

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

Monthly EM&A Report

May 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

(May 2017)

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Date: 12 June 2017

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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 – May 2017 for the portion of Stage 2 works entrusted to Civil Engineering and Development Department (CEDD) under Contract No. CV/2012/09**

12 June 2017

By Fax (2805 5028) & Hand

We refer to the revised Monthly EM&A Report – May 2017 received on 12 June 2017 submitted by the Environmental Team via email. Pursuant to Environmental Permit Condition 3.3, I hereby verify the Monthly EM&A Report – May 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



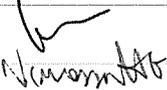
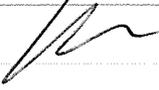
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## EXECUTIVE SUMMARY

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 May 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;
- Footbridge Construction;
- Noise Barrier Construction;
- Pier Table Construction;
- Portal Construction;
- Roadworks;
- Viaduct Segment Erection;
- Water Main Laying Works;
- Gabion Wall Construction;
- Installation of Noise Barrier Steel Column & 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; and
- 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;
- Cable Detection and Trial Trenches;
- Installation of Noise Barrier Steel Post, Steel Column and Panel;
- Footbridge Construction;
- Mini-pile Installation Works;
- Noise Barrier Construction ;
- Pier Table 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;
- Pit construction for heading works;
- Construction of abutment wall; and
- Gabion wall construction.

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 May 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 Re-provision; and

Box Culvert Extension – Flow diversion of existing stream, excavation, sub-base and blinding, base, wall and top slab construction.

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

## 2.3 Construction Programme and Activities

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

- Boundary wall construction for DSD pumping station;
- Cable Detection and Trial Trenches;
- Footbridge Construction;
- Noise Barrier Construction;
- Pier Table Construction;
- Portal Construction;
- Roadworks;
- Viaduct Segment Erection;
- Water Main Laying Works;
- Gabion Wall Construction;
- Installation of Noise Barrier Steel Column & 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; and
- 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.<br>/ Notification /<br>Reference No. | Valid Period |             | Status                    | Remarks  |
|---|--------------|-------------|---------------------------|--|
|   | From         | To          |                           |  |
| <b>Environmental Permit</b>                               |              |             |                           |  |
| EP-324/2008/E   | 26 Jan 2017  | --          | Granted on 26<br>Jan 2017 |  |
| <b>Construction Noise Permit</b>                          |              |             |                           |  |
| GW-RN0833-16  | 13 Nov 2016  | 10 May 2017 | Valid                     | For segment erection crossing over MTRC's Rail Track of Pier AB11 and AD12 (0115-0500)     |
| GW-RN0871-16  | 29 Nov 2016  | 20 May 2017 | Valid                     | For segment stitches concreting between AA11 and AA12 crossing over Fanling Highway        |
| GW-RN0872-16  | 29 Nov 2016  | 20 May 2017 | Valid                     | For segment stitches concreting from AB3 to AB5 crossing over Fanling Highway              |
| GW-RN0870-16  | 30 Nov 2016  | 13 May 2017 | Valid                     | Road marking works in Fanling Highway bothbounds   |
| GW-RN0901-16  | 11 Dec 2016  | 4 Jun 2017  | Valid                     | Demolition of Vehicular Bridge at Fanling Highway Southbound in Sunday and Public Holidays |
| GW-RN0939-16  | 22 Dec 2016  | 21 Jun 2017 | Valid                     | For general works at southward of site office  |
| GW-RN0002-17  | 8 Jan 2017   | 4 Jun 2017  | Valid                     | For welding work of steel truss on Fanling Highway   |

| Permit / License No.<br>/ Notification /<br>Reference No. | Valid Period |             | Status | Remarks   |
|---|--------------|-------------|--------|---|
|   | From         | To          |        |   |
| 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-RN0048-17  | 25 Jan 2017  | 16 Jun 2017 | Valid  | For road diversion and maintenance of Fanling Highway Southbound  |
| 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 |
| GW-RN0078-17  | 21 Feb 2017  | 21 Jun 2017 | Valid  | For dismantling of catch fence within MTR Protection Zone at Tong Hang Tung Chuen   |
| GW-RN0084-17  | 8 Feb 2017   | 15 Jul 2017 | Valid  | For concreting slab of Kiu Tau Footbridge at Fanling Highway Both Bound   |

| Permit / License No.<br>/ Notification /<br>Reference No. | Valid Period |             | Status | Remarks  |
|---|--------------|-------------|--------|--|
|   | From         | To          |        |  |
| GW-RN0096-17  | 19 Feb 2017  | 10 Jul 2017 | Valid  | For road resurfacing of Fanling Highway Southbound   |
| GW-RN0099-17  | 17 Feb 2017  | 12 Aug 2017 | Valid  | For road diversion and maintenance of Fanling Highway Northbound                                   |
| 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 | Valid  | 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.<br>/ Notification /<br>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-RN0305-17   | 30 Apr 2017  | 30 Jul 2017 | Valid          | For loading and unloading along Fanling Highway both bounds on general holiday daytime          |
| GW-RN0337-17   | 26 May 2017  | 18 Nov 2017 | Valid          | For segment stitches concreting and installation of parapet crossing over Fanling Highway       |
| GW-RN0342-17   | 28 May 2017  | 20 Nov 2017 | Valid          | For road marking works in Fanling Highway bothbounds  |
| <b>Wastewater Discharge License</b>  |              |             |                |   |
| WT00016832-2013  | 28 Aug 2013  | 31 Aug 2018 | Valid          | --  |
| <b>Chemical Waste Producer Registration</b>                                    |              |             |                |   |
| 5113-634-C3817-01  | 7 Oct 2013   | --          | Valid          | --  |
| <b>Billing Account for Construction Waste Disposal</b>                         |              |             |                |   |
| 7017914  | 2 Aug 2013   | --          | Account Active | --  |
| <b>Notification Under Air Pollution Control (Construction Dust) Regulation</b> |              |             |                |   |
| --   | 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-weighed filter paper inside the HVS at a controlled air flow rate. After 24-hr sampling, the filter papers loaded with dust were kept in a clean and tightly sealed plastic bag, and then returned to the laboratory for reconditioning in the humidity controlled chamber followed by accurate weighing by an electronic balance with a readout down to 0.1 mg.
- 4.5.6 All the collected samples were kept in a good condition for 6 months before disposal.
- 4.5.7 For 1-hr TSP monitoring, monitoring methodology is the same as 24-hr TSP monitoring which has been presented in **Section 4.5.1** to **Section 4.5.6**, but with sampling period changed to 1 hour.

#### 4.6 Monitoring Schedule for the Reporting month

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

#### 4.7 Monitoring Results

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

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

**Table 4.4 Summary of 1-hr TSP Monitoring Results**

| ASR ID      | Average ( $\mu\text{g}/\text{m}^3$ ) | Range ( $\mu\text{g}/\text{m}^3$ ) | Action Level ( $\mu\text{g}/\text{m}^3$ ) | Limit Level ( $\mu\text{g}/\text{m}^3$ ) |
|-------------|--------------------------------------|------------------------------------|---|--|
| AM1(SR77) * | 149.0                                | 111.9 – 198.5                      | 292.7                                     | 500                                      |

Remark:

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

**Table 4.5 Summary of 24-hr TSP Monitoring Results**

| ASR ID      | Average ( $\mu\text{g}/\text{m}^3$ ) | Range ( $\mu\text{g}/\text{m}^3$ ) | Action Level ( $\mu\text{g}/\text{m}^3$ ) | Limit Level ( $\mu\text{g}/\text{m}^3$ ) |
|-------------|--------------------------------------|------------------------------------|---|--|
| AM1(SR77) * | 64.9                                 | 39.4 – 82.7                        | 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) <sup>(2)</sup> | Range, dB(A), Leq (30min) <sup>(2)</sup> | Action Level                                    | Limit Level, dB(A) |
|-----------------------------|--|--|---|--------------------|
| M1(SR77) <sup>(1)</sup>     | 67.0                                       | 65.0 – 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 497m<sup>3</sup> of excavated material has been generated. 372m<sup>3</sup> of inert C&D materials was disposed of at public fill to Tuen Mun Area 38. 120m<sup>3</sup> inert C&D materials were reused on site. 105m<sup>3</sup> 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. 767m<sup>3</sup> of 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, 5 site inspections were carried out on 2, 8, 17, 22 and 29 May 2017. The one held on 29 May 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               | N/A         | N/A                                       | N/A  |
| Waste / Chemical Management | 17 May 2017 | Chemical drum should be put on drip tray. | The chemical drum has been removed from the site during 22 May 2017 site inspection. |
| 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 April 2017 | 12 May 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;
- Cable Detection and Trial Trenches;
- Installation of Noise Barrier Steel Post, Steel Column and Panel;
- Footbridge Construction;
- Mini-pile Installation Works;
- Noise Barrier Construction ;
- Pier Table 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;
- Pit construction for heading works;
- Construction of abutment wall; and
- Gabion wall construction.

### **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 Five (5) 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.

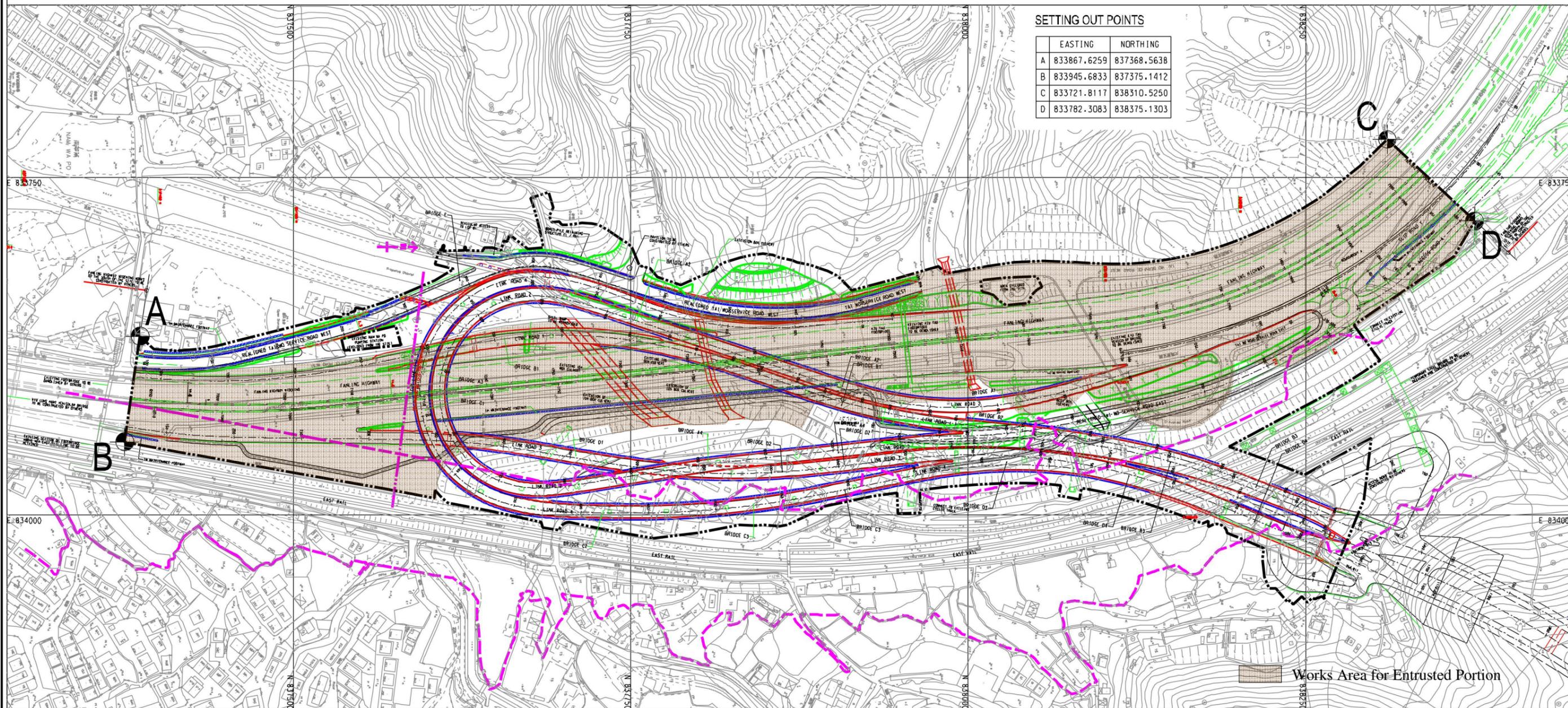
### 13.2 Recommendations

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

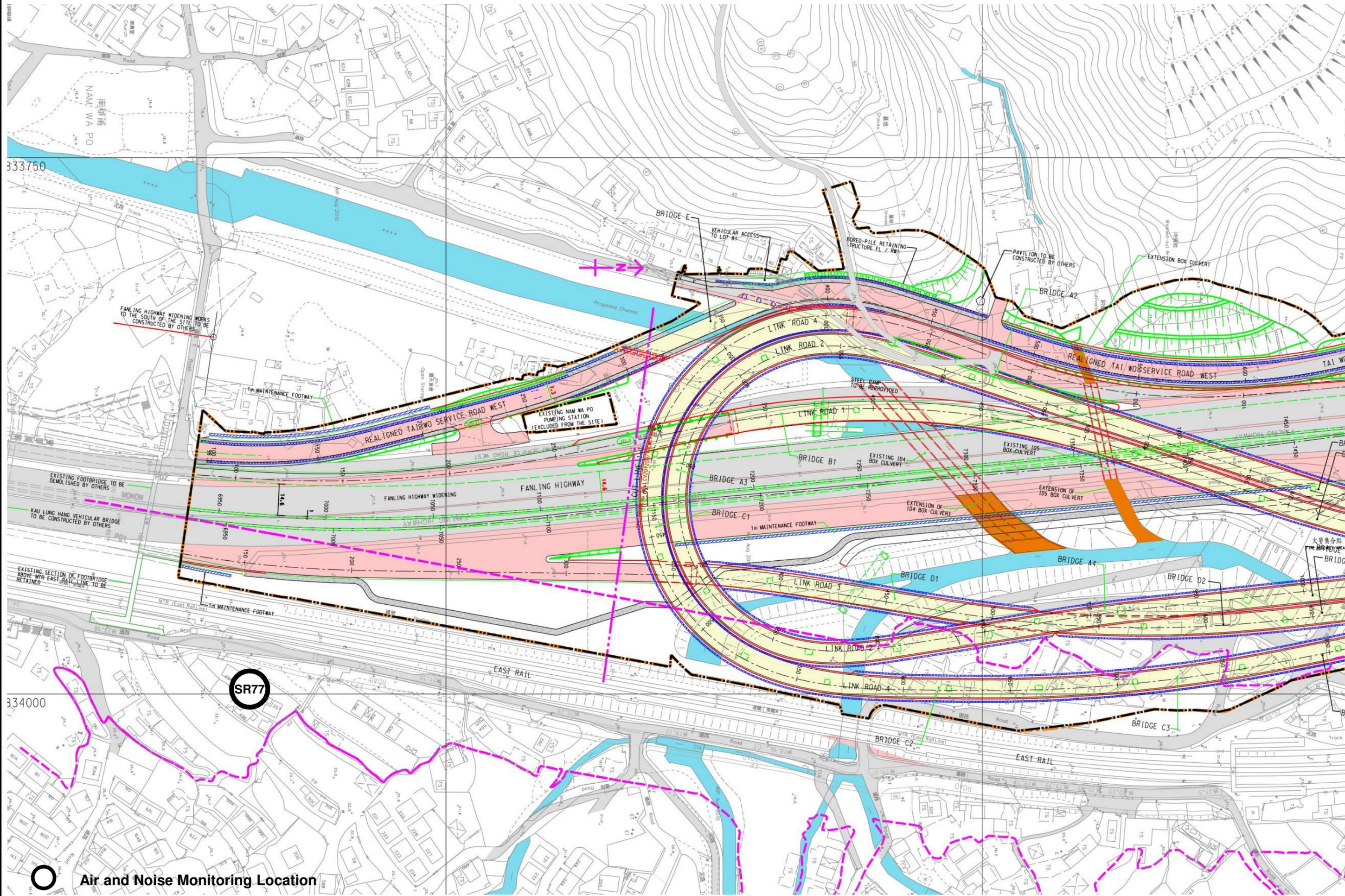
*Waste/ Chemical Management*

- Ensure all chemical drums on site to be placed on drip tray.

## Figure



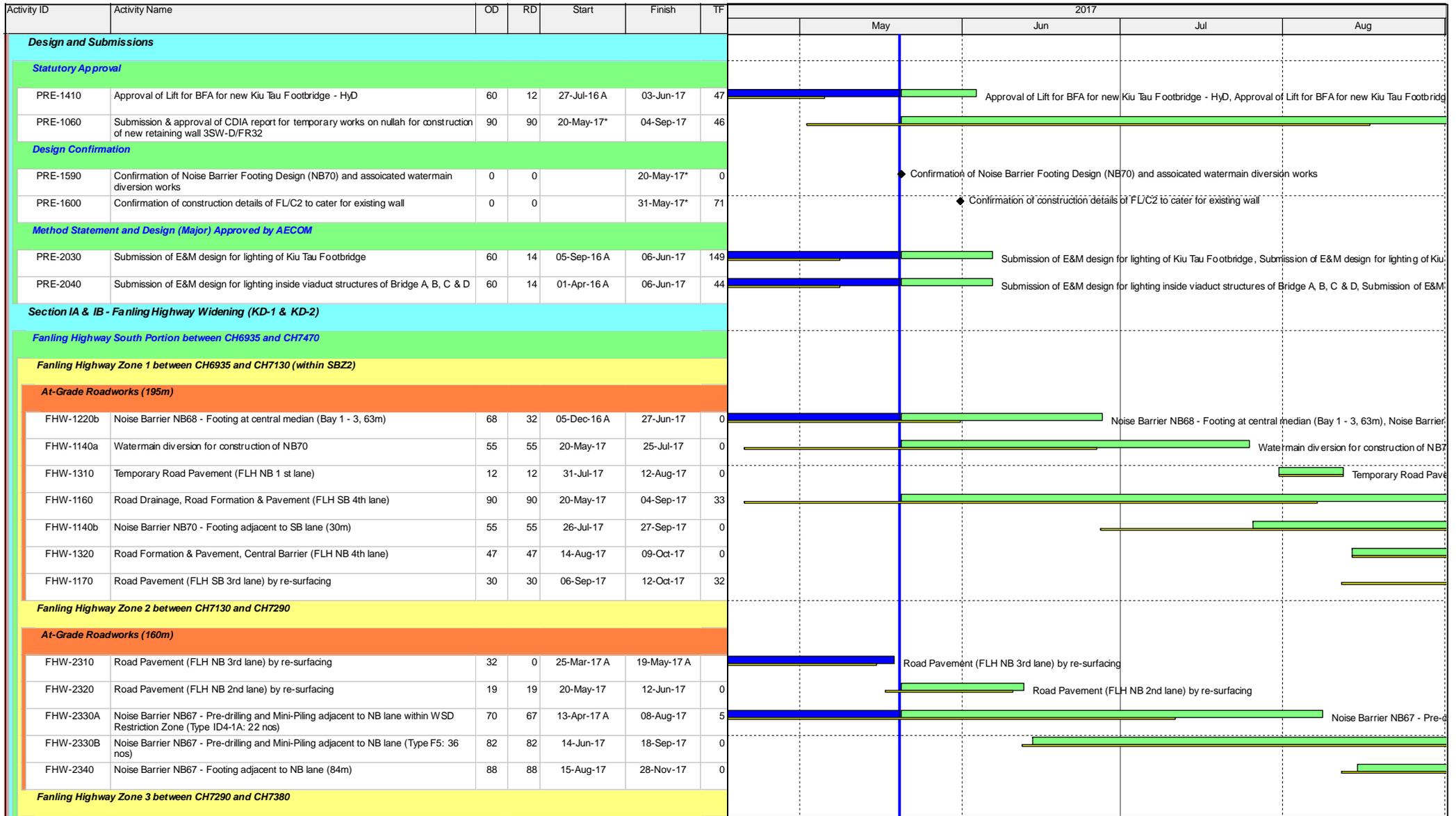
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# Appendix A Construction Programme

| Activity ID   | Activity Name  | OD  | RD  | Start       | Finish      | TF   | 2017 |     |     |     |  |
|---|--|-----|-----|-------------|-------------|------|------|-----|-----|-----|--|
|   |  |     |     |             |             |      | May  | Jun | Jul | Aug |  |
| <b>3-Month Rolling Programme 2017-05-21 (Based on UMP05C)</b> |  |     |     |             |             |      |      |     |     |     |  |
| <b>Key Dates (Contractual)</b>                                |  |     |     |             |             |      |      |     |     |     |  |
| KD-1300   | KD10: Stage S4 - Completion of road widening of Fanling Highway within SBZ2 and allow access for HY/2012/06          | 0   | 0   |             | 20-May-17*  | -169 |      |     |     |     | ◆ KD10: Stage S4 - Completion of road widening of Fanling Highway within SBZ2 and allow access for HY/2012/06          |
| 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    |      |     |     |     | ◆ KD6A: Section 6 - All works in Portion FH9 of the Site but excluding works on the deck surfaces                      |
| 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    |      |     |     |     | ◆ KD9: Stage 1C - Completion of viaduct structures and associated civil provisions for TCSS and allow access for other |
| 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    |      |     |     |     | ◆ KD11: Stage N4 - Completion of road widening of Fanling Highway within NBZ1 and allow access for HY/2012/06          |
| <b>Key Dates (Forecast)</b>                                   |  |     |     |             |             |      |      |     |     |     |  |
| 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    |      |     |     |     | ◆ KD11: Stage N4 - Completion of road widening of Fanling Highway within NBZ1 and allow access for HY/2012/06          |
| 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  |      |     |     |     |  |
| <b>Dependent Milestones from Other Contracts</b>              |  |     |     |             |             |      |      |     |     |     |  |
| <b>Related to South Buffer Zone</b>                           |  |     |     |             |             |      |      |     |     |     |  |
| MS-SBZ110   | Shift existing FLHS SB 3 lanes eastward by FHW3 Contractor   | 0   | 0   | 20-Apr-17 A |             |      |      |     |     |     | ◆ Shift existing FLHS SB 3 lanes eastward by FHW3 Contractor   |
| MS-SBZ220   | Shift existing TWSRW SB to permanent alignment by FHW3 Contractor  | 0   | 0   | 31-Jul-17*  |             | 0    |      |     |     |     | ◆ Shift existing TWSRW SB to permanent alignment by FHW3 Contractor  |
| MS-SBZ120   | Shift existing FLHS SB Fast Lane to future FLH 4th Lane by FHW3 Contractor   | 0   | 0   | 11-Aug-17*  |             | 0    |      |     |     |     | ◆ Shift existing FLHS SB Fast Lane to future FLH 4th Lane by FHW3 Contractor   |
| MS-SBZ150   | Shift existing FLHS NB 3 lanes westward by FHW3 Contractor   | 0   | 0   | 13-Aug-17*  |             | 0    |      |     |     |     | ◆ Shift existing FLHS NB 3 lanes westward by FHW3 Contractor   |
| MS-SBZ130   | Shift existing FLHS SB Middle Lane to future FLH 3rd Lane by FHW3 Contractor   | 0   | 0   | 16-Sep-17*  |             | 0    |      |     |     |     | ◆ Shift existing FLHS SB Middle Lane to future FLH 3rd Lane by FHW3 Contractor   |
| <b>Major Milestones and Events</b>                            |  |     |     |             |             |      |      |     |     |     |  |
| MS-1070a  | T7a: TTA to shift FLHS SB eastward (shift 3 lanes), within SBZ   | 1   | 0   | 20-Apr-17 A | 20-Apr-17 A |      |      |     |     |     | T7a: TTA to shift FLHS SB eastward (shift 3 lanes), within SBZ   |
| MS-1060a  | T6a: TTA to shift FLH SB eastward (shift 2 lanes) (North Portion)  | 1   | 0   | 23-Apr-17 A | 23-Apr-17 A |      |      |     |     |     | T6a: TTA to shift FLH SB eastward (shift 2 lanes) (North Portion)  |
| MS-1080c  | T8c: TTA to shift FLH NB Slow Lane to the Permanent Alignment (2nd lane) (South Portion)                             | 1   | 1   | 13-Jun-17   | 13-Jun-17   | 0    |      |     |     |     | T8c: TTA to shift FLH NB Slow Lane to the Permanent Alignment (2nd lane) (South Portion)                               |
| MS-1060c  | T6c: TTA to shift FLH SB Fast Lane eastward (North Portion)  | 1   | 1   | 17-Jul-17   | 17-Jul-17   | 14   |      |     |     |     | T6c: TTA to shift FLH SB Fast Lane eastward (North Portion)  |
| MS-1090a  | T9a: TTA to shift FLHS NB westward (shift 3 lanes), within SBZ   | 1   | 1   | 13-Aug-17   | 13-Aug-17   | 0    |      |     |     |     | T9a: TTA to shift FLHS NB westward (shift 3 lanes), within SBZ   |
| MS-0220   | Commissioning of the diverted twin DN1400 Dong Jang Watermains (Stage 2)   | 0   | 0   |             | 05-Sep-17*  | 0    |      |     |     |     |  |
| MS-1070b  | T7b: TTA to shift FLH SB Fast Lane to the Permanent Alignment (4th lane), within SBZ                                 | 1   | 1   | 05-Sep-17   | 05-Sep-17   | 40   |      |     |     |     | T7b: TTA to shift FLH SB Fast Lane to the Permanent Alignment (4th lane), within SBZ                                   |
| MS-1180d  | T8d: TTA to shift FLH NB Fast Lane to the Permanent Alignment (4th lane) (North Portion)                             | 1   | 1   | 16-Sep-17   | 16-Sep-17   | -15  |      |     |     |     | T8d: TTA to shift FLH NB Fast Lane to the Permanent Alignment (4th lane) (North Portion)                               |
| MS-0320   | Commissioning of re-aligned TWSRE  | 0   | 0   | 18-Sep-17   |             | 0    |      |     |     |     |  |
| <b>Major Procurement &amp; Delivery</b>                       |  |     |     |             |             |      |      |     |     |     |  |
| <b>Lift for New Kiu Tau Footbridge</b>                        |  |     |     |             |             |      |      |     |     |     |  |
| MM-4000   | Procurement, Fabrication and delivery of Lift  | 120 | 120 | 04-Jun-17   | 01-Oct-17   | 56   |      |     |     |     |  |

| Date      | Revision | Checked | Approved |
|-----------|----------|---------|----------|
| 21-May-17 | Rev.1    | SL      |          |
|           |          |         |          |
|           |          |         |          |
|           |          |         |          |
|           |          |         |          |



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

**CEDD Contract No. CV/2012/09**

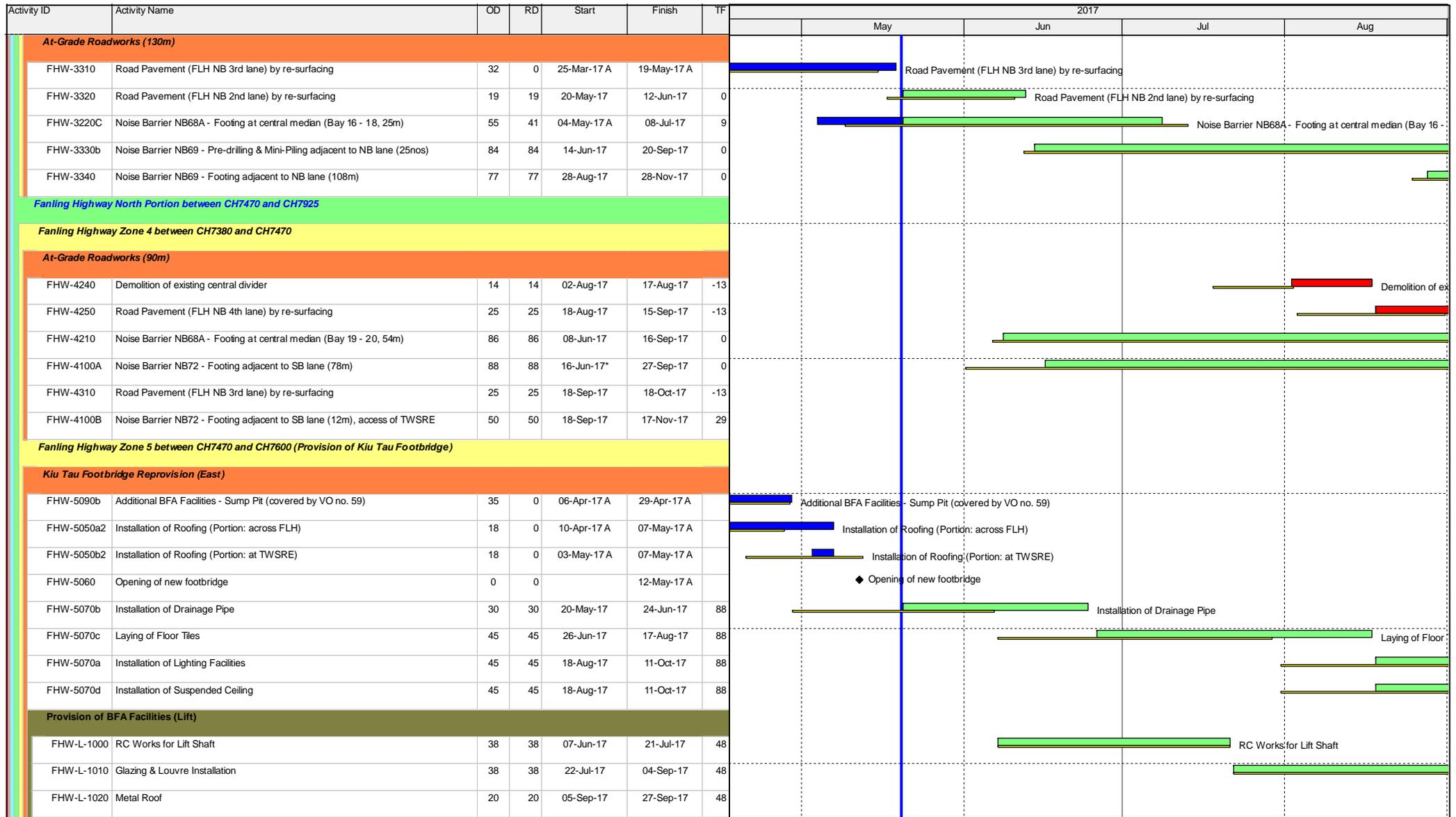
**Liantang / Heung Yuen Wai BCP - Site Formation & Infrastructure Works, Contract 3**

**3-Month Rolling Programme**

**Programme ID: 3MPR046 (Data Date: 20-May-17) Page 2 of 13**

3-Month Rolling Programme updated to 2017-05-21

| Date      | Revision | Checked | Approved |
|-----------|----------|---------|----------|
| 21-May-17 | Rev.1    | SL      |          |
|           |          |         |          |
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| Date      | Revision | Checked | Approved |
|-----------|----------|---------|----------|
| 21-May-17 | Rev.1    | SL      |          |
|           |          |         |          |
|           |          |         |          |
|           |          |         |          |
|           |          |         |          |

| Activity ID   | Activity Name   | OD  | RD  | Start       | Finish    | TF  | 2017 |     |     |   |
|---|---|-----|-----|-------------|-----------|-----|------|-----|-----|---|
|   |   |     |     |             |           |     | May  | Jun | Jul | Aug   |
| FHW-L-1050  | E&M Works including T&C   | 60  | 60  | 22-Jul-17   | 29-Sep-17 | 96  |      |     |     |   |
| <b>Works at existing TWSRE</b>  |   |     |     |             |           |     |      |     |     |   |
| FHW-5460  | Preparation Works for TTA scheme E3B (Shifting TWSRE East Westward, at the area of existing Kiu Tau Footbridge) | 35  | 35  | 20-May-17   | 30-Jun-17 | 0   |      |     |     | Preparation Works for TTA scheme E3B (Shifting TWSRE East Westward, at the area of existing Kiu Tau Footbridge) |
| FHW-5470  | Implementation of TTA - Scheme E3B (Shifting TWSRE East Westward, at the area of existing Kiu Tau Footbridge)   | 0   | 0   | 03-Jul-17   |           | 0   |      |     |     | Implementation of TTA - Scheme E3B (Shifting TWSRE East Westward, at the area of existing Kiu Tau Footbridge)   |
| FHW-5480A   | Grouting Works for the existing DN1400 watermain and Removal of existing watermain                              | 26  | 26  | 14-Sep-17   | 16-Oct-17 | 0   |      |     |     |   |
| FHW-5480  | Noise Barrier NB72 & NB73 (Stage 1) - Footing adjacent to SB lane (97m)   | 126 | 126 | 03-Jul-17   | 29-Nov-17 | 0   |      |     |     |   |
| <b>At-Grade Road Works (130m)</b>   |   |     |     |             |           |     |      |     |     |   |
| FHW-5230  | Demolition of existing central divider  | 14  | 14  | 02-Aug-17   | 17-Aug-17 | -13 |      |     |     | Demolition of existing central divider  |
| FHW-5240  | Road Pavement (FLH NB 4th lane) by re-surfacing   | 25  | 25  | 18-Aug-17   | 15-Sep-17 | -13 |      |     |     |   |
| FHW-5100  | Road Pavement (FLH SB 1st lane) by re-surfacing   | 14  | 14  | 18-Sep-17   | 04-Oct-17 | 0   |      |     |     |   |
| FHW-5310  | Road Pavement (FLH NB 3rd lane) by re-surfacing   | 25  | 25  | 18-Sep-17   | 18-Oct-17 | -13 |      |     |     |   |
| <b>Fanling Highway Zone 6 between CH7600 and CH7660 (Existing Vehicular Bridge)</b> |   |     |     |             |           |     |      |     |     |   |
| <b>At-Grade Roadworks (60m)</b>   |   |     |     |             |           |     |      |     |     |   |
| FHW-6130  | Implementation of TTA - Scheme 6C-1 (Shifting TWSRE East Westward, at the area near existing J-Bridge)          | 0   | 0   | 07-Jun-17   |           | 18  |      |     |     | Implementation of TTA - Scheme 6C-1 (Shifting TWSRE East Westward, at the area near existing J-Bridge)          |
| FHW-6210  | Road Drainage, Road Formation & Pavement and Central Barrier (South Side) (FLH SB 4th lane)                     | 55  | 47  | 24-Apr-17 A | 15-Jul-17 | -13 |      |     |     | Road Drainage, Road Formation & Pavement and Central Barrier (South Side) (FLH SB 4th lane)                     |
| FHW-6120  | Road Formation & Pavement (FLH SB 1st lanes)  | 35  | 35  | 07-Jun-17   | 18-Jul-17 | 629 |      |     |     | Road Formation & Pavement (FLH SB 1st lanes)  |
| FHW-6230a   | Demolition of existing central divider  | 14  | 14  | 17-Jul-17   | 01-Aug-17 | -13 |      |     |     | Demolition of existing central divider  |
| FHW-6230b   | Construction of Sign Gantry Footing (South) G33   | 25  | 25  | 20-Jul-17   | 17-Aug-17 | -13 |      |     |     | Construction of Sign Gantry Footing (South) G33   |
| FHW-6240  | Road Pavement (FLH NB 4th lane) by re-surfacing   | 25  | 25  | 18-Aug-17   | 15-Sep-17 | -13 |      |     |     |   |
| FHW-6140  | Noise Barrier NB73 - Footing adjacent to SB lane (95m)  | 108 | 108 | 07-Jun-17   | 13-Oct-17 | 18  |      |     |     |   |
| FHW-6310  | Road Pavement (FLH NB 3rd lane) by re-surfacing   | 25  | 25  | 18-Sep-17   | 18-Oct-17 | -13 |      |     |     |   |
| <b>Remaining Works for Noise Barrier along widened Fanling Highway</b>              |   |     |     |             |           |     |      |     |     |   |
| FHW-NB-220  | Noise Barrier Steelworks & Panel for NB68 (63m), Fanling Highway central median at Zones 1                      | 13  | 13  | 28-Jun-17   | 13-Jul-17 | 78  |      |     |     | Noise Barrier Steelworks & Panel for NB68 (63m), Fanling Highway central median at Zones 1                      |
| FHW-NB-230  | Noise Barrier Steelworks & Panel for NB68A (225m), Fanling Highway central median at Zones 2 & 3                | 12  | 46  | 02-Mar-17 A | 14-Jul-17 | 169 |      |     |     | Noise Barrier Steelworks & Panel for NB68A (225m), Fanling Highway central median at Zones 2 & 3                |
| FHW-NB-240  | Noise Barrier Steelworks & Panel for NB68A (50m), Fanling Highway central median at Zones 4                     | 6   | 6   | 18-Sep-17   | 23-Sep-17 | 0   |      |     |     | Noise Barrier Steelworks & Panel for NB68A (50m), Fanling Highway central median at Zones 4                     |
| <b>Erection of Sign Gantry</b>  |   |     |     |             |           |     |      |     |     |   |
| FHW-SG-1020   | Erection of Sign Gantry G53 (i.e. Steel Portal Frame)   | 7   | 7   | 12-Sep-17   | 19-Sep-17 | 112 |      |     |     | Erection of Sign Gantry G53 (i.e. Steel Portal Frame)   |
| <b>Section II - Remainder of the Works (KD-3)</b>                                   |   |     |     |             |           |     |      |     |     |   |
| <b>At Grade Link Road at Fanling Highway Interchange</b>                            |   |     |     |             |           |     |      |     |     |   |



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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

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3-Month Rolling Programme updated to 2017-05-21

| Date      | Revision | Checked | Approved |
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| Activity ID                            | Activity Name   | OD  | RD  | Start       | Finish    | TF  | 2017 |     |     |     |  |
|--|---|-----|-----|-------------|-----------|-----|------|-----|-----|-----|--|
|  |   |     |     |             |           |     | May  | Jun | Jul | Aug |  |
| <b>Link Road 1 (near Abutment AB1)</b> |   |     |     |             |           |     |      |     |     |     |  |
| FHI-LR1-1010                           | Completion of Abutment AB1  | 0   | 0   |             | 20-May-17 | 13  |      |     |     |     |  |
| FHI-LR1-1200                           | Completion of Segment Erection Works at TWSRW   | 0   | 0   |             | 20-May-17 | 678 |      |     |     |     |  |
| FHI-LR1-1030                           | Noise Barrier NB66 - Footing adjacent NB lane (38m long, Bay 1 - Bay 4)                   | 90  | 47  | 02-Mar-17 A | 15-Jul-17 | 0   |      |     |     |     |  |
| FHI-LR1-1210                           | Road Pavement Works for Future SB of TWSRW  | 14  | 14  | 14-Jul-17   | 29-Jul-17 | 0   |      |     |     |     |  |
| FHI-LR1-1000                           | Completion of Realigned TWSR West and divert traffic onto the new carriageway (Stage S13) | 0   | 0   |             | 31-Jul-17 | 14  |      |     |     |     |  |
| FHI-LR1-1040a                          | Noise Barrier NB66 - Pre-drilling & Mini-Piling (Cap 1-9 with 18 piles)                   | 54  | 71  | 07-Apr-17 A | 12-Aug-17 | 43  |      |     |     |     |  |
| FHI-LR1-1070                           | Noise Barrier NB67 - Pre-drilling & Mini-Piling (Cap 10-20 for raking piles, 26no.)       | 106 | 74  | 20-Feb-17 A | 16-Aug-17 | 16  |      |     |     |     |  |
| FHI-LR1-1040a                          | Noise Barrier NB66 - Footing adjacent NB lane (24m long, Bay 5 - Bay 6)                   | 66  | 66  | 10-Jul-17   | 23-Sep-17 | 43  |      |     |     |     |  |
| FHI-LR1-1050                           | Noise Barrier NB67 - Pre-drilling & Mini-Piling (Cap 1-9 for raking piles, 18no.)         | 58  | 58  | 01-Aug-17   | 09-Oct-17 | 14  |      |     |     |     |  |
| FHI-LR1-1320                           | Construction of Footing of sign gantry DS1  | 56  | 56  | 17-Aug-17   | 23-Oct-17 | 78  |      |     |     |     |  |
| FHI-LR1-1080                           | Noise Barrier NB67 - Footing (96m) (Bay 4 - Bay 11)                                       | 95  | 95  | 07-Jul-17   | 27-Oct-17 | 16  |      |     |     |     |  |
| FHI-LR1-1020                           | Construction of Retaining Wall beside Abutment AB1 and filling work                       | 137 | 137 | 26-May-17   | 07-Nov-17 | 8   |      |     |     |     |  |
| <b>Link Road 2 (near Abutment AA1)</b> |   |     |     |             |           |     |      |     |     |     |  |
| FHI-LR2-2000                           | Completion of Demolition of Existing Vehicular Bridge                                     | 0   | 0   |             | 20-May-17 | 101 |      |     |     |     |  |
| FHI-LR2-2040c                          | Footing of Sign Gantry DS11   | 14  | 14  | 20-May-17   | 06-Jun-17 | 14  |      |     |     |     |  |
| FHI-LR2-2040b                          | Road Formation, Road Drainage, Kerb (SMH1302 - 1303 & MY2.4 - 2.5)                        | 45  | 45  | 07-Jun-17   | 29-Jul-17 | 42  |      |     |     |     |  |
| FHI-LR2-2020                           | Construction of Retaining Wall beside Abutment AA1  | 120 | 120 | 19-Jun-17*  | 09-Nov-17 | 26  |      |     |     |     |  |
| <b>Link Road 3 (near Abutment AD1)</b> |   |     |     |             |           |     |      |     |     |     |  |
| FHI-LR3-3020                           | Construction of Retaining Wall beside Abutment AD1  | 75  | 75  | 19-Jun-17*  | 14-Sep-17 | 11  |      |     |     |     |  |
| <b>Link Road 4 (near Abutment AC1)</b> |   |     |     |             |           |     |      |     |     |     |  |
| FHI-LR4-4020                           | Construction of Retaining Wall beside Abutment AC1  | 120 | 105 | 15-May-17 A | 21-Sep-17 | 0   |      |     |     |     |  |
| <b>WSD Works</b>                       |   |     |     |             |           |     |      |     |     |     |  |
| <b>DN450 Fire Mains (CHA)</b>          |   |     |     |             |           |     |      |     |     |     |  |
| WA-2040                                | Pipe Laying - CHA 540 - 625 (DN450) along Ext. planter of TWSR West, 85m                  | 45  | 9   | 05-May-17 A | 31-May-17 | 27  |      |     |     |     |  |
| WA-2010                                | Pipe Laying - CHA 460 - 508 (DN450) along Ext. TWSR West NB, 48m                          | 188 | 36  | 01-Sep-16 A | 03-Jul-17 | 0   |      |     |     |     |  |
| WA-1010                                | Pipe Laying - CHA 0 - 55 (DN450) near Ext. TWSR West, 55m                                 | 28  | 28  | 10-Jun-17   | 13-Jul-17 | 0   |      |     |     |     |  |
| WA-1130                                | Pipe Laying - CHA 315 - 385 (DN450) near Ext. TWSR West, 70m                              | 32  | 32  | 14-Jul-17*  | 19-Aug-17 | 1   |      |     |     |     |  |
| WA-1120                                | Pipe Laying - CHA 270 - 315 (DN450) near Ext. TWSR West, 45m                              | 26  | 26  | 21-Aug-17   | 19-Sep-17 | 1   |      |     |     |     |  |

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|--|---|----|----|-------------|-------------|-----|------|-----|-----|-----|
|  |   |    |    |             |             |     | May  | Jun | Jul | Aug |
| WA-2020  | Pipe Laying - CHA 508 - 540 (DN450) along Ext. TWSR West SB, 32m                                    | 75 | 75 | 04-Jul-17   | 28-Sep-17   | 0   |      |     |     |     |
| <b>DN600 Water Mains (CHB)</b>                 |   |    |    |             |             |     |      |     |     |     |
| WB-1030B                                       | Pipe Laying - CHB 360 - 410 (DN600), 50m, from TWSRE to IT inspection tee chamber                   | 21 | 21 | 05-Jun-17   | 28-Jun-17   | 0   |      |     |     |     |
| WB-1060B                                       | Pipe Laying - CHB 577 - 585 (DN600) near J-Bridge, 8m   | 14 | 14 | 26-Jun-17   | 12-Jul-17   | 634 |      |     |     |     |
| WB-1050  | Pipe Laying - CHB 455 - 510 (DN600), 55m, from combined valve chamber to Realigned TWSR East        | 20 | 20 | 28-Jun-17   | 21-Jul-17   | 0   |      |     |     |     |
| WB-1030C                                       | Pipe Laying - CHB 410 - 430 (DN600), 20m, from IT inspection tee chamber to Pier AB7                | 25 | 25 | 29-Jun-17   | 28-Jul-17   | 0   |      |     |     |     |
| WB-1040  | Pipe Laying - CHB 430 - 455 (DN600), 25m, from Pier AB7 to combined valve chamber                   | 20 | 20 | 06-Jul-17   | 28-Jul-17   | 0   |      |     |     |     |
| WB-4000  | Pressure Test for CHB (CHB 360 - 570)   | 14 | 14 | 29-Jul-17   | 14-Aug-17   | 122 |      |     |     |     |
| WB-4010  | Cleaning & Sterilization (CHB 360 - 570)  | 14 | 14 | 15-Aug-17   | 30-Aug-17   | 122 |      |     |     |     |
| WB-4020  | Water Sampling (CHB 360 - 570)  | 7  | 7  | 31-Aug-17   | 07-Sep-17   | 122 |      |     |     |     |
| WB-4030  | Functioning of Newly Laid Pipeline (CHB 360 - 570)  | 0  | 0  |             | 07-Sep-17   | 122 |      |     |     |     |
| <b>DN1200 Water Mains (CHC)</b>                |   |    |    |             |             |     |      |     |     |     |
| WC-1120B                                       | Pipe Laying - CHC 835 - 850 (DN1200), underneath J-Bridge, 15m                                      | 14 | 14 | 09-Jun-17   | 24-Jun-17   | 171 |      |     |     |     |
| WC-1090B                                       | Pipe Laying - CHC 615 - 655 (DN1200), 40m, from TWSRE to IT inspection tee chamber                  | 21 | 21 | 05-Jun-17   | 28-Jun-17   | 0   |      |     |     |     |
| WC-1000B                                       | Pipe Laying - CHC 8 - 70 (DN1200) near Realigned TWSR West (TW SRW: CH100-155), 70m long & 3m depth | 28 | 28 | 10-Jun-17   | 13-Jul-17   | 0   |      |     |     |     |
| WC-1090E                                       | Pipe Laying - CHC 705 - 730 (DN1200), 25m, near DN1400 connection point                             | 25 | 25 | 15-Jun-17   | 14-Jul-17   | 0   |      |     |     |     |
| WC-1090C                                       | Pipe Laying - CHC 655 - 670 (DN1200), 15m, from IT inspection tee chamber to combined valve chamber | 25 | 25 | 29-Jun-17   | 28-Jul-17   | 0   |      |     |     |     |
| WC-1010  | Pipe Laying CHC 70 - 100 (DN1200) along existing TWSRW, 20m long & 3m depth                         | 35 | 35 | 14-Jul-17   | 23-Aug-17   | 71  |      |     |     |     |
| WC-1030  | Construction of IT inspection tee chamber(s) near the Jacking Pits                                  | 50 | 50 | 24-Aug-17   | 23-Oct-17   | 71  |      |     |     |     |
| <b>Twin DN1400 Water Mains (CHE &amp; CHG)</b> |   |    |    |             |             |     |      |     |     |     |
| WE-1060a                                       | Pipe Laying - CHG 280 - 325 (Twin DN1400) from Portal AB7/AD9/AC12 to combined valve chamber        | 33 | 0  | 09-Mar-17 A | 10-May-17 A |     |      |     |     |     |
| WE-1060b                                       | Pipe Laying - CHE 280 - 325 (Twin DN1400) from Portal AB7/AD9/AC12 to combined valve chamber        | 38 | 0  | 06-Apr-17 A | 20-May-17 A |     |      |     |     |     |
| WE-4020  | Exposure of watermain connection point near NB71  | 20 | 20 | 20-May-17   | 13-Jun-17   | 6   |      |     |     |     |
| WE-4010  | Exposure of watermain connection point near NB3   | 32 | 21 | 08-May-17 A | 14-Jun-17   | 0   |      |     |     |     |
| WE-1040  | Pipe Laying - CHE & CHG 220 - 260 (Twin DN1400) near Pier AA4                                       | 24 | 24 | 23-May-17*  | 20-Jun-17   | 0   |      |     |     |     |
| WE-1050  | Pipe Laying - CHE & CHG 260 - 280 (Twin DN1400) near Pier AD8                                       | 26 | 26 | 20-May-17   | 20-Jun-17   | 24  |      |     |     |     |
| WE-3010A                                       | Pipe Cleaning for CHE (Stage 2 Diversion)   | 12 | 12 | 21-Jun-17   | 05-Jul-17   | 0   |      |     |     |     |
| WE-3020A                                       | Pressure Test for CHE (Stage 2 Diversion)   | 7  | 7  | 06-Jul-17   | 13-Jul-17   | 0   |      |     |     |     |
| WE-3040A                                       | CCTV Inspection and Sterilization for CHE (Stage 2 Diversion)                                       | 11 | 11 | 14-Jul-17   | 26-Jul-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**

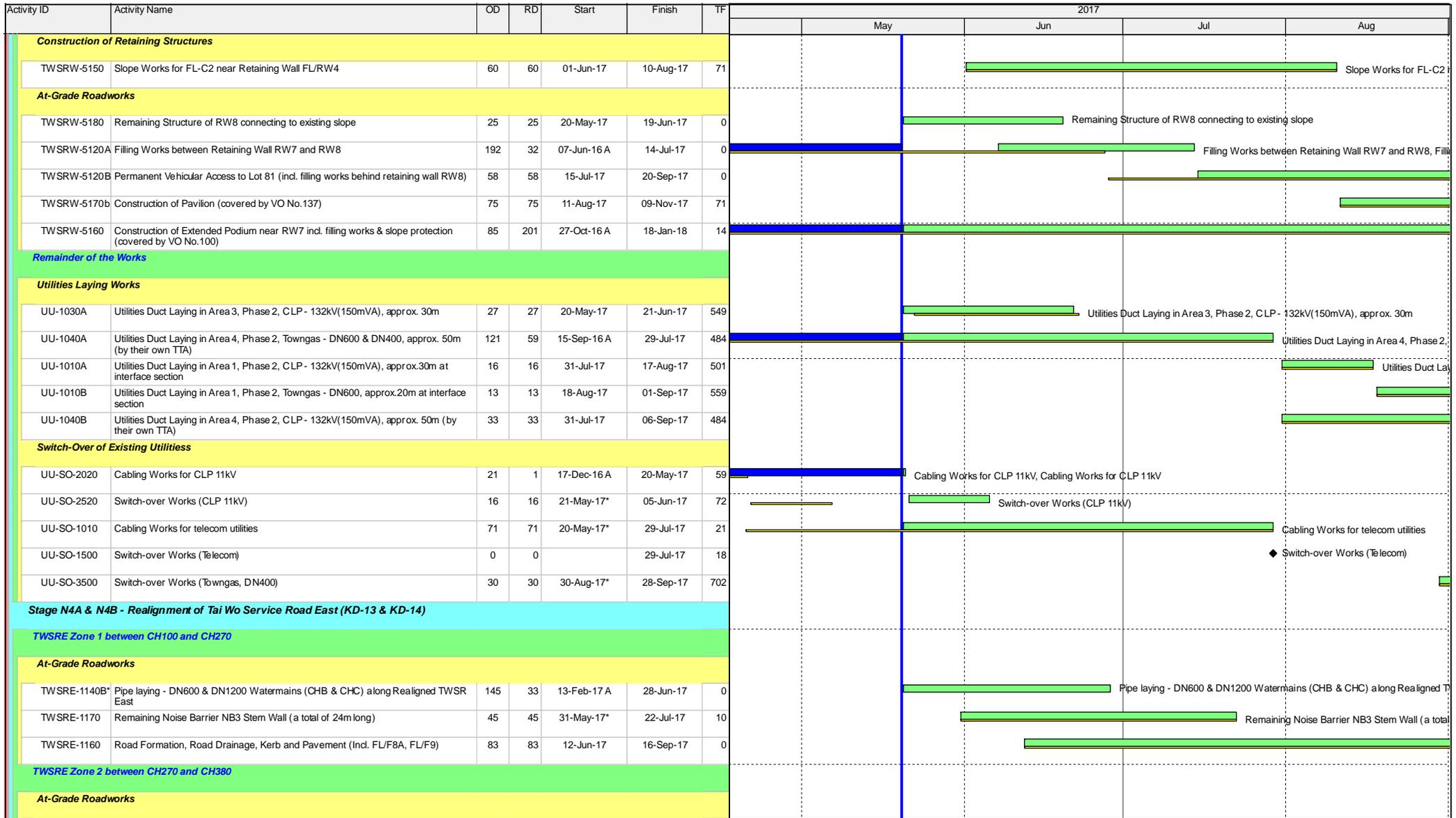
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3-Month Rolling Programme updated to 2017-05-21

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|--|--|-----|-----|-------------|-----------|-----|--|-----|-----|-----|
|  |  |     |     |             |           |     | May  | Jun | Jul | Aug |
| WE-1080  | Construction of combined valve chamber with MBV installation                                     | 109 | 59  | 25-Jan-17 A | 29-Jul-17 | 8   | Construction of combined valve chamber   |     |     |     |
| WE-3050A   | Connection to Existing Mains (CHE) (Stage 2 Diversion)   | 4   | 4   | 27-Jul-17   | 31-Jul-17 | 3   | Connection to Existing Mains (CHE)   |     |     |     |
| WE-3030A   | Installation of Connecting Pipe at ID5 (CHG)   | 4   | 4   | 01-Aug-17   | 04-Aug-17 | 3   | Installation of Connecting Pipe at   |     |     |     |
| WE-3010B   | Pipe Cleaning for CHG (Stage 2 Diversion)  | 17  | 17  | 20-Jul-17   | 08-Aug-17 | 0   | Pipe Cleaning for CHG (Sta   |     |     |     |
| WE-3020B   | Pressure Test for CHG (Stage 2 Diversion)  | 7   | 7   | 09-Aug-17   | 16-Aug-17 | 0   | Pressure Test for  |     |     |     |
| WE-3040B   | CCTV Inspection and Sterilization for CHG (Stage 2 Diversion)                                    | 12  | 12  | 17-Aug-17   | 30-Aug-17 | 0   |  |     |     |     |
| WE-3050B   | Connection to Existing Mains (CHG) (Stage 2 Diversion)   | 5   | 5   | 31-Aug-17   | 05-Sep-17 | 0   |  |     |     |     |
| <b>DN2200 Water Mains (CHF)</b>                                  |  |     |     |             |           |     |  |     |     |     |
| WF-1050 A  | Construction of Launching Pit (Pit 3) for DN2200 (CHF), Section 3 (near Pier AA7)                | 33  | 18  | 03-Apr-17 A | 10-Jun-17 | 7   | Construction of Launching Pit (Pit 3) for DN2200 (CHF), Section 3 (near Pier AA7), Construction of |     |     |     |
| WF-1000A   | Construction of Receiving Pit (Pit 1) for DN2200 (CHF), Section 1 (near Pier AA8)                | 21  | 25  | 27-Mar-17 A | 19-Jun-17 | 653 | Construction of Receiving Pit (Pit 1) for DN2200 (CHF), Section 1 (near Pier AA8), Const           |     |     |     |
| WF-1050 B  | Construction of Receiving Pit (Pit 4) for DN2200 (CHF), Section 3 (near FLH NB)                  | 30  | 30  | 25-Mar-17 A | 24-Jun-17 | 0   | Construction of Receiving Pit (Pit 4) for DN2200 (CHF), Section 3 (near FLH NB),                   |     |     |     |
| WF-1080  | Trench Excavation from Pit 4 to Connection Point near FLH NB, Section 4                          | 36  | 36  | 28-Jun-17   | 09-Aug-17 | 1   | Trench Excavation from P   |     |     |     |
| WF-1100  | Expose existing DN2200 bend block  | 25  | 25  | 25-Jul-17   | 22-Aug-17 | 1   | Expose ex  |     |     |     |
| WF-1060  | Excavation - CHF 73 - 91 (DN2200) across Box Culvert BC01 by Trenchless Method, 18m long         | 60  | 60  | 26-Jun-17   | 04-Sep-17 | 0   |  |     |     |     |
| WF-1010  | Excavation - CHF 9 - 54 (DN2200) across ext. TWSRW by Trenchless Method, 45m long                | 86  | 86  | 25-May-17*  | 04-Sep-17 | 0   |  |     |     |     |
| WF-1030  | Trench Excavation and Temporary Works to Support 132kV Cables, Section 2                         | 30  | 30  | 12-Sep-17   | 18-Oct-17 | 3   |  |     |     |     |
| WF-1070  | Pipe Laying - CHF 73 - 91 (DN2200) across Box Culvert BC01 & associated Grouting Works, 18m long | 38  | 38  | 05-Sep-17   | 20-Oct-17 | 0   |  |     |     |     |
| WF-1110  | Trimming existing bend block   | 60  | 60  | 23-Aug-17   | 03-Nov-17 | 1   |  |     |     |     |
| WF-1020  | Pipe Laying - CHF 9 - 54 (DN2200) across ext. TWSRW & associated Grouting Works, 45m long        | 54  | 54  | 05-Sep-17   | 09-Nov-17 | 0   |  |     |     |     |
| <b>DN1400 Water Mains (CHK &amp; CHKA)</b>                       |  |     |     |             |           |     |  |     |     |     |
| WK-2010  | Pressure Test for CHK/CHKA   | 7   | 7   | 06-Sep-17   | 13-Sep-17 | 104 |  |     |     |     |
| WK-2020  | Cleaning & CCTV Inspection for CHK/CHKA  | 8   | 8   | 14-Sep-17   | 22-Sep-17 | 104 |  |     |     |     |
| <b>Existing Nam Wa Po Trunk Sewage Pumping Station (PST3)</b>    |  |     |     |             |           |     |  |     |     |     |
| PS-1010  | Construction of New Boundary Wall for Pumping Station (PST3)                                     | 80  | 102 | 25-Nov-16 A | 18-Sep-17 | 113 |  |     |     |     |
| <b>Stage 1A - Realignment of Tai Wo Service Road West (KD-7)</b> |  |     |     |             |           |     |  |     |     |     |
| <b>TWSRW Zone 4 between CH315 and CH376</b>                      |  |     |     |             |           |     |  |     |     |     |
| <b>Construction of Bridge E</b>                                  |  |     |     |             |           |     |  |     |     |     |
| TWSRW-4100C  | Construction of Gabion Wall and Remaining Slope Reinstatement Works                              | 68  | 27  | 03-Jan-17 A | 21-Jun-17 | 188 | Construction of Gabion Wall and Remaining Slope Reinstatement Works, Construction                  |     |     |     |
| <b>TWSRW Zone 5 between CH376 and CH520</b>                      |  |     |     |             |           |     |  |     |     |     |

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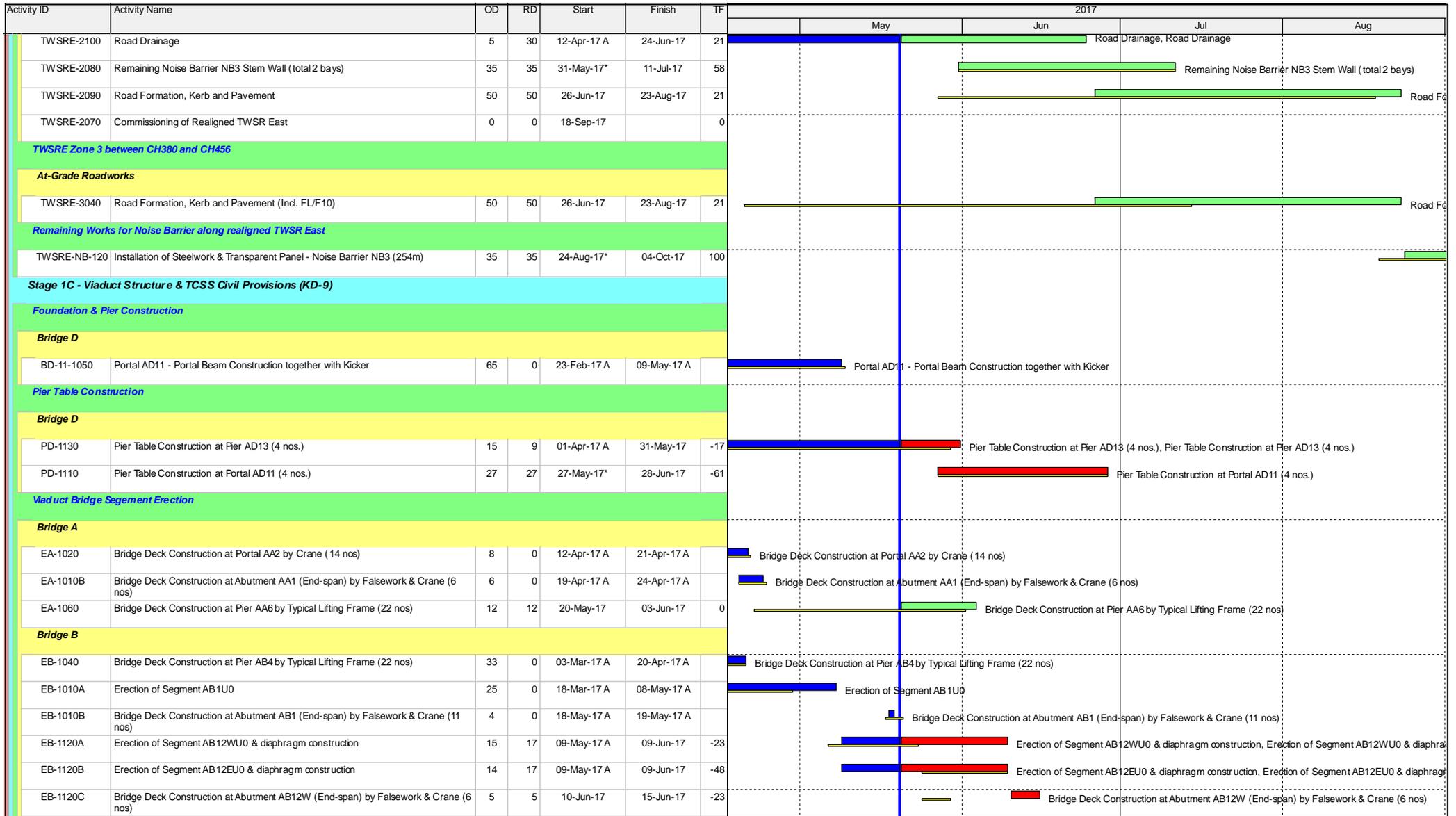
**Liantang / Heung Yuen Wai BCP - Site Formation & Infrastructure Works, Contract 3**

**3-Month Rolling Programme**

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|  <b>俊和建築工程有限公司</b><br>CHUN WO CONSTRUCTION & ENGINEERING CO., LTD. |  Actual Work<br> Remaining Work<br> Summary Bar<br> Critical Remaining Work<br> Milestone<br> Project Baseline Bar | <b>CEDD Contract No. CV/2012/09</b><br><br><b>Liantang / Heung Yuen Wai BCP - Site Formation &amp; Infrastructure Works, Contract 3</b><br><br><b>3-Month Rolling Programme</b> | 3-Month Rolling Programme updated to 2017-05-21<br><table border="1"> <thead> <tr> <th>Date</th> <th>Revision</th> <th>Checked</th> <th>Approved</th> </tr> </thead> <tbody> <tr> <td>21-May-17</td> <td>Rev.1</td> <td>SL</td> <td></td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table> | Date     | Revision | Checked | Approved | 21-May-17 | Rev.1 | SL |  |  |  |  |  |  |  |  |  |  |  |  |  |
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|  | Date   | Revision  | Checked  | Approved |          |         |          |           |       |    |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  | 21-May-17  | Rev.1   | SL   |          |          |         |          |           |       |    |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |   |  |          |          |         |          |           |       |    |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |   |  |          |          |         |          |           |       |    |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |   |  |          |          |         |          |           |       |    |  |  |  |  |  |  |  |  |  |  |  |  |  |
| <b>Programme ID: 3MPR046 (Data Date: 20-May-17)</b>  |  | <b>Page 9 of 13</b>   |  |          |          |         |          |           |       |    |  |  |  |  |  |  |  |  |  |  |  |  |  |

| Activity ID   | Activity Name   | OD | RD | Start       | Finish      | TF  | 2017 |     |     |     |
|---|---|----|----|-------------|-------------|-----|------|-----|-----|-----|
|   |   |    |    |             |             |     | May  | Jun | Jul | Aug |
| EB-1120D  | Bridge Deck Construction at Abutment AB12E (End-span) by Falsework & Crane (6 nos)                          | 5  | 5  | 26-Jun-17   | 30-Jun-17   | -22 |      |     |     |     |
| <b>Bridge D</b>   |   |    |    |             |             |     |      |     |     |     |
| ED-1120   | Bridge Deck Construction at Pier AD12 by Special Lifting Frame (50 nos in which 21 nos above MTR Railway)   | 82 | 23 | 09-Mar-17 A | 16-Jun-17   | -58 |      |     |     |     |
| ED-1130   | Bridge Deck Construction at Pier AD13 by Crane (12 nos)   | 8  | 8  | 17-Jun-17   | 26-Jun-17   | -31 |      |     |     |     |
| ED-1140A  | Erection of Segment AD14WU0 & diaphragm construction  | 24 | 24 | 10-Jun-17   | 08-Jul-17   | -48 |      |     |     |     |
| ED-1140C  | Bridge Deck Construction at Abutment AD14W (End span) by Falsework & Crane (7 nos)                          | 3  | 3  | 18-Jul-17   | 20-Jul-17   | -45 |      |     |     |     |
| ED-1140B  | Erection of Segment AD14EU0 & diaphragm construction  | 24 | 24 | 22-Jun-17   | 20-Jul-17   | -48 |      |     |     |     |
| ED-1140D  | Bridge Deck Construction at Abutment AD14E (End span) by Falsework & Crane (6 nos)                          | 3  | 3  | 29-Jul-17   | 01-Aug-17   | -48 |      |     |     |     |
| ED-1110   | Bridge Deck Construction at Portal AD11 by Special Lifting Frame (54 nos in which 12 nos above MTR Railway) | 59 | 59 | 29-Jun-17   | 06-Sep-17   | -61 |      |     |     |     |
| <b>Key Segment Erection and Stitch Casting (Wide-box Section)</b>   |   |    |    |             |             |     |      |     |     |     |
| KS-A-1080   | Erection AA8K9 and stitching works  | 12 | 0  | 25-Mar-17 A | 24-Apr-17 A |     |      |     |     |     |
| KS-A-1070   | Erection AA7K8 and stitching works  | 12 | 0  | 08-Apr-17 A | 27-Apr-17 A |     |      |     |     |     |
| KS-A-1020   | Erection AA2K3 and stitching works  | 12 | 0  | 02-May-17 A | 09-May-17 A |     |      |     |     |     |
| KS-B-1030   | Erection AB3K4 and stitching works  | 12 | 0  | 13-May-17 A | 18-May-17 A |     |      |     |     |     |
| KS-A-1010   | Stitching Works between AA1 End Span and AA2  | 12 | 0  | 17-May-17 A | 20-May-17 A |     |      |     |     |     |
| KS-B-1010   | Stitching Works between AB1 End Span and AB2  | 3  | 3  | 23-May-17*  | 25-May-17   | 8   |      |     |     |     |
| KS-B-1040   | Erection AB4K5 and stitching works  | 12 | 12 | 20-May-17   | 03-Jun-17   | 16  |      |     |     |     |
| KS-A-1050   | Erection AA5K6 and stitching works  | 12 | 12 | 05-Jun-17   | 17-Jun-17   | 16  |      |     |     |     |
| KS-A-1060   | Erection AA6K7 and stitching works  | 12 | 12 | 05-Jun-17   | 17-Jun-17   | 16  |      |     |     |     |
| <b>Key Segment Erection and Stitch Casting (Narrow-box Section)</b> |   |    |    |             |             |     |      |     |     |     |
| KS-B-1100A  | Stitching Works between AB10W and AB11W   | 25 | 0  | 11-Apr-17 A | 05-May-17 A |     |      |     |     |     |
| KS-B-1100B  | Stitching Works between AB10E and AB11E   | 21 | 21 | 20-May-17   | 14-Jun-17   | 35  |      |     |     |     |
| KS-B-1110A  | Stitching Works between AB11W and AB12W End Span & stressing tendon   | 14 | 14 | 16-Jun-17   | 03-Jul-17   | -23 |      |     |     |     |
| KS-B-1110B  | Stitching Works between AB11E and AB12E End Span & stressing tendon   | 14 | 14 | 04-Jul-17   | 19-Jul-17   | -23 |      |     |     |     |
| KS-D-1130A  | Stitching Works between AD13W and AD14W End Span  | 14 | 14 | 21-Jul-17   | 05-Aug-17   | -45 |      |     |     |     |
| KS-D-1130B  | Stitching Works between AD13E and AD14E End Span  | 14 | 14 | 02-Aug-17   | 17-Aug-17   | -48 |      |     |     |     |
| KS-D-1110B  | Stitching Works between AD11E and AD12E   | 24 | 24 | 09-Aug-17   | 05-Sep-17   | -60 |      |     |     |     |
| KS-D-1100B  | Erection AD10EK11 and stitching works   | 14 | 14 | 06-Sep-17   | 21-Sep-17   | -33 |      |     |     |     |
| KS-D-1120B  | Stitching Works between AD12E and AD13E   | 14 | 14 | 06-Sep-17   | 21-Sep-17   | -33 |      |     |     |     |

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

| Date      | Revision | Checked | Approved |
|-----------|----------|---------|----------|
| 21-May-17 | Rev.1    | SL      |          |
|           |          |         |          |
|           |          |         |          |
|           |          |         |          |
|           |          |         |          |

| Activity ID                                      | Activity Name   | OD  | RD  | Start       | Finish      | TF  | 2017 |     |     |     |
|--|---|-----|-----|-------------|-------------|-----|------|-----|-----|-----|
|  |   |     |     |             |             |     | May  | Jun | Jul | Aug |
| KD-B-2000  | Construction of longitudinal stitch at Bridge B2  | 49  | 49  | 28-Jul-17   | 22-Sep-17   | 62  |      |     |     |     |
| KS-D-1110A                                       | Stitching Works between AD11W and AD12W   | 24  | 24  | 07-Sep-17   | 06-Oct-17   | -61 |      |     |     |     |
| <b>Major Works on Deck Surfaces</b>              |   |     |     |             |             |     |      |     |     |     |
| <b>Permanent External Tendon Stressing Works</b> |   |     |     |             |             |     |      |     |     |     |
| PP-A-1040  | Permanent Prestressing for Bridge A (AA13-AA18)   | 10  | 0   | 18-Apr-17 A | 15-May-17 A |     |      |     |     |     |
| PP-D-1010  | Permanent Prestressing for Bridge D (AD1-AD5)   | 7   | 3   | 12-May-17 A | 23-May-17   | 11  |      |     |     |     |
| PP-A-1030  | Permanent Prestressing for Bridge A (AA9-AA13)  | 7   | 7   | 24-May-17   | 01-Jun-17   | 11  |      |     |     |     |
| PP-C-1010  | Permanent Prestressing for Bridge C (AC1-AC5)   | 14  | 14  | 20-May-17*  | 06-Jun-17   | 0   |      |     |     |     |
| PP-B-1020  | Permanent Prestressing for Bridge B (AB6-AB10W)   | 9   | 9   | 02-Jun-17   | 12-Jun-17   | 11  |      |     |     |     |
| PP-B-1010  | Permanent Prestressing for Bridge B (AB1-AB6)   | 9   | 9   | 09-Jun-17*  | 19-Jun-17   | 1   |      |     |     |     |
| PP-A-1010  | Permanent Prestressing for Bridge A (AA1-AA5)   | 7   | 7   | 14-Jun-17   | 21-Jun-17   | 4   |      |     |     |     |
| PP-A-1050  | Permanent Prestressing for Bridge A (AA18-AB10E)  | 9   | 9   | 15-Jun-17   | 24-Jun-17   | 57  |      |     |     |     |
| PP-A-1020  | Permanent Prestressing for Bridge A (AA5-AA9)   | 7   | 7   | 23-Jun-17   | 30-Jun-17   | 12  |      |     |     |     |
| PP-B-1030  | Permanent Prestressing for Bridge B (AB10W-AB12W)   | 7   | 7   | 04-Jul-17   | 11-Jul-17   | 17  |      |     |     |     |
| PP-A-1060  | Permanent Prestressing for Bridge A (AB10E-AB12E)   | 7   | 7   | 20-Jul-17   | 27-Jul-17   | 6   |      |     |     |     |
| <b>Parapet Installation</b>                      |   |     |     |             |             |     |      |     |     |     |
| <b>Bridge A</b>                                  |   |     |     |             |             |     |      |     |     |     |
| PI-A-1050R                                       | Parapet Installation, Profile Barrier for Bridge A (AA18-AB10E), RHS                      | 16  | 16  | 05-Jul-17   | 22-Jul-17   | 100 |      |     |     |     |
| 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  | 05-Jul-17   | 11-Sep-17   | 57  |      |     |     |     |
| PI-A-1030L                                       | Parapet Installation, Profile Barrier & Planter for Bridge A (AA9-AA13), LHS              | 83  | 83  | 10-Jun-17   | 15-Sep-17   | 53  |      |     |     |     |
| PI-A-1040L                                       | Parapet Installation, Profile Barrier & Planter for Bridge A (AA13-AA18), LHS             | 98  | 98  | 24-May-17   | 16-Sep-17   | 52  |      |     |     |     |
| PI-A-1010R                                       | Parapet Installation, Profile Barrier & Planter for Bridge A (AA1-AA5), RHS               | 68  | 68  | 30-Jun-17   | 18-Sep-17   | 4   |      |     |     |     |
| PI-A-1030R                                       | Parapet Installation, Profile Barrier & Planter for Bridge A (AA9-AA13), RHS              | 87  | 87  | 10-Jun-17   | 20-Sep-17   | 49  |      |     |     |     |
| PI-A-1010L                                       | Parapet Installation, Profile Barrier for Bridge A (AA1-AA5), LHS                         | 78  | 78  | 30-Jun-17   | 29-Sep-17   | 4   |      |     |     |     |
| PI-A-1040R                                       | Parapet Installation, Profile Barrier & Planter for Bridge A (AA13-AA18), RHS             | 110 | 110 | 24-May-17   | 30-Sep-17   | 40  |      |     |     |     |
| PI-A-1020R                                       | Parapet Installation, Profile Barrier & Planter for Bridge A (AA5-AA9), RHS               | 92  | 92  | 20-Jul-17   | 07-Nov-17   | 11  |      |     |     |     |
| 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-1020L                                       | Parapet Installation, Profile Barrier & Planter for Bridge A (AA5-AA9), LHS               | 99  | 99  | 20-Jul-17   | 15-Nov-17   | 4   |      |     |     |     |

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

| Date      | Revision | Checked | Approved |
|-----------|----------|---------|----------|
| 21-May-17 | Rev.1    | SL      |          |
|           |          |         |          |
|           |          |         |          |
|           |          |         |          |
|           |          |         |          |

| Activity ID   | Activity Name  | OD  | RD  | Start       | Finish    | TF  | 2017 |     |     |     |  |  |
|---|--|-----|-----|-------------|-----------|-----|------|-----|-----|-----|--|--|
|   |  |     |     |             |           |     | May  | Jun | Jul | Aug |  |  |
| <b>Bridge B</b>   |  |     |     |             |           |     |      |     |     |     |  |  |
| PI-B-1020R  | Parapet Installation, Profile Barrier for Bridge B (AB6-AB10W), RHS  | 16  | 16  | 21-Jun-17   | 10-Jul-17 | 95  |      |     |     |     |  |  |
| PI-B-1030LM   | Parapet Installation for Bridge B (AB10W-AB12W), LHS above MTRC railway  | 31  | 31  | 20-Jul-17   | 24-Aug-17 | 56  |      |     |     |     |  |  |
| PI-B-1030L  | Parapet Installation, Profile Barrier & Planter for Bridge B (AB10W-AB12W), LHS remaining                                | 70  | 70  | 20-Jul-17   | 11-Oct-17 | 17  |      |     |     |     |  |  |
| PI-B-1020L  | Parapet Installation, Profile Barrier for Bridge B (AB6-AB10W), LHS  | 100 | 100 | 21-Jun-17   | 18-Oct-17 | 11  |      |     |     |     |  |  |
| PI-B-1010L  | Parapet Installation, Profile Barrier for Bridge B (AB1-AB6), LHS  | 103 | 103 | 29-Jun-17   | 31-Oct-17 | 1   |      |     |     |     |  |  |
| PI-B-1010R  | Parapet Installation, Profile Barrier & Planter for Bridge B (AB1-AB6), RHS  | 103 | 103 | 29-Jun-17   | 31-Oct-17 | 1   |      |     |     |     |  |  |
| <b>Bridge C</b>   |  |     |     |             |           |     |      |     |     |     |  |  |
| PI-C-1020L  | Parapet Installation, Profile Barrier & Planter for Bridge C (AC5-AC8), LHS  | 121 | 52  | 22-Feb-17 A | 21-Jul-17 | 52  |      |     |     |     |  |  |
| PI-C-1020R  | Parapet Installation, Profile Barrier & Planter for Bridge C (AC5-AC8), RHS  | 110 | 52  | 07-Mar-17 A | 21-Jul-17 | 52  |      |     |     |     |  |  |
| PI-C-1010L  | Parapet Installation, Profile Barrier for Bridge C (AC1-AC5), LHS  | 83  | 83  | 15-Jun-17   | 20-Sep-17 | 0   |      |     |     |     |  |  |
| PI-C-1030L  | Parapet Installation, Profile Barrier & Planter for Bridge C (AC8-AC11), LHS   | 119 | 104 | 01-May-17 A | 20-Sep-17 | 0   |      |     |     |     |  |  |
| PI-C-1030R  | Parapet Installation, Profile Barrier & Planter for Bridge C (AC8-AC11), RHS   | 126 | 104 | 22-Apr-17 A | 20-Sep-17 | 0   |      |     |     |     |  |  |
| PI-C-1010R  | Parapet Installation, Profile Barrier & Planter for Bridge C (AC1-AC5), RHS  | 83  | 83  | 15-Jun-17   | 20-Sep-17 | 0   |      |     |     |     |  |  |
| <b>Bridge D</b>   |  |     |     |             |           |     |      |     |     |     |  |  |
| PI-D-1010L  | Parapet Installation, Profile Barrier & Planter for Bridge D (AD1-AD5), LHS  | 52  | 52  | 14-Jun-17   | 14-Aug-17 | 3   |      |     |     |     |  |  |
| PI-D-1020R  | Parapet Installation, Profile Barrier & Planter for Bridge D (AD5-AD8W), RHS   | 78  | 73  | 15-May-17 A | 15-Aug-17 | 3   |      |     |     |     |  |  |
| PI-D-1020L  | Parapet Installation, Profile Barrier for Bridge D (AD5-AD8W), LHS   | 90  | 80  | 09-May-17 A | 23-Aug-17 | 33  |      |     |     |     |  |  |
| PI-D-1010R  | Parapet Installation, Profile Barrier & Planter for Bridge D (AD1-AD5), RHS  | 83  | 83  | 22-Jun-17   | 27-Sep-17 | 3   |      |     |     |     |  |  |
| <b>Roadworks, Road Facilities and Miscellaneous inside Viaduct Internal Voids</b> |  |     |     |             |           |     |      |     |     |     |  |  |
| RS-1020   | Movement Joints and Road Furniture incl. Deck Drainage, Lightings, Steel Rails,NB, Water Main for Bridge C (AC1 to AD10) | 100 | 100 | 19-Jul-17   | 15-Nov-17 | 29  |      |     |     |     |  |  |
| RS-1030   | Movement Joints and Road Furniture incl. Deck Drainage, Lightings, Steel Rails,NB, Water Main for Bridge D (AD1 to AD8)  | 80  | 80  | 18-Aug-17   | 22-Nov-17 | 23  |      |     |     |     |  |  |
| RS-1010   | Movement Joints and Road Furniture incl. Deck Drainage, Lightings, Steel Rails,NB, Water Main for Bridge B (AB1 to AB12) | 120 | 120 | 02-Aug-17   | 22-Dec-17 | 17  |      |     |     |     |  |  |
| RS-1000   | Movement Joints and Road Furniture incl. Deck Drainage, Lightings, Steel Rails,NB, Water Main for Bridge A (AA1 to AB12) | 140 | 140 | 25-Jul-17   | 10-Jan-18 | 4   |      |     |     |     |  |  |
| <b>Section VI - Works in Portion FH9 (KD-6A)</b>                                  |  |     |     |             |           |     |      |     |     |     |  |  |
| <b>Major Works</b>  |  |     |     |             |           |     |      |     |     |     |  |  |
| S6-4020   | Falsework Erection for Installation of Bridge Deck at Abutment AB12W   | 15  | 15  | 20-May-17   | 07-Jun-17 | -22 |      |     |     |     |  |  |
| S6-4030   | Falsework Erection for Installation of Bridge Deck at Abutment AB12E   | 15  | 15  | 08-Jun-17   | 24-Jun-17 | -22 |      |     |     |     |  |  |
| S6-4000   | Falsework Erection for Installation of Bridge Deck at Abutment AD14W   | 7   | 7   | 03-Jul-17*  | 10-Jul-17 | -41 |      |     |     |     |  |  |

| Date      | Revision | Checked | Approved |
|-----------|----------|---------|----------|
| 21-May-17 | Rev.1    | SL      |          |
|           |          |         |          |
|           |          |         |          |
|           |          |         |          |
|           |          |         |          |

| Activity ID  | Activity Name  | OD | RD | Start     | Finish    | TF  | 2017 |     |     |  |
|--|--|----|----|-----------|-----------|-----|------|-----|-----|--|
|  |  |    |    |           |           |     | May  | Jun | Jul | Aug  |
| S6-5020  | Removal of Falsework near Abutment AB12W   | 7  | 7  | 04-Jul-17 | 11-Jul-17 | -9  |      |     | █   | Removal of Falsework near Abutment AB12W   |
| S6-4010  | Falsework Erection for Installation of Bridge Deck at Abutment AD14E                                   | 9  | 9  | 11-Jul-17 | 20-Jul-17 | -41 |      |     | █   | Falsework Erection for Installation of Bridge Deck at Abutment AD14E                                   |
| S6-5030  | Removal of Falsework near Abutment AB12E   | 7  | 7  | 20-Jul-17 | 27-Jul-17 | -23 |      |     | █   | Removal of Falsework near Abutment AB12E   |
| S6-5000  | Removal of Falsework near Abutment AD14W   | 7  | 7  | 07-Aug-17 | 14-Aug-17 | -38 |      |     |     | Removal of Falsework near Abutment AD14W   |
| S6-5010  | Removal of Falsework near Abutment AD14E   | 7  | 7  | 18-Aug-17 | 25-Aug-17 | -48 |      |     |     | Removal of Falsework near Abutment AD14E   |
| 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 |      |     |     | Removal of Temp Road, Facilities and restatement the Portion FH9 to the condition as taking possession |
| <b>Landscaping &amp; Establishment Works (KD-4, 4A, 5, 5A, 6)</b>                    |  |    |    |           |           |     |      |     |     |  |
| <b>Section III - Remainder of Landscaping Softworks Not Included in Section IIIA</b> |  |    |    |           |           |     |      |     |     |  |
| S3-1020  | Remaining Drainage Works and Land Formation at FH3, FH4, FH5   | 50 | 50 | 07-Sep-17 | 07-Nov-17 | 18  |      |     |     |  |
| S3-1000  | Transplanting along Realigned TWSR West  | 60 | 60 | 05-Sep-17 | 16-Nov-17 | 0   |      |     |     |  |
| S3-1010  | Transplanting along Fanling Highway  | 70 | 70 | 18-Sep-17 | 11-Dec-17 | 9   |      |     |     |  |

- Actual Work
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**CEDD Contract No. CV/2012/09**

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

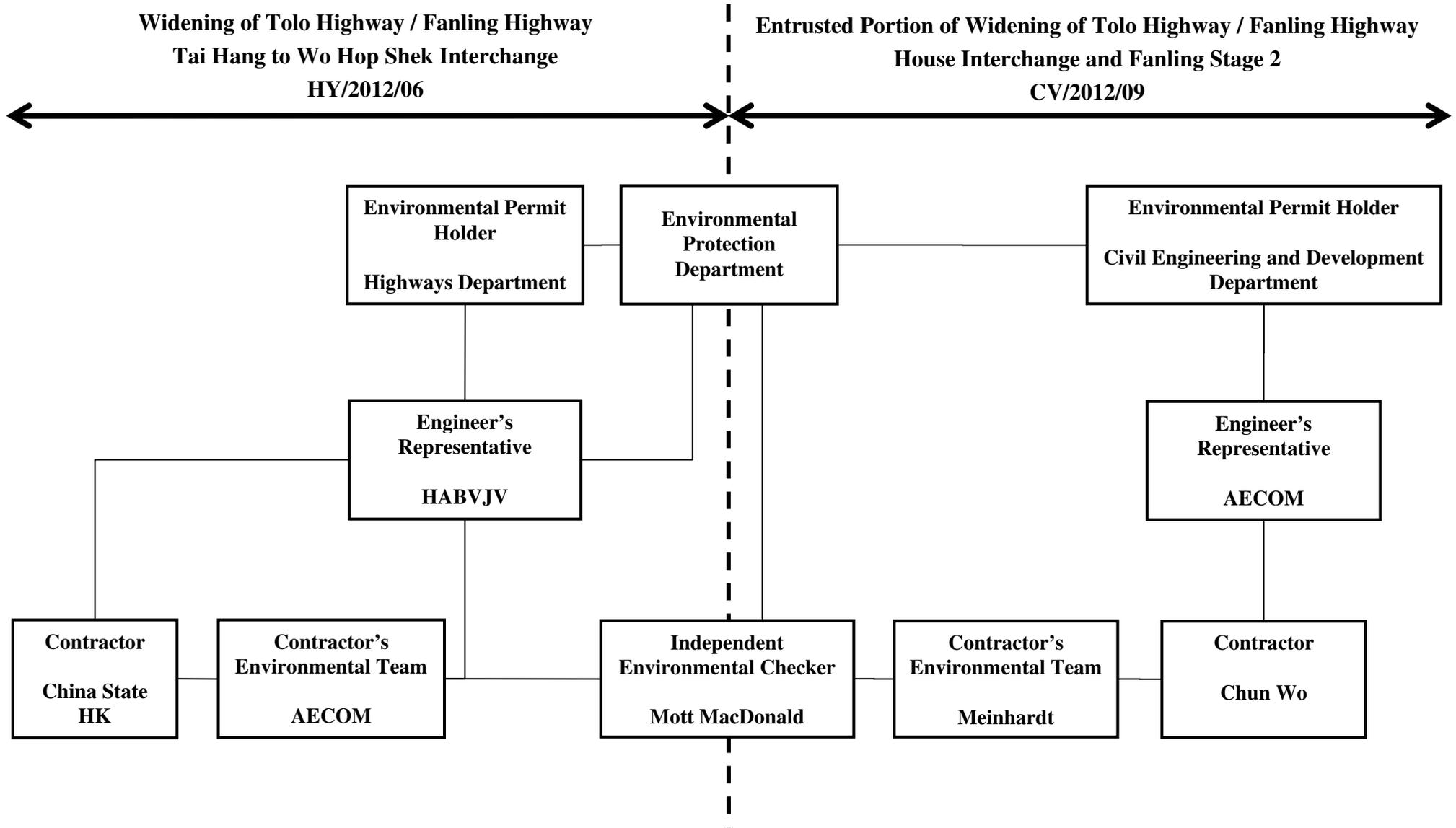
**3-Month Rolling Programme**

3-Month Rolling Programme updated to 2017-05-21

| Date      | Revision | Checked | Approved |
|-----------|----------|---------|----------|
| 21-May-17 | Rev.1    | SL      |          |
|           |          |         |          |
|           |          |         |          |
|           |          |         |          |
|           |          |         |          |

# Appendix B

## Project Organization Structure



# **Appendix C**

# **Calibration Certificates of Monitoring**

# **Equipment**



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

ORIFICE TRANSFER STANDARD CERTIFICATION WORKSHEET TE-5025A

Date - Feb 28, 2017 Rootmeter 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        | ORFICE         |
|----------------|-------------------|------------------|------------------|-----------------|--------------|----------------|
|                |                   |                  |                  |                 | DIFF Hg (mm) | 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

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

$$Qstd = Vstd / \text{Time}$$

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

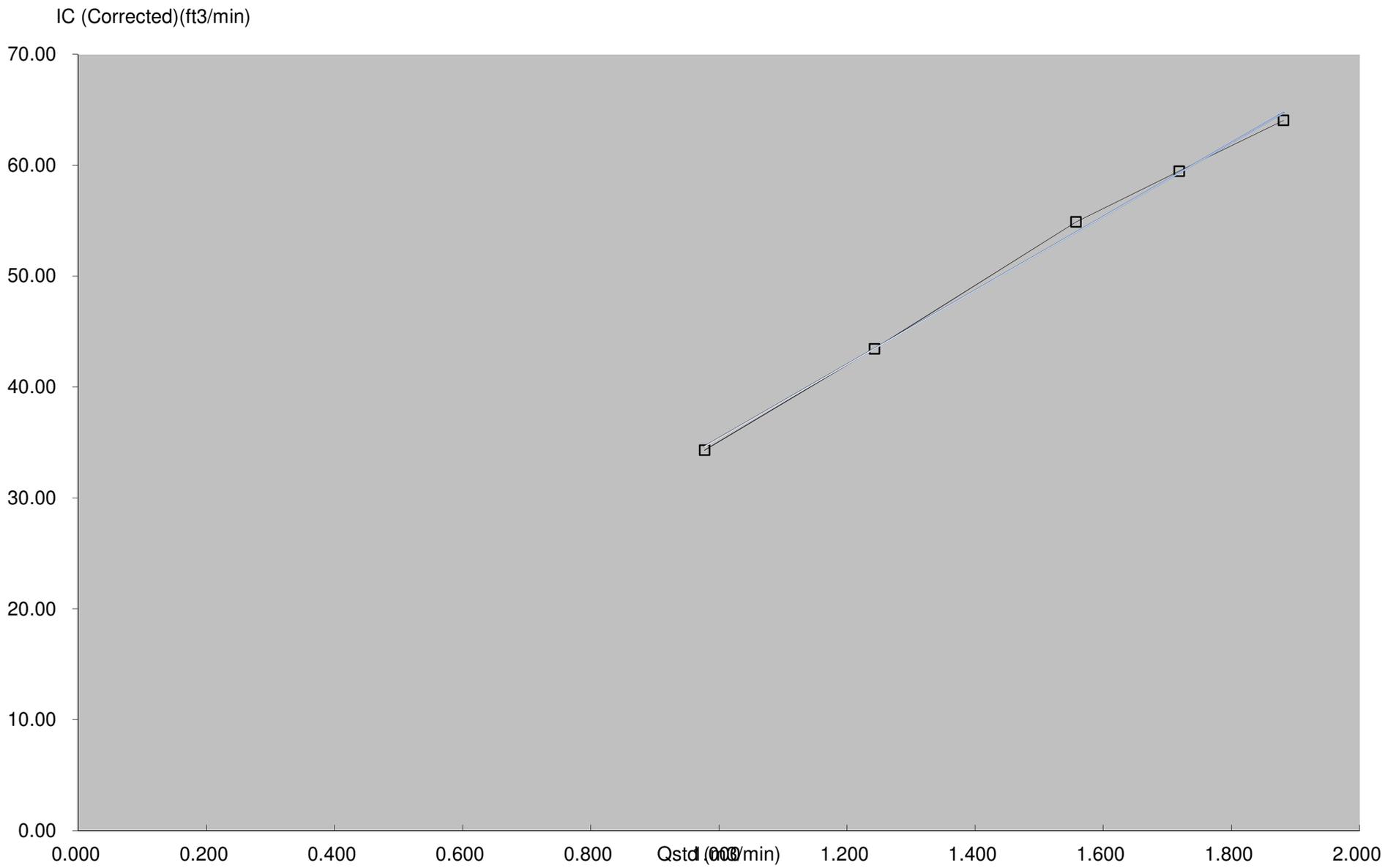
$$Qa = Va / \text{Time}$$

For subsequent flow rate calculations:

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

$$Qa = 1/m \{ [\text{SQRT} H2O (Ta/Pa)] - b \}$$







# 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. :** 215901

**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.

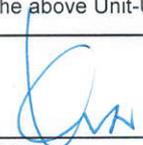
The results are shown in the attached page(s).

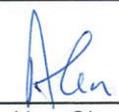
Main Test equipment used:

| <u>Equipment No.</u> | <u>Description</u>     | <u>Cert. No.</u> | <u>Traceable to</u> |
|----------------------|------------------------|------------------|---------------------|
| 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

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

**Date:** 23-Sep-16



# Calibration Certificate

Certificate No. 607984

Page 2 of 2 Pages

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 : ± 3.6 x 10<sup>-6</sup>

## 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 -----



# 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.

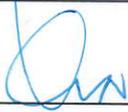
The results are shown in the attached page(s).

Main Test equipment used:

| <u>Equipment No.</u> | <u>Description</u>       | <u>Cert. No.</u> | <u>Traceable to</u> |
|----------------------|--------------------------|------------------|---------------------|
| 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

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

**Date:** 3-Oct-16



# Calibration Certificate

Certificate No. **608737**

Page 2 of 3 Pages

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. :  $\pm 0.7$  dB

Uncertainty :  $\pm 0.1$  dB

## 2. Level Stability : 0.0 dB

IEC 60651 Type 1 Spec. :  $\pm 0.3$  dB

Uncertainty :  $\pm 0.1$  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            | $\pm 0.7$ 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 :  $\pm 0.1$  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           | $\pm 0.4$ dB           |
|                | 94.0               | 93.9 (Ref.)      | --             |                        |
|                | 95.0               | 95.0             | 0.0            | $\pm 0.2$ dB           |

Uncertainty :  $\pm 0.1$  dB



# Calibration Certificate

Certificate No. 608737

Page 3 of 3 Pages

## 4. Frequency Weighting

A weighting

| Frequency | Attenuation (dB) | IEC 60651 Type 1 Spec.        |
|-----------|------------------|-------------------------------|
| 31.5 Hz   | -39.3            | - 39.4 dB, $\pm 1.5$ dB       |
| 63 Hz     | -26.2            | - 26.2 dB, $\pm 1.5$ dB       |
| 125 Hz    | -16.2            | - 16.1 dB, $\pm 1$ dB         |
| 250 Hz    | -8.7             | - 8.6 dB, $\pm 1$ dB          |
| 500 Hz    | -3.2             | - 3.2 dB, $\pm 1$ dB          |
| 1 kHz     | 0.0 (Ref)        | 0 dB, $\pm 1$ dB              |
| 2 kHz     | +1.2             | + 1.2 dB, $\pm 1$ dB          |
| 4 kHz     | +1.0             | + 1.0 dB, $\pm 1$ dB          |
| 8 kHz     | -1.2             | - 1.1 dB, + 1.5 dB ~ -3 dB    |
| 16 kHz    | -6.7             | - 6.6 dB, + 3 dB ~ - $\infty$ |

Uncertainty :  $\pm 0.1$  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             | $\pm 0.5$ dB           |
| 1/10 <sup>2</sup>         | 40.0                   | 39.9             |                        |
| 1/10 <sup>3</sup>         | 40.0                   | 39.9             | $\pm 1.0$ dB           |
| 1/10 <sup>4</sup>         | 40.0                   | 39.5             |                        |

Uncertainty :  $\pm 0.1$  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 May 2017**

| May 2017  |   |   |  |  |   |           |
|-----------|---|---|--|--|---|-----------|
| Sun       | Mon   | Tue   | Wed  | Thu  | Fri                                       | Sat       |
|           | <b>1</b><br>Labour Day  | <b>2</b><br>ET Site Walk(02:30pm – 4:00pm)              | <b>3</b><br>The Birthday of the Buddha   | <b>4</b><br>24-hour TSP + 3 x 1-hour TSP, Noise (SR77) | <b>5</b>                                  | <b>6</b>  |
| <b>7</b>  | <b>8</b><br>ET Site Walk(09:30am – 11:00am)   | <b>9</b>  | <b>10</b><br>24-hour TSP + 3 x 1-hour TSP, Noise (SR77)                                      | <b>11</b>  | <b>12</b>                                 | <b>13</b> |
| <b>14</b> | <b>15</b>   | <b>16</b><br>24-hour TSP + 3 x 1-hour TSP, Noise (SR77) | <b>17</b><br>ET Site Walk(09:30 am – 11:00 am) with Liantang Project-wide ET and IEC + SSEMC | <b>18</b>  | <b>19</b>                                 | <b>20</b> |
| <b>21</b> | <b>22</b><br>ET Site Walk(09:30am – 11:00am)<br>24-hour TSP + 3 x 1-hour TSP, Noise (SR77)                | <b>23</b>   | <b>24</b>  | <b>25</b>  | <b>26</b><br>24-hour TSP + 3 x 1-hour TSP | <b>27</b> |
| <b>28</b> | <b>29</b><br>ET Site Walk(09:30am – 11:00 am) with Fanling Stage 2 IEC & Liantang Project-wide ET and IEC | <b>30</b><br>Tuen Ng Festival                           | <b>31</b>  |  |   |           |

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

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

# **Appendix E**

## **Meteorological Data Extracted from Hong Kong Observatory**

## Daily Extract of Meteorological Observations , May 2017

| Day                 | Hong Kong Observatory |                             |               |                             |                         |                            |                          |                     | King's Park                   | Waglan Island <sup>^</sup>          |                        |
|---------------------|-----------------------|-----------------------------|---------------|-----------------------------|-------------------------|----------------------------|--------------------------|---------------------|-------------------------------|-------------------------------------|------------------------|
|                     | 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                  | 1012.6                | 29.5                        | 25.0          | 22.6                        | 21.4                    | 81                         | 58                       | 0.0                 | 7.5                           | ***                                 | ***                    |
| 02                  | 1011.9                | 28.1                        | 26.1          | 24.3                        | 23.3                    | 85                         | 83                       | 0.0                 | 2.4                           | ***                                 | ***                    |
| 03                  | 1011.4                | 31.3                        | 27.5          | 25.6                        | 24.0                    | 82                         | 79                       | Trace               | 3.9                           | ***                                 | ***                    |
| 04                  | 1011.9                | 27.6                        | 24.9          | 22.9                        | 23.2                    | 90                         | 84                       | 42.5                | 0.2                           | ***                                 | ***                    |
| 05                  | 1013.7                | 29.8                        | 26.1          | 23.4                        | 22.4                    | 81                         | 59                       | 0.0                 | 5.4                           | ***                                 | ***                    |
| 06                  | 1014.8                | 31.1                        | 27.5          | 25.3                        | 23.4                    | 79                         | 65                       | Trace               | 7.1                           | ***                                 | ***                    |
| 07                  | 1014.6                | 27.7                        | 25.6          | 24.8                        | 23.0                    | 86                         | 82                       | 1.8                 | 2.5                           | ***                                 | ***                    |
| 08                  | 1012.0                | 28.6                        | 25.9          | 23.1                        | 22.9                    | 83                         | 87                       | 9.2                 | 5.3                           | ***                                 | ***                    |
| 09                  | 1012.4                | 29.3                        | 25.9          | 22.6                        | 22.3                    | 81                         | 77                       | 10.8                | 6.8                           | ***                                 | ***                    |
| 10                  | 1013.8                | 29.6                        | 27.1          | 25.3                        | 23.5                    | 81                         | 84                       | 0.0                 | 1.3                           | ***                                 | ***                    |
| 11                  | 1013.8                | 31.6                        | 27.5          | 25.7                        | 23.9                    | 81                         | 77                       | 0.0                 | 6.4                           | ***                                 | ***                    |
| 12                  | 1010.9                | 30.7                        | 27.5          | 26.0                        | 22.8                    | 76                         | 86                       | Trace               | 5.6                           | ***                                 | ***                    |
| 13                  | 1010.2                | 26.6                        | 25.8          | 24.5                        | 22.1                    | 80                         | 85                       | 4.7                 | 0.0                           | ***                                 | ***                    |
| 14                  | 1010.4                | 29.5                        | 26.7          | 24.8                        | 23.9                    | 85                         | 76                       | Trace               | 3.1                           | ***                                 | ***                    |
| 15                  | 1008.7                | 27.0                        | 25.5          | 24.6                        | 24.3                    | 94                         | 86                       | 38.5                | 0.1                           | ***                                 | ***                    |
| 16                  | 1007.6                | 26.6                        | 25.0          | 23.6                        | 22.3                    | 85                         | 84                       | 3.0                 | 1.0                           | ***                                 | ***                    |
| 17                  | 1009.7                | 29.9                        | 26.0          | 23.8                        | 21.5                    | 77                         | 76                       | 0.0                 | 9.0                           | ***                                 | ***                    |
| 18                  | 1012.0                | 27.4                        | 25.5          | 24.3                        | 20.5                    | 74                         | 86                       | 0.1                 | 1.4                           | ***                                 | ***                    |
| 19                  | 1011.0                | 26.0                        | 24.6          | 23.7                        | 21.0                    | 80                         | 88                       | 0.7                 | 0.1                           | ***                                 | ***                    |
| 20                  | 1008.7                | 24.8                        | 23.9          | 22.7                        | 21.8                    | 88                         | 88                       | 0.3                 | 0.0                           | ***                                 | ***                    |
| 21                  | 1007.7                | 24.9                        | 23.9          | 23.0                        | 22.2                    | 90                         | 88                       | 4.4                 | 0.1                           | ***                                 | ***                    |
| 22                  | 1008.1                | 25.2                        | 24.6          | 23.8                        | 23.4                    | 93                         | 88                       | 5.6                 | 0.1                           | ***                                 | ***                    |
| 23                  | 1007.8                | 28.5                        | 26.1          | 24.6                        | 24.9                    | 93                         | 86                       | 4.1                 | 4.8                           | ***                                 | ***                    |
| 24                  | 1006.8                | 26.2                        | 25.3          | 24.2                        | 24.5                    | 95                         | 92                       | 273.6               | 0.0                           | ***                                 | ***                    |
| 25                  | 1008.7                | 28.5                        | 25.5          | 23.9                        | 21.6                    | 79                         | 84                       | 0.0                 | 3.4                           | ***                                 | ***                    |
| 26                  | 1010.2                | 26.8                        | 25.0          | 23.9                        | 20.3                    | 76                         | 72                       | 0.0                 | 0.1                           | ***                                 | ***                    |
| 27                  | 1010.0                | 30.4                        | 26.1          | 24.0                        | 18.6                    | 65                         | 56                       | Trace               | 7.5                           | ***                                 | ***                    |
| 28                  | 1009.6                | 30.5                        | 26.7          | 24.8                        | 20.0                    | 68                         | 43                       | 0.0                 | 11.5                          | ***                                 | ***                    |
| 29                  | 1009.9                | 30.3                        | 26.6          | 24.9                        | 21.4                    | 74                         | 48                       | 0.0                 | 10.5                          | ***                                 | ***                    |
| 30                  | 1009.4                | 30.9                        | 27.0          | 25.1                        | 23.2                    | 80                         | 70                       | Trace               | 7.4                           | ***                                 | ***                    |
| 31                  | 1006.6                | 31.3                        | 28.2          | 25.6                        | 24.1                    | 79                         | 69                       | 0.0                 | 11.5                          | ***                                 | ***                    |
| Mean/Total          | 1010.5                | 28.6                        | 26.0          | 24.2                        | 22.5                    | 82                         | 77                       | 399.3               | 126.0                         | ***                                 | ***                    |
| Normal <sup>§</sup> | 1009.3                | 28.4                        | 25.9          | 24.1                        | 22.6                    | 83                         | 76                       | 304.7               | 140.4                         | 080                                 | 19.7                   |

\*\*\* unavailable

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

# **Appendix F**

## **Air Quality Monitoring Results and their Graphical Presentation**

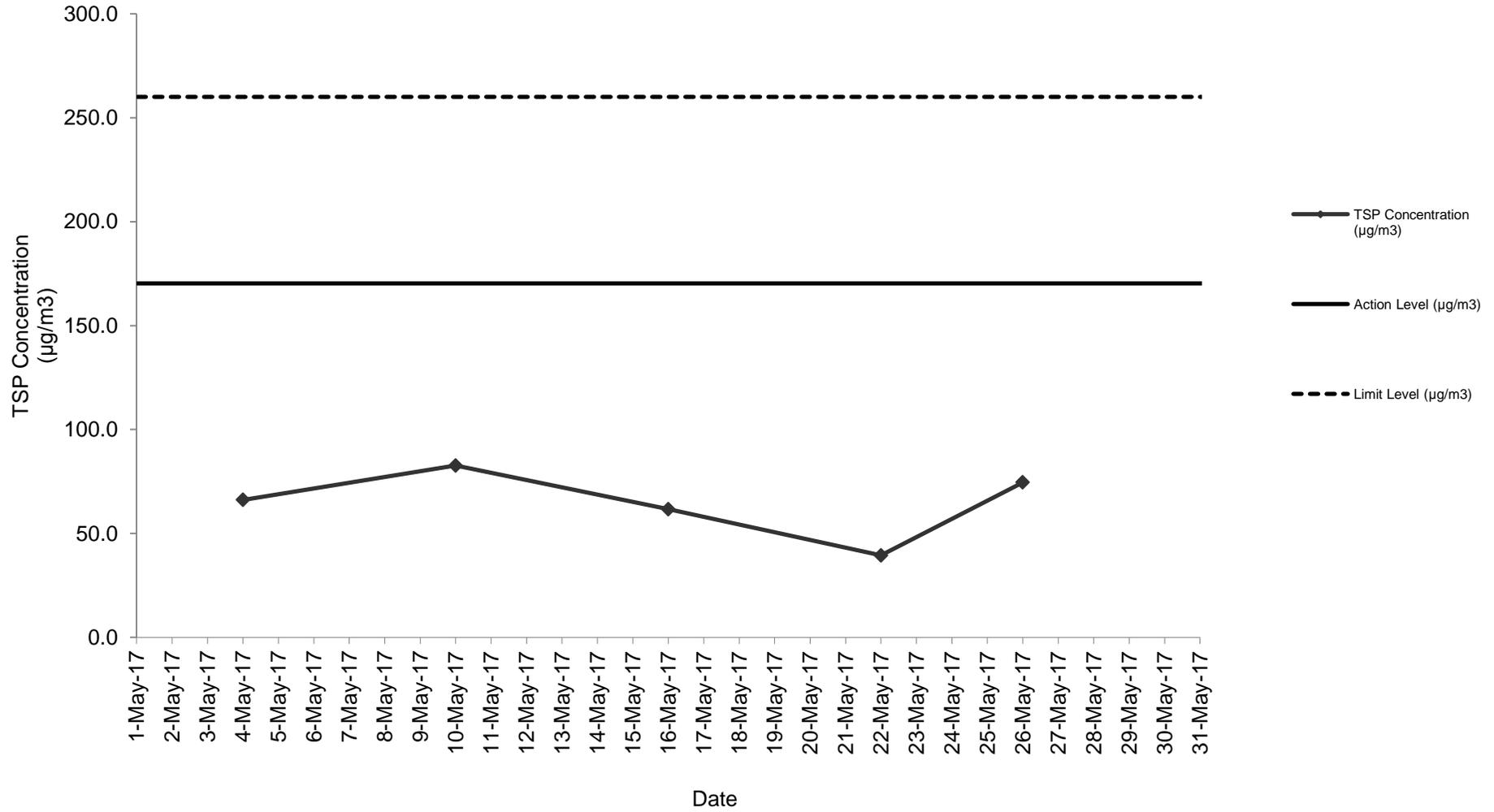
Appendix F  
Air Quality Monitoring Results and their Graphical Presentation

24-Hour TSP Monitoring Result at Station: SR77

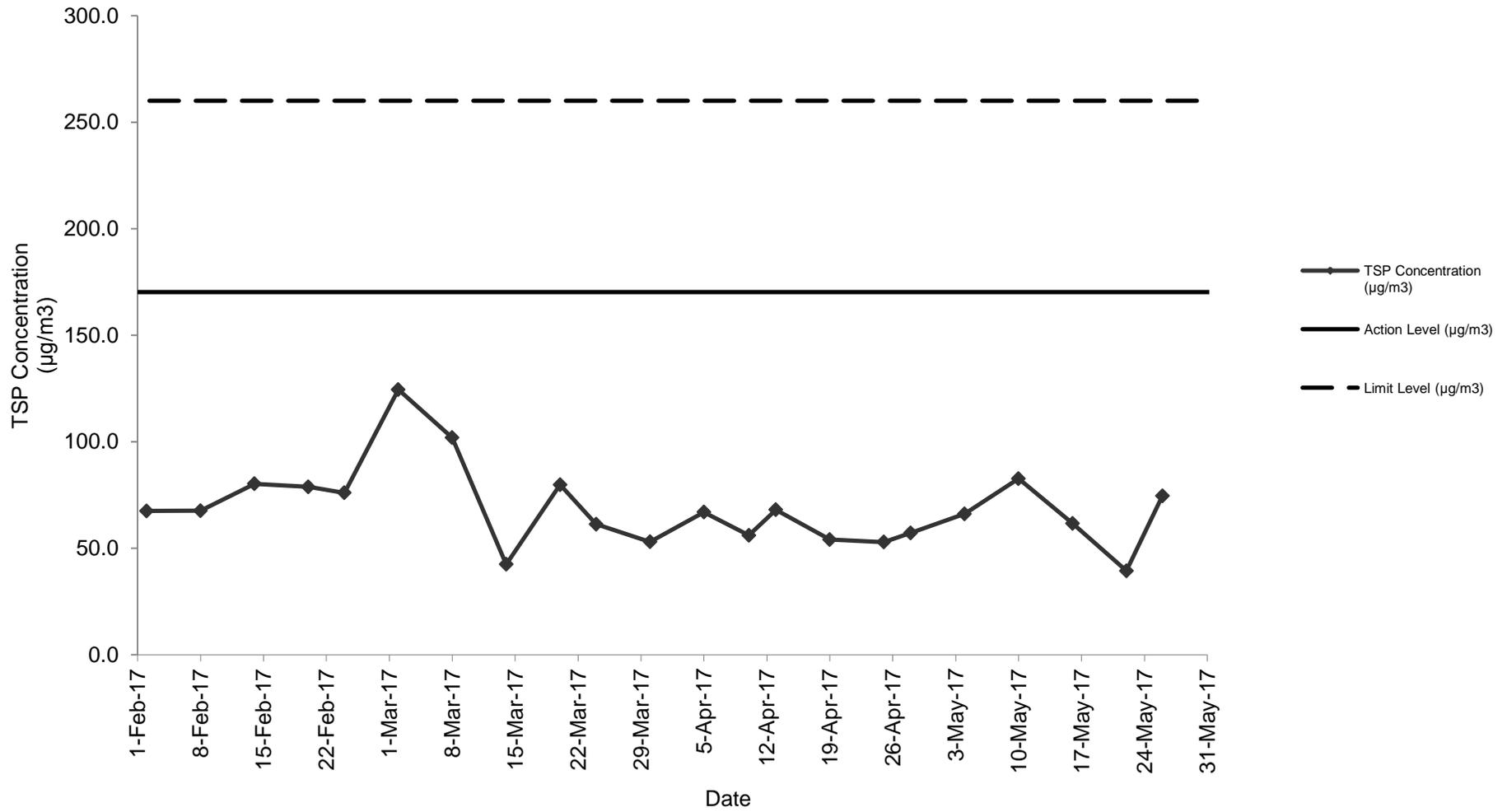
| Sampling Date | Weather Condition | Starting Time | Paper No. | Wt. of paper (g) |           |             | Elapse Time |         |               | Flow Rate (CFM) |       |               | Flow Rate (m <sup>3</sup> /min) |       |               | Total Volume (m <sup>3</sup> ) | TSP Concentration (µg/m <sup>3</sup> ) | Action Level (µg/m <sup>3</sup> ) | Limit Level (µg/m <sup>3</sup> ) | 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 |                                |  |                                   |                                  |                |                |     |    |
| 4-May-17      | Rainy             | 12:10         | CC40      | 2.8544           | 2.9920    | 0.1376      | 6439.67     | 6463.67 | 24.00         | 51              | 51    | 51.0          | 1.44                            | 1.44  | 1.44          | 2079.59                        | 66.2                                   | 170.3                             | 260.0                            | <5             | N              |     |    |
| 10-May-17     | Cloudy            | 12:11         | CC42      | 2.8358           | 3.0078    | 0.1720      | 6466.67     | 6490.67 | 24.00         | 51              | 51    | 51.0          | 1.44                            | 1.44  | 1.44          | 2079.59                        | 82.7                                   | 170.3                             | 260.0                            | <5             | N              |     |    |
| 16-May-17     | Cloudy            | 12:10         | CC44      | 2.8647           | 2.9930    | 0.1283      | 6493.67     | 6517.67 | 24.00         | 51              | 51    | 51.0          | 1.44                            | 1.44  | 1.44          | 2079.59                        | 61.7                                   | 170.3                             | 260.0                            | <5             | N              |     |    |
| 22-May-17     | Cloudy            | 12:09         | CC46      | 2.8895           | 2.9715    | 0.0820      | 6520.67     | 6544.67 | 24.00         | 51              | 51    | 51.0          | 1.44                            | 1.44  | 1.44          | 2079.59                        | 39.4                                   | 170.3                             | 260.0                            | <5             | N              |     |    |
| 26-May-17     | Fine              | 12:11         | CC48      | 2.8533           | 3.0084    | 0.1551      | 6547.67     | 6571.67 | 24.00         | 51              | 51    | 51.0          | 1.44                            | 1.44  | 1.44          | 2079.59                        | 74.6                                   | 170.3                             | 260.0                            | <5             | N              |     |    |
|               |                   |               |           |                  |           |             |             |         |               |                 |       |               |                                 |       |               | <b>Average</b>                 | 64.9                                   |                                   |                                  |                |                |     |    |
|               |                   |               |           |                  |           |             |             |         |               |                 |       |               |                                 |       |               | <b>Min</b>                     | 39.4                                   |                                   |                                  |                |                |     |    |
|               |                   |               |           |                  |           |             |             |         |               |                 |       |               |                                 |       |               | <b>Max</b>                     | 82.7                                   |                                   |                                  |                |                |     |    |

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

### 24-Hour TSP Monitoring Result at Station: SR77



**24-Hour TSP Monitoring Result at Station: SR77  
(February 2017 - May 2017)**



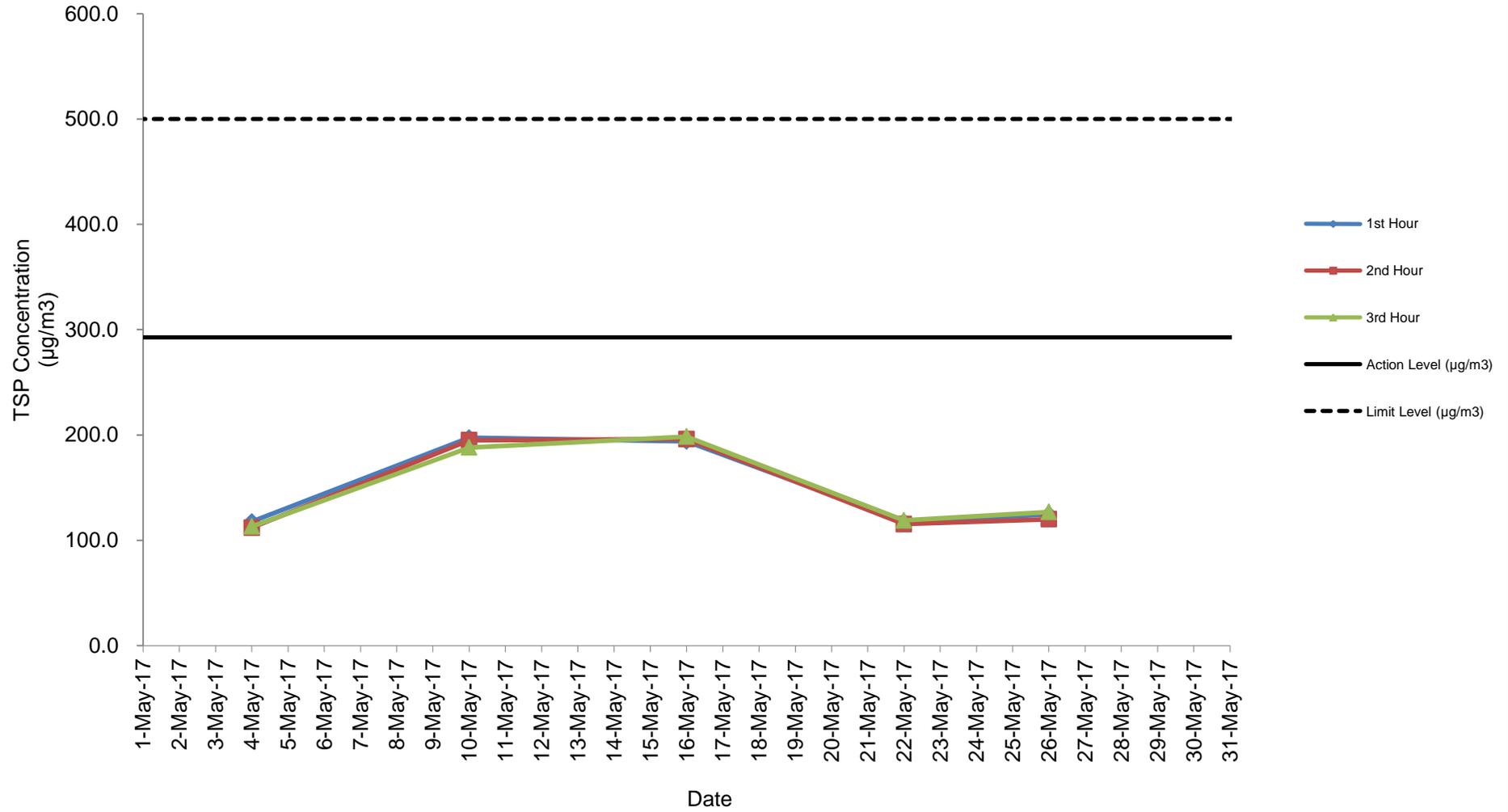
Appendix F  
Air Quality Monitoring Results and their Graphical Presentation

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

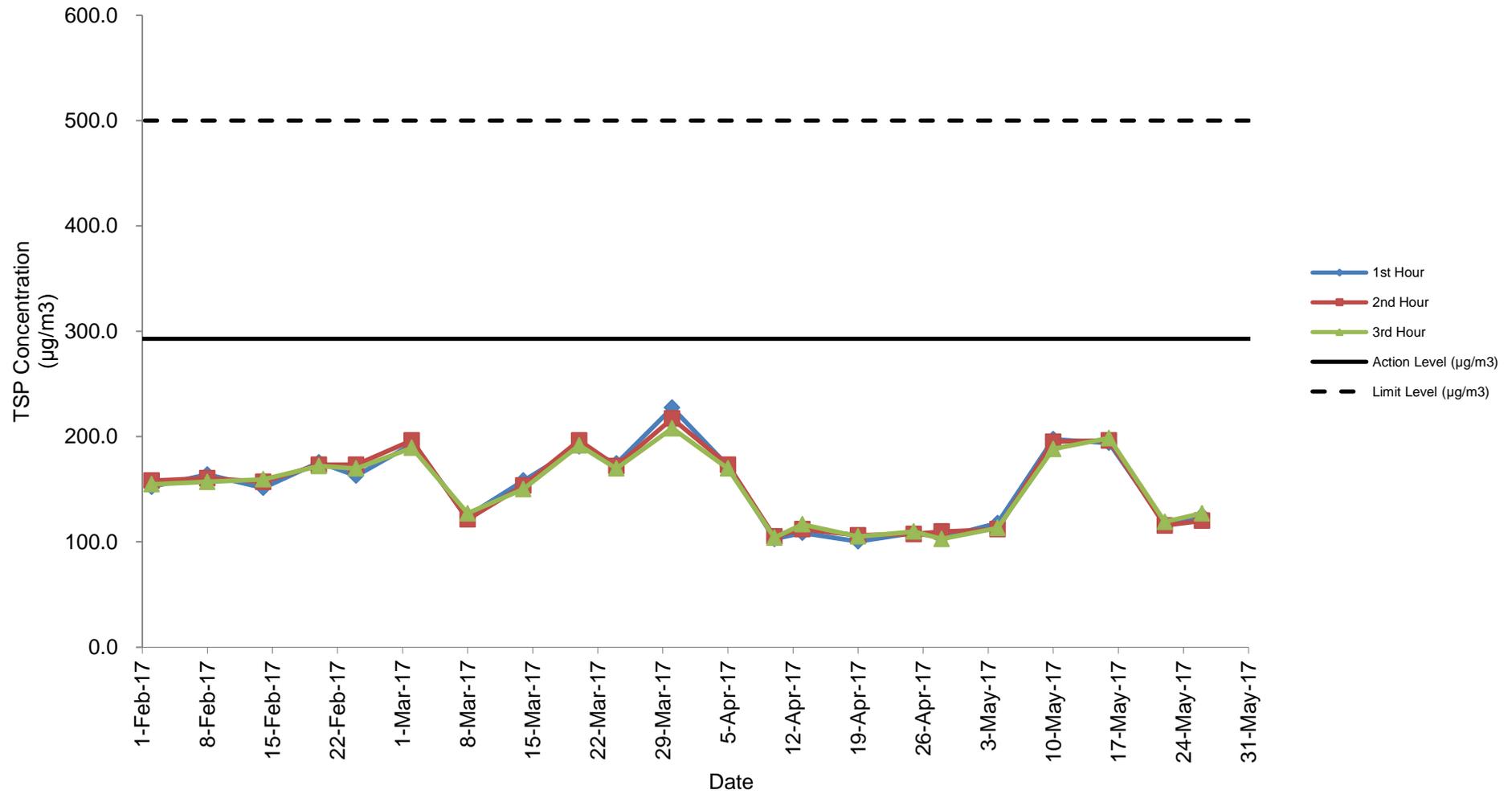
| Sampling Date | Weather Condition | Starting Time | Paper No. | Wt. of paper (g) |           |             | Elapse Time |         |               | Flow Rate (CFM) |       |               | Flow Rate (m <sup>3</sup> /min) |       |               | Total Volume (m <sup>3</sup> ) | TSP Concentration (µg/m <sup>3</sup> ) | Action Level (µg/m <sup>3</sup> ) | Limit Level (µg/m <sup>3</sup> ) | Wind speed m/s | Wind direction |
|---------------|-------------------|---------------|-----------|------------------|-----------|-------------|-------------|---------|---------------|-----------------|-------|---------------|---------------------------------|-------|---------------|--------------------------------|--|-----------------------------------|----------------------------------|----------------|----------------|
|               |                   |               |           | Initial Wt.      | Final Wt. | Wt. of Dust | Initial     | Final   | Sampling Hour | Initial         | Final | Avg Flow Rate | Initial                         | Final | Avg Flow Rate |                                |  |                                   |                                  |                |                |
| 4-May-17      | Rainy             | 09:00         | CC41A     | 2.8400           | 2.8502    | 0.0102      | 6436.67     | 6437.67 | 1.00          | 51              | 51    | 51.0          | 1.44                            | 1.44  | 1.44          | 86.65                          | 117.7                                  | 292.7                             | 500.0                            | <5             | N              |
|               | Rainy             | 10:03         | CC41B     | 2.8371           | 2.8468    | 0.0097      | 6437.67     | 6438.67 | 1.00          | 51              | 51    | 51.0          | 1.44                            | 1.44  | 1.44          | 86.65                          | 111.9                                  | 292.7                             | 500.0                            | <5             | N              |
|               | Rainy             | 11:06         | CC41C     | 2.8194           | 2.8292    | 0.0098      | 6438.67     | 6439.67 | 1.00          | 51              | 51    | 51.0          | 1.44                            | 1.44  | 1.44          | 86.65                          | 113.1                                  | 292.7                             | 500.0                            | <5             | N              |
| 10-May-17     | Cloudy            | 09:00         | CC43A     | 2.8696           | 2.8867    | 0.0171      | 6463.67     | 6464.67 | 1.00          | 51              | 51    | 51.0          | 1.44                            | 1.44  | 1.44          | 86.65                          | 197.3                                  | 292.7                             | 500.0                            | <5             | N              |
|               | Cloudy            | 10:03         | CC43B     | 2.8612           | 2.8781    | 0.0169      | 6464.67     | 6465.67 | 1.00          | 51              | 51    | 51.0          | 1.44                            | 1.44  | 1.44          | 86.65                          | 195.0                                  | 292.7                             | 500.0                            | <5             | N              |
|               | Cloudy            | 11:08         | CC43C     | 2.8578           | 2.8741    | 0.0163      | 6465.67     | 6466.67 | 1.00          | 51              | 51    | 51.0          | 1.44                            | 1.44  | 1.44          | 86.65                          | 188.1                                  | 292.7                             | 500.0                            | <5             | N              |
| 16-May-17     | Cloudy            | 09:00         | CC45A     | 2.8328           | 2.8496    | 0.0168      | 6490.67     | 6491.67 | 1.00          | 51              | 51    | 51.0          | 1.44                            | 1.44  | 1.44          | 86.65                          | 193.9                                  | 292.7                             | 500.0                            | <5             | N              |
|               | Cloudy            | 10:03         | CC45B     | 2.8171           | 2.8341    | 0.0170      | 6491.67     | 6492.67 | 1.00          | 51              | 51    | 51.0          | 1.44                            | 1.44  | 1.44          | 86.65                          | 196.2                                  | 292.7                             | 500.0                            | <5             | N              |
|               | Cloudy            | 11:09         | CC45C     | 2.8209           | 2.8381    | 0.0172      | 6492.67     | 6493.67 | 1.00          | 51              | 51    | 51.0          | 1.44                            | 1.44  | 1.44          | 86.65                          | 198.5                                  | 292.7                             | 500.0                            | <5             | N              |
| 22-May-17     | Cloudy            | 09:00         | CC47A     | 2.8460           | 2.8562    | 0.0102      | 6517.67     | 6518.67 | 1.00          | 51              | 51    | 51.0          | 1.44                            | 1.44  | 1.44          | 86.65                          | 117.7                                  | 292.7                             | 500.0                            | <5             | N              |
|               | Cloudy            | 10:03         | CC47B     | 2.8314           | 2.8414    | 0.0100      | 6518.67     | 6519.67 | 1.00          | 51              | 51    | 51.0          | 1.44                            | 1.44  | 1.44          | 86.65                          | 115.4                                  | 292.7                             | 500.0                            | <5             | N              |
|               | Cloudy            | 11:07         | CC47C     | 2.8421           | 2.8524    | 0.0103      | 6519.67     | 6520.67 | 1.00          | 51              | 51    | 51.0          | 1.44                            | 1.44  | 1.44          | 86.65                          | 118.9                                  | 292.7                             | 500.0                            | <5             | N              |
| 26-May-17     | Fine              | 09:00         | CC49A     | 2.8467           | 2.8575    | 0.0108      | 6544.67     | 6545.67 | 1.00          | 51              | 51    | 51.0          | 1.44                            | 1.44  | 1.44          | 86.65                          | 124.6                                  | 292.7                             | 500.0                            | <5             | N              |
|               | Fine              | 10:03         | CC49B     | 2.8437           | 2.8541    | 0.0104      | 6545.67     | 6546.67 | 1.00          | 51              | 51    | 51.0          | 1.44                            | 1.44  | 1.44          | 86.65                          | 120.0                                  | 292.7                             | 500.0                            | <5             | N              |
|               | Fine              | 11:09         | CC49C     | 2.8417           | 2.8527    | 0.0110      | 6546.67     | 6547.67 | 1.00          | 51              | 51    | 51.0          | 1.44                            | 1.44  | 1.44          | 86.65                          | 126.9                                  | 292.7                             | 500.0                            | <5             | N              |
|               |                   |               |           |                  |           |             |             |         |               |                 |       |               |                                 |       |               | <b>Average</b>                 | 149.0                                  |                                   |                                  |                |                |
|               |                   |               |           |                  |           |             |             |         |               |                 |       |               |                                 |       |               | <b>Min</b>                     | 111.9                                  |                                   |                                  |                |                |
|               |                   |               |           |                  |           |             |             |         |               |                 |       |               |                                 |       |               | <b>Max</b>                     | 198.5                                  |                                   |                                  |                |                |

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

### 1-Hour TSP Monitoring Result at station: SR77



### 1-Hour TSP Monitoring Result at station: SR77 (February 2017 - May 2017)



# Appendix G

## Summary of Event and Action Plan

**Event and Action Plan for Air Quality**

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

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

**Event and Action Plan for Noise**

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

**Event and Action Plan for Water Quality**

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

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

# **Appendix H Noise Monitoring Results and their Graphical Presentation**

**Appendix H**  
**Noise Monitoring Results and their Graphical Presentation**

Noise Monitoring Result at SR77

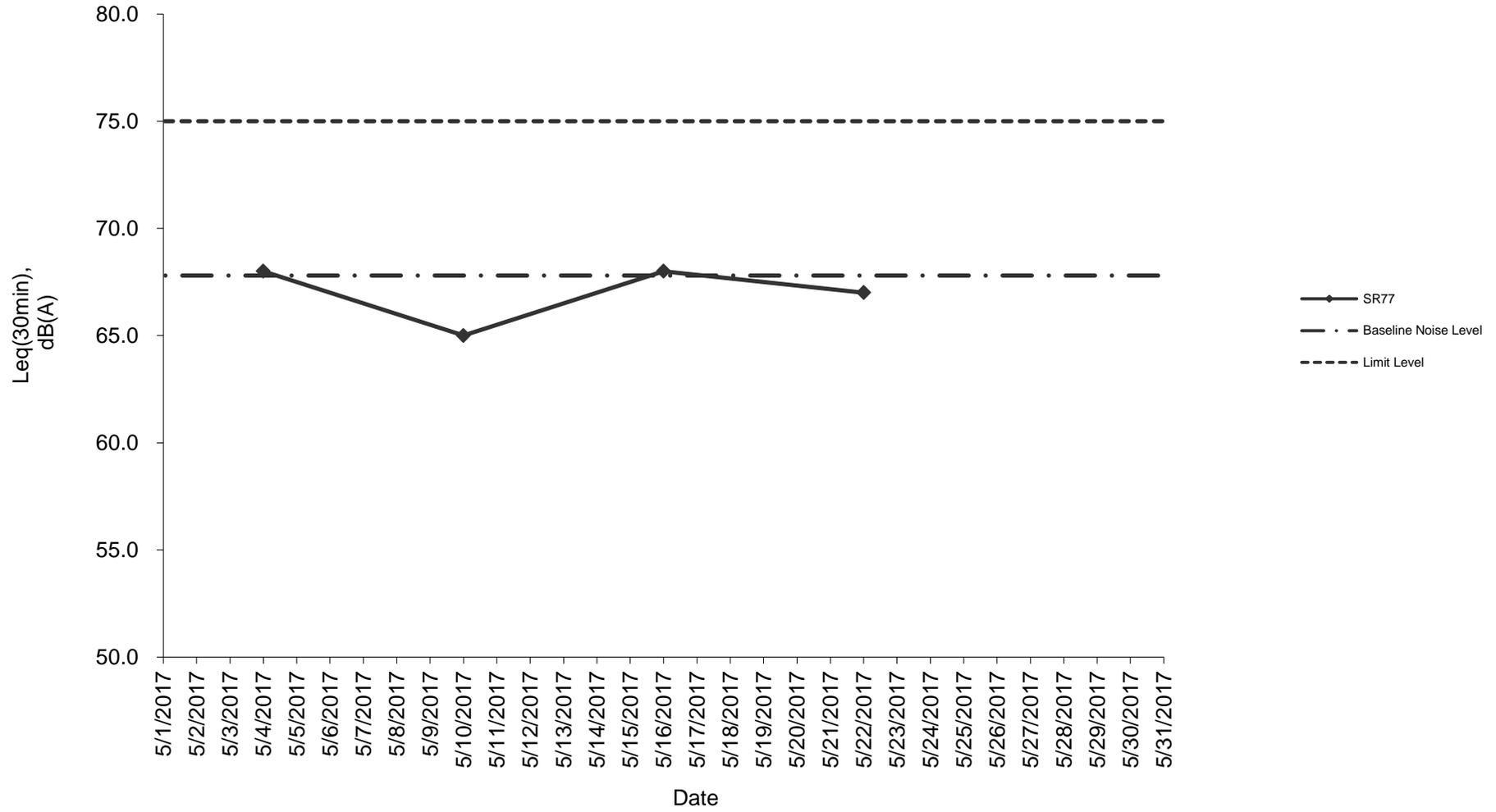
| Date       | Weather Condition | Start Time | End Time | Measured Noise Level (dB(A))* |            |                | Baseline Corrected Level, dB(A)** | Baseline Noise Level (dB(A)), Leq(30min) | Limit Level dB(A) | Exceedance (Y / N) |
|------------|-------------------|------------|----------|-------------------------------|------------|----------------|-----------------------------------|--|-------------------|--------------------|
|            |                   |            |          | L10(30min)                    | L90(30min) | Leq(30min)     |                                   |  |                   |                    |
| 2017/05/04 | Rainy             | 11:30      | 12:00    | 88.0                          | 66.5       | 68.0           | -                                 | 67.8                                     | 75.0              | N                  |
| 2017/05/10 | Cloudy            | 11:30      | 12:00    | 91.0                          | 60.0       | 65.0           | -                                 | 67.8                                     | 75.0              | N                  |
| 2017/05/16 | Cloudy            | 11:30      | 12:00    | 93.0                          | 61.5       | 68.0           | -                                 | 67.8                                     | 75.0              | N                  |
| 2017/05/22 | Cloudy            | 11:30      | 12:00    | 92.0                          | 62.0       | 67.0           | -                                 | 67.8                                     | 75.0              | N                  |
|            |                   |            |          |                               |            | <b>Average</b> | 67.0                              |  |                   |                    |
|            |                   |            |          |                               |            | <b>Minimum</b> | 65.0                              |  |                   |                    |
|            |                   |            |          |                               |            | <b>Maximum</b> | 68.0                              |  |                   |                    |

**Remarks**

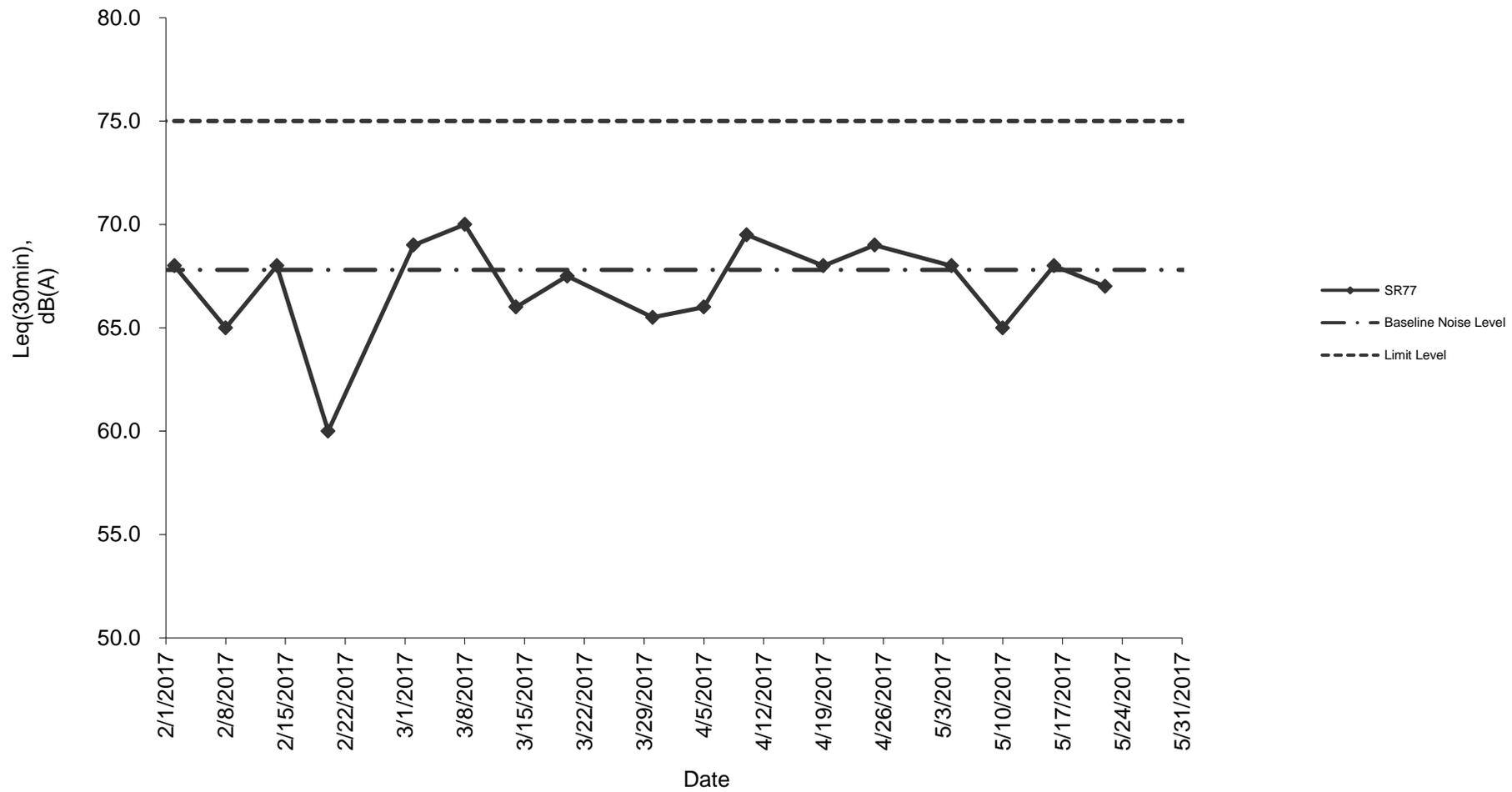
\* +3dB(A) Façade effect correction included

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

### Noise monitoring result: SR77



Noise monitoring result: SR77  
(February 2017 - May 2017)



# Appendix K Waste Flow Table

### Monthly Summary Waste Flow Table

| Month     | Actual Quantities of Inert C&D Materials Generated Monthly |                                     |                          |                             |                               |                              |                          | Actual Quantities of C&D Wastes Generated Monthly |                                     |                          |                      |                          |
|-----------|--|-------------------------------------|--------------------------|-----------------------------|-------------------------------|------------------------------|--------------------------|---|-------------------------------------|--------------------------|----------------------|--------------------------|
|           | Total Quantity Generated                                   | Hard Rock and Large Broken Concrete | Soil                     | Soil Reused in the Contract | Soil Reused in other Projects | Soil Disposed as Public Fill | Imported Fill            | Metals  | Paper/ cardboard packaging (Note 3) | Plastics                 | Chemical Waste       | General Refuse (Note 2)  |
| Unit      | (in '000m <sup>3</sup> )                                   | (in '000m <sup>3</sup> )            | (in '000m <sup>3</sup> ) | (in '000m <sup>3</sup> )    | (in '000m <sup>3</sup> )      | (in '000m <sup>3</sup> )     | (in '000m <sup>3</sup> ) | (in '000m <sup>3</sup> )                          | (in '000m <sup>3</sup> )            | (in '000m <sup>3</sup> ) | (in m <sup>3</sup> ) | (in '000m <sup>3</sup> ) |
| 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    | -  | -                                   | -                        | -                           | -                             | -                            | -                        | -   | -                                   | -                        | -                    | -                        |
| Sub-Total | 6.097  | 1.146                               | 4.951                    | 0.558                       | -                             | 4.393                        | 3.644                    | 0.767   | -                                   | 0.006                    | -                    | 0.605                    |
| Jul-17    | -  | -                                   | -                        | -                           | -                             | -                            | -                        | -   | -                                   | -                        | -                    | -                        |
| Aug-17    | -  | -                                   | -                        | -                           | -                             | -                            | -                        | -   | -                                   | -                        | -                    | -                        |
| Sep-17    | -  | -                                   | -                        | -                           | -                             | -                            | -                        | -   | -                                   | -                        | -                    | -                        |
| Oct-17    | -  | -                                   | -                        | -                           | -                             | -                            | -                        | -   | -                                   | -                        | -                    | -                        |
| Nov-17    | -  | -                                   | -                        | -                           | -                             | -                            | -                        | -   | -                                   | -                        | -                    | -                        |
| Dec-17    | -  | -                                   | -                        | -                           | -                             | -                            | -                        | -   | -                                   | -                        | -                    | -                        |
| Total     | 6.097  | 1.146                               | 4.951                    | 0.558                       | -                             | 4.393                        | 3.644                    | 0.767   | -                                   | 0.006                    | -                    | 0.605                    |

- Note:
1. Assume the density of soil fill is 2 ton/m<sup>3</sup>.
  2. Assume the density of rock and broken concrete is 2.5 ton/m<sup>3</sup>.
  3. Assume each truck of C&D wastes is 5m<sup>3</sup>.
  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<sup>3</sup>.

# **Appendix L Implementation Schedule of Environmental Mitigation Measures (EMIS)**

| Impact                            | Environmental Protection Measures  | Timing              | Responsibility | Implementation Status #   |
|-----------------------------------|--|---------------------|----------------|---|
| <b>Air Quality</b>                |  |                     |                |   |
| Air Quality during Construction   | <ul style="list-style-type: none"> <li>Restricting heights from which materials are dropped, as far as practicable to minimize the fugitive dust arising from unloading/loading.</li> <li>All stockpiles of excavated materials or spoil of more than 50m<sup>3</sup> shall be enclosed, covered or dampened during dry or windy conditions.</li> <li>Effective water sprays shall be used to control potential dust emission sources such as unpaved haul roads and active construction areas.</li> <li>All spraying of materials and surfaces shall avoid excessive water usage.</li> <li>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.</li> <li>Materials shall be dampened, if necessary, before transportation.</li> <li>Travelling speeds shall be controlled to reduce traffic induced dust dispersion and re-suspension within the site from the operating haul trucks.</li> <li>Vehicle washing facilities shall be provided to minimise the quantity of material deposited on public roads.</li> </ul> | During Construction | Contractor     | <ul style="list-style-type: none"> <li>✓</li> <li>✓</li> <li>✓</li> <li>✓</li> <li>✓</li> <li>✓</li> <li>✓</li> </ul> |
| Air Quality during Operation      | Not required   | N/A                 | N/A            | N/A   |
| <b>Noise</b>                      |  |                     |                |   |
| Noise during Construction         | <ul style="list-style-type: none"> <li>Use of silenced plant or plant equipped with mufflers or dampers in substitute of ordinary plant.</li> <li>Reduce the number of equipment and their percentage on-time.</li> </ul>  | During Construction | Contractor     | <ul style="list-style-type: none"> <li>✓</li> <li>✓</li> </ul>  |
| Noise during Operation            | Not required   | N/A                 | N/A            | N/A   |
| <b>Water Quality</b>              |  |                     |                |   |
| Water Quality during Construction | <u>Road Widening Works, Earthworks and Culvert Extension Works</u> <ul style="list-style-type: none"> <li>Wastewater generated from any concrete batching washdown of equipment or similar activities should be discharged into foul sewers, after the removal of settleable solids, and pH adjustment as necessary. All sewage discharges from the study area should meet the TM standards and approval from EPD through the licensing process is required.</li> </ul>  | During Construction | Contractor     | <ul style="list-style-type: none"> <li>✓</li> </ul>   |

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



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

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



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

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

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

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

# **Appendix N**

## **Cumulative Statistics on Complaints, Notifications of Summons and Successful Prosecutions**

**Cumulative Complaint Log**

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

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

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



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