

Entrusted Portion of Widening of Tolo Highway / Fanling Highway between Island House Interchange and Fanling Stage 2

Monthly EM&A Report

November 2014

Submitted to

Environmental Protection Department

Prepared By

Meinhardt Infrastructure and Environment Ltd

Meinhardt Infrastructure and Environment Limited

**Entrusted Portion of Widening of Tolo
Highway / Fanling Highway between Island
House Interchange and Fanling Stage 2**

Monthly EM&A Report

(November 2014)

Certified by: Fredrick Leong 

Position: Environmental Team Leader

Date: 8 December 2014

Our ref AFK/TK/jn/T329380/22.05/L-0053

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8 December 2014

By Fax (2805 5028) & Post

Dear Sir,

Attn: Mr. James Penny

**Environmental Monitoring and Audit (EM&A) for Widening of Tolo Highway/Fanling Highway between Island House Interchange and Fanling
Stage 2 (between Tai Hang to Wo Hop Shek Interchange) – Entrusted Works
Environmental Permit No. EP-324/2008/B
Condition 3.3 – Submission of Monthly EM&A Report – November 2014 for the portion of Stage 2 works entrusted to Civil Engineering and Development Department (CEDD) under Contract No. CV/2012/09**

We refer to the revised Monthly EM&A Report – November 2014 received on 5 December 2014 submitted by the Environmental Team via email. Pursuant to Environmental Permit Condition 3.3, I hereby verify the Monthly EM&A Report – November 2014 (Rev. 0) for the portion of works under Stage 2 of the captioned Project which is entrusted to CEDD under Contract No. CV/2012/09.

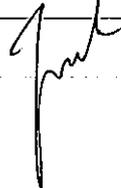
Yours faithfully
for MOTT MACDONALD HONG KONG LIMITED



Terence Kong
Independent Environmental Checker

c.c. HyD – Mr. Raymond T W Kong/ Mr. Dennis Wong (Fax: 2714 5198)
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Date	Revision	Prepared By	Checked By	Approved By
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EXECUTIVE SUMMARY

The Entrusted Portion of Widening of Tolo Highway / Fanling Highway between Island House Interchange and Fanling Stage 2 (hereafter called “the Project”) covers part of the construction of the widening of Tolo Highway / Fanling Highway between Island House Interchange and Fanling which aimed to widen Tolo Highway and Fanling Highway to dual 4-lane carriageway in order to alleviate the current traffic congestion problems and to cope with the increasing transport demands to and from the urban areas and also cross boundary traffic. The Project covers construction activities at Yuen Leng along the existing Fanling Highway.

The impact EM&A for the Project includes air quality, noise and water quality monitoring. The EM&A programme commenced on 5 November 2013.

This report documents the findings of EM&A works conducted in November 2014. As informed by the Contractor, the major activities in the reporting month were:

- Pile cap construction for Bridge E;
- ADMS installation;
- Cable detection and trial trenches;
- Catch fence erection;
- Filling Works at Tong Hang East;
- Lagging wall and capping beam for bored pile wall;
- Storm drains laying
- Water pipes laying;
- Sewer pipes laying;
- Construction of noise barriers;
- Pier construction;
- Pile cap works;
- Piling works;
- Pre-drilling;
- Construction of valve control and Telemetry House;
- Retaining structure construction;
- Traffic diversion for Fanling Highway;
- Road works at Fanling Highway;
- Socket H-pile installation; and

- Utilities duct laying.

Breach of Action and Limit Levels for Air Quality

No exceedance of Action and Limit Level was recorded for 24-hour TSP monitoring at the monitoring location AM1(SR77) in the reporting month.

No exceedance of Action and Limit Level was recorded for 1-hour TSP monitoring at the monitoring location AM1(SR77) in the reporting month.

Breach of Action and Limit Levels for Noise

No noise complaint was received in the reporting month, so no Action Level exceedance was recorded. Also, no Limit Level exceedance of noise monitoring was recorded in the reporting month.

Breach of Action and Limit Levels for Water Quality

The box culvert works have been partially completed by the end of March 2014 except the last construction activity, installation of a base slab at Box Culvert ID4. Due to the loading requirement of a fresh water main under the box culvert, installation of the base slab at Box Culvert ID4 has to be scheduled to be carried out in November 2015 after the utilities diversions complete. The construction works are temporarily suspended until the utilities diversion works complete. The 4-week post construction water quality monitoring will be commenced after the installation of the base slab finishes, hence the completion of the box culvert works.

Impact monitoring for water quality was not necessary in the reporting month due to temporary suspension of the construction works and is anticipated to be resumed in November 2015 during the course of remaining box culvert works.

Complaint, Notification of Summons and Successful Prosecution

A complaint regarding water quality of Ng Tung River was received on 21 November 2014 in the reporting month. The ET had conducted investigation for the complaint which concluded that it was unlikely due to the construction works of this Project.

No notification of summons and successful prosecution was received in the reporting month.

Future Key Issues

The major construction works in the coming reporting month are anticipated to include:

- Pile cap and bridge deck construction for Bridge E;
- Piling works for Bridge E;
- Box culvert inlet structure construction;
- Cable detection and trial trenches;
- Water pipes laying;
- Storm drains laying;

- Demolition of central barrier at Fanling Highway;
- E&M works for valve control & telemetry house;
- Erection of temporary support at DSD nullah;
- Filling works at Tong Hang East;
- Lagging wall and capping beam for bored pile wall;
- Laying of water pipes for fire fighting;
- Construction of noise barriers;
- Pier construction;
- Pile Cap;
- Pre-drilling works and piling works for viaduct;
- Retaining structure construction;
- Road works at Fanling Highway;
- Socket H-pile installation;
- Tree Felling Works;
- Utilities duct laying; and
- Viaduct segment erection.

Potential environmental impacts arising from the above construction activities are anticipated to be mainly associated with construction dust, noise, water quality and waste management.

1 INTRODUCTION

1.1.1 Chun Wo Construction & Engineering Co Ltd (Chun Wo) was commissioned by the Civil Engineering and Development Department (CEDD) as the Civil Contractor for the Entrusted Portion of Widening of Tolo Highway / Fanling Highway between Island House Interchange and Fanling Stage 2. Meinhardt Infrastructure & Environment Ltd (MIEL) has been appointed by Chun Wo as the Environmental Team (ET) to fulfill the corresponding EM&A requirements pursuant to Environmental Permit No. EP-324/2008/B in accordance with the Updated EM&A Manual (dated October 2013) for Widening of Tolo Highway/Fanling Highway between Island House Interchange and Fanling Stage 2. The EM&A programme commenced in 5 November 2013.

1.2 Purpose of the Report

1.2.1 This is the monthly EM&A Report which summaries the impact monitoring results and audit findings for the Project during the reporting month of November 2014.

1.3 Report Structure

1.3.1 This monthly EM&A Report comprises the following sections:

- Section 1: Introduction
- Section 2: Project Information
- Section 3: Status of Environmental Licenses, Notifications and Permits
- Section 4: Air Quality Monitoring
- Section 5: Noise Monitoring
- Section 6: Water Monitoring
- Section 7: Waste Management
- Section 8: Environmental Site Inspection and Audit
- Section 9: Implementation Status of Environmental Mitigation Measures
- Section 10: Environmental Non-conformance
- Section 11: Future Key Issues
- Section 12: Conclusions and Recommendations

2 PROJECT INFORMATION

2.1 Background

- 2.1.1 Tolo Highway and Fanling Highway are expressways in the North East New Territories connecting Sha Tin, Tai Po and Fanling. These highways form a vital part of the strategic Route 1, which links Hong Kong Island to Shenzhen. At present, this section of Route 1 is a dual 3-lane carriageway. However, at several major interchanges along this section of Route 1, the highway is only dual-2 lane. Severe congestion is a frequent occurrence during peak periods, particularly in the Kowloon bound direction.
- 2.1.2 The objective of the Widening of Tolo Highway / Fanling Highway between Island House Interchange and Fanling is to widen Tolo Highway and Fanling Highway to dual 4-lane carriageway in order to alleviate the current traffic congestion problems and to cope with the increasing transport demands to and from the urban areas and also cross boundary traffic.
- 2.1.3 The construction works for the Widening of Tolo Highway / Fanling Highway between Island House Interchange and Fanling are to be delivered in 2 stages:
- Stage 1 – Construction works between Island House Interchange and Tai Hang; and
 - Stage 2 – Construction works between Tai Hang and Wo Hop Shek Interchange.
- 2.1.4 The construction works of Stage 1 under the EP commenced in November 2009 and was planned to be completed in December 2013 tentatively. The works of Stage 2 was planned to commence in November 2013 and complete by end of 2016. Hyder-Arup-Black and Veatch Joint Venture (HABVJV) was appointed by the Highways Department (HyD) as the consultants for the design and construction assignment for the Project. Mott MacDonald Hong Kong Ltd is the Independent Environmental Checker (IEC) of both Stage 1 and Stage 2 works.
- 2.1.5 A portion of Stage 2 works of Widening of Tolo Highway / Fanling Highway between Island House Interchange and Fanling (hereafter called “the Project”) is entrusted to the contractor of Contract No. CV/2012/09 Liantang / Heung Yuen Wai Boundary Control Point Site Formation and Infrastructure Works Contract 3, i.e. Chun Wo. AECOM Asia Co Ltd was appointed by the CEDD as the consultant for the design and construction assignment for the Liantang development.
- 2.1.6 The Project is a Designated Project under the Environmental Impact Assessment Ordinance (EIAO) (Cap. 499). An Environmental Impact Assessment (EIA) Report together with an Environmental Monitoring and Audit (EM&A) Manual were approved on 14 July 2000 (Register Number: EIA-043/2000). The Project is governed by an Environmental Permit (EP) (EP-324/2008) which was granted on 23 December 2008. A variation of EP (VEP) was applied and the VEP (EP-324/2008/A) was subsequently granted on 31 January 2012. An additional VEP has been applied on 24 February 2014 and the VEP (EP-324/2008/B) was subsequently granted on 17 March 2014.

2.2 Site Description

- 2.2.1 The major construction activities under the Entrusted Portion of Widening of Tolo Highway / Fanling Highway between Island House Interchange and Fanling Stage 2 include:

- At-Grade Road Works – Temporary and permanent road formation, pipe laying, road drainage, footpath and noise barrier construction;
- Demolition of existing Kiu Tau Footbridge and Footbridge Re-provision; and
- Box Culvert Extension – Flow diversion of existing stream, excavation, sub-base and blinding, base, wall and top slab construction.

2.2.2 **Figure 1** shows the works areas for the Entrusted Portion of Widening of Tolo Highway / Fanling Highway between Island House Interchange and Fanling Stage 2.

2.3 Construction Programme and Activities

2.3.1 The major construction activities undertaken in the reporting month are summarized below:

- Pile cap construction for Bridge E;
- ADMS installation;
- Cable detection and trial trenches;
- Catch fence erection;
- Filling Works at Tong Hang East;
- Lagging wall and capping beam for bored pile wall;
- Storm drains laying
- Water pipes laying;
- Sewer pipes laying;
- Construction of noise barriers;
- Pier construction;
- Pile cap works;
- Piling works;
- Pre-drilling;
- Construction of valve control and Telemetry House;
- Retaining structure construction;
- Traffic diversion for Fanling Highway;
- Road works at Fanling Highway;
- Socket H-pile installation; and

- Utilities duct laying.

2.3.2 The construction programme is presented in **Appendix A**.

2.4 Project Organisation

2.4.1 The project organization structure is shown in **Appendix B**. The key personnel contact names and numbers for the Project are summarised in **Table 2.1**.

Table 2.1 Contact Information of Key Personnel

Party	Role	Position	Name	Telephone	Fax
AECOM	Engineer's Representative	Senior Resident Engineer	Mr. Alan Lee	2171 3303	2171 3498
		Resident Engineer (Environmental)	Mr. Perry Yam	2171 3350	
Mott MacDonald	Independent Environmental Checker (IEC)	IEC	Mr. Terence Kong	2828 5919	2827 1823
Chun Wo	Contractor	Site Agent	Mr. Daniel Ho	2638 6144	2638 7077
		Senior Environmental Officer	Mr. Sam Lam	2638 6168	
		Environmental Officer	Mr. Victor Huang	2638 6181	
Meinhardt	Environmental Team (ET)	ET Leader	Mr. Fredrick Leong	2859 1739	2540 1580

3 STATUS OF ENVIRONMENTAL LICENSES, NOTIFICATION AND PERMITS

3.1.1 The relevant environmental licenses, permits and/or notifications on environmental protection for this Project and valid in the reporting month are summarized in **Table 3.1**.

Table 3.1 Status of Environmental Licenses, Notifications and Permits

Permit / License No. / Notification / Reference No.	Valid Period		Status	Remarks
	From	To		
Environmental Permit				
EP-324/2008/B	17 Mar 2014	--	Granted on 17/03/2014	--
Construction Noise Permit				
GW-RN0397-14	29 Jun 2014	28 Dec 2014	Valid	For tree felling / transplanting works
GW-RN0445-14	28 Jul 2014	25 Jan 2015	Valid	For operating water pump in Kiu Tau at night
GW-RN0485-14	5 Aug 2014	5 Feb 2015	Valid	For operating water pump in jacking pit at Nam Wah Po
GW-RN0557-14	15 Sep 2014	28 Dec 2014	Valid	For road diversion of Southbound of Fanling Highway
GW-RN0651-14	21 Oct 2014	20 Nov 2014	Valid	For erection of catch fence near Pier AD11 & AB10 in the night time
GW-RN0684-14	16 Nov 2014	26 Apr 2015	Valid	For removal of the broken central dividers on Sundays and Public Holidays
GW-RN0720-14	21 Nov 2014	3 Jan 2015	Valid	For erection of catch fence near Pier AD11 & AB10 in the night time
Wastewater Discharge License				
WT00016832-2013	28 Aug 2013	31 Aug 2018	Valid	--
Chemical Waste Producer Registration				
5113-634-C3817-01	7 Oct 2013	--	Valid	--
Billing Account for Construction Waste Disposal				
7017914	2 Aug 2013	--	Account Active	--
Notification Under Air Pollution Control (Construction Dust) Regulation				
--	31 Jul 2013	30 Jul 2019	Notified	--

4 AIR QUALITY MONITORING

4.1 Monitoring Requirement

4.1.1 In accordance with the Updated EM&A Manual, 1-hr and 24-hr total suspended particulate (TSP) levels at the designated air quality monitoring station are required. Impact 24-hour TSP monitoring should be carried out for at least once every 6 days. For the 1-hr TSP impact monitoring, the sampling frequency of at least three times in every 6 days should be undertaken when the highest dust impact occurs.

4.2 Monitoring Equipment

4.2.1 The 1hr- TSP and 24-hr TSP air quality monitoring were performed using a High Volume Sampler (HVS), of which its location and operation satisfy, as far as practicable, all the requirements as specified in the Updated EM&A Manual. The brand and model of the equipment are given in **Table 4.1**.

Table 4.1 Air Quality Monitoring Equipment

Equipment	Brand and Model	Quantity	Serial Number
High Volume Sampler (1-hr TSP and 24-hr TSP)	Tisch Total Suspended Particulate Mass Flow Controlled High Volume Air Sampler (Model No. TE-5170 MFC)	1	2359

4.2.2 The HVS and its accessories were maintained in good working condition, such as replacing motor brushes routinely and checking electrical wiring to ensure a continuous power supply.

4.2.3 Calibration of the HVS (five point calibration) using Calibration Kit was carried out every two months. The HVS calibration orifice will be calibrated annually. Calibration certificate of the TE-5025A Calibration Kit and the HVS are provided in **Appendix C**.

4.3 Monitoring Location

4.3.1 Air quality monitoring was conducted at the location specified in the Updated EM&A Manual. **Table 4.2** describes the details of the air quality monitoring station with its location as shown in **Figure 2**.

Table 4.2 Location of Air Quality Monitoring

Air Monitoring Station ID	Monitoring Location	Description
AM1(SR77) *	Yuen Leng 2 *	Residential, Ground floor

Remark:

* Location and Station / ASR ID as identified in Updated EM&A Manual / EIA Report for Widening of Tolo Highway/Fanling Highway between Island House Interchange and Fanling

4.4 Monitoring Parameters, Frequency and Duration

4.4.1 **Table 4.3** summarizes the monitoring parameters, frequency and duration of impact TSP monitoring.

Table 4.3 Air Quality Monitoring Parameters, Frequency and Duration

Parameter	Frequency and Duration
1-hour TSP	At least three times in every 6 days should be undertaken when the highest dust impact occur
24-hour TSP	Once every 6 days

4.5 Monitoring Methodology

1-hr and 24-hr TSP Monitoring

- 4.5.1 With the consideration of criteria stated in the Updated EM&A Manual, the HVS was installed in the vicinity of the air sensitive receivers.
- 4.5.2 The relevant data including temperature, pressure, weather conditions, elapsed-time meter reading for the start and stop of the sampler, identification and weight of the filter paper, and any special phenomena observed were recorded. The weather information was referenced from Hong Kong Observatory (<http://www.weather.gov.hk/wxinfo/pastwx/extractc.htm>).
- 4.5.3 A HOKLAS accredited laboratory with constant temperature and humidity control, and equipped with necessary measuring and conditioning instruments, to handle the 24-hr TSP samples, was employed for sample analysis.
- 4.5.4 Filter papers of size 8"x10" were labelled before sampling. They were inspected to be clean with no pin holes and conditioned in a humidity controlled chamber for over 24-hr and were pre-weighed before use for the sampling.
- 4.5.5 The 24-hr TSP levels were measured by following the standard high volume sampling method for TSP as set out in the Title 40 of the United States Code of Federal Regulations, Chapter 1 (Part 50), Appendix B. TSP was sampled by drawing air through a conditioned, pre-weighted filter paper inside the HVS at a controlled air flow rate. After 24-hr sampling, the filter papers loaded with dust were kept in a clean and tightly sealed plastic bag, and then returned to the laboratory for reconditioning in the humidity controlled chamber followed by accurate weighing by an electronic balance with a readout down to 0.1 mg.
- 4.5.6 All the collected samples were kept in a good condition for 6 months before disposal.
- 4.5.7 For 1-hr TSP monitoring, monitoring methodology is the same as 24-hr TSP monitoring which has been presented in **Section 4.5.1** to **Section 4.5.6**, but with sampling period changed to 1 hour.

4.6 Monitoring Schedule for the Reporting month

- 4.6.1 The schedule for environmental monitoring for the reporting month is provided in **Appendix D**. Meteorological data extracted from Hong Kong Observatory for the reporting month is provided in **Appendix E**.

4.7 Monitoring Results

- 4.7.1 The monitoring results for 1-hr and 24-hr TSP are summarised in **Table 4.4** and **Table 4.5** respectively. Detailed air quality monitoring results and the graphical presentation

of air quality monitoring data for the current and past three reporting months are presented in **Appendix F**.

Table 4.4 Summary of 1-hr TSP Monitoring Results

ASR ID	Average ($\mu\text{g}/\text{m}^3$)	Range ($\mu\text{g}/\text{m}^3$)	Action Level ($\mu\text{g}/\text{m}^3$)	Limit Level ($\mu\text{g}/\text{m}^3$)
AM1(SR77) *	87.5	40.4 – 113.1	292.7	500

Remark:

* Station / ASR ID as identified in Updated EM&A Manual / EIA Report for Widening of Tolo Highway/Fanling Highway between Island House Interchange and Fanling

Table 4.5 Summary of 24-hr TSP Monitoring Results

ASR ID	Average ($\mu\text{g}/\text{m}^3$)	Range ($\mu\text{g}/\text{m}^3$)	Action Level ($\mu\text{g}/\text{m}^3$)	Limit Level ($\mu\text{g}/\text{m}^3$)
AM1(SR77) *	88.7	49.9 – 109.3	170.3	260

Remark:

* Station / ASR ID as identified in Updated EM&A Manual / EIA Report for Widening of Tolo Highway/Fanling Highway between Island House Interchange and Fanling

- 4.7.2 No exceedance of Action and Limit Level was recorded for 24-hour TSP monitoring at the monitoring location AM1(SR77) in the reporting month.
- 4.7.3 No exceedance of Action and Limit Level was recorded for 1-hour TSP monitoring at the monitoring location AM1(SR77) in the reporting month.
- 4.7.4 The Event and Action Plan for the occurrence of non-compliance of the air quality criteria is annexed in **Appendix G**.
- 4.7.5 Meteorological data extracted from Hong Kong Observatory for the reporting month is provided in **Appendix E**.

5 NOISE MONITORING

5.1 Monitoring Requirements

5.1.1 In accordance with the Updated EM&A Manual, the impact noise monitoring frequency shall depend on the scale of the construction activities. An initial guide on the regular monitoring frequency should be at least once per week when noise generating activities are underway.

5.2 Monitoring Equipment

5.2.1 Noise monitoring was performed using a sound level meter at the monitoring station. The sound level meter deployed complies with the International Electrotechnical Commission Publications 651:1979 (Type 1) and 804:1985 (Type 1) specifications. An acoustic calibrator was deployed to check the sound level meter at a known sound pressure level. The brand and model of the equipment is given in **Table 5.1**.

Table 5.1 Noise Monitoring Equipment

Equipment	Brand and Model	Quantity	Serial Number
Sound Level Calibrator	B&K (Model No. 4231)	1	2685684
Sound Level Meter	Rion (Model No. NL-52)	1	00220553

5.2.2 The sound level calibrator and sound level meter were verified by a certified laboratory every year. Calibration certificates of the sound level meter and acoustic calibrator are provided in **Appendix C**.

5.3 Monitoring Locations

5.3.1 Impact noise monitoring was conducted at the location specified in the Updated EM&A Manual. **Table 5.2** describes the details of the noise monitoring station with its location as shown in **Figure 2**.

Table 5.2 Location of Noise Monitoring

NSR ID	Monitoring Location	Description
M1(SR77) *	Yuen Leng 2 *	Residential, Ground floor

Remark:

* Location and Station / NSR ID as identified in Updated EM&A Manual / EIA Report for Widening of Tolo Highway/Fanling Highway between Island House Interchange and Fanling

5.4 Monitoring Parameters, Frequency and Duration

5.4.1 **Table 5.3** summarizes the monitoring parameters, frequency and duration of impact noise monitoring.

Table 5.3 Noise Monitoring Parameters, Frequency and Duration

Parameter and Duration	Frequency
30-mins measurement at between 0700 and 1900 on normal weekdays. Leq, L10 and L90 would be recorded.	At least once per week

5.5 Monitoring Methodology

5.5.1 The monitoring procedures are summarised as follows:

- The sound level meter was set on a tripod at a height of 1.2 m above the ground for free-field measurements at monitoring station SR77;
- The battery condition was checked to ensure good functioning of the meter;
- Parameters such as frequency weighting, the time weighting and the measurement time were set as follows:
 - Frequency weighting: A
 - Time weighting: Fast
 - Parameters: Leq, L10 and L90
- Time measurement: Leq(30-minutes) during non-restricted hours i.e. 07:00 – 19:00 hrs on normal weekdays
- Prior to and after each noise measurement, the meter was calibrated using the acoustic calibrator for 94dB(A) at 1000 Hz. If the difference in the calibration level before and after measurement was more than 1dB(A), the measurement would be considered invalid and repeat of noise measurement would be required after re-calibration or repair of the equipment.
- At the end of the monitoring period, the Leq, L10 and L90 were recorded. In addition, site conditions and noise sources were recorded on a standard record sheet.
- A façade correction of +3dB (A) shall be made to the noise parameter obtained by free field measurement.

5.6 Monitoring Schedule for the Reporting Month

5.6.1 The schedule for environmental monitoring for the reporting month is provided in **Appendix D**. Meteorological data extracted from Hong Kong Observatory for the reporting month is provided in **Appendix E**.

5.7 Monitoring Results

5.7.1 The monitoring results for noise are summarized in **Table 5.4** and the monitoring results and the graphical presentation of noise level for the current and past three reporting months are presented in **Appendix H**.

Table 5.4 Summary of Noise Monitoring Results

Noise Monitoring Station ID	Average, dB(A), Leq (30min) ⁽²⁾	Range, dB(A), Leq (30min) ⁽²⁾	Action Level	Limit Level, dB(A)
M1(SR77) ⁽¹⁾	69.9	66.5 – 71.5	When one documented valid complaint is received	75

Remark:

(1) Station / NSR ID as identified in Updated EM&A Manual / EIA Report for Widening of Tolo Highway/Fanling Highway between Island House Interchange and Fanling

(2) +3dB(A) façade correction included

- 5.7.2 Major noise sources during the noise monitoring included construction activities of the Project and that along Tai Wo Service Road East, and nearby traffic noise.
- 5.7.3 No noise complaint was received in the reporting month, so no Action Level exceedance was recorded. Also, no Limit Level exceedance of noise monitoring was recorded in the reporting month.
- 5.7.4 The Event and Action Plan for the occurrence of non-compliance of the noise criteria is annexed in **Appendix G**.

6 WATER MONITORING

- 6.1.1 The box culvert works have been partially completed by the end of March 2014 except the last construction activity, installation of a base slab at Box Culvert ID4. Due to the loading requirement of a fresh water main under the box culvert, installation of the base slab at Box Culvert ID4 has to be scheduled to be carried out in November 2015 after the utilities diversions complete. The construction works are temporarily suspended until the utilities diversion works complete. The 4-week post construction water quality monitoring will be commenced after the installation of the base slab finishes, hence the completion of the box culvert works.
- 6.1.2 Impact monitoring for water quality was not necessary in the reporting month due to temporary suspension of the construction works and is anticipated to be resumed in November 2015 during the course of remaining box culvert works.

7 WASTE MANAGEMENT

- 7.1.1 The Contractor has registered as a chemical waste producer of the Project. The C&D materials and waste sorting were carried out on-site. Receptacles were provided for general refuse collection.
- 7.1.2 As advised by the Contractor, a total of 4,295m³ of excavated material has been generated. 3,650m³ of inert C&D materials was disposed of at public fill to Tuen Mun Area 38. 645m³ of inert C&D materials was reused on site. 110m³ of general refuse was disposed of at North East New Territories (NENT) Landfill. 10m³ of plastics, no paper/cardboard packaging was collected, and no metals were collected by recycling contractor in the reporting month. 1m³ chemical waste was collected by licensed contractor in the reporting period. Details of the waste management data are presented in **Appendix K**.

8 ENVIRONMENTAL SITE INSPECTION AND AUDIT

8.1 Site Inspection

- 8.1.1 Site inspections were carried out on a weekly basis to monitor the implementation of proper environmental pollution control and mitigation measures for the Project. A summary of the site inspection is provided in **Appendix L**.
- 8.1.2 In the reporting month, 4 site inspections were carried out on 3, 10, 19 and 24 November 2014. The one held on 24 November 2014 was a joint inspection with the IEC, ER, ET and Contractor. One site inspection was conducted by the EPD on 24 November 2014 during the reporting month. No non-compliance was recorded during the site inspection. A summary of the reminders and observations recorded during the site inspections are presented in **Table 8.1**.

Table 8.1 Observations and Recommendations of Site Audit

Parameters	Date	Observations and Recommendations	Follow-up
Water Quality	N/A	N/A	N/A
Air Quality	3 Nov 2014	Reminder: The Contractor is reminded to cover the exposed slope properly with the impervious sheeting at SA13.	The exposed slope has been covered properly with tarpaulin at SA13 as observed during the ET weekly site inspection on 10 Nov 2014.
	3 Nov 2014	Observation: Some mud and debris are observed on the public road at SA12. The Contractor is reminded to ensure vehicles being washed properly to remove any dusty materials before leaving the construction site.	The condition of the public road outside the SA12 has been improved as observed during the ET weekly site inspection on 10 Nov 2014.
Noise	N/A	N/A	N/A
Waste / Chemical Management	3 Nov 2014	Observation: Some construction waste is accumulated at SA14. The Contractor is reminded to clean up the waste for sorting.	The waste has been covered properly with tarpaulin as observed during the ET weekly site inspection on 10 Nov 2014.
Landscape & Visual	N/A	N/A	N/A
Permits / Licenses	N/A	N/A	N/A

9 IMPLEMENTATION STATUS OF ENVIRONMENTAL MITIGATION MEASURES

- 9.1.1 The Contractor has implemented the relevant environmental mitigation measures as specified in the EIA Reports, EPs and updated EM&A Manual. The implementation status of environmental mitigation measures during the reporting period is summarized in **Appendix L**.

10 SUMMARY OF EP SUBMISSION IN THE REPORTING MONTH

- 10.1.1 The status of the required submission under the EP during the reporting period is summarized in **Table 10.1**.

Table 10.1 Status of Required Submission under Environmental Permit

EP Condition	Submission	Submission Date
Condition 3.3	Monthly EM&A Report for October 2014	14 November 2014

- 10.1.2 The Quarterly EM&A Report (August 2014 to October 2014) was prepared and submitted on 14 November 2014 in accordance to Section 8.3.4 of the EM&A Manual.
- 10.1.3 The Annual EM&A Review Report (November 2013 to October 2014) was prepared and submitted on 20 November 2014 in accordance to Section 8.3.5 of the EM&A Manual.

11 ENVIRONMENTAL NON-CONFORMANCE

11.1 Summary of Monitoring Exceedances

- 11.1.1 No exceedance of Action and Limit Level was recorded for 24-hour TSP monitoring at the monitoring location AM1(SR77) in the reporting month.
- 11.1.2 No exceedance of Action and Limit Level was recorded for 1-hour TSP monitoring at the monitoring location AM1(SR77) in the reporting month.
- 11.1.3 No noise complaint was received in the reporting month, so no Action Level exceedance was recorded. Also, no Limit Level exceedance of noise monitoring was recorded in the reporting month.

11.2 Summary of Environmental Non-Compliance

- 11.2.1 No environmental non-compliance was recorded in the reporting month. The cumulative statistics are provided in **Appendix N**.

11.3 Summary of Environmental Complaints

- 11.3.1 A complaint regarding water quality of Ng Tung River was received on 21 November 2014 in the reporting month. The ET had conducted investigation for the complaint which concluded that it was unlikely due to the construction works of this Project. The cumulative statistics are provided in **Appendix N**.

11.4 Summary of Environmental Summon and Successful Prosecutions

- 11.4.1 No environmental related prosecution or notification of summons was received in the reporting month. The cumulative statistics are provided in **Appendix N**.

12 FUTURE KEY ISSUES

12.1 Construction Programme for the Next Month

12.1.1 The major construction works in the coming reporting month are anticipated to include:

- Pile cap and bridge deck construction for Bridge E;
- Piling works for Bridge E;
- Box culvert inlet structure construction;
- Cable detection and trial trenches;
- Water pipes laying;
- Storm drains laying;
- Demolition of central barrier at Fanling Highway;
- E&M works for valve control & telemetry house;
- Erection of temporary support at DSD nullah;
- Filling works at Tong Hang East;
- Lagging wall and capping beam for bored pile wall;
- Laying of water pipes for fire fighting;
- Construction of noise barriers;
- Pier construction;
- Pile Cap;
- Pre-drilling works and piling works for viaduct;
- Retaining structure construction;
- Road works at Fanling Highway;
- Socket H-pile installation;
- Tree Felling Works;
- Utilities duct laying; and
- Viaduct segment erection.

12.2 Key Issues for the Coming Month

12.2.1 Key issues to be considered in the coming month are anticipated to include:

- Site discharges should be properly collected and treated prior to discharge;
- Properly maintain all drainage facilities and wheel washing facilities on site;
- Expose slopes and dusty stockpile should be covered up properly if no work will be conducted; and
- Operation of construction plant should be sequenced where practicable.

12.3 Monitoring Schedule for the Next Month

- 12.3.1 The tentative schedule for environmental monitoring for the coming month is provided in **Appendix D**.

13 CONCLUSIONS AND RECOMMENDATIONS

13.1 Conclusions

- 13.1.1 The construction phase EM&A programme of the Project commenced on 5 November 2013.
- 13.1.2 The 1-hr TSP, 24-hr TSP and noise monitoring were carried out in the reporting period.
- 13.1.3 No exceedance of Action and Limit Level was recorded for 24-hour TSP monitoring at the monitoring location AM1(SR77) in the reporting month.
- 13.1.4 No exceedance of Action and Limit Level was recorded for 1-hour TSP monitoring at the monitoring location AM1(SR77) in the reporting month.
- 13.1.5 No noise complaint was received in the reporting month, so no Action Level exceedance was recorded. Also, no Limit Level exceedance of noise monitoring was recorded in the reporting month.
- 13.1.6 Four (4) environmental site inspections were carried out in the reporting month. Recommendations on remedial actions were given to the Contractors for the deficiencies identified during the site audit.

Temporary Suspension of Box Culvert Works and Water Quality Monitoring

- 13.1.7 The box culvert works have been partially completed by the end of March 2014 except the last construction activity, installation of a base slab at Box Culvert ID4. Due to the loading requirement of a fresh water main under the box culvert, installation of the base slab at Box Culvert ID4 has to be scheduled to be carried out in November 2015 after the utilities diversions complete. The construction works are temporarily suspended until the utilities diversion works complete. The 4-week post construction water quality monitoring will be commenced after the installation of the base slab finishes, hence the completion of the box culvert works.
- 13.1.8 Impact monitoring for water quality was not necessary in the reporting month due to temporarily suspension of the construction works and is anticipated to be resumed in November 2015 during the course of remaining box culvert works.

13.2 Recommendations

- 13.2.1 According to the environmental site inspections performed in the reporting month, the following recommendations were provided:

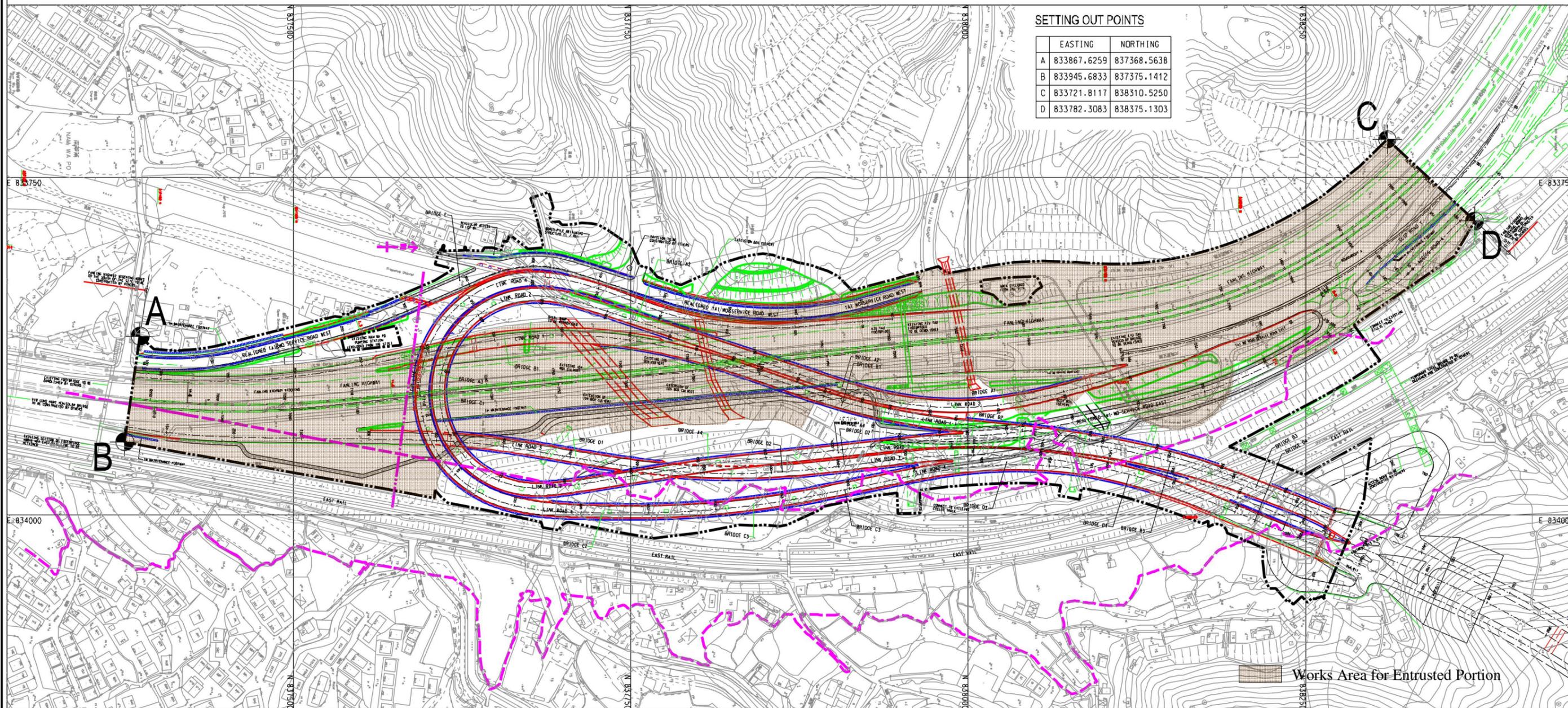
Air Quality

- Water spraying or covering of tarpaulin should be properly implemented whenever necessary for the unpaved roads, access roads and construction areas.
- All vehicles should be washed to remove any dusty materials before leaving the construction site.
- Wheel washing facilities should be properly maintained to ensure proper functioning.

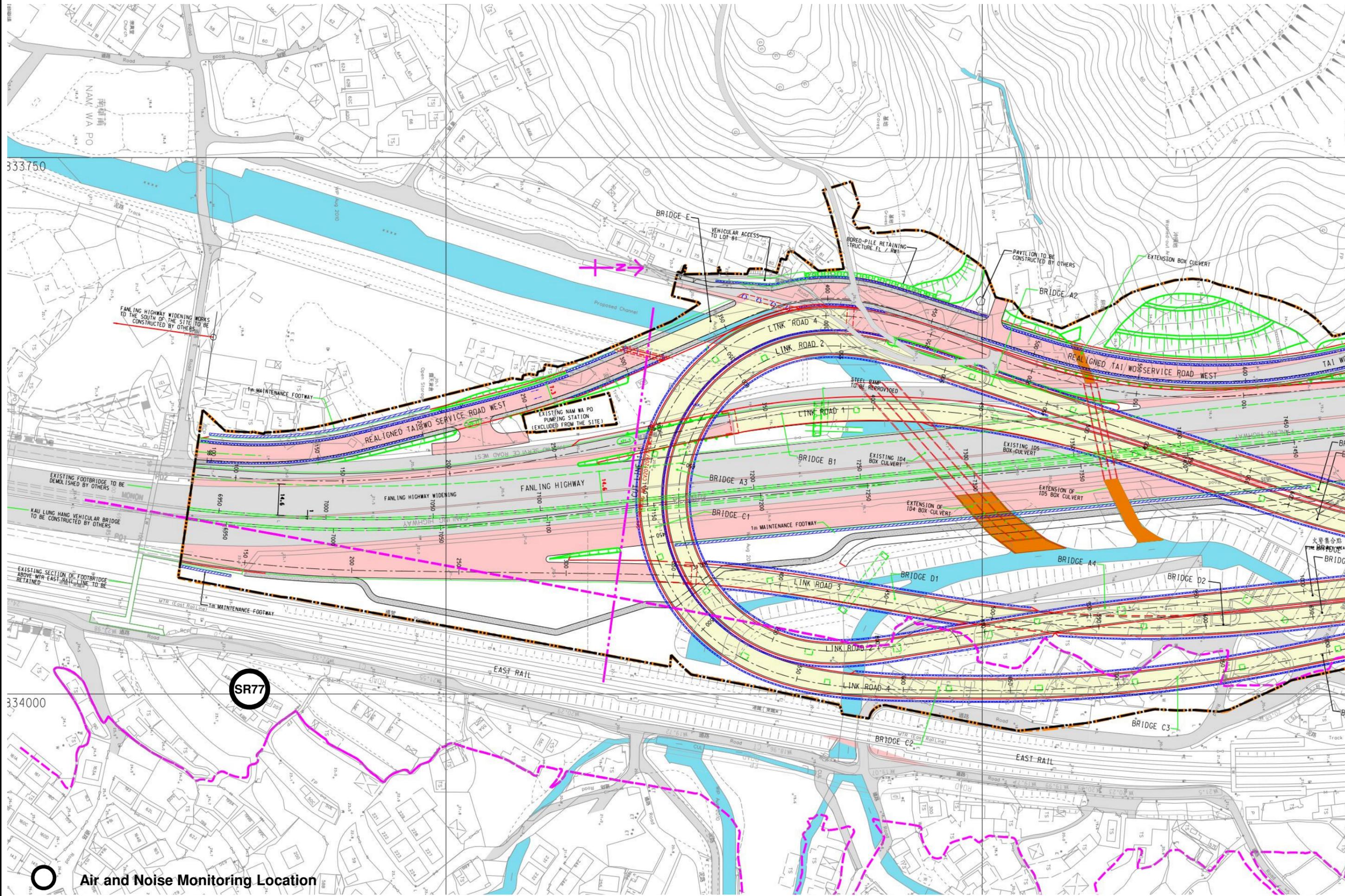
Chemical and Waste Management

- All types of wastes, both on land and floating in the river stream, should be collected and sorted properly, and also be disposed timely and properly.
- Refuse collection bins should be labelled properly.

Figure



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Appendix A Construction Programme

Activity ID	Activity Name	OD	RD	Start	Finish	TF	2014		2015		
							Nov	Dec	Jan	Feb	Mar
3-Month Rolling Programme 2014-11-21											
Key Dates (Contractual)											
KD-0010	Commencement of Works	0	0	31-Jul-13 A							
Dependent Milestones from Other Contracts											
MS-0100	Completion of Temporary Vehicular Bridge by C2 Contractor	0	0		31-Dec-14*	-99				◆ Completion of Temporary Vehicular Bridge by C2 Contractor	
Major Milestones and Events											
MS-2000A1	T1a: TTA to shift FLHS SB eastward to the widened pavement (shift 1st lanes)	1	0	08-Nov-14 A	09-Nov-14 A					■ T1a: TTA to shift FLHS SB eastward to the widened pavement (shift 1st lanes)	
MS-2000A2	T1b: TTA to shift FLHS SB eastward to the widened pavement (shift 2nd lanes)	1	1	28-Dec-14*	28-Dec-14	9				▮ T1b: TTA to shift FLHS SB eastward to the widened pavement (shift 2nd lanes)	
MS-2000A3	T1c: TTA to shift FLHS SB eastward to the widened pavement (shift 3rd lanes)	1	1	18-Jan-15*	18-Jan-15	9				▮ T1c: TTA to shift FLHS SB eastward to the widened pavement (shift 3rd lanes)	
MS-2000B	T2: TTA to shift FLHS NB & TWSRW eastward	1	1	15-Feb-15*	15-Feb-15	17				▮ T2: TTA to shift FLHS NB & TWSRW eastward	
Major Procurement & Delivery											
Water Supply Pipeworks											
MM-1050	DN450 DI pipe and pipe fittings	60	7	21-Jun-14 A	28-Nov-14	147				DN450 DI pipe and pipe fittings, DN450 DI pipe and pipe fittings	
MM-1060	E&M equipment for the re-provisioned WSD Valve Control House	60	60	21-Nov-14	02-Feb-15	8				E&M equipment for the re-provisioned WSD Valve Control House	
Precast Bridge Segment Lifting Frames and Precast Yard											
MM-2040	Deliver to Site and assembly works	44	26	28-Sep-14 A	20-Dec-14	10				Deliver to Site and assembly works, Deliver to Site and assembly works	
MM-2050	Certification of lifting frame	6	6	22-Dec-14	30-Dec-14	10				Certification of lifting frame	
Design and Submissions											
Statutory Approval											
PRE-1040	Submission & approval of temporary works on nullah for construction of pad footing of Bridge E - DSD	40	7	11-Sep-14 A	28-Nov-14	2				Submission & approval of temporary works on nullah for construction of pad footing of Bridge E - DSD, Submission & approval of temporary works on nullah for construction of pad footing of Bridge E - DSD	
PRE-1500	Confirmation of Noise Barrier Footing Design for NB71 (CH7150 to CH7290)	70	14	17-Apr-14 A	06-Dec-14	1385				Confirmation of Noise Barrier Footing Design for NB71 (CH7150 to CH7290), Confirmation of Noise Barrier Footing Design for NB71 (CH7150 to CH7290)	
PRE-1220	Consent for construction of noise barrier (NB1a) within WSD Tau Pass Restricted Zone - WSD	45	21	09-Apr-14 A	15-Dec-14	188				Consent for construction of noise barrier (NB1a) within WSD Tau Pass Restricted Zone - WSD, Consent for construction of noise barrier (NB1a) within WSD Tau Pass Restricted Zone - WSD	
PRE-1230B	Consent for installation of bored pile within 30m from WSD Tau Pass Restricted Zone -WSD	90	21	15-Jan-14 A	15-Dec-14	0				Consent for installation of bored pile within 30m from WSD Tau Pass Restricted Zone -WSD, Consent for installation of bored pile within 30m from WSD Tau Pass Restricted Zone -WSD	
PRE-1210	Consent for Dong Jiang watermains connection for DN1400 - WSD	0	0		02-Jan-15*	0				◆ Consent for Dong Jiang watermains connection for DN1400 - WSD	
Method Statement and Design (Major) Approved by AECOM											
PRE-2020	Submission of noise barrier design for absorptive panels, transparent panels and associated fixing details	60	30	11-Mar-14 A	27-Dec-14	154				Submission of noise barrier design for absorptive panels, transparent panels and associated fixing details	
Contractor's Alternative Design (AD) Submission & Approval											
PRE-4220	Pier Design Package B (AB6-AB11)	43	0	28-Nov-13 A	20-Nov-14 A					Pier Design Package B (AB6-AB11)	
PRE-4260	Pier Design Package F (AD8-AD13)	50	0	20-Jan-14 A	20-Nov-14 A					Pier Design Package F (AD8-AD13)	
PRE-4280	Portal Beam Design Package 2 (AB7/AD9/AC12, AB8, AD11)	38	0	23-Aug-14 A	20-Nov-14 A					Portal Beam Design Package 2 (AB7/AD9/AC12, AB8, AD11)	
PRE-4310A	Superstructure Design Package 9 for Bridge A1 (AA1-AA5)	118	35	16-May-14 A	03-Jan-15	362				Superstructure Design Package 9 for Bridge A1 (AA1-AA5), Superstructure Design Package 9 for Bridge A1 (AA1-AA5)	
PRE-4310D	Superstructure Design Package 6 for Bridge A4 (AA14-AA18)	108	35	16-May-14 A	03-Jan-15	101				Superstructure Design Package 6 for Bridge A4 (AA14-AA18), Superstructure Design Package 6 for Bridge A4 (AA14-AA18)	
PRE-4320B	Superstructure Design Package 7 for Bridge B2 (AB7-AB12)	196	35	21-May-14 A	03-Jan-15	7				Superstructure Design Package 7 for Bridge B2 (AB7-AB12), Superstructure Design Package 7 for Bridge B2 (AB7-AB12)	
PRE-4340B	Superstructure Design Package 8 for Bridge D2 (AD6-AD8)	56	35	30-Jul-14 A	03-Jan-15	229				Superstructure Design Package 8 for Bridge D2 (AD6-AD8), Superstructure Design Package 8 for Bridge D2 (AD6-AD8)	

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Activity ID	Activity Name	OD	RD	Start	Finish	TF	2014			2015			
							Nov	Dec	Jan	Feb	Mar		
PRE-4340C	Superstructure Design Package 5 for Bridge D3 (AD9-AD14)	196	35	07-May-14 A	03-Jan-15	36							
PRE-4310C	Superstructure Design Package 3 for Bridge A3 (AA10-AA13)	158	65	04-Apr-14 A	07-Feb-15	81							
PRE-4310B	Superstructure Design Package 10 for Bridge A2 (AA6-AA9)	154	65	16-May-14 A	07-Feb-15	471							
Temporary Traffic Arrangement (TTA) Submission and Approval													
TTA for Tai Wo Service Road East													
PRE-6220	TTA submission & approval - Scheme ER2 (shifting TWSR East westward towards Fanling Highway for pipe laying works)	30	30	21-Nov-14*	27-Dec-14	1369							
PRE-6210	TTA submission & approval - Scheme ER1 (shifting TWSR East to Access Road A)	20	20	22-Dec-14*	16-Jan-15	1353							
Section IA & IB - Fanling Highway Widening (KD-1 & KD-2)													
Fanling Highway South Portion between CH6935 and CH7470													
Fanling Highway Zone 1 between CH6935 and CH7130 (within SBZ2)													
At-Grade Roadworks (195m)													
FHW-1160	Road Formation, Road Drainage, Kerb and Pavement (Eastern Side)	48	0	31-Jul-14 A	08-Nov-14 A								
FHW-1110*	Pipe Laying - DN1200 Watermains (CHC) across Fanling Highway (total 80m for 2 shafts)	275	40	09-Jun-14 A	09-Jan-15	711							
FHW-1150*	Pipe Laying - DN1200 Watermains (CHC) along Fanling Highway (80m long, 4m depth)	182	160	20-Feb-14 A	12-Jun-15	711							
Fanling Highway Zone 2 between CH7130 and CH7290													
At-Grade Roadworks (160m)													
FHW-2120*	Pipe Laying - Twin DN1400 Watermains (CHE & G) along Fanling Highway (44m long, 6m depth)	85	22	09-Jul-14 A	16-Dec-14	287							
FHW-2110B	Noise Barrier NB71 - Footing adjacent to SB lane (96m) (affected due to design change)	128	154	26-Jul-14 A	05-Jun-15	75							
FHW-2200	Noise Barrier NB67 - Mini-Piling adjacent to NB lane (CSD: 36 nos)	108	108	16-Feb-15	07-Jul-15	9							
FHW-2130*	Pipe Laying - DN1200 & DN600 Watermains (CHB & CHC) along Fanling Highway (183m long, 4m depth)	95	249	26-May-14 A	26-Sep-15	459							
Fanling Highway Zone 3 between CH7290 and CH7380													
At-Grade Roadworks (130m)													
FHW-3130	Noise Barrier NB71 - Footing adjacent to SB lane (130m) Including pile cap	109	84	23-May-14 A	09-Mar-15	132							
FHW-3210	Noise Barrier NB69 - Mini-Piling adjacent to NB lane (CSD: 34nos)	68	68	16-Feb-15	18-May-15	140							
FHW-3150*	Pipe Laying - DN600, DN1200 Watermains (CHB & CHC) along Fanling Highway (90m long, 3m depth)	150	429	07-Jun-14 A	13-May-16	387							
Fanling Highway Zone 4 between CH7380 and CH7470													
At-Grade Roadworks (90m)													
FHW-4120*	Pipe Laying - Twin DN1400 Watermains (CHE & CHG) along Fanling Highway (90m long, 3m depth)	155	123	15-Oct-14 A	28-Apr-15	186							
Miscellaneous Works for Facilitating Traffic Diversion of Fanling Highway													
FHW-M-1010	Permanent Road Formation with 1 lanes width between CH7130 and CH7380 (Eastern Side)	62	0	13-Jul-14 A	08-Nov-14 A								
FHW-M-1020	Permanent Road Formation with 2 lanes width between CH7130 and CH7380 (Eastern Side)	29	30	10-Nov-14 A	27-Dec-14	6							
FHW-M-1030	Permanent Road Formation with 3 lanes width between CH7130 and CH7380 (Eastern Side)	17	17	29-Dec-14	17-Jan-15	7							
FHW-M-1000	Demolition of Central Barrier & Make Good of Road Pavement for further Traffic Diversion	24	24	19-Jan-15	14-Feb-15	8							
Fanling Highway North Portion between CH7470 and CH7925													
Fanling Highway Zone 5 between CH7470 and CH7600 (Provision of Kiu Tau Footbridge)													
Kiu Tau Footbridge Re-provision (East)													
FHW-5000B	KT-AB2 - Piling Works (4 nos of Pile)	20	8	24-Sep-14 A	29-Nov-14	276							

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							Nov	Dec	Jan	Feb	Mar	
FHW-5000D	KT-P3 - Piling Works (6 nos of Pile)	40	33	06-Oct-14 A	31-Dec-14	111	KT-P3 - Piling Works (6 nos of Pile), KT-P3 - Piling Works (6 nos of Pile)					
FHW-5000A	KT-AB1 - Piling Works (12 nos of Pile)	60	60	29-Sep-14 A	02-Feb-15	84	KT-AB1 - Piling Works (12 nos of Pile), KT					
FHW-5000C	KT-P2 - Piling Works (6 nos of Pile)	30	75	04-Oct-14 A	26-Feb-15	268						
FHW-5000E	KT-P4 - Piling Works (8 nos of Pile)	40	40	03-Feb-15	27-Mar-15	84						
FHW-5010D	KT-P3 - Pile Cap & Pier	75	75	02-Jan-15	10-Apr-15	281						
FHW-5010B	KT-AB2 - Pile Cap & Abutment	105	105	01-Dec-14	16-Apr-15	276						
FHW-5010A	KT-AB1 - Pile Cap & Abutment	105	105	03-Feb-15	18-Jun-15	224						
Fanling Highway Zone 7 between CH7660 and CH7925												
At-Grade Roadworks (265m)												
FHW-7100	Site Formation, Preparation Works & Tree Transplant	127	75	30-Aug-13 A	26-Feb-15	282	Site Formatio					
Section II - Remainder of the Works (KD-3)												
WSD Works												
DN450 Fire Mains (CHA)												
WA-1030	Pipe Laying - CHA 260 - 360 (DN450) near Ext. TWSR West, 100m long & 2m depth	65	65	16-Feb-15	14-May-15	18						
DN600 Water Mains (CHB)												
WB-0100	Temporary Local Diversion for DN600 near Abutment AD1	80	33	25-Sep-14 A	31-Dec-14	580						
WB-1000	Pipe Laying - CHB 0 - 153 (DN600) near Fanling Highway S/B (FHW: CH7130-7290), 153m long (common trench with NB)	95	35	26-May-14 A	03-Jan-15	673						
WB-1080	Pipe Laying - CHB 700 - 756 (DN600) near Realigned TWSR East (along Roundabout), 56m long & GL	35	35	02-Jan-15*	11-Feb-15	12	Pipe Laying - CHB 700 - 756 (D					
WB-1090	Pipe Laying - CHB 756 - 849 (DN600) near Realigned TWSR East (along Slip Road A), 93m long & GL	72	72	12-Feb-15	19-May-15	12						
DN1200 Water Mains (CHC)												
WC-1030A	Excavation - CHC 100 - 155 (DN1200) across Fanling Highway by Trenchless Method, 110m long for 2 shafts	169	0	19-Sep-14 A	25-Oct-14 A							
WC-1030B	Pipe Laying - CHC 100 - 155 (DN1200) across Fanling Highway & associated Grouting Works	46	40	14-Nov-14 A	09-Jan-15	711						
WC-1140	Pipe Laying - CHC 980 - 1030 (DN1200) near Realigned TWSR East (along Roundabout), 50m long & GL	35	35	02-Jan-15*	11-Feb-15	12	Pipe Laying - CHC 980 - 1030					
WC-1150	Pipe Laying - CHC 1030 - 1123 (DN1200) near Realigned TWSR East (along Slip Road A), 93m long & GL	72	72	12-Feb-15	19-May-15	12						
WC-1050A	Pipe Laying - CHC 155 - 235 (DN1200) near Fanling Highway S/B (FHW: CH6935-7130), 50m long, 4m depth	120	120	10-Jan-15	12-Jun-15	711						
Twin DN1400 Water Mains (CHE & CHG)												
WE-1000	Pipe Laying - CHE & CHG 0 - 45 (Twins DN1400) near Fanling Highway S/B (FHW: CH7130-7290), 45m long & 6m depth	85	22	09-Jul-14 A	16-Dec-14	287	Pipe Laying - CHE & CHG 0 - 45 (Twins DN1400) near Fanling Highway S/B (FHW: CH7130-729					
WE-1020	Pipe Laying - CHE & CHG 135 - 225 (Twins DN1400) near Fanling Highway S/B (FHW: CH7380-7470), 90m long & 3m depth	155	123	15-Oct-14 A	28-Apr-15	186						
DN2300 Water Mains and Leakage Collection System (CHJ & CHKA/CHK)												
WJ-1110	DN300 Washout at CHJ 155	45	45	21-Nov-14	15-Jan-15	169	DN300 Washout at CHJ 155					
WJ-1050	Pipe Laying - CHJ 200 - 292 (DN2300) near Realigned TWSR East (along Access Road A), 92m long & GL	97	57	01-Sep-14 A	29-Jan-15	23	Pipe Laying - CHJ 200 - 292 (DN2300) near F					
WJ-1010	Pipe Laying - CHJ 0 - 100 (DN2200) near existing TWSR East, 100m long & 6m depth	120	81	13-Oct-14 A	09-Feb-15	189						
WJ-1020B	Pipe Laying - CHKA 0 - 73 (DN1400) near Realigned TWSR East, 73m long & 4m depth	65	65	30-Dec-14	04-Mar-15	11	Pipe L					

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							Nov	Dec	Jan	Feb	Mar	Jan	Feb	Mar				
WJ-1100	DN300 Washout at CHJ 212	65	65	23-Dec-14	18-Mar-15	122												
WJ-1000	Implementation of TTA - Scheme EX2 (Shifting TWSRE toward newly formation area beside Fanling Highway)	28	28	10-Feb-15	20-Mar-15	1305												
Kau Lung Hang Valve Control & Telemetry House Reprovision																		
VCTH-1010	BS and E&M Works	90	90	03-Feb-15	01-Jun-15	8												
Existing Nam Wa Po Trunk Sewage Pumping Station (PST3)																		
PS-1000	Demolition of Existing Boundary Wall of Pumping Station (PST3)	25	25	05-Jan-15*	02-Feb-15	841												
PS-1010	Construction of New Boundary Wall for Pumping Station (PST3)	35	35	03-Feb-15	21-Mar-15	841												
Stage 1A - Realignment of Tai Wo Service Road West (KD-7)																		
TWSRW Zone 1 between CH100 and CH155																		
At-Grade Roadworks																		
TWSRW-1130	Laying of Southern Trunk Sewer (West)	95	0	23-Apr-14 A	12-Nov-14 A													
TWSRW-1100	Tree Survey, Tree Felling and Transplanting (All areas at TWSRW)	81	14	16-Oct-13 A	06-Dec-14	4												
TWSRW-1150	Installation of Cable Ducts for Utilities Diversion Works at Zone 1 & Zone 2 (Approx. 100m) (by utilities undertakers)	167	137	22-Oct-14 A	06-Apr-15	66												
TWSRW-1160	Road Formation, Road Drainage, Kerb, Planter & Pavement	286	286	21-Nov-14	12-Nov-15	53												
TWSRW Zone 2 between CH155 and CH280																		
At-Grade Roadworks																		
TWSRW-2120	Road Formation, Road Drainage, Kerb, Planter and Pavement	337	306	16-Oct-14 A	05-Dec-15	33												
TWSRW Zone 3 between CH280 and CH315																		
At-Grade Roadworks																		
TWSRW-3110	Installation of Cable Ducts for Utilities Diversion Works at Zone 3 (Approx. 120m) (by utilities undertakers)	209	209	31-Dec-14*	27-Jul-15	0												
TWSRW-3120	Road Formation, Road Drainage, Kerb, Planter and Pavement	248	248	31-Jan-15	05-Dec-15	33												
TWSRW Zone 4 between CH315 and CH376																		
Construction of Bridge E																		
TWSRW-4050B	Pile Cap for AE2	50	21	13-Oct-14 A	15-Dec-14	33												
TWSRW-4000B	CLP Overhead 11KV Cable Diversion at Area B (Phase 2)	140	21	04-Nov-13 A	15-Dec-14	0												
TWSRW-4010A	Pre-Drilling for AE1 (refer to conditions of WSD)	15	15	16-Dec-14*	05-Jan-15	0												
TWSRW-4060	Construction of Temporary Support at DSD nullah (Work in dry season)	45	45	29-Nov-14	23-Jan-15	2												
TWSRW-4030A	Bored Pile Works for AE1	65	65	20-Dec-14	16-Mar-15	0												
TWSRW-4070	In-situ Casting for Bridge Segment (North Bay & Middle Bay)	110	110	24-Jan-15	15-Jun-15	2												
TWSRW Zone 5 between CH376 and CH520																		
Construction of Retaining Structures																		
TWSRW-5050D	Construction of Remaining Portion of Bored Pile Wall at formation level	85	0	02-Sep-14 A	05-Nov-14 A													
TWSRW-5080	Retaining Structure along Slope no. 3SW-C/C898 (to be covered by VO)	45	45	29-Nov-14	23-Jan-15	22												
TWSRW-5090	Lagging Wall Construction and Capping Beam	135	122	06-Nov-14 A	21-May-15	22												
At-Grade Roadworks																		
TWSRW-5100	Noise Barrier NB2 - Footing and Retaining Structure adjacent to Realigned TWSRW West (66m)	90	90	24-Jan-15	21-May-15	22												

- Actual Work
- Remaining Work
- Summary Bar
- Critical Remaining Work
- ◆ Milestone
- Project Baseline Bar

Date	Revision	Checked	Approved
24-Nov-14	Rev.1	SL	

Activity ID	Activity Name	OD	RD	Start	Finish	TF	2014					2015							
							Nov	Dec	Jan	Feb	Mar								
B-2030	Completion of CLP Overhead 11KV Cable Diversion at Area B (Phase 2)	0	0		15-Dec-14	87													
B-5010	Provide a Temporary Cycle Track (Scheme 2, along DSD maintenance access)	12	12	02-Jan-15	15-Jan-15	65													
B-9000	Trial Operation (AC8 - Early Start on 26 Nov 14)	18	18	26-Jan-15	14-Feb-15	53													
Foundation & Pier Construction																			
Bridge A																			
BA-13-1020	Pier AA13 - Pile Cap	30	0	13-Aug-14 A	28-Oct-14 A														
BA-14-1020	Pier AA14 - Pile Cap	30	0	16-Oct-14 A	31-Oct-14 A														
BA-02-2010	Pier AA2E - Pile Test	7	0	25-Oct-14 A	14-Nov-14 A														
BA-16-1000	Pier AA16 - Piling Works	12	12	29-Nov-14	12-Dec-14	101													
BA-13-1030	Pier AA13 - Pier Construction	38	30	06-Nov-14 A	27-Dec-14	67													
BA-15-1030	Pier AA15 - Pier Construction	31	31	11-Nov-14 A	29-Dec-14	37													
BA-16-1010	Pier AA16 - Pile Test	7	7	02-Jan-15	09-Jan-15	101													
BA-14-1030	Pier AA14 - Pier Construction	30	30	15-Dec-14	21-Jan-15	37													
BA-02-1000	Pier AA2W - Piling Works	12	12	16-Jan-15	29-Jan-15	136													
BA-18-1020	Pier AA18 - Pile Cap	30	30	07-Jan-15	10-Feb-15	132													
BA-02-1010	Pier AA2W - Pile Test	7	7	16-Feb-15	02-Mar-15	178													
BA-01-1000	Abutment AA1 - Piling Works	24	24	30-Jan-15	05-Mar-15	136													
BA-16-1020	Pier AA16 - Pile Cap	30	30	05-Feb-15	18-Mar-15	79													
BA-03-1020	Pier AA3 - Pile Cap	30	30	11-Feb-15	24-Mar-15	132													
Bridge B																			
BB-06-1020A	Pier AB6E - Pile Cap	30	0	10-Oct-14 A	19-Nov-14 A														
BB-08-1020B	Pier AB8W - Pile Cap	30	2	04-Nov-14 A	22-Nov-14	-34													
BB-09-1000	Pier AB9 - Piling Works	24	2	25-Oct-14 A	22-Nov-14	26													
BB-07-1010	Pier AB7 - Pile Test	7	7	13-Sep-14 A	28-Nov-14	-45													
BB-09-1010	Pier AB9 - Pile Test	7	7	10-Dec-14	17-Dec-14	26													
BB-06-1020B	Pier AB6W - Pile Cap	30	30	24-Nov-14	30-Dec-14	229													
BB-08-1020A	Pier AB8E - Pile Cap	30	30	27-Nov-14*	03-Jan-15	-97													
BB-07-1020	Pier AB7 - Pile Cap	30	30	29-Nov-14	06-Jan-15	-45													
BB-10-1000	Pier AB10 - Piling Works	24	24	10-Dec-14	09-Jan-15	-6													
BB-08-1030	Pier AB8W - Pier Construction	24	24	29-Dec-14*	26-Jan-15	-62													
BB-08-1040	Pier AB8E - Pier Construction	24	24	05-Jan-15	31-Jan-15	-97													

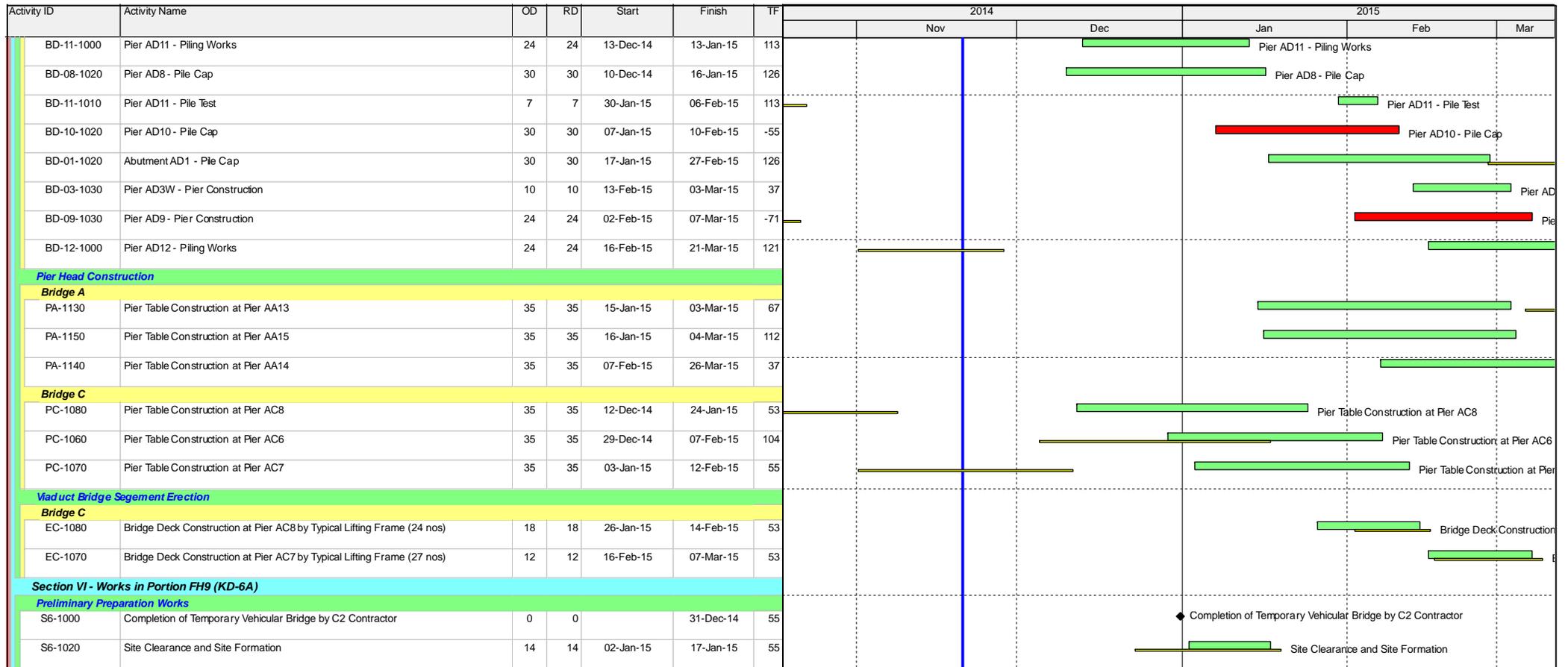
- Actual Work
- Remaining Work
- Summary Bar
- Critical Remaining Work
- Milestone
- Project Baseline Bar

Date	Revision	Checked	Approved
24-Nov-14	Rev.1	SL	

Activity ID	Activity Name	OD	RD	Start	Finish	TF	2014					2015								
							Nov	Dec	Jan	Feb	Mar									
BB-10-1010	Pier AB10 - Pile Test	7	7	27-Jan-15	03-Feb-15	-6														
BB-09-1020	Pier AB9 - Pile Cap	30	30	05-Jan-15	07-Feb-15	14														
BB-11-1000	Pier AB11 - Piling Works	24	24	19-Jan-15	14-Feb-15	55														
BB-07-1030	Pier AB7 - Pier Construction	24	24	22-Jan-15*	18-Feb-15	-58														
BB-10-1020	Pier AB10 - Pile Cap	30	30	11-Feb-15	24-Mar-15	-12														
BB-08-1050	Portal AB8 - Portal Construction	45	45	02-Feb-15	01-Apr-15	-97														
Bridge C																				
BC-09-1010	Pier AC9 - Pile Test	7	0	08-Oct-14 A	28-Oct-14 A															
BC-07-1020	Pier AC7 - Pile Cap	30	0	05-Sep-14 A	30-Oct-14 A															
BC-08-1030	Pier AC8 - Pier Construction	24	4	13-Sep-14 A	25-Nov-14	53														
BC-12-1000	Pier AC12 - Piling Works	12	4	12-Nov-14 A	25-Nov-14	-63														
BC-05-1020	Pier AC5 - Pile Cap	30	5	06-Oct-14 A	26-Nov-14	63														
BC-06-1030	Pier AC6 - Pier Construction	24	16	21-Oct-14 A	09-Dec-14	104														
BC-09-1020	Pier AC9 - Pile Cap	30	16	05-Nov-14 A	09-Dec-14	126														
BC-07-1030	Pier AC7 - Pier Construction	24	20	10-Nov-14 A	13-Dec-14	37														
BC-12-1010	Pier AC12 - Pile Test	7	7	12-Dec-14	19-Dec-14	-63														
BC-12-1020	Pier AC12 - Pile Cap	30	30	31-Dec-14*	04-Feb-15	-70														
BC-05-1030	Pier AC5 - Pier Construction (Twin Pier)	38	38	30-Dec-14	12-Feb-15	37														
BC-12-1030	Pier AC12 - Pier Construction	24	24	05-Feb-15	11-Mar-15	-70														
BC-03-1000	Pier AC3 - Piling Works	24	24	16-Feb-15	21-Mar-15	115														
BC-11-1020	Pier AC11 - Pile Cap	30	30	09-Feb-15	21-Mar-15	126														
Bridge D																				
BD-04-1020	Pier AD4 - Pile Cap	30	0	27-Oct-14 A	06-Nov-14 A															
BD-01-1010	Abutment AD1 - Pile Test	7	0	25-Oct-14 A	13-Nov-14 A															
BD-03-1020A	Pier AD3E - Pile Cap	30	0	28-Oct-14 A	20-Nov-14 A															
BD-06-1020	Pier AD6 - Pile Cap	30	7	16-Oct-14 A	28-Nov-14	178														
BD-08-1010	Pier AD8 - Pile Test	7	7	23-Aug-14 A	28-Nov-14	135														
BD-10-1000	Pier AD10 - Piling Works	24	16	30-Oct-14 A	09-Dec-14	-55														
BD-09-1020	Pier AD9 - Pile Cap	30	30	21-Nov-14	27-Dec-14	-48														
BD-10-1010	Pier AD10 - Pile Test	7	7	29-Dec-14	06-Jan-15	-55														

- Actual Work
- Remaining Work
- Summary Bar
- Critical Remaining Work
- Milestone
- Project Baseline Bar

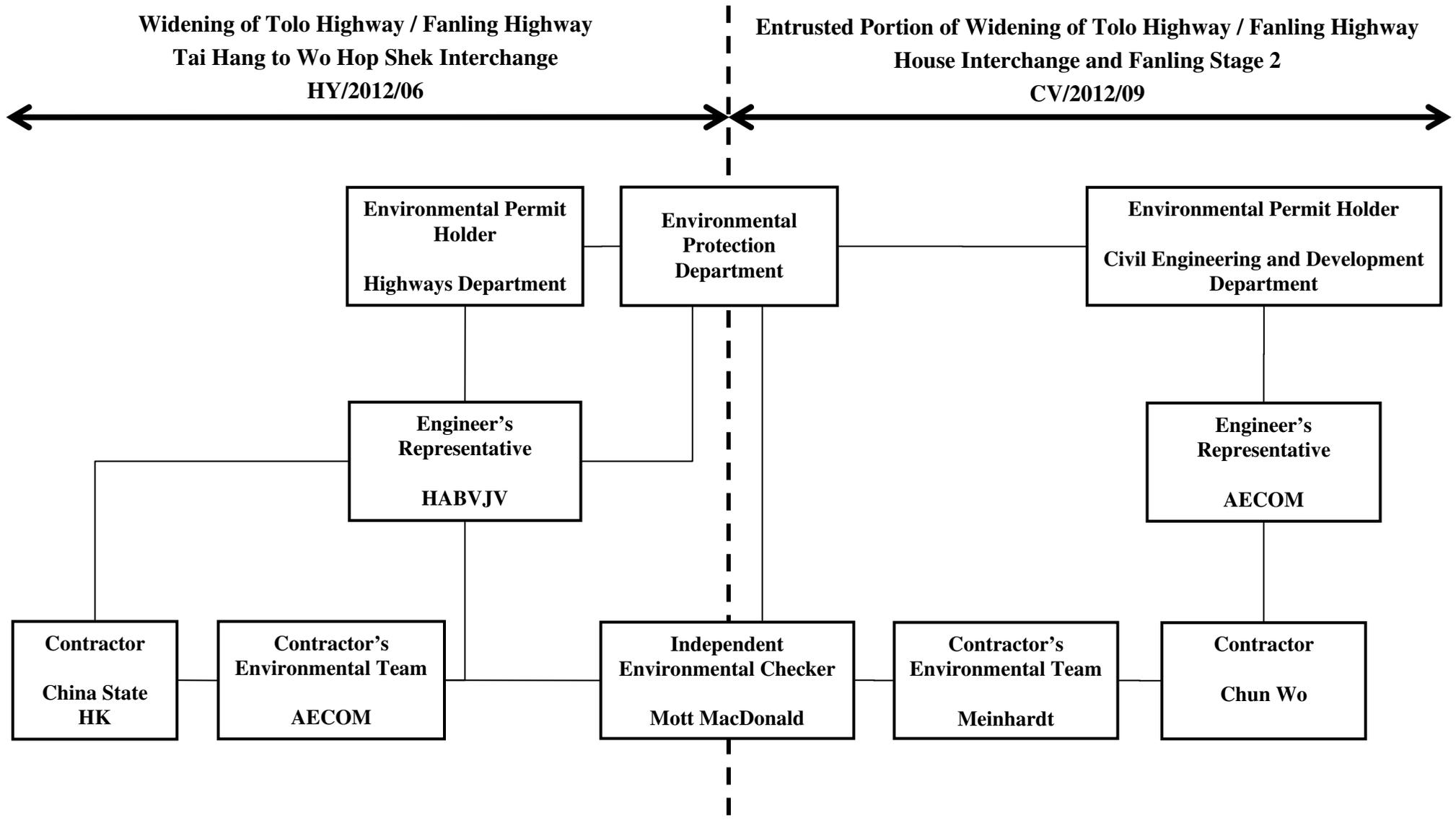
Date	Revision	Checked	Approved
24-Nov-14	Rev.1	SL	



Date	Revision	Checked	Approved
24-Nov-14	Rev.1	SL	

Appendix B

Project Organization Structure



Appendix C Calibration Certificates of Monitoring Equipment



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

ORIFICE TRANSFER STANDARD CERTIFICATION WORKSHEET TE-5025A

Date - Apr 07, 2014 Rootmeter S/N 0438320 Ta (K) - 294
 Operator Tisch Orifice I.D. - 1612 Pa (mm) - 742.95

PLATE OR Run #	VOLUME START (m3)	VOLUME STOP (m3)	DIFF VOLUME (m3)	DIFF TIME (min)	METER DIFF Hg (mm)	ORFICE DIFF H2O (in.)
1	NA	NA	1.00	1.3940	3.2	2.00
2	NA	NA	1.00	0.9790	6.4	4.00
3	NA	NA	1.00	0.8800	7.8	5.00
4	NA	NA	1.00	0.8350	8.8	5.50
5	NA	NA	1.00	0.6910	12.7	8.00

DATA TABULATION

Vstd	(x axis) Qstd	(y axis)	Va	(x axis) Qa	(y axis)
0.9866	0.7077	1.4077	0.9957	0.7142	0.8896
0.9823	1.0034	1.9908	0.9914	1.0127	1.2581
0.9804	1.1140	2.2258	0.9894	1.1243	1.4066
0.9791	1.1726	2.3345	0.9881	1.1834	1.4753
0.9739	1.4094	2.8155	0.9829	1.4224	1.7793
Qstd slope (m) = 2.00757			Qa slope (m) = 1.25710		
intercept (b) = -0.01628			intercept (b) = -0.01029		
coefficient (r) = 0.99989			coefficient (r) = 0.99989		
y axis = $\text{SQRT}[\text{H2O}(\text{Pa}/760)(298/\text{Ta})]$			y axis = $\text{SQRT}[\text{H2O}(\text{Ta}/\text{Pa})]$		

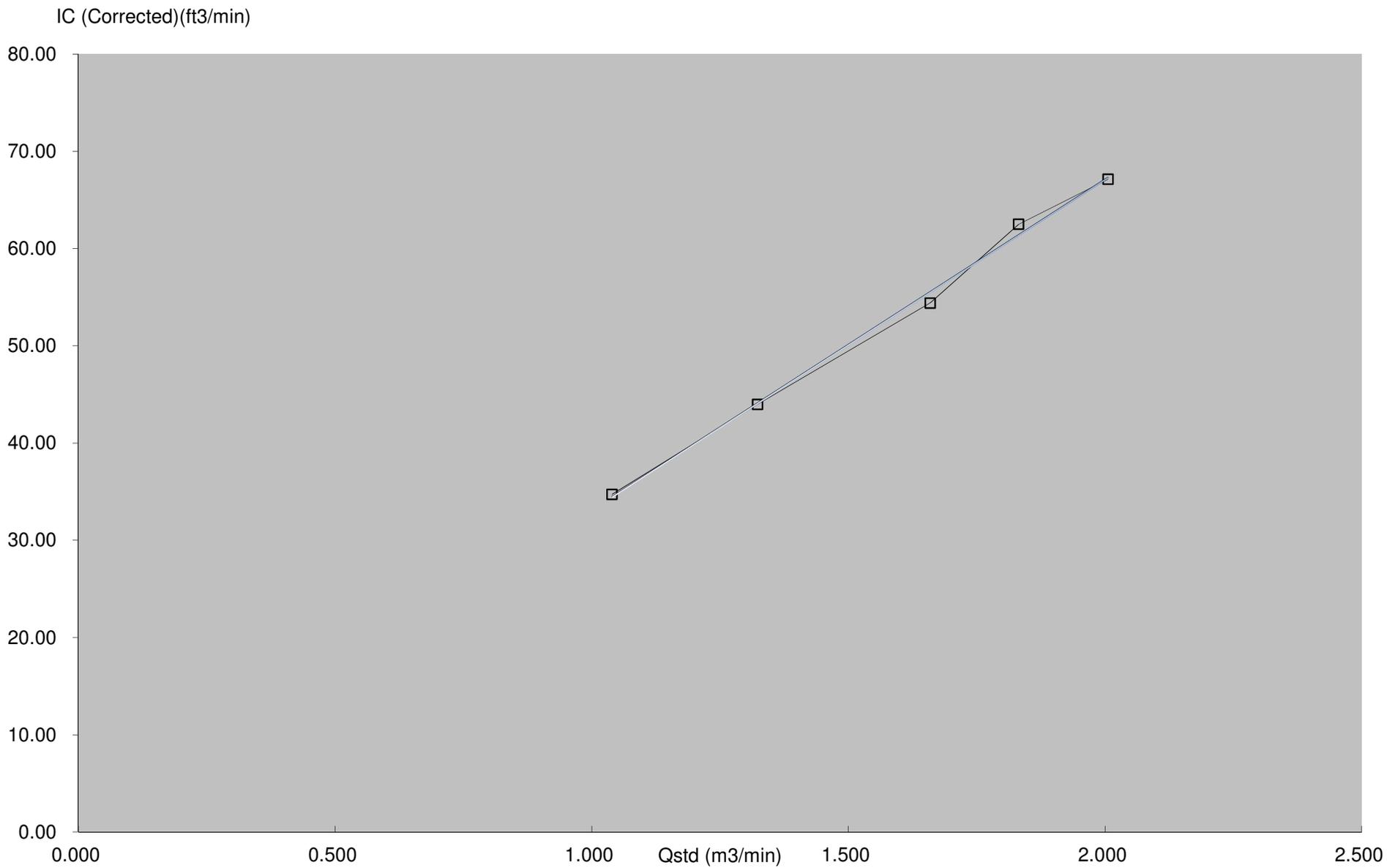
CALCULATIONS

$V_{std} = \text{Diff. Vol} [(\text{Pa} - \text{Diff. Hg}) / 760] (298 / \text{Ta})$
 $Q_{std} = V_{std} / \text{Time}$

$V_a = \text{Diff Vol} [(\text{Pa} - \text{Diff Hg}) / \text{Pa}]$
 $Q_a = V_a / \text{Time}$

For subsequent flow rate calculations:

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





Calibration Certificate

Certificate No. **407497**

Page 1 of 2 Pages

Customer : Enovative Environmental Service Limited

Address : Flat 6, 3/F, Block E, Wah Lok Industrial Centre, 31-35 Shan Mei Street, Shatin, N.T., Hong Kong.

Order No. : Q43167

Date of receipt : 10-Oct-14

Item Tested

Description : Sound Level Calibrator

Manufacturer : B&K

Model : Type 4231

Serial No. : 2685684

Test Conditions

Date of Test : 18-Oct-14

Supply Voltage : --

Ambient Temperature : (23 ± 3)°C

Relative Humidity : (50 ± 25) %

Test Specifications

Calibration check.

Ref. Document/Procedure : F21, Z02, IEC 942.

Test Results

All results were within the IEC 942 Class1 specification.

The results are shown in the attached page(s).

Main Test equipment used:

<u>Equipment No.</u>	<u>Description</u>	<u>Cert. No.</u>	<u>Traceable to</u>
S014	Spectrum Analyzer	405316	NIM-PRC & SCL-HKSAR
S205	Ref. Sound Level Calibrator	PHCO40002	SCL-HKSAR
S041	Universal Counter	405317	SCL-HKSAR
S206	Sound Level Meter	405322	SCL-HKSAR
S031	6½ dgt. Multimeter	39256	NIM-PRC

The values given in this Calibration Certificate only relate to the values measured at the time of the test and any uncertainties quoted will not include allowance for the equipment long term drift, variations with environmental changes, vibration and shock during transportation, overloading, mis-handling, or the capability of any other laboratory to repeat the measurement. Hong Kong Calibration Ltd. shall not be liable for any loss or damage resulting from the use of the equipment.

The test equipment used for calibration are traceable to International System of Units (SI).
The test results apply to the above Unit-Under-Test only

Calibrated by : 
Dorothy Cheuk

Approved by : 
Steve Kwan

Date: 18-Oct-14

This Certificate is issued by:
Hong Kong Calibration Ltd.
Unit 8B, 24/F., Well Fung Industrial Centre, No. 58-76, Ta Chuen Ping Street, Kwai Chung, NT, Hong Kong.
Tel: 2425 8801 Fax: 2425 8646

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Calibration Certificate

Certificate No. 407497

Page 2 of 2 Pages

Results :

1. Level Accuracy

UUT Nominal Value (dB)	Measured Value (dB)	IEC 942 Class 1 Spec.
94	94.1	± 0.3 dB
114	114.1	

Uncertainty : ± 0.1 dB

2. Frequency

UUT Nominal Value	Measured Value	IEC 942 Class 1 Spec.
1 kHz	1.000 kHz	± 2 %

Uncertainty : ± 3.6 x 10⁻⁶

3. Level Stability : 0.0 dB

IEC 942 Class 1 Spec. : ± 0.1 dB

Uncertainty : ± 0.01 dB

4. Total Harmonic Distortion : < 0.6 %

IEC 942 Class 1 Spec. : < 3 %

Uncertainty : ± 2.3 % of reading

Remark : 1. UUT : Unit-Under-Test

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

3. Atmospheric Pressure : 1005 hPa.

----- END -----



Calibration Certificate

Certificate No. 406516

Page 1 of 4 Pages

Customer : Enovative Environmental Service Limited

Address : Flat 6, 3/F, Block E, Wah Lok Industrial Centre, 31-35 Shan Mei Street, Shatin, N.T., Hong Kong.

Order No. : Q42822

Date of receipt : 1-Sep-14

Item Tested

Description : Sound Level Meter (N12-RION-004)

Manufacturer : Rion

Model : NL-52

Serial No. : 00220553

Test Conditions

Date of Test : 24-Sep-14

Supply Voltage : --

Ambient Temperature : (23 ± 3)°C

Relative Humidity : (50 ± 25) %

Test Specifications

Calibration check.

Ref. Document/Procedure: Z01, IEC 61672.

Test Results

All results were within the IEC 61672 Type1 specification.

The results are shown in the attached page(s).

Main Test equipment used:

<u>Equipment No.</u>	<u>Description</u>	<u>Cert. No.</u>	<u>Traceable to</u>
S017	Multi-Function Generator	C127181	SCL-HKSAR
S205	Ref. Sound Level Calibrator	PHCO40002	SCL-HKSAR

The values given in this Calibration Certificate only relate to the values measured at the time of the test and any uncertainties quoted will not include allowance for the equipment long term drift, variations with environmental changes, vibration and shock during transportation, overloading, mis-handling, or the capability of any other laboratory to repeat the measurement. Hong Kong Calibration Ltd. shall not be liable for any loss or damage resulting from the use of the equipment.

The test equipment used for calibration are traceable to International System of Units (SI).

The test results apply to the above Unit-Under-Test only

Calibrated by : 
Dorothy Cheuk

Approved by : 
Steve Kwan

Date: 25-Sep-14

This Certificate is issued by:

Hong Kong Calibration Ltd.

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

Tel: 2425 8801 Fax: 2425 8646

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Calibration Certificate

Certificate No. 406516

Page 2 of 4 Pages

Results :

1. Self-generated noise: 16.0 dBA (Mfr's Spec \leq 17 dBA)

2. Acoustical signal test

UUT Setting				Applied Value (dB)	UUT Reading (dB)
Range (dB)	Frequency Weighting	Time Weighting	Octave Filter		
30-130	A	F	OFF	94.2	94.2
		S	OFF		94.2
	C	F	OFF		94.2
	Z	F	OFF		94.2
	A	F	OFF	114.2	114.2
		S	OFF		114.2
	C	F	OFF		114.2
	Z	F	OFF		114.2

IEC 61672 Type 1 Spec. : \pm 1.1 dB

Uncertainty : \pm 0.1 dB

3 Electrical signal tests of frequency weightings (A weighting)

Frequency	Attenuation (dB)	IEC 61672 Type 1 Spec.
31.5 Hz	-39.7	- 39.4 dB, \pm 2 dB
63 Hz	-26.3	- 26.2 dB, \pm 1.5 dB
125 Hz	-16.2	- 16.1 dB, \pm 1.5 dB
250 Hz	-8.7	- 8.6 dB, \pm 1 dB
500 Hz	-3.2	- 3.2 dB, \pm 1.4 dB
1 kHz	0.0 (Ref)	0 dB, \pm 1.1 dB
2 kHz	+1.2	+ 1.2 dB, \pm 1.6 dB
4 kHz	+1.0	+ 1.0 dB, \pm 1.6 dB
8 kHz	-1.0	- 1.1 dB, + 2.1 dB \sim -3.1 dB
16 kHz	-8.0	- 6.6 dB, + 3.5 dB \sim - 17.0 dB

Uncertainty : \pm 0.1 dB



Calibration Certificate

Certificate No. 406516

Page 3 of 4 Pages

4. Frequency & Time weightings at 1 kHz

4.1 Frequency Weighting (Fast)

UUT Setting	Applied Value (dB)	UUT Reading (dB)	Difference (dB)	IEC 61672 Type 1 Spec.
A	94.2	94.2 (Ref.)	--	± 0.4 dB
C	94.2	94.2	0.0	
Z	94.2	94.2	0.0	

4.2 Time Weighting (A-weighted)

UUT Setting	Applied Value (dB)	UUT Reading (dB)	Difference (dB)	IEC 61672 Type 1 Spec.
Fast	94.2	94.2 (Ref.)	--	± 0.3 dB
Slow	94.2	94.2	0.0	
Time-averaging	94.2	94.2	0.0	

Uncertainty : ± 0.1 dB

5. Level linearity on the reference level range

UUT Range	Applied Value (dB)	UUT Reading (dB)	Difference (dB)	IEC 61672 Type 1 Spec.
30-130 dB (Ref Level)	129.0	129.0	0.0	± 1.1 dB
	124.0	124.0	0.0	
	119.0	119.0	0.0	
	114.0	114.0 (Ref)	--	
	109.0	109.0	0.0	
	104.0	104.0	0.0	
	99.0	99.0	0.0	
	94.0	94.0	0.0	
	89.0	89.0	0.0	
	84.0	84.0	0.0	
	79.0	79.0	0.0	
	74.0	74.0	0.0	
	69.0	69.0	0.0	
	64.0	64.0	0.0	
	59.0	59.0	0.0	
	54.0	54.0	0.0	
	49.0	49.1	+0.1	
44.0	44.1	+0.1		

Uncertainty : ± 0.1 dB



Calibration Certificate

Certificate No. 406516

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6. Toneburst response (4kHz)

UUT Setting	Tone Burst Duration(ms)	UUT Reading(dB)	Difference (dB)	IEC 61672 Type 1 Spec.
Fast	Steady	127.0(Ref)	--	--
	200	126.0	-1.0	-1.0 ± 0.8dB
	2	109.0	-18.0	-18.0, +1.3 dB ~ -1.8 dB
	0.25	99.9	-27.1	-27.0, +1.3 dB ~ -3.3 dB
Slow	Steady	127.0(Ref)	--	--
	200	119.6	-7.4	-7.4 ± 0.8dB
	2	100.0	-27.0	-27.0, +1.3 dB ~ -3.3 dB
Time averaging	Steady	127.0(Ref)	--	--
	200	120.4	-6.6	-7.0±0.8dB
	2	100.3	-26.7	-27.0, +1.3 dB ~ -1.8 dB
	0.25	91.0	-36.0	-36.0, +1.3 dB ~ -3.3 dB

Uncertainty : ± 0.1 dB

7. Overload indication (30-130 dB range, A-weighted, Time-average, 4kHz)

UUT Reading at overload (dB)		Difference (dB)	IEC 61672 Type 1 Spec.
+ ve one half cycle	- ve one half cycle		
136.1	137.2	1.1	< 1.8 dB

The overload indicator latched on until reset

Uncertainty : ± 0.1 dB

Remarks : 1. UUT : Unit-Under-Test

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

3. Atmospheric Pressure : 1001 hPa.

4. Preamplifier model : NH-25 , S/N : 10553

5. Firmware Version: 1.2

6. Power Supply Check: OK

7. The UUT was adjusted with the laboratory's sound calibrator at the reference sound pressure level before the calibration.

----- END -----

Appendix D

EM&A Monitoring Schedules

**Entrusted Portion of Widening of Tolo Highway / Fanling Highway between Island House Interchange and Fanling Stage 2
Impact Monitoring & Site Auditing Schedule for November 2014**

November 2014						
Sun	Mon	Tue	Wed	Thu	Fri	Sat
						1
2	3 ET Site Walk(09:30 – 11:00) with Liantang Project-wide ET and IEC	4 24-hour TSP + 3 x 1-hour TSP, Noise (SR77)	5	6	7	8
9	10 24-hour TSP + 3 x 1-hour TSP, Noise (SR77) ET Site Walk(09:30 – 11:00) with Liantang Project-wide ET and IEC	11	12	13	14	15 24-hour TSP + 3 x 1-hour TSP
16	17	18	19 ET Site Walk(09:30 – 11:00) with Liantang Project-wide ET and IEC + SSEMC	20	21 24-hour TSP + 3 x 1-hour TSP, Noise (SR77)	22
23	24 ET Site Walk(09:30 – 11:00) with Fanling Stage 2 IEC & Liantang Project- wide ET and IEC	25	26	27 24-hour TSP + 3 x 1-hour TSP, Noise (SR77)	28	29
30						

**Entrusted Portion of Widening of Tolo Highway / Fanling Highway between Island House Interchange and Fanling Stage 2
Impact Monitoring & Site Auditing Schedule for December 2014**

December 2014						
Sun	Mon	Tue	Wed	Thu	Fri	Sat
	1 ET Site Walk(09:30 – 11:00) with Liantang Project-wide ET and IEC	2	3 24-hour TSP + 3 x 1-hour TSP, Noise (SR77)	4	5	6
7	8 ET Site Walk(09:30 – 11:00) with Fanling Stage 2 IEC & Liantang Project- wide ET and IEC	9 24-hour TSP + 3 x 1-hour TSP, Noise (SR77)	10	11	12	13
14	15 24-hour TSP + 3 x 1-hour TSP, Noise (SR77)	16	17 ET Site Walk(09:30 – 11:00) with Liantang Project-wide ET and IEC + SSEMC	18	19	20 24-hour TSP + 3 x 1-hour TSP
21	22 ET Site Walk(09:30 – 11:00) with Liantang Project-wide ET and IEC	23	24 24-hour TSP + 3 x 1-hour TSP, Noise (SR77)	25 Christmas Day	26 The first weekday after Christmas Day	27
28	29 ET Site Walk(09:30 – 11:00) with Liantang Project-wide ET and IEC	30 24-hour TSP + 3 x 1-hour TSP, Noise (SR77)	31			

Appendix E Meteorological Data Extracted from Hong Kong Observatory

Climatological Information Services > Extracts of Climatological Data > Extract of Automatic Weather Station > Station: Sheung Shui Automatic Weather Station, Year: 2014, Month: November

Extract of Meteorological Observations for Sheung Shui Automatic Weather Station, November 2014 (Table 1)

Date	Mean Pressure at M.S.L. (hPa)	Air Temperature			Mean Dew Point Temperature (deg C)	Relative Humidity		
		Max. (deg C)	Mean (deg C)	Min. (deg C)		Max. (%)	Mean (%)	Min. (%)
Nov 1	1012.9	32.5	25.7	21.2	21.5	94	79	50
Nov 2	1015.4	27.8	25.1	21.8	18.3	84	67	53
Nov 3	1018.0	21.8	20.7	19.5	12.6	73	60	53
Nov 4	1017.5	24.2	22.4	20.5	17.0	77	71	67
Nov 5	1017.3	26.6	24.0	23.1	19.0	79	74	64
Nov 6	1017.0	27.1	24.1	21.0	19.7	92	77	66
Nov 7	1017.2	23.9	21.6	19.6	19.9	96	90	75
Nov 8	1018.4	21.3	19.3	18.4	17.9	96	91	82
Nov 9	1018.7	24.2	21.3	18.6	17.3	86	78	69
Nov 10	1017.3	26.8	22.9	20.8	18.6	89	77	60
Nov 11	1016.5	27.3	23.4	21.2	19.4	89	79	62
Nov 12	1018.1	22.2	20.6	17.7	16.9	90	80	70
Nov 13	1020.8	21.5	18.7	16.9	13.7	90	73	62
Nov 14	1020.2#	24.7	20.0#	17.9	14.6#	79	71#	58
Nov 15	1019.8	28.5	22.4	19.6	16.4	90	70	45
Nov 16	1017.9	28.6	22.2	17.3	15.9	95	70	42
Nov 17	1019.9	25.5	20.4	17.9	12.3	68	60	46
Nov 18	1021.9	25.2	20.3	17.2	12.0	68	59	47
Nov 19	1020.9	25.7	20.5	17.4	13.1	87	64	44
Nov 20	1018.4	28.0	21.5	17.6	15.5	90	70	43
Nov 21	1017.0	29.2	22.1	18.7	16.5	89	72	44
Nov 22	1016.5	29.5	22.3	17.4	17.6	95	76	46
Nov 23	1016.6	29.8	23.5	20.9	18.4	89	74	50
Nov 24	1015.3	30.6	23.9	20.3	18.6	92	74	51
Nov 25	1013.4	29.9	23.0	18.7	18.9	94	79	54
Nov 26	1013.7	26.3	22.8	20.0	18.7	92	78	64
Nov 27	1015.1	24.2	22.5	21.7	18.3	88	78	65
Nov 28	1014.6	27.7	23.8	22.1	20.2	89	81	66
Nov 29	1013.2	25.7	23.9	22.5	20.8	91	83	68
Nov 30	1012.7	28.4	25.0	23.2	22.4	92	85	70
Mean	1017.1#	26.5	22.3#	19.7	17.4#	87	75#	58
Maximum	1021.9#	32.5	25.7#	23.2	22.4#	96	91#	82
Minimum	1012.7#	21.3	18.7#	16.9	12.0#	68	59#	42

Extract of Meteorological Observations for Sheung Shui Automatic Weather Station, November 2014 (Table 2)

Date	Total Rainfall (mm)	Prevailing Wind Direction (degrees)	Mean Wind Speed (km/h)
Nov 1	0.0	***	*****
Nov 2	0.0	***	*****
Nov 3	0.0	***	*****
Nov 4	0.0	***	*****
Nov 5	0.0	***	*****
Nov 6	0.0	***	*****
Nov 7	6.0	***	*****
Nov 8	4.0	***	*****
Nov 9	0.0	***	*****
Nov 10	0.0	***	*****
Nov 11	0.0	***	*****
Nov 12	0.5	***	*****
Nov 13	0.0	***	*****
Nov 14	0.0#	***	*****
Nov 15	0.0	***	*****
Nov 16	0.0	***	*****
Nov 17	0.0	***	*****
Nov 18	0.0	***	*****
Nov 19	0.0	***	*****
Nov 20	0.0	***	*****
Nov 21	0.0	***	*****
Nov 22	0.0	***	*****
Nov 23	0.0	***	*****
Nov 24	0.0	***	*****
Nov 25	0.0	***	*****
Nov 26	0.0	***	*****
Nov 27	0.0	***	*****
Nov 28	0.0	***	*****
Nov 29	0.0	***	*****
Nov 30	0.0	***	*****
Mean	-----	***	*****
Total	10.5#	---	-----
Maximum	6.0#	---	*****
Minimum	0.0#	---	*****

*** unavailable

missing (less than 24 hourly observations a day)

Rainfall measured in increment of 0.5 mm. Amount of < 0.5 mm cannot be detected

Appendix F

Air Quality Monitoring Results and their Graphical Presentation

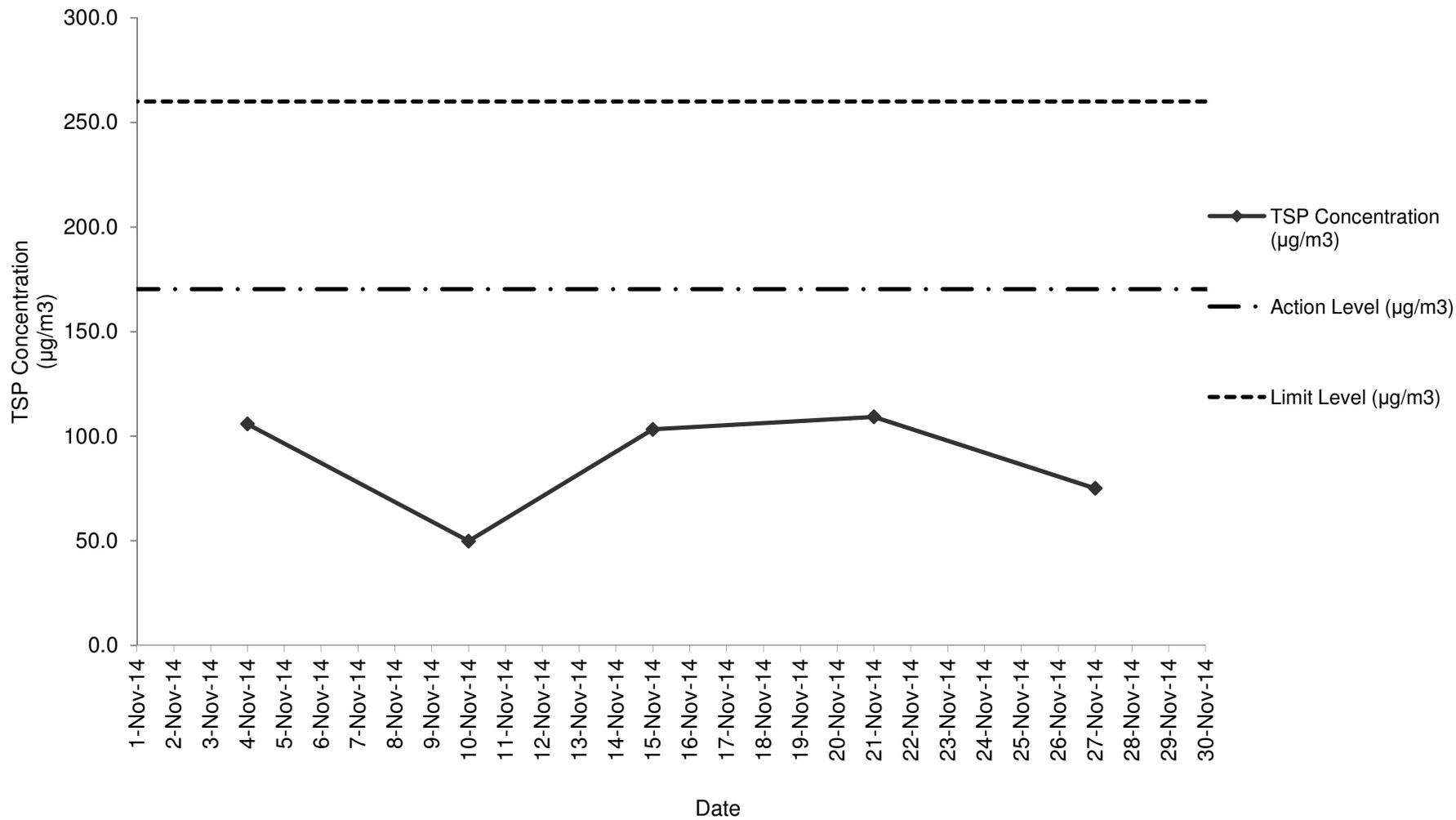
Appendix F
Air Quality Monitoring Results and their Graphical Presentation

24-Hour TSP Monitoring Result at Station: SR77

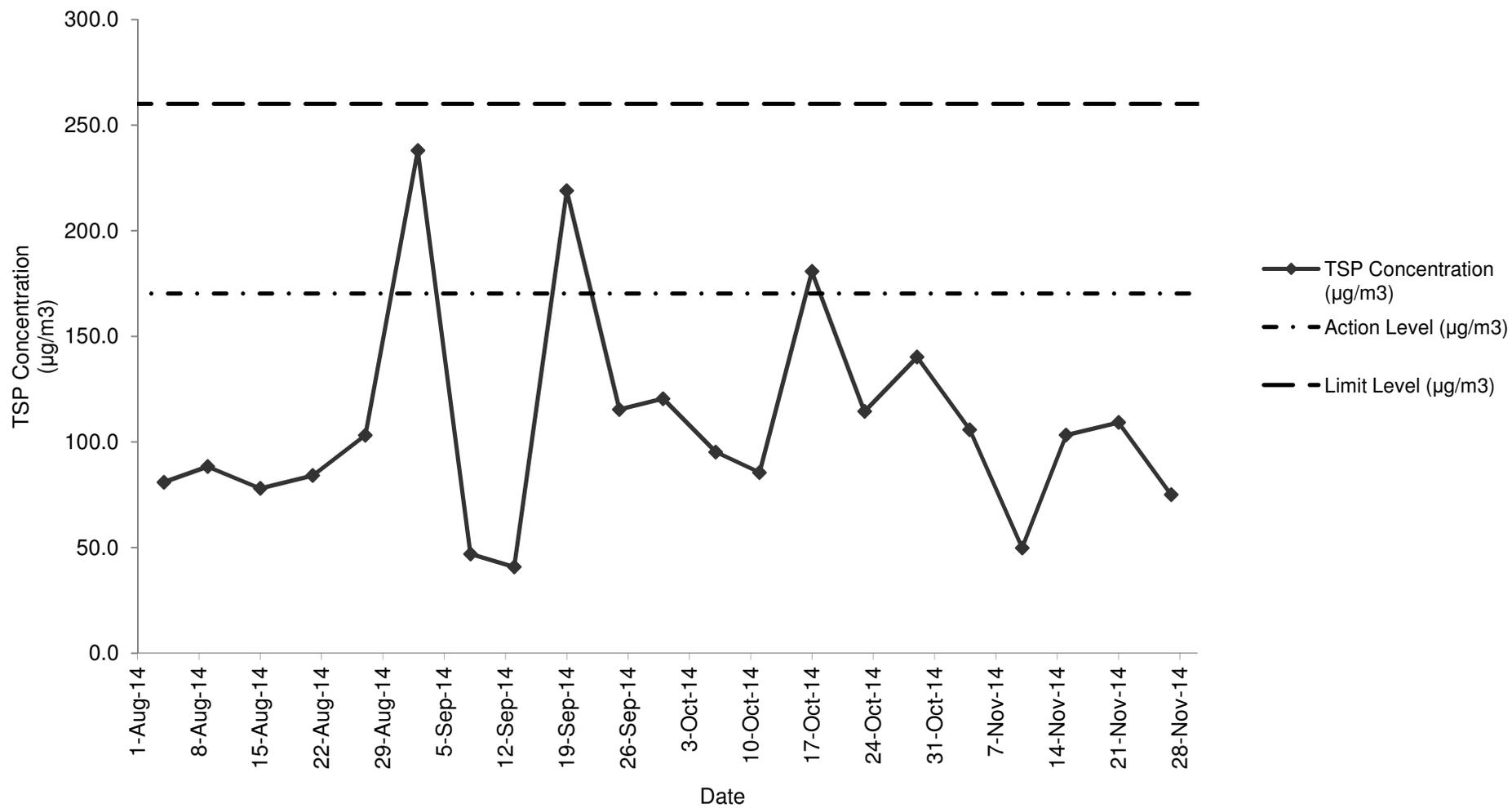
Sampling Date	Weather Condition	Paper No.	Wt. of paper (g)			Elapse Time			Flow Rate (CFM)			Flow Rate (m ³ /min)			Total Volume (m ³)	TSP Concentration (µg/m ³)	Action Level (µg/m3)	Limit Level (µg/m3)	Wind speed m/s	Wind direction
			Initial Wt.	Final Wt.	Wt. of Dust	Initial	Final	Sampling Hour	Initial	Final	Avg Flow Rate	Initial	Final	Avg Flow Rate						
4-Nov-14	Fine	102	2.7809	3.0010	0.2201	0.00	24.00	24.00	51	51	51.0	1.44	1.44	1.44	2079.59	105.8	170.3	260.0	<5	N
10-Nov-14	Cloudy	122	2.7744	2.8781	0.1037	0.00	24.00	24.00	51	51	51.0	1.44	1.44	1.44	2079.59	49.9	170.3	260.0	<5	N
15-Nov-14	Fine	121	2.7538	2.9686	0.2148	0.00	24.00	24.00	51	51	51.0	1.44	1.44	1.44	2079.59	103.3	170.3	260.0	<5	N
21-Nov-14	Fine	114	2.7122	2.9394	0.2272	0.00	24.00	24.00	51	51	51.0	1.44	1.44	1.44	2079.59	109.3	170.3	260.0	<5	N
27-Nov-14	Cloudy	A15	2.8003	2.9564	0.1561	0.00	24.00	24.00	51	51	51.0	1.44	1.44	1.44	2079.59	75.1	170.3	260.0	<5	N
																Average	88.7			
																Min	49.9			
																Max	109.3			

Note: No major dust source observed during the monitoring period

24-Hour TSP Monitoring Result at Station: SR77



24-Hour TSP Monitoring Result at Station: SR77 (August - November 2014)



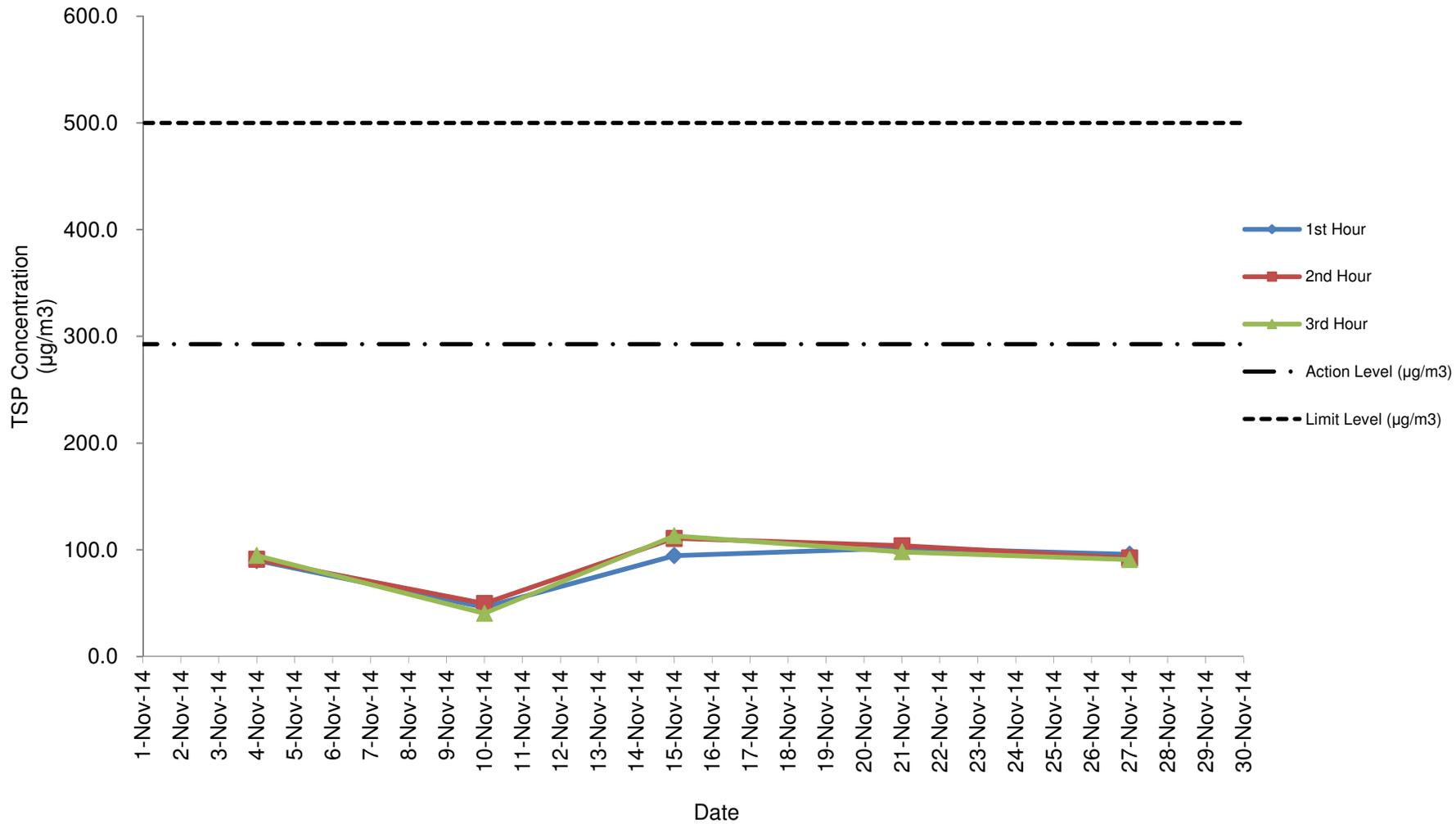
Appendix F
Air Quality Monitoring Results and their Graphical Presentation

Detailed Calculation of 1-Hour TSP Monitoring Result at Station: SR77

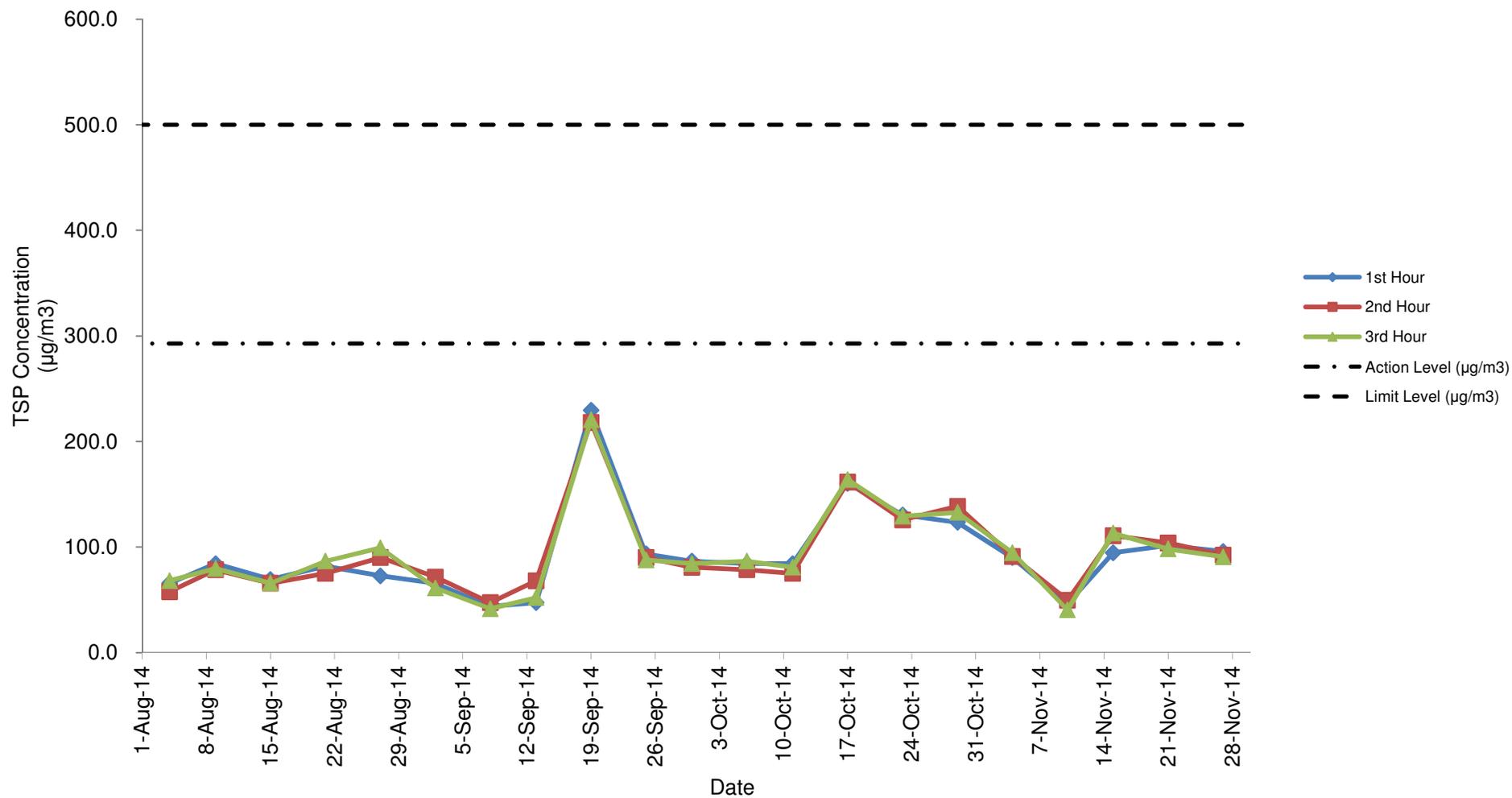
Sampling Date	Weather Condition	Paper No.	Wt. of paper (g)			Elapse Time			Flow Rate (CFM)			Flow Rate (m ³ /min)			Total Volume (m ³)	TSP Concentration (µg/m ³)	Action Level (µg/m ³)	Limit Level (µg/m ³)	Wind speed m/s	Wind direction
			Initial Wt.	Final Wt.	Wt. of Dust	Initial	Final	Sampling Hour	Initial	Final	Avg Flow Rate	Initial	Final	Avg Flow Rate						
4-Nov-14	Fine	103A	2.7861	2.7939	0.0078	0.00	1.00	1.00	51	51	51.0	1.44	1.44	1.44	86.65	90.0	292.7	500.0	<5	N
		103B	2.6771	2.6850	0.0079	0.00	1.00	1.00	51	51	51.0	1.44	1.44	1.44	86.65	91.2	292.7	500.0	<5	N
		103C	2.7019	2.7101	0.0082	0.00	1.00	1.00	51	51	51.0	1.44	1.44	1.44	86.65	94.6	292.7	500.0	<5	N
10-Nov-14	Cloudy	113A	2.7040	2.7080	0.0040	0.00	1.00	1.00	51	51	51.0	1.44	1.44	1.44	86.65	46.2	292.7	500.0	<5	N
		113B	2.6788	2.6831	0.0043	0.00	1.00	1.00	51	51	51.0	1.44	1.44	1.44	86.65	49.6	292.7	500.0	<5	N
		113C	2.6810	2.6845	0.0035	0.00	1.00	1.00	51	51	51.0	1.44	1.44	1.44	86.65	40.4	292.7	500.0	<5	N
15-Nov-14	Fine	119A	2.7743	2.7825	0.0082	0.00	1.00	1.00	51	51	51.0	1.44	1.44	1.44	86.65	94.6	292.7	500.0	<5	N
		119B	2.7711	2.7807	0.0096	0.00	1.00	1.00	51	51	51.0	1.44	1.44	1.44	86.65	110.8	292.7	500.0	<5	N
		119C	2.7541	2.7639	0.0098	0.00	1.00	1.00	51	51	51.0	1.44	1.44	1.44	86.65	113.1	292.7	500.0	<5	N
21-Nov-14	Fine	115A	2.7211	2.7299	0.0088	0.00	1.00	1.00	51	51	51.0	1.44	1.44	1.44	86.65	101.6	292.7	500.0	<5	N
		115B	2.6991	2.7081	0.0090	0.00	1.00	1.00	51	51	51.0	1.44	1.44	1.44	86.65	103.9	292.7	500.0	<5	N
		115C	2.7076	2.7161	0.0085	0.00	1.00	1.00	51	51	51.0	1.44	1.44	1.44	86.65	98.1	292.7	500.0	<5	N
27-Nov-14	Cloudy	116A	2.7768	2.7851	0.0083	0.00	1.00	1.00	51	51	51.0	1.44	1.44	1.44	86.65	95.8	292.7	500.0	<5	N
		116B	2.7561	2.7641	0.0080	0.00	1.00	1.00	51	51	51.0	1.44	1.44	1.44	86.65	92.3	292.7	500.0	<5	N
		116C	2.7488	2.7567	0.0079	0.00	1.00	1.00	51	51	51.0	1.44	1.44	1.44	86.65	90.7	292.7	500.0	<5	N
															Average	87.5				
															Min	40.4				
															Max	113.1				

Note: No major dust source observed during the monitoring period
Data in **Bold** denotes exceedance of respective Action Level
Data in **Bold Underline** denotes exceedance of respective Limit Level

1-Hour TSP Monitoring Result at station: SR77



1-Hour TSP Monitoring Result at station: SR77 (August - November 2014)



Appendix G

Summary of Event and Action Plan

Event and Action Plan for Air Quality

Event	Action			
	ET Leader	IEC	ER	Contractor
Action level being exceeded by one sampling day	<ol style="list-style-type: none"> 1. Identify source; 2. Inform IEC and ER; 3. Repeat measurement to confirm finding; 4. Increase monitoring frequency to daily. 	<ol style="list-style-type: none"> 1. Check monitoring data submitted by ET; 2. Check Contractor's working method. 	<ol style="list-style-type: none"> 1. Notify Contractor. 	<ol style="list-style-type: none"> 1. Rectify any unacceptable practice; 2. Amend working methods if appropriate.
Action level being exceeded by two or more consecutive sampling days	<ol style="list-style-type: none"> 1. Identify source; 2. Inform IEC and ER; 3. Repeat measurements to confirm findings; 4. Increase monitoring frequency to daily; 5. Discuss with IEC and Contractor on remedial actions required; 6. If exceedance continues, arrange meeting with IEC and ER; 7. If exceedance stops, cease additional monitoring. 	<ol style="list-style-type: none"> 1. Check monitoring data submitted by ET; 2. Check Contractor's working method; 3. Discuss with ET and Contractor on possible remedial measures; 4. Advise the ER on the effectiveness of the proposed remedial measures; 5. Supervise Implementation of remedial measures. 	<ol style="list-style-type: none"> 1. Confirm receipt of notification of failure in writing; 2. Notify Contractor; 3. Ensure remedial measures properly implemented. 	<ol style="list-style-type: none"> 1. Submit proposals for remedial actions to IEC within 3 working days of notification; 2. Implement the agreed proposals; 3. Amend proposal if appropriate.

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

Event and Action Plan for Noise Quality

Event	Action			
	ET Leader	IEC	ER	Contractor
Action Level	<ol style="list-style-type: none"> 1. Notify IEC and the Contractor. 2. Carry out investigation. 3. Report the results of investigation to IEC and the Contractor. 4. Discuss with the Contractor and formulate remedial measures. 5. Increase monitoring frequency to check mitigation effectiveness. 	<ol style="list-style-type: none"> 1. Review with analysed results submitted by ET. 2. Review the proposed remedial measures by the Contractor and advise ER accordingly. 3. Supervise the implement of remedial measures. 	<ol style="list-style-type: none"> 1. Confirm receipt of notification of failure in writing. 2. Notify the Contractor. 3. Require the Contractor to propose remedial measures for the analysed noise problem. 4. Ensure remedial measures are properly implemented. 	<ol style="list-style-type: none"> 1. Submit noise mitigation proposals to IEC. 2. Implement noise mitigation proposals.
Limit Level	<ol style="list-style-type: none"> 1. Notify IEC, ER, EPD and the Contractor. 2. Identify the source. 3. Repeat measurement to confirm findings. 4. Increase monitoring frequency. 5. Carry out analysis of Contractor's working procedures to determine possible mitigation to be implemented. 6. Inform IEC, ER, and EPD the causes & actions taken for the exceedances. 7. Assess effectiveness of the Contractor's remedial actions and keep IEC, EPD and ER informed of the results. 8. If exceedance stops, cease additional monitoring. 	<ol style="list-style-type: none"> 1. Discuss amongst ER, ET Leader and the Contractor on the potential remedial actions. 2. Review the Contractor's remedial actions whenever necessary to assure their effectiveness and advise ER accordingly. 3. Supervise the implementation of remedial measures. 	<ol style="list-style-type: none"> 1. Confirm receipt of notification of failure in writing. 2. Notify the Contractor. 3. Require the Contractor to propose remedial measures for the analysed noise problem. 4. Ensure remedial measures are properly implemented. 5. If exceedance continues, consider what activity of the work is responsible and instruct the Contractor to stop that activity of work until the exceedance is abated. 	<ol style="list-style-type: none"> 1. Take immediate action to avoid further exceedance. 2. Submit proposals for remedial actions to IEC within 3 working days of notification. 3. Implement the agreed proposals. 4. Resubmit proposals if problem still not under control. 5. Stop the relevant activity of works as determined by the ER until the exceedance is abated.

Event and Action Plan for Water Quality

Event	Action			
	ET Leader	IEC	ER	Contractor
Action level being exceeded by one sampling day	<ol style="list-style-type: none"> 1. Repeat in-situ measurement on next day of exceedance to confirm findings; 2. Identify source(s) of impact; 3. Inform IEC, Contractor & ER; 4. Check monitoring data, all plant, equipment & contractor's working methods; 	<ol style="list-style-type: none"> 1. Check monitoring data submitted by ET & Contractor's working methods; 	<ol style="list-style-type: none"> 1. Confirm receipt of notification of failure in writing; Notify, Contractor 	<ol style="list-style-type: none"> 1. Inform the ER & confirm notification of the non-compliance in writing; 2. Rectify unacceptable practice; 3. Amend working methods if appropriate.
Action level being exceeded by two or more consecutive sampling days	<ol style="list-style-type: none"> 1. Repeat measurement on next day of exceedance to confirm findings; 2. Identify source(s) of impact; 3. Inform IEC, Contractor, ER & EPD; 4. Check monitoring data, all plant, equipment & Contractor's working methods; 5. Discuss mitigation measures with IEC, ER & Contractor; 6. Ensure mitigation measures are implemented; 7. Increase monitoring to daily until no exceedance of Action level. 	<ol style="list-style-type: none"> 1. Checking monitoring data submitted by ET & Contractor's working method; 2. Discuss with ET & Contractor on possible remedial actions; 3. Review the proposed mitigation measures submitted by Contractor & advise the ER accordingly; 4. Supervise the implementation of mitigation measures. 	<ol style="list-style-type: none"> 1. Discuss with IEC on the proposed mitigation measures; 2. Ensure mitigation measures properly implemented; 3. Assess the effectiveness of the implemented mitigation measures. 	<ol style="list-style-type: none"> 1. Inform the Engineer & confirm notification of the non-compliance in writing; 2. Rectify unacceptable practice; 3. Check all plant & equipment & consider changes of working methods; 4. Submit proposal of mitigation measures to ER within 3 working days of notification & discuss with ET, IEC & ER; 5. Implement the agreed mitigation measures.

Event	Action			
	ET Leader	IEC	ER	Contractor
Limit level being exceeded by one sampling day	<ol style="list-style-type: none"> 1. Repeat measurement on next day of exceedance to confirm findings; 2. Identify source(s) of impact; 3. Inform IEC, contractor, ER & EPD; 4. Check monitoring data, all plant, equipment & contractor's working methods; 5. Discuss mitigation measures with IEC, Contractor & ER. 	<ol style="list-style-type: none"> 1. Checking monitoring data submitted by ET & Contractor's working method; 2. Discuss with ET & Contractor on the possible mitigation measures; 3. Review the proposed mitigation measures submitted by Contractor & advise the ER accordingly. 	<ol style="list-style-type: none"> 1. Confirm receipt of notification of failure in writing; 2. Discuss with IEC, ET & Contractor on the proposed mitigation measures; 3. Request Contractor to review the working methods. 	<ol style="list-style-type: none"> 1. Inform the ER & confirm notification of the non-compliance in writing; 2. Rectify unacceptable practice; 3. Check all plant & equipment & consider changes of working methods; 4. Submit proposal of mitigation measures to ER within 3 working days of notification & discuss with ET, IEC & ER.
Limit level being exceeded by two or more consecutive sampling days	<ol style="list-style-type: none"> 1. Repeat measurement on the next day of exceedance to confirm findings; 2. Identify source(s) of impact; 3. Inform IEC, Contractor, ER & EPD; 4. Check monitoring data, all plant, equipment & Contractor's working methods; 5. Discuss mitigation measures within IEC, Contractor & ER; 6. Ensure mitigation measures are implemented; 7. Increase the monitoring frequency to daily until no exceedance of Limit level for two consecutive days. 	<ol style="list-style-type: none"> 1. Checking monitoring data submitted by ET & Contractor's working method; 2. Discuss with ET & Contractor on potential remedial actions; 3. Review Contractor's mitigation measures whenever necessary to assure their effectiveness & advise the ER accordingly; 4. Supervise the implementation of mitigation measures. 	<ol style="list-style-type: none"> 1. Discuss with IEC, ET & Contractor on the proposed mitigation measures; 2. Request Contractor to critically review the working methods; 3. Make agreement on the mitigation measures to be implemented; 4. Ensure mitigation measures are properly implemented; 5. Consider & instruct, if necessary, the Contractor to slow down or to stop all or part of the construction activities until no exceedance of Limit level. 	<ol style="list-style-type: none"> 1. Take immediate action to avoid further exceedance; 2. Submit proposal of mitigation measures to ER within 3 working days of notification & discuss with ET, IEC & ER; 3. Implement the agreed mitigation measures; 4. Resubmit proposals of mitigation measures if problem still not under control; 5. As directed by the Engineer, to slow down or to stop all or part of the construction activities until no exceedance of Limit level.

Appendix H Noise Monitoring Results and their Graphical Presentation

Appendix H
Noise Monitoring Results and their Graphical Presentation

Noise Monitoring Result at SR77

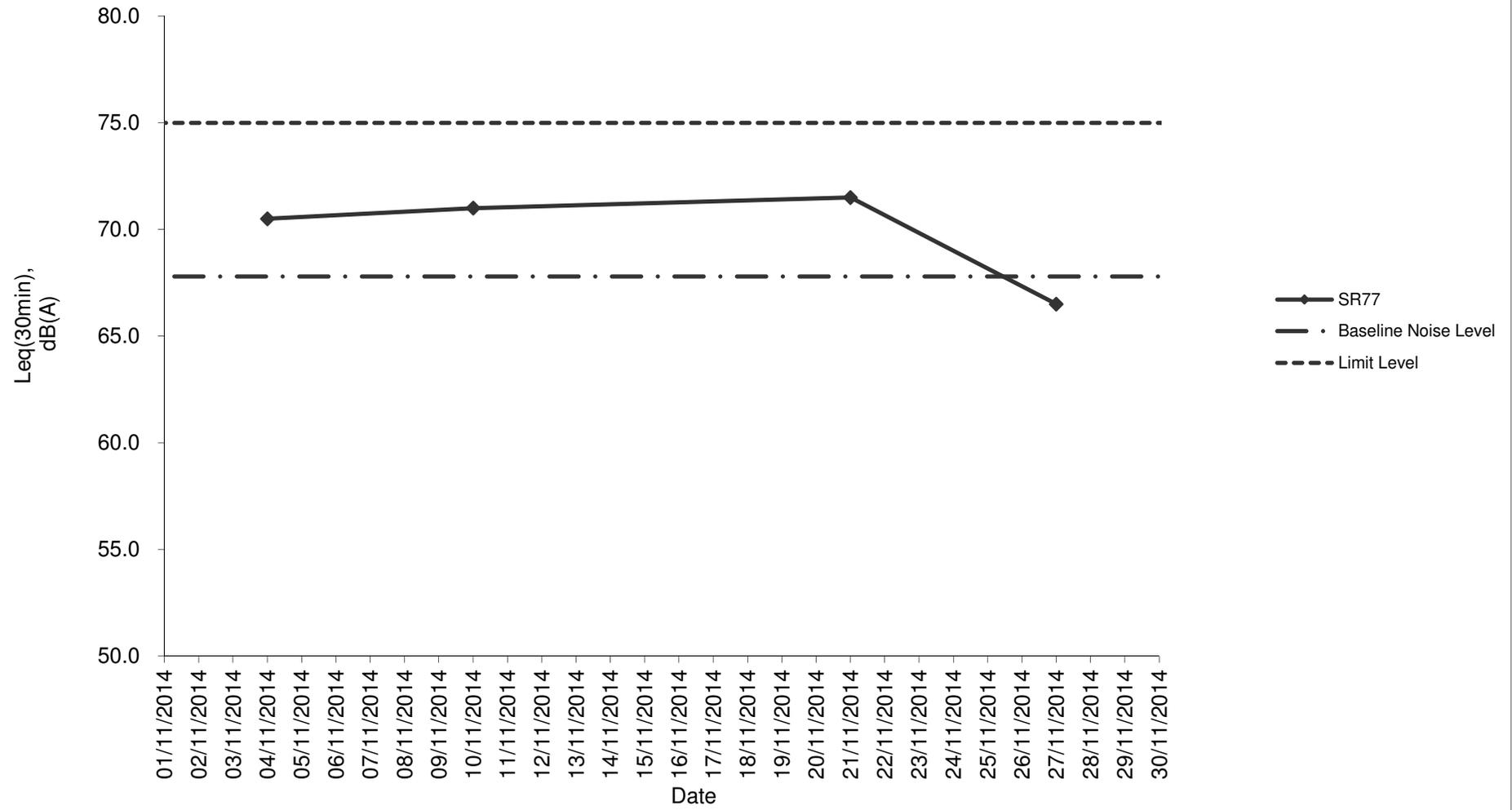
Date	Weather Condition	Start Time	End Time	Measured Noise Level (dB(A))*			Baseline Corrected Level, dB(A)**	Baseline Noise Level (dB(A)), Leq(30min)	Limit Level dB(A)	Exceedance (Y / N)
				L10(30min)	L90(30min)	Leq(30min)				
2014/11/04	Fine	10:30	11:00	78.0	63.5	70.5	-	67.8	75.0	N
2014/11/10	Cloudy	15:00	15:30	77.0	64.0	71.0	-	67.8	75.0	N
2014/11/21	Fine	14:00	14:30	77.5	64.5	71.5	-	67.8	75.0	N
2014/11/27	Cloudy	14:30	15:00	78.5	58.5	66.5	-	67.8	75.0	N
				Average	69.9					
				Minimum	66.5					
				Maximum	71.5					

Remarks

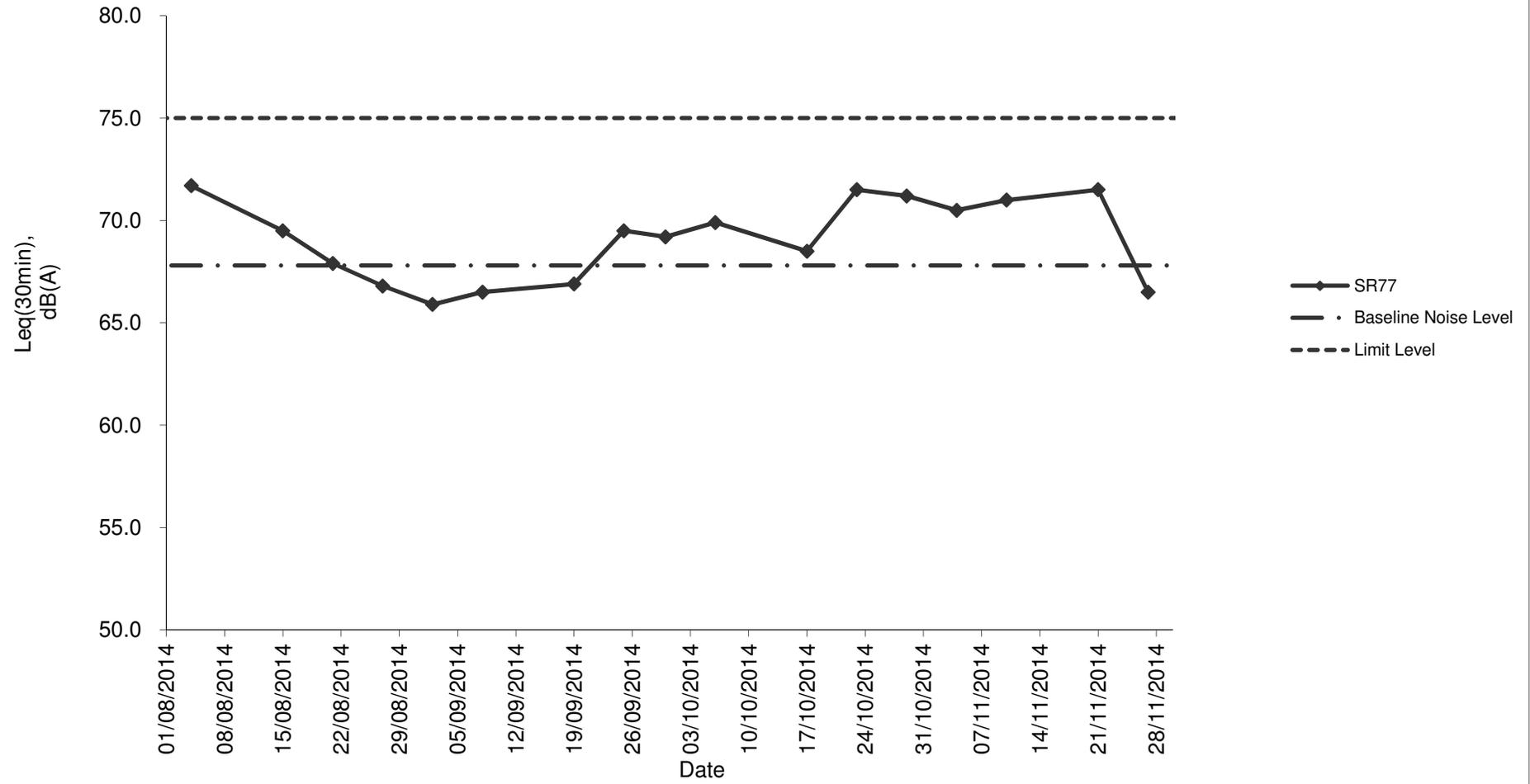
* +3dB(A) Façade effect correction included

** Baseline corrected level is only calculated when measured noise level (Leq) > limit level.

Noise monitoring result: SR77



Noise monitoring result: SR77 (August - November 2014)



Appendix K Waste Flow Table

Monthly Summary Waste Flow Table

Month	Actual Quantities of Inert C&D Materials Generated Monthly							Actual Quantities of C&D Wastes Generated Monthly				
	Total Quantity Generated	Hard Rock and Large Broken Concrete	Soil	Soil Reused in the Contract	Soil Reused in other Projects	Soil Disposed as Public Fill	Imported Fill	Metals	Paper/ cardboard packaging (Note 3)	Plastics	Chemical Waste	General Refuse (Note 2)
Unit	(in '000m3)	(in '000m3)	(in '000m3)	(in '000m3)	(in '000m3)	(in '000m3)	(in '000m3)	(in '000m3)	(in '000m3)	(in '000m3)	(in '000m3)	(in '000m3)
Jan-14	0.493	0.084	0.409	-	-	0.409	0.200	-	-	0.010	-	0.110
Feb-14	2.209	0.356	1.853	0.380	-	1.473	-	0.002	-	-	0.019	0.040
Mar-14	4.460	0.506	3.954	1.092	-	2.862	-	-	-	-	-	0.265
Apr-14	1.654	0.054	1.600	0.672	-	0.928	0.200	-	-	-	0.020	0.135
May-14	3.190	0.450	2.740	0.192	-	2.548	0.500	-	-	-	0.020	0.195
Jun-14	2.473	0.258	2.215	0.675	-	1.540	1.075	-	-	-	0.001	0.180
Sub-Total	14.479	1.708	12.771	3.011	-	9.760	1.975	0.002	-	0.010	0.060	0.925
Jul-14	3.829	0.233	3.596	0.502	-	3.094	0.747	-	-	0.005	-	0.165
Aug-14	6.153	0.649	5.504	0.732	-	4.772	1.200	-	-	0.005	0.009	0.220
Sep-14	2.780	0.176	2.604	1.176	-	1.428	0.750	-	-	0.005	-	0.085
Oct-14	6.494	0.090	6.404	2.160	-	4.244	1.501	-	-	0.005	-	0.085
Nov-14	4.295	-	4.295	0.645	-	3.650	-	-	-	0.010	0.001	0.110
Dec-14	-	-	-	-	-	-	-	-	-	-	-	-
Total	38.030	2.856	35.174	8.226	-	26.948	6.173	0.002	-	0.040	0.070	1.590

- Note:
1. Assume the density of soil fill is 2 ton/m3.
 2. Assume the density of rock and broken concrete is 2.5 ton/m3.
 3. Assume each truck of C&D wastes is 5m3.
 4. The inert C&D materials except slurry and bentonite are disposed at Tuen Mun 38.
 5. The slurry and bentonite are disposed at Tseung Kwun O 137.
 6. The non-inert C&D wastes are disposed at NENT.
 7. Assume the density of metal is 7,850 kg/m3.

Appendix L Implementation Schedule of Environmental Mitigation Measures (EMIS)

Impact	Environmental Protection Measures	Timing	Responsibility	Implementation Status #
Air Quality				
Air Quality during Construction	<ul style="list-style-type: none"> Restricting heights from which materials are dropped, as far as practicable to minimize the fugitive dust arising from unloading/loading. All stockpiles of excavated materials or spoil of more than 50m³ shall be enclosed, covered or dampened during dry or windy conditions. Effective water sprays shall be used to control potential dust emission sources such as unpaved haul roads and active construction areas. All spraying of materials and surfaces shall avoid excessive water usage. Vehicles that have the potential to create dust while transporting materials shall be covered, with the cover properly secured and extended over the edges of the side and tail boards. Materials shall be dampened, if necessary, before transportation. Travelling speeds shall be controlled to reduce traffic induced dust dispersion and re-suspension within the site from the operating haul trucks. Vehicle washing facilities shall be provided to minimise the quantity of material deposited on public roads. 	During Construction	Contractor	✓ Rem ✓ ✓ ✓ ✓ ✓ Obs
Air Quality during Operation	Not required	N/A	N/A	N/A
Noise				
Noise during Construction	<ul style="list-style-type: none"> Use of silenced plant or plant equipped with mufflers or dampers in substitute of ordinary plant. Reduce the number of equipment and their percentage on-time. 	During Construction	Contractor	✓ ✓
Noise during Operation	Not required	N/A	N/A	N/A
Water Quality				
Water Quality during Construction	<u>Road Widening Works, Earthworks and Culvert Extension Works</u> <ul style="list-style-type: none"> Wastewater generated from any concrete batching washdown of equipment or similar activities should be discharged into foul sewers, after the removal of settleable solids, and pH adjustment as necessary. All sewage discharges from the study area should meet the TM standards and approval from EPD through the licensing process is required. 	During Construction	Contractor	✓

Notes (#): ✓ – Compliance; Rem – Reminder; Obs – Observation; N/C – Non Compliance; N/A – Not Applicable;

Impact	Environmental Protection Measures	Timing	Responsibility	Implementation Status #
	<p><u>Demolition Wastes</u></p> <ul style="list-style-type: none"> • Segregation of materials to facilitate disposal. • Appropriate stockpile management. <p><u>Excavated Materials</u></p> <ul style="list-style-type: none"> • Segregation of materials to facilitate disposal / reuse. • Appropriate stockpile management. • Re-use of excavated material on or off site (where possible). • Special handling and disposal procedures in the event that contaminated materials are excavated. <p><u>Construction Wastes</u></p> <ul style="list-style-type: none"> • Segregation of materials to facilitate recycling/reuse (within designated area in appropriate containers/stockpiles). • Appropriate stockpile management. • Planning to reduce over ordering and waste generation. • Recycling and re-use of materials where possible (e.g. metal, wood from formwork) • For material which cannot be re-used/recycled, collection should be carried out by an approved waste contractor for landfill disposal. <p><u>Bentonite Slurries</u></p> <ul style="list-style-type: none"> • Bentonite slurries should be reused as far as possible. • Disposal in accordance with Practice Note For Professional Persons ProPECC PN 1/94. <p><u>Chemical Wastes</u></p> <ul style="list-style-type: none"> • Storage within locked, covered and bunded area. • The storage area shall not be located adjacent to sensitive receivers e.g. drains. <p>• Minimise waste production and recycle oils/solvents where possible.</p>	<p>During Construction</p> <p>During Construction</p> <p>During Construction</p> <p>During Construction</p> <p>During Construction</p> <p>During Construction</p>	<p>Contractor</p> <p>Contractor</p> <p>Contractor</p> <p>Contractor</p> <p>Contractor</p> <p>Contractor</p>	<p>✓</p> <p>✓</p> <p>✓</p> <p>✓</p> <p>✓</p> <p>N/A</p> <p>✓</p> <p>Obs</p> <p>✓</p> <p>✓</p> <p>✓</p> <p>N/A</p> <p>N/A</p> <p>✓</p> <p>✓</p> <p>✓</p>

Notes (#): ✓ – Compliance; Rem – Reminder; Obs – Observation; N/C – Non Compliance; N/A – Not Applicable;

Impact	Environmental Protection Measures	Timing	Responsibility	Implementation Status #
	<ul style="list-style-type: none"> • A spill response procedure shall be in place and absorption material available for minor spillages. • Use appropriate and labelled containers. • Educate site workers on site cleanliness/waste management procedures. • If chemical wastes are to be generated, the contractor must register with EPD as a chemical waste producer. • The chemical wastes shall be collected by a licensed chemical waste collector. <p><u>Municipal Wastes</u></p> <ul style="list-style-type: none"> • Waste shall be stored within a temporary refuse collection facility, in appropriate containers prior to collection and disposal. • Regular, daily collections are required by an approved waste collector. 	During Construction	Contractor	✓ ✓ ✓ ✓ ✓ ✓ ✓
Waste Management during Operation	Not required.	N/A	N/A	N/A
Ecology				
Ecology during Construction	<p><u>Accurate Delineation of Works Area</u></p> <ul style="list-style-type: none"> • Boundaries of proposed works areas shall be clearly identified and separated from external areas by a physical barrier to prevent encroachment of adjacent habitats. • Individual trees which fall within the works areas but which work plans show do not require removal are to be retained and fenced off to maximise protection. <p><u>Dust generation</u></p> <p>There are a number of measures which shall be taken as specified in the Air Pollution Control (Construction Dust) Regulation on 'Dust Control Requirements, including the following key measures to be applied during construction:</p> <ul style="list-style-type: none"> • vehicle washing facilities to be provided at every discernible or designated vehicle exit point; 	During Construction	Contractor	✓ ✓
		During Construction	Contractor	✓

Notes (#): ✓ – Compliance; Rem – Reminder; Obs – Observation; N/C – Non Compliance; N/A – Not Applicable;

Impact	Environmental Protection Measures	Timing	Responsibility	Implementation Status #
	<ul style="list-style-type: none"> • all temporary site access roads shall be sprayed with water to suppress dust as necessary; • all dusty materials should be sprayed with water immediately prior to any handling; and • all debris should be covered entirely by impervious sheeting or stored in a sheltered debris collection area. <p><u>Surface Run-off</u></p> <p>In general, mitigation measures shall be in accordance with ProPECC PN1/94 on 'Construction Site Drainage'. Key measures include:</p> <ul style="list-style-type: none"> • Bund and cover stockpiles to avoid run-off; • Channel any run-off through a system of oil, grease and sediment / silt traps and reuse water on site where ever practical; • All vehicle maintenance to be undertaken within a bunded area; and • Maximise vegetation retention on-site to maximise absorption (minimise transport). 	During Construction	Contractor	✓ ✓ ✓ ✓ N/A ✓
Ecology during Operation	<ul style="list-style-type: none"> • To conduct compensatory ecological planting as specified in the latest landscape plans approved by EPD (Clause 2.6 of the Environmental Permit refers). 	During Construction and operation	Contractor (during construction) / LCSD* (during operation) (Note: * The division of vegetation planting and maintenance responsibilities shall follow the guidelines stipulated in ETWB TCW No. 2/2004.)	N/A
Landscape and Visual				
Landscape and Visual during Construction	<p><u>Preservation of Existing Vegetation</u></p> <ul style="list-style-type: none"> • Trees identified for retention within the project limit would be protected during the works • The tree transplanting and planting works shall be implemented by approved Landscape Contractors 	During Construction	Contractor	✓ ✓

Notes (#): ✓ – Compliance; Rem – Reminder; Obs – Observation; N/C – Non Compliance; N/A – Not Applicable;

Impact	Environmental Protection Measures	Timing	Responsibility	Implementation Status #
	<p><u>Temporary Works Areas</u> Where feasible the works areas would be screened using hoarding and existing vegetation would be retained where possible to reduce the landscape and visual impacts arising from the construction activity. The landscape of these works areas would be restored following the completion of the construction phase.</p> <p><u>Hoarding</u> A hoarding would be erected where practicable in the most visually sensitive locations to screen the temporary construction works from the local VSRs.</p> <p><u>Top Soils</u> The works will result in disturbance to extensive areas of topsoil. Topsoil worthy of retention should be stockpiled for use following completion of the civil engineering works. It should either be temporarily vegetated with hydroseeded grass or turned over on a regular basis.</p> <p><u>Protection of Important Landscape Features</u> Important features such as temples, Island House and kilns within the study area, although remote from the proposed works retained and adequately protected.</p>	During Construction	Contractor	✓
		During Construction	Contractor	✓
		During Construction	Contractor	N/A
		During Construction	Contractor	N/A
Landscape and Visual during Operation	Not required.	N/A	N/A	N/A

Notes (#): ✓ – Compliance; Rem – Reminder; Obs – Observation; N/C – Non Compliance; N/A – Not Applicable;

Appendix N Cumulative Statistics on Complaints, Notifications of Summons and Successful Prosecutions

Cumulative Complaint Log

Complaint Log No.	Date of Complaint	Received From and Received By	Location of Complainant	Nature of Complaint	Outcome	Status
C131126	26, November, 2013	Mr. Tony Hung from WWF	Mat Wat River (works sites for box culvert extension)	Suspected unauthorised discharge of water from a construction site to Ma Wat River, Tai Wo Service Road East, Tai Po	<p>It was found that the water leaving the end of the steel pipes was the diverted water from the upstream of the existing box culverts, instead of being discharged from the construction works sites.</p> <p>An EM&A Programme is being undertaken to monitoring the environmental performance of the construction works, and the Contractor has also implemented appropriate mitigation measures to avoid silt-laden runoff discharging from the works sites into the river.</p> <p>The complaint is considered an invalid complaint under this Project.</p>	Completed

Complaint Log No.	Date of Complaint	Received From and Received By	Location of Complainant	Nature of Complaint	Outcome	Status
C141120	20 November, 2014	EPD	Ng Tung River and Ma Wat River nearby the site of the Liantang/ Heung Yuen Wai BCP Project (Contract Number CV/2012/09)	At Bridge NF426 in Fanling, the whole Ng Tung River showed milky and suspected illegal discharge by nearby factory has undertaken. (粉嶺近天橋編號 NF426 梧桐河整條河河水呈奶白色懷疑附近有工廠非法排放污水)	<p>Water Supplies Department (WSD) conducted a washout procedure on 20 November 2014 at about 9:30am to flush the newly installed water pipe of diameter of 1400mm which has recently finished disinfection. It is understood that the procedure has lasted for about 1 hour and large amount of freshwater has been discharged into the Ma Wat River through a washout port.</p> <p>Although water was observed seeping from the gantry switch and flew into the works sites, the area is a sump pit and the water was unlikely to run off and entered the river directly. As such, it is anticipated that only freshwater has been discharged into Ma Wat River through the washout port.</p> <p>Both site inspections conducted by the ET before the complaint (19 November 2014), and after the complaint (24 November 2014) did not identify any deficiencies on environmental mitigation measures. Also, there were no rains during the period and the risk of construction site run-off is considered minimal.</p>	

Complaint Log No.	Date of Complaint	Received From and Received By	Location of Complainant	Nature of Complaint	Outcome	Status
					<p>The water from the Ma Wat Channel adjoins the Ng Tung River before passing through the complaint location, so other pollution sources may also occur at upstream of Ng Tung River</p> <p>The complaint is considered unlikely due to the construction works of this project.</p>	



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