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

Monthly EM&A Report

February 2016

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

(February 2016)

Certified by: Fredrick Leong

Position: Environmental Team Leader

Date: 11 March 2016

Our ref JFP/EC/ST/ro/T329380/22.05/L-0113
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Mott MacDonald

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14 March 2016
By Fax (2805 5028) & Hand

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/D
Condition 3.3 – Submission of Monthly EM&A Report – February 2016 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 – February 2016 received on 11 March 2016 submitted by the Environmental Team via email. Pursuant to Environmental Permit Condition 3.3, I hereby verify the Monthly EM&A Report – February 2016 (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

Steven Tang
Independent Environmental Checker

c.c. HyD – Mr. Chung Lok Chin (Fax: 2714 5198)
CEDD/BCP – Mr. Desmond Lam (Fax: 3547 1659)
AECOM – Mr. Alan Lee (Fax: 3922 9797)
Meinhardt Infrastructure and Environment Limited – Mr. Fredrick Leong (Fax: 2540 1580)

Date	Revision	Prepared By	Checked By	Approved By
11 March 2016	0	Ivan TING Cindy KWOK	Fredrick LEONG	Helen COCHRANE

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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 February 2016. As informed by the Contractor, the major activities in the reporting month were:

- Decking Construction for Bridge E;
- Cable Detection and Trial Trenches;
- E & M Work for New Valve Control & Telemetry House;
- Filling Works at Tong Hang East;
- FRP Lining on Existing Water Main;
- Storm Drains Laying;
- Noise Barrier Construction;
- Pier / Pier Table Construction;
- Pile Cap Works;
- Portal Beam Construction;
- Pre-drilling;
- Retaining Wall Construction;
- Road Works at Fanling Highway;
- Sewer Works;
- Tree Felling Works;
- Utilities Duct Laying;
- Viaduct Segment Erection;
- Slope Works; and
- Water Main Connection Works.

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

One (1) exceedance of Limit Level of Turbidity was recorded at the monitoring location I5 on 22 February 2016 in the reporting month. Two (2) exceedances of Action Level on Dissolved Oxygen were recorded at the monitoring location I5 on 19 February 2016 and 22 February 2016. Investigation for the exceedances were conducted which concluded that the exceedances were not related to the project works. The investigation reports are presented in **Appendix M**.

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 originally scheduled from 19 February 2016. However, the mentioned works were now cancelled and postponed to the next dry season 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 only carried out on 19 February 2016 and 22 February 2016 in the reporting month and is anticipated to be resumed in the next dry season during the course of remaining box culvert works.

Complaint, Notification of Summons and Successful Prosecution

No complaint, 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:

- Cable Detection and Trial Trenches;
- Decking Construction for Bridge E;
- Filling Works at Tong Hang East;
- Storm Drains Laying;
- Noise Barrier Construction;

- Pier / Pier Table Construction;
- Pile Cap Works;
- Portal Beam Construction;
- Pre-drilling Works and Piling Works for Viaduct;
- Retaining Wall Construction;
- Road Works at Fanling Highway;
- Sewer Works;
- Slope Works;
- Socket H-pile Installation;
- Tree Felling Works;
- Utilities Duct Laying;
- Viaduct Segment Erection; and
- Water Main Connection Works.

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/D 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 February 2016.

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: Summary of EP Submission in the Reporting Month
- Section 11: Environmental Non-Conformance
- Section 12: Future Key Issues
- Section 13: 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. Furthermore, an additional VEP has been applied on 9 March 2015 and the VEP (EP-324/2008/C) was subsequently granted on 27 March 2015. The current VEP (EP-324/2008/D) was granted on 27 August 2015.

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 Reprovision; 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:

- Decking Construction for Bridge E;
- Cable Detection and Trial Trenches;
- E & M Work for New Valve Control & Telemetry House;
- Filling Works at Tong Hang East;
- FRP Lining on Existing Water Main;
- Storm Drains Laying;
- Noise Barrier Construction;
- Pier / Pier Table Construction;
- Pile Cap Works;
- Portal Beam Construction;
- Pre-drilling;
- Retaining Wall Construction;
- Road Works at Fanling Highway;
- Sewer Works;
- Tree Felling Works;
- Utilities Duct Laying;

- Viaduct Segment Erection;
- Slope Works; and
- Water Main Connection Works.

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. Steven Tang	2828 5920	2827 1823
Chun Wo	Contractor	Site Agent	Mr. Daniel Ho	2638 6144	2638 7077
		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/D	27 Aug 2015	--	Granted on 27/08/2015	
Construction Noise Permit				
GW-RN0495-15	12 Aug 2015	11 Feb 2016	Valid	For stressing of tendons at the southward of site office in the night time
GW-RN0497-15	14 Aug 2015	13 Feb 2016	Valid	For stressing of tendons at the northward of site office in the night time
GW-RN0525-15	29 Aug 2015	13 Feb 2016	Valid	For road diversion and maintenance of Fanling Highway Northbound
GW-RN0542-15	1 Sep 2015	25 Feb 2016	Valid	For installation of temporary pedestrian ramp & demolition of existing pedestrian ramp at Kiu Tau footbridge
GW-RN0608-15	28 Sep 2015	29 Feb 2016	Valid	For formwork erection of portal PT5
GW-RN0633-15	15 Oct 2015	29 Feb 2016	Valid	For operating water pumping in Kiu Tau within restricted hours
GW-RN0655-15	1 Dec 2015	29 Feb 2016	Valid	For connection of the DN2300 Dongjiang watermain
GW-RN0677-15	26 Oct 2015	29 Feb 2016	Valid	For formwork erection of AB10
GW-RN0699-15	10 Nov 2015	27 Feb 2016	Valid	For Segment erection of AC9
GW-RN0695-15	29 Nov 2015	28 Feb 2016	Valid	For coring works along Fanling Highway during public holidays
GW-RN0712-15	16 Nov 2015	29 Feb 2016	Valid	For formwork erection of pier AA12 to AD7
GW-RN0736-15	24 Nov 2015	29 Feb 2016	Valid	For saw-cut method of the DN2300 Dongjiang watermain

Permit / License No. / Notification / Reference No.	Valid Period		Status	Remarks
	From	To		
GW-RN0765-15	1 Dec 2015	27 Feb 2016	Cancelled on 29 Jan 2016	For segment erection crossing over MTRC's Rail Track of Pier AB11 and AD12
GW-RN0812-15	20 Dec 2015	29 Feb 2016	Valid	For lane shifting work at southbound of Fanling Highway
GW-RN0837-15	23 Dec 2015	29 Feb 2016	Valid	For road diversion and maintenance of Fanling Highway Southbound
GW-RN0892-15	9 Jan 2016	8 Jul 2016	Valid	For loading and unloading along Fanling Highway both bounds
GW-RN0894-15	5 Jan 2016	27 Feb 2016	Valid	For falsework erection of Pier AB11
GW-RN0001-16	8 Jan 2016	27 Feb 2016	Valid	For segment erection of AC5
GW-RN0049-16	26 Jan 2016	29 Feb 2016	Valid	For general works on Tai Wo Service Road West
GW-RN0056-16	2 Feb 2016	18 Mar 2016	Valid	For AB11 Crosshead Concreting
GW-RN0060-16	1 Feb 2016	30 Jun 2016	Valid	For segment erection crossing over MTRC's Rail Track of Pier AB11 and AD12
GW-RN0064-16	16 Feb 2016	13 Aug 2016	Valid	For road diversion and maintenance of Fanling Highway Northbound
GW-RN0086-16	16 Feb 2016	7 May 2016	Valid	For segment erection of pier AA4, AB6, AD7 and AA18
GW-RN0113-16	25 Feb 2016	24 Aug 2016	Valid	For Segment Delivery to Kiu Tau
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 ($\mu g/m^3$)	Range ($\mu g/m^3$)	Action Level ($\mu g/m^3$)	Limit Level ($\mu g/m^3$)
AM1(SR77) *	128.3	83.1 –183.5	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 ($\mu g/m^3$)	Range ($\mu g/m^3$)	Action Level ($\mu g/m^3$)	Limit Level ($\mu g/m^3$)
AM1(SR77) *	89.2	45.7 –153.6	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**.

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	Rion (Model No. NC-74)	1	34857296
Sound Level Meter	B&K (Model No. 2238)	1	2694908

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)	63.7	62.5 – 64.5	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 Introduction

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 originally scheduled from 19 February 2016. However, the mentioned works were now cancelled and postponed to the next dry season after the utilities diversions complete.

6.1.2 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.

6.1.3 Impact monitoring for water quality was only carried out on 19 February 2016 and 22 February 2016 in the reporting month. These samplings were intended to serve as pioneer water monitoring before the commencement of the construction works at the box culvert. However, the remaining box culvert works has subsequently delayed and is anticipated to be resumed in the next dry season. As such, only 2 water quality monitoring has been recorded.

6.2 Monitoring Requirements

6.2.1 In accordance with the Updated EM&A Manual, during the course of the culvert extension works, monitoring shall be undertaken on three occasions per week. The interval between two sets of monitoring shall not be less than 36 hours except where there are exceedances of Action and/or Limit levels.

6.2.2 Since there was no box culvert works conducted in the reporting months, the water monitoring has been conducted for 2 sampling days only. The results are nonetheless included in **Appendix I** and **Appendix J** for reference.

6.3 Monitoring Equipment

6.3.1 The equipment used in the water quality monitoring programme is summarised in **Table 6.1**.

Table 6.1 Water Quality Monitoring Equipment

Equipment	Model and Make
Turbidity meter	HACH Model 2100Q is (Serial No. 13120C029845)
Multifunctional Meter (Scope of Test: Conductivity, Dissolved Oxygen, pH, Salinity and Temperature)	Professional Plus (Serial No. 10D101566)

6.3.2 The monitoring instruments were checked, calibrated and certified by a laboratory accredited under HOKLAS before use and subsequently re-calibrated at 3-monthly intervals throughout all stages of the water quality monitoring. Copies of the calibration certificates for the water quality monitoring equipment are attached in **Appendix C**.

6.4 Monitoring Parameters, Frequency and Duration

6.4.1 Measurements for each monitoring station were conducted 3 days per week for the reporting month. **Table 6.2** summarises the monitoring parameters, frequency and duration of the baseline water quality monitoring.

Table 6.2 Water Quality Monitoring Parameters, Frequency and Duration

Monitoring Stations	Parameter, unit	Frequency
Control Stations: C3a and C3b Impact Station: I5	- Depth, m - Temperature, ℃ - Salinity, ppt - pH - DO, mg/L - DO Saturation, % - Turbidity, NTU - SS, mg/L	3 days per week

6.5 Monitoring Locations

6.5.1 According to the Updated EM&A Manual, measurements were taken at all impact and control stations as summarised in **Table 6.3**. The locations of the monitoring stations are shown in **Figure 3**.

Table 6.3 Locations of Water Quality Monitoring

Station	Description	Easting	Northing
I5	Downstream of Ma Wat River (Yuen Leng)	833931	837859
C3a	Upstream of Ma Wat River (Nam Wa Po)	833816	837644
C3b	Upstream of Ma Wat River (Yuen Leng)	833931	837736

6.6 Monitoring Methodology

Instrumentation

6.6.1 The parameters of in-situ measurements included water depth, dissolved oxygen (DO), dissolved oxygen saturation (DOS), turbidity level, pH value and water temperature.

Operating/Analytical Procedures

6.6.2 Since water depths for all monitoring stations were less than 1m throughout the whole baseline measurement period, only mid-depth level was monitored.

6.6.3 At each monitoring station, at least duplicate readings of dissolved oxygen content and turbidity were taken. The probes were retrieved out of the water after the first measurement and then re-deployed for the second measurement.

6.6.4 Water samples were collected by the water sampler and filled into polyethylene bottles for laboratory determination of suspended solids. Sampling bottles were pre-rinsed with the same water samples, and filled up to the rim, capped tightly and labeled immediately. The sample bottles were then packed into a cool-box kept at 4℃, and

delivered to a HOKLAS accredited laboratory, Enviro Labs Ltd. (HOKLAS no.: 128) for analysis. The results for laboratory analysis of suspended solids are presented in **Appendix I**.

6.7 Monitoring Schedule for the Reporting Month

6.7.1 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**.

6.8 Monitoring Results

6.8.1 The water quality criteria, namely Action and Limit Levels, as specified in the Updated EM&A Manual are shown in **Table 6.4**.

Table 6.4 Action and Limit Levels for Water Quality Monitoring

Parameters	Action	Limit
DO in mg/L	6.7 mg/L	4 mg/L or 40% saturation at 15 degree Celsius
SS in mg/L	42.6 mg/L or 120% of upstream control station's SS of the same day	46.8 mg/L or 130% of upstream station's SS of the same day and specific sensitive receiver water quality requirements
Turbidity (Tby) in NTU	81.9NTU or 120% of upstream control station's Tby of the same day	91.9NTU or 130% of upstream control station's Tby of the same day

Notes:
For DO, non-compliance of the water quality limits occurs when monitoring result is lower than the limits.
For SS and Tby, non-compliance of the water quality limits occurs when monitoring result is higher than the limits.

6.8.2 The detailed water quality monitoring results and the graphical presentation of water quality monitoring data for the current and past three reporting months are presented in **Appendix J**.

6.8.3 The possible influences in monitoring results were suspected to be natural variation.

6.8.4 One (1) exceedance of Limit Level of Turbidity was recorded at the monitoring location I5 on 22 February 2016 in the reporting month. Two (2) exceedances of Action Level on Dissolved Oxygen were recorded at the monitoring location I5 on 19 February 2016 and 22 February 2016. Investigation for the exceedances were conducted which concluded that the exceedances were not related to the project works. The investigation reports are presented in **Appendix M**.

6.8.5 The Event and Action Plan for the occurrence of non-compliance of the water quality criteria is annexed in **Appendix G**.

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 1,876m^3 of excavated material has been generated. 1,205m^3 of inert C&D materials was disposed of at public fill to Tuen Mun Area 38. 20m^3 of inert C&D materials was reused on site. 110m^3 of general refuse was disposed of at North East New Territories (NENT) Landfill. No plastics were collected by recycling contractor in the reporting month. No paper/cardboard packaging was collected by recycling contractor in the reporting month. No metals were collected by recycling contractor in the reporting month. No 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 1, 18, 22, 29 February 2016. The one held on 29 February 2016 was a joint inspection with the IEC, ER, ET and Contractor. No site inspection was conducted by the EPD 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	1 February 2016	Observation: Wastewater was observed being discharged without proper wastewater treatment near the works area opposite to SA25. The Contractor was advised to review the wastewater treatment system at the site.	The Road side has been cleared of silty wastewater as observed during 18 Feb 2016 site inspection.
Air Quality	18 February 2016	Reminder: Contractor is reminded to maintain site staff entering and leaving construction works sites through proper site entrance and cleaned properly if necessary.	Please refer to Observation identified during 22 Feb 2016 site inspection.
	22 February 2016	Observation: Muddy trail was observed outside the site entrance SA22. The Contractor was advised to clear up the mud outside the site entrance.	The muddy trail and mud outside SA22 was removed as observed during 29 Feb 2016 site inspection.
	22 February 2016	Reminder: The Contractor was reminded to maintain the wheel washing facility at SA22.	This item was improved as observed during 29 Feb 2016 site inspection.
	29 February 2016	Reminder: The Contractor was reminded to implement sufficient watering at SA22 for dust suppression.	This item was improved as observed during 7 Mar 2016 site inspection.
Noise	N/A	N/A	N/A
Waste / Chemical Managem-ent	N/A	N/A	N/A
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 January 2016	12 February 2016

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.

11.1.4 One (1) exceedance of Limit Level of Turbidity was recorded at the monitoring location I5 on 22 February 2016 in the reporting month. Two (2) exceedances of Action Level on Dissolved Oxygen were recorded at the monitoring location I5 on 19 February 2016 and 22 February 2016. Investigation for the exceedances were conducted which concluded that the exceedances were not related to the project works. The investigation reports are presented in **Appendix M**.

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 No environmental complaints were received in the reporting month. 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:

- Cable Detection and Trial Trenches;
- Decking Construction for Bridge E;
- Filling Works at Tong Hang East;
- Storm Drains Laying;
- Noise Barrier Construction;
- Pier / Pier Table Construction;
- Pile Cap Works;
- Portal Beam Construction;
- Pre-drilling Works and Piling Works for Viaduct;
- Retaining Wall Construction;
- Road Works at Fanling Highway;
- Sewer Works;
- Slope Works;
- Socket H-pile Installation;
- Tree Felling Works;
- Utilities Duct Laying;
- Viaduct Segment Erection; and
- Water Main Connection Works.

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;
- Operation of construction plant should be sequenced where practicable;

- Good housekeeping should be maintained and general refuse should be removed regularly;
- Chemical waste should be stored, handled and disposed of properly;
- Properly store and label oils and chemicals on site; and
- A spill response procedure shall be in place and absorption material available for minor spillages.

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 One (1) exceedance of Limit Level of Turbidity was recorded at the monitoring location I5 on 22 February 2016 in the reporting month. Two (2) exceedances of Action Level on Dissolved Oxygen were recorded at the monitoring location I5 on 19 February 2016 and 22 February 2016. Investigation for the exceedances were conducted which concluded that the exceedances were not related to the project works. The investigation reports are presented in **Appendix M.**

13.1.7 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

13.1.8 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 originally scheduled from 19 February 2016. However, the mentioned works were now cancelled and postponed to the next dry season after the utilities diversions complete.

13.1.9 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 only carried out on 19 February 2016 and 22 February 2016 in the reporting month and is anticipated to be resumed in the next dry season 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:

Water Quality

- Water treatment facilities should be properly maintained and avoid untreated water entering storm drain.

- Proper drainage channels/bunds should be provided at the site boundaries to collect/intercept the surface run-off from works areas.

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.

Noise

- Vessels and equipment operating should be checked regularly and properly maintained.

Figure

Contract No. CV/2012/09
Liantang / Heung Yuen Wai Boundary Control Point
Site Formation and Infrastructure Works - Contract 3

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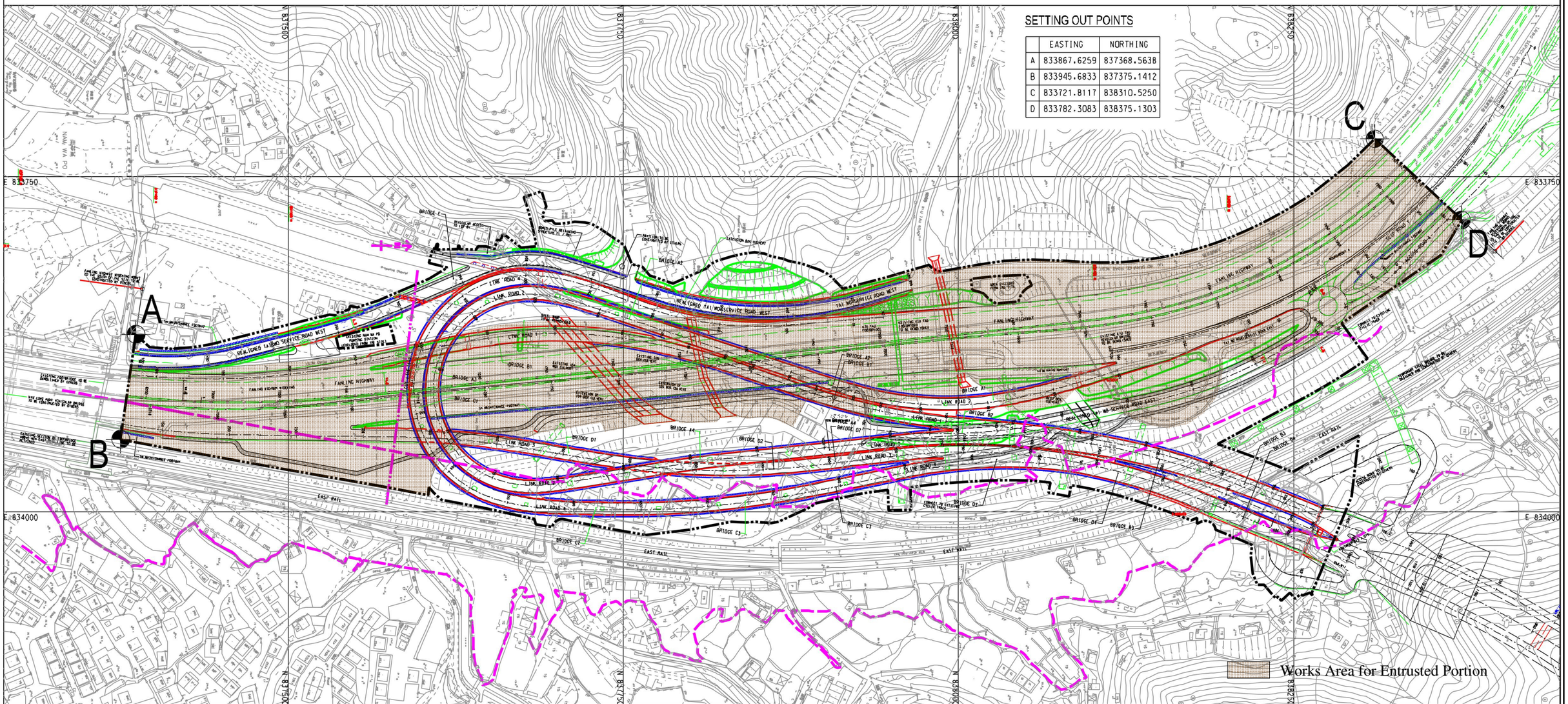
SETTING OUT POINTS

	EASTING	NORTHING
A	833867.6259	837368.5638
B	833945.6833	837375.1412
C	833721.8117	838310.5250
D	833782.3083	838375.1303



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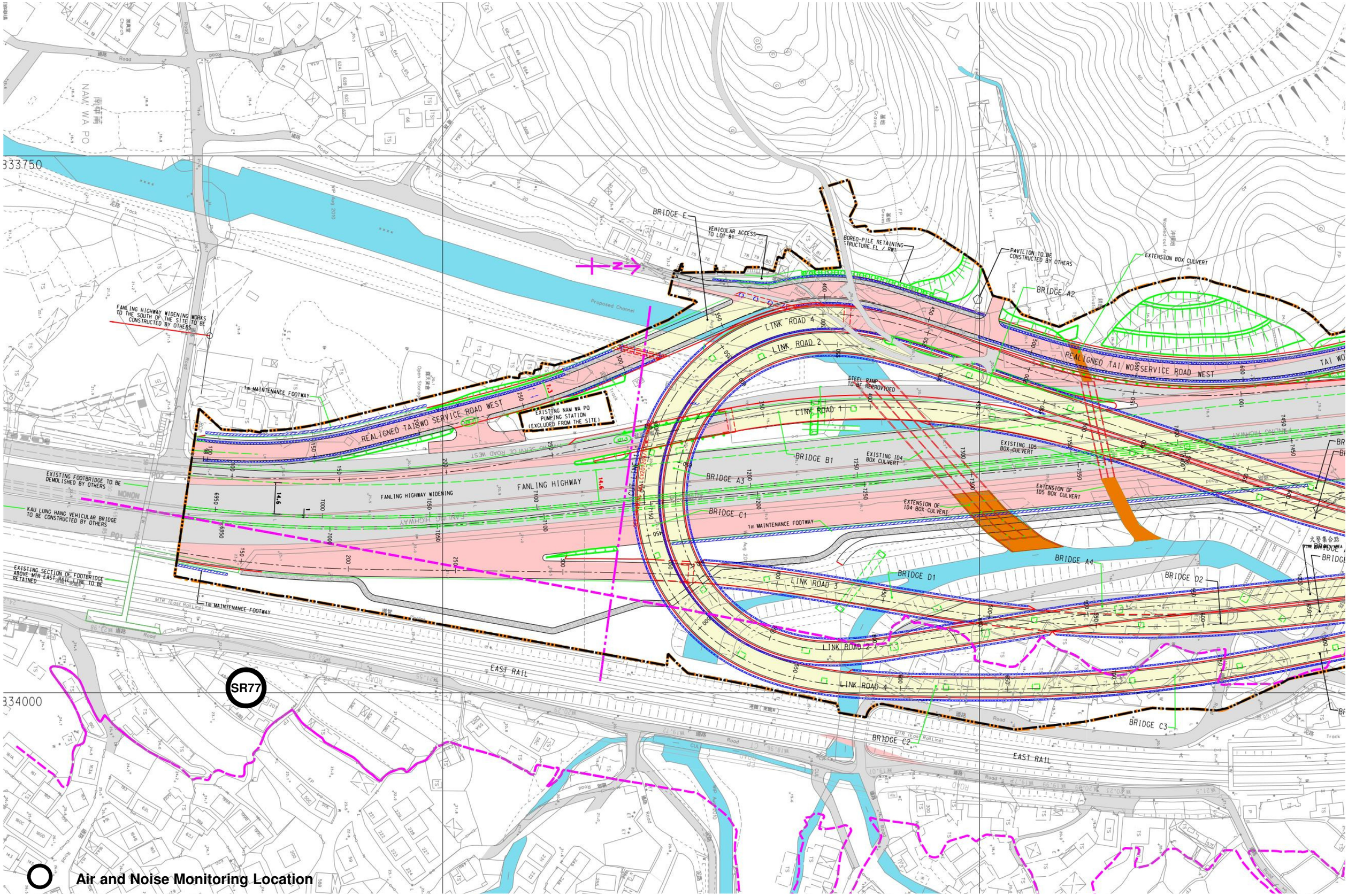
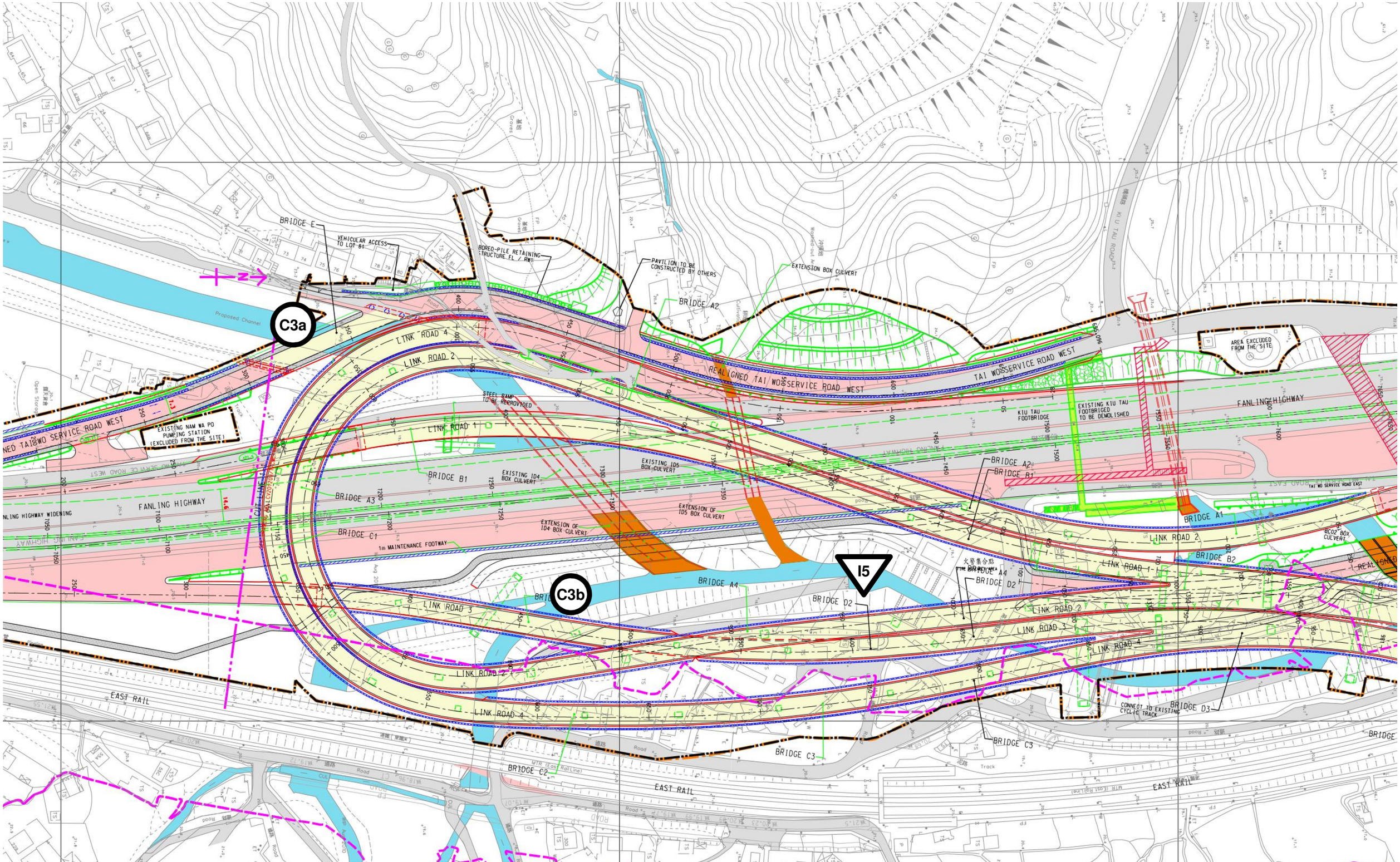
MEINHARDT

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

Figure 1: Demarcation of Entrusted Portion of Widening of Tolo Highway / Fanling Highway between Island House Interchange and Fanling – Stage 2



MEINHARDT	Entrusted Portion of Widening of Tolo Highway / Fanling Highway between Island House Interchange and Fanling Stage 2	**Figure 2: Air and Noise Monitoring Locations**



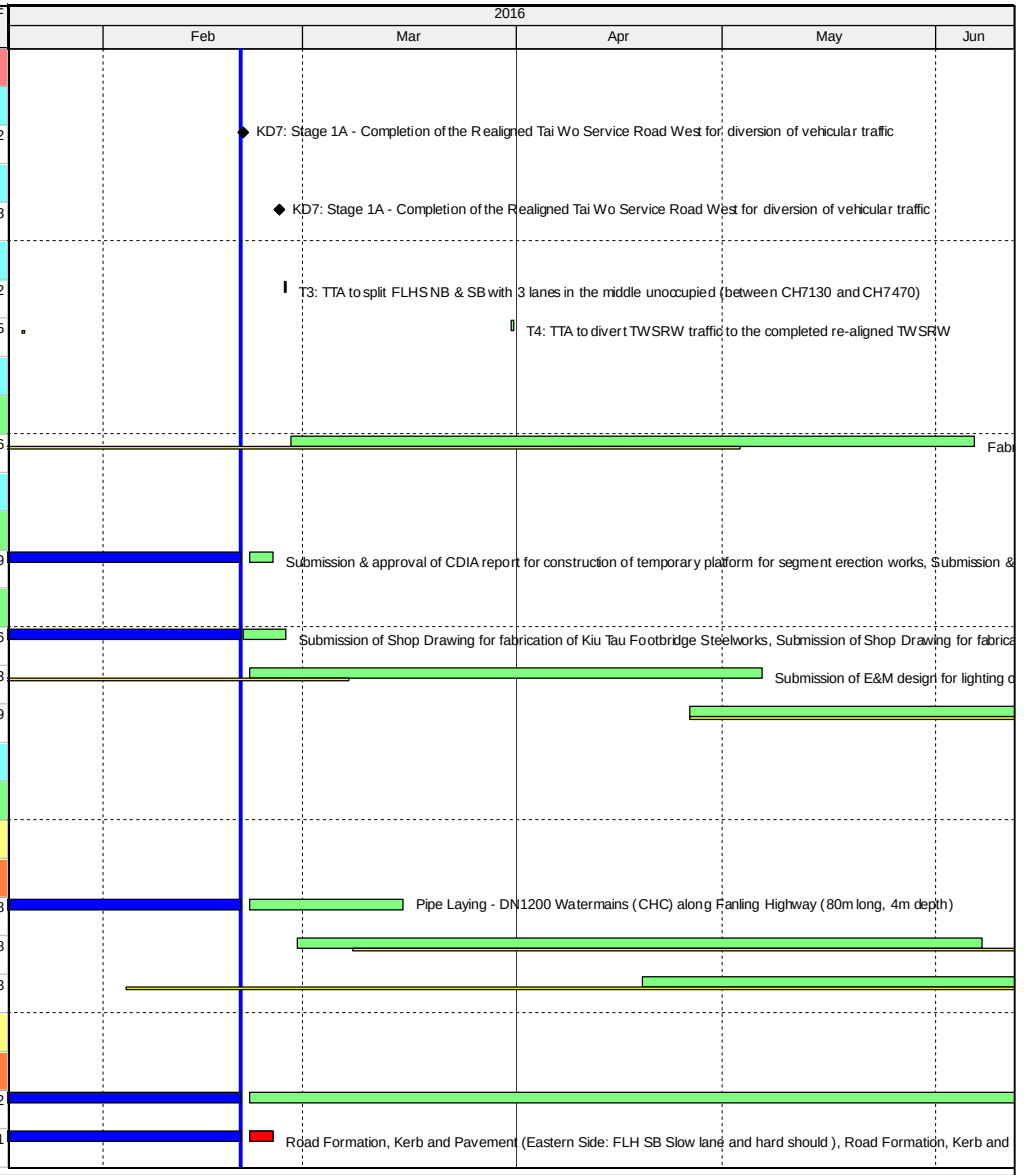
Impact Water Monitoring Location

Control Water Monitoring Location

MEINHARDT	**Entrusted Portion of Widening of Tolo Highway / Fanling Highway between Island House Interchange and Fanling Stage 2**	**Figure 3: Water Quality Monitoring Locations**

Appendix A
Construction Programme

Activity ID	Activity Name	OD	RD	Start	Finish	TF
3-Month Rolling Programme 2016-02-21						
Key Dates (Contractual)						
KD-1100	KD7: Stage 1A - Completion of the Realigned Tai Wo Service Road West for diversion of vehicular traffic	0	0		21-Feb-16*	-32
Key Dates (Forecast)						
KD-1105	KD7: Stage 1A - Completion of the Realigned Tai Wo Service Road West for diversion of vehicular traffic	0	0		26-Feb-16	-38
Major Milestones and Events						
MS-2000C	T3: TTA to split FLHS NB & SB with 3 lanes in the middle unoccupied (between CH7130 and CH7470)	1	1	27-Feb-16*	27-Feb-16	-32
MS-2000D	T4: TTA to divert TWSRW traffic to the completed re-aligned TWSRW	1	1	31-Mar-16	31-Mar-16	5
Major Procurement & Delivery						
Footbridge Steel Truss						
MM-3050	Fabrication of footbridge steel truss (Kiu Tau Footbridge)	100	100	28-Feb-16	06-Jun-16	6
Design and Submissions						
Statutory Approval						
PRE-1050	Submission & approval of CDIA report for construction of temporary platform for segment erection works	185	4	27-Nov-14 A	25-Feb-16	149
Method Statement and Design (Major) Approved by AECOM						
PRE-2050	Submission of Shop Drawing for fabrication of Kiu Tau Footbridge Steelworks	30	7	02-Nov-15 A	27-Feb-16	6
PRE-2030	Submission of E&M design for lighting of Kiu Tau Footbridge	60	60	22-Feb-16	06-May-16	83
PRE-2040	Submission of E&M design for lighting inside viaduct structures of Bridge A, B, C & D	60	60	26-Apr-16	08-Jul-16	69
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-1130*	Pipe Laying - DN1200 Watermains (CHC) along Fanling Highway (80m long, 4m depth)	182	20	20-Feb-14 A	15-Mar-16	48
FHW-1300	Noise Barrier NB68 - Mini-Piling at central median (CSD: 24 nos)	80	80	29-Feb-16	07-Jun-16	18
FHW-1140	Noise Barrier NB70 - Footing adjacent to SB lane (15m)	115	115	19-Apr-16	03-Sep-16	23
Fanling Highway Zone 2 between CH7130 and CH7290						
At-Grade Roadworks (160m)						
FHW-2130*	Pipe Laying - DN1200 & DN600 Watermains (CHB & CHC) along Fanling Highway (183m long, 4m depth)	144	326	12-Oct-15 A	30-Mar-17	212
FHW-2140	Road Formation, Kerb and Pavement (Eastern Side: FLH SB Slow lane and hard should)	61	4	14-Oct-15 A	25-Feb-16	-21



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- Actual Work
- Remaining Work
- Summary Bar
- Critical Remaining Work
- Milestone
- Actual Level of Effort
- Project Baseline Bar

CEDD Contract No. CV/2012/09

Liantang / Heung Yuen Wai BCP - Site Formation & Infrastructure Works, Contract 3

3-Month Rolling Programme

Programme ID: 3MPR031 (Data Date: 21-Feb-16)

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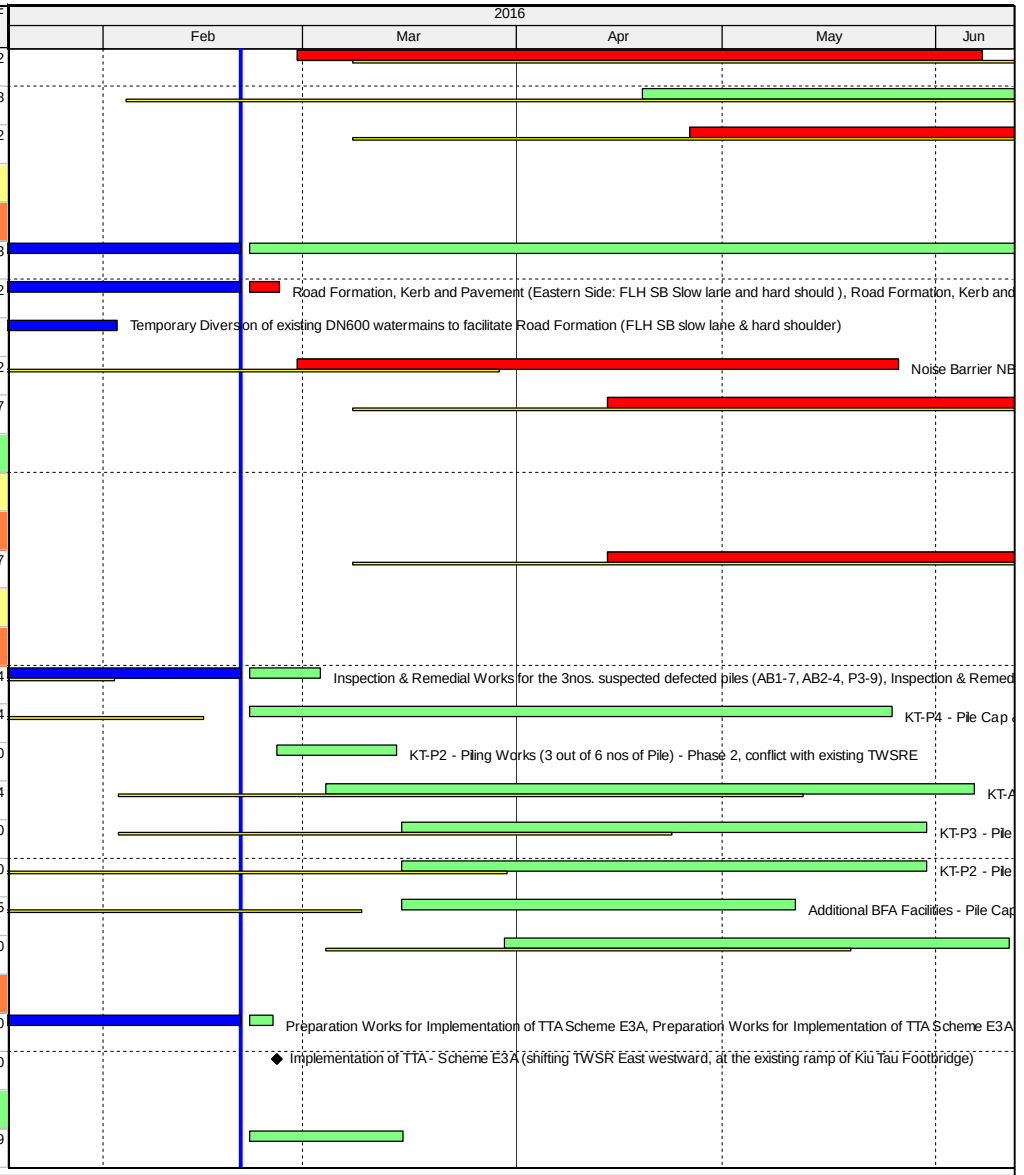
3-Month Rolling Programme updated to 2016-02-20

Date	Revision	Checked	Approved
20-Feb-16	Rev.0	SL	

Activity ID	Activity Name	OD	RD	Start	Finish	TF
FHW-2300	Noise Barrier NB68 - Mini-Piling at central median (CSD: 22 nos)	80	80	29-Feb-16	07-Jun-16	-22
FHW-2190	Footpath & DSD Access Track adjacent to SB lane	108	108	19-Apr-16	26-Aug-16	118
FHW-2310	Noise Barrier NB68A - Footing at central median (157m)	130	130	26-Apr-16	29-Sep-16	-22
Fanling Highway Zone 3 between CH7290 and CH7380						
At-Grade Roadworks (130m)						
FHW-3150*	Pipe Laying - DN600, DN1200 Watermains (CHB &CHC) along Fanling Highway (90m long, 3m depth)	150	326	07-Jun-14 A	30-Mar-17	53
FHW-3160	Road Formation, Kerb and Pavement (Eastern Side: FLH SB Slow lane and hard should)	63	5	05-Oct-15 A	26-Feb-16	-22
FHW-3160A	Temporary Diversion of existing DN600 watermains to facilitate Road Formation (FLH SB slow lane & hard shoulder)	12	0	28-Dec-15 A	03-Feb-16 A	
FHW-3300	Noise Barrier NB68A - Mini-Piling at central median (CSD: 20 nos)	70	70	29-Feb-16	26-May-16	-22
FHW-3310	Noise Barrier NB68A - Footing at central median (98m)	90	90	14-Apr-16	01-Aug-16	-17
Fanling Highway North Portion between CH7470 and CH7925						
Fanling Highway Zone 4 between CH7380 and CH7470						
At-Grade Roadworks (90m)						
FHW-4210	Noise Barrier NB68A - Footing at central median (40m)	90	90	14-Apr-16	01-Aug-16	-17
Fanling Highway Zone 5 between CH7470 and CH7600 (Provision of Kiu Tau Footbridge)						
Kiu Tau Footbridge Reprovision (East)						
FHW-5110	Inspection & Remedial Works for the 3nos. suspected defected piles (AB1-7, AB2-4, P3-9)	35	10	20-Nov-15 A	03-Mar-16	4
FHW-5010E	KT-P4 - Pile Cap & Pier	75	75	22-Feb-16	25-May-16	14
FHW-5000C2	KT-P2 - Piling Works (3 out of 6 nos of Pile) - Phase 2, conflict with existing TWSRE	15	15	26-Feb-16	14-Mar-16	0
FHW-5010A	KT-AB1 - Pile Cap & Abutment	75	75	04-Mar-16	06-Jun-16	4
FHW-5010D	KT-P3 - Pile Cap & Pier	60	60	15-Mar-16	30-May-16	0
FHW-5010C	KT-P2 - Pile Cap & Pier	60	60	15-Mar-16	30-May-16	0
FHW-5090	Additional BFA Facilities - Pile Cap & Sump Pit, to be covered by VO	45	45	15-Mar-16	11-May-16	25
FHW-5010B	KT-AB2 - Pile Cap & Abutment	60	60	30-Mar-16	11-Jun-16	0
At-Grade Road Works (130m)						
FHW-5120C	Preparation Works for Implementation of TTA Scheme E3A	30	4	07-Nov-15 A	25-Feb-16	0
FHW-5120D	Implementation of TTA - Scheme E3A (shifting TWSR East westward, at the existing ramp of Kiu Tau Footbridge)	0	0	26-Feb-16		0
Remaining Works for Noise Barrier along widened Fanling Highway						
FHW-NB-120	Noise Barrier Steelworks & Panel for NB6 (123m), adjacent to Fanling Highway SB lanes at Zone 1	20	20	22-Feb-16*	15-Mar-16	499



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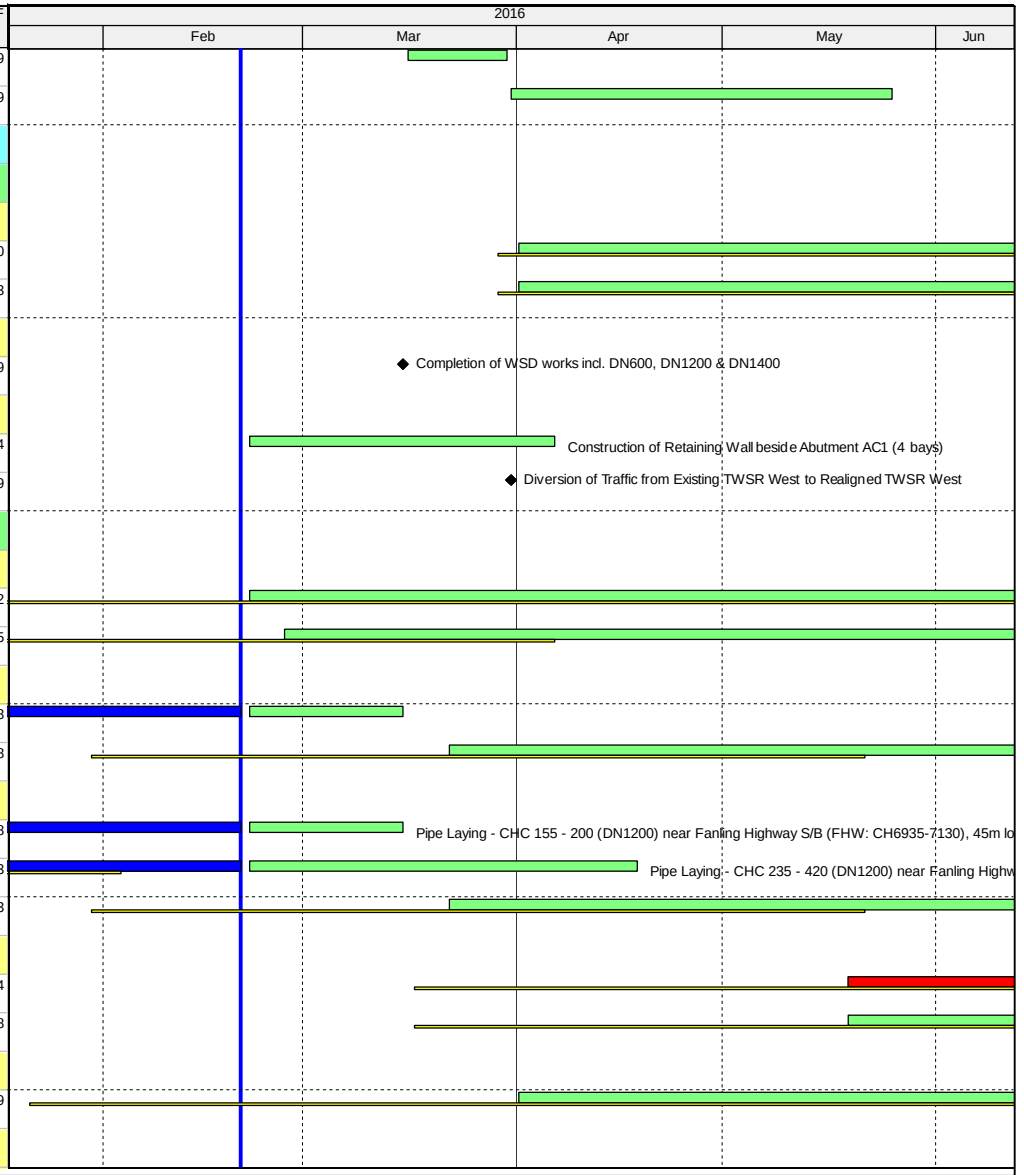
Project Baseline Bar

CEDD Contract No. CV/2012/09
Liantang / Heung Yuen Wai BCP - Site Formation & Infrastructure Works, Contract 3
3-Month Rolling Programme
Programme ID: 3MPR031 (Data Date: 21-Feb-16)
Page 2 of 9

3-Month Rolling Programme updated to 2016-02-20

Date	Revision	Checked	Approved
20-Feb-16	Rev.0	SL	

Activity ID	Activity Name	OD	RD	Start	Finish	TF
FHW-NB-130	Noise Barrier Steelworks & Panel for NB7 (60m), adjacent to Fanling Highway SB lanes at Zone 1	10	10	16-Mar-16	30-Mar-16	499
FHW-NB-140	Noise Barrier Steelworks & Panel for NB71 (254m), adjacent to Fanling Highway SB lanes at Zones 2,3 & 4	45	45	31-Mar-16	25-May-16	499
Section II - Remainder of the Works (KD-3)						
At Grade Link Road at Fanling Highway Interchange						
Link Road 1 (near Abutment AB1)						
FHI-LR1-1005	Noise Barrier NB66 - Footing adjacent NB lane (75m)	95	95	01-Apr-16	26-Jul-16	10
FHI-LR1-1010	Noise Barrier NB67 - Mini-Piling (42nos) (Assume 2 sets of plant)	160	160	01-Apr-16	13-Oct-16	3
Link Road 3 (near Abutment AD1)						
FHI-LR3-3000	Completion of WSD works incl. DN600, DN1200 & DN1400	0	0		15-Mar-16	419
Link Road 4 (near Abutment AC1)						
FHI-LR4-4030	Construction of Retaining Wall beside Abutment AC1 (4 bays)	35	35	22-Feb-16	06-Apr-16	404
FHI-LR4-4000	Diversion of Traffic from Existing TWSR West to Realigned TWSR West	0	0	31-Mar-16		409
WSD Works						
DN450 Fire Mains (CHA)						
WA-1090	Pipe Laying - CHA 800 - 960 (DN450) near Ext. TWSR West (No Roadworks), 160m long & 3m depth	148	148	22-Feb-16*	20-Aug-16	42
WA-1060	Pipe Laying - CHA 450 - 575 (DN450) near Realigned TWSR West (Re-TWSRW: CH640 - 695), 125m long & 2m depth	95	95	27-Feb-16	24-Jun-16	195
DN600 Water Mains (CHB)						
WB-1060	Pipe Laying - CHB 538 - 635 (DN600) near Realigned TWSR East (TWSRE: CH270-380), 97m long & GL	40	20	17-Jul-15 A	15-Mar-16	518
WB-1030C	Pipe Laying - CHB 350 - 450 (DN600) from Portal AB7/AD9/AC12 to Portal AB8	85	85	22-Mar-16	07-Jul-16	428
DN1200 Water Mains (CHC)						
WC-1050A	Pipe Laying - CHC 155 - 200 (DN1200) near Fanling Highway S/B (FHW: CH6935-7130), 45m long, 4m depth	120	20	15-Oct-14 A	15-Mar-16	48
WC-1060	Pipe Laying - CHC 235 - 420 (DN1200) near Fanling Highway S/B (FHW: CH7130-7290), 185m long (common trench with NB)	95	45	12-Oct-15 A	18-Apr-16	23
WC-1090C	Pipe Laying - CHC 615 - 720 (DN1200) from Portal AB7/AD9/AC12 to Portal AB8	85	85	22-Mar-16	07-Jul-16	113
Twin DN1400 Water Mains (CHE & CHG)						
WE-1060	Pipe Laying - CHE & CHG (Twins DN1400) from Portal AB8 to new connection point	110	110	19-May-16	27-Sep-16	-14
WE-1050	Pipe Laying - CHE & CHG (Twins DN1400) from Portal AB7/AD9/AC12 to Portal AB8	85	85	19-May-16	27-Aug-16	18
DN2200 Water Mains (CHF)						
WF-1000A	Pipe Laying - CHF 80 - 112 (DN2200) near ext. TWSR West underneath Box Culvert BC01	210	210	01-Apr-16	10-Dec-16	89
DN2300 Water Mains and Leakage Collection System (CHJ & CHKA/CHK)						



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CEDD Contract No. CV/2012/09

Liantang / Heung Yuen Wai BCP - Site Formation & Infrastructure Works, Contract 3

3-Month Rolling Programme

Programme ID: 3MPR031 (Data Date: 21-Feb-16)

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3-Month Rolling Programme updated to 2016-02-20

Date	Revision	Checked	Approved
20-Feb-16	Rev.0	SL	

Activity ID	Activity Name	OD	RD	Start	Finish	TF
WJ-1020A	Pipe Laying - CHK 0 - 80 (DN1400) near Realigned TWSR East, 80m long & 4m depth	55	23	05-Oct-15 A	18-Mar-16	110
WJ-1100	DN300 Washout at around CHJ 268	65	65	22-Feb-16	12-May-16*	168
WJ-1110	DN300 Washout at CHJ 155	65	65	22-Feb-16	12-May-16*	168
WJ-1020B	Pipe Laying - CHKA 0 - 73 (DN1400) near Realigned TWSR East, 73m long & 4m depth	90	90	19-Mar-16	11-Jul-16	110
Kau Lung Hang Valve Control & Telemetry House Reprovision						
VCTH-1020c	Testing and Commissioning (Valve operation for DN1400 watermains)	30	12	10-Oct-15 A	05-Mar-16	140
VCTH-1030	Demolition of Existing KLH Valve Control & Telemetry House	90	90	05-Apr-16*	22-Jul-16	119
Existing Nam Wa Po Trunk Sewage Pumping Station (PST3)						
PS-1000	Demolition of Existing Boundary Wall of Pumping Station (PST3)	50	50	22-Feb-16*	23-Apr-16	434
PS-1010	Construction of New Boundary Wall for Pumping Station (PST3)	90	90	25-Apr-16	11-Aug-16	434
Stage 1A - Realignment of Tai Wo Service Road West (KD-7)						
TWSRW Zone 1 between CH100 and CH155						
At-Grade Roadworks						
TWSRW-1160	Road Formation, Road Drainage, DN150 watermain, Kerb, Planter & Pavement	286	2	15-Nov-14 A	23-Feb-16	31
TWSRW Zone 2 between CH155 and CH280						
At-Grade Roadworks						
TWSRW-2120	Road Formation, Road Drainage, DN150 watermain, Kerb, Planter & Pavement	165	13	16-Oct-14 A	30-Mar-16	3
TWSRW-2130	Noise Barrier NB1a - Footing adjacent Realigned TWSR West (Covered by VO 103) (Approx. 60.2m)	85	3	14-Sep-15 A	24-Feb-16	24
TWSRW-2140	Rectification Works for Southern Trunk Sewer	48	20	30-Oct-15 A	15-Mar-16	3
TWSRW-2120A	Temporary Road Formation for connecting Existing TWSRW to Realigned TWSR West	18	2	22-Jan-16 A	23-Feb-16	-24
TWSRW Zone 3 between CH280 and CH315						
At-Grade Roadworks						
TWSRW-3120	Road Formation, Road Drainage, Kerb, Planter and Pavement	181	5	22-Jun-15 A	26-Feb-16	-27
TWSRW Zone 4 between CH315 and CH376						
Construction of Bridge E						
TWSRW-4100	Remove Scaffold System and Temporary Work together with Slope Reinstatement	75	6	21-Dec-15 A	27-Feb-16*	25
At-Grade Roadworks						
TWSRW-4200	Cast Parapet, Lay Surfacing and Road Furniture for Footpath and Carriageway	35	5	12-Dec-15 A	26-Feb-16	-27
TWSRW Zone 5 between CH376 and CH520						

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CEDD Contract No. CV/2012/09

Liantang / Heung Yuen Wai BCP - Site Formation & Infrastructure Works, Contract 3

3-Month Rolling Programme

Programme ID: 3MPR031 (Data Date: 21-Feb-16)

3-Month Rolling Programme updated to 2016-02-20

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Activity ID	Activity Name	OD	RD	Start	Finish	TF
	At-Grade Roadworks					
TWSRW-5100	Retaining Wall RW7- adjacent to Realigned TWSR West (66m) (covered by VO No.100)	70	10	29-Oct-15 A	03-Mar-16	38
TWSRW-5110	Retaining Wall RW9 (to be covered by VO)	45	12	05-Jan-16 A	05-Mar-16	21
TWSRW-5110A	Road Formation, DN150 watermain, Kerb, Planter and Pavement	19	3	21-Jan-16 A	26-Feb-16	-27
TWSRW-5100B	Filling and Compaction Works along TWSRW adjacent to Retaining Wall RW7 & Abutment AE2	12	0	21-Jan-16 A	19-Feb-16 A	
TWSRW-5100A	Retaining Wall RW8 - adjacent to Realigned TWSR West (66m) (covered by VO No.100)	50	38	29-Jan-16 A	09-Apr-16	111
TWSRW-5140	Remaining Road Formation, DN150 watermain, Kerb, Planter and Pavement (incl. Zone 5)	24	24	22-Feb-16	19-Mar-16	9
TWSRW-5130	Installation of Stone Facing Finish	45	45	04-Mar-16	29-Apr-16	288
TWSRW-5120	Permanent Vehicular Access to Lot 81	125	125	11-Apr-16	07-Sep-16	111
	TWSRW Zone 6 betweeen CH520 and CH530					
	At-Grade Roadworks					
TWSRW-6110	Slope Upgrading Works for unregistered feature beside Slope 3SW-D/C80 (Covered by VO. 68)	65	9	22-May-15 A	02-Mar-16	24
TWSRW-6100	Preparation Works for Implementation of TTA (shifting TWSRW traffic towards the edge of extended box culvert	21	5	24-Dec-15 A	26-Feb-16	-21
	TWSRW Zone 7 betweeen CH530 and CH640					
	At-Grade Roadworks					
TWSRW-7100	Preparation Works for Implementation of TTA (shifting TWSRW traffic towards the cut-slope)	21	5	22-Dec-15 A	26-Feb-16	-21
TWSRW-7110	Implementation of TTA - Scheme W3A	0	0	27-Feb-16		-21
TWSRW-7150	Remaining Road Drainage, Road Formation, DN150 watermain, Kerb, Planter and Pavement (incl. Zone 6 & Zone 7)	49	49	27-Feb-16	28-Apr-16	-21
	TWSRW Zone 8 betweeen CH640 and CH695					
	Kiu Tau Footbridge Reprovision (West)					
TWSRW-8020	Construction of Pile Cap and Abutment	50	22	17-Nov-15 A	17-Mar-16	79
	At-Grade Roadworks					
TWSRW-8120	Road Formation, Road Drainage, Kerb and Pavement	22	2	21-Dec-15 A	23-Feb-16	-24
TWSRW-8110*	Pipe Laying - DN450 Watermains (CHA)	95	95	27-Feb-16	24-Jun-16	195
	Remainder of the Works					
TWSRW-9030	Utilities Diversion in Area 3 (along existing TWSRW, Approx. 150m) (by utilities undertakers)	106	106	01-Apr-16	15-Jul-16	180
	Remaining Works for Noise Barrier along realigned TWSR West					
TWSRW-NB-110	Noise Barrier Steelworks & Panel for NB4 at Zones 1 & 2	20	20	22-Feb-16*	15-Mar-16	18
TWSRW-NB-130	Noise Barrier Steelworks & Panel for NB1b at Zone 4	10	10	16-Mar-16	30-Mar-16	18

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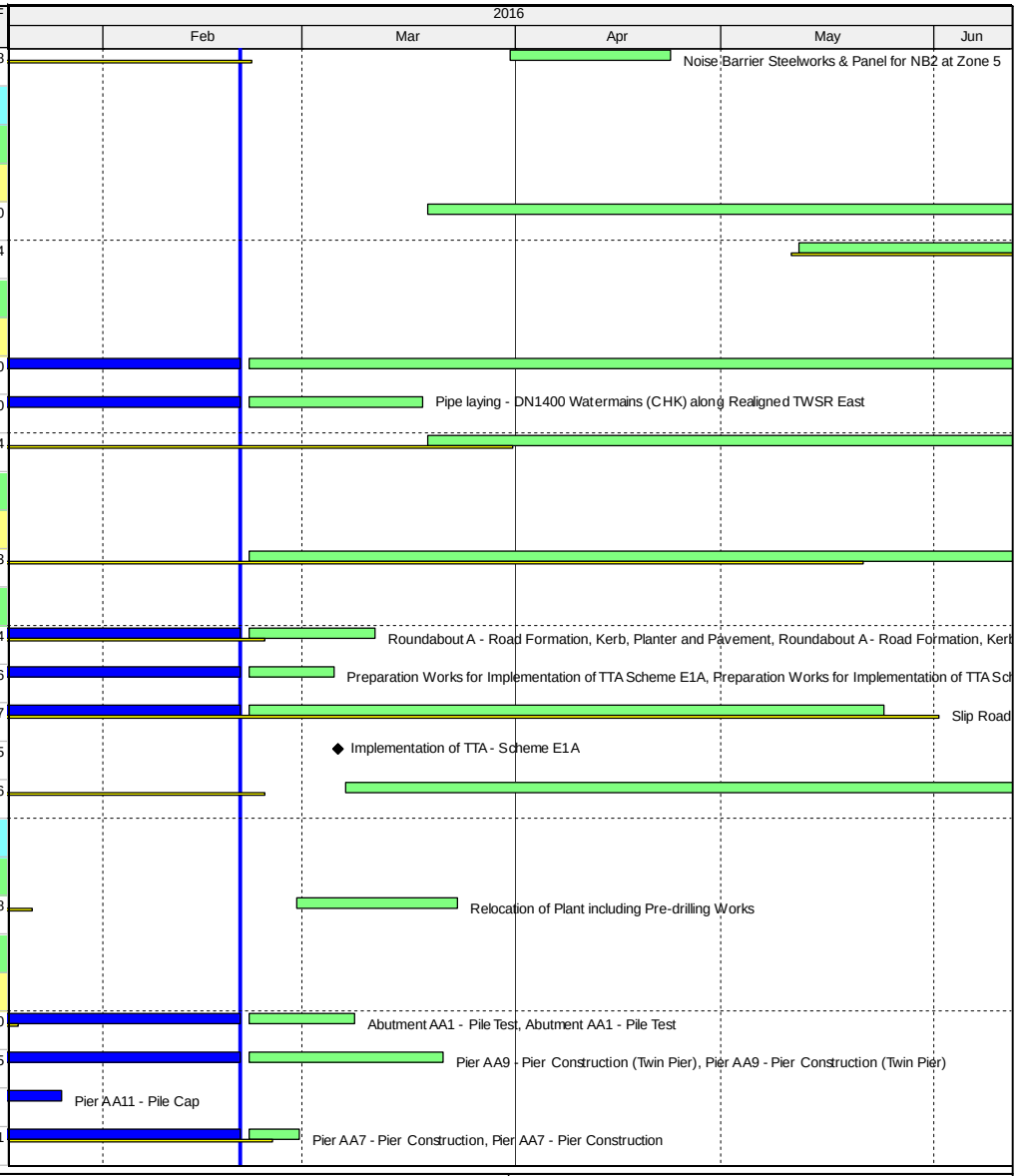
TWSRW-NB-140	Noise Barrier Steelworks & Panel for NB2 at Zone 5	20	20	31-Mar-16	23-Apr-16	18
Stage N4A & N4B - Realignment of Tai Wo Service Road East (KD-13 & KD-14)						
TWSRE Zone 1 between CH100 and CH270						
At-Grade Roadworks						
TWSRE-1140*	Pipe laying - DN1400 Watermains (CHKA) along Realigned TWSR East	90	90	19-Mar-16	11-Jul-16	110
TWSRE-1170	Remainig Noise Barrier NB3 Stem Wall (a total of 24m long)	30	30	12-May-16	17-Jun-16	224
TWSRE Zone 2 between CH270 and CH380						
At-Grade Roadworks						
TWSRE-2030A*	Pipe laying - DN600 & DN1200 Watermains (CHB &CHC) along Realigned TWSR East	30	280	17-Jul-15 A	04-Feb-17	280
TWSRE-2030B*	Pipe laying - DN1400 Watermains (CHK) along Realigned TWSR East	55	23	05-Oct-15 A	18-Mar-16	110
TWSRE-2040	Road Formation, Kerb, Footpath, Cycle Track, Planter and Pavement	71	71	19-Mar-16	17-Jun-16	224
TWSRE Zone 3 between CH380 and CH456						
At-Grade Roadworks						
TWSRE-3040	Road Formation, Kerb, Footpath, Cycle Track, Planter and Pavement (Incl. FL/F10)	165	165	22-Feb-16	09-Sep-16	153
Roundabout A, Slip Road and Access Road						
TWSRE-4070	Roundabout A - Road Formation, Kerb, Planter and Pavement	90	17	26-Oct-15 A	11-Mar-16	64
TWSRE-4110	Preparation Works for Implementation of TTA Scheme E1A	30	12	26-Oct-15 A	05-Mar-16	66
TWSRE-4020	Slip Road Y (CH260-CH404) - Road Formation, Road Drainage, Kerb, Planter and Pavement	108	74	28-Dec-15 A	24-May-16	7
TWSRE-4120	Implementation of TTA - Scheme E1A	0	0	06-Mar-16*		85
TWSRE-4030B	Slip Road Y (CH100-CH230) - Road Formation, Remaining Road Drainage, Kerb, Planter and Pavement	120	120	07-Mar-16	02-Aug-16	66
Stage 1C - Viaduct Structure & TCSS Civil Provisions (KD-9)						
Preliminaries						
B-3050	Relocation of Plant including Pre-drilling Works	21	21	29-Feb-16	23-Mar-16	18
Foundation & Pier Construction						
Bridge A						
BA-01-1010	Abutment AA1 - Pile Test	14	14	06-May-15 A	08-Mar-16	190
BA-09-1030	Pier AA9 - Pier Construction (Twin Pier)	49	25	07-Nov-15 A	21-Mar-16	35
BA-11-1020	Pier AA11 - Pile Cap	30	0	15-Dec-15 A	26-Jan-16 A	
BA-07-1030	Pier AA7 - Pier Construction	28	7	31-Dec-15 A	29-Feb-16	151



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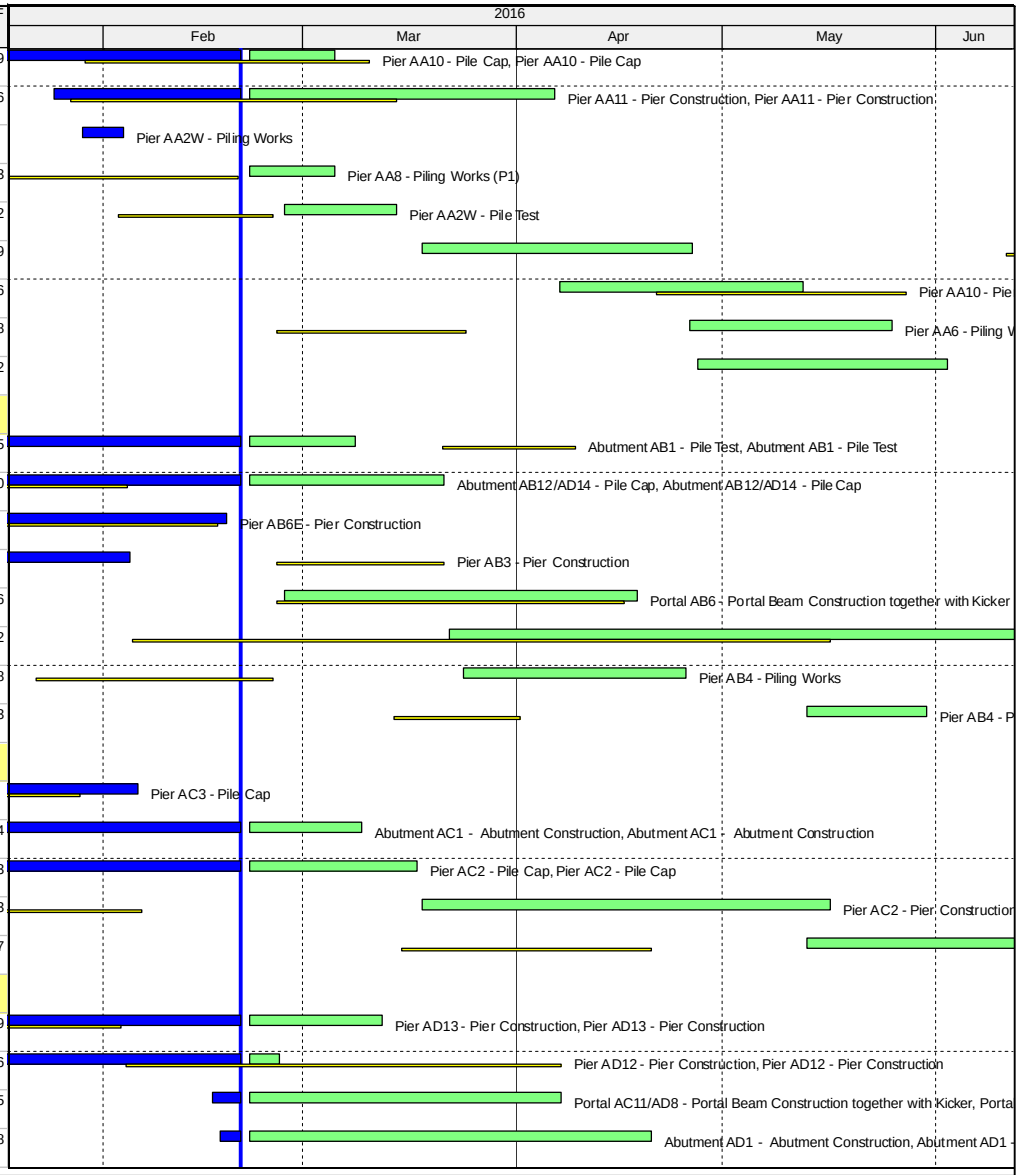
BA-10-1020	Pier AA10 - Pile Cap	30	12	18-Jan-16 A	05-Mar-16	39
BA-11-1030	Pier AA11 - Pier Construction	35	35	25-Jan-16 A	06-Apr-16	16
BA-02-1000	Pier AA2W - Piling Works	12	0	29-Jan-16 A	04-Feb-16 A	
BA-08-1000	Pier AA8 - Piling Works (P1)	12	12	22-Feb-16	05-Mar-16	33
BA-02-1010	Pier AA2W - Pile Test	14	14	27-Feb-16	14-Mar-16	112
BA-02-1020B	Pier AA2W - Pile Cap	30	30	18-Mar-16	26-Apr-16	109
BA-10-1030	Pier AA10 - Pier Construction	30	30	07-Apr-16	12-May-16	16
BA-06-1000	Pier AA6 - Piling Works	24	24	26-Apr-16	25-May-16	18
BA-01-1020	Abutment AA1 - Pile Cap	30	30	27-Apr-16	02-Jun-16	152
Bridge B						
BB-01-1010	Abutment AB1 - Pile Test	14	14	18-Aug-15 A	08-Mar-16	225
BB-12-1020	Abutment AB12/AD14 - Pile Cap	65	25	28-Oct-15 A	21-Mar-16	0
BB-06-1030	Pier AB6E - Pier Construction	48	0	21-Nov-15 A	19-Feb-16 A	
BB-03-1030	Pier AB3 - Pier Construction	21	0	29-Dec-15 A	05-Feb-16 A	
BB-06-1050	Portal AB6 - Portal Beam Construction together with Kicker	40	40	27-Feb-16	18-Apr-16	36
BB-12-1030	Abutment AB12/AD14 - Abutment Construction	75	75	22-Mar-16	24-Jun-16	132
BB-04-1000	Pier AB4 - Piling Works	24	24	24-Mar-16	25-Apr-16	18
BB-04-1010	Pier AB4 - Pile Test	14	14	13-May-16	30-May-16	43
Bridge C						
BC-03-1020	Pier AC3 - Pile Cap	30	0	11-Dec-15 A	06-Feb-16 A	
BC-01-1030	Abutment AC1 - Abutment Construction	50	15	16-Dec-15 A	09-Mar-16	244
BC-02-1020	Pier AC2 - Pile Cap	30	22	18-Jan-16 A	17-Mar-16	43
BC-02-1030	Pier AC2 - Pier Construction	45	45	18-Mar-16	16-May-16	43
BC-03-1030	Pier AC3 - Pier Construction	28	28	13-May-16	16-Jun-16	37
Bridge D						
BD-13-1030	Pier AD13 - Pier Construction	45	18	03-Dec-15 A	12-Mar-16	59
BD-12-1030	Pier AD12 - Pier Construction	45	5	09-Dec-15 A	26-Feb-16	66
BD-08-1040	Portal AC11/AD8 - Portal Beam Construction together with Kicker	40	36	17-Feb-16 A	07-Apr-16	15
BD-01-1030	Abutment AD1 - Abutment Construction	50	47	18-Feb-16 A	20-Apr-16	198



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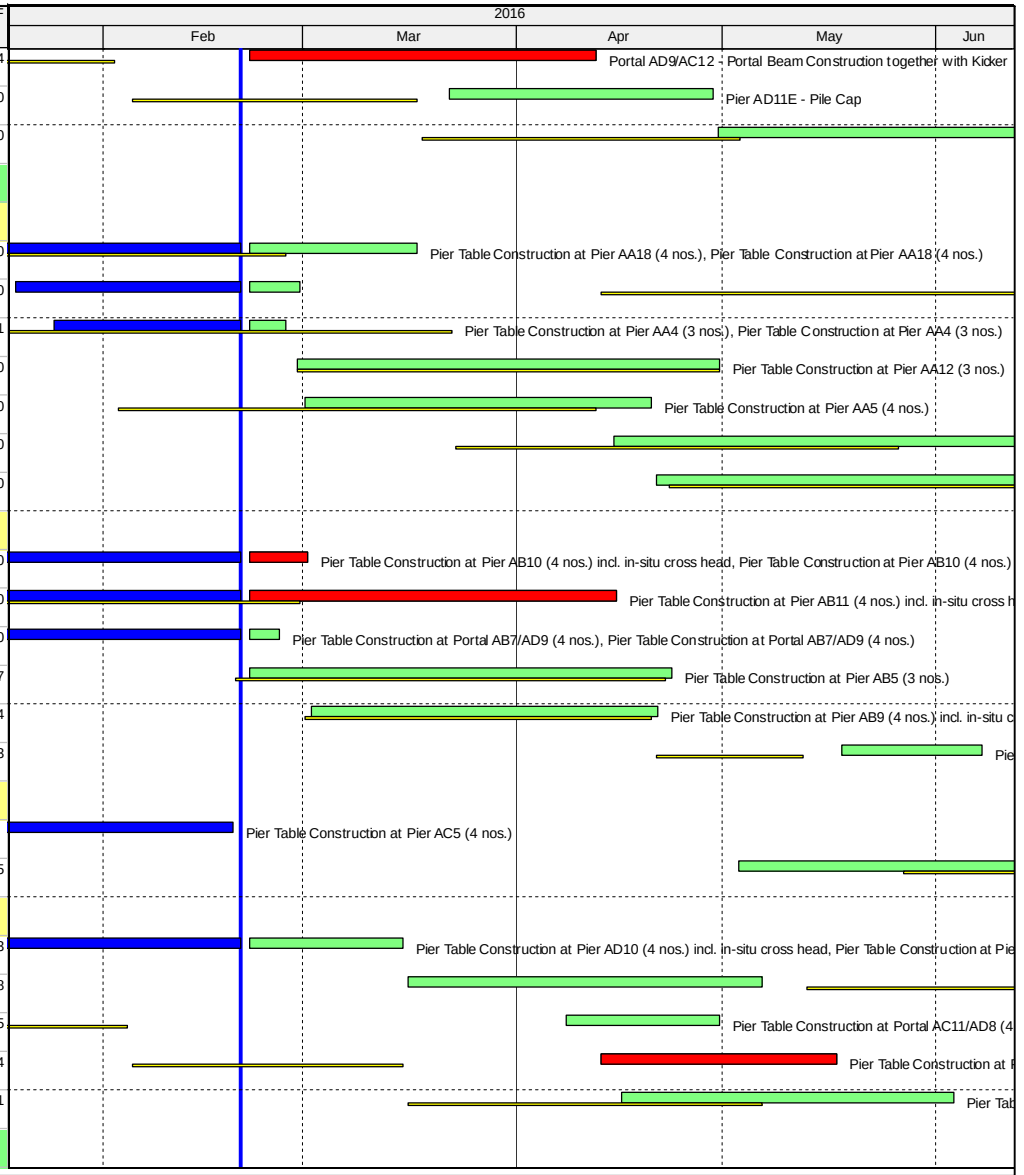
BD-09-1040	Portal AD9/AC12 - Portal Beam Construction together with Kicker	40	40	22-Feb-16	12-Apr-16	-14
BD-11-1020A	Pier AD11E - Pile Cap	30	30	22-Mar-16	29-Apr-16	0
BD-11-1030	Pier AD11E - Pier Construction	35	35	30-Apr-16	13-Jun-16	0
Pier Table Construction						
Bridge A						
PA-1180	Pier Table Construction at Pier AA18 (4 nos.)	50	22	14-Dec-15 A	17-Mar-16	50
PA-1030	Pier Table Construction at Pier AA3 (3 nos.)	50	7	19-Jan-16 A	29-Feb-16	0
PA-1040	Pier Table Construction at Pier AA4 (3 nos.)	50	6	25-Jan-16 A	27-Feb-16	31
PA-1120	Pier Table Construction at Pier AA12 (3 nos.)	50	50	29-Feb-16	30-Apr-16	50
PA-1050	Pier Table Construction at Pier AA5 (4 nos.)	40	40	01-Mar-16	20-Apr-16	0
PA-1110	Pier Table Construction at Pier AA11 (3 nos.)	50	50	15-Apr-16	15-Jun-16	30
PA-1090	Pier Table Construction at Pier AA9 (4 nos.)	50	50	21-Apr-16	21-Jun-16	20
Bridge B						
PB-1100	Pier Table Construction at Pier AB10 (4 nos.) incl. in-situ cross head	50	8	21-Sep-15 A	01-Mar-16	-70
PB-1110	Pier Table Construction at Pier AB11 (4 nos.) incl. in-situ cross head	42	43	24-Dec-15 A	15-Apr-16	-30
PB-1070	Pier Table Construction at Portal AB7/AD9 (4 nos.)	28	5	11-Jan-16 A	26-Feb-16	30
PB-1050	Pier Table Construction at Pier AB5 (3 nos.)	50	50	22-Feb-16	23-Apr-16	7
PB-1090	Pier Table Construction at Pier AB9 (4 nos.) incl. in-situ cross head	40	40	02-Mar-16	21-Apr-16	224
PB-1060	Pier Table Construction at Portal AB6 (2 nos.)	18	18	18-May-16	07-Jun-16	13
Bridge C						
PC-1050	Pier Table Construction at Pier AC5 (4 nos.)	50	0	09-Dec-15 A	20-Feb-16 A	
PC-1040	Pier Table Construction at Pier AC4 (3 nos.)	50	50	03-May-16	02-Jul-16	65
Bridge D						
PD-1100	Pier Table Construction at Pier AD10 (4 nos.) incl. in-situ cross head	40	20	06-Oct-15 A	15-Mar-16	3
PD-1120	Pier Table Construction at Pier AD12 (4 nos.) incl. in-situ cross head	40	40	16-Mar-16	06-May-16	58
PD-1080	Pier Table Construction at Portal AC11/AD8 (4 nos.)	20	20	08-Apr-16	30-Apr-16	15
PD-1090	Pier Table Construction at Portal AD9/AC12 (4 nos.)	28	28	13-Apr-16	17-May-16	-14
PD-1130	Pier Table Construction at Pier AD13 (4 nos.) incl. in-situ cross head	40	40	16-Apr-16	03-Jun-16	41
Viaduct Bridge Segement Erection						



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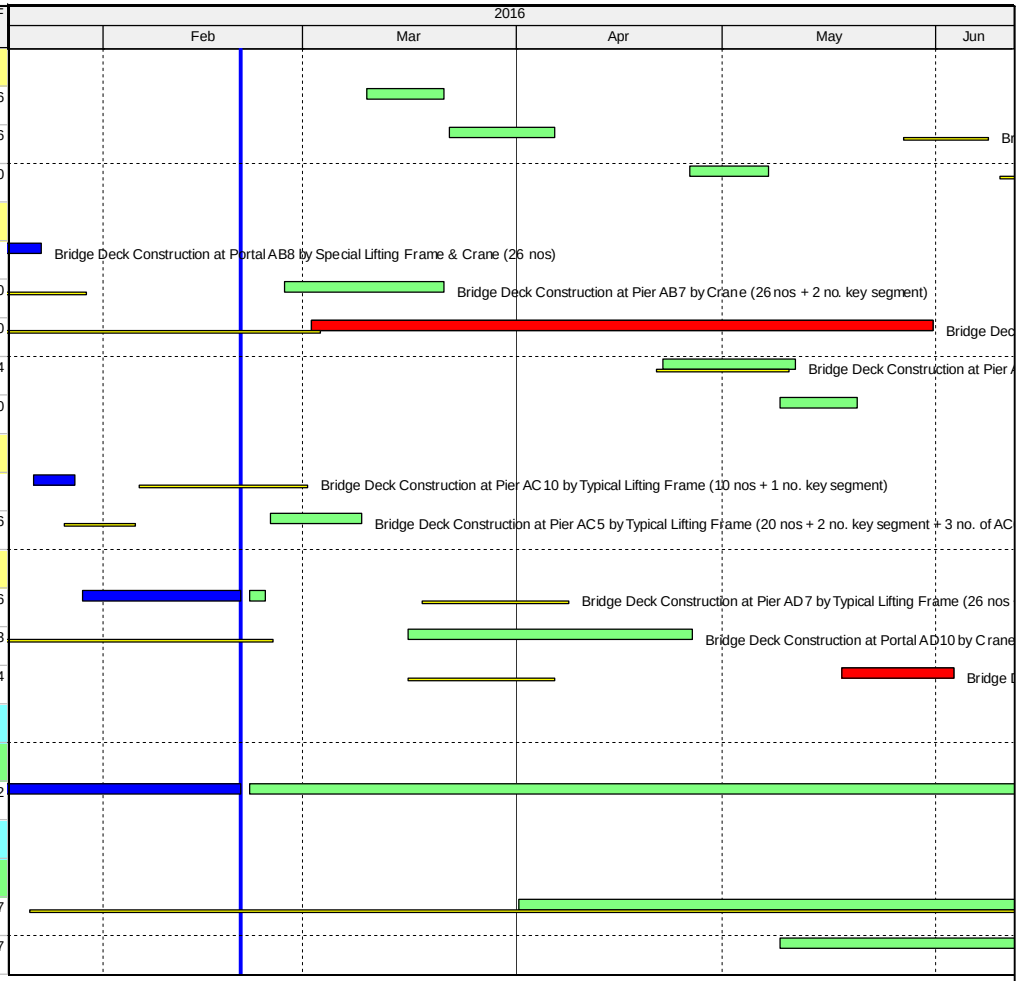
Bridge A						
EA-1030	Bridge Deck Construction at Pier AA3 by Typical Lifting Frame (16 nos + 1 no. key segment)	10	10	10-Mar-16	21-Mar-16	16
EA-1040	Bridge Deck Construction at Pier AA4 by Typical Lifting Frame (16 nos + 1 no. key segment)	10	10	22-Mar-16	06-Apr-16	16
EA-1050	Bridge Deck Construction at Pier AA5 by Typical Lifting Frame (12 nos + 1 no. key segment)	10	10	26-Apr-16	07-May-16	0
Bridge B						
EB-1080	Bridge Deck Construction at Portal AB8 by Special Lifting Frame & Crane (26 nos)	12	0	14-Jan-16 A	23-Jan-16 A	
EB-1070	Bridge Deck Construction at Pier AB7 by Crane (26 nos + 2 no. key segment)	20	20	27-Feb-16	21-Mar-16	30
EB-1100	Bridge Deck Construction at Pier AB10 by Special Lifting Frame (54 nos in which 12 nos above MTRCL Railway)	72	72	02-Mar-16	31-May-16	-70
EB-1090	Bridge Deck Construction at Pier AB9 by Crane (36 nos + 2 no. key segment)	16	16	22-Apr-16	11-May-16	224
EB-1050	Bridge Deck Construction at Pier AB5 by Typical Lifting Frame (16 nos + 1 no. key segment)	10	10	09-May-16	20-May-16	0
Bridge C						
EC-1100	Bridge Deck Construction at Pier AC10 by Typical Lifting Frame (10 nos + 1 no. key segment)	15	0	22-Jan-16 A	28-Jan-16 A	
EC-1050	Bridge Deck Construction at Pier AC5 by Typical Lifting Frame (20 nos + 2 no. key segment + 3 no. of AC6)	12	12	25-Feb-16	09-Mar-16	16
Bridge D						
ED-1070	Bridge Deck Construction at Pier AD7 by Typical Lifting Frame (26 nos + 1 no. key segment)	15	3	29-Jan-16 A	24-Feb-16	16
ED-1100	Bridge Deck Construction at Portal AD10 by Crane (52 nos)	32	32	16-Mar-16	26-Apr-16	3
ED-1090	Bridge Deck Construction at Portal AD9 by Crane (14 nos + 4 no. key segment)	15	15	18-May-16	03-Jun-16	-14
Section VI - Works in Portion FH9 (KD-6A)						
Major Works						
S6-2000*	Construction of Abutment AB12/AD14 (including Piling, Pile Cap & Abutment construction)	276	100	06-Feb-15 A	24-Jun-16	132
Landscaping & Establishment Works (KD-4, 4A, 5, 5A, 6)						
Secton III - Remainder of Landscaping Softworks Not Included in Secton IIIA						
S3-1000	Transplanting along Realigned TWSR West	120	120	01-Apr-16	24-Aug-16	307
S3-1020	Transplanting near MTR East Rail Line	240	240	09-May-16	01-Mar-17	157



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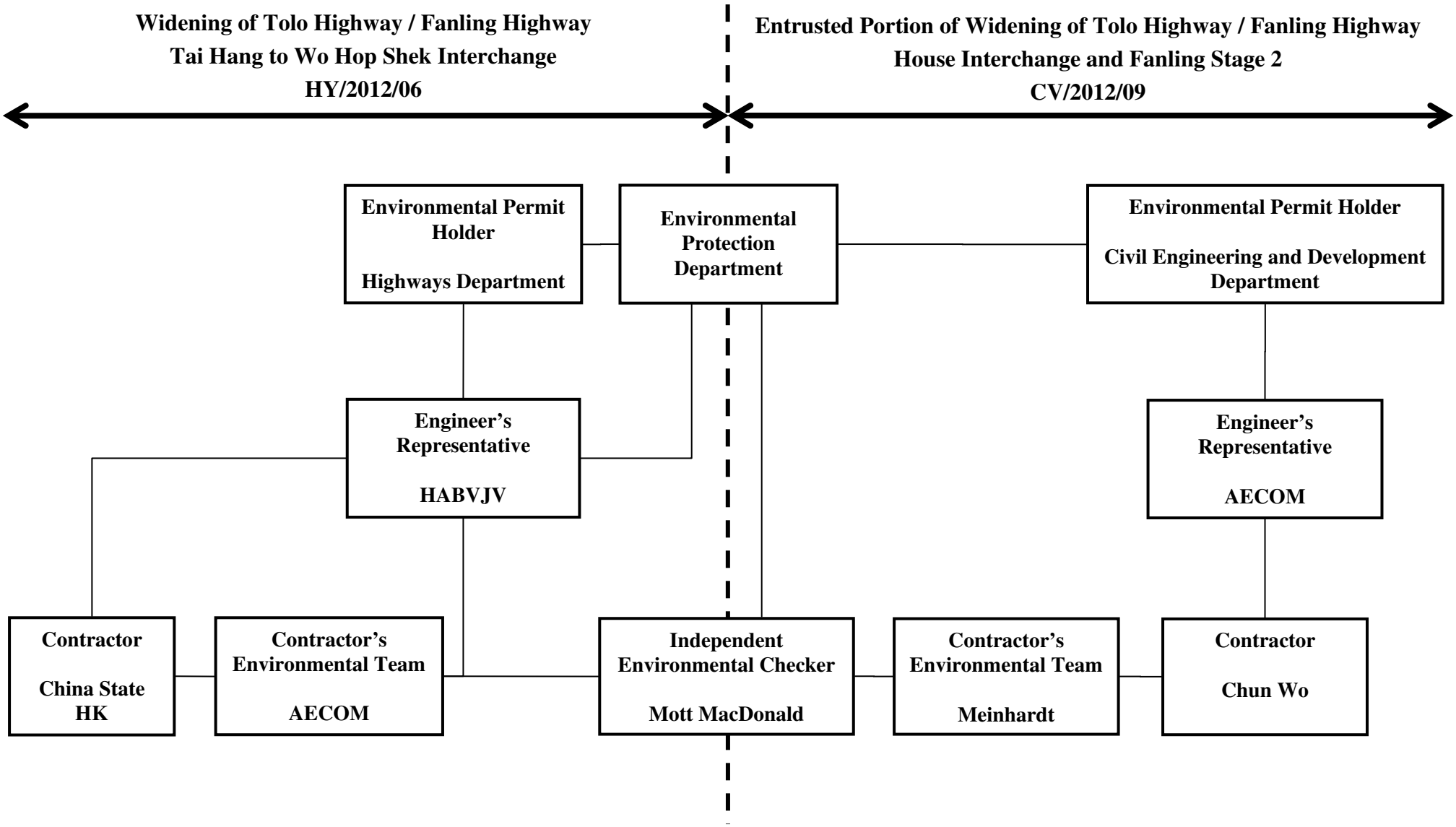
Appendix B
Project Organization Structure


Widening of Tolo Highway / Fanling Highway
Tai Hang to Wo Hop Shek Interchange
HY/2012/06
Entrusted Portion of Widening of Tolo Highway / Fanling Highway
House Interchange and Fanling Stage 2
CV/2012/09
Environmental Permit Holder
Highways Department
Environmental Protection Department
Environmental Permit Holder
Civil Engineering and Development Department
Engineer's Representative
HABVJV
Engineer's Representative
AECOM
Contractor
China State HK
Contractor's Environmental Team
AECOM
Independent Environmental Checker
Mott MacDonald
Contractor's Environmental Team
Meinhardt
Contractor
Chun Wo

Appendix C
Calibration Certificates of Monitoring Equipment

TISCH Environmental

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

ORIFICE TRANSFER STANDARD CERTIFICATION WORKSHEET TE-5025A

Date - Mar 24, 2015 Rootsmeter S/N 0438320 Ta (K) - 292
Operator Tisch Orifice I.D. - 1941 Pa (mm) - 756.92

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	1.4880	3.2	2.00
2	NA	NA	1.00	1.0510	6.4	4.00
3	NA	NA	1.00	0.9360	7.9	5.00
4	NA	NA	1.00	0.8920	8.8	5.50
5	NA	NA	1.00	0.7360	12.7	8.00

DATA TABULATION

Vstd	(x axis) Qstd	(y axis)		Va	(x axis) Qa	(y axis)
1.0121	0.6802	1.4258		0.9958	0.6692	0.8784
1.0078	0.9589	2.0163		0.9916	0.9434	1.2422
1.0057	1.0745	2.2543		0.9895	1.0571	1.3888
1.0046	1.1262	2.3644		0.9884	1.1080	1.4566
0.9993	1.3578	2.8515		0.9832	1.3358	1.7568
Qstd slope (m) =		2.10265		Qa slope (m) =		1.31664
intercept (b) =		-0.00335		intercept (b) =		-0.00206
coefficient (r) =		0.99999		coefficient (r) =		0.99999
y axis = SQRT[H2O(Pa/760)(298/Ta)]				y axis = SQRT[H2O(Ta/Pa)]		

CALCULATIONS

Vstd = Diff. Vol[(Pa-Diff. Hg)/760](298/Ta)
Qstd = Vstd/Time

Va = Diff Vol [(Pa-Diff Hg)/Pa]
Qa = Va/Time

For subsequent flow rate calculations:

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

TSP Sampler Calibration

SITE

Location: Lian Tang 3 — Date: January 5, 2016
Sampler: TE-5170 MFC (Serial # : 2359) — Tech: Sam Wong

CONDITIONS

Barometric Pressure (in Hg):	40.00	Corrected Pressure (mm Hg):	1016
Temperature (deg F):	70	Temperature (deg K):	294
Average Press. (in Hg):	40.00	Corrected Average (mm Hg):	1016
Average Temp. (deg F):	70	Average Temp. (deg K):	294

CALIBRATION ORIFICE

Make:	Tisch	Qstd Slope:	2.10265
Model:	TE-5025A	Qstd Intercept:	-0.00335
Serial#:	1941	Date Certified:	March 24, 2015

CALIBRATIONS

Plate or Test #	H2O (in)	Qstd (m3/min)	I (chart)	IC (corrected)
1	12.00	1.919	58.0	67.50
2	10.00	1.752	54.0	62.85
3	8.20	1.587	48.0	55.86
4	5.20	1.264	38.0	44.23
5	3.20	0.992	30.0	34.92

LINEAR REGRESSION

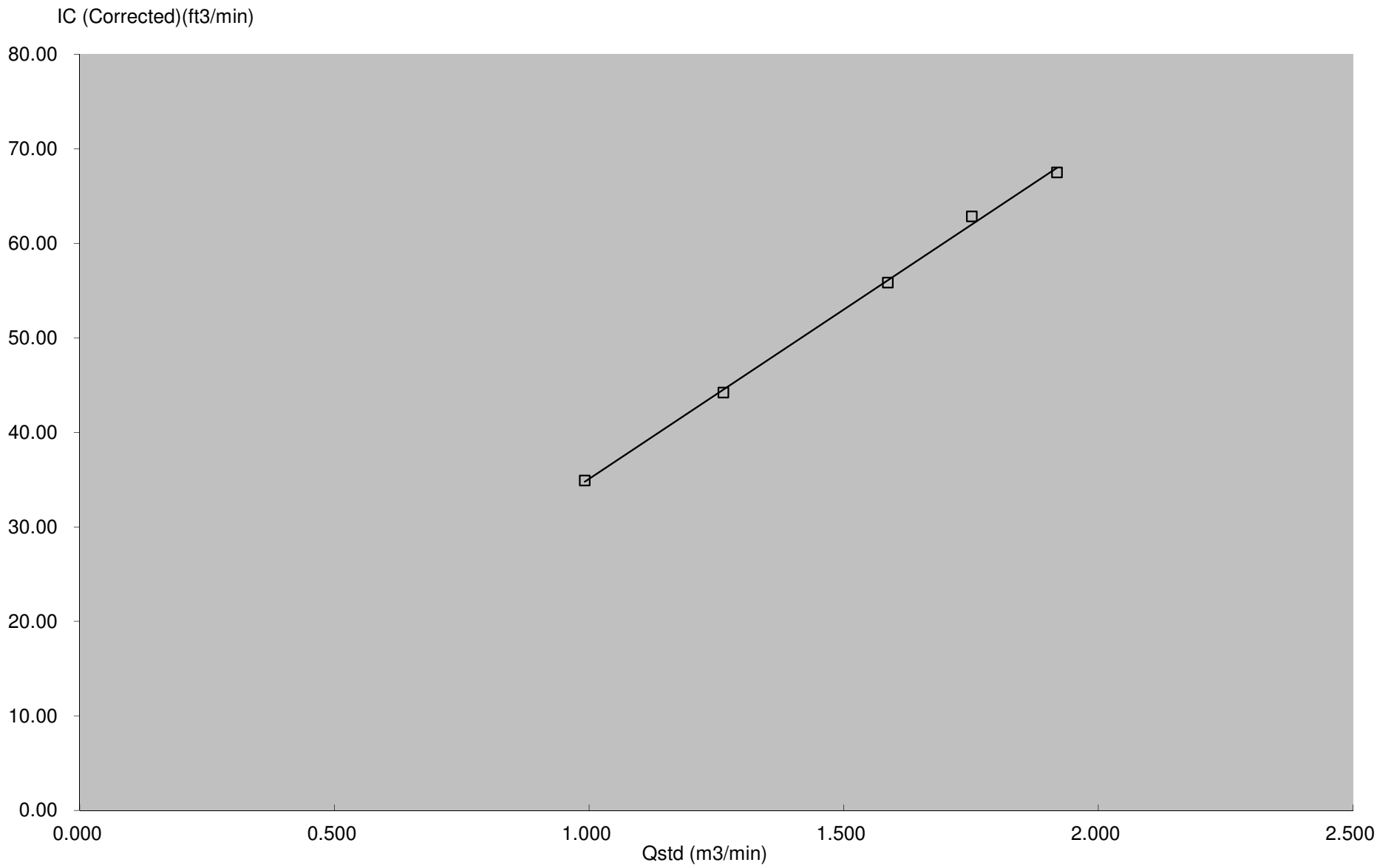
Slope =	35.7973
Intercept =	-0.7187
Corr. coeff.=	0.9992
# of Observations:	5

Calculations

Qstd = 1/m[Sqrt(H2O(Pa/Pstd)(Tstd/Ta))-b]
IC = I[Sqrt(Pa/Pstd)(Tstd/Ta)]

Qstd = standard flow rate
IC = corrected chart response
I = actual chart response
m = calibrator Qstd slope
b = calibrator Qstd intercept
Ta = actual temperature during calibration (deg K)
Pa = actual pressure during calibration (mm Hg)
Tstd = 298 deg K
Pstd = 760 mm Hg
For subsequent calculation of sampler flow:
1/m((I)[Sqrt(298/Tav)(Pav/760)]-b)

m = sampler slope
b = sampler intercept
I = chart response
Tav = daily average temperature
Pav = daily average pressure


IC (Corrected)(ft3/min)
80.00
70.00
60.00
50.00
40.00
30.00
20.00
10.00
0.00
0.000
0.500
1.000
1.500
2.000
2.500
Qstd (m3/min)

TEST REPORT

for

SOUND CALIBRATOR

Model : NC－74

Serial No. : 34857296

Condition : Temperature 25 ℃

Humidity 64 %RH

Date : September, 8, 2015

Signature : Y. kitajima

RION CO., LTD.

NC-74
34857296

1. Sound Pressure Level	94.0 ± 0.25 dB	94.00 dB
2. Frequency	1000 ± 7 Hz	1002.0 Hz
3. Distortion	3 % or less	Pass
4. Alarm Function		Pass
5. Appearance		Pass

Applicable standards

JIS C 1515:2004 class1
IEC 60942:2003 class1

RION

Hong Kong Calibration Ltd.
香港校正有限公司

Calibration Certificate

Certificate No. **508784** Page 1 of 3 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. : Q53442 **Date of receipt :** 8-Oct-15

Item Tested

Description : Sound Level Meter
Manufacturer : B&K
Model : 2238 **Serial No. :** 2694908

Test Conditions

Date of Test : 15-Oct-15 **Supply Voltage :** --
Ambient Temperature : (23 ± 3)°C **Relative Humidity :** (50 ± 25) %

Test Specifications

Calibration check.
Ref. Document/Procedure: Z01, IEC 651 and IEC 804.

Test Results

All results were within the IEC 651 Type1 and IEC 804 Type1 specification after adjustment.
The results are shown in the attached page(s).

Main Test equipment used:

Equipment No.	Description	Cert. No.	Traceable to
S017	Multi-Function Generator	C147450	SCL-HKSAR
S240	Sound Level Calibrator	500563	NIM-PRC & 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 : Alan Chu

Approved by : Steve Kwan

Date: 15-Oct-15

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

EO

Calibration Certificate

Results :

1. SPL Accuracy

UUT Setting				Applied Value (dB)	UUT Reading (dB)	
Range	Freq. Wgt.	Bandwith	Center Freq.		Before adjust	After adjust
20 ~ 100	A	BB/F	--	94.0	*91.6	93.8
	A	BB/S	--		--	93.8
	C	BB/F	--		--	93.8
40 ~ 120	A	BB/F	--	94.0	--	93.9
	A	BB/F	--	114.0	--	113.8

IEC 651 Type 1 Spec. : ± 0.7 dB
Uncertainty : ± 0.1 dB

2. Level Stability : 0.0 dB

IEC 651 Type 1 Spec. : ± 0.3 dB
Uncertainty : ± 0.1 dB

3. Linearity

3.1 Level Linearity

UUT Range (dB)	Applied Value (dB)	UUT Reading (dB)	Variation (dB)	IEC 651 Type 1 Spec. (Primary Indicator Range)
140	114.0	113.9	0.0	± 0.7 dB
130	104.0	103.9	0.0	
120	94.0	93.9 (Ref.)	- -	
110	84.0	83.9	0.0	
100	74.0	73.9	0.0	
90	64.0	63.9	0.0	
80	54.0	53.8	-0.1	

Uncertainty : ± 0.1 dB

3.2 Differential level linearity

UUT Range (dB)	Applied Value (dB)	UUT Reading (dB)	Variation (dB)	IEC 651 Type 1 Spec.
120	84.0	84.0	+ 0.1	± 0.4 dB
	94.0	93.9 (Ref.)	- -	
	95.0	94.9	0.0	± 0.2 dB

Uncertainty : ± 0.1 dB

Calibration Certificate

4. Frequency Weighting

A weighting

Frequency	Attenuation (dB)	IEC 651 Type 1 Spec.
31.5 Hz	- 39.3	- 39.4 dB, ± 1.5 dB
63 Hz	- 26.2	- 26.2 dB, ± 1.5 dB
125 Hz	- 16.2	- 16.1 dB, ± 1 dB
250 Hz	- 8.7	- 8.6 dB, ± 1 dB
500 Hz	- 3.2	- 3.2 dB, ± 1 dB
1 kHz	0.0 (Ref)	0 dB, ± 1 dB
2 kHz	+ 1.2	+ 1.2 dB, ± 1 dB
4 kHz	+ 1.0	+ 1.0 dB, ± 1 dB
8 kHz	- 1.2	- 1.1 dB, + 1.5 dB ~ -3 dB
16 kHz	- 6.7	- 6.6 dB, + 3 dB ~ - ∞

Uncertainty : ± 0.1 dB

5. Time Averaging

Applied Burst duty Factor	Applied Leq Value (dB)	UUT Reading (dB)	IEC 804 Type 1 Spec.
continuous	40.0	40.0	--
1/10	40.0	39.9	± 0.5 dB
$1/10^2$	40.0	39.9	
$1/10^3$	40.0	39.9	± 1.0 dB
$1/10^4$	40.0	39.8	

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 : 1008 hPa
4. The UUT was adjusted with the laboratory's sound calibrator at the reference sound pressure level before the calibration.
5. * Out of specification.

---------- END ----------

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F: +852 2610 2021
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REPORT OF EQUIPMENT PERFORMANCE CHECK/CALIBRATION

CONTACT:	MR IVAN LEUNG	**WORK ORDER:**	HK1600620
CLIENT:	ALS TECHNICHEM (HK) PTY LTD	**SUB-BATCH:**	0
ADDRESS:	11/F., CHUNG SHUN KNITTING CENTRE, 1-3 WING YIP STREET, KWAI CHUNG, N.T., HONG KONG	**LABORATORY:**	HONG KONG
		DATE RECEIVED:	02/01/2016
		DATE OF ISSUE:	08/01/2016

COMMENTS

The performance of the equipment stated in this report is checked with independent reference material and results compared against a calibrated secondary source.
The "Tolerance Limit" quoted is the acceptance criteria applicable for similar equipment used by the ALS Hong Kong laboratory or quoted from relevant international standards.
The "Next Calibration Date" is recommended according to best practice principals as practised by the ALS Hong Kong laboratory or quoted from relevant international standards.

Scope of Test:	Turbidity
Equipment Type:	Turbidimeter
Brand Name:	HACH
Model No.:	2100Q
Serial No.:	13120C029845
Equipment No.:	--
Date of Calibration:	02 January, 2016

NOTES

This is the Final Report and supersedes any preliminary report with this batch number.
Results apply to sample(s) as submitted. All pages of this report have been checked and approved for release.

Mr. Fung Lim Chee, Richard
General Manager -
Greater China & Hong Kong

REPORT OF EQUIPMENT PERFORMANCE CHECK/CALIBRATION

Work Order: HK1600620
Sub-Batch: 0
Date of Issue: 08/01/2016
Client: ALS TECHNICHEM (HK) PTY LTD

Equipment Type: Turbidimeter
Brand Name: HACH
Model No.: 2100Q
Serial No.: 13120C029845
Equipment No.: --
Date of Calibration: 02 January, 2016 Date of next Calibration: 02 April, 2016

Parameters:

Turbidity

Method Ref: APHA 21st Ed. 2130B

Expected Reading (NTU)	Displayed Reading (NTU)	Tolerance (%)
4	4.03	+0.8
40	40.2	+0.5
80	80.1	+0.1
400	396	-1.0
800	788	-1.5
	Tolerance Limit (%)	±10.0

Remark: "Displayed Reading" presents the figures shown on item under calibration / checking regardless of equipment precision or significant figures.

Mr. Fung Lim Chee, Richard
General Manager -
Greater China & Hong Kong

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REPORT OF EQUIPMENT PERFORMANCE CHECK/CALIBRATION

CONTACT:	MR IVAN LEUNG	**WORK ORDER:**	HK1600625
CLIENT:	ALS TECHNICHEM (HK) PTY LTD	**SUB-BATCH:**	0
ADDRESS:	11/F., CHUNG SHUN KNITTING CENTRE, 1-3 WING YIP STREET, KWAI CHUNG, N.T., HONG KONG	**LABORATORY:**	HONG KONG
		DATE RECEIVED:	02/01/2016
		DATE OF ISSUE:	08/01/2016

COMMENTS

The performance of the equipment stated in this report is checked with independent reference material and results compared against a calibrated secondary source.
The "Tolerance Limit" quoted is the acceptance criteria applicable for similar equipment used by the ALS Hong Kong laboratory or quoted from relevant international standards.
The "Next Calibration Date" is recommended according to best practice principals as practised by the ALS Hong Kong laboratory or quoted from relevant international standards.

Scope of Test:	Conductivity, Dissolved Oxygen, pH, Salinity and Temperature
Equipment Type:	Multifunctional Meter
Brand Name:	YSI
Model No.:	Professional Plus
Serial No.:	10D101566
Equipment No.:	--
Date of Calibration:	02 January, 2016

NOTES

This is the Final Report and supersedes any preliminary report with this batch number.
Results apply to sample(s) as submitted. All pages of this report have been checked and approved for release.

Mr. Fung Lim Chee, Richard
General Manager -
Greater China & Hong Kong

REPORT OF EQUIPMENT PERFORMANCE CHECK/CALIBRATION

Work Order: HK1600625
Sub-Batch: 0
Date of Issue: 08/01/2016
Client: ALS TECHNICHEM (HK) PTY LTD

Equipment Type: Multifunctional Meter
Brand Name: YSI
Model No.: Professional Plus
Serial No.: 10D101566
Equipment No.: --
Date of Calibration: 02 January, 2016 Date of next Calibration: 02 April, 2016

Parameters:

Conductivity

Method Ref: APHA (21st edition), 2510B

Expected Reading (uS/cm)	Displayed Reading (uS/cm)	Tolerance (%)
146.9	141.7	-3.5
6667	6681	+0.2
12890	12950	+0.5
58670	58793	+0.2
	Tolerance Limit (%)	±10

Dissolved Oxygen

Method Ref: APHA (21st edition), 4500-O: G

Expected Reading (mg/L)	Displayed Reading (mg/L)	Tolerance (mg/L)
1.56	1.54	-0.02
4.68	4.70	+0.02
8.16	8.12	-0.04
	Tolerance Limit (mg/L)	±0.20

pH Value

Method Ref: APHA 21st Ed. 4500H:B

Expected Reading (pH Unit)	Displayed Reading (pH Unit)	Tolerance (pH unit)
4.0	3.97	-0.03
7.0	6.98	-0.02
10.0	9.95	-0.05
	Tolerance Limit (pH unit)	±0.20

Salinity

Method Ref: APHA (21st edition), 2520B

Expected Reading (ppt)	Displayed Reading (ppt)	Tolerance (%)
10	9.93	-0.7
20	19.89	-0.5
30	29.90	-0.3
	Tolerance Limit (%)	±10

Temperature

Method Ref: Section 6 of International Accreditation New Zealand Technical Guide No. 3 Second edition March 2008: Working Thermometer Calibration Procedure.

Expected Reading (°C)	Displayed Reading (°C)	Tolerance (°C)
16	15.9	-0.1
23	23.1	+0.1
39	38.9	-0.1
	Tolerance Limit (°C)	±2.0

Remark: "Displayed Reading" presents the figures shown on item under calibration / checking regardless of equipment precision or significant figures.

Mr. Fung Lim Chee, Richard
General Manager -
Greater China & Hong Kong

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 February 2016

February 2016						
Sun	**Mon**	**Tue**	**Wed**	**Thu**	**Fri**	**Sat**
	1 ET Site Walk(09:30am – 11:00am)	**2**	**3** 24-hour TSP + 3 x 1-hour TSP, Noise (SR77)	**4**	**5**	**6** 24-hour TSP + 3 x 1-hour TSP
7	**8** Lunar New Year's Day	**9** The second day of Lunar New Year	**10** The third day of Lunar New Year	**11** Note 1	**12** Note 1	**13** Note 1
14	**15** 24-hour TSP + 3 x 1-hour TSP, Noise (SR77)	**16**	**17**	**18** ET Site Walk(10:00am – 11:00am)	**19** Water (I5, C3a, C3b)	**20** 24-hour TSP + 3 x 1-hour TSP
21	**22** ET Site Walk(09:30am – 11:00am) Water (I5, C3a, C3b)	**23**	**24**	**25**	**26** 24-hour TSP + 3 x 1-hour TSP, Noise (SR77)	**27**
28	**29** ET Site Walk(09:30 – 11:00) with Fanling Stage 2 IEC & Liantang Project-wide ET and IEC					

Note:
(1) No works for Entrusted Portion will be carried out.

Entrusted Portion of Widening of Tolo Highway / Fanling Highway between Island House Interchange and Fanling Stage 2
Impact Monitoring & Site Auditing Schedule for March 2016

March 2016						
Sun	**Mon**	**Tue**	**Wed**	**Thu**	**Fri**	**Sat**
		1	2	3 24-hour TSP + 3 x 1-hour TSP, Noise (SR77)	4	5
6	7 ET Site Walk(09:30am – 11:00am)	8	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 ET Site Walk(09:30 am – 11:00 am) with Liantang Project-wide ET and IEC + SSEMC	17	18	19
20	21 ET Site Walk(09:30am – 11:00 am) with Fanling Stage 2 IEC & Liantang Project-wide ET and IEC 24-hour TSP + 3 x 1-hour TSP, Noise (SR77)	22	23	24 24-hour TSP + 3 x 1-hour TSP (SR77)	25 Good Friday	26 The day following Good Friday
27	28 Easter Monday	29	30 ET Site Walk(pm) 24-hour TSP + 3 x 1-hour TSP, Noise (SR77)	31		

Appendix E
Meteorological Data Extracted from Hong Kong Observatory

Daily Extract of Meteorological Observations , January 2016 - Sheung Shui

Day	Mean Pressure (hPa)	Air Temperature			Mean Dew Point (deg. C)	Mean Relative Humidity (%)	Total Rainfall (mm)	Prevailing Wind Direction (degrees)	Mean Wind Speed (km/h)
		Absolute Daily Max (deg. C)	Mean (deg. C)	Absolute Daily Min (deg. C)					
01	1025.9	23.0	18.2	15.1	13.6	75	0.0	***	***
02	1022.0	22.4	18.2	14.2	14.9	82	0.0	***	***
03	1019.6	20.2	19.1	17.8	18.5	97	3.0	***	***
04	1018.6	23.5	21.1	19.5	19.0	88	0.0	***	***
05	1015.6	22.6	20.7	18.8	19.7	94	10.0	***	***
06	1018.9	26.7	20.8	17.9	16.8	79	0.5	***	***
07	1021.8	22.6	18.1	15.5	13.4	75	0.0	***	***
08	1020.8	22.6	17.6	13.7	13.0	76	0.0	***	***
09	1020.6	20.6	17.9	14.9	13.2	74	0.0	***	***
10	1017.4	19.4	18.2	17.1	15.0	82	5.0	***	***
11	1016.8	21.9	17.7	15.8	15.4	87	29.0	***	***
12	1020.4	17.5	15.9	14.6	11.4	75	0.0	***	***
13	1021.0	20.7	15.3	11.8	10.3	73	0.0	***	***
14	1019.5	17.7	14.9	13.2	12.0	83	7.5	***	***
15	1015.6	14.6	14.0	13.4	13.6	98	42.5	***	***
16	1013.2	17.6	16.5	14.5	15.3	93	7.0	***	***
17	1011.8	19.6	17.3	13.5	15.7	91	7.5	***	***
18	1017.6	17.4	14.3	10.5	9.0	71	0.0	***	***
19	1020.3	17.5	15.7	13.9	10.7	73	0.0	***	***
20	1019.7	16.8	15.2	14.3	13.3	89	3.5	***	***
21	1018.0	16.2	15.2	13.5	14.0	93	0.0	***	***
22	1020.0	13.5	11.1	8.7	10.0	93	10.5	***	***
23	1028.9	8.9	7.2	5.7	1.3	66	0.0	***	***
24	1036.1	6.0	4.0	2.2	-4.5	56	4.5	***	***
25	1033.5	12.9	6.5	3.4	-5.6	44	0.0	***	***
26	1028.2	11.2	7.8	4.2	1.9	69	0.5	***	***
27	1023.3	14.4	10.9	7.3	10.2	95	10.0	***	***
28	1018.0	17.0	15.8	14.0	15.6	99	81.5	***	***
29	1017.8	18.9	17.0	15.9	16.2	95	35.5	***	***
30	1019.9	22.0	18.0	15.8	15.3	85	0.0	***	***
31	1019.8	16.7	15.9	15.1	13.1	84	0.5	***	***

*** unavailable

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

[N/A]

*Note: In the event that the meteorological data for this reporting month was not available from the Hong Kong Observatory by the time of submission, please note that the data would be included in Appendix E in the next Monthly EM&A report.

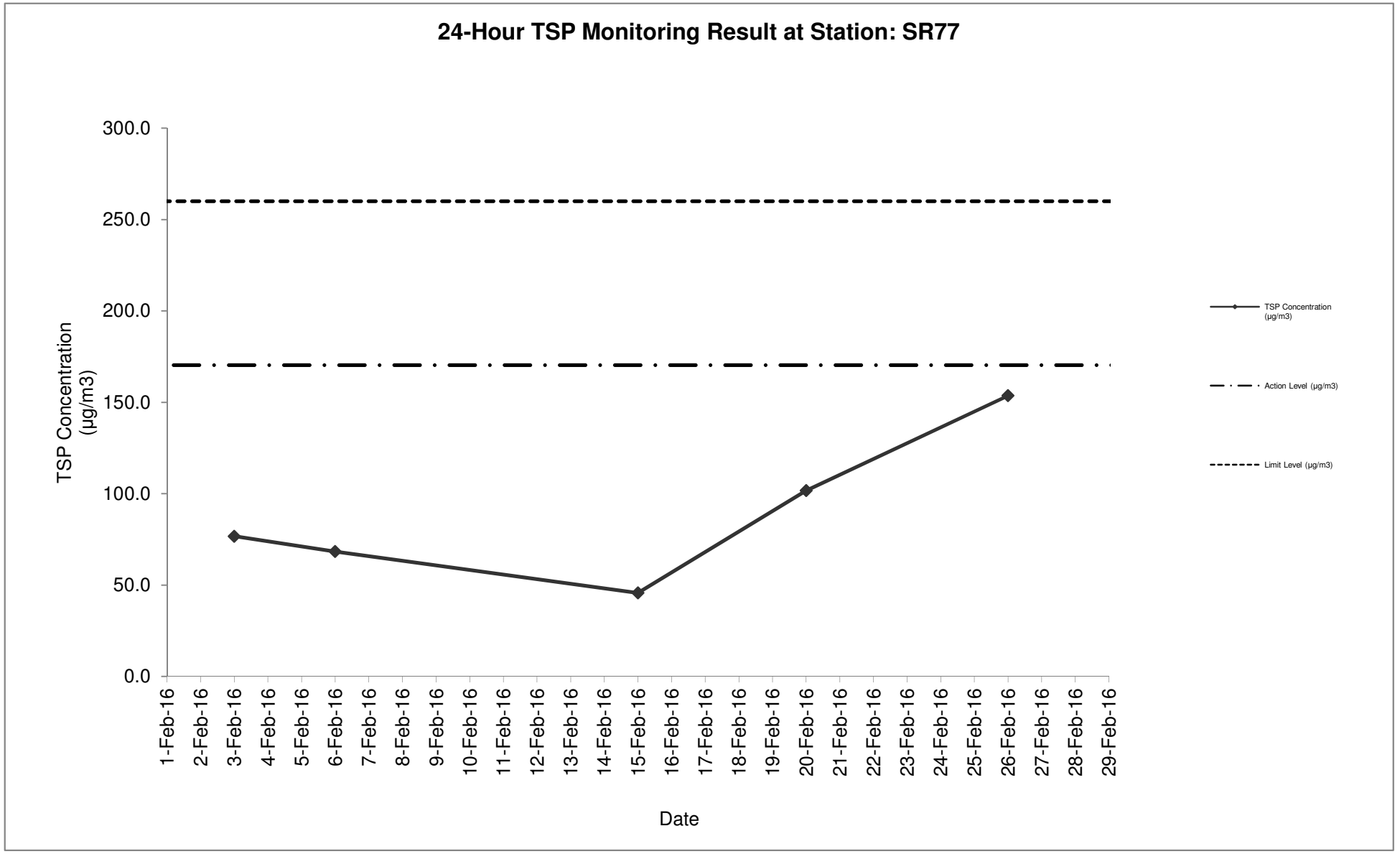
Appendix F
Air Quality Monitoring Results and their Graphical Presentation

Appendix F
Air Quality Monitoring Results and their Graphical Presentation

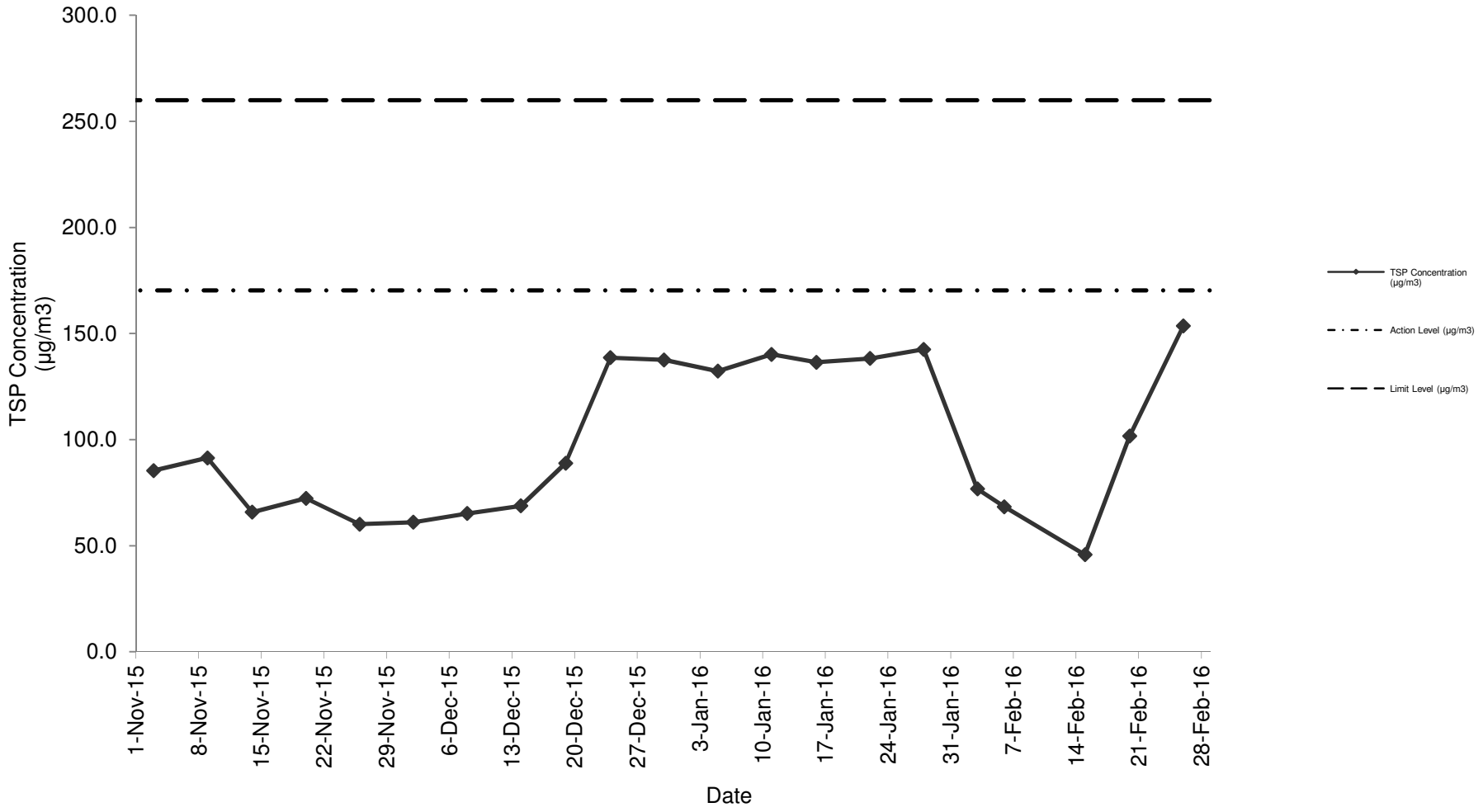
24-Hour TSP Monitoring Result at Station: SR77

Sampling Date	Weather Condition	Starting Time	Paper No.	Wt. of paper (g)			Elapse Time			Flow Rate (CFM)			Flow Rate (m^3/min)			Total Volume (m^3)	TSP Concentration ($\mu g/m^3$)	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						
3-Feb-16	Cloudy	12:12	C154	2.8024	2.9620	0.1596	4387.67	4411.67	24.00	51	51	51.0	1.44	1.44	1.44	2079.59	76.7	170.3	260.0	<5	N
6-Feb-16	Cloudy	12:11	C156	2.7981	2.9403	0.1422	4414.67	4438.67	24.00	51	51	51.0	1.44	1.44	1.44	2079.59	68.4	170.3	260.0	<5	N
15-Feb-16	Cloudy	12:12	C158	2.7951	2.8902	0.0951	4441.67	4465.67	24.00	51	51	51.0	1.44	1.44	1.44	2079.59	45.7	170.3	260.0	<5	N
20-Feb-16	Cloudy	12:10	C160	2.8210	3.0325	0.2115	4468.67	4492.67	24.00	51	51	51.0	1.44	1.44	1.44	2079.59	101.7	170.3	260.0	<5	N
26-Feb-16	Fine	12:09	C162	2.8027	3.1222	0.3195	4495.67	4519.67	24.00	51	51	51.0	1.44	1.44	1.44	2079.59	153.6	170.3	260.0	<5	N
																Average	89.2				
																Min	45.7				
																Max	153.6				

Note: No major dust source observed during the monitoring period


24-Hour TSP Monitoring Result at Station: SR77
TSP Concentration (µg/m3)
300.0
250.0
200.0
150.0
100.0
50.0
0.0
1-Feb-16
2-Feb-16
3-Feb-16
4-Feb-16
5-Feb-16
6-Feb-16
7-Feb-16
8-Feb-16
9-Feb-16
10-Feb-16
11-Feb-16
12-Feb-16
13-Feb-16
14-Feb-16
15-Feb-16
16-Feb-16
17-Feb-16
18-Feb-16
19-Feb-16
20-Feb-16
21-Feb-16
22-Feb-16
23-Feb-16
24-Feb-16
25-Feb-16
26-Feb-16
27-Feb-16
28-Feb-16
29-Feb-16
Date
TSP Concentration (µg/m3)
Action Level (µg/m3)
Limit Level (µg/m3)

24-Hour TSP Monitoring Result at Station: SR77
(November 2015 - February 2016)

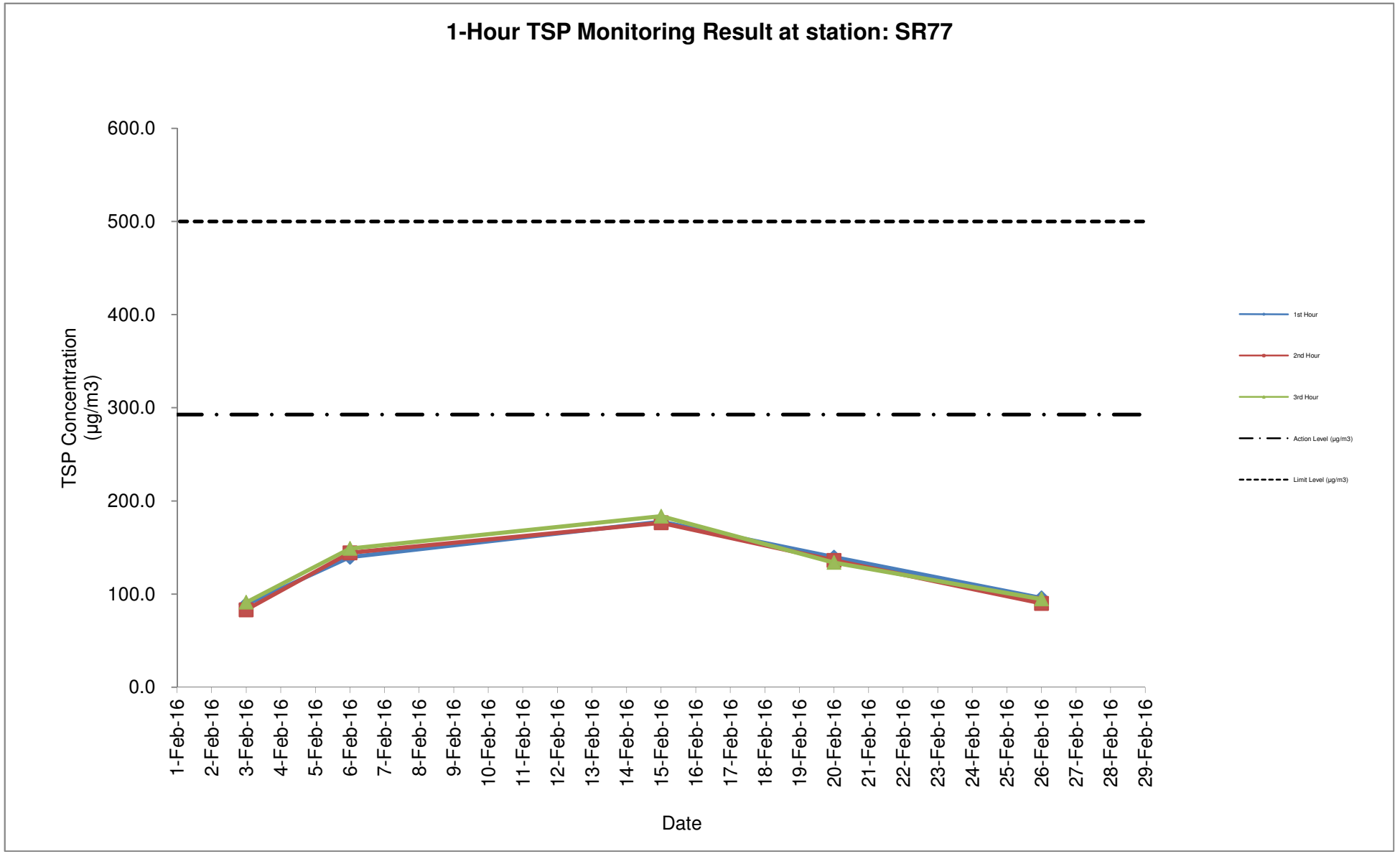


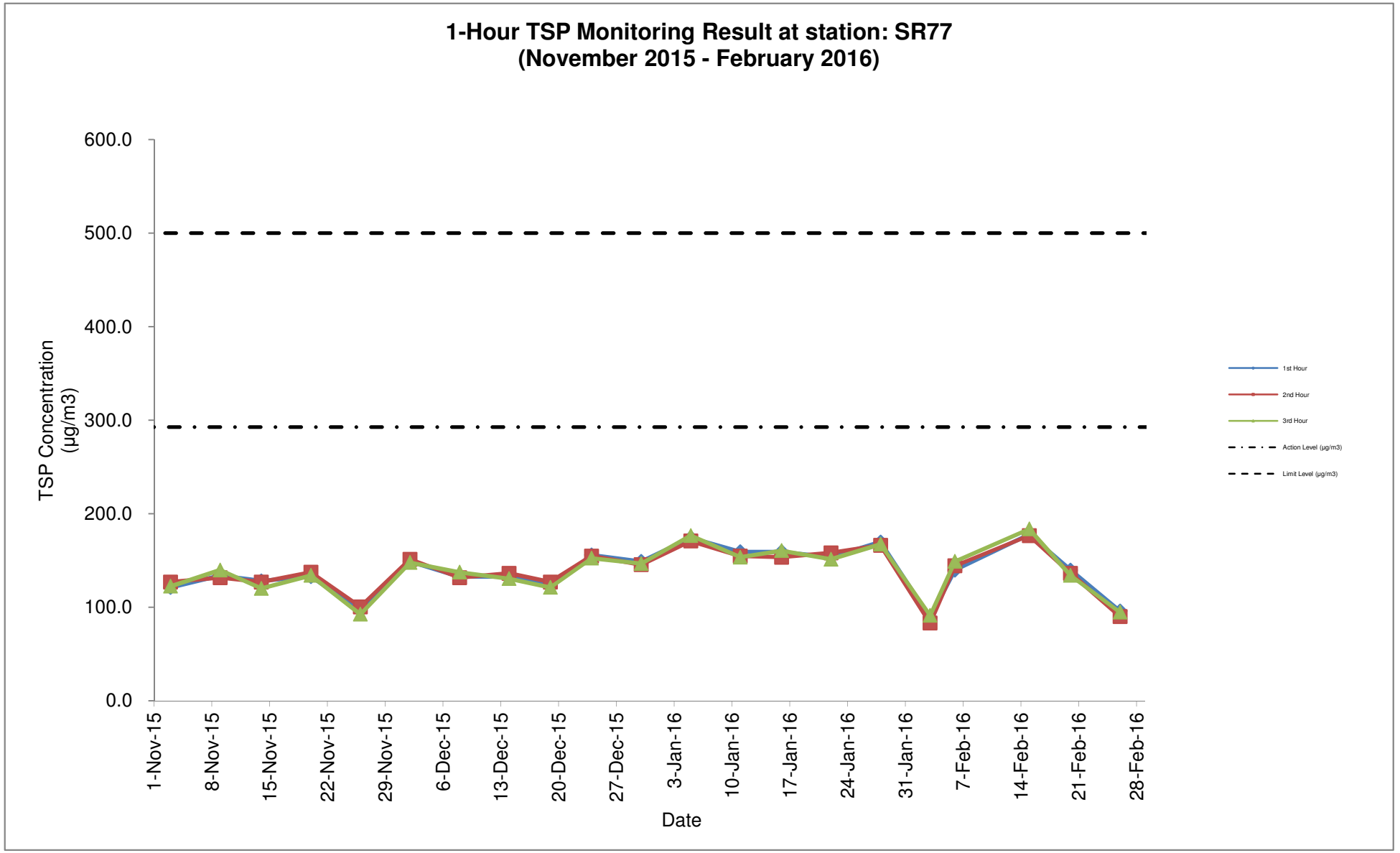
Appendix F
Air Quality Monitoring Results and their Graphical Presentation

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

Sampling Date	Weather Condition	Starting Time	Paper No.	Wt. of paper (g)			Elapse Time			Flow Rate (CFM)			Flow Rate (m^3/min)			Total Volume (m^3)	TSP Concentration ($\mu g/m^3$)	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						
3-Feb-16	Cloudy	09:00	C155A	2.8077	2.8154	0.0077	4384.67	4385.67	1.00	51	51	51.0	1.44	1.44	1.44	86.65	88.9	292.7	500.0	<5	N
	Cloudy	10:03	C155B	2.8064	2.8136	0.0072	4385.67	4386.67	1.00	51	51	51.0	1.44	1.44	1.44	86.65	83.1	292.7	500.0	<5	N
	Cloudy	11:07	C155C	2.8059	2.8138	0.0079	4386.67	4387.67	1.00	51	51	51.0	1.44	1.44	1.44	86.65	91.2	292.7	500.0	<5	N
6-Feb-16	Cloudy	09:00	C157A	2.7970	2.8091	0.0121	4411.67	4412.67	1.00	51	51	51.0	1.44	1.44	1.44	86.65	139.6	292.7	500.0	<5	N
	Cloudy	10:03	C157B	2.7949	2.8074	0.0125	4412.67	4413.67	1.00	51	51	51.0	1.44	1.44	1.44	86.65	144.3	292.7	500.0	<5	N
	Cloudy	11:08	C157C	2.8114	2.8243	0.0129	4413.67	4414.67	1.00	51	51	51.0	1.44	1.44	1.44	86.65	148.9	292.7	500.0	<5	N
15-Feb-16	Cloudy	09:00	C159A	2.7949	2.8103	0.0154	4438.67	4439.67	1.00	51	51	51.0	1.44	1.44	1.44	86.65	177.7	292.7	500.0	<5	N
	Cloudy	10:04	C159B	2.7868	2.8021	0.0153	4439.67	4440.67	1.00	51	51	51.0	1.44	1.44	1.44	86.65	176.6	292.7	500.0	<5	N
	Cloudy	11:07	C159C	2.7917	2.8076	0.0159	4440.67	4441.67	1.00	51	51	51.0	1.44	1.44	1.44	86.65	183.5	292.7	500.0	<5	N
20-Feb-16	Cloudy	09:00	C161A	2.7760	2.7881	0.0121	4465.67	4466.67	1.00	51	51	51.0	1.44	1.44	1.44	86.65	139.6	292.7	500.0	<5	N
	Cloudy	10:03	C161B	2.7850	2.7968	0.0118	4466.67	4467.67	1.00	51	51	51.0	1.44	1.44	1.44	86.65	136.2	292.7	500.0	<5	N
	Cloudy	11:07	C161C	2.7910	2.8026	0.0116	4467.67	4468.67	1.00	51	51	51.0	1.44	1.44	1.44	86.65	133.9	292.7	500.0	<5	N
26-Feb-16	Fine	09:00	C163A	2.8045	2.8128	0.0083	4492.67	4493.67	1.00	51	51	51.0	1.44	1.44	1.44	86.65	95.8	292.7	500.0	<5	N
	Fine	10:03	C163B	2.7863	2.7941	0.0078	4493.67	4494.67	1.00	51	51	51.0	1.44	1.44	1.44	86.65	90.0	292.7	500.0	<5	N
	Fine	11:06	C163C	2.7889	2.7971	0.0082	4494.67	4495.67	1.00	51	51	51.0	1.44	1.44	1.44	86.65	94.6	292.7	500.0	<5	N
																Average	128.3				
																Min	83.1				
																Max	183.5				

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


1-Hour TSP Monitoring Result at station: SR77
TSP Concentration (µg/m3)
600.0
500.0
400.0
300.0
200.0
100.0
0.0
1-Feb-16
2-Feb-16
3-Feb-16
4-Feb-16
5-Feb-16
6-Feb-16
7-Feb-16
8-Feb-16
9-Feb-16
10-Feb-16
11-Feb-16
12-Feb-16
13-Feb-16
14-Feb-16
15-Feb-16
16-Feb-16
17-Feb-16
18-Feb-16
19-Feb-16
20-Feb-16
21-Feb-16
22-Feb-16
23-Feb-16
24-Feb-16
25-Feb-16
26-Feb-16
27-Feb-16
28-Feb-16
29-Feb-16
Date
1st Hour
2nd Hour
3rd Hour
Action Level (µg/m3)
Limit Level (µg/m3)


1-Hour TSP Monitoring Result at station: SR77
(November 2015 - February 2016)
TSP Concentration (µg/m3)
600.0
500.0
400.0
300.0
200.0
100.0
0.0
1-Nov-15
8-Nov-15
15-Nov-15
22-Nov-15
29-Nov-15
6-Dec-15
13-Dec-15
20-Dec-15
27-Dec-15
3-Jan-16
10-Jan-16
17-Jan-16
24-Jan-16
31-Jan-16
7-Feb-16
14-Feb-16
21-Feb-16
28-Feb-16
Date
1st Hour
2nd Hour
3rd Hour
Action Level (µg/m3)
Limit Level (µg/m3)

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	1. Identify source; 2. Inform IEC and ER; 3. Repeat measurement to confirm finding; 4. Increase monitoring frequency to daily.	1. Check monitoring data submitted by ET; 2. Check Contractor's working method.	1. Notify Contractor.	1. Rectify any unacceptable practice; 2. Amend working methods if appropriate.
Action level being exceeded by two or more consecutive sampling days	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.	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.	1. Confirm receipt of notification of failure in writing; 2. Notify Contractor; 3. Ensure remedial measures properly implemented.	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	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.	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.	1. Confirm receipt of notification of exceedance in writing; 2. Notify Contractor; 3. Ensure remedial measures properly implemented.	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	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.	1. Discus 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.	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.	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	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.	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.	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.	1. Submit noise mitigation proposals to IEC. 2. Implement noise mitigation proposals.
Limit Level	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.	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.	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.	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	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;	1. Check monitoring data submitted by ET & Contractor's working methods;	1. Confirm receipt of notification of failure in writing; Notify, Contractor	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	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.	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.	1. Discuss with IEC on the proposed mitigation measures; 2. Ensure mitigation measures properly implemented; 3. Assess the effectiveness of the implemented mitigation measures.	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	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.	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.	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.	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	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.	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.	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.	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

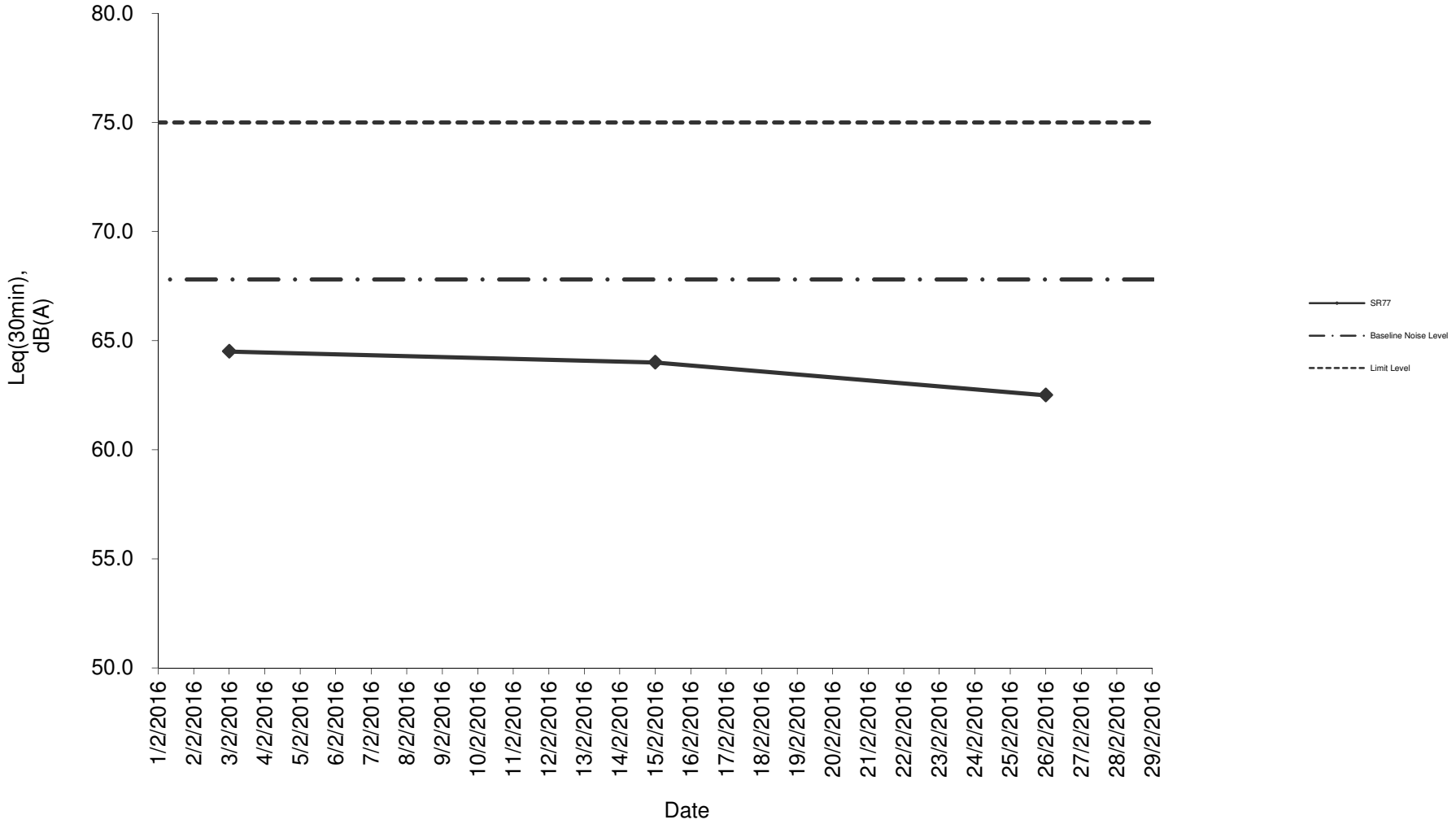
Date	Weather Condition	Start Time	End Time	Measured Noise Level (dB(A))*			Baseline Corrected Level, dB(A)**	Baseline Noise Level (dB(A)), Leq(30min)	Limit Level dB(A)	Exceedance (Y / N)
				L10(30min)	L90(30min)	Leq(30min)				
2016/02/03	Cloudy	14:30	15:00	90.0	57.5	64.5	-	67.8	75.0	N
2016/02/15	Cloudy	15:00	15:30	87.0	56.5	64.0	-	67.8	75.0	N
2016/02/26	Fine	15:30	16:00	96.0	57.0	62.5	-	67.8	75.0	N
					Average	63.7				
					Minimum	62.5				
					Maximum	64.5				

Remarks

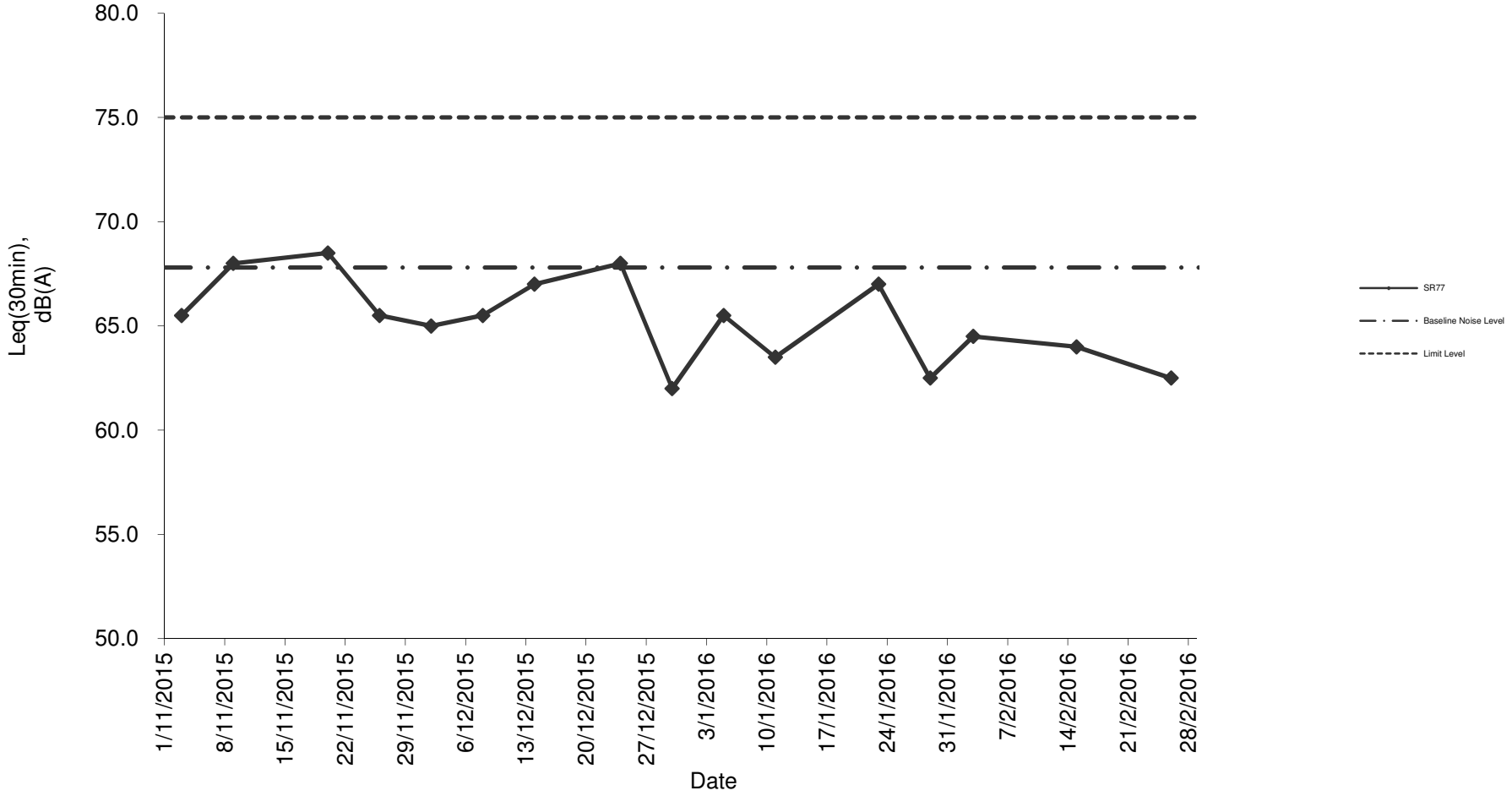
* +3dB(A) Façade effect correction included

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

Noise monitoring result: SR77



Noise monitoring result: SR77
(November 2015 - February 2016)



Appendix I
Laboratory Results for Water Quality

ENVIRO LABS LIMITED

Rm 611-612, Hong Leong Plaza, 33 Lok Yip Rd, Fanling, NT, HK
Tel: (852) 2676 2983 Fax: (852) 2676 2860
e-mail: ell@envirolabs.com.hk website: http://www.envirolabs.com.hk

TEST REPORT

JOB NO.	:	**16020932**			
DATE OF ISSUE	:	**23 February 2016**	**PAGE**	:	Page 1 of 1

1. Customer

Enovative Environmental Service Limited
Flat 6, 3/F., Block E,
Wah Lok Industrial Centre,
31-35 Shan Mei Street, Shatin, N.T.
Attn.: Mr. Thomas Wong

2. Sample Identification

Sample Description	:	Six batch(es) of water samples said to be discharge water were submitted by the customer and received at the laboratory in ambient condition.
Sampling	:	Conducted by the customer.
Sampling Date[a]		19 Feb 2016
Received Date	:	19 Feb 2016
Testing Period	:	19 Feb 2016 to 23 Feb 2016

3. Test Methods

Parameters	Reference Methods	Limits of Reporting
Total Suspended Solids dried at 103-105°C	APHA[b] 17e 2540 D	2.5 mg/L

4. Test Results[c]

Sample I.D. marked by the customer	Sample No.	Parameters	Test Results	Units
I5 - 1 LT3 19/2	001	Total Suspended Solids	3.7	mg/L
I5 - 2 LT3 19/2	002	Total Suspended Solids	3.6	mg/L
C3a - 1 LT3 19/2	003	Total Suspended Solids	10	mg/L
C3a - 2 LT3 19/2	004	Total Suspended Solids	10	mg/L
C3b - 1 LT3 19/2	005	Total Suspended Solids	26	mg/L
C3b - 2 LT3 19/2	006	Total Suspended Solids	29	mg/L

--- END OF REPORT ---

[a] Information is provided by the customer
[b] APHA Standard Methods for the Examination of Water and Wastewater, AWWA
[c] Test results relate only to the items received

APPROVED SIGNATORY:

Susan, Wai-shan Ko
Senior Chemist

ENVIRO LABS LIMITED

Rm 611-612, Hong Leong Plaza, 33 Lok Yip Rd, Fanling, NT, HK
Tel: (852) 2676 2983 Fax: (852) 2676 2860
e-mail: eli@envirolabs.com.hk website: http://www.envirolabs.com.hk

TEST REPORT

JOB NO.	:	**16020968**			
DATE OF ISSUE	:	**24 February 2016**	**PAGE**	:	Page 1 of 1

1. Customer

Enovative Environmental Service Limited
Flat 6, 3/F., Block E,
Wah Lok Industrial Centre,
31-35 Shan Mei Street, Shatin, N.T.
Attn.: Mr. Thomas Wong

2. Sample Identification

Sample Description	:	Six batch(es) of water samples said to be discharge water were submitted by the customer and received at the laboratory in ambient condition.
Sampling	:	Conducted by the customer.
Sampling Date[a]		22 Feb 2016
Received Date	:	22 Feb 2016
Testing Period	:	22 Feb 2016 to 24 Feb 2016

3. Test Methods

Parameters	Reference Methods	Limits of Reporting
Total Suspended Solids dried at 103-105°C	APHA[b] 17e 2540 D	2.5 mg/L

4. Test Results[c]

Sample I.D. marked by the customer	Sample No.	Parameters	Test Results	Units
I5 - 1 LT3 22/2	001	Total Suspended Solids	3.1	mg/L
I5 - 2 LT3 22/2	002	Total Suspended Solids	3.2	mg/L
C3a - 1 LT3 22/2	003	Total Suspended Solids	18	mg/L
C3a - 2 LT3 22/2	004	Total Suspended Solids	20	mg/L
C3b - 1 LT3 22/2	005	Total Suspended Solids	4.9	mg/L
C3b - 2 LT3 22/2	006	Total Suspended Solids	5.3	mg/L

--- END OF REPORT ---

[a] Information is provided by the customer
[b] APHA Standard Methods for the Examination of Water and Wastewater, AWWA
[c] Test results relate only to the items received

APPROVED SIGNATORY:

Kenneth, Kar-kin LAM
Senior Lab. Manager

Appendix J
Water Quality Monitoring Results and their Graphical Presentation

Project Name: **Contract No. CV/2012/09 Liantang / Heung Yuen Wai Boundary Control Point Site Formation and Infrastructure works - Contract 3**
Entrusted Portion of Widening of Tolo Highway / Fanling Highway between Island House Interchange and Fanling - Stage 2

Date of Monitoring 19/2/2016 Weather : Cloudy

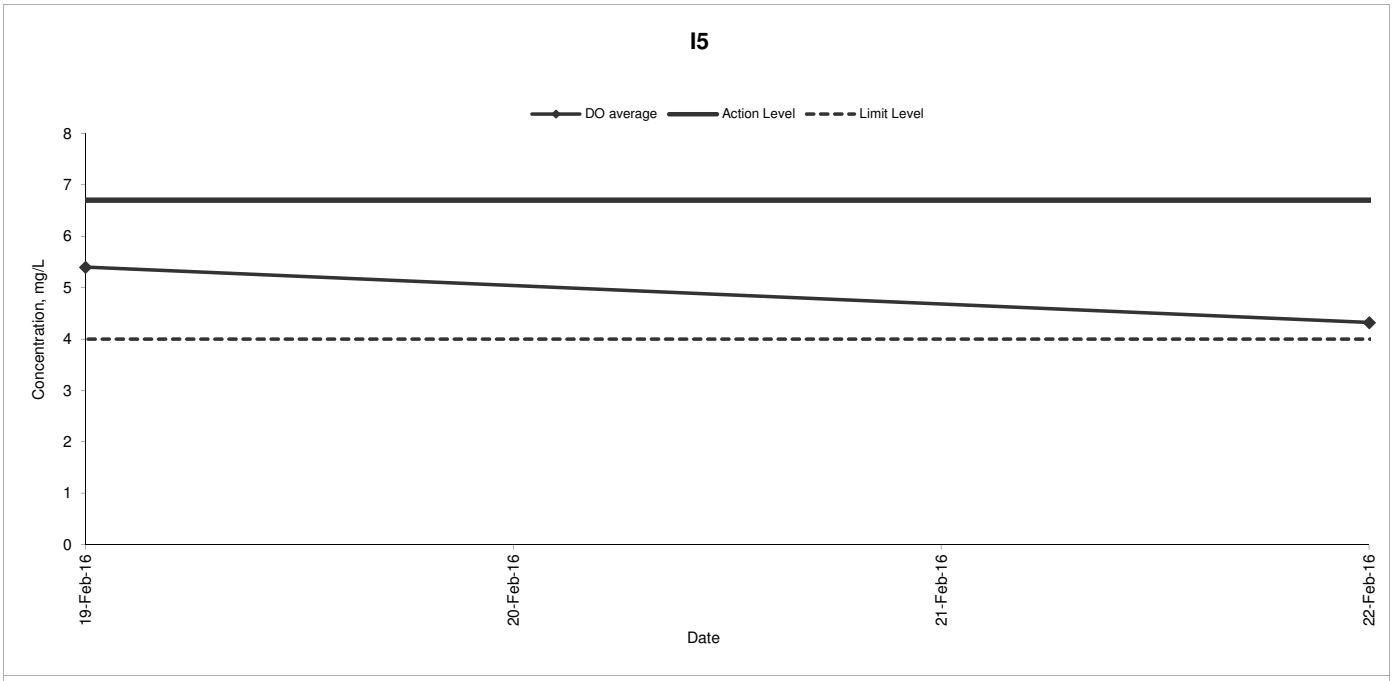
Monitoring Location	Time	Water Depth (m)	Temperature (oC)		pH		DO (mg/L)		DO (% saturation)		Turbidity (NTU)		Salinity (g/L)		SS (mg/L)	
			Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	Value	Average
C3a	14:53	<0.5	16.8	16.8	7.2	7.2	5.2	5.2	54.6	54.6	11.1	11.1	0.1	0.1	10.0	10.0
			16.8		7.2		5.2		54.6		11.1		0.1		10.0	
C3b	14:36	<0.5	15.7	15.7	7.3	7.3	8.6	8.6	87.0	87.0	46.9	46.9	<0.1	<0.1	26.0	27.5
			15.7		7.3		8.6		87.0		46.9		<0.1		29.0	
I5	14:26	<0.5	16.6	16.6	7.3	7.3	5.4	**5.4**	55.6	55.4	4.9	4.9	0.1	0.1	3.7	3.7
			16.6		7.3		5.4		55.2		4.9		0.1		3.6	

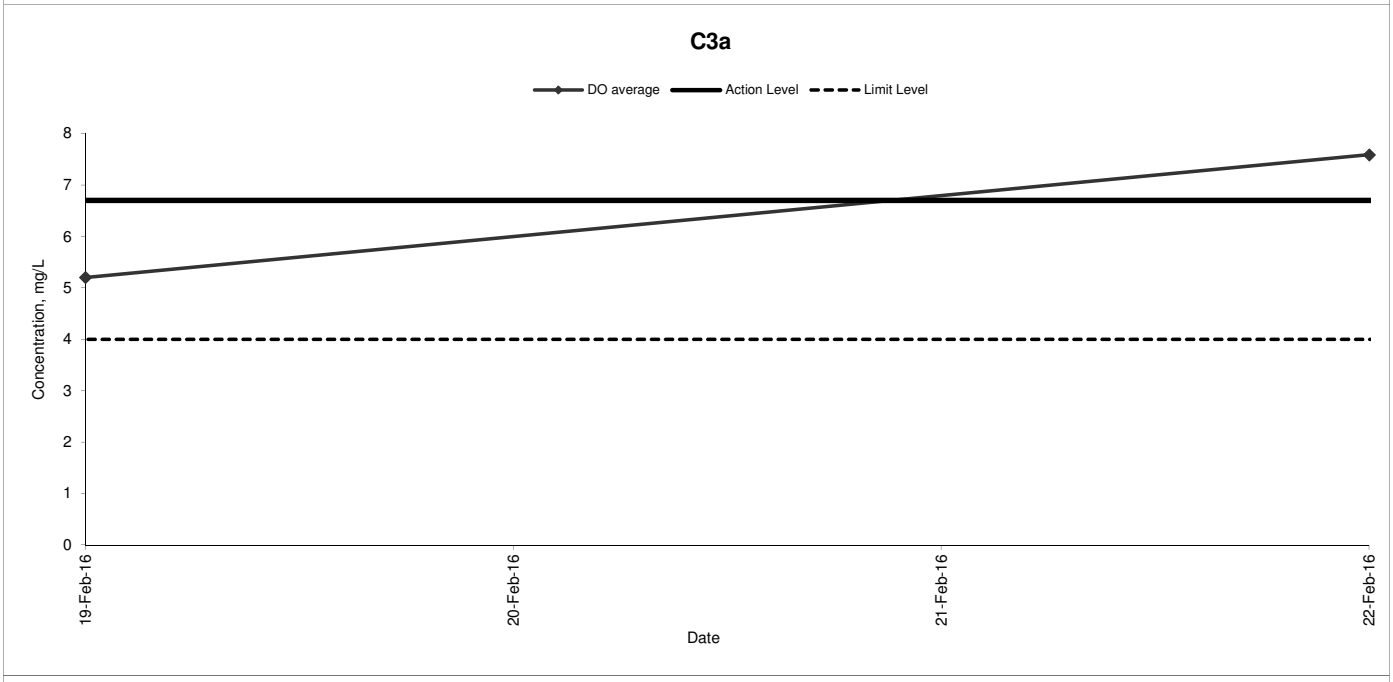
Date of Monitoring 22/2/2016 Weather : Cloudy

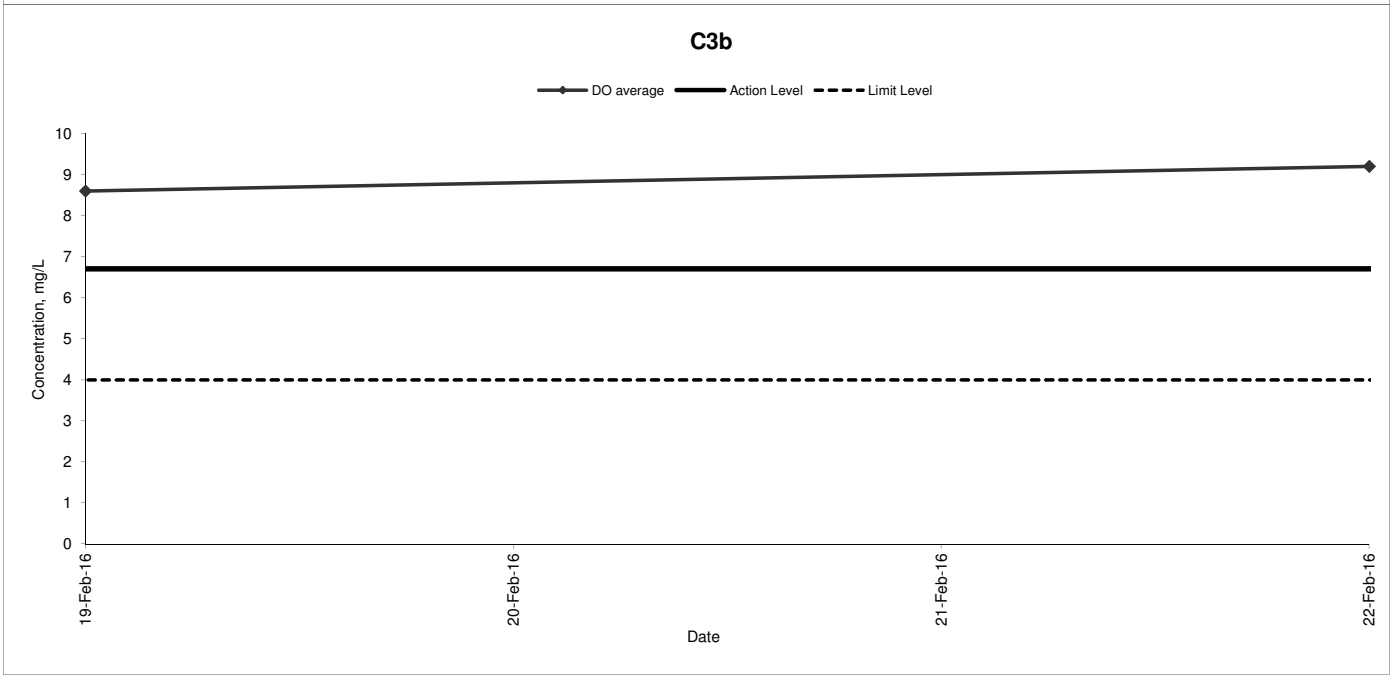
Monitoring Location	Time	Water Depth (m)	Temperature (oC)		pH		DO (mg/L)		DO (% saturation)		Turbidity (NTU)		Salinity (g/L)		SS (mg/L)	
			Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	Value	Average
C3a	11:09	<0.5	17.5	17.5	7.5	7.5	7.6	7.6	79.3	79.3	4.1	4.1	<0.1	<0.1	18.0	19.0
			17.5		7.5		7.6		79.3		4.1		<0.1		20.0	
C3b	11:25	<0.5	16.7	16.7	7.7	7.7	9.2	9.2	94.1	94.1	4.8	4.8	<0.1	<0.1	4.9	5.1
			16.7		7.7		9.2		94.1		4.8		<0.1		5.3	
I5	11:47	<0.5	17.5	17.5	7.2	7.2	4.3	**4.3**	45.2	45.2	17.7	**17.7**	<0.1	<0.1	3.1	3.2
			17.5		7.2		4.3		45.2		17.7		<0.1		3.2	

NOTE:
Data in **Bold** denotes exceedanece of respective Action Level
Data in **Bold Underline** denotes exceedance of respective Limit Level

Dissolved Oxygen

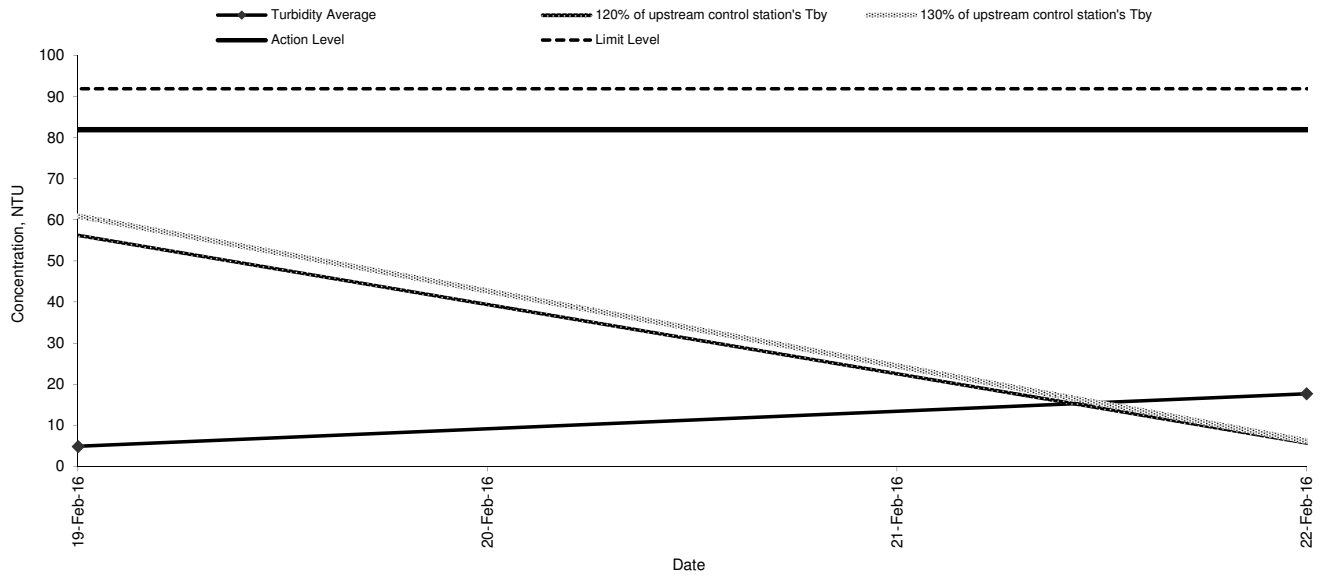




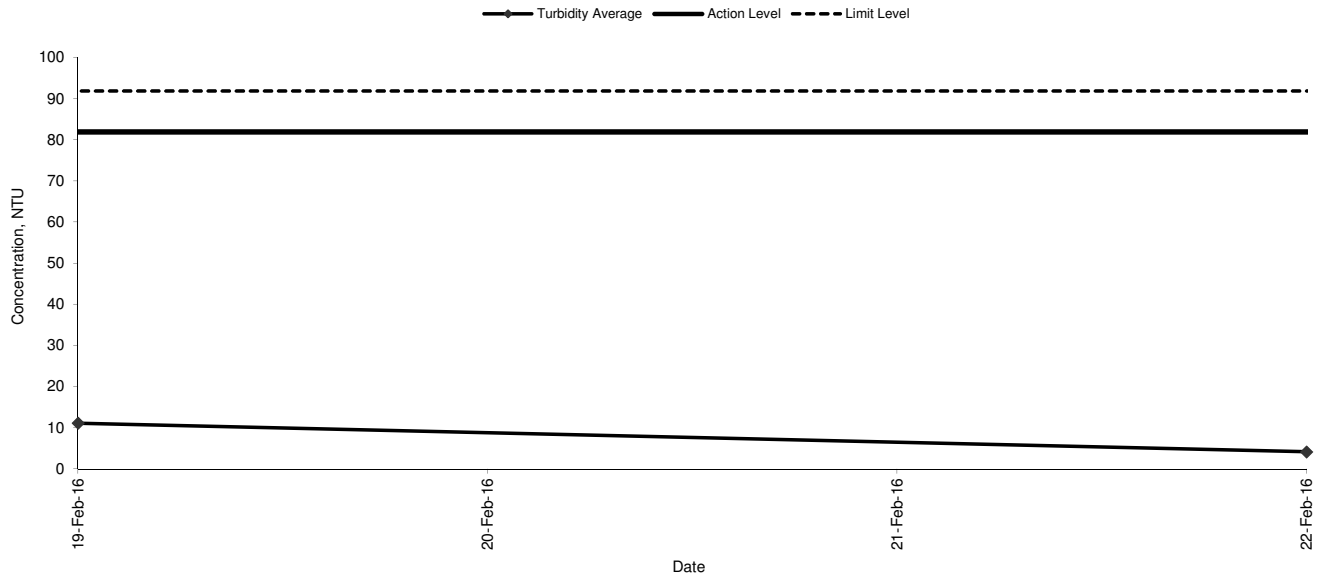


Turbidity

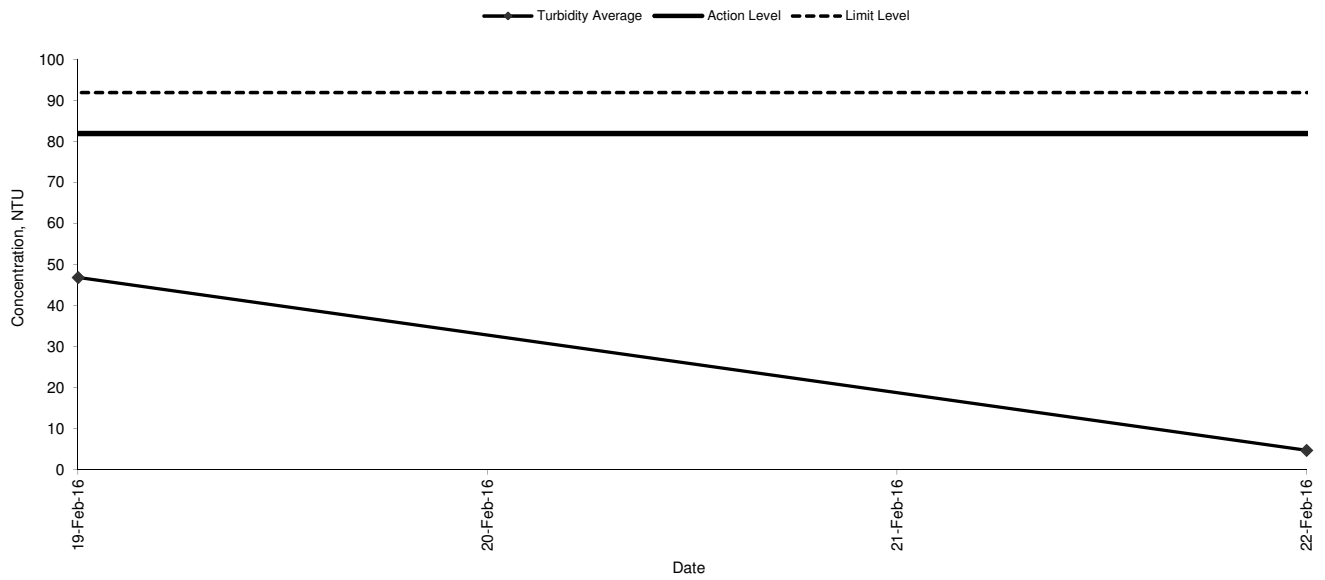
I5



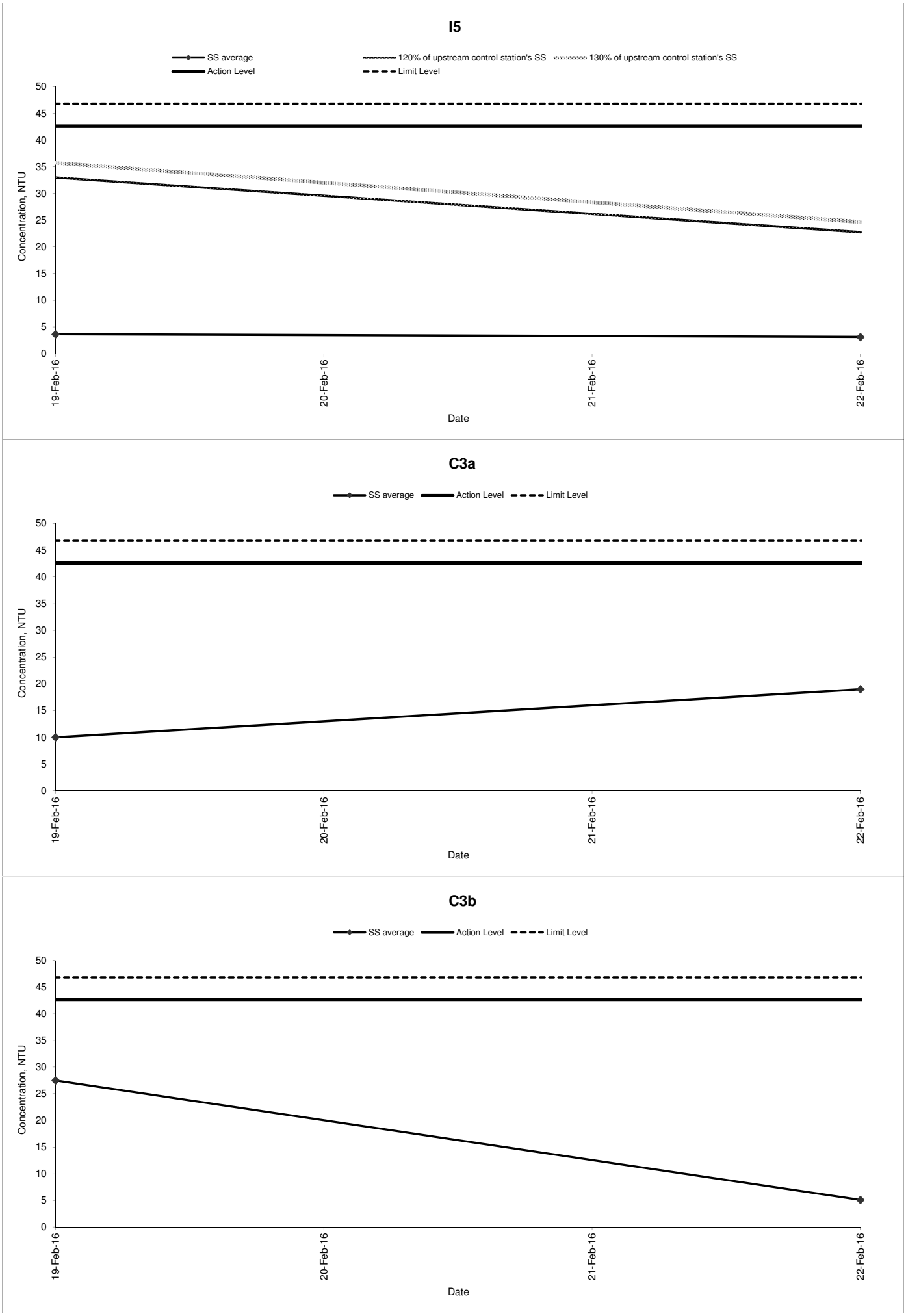
C3a



C3b



Suspended Solid



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 '000m^3)	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in m^3)	(in '000m^3)
Jan-16	2.683	0.253	2.430	0.030	-	2.400	0.799	0.001	-	-	-	0.115
Feb-16	1.876	0.651	1.225	0.020	-	1.205	1.141	-	-	-	-	0.110
Mar-16	-				-							
Apr-16	-				-							
May-16	-				-							
Jun-16	-				-							
Sub-Total	4.559	0.904	3.655	0.050	-	3.605	1.940	0.001	-	-	-	0.225
Jul-16	-				-							
Aug-16	-				-							
Sep-16	-				-							
Oct-16	-				-							
Nov-16	-				-							
Dec-16	-											
Total	4.559	0.904	3.655	0.050	-	3.605	1.940	0.001	-	-	-	0.225

Note:
1. Assume the density of soil fill is 2 ton/m^3.
2. Assume the density of rock and broken concrete is 2.5 ton/m^3.
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/m^3.

Appendix L
Implementation Schedule of Environmental Mitigation Measures (EMIS)

Impact	Environmental Protection Measures	Timing	Responsibility	Implementation Status [#]
Air Quality				
Air Quality during Construction	• 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 50m^3 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 ✓ ✓ ✓ ✓ Rem and Obs
Air Quality during Operation	Not required	N/A	N/A	N/A
Noise				
Noise during Construction	• 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> • Wastewater generated from any concrete batching washdown of equipment or similar activities should be discharged into foul sewers, after the removal of settable 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	Obs

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

Impact	Environmental Protection Measures	Timing	Responsibility	Implementation Status [#]
	• Sand traps, oil interceptors and other pollution prevention installations should be provided, properly cleaned and maintained.			✓
	• Runoff from exposed working areas, unfinished slopes and from unlined temporary channels should be directed to stilling basins and/or silt traps before discharging to the drainage outfalls.			✓
	• Regular inspections of stilling basins and/or silt traps is required to ensure that sediment is not conveyed into the existing drainage system.			✓
	• Open stockpiles should be covered with a tarpaulin cover.			✓
	• During the wet season, any exposed top soils should be covered with a tarpaulin, shotcreted or hydroseeded.			✓
	• Sand and silt from wash-water from vehicle washing should be settled out before discharging into storm drains.			✓
	• Fuels should be stored in bunded areas such that spillage can be easily collected.			✓
Water Quality during Operation	Not required	N/A	N/A	N/A
Waste Management				
Waste Management during Construction	<u>General Waste</u>			
	• Transport of wastes off site as soon as possible.	During Construction	Contractor	✓
	• Maintenance of accurate waste records.			✓
	• Minimisation of waste generation for disposal (via reduction/recycling/re-use).			✓
	• No on-site burning will be permitted.			✓
	• Use of re-useable metal hoardings/signboards.			✓
	<u>Vegetation from site clearance</u>			
	• Segregation of materials to facilitate disposal.	During Construction	Contractor	✓
	• Mulching to reduce bulk and where possible review opportunities for the possible beneficial use within landscaping areas.			✓

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

Impact	Environmental Protection Measures	Timing	Responsibility	Implementation Status [#]
	<u>Demolition Wastes</u>			
	• Segregation of materials to facilitate disposal.	During Construction	Contractor	✓
	• Appropriate stockpile management.			✓
	<u>Excavated Materials</u>			
	• Segregation of materials to facilitate disposal / reuse.	During Construction	Contractor	✓
	• 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.			N/A
	<u>Construction Wastes</u>			
	• Segregation of materials to facilitate recycling/reuse (within designated area in appropriate containers/stockpiles).	During Construction	Contractor	✓
	• 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.			✓
	<u>Bentonite Slurries</u>			
	• Bentonite slurries should be reused as far as possible.	During Construction	Contractor	N/A
	• Disposal in accordance with Practice Note For Professional Persons ProPECC PN 1/94.			N/A
	<u>Chemical Wastes</u>			
	• Storage within locked, covered and bunded area.	During Construction	Contractor	✓
	• The storage area shall not be located adjacent to sensitive receivers e.g. drains.			✓
	• Minimise waste production and recycle oils/solvents where possible.			✓

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

Impact	Environmental Protection Measures	Timing	Responsibility	Implementation Status [#]
	• 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. <u>Municipal Wastes</u> • 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	<u>Accurate Delineation of Works Area</u> • 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.	During Construction	Contractor	✓ ✓
	<u>Dust generation</u> 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: • vehicle washing facilities to be provided at every discernible or designated vehicle exit point;	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 [#]
	• 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. <u>Surface Run-off</u> In general, mitigation measures shall be in accordance with ProPECC PN1/94 on 'Construction Site Drainage'. Key measures include: • 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 ✓ N/A ✓
Ecology during Operation	• 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	<u>Preservation of Existing Vegetation</u> • 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 [#]
	<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.	During Construction	Contractor	✓
	<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.	During Construction	Contractor	✓
	<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.	During Construction	Contractor	N/A
	<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.	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 M
Investigation Report for Exceedances

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

Investigation Report of Environmental Quality Exceedance(s)
Ref. No.: W160219_DO

Date	19 February 2016
Time	02:26 PM
Monitoring Location	I5 - downstream of Ma Wat River at Yuen Leng
Parameter	Dissolved Oxygen
Action / Limit Levels	Action Level: 6.7 mg/L Limit Level: 4 mg/L or 40% saturation at 15 degree Celsius
Measured Level	5.4mg/L (Action level being exceeded)
Possible reason for the exceedance	According to the Contractor's work programme, the box culvert works originally scheduled from 19 February 2016 were now cancelled and postponed. As such, there were no works being carried out in the proximity of the river channel during the water sampling on 19 February 2016 (refer to attached photos) and the exceedance would unlikely due to the above said works.
Action taken / to be taken	As the non-compliance was non-project related, no further investigation and remedial measure(s) would be required. The impact monitoring for water quality has been postponed until the box culvert works re-commence. Nonetheless, the Contractor has been reminded to closely monitor the mitigation measures and ensure no site-runoff into the river channel.
Remarks	-

Site photos at I5 during water sampling (Date: 19 February 2016)

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

Investigation Report of Environmental Quality Exceedance(s)
Ref. No.: W160222_DO

Date	22 February 2016
Time	11:47 AM
Monitoring Location	I5 - downstream of Ma Wat River at Yuen Leng
Parameter	Dissolved Oxygen
Action / Limit Levels	Action Level: 6.7 mg/L Limit Level: 4 mg/L or 40% saturation at 15 degree Celsius
Measured Level	4.3mg/L (Action level being exceeded)
Possible reason for the exceedance	According to the Contractor's work programme, the box culvert works originally scheduled from 19 February 2016 were now cancelled and postponed. As such, there were no works being carried out in the proximity of the river channel during the water sampling on 22 February 2016 (refer to attached photos) and the exceedance would unlikely due to the above said works.
Action taken / to be taken	As the non-compliance was non-project related, no further investigation and remedial measure(s) would be required. The impact monitoring for water quality has been postponed until the box culvert works re-commence. Nonetheless, the Contractor has been reminded to closely monitor the mitigation measures and ensure no site-runoff into the river channel.
Remarks	-

Site photos at I5 during water sampling (Date: 22 February 2016)

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

Investigation Report of Environmental Quality Exceedance(s)
Ref. No.: W160222_Tby

Date	22 February 2016
Time	11:47 AM
Monitoring Location	I5 - downstream of Ma Wat River at Yuen Leng
Parameter	Turbidity
Action / Limit Levels	Action level: 81.9 NTU or 120% of upstream control station's Tby (4.8NTU) of the same day (i.e. 5.8NTU) Limit Level: 91.9 NTU or 130% of upstream control station's Tby (4.8NTU) of the same day (i.e. 6.2NTU)
Measured Level	17.7NTU (Limit level being exceeded - 130% of C3b)
Possible reason for the exceedance	According to the Contractor's work programme, the box culvert works originally scheduled from 19 February 2016 were now cancelled and postponed. As such, there were no works being carried out in the proximity of the river channel during the water sampling on 22 February 2016 (refer to attached photos) and the exceedance would unlikely due to the above said works. For comparison, during baseline monitoring the turbidity level can be as high as 86.9NTU and 116NTU at C3a and at C3b respectively. The recorded turbidity level at I5 has not exceeded the maximum recorded level of 92.3NTU during baseline monitoring.
Action taken / to be taken	As the non-compliance was non-project related, no further investigation and remedial measure(s) would be required. The impact monitoring for water quality has been postponed until the box culvert works re-commence. Nonetheless, the Contractor has been reminded to closely monitor the mitigation measures and ensure no site-runoff into the river channel.
Remarks	-

Site photos at I5 during water sampling (Date: 22 February 2016)

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	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. 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. The complaint is considered an invalid complaint under this Project.	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)	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. 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. 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.	Completed

Complaint Log No.	Date of Complaint	Received From and Received By	Location of Complainant	Nature of Complaint	Outcome	Status
					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 The complaint is considered unlikely due to the construction works of this project.	

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