-11	12:00	13:00	Sunny	113	355	500	Construction work in progress	31	<5	0481	1092
	13:02	14:02	Sunny	113	355	500	Construction work in progress	31	<5	0481	1093
	14:04	15:04	Sunny	112	355	500	Construction work in progress	31	<5	0481	1095
25-Aug-11	8:00	9:00	Sunny	108	355	500	Construction work in progress	31	<5	0481	1096
	9:02	10:02	Sunny	150	355	500	Construction work in progress	31	<5	0481	1097
	10:10	11:10	Sunny	139	355	500	Construction work in progress	31	<5	0481	1099
31-Aug-11	8:10	9:10	Sunny	107	355	500	Construction work in progress	32	<5	0481	1113
	9:12	10:12	Sunny	124	355	500	Construction work in progress	32	<5	0481	1112
	10:15	11:15	Sunny	148	355	500	Construction work in progress	32	<5	0481	1111
				Min.	98						
				Max.	150						
				Average	122						

* Wind Speed data is presented in the Meteorological Data table

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



Annex D4 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-Jun-11	15:06	05-Jun-11	15:06	Sunny	2.8929	3.0552	4925.32	4949.32	24.00	1.21	1.21	1.21	93	181	260	Construction work in progress	0481	0992		
10-Jun-11	11:40	11-Jun-11	11:40	Sunny	2.8298	2.9465	4952.32	4976.32	24.00	1.21	1.21	1.21	67	181	260	Construction work in progress	0481	1011		
16-Jun-11	11:40	17-Jun-11	11:40	Rainy	2.8087	2.9197	4979.32	5003.32	24.00	1.21	1.21	1.21	64	181	260	Construction work in progress	0481	1014		
22-Jun-11	16:00	23-Jun-11	16:00	Rainy	2.8403	2.9559	5006.32	5030.32	24.00	1.21	1.21	1.21	66	181	260	Construction work in progress	0481	1018		
28-Jun-11	11:04	29-Jun-11	11:04	Cloudy	2.8168	2.9371	5033.32	5057.32	24.00	1.21	1.21	1.21	69	181	260	Construction work in progress	0481	1032		
												Min.	64							
												Max.	93							
												Average	72							

Annex D4 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-Jul-11	15:10	05-Jul-11	15:10	Sunny	2.8832	2.9906	5080.32	5104.32	24.00	1.21	1.21	1.21	62	181	260	Construction work in progress	0481	1036		
09-Jul-11	15:00	10-Jul-11	15:00	Sunny	2.8321	2.9506	5107.32	5131.32	24.00	1.21	1.21	1.21	68	181	260	Construction work in progress	0481	1038		
15-Jul-11	11:10	16-Jul-11	11:10	Cloudy	2.8437	2.9511	5134.32	5158.32	24.00	1.21	1.21	1.21	62	181	260	Construction work in progress	0481	1052		
21-Jul-11	11:08	22-Jul-11	11:08	Fine	2.8482	2.9800	5161.32	5185.32	24.00	1.21	1.21	1.21	76	181	260	Construction work in progress	0481	1053		
27-Jul-11	15:15	28-Jul-11	15:15	Sunny	2.8460	2.9661	5188.32	5212.32	24.00	1.22	1.22	1.22	68	181	260	Construction work in progress	0481	1059		
												Min.	62							
												Max.	76							
												Average	67							

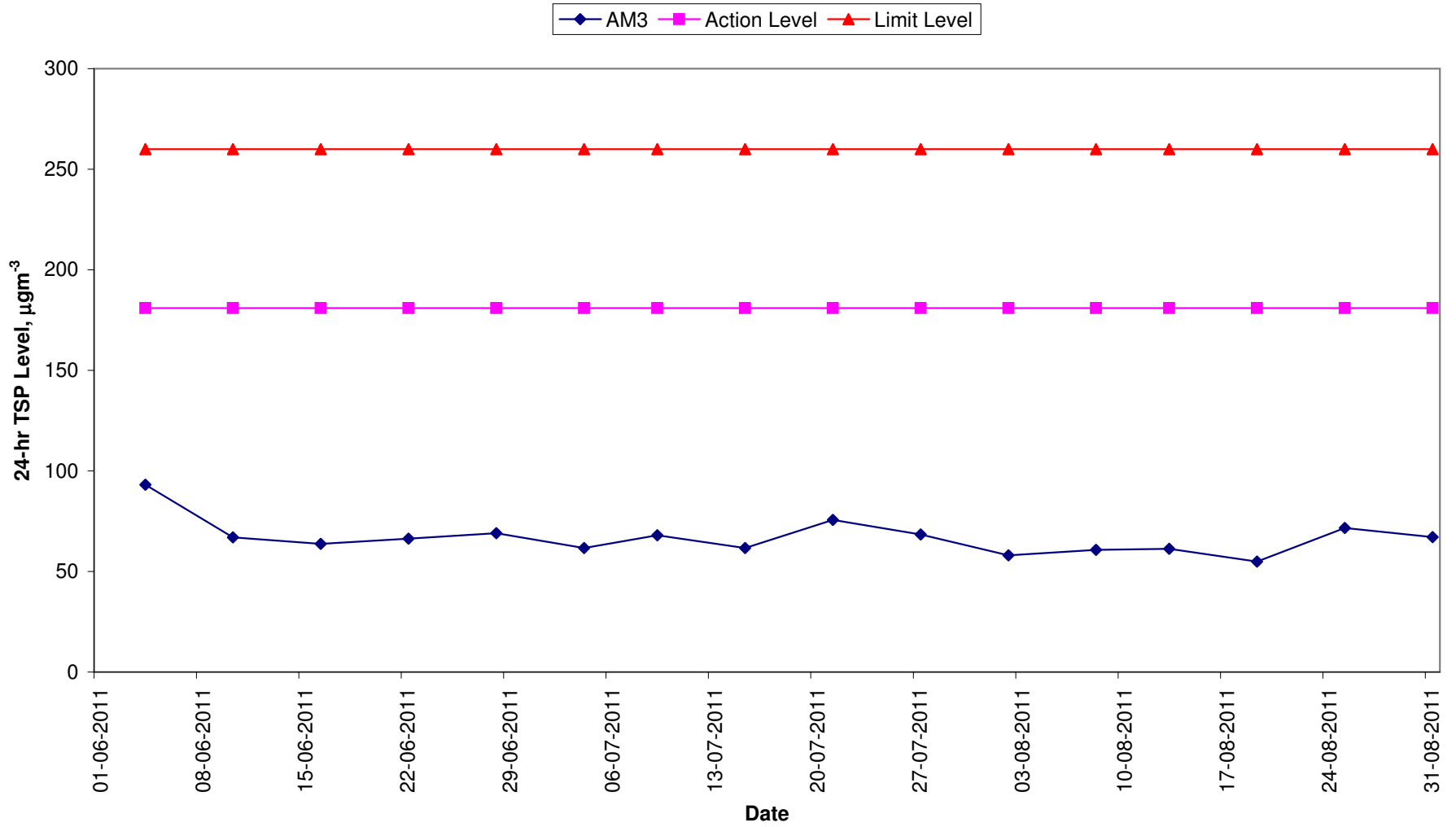
Annex D4 24-hour and 1-hour TSP Monitoring Results

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						
02-Aug-11	15:22	03-Aug-11	15:22	Sunny	2.8747	2.9767	5215.32	5239.32	24.00	1.22	1.22	1.22	58	181	260	Construction work in progress	0481	1084
08-Aug-11	15:18	09-Aug-11	15:18	Fine	2.9059	3.0127	5242.32	5266.32	24.00	1.22	1.22	1.22	61	181	260	Construction work in progress	0481	1088
13-Aug-11	11:46	14-Aug-11	11:46	Sunny	2.8835	2.9911	5269.32	5293.32	24.00	1.22	1.22	1.22	61	181	260	Construction work in progress	0481	1090
19-Aug-11	15:15	20-Aug-11	15:15	Sunny	2.8832	2.9797	5296.32	5320.32	24.00	1.22	1.22	1.22	55	181	260	Construction work in progress	0481	1094
25-Aug-11	11:12	26-Aug-11	11:12	Sunny	2.8307	2.9566	5323.32	5347.32	24.00	1.22	1.22	1.22	72	181	260	Construction work in progress	0481	1098
31-Aug-11	11:17	01-Sep-11	11:17	Sunny	2.8810	2.9988	5350.32	5374.32	24.00	1.22	1.22	1.22	67	181	260	Construction work in progress	0481	1100
													Min.	55				
													Max.	72				
													Average	62				

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



Meteorological Data Extracted from the Hong Kong Observatory

Date	Weather	King's Park Station				
		Average Air Temperature (°C)	Average Relative Humidity (%)	Total Rainfall (mm)	Average Wind Speed (km/h)	Wind Direction
01-06-2011	Sunny	28	55-84	0.0	0-12	SW
02-06-2011	Sunny	28	70-84	0.0	0-14	SW
03-06-2011	Sunny	28	62-84	0.0	0-13	NE
04-06-2011	Sunny	29	64-84	0.0	0-14	S
05-06-2011	Sunny	30	68-83	0.0	0-17	S
07-06-2011	Fine	30	68-80	Trace	0-17	SW
08-06-2011	Sunny	30	69-86	Trace	0-18	W
10-06-2011	Sunny	29	58-84	0.0	0-16	SE
12-06-2011	Fine	26	76-98	28.4	0-21	W
13-06-2011	Fine	29	74-90	5.9	0-14	W
14-06-2011	Fine	29	66-83	2.4	0-14	SW
16-06-2011	Sunny	26	80-98	64.7	0-21	S
17-06-2011	Cloudy	28	88-98	77.5	0-18	E
18-06-2011	Fine	29	65-91	1.2	0-18	E
19-06-2011	Sunny	30	67-90	Trace	1-18	E
20-06-2011	Sunny	30	58-87	0.0	0-18	E
22-06-2011	Cloudy	27	83-97	41.4	0-30	SE
24-06-2011	Sunny	28	76-91	0.6	7-28	SE
26-06-2011	Sunny	29	74-87	Trace	1-16	W
28-06-2011	Cloudy	27	83-98	106.6	0-15	W
30-06-2011	Cloudy	27	80-98	5.3	0-22	SE

Date	Weather	Tsing Yi Station				
		Average Air Temperature (°C)	Average Relative Humidity (%) *	Total Rainfall (mm)	Average Wind Speed (km/h)	Wind Direction
01-06-2011	Sunny	28	55-84	0.0	0-18	SE
02-06-2011	Sunny	28	70-84	0.0	0-15	SE
03-06-2011	Sunny	28	62-84	0.0	2-14	SE
04-06-2011	Sunny	29	64-84	0.0	3-18	SE
05-06-2011	Sunny	30	68-83	0.0	2-16	SE
07-06-2011	Fine	30	68-80	Trace	3-15	SE
08-06-2011	Sunny	30	69-86	Trace	2-18	SE
10-06-2011	Sunny	30	58-84	0.0	1-20	SE
12-06-2011	Fine	26	76-98	28.4	0-21	SE
13-06-2011	Fine	29	74-90	5.9	0-21	SE
14-06-2011	Fine	30	66-83	2.4	0-18	SE
16-06-2011	Sunny	27	80-98	64.7	3-26	SE
17-06-2011	Cloudy	28	88-98	77.5	0-30	SE
18-06-2011	Fine	30	65-91	1.2	1-23	SE
19-06-2011	Sunny	30	67-90	Trace	3-23	SE
20-06-2011	Sunny	31	58-87	0.0	0-19	SE
22-06-2011	Cloudy	27	83-97	41.4	4-25	SE
24-06-2011	Sunny	28	76-91	0.6	3-27	SE
26-06-2011	Sunny	28	74-87	Trace	1-16	SE
28-06-2011	Cloudy	27	83-98	106.6	0-18	SE
30-06-2011	Cloudy	28	80-98	5.3	0-32	SE

Date	Weather	Kai Tak Station				
		Average Air Temperature (°C) *	Average Relative Humidity (%) *	Total Rainfall (mm) *	Average Wind Speed (km/h)	Wind Direction
01-06-2011	Sunny	28	55-84	0.0	0-25	E
02-06-2011	Sunny	28	70-84	0.0	0-18	SW
03-06-2011	Sunny	28	62-84	0.0	0-22	SE
04-06-2011	Sunny	29	64-84	0.0	0-12	SW
05-06-2011	Sunny	30	68-83	0.0	0-15	SE
07-06-2011	Fine	30	68-80	Trace	0-17	SW
08-06-2011	Sunny	30	69-86	Trace	1-18	SW
10-06-2011	Sunny	29	58-84	0.0	0-27	SE
12-06-2011	Fine	26	76-98	28.4	0-23	W
13-06-2011	Fine	29	74-90	5.9	0-15	SE
14-06-2011	Fine	29	66-83	2.4	0-13	S
16-06-2011	Sunny	26	80-98	64.7	0-27	S
17-06-2011	Cloudy	28	88-98	77.5	0-27	SE
18-06-2011	Fine	29	65-91	1.2	0-23	SE
19-06-2011	Sunny	30	67-90	Trace	4-25	SE
20-06-2011	Sunny	30	58-87	0.0	6-23	SE
22-06-2011	Cloudy	27	83-97	41.4	5-48	E
24-06-2011	Sunny	28	76-91	0.6	13-34	E
26-06-2011	Sunny	29	74-87	Trace	0-22	SW
28-06-2011	Cloudy	27	83-98	106.6	0-24	SW
30-06-2011	Cloudy	27	80-98	5.3	0-30	E

Date	Weather	Green Island Station				
		Average Air Temperature (°C) *	Average Relative Humidity (%) *	Total Rainfall (mm) *	Average Wind Speed (km/h)	Wind Direction
01-06-2011	Sunny	28	55-84	0.0	4-37	NE
02-06-2011	Sunny	28	70-84	0.0	3-30	S
03-06-2011	Sunny	28	62-84	0.0	9-25	S
04-06-2011	Sunny	29	64-84	0.0	9-26	S
05-06-2011	Sunny	30	68-83	0.0	12-28	S
07-06-2011	Fine	30	68-80	Trace	14-31	S
08-06-2011	Sunny	30	69-86	Trace	9-30	S
10-06-2011	Sunny	29	58-84	0.0	0-34	S
12-06-2011	Fine	26	76-98	28.4	0-35	S
13-06-2011	Fine	29	74-90	5.9	3-32	S
14-06-2011	Fine	29	66-83	2.4	0-33	S
16-06-2011	Sunny	26	80-98	64.7	5-40	S
17-06-2011	Cloudy	28	88-98	77.5	5-43	NE
18-06-2011	Fine	29	65-91	1.2	3-30	E
19-06-2011	Sunny	30	67-90	Trace	8-29	SE
20-06-2011	Sunny	30	58-87	0.0	3-30	S
22-06-2011	Cloudy	27	83-97	41.4	18-53	NE
24-06-2011	Sunny	28	76-91	0.6	13-40	NE
26-06-2011	Sunny	29	74-87	Trace	5-30	W
28-06-2011	Cloudy	27	83-98	106.6	2-40	W
30-06-2011	Cloudy	27	80-98	5.3	1-55	SE

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

Meteorological Data Extracted from the Hong Kong Observatory

Date	Weather	King's Park Station				
		Average Air Temperature (°C)	Average Relative Humidity (%)	Total Rainfall (mm)	Average Wind Speed (km/h)	Wind Direction
03-07-2011	Sunny	30	66-83	Trace	0-13	SW
04-07-2011	Sunny	30	64-83	0.0	0-15	W
06-07-2011	Sunny	30	58-82	0.0	0-16	W
09-07-2011	Sunny	30	65-86	0.0	2-15	W
10-07-2011	Sunny	30	63-89	Trace	0-15	W
12-07-2011	Cloudy	28	79-95	10.9	0-14	SW
15-07-2011	Cloudy	27	86-98	34.9	0-18	E
17-07-2011	Fine	28	72-91	0.2	0-15	W
18-07-2011	Cloudy	28	74-90	4.3	0-15	W
19-07-2011	Cloudy	28	74-95	5.6	0-14	W
21-07-2011	Fine	29	66-90	0.0	0-14	W
22-07-2011	Sunny	29	64-97	4.2	0-14	W
23-07-2011	Sunny	29	60-88	0.0	0-15	S
24-07-2011	Sunny	29	65-88	0.0	0-16	W
27-07-2011	Sunny	30	60-88	Trace	3-18	E
28-07-2011	Sunny	30	61-82	Trace	0-21	SW
29-07-2011	Fine	28	76-95	12.4	0-31	E
30-07-2011	Fine	29	76-90	Trace	0-28	E
31-07-2011	Sunny	29	67-89	0.0	0-17	E

Date	Weather	Tsing Yi Station				
		Average Air Temperature (°C)	Average Relative Humidity (%) *	Total Rainfall (mm)	Average Wind Speed (km/h)	Wind Direction
03-07-2011	Sunny	30	66-83	Trace	4-16	SE
04-07-2011	Sunny	30	64-83	0.0	1-15	SE
06-07-2011	Sunny	30	58-82	0.0	0-14	SE
09-07-2011	Sunny	30	65-86	0.0	0-15	SE
10-07-2011	Sunny	31	63-89	Trace	0-14	SE
12-07-2011	Cloudy	28	79-95	10.9	0-21	SE
15-07-2011	Cloudy	28	86-98	34.9	0-15	E
17-07-2011	Fine	28	72-91	0.2	0-24	W
18-07-2011	Cloudy	28	74-90	4.3	0-16	SE
19-07-2011	Cloudy	27	74-95	5.6	0-15	SE
21-07-2011	Fine	28	66-90	0.0	0-14	SE
22-07-2011	Sunny	29	64-97	4.2	0-18	SE
23-07-2011	Sunny	29	60-88	0.0	0-17	SE
24-07-2011	Sunny	29	65-88	0.0	0-13	SE
27-07-2011	Sunny	31	60-88	Trace	1-18	SE
28-07-2011	Sunny	30	61-82	Trace	0-25	SE
29-07-2011	Fine	28	76-95	12.4	3-25	SE
30-07-2011	Fine	29	76-90	Trace	2-26	SE
31-07-2011	Sunny	30	67-89	0.0	3-26	SE

Date	Weather	Kai Tak Station				
		Average Air Temperature (°C) *	Average Relative Humidity (%) *	Total Rainfall (mm) *	Average Wind Speed (km/h)	Wind Direction
03-07-2011	Sunny	30	66-83	Trace	1-16	S
04-07-2011	Sunny	30	64-83	0.0	1-16	SW
06-07-2011	Sunny	30	58-82	0.0	1-20	SW
09-07-2011	Sunny	30	65-86	0.0	4-19	SW
10-07-2011	Sunny	30	63-89	Trace	0-21	SW
12-07-2011	Cloudy	28	79-95	10.9	0-22	S
15-07-2011	Cloudy	27	86-98	34.9	0-24	SE
17-07-2011	Fine	28	72-91	0.2	3-30	SW
18-07-2011	Cloudy	28	74-90	4.3	0-24	SW
19-07-2011	Cloudy	28	74-95	5.6	0-19	SW
21-07-2011	Fine	29	66-90	0.0	0-16	SW
22-07-2011	Sunny	29	64-97	4.2	0-17	SW
23-07-2011	Sunny	29	60-88	0.0	0-18	SE
24-07-2011	Sunny	29	65-88	0.0	0-13	SW
27-07-2011	Sunny	30	60-88	Trace	3-19	SE
28-07-2011	Sunny	30	61-82	Trace	0-21	E
29-07-2011	Fine	28	76-95	12.4	5-40	E
30-07-2011	Fine	29	76-90	Trace	6-29	E
31-07-2011	Sunny	29	67-89	0.0	2-20	E

Date	Weather	Green Island Station				
		Average Air Temperature (°C) *	Average Relative Humidity (%) *	Total Rainfall (mm) *	Average Wind Speed (km/h)	Wind Direction
03-07-2011	Sunny	30	66-83	Trace	14-27	S
04-07-2011	Sunny	30	64-83	0.0	10-27	S
06-07-2011	Sunny	30	58-82	0.0	1-25	S
09-07-2011	Sunny	30	65-86	0.0	3-25	S
10-07-2011	Sunny	30	63-89	Trace	3-27	S
12-07-2011	Cloudy	28	79-95	10.9	0-28	S
15-07-2011	Cloudy	27	86-98	34.9	0-31	NE
17-07-2011	Fine	28	72-91	0.2	11-38	SW
18-07-2011	Cloudy	28	74-90	4.3	4-28	S
19-07-2011	Cloudy	28	74-95	5.6	0-27	S
21-07-2011	Fine	29	66-90	0.0	6-27	S
22-07-2011	Sunny	29	64-97	4.2	10-31	SE
23-07-2011	Sunny	29	60-88	0.0	8-26	N
24-07-2011	Sunny	29	65-88	0.0	0-23	NW
27-07-2011	Sunny	30	60-88	Trace	5-30	NE
28-07-2011	Sunny	30	61-82	Trace	0-35	NE
29-07-2011	Fine	28	76-95	12.4	10-60	NE
30-07-2011	Fine	29	76-90	Trace	5-30	NE
31-07-2011	Sunny	29	67-89	0.0	3-27	NE

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

Meteorological Data Extracted from the Hong Kong Observatory

Date	Weather	King's Park Station				
		Average Air Temperature (°C)	Average Relative Humidity (%)	Total Rainfall (mm)	Average Wind Speed (km/h)	Wind Direction
02-08-2011	Sunny	28	55-89	0.0	0-14	W
03-08-2011	Sunny	30	58-89	0.0	4-15	W
04-08-2011	Sunny	30	62-88	0.0	1-15	W
07-08-2011	Fine	31	56-87	0.0	0-16	W
08-08-2011	Fine	29	68-93	22.1	0-18	W
09-08-2011	Fine	28	73-96	9.9	0-16	W
10-08-2011	Cloudy	27	85-97	60.5	0-16	E
13-08-2011	Sunny	30	60-84	0.0	0-16	W
14-08-2011	Sunny	30	50-86	Trace	0-15	W
15-08-2011	Sunny	30	66-86	0.0	0-16	W
16-08-2011	Sunny	30	61-90	8.5	0-16	W
19-08-2011	Sunny	30	62-88	0.0	0-18	E
21-08-2011	Sunny	30	70-87	Trace	0-15	E
22-08-2011	Sunny	29	74-90	1.4	0-12	W
23-08-2011	Fine	30	64-86	0.0	0-12	W
25-08-2011	Sunny	29	67-92	13.7	0-15	W
27-08-2011	Sunny	30	59-90	5.2	0-14	W
28-08-2011	Sunny	31	60-80	0.0	0-14	W
30-08-2011	Fine	31	52-83	0.0	0-18	W
31-08-2011	Sunny	31	51-82	0.5	0-18	W

Date	Weather	Tsing Yi Station				
		Average Air Temperature (°C)	Average Relative Humidity (%) *	Total Rainfall (mm)	Average Wind Speed (km/h)	Wind Direction
02-08-2011	Sunny	30	55-89	0.0	0-14	S
03-08-2011	Sunny	29	58-89	0.0	0-14	NW
04-08-2011	Sunny	29	62-88	0.0	0-14	NW
07-08-2011	Fine	30	56-87	0.0	0-14	S
08-08-2011	Fine	29	68-93	22.1	0-16	S
09-08-2011	Fine	28	73-96	9.9	2-16	SE
10-08-2011	Cloudy	27	85-97	60.5	1-15	E
13-08-2011	Sunny	29	60-84	0.0	0-14	SE
14-08-2011	Sunny	29	50-86	Trace	0-14	E
15-08-2011	Sunny	29	66-86	0.0	0-12	SE
16-08-2011	Sunny	29	61-90	8.5	0-14	SE
19-08-2011	Sunny	31	62-88	0.0	0-21	E
21-08-2011	Sunny	29	70-87	Trace	0-21	NW
22-08-2011	Sunny	29	74-90	1.4	0-21	S
23-08-2011	Fine	29	64-86	0.0	0-15	SE
25-08-2011	Sunny	29	67-92	13.7	0-14	W
27-08-2011	Sunny	30	59-90	5.2	0-14	SW
28-08-2011	Sunny	30	60-80	0.0	0-21	NW
30-08-2011	Fine	30	52-83	0.0	0-21	NW
31-08-2011	Sunny	32	51-82	0.5	0-21	NW

Date	Weather	Kai Tak Station				
		Average Air Temperature (°C) *	Average Relative Humidity (%) *	Total Rainfall (mm) *	Average Wind Speed (km/h)	Wind Direction
02-08-2011	Sunny	28	55-89	0.0	0-14	SW
03-08-2011	Sunny	30	58-89	0.0	4-18	W
04-08-2011	Sunny	30	62-88	0.0	6-17	W
07-08-2011	Fine	31	56-87	0.0	2-14	SW
08-08-2011	Fine	29	68-93	22.1	0-24	SW
09-08-2011	Fine	28	73-96	9.9	0-16	SW
10-08-2011	Cloudy	27	85-97	60.5	0-21	E
13-08-2011	Sunny	30	60-84	0.0	0-14	SE
14-08-2011	Sunny	30	50-86	Trace	0-14	SE
15-08-2011	Sunny	30	66-86	0.0	0-12	SE
16-08-2011	Sunny	30	61-90	8.5	0-14	N
19-08-2011	Sunny	30	62-88	0.0	2-16	E
21-08-2011	Sunny	30	70-87	Trace	2-18	SE
22-08-2011	Sunny	29	74-90	1.4	0-18	SE
23-08-2011	Fine	30	64-86	0.0	0-15	SE
25-08-2011	Sunny	29	67-92	13.7	1-18	S
27-08-2011	Fine	30	59-90	5.2	0-18	SE
28-08-2011	Sunny	31	60-80	0.0	0-15	NW
30-08-2011	Fine	31	52-83	0.0	0-25	W
31-08-2011	Sunny	31	51-82	0.5	3-27	W

Date	Weather	Green Island Station				
		Average Air Temperature (°C) *	Average Relative Humidity (%) *	Total Rainfall (mm) *	Average Wind Speed (km/h)	Wind Direction
02-08-2011	Sunny	28	55-89	0.0	0-24	SW
03-08-2011	Sunny	30	58-89	0.0	0-24	NW
04-08-2011	Sunny	30	62-88	0.0	0-27	S
07-08-2011	Fine	31	56-87	0.0	0-24	S
08-08-2011	Fine	29	68-93	22.1	0-40	S
09-08-2011	Fine	28	73-96	9.9	3-33	S
10-08-2011	Cloudy	27	85-97	60.5	0-21	SE
13-08-2011	Sunny	30	60-84	0.0	1-21	S
14-08-2011	Sunny	30	50-86	Trace	0-24	S
15-08-2011	Sunny	30	66-86	0.0	3-21	S
16-08-2011	Sunny	30	61-90	8.5	1-24	S
19-08-2011	Sunny	30	62-88	0.0	3-27	NE
21-08-2011	Sunny	30	70-87	Trace	0-27	NE
22-08-2011	Sunny	29	74-90	1.4	0-25	S
23-08-2011	Fine	30	64-86	0.0	1-21	S
25-08-2011	Sunny	29	67-92	13.7	0-21	NW
27-08-2011	Sunny	30	59-90	5.2	0-24	S
28-08-2011	Sunny	31	60-80	0.0	0-24	NW
30-08-2011	Fine	31	52-83	0.0	3-27	NW
31-08-2011	Sunny	31	51-82	0.5	3-21	NW

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

Annex D5 Noise Monitoring Results

Daytime Noise Monitoring Results

Station NM2

Date	Start Time	End Time	Weather	Noise level (dB(A)), 30 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							
10-Jun-11	9:52	10:22	Sunny	73.0	74.7	71.3	Excavation work (Near site)	Traffic noise	-	30	0.4	RION- NL31 (S/N 00983400)	RION - NC73 (S/N 10997142)
16-Jun-11	16:30	17:00	Cloudy	71.8	73.7	70.6	-	Traffic noise	-	26	0.3	RION- NL31 (S/N 00983400)	RION - NC73 (S/N 10997142)
22-Jun-11	15:05	15:35	Cloudy	72.5	73.3	71.5	Excavation work (Near site)	Traffic noise	-	27	0.5	RION- NL31 (S/N 00983400)	RION - NC73 (S/N 10997142)
28-Jun-11	11:18	11:48	Cloudy	72.8	73.9	71.8	lifting, welding (Near site)	Traffic noise	-	27	0.2	RION- NL31 (S/N 00983400)	RION - NC73 (S/N 10997142)
				Min.	71.8								
				Max.	73.0								

Annex D6 Noise Monitoring Results

Daytime Noise Monitoring Results

Station NM2

Date	Start Time	End Time	Weather	Noise level (dB(A)), 30 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							
04-Jul-11	13:20	13:50	Sunny	73.8	75.4	72.3	Lifting, steel bending (Near site)	Traffic noise	-	32	0.2	RION- NL31 (S/N 00983400)	RION - NC73 (S/N 10997142)
15-Jul-11	10:21	10:51	Cloudy	73.1	74.4	72.2	Lifting, excavation (Near Site)	Traffic noise	-	28	0.3	RION- NL31 (S/N 00983400)	RION - NC73 (S/N 10997142)
21-Jul-11	9:20	9:50	Fine	73.6	74.7	72.6	Excavation, welding (Near site)	Traffic noise	-	31	0.3	RION- NL31 (S/N 00983400)	RION - NC73 (S/N 10997142)
27-Jul-11	14:24	14:54	Sunny	73.7	75.0	72.8	Lifting, steel bending (Near site)	Traffic noise	-	30	0.1	RION- NL31 (S/N 00983400)	RION - NC73 (S/N 10997142)
				Min.	73.1								
				Max.	73.8								

Annex E5 Noise Monitoring Results

Daytime Noise Monitoring Results

Station NM3

Date	Start Time	End Time	Weather	Noise level (dB(A)), 30 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							
02-Aug-11	9:20	9:50	Sunny	74.5	76.1	72.7	Iron bending	Mainly traffic noise	-	31	0.2	RION- NL31 (S/N 00983400)	RION - NC73 (S/N 10997142)
08-Aug-11	9:20	9:50	Sunny	74.5	75.7	73.0	-	Mainly traffic noise	-	32	0.2	RION- NL31 (S/N 00983400)	RION - NC73 (S/N 10997142)
19-Aug-11	9:20	9:50	Sunny	74.4	75.9	72.8	-	Mainly traffic noise	-	31	0.5	RION- NL31 (S/N 00983400)	RION - NC73 (S/N 10997142)
25-Aug-11	13:20	13:50	Sunny	74.8	76.1	73.0	Excavation work	Mainly traffic noise	-	31	0.2	RION- NL31 (S/N 00983400)	RION - NC73 (S/N 10997142)
31-Aug-11	13:30	14:00	Sunny	74.9	76.3	73.0	-	Mainly traffic noise	-	31	0.2	RION- NL31 (S/N 00983400)	RION - NC73 (S/N 10997142)
				Min.	74.4								
				Max.	74.9								

Annex D5 Noise Monitoring Results

Restricted Hours Noise Monitoring Results ^[1]

Station NM2

Date	Start Time	End Time	Weather	Noise level (dB(A)), 5 min			Major Construction Noise Source(s)	Other Noise Source(s)	Remarks	Temp. (°C)	Wind Speed (m/s)	Noise Meter Model / ID	Calibrator Model / ID
				Leq	L10	L90							
04-Jun-11	6:28	6:33	Sunny	68.2	69.4	66.2	No outdoor construction noise	Mainly traffic noise	-	29	0.3	RION- NL31 (S/N 00983400)	RION - NC73 (S/N 10997142)
	6:33	6:38	Sunny	68.3	69.8	66.5			-				
	6:38	6:43	Sunny	68.5	69.6	66.2			-				
	6:28	6:43	Sunny	68.3	69.6	66.3			-				
12-Jun-11	17:13	17:18	Fine	70.1	72.1	69.0	No outdoor construction noise	Mainly traffic noise	-	26	0.3	RION- NL31 (S/N 00983400)	RION - NC73 (S/N 10997142)
	17:18	17:23	Fine	69.5	70.6	68.3			-				
	17:23	17:28	Fine	69.4	70.6	68.2			-				
	17:13	17:28	Fine	69.7	71.2	68.5			-				
18-Jun-11	6:33	6:38	Fine	70.5	71.7	69.1	No outdoor construction noise	Mainly traffic noise	-	29	0.2	RION- NL31 (S/N 00983400)	RION - NC73 (S/N 10997142)
	6:38	6:43	Fine	70.9	72.1	69.3			-				
	6:43	6:48	Fine	70.4	71.7	69.2			-				
	6:33	6:48	Fine	70.6	71.8	69.2			-				
26-Jun-11	11:22	11:27	Sunny	70.1	72.5	71.4	No outdoor construction noise	Mainly traffic noise	-	29	0.3	RION- NL31 (S/N 00983400)	RION - NC73 (S/N 10997142)
	11:27	11:32	Sunny	70.0	71.9	71.0			-				
	11:32	11:37	Sunny	70.0	71.8	71.0			-				
	11:22	11:37	Sunny	70.0	72.1	71.1			-				
01-Jul-11	6:35	6:40	Fine	69.9	71.2	68.4	No outdoor construction noise	Mainly traffic noise	-	27	0.5	RION- NL31 (S/N 00983400)	RION - NC73 (S/N 10997142)
	6:40	6:45	Fine	69.5	70.8	68.0			-				
	6:45	6:50	Fine	69.7	70.8	68.3			-				
	6:35	6:50	Fine	69.7	70.9	68.2			-				
				Min.	68.2								
				Max.	70.9								

[1] The monitoring data on 4, 18 June and 1 July morning are for the restricted hour of previous day (3, 17 and 30 June respectively)

Annex D5 Noise Monitoring Results

Restricted Hours Noise Monitoring Results ^[1]

Station NM2

Date	Start Time	End Time	Weather	Noise level (dB(A)), 5 min			Major Construction Noise Source(s)	Other Noise Source(s)	Remarks	Temp. (°C)	Wind Speed (m/s)	Noise Meter Model / ID	Calibrator Model / ID
				Leq	L10	L90							
10-Jul-11	11:33	11:38	Sunny	70.3	71.1	69.2	No outdoor construction noise	Mainly traffic noise	-	32	0.2	RION- NL31 (S/N 00983400)	RION - NC73 (S/N 10997142)
	11:38	11:43	Sunny	70.3	71.2	69.2			-				
	11:43	11:48	Sunny	70.2	71.2	69.1			-				
	11:33	11:48	Sunny	70.3	71.2	69.2			-				
16-Jul-11	6:42	6:47	Cloudy	69.5	70.7	68.1	No outdoor construction noise	Mainly traffic noise	-	30	0.3	RION- NL31 (S/N 00983400)	RION - NC73 (S/N 10997142)
	6:47	6:52	Cloudy	69.6	70.7	68.3			-				
	6:52	6:57	Cloudy	70.4	71.7	69.0			-				
	6:42	6:57	Cloudy	69.9	71.1	68.5			-				
24-Jul-11	9:50	9:55	Sunny	71.1	71.9	70.0	No outdoor construction noise	Mainly traffic noise	-	29	0.2	RION- NL31 (S/N 00983400)	RION - NC73 (S/N 10997142)
	9:55	10:00	Sunny	71.1	71.9	70.1			-				
	10:00	10:05	Sunny	71.3	72.2	70.1			-				
	9:50	10:05	Sunny	71.2	72.0	70.1			-				
30-Jul-11	6:40	6:45	Fine	69.8	71.1	68.0	No outdoor construction noise	Mainly traffic noise	-	29	0.2	RION- NL31 (S/N 00983400)	RION - NC73 (S/N 10997142)
	6:45	6:50	Fine	70.2	71.4	69.0			-				
	6:50	6:55	Fine	70.7	72.2	69.1			-				
	6:40	6:55	Fine	70.2	71.6	68.7			-				
				Min.	69.5								
				Max.	71.3								

[1] The monitoring data on 16 and 30 July morning are for the restricted hour of previous day (15 and 29 July respectively)

Annex D5 Noise Monitoring Results

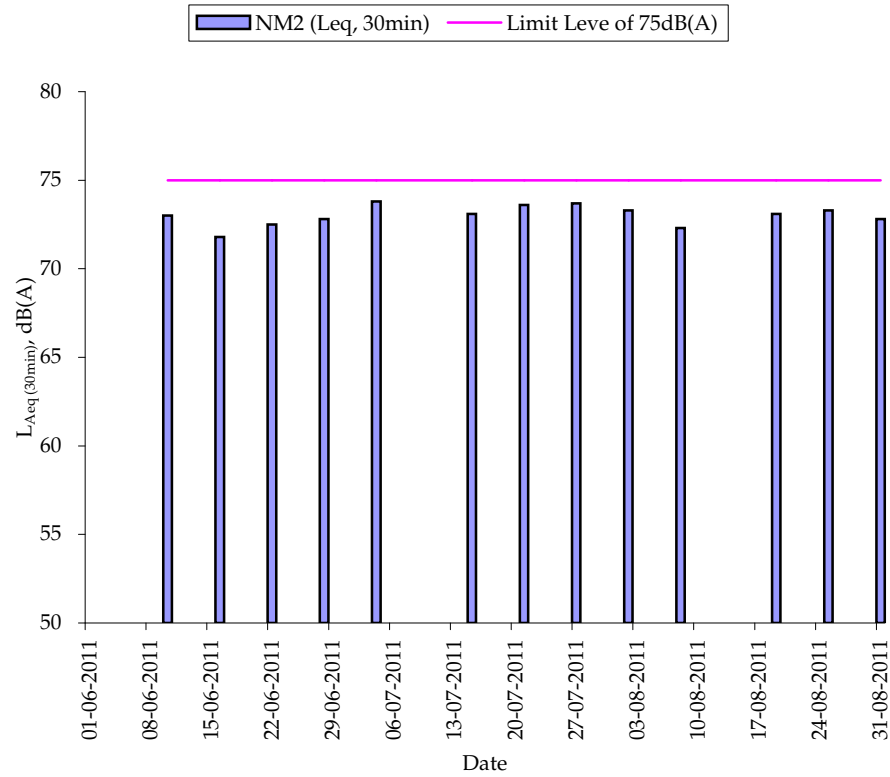
Restricted Hours Noise Monitoring Results ^[1]

Station NM2

Date	Start Time	End Time	Weather	Noise level (dB(A)), 5 min			Major Construction Noise Source(s)	Other Noise Source(s)	Remarks	Temp. (°C)	Wind Speed (m/s)	Noise Meter Model / ID	Calibrator Model / ID
				Leq	L10	L90							
05-Aug-11	6:39	6:44	Fine	71.1	72.2	69.8	No outdoor construction noise	Mainly traffic noise	-	32	0.2	RION- NL31 (S/N 00983400)	RION - NC73 (S/N 10997142)
	6:44	6:49	Fine	72.1	74.0	70.1			-				
	6:49	6:54	Fine	71.7	72.8	70.3			-				
	6:39	6:54	Fine	71.7	73.1	70.1			-				
07-Aug-11	7:27	7:32	Fine	69.4	70.7	68.1	No outdoor construction noise	Mainly traffic noise	-	31	0.2	RION- NL31 (S/N 00983400)	RION - NC73 (S/N 10997142)
	7:32	7:37	Fine	69.6	71.1	67.9			-				
	7:37	7:42	Fine	69.9	71.3	68.3			-				
	7:27	7:42	Fine	69.6	71.0	68.1			-				
17-Aug-11	3:51	3:56	Fine	63.3	65.5	61.0	No outdoor construction noise	Mainly traffic noise	-	31	0.3	RION- NL31 (S/N 00983400)	RION - NC73 (S/N 10997142)
	3:56	4:01	Fine	63.1	64.8	60.8			-				
	4:01	4:06	Fine	62.1	63.4	60.5			-				
	3:51	4:06	Fine	62.9	64.7	60.8			-				
21-Aug-11	11:35	11:40	Sunny	69.4	70.5	68.2	No outdoor construction noise	Mainly traffic noise	-	31	0.2	RION- NL31 (S/N 00983400)	RION - NC73 (S/N 10997142)
	11:40	11:45	Sunny	69.2	69.9	68.2			-				
	11:45	11:50	Sunny	69.2	70.1	68.1			-				
	11:35	11:50	Sunny	69.3	70.2	68.2			-				
31-Aug-11	5:53	5:58	Fine	63.3	65.4	61.0	No outdoor construction noise	Mainly traffic noise	-	31	0.2	RION- NL31 (S/N 00983400)	RION - NC73 (S/N 10997142)
	5:58	6:03	Fine	63.5	65.5	61.0			-				
	6:03	6:08	Fine	64.2	65.9	62.0			-				
	5:53	6:08	Fine	63.7	65.6	61.4			-				
				Min.	62.1								
				Max.	72.1								

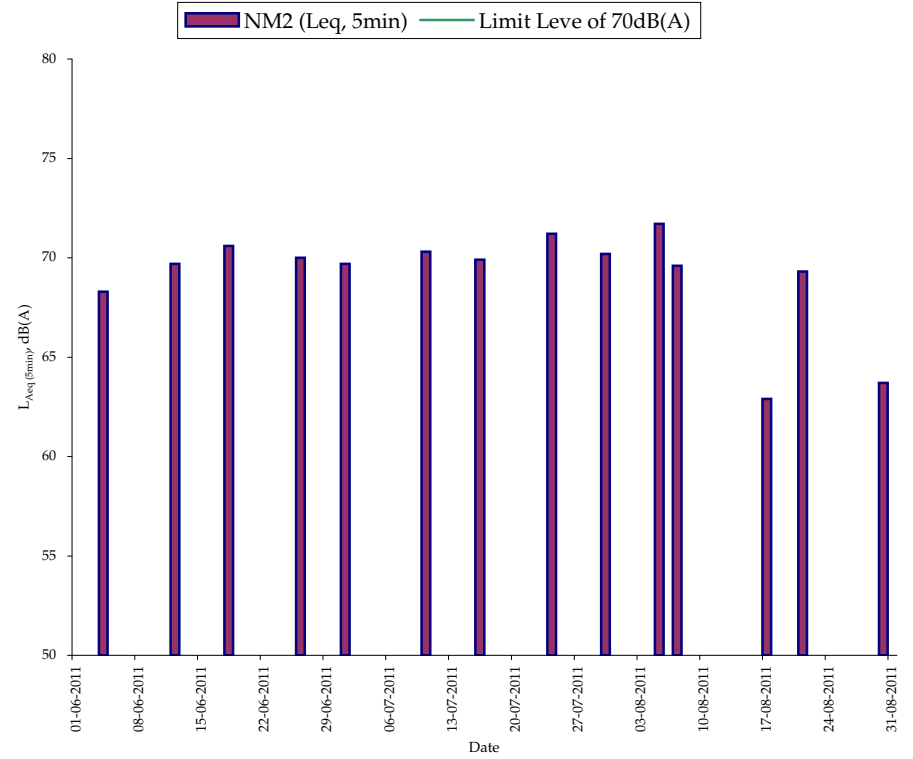
[1] The monitoring data on 5, 17 and 31 August morning are for the restricted hour of previous day (4, 16 and 30 August respectively)

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



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

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



Remark:
 - 70dB(A) was adopted as the Limit Level during restricted hours in the reporting period
 - 55dB(A) was adopted as the Limit Level during night time in the reporting period

Annex D6 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 D6 Cumulative Complaint and Summons/Prosecutions Log

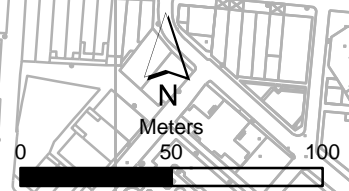
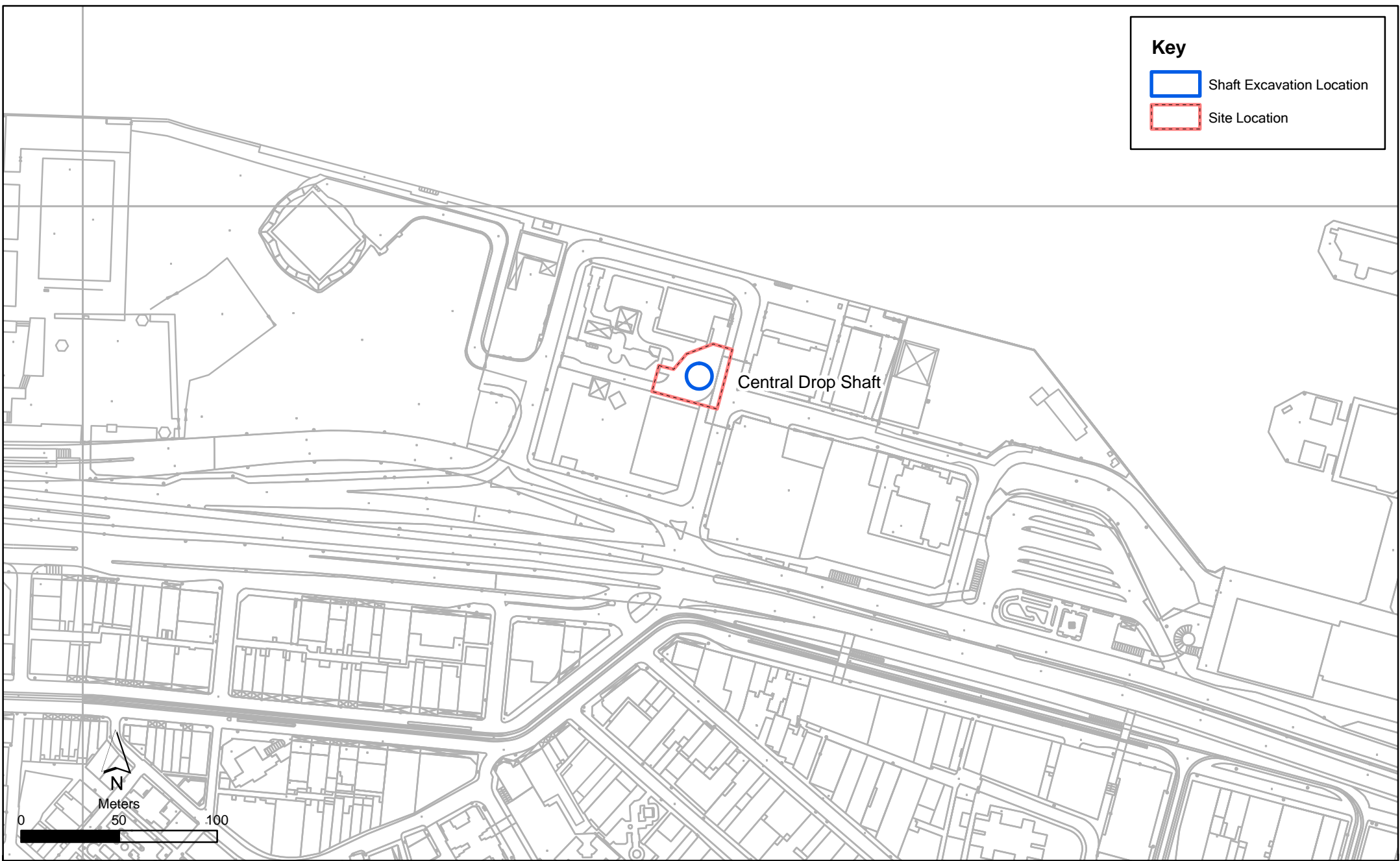
Reporting Month	Number of Complaints in Reporting Month	Number of Summons/Prosecutions in Reporting Month
June 2011	0	0
July 2011	0	0
August 2011	0	0
Overall Total	0	0

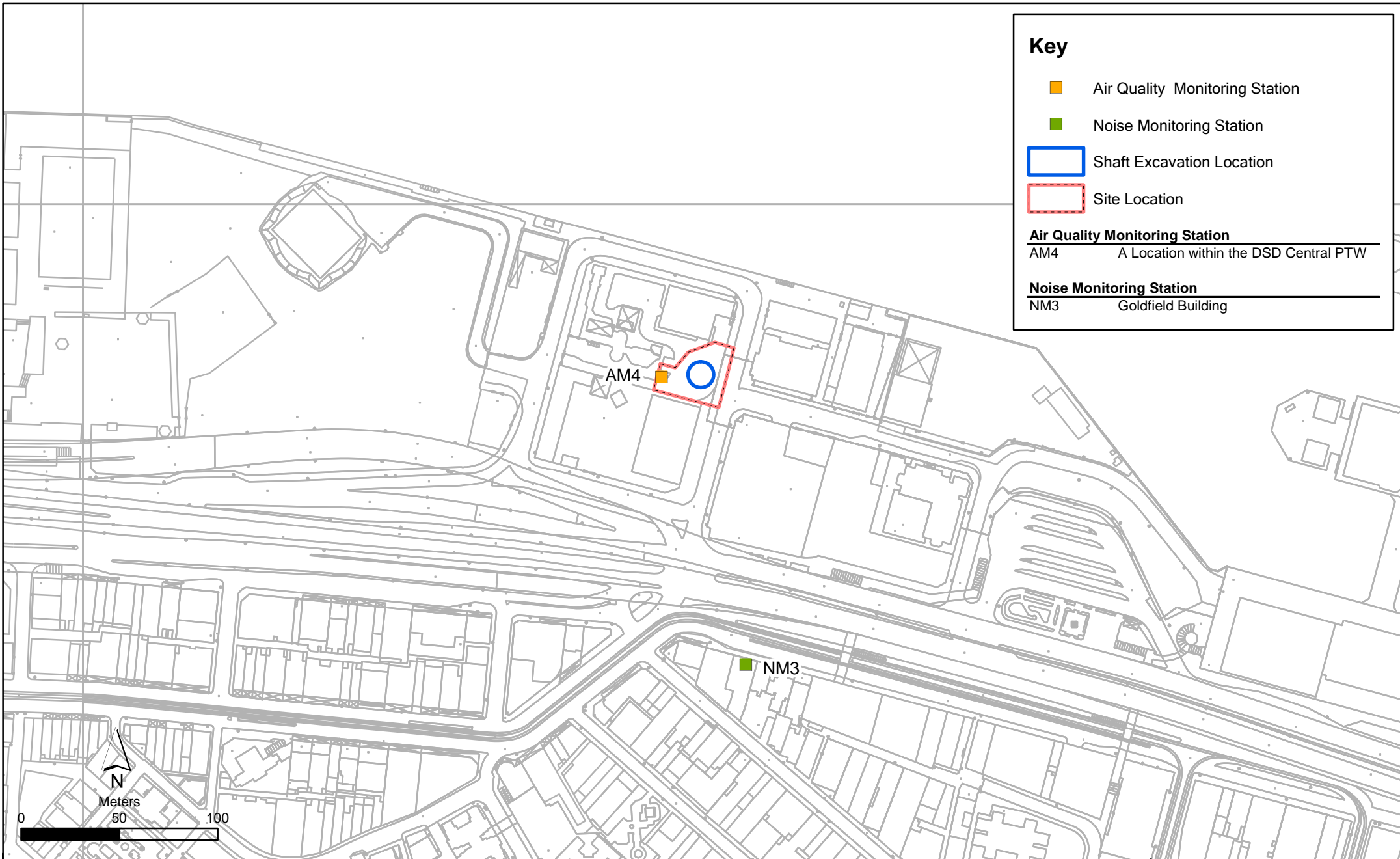
Annex E

Central Drop Shaft

Key

-  Shaft Excavation Location
-  Site Location





Key

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

Air Quality Monitoring Station
 AM4 A Location within the DSD Central PTW

Noise Monitoring Station
 NM3 Goldfield Building

ANNEX E3 - SUMMARY OF MITIGATION MEASURES IMPLEMENTATION SCHEDULE

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 minimize 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 E3 - SUMMARY OF MITIGATION MEASURES IMPLEMENTATION SCHEDULE

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 minimize 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 deodorization 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 E3 - SUMMARY OF MITIGATION MEASURES IMPLEMENTATION SCHEDULE

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 utilized 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 E3 - SUMMARY OF MITIGATION MEASURES IMPLEMENTATION SCHEDULE

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	√

ANNEX E3 - SUMMARY OF MITIGATION MEASURES IMPLEMENTATION SCHEDULE

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 E3 - SUMMARY OF MITIGATION MEASURES IMPLEMENTATION SCHEDULE

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 minimize 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 E3 - SUMMARY OF MITIGATION MEASURES IMPLEMENTATION SCHEDULE

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 minimize 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 minimize 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 E3 - SUMMARY OF MITIGATION MEASURES IMPLEMENTATION SCHEDULE

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	√

ANNEX E3 - SUMMARY OF MITIGATION MEASURES IMPLEMENTATION SCHEDULE

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, oxidizing, 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 E3 - SUMMARY OF MITIGATION MEASURES IMPLEMENTATION SCHEDULE

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 harmonize 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 E3 - SUMMARY OF MITIGATION MEASURES IMPLEMENTATION SCHEDULE

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 E4 24-hour and 1-hour TSP Monitoring Results

1-hour TSP Monitoring Results

Station AM4

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-Jun-11	8:00	9:00	Sunny	220	352	500	Construction work in progress	30	<5	9315	0985
	9:02	10:02	Sunny	172	352	500	Construction work in progress	30	<5	9315	0997
	10:04	11:04	Sunny	190	352	500	Construction work in progress	30	<5	9315	0998
10-Jun-11	12:30	13:30	Sunny	107	352	500	Construction work in progress	30	<5	9315	0999
	13:32	14:32	Sunny	150	352	500	Construction work in progress	30	<5	9315	1001
	14:35	15:35	Sunny	148	352	500	Construction work in progress	30	<5	9315	1002
16-Jun-11	12:40	13:40	Rainy	152	352	500	Construction work in progress	28	<5	9315	1003
	13:42	14:42	Rainy	145	352	500	Construction work in progress	28	<5	9315	1004
	14:45	15:45	Rainy	150	352	500	Construction work in progress	28	<5	9315	1006
22-Jun-11	11:00	12:00	Rainy	137	352	500	Construction work in progress	28	<5	9315	1007
	12:02	13:02	Rainy	163	352	500	Construction work in progress	28	<5	9315	1008
	13:04	14:04	Rainy	154	352	500	Construction work in progress	28	<5	9315	1009
28-Jun-11	12:30	13:30	Cloudy	110	352	500	Construction work in progress	29	<5	9315	1021
	13:32	14:32	Cloudy	163	352	500	Construction work in progress	29	<5	9315	1023
	14:34	15:34	Cloudy	211	352	500	Construction work in progress	29	<5	9315	1024
				Min.	107						
				Max.	220						
				Average	158						

* Wind Speed data is presented in the Meteorological Data table

Annex E4 24-hour and 1-hour TSP Monitoring Results

1-hour TSP Monitoring Results

Station AM4

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-Jul-11	8:00	9:00	Sunny	131	352	500	Construction work in progress	32	<5	9315	1026
	9:02	10:02	Sunny	247	352	500	Construction work in progress	32	<5	9315	1028
	10:05	11:05	Sunny	100	352	500	Construction work in progress	32	<5	9315	1030
09-Jul-11	8:00	9:00	Sunny	84	352	500	Construction work in progress	32	<5	9315	1041
	9:02	10:02	Sunny	95	352	500	Construction work in progress	32	<5	9315	1042
	10:04	11:04	Sunny	108	352	500	Construction work in progress	32	<5	9315	1043
15-Jul-11	12:00	13:00	Cloudy	121	352	500	Construction work in progress	28	<5	9315	1044
	13:02	14:02	Cloudy	108	352	500	Construction work in progress	28	<5	9315	1045
	14:10	15:10	Cloudy	141	352	500	Construction work in progress	28	<5	9315	1046
21-Jul-11	12:00	13:00	Fine	111	352	500	Construction work in progress	31	<5	9315	1047
	13:02	14:02	Fine	122	352	500	Construction work in progress	31	<5	9315	1061
	14:10	15:10	Fine	210	352	500	Construction work in progress	31	<5	9315	1049
27-Jul-11	8:00	9:00	Sunny	112	352	500	Construction work in progress	32	<5	9315	1062
	9:02	10:02	Sunny	131	352	500	Construction work in progress	32	<5	9315	1063
	10:04	11:04	Sunny	126	352	500	Construction work in progress	32	<5	9315	1064
			Min.	84							
			Max.	247							
			Average	130							

* Wind Speed data is presented in the Meteorological Data table

Annex E4 24-hour and 1-hour TSP Monitoring Results

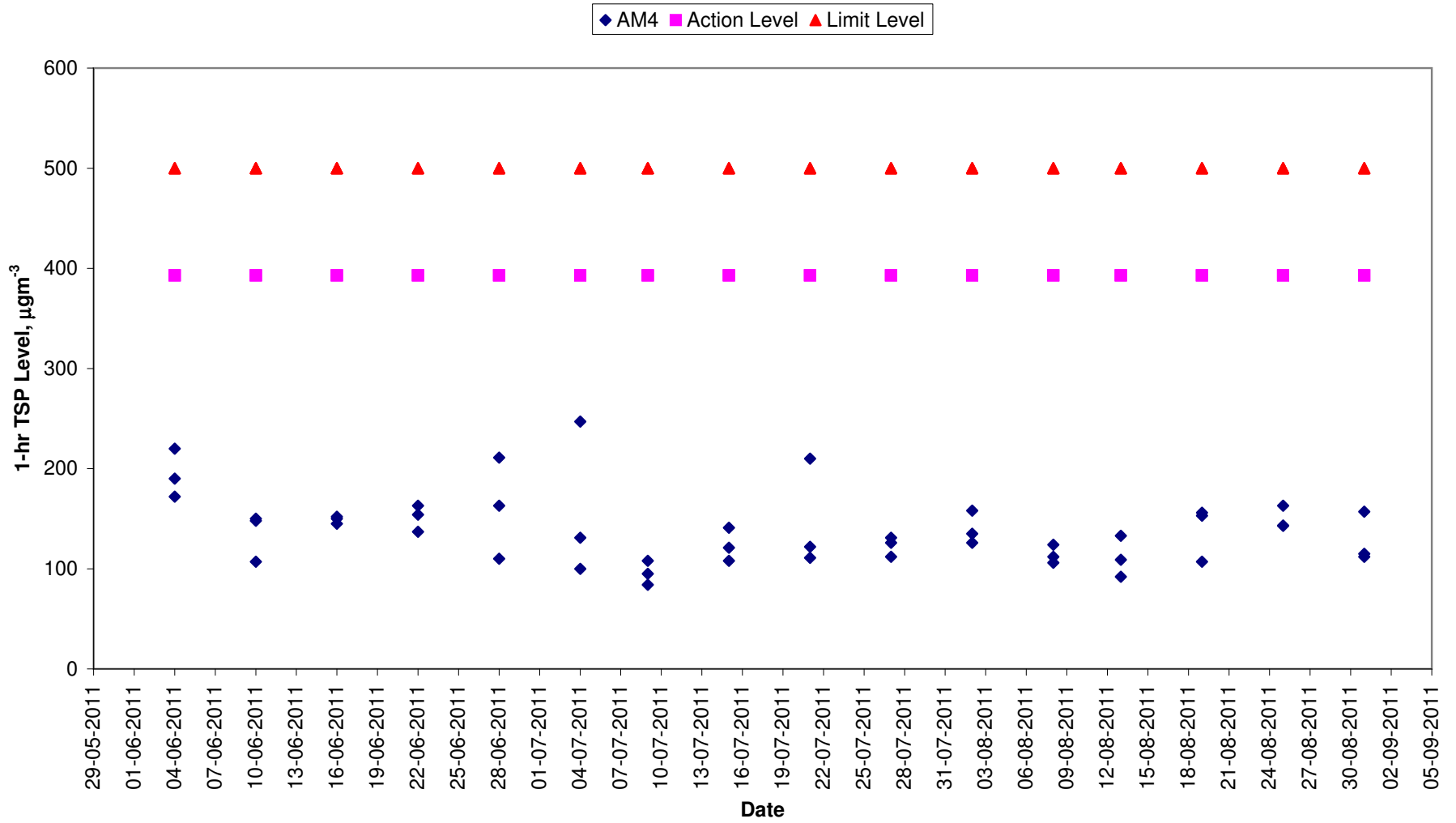
1-hour TSP Monitoring Results

Station AM4

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
02-Aug-11	8:00	9:00	Sunny	158	352	500	Construction work in progress	31	<5	9315	1065
	9:02	10:02	Sunny	126	352	500	Construction work in progress	31	<5	9315	1067
	10:10	11:10	Sunny	135	352	500	Construction work in progress	31	<5	9315	1068
08-Aug-11	8:00	9:00	Fine	112	352	500	Construction work in progress	32	<5	9315	1071
	9:02	10:02	Fine	124	352	500	Construction work in progress	32	<5	9315	1072
	10:10	11:10	Fine	106	352	500	Construction work in progress	32	<5	9315	1073
13-Aug-11	8:00	9:00	Sunny	92	352	500	Construction work in progress	30	<5	9315	1074
	12:30	13:30	Sunny	133	352	500	Construction work in progress	30	<5	9315	1075
	13:32	14:32	Sunny	109	352	500	Construction work in progress	30	<5	9315	1076
19-Aug-11	8:00	9:00	Sunny	107	352	500	Construction work in progress	31	<5	9315	1080
	9:02	10:02	Sunny	156	352	500	Construction work in progress	31	<5	9315	1079
	10:05	11:05	Sunny	153	352	500	Construction work in progress	31	<5	9315	1077
25-Aug-11	12:00	13:00	Sunny	143	352	500	Construction work in progress	31	<5	9315	1101
	13:02	14:02	Sunny	163	352	500	Construction work in progress	31	<5	9315	1102
	14:10	15:10	Sunny	143	352	500	Construction work in progress	31	<5	9315	1104
31-Aug-11	12:10	13:10	Sunny	157	352	500	Construction work in progress	32	<5	9315	1105
	13:12	14:12	Sunny	112	352	500	Construction work in progress	32	<5	9315	1106
	14:15	15:15	Sunny	115	352	500	Construction work in progress	32	<5	9315	1107
				Min.	92						
				Max.	163						
				Average	130						

* Wind Speed data is presented in the Meteorological Data table

1-hr TSP Level AM4 (A Location within DSD Central PTW)



Annex E4 24-hour and 1-hour TSP Monitoring Results

24-hour TSP Monitoring Results

Station AM4

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-Jun-11	11:06	05-Jun-11	11:06	Sunny	2.8527	3.0084	19178.85	19202.85	24.00	1.23	1.23	1.23	88	211	260	Construction work in progress	9315	0986		
10-Jun-11	15:50	11-Jun-11	15:50	Sunny	2.8409	2.9577	19205.85	19229.85	24.00	1.23	1.23	1.23	66	211	260	Construction work in progress	9315	1000		
16-Jun-11	15:55	17-Jun-11	15:55	Rainy	2.8517	2.9527	19232.85	19256.85	24.00	1.23	1.23	1.23	57	211	260	Construction work in progress	9315	1005		
22-Jun-11	14:20	23-Jun-11	14:20	Rainy	2.8712	2.9982	12959.85	12983.85	24.00	1.23	1.23	1.23	72	211	260	Construction work in progress	9315	1010		
28-Jun-11	15:35	29-Jun-11	15:35	Cloudy	2.8693	2.9879	12986.85	13010.85	24.00	1.23	1.23	1.23	67	211	260	Construction work in progress	9315	1022		
												Min.	57							
												Max.	88							
												Average	70							

Annex E4 24-hour and 1-hour TSP Monitoring Results

24-hour TSP Monitoring Results

Station AM4

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-Jul-11	11:15	05-Jul-11	11:15	Sunny	2.8044	2.9199	13013.85	13037.85	24.00	1.23	1.23	1.23	65	211	260	Construction work in progress	9315	1025		
09-Jul-11	11:06	10-Jul-11	11:06	Sunny	2.8579	2.9906	13040.85	13064.85	24.00	1.23	1.23	1.23	75	211	260	Construction work in progress	9315	1027		
15-Jul-11	15:22	16-Jul-11	15:22	Cloudy	2.8557	2.9600	13067.85	13091.85	24.00	1.23	1.23	1.23	59	211	260	Construction work in progress	9315	1029		
21-Jul-11	15:30	22-Jul-11	15:30	Fine	2.8516	2.9867	13094.85	13118.85	24.00	1.23	1.23	1.23	76	211	260	Construction work in progress	9315	1048		
27-Jul-11	11:15	28-Jul-11	11:15	Sunny	2.8207	2.9292	13121.85	13145.85	24.00	1.22	1.22	1.22	62	211	260	Construction work in progress	9315	1050		
												Min.	59							
												Max.	76							
												Average	67							

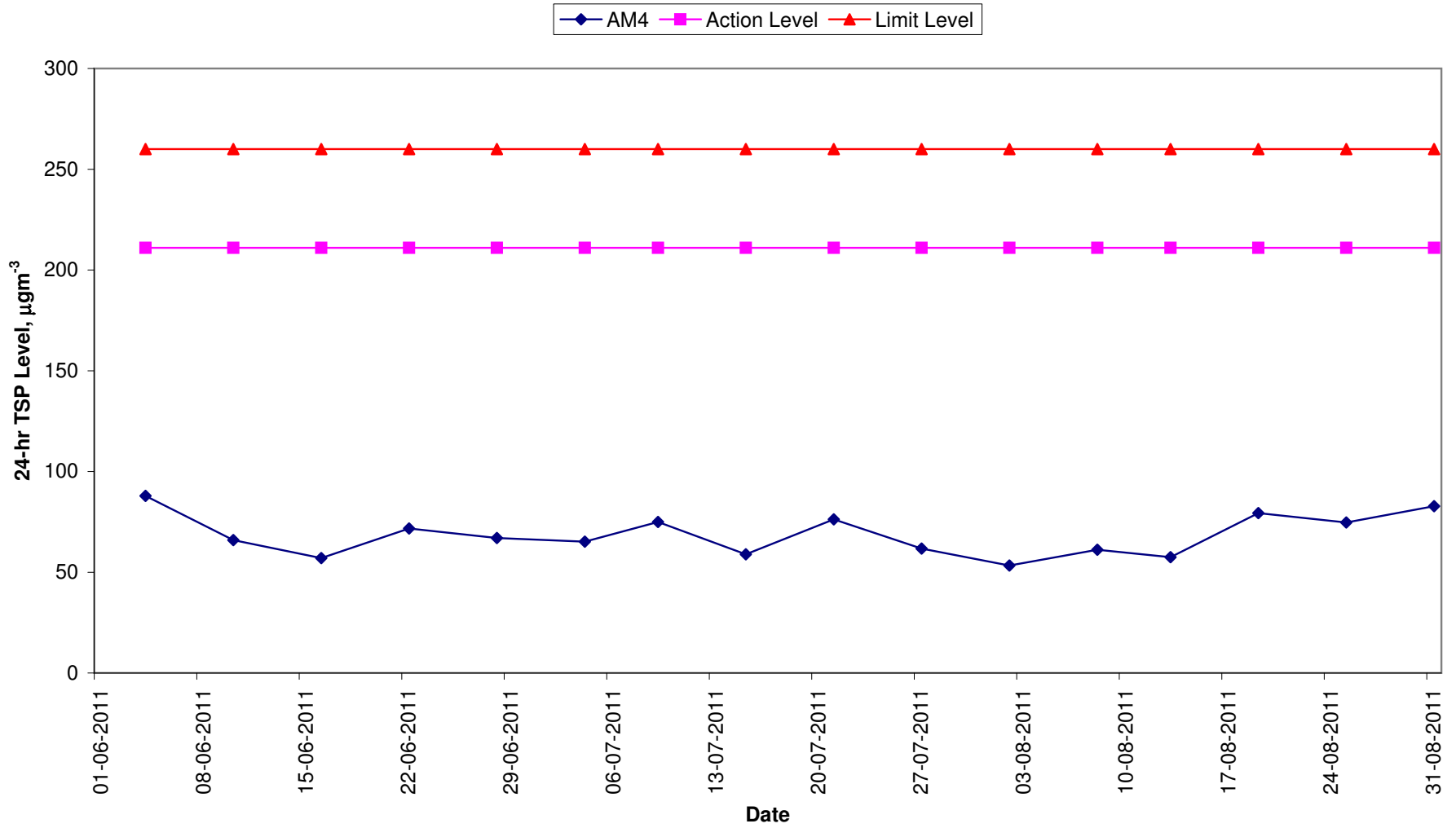
Annex E4 24-hour and 1-hour TSP Monitoring Results

24-hour TSP Monitoring Results

Station AM4

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-Aug-11	11:20	03-Aug-11	11:20	Sunny	2.8687	2.9624	13148.85	13172.85	24.00	1.22	1.22	1.22	53	211	260	Construction work in progress	9315	1066						
08-Aug-11	11:20	09-Aug-11	11:20	Fine	2.8522	2.9596	13175.85	13199.85	24.00	1.22	1.22	1.22	61	211	260	Construction work in progress	9315	1069						
13-Aug-11	14:35	14-Aug-11	14:35	Sunny	2.8380	2.9390	13202.85	13226.85	24.00	1.22	1.22	1.22	57	211	260	Construction work in progress	9315	1070						
19-Aug-11	11:15	20-Aug-11	11:15	Sunny	2.8566	2.9960	13229.85	13253.85	24.00	1.22	1.22	1.22	79	211	260	Construction work in progress	9315	1078						
25-Aug-11	15:30	26-Aug-11	15:30	Sunny	2.8148	2.9460	13256.85	13280.85	24.00	1.22	1.22	1.22	75	211	260	Construction work in progress	9315	1103						
31-Aug-11	15:30	01-Sep-11	15:30	Sunny	2.8548	3.0002	13283.85	13307.85	24.00	1.22	1.22	1.22	83	211	260	Construction work in progress	9315	1108						
													Min.	53										
													Max.	83										
													Average	68										

24-hr TSP Level
AM4 (A Location within DSD Central PTW)



Meteorological Data Extracted from the Hong Kong Observatory

Date	Weather	King's Park Station				
		Average Air Temperature (°C)	Average Relative Humidity (%)	Total Rainfall (mm)	Average Wind Speed (km/h)	Wind Direction
01-06-2011	Sunny	28	55-84	0.0	0-12	SW
02-06-2011	Sunny	28	70-84	0.0	0-14	SW
03-06-2011	Sunny	28	62-84	0.0	0-13	NE
04-06-2011	Sunny	29	64-84	0.0	0-14	S
05-06-2011	Sunny	30	68-83	0.0	0-17	S
07-06-2011	Fine	30	68-80	Trace	0-17	SW
08-06-2011	Sunny	30	69-86	Trace	0-18	W
10-06-2011	Sunny	29	58-84	0.0	0-16	SE
12-06-2011	Fine	26	76-98	28.4	0-21	W
13-06-2011	Fine	29	74-90	5.9	0-14	W
14-06-2011	Fine	29	66-83	2.4	0-14	SW
16-06-2011	Sunny	26	80-98	64.7	0-21	S
17-06-2011	Cloudy	28	88-98	77.5	0-18	E
18-06-2011	Fine	29	65-91	1.2	0-18	E
19-06-2011	Sunny	30	67-90	Trace	1-18	E
20-06-2011	Sunny	30	58-87	0.0	0-18	E
22-06-2011	Cloudy	27	83-97	41.4	0-30	SE
24-06-2011	Sunny	28	76-91	0.6	7-28	SE
26-06-2011	Sunny	29	74-87	Trace	1-16	W
28-06-2011	Cloudy	27	83-98	106.6	0-15	W
30-06-2011	Cloudy	27	80-98	5.3	0-22	SE

Date	Weather	Tsing Yi Station				
		Average Air Temperature (°C)	Average Relative Humidity (%) *	Total Rainfall (mm)	Average Wind Speed (km/h)	Wind Direction
01-06-2011	Sunny	28	55-84	0.0	0-18	SE
02-06-2011	Sunny	28	70-84	0.0	0-15	SE
03-06-2011	Sunny	28	62-84	0.0	2-14	SE
04-06-2011	Sunny	29	64-84	0.0	3-18	SE
05-06-2011	Sunny	30	68-83	0.0	2-16	SE
07-06-2011	Fine	30	68-80	Trace	3-15	SE
08-06-2011	Sunny	30	69-86	Trace	2-18	SE
10-06-2011	Sunny	30	58-84	0.0	1-20	SE
12-06-2011	Fine	26	76-98	28.4	0-21	SE
13-06-2011	Fine	29	74-90	5.9	0-21	SE
14-06-2011	Fine	30	66-83	2.4	0-18	SE
16-06-2011	Sunny	27	80-98	64.7	3-26	SE
17-06-2011	Cloudy	28	88-98	77.5	0-30	SE
18-06-2011	Fine	30	65-91	1.2	1-23	SE
19-06-2011	Sunny	30	67-90	Trace	3-23	SE
20-06-2011	Sunny	31	58-87	0.0	0-19	SE
22-06-2011	Cloudy	27	83-97	41.4	4-25	SE
24-06-2011	Sunny	28	76-91	0.6	3-27	SE
26-06-2011	Sunny	28	74-87	Trace	1-16	SE
28-06-2011	Cloudy	27	83-98	106.6	0-18	SE
30-06-2011	Cloudy	28	80-98	5.3	0-32	SE

Date	Weather	Kai Tak Station				
		Average Air Temperature (°C) *	Average Relative Humidity (%) *	Total Rainfall (mm) *	Average Wind Speed (km/h)	Wind Direction
01-06-2011	Sunny	28	55-84	0.0	0-25	E
02-06-2011	Sunny	28	70-84	0.0	0-18	SW
03-06-2011	Sunny	28	62-84	0.0	0-22	SE
04-06-2011	Sunny	29	64-84	0.0	0-12	SW
05-06-2011	Sunny	30	68-83	0.0	0-15	SE
07-06-2011	Fine	30	68-80	Trace	0-17	SW
08-06-2011	Sunny	30	69-86	Trace	1-18	SW
10-06-2011	Sunny	29	58-84	0.0	0-27	SE
12-06-2011	Fine	26	76-98	28.4	0-23	W
13-06-2011	Fine	29	74-90	5.9	0-15	SE
14-06-2011	Fine	29	66-83	2.4	0-13	S
16-06-2011	Sunny	26	80-98	64.7	0-27	S
17-06-2011	Cloudy	28	88-98	77.5	0-27	SE
18-06-2011	Fine	29	65-91	1.2	0-23	SE
19-06-2011	Sunny	30	67-90	Trace	4-25	SE
20-06-2011	Sunny	30	58-87	0.0	6-23	SE
22-06-2011	Cloudy	27	83-97	41.4	5-48	E
24-06-2011	Sunny	28	76-91	0.6	13-34	E
26-06-2011	Sunny	29	74-87	Trace	0-22	SW
28-06-2011	Cloudy	27	83-98	106.6	0-24	SW
30-06-2011	Cloudy	27	80-98	5.3	0-30	E

Date	Weather	Green Island Station				
		Average Air Temperature (°C) *	Average Relative Humidity (%) *	Total Rainfall (mm) *	Average Wind Speed (km/h)	Wind Direction
01-06-2011	Sunny	28	55-84	0.0	4-37	NE
02-06-2011	Sunny	28	70-84	0.0	3-30	S
03-06-2011	Sunny	28	62-84	0.0	9-25	S
04-06-2011	Sunny	29	64-84	0.0	9-26	S
05-06-2011	Sunny	30	68-83	0.0	12-28	S
07-06-2011	Fine	30	68-80	Trace	14-31	S
08-06-2011	Sunny	30	69-86	Trace	9-30	S
10-06-2011	Sunny	29	58-84	0.0	0-34	S
12-06-2011	Fine	26	76-98	28.4	0-35	S
13-06-2011	Fine	29	74-90	5.9	3-32	S
14-06-2011	Fine	29	66-83	2.4	0-33	S
16-06-2011	Sunny	26	80-98	64.7	5-40	S
17-06-2011	Cloudy	28	88-98	77.5	5-43	NE
18-06-2011	Fine	29	65-91	1.2	3-30	E
19-06-2011	Sunny	30	67-90	Trace	8-29	SE
20-06-2011	Sunny	30	58-87	0.0	3-30	S
22-06-2011	Cloudy	27	83-97	41.4	18-53	NE
24-06-2011	Sunny	28	76-91	0.6	13-40	NE
26-06-2011	Sunny	29	74-87	Trace	5-30	W
28-06-2011	Cloudy	27	83-98	106.6	2-40	W
30-06-2011	Cloudy	27	80-98	5.3	1-55	SE

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

Meteorological Data Extracted from the Hong Kong Observatory

Date	Weather	King's Park Station				
		Average Air Temperature (°C)	Average Relative Humidity (%)	Total Rainfall (mm)	Average Wind Speed (km/h)	Wind Direction
03-07-2011	Sunny	30	66-83	Trace	0-13	SW
04-07-2011	Sunny	30	64-83	0.0	0-15	W
06-07-2011	Sunny	30	58-82	0.0	0-16	W
09-07-2011	Sunny	30	65-86	0.0	2-15	W
10-07-2011	Sunny	30	63-89	Trace	0-15	W
12-07-2011	Cloudy	28	79-95	10.9	0-14	SW
15-07-2011	Cloudy	27	86-98	34.9	0-18	E
17-07-2011	Fine	28	72-91	0.2	0-15	W
18-07-2011	Cloudy	28	74-90	4.3	0-15	W
19-07-2011	Cloudy	28	74-95	5.6	0-14	W
21-07-2011	Fine	29	66-90	0.0	0-14	W
22-07-2011	Sunny	29	64-97	4.2	0-14	W
23-07-2011	Sunny	29	60-88	0.0	0-15	S
24-07-2011	Sunny	29	65-88	0.0	0-16	W
27-07-2011	Sunny	30	60-88	Trace	3-18	E
28-07-2011	Sunny	30	61-82	Trace	0-21	SW
29-07-2011	Fine	28	76-95	12.4	0-31	E
30-07-2011	Fine	29	76-90	Trace	0-28	E
31-07-2011	Sunny	29	67-89	0.0	0-17	E

Date	Weather	Tsing Yi Station				
		Average Air Temperature (°C)	Average Relative Humidity (%) *	Total Rainfall (mm)	Average Wind Speed (km/h)	Wind Direction
03-07-2011	Sunny	30	66-83	Trace	4-16	SE
04-07-2011	Sunny	30	64-83	0.0	1-15	SE
06-07-2011	Sunny	30	58-82	0.0	0-14	SE
09-07-2011	Sunny	30	65-86	0.0	0-15	SE
10-07-2011	Sunny	31	63-89	Trace	0-14	SE
12-07-2011	Cloudy	28	79-95	10.9	0-21	SE
15-07-2011	Cloudy	28	86-98	34.9	0-15	E
17-07-2011	Fine	28	72-91	0.2	0-24	W
18-07-2011	Cloudy	28	74-90	4.3	0-16	SE
19-07-2011	Cloudy	27	74-95	5.6	0-15	SE
21-07-2011	Fine	28	66-90	0.0	0-14	SE
22-07-2011	Sunny	29	64-97	4.2	0-18	SE
23-07-2011	Sunny	29	60-88	0.0	0-17	SE
24-07-2011	Sunny	29	65-88	0.0	0-13	SE
27-07-2011	Sunny	31	60-88	Trace	1-18	SE
28-07-2011	Sunny	30	61-82	Trace	0-25	SE
29-07-2011	Fine	28	76-95	12.4	3-25	SE
30-07-2011	Fine	29	76-90	Trace	2-26	SE
31-07-2011	Sunny	30	67-89	0.0	3-26	SE

Date	Weather	Kai Tak Station				
		Average Air Temperature (°C) *	Average Relative Humidity (%) *	Total Rainfall (mm) *	Average Wind Speed (km/h)	Wind Direction
03-07-2011	Sunny	30	66-83	Trace	1-16	S
04-07-2011	Sunny	30	64-83	0.0	1-16	SW
06-07-2011	Sunny	30	58-82	0.0	1-20	SW
09-07-2011	Sunny	30	65-86	0.0	4-19	SW
10-07-2011	Sunny	30	63-89	Trace	0-21	SW
12-07-2011	Cloudy	28	79-95	10.9	0-22	S
15-07-2011	Cloudy	27	86-98	34.9	0-24	SE
17-07-2011	Fine	28	72-91	0.2	3-30	SW
18-07-2011	Cloudy	28	74-90	4.3	0-24	SW
19-07-2011	Cloudy	28	74-95	5.6	0-19	SW
21-07-2011	Fine	29	66-90	0.0	0-16	SW
22-07-2011	Sunny	29	64-97	4.2	0-17	SW
23-07-2011	Sunny	29	60-88	0.0	0-18	SE
24-07-2011	Sunny	29	65-88	0.0	0-13	SW
27-07-2011	Sunny	30	60-88	Trace	3-19	SE
28-07-2011	Sunny	30	61-82	Trace	0-21	E
29-07-2011	Fine	28	76-95	12.4	5-40	E
30-07-2011	Fine	29	76-90	Trace	6-29	E
31-07-2011	Sunny	29	67-89	0.0	2-20	E

Date	Weather	Green Island Station				
		Average Air Temperature (°C) *	Average Relative Humidity (%) *	Total Rainfall (mm) *	Average Wind Speed (km/h)	Wind Direction
03-07-2011	Sunny	30	66-83	Trace	14-27	S
04-07-2011	Sunny	30	64-83	0.0	10-27	S
06-07-2011	Sunny	30	58-82	0.0	1-25	S
09-07-2011	Sunny	30	65-86	0.0	3-25	S
10-07-2011	Sunny	30	63-89	Trace	3-27	S
12-07-2011	Cloudy	28	79-95	10.9	0-28	S
15-07-2011	Cloudy	27	86-98	34.9	0-31	NE
17-07-2011	Fine	28	72-91	0.2	11-38	SW
18-07-2011	Cloudy	28	74-90	4.3	4-28	S
19-07-2011	Cloudy	28	74-95	5.6	0-27	S
21-07-2011	Fine	29	66-90	0.0	6-27	S
22-07-2011	Sunny	29	64-97	4.2	10-31	SE
23-07-2011	Sunny	29	60-88	0.0	8-26	N
24-07-2011	Sunny	29	65-88	0.0	0-23	NW
27-07-2011	Sunny	30	60-88	Trace	5-30	NE
28-07-2011	Sunny	30	61-82	Trace	0-35	NE
29-07-2011	Fine	28	76-95	12.4	10-60	NE
30-07-2011	Fine	29	76-90	Trace	5-30	NE
31-07-2011	Sunny	29	67-89	0.0	3-27	NE

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

Meteorological Data Extracted from the Hong Kong Observatory

Date	Weather	King's Park Station				
		Average Air Temperature (°C)	Average Relative Humidity (%)	Total Rainfall (mm)	Average Wind Speed (km/h)	Wind Direction
02-08-2011	Sunny	28	55-89	0.0	0-14	W
03-08-2011	Sunny	30	58-89	0.0	4-15	W
04-08-2011	Sunny	30	62-88	0.0	1-15	W
07-08-2011	Fine	31	56-87	0.0	0-16	W
08-08-2011	Fine	29	68-93	22.1	0-18	W
09-08-2011	Fine	28	73-96	9.9	0-16	W
10-08-2011	Cloudy	27	85-97	60.5	0-16	E
13-08-2011	Sunny	30	60-84	0.0	0-16	W
14-08-2011	Sunny	30	50-86	Trace	0-15	W
15-08-2011	Sunny	30	66-86	0.0	0-16	W
16-08-2011	Sunny	30	61-90	8.5	0-16	W
19-08-2011	Sunny	30	62-88	0.0	0-18	E
21-08-2011	Sunny	30	70-87	Trace	0-15	E
22-08-2011	Sunny	29	74-90	1.4	0-12	W
23-08-2011	Fine	30	64-86	0.0	0-12	W
25-08-2011	Sunny	29	67-92	13.7	0-15	W
27-08-2011	Sunny	30	59-90	5.2	0-14	W
28-08-2011	Sunny	31	60-80	0.0	0-14	W
30-08-2011	Fine	31	52-83	0.0	0-18	W
31-08-2011	Sunny	31	51-82	0.5	0-18	W

Date	Weather	Tsing Yi Station				
		Average Air Temperature (°C)	Average Relative Humidity (%) *	Total Rainfall (mm)	Average Wind Speed (km/h)	Wind Direction
02-08-2011	Sunny	30	55-89	0.0	0-14	S
03-08-2011	Sunny	29	58-89	0.0	0-14	NW
04-08-2011	Sunny	29	62-88	0.0	0-14	NW
07-08-2011	Fine	30	56-87	0.0	0-14	S
08-08-2011	Fine	29	68-93	22.1	0-16	S
09-08-2011	Fine	28	73-96	9.9	2-16	SE
10-08-2011	Cloudy	27	85-97	60.5	1-15	E
13-08-2011	Sunny	29	60-84	0.0	0-14	SE
14-08-2011	Sunny	29	50-86	Trace	0-14	E
15-08-2011	Sunny	29	66-86	0.0	0-12	SE
16-08-2011	Sunny	29	61-90	8.5	0-14	SE
19-08-2011	Sunny	31	62-88	0.0	0-21	E
21-08-2011	Sunny	29	70-87	Trace	0-21	NW
22-08-2011	Sunny	29	74-90	1.4	0-21	S
23-08-2011	Fine	29	64-86	0.0	0-15	SE
25-08-2011	Sunny	29	67-92	13.7	0-14	W
27-08-2011	Sunny	30	59-90	5.2	0-14	SW
28-08-2011	Sunny	30	60-80	0.0	0-21	NW
30-08-2011	Fine	30	52-83	0.0	0-21	NW
31-08-2011	Sunny	32	51-82	0.5	0-21	NW

Date	Weather	Kai Tak Station				
		Average Air Temperature (°C) *	Average Relative Humidity (%) *	Total Rainfall (mm) *	Average Wind Speed (km/h)	Wind Direction
02-08-2011	Sunny	28	55-89	0.0	0-14	SW
03-08-2011	Sunny	30	58-89	0.0	4-18	W
04-08-2011	Sunny	30	62-88	0.0	6-17	W
07-08-2011	Fine	31	56-87	0.0	2-14	SW
08-08-2011	Fine	29	68-93	22.1	0-24	SW
09-08-2011	Fine	28	73-96	9.9	0-16	SW
10-08-2011	Cloudy	27	85-97	60.5	0-21	E
13-08-2011	Sunny	30	60-84	0.0	0-14	SE
14-08-2011	Sunny	30	50-86	Trace	0-14	SE
15-08-2011	Sunny	30	66-86	0.0	0-12	SE
16-08-2011	Sunny	30	61-90	8.5	0-14	N
19-08-2011	Sunny	30	62-88	0.0	2-16	E
21-08-2011	Sunny	30	70-87	Trace	2-18	SE
22-08-2011	Sunny	29	74-90	1.4	0-18	SE
23-08-2011	Fine	30	64-86	0.0	0-15	SE
25-08-2011	Sunny	29	67-92	13.7	1-18	S
27-08-2011	Fine	30	59-90	5.2	0-18	SE
28-08-2011	Sunny	31	60-80	0.0	0-15	NW
30-08-2011	Fine	31	52-83	0.0	0-25	W
31-08-2011	Sunny	31	51-82	0.5	3-27	W

Date	Weather	Green Island Station				
		Average Air Temperature (°C) *	Average Relative Humidity (%) *	Total Rainfall (mm) *	Average Wind Speed (km/h)	Wind Direction
02-08-2011	Sunny	28	55-89	0.0	0-24	SW
03-08-2011	Sunny	30	58-89	0.0	0-24	NW
04-08-2011	Sunny	30	62-88	0.0	0-27	S
07-08-2011	Fine	31	56-87	0.0	0-24	S
08-08-2011	Fine	29	68-93	22.1	0-40	S
09-08-2011	Fine	28	73-96	9.9	3-33	S
10-08-2011	Cloudy	27	85-97	60.5	0-21	SE
13-08-2011	Sunny	30	60-84	0.0	1-21	S
14-08-2011	Sunny	30	50-86	Trace	0-24	S
15-08-2011	Sunny	30	66-86	0.0	3-21	S
16-08-2011	Sunny	30	61-90	8.5	1-24	S
19-08-2011	Sunny	30	62-88	0.0	3-27	NE
21-08-2011	Sunny	30	70-87	Trace	0-27	NE
22-08-2011	Sunny	29	74-90	1.4	0-25	S
23-08-2011	Fine	30	64-86	0.0	1-21	S
25-08-2011	Sunny	29	67-92	13.7	0-21	NW
27-08-2011	Sunny	30	59-90	5.2	0-24	S
28-08-2011	Sunny	31	60-80	0.0	0-24	NW
30-08-2011	Fine	31	52-83	0.0	3-27	NW
31-08-2011	Sunny	31	51-82	0.5	3-21	NW

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

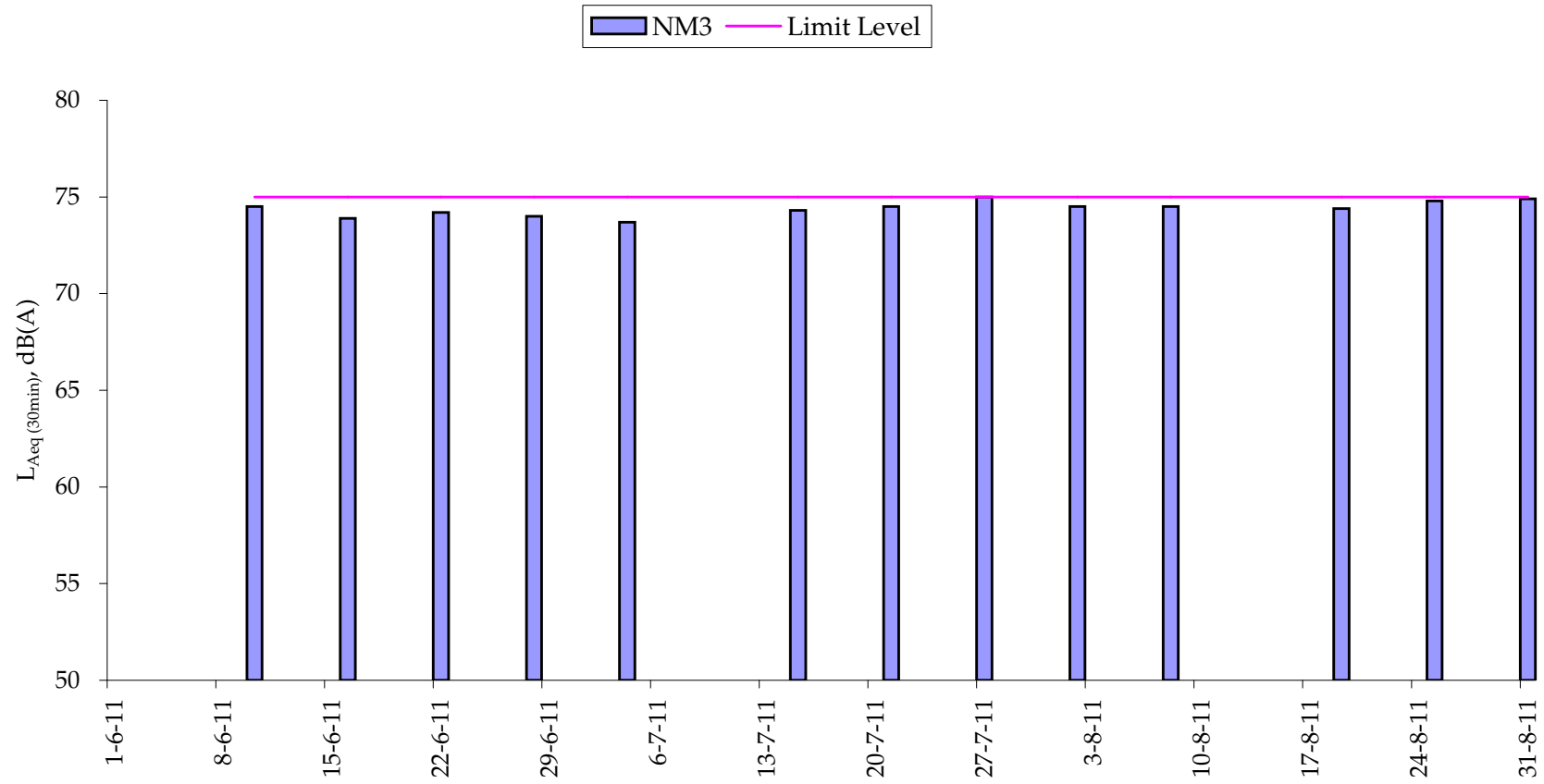
Annex E5 Noise Monitoring Results

Daytime Noise Monitoring Results

Station NM3

Date	Start Time	End Time	Weather	Noise level (dB(A)), 30 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							
02-Aug-11	9:20	9:50	Sunny	74.5	76.1	72.7	Iron bending	Mainly traffic noise	-	31	0.2	RION- NL31 (S/N 00983400)	RION - NC73 (S/N 10997142)
08-Aug-11	9:20	9:50	Sunny	74.5	75.7	73.0	-	Mainly traffic noise	-	32	0.2	RION- NL31 (S/N 00983400)	RION - NC73 (S/N 10997142)
19-Aug-11	9:20	9:50	Sunny	74.4	75.9	72.8	-	Mainly traffic noise	-	31	0.5	RION- NL31 (S/N 00983400)	RION - NC73 (S/N 10997142)
25-Aug-11	13:20	13:50	Sunny	74.8	76.1	73.0	Excavation work	Mainly traffic noise	-	31	0.2	RION- NL31 (S/N 00983400)	RION - NC73 (S/N 10997142)
31-Aug-11	13:30	14:00	Sunny	74.9	76.3	73.0	-	Mainly traffic noise	-	31	0.2	RION- NL31 (S/N 00983400)	RION - NC73 (S/N 10997142)
				Min.	74.4								
				Max.	74.9								

Noise Monitoring Results at NM3 ($L_{eq, 30min}$)



Remark:

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

Annex E6 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 E6 Cumulative Complaint and Summons/Prosecutions Log

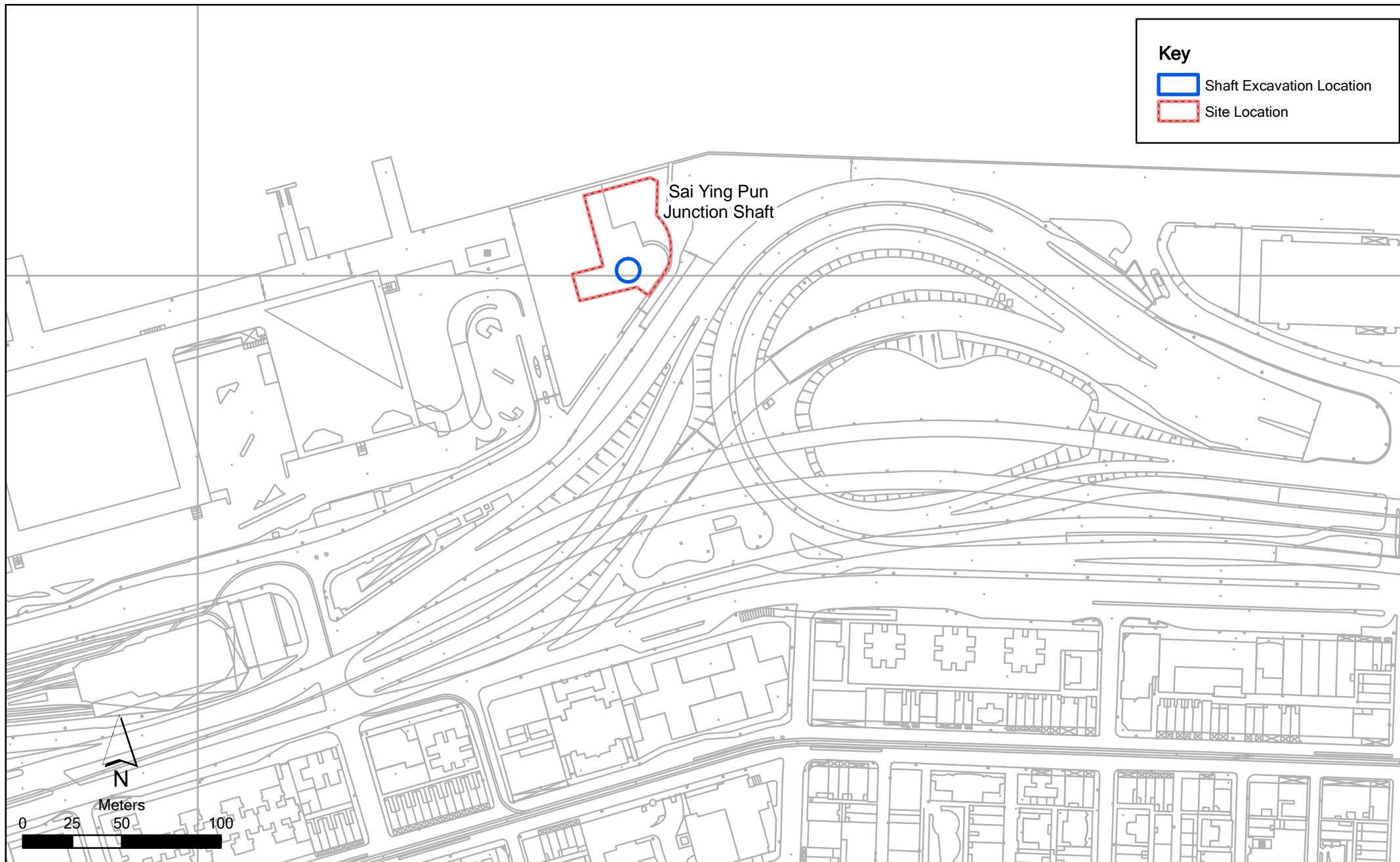
Reporting Month	Number of Complaints in Reporting Month	Number of Summons/Prosecutions in Reporting Month
June 2011	0	0
July 2011	0	0
August 2011	0	0
Overall Total	0	0

Annex F

Sai Ying Pun Junction Shaft

Key

-  Shaft Excavation Location
-  Site Location



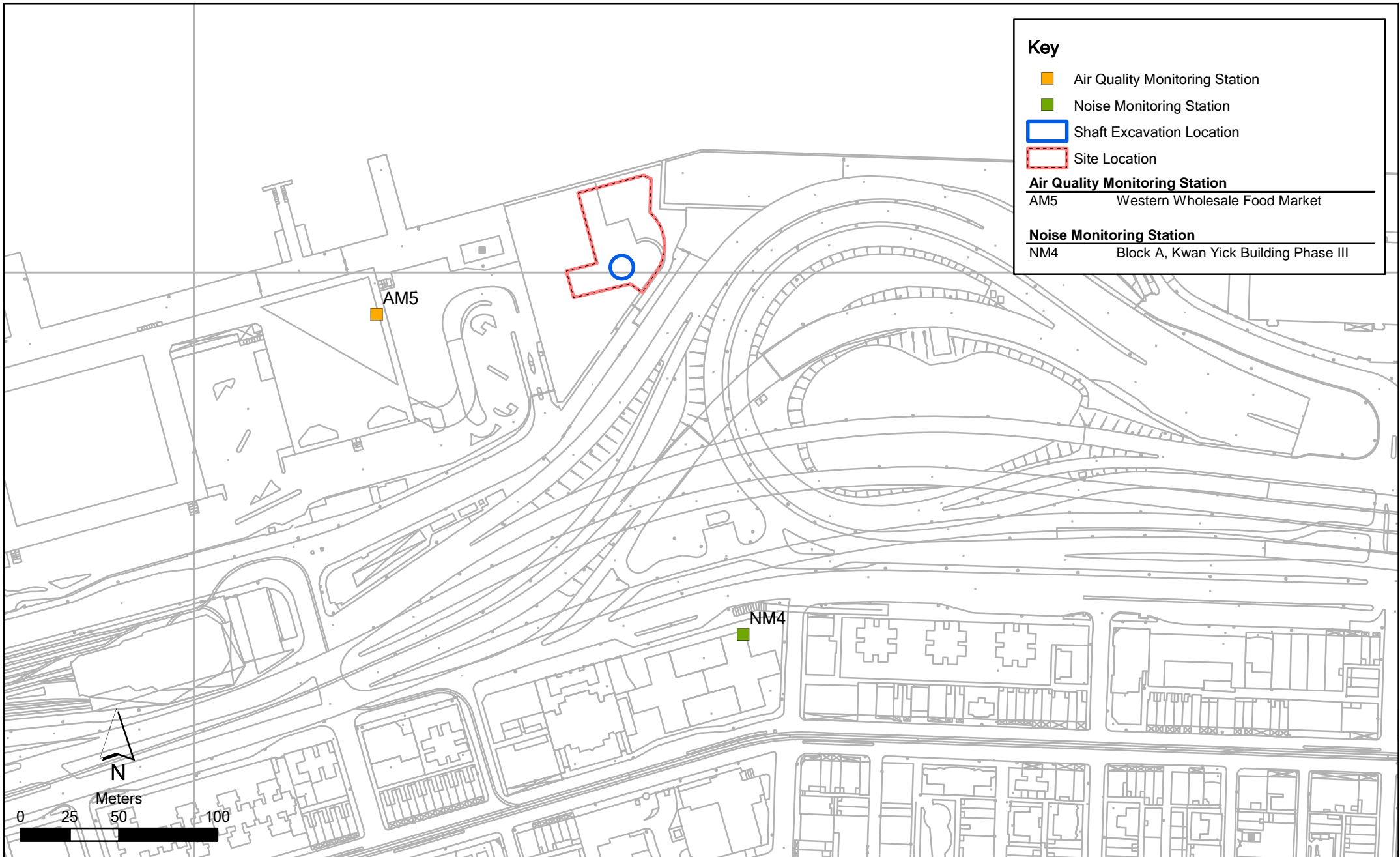
Annex F1

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**





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\
 0104887_Sai Ting Pun_NMAM.mxd
 Date: 03/03/2010

ANNEX F3 - SUMMARY OF MITIGATION MEASURES IMPLEMENTATION SCHEDULE

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 minimize 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 F3 - SUMMARY OF MITIGATION MEASURES IMPLEMENTATION SCHEDULE

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 minimize 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 deodorization 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 F3 - SUMMARY OF MITIGATION MEASURES IMPLEMENTATION SCHEDULE

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 utilized 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 F3 - SUMMARY OF MITIGATION MEASURES IMPLEMENTATION SCHEDULE

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	<>

ANNEX F3 - SUMMARY OF MITIGATION MEASURES IMPLEMENTATION SCHEDULE

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 F3 - SUMMARY OF MITIGATION MEASURES IMPLEMENTATION SCHEDULE

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 minimize 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 F3 - SUMMARY OF MITIGATION MEASURES IMPLEMENTATION SCHEDULE

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 minimize 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 minimize 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 F3 - SUMMARY OF MITIGATION MEASURES IMPLEMENTATION SCHEDULE

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	√

ANNEX F3 - SUMMARY OF MITIGATION MEASURES IMPLEMENTATION SCHEDULE

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, oxidizing, 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 F3 - SUMMARY OF MITIGATION MEASURES IMPLEMENTATION SCHEDULE

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 harmonize 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 F3 - SUMMARY OF MITIGATION MEASURES IMPLEMENTATION SCHEDULE

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 F4 24-hour and 1-hour TSP Monitoring Results

1-hour TSP Monitoring Results

Station AM5

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
02-06-2011	8:00	9:00	Drizzle	314.1	331.9	500	Grouting works	28.1	<5	N.A	N.A
02-06-2011	15:28	16:28	Drizzle	247.3	331.9	500	Grouting works	28.1	<5	N.A	N.A
02-06-2011	16:32	17:32	Drizzle	198.8	331.9	500	Grouting works	28.1	<5	N.A	N.A
08-06-2011	8:00	9:00	Sunny	115.7	331.9	500	Grouting works	29.7	<5	Western Wholesale Food Market	621
08-06-2011	15:28	16:28	Sunny	248.1	331.9	500	Grouting works	29.7	<5	Western Wholesale Food Market	622
08-06-2011	16:32	17:32	Sunny	199.4	331.9	500	Grouting works	29.7	<5	Western Wholesale Food Market	623
14-06-2011	8:00	9:00	Cloudy	227.1	331.9	500	Loading activities, operation of excavator and mud out	29.5	<5	Western Wholesale Food Market	626
14-06-2011	15:28	16:28	Cloudy	68.4	331.9	500	Loading activities, operation of excavator and mud out	29.5	<5	Western Wholesale Food Market	628
14-06-2011	16:32	17:32	Cloudy	53.3	331.9	500	Loading activities, operation of excavator and mud out	29.5	<5	Western Wholesale Food Market	629
20-06-2011	8:00	9:00	Fine	157.0	331.9	500	Loading activities, operation of excavator and mud out	29.9	<5	Western Wholesale Food Market	634
20-06-2011	15:28	16:28	Fine	68.6	331.9	500	Loading activities, operation of excavator and mud out	29.9	<5	Western Wholesale Food Market	636
20-06-2011	16:32	17:32	Cloudy	49.2	331.9	500	Loading activities, operation of excavator and mud out	29.9	<5	Western Wholesale Food Market	637
24-06-2011	8:00	9:00	Cloudy	179.8	331.9	500	Loading activities, operation of excavator and mud out	28.4	<5	Western Wholesale Food Market	642
24-06-2011	14:10	15:10	Cloudy	71.6	331.9	500	Loading activities, operation of excavator and mud out	28.4	<5	Western Wholesale Food Market	643
24-06-2011	15:20	16:20	Cloudy	99.9	331.9	500	Loading activities, operation of excavator and mud out	28.4	<5	Western Wholesale Food Market	644
29-06-2011	8:00	9:00	Fine	87.9	331.9	500	Loading activities, operation of excavator and mud out	26.5	<5	Western Wholesale Food Market	649
29-06-2011	14:10	15:10	Fine	98.7	331.9	500	Loading activities, operation of excavator and mud out	26.5	<5	Western Wholesale Food Market	650
29-06-2011	15:20	16:20	Fine	63.4	331.9	500	Loading activities, operation of excavator and mud out	26.5	<5	Western Wholesale Food Market	651
				Min.	49						
				Max.	314						
				Average	142						

Annex F4 24-hour and 1-hour TSP Monitoring Results

1-hour TSP Monitoring Results

Station AM5

Date	Start Time	Finish Time	Weather	TSP Concentration (µg/m ³)	Action Level (µg/m ³)	Limit Level (µg/m ³)	Site Conditions / Observations / Remarks	Temperature (°C)	Wind Speed * (m/s)	Sampler ID	Filter ID
05-07-2011	13:16	14:16	Sunny	57.8	331.9	500	Loading activities, operation of excavator and mud out	29.7	<5	Western Wholesale Food Market	657
05-07-2011	13:16	14:16	Sunny	57.8	331.9	500	Loading activities, operation of excavator and mud out	29.7	<5	Western Wholesale Food Market	657
05-07-2011	14:22	15:22	Sunny	51.7	331.9	500	Loading activities, operation of excavator and mud out	29.7	<5	Western Wholesale Food Market	658
11-07-2011	8:00	9:00	Cloudy	230.1	331.9	500	Loading activities, operation of excavator and mud out	28.9	<5	Western Wholesale Food Market	662
11-07-2011	13:16	14:16	Cloudy	327.6	331.9	500	Loading activities, operation of excavator and mud out	28.9	<5	Western Wholesale Food Market	664
11-07-2011	14:22	15:22	Cloudy	137.1	331.9	500	Loading activities, operation of excavator and mud out	28.9	<5	Western Wholesale Food Market	665
15-07-2011	8:00	9:00	Cloudy	136.2	331.9	500	Loading activities, operation of excavator and mud out	28.9	<5	Western Wholesale Food Market	667
15-07-2011	9:20	10:20	Cloudy	89.3	331.9	500	Loading activities, operation of excavator and mud out	28.9	<5	Western Wholesale Food Market	671
15-07-2011	10:35	11:35	Fine	82.3	331.9	500	Loading activities, operation of excavator and mud out	28.9	<5	Western Wholesale Food Market	672
21-07-2011	8:00	9:00	Fine	56.1	331.9	500	Loading activities, operation of excavator and mud out	28.9	<5	Western Wholesale Food Market	677
21-07-2011	14:00	15:00	Fine	42.9	331.9	500	Loading activities, operation of excavator and mud out	28.9	<5	Western Wholesale Food Market	678
21-07-2011	15:20	16:20	Fine	34.6	331.9	500	Loading activities, operation of excavator and mud out	28.9	<5	Western Wholesale Food Market	679
27-07-2011	13:00	14:00	Sunny	153.6	331.9	500	Loading activities, operation of excavator and mud out	30.2	<5	Western Wholesale Food Market	684
27-07-2011	14:28	15:28	Sunny	120.6	331.9	500	Loading activities, operation of excavator and mud out	30.2	<5	Western Wholesale Food Market	685
27-07-2011	15:34	16:34	Sunny	109.0	331.9	500	Loading activities, operation of excavator and mud out	30.2	<5	Western Wholesale Food Market	686
				Min.	35						
				Max.	328						
				Average	112						

* Wind Speed data is presented in the Meteorological Data table

Annex F4 24-hour and 1-hour TSP Monitoring Results

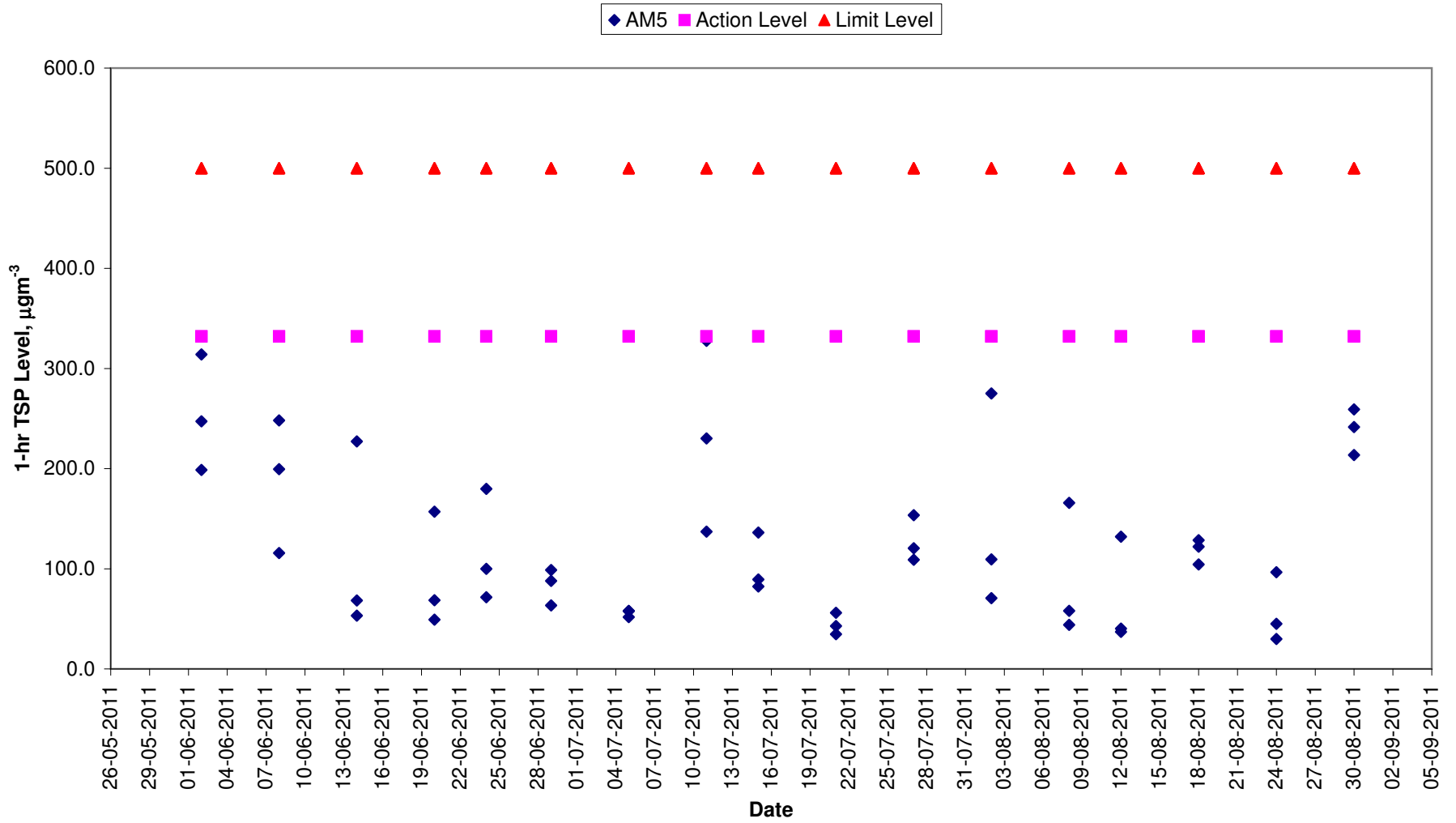
1-hour TSP Monitoring Results

Station AM5

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
02-08-2011	8:00	9:00	Sunny	275	331.9	500	Loading activities, operation of excavator and mud out	29.5	<5	Western Wholesale Food Market	690
	15:00	16:00	Sunny	109	331.9	500	Loading activities, operation of excavator and mud out	29.5	<5	Western Wholesale Food Market	692
	17:04	18:04	Sunny	71	331.9	500	Loading activities, operation of excavator and mud out	29.5	<5	Western Wholesale Food Market	693
08-08-2011	8:00	9:00	Sunny	166	331.9	500	Loading activities, operation of excavator and mud out	29.2	<5	Western Wholesale Food Market	697
	10:20	11:20	Sunny	58	331.9	500	Loading activities, operation of excavator and mud out	29.2	<5	Western Wholesale Food Market	698
	17:15	18:15	Fine	44	331.9	500	Loading activities, operation of excavator and mud out	29.2	<5	Western Wholesale Food Market	699
12-08-2011	8:00	9:00	Sunny	132	331.9	500	Loading activities, operation of excavator and mud out	29.4	<5	Western Wholesale Food Market	705
	9:41	10:41	Sunny	40	331.9	500	Loading activities, operation of excavator and mud out	29.4	<5	Western Wholesale Food Market	706
	11:00	12:00	Fine	37	331.9	500	Loading activities, operation of excavator and mud out	29.4	<5	Western Wholesale Food Market	707
18-08-2011	8:00	9:00	Sunny	128	331.9	500	Loading activities, operation of excavator and mud out	29.2	<5	Western Wholesale Food Market	712
	10:20	11:20	Sunny	122	331.9	500	Loading activities, operation of excavator and mud out	29.2	<5	Western Wholesale Food Market	713
	13:00	14:00	Sunny	104	331.9	500	Loading activities, operation of excavator and mud out	29.2	<5	Western Wholesale Food Market	714
24-08-2011	8:00	9:00	Sunny	97	331.9	500	Loading activities, operation of excavator and mud out	29.8	<5	Western Wholesale Food Market	719
	15:10	16:10	Sunny	45	331.9	500	Loading activities, operation of excavator and mud out	29.8	<5	Western Wholesale Food Market	720
	16:18	17:18	Sunny	30	331.9	500	Loading activities, operation of excavator and mud out	29.8	<5	Western Wholesale Food Market	721
30-08-2011	8:00	9:00	Foggy	213.7	331.9	500	Loading activities, operation of excavator and mud out	28.8	<5	Western Wholesale Food Market	726
	15:10	16:10	Foggy	241.5	331.9	500	Loading activities, operation of excavator and mud out	28.8	<5	Western Wholesale Food Market	727
	16:18	17:18	Foggy	259.2	331.9	500	Loading activities, operation of excavator and mud out	28.8	<5	Western Wholesale Food Market	728
			Min.	30							
			Max.	275							
			Average	121							

* Wind Speed data is presented in the Meteorological Data table

1-hr TSP Level AM5 (AFCD Western Wholesale Food Market)



Annex F4 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								
02-Jun-11	11:50	03-Jun-11	11:50	Drizze	2.7468	2.9114	2411.92	2435.92	24.00	1.1470	1.1470	1.1470	100	188.5	260	Grouting works	Western Wholesale Food Market	618		
08-Jun-11	16:40	09-Jun-11	16:40	Sunny	2.7454	2.7972	2438.91	2462.91	24.00	1.1431	1.1431	1.1431	31	188.5	260	Grouting works	Western Wholesale Food Market	624		
14-Jun-11	15:15	15-Jun-11	15:15	Cloudy	2.7375	2.7834	2465.91	2489.91	24.00	1.1195	1.1195	1.1195	28	188.5	260	operation of excavator and mud out	Western Wholesale Food Market	630		
20-Jun-11	12:15	21-Jun-11	12:15	Cloudy	2.721	2.8061	2492.91	2516.91	27.60	1.1176	1.1176	1.1176	53	188.5	260	operation of excavator and mud out	Western Wholesale Food Market	638		
24-Jun-11	16:30	25-Jun-11	16:30	Cloudy	2.7064	2.7914	2519.90	2543.90	27.60	1.1179	1.1179	1.1179	53	188.5	260	operation of excavator and mud out	Western Wholesale Food Market	645		
29-Jun-11	17:20	30-Jun-11	17:20	Fine	2.7088	2.7677	2570.91	2594.91	27.60	1.1235	1.1235	1.1235	36	188.5	260	operation of excavator and mud out	Western Wholesale Food Market	652		
												Min.	28							
												Max.	100							
												Average	50							

Annex F4 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						
05-Jul-11	15:30	06-Jul-11	15:30	Sunny	2.704	2.7649	2573.81	2597.81	24.00	1.0954	1.0954	1.0954	39	188.5	260	operation of excavator and mud out	Western Wholesale Food Market	659
11-Jul-11	16:45	12-Jul-11	16:45	Cloudy	2.7098	2.836	2600.81	2624.81	24.00	1.1178	1.1178	1.1178	78	188.5	260	operation of excavator and mud out	Western Wholesale Food Market	666
15-Jul-11	11:54	16-Jul-11	11:54	Cloudy	2.695	2.7594	2627.91	2651.91	24.00	1.0125	1.0125	1.0125	44	188.5	260	Loading activities, operation of excavator and mud out	Western Wholesale Food Market	673
21-Jul-11	16:30	22-Jul-11	16:30	Fine	2.7082	2.7695	2654.91	2678.91	27.60	1.0363	1.0363	1.0363	41	188.5	260	Loading activities, operation of excavator and mud out	Western Wholesale Food Market	680
27-Jul-11	16:30	28-Jul-11	16:30	Fine	2.7082	2.7695	2654.91	2678.91	27.60	1.0363	1.0363	1.0363	41	188.5	260	Loading activities, operation of excavator and mud out	Western Wholesale Food Market	680
													Min.	39				
													Max.	78				
													Average	49				

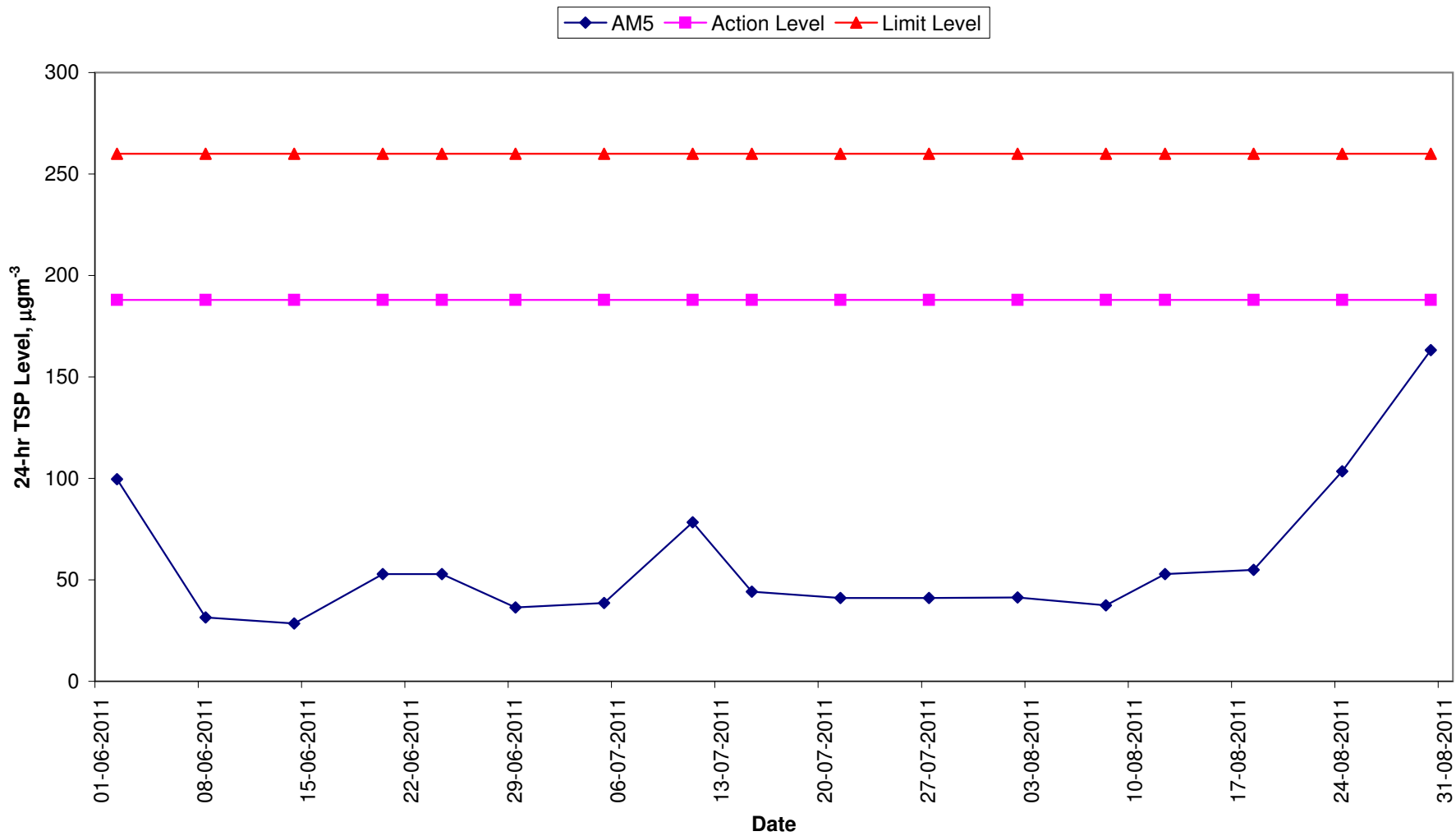
Annex F4 24-hour and 1-hour TSP Monitoring Results

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								
02-Aug-11	18:08	03-Aug-11	18:08	Sunny	2.7222	2.7839	2708.91	2732.91	24.00	1.0359	1.0359	1.0359	41	188.5	260	Loading activities, operation of excavator and mud out	Western Wholesale Food Market	694		
08-Aug-11	18:23	09-Aug-11	18:23	Fine	2.7325	2.7884	2735.91	2759.91	24.00	1.0353	1.0353	1.0353	37	188.5	260	Loading activities, operation of excavator and mud out	Western Wholesale Food Market	700		
12-Aug-11	12:20	13-Aug-11	12:20	Sunny	2.7053	2.7842	2762.91	2786.91	24.00	1.0366	1.0366	1.0366	53	188.5	260	Loading activities, operation of excavator and mud out	Western Wholesale Food Market	708		
18-Aug-11	11:51	19-Aug-11	11:51	Sunny	2.7139	2.796	2789.88	2813.88	24.00	1.0378	1.0378	1.0378	55	188.5	260	Loading activities, operation of excavator and mud out	Western Wholesale Food Market	715		
24-Aug-11	17:22	25-Aug-11	17:22	Sunny	2.6898	2.844	2816.87	2840.87	24.00	1.0352	1.0352	1.0352	103	188.5	260	Loading activities, operation of excavator and mud out	Western Wholesale Food Market	722		
30-Aug-11	15:30	31-Aug-11	15:30	Foggy	2.7041	2.9473	2843.87	2867.87	24.00	1.0351	1.0351	1.0351	163	188.5	260	Loading activities, operation of excavator and mud out	Western Wholesale Food Market	729		
												Min.	37							
												Max.	163							
												Average	76							

**24-hr TSP Level
AM5 (AFCD Western Wholesale Food Market)**



Meteorological Data Extracted from the Hong Kong Observatory

Date	Weather	King's Park Station				
		Average Air Temperature (°C)	Average Relative Humidity (%)	Total Rainfall (mm)	Average Wind Speed (km/h)	Wind Direction
01-06-2011	Sunny	28	55-84	0.0	0-12	SW
02-06-2011	Sunny	28	70-84	0.0	0-14	SW
03-06-2011	Sunny	28	62-84	0.0	0-13	NE
04-06-2011	Sunny	29	64-84	0.0	0-14	S
05-06-2011	Sunny	30	68-83	0.0	0-17	S
07-06-2011	Fine	30	68-80	Trace	0-17	SW
08-06-2011	Sunny	30	69-86	Trace	0-18	W
10-06-2011	Sunny	29	58-84	0.0	0-16	SE
12-06-2011	Fine	26	76-98	28.4	0-21	W
13-06-2011	Fine	29	74-90	5.9	0-14	W
14-06-2011	Fine	29	66-83	2.4	0-14	SW
16-06-2011	Sunny	26	80-98	64.7	0-21	S
17-06-2011	Cloudy	28	88-98	77.5	0-18	E
18-06-2011	Fine	29	65-91	1.2	0-18	E
19-06-2011	Sunny	30	67-90	Trace	1-18	E
20-06-2011	Sunny	30	58-87	0.0	0-18	E
22-06-2011	Cloudy	27	83-97	41.4	0-30	SE
24-06-2011	Sunny	28	76-91	0.6	7-28	SE
26-06-2011	Sunny	29	74-87	Trace	1-16	W
28-06-2011	Cloudy	27	83-98	106.6	0-15	W
30-06-2011	Cloudy	27	80-98	5.3	0-22	SE

Date	Weather	Tsing Yi Station				
		Average Air Temperature (°C)	Average Relative Humidity (%) *	Total Rainfall (mm)	Average Wind Speed (km/h)	Wind Direction
01-06-2011	Sunny	28	55-84	0.0	0-18	SE
02-06-2011	Sunny	28	70-84	0.0	0-15	SE
03-06-2011	Sunny	28	62-84	0.0	2-14	SE
04-06-2011	Sunny	29	64-84	0.0	3-18	SE
05-06-2011	Sunny	30	68-83	0.0	2-16	SE
07-06-2011	Fine	30	68-80	Trace	3-15	SE
08-06-2011	Sunny	30	69-86	Trace	2-18	SE
10-06-2011	Sunny	30	58-84	0.0	1-20	SE
12-06-2011	Fine	26	76-98	28.4	0-21	SE
13-06-2011	Fine	29	74-90	5.9	0-21	SE
14-06-2011	Fine	30	66-83	2.4	0-18	SE
16-06-2011	Sunny	27	80-98	64.7	3-26	SE
17-06-2011	Cloudy	28	88-98	77.5	0-30	SE
18-06-2011	Fine	30	65-91	1.2	1-23	SE
19-06-2011	Sunny	30	67-90	Trace	3-23	SE
20-06-2011	Sunny	31	58-87	0.0	0-19	SE
22-06-2011	Cloudy	27	83-97	41.4	4-25	SE
24-06-2011	Sunny	28	76-91	0.6	3-27	SE
26-06-2011	Sunny	28	74-87	Trace	1-16	SE
28-06-2011	Cloudy	27	83-98	106.6	0-18	SE
30-06-2011	Cloudy	28	80-98	5.3	0-32	SE

Date	Weather	Kai Tak Station				
		Average Air Temperature (°C) *	Average Relative Humidity (%) *	Total Rainfall (mm) *	Average Wind Speed (km/h)	Wind Direction
01-06-2011	Sunny	28	55-84	0.0	0-25	E
02-06-2011	Sunny	28	70-84	0.0	0-18	SW
03-06-2011	Sunny	28	62-84	0.0	0-22	SE
04-06-2011	Sunny	29	64-84	0.0	0-12	SW
05-06-2011	Sunny	30	68-83	0.0	0-15	SE
07-06-2011	Fine	30	68-80	Trace	0-17	SW
08-06-2011	Sunny	30	69-86	Trace	1-18	SW
10-06-2011	Sunny	29	58-84	0.0	0-27	SE
12-06-2011	Fine	26	76-98	28.4	0-23	W
13-06-2011	Fine	29	74-90	5.9	0-15	SE
14-06-2011	Fine	29	66-83	2.4	0-13	S
16-06-2011	Sunny	26	80-98	64.7	0-27	S
17-06-2011	Cloudy	28	88-98	77.5	0-27	SE
18-06-2011	Fine	29	65-91	1.2	0-23	SE
19-06-2011	Sunny	30	67-90	Trace	4-25	SE
20-06-2011	Sunny	30	58-87	0.0	6-23	SE
22-06-2011	Cloudy	27	83-97	41.4	5-48	E
24-06-2011	Sunny	28	76-91	0.6	13-34	E
26-06-2011	Sunny	29	74-87	Trace	0-22	SW
28-06-2011	Cloudy	27	83-98	106.6	0-24	SW
30-06-2011	Cloudy	27	80-98	5.3	0-30	E

Date	Weather	Green Island Station				
		Average Air Temperature (°C) *	Average Relative Humidity (%) *	Total Rainfall (mm) *	Average Wind Speed (km/h)	Wind Direction
01-06-2011	Sunny	28	55-84	0.0	4-37	NE
02-06-2011	Sunny	28	70-84	0.0	3-30	S
03-06-2011	Sunny	28	62-84	0.0	9-25	S
04-06-2011	Sunny	29	64-84	0.0	9-26	S
05-06-2011	Sunny	30	68-83	0.0	12-28	S
07-06-2011	Fine	30	68-80	Trace	14-31	S
08-06-2011	Sunny	30	69-86	Trace	9-30	S
10-06-2011	Sunny	29	58-84	0.0	0-34	S
12-06-2011	Fine	26	76-98	28.4	0-35	S
13-06-2011	Fine	29	74-90	5.9	3-32	S
14-06-2011	Fine	29	66-83	2.4	0-33	S
16-06-2011	Sunny	26	80-98	64.7	5-40	S
17-06-2011	Cloudy	28	88-98	77.5	5-43	NE
18-06-2011	Fine	29	65-91	1.2	3-30	E
19-06-2011	Sunny	30	67-90	Trace	8-29	SE
20-06-2011	Sunny	30	58-87	0.0	3-30	S
22-06-2011	Cloudy	27	83-97	41.4	18-53	NE
24-06-2011	Sunny	28	76-91	0.6	13-40	NE
26-06-2011	Sunny	29	74-87	Trace	5-30	W
28-06-2011	Cloudy	27	83-98	106.6	2-40	W
30-06-2011	Cloudy	27	80-98	5.3	1-55	SE

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

Meteorological Data Extracted from the Hong Kong Observatory

Date	Weather	King's Park Station				
		Average Air Temperature (°C)	Average Relative Humidity (%)	Total Rainfall (mm)	Average Wind Speed (km/h)	Wind Direction
03-07-2011	Sunny	30	66-83	Trace	0-13	SW
04-07-2011	Sunny	30	64-83	0.0	0-15	W
06-07-2011	Sunny	30	58-82	0.0	0-16	W
09-07-2011	Sunny	30	65-86	0.0	2-15	W
10-07-2011	Sunny	30	63-89	Trace	0-15	W
12-07-2011	Cloudy	28	79-95	10.9	0-14	SW
15-07-2011	Cloudy	27	86-98	34.9	0-18	E
17-07-2011	Fine	28	72-91	0.2	0-15	W
18-07-2011	Cloudy	28	74-90	4.3	0-15	W
19-07-2011	Cloudy	28	74-95	5.6	0-14	W
21-07-2011	Fine	29	66-90	0.0	0-14	W
22-07-2011	Sunny	29	64-97	4.2	0-14	W
23-07-2011	Sunny	29	60-88	0.0	0-15	S
24-07-2011	Sunny	29	65-88	0.0	0-16	W
27-07-2011	Sunny	30	60-88	Trace	3-18	E
28-07-2011	Sunny	30	61-82	Trace	0-21	SW
29-07-2011	Fine	28	76-95	12.4	0-31	E
30-07-2011	Fine	29	76-90	Trace	0-28	E
31-07-2011	Sunny	29	67-89	0.0	0-17	E

Date	Weather	Tsing Yi Station				
		Average Air Temperature (°C)	Average Relative Humidity (%) *	Total Rainfall (mm)	Average Wind Speed (km/h)	Wind Direction
03-07-2011	Sunny	30	66-83	Trace	4-16	SE
04-07-2011	Sunny	30	64-83	0.0	1-15	SE
06-07-2011	Sunny	30	58-82	0.0	0-14	SE
09-07-2011	Sunny	30	65-86	0.0	0-15	SE
10-07-2011	Sunny	31	63-89	Trace	0-14	SE
12-07-2011	Cloudy	28	79-95	10.9	0-21	SE
15-07-2011	Cloudy	28	86-98	34.9	0-15	E
17-07-2011	Fine	28	72-91	0.2	0-24	W
18-07-2011	Cloudy	28	74-90	4.3	0-16	SE
19-07-2011	Cloudy	27	74-95	5.6	0-15	SE
21-07-2011	Fine	28	66-90	0.0	0-14	SE
22-07-2011	Sunny	29	64-97	4.2	0-18	SE
23-07-2011	Sunny	29	60-88	0.0	0-17	SE
24-07-2011	Sunny	29	65-88	0.0	0-13	SE
27-07-2011	Sunny	31	60-88	Trace	1-18	SE
28-07-2011	Sunny	30	61-82	Trace	0-25	SE
29-07-2011	Fine	28	76-95	12.4	3-25	SE
30-07-2011	Fine	29	76-90	Trace	2-26	SE
31-07-2011	Sunny	30	67-89	0.0	3-26	SE

Date	Weather	Kai Tak Station				
		Average Air Temperature (°C) *	Average Relative Humidity (%) *	Total Rainfall (mm) *	Average Wind Speed (km/h)	Wind Direction
03-07-2011	Sunny	30	66-83	Trace	1-16	S
04-07-2011	Sunny	30	64-83	0.0	1-16	SW
06-07-2011	Sunny	30	58-82	0.0	1-20	SW
09-07-2011	Sunny	30	65-86	0.0	4-19	SW
10-07-2011	Sunny	30	63-89	Trace	0-21	SW
12-07-2011	Cloudy	28	79-95	10.9	0-22	S
15-07-2011	Cloudy	27	86-98	34.9	0-24	SE
17-07-2011	Fine	28	72-91	0.2	3-30	SW
18-07-2011	Cloudy	28	74-90	4.3	0-24	SW
19-07-2011	Cloudy	28	74-95	5.6	0-19	SW
21-07-2011	Fine	29	66-90	0.0	0-16	SW
22-07-2011	Sunny	29	64-97	4.2	0-17	SW
23-07-2011	Sunny	29	60-88	0.0	0-18	SE
24-07-2011	Sunny	29	65-88	0.0	0-13	SW
27-07-2011	Sunny	30	60-88	Trace	3-19	SE
28-07-2011	Sunny	30	61-82	Trace	0-21	E
29-07-2011	Fine	28	76-95	12.4	5-40	E
30-07-2011	Fine	29	76-90	Trace	6-29	E
31-07-2011	Sunny	29	67-89	0.0	2-20	E

Date	Weather	Green Island Station				
		Average Air Temperature (°C) *	Average Relative Humidity (%) *	Total Rainfall (mm) *	Average Wind Speed (km/h)	Wind Direction
03-07-2011	Sunny	30	66-83	Trace	14-27	S
04-07-2011	Sunny	30	64-83	0.0	10-27	S
06-07-2011	Sunny	30	58-82	0.0	1-25	S
09-07-2011	Sunny	30	65-86	0.0	3-25	S
10-07-2011	Sunny	30	63-89	Trace	3-27	S
12-07-2011	Cloudy	28	79-95	10.9	0-28	S
15-07-2011	Cloudy	27	86-98	34.9	0-31	NE
17-07-2011	Fine	28	72-91	0.2	11-38	SW
18-07-2011	Cloudy	28	74-90	4.3	4-28	S
19-07-2011	Cloudy	28	74-95	5.6	0-27	S
21-07-2011	Fine	29	66-90	0.0	6-27	S
22-07-2011	Sunny	29	64-97	4.2	10-31	SE
23-07-2011	Sunny	29	60-88	0.0	8-26	N
24-07-2011	Sunny	29	65-88	0.0	0-23	NW
27-07-2011	Sunny	30	60-88	Trace	5-30	NE
28-07-2011	Sunny	30	61-82	Trace	0-35	NE
29-07-2011	Fine	28	76-95	12.4	10-60	NE
30-07-2011	Fine	29	76-90	Trace	5-30	NE
31-07-2011	Sunny	29	67-89	0.0	3-27	NE

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

Meteorological Data Extracted from the Hong Kong Observatory

Date	Weather	King's Park Station				
		Average Air Temperature (°C)	Average Relative Humidity (%)	Total Rainfall (mm)	Average Wind Speed (km/h)	Wind Direction
02-08-2011	Sunny	28	55-89	0.0	0-14	W
03-08-2011	Sunny	30	58-89	0.0	4-15	W
04-08-2011	Sunny	30	62-88	0.0	1-15	W
07-08-2011	Fine	31	56-87	0.0	0-16	W
08-08-2011	Fine	29	68-93	22.1	0-18	W
09-08-2011	Fine	28	73-96	9.9	0-16	W
10-08-2011	Cloudy	27	85-97	60.5	0-16	E
13-08-2011	Sunny	30	60-84	0.0	0-16	W
14-08-2011	Sunny	30	50-86	Trace	0-15	W
15-08-2011	Sunny	30	66-86	0.0	0-16	W
16-08-2011	Sunny	30	61-90	8.5	0-16	W
19-08-2011	Sunny	30	62-88	0.0	0-18	E
21-08-2011	Sunny	30	70-87	Trace	0-15	E
22-08-2011	Sunny	29	74-90	1.4	0-12	W
23-08-2011	Fine	30	64-86	0.0	0-12	W
25-08-2011	Sunny	29	67-92	13.7	0-15	W
27-08-2011	Sunny	30	59-90	5.2	0-14	W
28-08-2011	Sunny	31	60-80	0.0	0-14	W
30-08-2011	Fine	31	52-83	0.0	0-18	W
31-08-2011	Sunny	31	51-82	0.5	0-18	W

Date	Weather	Tsing Yi Station				
		Average Air Temperature (°C)	Average Relative Humidity (%) *	Total Rainfall (mm)	Average Wind Speed (km/h)	Wind Direction
02-08-2011	Sunny	30	55-89	0.0	0-14	S
03-08-2011	Sunny	29	58-89	0.0	0-14	NW
04-08-2011	Sunny	29	62-88	0.0	0-14	NW
07-08-2011	Fine	30	56-87	0.0	0-14	S
08-08-2011	Fine	29	68-93	22.1	0-16	S
09-08-2011	Fine	28	73-96	9.9	2-16	SE
10-08-2011	Cloudy	27	85-97	60.5	1-15	E
13-08-2011	Sunny	29	60-84	0.0	0-14	SE
14-08-2011	Sunny	29	50-86	Trace	0-14	E
15-08-2011	Sunny	29	66-86	0.0	0-12	SE
16-08-2011	Sunny	29	61-90	8.5	0-14	SE
19-08-2011	Sunny	31	62-88	0.0	0-21	E
21-08-2011	Sunny	29	70-87	Trace	0-21	NW
22-08-2011	Sunny	29	74-90	1.4	0-21	S
23-08-2011	Fine	29	64-86	0.0	0-15	SE
25-08-2011	Sunny	29	67-92	13.7	0-14	W
27-08-2011	Sunny	30	59-90	5.2	0-14	SW
28-08-2011	Sunny	30	60-80	0.0	0-21	NW
30-08-2011	Fine	30	52-83	0.0	0-21	NW
31-08-2011	Sunny	32	51-82	0.5	0-21	NW

Date	Weather	Kai Tak Station				
		Average Air Temperature (°C) *	Average Relative Humidity (%) *	Total Rainfall (mm) *	Average Wind Speed (km/h)	Wind Direction
02-08-2011	Sunny	28	55-89	0.0	0-14	SW
03-08-2011	Sunny	30	58-89	0.0	4-18	W
04-08-2011	Sunny	30	62-88	0.0	6-17	W
07-08-2011	Fine	31	56-87	0.0	2-14	SW
08-08-2011	Fine	29	68-93	22.1	0-24	SW
09-08-2011	Fine	28	73-96	9.9	0-16	SW
10-08-2011	Cloudy	27	85-97	60.5	0-21	E
13-08-2011	Sunny	30	60-84	0.0	0-14	SE
14-08-2011	Sunny	30	50-86	Trace	0-14	SE
15-08-2011	Sunny	30	66-86	0.0	0-12	SE
16-08-2011	Sunny	30	61-90	8.5	0-14	N
19-08-2011	Sunny	30	62-88	0.0	2-16	E
21-08-2011	Sunny	30	70-87	Trace	2-18	SE
22-08-2011	Sunny	29	74-90	1.4	0-18	SE
23-08-2011	Fine	30	64-86	0.0	0-15	SE
25-08-2011	Sunny	29	67-92	13.7	1-18	S
27-08-2011	Fine	30	59-90	5.2	0-18	SE
28-08-2011	Sunny	31	60-80	0.0	0-15	NW
30-08-2011	Fine	31	52-83	0.0	0-25	W
31-08-2011	Sunny	31	51-82	0.5	3-27	W

Date	Weather	Green Island Station				
		Average Air Temperature (°C) *	Average Relative Humidity (%) *	Total Rainfall (mm) *	Average Wind Speed (km/h)	Wind Direction
02-08-2011	Sunny	28	55-89	0.0	0-24	SW
03-08-2011	Sunny	30	58-89	0.0	0-24	NW
04-08-2011	Sunny	30	62-88	0.0	0-27	S
07-08-2011	Fine	31	56-87	0.0	0-24	S
08-08-2011	Fine	29	68-93	22.1	0-40	S
09-08-2011	Fine	28	73-96	9.9	3-33	S
10-08-2011	Cloudy	27	85-97	60.5	0-21	SE
13-08-2011	Sunny	30	60-84	0.0	1-21	S
14-08-2011	Sunny	30	50-86	Trace	0-24	S
15-08-2011	Sunny	30	66-86	0.0	3-21	S
16-08-2011	Sunny	30	61-90	8.5	1-24	S
19-08-2011	Sunny	30	62-88	0.0	3-27	NE
21-08-2011	Sunny	30	70-87	Trace	0-27	NE
22-08-2011	Sunny	29	74-90	1.4	0-25	S
23-08-2011	Fine	30	64-86	0.0	1-21	S
25-08-2011	Sunny	29	67-92	13.7	0-21	NW
27-08-2011	Sunny	30	59-90	5.2	0-24	S
28-08-2011	Sunny	31	60-80	0.0	0-24	NW
30-08-2011	Fine	31	52-83	0.0	3-27	NW
31-08-2011	Sunny	31	51-82	0.5	3-21	NW

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

Annex F5 Noise Monitoring Results

Daytime Noise Monitoring Results

Station NM4

Date	Start Time	End Time	Weather	Noise level (dB(A)), 30 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							
02-Aug-11	10:30	11:00	Sunny	67.9	69.0	66.8	Excavation work, Lifting (Near site)	Traffic Noise	-	31	0.2	RION- NL31 (S/N 00983400)	RION - NC73 (S/N 10997142)
08-Aug-11	10:30	11:00	Sunny	68.1	69.4	66.7	Excavation work, Lifting (Near site)	Traffic Noise	-	32	0.2	RION- NL31 (S/N 00983400)	RION - NC73 (S/N 10997142)
19-Aug-11	10:25	10:55	Sunny	68.5	69.5	67.2	Excavation work, Lifting (Near site)	Traffic Noise	-	31	0.5	RION- NL31 (S/N 00983400)	RION - NC73 (S/N 10997142)
25-Aug-11	14:32	15:02	Sunny	67.8	69.2	66.1	-	Traffic Noise	-	31	0.2	RION- NL31 (S/N 00983400)	RION - NC73 (S/N 10997142)
31-Aug-11	14:37	15:07	Sunny	69.0	70.6	67.1	-	Traffic Noise	-	31	0.2	RION- NL31 (S/N 00983400)	RION - NC73 (S/N 10997142)
				Min.	67.8								
				Max.	69.0								

Annex F5 Noise Monitoring Results

Restricted Hours Noise Monitoring Results^[1]

Station NM4

Date	Start Time	End Time	Weather	Noise level (dB(A)), 5 min			Major Construction Noise Source(s)	Other Noise Source(s)	Remarks	Temp. (°C)	Wind Speed (m/s)	Noise Meter Model / ID	Calibrator Model / ID
				Leq	L10	L90							
16-Jul-11	6:02	6:07	Cloudy	62.9	64.7	60.2	No outdoor construction noise	Mainly traffic noise	-	30	0.2	RION- NL31 (S/N 00983400)	RION - NC73 (S/N 10997142)
	6:07	6:12	Cloudy	63.2	64.8	61.1			-				
	6:12	6:17	Cloudy	63.0	64.6	60.9			-				
	6:02	6:17	Cloudy	63.0	64.7	60.8			-				
24-Jul-11	8:55	9:00	Sunny	64.4	65.9	62.2	No outdoor construction noise	Mainly traffic noise	-	29	0.2	RION- NL31 (S/N 00983400)	RION - NC73 (S/N 10997142)
	9:00	9:05	Sunny	66.0	66.5	62.0			-				
	9:05	9:10	Sunny	64.2	65.5	62.4			-				
	8:55	9:10	Sunny	64.9	66.0	62.2			-				
30-Jul-11	6:01	6:06	Fine	61.8	63.7	59.4	No outdoor construction noise	Mainly traffic noise	-	29	0.2	RION- NL31 (S/N 00983400)	RION - NC73 (S/N 10997142)
	6:06	6:11	Fine	62.0	63.7	59.9			-				
	6:11	6:16	Fine	62.7	64.8	60.2			-				
	6:01	6:16	Fine	62.2	64.1	59.8			-				
			Min.	61.8									
			Max.	66.0									

[1] The monitoring data on 16 and 30 July morning are for the restricted hour of previous day (15 and 29 July respectively)

Annex F5 Noise Monitoring Results

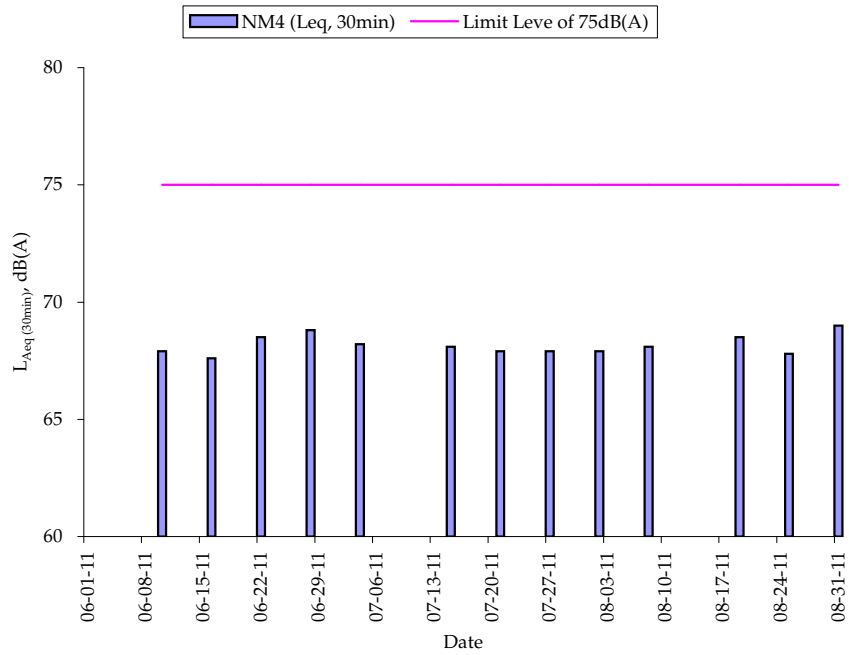
Restricted Hours Noise Monitoring Results^[1]

Station NM4

Date	Start Time	End Time	Weather	Noise level (dB(A)), 5 min			Major Construction Noise Source(s)	Other Noise Source(s)	Remarks	Temp. (°C)	Wind Speed (m/s)	Noise Meter Model / ID	Calibrator Model / ID
				Leq	L10	L90							
05-Aug-11	6:00	6:05	Fine	61.4	63.2	59.1	No outdoor construction noise	Mainly traffic noise	-	32	0.2	RION- NL31 (S/N 00983400)	RION - NC73 (S/N 10997142)
	6:05	6:10	Fine	63.1	64.8	61.3			-				
	6:10	6:15	Fine	62.5	64.1	60.9			-				
	6:00	6:15	Fine	62.4	64.1	60.5			-				
07-Aug-11	8:29	8:34	Fine	63.6	65.4	61.7	No outdoor construction noise	Mainly traffic noise	-	31	0.2	RION- NL31 (S/N 00983400)	RION - NC73 (S/N 10997142)
	8:34	8:39	Fine	64.1	66.3	61.6			-				
	8:39	8:44	Fine	65.1	66.7	63.1			-				
	8:29	8:44	Fine	64.3	66.2	62.2			-				
17-Aug-11	6:40	6:45	Fine	63.5	65.3	60.6	No outdoor construction noise	Mainly traffic noise	-	31	0.3	RION- NL31 (S/N 00983400)	RION - NC73 (S/N 10997142)
	6:45	6:50	Fine	63.5	65.3	61.0			-				
	6:50	6:55	Fine	63.6	64.7	62.2			-				
	6:40	6:55	Fine	63.5	65.1	61.3			-				
21-Aug-11	9:46	9:51	Sunny	63.8	65.7	61.4	No outdoor construction noise	Mainly traffic noise	-	31	0.2	RION- NL31 (S/N 00983400)	RION - NC73 (S/N 10997142)
	9:51	9:56	Sunny	64.0	65.0	61.8			-				
	9:56	10:01	Sunny	64.1	66.5	61.2			-				
	9:46	10:01	Sunny	64.0	65.8	61.5			-				
30-Aug-11	23:00	23:05	Fine	62.5	63.9	60.8	No outdoor construction noise	Mainly traffic noise	-	31	0.2	RION- NL31 (S/N 00983400)	RION - NC73 (S/N 10997142)
	23:05	23:10	Fine	62.1	64.1	60.1			-				
	23:10	23:15	Fine	62.7	63.9	61.1			-				
	23:00	23:15	Fine	62.4	64.0	60.7			-				
				Min.	61.4								
				Max.	65.1								

[1] The monitoring data on 5 and 17 August morning are for the restricted hour of previous day (4 and 16 August respectively)

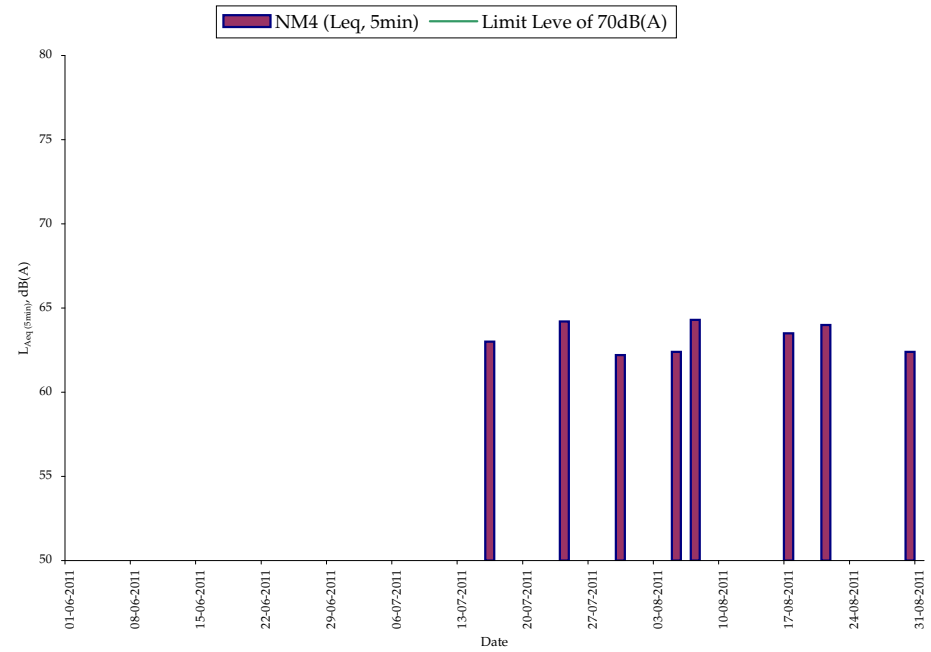
Normal Weekdays Noise Monitoring Results at NM4 ($L_{eq, 30min}$)



Remark:

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

Restricted Hours Noise Monitoring Results at NM4 ($L_{eq, 5min}$)



Remark:

- 70dB(A) was adopted as the Limit Level during restricted hours in the reporting period
 - 55dB(A) was adopted as the Limit Level during night time in the reporting period

Annex F6 Cumulative Complaint and Summons/Prosecutions Log

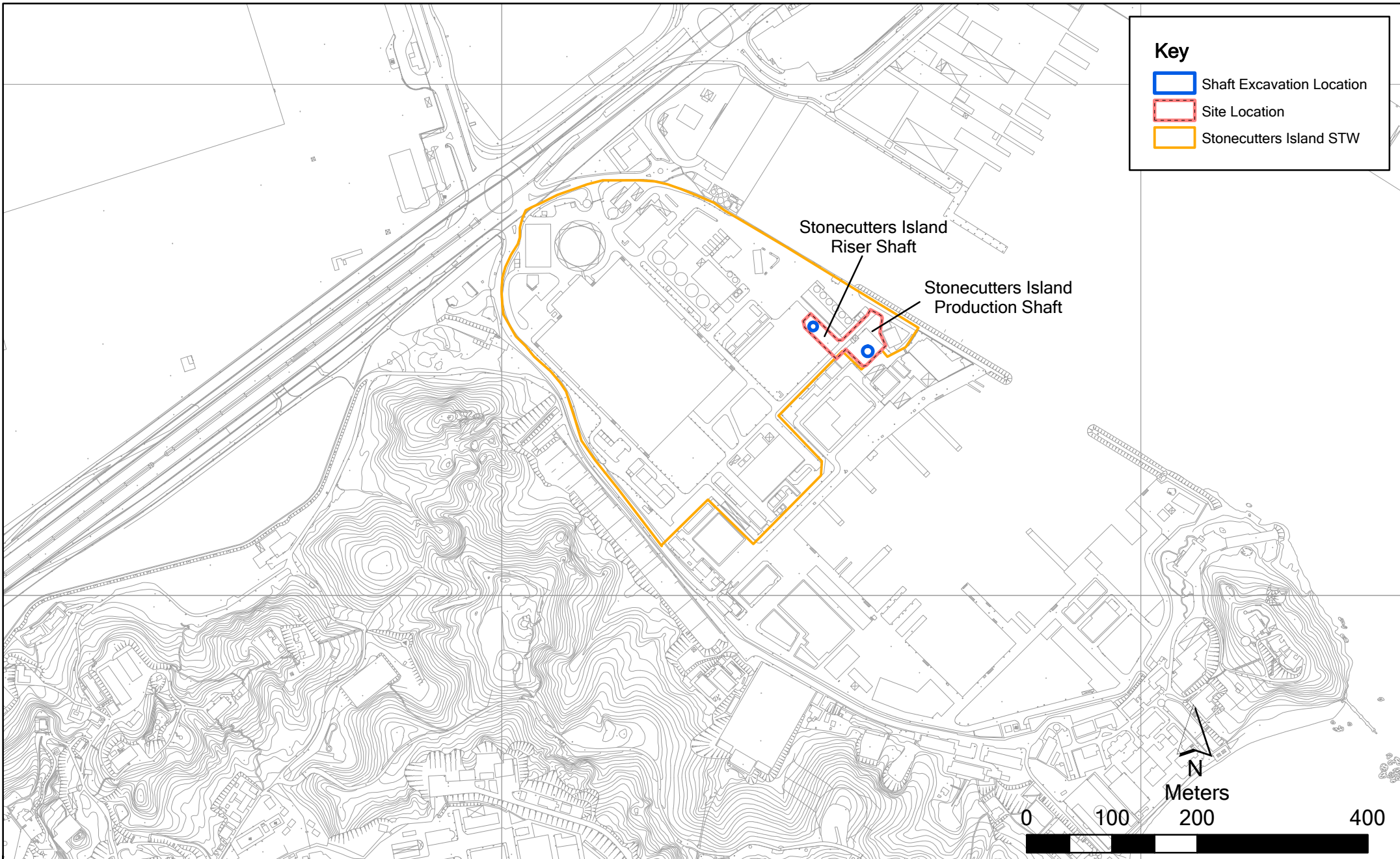
Reporting Month	Number of Complaints in Reporting Month	Number of Summons/Prosecutions in Reporting Month
December 2009	0	0
January 2010	0	0
February 2010	1	0
March 2010	0	0
April 2010	1	0
May 2010	2	0
June 2010	0	0
July 2010	1	0
August 2010	0	0
September 2010	0	0
October 2010	0	0
November 2010	0	0
December 2010	0	0
January 2011	0	0
February 2011	0	0
March 2011	0	0
April 2011	0	0
May 2011	0	0

Annex F6 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
Overall Total	5	0

Annex G

Stonecutters Island Production and Riser Shafts



Key

- Shaft Excavation Location
- Site Location
- Stonecutters Island STW

Stonecutters Island
Riser Shaft

Stonecutters Island
Production Shaft



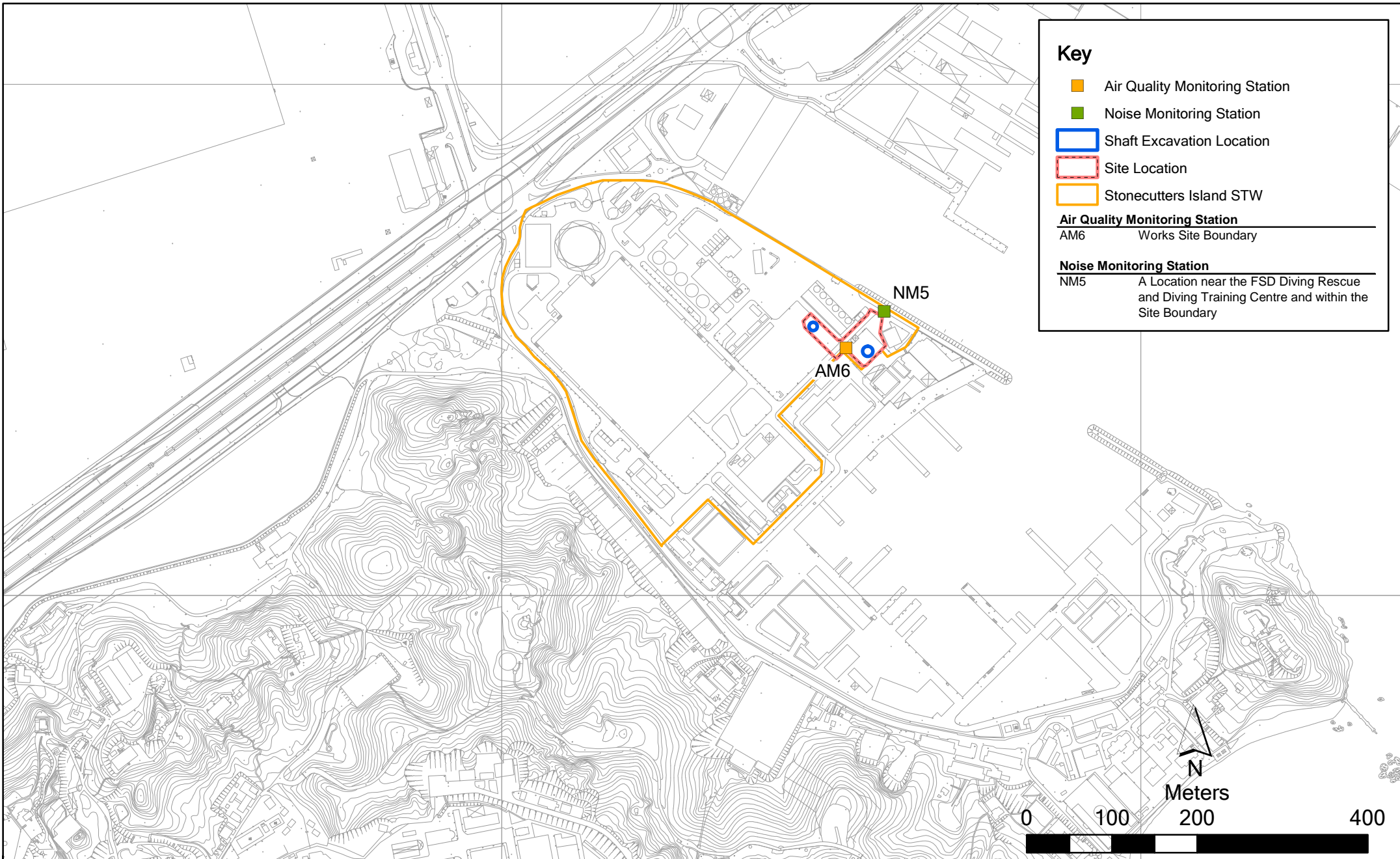
Annex G1

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





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 G3- SUMMARY OF MITIGATION MEASURES IMPLEMENTATION SCHEDULE

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 minimize 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 G3- SUMMARY OF MITIGATION MEASURES IMPLEMENTATION SCHEDULE

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 minimize 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 deodorization system, the extraction vent(s) of the deodorization 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 deodorization 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 G3- SUMMARY OF MITIGATION MEASURES IMPLEMENTATION SCHEDULE

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 utilized 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 G3- SUMMARY OF MITIGATION MEASURES IMPLEMENTATION SCHEDULE

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	√

ANNEX G3- SUMMARY OF MITIGATION MEASURES IMPLEMENTATION SCHEDULE

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 G3- SUMMARY OF MITIGATION MEASURES IMPLEMENTATION SCHEDULE

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 minimize 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 G3- SUMMARY OF MITIGATION MEASURES IMPLEMENTATION SCHEDULE

Type of Impact	Environmental Protection Measures	Location/ Timing	Status
Water Quality	<p>Temporary Sewage Bypass</p> <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 minimize 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 minimize the impact of temporary discharges. Details are provided in the standalone EM&A Manual.</p>	SCISTW/ construction period	√
<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 minimize 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

ANNEX G3- SUMMARY OF MITIGATION MEASURES IMPLEMENTATION SCHEDULE

Type of Impact	Environmental Protection Measures	Location/ Timing	Status
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
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 m ³ /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 km ² 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 oxidized 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 / minimize the potential TIN exceedances.	SCISTW / Operation Stage	NA. Measures not required until commencement of operational phase
<i>Construction Phase</i>			

ANNEX G3- SUMMARY OF MITIGATION MEASURES IMPLEMENTATION SCHEDULE

Type of Impact	Environmental Protection Measures	Location/ Timing	Status
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 minimize 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	<>
Waste	Recommendations to achieve waste reduction include: <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	√

ANNEX G3- SUMMARY OF MITIGATION MEASURES IMPLEMENTATION SCHEDULE

Type of Impact	Environmental Protection Measures	Location/ Timing	Status
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	√
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	√

ANNEX G3- SUMMARY OF MITIGATION MEASURES IMPLEMENTATION SCHEDULE

Type of Impact	Environmental Protection Measures	Location/ Timing	Status
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, oxidizing, 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>			
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

ANNEX G3- SUMMARY OF MITIGATION MEASURES IMPLEMENTATION SCHEDULE

Type of Impact	Environmental Protection Measures	Location/ Timing	Status
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 harmonize 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 G3- SUMMARY OF MITIGATION MEASURES IMPLEMENTATION SCHEDULE

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 15.10 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 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
02-Jun-11	13:05	14:05	Sunny	196	346	500	Construction work in progress	29	<5	1254	8832
	14:07	15:07	Sunny	201	346	500	Construction work in progress	29	<5	1254	8833
	15:09	16:09	Sunny	195	346	500	Construction work in progress	29	<5	1254	8834
08-Jun-11	13:08	14:08	Sunny	163	346	500	Construction work in progress	30	<5	1254	8836
	14:10	15:10	Sunny	180	346	500	Construction work in progress	30	<5	1254	8837
	15:12	16:12	Sunny	190	346	500	Construction work in progress	30	<5	1254	8838
14-Jun-11	13:00	14:00	Fine	183	346	500	Construction work in progress	31	<5	1254	9064
	14:02	15:02	Fine	190	346	500	Construction work in progress	31	<5	1254	9065
	15:04	16:04	Fine	182	346	500	Construction work in progress	31	<5	1254	9066
20-Jun-11	13:20	14:20	Sunny	164	346	500	Construction work in progress	31	<5	1254	9067
	14:22	15:22	Sunny	178	346	500	Construction work in progress	31	<5	1254	9068
	15:24	16:24	Sunny	215	346	500	Construction work in progress	31	<5	1254	9069
24-Jun-11	13:20	14:20	Sunny	195	346	500	Construction work in progress	31	<5	1254	9147
	14:22	15:22	Sunny	171	346	500	Construction work in progress	31	<5	1254	9148
	15:24	16:24	Sunny	154	346	500	Construction work in progress	31	<5	1254	9149
30-Jun-11	13:15	14:15	Rainy	157	346	500	Construction work in progress	29	<5	1254	9151
	14:17	15:17	Rainy	157	346	500	Construction work in progress	29	<5	1254	9152
	15:19	16:19	Rainy	125	346	500	Construction work in progress	29	<5	1254	9153
				Min.	125						
				Max.	215						
				Average	176						

* Wind Speed data is presented in the Meteorological Data table

Annex G4 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
06-Jul-11	13:10	14:10	Sunny	125	346	500	Construction work in progress	32	<5	1254	9155
	14:12	15:12	Sunny	119	346	500	Construction work in progress	32	<5	1254	9156
	15:14	16:14	Sunny	152	346	500	Construction work in progress	32	<5	1254	9157
12-Jul-11	13:00	14:00	Rainy	142	346	500	Construction work in progress	29	<5	1254	9159
	14:02	15:02	Rainy	192	346	500	Construction work in progress	29	<5	1254	9160
	15:04	16:04	Rainy	163	346	500	Construction work in progress	29	<5	1254	9161
18-Jul-11	13:05	14:05	Cloudy	160	346	500	Construction work in progress	29	<5	1254	9163
	14:07	15:07	Cloudy	175	346	500	Construction work in progress	29	<5	1254	9164
	15:09	16:09	Cloudy	173	346	500	Construction work in progress	29	<5	1254	9165
22-Jul-11	13:00	14:00	Sunny	150	346	500	Construction work in progress	31	<5	1254	9166
	14:02	15:02	Sunny	154	346	500	Construction work in progress	31	<5	1254	9167
	15:04	16:04	Sunny	145	346	500	Construction work in progress	31	<5	1254	9168
28-Jul-11	13:10	14:10	Sunny	179	346	500	Construction work in progress	32	<5	1254	9381
	14:12	15:12	Sunny	195	346	500	Construction work in progress	32	<5	1254	9382
	15:14	16:14	Sunny	187	346	500	Construction work in progress	32	<5	1254	9383
			Min.	119							
			Max.	195							
			Average	163							

* Wind Speed data is presented in the Meteorological Data table

Annex G4 24-hour and 1-hour TSP Monitoring Results

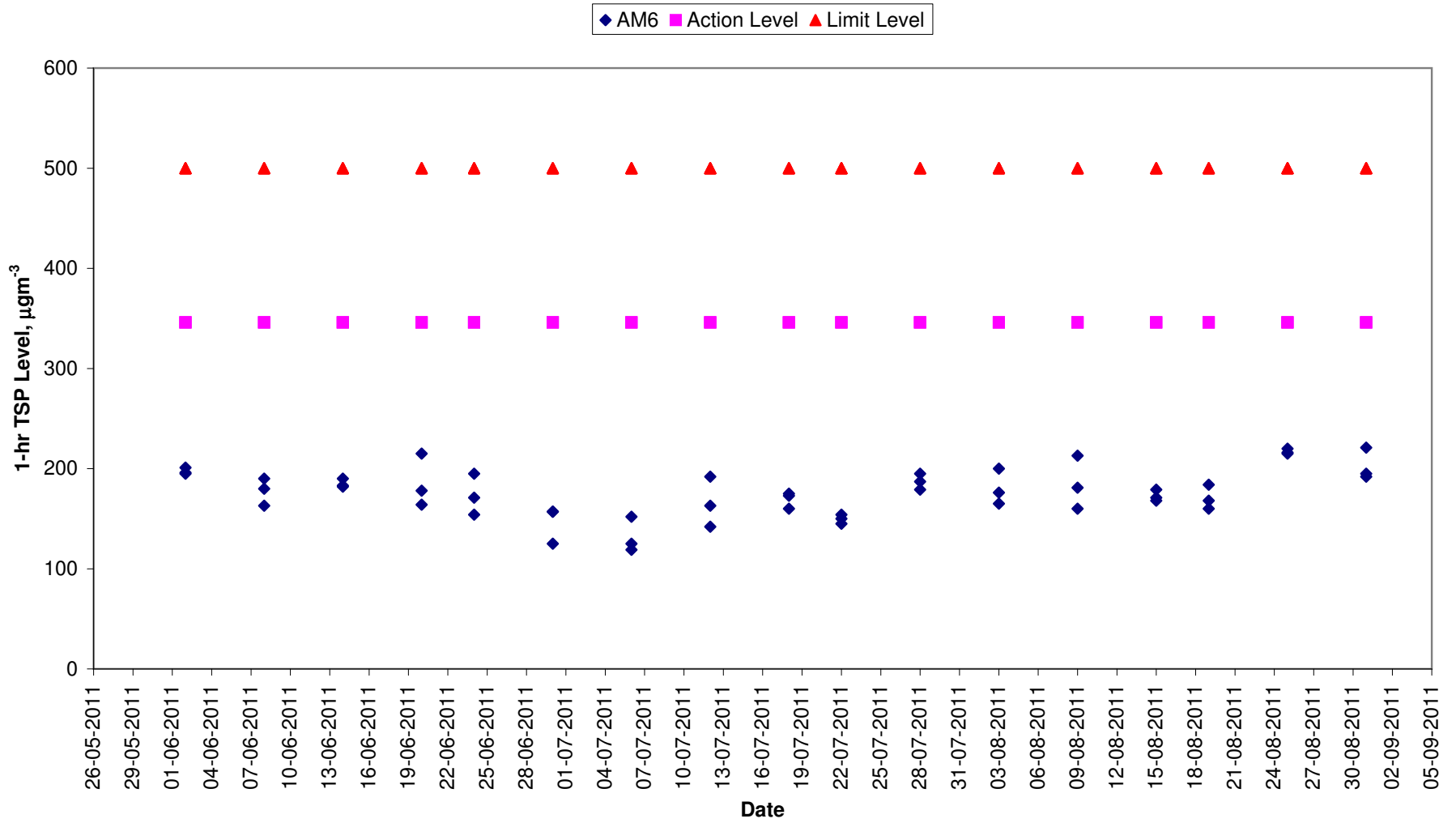
1-hour TSP Monitoring Results

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-Aug-11	13:00	14:00	Sunny	176	346	500	Construction work in progress	32	<5	1254	9385
	14:02	15:02	Sunny	165	346	500	Construction work in progress	32	<5	1254	9386
	15:04	16:04	Sunny	200	346	500	Construction work in progress	32	<5	1254	9387
09-Aug-11	13:10	14:10	Fine	213	346	500	Construction work in progress	31	<5	1254	9389
	14:12	15:12	Fine	181	346	500	Construction work in progress	31	<5	1254	9390
	15:14	16:14	Fine	160	346	500	Construction work in progress	31	<5	1254	9391
15-Aug-11	13:30	14:30	Sunny	171	346	500	Construction work in progress	31	<5	1254	9393
	14:32	15:32	Sunny	168	346	500	Construction work in progress	31	<5	1254	9394
	15:34	16:34	Sunny	179	346	500	Construction work in progress	31	<5	1254	9395
19-Aug-11	13:05	14:05	Sunny	160	346	500	Construction work in progress	31	<5	1254	9397
	14:07	15:07	Sunny	184	346	500	Construction work in progress	31	<5	1254	9398
	15:09	16:09	Sunny	168	346	500	Construction work in progress	31	<5	1254	9399
25-Aug-11	13:02	14:02	Sunny	216	346	500	Construction work in progress	31	<5	1254	9401
	14:22	15:22	Sunny	220	346	500	Construction work in progress	31	<5	1254	9402
	15:24	16:24	Sunny	215	346	500	Construction work in progress	31	<5	1254	9403
31-Aug-11	13:15	14:15	Sunny	192	346	500	Construction work in progress	33	<5	1254	9573
	14:17	15:17	Sunny	195	346	500	Construction work in progress	33	<5	1254	9574
	15:19	16:19	Sunny	221	346	500	Construction work in progress	33	<5	1254	9575
				Min.	160						
				Max.	221						
				Average	189						

* Wind Speed data is presented in the Meteorological Data table

1-hr TSP Level AM6 (Stonecutters Island Sewage Treatment Works)



Annex G4 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-Jun-11	16:11	03-Jun-11	16:11	Sunny	2.8496	3.0069	8166.03	8190.03	24.00	1.23	1.23	1.23	89	196	260	Construction work in progress	1254	8835			
08-Jun-11	16:14	09-Jun-11	16:14	Sunny	2.8700	3.0475	8193.03	8217.03	24.00	1.23	1.23	1.23	100	196	260	Construction work in progress	1254	8840			
14-Jun-11	16:06	15-Jun-11	16:06	Fine	2.8871	3.0357	8220.03	8244.03	24.00	1.23	1.23	1.23	84	196	260	Construction work in progress	1254	9063			
20-Jun-11	16:26	21-Jun-11	16:26	Sunny	2.8559	2.9972	8247.03	8271.03	24.00	1.23	1.23	1.23	80	196	260	Construction work in progress	1254	9070			
24-Jun-11	16:26	25-Jun-11	16:26	Sunny	2.8611	3.0114	8274.03	8298.03	24.00	1.23	1.23	1.23	85	196	260	Construction work in progress	1254	9150			
30-Jun-11	16:21	01-Jul-11	16:21	Rainy	2.8735	3.0011	8301.03	8325.03	24.00	1.23	1.23	1.23	72	196	260	Construction work in progress	1254	9154			
												Min.	72								
												Max.	100								
												Average	85								

Annex G4 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								
06-Jul-11	16:16	07-Jul-11	16:16	Sunny	2.8324	2.9772	8328.03	8352.03	24.00	1.23	1.23	1.23	82	196	260	Construction work in progress	1254	9158		
12-Jul-11	16:06	13-Jul-11	16:06	Rainy	2.8765	3.0177	8355.03	8379.03	24.00	1.23	1.23	1.23	80	196	260	Construction work in progress	1254	9162		
18-Jul-11	16:11	19-Jul-11	16:11	Cloudy	2.8556	3.0221	8382.03	8406.03	24.00	1.23	1.23	1.23	94	196	260	Construction work in progress	1254	9170		
22-Jul-11	16:06	23-Jul-11	16:06	Sunny	2.8490	2.9825	8409.03	8433.03	24.00	1.23	1.23	1.23	75	196	260	Construction work in progress	1254	9169		
28-Jul-11	16:16	29-Jul-11	16:16	Sunny	2.8724	3.0528	8436.03	8460.03	24.00	1.25	1.25	1.25	100	196	260	Construction work in progress	1254	9384		
												Min.	75							
												Max.	100							
												Average	86							

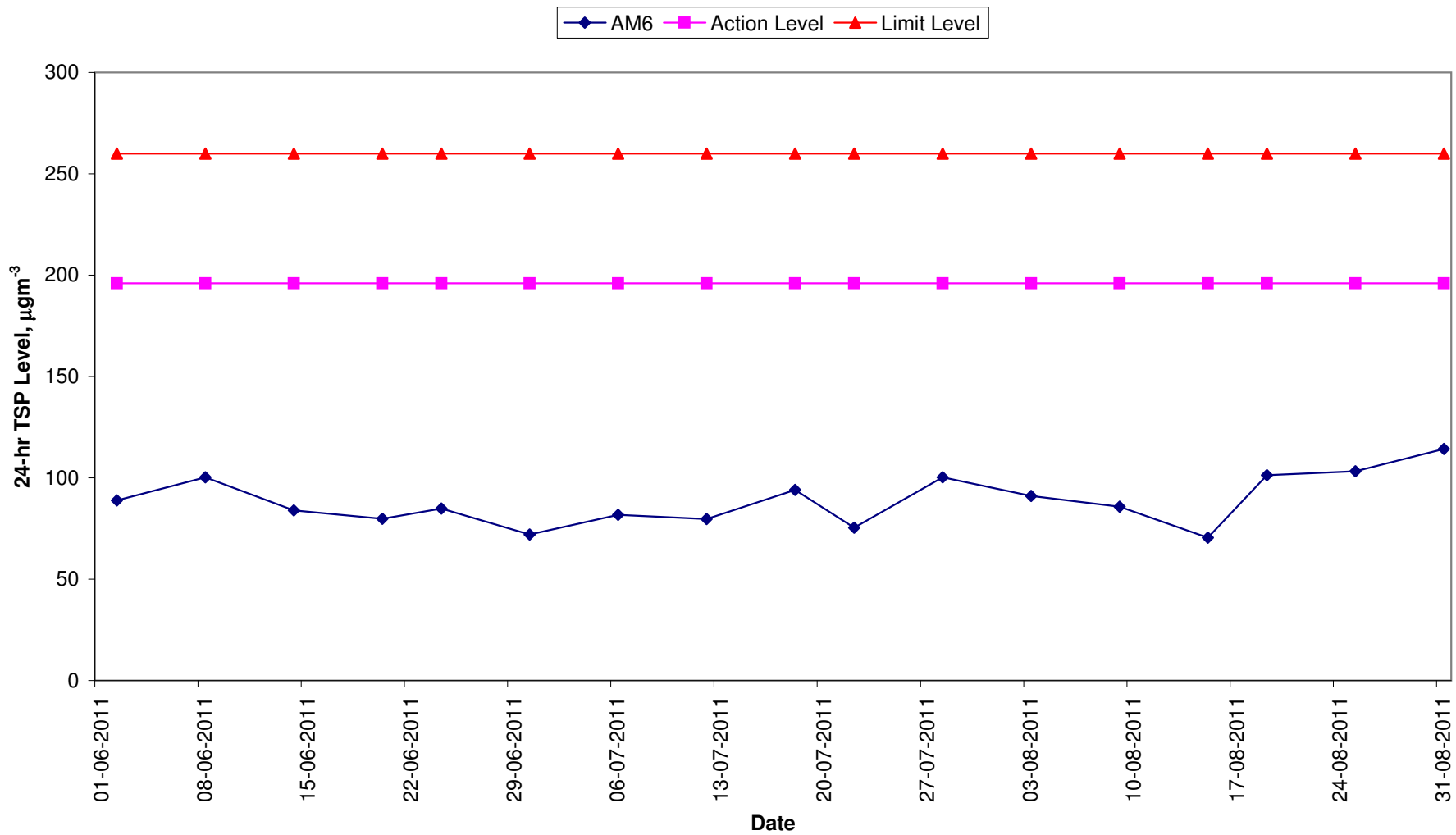
Annex G4 24-hour and 1-hour TSP Monitoring Results

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-Aug-11	16:06	04-Aug-11	16:06	Sunny	2.8339	2.9978	8463.03	8487.03	24.00	1.25	1.25	1.25	91	196	260	Construction work in progress	1254	9388		
09-Aug-11	16:10	10-Aug-11	16:10	Fine	2.8903	3.0447	8490.03	8514.03	24.00	1.25	1.25	1.25	86	196	260	Construction work in progress	1254	9392		
15-Aug-11	16:36	16-Aug-11	16:36	Sunny	2.8609	2.9877	8517.03	8541.03	24.00	1.25	1.25	1.25	70	196	260	Construction work in progress	1254	9396		
19-Aug-11	16:11	20-Aug-11	16:11	Sunny	2.8511	3.0334	8544.03	8568.03	24.00	1.25	1.25	1.25	101	196	260	Construction work in progress	1254	9400		
25-Aug-11	16:26	26-Aug-11	16:26	Sunny	2.8933	3.0792	8571.03	8595.03	24.00	1.25	1.25	1.25	103	196	260	Construction work in progress	1254	9404		
31-Aug-11	16:21	01-Sep-11	16:21	Sunny	2.8535	3.0591	8598.03	8622.03	24.00	1.25	1.25	1.25	114	196	260	Construction work in progress	1254	9576		
												Min.	70							
												Max.	114							
												Average	94							

24-hr TSP Level AM6 (Stonecutters Island Sewage Treatment Works)



Meteorological Data Extracted from the Hong Kong Observatory

Date	Weather	King's Park Station				
		Average Air Temperature (°C)	Average Relative Humidity (%)	Total Rainfall (mm)	Average Wind Speed (km/h)	Wind Direction
01-06-2011	Sunny	28	55-84	0.0	0-12	SW
02-06-2011	Sunny	28	70-84	0.0	0-14	SW
03-06-2011	Sunny	28	62-84	0.0	0-13	NE
04-06-2011	Sunny	29	64-84	0.0	0-14	S
05-06-2011	Sunny	30	68-83	0.0	0-17	S
07-06-2011	Fine	30	68-80	Trace	0-17	SW
08-06-2011	Sunny	30	69-86	Trace	0-18	W
10-06-2011	Sunny	29	58-84	0.0	0-16	SE
12-06-2011	Fine	26	76-98	28.4	0-21	W
13-06-2011	Fine	29	74-90	5.9	0-14	W
14-06-2011	Fine	29	66-83	2.4	0-14	SW
16-06-2011	Sunny	26	80-98	64.7	0-21	S
17-06-2011	Cloudy	28	88-98	77.5	0-18	E
18-06-2011	Fine	29	65-91	1.2	0-18	E
19-06-2011	Sunny	30	67-90	Trace	1-18	E
20-06-2011	Sunny	30	58-87	0.0	0-18	E
22-06-2011	Cloudy	27	83-97	41.4	0-30	SE
24-06-2011	Sunny	28	76-91	0.6	7-28	SE
26-06-2011	Sunny	29	74-87	Trace	1-16	W
28-06-2011	Cloudy	27	83-98	106.6	0-15	W
30-06-2011	Cloudy	27	80-98	5.3	0-22	SE

Date	Weather	Tsing Yi Station				
		Average Air Temperature (°C)	Average Relative Humidity (%) *	Total Rainfall (mm)	Average Wind Speed (km/h)	Wind Direction
01-06-2011	Sunny	28	55-84	0.0	0-18	SE
02-06-2011	Sunny	28	70-84	0.0	0-15	SE
03-06-2011	Sunny	28	62-84	0.0	2-14	SE
04-06-2011	Sunny	29	64-84	0.0	3-18	SE
05-06-2011	Sunny	30	68-83	0.0	2-16	SE
07-06-2011	Fine	30	68-80	Trace	3-15	SE
08-06-2011	Sunny	30	69-86	Trace	2-18	SE
10-06-2011	Sunny	30	58-84	0.0	1-20	SE
12-06-2011	Fine	26	76-98	28.4	0-21	SE
13-06-2011	Fine	29	74-90	5.9	0-21	SE
14-06-2011	Fine	30	66-83	2.4	0-18	SE
16-06-2011	Sunny	27	80-98	64.7	3-26	SE
17-06-2011	Cloudy	28	88-98	77.5	0-30	SE
18-06-2011	Fine	30	65-91	1.2	1-23	SE
19-06-2011	Sunny	30	67-90	Trace	3-23	SE
20-06-2011	Sunny	31	58-87	0.0	0-19	SE
22-06-2011	Cloudy	27	83-97	41.4	4-25	SE
24-06-2011	Sunny	28	76-91	0.6	3-27	SE
26-06-2011	Sunny	28	74-87	Trace	1-16	SE
28-06-2011	Cloudy	27	83-98	106.6	0-18	SE
30-06-2011	Cloudy	28	80-98	5.3	0-32	SE

Date	Weather	Kai Tak Station				
		Average Air Temperature (°C) *	Average Relative Humidity (%) *	Total Rainfall (mm) *	Average Wind Speed (km/h)	Wind Direction
01-06-2011	Sunny	28	55-84	0.0	0-25	E
02-06-2011	Sunny	28	70-84	0.0	0-18	SW
03-06-2011	Sunny	28	62-84	0.0	0-22	SE
04-06-2011	Sunny	29	64-84	0.0	0-12	SW
05-06-2011	Sunny	30	68-83	0.0	0-15	SE
07-06-2011	Fine	30	68-80	Trace	0-17	SW
08-06-2011	Sunny	30	69-86	Trace	1-18	SW
10-06-2011	Sunny	29	58-84	0.0	0-27	SE
12-06-2011	Fine	26	76-98	28.4	0-23	W
13-06-2011	Fine	29	74-90	5.9	0-15	SE
14-06-2011	Fine	29	66-83	2.4	0-13	S
16-06-2011	Sunny	26	80-98	64.7	0-27	S
17-06-2011	Cloudy	28	88-98	77.5	0-27	SE
18-06-2011	Fine	29	65-91	1.2	0-23	SE
19-06-2011	Sunny	30	67-90	Trace	4-25	SE
20-06-2011	Sunny	30	58-87	0.0	6-23	SE
22-06-2011	Cloudy	27	83-97	41.4	5-48	E
24-06-2011	Sunny	28	76-91	0.6	13-34	E
26-06-2011	Sunny	29	74-87	Trace	0-22	SW
28-06-2011	Cloudy	27	83-98	106.6	0-24	SW
30-06-2011	Cloudy	27	80-98	5.3	0-30	E

Date	Weather	Green Island Station				
		Average Air Temperature (°C) *	Average Relative Humidity (%) *	Total Rainfall (mm) *	Average Wind Speed (km/h)	Wind Direction
01-06-2011	Sunny	28	55-84	0.0	4-37	NE
02-06-2011	Sunny	28	70-84	0.0	3-30	S
03-06-2011	Sunny	28	62-84	0.0	9-25	S
04-06-2011	Sunny	29	64-84	0.0	9-26	S
05-06-2011	Sunny	30	68-83	0.0	12-28	S
07-06-2011	Fine	30	68-80	Trace	14-31	S
08-06-2011	Sunny	30	69-86	Trace	9-30	S
10-06-2011	Sunny	29	58-84	0.0	0-34	S
12-06-2011	Fine	26	76-98	28.4	0-35	S
13-06-2011	Fine	29	74-90	5.9	3-32	S
14-06-2011	Fine	29	66-83	2.4	0-33	S
16-06-2011	Sunny	26	80-98	64.7	5-40	S
17-06-2011	Cloudy	28	88-98	77.5	5-43	NE
18-06-2011	Fine	29	65-91	1.2	3-30	E
19-06-2011	Sunny	30	67-90	Trace	8-29	SE
20-06-2011	Sunny	30	58-87	0.0	3-30	S
22-06-2011	Cloudy	27	83-97	41.4	18-53	NE
24-06-2011	Sunny	28	76-91	0.6	13-40	NE
26-06-2011	Sunny	29	74-87	Trace	5-30	W
28-06-2011	Cloudy	27	83-98	106.6	2-40	W
30-06-2011	Cloudy	27	80-98	5.3	1-55	SE

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

Meteorological Data Extracted from the Hong Kong Observatory

Date	Weather	King's Park Station				
		Average Air Temperature (°C)	Average Relative Humidity (%)	Total Rainfall (mm)	Average Wind Speed (km/h)	Wind Direction
03-07-2011	Sunny	30	66-83	Trace	0-13	SW
04-07-2011	Sunny	30	64-83	0.0	0-15	W
06-07-2011	Sunny	30	58-82	0.0	0-16	W
09-07-2011	Sunny	30	65-86	0.0	2-15	W
10-07-2011	Sunny	30	63-89	Trace	0-15	W
12-07-2011	Cloudy	28	79-95	10.9	0-14	SW
15-07-2011	Cloudy	27	86-98	34.9	0-18	E
17-07-2011	Fine	28	72-91	0.2	0-15	W
18-07-2011	Cloudy	28	74-90	4.3	0-15	W
19-07-2011	Cloudy	28	74-95	5.6	0-14	W
21-07-2011	Fine	29	66-90	0.0	0-14	W
22-07-2011	Sunny	29	64-97	4.2	0-14	W
23-07-2011	Sunny	29	60-88	0.0	0-15	S
24-07-2011	Sunny	29	65-88	0.0	0-16	W
27-07-2011	Sunny	30	60-88	Trace	3-18	E
28-07-2011	Sunny	30	61-82	Trace	0-21	SW
29-07-2011	Fine	28	76-95	12.4	0-31	E
30-07-2011	Fine	29	76-90	Trace	0-28	E
31-07-2011	Sunny	29	67-89	0.0	0-17	E

Date	Weather	Tsing Yi Station				
		Average Air Temperature (°C)	Average Relative Humidity (%) *	Total Rainfall (mm)	Average Wind Speed (km/h)	Wind Direction
03-07-2011	Sunny	30	66-83	Trace	4-16	SE
04-07-2011	Sunny	30	64-83	0.0	1-15	SE
06-07-2011	Sunny	30	58-82	0.0	0-14	SE
09-07-2011	Sunny	30	65-86	0.0	0-15	SE
10-07-2011	Sunny	31	63-89	Trace	0-14	SE
12-07-2011	Cloudy	28	79-95	10.9	0-21	SE
15-07-2011	Cloudy	28	86-98	34.9	0-15	E
17-07-2011	Fine	28	72-91	0.2	0-24	W
18-07-2011	Cloudy	28	74-90	4.3	0-16	SE
19-07-2011	Cloudy	27	74-95	5.6	0-15	SE
21-07-2011	Fine	28	66-90	0.0	0-14	SE
22-07-2011	Sunny	29	64-97	4.2	0-18	SE
23-07-2011	Sunny	29	60-88	0.0	0-17	SE
24-07-2011	Sunny	29	65-88	0.0	0-13	SE
27-07-2011	Sunny	31	60-88	Trace	1-18	SE
28-07-2011	Sunny	30	61-82	Trace	0-25	SE
29-07-2011	Fine	28	76-95	12.4	3-25	SE
30-07-2011	Fine	29	76-90	Trace	2-26	SE
31-07-2011	Sunny	30	67-89	0.0	3-26	SE

Date	Weather	Kai Tak Station				
		Average Air Temperature (°C) *	Average Relative Humidity (%) *	Total Rainfall (mm) *	Average Wind Speed (km/h)	Wind Direction
03-07-2011	Sunny	30	66-83	Trace	1-16	S
04-07-2011	Sunny	30	64-83	0.0	1-16	SW
06-07-2011	Sunny	30	58-82	0.0	1-20	SW
09-07-2011	Sunny	30	65-86	0.0	4-19	SW
10-07-2011	Sunny	30	63-89	Trace	0-21	SW
12-07-2011	Cloudy	28	79-95	10.9	0-22	S
15-07-2011	Cloudy	27	86-98	34.9	0-24	SE
17-07-2011	Fine	28	72-91	0.2	3-30	SW
18-07-2011	Cloudy	28	74-90	4.3	0-24	SW
19-07-2011	Cloudy	28	74-95	5.6	0-19	SW
21-07-2011	Fine	29	66-90	0.0	0-16	SW
22-07-2011	Sunny	29	64-97	4.2	0-17	SW
23-07-2011	Sunny	29	60-88	0.0	0-18	SE
24-07-2011	Sunny	29	65-88	0.0	0-13	SW
27-07-2011	Sunny	30	60-88	Trace	3-19	SE
28-07-2011	Sunny	30	61-82	Trace	0-21	E
29-07-2011	Fine	28	76-95	12.4	5-40	E
30-07-2011	Fine	29	76-90	Trace	6-29	E
31-07-2011	Sunny	29	67-89	0.0	2-20	E

Date	Weather	Green Island Station				
		Average Air Temperature (°C) *	Average Relative Humidity (%) *	Total Rainfall (mm) *	Average Wind Speed (km/h)	Wind Direction
03-07-2011	Sunny	30	66-83	Trace	14-27	S
04-07-2011	Sunny	30	64-83	0.0	10-27	S
06-07-2011	Sunny	30	58-82	0.0	1-25	S
09-07-2011	Sunny	30	65-86	0.0	3-25	S
10-07-2011	Sunny	30	63-89	Trace	3-27	S
12-07-2011	Cloudy	28	79-95	10.9	0-28	S
15-07-2011	Cloudy	27	86-98	34.9	0-31	NE
17-07-2011	Fine	28	72-91	0.2	11-38	SW
18-07-2011	Cloudy	28	74-90	4.3	4-28	S
19-07-2011	Cloudy	28	74-95	5.6	0-27	S
21-07-2011	Fine	29	66-90	0.0	6-27	S
22-07-2011	Sunny	29	64-97	4.2	10-31	SE
23-07-2011	Sunny	29	60-88	0.0	8-26	N
24-07-2011	Sunny	29	65-88	0.0	0-23	NW
27-07-2011	Sunny	30	60-88	Trace	5-30	NE
28-07-2011	Sunny	30	61-82	Trace	0-35	NE
29-07-2011	Fine	28	76-95	12.4	10-60	NE
30-07-2011	Fine	29	76-90	Trace	5-30	NE
31-07-2011	Sunny	29	67-89	0.0	3-27	NE

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

Meteorological Data Extracted from the Hong Kong Observatory

Date	Weather	King's Park Station				
		Average Air Temperature (°C)	Average Relative Humidity (%)	Total Rainfall (mm)	Average Wind Speed (km/h)	Wind Direction
02-08-2011	Sunny	28	55-89	0.0	0-14	W
03-08-2011	Sunny	30	58-89	0.0	4-15	W
04-08-2011	Sunny	30	62-88	0.0	1-15	W
07-08-2011	Fine	31	56-87	0.0	0-16	W
08-08-2011	Fine	29	68-93	22.1	0-18	W
09-08-2011	Fine	28	73-96	9.9	0-16	W
10-08-2011	Cloudy	27	85-97	60.5	0-16	E
13-08-2011	Sunny	30	60-84	0.0	0-16	W
14-08-2011	Sunny	30	50-86	Trace	0-15	W
15-08-2011	Sunny	30	66-86	0.0	0-16	W
16-08-2011	Sunny	30	61-90	8.5	0-16	W
19-08-2011	Sunny	30	62-88	0.0	0-18	E
21-08-2011	Sunny	30	70-87	Trace	0-15	E
22-08-2011	Sunny	29	74-90	1.4	0-12	W
23-08-2011	Fine	30	64-86	0.0	0-12	W
25-08-2011	Sunny	29	67-92	13.7	0-15	W
27-08-2011	Sunny	30	59-90	5.2	0-14	W
28-08-2011	Sunny	31	60-80	0.0	0-14	W
30-08-2011	Fine	31	52-83	0.0	0-18	W
31-08-2011	Sunny	31	51-82	0.5	0-18	W

Date	Weather	Tsing Yi Station				
		Average Air Temperature (°C)	Average Relative Humidity (%) *	Total Rainfall (mm)	Average Wind Speed (km/h)	Wind Direction
02-08-2011	Sunny	30	55-89	0.0	0-14	S
03-08-2011	Sunny	29	58-89	0.0	0-14	NW
04-08-2011	Sunny	29	62-88	0.0	0-14	NW
07-08-2011	Fine	30	56-87	0.0	0-14	S
08-08-2011	Fine	29	68-93	22.1	0-16	S
09-08-2011	Fine	28	73-96	9.9	2-16	SE
10-08-2011	Cloudy	27	85-97	60.5	1-15	E
13-08-2011	Sunny	29	60-84	0.0	0-14	SE
14-08-2011	Sunny	29	50-86	Trace	0-14	E
15-08-2011	Sunny	29	66-86	0.0	0-12	SE
16-08-2011	Sunny	29	61-90	8.5	0-14	SE
19-08-2011	Sunny	31	62-88	0.0	0-21	E
21-08-2011	Sunny	29	70-87	Trace	0-21	NW
22-08-2011	Sunny	29	74-90	1.4	0-21	S
23-08-2011	Fine	29	64-86	0.0	0-15	SE
25-08-2011	Sunny	29	67-92	13.7	0-14	W
27-08-2011	Sunny	30	59-90	5.2	0-14	SW
28-08-2011	Sunny	30	60-80	0.0	0-21	NW
30-08-2011	Fine	30	52-83	0.0	0-21	NW
31-08-2011	Sunny	32	51-82	0.5	0-21	NW

Date	Weather	Kai Tak Station				
		Average Air Temperature (°C) *	Average Relative Humidity (%) *	Total Rainfall (mm) *	Average Wind Speed (km/h)	Wind Direction
02-08-2011	Sunny	28	55-89	0.0	0-14	SW
03-08-2011	Sunny	30	58-89	0.0	4-18	W
04-08-2011	Sunny	30	62-88	0.0	6-17	W
07-08-2011	Fine	31	56-87	0.0	2-14	SW
08-08-2011	Fine	29	68-93	22.1	0-24	SW
09-08-2011	Fine	28	73-96	9.9	0-16	SW
10-08-2011	Cloudy	27	85-97	60.5	0-21	E
13-08-2011	Sunny	30	60-84	0.0	0-14	SE
14-08-2011	Sunny	30	50-86	Trace	0-14	SE
15-08-2011	Sunny	30	66-86	0.0	0-12	SE
16-08-2011	Sunny	30	61-90	8.5	0-14	N
19-08-2011	Sunny	30	62-88	0.0	2-16	E
21-08-2011	Sunny	30	70-87	Trace	2-18	SE
22-08-2011	Sunny	29	74-90	1.4	0-18	SE
23-08-2011	Fine	30	64-86	0.0	0-15	SE
25-08-2011	Sunny	29	67-92	13.7	1-18	S
27-08-2011	Fine	30	59-90	5.2	0-18	SE
28-08-2011	Sunny	31	60-80	0.0	0-15	NW
30-08-2011	Fine	31	52-83	0.0	0-25	W
31-08-2011	Sunny	31	51-82	0.5	3-27	W

Date	Weather	Green Island Station				
		Average Air Temperature (°C) *	Average Relative Humidity (%) *	Total Rainfall (mm) *	Average Wind Speed (km/h)	Wind Direction
02-08-2011	Sunny	28	55-89	0.0	0-24	SW
03-08-2011	Sunny	30	58-89	0.0	0-24	NW
04-08-2011	Sunny	30	62-88	0.0	0-27	S
07-08-2011	Fine	31	56-87	0.0	0-24	S
08-08-2011	Fine	29	68-93	22.1	0-40	S
09-08-2011	Fine	28	73-96	9.9	3-33	S
10-08-2011	Cloudy	27	85-97	60.5	0-21	SE
13-08-2011	Sunny	30	60-84	0.0	1-21	S
14-08-2011	Sunny	30	50-86	Trace	0-24	S
15-08-2011	Sunny	30	66-86	0.0	3-21	S
16-08-2011	Sunny	30	61-90	8.5	1-24	S
19-08-2011	Sunny	30	62-88	0.0	3-27	NE
21-08-2011	Sunny	30	70-87	Trace	0-27	NE
22-08-2011	Sunny	29	74-90	1.4	0-25	S
23-08-2011	Fine	30	64-86	0.0	1-21	S
25-08-2011	Sunny	29	67-92	13.7	0-21	NW
27-08-2011	Sunny	30	59-90	5.2	0-24	S
28-08-2011	Sunny	31	60-80	0.0	0-24	NW
30-08-2011	Fine	31	52-83	0.0	3-27	NW
31-08-2011	Sunny	31	51-82	0.5	3-21	NW

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

Annex G5 Noise Monitoring Results

Daytime Noise Monitoring Results

Station NM5

Date	Start Time	End Time	Weather	Noise level (dB(A)), 30 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							
02-Jun-11	13:12	13:42	Sunny	57.8	59.8	55.7	Drill rig, Welding machine	Traffic noise & Aircraft noise	-	29	0.5	RION- NL31 (S/N 00320533)	RION - NC73 (S/N 10786708)
08-Jun-11	13:15	13:45	Sunny	57.8	59.7	55.8	Drill rig	Traffic noise & Aircraft noise	-	30	0.3	RION- NL31 (S/N 00320533)	RION - NC73 (S/N 10786708)
14-Jun-11	15:00	15:30	Fine	59.6	61.6	56.8	Drill rig	Traffic noise & Aircraft noise	-	31	0.3	RION- NL31 (S/N 00320533)	RION - NC73 (S/N 10786708)
20-Jun-11	15:50	16:20	Sunny	58.9	61.2	56.4	Drill rig, Welding machine	Traffic noise & Aircraft noise	-	31	0.5	RION- NL31 (S/N 00320533)	RION - NC73 (S/N 10786708)
30-Jun-11	15:25	15:55	Cloudy	57.0	59.3	54.9	Drill rig	Traffic noise & Insect noise		29	0.3	RION- NL31 (S/N 00320533)	RION - NC73 (S/N 10786708)
				Min.	57.0								
				Max.	59.6								

Annex G5 Noise Monitoring Results

Daytime Noise Monitoring Results

Station NM5

Date	Start Time	End Time	Weather	Noise level (dB(A)), 30 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							
06-Jul-11	13:20	13:50	Sunny	57.1	58.9	55.1	Drill rig	Traffic noise & Aircraft noise	-	32	0.3	RION- NL31 (S/N 00983400)	RION - NC73 (S/N 10997142)
12-Jul-11	13:10	13:40	Cloudy	60.7	62.5	57.9	Drill rig, welding machine	Traffic noise & Aircraft noise	-	29	0.5	RION- NL31 (S/N 00983400)	RION - NC73 (S/N 10997142)
18-Jul-11	15:40	16:10	Cloudy	60.5	61.9	57.8	Drill rig, welding machine	Traffic noise & Aircraft noise	-	29	0.3	RION- NL31 (S/N 00983400)	RION - NC73 (S/N 10997142)
28-Jul-11	13:20	13:50	Sunny	60.0	62.1	57.5	Drill rig	Traffic noise & Aircraft noise	-	32	0.3	RION- NL31 (S/N 00320533)	RION - NC73 (S/N 10786708)
				Min.	57.1								
				Max.	60.7								

Annex G5 Noise Monitoring Results

Daytime Noise Monitoring Results

Station NM5

Date	Start Time	End Time	Weather	Noise level (dB(A)), 30 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-Aug-11	13:07	13:37	Sunny	59.2	60.4	57.8	Drill rig	Traffic noise & Aircraft noise	-	32	0.3	RION- NL31 (S/N 00320533)	RION - NC73 (S/N 10786708)
09-Aug-11	13:40	14:10	Fine	60.4	63.0	57.2	Drill rig, welding machine	Traffic noise & Aircraft noise	-	31	0.3	RION- NL31 (S/N 00320533)	RION - NC73 (S/N 10786708)
15-Aug-11	13:35	14:05	Sunny	58.5	60.3	56.3	Drill rig, welding machine	Traffic noise & Aircraft noise	-	31	0.3	RION- NL31 (S/N 00320533)	RION - NC73 (S/N 10786708)
25-Aug-11	13:35	14:05	Sunny	61.3	63.4	58.5	Drill rig, welding machine	Traffic noise & Aircraft noise	-	31	0.5	RION- NL31 (S/N 00320533)	RION - NC73 (S/N 10786708)
31-Aug-11	15:40	16:10	Sunny	59.6	60.9	57.7	Drill rig	Traffic noise & Aircraft noise	-	33	0.3	RION- NL31 (S/N 00320533)	RION - NC73 (S/N 10786708)
				Min.	58.5								
				Max.	61.3								

Annex G5 Noise Monitoring Results

Restricted Hours Noise Monitoring Results

Station NM5

Date	Start Time	End Time	Weather	Noise level (dB(A)), 5 min			Major Construction Noise Source(s)	Other Noise Source(s)	Remarks	Temp. (°C)	Wind Speed (m/s)	Noise Meter Model / ID	Calibrator Model / ID
				Leq	L10	L90							
05-Jun-11	9:00	9:05	Sunny	55.2	56.5	54.1	No construction activities	Traffic noise & aircraft noise	-	30	0.5	RION- NL31 (S/N 00320533)	RION - NC73 (S/N 10786708)
	9:05	9:10	Sunny	58.0	60.2	54.5			-				
	9:10	9:15	Sunny	55.9	57.1	54.2			-				
	9:00	9:15	Sunny	56.5	58.3	54.3			-				
12-Jun-11	14:00	14:05	Sunny	58.2	60.0	55.7	No construction activities	Traffic noise & aircraft noise	-	26	0.3	RION- NL31 (S/N 00320533)	RION - NC73 (S/N 10786708)
	14:05	14:10	Sunny	57.7	59.3	55.6			-				
	14:10	14:15	Sunny	57.6	59.5	55.5			-				
	14:00	14:15	Sunny	57.8	59.6	55.6			-				
19-Jun-11	13:10	13:15	Sunny	58.1	59.9	56.0	Drill rig	Traffic noise & aircraft noise	-	31	0.5	RION- NL31 (S/N 00320533)	RION - NC73 (S/N 10786708)
	13:15	13:20	Sunny	58.3	60.2	55.8			-				
	13:20	13:25	Sunny	58.1	60.1	55.8			-				
	13:10	13:25	Sunny	58.2	60.1	55.9			-				
26-Jun-11	16:00	16:05	Cloudy	60.5	62.3	61.3	No construction activities	Traffic noise & aircraft noise	-	30	0.5	RION- NL31 (S/N 00320533)	RION - NC73 (S/N 10786708)
	16:05	16:10	Cloudy	60.2	61.3	60.7			-				
	16:10	16:15	Cloudy	59.4	61.1	60.1			-				
	16:00	16:15	Cloudy	60.1	61.6	60.7			-				
				Min.	55.2								
				Max.	60.5								

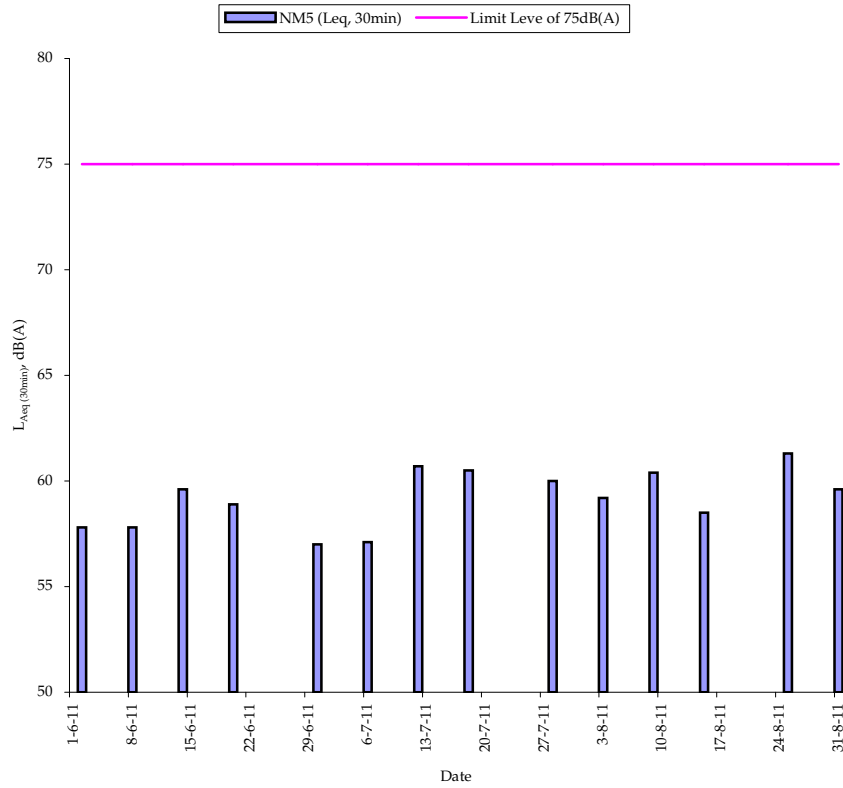
Annex G5 Noise Monitoring Results

Restricted Hours Noise Monitoring Results

Station NM5

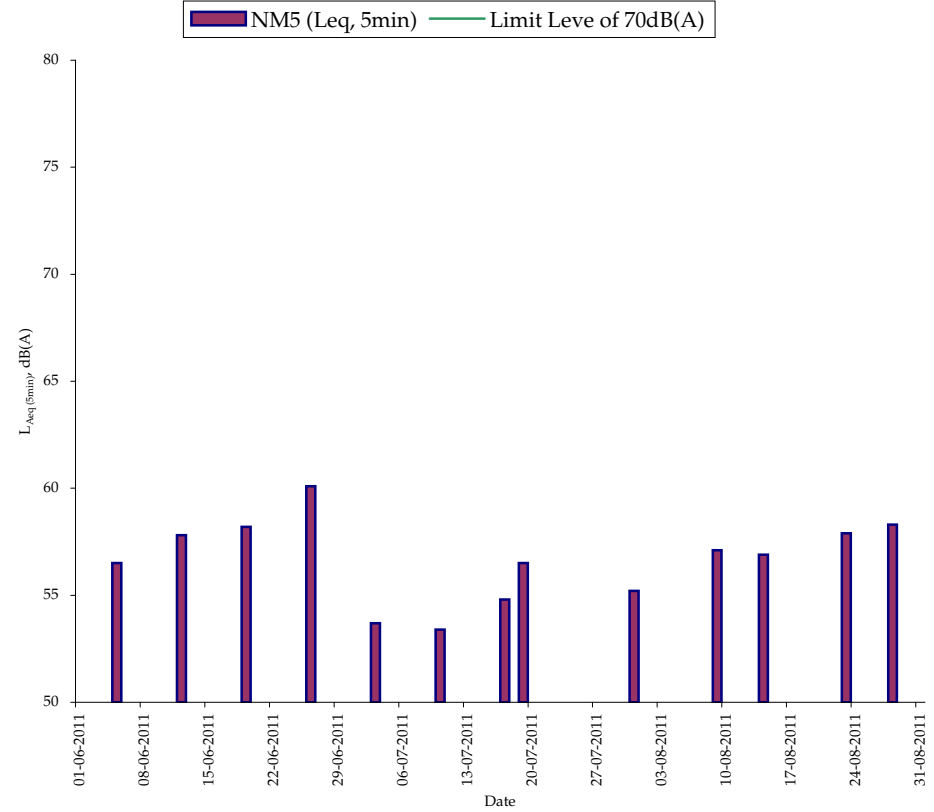
Date	Start Time	End Time	Weather	Noise level (dB(A)), 5 min			Major Construction Noise Source(s)	Other Noise Source(s)	Remarks	Temp. (°C)	Wind Speed (m/s)	Noise Meter Model / ID	Calibrator Model / ID
				Leq	L10	L90							
09-Aug-11	23:10	23:15	Cloudy	57.0	57.6	56.2	Drill rig	Traffic noise & aircraft noise	-	28	0.2	RION- NL31 (S/N 00320533)	RION - NC73 (S/N 10786708)
	23:15	23:20	Cloudy	57.4	58.1	56.5			-				
	23:20	23:25	Cloudy	56.8	57.5	56.0			-				
	23:10	23:25	Cloudy	57.1	57.7	56.2			-				
14-Aug-11	15:10	15:15	Sunny	56.1	57.3	55.0	No construction activities	Traffic noise & aircraft noise	-	30	0.2	RION- NL31 (S/N 00320533)	RION - NC73 (S/N 10786708)
	15:15	15:20	Sunny	56.4	57.6	55.0			-				
	15:20	15:25	Sunny	58.0	59.2	55.8			-				
	15:10	15:25	Sunny	56.9	58.1	55.3			-				
23-Aug-11	23:02	23:07	Sunny	58.1	60.0	56.9	Drill rig	Traffic noise & insect noise	-	30	0.2	RION- NL31 (S/N 00320533)	RION - NC73 (S/N 10786708)
	23:07	23:12	Sunny	58.2	59.5	56.6			-				
	23:12	23:17	Sunny	57.4	58.4	56.5			-				
	23:02	23:17	Sunny	57.9	59.4	56.7			-				
28-Aug-11	15:00	15:05	Sunny	58.1	58.9	57.3	Drill rig	Traffic noise & aircraft noise	-	32	0.3	RION- NL31 (S/N 00320533)	RION - NC73 (S/N 10786708)
	15:05	15:10	Sunny	58.3	59.0	57.8			-				
	15:10	15:15	Sunny	58.5	59.0	57.9			-				
	15:00	15:15	Sunny	58.3	59.0	57.7			-				
				Min.	56.1								
				Max.	58.5								

Nromal Weekdays Noise Monitoring Results at NM5 ($L_{eq, 30min}$)



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

Restricted Hours Noise Monitoring Results at NM5 ($L_{eq, 5min}$)



Remark:
 - 70dB(A) was dopted as the Limit Level during restricted hours in the reporting period
 - 55dB(A) was adopted as the Limit Level during night time in the reporting period

Annex G6 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 G6 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
Overall Total	0	0

Annex H

Calibration Reports for 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 9833620)	20 May 2011	20 July 2011
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 9833620)	20 July 2011	20 September 2011
AM2	Rooftop of Hong Kong & Islands Regional Office, WSD	GMW GS-2310 (S/N 0145)	CM-AIR-43 (S/N 9833620)	20 May 2011	20 July 2011
AM2	Rooftop of Hong Kong & Islands Regional Office, WSD	GMW GS-2310 (S/N 0145)	CM-AIR-43 (S/N 9833620)	20 July 2011	20 September 2011
AM3	Rooftop of Wan Chai East PTW	GMW GS-2310 (S/N 0481)	CM-AIR-43 (S/N 9833620)	20 May 2011	20 July 2011
AM3	Rooftop of Wan Chai East PTW	GMW GS-2310 (S/N 0481)	CM-AIR-43 (S/N 9833620)	20 July 2011	20 September 2011
AM4	A Location within the DSD Central PTW	GMW GS-2310 (S/N 9315)	CM-AIR-43 (S/N 9833620)	20 May 2011	20 July 2011
AM4	A Location within the DSD Central PTW	GMW GS-2310 (S/N 9315)	CM-AIR-43 (S/N 9833620)	20 July 2011	20 September 2011
AM5	Western Wholesale Food Market	GMW GS-2310 (S/N 2146)	CM-AIR-43 (S/N 9833620)	16 May 2011	16 July 2011
AM5	Western Wholesale Food Market	GMW GS-2310 (S/N 2146)	CM-AIR-43 (S/N 9833620)	14 July 2011	14 September 2011
AM6	Works Site Boundary	GMW GS-2310 (S/N 1254)	CM-AIR-43 (S/N 9833620)	20 May 2011	20 July 2011
AM6	Works Site Boundary	GMW GS-2310 (S/N 1254)	CM-AIR-43 (S/N 9833620)	20 July 2011	20 September 2011

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 10786708)	12 July 2010	12 July 2011
		Rion NC-73 (S/N 10786708)	16 July 2011	16 July 2012
		Rion NC-73 (S/N 10997142)	12 July 2010	12 July 2011
		Rion NC-73 (S/N 10997142)	11 July 2011	11 July 2012
	Sound Level Meter	Rion NL-31 (S/N 00320533)	12 July 2010	12 July 2011
		Rion NL-31 (S/N 00320533)	16 July 2011	16 July 2012
		Rion NL-31 (S/N 00983400)	25 October 2010	25 October 2011

^(a) The sound level meter (Rion NL-18 (S/N 00360030) or Rion NL-31 (S/N 00320533) or Rion NL-31 (S/N 00410224) or Rion NA-27 (S/N 00201194)) is used in NM1, NM2, NM3, NM4 and NM5.

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 : 20/05/2011

Sampler

Model : GMWS-2310 ACCU-VOL
Serial Number : S/N 1808

Calibration Orifice and Standard Calibration Relationship

Serial Number : 1785
Service Date : 25 April 2011
Slope (m) : 2.00506
Intercept (b) : -0.02062
Correlation Coefficient(r) : 0.99998

Standard Condition

Pstd (hpa) : 1013
Tstd (K) : 298.18

Calibration Condition

Pa (hpa) : 1010
Ta(K) : 297

Resistance Plate	dH [green liquid] (inch water)	Z	X=Qstd (cubic meter/min)	IC	Y
1 18 holes	13.0	3.606	1.809	69	69.0
2 13 holes	10.4	3.226	1.619	61	61.0
3 10 holes	7.2	2.684	1.349	50	50.0
4 7 holes	5.4	2.324	1.169	43	43.0
5 5 holes	3.2	1.789	0.903	32	32.0

Sampler Calibration Relationship

Slope(m): 40.680 Intercept(b): -4.717 Correlation Coefficient(r): 0.9999

Checked by: Magnum Fan

Date: 23/05/2011

High-Volume TSP Sampler
5-Point Calibration Record

Location : AM2
Calibrated by : K.T.Ho
Date : 20/05/2011

Sampler

Model : GMWS-2310 ACCU-VOL
Serial Number : S/N 0145

Calibration Orifice and Standard Calibration Relationship

Serial Number : 1785
Service Date : 25 April 2011
Slope (m) : 2.00506
Intercept (b) : -0.02062
Correlation Coefficient(r) : 0.99998

Standard Condition

Pstd (hpa) : 1013
Tstd (K) : 298.18

Calibration Condition

Pa (hpa) : 1010
Ta(K) : 297

Resistance Plate	dH [green liquid] (inch water)	Z	X=Qstd (cubic meter/min)	IC	Y
1 18 holes	11.7	3.421	1.717	64	64.0
2 13 holes	9.6	3.099	1.556	57	57.0
3 10 holes	7.2	2.684	1.349	49	49.0
4 7 holes	4.6	2.145	1.080	38	38.0
5 5 holes	2.8	1.674	0.845	28	28.0

Sampler Calibration Relationship

Slope(m): 41.016 Intercept(b): -6.492 Correlation Coefficient(r): 0.9999

Checked by: Magnum Fan

Date: 23/05/2011

High-Volume TSP Sampler
5-Point Calibration Record

Location : AM3
Calibrated by : K.T.Ho
Date : 20/05/2011

Sampler

Model : GMWS-2310 ACCU-VOL
Serial Number : S/N 0481

Calibration Orifice and Standard Calibration Relationship

Serial Number : 1785
Service Date : 25 April 2011
Slope (m) : 2.00506
Intercept (b) : -0.02062
Correlation Coefficient(r) : 0.99998

Standard Condition

Pstd (hpa) : 1013
Tstd (K) : 298.18

Calibration Condition

Pa (hpa) : 1010
Ta(K) : 297

Resistance Plate	dH [green liquid] (inch water)	Z	X=Qstd (cubic meter/min)	IC	Y
1 18 holes	12.3	3.508	1.760	63	63.0
2 13 holes	9.2	3.034	1.523	53	53.0
3 10 holes	7.0	2.646	1.330	45	45.0
4 7 holes	4.6	2.145	1.080	34	34.0
5 5 holes	2.9	1.703	0.860	25	25.0

Sampler Calibration Relationship

Slope(m): 42.369 Intercept(b): -11.521 Correlation Coefficient(r): 0.9999

Checked by: Magnum Fan

Date: 23/05/2011

High-Volume TSP Sampler
5-Point Calibration Record

Location : AM4
Calibrated by : K.T.Ho
Date : 20/05/2011

Sampler

Model : GMWS-2310 ACCU-VOL
Serial Number : S/N 9315

Calibration Orifice and Standard Calibration Relationship

Serial Number : 1785
Service Date : 25 April 2011
Slope (m) : 2.00506
Intercept (b) : -0.02062
Correlation Coefficient(r) : 0.99998

Standard Condition

Pstd (hpa) : 1013
Tstd (K) : 298.18

Calibration Condition

Pa (hpa) : 1010
Ta(K) : 297

Resistance Plate	dH [green liquid] (inch water)	Z	X=Qstd (cubic meter/min)	IC	Y
1 18 holes	11.8	3.436	1.724	63	63.0
2 13 holes	8.6	2.933	1.473	53	53.0
3 10 holes	7.5	2.739	1.376	49	49.0
4 7 holes	4.9	2.214	1.115	39	39.0
5 5 holes	2.6	1.613	0.815	26	26.0

Sampler Calibration Relationship

Slope(m): 40.491 Intercept(b): -6.650 Correlation Coefficient(r): 0.9997

Checked by: Magnum Fan

Date: 23/05/2011

High-Volume TSP Sampler
5-Point Calibration Record

Location : Sai Ying Pun
Calibrated by : K.T.Ho
Date : 16/05/2011

Sampler

Model : TE-5170
Serial Number : S/N 2146

Calibration Orifice and Standard Calibration Relationship

Serial Number : 1785
Service Date : 10 May 2011
Slope (m) : 2.01637
Intercept (b) : -0.02316
Correlation Coefficient(r) : 0.99996

Standard Condition

Pstd (hpa) : 1013
Tstd (K) : 298.18

Calibration Condition

Pa (hpa) : 1010
Ta(K) : 298

Resistance Plate	dH [green liquid] (inch water)	Z	X=Qstd (cubic meter/min)	IC	Y
1 18 holes	11.4	3.377	1.686	61	61.0
2 13 holes	9.6	3.099	1.548	55	55.0
3 10 holes	7.8	2.793	1.397	49	49.0
4 7 holes	4.7	2.168	1.087	36	36.0
5 5 holes	2.9	1.703	0.856	27	27.0

Sampler Calibration Relationship

Slope(m): 40.985 Intercept(b): -8.283 Correlation Coefficient(r): 0.9999

Checked by: Magnum Fan

Date: 20/05/2011

High-Volume TSP Sampler
5-Point Calibration Record

Location : AM6
Calibrated by : P.F. Yeung
Date : 20/05/2011

Sampler

Model : GMWS-2310 ACCU-VOL
Serial Number : S/N 1254

Calibration Orifice and Standard Calibration Relationship

Serial Number : 1785
Service Date : 25 April 2011
Slope (m) : 2.00506
Intercept (b) : -0.02062
Correlation Coefficient(r) : 0.99998

Standard Condition

Pstd (hpa) : 1013
Tstd (K) : 298.18

Calibration Condition

Pa (hpa) : 1010
Ta(K) : 297

Resistance Plate	dH [green liquid] (inch water)	Z	X=Qstd (cubic meter/min)	IC	Y
1 18 holes	11.8	3.436	1.724	64	64.0
2 13 holes	7.5	2.739	1.376	51	51.0
3 10 holes	6.2	2.490	1.252	46	46.0
4 7 holes	3.8	1.950	0.983	37	37.0
5 5 holes	2.2	1.484	0.750	28	28.0

Sampler Calibration Relationship

Slope(m): 36.731 Intercept(b): 0.504 Correlation Coefficient(r): 0.9997

Checked by: Magnum Fan

Date: 23/05/2011

High-Volume TSP Sampler
5-Point Calibration Record

Location : AM1
Calibrated by : K.T.Ho
Date : 20/07/2011

Sampler

Model : GMWS-2310 ACCU-VOL
Serial Number : S/N 1808

Calibration Orifice and Standard Calibration Relationship

Serial Number : 1785
Service Date : 25 April 2011
Slope (m) : 2.00506
Intercept (b) : -0.02062
Correlation Coefficient(r) : 0.99998

Standard Condition

Pstd (hpa) : 1013
Tstd (K) : 298.18

Calibration Condition

Pa (hpa) : 1002
Ta(K) : 300

Resistance Plate	dH [green liquid] (inch water)	Z	X=Qstd (cubic meter/min)	IC	Y
1 18 holes	12.8	3.546	1.779	67	66.4
2 13 holes	10.3	3.181	1.597	59	58.5
3 10 holes	7.0	2.623	1.318	48	47.6
4 7 holes	5.3	2.282	1.148	41	40.6
5 5 holes	3.0	1.717	0.867	29	28.7

Sampler Calibration Relationship

Slope(m):40.975 Intercept(b): -6.608 Correlation Coefficient(r): 0.9998

Checked by: Magnum Fan

Date: 23/07/2011

High-Volume TSP Sampler
5-Point Calibration Record

Location : AM2
 Calibrated by : K.T.Ho
 Date : 20/07/2011

Sampler

Model : GMWS-2310 ACCU-VOL
 Serial Number : S/N 0145

Calibration Orifice and Standard Calibration Relationship

Serial Number : 1785
 Service Date : 25 April 2011
 Slope (m) : 2.00506
 Intercept (b) : -0.02062
 Correlation Coefficient(r) : 0.99998

Standard Condition

Pstd (hpa) : 1013
 Tstd (K) : 298.18

Calibration Condition

Pa (hpa) : 1002
 Ta(K) : 300

Resistance Plate	dH [green liquid] (inch water)	Z	X=Qstd (cubic meter/min)	IC	Y
1 18 holes	11.6	3.376	1.694	62	61.5
2 13 holes	9.4	3.039	1.526	55	54.5
3 10 holes	7.2	2.660	1.337	48	47.6
4 7 holes	4.6	2.126	1.071	37	36.7
5 5 holes	2.7	1.629	0.823	27	26.8

Sampler Calibration Relationship

Slope(m):39.707 Intercept(b): -5.8242 Correlation Coefficient(r): 0.9999

Checked by: Magnum Fan

Date: 23/07/2011

High-Volume TSP Sampler
5-Point Calibration Record

Location : AM3
 Calibrated by : K.T.Ho
 Date : 20/07/2011

Sampler

Model : GMWS-2310 ACCU-VOL
 Serial Number : S/N 0481

Calibration Orifice and Standard Calibration Relationship

Serial Number : 1785
 Service Date : 25 April 2011
 Slope (m) : 2.00506
 Intercept (b) : -0.02062
 Correlation Coefficient(r) : 0.99998

Standard Condition

Pstd (hpa) : 1013
 Tstd (K) : 298.18

Calibration Condition

Pa (hpa) : 1002
 Ta(K) : 300

Resistance Plate	dH [green liquid] (inch water)	Z	X=Qstd (cubic meter/min)	IC	Y
1 18 holes	12.2	3.462	1.737	64	63.4
2 13 holes	9.0	2.974	1.493	53	52.5
3 10 holes	7.0	2.623	1.318	45	44.6
4 7 holes	4.5	2.103	1.059	33	32.7
5 5 holes	2.9	1.688	0.852	24	23.8

Sampler Calibration Relationship

Slope(m): 44.976 Intercept(b): -14.691 Correlation Coefficient(r): 0.9999

Checked by: Magnum Fan

Date: 23/07/2011

High-Volume TSP Sampler
5-Point Calibration Record

Location : AM4
Calibrated by : K.T.Ho
Date : 20/07/2011

Sampler

Model : GMWS-2310 ACCU-VOL
Serial Number : S/N 9315

Calibration Orifice and Standard Calibration Relationship

Serial Number : 1785
Service Date : 25 April 2011
Slope (m) : 2.00506
Intercept (b) : -0.02062
Correlation Coefficient(r) : 0.99998

Standard Condition

Pstd (hpa) : 1013
Tstd (K) : 298.18

Calibration Condition

Pa (hpa) : 1002
Ta(K) : 300

Resistance Plate	dH [green liquid] (inch water)	Z	X=Qstd (cubic meter/min)	IC	Y
1 18 holes	11.7	3.391	1.701	65	64.4
2 13 holes	8.5	2.890	1.452	54	53.5
3 10 holes	7.0	2.623	1.318	48	47.6
4 7 holes	4.8	2.172	1.093	39	38.7
5 5 holes	2.6	1.598	0.807	27	26.8

Sampler Calibration Relationship

Slope(m): 41.988 Intercept(b): -7.318 Correlation Coefficient(r): 0.9998

Checked by: Magnum Fan

Date: 23/07/2011

High-Volume TSP Sampler
5-Point Calibration Record

Location : Sai Ying Pun
Calibrated by : K.T.Ho
Date : 14/07011

Sampler

Model : TE-5170
Serial Number : S/N 2146

Calibration Orifice and Standard Calibration Relationship

Serial Number : 1785
Service Date : 25 May 2011
Slope (m) : 2.00506
Intercept (b) : -0.020620
Correlation Coefficient(r) : 0.99999

Standard Condition

Pstd (hpa) : 1013
Tstd (K) : 298.18

Calibration Condition

Pa (hpa) : 1002
Ta(K) : 300

Resistance Plate	dH [green liquid] (inch water)	Z	X=Qstd (cubic meter/min)	IC	Y
1 18 holes	11.5	3.361	1.687	60	59.5
2 13 holes	9.7	3.087	1.550	55	54.5
3 10 holes	7.9	2.786	1.400	49	48.6
4 7 holes	4.6	2.126	1.071	36	35.7
5 5 holes	2.9	1.688	0.852	28	27.8

Sampler Calibration Relationship

Slope(m):38.316 Intercept(b): -5.065 Correlation Coefficient(r): 0.9999

Checked by: Magnum Fan

Date: 16/07/2011

High-Volume TSP Sampler
5-Point Calibration Record

Location : AM6
 Calibrated by : P.F. Yeung
 Date : 20/07/2011

Sampler

Model : GMWS-2310 ACCU-VOL
 Serial Number : S/N 1254

Calibration Orifice and Standard Calibration Relationship

Serial Number : 1785
 Service Date : 25 April 2011
 Slope (m) : 2.00506
 Intercept (b) : -0.02062
 Correlation Coefficient(r) : 0.99998

Standard Condition

Pstd (hpa) : 1013
 Tstd (K) : 298.18

Calibration Condition

Pa (hpa) : 1002
 Ta(K) : 300

Resistance Plate	dH [green liquid] (inch water)	Z	X=Qstd (cubic meter/min)	IC	Y
1 18 holes	8.0	2.804	1.409	52	51.5
2 13 holes	6.5	2.527	1.271	47	46.6
3 10 holes	5.2	2.260	1.138	43	42.6
4 7 holes	3.2	1.773	0.895	34	33.7
5 5 holes	2.0	1.402	0.709	28	27.8

Sampler Calibration Relationship

Slope(m): 34.133 Intercept(b): 3.436 Correlation Coefficient(r): 0.9997

Checked by: Magnum Fan

Date: 23/07/2011

Certificate No. : C103778

Certificate of Calibration

This is to certify that the equipment

Description : Sound Level Meter

Manufacturer : Rion

Model No. : NL-31

Serial No. : 00320533

*has been calibrated for the specific items and ranges.
The results are shown in the Calibration Report No. C103778.*

The equipment is supplied by

Co. Name : Envirotech Services Co.

*Address : Shop 6, G/F., Casio Mansion, 209 Shaukeiwan Road,
Hong Kong*

Date of Issue : 13 July 2010

Certified by :

K C Lee

The test equipment used for calibration are traceable to the National Standards as specified in this report.
This report shall not be reproduced except in full and with prior written approval from this laboratory.



輝創工程有限公司

Sun Creation Engineering Limited Calibration and Testing Laboratory

Report No. : C103778

Calibration Report

ITEM TESTED

DESCRIPTION : Sound Level Meter
MANUFACTURER : Rion
MODEL NO. : NL-31
SERIAL NO. : 00320533

TEST CONDITIONS

AMBIENT TEMPERATURE : $(23 \pm 2)^\circ\text{C}$ RELATIVE HUMIDITY : $(55 \pm 20)\%$
LINE VOLTAGE : ---

TEST SPECIFICATIONS

Calibration check

DATE OF TEST : 12 July 2010

JOB NO. : IC10-1738

TEST RESULTS

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
- Agilent Technologies, USA
- Fluke Everett Service Center, USA
- Rohde & Schwarz Laboratory, Germany
- The Bruel & Kjaer Calibration Laboratory, Denmark

Tested by :


L L Cheung

Date : 13 July 2010

The test equipment used for calibration are traceable to the National Standards as specified in this report.
This report shall not be reproduced except in full and with prior written approval from this laboratory.

Calibration and Testing Laboratory of Sun Creation Engineering Limited

c/o 4/F, Tsing Shan Wan Exchange Building, 1 Hing On Lane, Tuen Mun, New Territories, Hong Kong

Tel: 2927 2606

Fax: 2744 8986

E-mail: callab@suncreation.com

Website: www.suncreation.com

Page 1 of 4

Calibration Report

1. The unit-under-test (UUT) was allowed to stabilize in the laboratory for over 24 hours, and switched on to warm up for over 10 minutes before the commencement of the test.
2. Self-calibration was performed before the test.
3. The results presented are the mean of 3 measurements at each calibration point.
4. Test equipment :

Equipment ID	Description	Certificate No.
CL280	40 MHz Arbitrary Waveform Generator	C100067
CL281	Multifunction Acoustic Calibrator	C1005490

5. Test procedure : MA101N.

6. Results :

- 6.1 Sound Pressure Level

- 6.1.1 Reference Sound Pressure Level

UUT Setting				Applied Value		UUT Reading (dB)	IEC 60651 Type 1 Spec. (dB)
Range (dB)	Mode	Frequency Weighting	Time Weighting	Level (dB)	Freq. (kHz)		
30 - 120	L _A	A	Fast	94.00	1	94.3	± 0.7

- 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	94.3 (Ref.)
				104.00		104.3
				114.00		114.3

IEC 60651 Type 1 Spec. : ± 0.4 dB per 10 dB step and ± 0.7 dB for overall different.

- 6.2 Time Weighting

- 6.2.1 Continuous Signal

UUT Setting				Applied Value		UUT Reading (dB)	IEC 60651 Type 1 Spec. (dB)
Range (dB)	Mode	Frequency Weighting	Time Weighting	Level (dB)	Freq. (kHz)		
30 - 120	L _A	A	Fast	94.00	1	94.3	Ref.
			Slow			94.2	± 0.1

The test equipment used for calibration are traceable to the National Standards as specified in this report. This report shall not be reproduced except in full and with prior written approval from this laboratory.

Calibration Report

6.3 Frequency Weighting

6.3.1 A-Weighting

UUT Setting				Applied Value		UUT Reading (dB)	IEC 60651 Type 1 Spec. (dB)
Range (dB)	Mode	Frequency Weighting	Time Weighting	Level (dB)	Freq.		
30 - 120	L _A	A	Fast	94.00	31.5 Hz	55.3	-39.4 ± 1.5
					63 Hz	68.4	-26.2 ± 1.5
					125 Hz	78.4	-16.1 ± 1.0
					250 Hz	85.8	-8.6 ± 1.0
					500 Hz	91.1	-3.2 ± 1.0
					1 kHz	94.3	Ref.
					2 kHz	95.3	+1.2 ± 1.0
					4 kHz	94.5	+1.0 ± 1.0
					8 kHz	90.5	-1.1 (+1.5 ; -3.0)
					12.5 kHz	85.0	-4.3 (+3.0 ; -6.0)

6.3.2 C-Weighting

UUT Setting				Applied Value		UUT Reading (dB)	IEC 60651 Type 1 Spec. (dB)
Range (dB)	Mode	Frequency Weighting	Time Weighting	Level (dB)	Freq.		
30 - 120	L _C	C	Fast	94.00	31.5 Hz	91.5	-3.0 ± 1.5
					63 Hz	93.7	-0.8 ± 1.5
					125 Hz	94.2	-0.2 ± 1.0
					250 Hz	94.4	0.0 ± 1.0
					500 Hz	94.4	0.0 ± 1.0
					1 kHz	94.3	Ref.
					2 kHz	94.0	-0.2 ± 1.0
					4 kHz	92.8	-0.8 ± 1.0
					8 kHz	88.7	-3.0 (+1.5 ; -3.0)
					12.5 kHz	82.4	-6.2 (+3.0 ; -6.0)

6.4 Time Averaging

UUT Setting				Applied Value					UUT Reading (dB)	IEC 60804 Type 1 Spec. (dB)
Range (dB)	Mode	Frequency Weighting	Time Weighting	Freq. (kHz)	Burst Duration (ms)	Burst Duty Factor	Burst Level (dB)	Equivalent Level (dB)		
20 - 110	L _{Aeq}	A	60 sec.	4	1	1/10 ³	110.0	80	80.7	± 1.0
			5 min.					70	70.7	± 1.0

The test equipment used for calibration are traceable to the National Standards as specified in this report. This report shall not be reproduced except in full and with prior written approval from this laboratory.

Calibration Report

Remarks : - Mfr's Spec. : IEC 60651 Type 1 & IEC 60804 Type 1

- Uncertainties of Applied Value : 94 dB : 31.5 Hz - 125 Hz : ± 0.35 dB
250 Hz - 1 kHz : ± 0.30 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 Calibration Report 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.

Certificate No. : C103766

Certificate of Calibration

This is to certify that the equipment

Description : Sound Level Calibrator

Manufacturer : Rion

Model No. : NC-73

Serial No. : 10786708

*has been calibrated for the specific items and ranges.
The results are shown in the Calibration Report No. C103766.*

The equipment is supplied by

Co. Name : Envirotech Services Co.

*Address : Shop 6, G/F., Casio Mansion, 209 Shaukeiwan Road,
Hong Kong*

Date of Issue : 13 July 2010

Certified by :



K C Lee

The test equipment used for calibration are traceable to the National Standards as specified in this report.
This report shall not be reproduced except in full and with prior written approval from this laboratory.



輝創工程有限公司

Sun Creation Engineering Limited Calibration and Testing Laboratory

Report No. : C103766

Calibration Report

ITEM TESTED

DESCRIPTION : Sound Level Calibrator
MANUFACTURER : Rion
MODEL NO. : NC-73
SERIAL NO. : 10786708

TEST CONDITIONS

AMBIENT TEMPERATURE : $(23 \pm 2)^{\circ}\text{C}$ RELATIVE HUMIDITY : $(55 \pm 20)\%$
LINE VOLTAGE : ---

TEST SPECIFICATIONS

Calibration check

DATE OF TEST : 12 July 2010

JOB NO. : IC10-1738


TEST RESULTS

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
- Agilent Technologies, USA
- Fluke Everett Service Center, USA
- Rohde & Schwarz Laboratory, Germany
- The Bruel & Kjaer Calibration Laboratory, Denmark

Tested by :


L L Cheung

Date : 13 July 2010

The test equipment used for calibration are traceable to the National Standards as specified in this report.
This report shall not be reproduced except in full and with prior written approval from this laboratory.

Calibration and Testing Laboratory of Sun Creation Engineering Limited

c/o 4/F, Tsing Shan Wan Exchange Building, 1 Hing On Lane, Tuen Mun, New Territories, Hong Kong
Tel: 2927 2606 Fax: 2744 8986 E-mail: callab@suncreation.com Website: www.suncreation.com

Calibration Report

1. The unit-under-test (UUT) was allowed to stabilize in the laboratory for over 24 hours before the commencement of the test.
2. The results presented are the mean of 3 measurements at each calibration point.
3. Test equipment :

<u>Equipment ID</u>	<u>Description</u>	<u>Certificate No.</u>
TST150A	Measuring Amplifier	C101008
CL130	Universal Counter	C103289
CL281	Multifunction Acoustic Calibrator	C1005490

4. Test procedure : MA100N.

5. 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	94.0	± 0.5	± 0.2

5.2 Frequency Accuracy

UUT Nominal Value (kHz)	Measured Value (kHz)	Mfr's Spec.	Uncertainty of Measured Value (Hz)
1	0.991 0	1 kHz ± 2 %	± 0.1

Remark : - The uncertainties are for a confidence probability of not less than 95 %.

Note :

The values given in this Calibration Report 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.

Certificate No. : C103765

Certificate of Calibration

This is to certify that the equipment

Description : Sound Level Calibrator

Manufacturer : Rion

Model No. : NC-73

Serial No. : 10997142

*has been calibrated for the specific items and ranges.
The results are shown in the Calibration Report No. C103765.*

The equipment is supplied by

Co. Name : Envirotech Services Co.

*Address : Shop 6, G/F., Casio Mansion, 209 Shaukeiwan Road,
Hong Kong*

Date of Issue : 13 July 2010

Certified by :

K C Lee

The test equipment used for calibration are traceable to the National Standards as specified in this report.
This report shall not be reproduced except in full and with prior written approval from this laboratory.



輝創工程有限公司

Sun Creation Engineering Limited Calibration and Testing Laboratory

Report No. : C103765

Calibration Report

ITEM TESTED

DESCRIPTION : Sound Level Calibrator
MANUFACTURER : Rion
MODEL NO. : NC-73
SERIAL NO. : 10997142

TEST CONDITIONS

AMBIENT TEMPERATURE : $(23 \pm 2)^{\circ}\text{C}$ RELATIVE HUMIDITY : $(55 \pm 20)\%$
LINE VOLTAGE : ---

TEST SPECIFICATIONS

Calibration check

DATE OF TEST : 12 July 2010

JOB NO. : IC10-1738

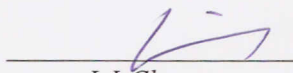
TEST RESULTS

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
- Agilent Technologies, USA
- Fluke Everett Service Center, USA
- Rohde & Schwarz Laboratory, Germany
- The Bruel & Kjaer Calibration Laboratory, Denmark

Tested by :


L L Cheung

Date : 13 July 2010

The test equipment used for calibration are traceable to the National Standards as specified in this report.
This report shall not be reproduced except in full and with prior written approval from this laboratory.

Calibration and Testing Laboratory of Sun Creation Engineering Limited

c/o 4/F, Tsing Shan Wan Exchange Building, 1 Hing On Lane, Tuen Mun, New Territories, Hong Kong

Tel: 2927 2606

Fax: 2744 8986

E-mail: callab@suncreation.com

Website: www.suncreation.com

Calibration Report

1. The unit-under-test (UUT) was allowed to stabilize in the laboratory for over 24 hours before the commencement of the test.
2. The results presented are the mean of 3 measurements at each calibration point.
3. Test equipment :

<u>Equipment ID</u>	<u>Description</u>	<u>Certificate No.</u>
TST150A	Measuring Amplifier	C101008
CL130	Universal Counter	C103289
CL281	Multifunction Acoustic Calibrator	C1005490

4. Test procedure : MA100N.

5. 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	94.1	± 0.5	± 0.2

5.2 Frequency Accuracy

UUT Nominal Value (kHz)	Measured Value (kHz)	Mfr's Spec.	Uncertainty of Measured Value (Hz)
1	0.991 1	1 kHz ± 2 %	± 0.1

Remark : - The uncertainties are for a confidence probability of not less than 95 %.

Note :

The values given in this Calibration Report 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.

Certificate No. : C113973

Certificate of Calibration

This is to certify that the equipment

Description : Sound Level Meter

Manufacturer : Rion

Model No. : NL-31

Serial No. : 00320533

*has been calibrated for the specific items and ranges.
The results are shown in the Calibration Report No. C113973.*

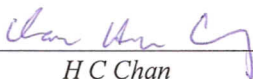
The equipment is supplied by

Co. Name : Envirotech Services Co.

*Address : Shop 6, G/F., Casio Mansion, 209 Shaukeiwan Road,
Hong Kong*

Date of Issue : 18 July 2011

Certified by :


H C Chan

Report No. : C113973

Calibration Report

ITEM TESTED

DESCRIPTION : Sound Level Meter
MANUFACTURER : Rion
MODEL NO. : NL-31
SERIAL NO. : 00320533

TEST CONDITIONS

AMBIENT TEMPERATURE : $(23 \pm 2)^{\circ}\text{C}$ RELATIVE HUMIDITY : $(55 \pm 20)\%$
LINE VOLTAGE : ---

TEST SPECIFICATIONS

Calibration check

DATE OF TEST : 16 July 2011

JOB NO. : IC11-1746

TEST RESULTS

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
- The Bruel & Kjaer Calibration Laboratory, Denmark
- Rohde & Schwarz Laboratory, Germany
- Fluke Everett Service Center, USA
- Agilent Technologies, USA

Tested by :


K C Lee

Date : 18 July 2011

The test equipment used for calibration are traceable to the National Standards as specified in this report.
This report shall not be reproduced except in full and with prior written approval from this laboratory.

Calibration Report

1. The unit-under-test (UUT) was allowed to stabilize in the laboratory for over 24 hours, and switched on to warm up for over 10 minutes before the commencement of the test.
2. Self-calibration was performed before the test.
3. The results presented are the mean of 3 measurements at each calibration point.
4. Test equipment :

<u>Equipment ID</u>	<u>Description</u>	<u>Certificate No.</u>
CL280	40 MHz Arbitrary Waveform Generator	C110018
CL281	Multifunction Acoustic Calibrator	C1006860

5. Test procedure : MA101N.

6. Results :

- 6.1 Sound Pressure Level

- 6.1.1 Reference Sound Pressure Level

UUT Setting				Applied Value		UUT Reading (dB)	IEC 60651 Type 1 Spec. (dB)
Range (dB)	Mode	Frequency Weighting	Time Weighting	Level (dB)	Freq. (kHz)		
30 - 120	L _A	A	Fast	94.00	1	93.9	± 0.7

- 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	93.9 (Ref.)
				104.00		103.9
				114.00		113.9

IEC 60651 Type 1 Spec. : ± 0.4 dB per 10 dB step and ± 0.7 dB for overall different.

- 6.2 Time Weighting

- 6.2.1 Continuous Signal

UUT Setting				Applied Value		UUT Reading (dB)	IEC 60651 Type 1 Spec. (dB)
Range (dB)	Mode	Frequency Weighting	Time Weighting	Level (dB)	Freq. (kHz)		
30 - 120	L _A	A	Fast	94.00	1	93.9	Ref.
			Slow				

Calibration Report

6.2.2 Tone Burst Signal (2 kHz)

UUT Setting				Applied Value		UUT Reading (dB)	IEC 60651 Type 1 Spec. (dB)
Range (dB)	Mode	Frequency Weighting	Time Weighting	Level (dB)	Burst Duration		
20 - 110	L _A	A	FAST	106.00	Continuous	106.0	Ref.
	L _{AMAX}				200 ms	105.1	-1.0 ± 1.0
	L _A	SLOW	Continuous		106.0	Ref.	
	L _{AMAX}		500 ms		102.0	-4.1 ± 1.0	

6.3 Frequency Weighting

6.3.1 A-Weighting

UUT Setting				Applied Value		UUT Reading (dB)	IEC 60651 Type 1 Spec. (dB)
Range (dB)	Mode	Frequency Weighting	Time Weighting	Level (dB)	Freq.		
30 - 120	L _A	A	Fast	94.00	31.5 Hz	54.2	-39.4 ± 1.5
					63 Hz	67.6	-26.2 ± 1.5
					125 Hz	77.7	-16.1 ± 1.0
					250 Hz	85.2	-8.6 ± 1.0
					500 Hz	90.6	-3.2 ± 1.0
					1 kHz	93.9	Ref.
					2 kHz	95.1	+1.2 ± 1.0
					4 kHz	95.0	+1.0 ± 1.0
					8 kHz	92.8	-1.1 (+1.5 ; -3.0)
					12.5 kHz	89.9	-4.3 (+3.0 ; -6.0)

6.3.2 C-Weighting

UUT Setting				Applied Value		UUT Reading (dB)	IEC 60651 Type 1 Spec. (dB)
Range (dB)	Mode	Frequency Weighting	Time Weighting	Level (dB)	Freq.		
30 - 120	L _C	C	Fast	94.00	31.5 Hz	90.7	-3.0 ± 1.5
					63 Hz	92.9	-0.8 ± 1.5
					125 Hz	93.6	-0.2 ± 1.0
					250 Hz	93.8	0.0 ± 1.0
					500 Hz	93.9	0.0 ± 1.0
					1 kHz	93.9	Ref.
					2 kHz	93.8	-0.2 ± 1.0
					4 kHz	93.2	-0.8 ± 1.0
					8 kHz	90.9	-3.0 (+1.5 ; -3.0)
					12.5 kHz	88.1	-6.2 (+3.0 ; -6.0)

The test equipment used for calibration are traceable to the National Standards as specified in this report.
This report shall not be reproduced except in full and with prior written approval from this laboratory.

Calibration Report

6.4 Time Averaging

UUT Setting				Applied Value					UUT	IEC 60804
Range (dB)	Mode	Frequency Weighting	Time Weighting	Freq. (kHz)	Burst Duration (ms)	Burst Duty Factor	Burst Level (dB)	Equivalent Level (dB)	Reading (dB)	Type 1 Spec. (dB)
20 - 110	L _{Aeq}	A	10 sec.	4	1	1/10	110.0	100	100.0	± 0.5
						1/10 ²		90	90.0	± 0.5
			60 sec.			1/10 ³		80	80.0	± 1.0
			5 min.			1/10 ⁴		70	70.0	± 1.0

Remarks : - Mfr's Spec. : IEC 60651 Type 1 & IEC 60804 Type 1

- Uncertainties of Applied Value : 94 dB : 31.5 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)
 Burst equivalent level : ± 0.2 dB (Ref. 110 dB continuous sound level)

- The uncertainties are for a confidence probability of not less than 95 %.

Note :

The values given in this Calibration Report 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.

Certificate No. : C105886

Certificate of Calibration

This is to certify that the equipment

Description : Sound Level Meter

Manufacturer : Rion

Model No. : NL-31

Serial No. : 00983400

*has been calibrated for the specific items and ranges.
The results are shown in the Calibration Report No. C105886.*

The equipment is supplied by

Co. Name : Envirotech Services Co.

*Address : Shop 6, G/F., Casio Mansion, 209 Shaukeiwan Road,
Hong Kong*

Date of Issue : 26 October 2010

Certified by :



K C Lee

Report No. : C105886

Calibration Report

ITEM TESTED

DESCRIPTION : Sound Level Meter
MANUFACTURER : Rion
MODEL NO. : NL-31
SERIAL NO. : 00983400

TEST CONDITIONS

AMBIENT TEMPERATURE : $(23 \pm 2)^{\circ}\text{C}$ RELATIVE HUMIDITY : $(55 \pm 20)\%$
LINE VOLTAGE : ---

TEST SPECIFICATIONS

Calibration check

DATE OF TEST : 25 October 2010

JOB NO. : IC10-2726

TEST RESULTS

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
- The Bruel & Kjaer Calibration Laboratory, Denmark
- Rohde & Schwarz Laboratory, Germany
- Fluke Everett Service Center, USA
- Agilent Technologies, USA

Tested by :


L L Cheung

Date : 26 October 2010

The test equipment used for calibration are traceable to the National Standards as specified in this report.
This report shall not be reproduced except in full and with prior written approval from this laboratory.

Calibration Report

1. The unit-under-test (UUT) was allowed to stabilize in the laboratory for over 24 hours, and switched on to warm up for over 10 minutes before the commencement of the test.
2. Self-calibration was performed before the test.
3. The results presented are the mean of 3 measurements at each calibration point.
4. Test equipment :

<u>Equipment ID</u>	<u>Description</u>	<u>Certificate No.</u>
CL280	40 MHz Arbitrary Waveform Generator	C100067
CL281	Multifunction Acoustic Calibrator	C1006860

5. Test procedure : MA101N.

6. 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	94.0	± 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	94.0 (Ref.)
				104.00		104.0
				114.00		114.1

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	94.0	Ref.
			Slow				

Calibration Report

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	67.6	-26.2 ± 1.5
					125 Hz	77.7	-16.1 ± 1.5
					250 Hz	85.2	-8.6 ± 1.4
					500 Hz	90.7	-3.2 ± 1.4
					1 kHz	94.0	Ref.
					2 kHz	95.3	+1.2 ± 1.6
					4 kHz	95.1	+1.0 ± 1.6
					8 kHz	93.0	-1.1 (+2.1 ; -3.1)
					12.5 kHz	90.1	-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	93.2	-0.8 ± 1.5
					125 Hz	93.8	-0.2 ± 1.5
					250 Hz	94.0	0.0 ± 1.4
					500 Hz	94.0	0.0 ± 1.4
					1 kHz	94.0	Ref.
					2 kHz	93.9	-0.2 ± 1.6
					4 kHz	93.4	-0.8 ± 1.6
					8 kHz	91.1	-3.0 (+2.1 ; -3.1)
					12.5 kHz	88.3	-6.2 (+3.0 ; -6.0)

The test equipment used for calibration are traceable to the National Standards as specified in this report. This report shall not be reproduced except in full and with prior written approval from this laboratory.

Calibration Report

Remarks : - 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 Calibration Report 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.

Certificate No. : C113972

Certificate of Calibration

This is to certify that the equipment

Description : Sound Level Calibrator

Manufacturer : Rion

Model No. : NC-73

Serial No. : 10786708

has been calibrated for the specific items and ranges.

The results are shown in the Calibration Report No. C113972.

The equipment is supplied by

Co. Name : Envirotech Services Co.

*Address : Shop 6, G/F., Casio Mansion, 209 Shaukeiwan Road,
Hong Kong*

Date of Issue : 18 July 2011

Certified by :


HC Chan

Report No. : C113972

Calibration Report

ITEM TESTED

DESCRIPTION : Sound Level Calibrator
MANUFACTURER : Rion
MODEL NO. : NC-73
SERIAL NO. : 10786708

TEST CONDITIONS

AMBIENT TEMPERATURE : (23 ± 2)°C
RELATIVE HUMIDITY : (55 ± 20)%
LINE VOLTAGE : ---

TEST SPECIFICATIONS

Calibration check

DATE OF TEST : 16 July 2011

JOB NO. : IC11-1746

TEST RESULTS

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
- The Bruel & Kjaer Calibration Laboratory, Denmark
- Rohde & Schwarz Laboratory, Germany
- Fluke Everett Service Center, USA
- Agilent Technologies, USA

Tested by :


KC Lee

Date : 18 July 2011

The test equipment used for calibration are traceable to the National Standards as specified in this report.
This report shall not be reproduced except in full and with prior written approval from this laboratory.

Calibration Report

1. The unit-under-test (UUT) was allowed to stabilize in the laboratory for over 24 hours before the commencement of the test.
2. The results presented are the mean of 3 measurements at each calibration point.
3. Test equipment :

<u>Equipment ID</u>	<u>Description</u>	<u>Certificate No.</u>
TST150A	Measuring Amplifier	C101008
CL130	Universal Counter	C113350
CL281	Multifunction Acoustic Calibrator	C1006860

4. Test procedure : MA100N.

5. 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	93.9	± 0.5	± 0.2

- 5.2 Frequency Accuracy

UUT Nominal Value (kHz)	Measured Value (kHz)	Mfr's Spec.	Uncertainty of Measured Value (Hz)
1	0.991	1 kHz ± 2 %	± 1

Remark : - The uncertainties are for a confidence probability of not less than 95 %.

Note :

The values given in this Calibration Report 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.

Certificate No. : C113870

Certificate of Calibration

This is to certify that the equipment

Description : Sound Level Calibrator

Manufacturer : Rion

Model No. : NC-73

Serial No. : 10997142

has been calibrated for the specific items and ranges.

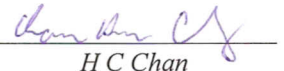
The results are shown in the Calibration Report No. C113870.

The equipment is supplied by

Co. Name : Envirotech Services Co.

*Address : Shop 6, G/F., Casio Mansion, 209 Shaukeiwan Road,
Hong Kong*

Date of Issue : 11 July 2011

Certified by : 
H C Chan

Report No. : C113870

Calibration Report

ITEM TESTED

DESCRIPTION : Sound Level Calibrator
MANUFACTURER : Rion
MODEL NO. : NC-73
SERIAL NO. : 10997142

TEST CONDITIONS

AMBIENT TEMPERATURE : $(23 \pm 2)^{\circ}\text{C}$ RELATIVE HUMIDITY : $(55 \pm 20)\%$
LINE VOLTAGE : ---

TEST SPECIFICATIONS

Calibration

DATE OF TEST : 11 July 2011

JOB NO. : IC11-1713

TEST RESULTS

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
- The Bruel & Kjaer Calibration Laboratory, Denmark
- Rohde & Schwarz Laboratory, Germany
- Fluke Everett Service Center, USA
- Agilent Technologies, USA

Tested by :


KC Lee

Date : 11 July 2011

The test equipment used for calibration are traceable to the National Standards as specified in this report.
This report shall not be reproduced except in full and with prior written approval from this laboratory.

Calibration Report

1. The unit-under-test (UUT) was allowed to stabilize in the laboratory for over 24 hours before the commencement of the test.
2. The results presented are the mean of 3 measurements at each calibration point.
3. Test equipment :

<u>Equipment ID</u>	<u>Description</u>	<u>Certificate No.</u>
TST150A	Measuring Amplifier	C101008
CL130	Universal Counter	C113350
CL281	Multifunction Acoustic Calibrator	C1006860

4. Test procedure : MA100N.

5. Results :

- 5.1 Sound Level Accuracy

- 5.1.1 Before Adjustment

UUT Nominal Value	Measured Value (dB)	Mfr's Spec. (dB)	Uncertainty of Measured Value (dB)
94 dB, 1 kHz	94.3	± 0.5	± 0.2

- 5.1.2 After Adjustment

UUT Nominal Value	Measured Value (dB)	Mfr's Spec. (dB)	Uncertainty of Measured Value (dB)
94 dB, 1 kHz	94.0	± 0.5	± 0.2

- 5.2 Frequency Accuracy

- 5.2.1 Before Adjustment

UUT Nominal Value (kHz)	Measured Value (kHz)	Mfr's Spec.	Uncertainty of Measured Value (Hz)
1	0.991	1 kHz ± 2 %	± 1

- 5.2.2 After Adjustment

UUT Nominal Value (kHz)	Measured Value (kHz)	Mfr's Spec.	Uncertainty of Measured Value (Hz)
1	0.991	1 kHz ± 2 %	± 1

The test equipment used for calibration are traceable to the National Standards as specified in this report.
This report shall not be reproduced except in full and with prior written approval from this laboratory.

Report No. : C113870

Calibration Report

Remark : - The uncertainties are for a confidence probability of not less than 95 %.

Note :

The values given in this Calibration Report 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

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	0.068
					0.016	0				
Oct	0.523	0	0	0	0.523	0	0	0	0	0.086
Nov	2.331	0	0	0	2.275	0.056	99.2	0.036	0	0.129
Dec	3.803	0	0	0	3.004	0.799	1	0	0	0.120
Total	6.673	0	0	0	5.818	0.855	100.2	0.036	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	Wet	0	0.09	0	1.2	0.124
					8.236	0.187					
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	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	58.313	0	0	9.866	46.637	1.81	0	1.297	0.063	2.8	0.745

- 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).