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

Monthly EM&A Report

July 2017

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

(July 2017)

Certified by: Fredrick Leong

Position: Environmental Team Leader

Date: 10 August 2017

MOTT MACDONALD

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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/E Condition 3.3 – Submission of Monthly EM&A Report – July 2017 for the portion of Stage 2 works entrusted to Civil Engineering and Development Department (CEDD) under Contract No. CV/2012/09

09 August 2017
By Fax (2805 5028) & Hand

We refer to the revised Monthly EM&A Report – July 2017 received on 09 August 2017 submitted by the Environmental Team via email. Pursuant to Environmental Permit Condition 3.3, I hereby verify the Monthly EM&A Report – July 2017 (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	By Fax (2714 5198)
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Date	Revision	Prepared By	Checked By	Approved By
10 August 2017	0	WK CHIU Vanessa HO	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 July 2017. As informed by the Contractor, the major activities in the reporting month were:

- Boundary wall construction for DSD pumping station
- Cable Detection and Trial Trenches
- Remaining Works on New Kiu Tau Footbridge
- Noise Barrier Construction
- Pier Table Construction
- Roadworks
- Viaduct Segment Erection
- Water Main Laying Works
- Gabion Wall Construction
- Installation of Noise Barrier Steel Column and Panel
- Pre-drilling for Noise Barrier
- Pit Construction for Heading Works
- Parapet Installation
- Planter Wall Construction
- Drainage Work
- Mini-pile Installation
- Construction of Profile Barrier on Viaduct deck
- Stressing of External Tendon
- Construction of Abutment Wall.

Breach of Action and Limit Levels for Air Quality

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

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

Breach of Action and Limit Levels for Noise

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

Breach of Action and Limit Levels for Water Quality

The box culvert works have been completed in the end of March 2017. The 4-week post construction water quality monitoring has been completed in the end of April 2017 in the same manner as the impact monitoring.

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:

- Boundary Wall for Pumping Station
- Installation of Noise Barrier Steel and Panel
- Remaining Works on New Kiu Tau Footbridge
- Mini-pile Installation Works
- Noise Barrier Construction
- Pipe Jacking Works for DN2200 Water Mains
- Roadworks
- Viaduct Segment Erection
- Water Main Laying Works
- Parapet Installation
- Planter Wall Construction
- Construction of Profile barrier on Viaduct Deck
- Drainage Work
- Stressing of External Tendon
- Construction of abutment wall.

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/E 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 on 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 July 2017.

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 previous VEP (EP-324/2008/D) was granted on 27 August 2015. The current VEP (EP-324/2008/E) was granted on 26 January 2017.

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:

- Boundary wall construction for DSD pumping station
- Cable Detection and Trial Trenches
- Remaining Works on New Kiu Tau Footbridge
- Noise Barrier Construction
- Pier Table Construction
- Roadworks
- Viaduct Segment Erection
- Water Main Laying Works
- Gabion Wall Construction
- Installation of Noise Barrier Steel Column and Panel
- Pre-drilling for Noise Barrier
- Pit Construction for Heading Works
- Parapet Installation
- Planter Wall Construction
- Drainage Work
- Mini-pile Installation
- Construction of Profile Barrier on Viaduct deck
- Stressing of External Tendon
- Construction of Abutment Wall.

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	Ms. Tiffany Tsang	2638 6150	
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/E	26 Jan 2017	--	Granted on 26 Jan 2017	
Construction Noise Permit				
GW-RN0021-17	19 Jan 2017	8 Jul 2017	Valid	For traffic road works at a section of Fanling Highway both bounds
GW-RN0029-17	19 Jan 2017	8 Jul 2017	Valid	For loading and unloading along Fanling Highway both bounds
GW-RN0040-17	25 Feb 2017	24 Aug 2017	Valid	For general works at the northward of site office
GW-RN0066-17	3 Feb 2017	15 Jul 2017	Valid	For installation of steel truss of Kiu Tau Footbridge at Fanling Highway Northbound
GW-RN0069-17	15 Feb 2017	14 Aug 2017	Valid	For tractor with trailer entering the Construction Site next to MTRC's East Rail Line at Tong Hang
GW-RN0070-17	3 Feb 2017	15 Jul 2017	Valid	For installation of steel truss of Kiu Tau Footbridge at Fanling Highway Southbound
GW-RN0071-17	16 Feb 2017	15 Aug 2017	Valid	For fuel delivery and tractor with trailer entering the construction site next to MTRC's East Rail Line at Tong Hang Tung

Permit / License No. / Notification / Reference No.	Valid Period		Status	Remarks
	From	To		
GW-RN0084-17	8 Feb 2017	15 Jul 2017	Valid	For concreting slab of Kiu Tau Footbridge at Fanling Highway Both Bound
GW-RN0096-17	19 Feb 2017	10 Jul 2017	Valid	For road resurfacing of Fanling Highway Southbound
GW-RN0111-17	26 Feb 2017	30 Jul 2017	Valid	For concreting the Bridge Deck of Kiu Tau Footbridge at Fanling Highway Both Bound
GW-RN0115-17	2 Mar 2017	26 Aug 2017	Valid	For concreting of stitch construction between AD12 and pier AB11R
GW-RN0161-17	1 Apr 2017	30 Sep 2017	Valid	For segment erection across Fanling Highway
GW-RN0168-17	2 Apr 2017	25 Sep 2017	Cancelled on 13 Jul 2017	For lane shifting work at Northbound of Fanling Highway
GW-RN0185-17	1 Apr 2017	30 Sep 2017	Valid	For segment erection across Fanling Highway and MTRC's East Rail Line
GW-RN0204-17	30 Mar 2017	29 Sep 2017	Valid	For operating Water Pumping in Jacking Pit on Tai Wo Service Road West
GW-RN0213-07	6 Apr 2017	9 Sep 2017	Valid	For segment erection and rectification of the missing road markings at Fanling Highway both bounds
GW-RN0219-17	31 Mar 2017	30 Sep 2017	Valid	For segment erection crossing over MTRC's Rail Track of Pier AB11 and AD12 (1900 – 2300)
GW-RN0235-17	11 Apr 2017	7 Oct 2017	Valid	For installation of parapet at AC5 to AC6

Permit / License No. / Notification / Reference No.	Valid Period		Status	Remarks
	From	To		
GW-RN0236-17	10 Apr 2017	16 Sep 2017	Valid	For demolition of Kiu Tau Footbridge at Fanling Highway both bounds at Tai Wo Service Road East
GW-RN0302-17	30 Apr 2017	29 Oct 2017	Valid	For segment erection and traverser stitch joints crossing above MTRC's East Rail Line
GW-RN0303-17	11 May 2017	10 Oct 2017	Valid	For segment erection crossing over MTRC's Rail Track of Pier AB11 and AD12 (0155-0500)
GW-RN0305-17	30 Apr 2017	30 Jul 2017	Valid	For loading and unloading along Fanling Highway both bounds on general holiday daytime
GW-RN0342-17	28 May 2017	20 Nov 2017	Valid	For road marking works in Fanling Highway bothbounds
GW-RN0376-17	22 Jun 2017	21 Dec 2017	Valid	For dismantling of catch fence within MTR Protection Zone at Tong Hang Tung Chuen
GW-RN0378-17	22 Jun 2017	21 Dec 2017	Valid	For general works at the southward of site office
GW-RN0384-17	12 Jun 2017	9 Sep 2017	Valid	For segment stitches concreting and installation of parapet crossing over Fanling Highway
GW-RN0417-17	20 Jun 2017	16 Dec 2017	Valid	For road diversion and maintenance of Fanling Highway Bothbound
GW-RN0458-17	16 Jul 2017	18 Dec 2017	Valie	For lane shifting work of Fanling Highway bothbound

Permit / License No. / Notification / Reference No.	Valid Period		Status	Remarks
	From	To		
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) *	95.6	78.5 – 120.0	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) *	31.1	14.1 – 51.7	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)	66.8	66.0 – 68.0	When one documented valid complaint is received	75

Remark:
(1) Station / NSR ID as identified in Updated EM&A Manual / EIA Report for Widening of Tolo Highway/Fanling Highway between Island House Interchange and Fanling
(2) +3dB(A) façade correction included

5.7.2 Major noise sources during the noise monitoring included construction activities of the Project and that along Tai Wo Service Road East, and nearby traffic noise.

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

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

6 WATER MONITORING

6.1.1 The box culvert works had been completed in March 2017. The 4-week post-construction water quality monitoring at I5 was completed in 28 April 2017.

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 1,917m^3 of excavated material has been generated. 1,617m^3 of inert C&D materials was disposed of at public fill to Tuen Mun Area 38. 120m^3 inert C&D materials were reused on site. 65m^3 of general refuse was disposed of at North East New Territories (NENT) Landfill. No plastic was collected by recycling contractor in the reporting month. No paper/cardboard packaging was collected by recycling contractor in the reporting month. No metal was 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 6, 13, 19 and 27 July 2017. The one held on 27 July 2017 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	N/A	N/A	N/A
Air Quality	N/A	N/A	N/A
Noise	N/A	N/A	N/A
Water Quality	19 Jul 2017	The Contractor was reminded to implement sufficient mitigation measures (e.g. sand bags) along the site boundary near Tai Wo Service Road West site entrance to avoid leakage of site runoff.	Sand bags has been provided along the site boundary near Tai Wo Service Road West site entrance to avoid leakage of site runoff during site inspection on 27 Jul 2017.
Waste / Chemical Managem-ent	19 Jul 2017	General refuse was observed accumulated on ground at works area near Tai Wo Service Road West site entrance. The Contractor should provide sufficient waste skip for workers and remove the refuse asap.	The refuse has been cleared at works area near Tai Wo Service Road West site entrance on 21 July 2017 and has kept clean during site inspection on 27 Jul 2017.
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 June 2017	12 July 2017

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 The 4-week post-construction water quality monitoring at I5 was completed in April 2017.

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:

- Boundary Wall for Pumping Station
- Installation of Noise Barrier Steel and Panel
- Remaining Works on New Kiu Tau Footbridge
- Mini-pile Installation Works
- Noise Barrier Construction
- Pipe Jacking Works for DN2200 Water Mains
- Roadworks
- Viaduct Segment Erection
- Water Main Laying Works
- Parapet Installation
- Planter Wall Construction
- Construction of Profile barrier on Viaduct Deck
- Drainage Work
- Stressing of External Tendon
- Construction of abutment wall.

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, noise and water quality 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 The 4-week post-construction water quality monitoring at I5 was completed in April 2017.

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.

13.2 Recommendations

13.2.1 According to the environmental site inspections performed in the reporting month, the following recommendation was provided:

Water Quality

- Implement sufficient mitigation measures to avoid runoff leakage from road works areas and divert site effluent to wastewater treatment facilities

Waste / Chemical Management

- Refuse shall be cleared frequently to provide sufficient waste skip for workers and keep site work area clean

Figure

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

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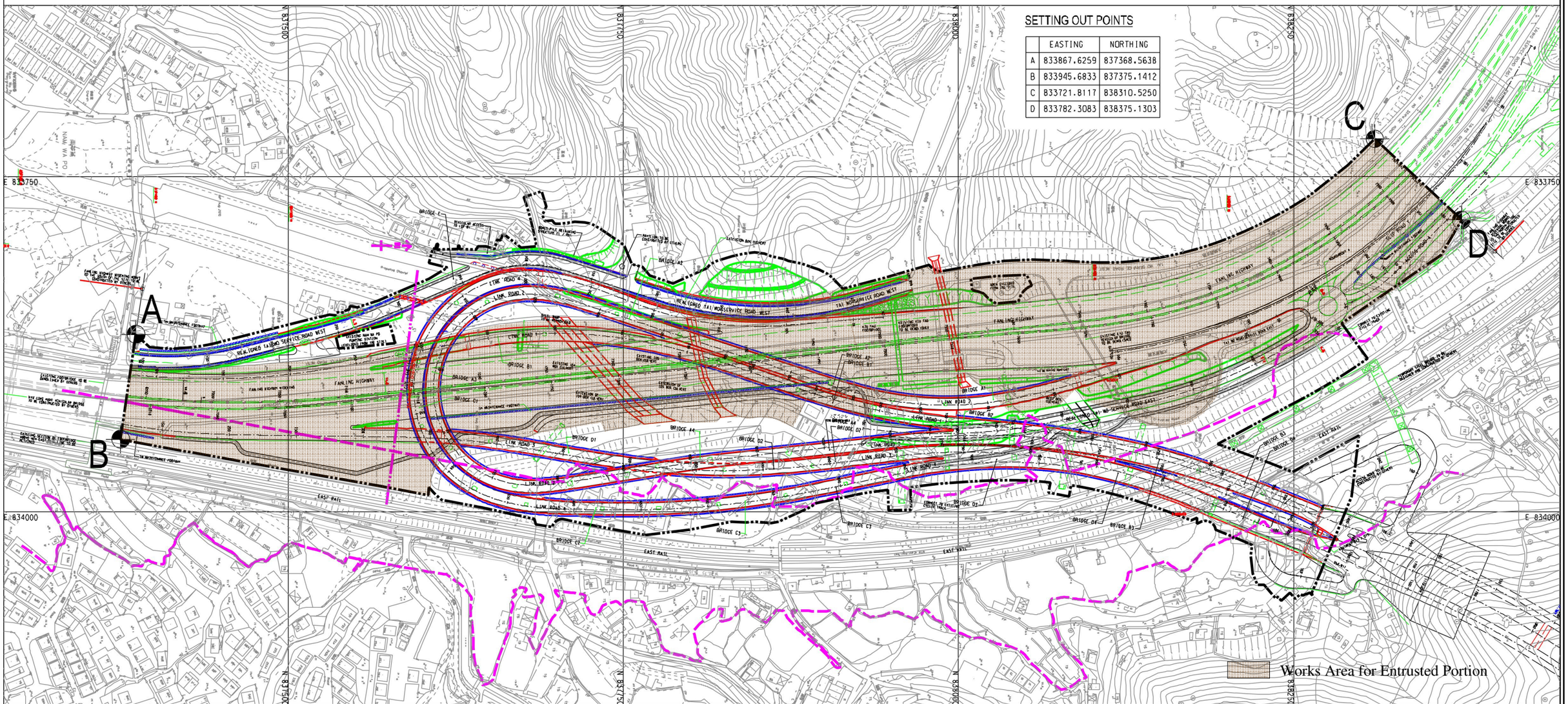
SETTING OUT POINTS

	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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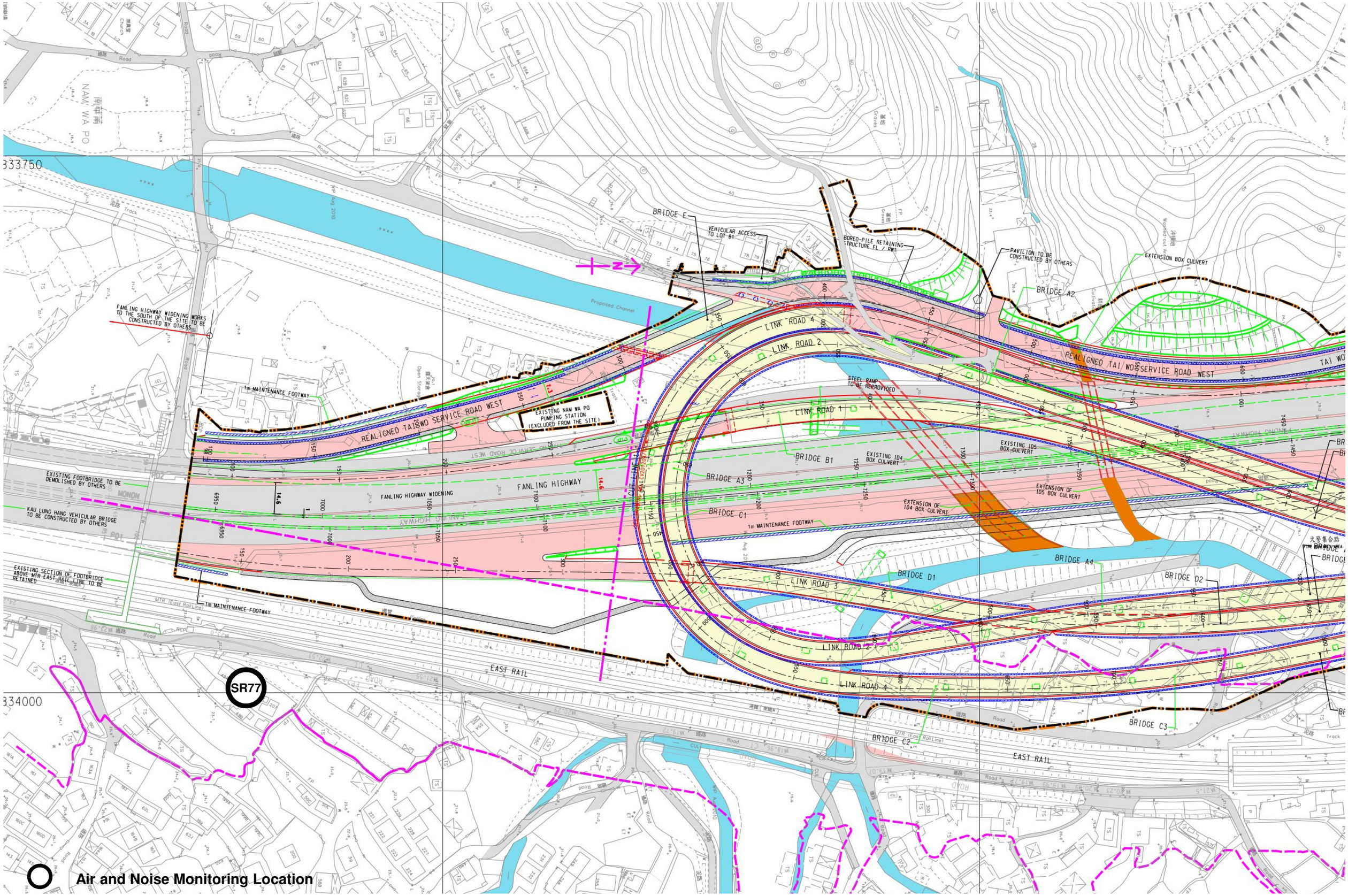
MEINHARDT

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

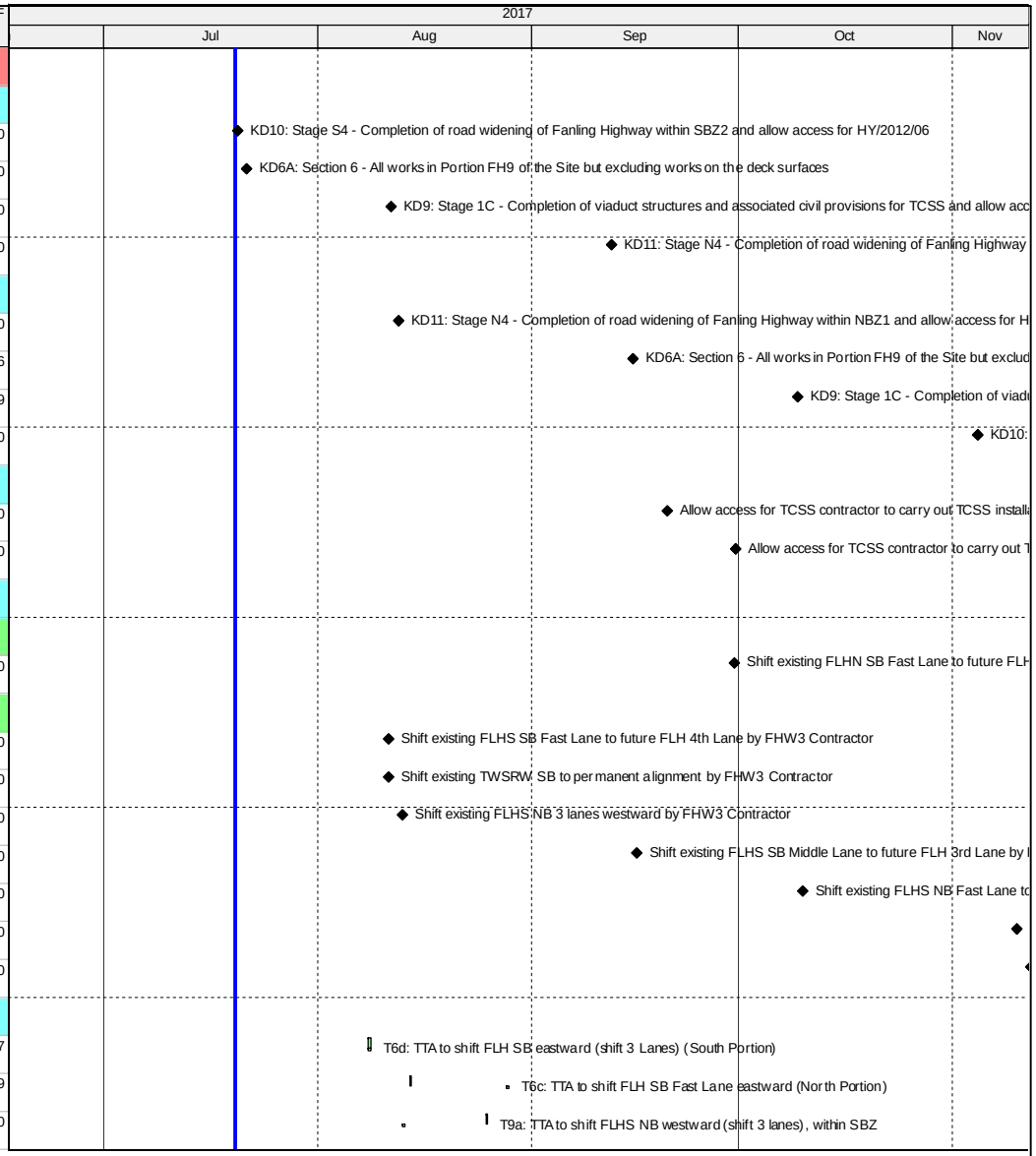
Figure 1: Demarcation of Entrusted Portion of Widening of Tolo Highway / Fanling Highway between Island House Interchange and Fanling – Stage 2



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**

Appendix A
Construction Programme

Activity ID	Activity Name	OD	RD	Start	Finish	TF
3-Month Rolling Programme 2017-07-21 (Based on UMP05E)						
Key Dates (Contractual)						
KD-1300	KD10: Stage S4 - Completion of road widening of Fanling Highway within SBZ2 and allow access for HY/2012/06	0	0		20-Jul-17*	-230
KD-0900	KD6A: Section 6 - All works in Portion FH9 of the Site but excluding works on the deck surfaces	0	0		21-Jul-17*	0
KD-1200	KD9: Stage 1C - Completion of viaduct structures and associated civil provisions for TCSS and allow access for other	0	0		11-Aug-17*	0
KD-1400	KD11: Stage N4 - Completion of road widening of Fanling Highway within NBZ1 and allow access for HY/2012/06	0	0		12-Sep-17*	0
Key Dates (Forecast)						
KD-1405	KD11: Stage N4 - Completion of road widening of Fanling Highway within NBZ1 and allow access for HY/2012/06	0	0		12-Aug-17*	0
KD-0905	KD6A: Section 6 - All works in Portion FH9 of the Site but excluding works on the deck surfaces	0	0		15-Sep-17	-56
KD-1205	KD9: Stage 1C - Completion of viaduct structures and associated civil provisions for TCSS and allow access for other	0	0		09-Oct-17	-59
KD-1305	KD10: Stage S4 - Completion of road widening of Fanling Highway within SBZ2 and allow access for HY/2012/06	0	0		04-Nov-17*	0
Tentative Handover Schedule to TCSS contractor						
HS-C	Allow access for TCSS contractor to carry out TCSS installation works on Bridge C	0	0		20-Sep-17*	0
HS-D1	Allow access for TCSS contractor to carry out TCSS installation works on Bridge D (from AD1 to AD10)	0	0		30-Sep-17*	0
Dependent Milestones from Other Contracts						
Related to North Buffer Zone						
MS-NBZ140	Shift existing FLHN SB Fast Lane to future FLH 4th Lane by FHW3 Contractor	0	0	30-Sep-17*		0
Related to South Buffer Zone						
MS-SBZ120	Shift existing FLHS SB Fast Lane to future FLH 4th Lane by FHW3 Contractor	0	0	11-Aug-17*		0
MS-SBZ220	Shift existing TWSRW SB to permanent alignment by FHW3 Contractor	0	0	11-Aug-17*		0
MS-SBZ150	Shift existing FLHS NB 3 lanes westward by FHW3 Contractor	0	0	13-Aug-17*		0
MS-SBZ130	Shift existing FLHS SB Middle Lane to future FLH 3rd Lane by FHW3 Contractor	0	0	16-Sep-17*		0
MS-SBZ160	Shift existing FLHS NB Fast Lane to future FLH 4th Lane by FHW3 Contractor	0	0	10-Oct-17*		0
MS-SBZ170	Shift existing FLHS NB Middle Lane to future FLH 3rd Lane by FHW3 Contractor	0	0	10-Nov-17*		0
MS-SBZ140	Shift existing FLHS SB Slow Lane to future FLH 2nd Lane by FHW3 Contractor	0	0	12-Nov-17*		0
Major Milestones and Events						
MS-1060d	T6d: TTA to shift FLH SB eastward (shift 3 Lanes) (South Portion)	1	1	08-Aug-17	08-Aug-17	77
MS-1060c	T6c: TTA to shift FLH SB Fast Lane eastward (North Portion)	1	1	14-Aug-17	14-Aug-17	39
MS-1090a	T9a: TTA to shift FLHS NB westward (shift 3 lanes), within SBZ	1	1	25-Aug-17	25-Aug-17	0



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

CEDD Contract No. CV/2012/09

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

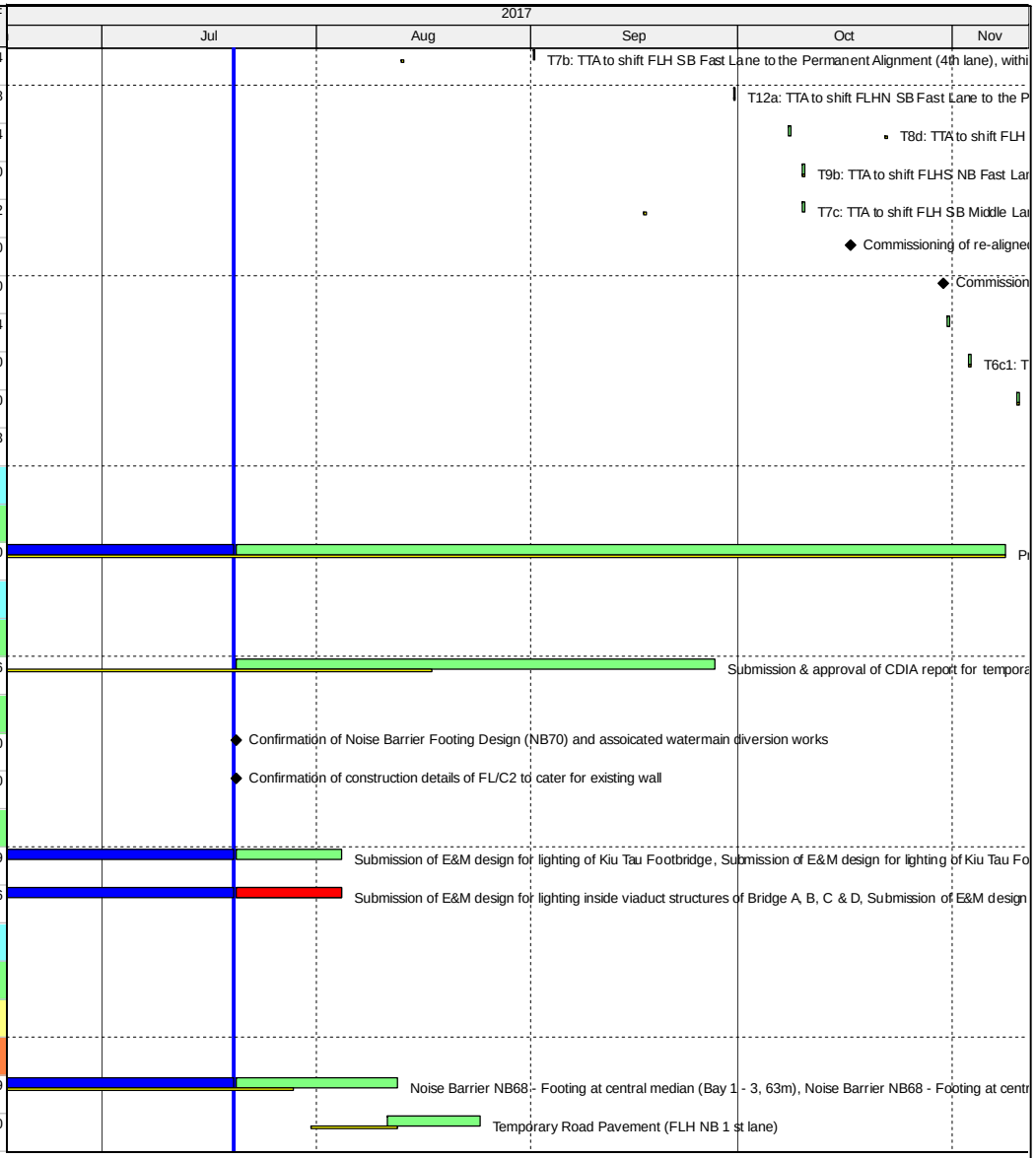
3-Month Rolling Programme

Programme ID: 3MPR048 (Data Date: 20-Jul-17)_____Page 1 of 13

3-Month Rolling Programme updated to 2017-07-21

Date	Revision	Checked	Approved
21-Jul-17	Rev.1	SL	

Activity ID	Activity Name	OD	RD	Start	Finish	TF
MS-1070b	T7b: TTA to shift FLH SB Fast Lane to the Permanent Alignment (4th lane), within SBZ	1	1	01-Sep-17	01-Sep-17	44
MS-1120a	T12a: TTA to shift FLHN SB Fast Lane to the Permanent Alignment (4th lane), witin NBZ	1	1	30-Sep-17	30-Sep-17	38
MS-1180d	T8d: TTA to shift FLH NB Fast Lane to the Permanent Alignment (4th lane) (North Portion)	1	1	08-Oct-17	08-Oct-17	14
MS-1090b	T9b: TTA to shift FLHS NB Fast Lane to the Permanent Alignment (4th lane), within SBZ	1	1	10-Oct-17	10-Oct-17	0
MS-1070c	T7c: TTA to shift FLH SB Middle Lane to the Permanent Alignment (3rd lane), within SBZ	1	1	10-Oct-17	10-Oct-17	42
MS-0320	Commissioning of re-aligned TWSRE	0	0	17-Oct-17		0
MS-0220	Commissioning of the diverted twin DN1400 Dong Jiang Watermains (Stage 2)	0	0		30-Oct-17	0
MS-1180e	T8e: TTA to shift FLH NB Middle Lane to the Permanent Alignment (3rd lane) (North Portion)	1	1	31-Oct-17	31-Oct-17	14
MS-1060c1	T6c1: TTA to shift FLH SB eastward (shift 3 lanes at Zone 5)	1	1	03-Nov-17	03-Nov-17	0
MS-1090c	T9c: TTA to shift FLHS NB Middle Lane to the Permanent Alignment (3rd lane), within SBZ	1	1	10-Nov-17	10-Nov-17	0
MS-1070d	T7d: TTA to shift FLH SB Slow Lane to the Permanent Alignment (2nd lane), within SBZ	1	1	16-Nov-17	16-Nov-17	43
Major Procurement & Delivery						
Lift for New Kiu Tau Footbridge						
MM-4000	Procurement, Fabrication and delivery of Lift	164	112	29-Mar-17 A	08-Nov-17	0
Design and Submissions						
Statutory Approval						
PRE-1060	Submission & approval of CDIA report for temporary works on nullah for construction of new retaining wall 3SW-D/FR32	60	60	20-Jul-17*	27-Sep-17	26
Design Confirmation						
PRE-1590	Confirmation of Noise Barrier Footing Design (NB70) and assoicated watermain diversion works	0	0		20-Jul-17*	20
PRE-1600	Confirmation of construction details of FL/C2 to cater for existing wall	0	0		20-Jul-17*	30
Method Statement and Design (Major) Approved by AECOM						
PRE-2030	Submission of E&M design for lighting of Kiu Tau Footbridge	60	14	05-Sep-16 A	04-Aug-17	39
PRE-2040	Submission of E&M design for lighting inside viaduct structures of Bridge A, B, C & D	60	14	01-Apr-16 A	04-Aug-17	-6
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-1220b	Noise Barrier NB68 - Footing at central median (Bay 1 - 3, 63m)	68	21	05-Dec-16 A	12-Aug-17	39
FHW-1310	Temporary Road Pavement (FLH NB 1 st lane)	12	12	11-Aug-17	24-Aug-17	0



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CEDD Contract No. CV/2012/09

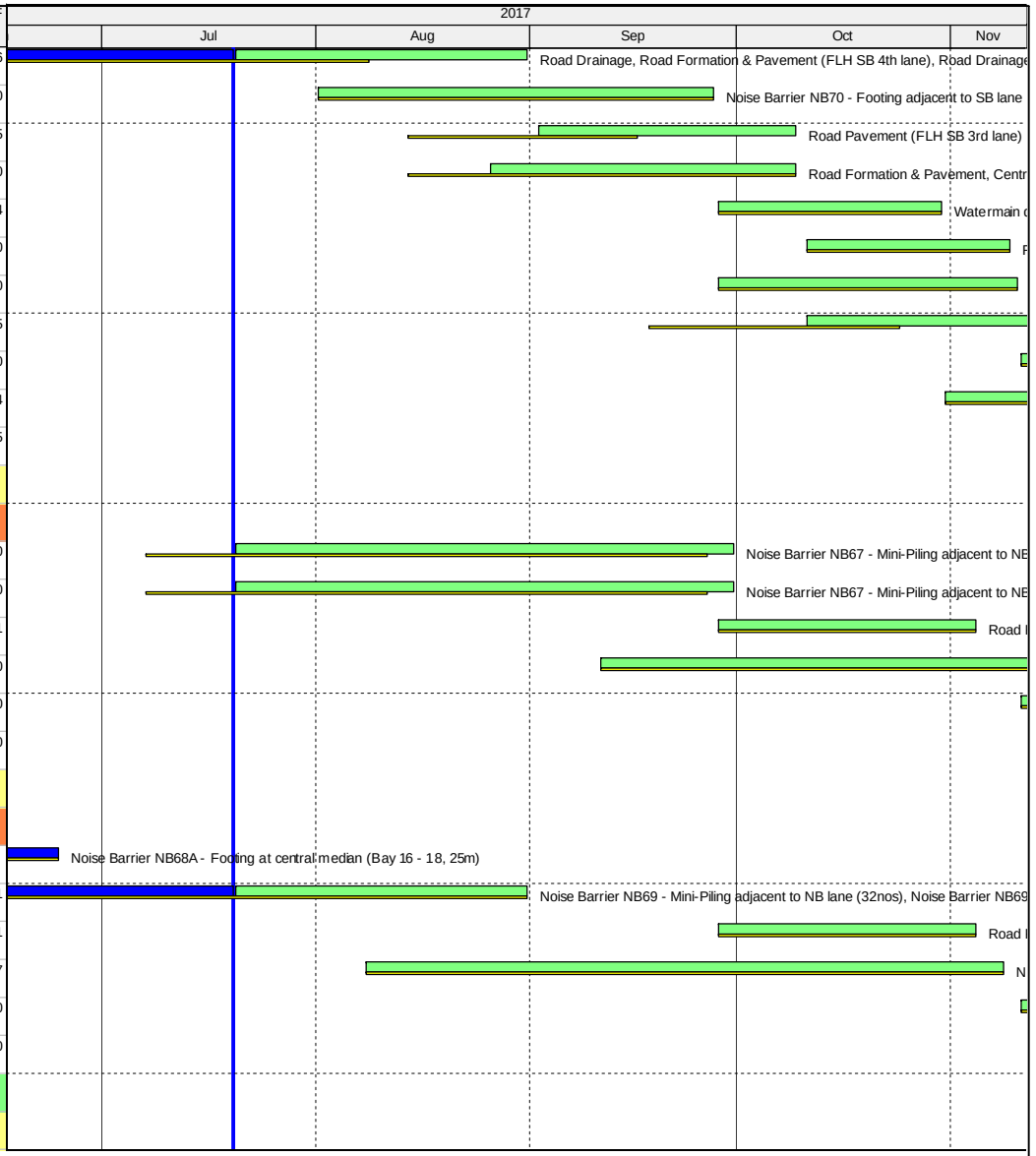
Liantang / Heung Yuen Wai BCP - Site Formation & Infrastructure Works, Contract 3

3-Month Rolling Programme

3-Month Rolling Programme updated to 2017-07-21

Date	Revision	Checked	Approved
21-Jul-17	Rev.1	SL	

Activity ID	Activity Name	OD	RD	Start	Finish	TF
FHW-1160	Road Drainage, Road Formation & Pavement (FLH SB 4th lane)	90	37	21-Apr-17 A	31-Aug-17	36
FHW-1140b	Noise Barrier NB70 - Footing adjacent to SB lane (30m)	50	50	01-Aug-17*	27-Sep-17	10
FHW-1170	Road Pavement (FLH SB 3rd lane) by re-surfacing	30	30	02-Sep-17	09-Oct-17	35
FHW-1320	Road Formation & Pavement, Central Barrier (FLH NB 4th lane)	36	36	26-Aug-17	09-Oct-17	0
FHW-1140a	Watermain diversion for construction of NB70	25	25	28-Sep-17	30-Oct-17	34
FHW-1330	Road Pavement (FLH NB 3rd lane) by re-surfacing	25	25	11-Oct-17	09-Nov-17	0
FHW-1110B	Noise Barrier NB6 and NB7 - Remaining Stem Wall adjacent to SB lane (28m)	35	35	28-Sep-17	10-Nov-17	10
FHW-1180	Road Pavement (FLH SB 2nd lane) by re-surfacing	30	30	11-Oct-17	15-Nov-17	35
FHW-1340	Road Pavement (FLH NB 2nd lane) by re-surfacing	25	25	11-Nov-17	09-Dec-17	0
FHW-1140c	Noise Barrier NB70 - Extension Footing adjacent to SB lane	40	40	31-Oct-17	15-Dec-17	34
FHW-1190	Road Pavement (FLH SB1st lane) by re-surfacing	30	30	17-Nov-17	21-Dec-17	35
Fanling Highway Zone 2 between CH7130 and CH7290						
At-Grade Roadworks (160m)						
FHW-2330B	Noise Barrier NB67 - Mini-Piling adjacent to NB lane (Cap 33, 34 & L: 32 nos)	63	63	20-Jul-17	30-Sep-17	0
FHW-2330A	Noise Barrier NB67 - Mini-Piling adjacent to NB lane within WSD Restriction Zone (Type ID4-1A: 36 nos)	63	63	20-Jul-17	30-Sep-17	0
FHW-2240	Road Pavement (Middle Part: FLH SB 4th lanes)	30	30	28-Sep-17	04-Nov-17	21
FHW-2340	Noise Barrier NB67 - Footing adjacent to NB lane (84m)	85	85	11-Sep-17	21-Dec-17	0
FHW-200	Footpath & DSD Access Track adjacent to SB lane	60	60	11-Nov-17	23-Jan-18	10
FHW-2350	Road Drainage, Road Formation & Pavement (FLH NB 1st lane & hard shoulder)	65	65	17-Nov-17	03-Feb-18	0
Fanling Highway Zone 3 between CH7290 and CH7380						
At-Grade Roadworks (130m)						
FHW-3220C	Noise Barrier NB68A - Footing at central median (Bay 16 - 18, 25m)	44	0	04-May-17 A	24-Jun-17 A	
FHW-3330b	Noise Barrier NB69 - Mini-Piling adjacent to NB lane (32nos)	69	37	12-Jun-17 A	31-Aug-17	11
FHW-3240	Road Pavement (Middle Part: FLH SB 4th lanes)	30	30	28-Sep-17	04-Nov-17	21
FHW-3340	Noise Barrier NB69 - Footing adjacent to NB lane (108m)	77	77	08-Aug-17	08-Nov-17	37
FHW-300	Footpath, DSD Access Track adjacent to SB lane	60	60	11-Nov-17	23-Jan-18	10
FHW-3350	Road Drainage, Road Formation & Pavement (FLH NB 1st lane & hard shoulder)	65	65	17-Nov-17	03-Feb-18	0
Fanling Highway North Portion between CH7470 and CH7925						
Fanling Highway Zone 4 between CH7380 and CH7470						



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CEDD Contract No. CV/2012/09

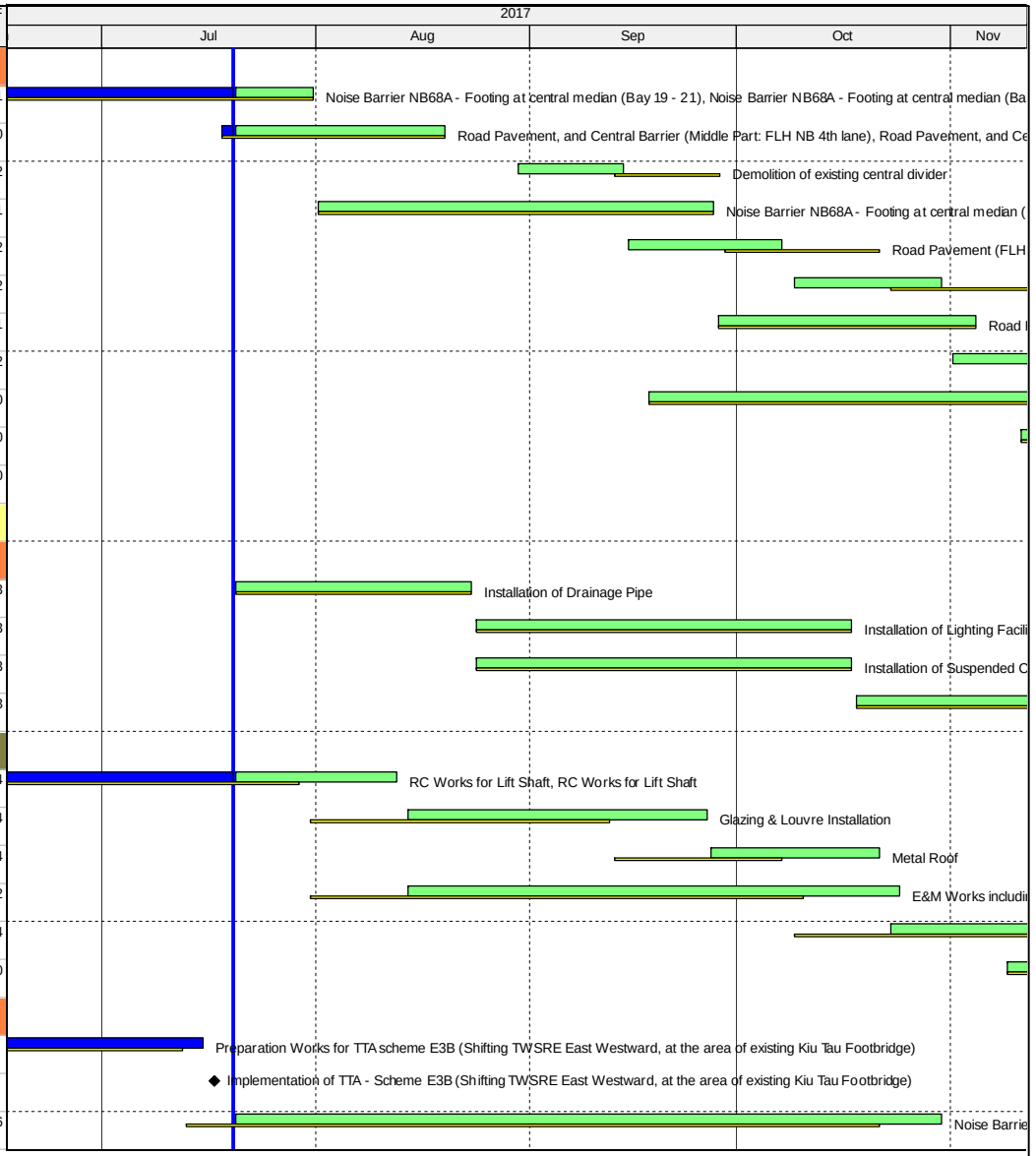
Liantang / Heung Yuen Wai BCP - Site Formation & Infrastructure Works, Contract 3

3-Month Rolling Programme

3-Month Rolling Programme updated to 2017-07-21

Date	Revision	Checked	Approved
21-Jul-17	Rev.1	SL	

Activity ID	Activity Name	OD	RD	Start	Finish	TF
	At-Grade Roadworks (90m)					
FHW-4210a	Noise Barrier NB68A - Footing at central median (Bay 19 - 21)	50	10	02-Jun-17 A	31-Jul-17	21
FHW-4210b	Road Pavement, and Central Barrier (Middle Part: FLH NB 4th lane)	29	27	18-Jul-17 A	19-Aug-17	0
FHW-4240	Demolition of existing central divider	14	14	30-Aug-17	14-Sep-17	12
FHW-4220a	Noise Barrier NB68A - Footing at central median (Bay 22 - 23)	50	50	01-Aug-17	27-Sep-17	21
FHW-4250	Road Pavement (FLH NB 4th lane) by re-surfacing	18	18	15-Sep-17	07-Oct-17	12
FHW-4310	Road Pavement (FLH NB 3rd lane) by re-surfacing	18	18	09-Oct-17	30-Oct-17	12
FHW-4220b	Road Pavement, and Central Barrier (Middle Part: FLH SB 4th lanes)	30	30	28-Sep-17	04-Nov-17	21
FHW-4320	Road Pavement (FLH NB 2nd lane) by re-surfacing	18	18	01-Nov-17	21-Nov-17	12
FHW-4100A	Noise Barrier NB72 - Footing adjacent to SB lane (90m)	60	60	18-Sep-17	29-Nov-17	0
FHW-400	Footpath, DSD Access Track adjacent to SB lane	60	60	11-Nov-17	23-Jan-18	10
FHW-4120A	Road Drainage, Road Formation & Pavement (FLH SB Merging lane)	65	65	17-Nov-17	03-Feb-18	0
	Fanling Highway Zone 5 between CH7470 and CH7600 (Provision of Kiu Tau Footbridge)					
	Kiu Tau Footbridge Reprovision (East)					
FHW-5070b	Installation of Drainage Pipe	30	30	20-Jul-17*	23-Aug-17	23
FHW-5070a	Installation of Lighting Facilities	45	45	24-Aug-17	17-Oct-17	23
FHW-5070d	Installation of Suspended Ceiling	45	45	24-Aug-17	17-Oct-17	23
FHW-5070c	Laying of Floor Tiles	45	45	18-Oct-17	09-Dec-17	23
	Provision of BFA Facilities (Lift)					
FHW-L-1000	RC Works for Lift Shaft	38	21	15-Jun-17 A	12-Aug-17	14
FHW-L-1010	Glazing & Louvre Installation	38	38	14-Aug-17	26-Sep-17	14
FHW-L-1020	Metal Roof	20	20	27-Sep-17	21-Oct-17	14
FHW-L-1050	E&M Works including T&C	60	60	14-Aug-17	24-Oct-17	62
FHW-L-1040	Finishes / Builder's Works	30	30	23-Oct-17	27-Nov-17	34
FHW-L-1030	Lift Installation	50	50	09-Nov-17	09-Jan-18	0
	Works at existing TWSRE					
FHW-5460	Preparation Works for TTA scheme E3B (Shifting TWSRE East Westward, at the area of existing Kiu Tau Footbridge)	43	0	22-May-17 A	15-Jul-17 A	
FHW-5470	Implementation of TTA - Scheme E3B (Shifting TWSRE East Westward, at the area of existing Kiu Tau Footbridge)	0	0	17-Jul-17 A		
FHW-5480	Noise Barrier NB72 & NB73 (Stage 1) - Footing adjacent to SB lane (97m)	85	85	20-Jul-17	30-Oct-17	26



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

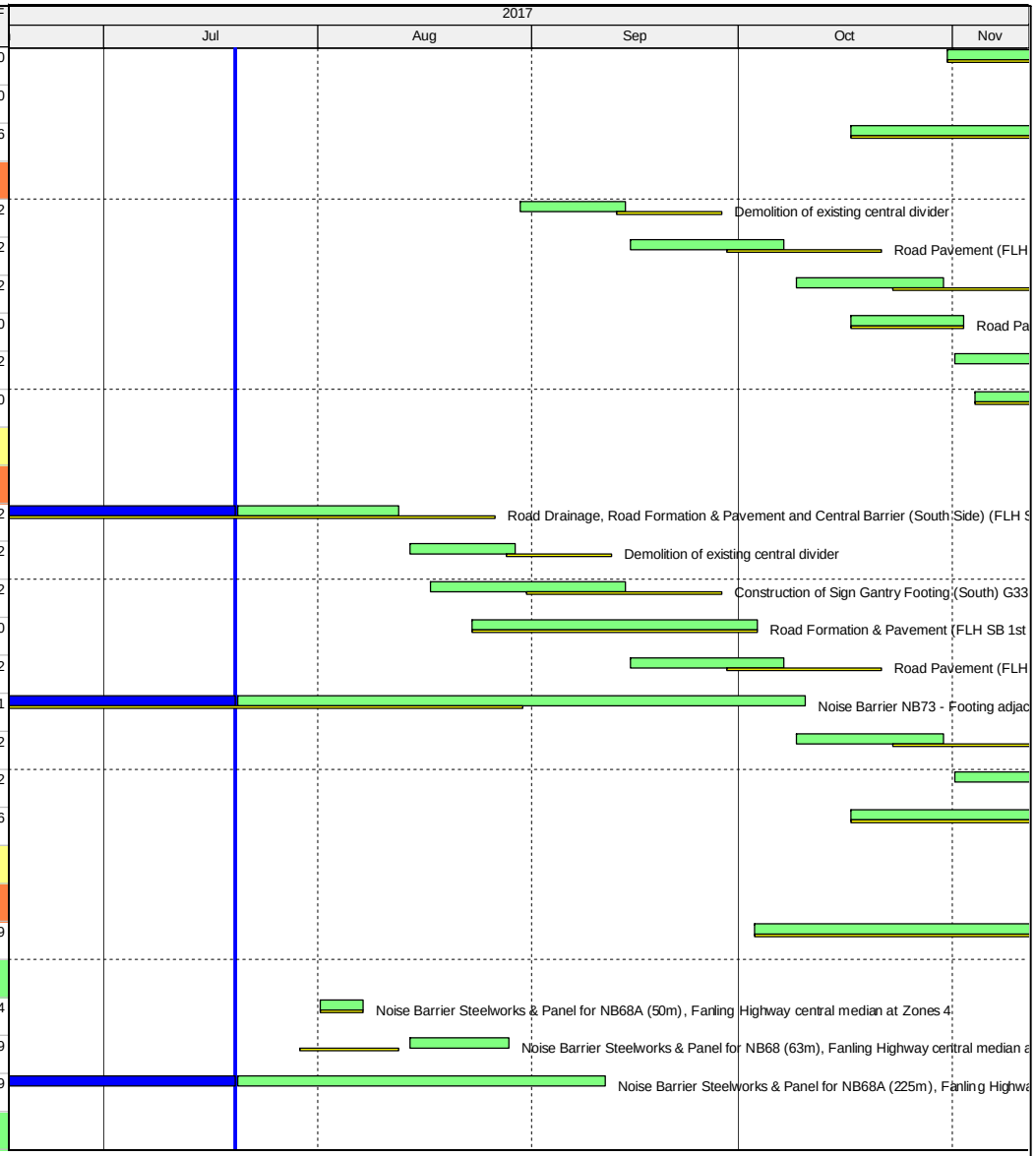
3-Month Rolling Programme

Programme ID: 3MPR048 (Data Date: 20-Jul-17)_____Page 4 of 13

3-Month Rolling Programme updated to 2017-07-21

Date	Revision	Checked	Approved
21-Jul-17	Rev.1	SL	

Activity ID	Activity Name	OD	RD	Start	Finish	TF
FHW-5480A	Grouting Works for the existing DN1400 watermain and Removal of existing watermain	25	25	31-Oct-17	28-Nov-17	0
FHW-5480B	Noise Barrier NB73 - Mini-Piling adjacent to SB lane (CSD: 12 nos)	44	44	15-Nov-17	08-Jan-18	0
FHW-5490	Road Drainage, Road Formation & Pavement (FLH SB Merging lane)	75	75	17-Oct-17	16-Jan-18	16
At-Grade Road Works (130m)						
FHW-5230	Demolition of existing central divider	14	14	30-Aug-17	14-Sep-17	12
FHW-5240	Road Pavement (FLH NB 4th lane) by re-surfacing	18	18	15-Sep-17	07-Oct-17	12
FHW-5310	Road Pavement (FLH NB 3rd lane) by re-surfacing	18	18	09-Oct-17	30-Oct-17	12
FHW-5100	Road Pavement (FLH SB 1st lane) by re-surfacing	14	14	17-Oct-17	02-Nov-17	0
FHW-5320	Road Pavement (FLH NB 2nd lane) by re-surfacing	18	18	01-Nov-17	21-Nov-17	12
FHW-5210	Road Formation & Pavement, Central Barrier (South Side) (FLH SB 4th lane)	22	22	04-Nov-17	29-Nov-17	0
Fanling Highway Zone 6 between CH7600 and CH7660 (Existing Vehicular Bridge)						
At-Grade Roadworks (60m)						
FHW-6210	Road Drainage, Road Formation & Pavement and Central Barrier (South Side) (FLH SB 4th lane)	99	21	24-Apr-17 A	12-Aug-17	12
FHW-6230a	Demolition of existing central divider	14	14	14-Aug-17	29-Aug-17	12
FHW-6230b	Construction of Sign Gantry Footing (South) G33	25	25	17-Aug-17	14-Sep-17	12
FHW-6120	Road Formation & Pavement (FLH SB 1st lanes)	35	35	23-Aug-17	03-Oct-17	10
FHW-6240	Road Pavement (FLH NB 4th lane) by re-surfacing	18	18	15-Sep-17	07-Oct-17	12
FHW-6140	Noise Barrier NB73 - Footing adjacent to SB lane (95m)	75	69	03-Jun-17 A	10-Oct-17	21
FHW-6310	Road Pavement (FLH NB 3rd lane) by re-surfacing	18	18	09-Oct-17	30-Oct-17	12
FHW-6320	Road Pavement (FLH NB 2nd lane) by re-surfacing	18	18	01-Nov-17	21-Nov-17	12
FHW-6150	Road Formation & Pavement (FLH SB Merging lane)	75	75	17-Oct-17	16-Jan-18	16
Fanling Highway Zone 7 between CH7660 and CH7925						
At-Grade Roadworks (265m)						
FHW-7130	Road Pavement (FLH SB 3rd lane) by re-surfacing	40	40	03-Oct-17	20-Nov-17	29
Remaining Works for Noise Barrier along widened Fanling Highway						
FHW-NB-240	Noise Barrier Steelworks & Panel for NB68A (50m), Fanling Highway central median at Zones 4	6	6	01-Aug-17	07-Aug-17	64
FHW-NB-220	Noise Barrier Steelworks & Panel for NB68 (63m), Fanling Highway central median at Zones 1	13	13	14-Aug-17	28-Aug-17	39
FHW-NB-230	Noise Barrier Steelworks & Panel for NB68A (225m), Fanling Highway central median at Zones 2 & 3	12	46	02-Mar-17 A	11-Sep-17	119
Erection of Sign Gantry						



俊和建築工程有限公司
CHUN WO CONSTRUCTION & ENGINEERING CO., LTD.

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

3-Month Rolling Programme

3-Month Rolling Programme updated to 2017-07-21

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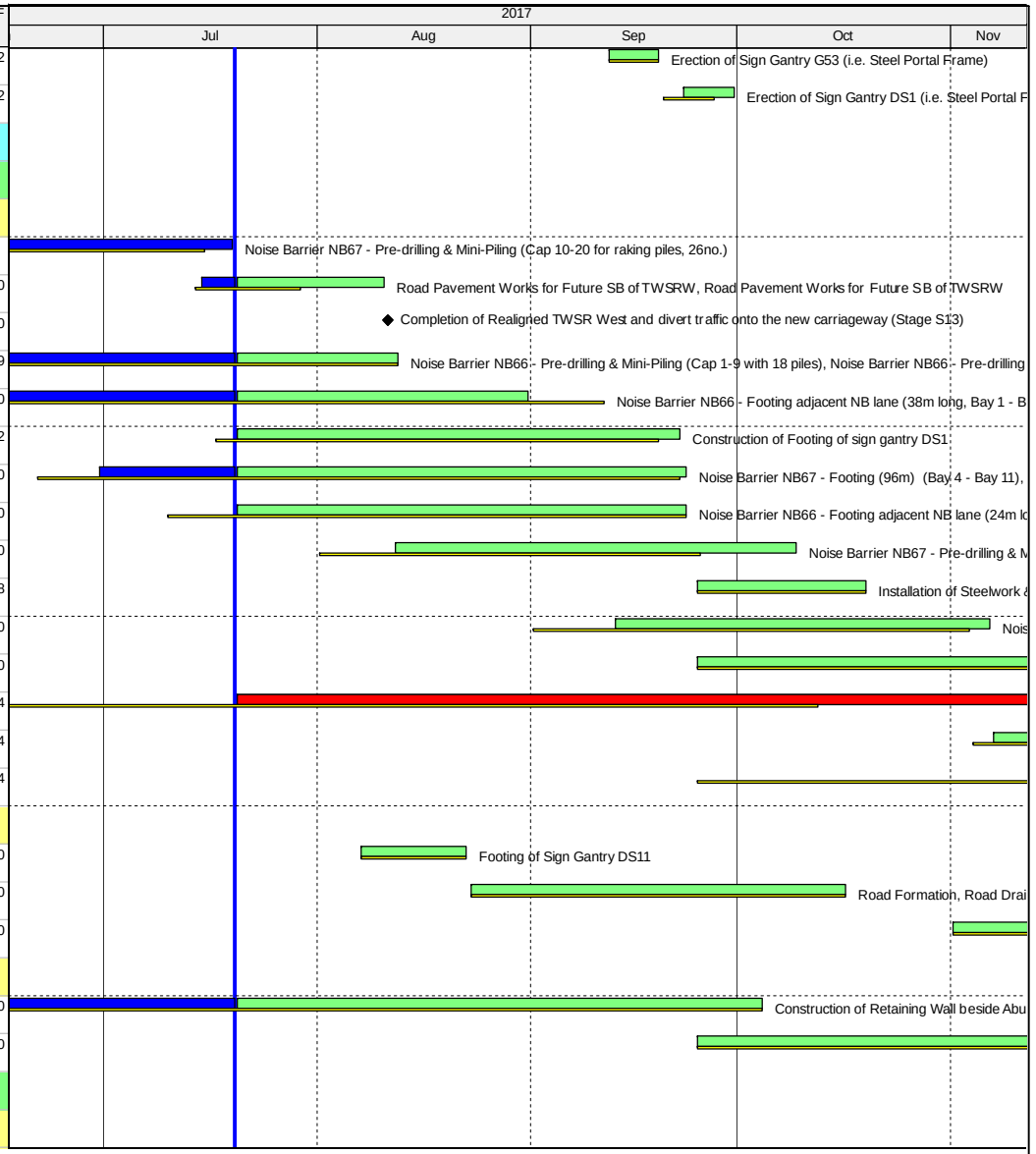
Activity ID	Activity Name	OD	RD	Start	Finish	TF
FHW-SG-1020	Erection of Sign Gantry G53 (i.e. Steel Portal Frame)	7	7	12-Sep-17	19-Sep-17	112
FHW-SG-1000	Erection of Sign Gantry DS1 (i.e. Steel Portal Frame)	7	7	23-Sep-17	30-Sep-17	102
Section II - Remainder of the Works (KD-3)						
At Grade Link Road at Fanling Highway Interchange						
Link Road 1 (near Abutment AB1)						
FHI-LR1-1070	Noise Barrier NB67 - Pre-drilling & Mini-Piling (Cap 10-20 for raking piles, 26no.)	106	0	20-Feb-17 A	19-Jul-17 A	
FHI-LR1-1210	Road Pavement Works for Future SB of TWSRW	14	19	15-Jul-17 A	10-Aug-17	0
FHI-LR1-1000	Completion of Realigned TWSR West and divert traffic onto the new carriageway (Stage S13)	0	0		11-Aug-17	0
FHI-LR1-1040a	Noise Barrier NB66 - Pre-drilling & Mini-Piling (Cap 1-9 with 18 piles)	54	21	07-Apr-17 A	12-Aug-17	9
FHI-LR1-1030	Noise Barrier NB66 - Footing adjacent NB lane (38m long, Bay 1 - Bay 4)	90	37	02-Mar-17 A	31-Aug-17	20
FHI-LR1-1320	Construction of Footing of sign gantry DS1	56	56	20-Jul-17	22-Sep-17	102
FHI-LR1-1080	Noise Barrier NB67 - Footing (96m) (Bay 4 - Bay 11)	80	57	30-Jun-17 A	23-Sep-17	0
FHI-LR1-1040b	Noise Barrier NB66 - Footing adjacent NB lane (24m long, Bay 5 - Bay 6)	57	57	20-Jul-17	23-Sep-17	0
FHI-LR1-1050	Noise Barrier NB67 - Pre-drilling & Mini-Piling (Cap 1-9 for raking piles, 18no.)	48	48	12-Aug-17	09-Oct-17	0
FHI-LR1-1310	Installation of Steelwork & Transparent Panel - Noise Barrier 66 (76m)	20	20	25-Sep-17	19-Oct-17	58
FHI-LR1-1060	Noise Barrier NB67 - Footing (37.6m) (Bay 1 - Bay 3)	44	44	13-Sep-17	06-Nov-17	0
FHI-LR1-1120	Road Formation, Road Drainage, TCSS ducting, Kerb and Pavement (CH 80 - CH 240)	55	55	25-Sep-17	30-Nov-17	0
FHI-LR1-1020	Construction of Retaining Wall beside Abutment AB1 and filling work	115	115	20-Jul-17	04-Dec-17	-44
FHI-LR1-1300	Installation of Steelwork & Transparent Panel - Noise Barrier 67 (132m)	30	30	07-Nov-17	11-Dec-17	44
FHI-LR1-1110	Road Formation, Road Drainage, TCSS ducting, Kerb and Pavement (CH 240 - CH 340)	55	55	18-Nov-17	24-Jan-18	-44
Link Road 2 (near Abutment AA1)						
FHI-LR2-2040c	Footing of Sign Gantry DS11	14	14	07-Aug-17*	22-Aug-17	0
FHI-LR2-2040b	Road Formation, Road Drainage, Kerb (SMH1302 - 1303 & MY2.4 - 2.5)	45	45	23-Aug-17	16-Oct-17	0
FHI-LR2-2030	Construction of Retaining Wall (3SW-D/FR32)	55	55	01-Nov-17*	06-Jan-18	0
Link Road 4 (near Abutment AC1)						
FHI-LR4-4020	Construction of Retaining Wall beside Abutment AC1	120	65	15-May-17 A	04-Oct-17	0
FHI-LR4-4030	Road Formation, Road Drainage, TCSS ducting, Kerb and Pavement	55	55	25-Sep-17	30-Nov-17	0
WSD Works						
DN450 Fire Mains (CHA)						



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3-Month Rolling Programme

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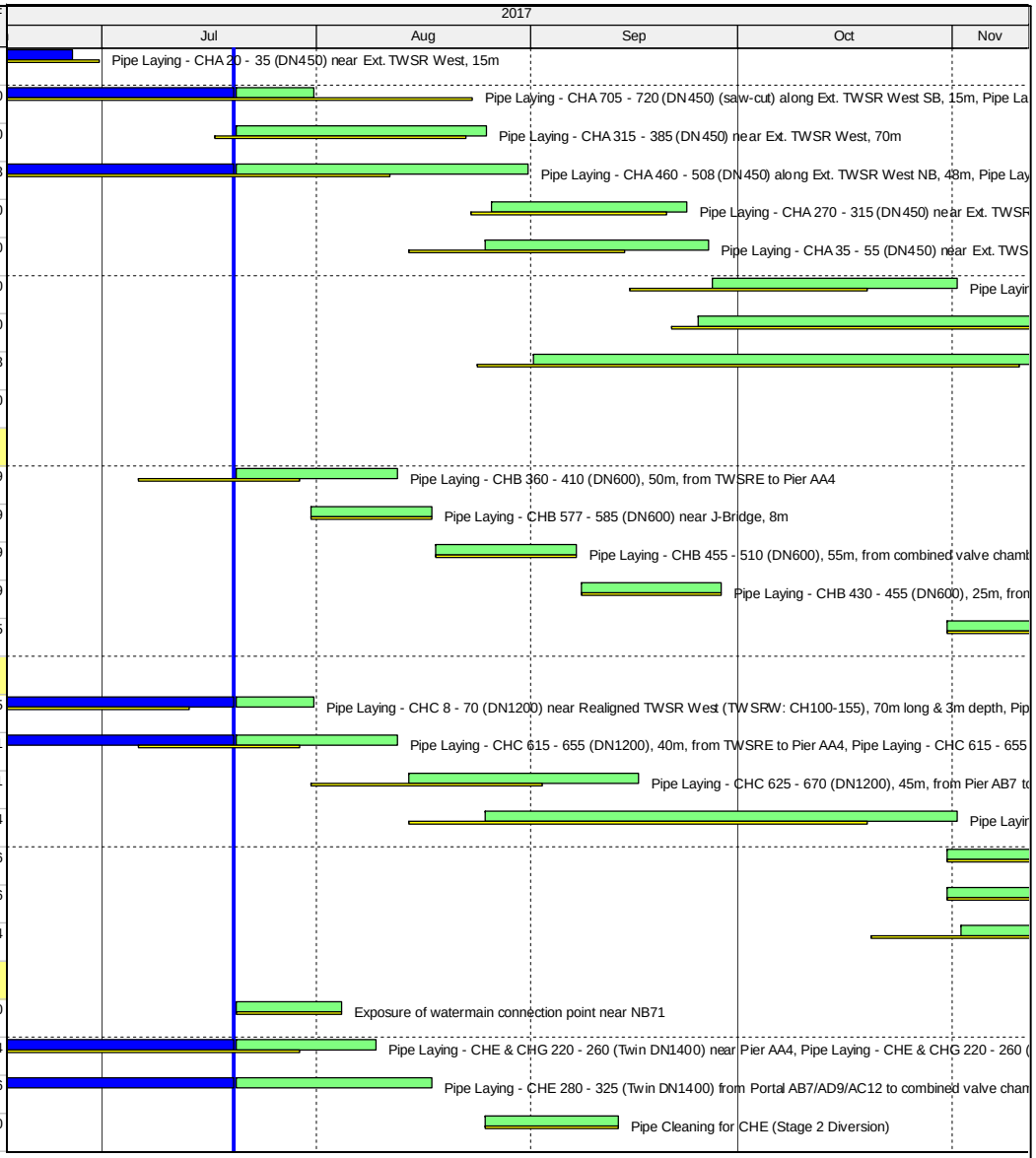
Activity ID	Activity Name	OD	RD	Start	Finish	TF
WA-1010b	Pipe Laying - CHA 20 - 35 (DN450) near Ext. TWSR West, 15m	18	0	09-Jun-17 A	26-Jun-17 A	
WA-3010b	Pipe Laying - CHA 705 - 720 (DN450) (saw-cut) along Ext. TWSR West SB, 15m	60	10	14-Jun-17 A	31-Jul-17	30
WA-1130	Pipe Laying - CHA 315 - 385 (DN450) near Ext. TWSR West, 70m	32	32	20-Jul-17*	25-Aug-17	0
WA-2010	Pipe Laying - CHA 460 - 508 (DN450) along Ext. TWSR West NB, 48m	188	37	01-Sep-16 A	31-Aug-17	3
WA-1120	Pipe Laying - CHA 270 - 315 (DN450) near Ext. TWSR West, 45m	25	25	26-Aug-17	23-Sep-17	0
WA-1010c	Pipe Laying - CHA 35 - 55 (DN450) near Ext. TWSR West, 20m	28	28	25-Aug-17	26-Sep-17	60
WA-1010a	Pipe Laying - CHA 0 - 20 (DN450) near Ext. TWSR West, 20m	28	28	27-Sep-17	01-Nov-17	60
WA-1110	Pipe Laying - CHA 155 - 270 (DN450) near Ext. TWSR West, 115m	44	44	25-Sep-17	17-Nov-17	0
WA-2020	Pipe Laying - CHA 508 - 540 (DN450) along Ext. TWSR West SB, 32m	65	65	01-Sep-17	18-Nov-17	3
WA-1020	Pipe Laying - CHA 55 - 155 (DN450) near Ext. TWSR West, 100m	45	45	18-Nov-17	12-Jan-18	0
DN600 Water Mains (CHB)						
WB-1030B	Pipe Laying - CHB 360 - 410 (DN600), 50m, from TWSRE to Pier AA4	21	21	20-Jul-17	12-Aug-17	109
WB-1060B	Pipe Laying - CHB 577 - 585 (DN600) near J-Bridge, 8m	16	16	31-Jul-17*	17-Aug-17	69
WB-1050	Pipe Laying - CHB 455 - 510 (DN600), 55m, from combined valve chamber to Realigned TWSR East	18	18	18-Aug-17	07-Sep-17	69
WB-1040	Pipe Laying - CHB 430 - 455 (DN600), 25m, from Pier AB7 to combined valve chamber	18	18	08-Sep-17	28-Sep-17	69
WB-1030C	Pipe Laying - CHB 410 - 430 (DN600), 20m, from Pier AA4 to Pier AB7	30	30	31-Oct-17	04-Dec-17	15
DN1200 Water Mains (CHC)						
WC-1000B	Pipe Laying - CHC 8 - 70 (DN1200) near Realigned TWSR West (TWSRW: CH100-155), 70m long & 3m depth	25	10	14-Jun-17 A	31-Jul-17	35
WC-1090B	Pipe Laying - CHC 615 - 655 (DN1200), 40m, from TWSRE to Pier AA4	21	21	09-Jun-17 A	12-Aug-17	1
WC-1090C2	Pipe Laying - CHC 625 - 670 (DN1200), 45m, from Pier AB7 to combined valve chamber	30	30	14-Aug-17	16-Sep-17	1
WC-1010	Pipe Laying CHC 70 - 100 (DN1200) along existing TWSRW, 20m long & 3m depth	56	56	25-Aug-17	01-Nov-17	14
WC-1090C1	Pipe Laying - CHC 625 - 670 (DN1200), 45m, from Pier AA4 to Pier AB7	30	30	31-Oct-17	04-Dec-17	36
WC-1090E	Pipe Laying - CHC 705 - 730 (DN1200), 25m, near DN1400 connection point	40	40	31-Oct-17	15-Dec-17	26
WC-1030	Construction of IT inspection tee chamber(s) near the Jacking Pits	50	50	02-Nov-17	02-Jan-18	14
Twin DN1400 Water Mains (CHE & CHG)						
WE-4020	Exposure of watermain connection point near NB71	14	14	20-Jul-17	04-Aug-17	0
WE-1040	Pipe Laying - CHE & CHG 220 - 260 (Twin DN1400) near Pier AA4	45	18	07-Jun-17 A	09-Aug-17	4
WE-1060b	Pipe Laying - CHE 280 - 325 (Twin DN1400) from Portal AB7/AD9/AC12 to combined valve chamber	38	25	06-Apr-17 A	17-Aug-17	6
WE-3010A	Pipe Cleaning for CHE (Stage 2 Diversion)	17	17	25-Aug-17	13-Sep-17	0



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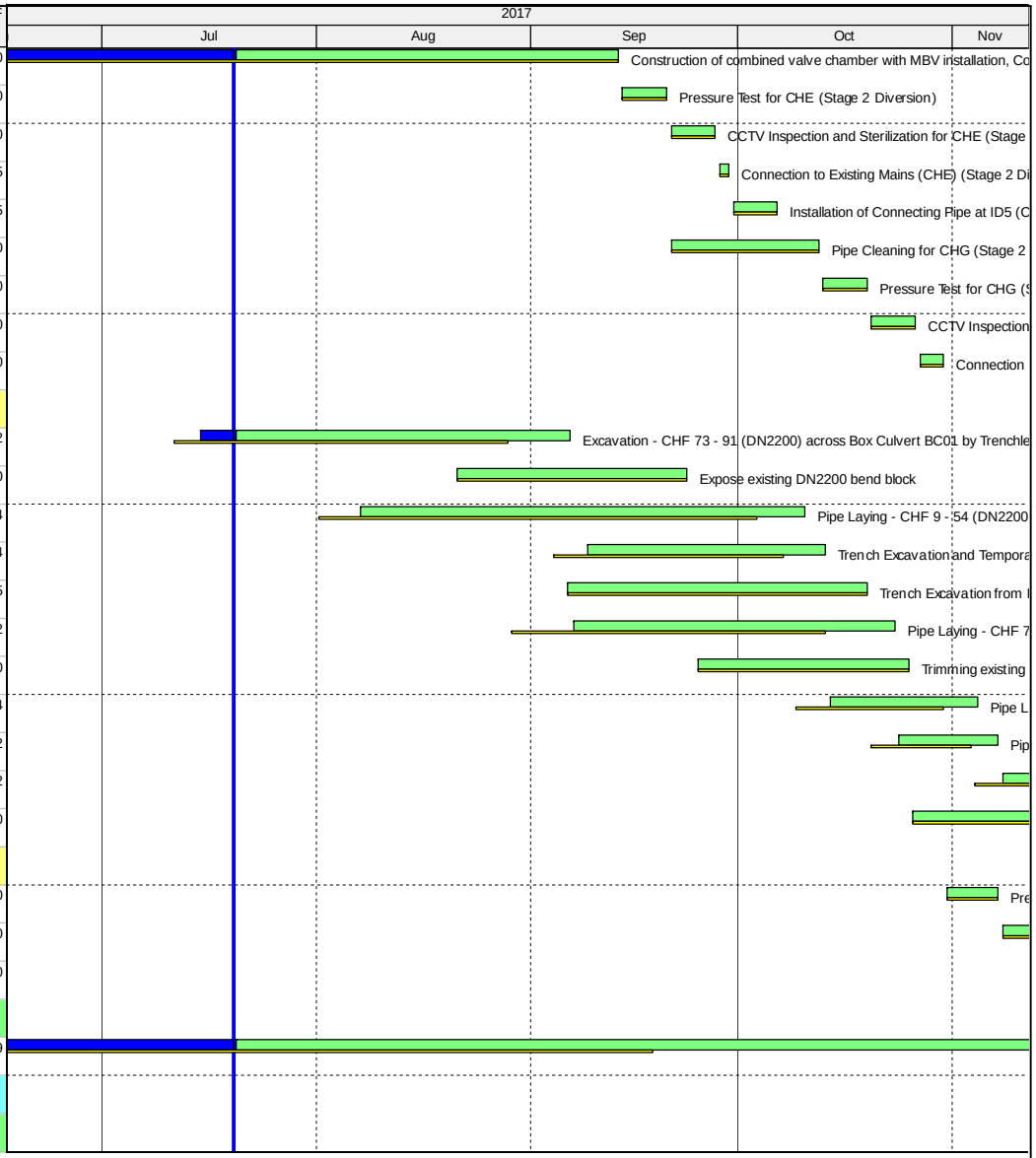
WE-1080	Construction of combined valve chamber with MBV installation	109	48	25-Jan-17 A	13-Sep-17	0
WE-3020A	Pressure Test for CHE (Stage 2 Diversion)	6	6	14-Sep-17	20-Sep-17	0
WE-3040A	CCTV Inspection and Sterilization for CHE (Stage 2 Diversion)	6	6	21-Sep-17	27-Sep-17	0
WE-3050A	Connection to Existing Mains (CHE) (Stage 2 Diversion)	2	2	28-Sep-17	29-Sep-17	5
WE-3030A	Installation of Connecting Pipe at ID5 (CHG)	4	4	30-Sep-17	06-Oct-17	5
WE-3010B	Pipe Cleaning for CHG (Stage 2 Diversion)	17	17	21-Sep-17	12-Oct-17	0
WE-3020B	Pressure Test for CHG (Stage 2 Diversion)	6	6	13-Oct-17	19-Oct-17	0
WE-3040B	CCTV Inspection and Sterilization for CHG (Stage 2 Diversion)	6	6	20-Oct-17	26-Oct-17	0
WE-3050B	Connection to Existing Mains (CHG) (Stage 2 Diversion)	2	2	27-Oct-17	30-Oct-17	0
DN2200 Water Mains (CHF)						
WF-1060	Excavation - CHF 73 - 91 (DN2200) across Box Culvert BC01 by Trenchless Method, 18m long	42	42	15-Jul-17 A	06-Sep-17	2
WF-1100	Expose existing DN2200 bend block	30	30	21-Aug-17	23-Sep-17	0
WF-1020	Pipe Laying - CHF 9 - 54 (DN2200) across ext. TWSRW & associated Grouting Works, 45m long	54	54	07-Aug-17*	10-Oct-17	4
WF-1030	Trench Excavation and Temporary Works to Support 132kV Cables, Section 2	28	28	09-Sep-17	13-Oct-17	4
WF-1080	Trench Excavation from Pit 4 to Connection Point near FLH NB, Section 4	36	36	06-Sep-17	19-Oct-17	5
WF-1070	Pipe Laying - CHF 73 - 91 (DN2200) across Box Culvert BC01 & associated Grouting Works, 18m long	38	38	07-Sep-17	23-Oct-17	2
WF-1110	Trimming existing bend block	25	25	25-Sep-17	25-Oct-17	0
WF-1040	Pipe Laying - CHF 54 - 73 (DN2200), Section 2	18	18	14-Oct-17	04-Nov-17	4
WF-1090	Pipe Laying - CHF 91 - 105 (DN2200), Section 4	12	12	24-Oct-17	07-Nov-17	2
WF-2000	Pressure Test for CHF	12	12	08-Nov-17	21-Nov-17	2
WF-1120	Fabrication of DN2200 fitting for connection	48	48	26-Oct-17	21-Dec-17	0
DN1400 Water Mains (CHK & CHKA)						
WK-2010	Pressure Test for CHK/CHKA	7	7	31-Oct-17	07-Nov-17	60
WK-2020	Cleaning & CCTV Inspection for CHK/CHKA	8	8	08-Nov-17	16-Nov-17	60
WK-2030	Connection to CHJ watermain	5	5	17-Nov-17	22-Nov-17	60
Existing Nam Wa Po Trunk Sewage Pumping Station (PST3)						
PS-1010	Construction of New Boundary Wall for Pumping Station (PST3)	80	126	25-Nov-16 A	16-Dec-17	39
Stage 1A - Realignment of Tai Wo Service Road West (KD-7)						
TWSRW Zone 4 betweeen CH315 and CH376						



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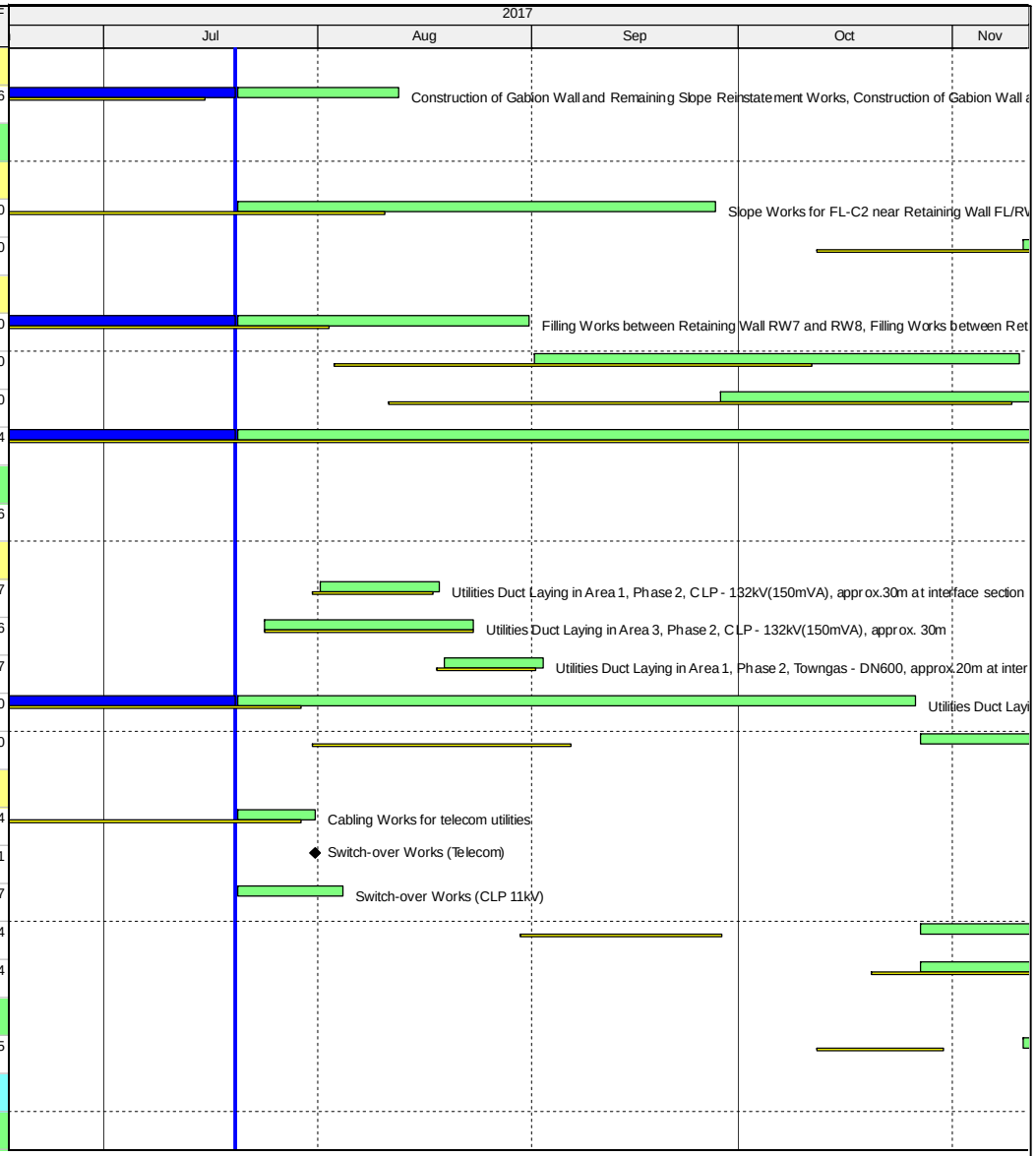
	Construction of Bridge E					
TWSRW-4100C	Construction of Gabion Wall and Remaining Slope Reinstatement Works	68	21	03-Jan-17 A	12-Aug-17*	16
	TWSRW Zone 5 betweeen CH376 and CH520					
	Construction of Retaining Structures					
TWSRW-5150	Slope Works for FL-C2 near Retaining Wall FL/RW4	60	60	20-Jul-17	27-Sep-17	30
TWSRW-5120	Remaining works incl. railing, u-channel on top of Bored Pile Wall	50	50	11-Nov-17	11-Jan-18	20
	At-Grade Roadworks					
TWSRW-5120A	Filling Works between Retaining Wall RW7 and RW8	192	37	07-Jun-16 A	31-Aug-17	20
TWSRW-5120B	Permanent Vehicular Access to Lot 81 (incl. filling works behind retaining wall RW8)	58	58	01-Sep-17	10-Nov-17	20
TWSRW-5170b	Construction of Pavilion (covered by VO No.137)	75	75	28-Sep-17	29-Dec-17	30
TWSRW-5160	Construction of Extended Podium near RW7 incl. filling works & slope protection (covered by VO No.100)	85	151	27-Oct-16 A	18-Jan-18	14
	Remainder of the Works					
TWSRW-9020	Filling Works to the abandoned section of TWSRW and modify existing sewerage manhole	48	48	18-Nov-17	16-Jan-18	16
	Utilities Laying Works					
UU-1010A	Utilities Duct Laying in Area 1, Phase 2, CLP - 132kV(150mVA), approx.30m at interface section	16	16	01-Aug-17	18-Aug-17*	97
UU-1030A	Utilities Duct Laying in Area 3, Phase 2, CLP - 132kV(150mVA), approx. 30m	27	27	24-Jul-17*	23-Aug-17*	106
UU-1010B	Utilities Duct Laying in Area 1, Phase 2, Towngas - DN600, approx.20m at interface section	13	13	19-Aug-17	02-Sep-17*	97
UU-1040A	Utilities Duct Laying in Area 4, Phase 2, Towngas - DN600 & DN400, approx. 50m (by their own TTA)	121	83	15-Sep-16 A	26-Oct-17*	20
UU-1040B	Utilities Duct Laying in Area 4, Phase 2, CLP - 132kV(150mVA), approx. 50m (by their own TTA)	33	33	27-Oct-17	05-Dec-17*	20
	Switch-Over of Existing Utilitiess					
UU-SO-1010	Cabling Works for telecom utilities	12	12	20-Jul-17*	31-Jul-17	24
UU-SO-1500	Switch-over Works (Telecom)	0	0		31-Jul-17	21
UU-SO-2520	Switch-over Works (CLP 11kV)	16	16	20-Jul-17*	04-Aug-17	7
UU-SO-3500	Switch-over Works (Towngas, DN400)	30	30	27-Oct-17*	25-Nov-17	644
UU-SO-3510	Switch-over Works (Towngas, DN600)	30	30	27-Oct-17	25-Nov-17*	644
	Remaining Works for Noise Barrier along realigned TWSR West					
TWSRW-NB-140	Noise Barrier Steelworks & Panel for NB2 at Zone 5	15	15	11-Nov-17	28-Nov-17	55
	Stage N4A & N4B - Realignment of Tai Wo Service Road East (KD-13 & KD-14)					
	TWSRE Zone 1 between CH100 and CH270					



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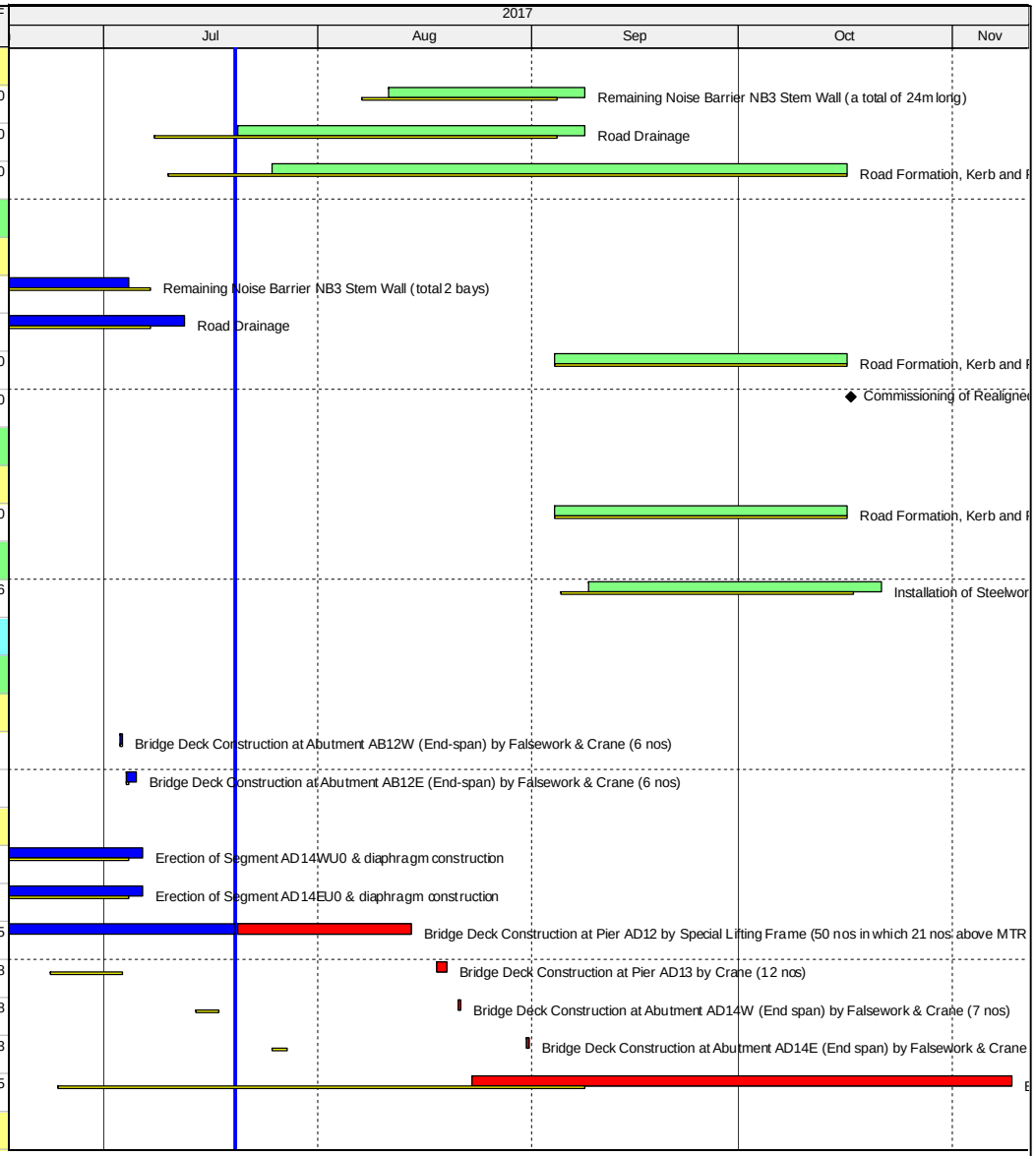
	At-Grade Roadworks					
TWSRE-1160	Remaining Noise Barrier NB3 Stem Wall (a total of 24m long)	25	25	11-Aug-17	08-Sep-17	0
TWSRE-1170	Road Drainage	44	44	20-Jul-17	08-Sep-17	0
TWSRE-1180	Road Formation, Kerb and Pavement (Incl. FL/F8A, FL/F9)	70	70	25-Jul-17	16-Oct-17	0
	TWSRE Zone 2 between CH270 and CH380					
	At-Grade Roadworks					
TWSRE-2080	Remaining Noise Barrier NB3 Stem Wall (total 2 bays)	33	0	29-May-17 A	04-Jul-17 A	
TWSRE-2090	Road Drainage	70	0	12-Apr-17 A	12-Jul-17 A	
TWSRE-2100	Road Formation, Kerb and Pavement	35	35	04-Sep-17	16-Oct-17	0
TWSRE-2070	Commissioning of Realigned TWSR East	0	0	17-Oct-17		0
	TWSRE Zone 3 between CH380 and CH456					
	At-Grade Roadworks					
TWSRE-3040	Road Formation, Kerb and Pavement (Incl. FL/F10)	35	35	04-Sep-17	16-Oct-17	0
	Remaining Works for Noise Barrier along realigned TWSR East					
TWSRE-NB-120	Installation of Steelwork & Transparent Panel - Noise Barrier NB3 (254m)	35	35	09-Sep-17*	21-Oct-17	86
	Stage 1C - Viaduct Structure & TCSS Civil Provisions (KD-9)					
	Viaduct Bridge Segement Erection					
	Bridge B					
EB-1120C	Bridge Deck Construction at Abutment AB12W (End-span) by Falsework & Crane (6 nos)	1	0	03-Jul-17 A	03-Jul-17 A	
EB-1120D	Bridge Deck Construction at Abutment AB12E (End-span) by Falsework & Crane (6 nos)	1	0	04-Jul-17 A	05-Jul-17 A	
	Bridge D					
ED-1140A	Erection of Segment AD14WU0 & diaphragm construction	23	0	05-Jun-17 A	06-Jul-17 A	
ED-1140B	Erection of Segment AD14EU0 & diaphragm construction	23	0	05-Jun-17 A	06-Jul-17 A	
ED-1120	Bridge Deck Construction at Pier AD12 by Special Lifting Frame (50 nos in which 21 nos above MTR Railway)	82	22	09-Mar-17 A	14-Aug-17	-95
ED-1130	Bridge Deck Construction at Pier AD13 by Crane (12 nos)	2	2	18-Aug-17	19-Aug-17	-48
ED-1140C	Bridge Deck Construction at Abutment AD14W (End span) by Falsework & Crane (7 nos)	1	1	21-Aug-17	21-Aug-17	-48
ED-1140D	Bridge Deck Construction at Abutment AD14E (End span) by Falsework & Crane (6 nos)	1	1	31-Aug-17	31-Aug-17	-43
ED-1110	Bridge Deck Construction at Portal AD11 by Special Lifting Frame (54 nos in which 12 nos above MTR Railway)	65	65	23-Aug-17	09-Nov-17	-95
	Key Segment Erection and Stitch Casting (Wide-box Section)					



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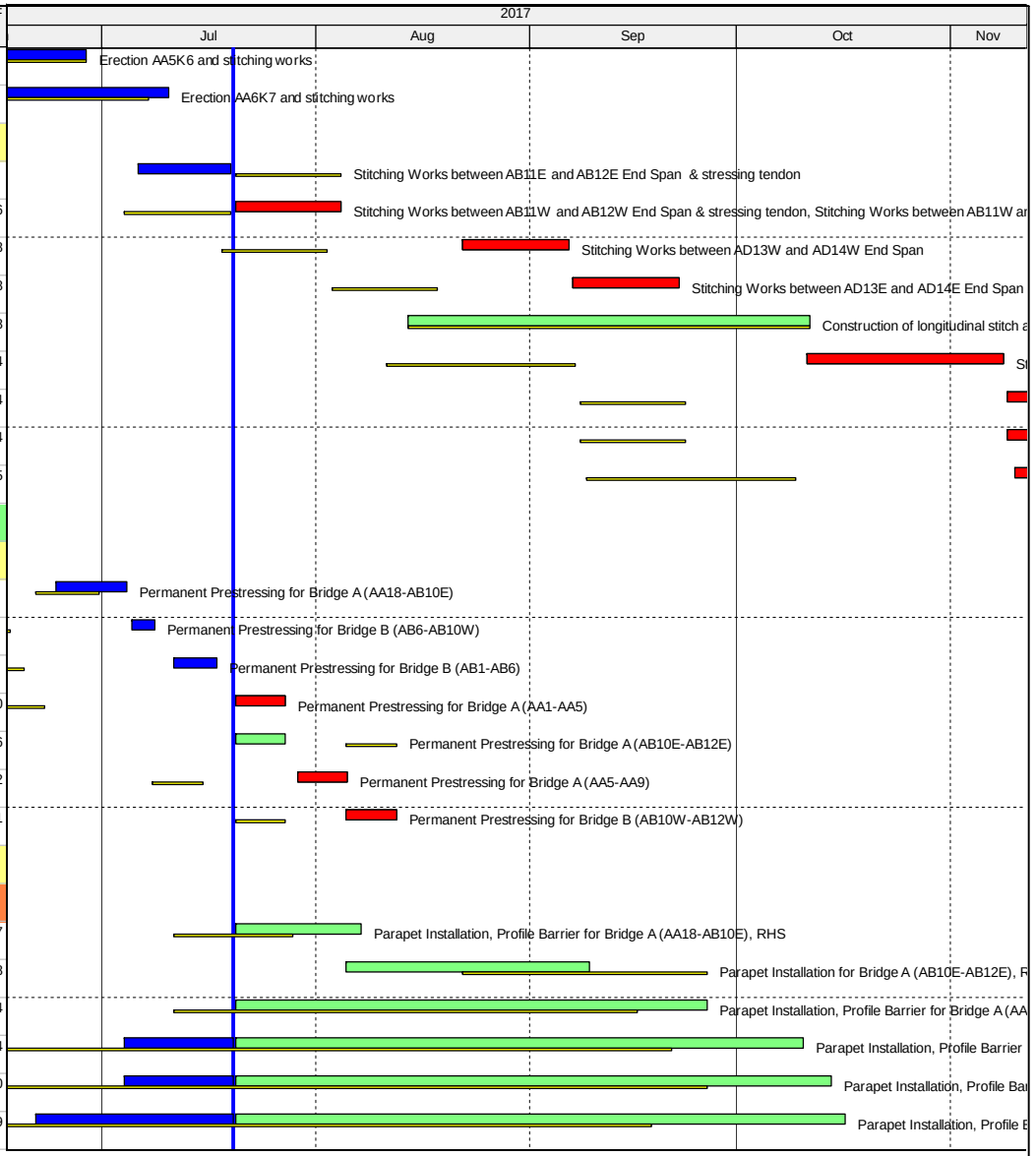
KS-A-1050	Erection AA5K6 and stitching works	19	0	07-Jun-17 A	28-Jun-17 A	
KS-A-1060	Erection AA6K7 and stitching works	25	0	08-Jun-17 A	10-Jul-17 A	
Key Segment Erection and Stitch Casting (Narrow-box Section)						
KS-B-1110B	Stitching Works between AB11E and AB12E End Span & stressing tendon	14	0	06-Jul-17 A	19-Jul-17 A	
KS-B-1110A	Stitching Works between AB11W and AB12W End Span & stressing tendon	14	14	20-Jul-17 A	04-Aug-17	-36
KS-D-1130A	Stitching Works between AD13W and AD14W End Span	14	14	22-Aug-17	06-Sep-17	-48
KS-D-1130B	Stitching Works between AD13E and AD14E End Span	14	14	07-Sep-17	22-Sep-17	-48
KD-B-2000	Construction of longitudinal stitch at Bridge B2	49	49	14-Aug-17	11-Oct-17	48
KS-D-1110B	Stitching Works between AD11E and AD12E	24	24	11-Oct-17	08-Nov-17	-94
KS-D-1100B	Erection AD10EK11 and stitching works	14	14	09-Nov-17	24-Nov-17	-74
KS-D-1120B	Stitching Works between AD12E and AD13E	14	14	09-Nov-17	24-Nov-17	-74
KS-D-1110A	Stitching Works between AD11W and AD12W	24	24	10-Nov-17	07-Dec-17	-95
Major Works on Deck Surfaces						
Permanent External Tendon Stressing Works						
PP-A-1050	Permanent Prestressing for Bridge A (AA18-AB10E)	9	0	24-Jun-17 A	04-Jul-17 A	
PP-B-1020	Permanent Prestressing for Bridge B (AB6-AB10W)	9	0	05-Jul-17 A	08-Jul-17 A	
PP-B-1010	Permanent Prestressing for Bridge B (AB1-AB6)	9	0	11-Jul-17 A	17-Jul-17 A	
PP-A-1010	Permanent Prestressing for Bridge A (AA1-AA5)	7	7	20-Jul-17	27-Jul-17	-10
PP-A-1060	Permanent Prestressing for Bridge A (AB10E-AB12E)	7	7	20-Jul-17	27-Jul-17	6
PP-A-1020	Permanent Prestressing for Bridge A (AA5-AA9)	7	7	29-Jul-17	05-Aug-17	-2
PP-B-1030	Permanent Prestressing for Bridge B (AB10W-AB12W)	7	7	05-Aug-17	12-Aug-17	-11
Parapet Installation						
Bridge A						
PI-A-1050R	Parapet Installation, Profile Barrier for Bridge A (AA18-AB10E), RHS	16	16	20-Jul-17	07-Aug-17	87
PI-A-1060RM	Parapet Installation for Bridge A (AB10E-AB12E), RHS above MTRC railway	31	31	05-Aug-17	09-Sep-17	58
PI-A-1050L	Parapet Installation, Profile Barrier for Bridge A (AA18-AB10E), LHS	59	59	20-Jul-17	26-Sep-17	44
PI-A-1030L	Parapet Installation, Profile Barrier & Planter for Bridge A (AA9-AA13), LHS	83	69	04-Jul-17 A	10-Oct-17	34
PI-A-1030R	Parapet Installation, Profile Barrier & Planter for Bridge A (AA9-AA13), RHS	87	73	04-Jul-17 A	14-Oct-17	30
PI-A-1040L	Parapet Installation, Profile Barrier & Planter for Bridge A (AA13-AA18), LHS	98	74	21-Jun-17 A	16-Oct-17	29



俊和建築工程有限公司
CHUN WO CONSTRUCTION & ENGINEERING CO., LTD.

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

CEDD Contract No. CV/2012/09

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

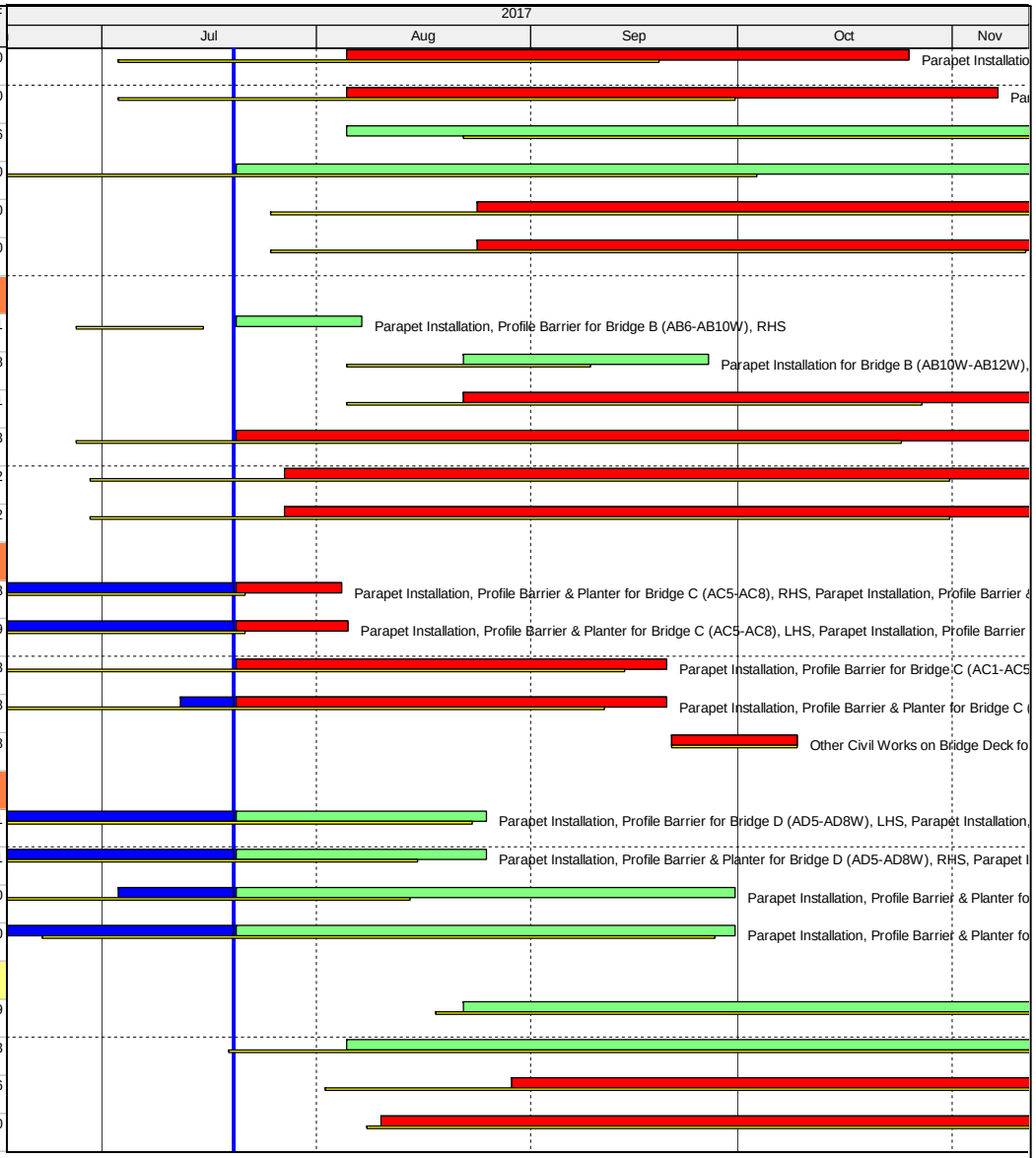
3-Month Rolling Programme

Programme ID: 3MPR048 (Data Date: 20-Jul-17)_____Page 11 of 13

3-Month Rolling Programme updated to 2017-07-21

Date	Revision	Checked	Approved
21-Jul-17	Rev.1	SL	

Activity ID	Activity Name	OD	RD	Start	Finish	TF
PI-A-1010R	Parapet Installation, Profile Barrier & Planter for Bridge A (AA1-AA5), RHS	68	68	05-Aug-17	25-Oct-17	-10
PI-A-1010L	Parapet Installation, Profile Barrier for Bridge A (AA1-AA5), LHS	78	78	05-Aug-17	07-Nov-17	-10
PI-A-1060R	Parapet Installation, Profile Barrier & Planter for Bridge A (AB10E-AB12E), RHS remaining	83	83	05-Aug-17	13-Nov-17	6
PI-A-1040R	Parapet Installation, Profile Barrier & Planter for Bridge A (AA13-AA18), RHS	103	103	20-Jul-17	20-Nov-17	0
PI-A-1020L	Parapet Installation, Profile Barrier & Planter for Bridge A (AA5-AA9), LHS	83	83	24-Aug-17	01-Dec-17	-10
PI-A-1020R	Parapet Installation, Profile Barrier & Planter for Bridge A (AA5-AA9), RHS	83	83	24-Aug-17	01-Dec-17	-10
Bridge B						
PI-B-1020R	Parapet Installation, Profile Barrier for Bridge B (AB6-AB10W), RHS	16	16	20-Jul-17	07-Aug-17	71
PI-B-1030LM	Parapet Installation for Bridge B (AB10W-AB12W), LHS above MTRC railway	31	31	22-Aug-17	26-Sep-17	28
PI-B-1030L	Parapet Installation, Profile Barrier & Planter for Bridge B (AB10W-AB12W), LHS remaining	70	70	22-Aug-17	14-Nov-17	-11
PI-B-1020L	Parapet Installation, Profile Barrier for Bridge B (AB6-AB10W), LHS	100	100	20-Jul-17	16-Nov-17	-13
PI-B-1010L	Parapet Installation, Profile Barrier for Bridge B (AB1-AB6), LHS	103	103	27-Jul-17	27-Nov-17	-22
PI-B-1010R	Parapet Installation, Profile Barrier & Planter for Bridge B (AB1-AB6), RHS	103	103	27-Jul-17	27-Nov-17	-22
Bridge C						
PI-C-1020R	Parapet Installation, Profile Barrier & Planter for Bridge C (AC5-AC8), RHS	110	14	09-Mar-17 A	04-Aug-17	-8
PI-C-1020L	Parapet Installation, Profile Barrier & Planter for Bridge C (AC5-AC8), LHS	121	15	15-Feb-17 A	05-Aug-17	-9
PI-C-1010L	Parapet Installation, Profile Barrier for Bridge C (AC1-AC5), LHS	54	54	20-Jul-17	20-Sep-17	-48
PI-C-1010R	Parapet Installation, Profile Barrier & Planter for Bridge C (AC1-AC5), RHS	84	54	12-Jul-17 A	20-Sep-17	-48
PI-C-1050RM1	Other Civil Works on Bridge Deck for TCSS duct laying - Bridge C	14	14	21-Sep-17	09-Oct-17	-48
Bridge D						
PI-D-1020L	Parapet Installation, Profile Barrier for Bridge D (AD5-AD8W), LHS	90	32	11-May-17 A	25-Aug-17	31
PI-D-1020R	Parapet Installation, Profile Barrier & Planter for Bridge D (AD5-AD8W), RHS	78	32	09-May-17 A	25-Aug-17	31
PI-D-1010L	Parapet Installation, Profile Barrier & Planter for Bridge D (AD1-AD5), LHS	52	63	03-Jul-17 A	30-Sep-17	0
PI-D-1010R	Parapet Installation, Profile Barrier & Planter for Bridge D (AD1-AD5), RHS	83	63	16-Jun-17 A	30-Sep-17	0
Roadworks, Road Facilities and Miscellaneous inside Viaduct Internal Voids						
RS-1030	Movement Joints and Road Furniture incl. Deck Drainage, Lightings, Steel Rails,NB, Water Main for Bridge D (AD1 to AD8)	80	80	22-Aug-17	25-Nov-17	19
RS-1020	Movement Joints and Road Furniture incl. Deck Drainage, Lightings, Steel Rails,NB, Water Main for Bridge C (AC1 to AD10)	100	100	05-Aug-17	02-Dec-17	13
RS-1010	Movement Joints and Road Furniture incl. Deck Drainage, Lightings, Steel Rails,NB, Water Main for Bridge B (AB1 to AB12)	120	120	29-Aug-17	22-Jan-18	-6
RS-1000	Movement Joints and Road Furniture incl. Deck Drainage, Lightings, Steel Rails,NB, Water Main for Bridge A (AA1 to AB12)	140	140	10-Aug-17	26-Jan-18	-10



俊和建築工程有限公司
CHUN WO CONSTRUCTION & ENGINEERING CO., LTD.

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

CEDD Contract No. CV/2012/09

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

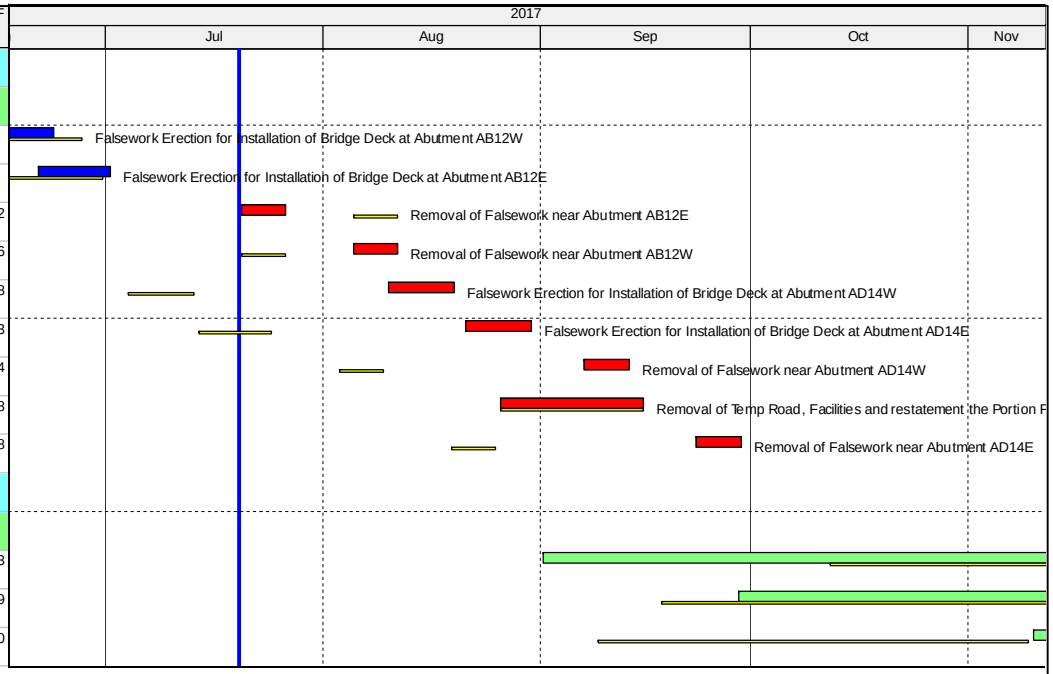
3-Month Rolling Programme

Programme ID: 3MPR048 (Data Date: 20-Jul-17)_____Page 12 of 13

3-Month Rolling Programme updated to 2017-07-21

Date	Revision	Checked	Approved
21-Jul-17	Rev.1	SL	

Activity ID	Activity Name	OD	RD	Start	Finish	TF
	Section VI - Works in Portion FH9 (KD-6A)					
	Major Works					
S6-4020	Falsework Erection for Installation of Bridge Deck at Abutment AB12W	13	0	16-Jun-17 A	23-Jun-17 A	
S6-4030	Falsework Erection for Installation of Bridge Deck at Abutment AB12E	13	0	21-Jun-17 A	01-Jul-17 A	
S6-5030	Removal of Falsework near Abutment AB12E	6	6	20-Jul-17	26-Jul-17	-22
S6-5020	Removal of Falsework near Abutment AB12W	6	6	05-Aug-17	11-Aug-17	-36
S6-4000	Falsework Erection for Installation of Bridge Deck at Abutment AD14W	9	9	10-Aug-17	19-Aug-17	-48
S6-4010	Falsework Erection for Installation of Bridge Deck at Abutment AD14E	9	9	21-Aug-17	30-Aug-17	-43
S6-5000	Removal of Falsework near Abutment AD14W	6	6	07-Sep-17	13-Sep-17	-34
S6-3000	Removal of Temp Road, Facilities and restatement the Portion FH9 to the condition as taking possession	18	18	26-Aug-17	15-Sep-17	-48
S6-5010	Removal of Falsework near Abutment AD14E	6	6	23-Sep-17	29-Sep-17	-48
	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	60	60	01-Sep-17	13-Nov-17	33
S3-1010	Transplanting along Fanling Highway	70	70	29-Sep-17	22-Dec-17	29
S3-1020	Remaining Drainage Works and Land Formation at FH3, FH4, FH5	50	50	10-Nov-17	10-Jan-18	0



俊和建築工程有限公司
CHUN WO CONSTRUCTION & ENGINEERING CO., LTD.

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

CEDD Contract No. CV/2012/09

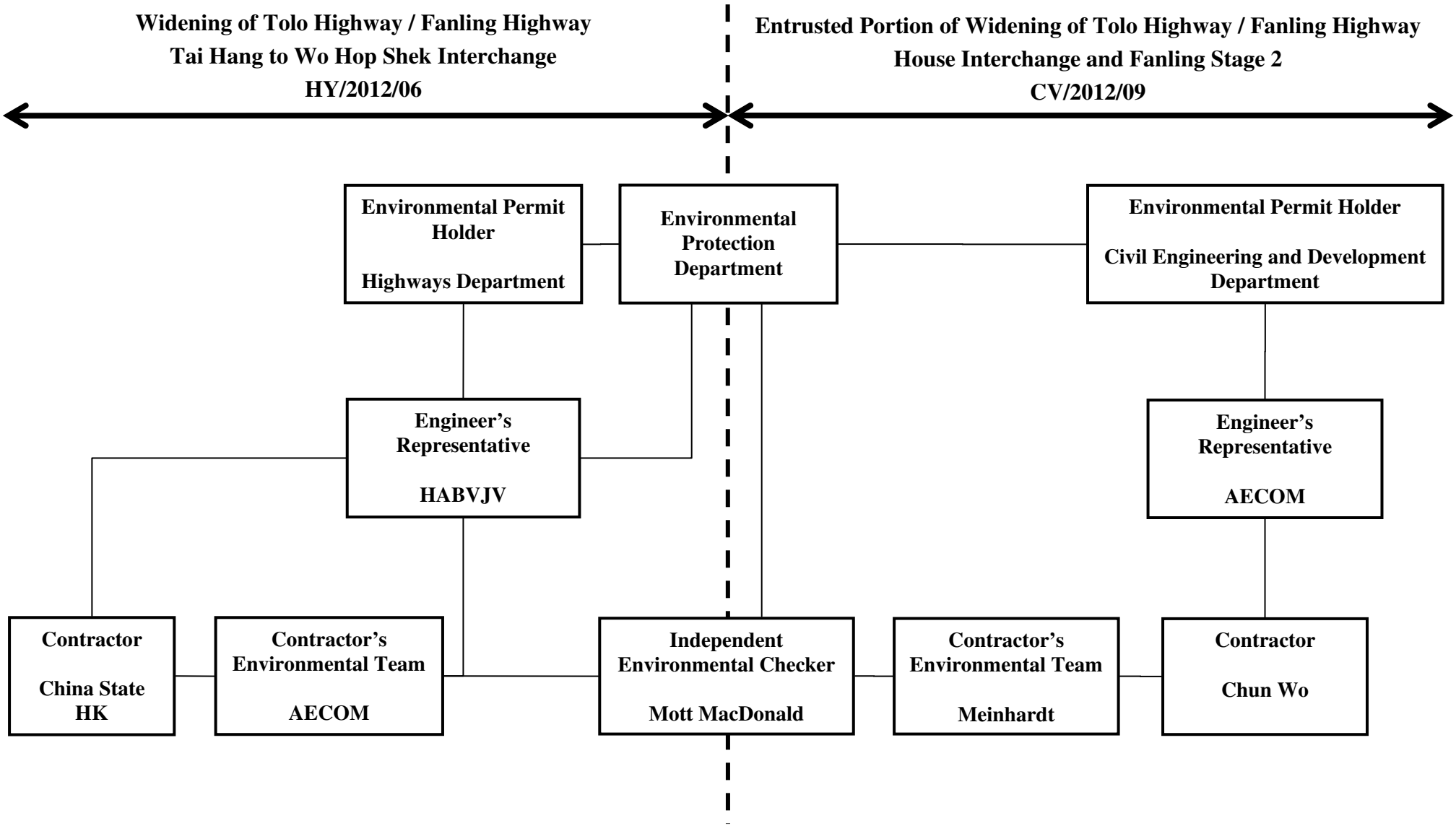
Liantang / Heung Yuen Wai BCP - Site Formation & Infrastructure Works, Contract 3

3-Month Rolling Programme

3-Month Rolling Programme updated to 2017-07-21

Date	Revision	Checked	Approved
21-Jul-17	Rev.1	SL	

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 - Feb 28, 2017 Rootsmeter S/N 0438320 Ta (K) - 294
Operator Tisch Orifice I.D. - 1941 Pa (mm) - 750.57

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	1.4600	3.2	2.00
2	NA	NA	1.00	1.0410	6.4	4.00
3	NA	NA	1.00	0.9280	7.9	5.00
4	NA	NA	1.00	0.8840	8.7	5.50
5	NA	NA	1.00	0.7290	12.7	8.00

DATA TABULATION

Vstd	(x axis) Qstd	(y axis)		Va	(x axis) Qa	(y axis)
0.9967	0.6827	1.4149		0.9957	0.6820	0.8851
0.9925	0.9534	2.0010		0.9915	0.9524	1.2517
0.9904	1.0672	2.2372		0.9894	1.0661	1.3995
0.9894	1.1192	2.3464		0.9884	1.1181	1.4678
0.9840	1.3499	2.8299		0.9830	1.3485	1.7702

Qstd slope (m) =	2.11965	Qa slope (m) =	1.32729
intercept (b) =	-0.02696	intercept (b) =	-0.01686
coefficient (r) =	0.99991	coefficient (r) =	0.99991
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: July 6, 2017
Sampler: TE-5170 MFC (Serial # : 2359) — Tech: Sam Wong

CONDITIONS

Barometric Pressure (in Hg):	39.68	Corrected Pressure (mm Hg):	1008
Temperature (deg F):	80	Temperature (deg K):	300
Average Press. (in Hg):	39.68	Corrected Average (mm Hg):	1008
Average Temp. (deg F):	80	Average Temp. (deg K):	300

CALIBRATION ORIFICE

Make:	Tisch	Qstd Slope:	2.11965
Model:	TE-5025A	Qstd Intercept:	-0.02696
Serial#:	1941	Date Certified:	February 28, 2017

CALIBRATIONS

Plate or Test #	H2O (in)	Qstd (m3/min)	I (chart)	IC (corrected)
1	12.00	1.889	56.0	64.31
2	10.00	1.726	52.0	59.72
3	8.20	1.564	48.0	55.12
4	5.20	1.248	38.0	43.64
5	3.20	0.982	30.0	34.45

LINEAR REGRESSION

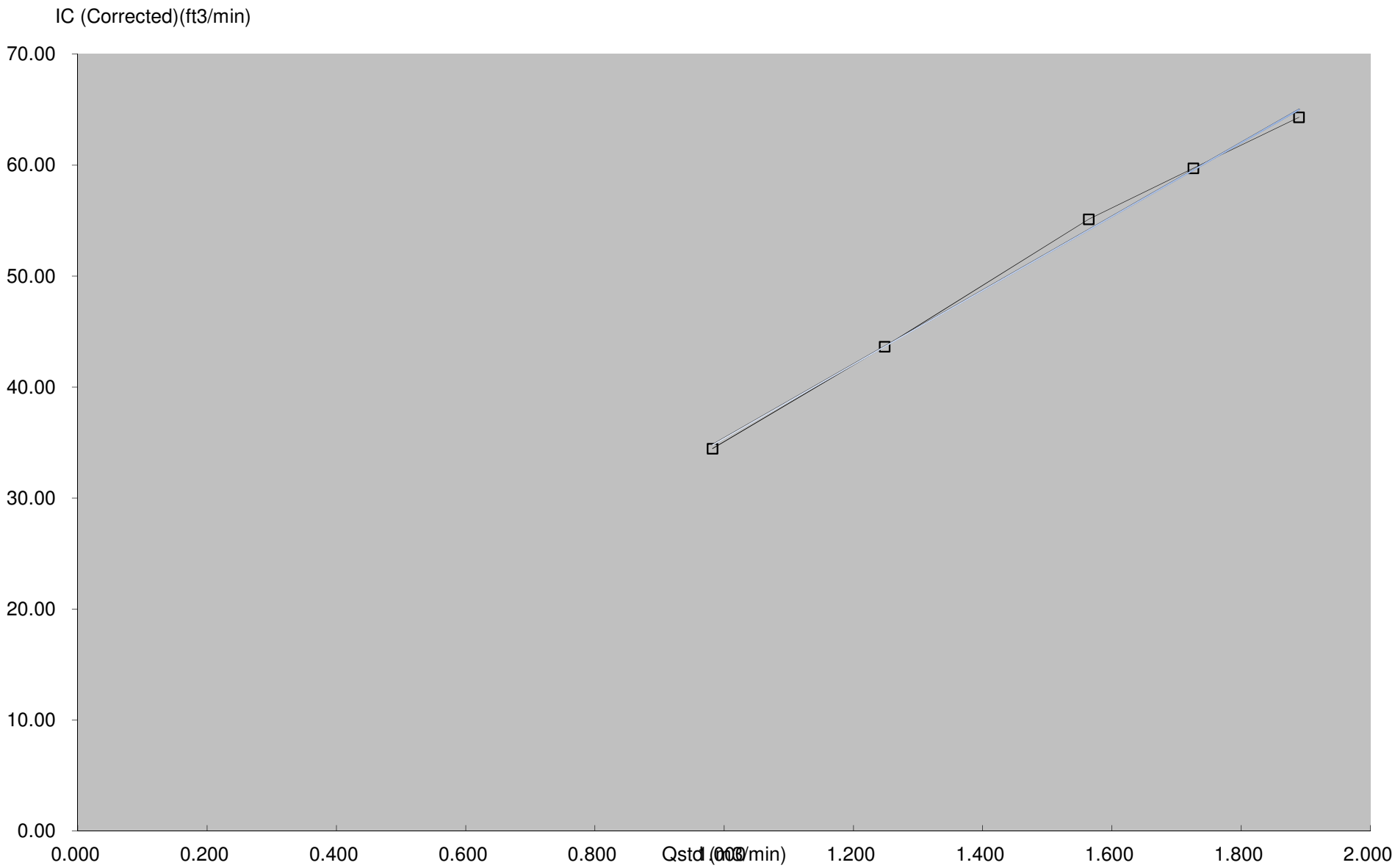
Slope =	33.3004
Intercept =	2.0985
Corr. coeff.=	0.9987
# of Observations:	5

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)
70.00
60.00
50.00
40.00
30.00
20.00
10.00
0.00
0.000
0.200
0.400
0.600
0.800
1.000
1.200
1.400
1.600
1.800
2.000
Qstd (ft3/min)

Hong Kong Calibration Ltd.
香港校正有限公司

Calibration Certificate

Certificate No. 607984 Page 1 of 2 Pages

Customer : Enovative Environmental Service Limited

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

Order No. : Q63261 **Date of receipt :** 6-Sep-16

Item Tested

Description : Sound Level Calibrator
Manufacturer : Rion **I.D.** : 2159O1
Model : NC-74 **Serial No.** : 34857296

Test Conditions

Date of Test : 23-Sep-16 **Supply Voltage** : --
Ambient Temperature : (23 ± 3)°C **Relative Humidity :** (50 ± 25) %

Test Specifications

Calibration check.
Ref. Document/Procedure : F21, Z02, IEC 60942.

Test Results

All results were within the IEC 60942 Class 1 specification.
The results are shown in the attached page(s).

Main Test equipment used:

Equipment No.	Description	Cert. No.	Traceable to
S014	Spectrum Analyzer	605758	NIM-PRC & SCL-HKSAR
S240	Sound Level Calibrator	601604	NIM-PRC & SCL-HKSAR
S041	Universal Counter	607883	SCL-HKSAR
S206	Sound Level Meter	605757	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), or by reference to a natural constant.
The test results apply to the above Unit-Under-Test only

Calibrated by : Kin Wong **Approved by :** Alan Chu

Date: 23-Sep-16

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

Calibration Certificate

Results :

1. **Generated Sound Pressure Level**

UUT Nominal Value (dB)	Measured Value (dB)	IEC 60942 Class 1 Spec.
94	94.1	± 0.4 dB

Uncertainty : ± 0.1 dB

2. **Short-term Level Fluctuation** : 0.0 dB
IEC 60942 Class 1 Spec. : ± 0.1 dB
Uncertainty : ± 0.01 dB

3. **Frequency**

UUT Nominal Value (kHz)	Measured Value (kHz)	IEC 60942 Class 1 Spec.
1	1.002 1	± 1 %

Uncertainty : $\pm 3.6 \times 10^{-6}$

4. **Total Distortion** : < 1.3 %
IEC 60942 Class 1 Spec. : < 3 %
Uncertainty : ± 2.3 % of reading

Remark : 1. UUT : Unit-Under-Test
2. The uncertainty claimed is for a confidence probability of not less than 95%.
3. Atmospheric Pressure : 1018 hPa.

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

Hong Kong Calibration Ltd.
香港校正有限公司

Calibration Certificate

Certificate No. 608737 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. : Q63459 **Date of receipt :** 22-Sep-16

Item Tested

Description : Sound Level Meter

Manufacturer : B&K **I.D.** : --

Model : 2238 **Serial No.** : 2694908

Test Conditions

Date of Test : 3-Oct-16 **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.

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	601604	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), or by reference to a natural constant.
The test results apply to the above Unit-Under-Test only

Calibrated by : Kin Wong

Approved by : Alan Chu

Date: 3-Oct-16

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

Calibration Certificate

Results :

1. SPL Accuracy

UUT Setting				Applied Value (dB)	UUT Reading (dB)
Range	Freq. Wgt.	Bandwith	Center Freq.		
20 ~ 100	A	BB/F	--	94.0	94.0
	A	BB/S	--		94.0
	C	BB/F	--		94.0
40 ~ 120	A	BB/F	--	94.0	94.0
	A	BB/F	--	114.0	114.2

IEC 60651 Type 1 Spec. : ± 0.7 dB
Uncertainty : ± 0.1 dB

2. Level Stability : 0.0 dB

IEC 60651 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 60651 Type 1 Spec. (Primary Indicator Range)
140	114.0	114.0	0.0	± 0.7 dB
130	104.0	104.0	0.0	
120	94.0	94.0 (Ref.)	- -	
110	84.0	84.0	0.0	
100	74.0	74.0	0.0	
90	64.0	64.0	0.0	
80	54.0	54.0	0.0	

Uncertainty : ± 0.1 dB

3.2 Differential level linearity

UUT Range (dB)	Applied Value (dB)	UUT Reading (dB)	Variation (dB)	IEC 60651 Type 1 Spec.
120	84.0	84.1	+0.1	± 0.4 dB
	94.0	93.9 (Ref.)	- -	
	95.0	95.0	0.0	± 0.2 dB

Uncertainty : ± 0.1 dB

Calibration Certificate

4. Frequency Weighting

A weighting

Frequency	Attenuation (dB)	IEC 60651 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 60804 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	39.5	

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 : 1013 hPa
4. The UUT was adjusted with the laboratory's sound calibrator at the reference sound pressure level before the calibration.

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

Appendix D
EM&A Monitoring Schedules

Entrusted Portion of Widening of Tolo Highway / Fanling Highway between Island House Interchange and Fanling Stage 2
Impact Monitoring & Site Auditing Schedule for July 2017

July 2017						
Sun	Mon	Tue	Wed	Thu	Fri	Sat
						1 Hong Kong Special Administrative Region Establishment Day
2	3	4	5 24-hour TSP + 3 x 1-hour TSP, Noise (SR77)	6 ET Site Walk(10:00am – 11:30am)	7	8
9	10	11 24-hour TSP + 3 x 1-hour TSP, Noise (SR77)	12	13 ET Site Walk(10:00am – 11:30am)	14	15
16	17 24-hour TSP + 3 x 1-hour TSP, Noise (SR77)	18	19 ET Site Walk(02:30 pm – 04:00 pm) with Liantang Project-wide ET and IEC + SSEMC	20	21 24-hour TSP + 3 x 1-hour TSP	22
23	24	25	26	27 ET Site Walk(10:00am – 11:30am) with Fanling Stage 2 IEC & Liantang Project-wide ET and IEC 24-hour TSP + 3 x 1-hour TSP, Noise (SR77)	28	29
30	31					

Entrusted Portion of Widening of Tolo Highway / Fanling Highway between Island House Interchange and Fanling Stage 2
Impact Monitoring & Site Auditing Schedule for August 2017

August 2017						
Sun	Mon	Tue	Wed	Thu	Fri	Sat
		1	2 24-hour TSP + 3 x 1-hour TSP, Noise (SR77)	3 ET Site Walk(09:30am – 11:00am)	4	5
6	7	8 24-hour TSP + 3 x 1-hour TSP, Noise (SR77)	9	10 ET Site Walk(09:30am – 11:00am)	11	12
13	14 24-hour TSP + 3 x 1-hour TSP, Noise (SR77)	15	16 ET Site Walk(09:30 am – 11:00 am) with Liantang Project-wide ET and IEC + SSEMC (To be confirmed)	17	18 24-hour TSP + 3 x 1-hour TSP	19
20	21	22	23	24 ET Site Walk(09:30am – 11:00am) 24-hour TSP + 3 x 1-hour TSP, Noise (SR77)	25	26
27	28	29	30 24-hour TSP + 3 x 1-hour TSP, Noise (SR77)	31 ET Site Walk(09:30am – 11:00 am) with Fanling Stage 2 IEC & Liantang Project-wide ET and IEC (To be confirmed)		

Appendix E
Meteorological Data Extracted from Hong Kong Observatory

Daily Extract of Meteorological Observations , July 2017

Day	Hong Kong Observatory								King's Park	Waglan Island^	
	Mean Pressure (hPa)	Air Temperature			Mean Dew Point (deg. C)	Mean Relative Humidity (%)	Mean Amount of Cloud (%)	Total Rainfall (mm)	Total Bright Sunshine (hours)	Prevailing Wind Direction (degrees)	Mean Wind Speed (km/h)
		Absolute Daily Max (deg. C)	Mean (deg. C)	Absolute Daily Min (deg. C)							
01	1006.3	31.7	29.2	26.7	25.2	79	82	7.4	5.5	***	***
02	1005.8	30.3	28.9	26.2	25.9	84	88	8.8	0.9	***	***
03	1006.1	30.7	28.5	26.7	25.4	83	87	8.4	1.3	***	***
04	1008.4	28.6	26.5	25.3	25.0	92	84	32.3	2.3	***	***
05	1009.3	31.0	27.8	26.5	25.7	89	85	27.5	5.9	***	***
06	1008.1	28.7	27.0	25.8	25.9	93	88	16.3	1.0	***	***
07	1008.5	29.8	27.3	26.0	24.9	87	88	35.8	2.4	***	***
08	1009.9	28.9	27.5	26.3	25.9	91	88	12.8	0.1	***	***
09	1009.7	32.3	29.3	27.1	25.5	81	77	1.2	7.4	***	***
10	1008.5	32.1	29.4	27.5	24.9	77	83	0.6	5.9	***	***
11	1010.1	32.7	29.5	27.6	25.3	78	68	0.0	9.6	***	***
12	1011.0	32.9	29.6	27.9	25.6	79	76	Trace	7.4	***	***
13	1008.8	33.5	30.2	28.2	26.0	79	67	Trace	9.7	***	***
14	1007.6	32.8	29.3	27.4	25.8	82	72	2.3	8.3	***	***
15	1007.4	32.1	28.7	27.0	25.6	84	82	8.8	5.1	***	***
16	1007.8	28.5	27.4	26.1	25.6	90	88	21.0	0.6	***	***
17	1008.9	28.8	26.2	24.4	25.2	95	88	184.6	0.3	***	***
18	1011.2	27.8	25.7	24.6	25.0	96	91	134.3	0.0	***	***
19	1009.3	30.8	27.4	24.5	25.4	89	84	12.6	7.1	***	***
20	1008.6	30.8	28.6	27.2	25.8	85	88	2.0	6.3	***	***
21	1009.4	32.2	29.3	27.6	25.6	81	79	0.2	7.2	***	***
22	1008.8	33.1	29.2	26.5	25.4	81	75	3.3	8.4	***	***
23	1005.7	28.8	27.2	25.6	24.8	87	86	46.5	0.1	***	***
24	1005.5	31.2	27.9	25.8	25.8	89	74	3.3	4.6	***	***
25	1005.1	33.1	29.6	27.7	25.6	80	55	Trace	10.4	***	***
26	1004.1	34.4	29.8	27.1	25.2	77	60	0.0	10.1	***	***
27	1003.4	30.6	29.0	28.0	25.3	80	80	Trace	2.9	***	***
28	1003.6	34.4	30.3	28.1	24.7	73	57	0.0	10.2	***	***
29	999.9	33.8	30.8	28.8	25.2	72	69	0.0	7.3	***	***
30	996.0	34.8	31.8	29.6	26.4	74	69	0.0	11.0	***	***
31	997.9	32.4	30.7	29.8	26.7	79	83	0.0	3.6	***	***
Mean/Total	1006.8	31.4	28.7	26.9	25.5	83	79	570.0	162.9	***	***
Normal§	1005.7	31.4	28.8	26.8	25.1	81	69	376.5	212.0	230	21.3

*** unavailable

^ Information of wind direction and wind speed for Waglan Island are based on automatic weather station data since January 1989

Trace means rainfall less than 0.05 mm

§ 1981-2010 Climatological Normal, unless otherwise specified

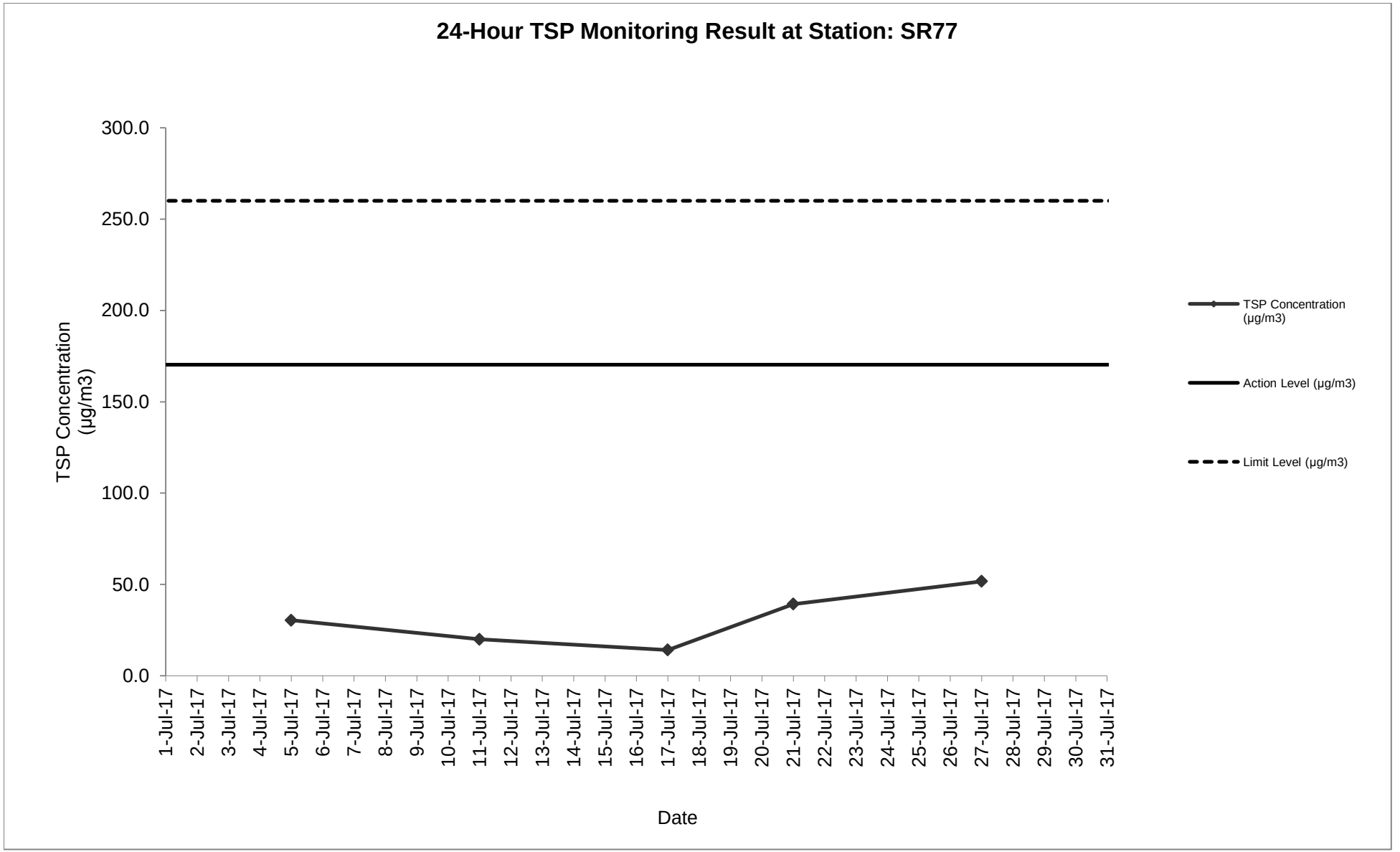
Appendix F
Air Quality Monitoring Results and their Graphical Presentation

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 (μg/m^3)	Action Level (μg/m3)	Limit Level (μg/m3)	Wind speed m/s	Wind direction	NOE	IR
				Initial Wt.	Final Wt.	Wt. of Dust	Initial	Final	Sampling Hour	Initial	Final	Avg Flow Rate	Initial	Final	Avg Flow Rate								
5-Jul-17	Cloudy	12:11	CC62	2.8226	2.8859	0.0633	6736.67	6760.67	24.00	51	51	51.0	1.44	1.44	1.44	2079.59	30.4	170.3	260.0	<5	N		
11-Jul-17	Cloudy	12:10	CC64	2.8430	2.8845	0.0415	6763.67	6787.67	24.00	51	51	51.0	1.44	1.44	1.44	2079.59	20.0	170.3	260.0	<5	N		
17-Jul-17	Rainy	12:11	CC66	2.8421	2.8715	0.0294	6790.67	6814.67	24.00	51	51	51.0	1.44	1.44	1.44	2079.59	14.1	170.3	260.0	<5	N		
21-Jul-17	Fine	12:10	CC68	2.8264	2.9080	0.0816	6817.67	6841.67	24.00	51	51	51.0	1.44	1.44	1.44	2079.59	39.2	170.3	260.0	<5	N		
27-Jul-17	Fine	12:11	CC70	2.8542	2.9617	0.1075	6844.67	6868.67	24.00	51	51	51.0	1.44	1.44	1.44	2079.59	51.7	170.3	260.0	<5	N		
																Average	31.1						
																Min	14.1						
																Max	51.7						

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


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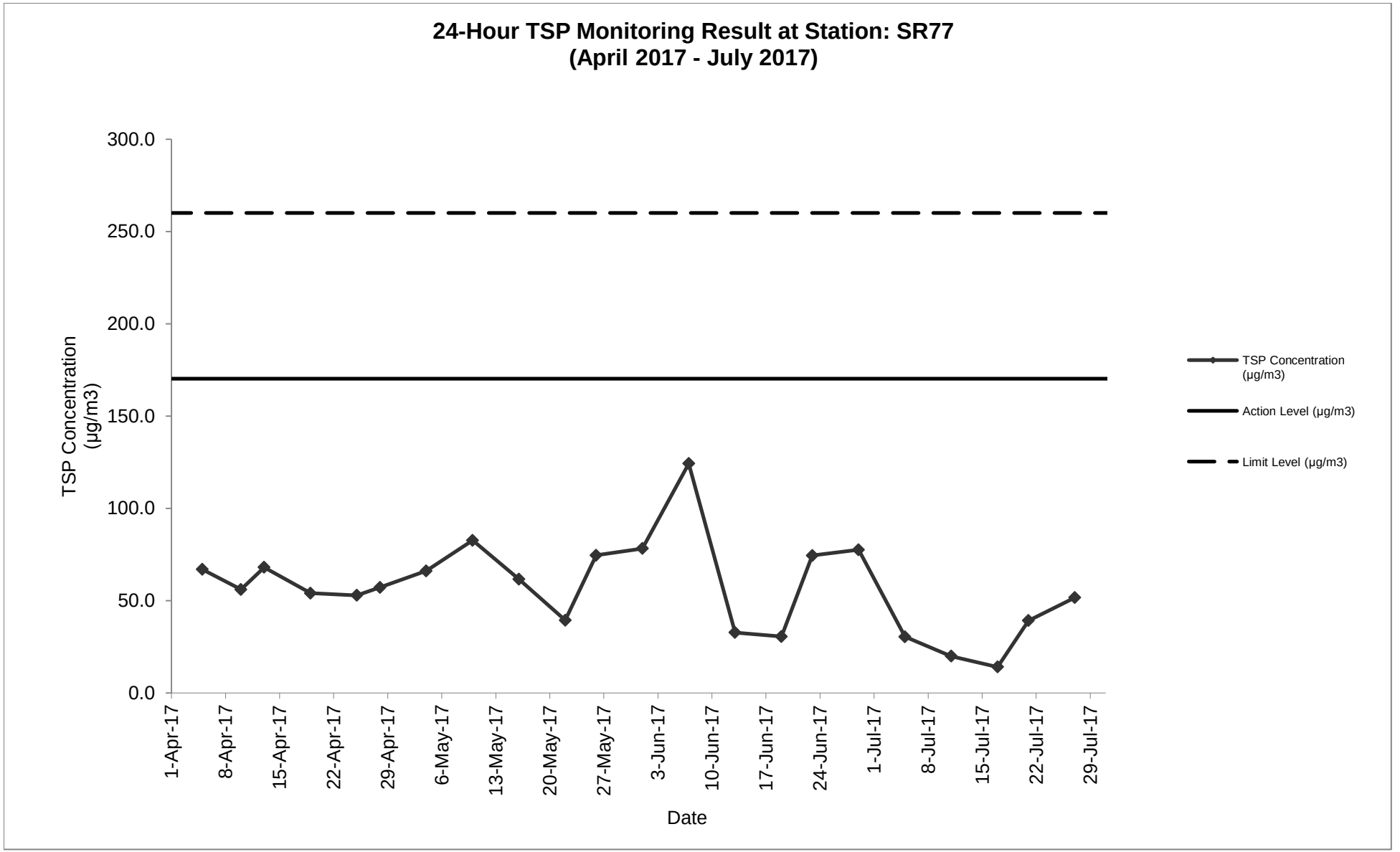
30-Jul-17
31-Jul-17
Date
TSP Concentration (µg/m3)
Action Level (µg/m3)
Limit Level (µg/m3)

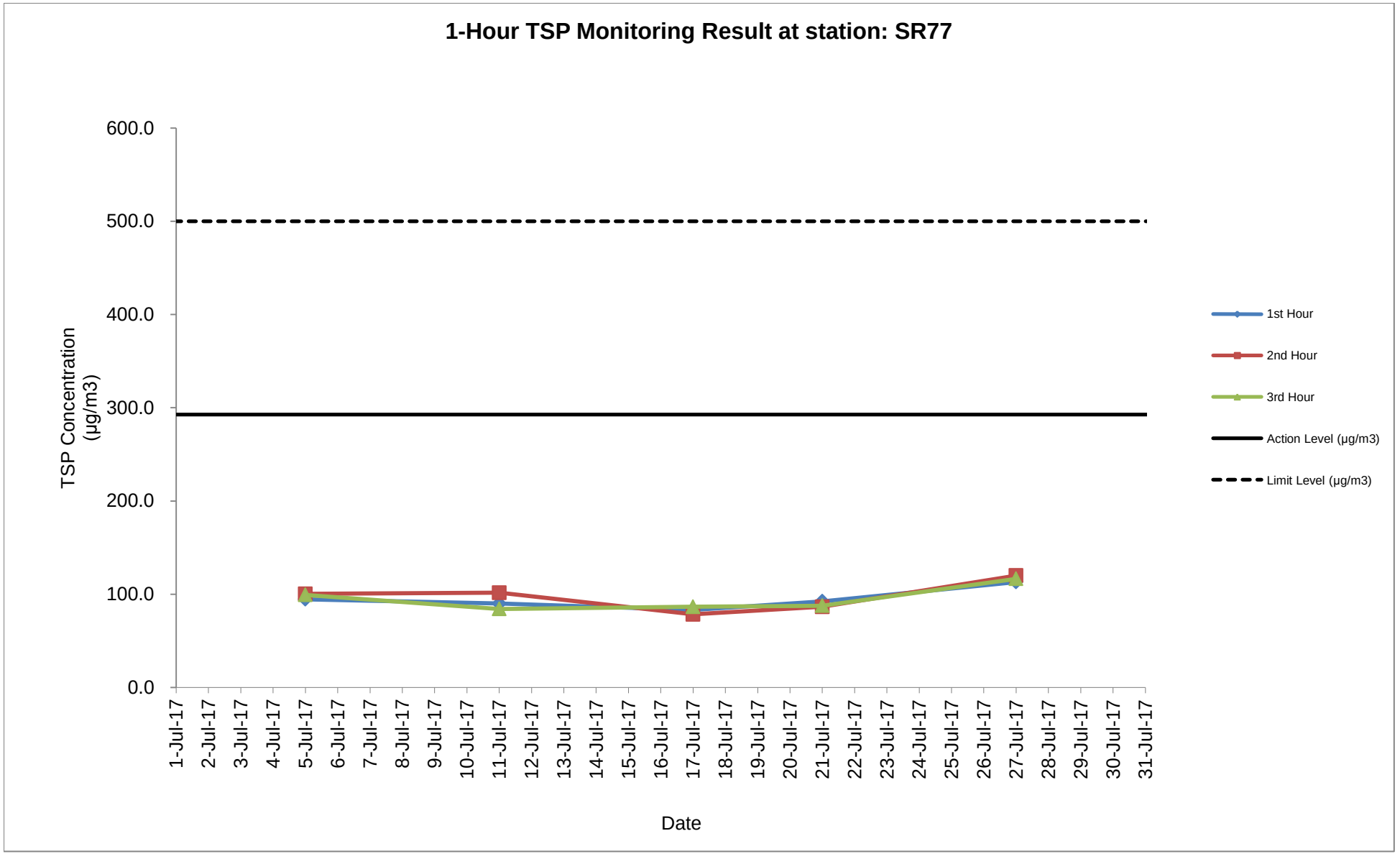

24-Hour TSP Monitoring Result at Station: SR77
(April 2017 - July 2017)
TSP Concentration (µg/m3)
300.0
250.0
200.0
150.0
100.0
50.0
0.0
1-Apr-17
8-Apr-17
15-Apr-17
22-Apr-17
29-Apr-17
6-May-17
13-May-17
20-May-17
27-May-17
3-Jun-17
10-Jun-17
17-Jun-17
24-Jun-17
1-Jul-17
8-Jul-17
15-Jul-17
22-Jul-17
29-Jul-17
Date
TSP Concentration (µg/m3)
Action Level (µg/m3)
Limit Level (µg/m3)

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						
5-Jul-17	Cloudy	09:00	CC63A	2.8529	2.8611	0.0082	6733.67	6734.67	1.00	51	51	51.0	1.44	1.44	1.44	86.65	94.6	292.7	500.0	<5	N
	Cloudy	10:03	CC63B	2.8491	2.8578	0.0087	6734.67	6735.67	1.00	51	51	51.0	1.44	1.44	1.44	86.65	100.4	292.7	500.0	<5	N
	Cloudy	11:07	CC63C	2.8603	2.8689	0.0086	6735.67	6736.67	1.00	51	51	51.0	1.44	1.44	1.44	86.65	99.3	292.7	500.0	<5	N
11-Jul-17	Cloudy	09:00	CC65A	2.8376	2.8454	0.0078	6760.67	6761.67	1.00	51	51	51.0	1.44	1.44	1.44	86.65	90.0	292.7	500.0	<5	N
	Cloudy	10:04	CC65B	2.8413	2.8501	0.0088	6761.67	6762.67	1.00	51	51	51.0	1.44	1.44	1.44	86.65	101.6	292.7	500.0	<5	N
	Cloudy	11:08	CC65C	2.8298	2.8371	0.0073	6762.67	6763.67	1.00	51	51	51.0	1.44	1.44	1.44	86.65	84.2	292.7	500.0	<5	N
17-Jul-17	Rainy	09:00	CC67A	2.8487	2.8559	0.0072	6787.67	6788.67	1.00	51	51	51.0	1.44	1.44	1.44	86.65	83.1	292.7	500.0	<5	N
	Rainy	10:04	CC67B	2.8339	2.8407	0.0068	6788.67	6789.67	1.00	51	51	51.0	1.44	1.44	1.44	86.65	78.5	292.7	500.0	<5	N
	Rainy	11:08	CC67C	2.8416	2.8491	0.0075	6789.67	6790.67	1.00	51	51	51.0	1.44	1.44	1.44	86.65	86.6	292.7	500.0	<5	N
21-Jul-17	Fine	09:00	CC69A	2.8449	2.8529	0.0080	6814.67	6815.67	1.00	51	51	51.0	1.44	1.44	1.44	86.65	92.3	292.7	500.0	<5	N
	Fine	10:03	CC69B	2.8414	2.8489	0.0075	6815.67	6816.67	1.00	51	51	51.0	1.44	1.44	1.44	86.65	86.6	292.7	500.0	<5	N
	Fine	11:07	CC69C	2.8613	2.8689	0.0076	6816.67	6817.67	1.00	51	51	51.0	1.44	1.44	1.44	86.65	87.7	292.7	500.0	<5	N
27-Jul-17	Fine	09:00	CC71A	2.8403	2.8501	0.0098	6841.67	6842.67	1.00	51	51	51.0	1.44	1.44	1.44	86.65	113.1	292.7	500.0	<5	N
	Fine	10:04	CC71B	2.8294	2.8398	0.0104	6842.67	6843.67	1.00	51	51	51.0	1.44	1.44	1.44	86.65	120.0	292.7	500.0	<5	N
	Fine	11:08	CC71C	2.8511	2.8612	0.0101	6843.67	6844.67	1.00	51	51	51.0	1.44	1.44	1.44	86.65	116.6	292.7	500.0	<5	N
																Average	95.6				
																Min	78.5				
																Max	120.0				

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-Jul-17
2-Jul-17
3-Jul-17
4-Jul-17
5-Jul-17
6-Jul-17
7-Jul-17
8-Jul-17
9-Jul-17
10-Jul-17
11-Jul-17
12-Jul-17
13-Jul-17
14-Jul-17
15-Jul-17
16-Jul-17
17-Jul-17
18-Jul-17
19-Jul-17
20-Jul-17
21-Jul-17
22-Jul-17
23-Jul-17
24-Jul-17
25-Jul-17
26-Jul-17
27-Jul-17
28-Jul-17
29-Jul-17
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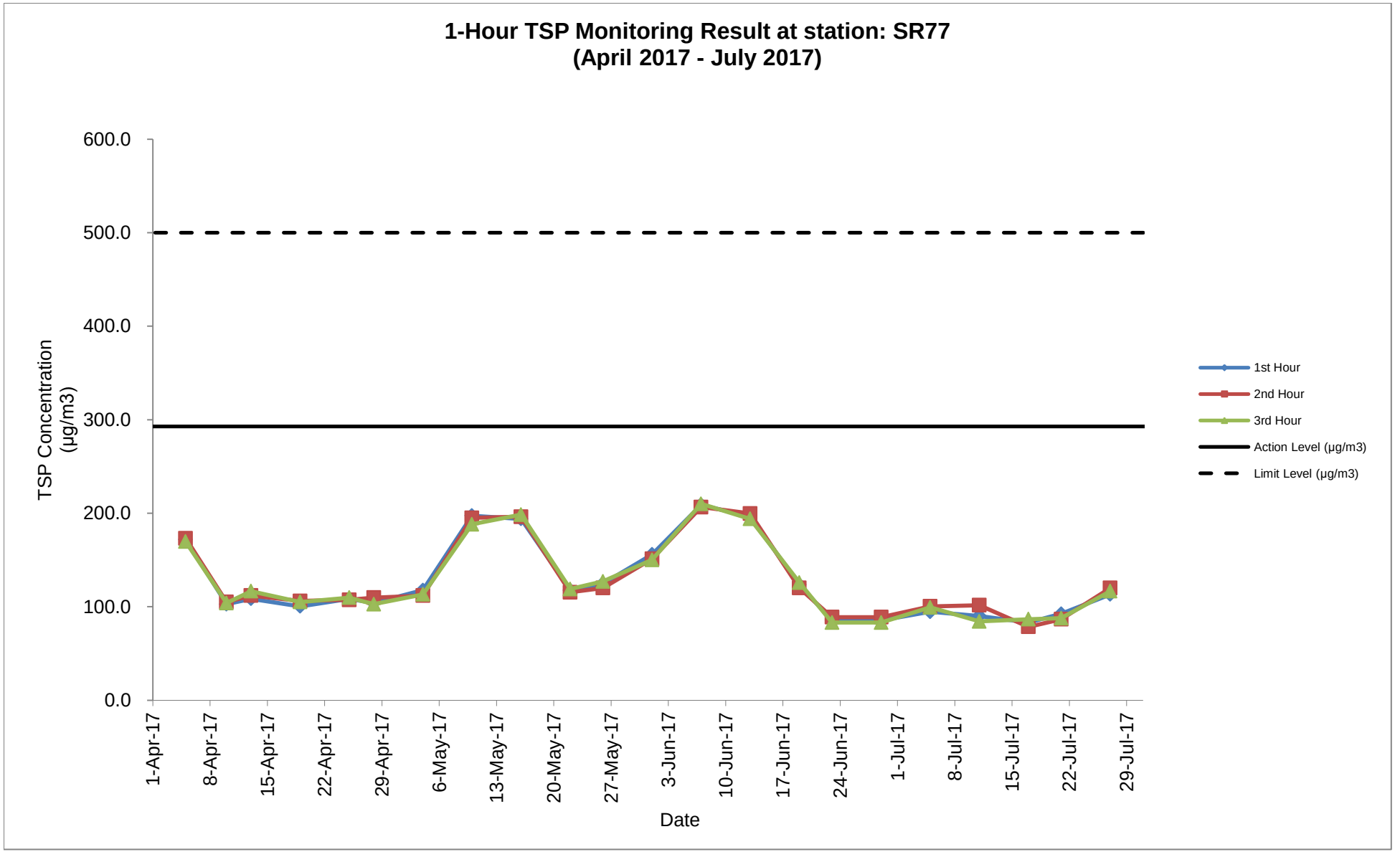
31-Jul-17
Date
1st Hour
2nd Hour
3rd Hour
Action Level (µg/m3)
Limit Level (µg/m3)


1-Hour TSP Monitoring Result at station: SR77
(April 2017 - July 2017)
600.0
500.0
400.0
300.0
200.0
100.0
0.0
TSP Concentration (µg/m3)
1-Apr-17
8-Apr-17
15-Apr-17
22-Apr-17
29-Apr-17
6-May-17
13-May-17
20-May-17
27-May-17
3-Jun-17
10-Jun-17
17-Jun-17
24-Jun-17
1-Jul-17
8-Jul-17
15-Jul-17
22-Jul-17
29-Jul-17
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

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

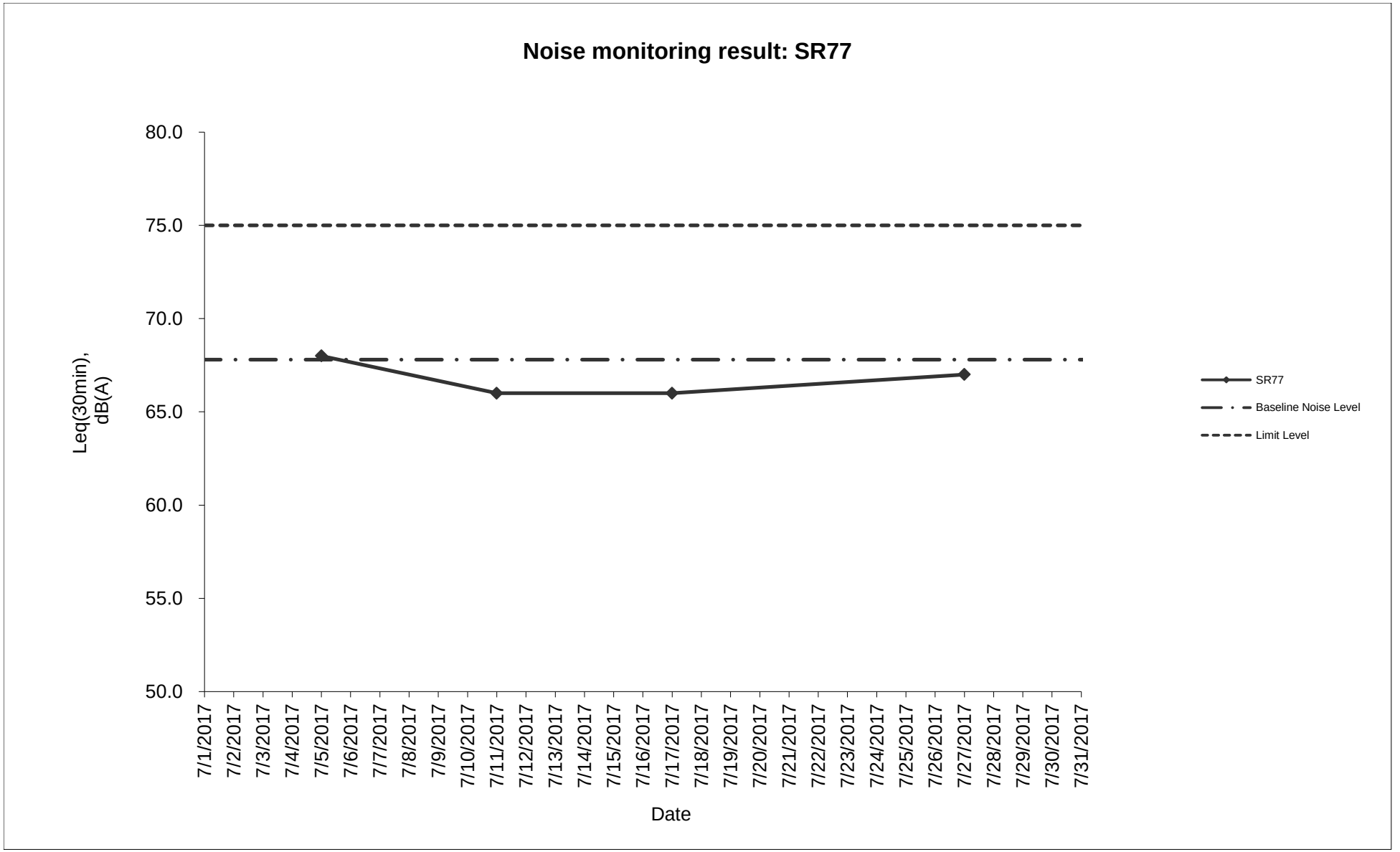
Noise Monitoring Result at SR77

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)				
2017/07/05	Cloudy	11:30	12:00	89.0	57.0	68.0	-	67.8	75.0	N
2017/07/11	Cloudy	11:30	12:00	90.0	62.0	66.0	-	67.8	75.0	N
2017/07/17	Cloudy	11:30	12:00	93.0	60.0	66.0	-	67.8	75.0	N
2017/07/27	Fine	11:30	12:00	93.5	57.0	67.0	-	67.8	75.0	N
					Average	66.8				
					Minimum	66.0				
					Maximum	68.0				

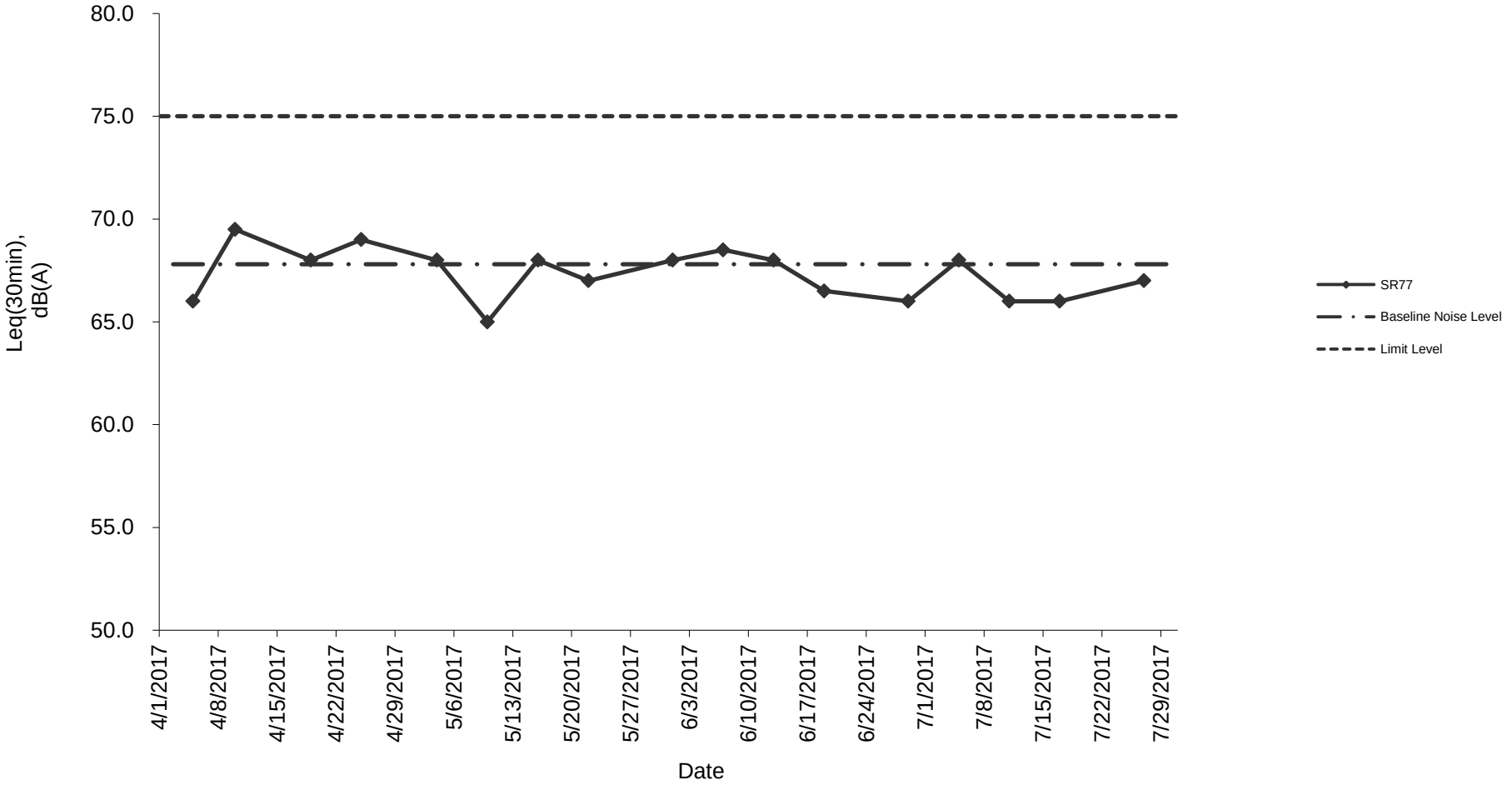
Remarks

* +3dB(A) Façade effect correction included

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


Noise monitoring result: SR77
80.0
75.0
70.0
65.0
60.0
55.0
50.0
Leq(30min), dB(A)
7/1/2017
7/2/2017
7/3/2017
7/4/2017
7/5/2017
7/6/2017
7/7/2017
7/8/2017
7/9/2017
7/10/2017
7/11/2017
7/12/2017
7/13/2017
7/14/2017
7/15/2017
7/16/2017
7/17/2017
7/18/2017
7/19/2017
7/20/2017
7/21/2017
7/22/2017
7/23/2017
7/24/2017
7/25/2017
7/26/2017
7/27/2017
7/28/2017
7/29/2017
7/30/2017
7/31/2017
Date
SR77
Baseline Noise Level
Limit Level

Noise monitoring result: SR77
(April 2017 - July 2017)



Appendix K
Waste Flow Table

Monthly Summary Waste Flow Table

	Actual Quantities of Inert C&D Materials Generated Monthly							Actual Quantities of C&D Wastes Generated Monthly				
Month	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-17	1.150	0.204	0.946	0.150	-	0.796	1.150	-	-	0.001	-	0.170
Feb-17	1.160	0.308	0.852	0.192	-	0.660	0.926	-	-	0.001	-	0.140
Mar-17	2.287	0.565	1.722	0.060	-	1.662	1.055	-	-	-	-	0.115
Apr-17	1.003	0.064	0.939	0.036	-	0.903	0.463	-	-	0.004	-	0.075
May-17	0.497	0.005	0.492	0.120	-	0.372	0.050	0.767	-	-	-	0.105
Jun-17	1.248	0.150	1.098	0.150		0.948	0.008	-	-	-	-	0.135
Sub-Total	7.345	1.296	6.049	0.708	-	5.341	3.652	0.767	-	0.006	-	0.740
Jul-17	1.917	0.180	1.737	0.120	-	1.617	0.542	-	-	-	-	0.065
Aug-17	-		-									
Sep-17	-		-									
Oct-17	-		-									
Nov-17	-		-									
Dec-17	-		-									
Total	9.262	1.476	7.786	0.828	-	6.958	4.194	0.767	-	0.006	-	0.805

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 5m^3.
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	✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓
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	✓

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.			Rem
	● 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	Obs
	● 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.	During Construction	Contractor	✓
	• 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.			✓
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.	During Construction	Contractor	✓
	• 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.			✓
	<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	✓ ✓ ✓ ✓ ✓ ✓ ✓
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 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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