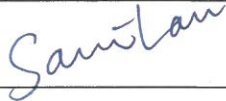
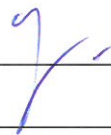


**Environmental Protection Department**

Contract No. HY/2012/06

**Widening of Fanling Highway  
– Tai Hang to Wo Hop Shek  
Interchange****Monthly EM&A Report  
For November 2016**

[12/2016]

	Name	Signature
Prepared & Checked:	Sammi Lam	
Reviewed & Approved:	Y W Fung	

Version:	Rev. 0	Date: 14 December 2016
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**Disclaimer**

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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)  
Environmental Permit No. EP-324/2008/D Condition 3.3 – Submission of Monthly EM&A Report – November 2016 for the portion of Stage 2 works under Contract No. HY/2012/06**

14 December 2016

By Fax (2805 5028) & Hand

We refer to the revised Monthly EM&A Report – November 2016 received on 14 December 2016 submitted by the Environmental Team via email. Pursuant to Environmental Permit Condition 3.3, I hereby verify the Monthly EM&A Report – November 2016 (Rev. 0) for the portion of works under Stage 2 of the captioned Project which is managed under Contract No. HY/2012/06.

Yours faithfully  
for MOTT MACDONALD HONG KONG LIMITED



Steven Tang  
Independent Environmental Checker

c.c.

HyD  
AECOM

Mr. Chung Lok Chin  
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## EXECUTIVE SUMMARY

The proposed widening of Tolo Highway and Fanling Highway between Island House Interchange and Fanling (the Project) is a Designated Project under the Environmental Impact Assessment Ordinance (Cap. 499) (EIAO). An Environmental Impact Assessment (EIA) Report (the approved EIA Report) together with an Environmental Monitoring and Audit (EM&A) Manual (the approved EM&A Manual) were completed and approved under the EIAO on 14 July 2000 (Register Number: EIA-043/2000).

The objective of the Project “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.

The Project is a designated project and governed by an Environmental Permit (EP-324/2008) issued by the EPD on 23 December 2008. Subsequently, the EPD issued Variation of Environmental Permits of EP-324/2008/A, EP-324/2008/B and EP-324/2008/C on 31 January 2012, 17 March 2014 and 27 March 2015 respectively. The current valid VEP was applied on 19 August 2015 and the VEP (EP-324/2008/D) was subsequently granted on 27 August 2015.

The construction works for this Project are delivered in 2 stages i.e. Stage 1 (between Island House Interchange and Tai Hang) and Stage 2 (between Tai Hang and Wo Hop Shek Interchange). Stage 2 would be implemented under two works contracts. Contract No. HY2012/06 “Widening of Fanling Highway – Tai Hang to Wo Hop Shek Interchange” and the entrusted portion to CEDD under Contract No. CV/2012/09 “Liantang/Heung Yuen Wai Boundary Control Point Site Formation and Infrastructure Works – Contract 3”. This report focuses on Contract No. HY2012/06 “Widening of Fanling Highway – Tai Hang to Wo Hop Shek Interchange” in Stage 2 of the Project only.

Pursuant to the EP (EP-324/2008/D) Condition 2.7, the Capture Survey Trip Report for Ma Wat River Northern Meander (Version 2) for the Project was submitted on 24 December 2013 by the Environmental Team (ET) and verified by the Independent Environmental Checker (IEC) on 6 January 2014.

The construction phase of the Contract under the EP and the Environmental Monitoring and Audit (EM&A) programme of the contract commenced on 21 November 2013. The impact environmental monitoring and audit includes air quality and noise monitoring.

This report documents the findings of EM&A works conducted in the period between 1 and 30 November 2016. As informed by the Contractor, construction activities in the reporting period were:

- Site clearance
- Ground investigation
- Pipe laying
- Retaining wall construction
- Noise Barrier
- Excavation
- Backfilling
- Drainage
- Temporary bridge construction
- House Construction
- Foot Bridge demolition
- Bridge construction

### Reporting Change

There was no reporting change required in the reporting period.

### **Breaches of Action and Limit Levels for Air Quality**

No exceedance of Action and Limit Level was recorded for 1-hour and 24-hour TSP monitoring in the reporting period.

### **Breaches of Action and Limit Levels for Noise**

No Action or Limit Level exceedance of construction noise was recorded in the reporting month. No noise complaints related to 0700 – 1900 hours on normal weekdays was received and followed by Environmental Team in the reporting month.

### **Complaint, Notification of Summons and Successful Prosecution**

No complaint, notification of summons and successful prosecution was received in the reporting period.

### **Future Key Issues**

Key issues to be considered in the coming month include:

- Properly store and label oils and chemicals on site;
- Chemical, chemical waste and waste management;
- Collection of construction waste should be carried out regularly;
- Properly maintain all drainage facilities and wheel washing facilities on site;
- Exposed slopes should be covered up properly if no temporary work will be conducted;
- Quieter powered mechanical equipment should be used;
- Suppress dust generated from excavation activities and haul road traffic; and
- Tree protective measures for all retained trees should be well maintained.

## 1 INTRODUCTION

### 1.1 Background

- 1.1.1. Tolo Highway and Fanling Highway are the expressways in the North East New Territories (NENT) connecting Sha Tin, Tai Po and Fanling. These highways form a vital part of the strategic Route 9, which links Hong Kong Island to the boundary at Shenzhen. At present, this section of Route 9 is a dual 3-lane carriageway. However, at several major interchanges along this section of Route 9, the highway is a dual-2 lane carriageway only. Severe congestion is a frequent occurrence during the peak periods, particularly in the Kowloon-bound direction.
- 1.1.2. The objective of the Project “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.
- 1.1.3. The Project is a designated project and governed by an Environmental Permit (EP-324/2008) issued by the EPD on 23 December 2008. Subsequently, the EPD issued Variation of Environmental Permits of EP-324/2008/A, EP-324/2008/B and EP-324/2008/C on 31 January 2012, 17 March 2014 and 27 March 2015 respectively. The current valid VEP was applied on 19 August 2015 and the VEP (EP-324/2008/D) was subsequently granted on 27 August 2015.
- 1.1.4. The scope of the Project comprises mainly:-
- (i) Widening of a 5.7 km section of Tolo Highway and 3.0 km section of Fanling Highway between Island House Interchange and Wo Hop Shek Interchange from the existing dual 3-lane to dual 4-lane, including construction of new vehicular bridges;
  - (ii) Widening of interchange sections at Island House Interchange, Tai Po North Interchange, and Lam Kam Road Interchange from dual 2-lane to dual 3-lane, except Sha Tin bound carriageway at Tai Po North Interchange, which is widened from 3-lane to 4-lane, including realignment of various slip roads;
  - (iii) Modification and reconstruction of highways, vehicular bridges, underpasses and footbridges.
- 1.1.5. The construction works for this Project will be delivered in 2 stages i.e. Stage 1 (between Island House Interchange and Tai Hang) and Stage 2 (between Tai Hang and Wo Hop Shek Interchange). Stage 2 would be implemented under two works contracts. Contract No. HY/2012/06 “Widening of Fanling Highway – Tai Hang to Wo Hop Shek Interchange” and the entrusted portion to CEDD under Contract No. CV/2012/09 “Liantang/Heung Yuen Wai Boundary Control Point Site Formation and Infrastructure Works – Contract 3”. This report focuses on Contract No. HY2012/06 “Widening of Fanling Highway – Tai Hang to Wo Hop Shek Interchange” in Stage 2 of the Project only.
- 1.1.6. Hyder-Arup-Black and Veatch Joint Venture (HABVJV) are appointed by Highways Department (HyD) as the consultants for the design and construction assignment for the Tolo project under Agreement No. CE 58/2000 Supplementary Agreement No. 3 (SA3) (i.e. the Engineer for the Contract).
- 1.1.7. China State Construction Engineering (Hong Kong) Ltd. (CSHK) was commissioned as the Contractor of the Contract.
- 1.1.8. AECOM Asia Co. Ltd. was commissioned by China State Construction Engineering (Hong Kong) Limited as the Environmental Team (ET) to undertake the Environmental Monitoring and Audit (EM&A) works for the Contract and Mott MacDonald Hong Kong Ltd. acts as the Independent Environmental Checker (IEC) for the Contract.
- 1.1.9. The construction phase of the Contract under the EP commenced on 21 November 2013.
- 1.1.10. According to the updated EM&A Manual of Stage 2 of the Project, there is a need of an EM&A programme including air quality and noise monitoring. The EM&A programme for Stage 2 of the Project commenced on 21 November 2013.

## 1.2 Scope of Report

1.2.1 This is the thirty-seventh monthly EM&A Report under the Contract No. HY/2012/06 “Widening of Fanling Highway – Tai Hang to Wo Hop Shek Interchange. This report presents a summary of the environmental monitoring and audit works, list of activities and mitigation measures proposed by the ET for the Contract in November 2016.

## 1.3 Project Organization

1.3.1 The project organization structure is shown in Appendix A. The key personnel contact names and numbers are summarized in Table 1.1.

**Table 1.1 Contact Information of Key Personnel**

Party	Position	Name	Telephone	Fax
<b>ER</b> (Hyder-Arup-Black & Veatch Joint Venture)	Chief Resident Engineer	Edwin Chung	6115 0818	2638 0950
<b>IEC</b> (Mott MacDonald Hong Kong Limited)	Independent Environmental Checker	Steven Tang	2828 5920	2827 1823
<b>Contractor</b> (China State Construction Engineering (Hong Kong) Limited)	Environmental Officer	Michael Tsang	9277 4956	2672 2501
		C C Chow	9679 6315	2672 2501
<b>ET</b> (AECOM Asia Company Limited)	ET Leader	Y W Fung	3922 9393	3922 9797

## 1.4 Summary of Construction Works

1.4.1 The construction phase for the Contract under the EP commenced on 21 November 2013.

1.4.2 Details of the construction works carried out by the Contractor in this reporting period are listed below:

- Site clearance
- Ground investigation
- Pipe laying
- Retaining wall construction
- Noise Barrier
- Excavation
- Backfilling
- Drainage
- Temporary bridge construction
- House Construction
- Foot Bridge demolition
- Bridge construction



1.4.3 The Construction Programme is shown in Appendix B.

1.4.4 The general layout plan of the Project site showing the contract areas is shown in Figure 1.1.

1.4.5 The environmental mitigation measures implementation schedule are presented in Appendix C.

## **1.5 Summary of EM&A Programme Requirements**

1.5.1 The EM&A programme required environmental monitoring for air quality, noise and environmental site inspections for air quality, water quality, noise, waste management, ecology, and landscape and visual impact. The EM&A requirements for each parameter described in the following sections include:-

- All monitoring parameters;
- Monitoring schedules for the reporting period and forthcoming months;
- Action and Limit levels for all environmental parameters;
- Event / Action Plan;
- Environmental mitigation measures, as recommended in the Project EIA study final report; and
- Environmental requirement in contract documents.

## 2 AIR QUALITY MONITORING

### 2.1 Monitoring Requirements

2.1.1 In accordance with the updated EM&A Manual, baseline 1-hour and 24-hour TSP levels at one air quality monitoring station was established. Impact 1-hour TSP monitoring was conducted for at least three times every 6 days, while impact 24-hour TSP monitoring was carried out for at least once every 6 days. The Action and Limit level of the air quality monitoring is provided in Appendix D.

### 2.2 Monitoring Equipment

2.2.1 24-hour TSP air quality monitoring was performed using High Volume Sampler (HVS) located at each designated monitoring station. The HVS meets all the requirements of the updated EM&A Manual. Portable direct reading dust meters were used to carry out the 1-hour TSP monitoring. Brand and model of the equipment is given in Table 2.1.

**Table 2.1 Air Quality Monitoring Equipment**

Equipment	Brand and Model
Portable direct reading dust meter (1-hour TSP)	Sibata Digital Dust Monitor (Model No. LD-3)
High Volume Sampler (24-hour TSP)	Tisch Total Suspended Particulate Mass Flow Controlled High Volume Air Sampler (Model No. TE-5170)

### 2.3 Monitoring Locations

2.3.1 The monitoring station was set up at the proposed location in accordance with updated EM&A Manual. Table 2.2 describes details of the monitoring station. The locations are shown in Figure 1.2a.

**Table 2.2 Locations of Impact Air Quality Monitoring Station**

Location	Monitoring Station
AM2 (SR2)	Fanling Government Secondary School

### 2.4 Monitoring Parameters and Frequency

2.4.1 Table 2.3 summarizes the monitoring parameters, frequency and duration of impact TSP monitoring.

**Table 2.3 Air Quality Monitoring Parameters and Frequency**

Parameter	Frequency
24-hour TSP	Once every 6 days
1-hour TSP	3 times every 6 days while the highest dust impact was expected

## 2.5 Monitoring Methodology

### 2.5.1 24-hour TSP Monitoring

- (a) The HVS was installed in the vicinity of the air sensitive receivers. The following criteria were considered in the installation of the HVS.
- (i) A horizontal platform with appropriate support to secure the sampler against gusty wind was provided.
  - (ii) The distance between the HVS and any obstacles, such as buildings, was at least twice the height that the obstacle protrudes above the HVS.
  - (iii) A minimum of 2 meters separation from walls, parapets and penthouse for rooftop sampler.
  - (iv) A minimum of 2 meters separation from any supporting structure, measured horizontally.
  - (v) No furnace or incinerator flues nearby.
  - (vi) Airflow around the sampler was unrestricted.
  - (vii) Permission was obtained to set up the samplers and access to the monitoring stations.
  - (viii) A secured supply of electricity was obtained to operate the samplers.
  - (ix) The sampler was located more than 20 meters from any dripline.
  - (x) Any wire fence and gate, required to protect the sampler, did not obstruct the monitoring process.
  - (xi) Flow control accuracy was kept within  $\pm 2.5\%$  deviation over 24-hour sampling period.
- (b) Preparation of Filter Papers
- (i) Glass fibre filters, G810 were labelled and sufficient filters that were clean and without pinholes were selected.
  - (ii) All filters were equilibrated in the conditioning environment for 24 hours before weighing. The conditioning environment temperature was around 25 °C and not variable by more than  $\pm 3$  °C; the relative humidity (RH) was < 50% and not variable by more than  $\pm 5\%$ . A convenient working RH was 40%.
  - (iii) All filter papers were prepared and analysed by ALS Technichem (HK) Pty Ltd., which is a HOKLAS accredited laboratory and has comprehensive quality assurance and quality control programmes.
- (c) Field Monitoring
- (i) The power supply was checked to ensure the HVS works properly.
  - (ii) The filter holder and the area surrounding the filter were cleaned.
  - (iii) The filter holder was removed by loosening the four bolts and a new filter, with stamped number upward, on a supporting screen was aligned carefully.
  - (iv) The filter was properly aligned on the screen so that the gasket formed an airtight seal on the outer edges of the filter.
  - (v) The swing bolts were fastened to hold the filter holder down to the frame. The pressure applied was sufficient to avoid air leakage at the edges.
  - (vi) Then the shelter lid was closed and was secured with the aluminum strip.
  - (vii) The HVS was warmed-up for about 5 minutes to establish run-temperature conditions.
  - (viii) A new flow rate record sheet was set into the flow recorder.
  - (ix) On site temperature and atmospheric pressure readings were taken and the flow rate of the HVS was checked and adjusted at around 1.1 m<sup>3</sup>/min, and complied with the range specified in the updated EM&A Manual (i.e. 0.6-1.7 m<sup>3</sup>/min).
  - (x) The programmable digital timer was set for a sampling period of 24 hrs, and the starting time, weather condition and the filter number were recorded.
  - (xi) The initial elapsed time was recorded.
  - (xii) At the end of sampling, on site temperature and atmospheric pressure readings were taken and the final flow rate of the HVS was checked and recorded.
  - (xiii) The final elapsed time was recorded.

- (xiv) The sampled filter was removed carefully and folded in half length so that only surfaces with collected particulate matter were in contact.
  - (xv) It was then placed in a clean plastic envelope and sealed.
  - (xvi) All monitoring information was recorded on a standard data sheet.
  - (xvii) Filters were then sent to ALS Technichem (HK) Pty Ltd. for analysis.
- (d) Maintenance and Calibration
- (i) 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.
  - (ii) 5-point calibration of the HVS was conducted using TE-5025A Calibration Kit prior to the commencement of baseline monitoring. Bi-monthly 5-point calibration of the HVS will be carried out during impact monitoring.
  - (iii) Calibration certificate of the HVSs are provided in Appendix E.

## 2.5.2 1-hour TSP Monitoring

### (a) Measuring Procedures

The measuring procedures of the 1-hour dust meter were in accordance with the Manufacturer's Instruction Manual as follows:-

- (i) Turn the power on.
- (ii) Close the air collecting opening cover.
- (iii) Push the "TIME SETTING" switch to [BG].
- (iv) Push "START/STOP" switch to perform background measurement for 6 seconds.
- (v) Turn the knob at SENSI ADJ position to insert the light scattering plate.
- (vi) Leave the equipment for 1 minute upon "SPAN CHECK" is indicated in the display.
- (vii) Push "START/STOP" switch to perform automatic sensitivity adjustment. This measurement takes 1 minute.
- (viii) Pull out the knob and return it to MEASURE position.
- (ix) Push the "TIME SETTING" switch the time set in the display to 3 hours.
- (x) Lower down the air collection opening cover.
- (xi) Push "START/STOP" switch to start measurement.

### (b) Maintenance and Calibration

- (i) The 1-hour TSP meter was calibrated at 1-year intervals against a continuous particulate TEOM Monitor, Series 1400ab. Calibration certificates of the Laser Dust Monitors are provided in Appendix E.
- (ii) 1-hour validation checking of the TSP meter against HVS is carried out yearly at the air quality monitoring locations.

## 2.6 Monitoring Schedule for the Reporting period

2.6.1 The schedule for environmental monitoring in November 2016 is provided in Appendix F.

## 2.7 Results and Observations

2.7.1 The monitoring results for 1-hour TSP and 24-hour TSP are summarized in Table 2.4 and 2.5 respectively. Detailed impact air quality monitoring results are presented in Appendix G.

**Table 2.4 Summary of 1-hour TSP Monitoring Results in the Reporting Period**

Location	Average ( $\mu\text{g}/\text{m}^3$ )	Range ( $\mu\text{g}/\text{m}^3$ )	Action Level ( $\mu\text{g}/\text{m}^3$ )	Limit Level ( $\mu\text{g}/\text{m}^3$ )
<b>AM2</b> (Fanling Government Secondary School)	73.5	70.4 – 78.2	317.8	500

**Table 2.5 Summary of 24-hour TSP Monitoring Results in the Reporting Period**

Location	Average ( $\mu\text{g}/\text{m}^3$ )	Range ( $\mu\text{g}/\text{m}^3$ )	Action Level ( $\mu\text{g}/\text{m}^3$ )	Limit Level ( $\mu\text{g}/\text{m}^3$ )
<b>AM2</b> (Fanling Government Secondary School)	38.1	16.4 – 66.0	200.7	260

2.7.2 The major dust source during the monitoring was mainly from nearby traffic emission.

2.7.3 All 1-hour and 24-hour TSP results were below the Action and Limit Level at all monitoring locations in the reporting period.

2.7.4 The event action plan is annexed in Appendix J.

2.7.5 Weather information including wind speed and wind direction is annexed in Appendix H. The information was obtained from the Hong Kong Observatory Tai Po and Tai Mei Tuk Automatic Weather Stations.

### 3 NOISE MONITORING

#### 3.1 Monitoring Requirements

3.1.1 In accordance with the EM&A Manual, impact noise monitoring was conducted for at least once per week during the construction phase of the Contract. The Action and Limit level of the noise monitoring is provided in Appendix D.

#### 3.2 Monitoring Equipment

3.2.1 Noise monitoring was performed using sound level meter at each designated monitoring station. The sound level meters deployed comply with the International Electrotechnical Commission Publications (IEC) 651:1979 (Type 1) and 804:1985 (Type 1) specifications. Acoustic calibrator was deployed to check the sound level meters at a known sound pressure level. Brand and model of the equipment is given in Table 3.1.

**Table 3.1 Noise Monitoring Equipment**

Equipment	Brand and Model
Integrated Sound Level Meter	B&K 2238
Acoustic Calibrator	Rion NC-73

#### 3.3 Monitoring Locations

3.3.1 Monitoring stations M2 and M3 were set up at the proposed locations in accordance with updated EM&A Manual. Figure 1.2a-b shows the locations of the monitoring stations. Table 3.2 describes the details of the monitoring stations.

**Table 3.2 Locations of Impact Noise Monitoring Stations**

Monitoring Station	Location	Description
M2	West Tai Wo	1.2m from the ground floor free-field of the Residential
M3	Fanling Government Secondary School	1m from the exterior of the roof top façade of the school

#### 3.4 Monitoring Parameters and Frequency

3.4.1 Table 3.3 summarizes the monitoring parameters, frequency and duration of impact noise monitoring.

**Table 3.3 Noise Monitoring Parameters, Frequency and Duration**

Parameter	Frequency
30-mins measurement at each monitoring station between 0700 and 1900 on normal weekdays. $L_{eq}$ , $L_{10}$ and $L_{90}$ would be recorded.	At least once per week

### 3.5 Monitoring Methodology

#### 3.5.1 Monitoring Procedure

- (a) Façade measurement was made at monitoring station M3, while free-field measurement was made at monitoring station M2.
- (b) 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 M2.
- (c) The battery condition was checked to ensure the correct functioning of the meter.
- (d) Parameters such as frequency weighting, the time weighting and the measurement time were set as follows:-
  - (i) frequency weighting: A
  - (ii) time weighting: Fast
  - (iii) time measurement:  $L_{eq(30\text{-minutes})}$  during non-restricted hours i.e. 07:00 – 1900 on normal weekdays;  $L_{eq(5\text{-minutes})}$  during restricted hours i.e. 19:00 – 23:00 and 23:00 – 07:00 of normal weekdays, whole day of Sundays and Public Holidays
- (e) 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 1 dB(A), the measurement would be considered invalid and repeat of noise measurement would be required after re-calibration or repair of the equipment.
- (f) During the monitoring period, the  $L_{eq}$ ,  $L_{10}$  and  $L_{90}$  were recorded. In addition, site conditions and noise sources were recorded on a standard record sheet.
- (g) Noise measurement was paused during periods of high intrusive noise (e.g. dog barking, helicopter noise) if possible. Observations were recorded when intrusive noise was unavoidable.
- (h) Noise monitoring was cancelled in the presence of fog, rain, wind with a steady speed exceeding 5m/s, or wind with gusts exceeding 10m/s.

#### 3.5.2 Maintenance and Calibration

- (a) The microphone head of the sound level meter was cleaned with soft cloth at regular intervals.
- (b) The meter and calibrator were sent to the supplier or HOKLAS laboratory to check and calibrate at yearly intervals.
- (c) Calibration certificates of the sound level meters and acoustic calibrators are provided in Appendix E.

### 3.6 Monitoring Schedule for the Reporting period

3.6.1 The schedule for environmental monitoring in November 2016 is provided in Appendix F.

### 3.7 Monitoring Results

3.7.1 The monitoring results for construction noise are summarized in Table 3.4 and the monitoring data is provided in Appendix I.

**Table 3.4 Summary of Construction Noise Monitoring Results in the Reporting Period**

Location	Average, dB(A), $L_{eq}$ (30 mins)	Range, dB(A), $L_{eq}$ (30 mins)	Limit Level, dB(A), $L_{eq}$ (30 mins)
<b>M2*</b> (West Tai Wo)	68.4	63.6 – 70.1	75
<b>M3#</b> (Fanling Government Secondary School)	66.2	63.6 – 69.2	65/70

\*+3dB(A) Façade correction included

# Limit Level of 70dB(A) applies to education institutes while 65dB(A) applies during school examination period.

- 3.7.2 No Action or Limit Level exceedance of construction noise was recorded in the reporting month. No noise complaints related to 0700 – 1900 hours on normal weekdays was received and followed by Environmental Team in the reporting month.
- 3.7.3 Major noise sources during noise monitoring in the reporting period were mainly road traffic noise.
- 3.7.4 The event action plan is annexed in Appendix J.



## **4 ENVIRONMENTAL SITE INSPECTION AND AUDIT**

### **4.1 Site Inspection**

4.1.1 Site Inspections were carried out on a weekly basis to monitor the implementation of proper environmental pollution control and mitigation measures for the Contract. In the reporting period, 4 site inspections were carried out respectively on 3, 8, 17 and 22 November 2016 for the Contract. While no specific observation was recorded, recommendations on remedial actions were given to the Contractor for precautionary purpose.

4.1.2 The environmental site inspections summaries are provided in Appendix K.

4.1.3 Particular observations during the site inspections are described below:

#### ***Air Quality***

4.1.4 Mud trail was observed at SA328. The Contractor should provide wheel washing facilities at the vehicle exit point and clean up the mud trails for dust suppression.

4.1.5 Exposed stockpiles were found at SA328. The contractor should remove or cover the dusty materials to avoid windblown dust emission.

#### ***Noise***

4.1.6 No adverse observation was identified in the reporting period.

#### ***Water Quality***

4.1.7 Debris was found in drainage at SA329. The Contractor should remove the materials to ensure flow of water without obstruction.

4.1.8 Surface runoff of muddy water was observed at SA342. The Contractor should remove the muddy water.

#### ***Chemical and Waste Management***

4.1.9 Construction wastes were found scattered on the ground at NB57, NB63, SA340 and SA342. The Contractor should set up designated areas for temporary storage of construction wastes to maintain the site clean and tidy, and re-use them where possible.

4.1.10 General refuse was found scattered on the ground at SA329. The Contractor should remove the general refuse to keep the site clean and tidy.

4.1.11 Chemical container without secondary containment was found at NB54A. The Contractor should keep chemical containers in designated storage areas, provide drip trays to prevent potential leakage, and dispose of chemical containers that are no longer in use promptly.

#### ***Landscape and Visual Impact***

4.1.12 Construction materials were found inside the fenced area of retained trees at SA340. The Contractor should remove the construction materials near trees for maximum protection.

#### ***Miscellaneous***

4.1.13 Retained water was found in the drip tray of a generator at SA326 and a skip at SA326. The Contractor should remove the water to prevent mosquito breeding.

## 4.2 Advice on the Solid and Liquid Waste Management Status

- 4.2.1 The Contractor has registered as chemical waste producers for the Contract. C&D material sorting was carried out on site. Sufficient numbers of receptacles were available for general refuse collection.
- 4.2.2 As advised by the Contractor, 2,179 m<sup>3</sup> of inert C&D material was generated in the reporting month (468 m<sup>3</sup> disposed of as public fill to Tuen Mun 38, 738 m<sup>3</sup> of inert C&D materials was reused on site, 440 m<sup>3</sup> of inert C&D materials was reused in other projects and 533 m<sup>3</sup> was broken concrete). For C&D wastes, 110 m<sup>3</sup> of general refuse was disposed of at NENT landfill, 73 kg of paper/cardboard packaging, 1,265 kg of plastics and 23,327 kg of metals were collected by recycling Contractors, and 0 kg of chemical wastes was collected by licensed Contractors in the reporting period.
- 4.2.3 The actual amounts of different types of waste generated by the activities of the Project in the reporting period are shown in Table 4.1.

**Table 4.1 Summary of Waste Flow Table**

Waste Type	Actual Amount	Disposal/Reuse Locations
Inert C&D materials disposed as public fill	468 m <sup>3</sup>	Tuen Mun 38
Broken concrete	533 m <sup>3</sup>	Tuen Mun 38
C&D wastes disposed as general refuse	110 m <sup>3</sup>	NENT Landfill
Paper/cardboard packaging	73 kg	Recycling Facilities
Plastics	1,265 kg	Recycling Facilities
Metals	23,327 kg	Recycling Facilities
C&D materials reused on site	738 m <sup>3</sup>	Site Area
C&D materials reused in other projects	440 m <sup>3</sup>	Other projects
Chemical wastes	0 kg	Licensed Contractors

- 4.2.4 The Contractor was advised to maintain on-site waste sorting and recording system and maximize reuse / recycle of C&D wastes.

## 4.3 Environmental Licenses and Permits

- 4.3.1 The environmental licenses and permits for Stage 2 of the Project and valid in the reporting period is summarized in Table 4.2.

**Table 4.2 Summary of Environmental Licensing and Permit Status**

Statutory Reference	License/ Permit	License or Permit No.	Valid Period		License / Permit Holder	Remarks
			From	To		
EIAO	Environmental Permit	EP-324/2008/D	27/08/2015	N/A	HyD	
WPCO	Discharge License (Site)	WT00017159-2013	18/09/2013	30/09/2018	CSHK	--
WDO	Chemical Waste Producer Registration	5213-722-C3822-01	05/09/2013	N/A	CSHK	Chemical waste produced in Contract HY/2012/06

Statutory Reference	License/ Permit	License or Permit No.	Valid Period		License / Permit Holder	Remarks
			From	To		
WDO	Billing Account for Disposal of Construction Waste	7017860	N/A	N/A	CSHK	Waste disposal in Contract HY/2012/06
NCO	Construction Noise Permit	GW-RN0382-16	27/05/2016	3/11/2016	CSHK	Zone 4 Installation of Noise Barrier on Weekdays (North Bound)
		GW-RN0715-16	25/09/2016	13/11/2016	CSHK	Zone 4 Demolition of Sign Gantry Northbound of Fanling Highway between CH23.7 and CH23.9
		GW-RN0776-16	22/10/2016	31/12/2016	CSHK	Zone 2 Demolition of Tai Wo Footbridge
		GW-RN0777-16	26/10/2016	02/04/2017	CSHK	Zone 2 Dismantling of steel platform of Kau Lung Hang Vehicular Bridge
		GW-RN0844- 16	13/11/2016	22/01/2017	CSHK	Zone 4 Road Marking Works on Fanling Highway Northbound near Ho Ka Yuen
		GW-RN0868- 16	20/11/2016	22/01/2017	CSHK	Zone 4 Demolition Pier of Ho Ka Yuen Footbridge Southbound of Fanling Highway between CH23.5 and CH23.6

#### 4.4 Implementation Status of Environmental Mitigation Measures

4.4.1 A summary of the Implementation Schedule of Environmental Mitigation Measures (EMIS) is presented in Appendix C.

#### **4.5 Summary of Exceedances of the Environmental Quality Performance Limit**

- 4.5.1 All 1-hour and 24-hour TSP monitoring results complied with the Action / Limit Levels in the reporting period.
- 4.5.2 No Action or Limit Level exceedance of construction noise was recorded in the reporting month. No noise complaints related to 0700 – 1900 hours on normal weekdays was received and followed by Environmental Team in the reporting month.

#### **4.6 Summary of Complaints, Notification of Summons and Successful Prosecutions**

- 4.6.1 The Environmental Complaint Handling Procedure is annexed in Figure 4.1.
- 4.6.2 No complaint, notification of summons and successful prosecution was received in the reporting period.
- 4.6.3 Statistics on complaints, notifications of summons and successful prosecutions are summarized in Appendix L.

## **5 FUTURE KEY ISSUES**

### **5.1 Construction Programme for the Coming Months**

5.1.1 The major construction works for the Contract in December 2016 will be:-

- Site clearance
- Ground investigation
- Pipe laying
- Retaining wall construction
- Noise Barrier
- Excavation
- Backfilling
- Drainage
- Temporary bridge construction
- House Construction
- Foot Bridge demolition
- Bridge construction
- Piling

### **5.2 Key Issues for the Coming Month**

5.2.1 Key issues to be considered in December 2016:-

- Properly store and label oils and chemicals on site;
- Chemical, chemical waste and waste management;
- Collection of construction waste should be carried out regularly;
- Properly maintain all drainage facilities and wheel washing facilities on site;
- Exposed slopes should be covered up properly if no temporary work will be conducted;
- Quieter powered mechanical equipment should be used;
- Suppress dust generated from excavation activities and haul road traffic; and
- Tree protective measures for all retained trees should be well maintained.

### **5.3 Monitoring Schedule for the Coming Month**

5.3.1 The tentative schedule for environmental monitoring in December 2016 is provided in Appendix F.

## 6 CONCLUSIONS AND RECOMMENDATIONS

### 6.1 Conclusions

- 6.1.1 The construction phase and EM&A programme of the Contract commenced on 21 November 2013.
- 6.1.2 All 1-hour and 24-hour TSP monitoring results complied with the Action / Limit Levels in the reporting period.
- 6.1.3 No Action or Limit Level exceedance of construction noise was recorded in the reporting month. No noise complaints related to 0700 – 1900 hours on normal weekdays was received and followed by Environmental Team in the reporting month.
- 6.1.4 4 environmental site inspections were carried out in November 2016. Recommendations on remedial actions were given to the Contractors for the deficiencies identified during the site audits.
- 6.1.5 No complaint, notification of summons and successful prosecution was received in the reporting period.

### 6.2 Recommendations

- 6.2.1 According to the environmental site inspections performed in the reporting period, the following recommendations on remedial actions were provided to the Contractor for precautionary purpose:

#### ***Air Quality Impact***

- The Contractor should provide wheel washing facilities at the vehicle exit point and clean up the mud trails for dust suppression.
- The contractor should remove or cover the dusty materials to avoid windblown dust emission.

#### ***Noise Impact***

- No adverse observation was identified in the reporting period.

#### ***Water Quality Impact***

- The Contractor should remove the materials to ensure flow of water without obstruction.
- The Contractor should remove the muddy water.

#### ***Chemical and Waste Management***

- The Contractor should set up designated areas for temporary storage of construction wastes to maintain the site clean and tidy, and re-use them where possible.
- The Contractor should remove the general refuse to keep the site clean and tidy.
- The Contractor should keep chemical containers in designated storage areas, provide drip trays to prevent potential leakage, and dispose of chemical containers that are no longer in use promptly.

#### ***Landscape and Visual Impact***

- The Contractor should remove the construction materials near trees for maximum protection.

#### ***Miscellaneous***

- The Contractor should remove the water to prevent mosquito breeding.

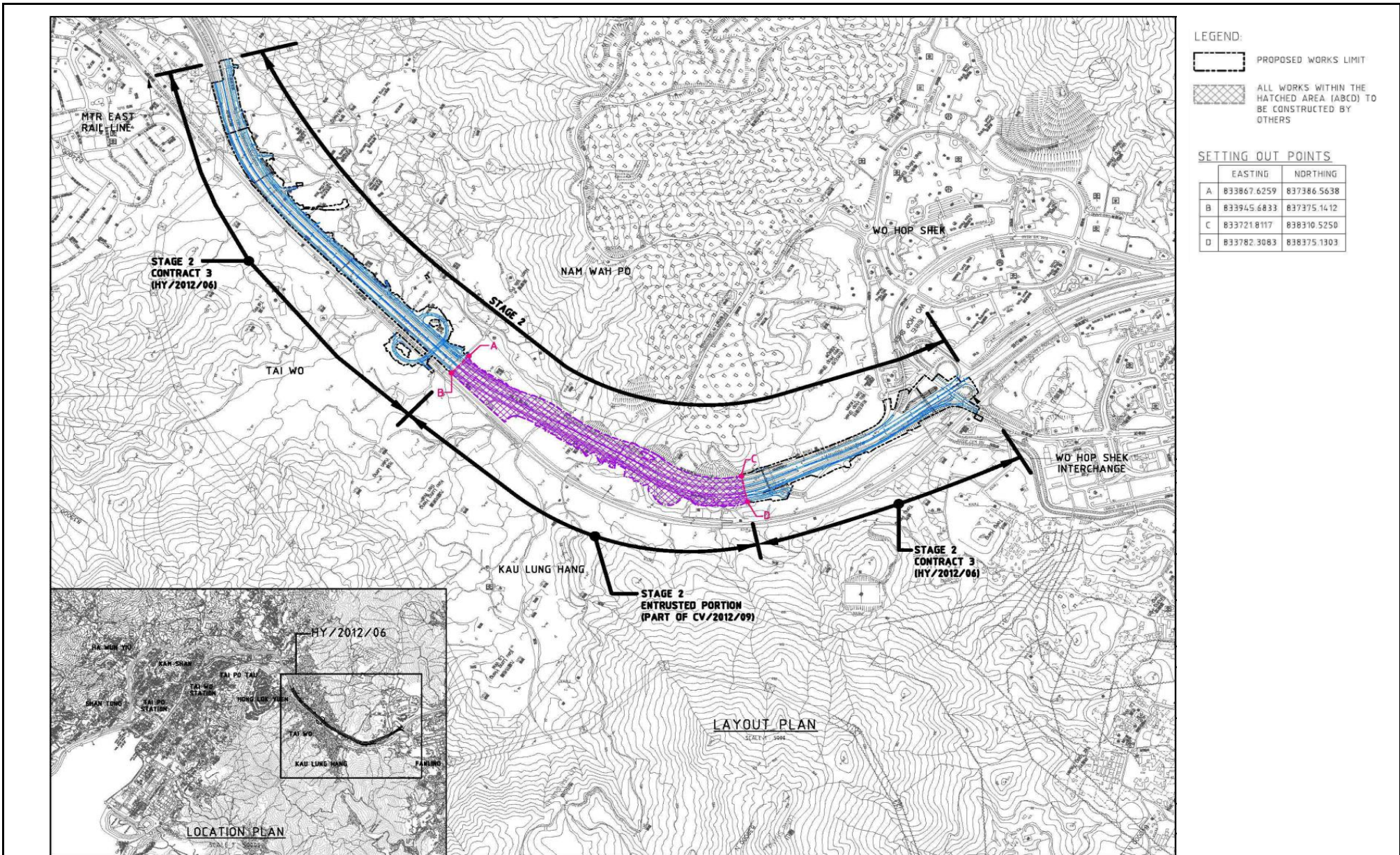
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## FIGURES

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CONTRACT NO. HY/2012/06  
 WIDENING OF FANLING HIGHWAY  
 - TAI HANG TO WO HOP SHEK INTERCHANGE

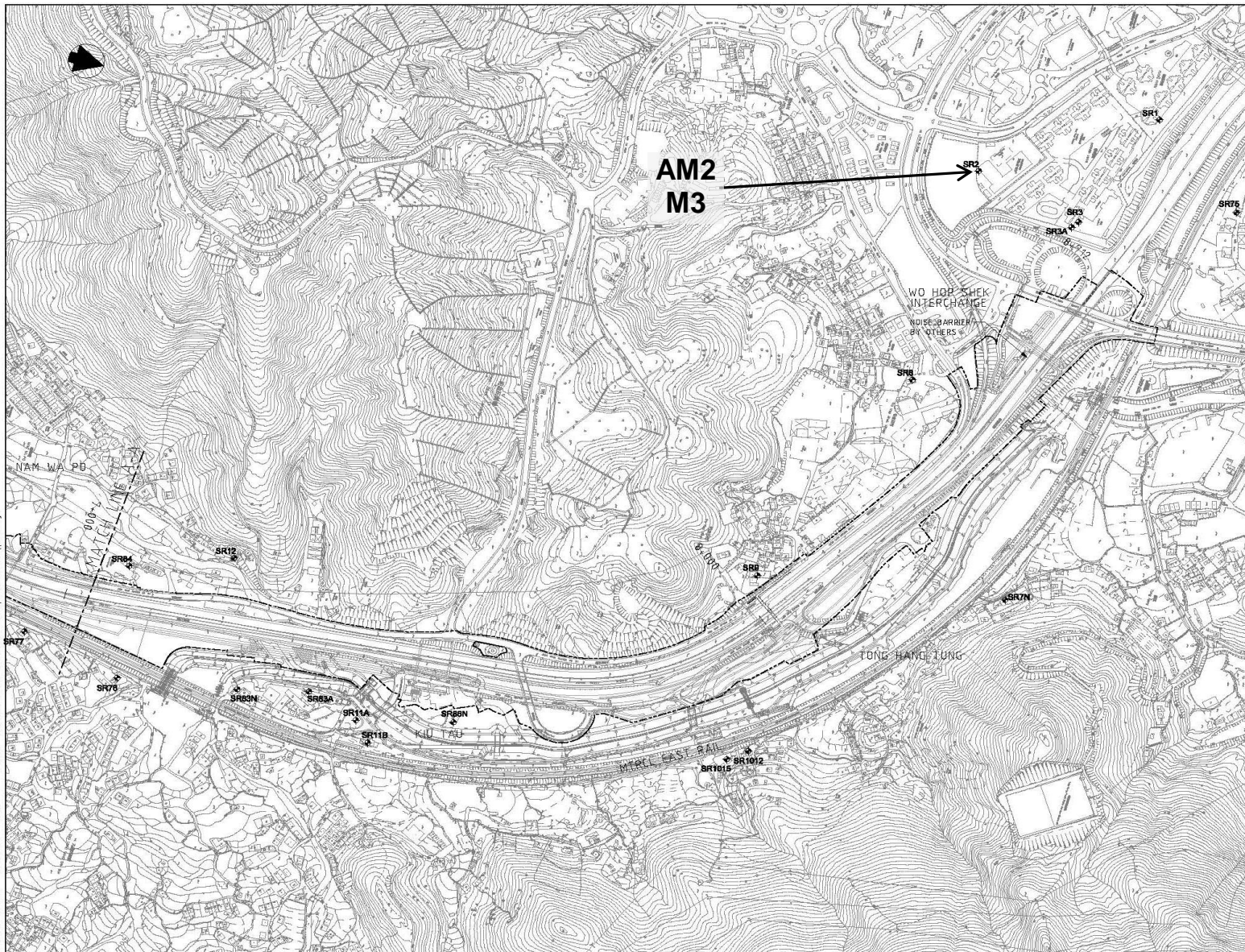


Layout Plan

Date: Dec 2013

Figure 1.1





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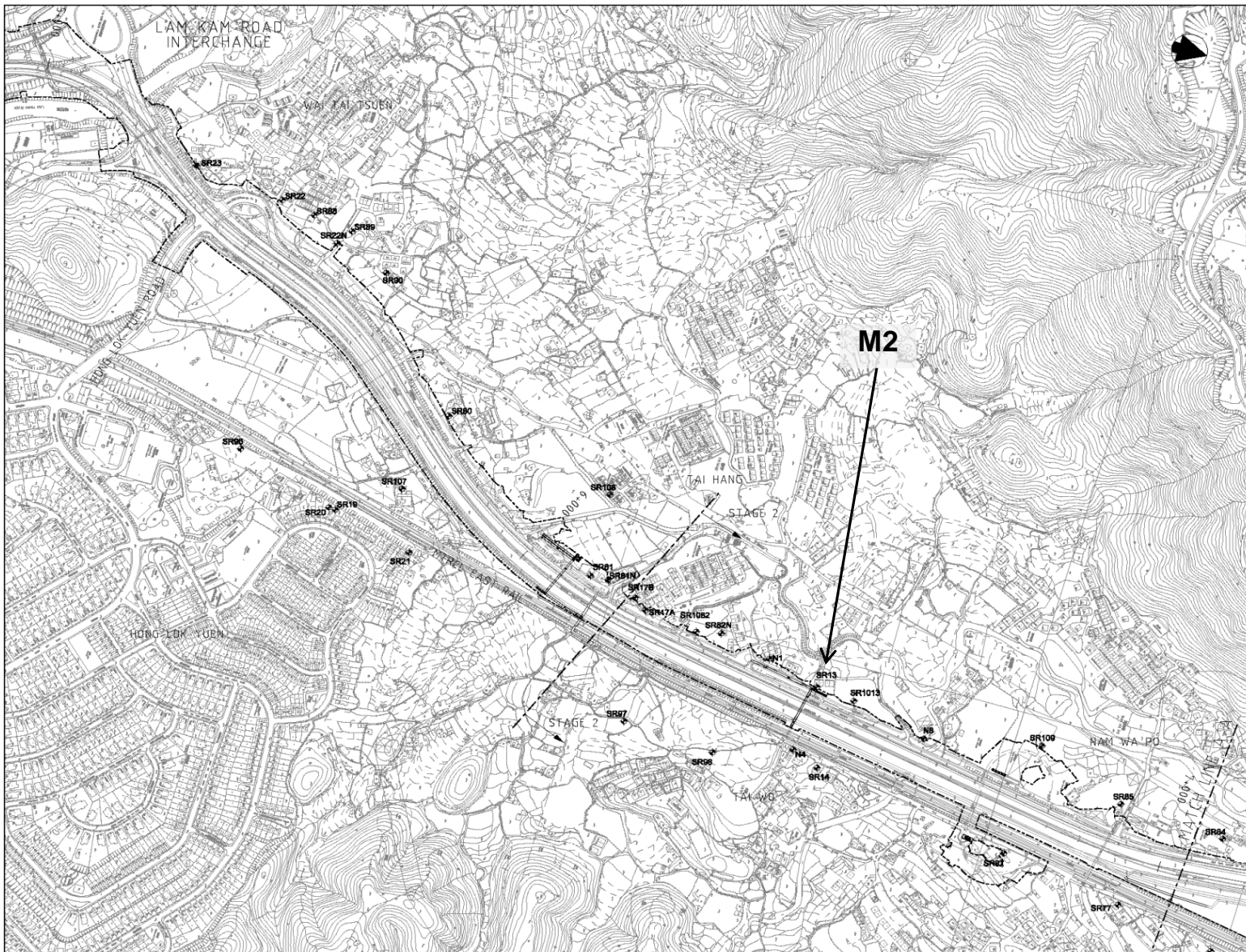
CONTRACT NO. HY/2012/06  
 WIDENING OF FANLING HIGHWAY  
 - TAI HANG TO WO HOP SHEK INTERCHANGE



Locations of Monitoring Station

Date: Dec 2013

Figure 1.2a



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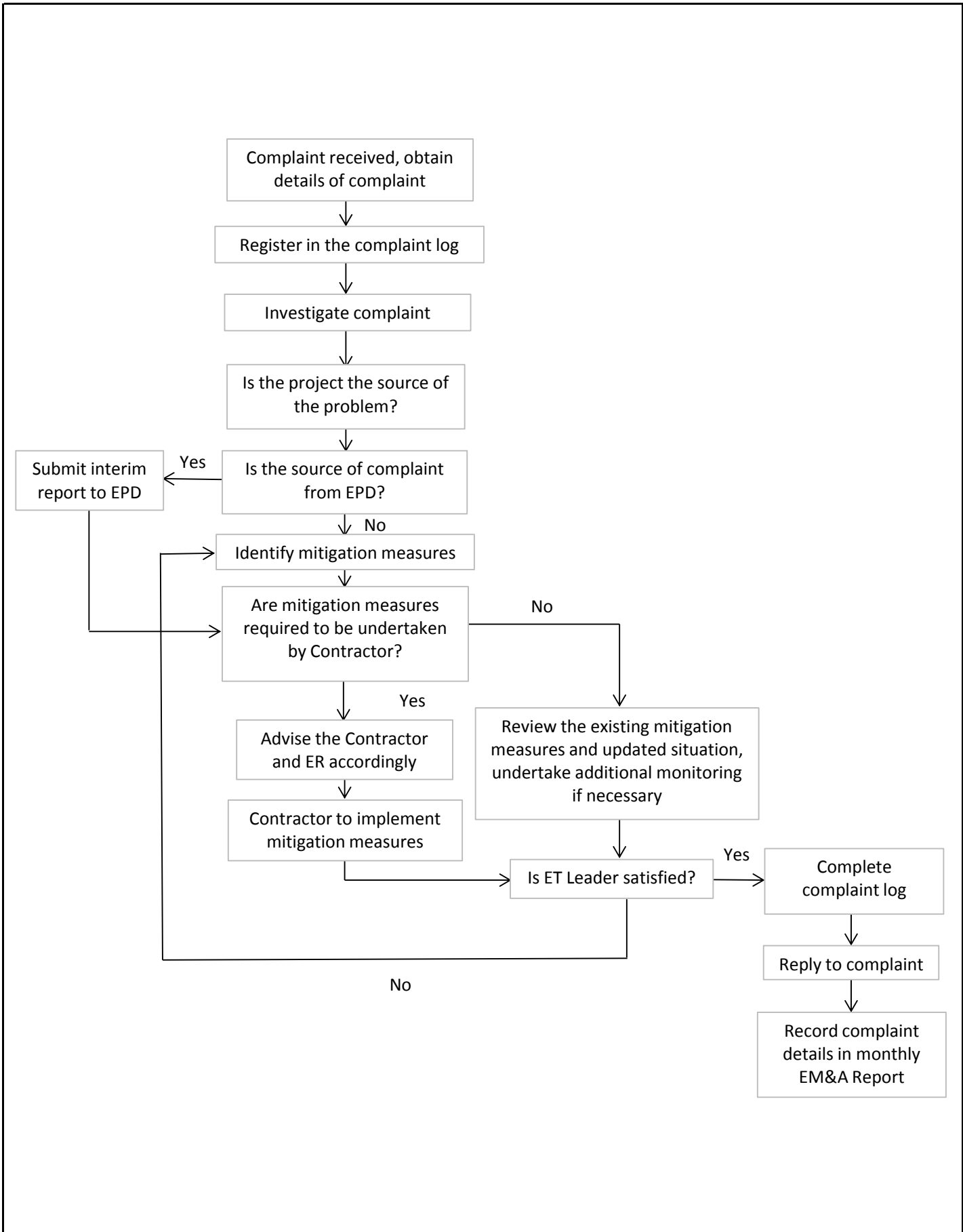
CONTRACT NO. HY/2012/06  
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Locations of Monitoring Station

Date: Dec 2013

Figure 1.2b



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Environmental Complaint Handling Procedure

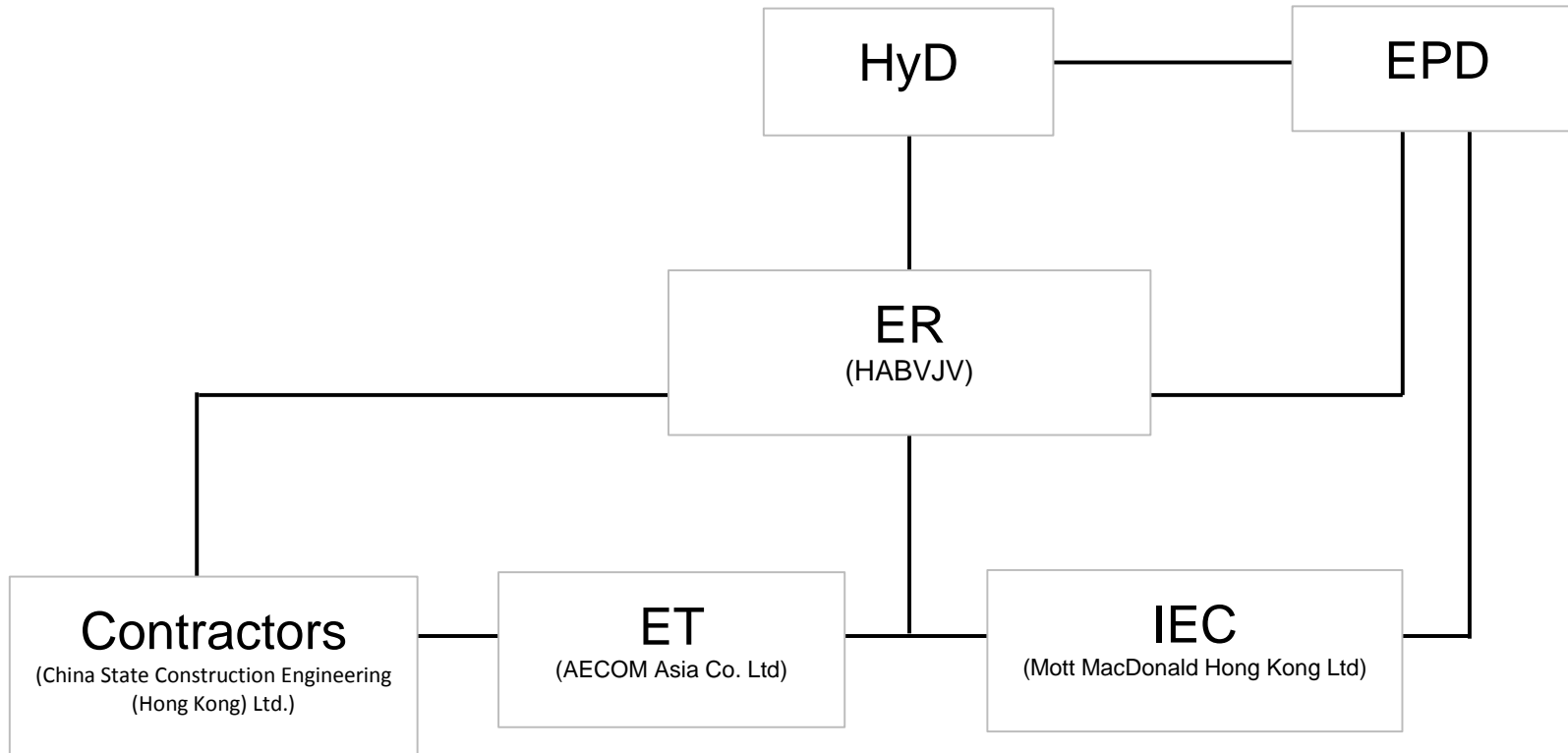
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**APPENDIX A  
PROJECT ORGANIZATION STRUCTURE**

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CONTRACT NO. HY/2012/06  
 WIDENING OF FANLING HIGHWAY  
 - TAI HANG TO WO HOP SHEK INTERCHANGE



Project Organization Structure

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**APPENDIX B  
CONSTRUCTION PROGRAMMES**

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Activity ID	Activity Name	Dur. % Complete	Rem. Duration	Original Duration	Start	Finish	Total Float	2016				2017	
								Nov	Dec	Jan	Feb	Jan	Feb
<b>Contract Condition</b>													
<b>General</b>													
<b>Contract Condition</b>													
<b>Contract Condition</b>													
KD20	KD-20 (1064d)- Stage 1: Achievement: Whole length of	0%	0	0		30-Dec-16	4						30-Dec-16* ◆ KD-20 (1064d)- Stage 1: Achievement: Whol
POSSA323A	Site Area SA323A (360d) (not required)	0%	0	0	20-Nov-16		1327						◆ Site Area SA323A (360d) (not required)
POSSA327	Site Area SA327 (180d)	0%	0	0	20-Nov-16*		-689						◆ Site Area SA327 (180d)
POSSA327A	Site Area SA327A (730d)	0%	0	0	20-Nov-16*		-491						◆ Site Area SA327A (730d)
POSSA345	Site Area SA345 (0d)	0%	0	0	20-Nov-16*		-356						◆ Site Area SA345 (0d)
<b>ZONE 1 (Ch. 5640 to 5880)</b>													
<b>Noise Barrier Along TWSR-West and Laying New Utilities</b>													
<b>DSD Southern Trunk Sewer, Water Main, Fire Main Works</b>													
<b>DSD Southern Trunk Sewer, Water Main Fire Main Works</b>													
DSD0090	DSD Truck Sewer Laying complete	0%	0	0	01-Dec-16		2						◆ DSD Truck Sewer Laying complete
DSD0100	DSD Trunk Sewer Laying - overall testing (Zone 1 & Zone 2)	25%	9	12	20-Oct-16 A	01-Dec-16	2						
DSD0110	DSD Trunk Sewer Laying - overall inspection	0%	12	12	01-Dec-16	14-Dec-16	2						
DSD0120	DSD Trunk Sewer Laying - overall rectification	0%	12	12	15-Dec-16	30-Dec-16	2						
<b>NB42 (Ch.5640-5740)-TWSR West Side</b>													
<b>DSD Southern Trunk Sewer, Water Main Fire Main Works</b>													
TSZ10140	Firemain installation (along NB42)	66.22%	25	74	20-Aug-16 A	19-Dec-16	33						
<b>NB42A (Ch.5750-5810)-TWSR West Side</b>													
<b>DSD Southern Trunk Sewer, Water Main Fire Main Works</b>													
TSZ10190	Firemain installation (along NB42A)	67.12%	24	73	20-Aug-16 A	17-Dec-16	34						
<b>Noise Barrier Along Fanling Highway N/B</b>													
<b>Site Clearance &amp; Demolition of Existing Structure</b>													
<b>Underground Utility Works</b>													
ADVZ20175	All UU and backfill along TWSR-W complete	0%	0	0		01-Dec-16	0						01-Dec-16 ◆ All UU and backfill along TWSR-W complete
ADVZ20180	Utility cable changeover period (NWT)	0%	184	184	02-Dec-16	03-Jun-17	227						
ADVZ20182	Additional Utility cable changeover period (PCCW, HCG)	0%	273	273	02-Dec-16	31-Aug-17	138						
<b>TWSR-West Construction</b>													
<b>Drainage &amp; Road Works</b>													
<b>Ch 5640-5880</b>													
RDZ10090	Z1: New Tai Wo Service Road West - Drainage & Road works (2 lanes)	39.41%	103	170	15-Aug-16 A	31-Mar-17	0						
<b>ZONE 2 (Ch. 5880 to 6930)</b>													
<b>General</b>													
<b>DRM Proposal</b>													
<b>DRM Proposal</b>													
ADVZ20190	Utility cable duct laying & backfill complete	0%	0	0		20-Nov-16	-19						20-Nov-16* ◆ Utility cable duct laying & backfill complete
ADVZ20200	Utility cable changeover period (All Utility Companies)(9 months)	0%	273	273	20-Nov-16	19-Aug-17	150						
ADVZ20220	New TWSR-W construction period	44.02%	103	184	15-Aug-16 A	31-Mar-17	0						
<b>Noise Barrier Along TWSR-West and Laying New Utilities</b>													
<b>NB48 (Ch.5995-6120)-TWSR West Side</b>													
<b>Noise Barrier Works</b>													
NB00390	NB48 (Ch5995-6060) - backfilling	66.67%	6	18	05-Oct-16 A	26-Nov-16	54						
<b>DSD Southern Trunk Sewer, Water Main Fire Main Works</b>													
TSZ10440	Firemain installation (along NB48, 0-60m)	82.05%	28	156	20-Jun-16 A	22-Dec-16	15						
TSZ10490	Firemain installation (along NB48, 60-110m)	82.05%	28	156	20-Jun-16 A	22-Dec-16	15						
<b>NB49 (Ch.6145-6215)-TWSR West Side</b>													
<b>DSD Southern Trunk Sewer, Water Main Fire Main Works</b>													
TSZ10530	Watermain installation (along NB49)	93.43%	9	137	01-Jun-16 A	30-Nov-16	34						
TSZ10540	Firemain installation (along NB49)	35.29%	33	51	15-Sep-16 A	30-Dec-16	10						
<b>Underground Utility Works</b>													
UUZ20140	Utility cable laying by Utility companies (Along NB49, 0-70m)	95.79%	9	214	03-Feb-16 A	30-Nov-16	-26						
<b>NB49B (Ch.6215-6235)-TWSR West Side</b>													
<b>DSD Southern Trunk Sewer, Water Main Fire Main Works</b>													
TSZ10590	Firemain installation (along NB49B)	0%	33	33	21-Nov-16	30-Dec-16	67						
<b>Underground Utility Works</b>													
UUZ20150	Utility cable laying by Utility companies (Along NB49B, 0-16m)	92.44%	9	119	10-Jun-16 A	30-Nov-16	-26						
<b>NB54 (Ch.6240-6280)-TWSR West Side</b>													
<b>Noise Barrier Works</b>													
NB00720	NB54 - NB post & panel installation	0%	5	5	21-Nov-16	25-Nov-16	714						
<b>DSD Southern Trunk Sewer, Water Main Fire Main Works</b>													
TSZ10630	Watermain installation (along NB54)	91.97%	11	137	20-May-16 A	02-Dec-16	59						
TSZ10640	Firemain installation (along NB54)	0%	30	30	03-Dec-16	10-Jan-17	59						
<b>NB54A (Ch.6290-6350)-TWSR West Side</b>													
<b>Noise Barrier Works</b>													
NB00770	NB54A - backfilling	0%	12	12	02-Dec-16	15-Dec-16	63						
NB00780	NB54A - NB production	77.27%	45	198	20-May-16 A	03-Jan-17	842						
NB00790	NB54A - NB post & panel installation	0%	5	5	04-Jan-17	09-Jan-17	679						
<b>DSD Southern Trunk Sewer, Water Main Fire Main Works</b>													
TSZ10680	Watermain installation (along NB54A)	90.71%	21	226	14-Mar-16 A	14-Dec-16	27						

	Project ID: WP Rev 04 (1611)	<b>Contract No. HY/2012/06</b>			Date	Revision	C...	A..
	Layout: 3 Month Rolling Program	<b>Widening of Fanling Highway - Tai Hang to Wo Hop Shek Interchange</b>			13-May-14	WP Rev 1		
	Page 1 of 6	<b>3 Month Rolling Program(20-Nov-16)</b>			30-Jun-14	WP Rev 1A		
					28-Aug-15	WP Rev 2		
				07-Apr-16	WP Rev 3			
				08-Nov-16	WP Rev 4			

Activity ID	Activity Name	Dur. % Complete	Rem. Duration	Original Duration	Start	Finish	Total Float	2016				2017		
								Nov		Dec		Jan		Feb
TSZ10690	Firemain installation (along NB54A)	0%	25	25	15-Dec-16	16-Jan-17	27							
<b>Underground Utility Works</b>														
UUZ20170	Utility cable laying by Utility companies (Along NB54A, 0-60m)	89.9%	10	99	05-Jul-16 A	01-Dec-16	-27							
<b>NB57 (Ch.6365-6445)-TWSR West Side</b>														
<b>DSD Southern Trunk Sewer, Water Main Fire Main Works</b>														
TSZ10730	Watermain installation (along NB57)	0%	27	27	21-Nov-16	21-Dec-16	4							
TSZ10740	Firemain installation (along NB57)	0%	30	30	22-Dec-16	06-Feb-17	4							
TSZ10990	Backfilling for UU and Firemain & Watermain	0%	12	12	07-Feb-17	20-Feb-17	4							
<b>NB58 (Ch.6445-6480)-TWSR West Side</b>														
<b>Noise Barrier Works</b>														
NB00930	NB58 - NB post & panel installation	2.08%	47	48	20-Sep-16 A	17-Jan-17	672							
<b>DSD Southern Trunk Sewer, Water Main Fire Main Works</b>														
TSZ10790	Firemain installation (along NB58)	82.35%	9	51	29-Aug-16 A	30-Nov-16	1063							
<b>Underground Utility Works</b>														
UUZ20190	Utility cable laying by Utility companies (Along NB58, 0-45m)	93.57%	9	140	16-May-16 A	30-Nov-16	-26							
<b>NB59 (Ch.6490-6590)-TWSR West Side</b>														
<b>Noise Barrier Works</b>														
NB01000	NB59 - NB post installation	25%	12	16	15-Oct-16 A	03-Dec-16	707							
<b>DSD Southern Trunk Sewer, Water Main Fire Main Works</b>														
TSZ10840	Firemain installation (along NB59)	78.75%	34	160	20-May-16 A	31-Dec-16	24							
<b>NB63 (Ch.6610-6700)-TWSR West Side</b>														
<b>DSD Southern Trunk Sewer, Water Main Fire Main Works</b>														
TSZ10340	Firemain installation (along NB63)	97.71%	3	131	20-Jun-16 A	23-Nov-16	82							
<b>Noise Barrier Along Fanling Highway N/B</b>														
<b>Site Clearance &amp; Demolition of Existing Structure</b>														
<b>General</b>														
ADVZ20160	TTA for NB works	0%	60	60	13-Jan-17	31-Mar-17	235							
<b>Bridge Construction</b>														
<b>New Tai Hang Footbridge</b>														
<b>General</b>														
THBF0350	Steel Staircase & Ramp prefabrication (THFB-TWSR-W)	90.11%	9	91	20-Jul-16 A	30-Nov-16	379							
THBF0360	Steel Staircase & Ramp available on site (THFB-TWSR-W side)	0%	0	0	01-Dec-16		379						◆ Steel Staircase & Ramp available on site (THFB-TWSR-W side)	
THBF0370	Steel Staircase & Bridge prefabrication (THFB-TWSR-E side)	90%	9	90	20-Jul-16 A	30-Nov-16	409							
THBF0380	Steel Staircase & Bridge available on site (THFB-TWSR-E side)	0%	0	0	01-Dec-16		409						◆ Steel Staircase & Bridge available on site (THFB-TWSR-E side)	
THBF0390	Steel Bridge prefabrication (THFB)	75.25%	25	101	20-Jul-16 A	19-Dec-16	393							
THBF0400	Steel Bridge available on site (THFB)	0%	0	0	20-Dec-16		393						◆ Steel Bridge available on site (THFB)	
<b>TWSR-West/ FL Highway N/B Side Section</b>														
THBF0235	Steel Staircase ready for erection (THFB-TWSR-W side)	0%	0	0		21-Nov-16	478						21-Nov-16 ◆ Steel Staircase ready for erection (THFB-TWSR-W side)	
THBF0270	THP6, THP7 - Pile cap, Pier and Pier Head	83.21%	47	280	01-Feb-16 A	17-Jan-17	341							
THBF0325	Steel Ramp ready for erection (THFB-TWSR-W side)	0%	0	0		17-Jan-17	341						17-Jan-17 ◆ Steel Ramp ready for erection	
THBF0410	Erect Staircase (THFB-TWSR-W side)	0%	30	30	01-Dec-16	07-Jan-17	469							
THBF0420	Erect Ramp	0%	60	60	18-Jan-17	06-Apr-17	341							
<b>Crossing Fanling Highway Section</b>														
THBF0530	THP1 - Predrilling	0%	12	12	31-Dec-16	14-Jan-17	216							
THBF0540	THP1 - Pre-bored H pile (6 nos)	0%	45	45	16-Jan-17	16-Mar-17	216							
<b>TWSR-East FL Highway S/B Side Section</b>														
THBF0470	THAB1 - pile cap & abutment wall	0%	85	85	21-Nov-16	10-Mar-17	268							
THBF0730	THP3 - Pile cap, Pier and Pier Head	0%	45	45	06-Feb-17	29-Mar-17	317							
THBF0770	THP4 - Pile cap, Pier and Pier Head	50%	56	112	20-Jul-16 A	27-Jan-17	302							
THBF0780	Modified existing column head of existing footbridge	0%	30	30	06-Feb-17	11-Mar-17	302							
<b>Lift at TWSR-W Side</b>														
L1520	Lift shaft & roof	33.91%	76	115	16-Jul-16 A	28-Feb-17	312							
L1557	Lift submission & ordering period	49.17%	122	240	02-Jul-16 A	27-Apr-17	340							
L1600	CLP Power available (by CLP)	38.58%	242	394	21-Jun-16 A	19-Jul-17	419							
<b>Lift at FLHY S/B</b>														
L1370	Lift shaft & roof	46.36%	59	110	20-Sep-16 A	08-Feb-17	346							
L1380	Structural Laminated glass wall installation	0%	30	30	09-Feb-17	15-Mar-17	376							
L1390	RC Platform connect to bridge (THSC-2 & TH-P2)	0%	30	30	09-Feb-17	15-Mar-17	346							
L1450	CLP Power available (by CLP)	38.58%	242	394	21-Jun-16 A	19-Jul-17	422							
<b>New Tai Wo Footbridge</b>														
<b>General</b>														
TWFB1050	Steel Staircase & Ramp prefabrication (TWFB-TWSR-W)	87.78%	11	90	15-Aug-16 A	02-Dec-16	80							
TWFB1060	Steel Staircase & Ramp available on site (TWFB-TWSR-W side)	0%	0	0	03-Dec-16		80						◆ Steel Staircase & Ramp available on site (TWFB-TWSR-W side)	
TWFB1090	Steel Bridge prefabrication (TWFB)	87.78%	11	90	15-Aug-16 A	02-Dec-16	558							
TWFB1100	Steel Bridge available on site (TWFB)	0%	0	0	03-Dec-16		558						◆ Steel Bridge available on site (TWFB)	
<b>TWSR-West/ FL Highway N/B Side Section</b>														
TWFB1160	TWP1 - Pile cap, Pier and Pier Head	95.24%	11	231	18-Feb-16 A	02-Dec-16	80							
TWFB1240	TWAB2 - pile cap & abutment wall	89.81%	11	108	20-Jul-16 A	02-Dec-16	1061							
TWFB1250	TWAB2 - Backfilling (~4m)	59.26%	11	27	12-Nov-16 A	02-Dec-16	80							
TWFB1260	Steel Staircase ready for erection (THFB-TWSR-W side)	0%	0	0		02-Dec-16	80						02-Dec-16 ◆ Steel Staircase ready for erection (THFB-TWSR-W side)	
TWFB1300	TWP4, TWP5 - Pile cap, Pier and Pier Head	98.97%	3	292	16-Nov-15 A	23-Nov-16	88							
TWFB1360	Steel Ramp ready for erection (TWFB-TWSR-W side)	0%	0	0		23-Nov-16	88						23-Nov-16 ◆ Steel Ramp ready for erection (TWFB-TWSR-W side)	
TWFB1370	Erect Staircase (TWFB-TWSR-W side)	0%	30	30	03-Dec-16	10-Jan-17	80							



Activity ID	Activity Name	Dur. % Complete	Rem. Duration	Original Duration	Start	Finish	Total Float	2016				2017		
								Nov		Dec		Jan		Feb
TWFB1380	Erect Ramp	0%	30	30	03-Dec-16	10-Jan-17	80							
TWFB1390	Finishes Work	0%	30	30	11-Jan-17	22-Feb-17	634							
<b>Crossing Fanling Highway Section</b>														
TWFB1410	TWP2 - Predrilling	0%	18	18	20-Dec-16	12-Jan-17	80							
TWFB1420	TWP2 - Pre-bored H pile (6 nos)	0%	30	30	13-Jan-17	24-Feb-17	80							
<b>Lift at TWSR-W Side</b>														
L1670	Lift shaft & roof	78.75%	34	160	21-Jun-16 A	31-Dec-16	491							
L1680	Structural Laminated glass wall installation	0%	30	30	03-Jan-17	14-Feb-17	534							
L1690	RC Link slab connect to bridge	0%	30	30	03-Jan-17	14-Feb-17	491							
L1700	Metal cover on RC platform	0%	30	30	15-Feb-17	21-Mar-17	491							
L1730	Lift submission & ordering period	40.14%	176	294	02-Jul-16 A	04-Jul-17	422							
L1780	CLP Power available (by CLP)	23.29%	303	395	20-Aug-16 A	18-Sep-17	526							
<b>Temporary Tai Wo Footbridge</b>														
<b>Design Works</b>														
TWFB-T1020	Engineer Comment	81.03%	22	116	28-Jun-16 A	15-Dec-16	90							
TWFB-T1030	Design amendment	0%	73	73	16-Dec-16	22-Mar-17	90							
<b>Construction Works</b>														
TWFB-T1065	TW Bridge Ramp at TWSR-W available	0%	0	0		10-Jan-17	244						10-Jan-17 ♦ TW Bridge Ramp at TWSR-W avail	
<b>TWSR-West Construction</b>														
<b>Drainage &amp; Road Works</b>														
<b>Ch 5880-6740</b>														
RDZ20160	Z2 : New TWSR-West D&R Works (lane 1)	14.17%	103	120	01-Nov-16 A	31-Mar-17	0							
<b>Noise Barrier Along Fanling Highway S/B</b>														
<b>NB46A (Ch.5880-5935)-FH S/B Side</b>														
<b>Noise Barrier Works</b>														
NB03230	Sheet piling for DN600 watermain diversion work (VO70)	0%	14	14	21-Nov-16*	06-Dec-16	480							
NB03240	Excavation & DN600 pipe laying	0%	75	75	07-Dec-16	15-Mar-17	480							
<b>NB51 (Ch.5935-6055)-FH S/B Side</b>														
<b>Noise Barrier Works</b>														
NB02280	NB51 ID1-3 (0-25m) - Footing & Wall Structure	26.67%	66	90	20-Oct-16 A	16-Feb-17	309							
NB02290	NB51 ID1-3 (0-25m) - backfilling	0%	50	50	17-Feb-17	20-Apr-17	309							
NB02300	NB51 ID1-3 (0-25m) - NB production	0%	45	45	17-Feb-17	02-Apr-17	753							
<b>NB52 (Ch.6055-6125) -FH S/B Side (MTRC I&amp;P Area)</b>														
<b>Noise Barrier Works</b>														
NB02370	NB52 - Sheet piling & Excavation	0%	26	26	20-Oct-16 A	20-Dec-16	588							
NB02380	NB52 - Footing & Wall Structure	0%	50	50	21-Dec-16	28-Feb-17	588							
<b>NB53 (Ch.6125-6300) -FH S/B Side (MTRC I&amp;P Area)</b>														
<b>Noise Barrier Works</b>														
NB02430	Precautionary Measure installation	0%	26	26	21-Nov-16	20-Dec-16	520							
NB02440	NB53 (0-100m) - Sheet piling & Excavation	0%	26	26	21-Dec-16	23-Jan-17	567							
NB02450	NB53 (0-100m) - Footing & Wall Structure	0%	60	60	24-Jan-17	12-Apr-17	567							
NB02490	NB53 ID2-3 (100-125m), 18nos Predrilling	0%	10	10	06-Jan-17	17-Jan-17	509							
NB02500	NB53 ID2-3 (100-125m) 18nos Piling- 1 rigs	0%	27	27	18-Jan-17	25-Feb-17	509							
NB02590	NB53 (125-180m) - NB production	91.62%	14	167	20-May-16 A	03-Dec-16	873							
NB02600	NB53 (125-180m) - NB post & panel installation	0%	5	5	05-Dec-16	09-Dec-16	702							
<b>NB55 (Ch.6300-6360)-FH S/B Side (MTRC I&amp;P Area)</b>														
<b>Noise Barrier Works</b>														
NB02640	NB55 - Footing & Wall Structure	95.95%	24	593	07-Nov-14 A	17-Dec-16	509							
NB02650	NB55- backfilling	0%	50	50	19-Dec-16	25-Feb-17	509							
NB02660	NB55 - NB production	87.46%	40	319	15-Jan-16 A	29-Dec-16	847							
<b>NB56 (Ch.6360-6400)-FH S/B Side (MTRC I&amp;P Area)</b>														
<b>Noise Barrier Works</b>														
NB02730	NB56 - NB production	94.55%	14	257	20-Feb-16 A	03-Dec-16	873							
NB02740	NB56 - NB post & panel installation	0%	5	5	05-Dec-16	09-Dec-16	702							
<b>NB61 (Ch.6400-6560)-FH S/B Side (MTRC I&amp;P Area)</b>														
<b>Noise Barrier Works</b>														
NB02770	NB61 (0-50m) - Sheet piling & Excavation	0%	18	18	21-Nov-16	10-Dec-16	601							
NB02780	NB61 (0-50m) - Footing & Wall Structure	0%	50	50	12-Dec-16	18-Feb-17	601							
NB02800	NB61 (0-50m) - NB production	0%	45	45	18-Feb-17	04-Apr-17	751							
NB02850	NB61 (50-160m) - NB production	0%	45	45	20-Nov-16	03-Jan-17	842							
NB02860	NB61 (50-160m) - NB post & panel installation	0%	5	5	04-Jan-17	09-Jan-17	679							
<b>NB61A (Ch.6560-6745)-FH S/B Side (MTRC I&amp;P Area)</b>														
<b>Noise Barrier Works</b>														
NB02920	NB61A (0-50m) - NB production	84.38%	45	288	20-Feb-16 A	03-Jan-17	842							
NB02930	NB61A (0-50m) - NB post & panel installation	0%	5	5	04-Jan-17	09-Jan-17	679							
NB02970	NB61A ID2-3 (50-75m) - Footing & Wall Structure	88.87%	57	512	01-Apr-15 A	06-Feb-17	622							
NB02980	NB61A ID2-3 (50-75m)- backfilling	0%	20	20	07-Feb-17	01-Mar-17	637							
NB02990	NB61A ID2-3 (50-75m) - NB production	0%	45	45	07-Feb-17	23-Mar-17	763							
NB03040	NB61A (75-190m) - NB production	94.19%	15	258	20-Feb-16 A	04-Dec-16	872							
NB03050	NB61A (75-190m) - NB post & panel installation	0%	5	5	05-Dec-16	09-Dec-16	702							
<b>Box Culvert ID3 Works</b>														
<b>VO58 Extension of ID3</b>														
ID30095	Preparation work	0%	30	30	20-Oct-16 A	24-Dec-16	342							
ID30100	Demolish existing wing walls (N&S)	0%	30	30	28-Dec-16	09-Feb-17	195							

Activity ID	Activity Name	Dur. % Complete	Rem. Duration	Original Duration	Start	Finish	Total Float	2016				2017		
								Nov		Dec		Jan		Feb
ID30110	Rock fill to the box culvert level	0%	20	20	10-Feb-17	04-Mar-17	195							
<b>Other Works</b>														
<b>Site Clearance &amp; Demolition of Existing Structure</b>														
<b>Contract Condition</b>														
MCLT1090	New MCLT - finishes works	52.28%	115	241	20-May-16 A	19-Apr-17	604							
<b>TCSS Works</b>														
<b>G54</b>														
TCSS1500	Slow lane footing - G54 (NB61)	0%	0	0		21-Nov-16	689							
21-Nov-16 ♦ Slow lane footing - G54 (NB61)														
<b>South Buffer Zone 1 (SBZ1) (within Zone 2)(Ch.6740 to 6930)</b>														
<b>Noise Barrier Along TWSR-West and Laying New Utilities</b>														
<b>NB63A (Ch.6710-6840)-TWSR West Side</b>														
<b>Noise Barrier Works</b>														
NB01200	NB63A-3 - NB post installation	3.23%	30	31	17-Sep-16 A	24-Dec-16	689							
<b>DSD Southern Trunk Sewer, Water Main Fire Main Works</b>														
TSZ10860	DSD Trunk Sewer laying (along NB63A)	98.48%	3	198	14-Mar-16 A	23-Nov-16	8							
TSZ10880	Watermain installation (along NB63A)	23.33%	23	30	02-Nov-16 A	16-Dec-16	20							
TSZ10890	Firemain installation (along NB63A)	0%	30	30	17-Dec-16	24-Jan-17	20							
<b>NB64 &amp; NB64A (Ch.6860-6920)-TWSR West Side</b>														
<b>Noise Barrier Works</b>														
NB001040	NB64 & NB64A -backfilling	0%	12	12	16-Jan-17	06-Feb-17	43							
NB001060	NB64 & NB64A -NB post & panel installation	85.17%	31	209	14-Mar-16 A	28-Dec-16	688							
<b>DSD Southern Trunk Sewer, Water Main Fire Main Works</b>														
TSZ10910	DSD Trunk Sewer laying (along NB64)	94.38%	9	160	20-Apr-16 A	30-Nov-16	2							
TSZ10920	Backfill up to NB64 footing level	0%	6	6	01-Dec-16	07-Dec-16	43							
TSZ10940	Firemain installation (along NB64)	0%	30	30	08-Dec-16	14-Jan-17	43							
TSZ11028	Demolish existing pile caps at Watermain	0%	30	30	02-Dec-16	09-Jan-17	99							
TSZ11030	Demolish existing pile cap at Watermain after NWP bridge	0%	30	30	27-Jan-17	10-Mar-17	54							
<b>Underground Utility Works</b>														
UUZ20220	Utility cable laying by Utility companies (Along NB64 & NB64A,	95%	10	200	29-Feb-16 A	01-Dec-16	-27							
<b>Bridge Construction</b>														
<b>Kau Lung Hang Vehicular Bridge</b>														
<b>KLH Bridge - West Ramp</b>														
KLH.1290	West Ramp - Planting	0%	21	21	21-Nov-16	14-Dec-16	698							
<b>KLH Bridge - Deck 1</b>														
KLH.3430	Deck 1 - Planting	0%	21	21	21-Nov-16	14-Dec-16	698							
KLH.3630	Pedestrian walkway Roof P2 to P3	0%	38	38	21-Nov-16*	06-Jan-17	6							
KLH.3640	Pedestrian walkway floor finishes P2 to P3	0%	14	14	07-Jan-17	23-Jan-17	6							
<b>KLH Bridge - Deck 2</b>														
KLH.3160	Pedestrian walkway Roof P5-P6	0%	38	38	21-Nov-16*	06-Jan-17	10							
KLH.3170	Pedestrian walkway floor finishes P5-P6 (include barrier and lighting)	0%	14	14	03-Jan-17	18-Jan-17	10							
KLH.3260	Pedestrian walkway Roof P4 to P5	0%	37	37	21-Nov-16*	05-Jan-17	7							
KLH.3270	Pedestrian walkway floor finishes P4 to P5 (include barrier and	0%	14	14	06-Jan-17	21-Jan-17	7							
KLH.3360	Pedestrian walkway Roof P3 to P4	0%	38	38	21-Nov-16*	06-Jan-17	6							
KLH.3370	Pedestrian walkway floor finishes P3 to P4 (include barrier and	0%	14	14	07-Jan-17	23-Jan-17	6							
<b>KLH Bridge - Deck 3</b>														
KLH.3500	Deck 3 - Planting	0%	21	21	21-Nov-16	14-Dec-16	730							
KLH.3650	Pedestrian walkway Roof P6 to P7	0%	25	25	01-Dec-16*	31-Dec-16	10							
KLH.3660	Pedestrian walkway floor finishes P6 to P7 (include barrier and	0%	14	14	03-Jan-17	18-Jan-17	10							
<b>KLH Bridge - East Ramp</b>														
KLH.3590	East Ramp - Planting	0%	34	34	21-Nov-16	31-Dec-16	1038							
<b>KLH Bridge - Ramp R1</b>														
Z2.KLH.1667	Additional Disruption to R1P1 period by UU duct laying	0%	9	5	01-Nov-16 A	30-Nov-16	-21							
Z2.KLH.1680	Ramp R1 - Ramp construction (Abutment R1 to R1P1)	50%	49	98	20-Aug-16 A	07-Feb-17	-21							
Z2.KLH.1685	Ramp R1 - Ramp construction (R1P1 to P1P3)	0%	30	30	19-Nov-16 A	07-Feb-17	-21							
Z2.KLH.3610	Ramp R1 - Steel roof	0%	30	30	10-Jan-17	21-Feb-17	-21							
Z2.KLH.3620	Ramp R1 - finishes work (include barrier and lighting)	0%	30	30	19-Jan-17	02-Mar-17	-21							
<b>KLH Bridge - Ramp R2</b>														
Z2.KLH.1523	VO 028 - Boundary Wall to Hse 190B structure	0%	24	24	21-Nov-16*	17-Dec-16	669							
Z2.KLH.1524	VO 028 - Boundary Wall to Hse 190B E&M, Drainage	0%	26	26	19-Dec-16	20-Jan-17	669							
Z2.KLH.1530	Ramp R2 - Pile cap, abutment and pier construction	97.01%	9	301	20-Nov-15 A	30-Nov-16	1063							
Z2.KLH.1540	Ramp R2 - Ramp construction	0%	45	45	17-Nov-16 A	14-Jan-17	-2							
Z2.KLH.1545	Ramp R2 - Ramp construction (section after VBP6-7 deck)	0%	35	35	02-Dec-16	14-Jan-17	4							
Z2.KLH.1550	Ramp R2 - Steel roof	0%	40	40	10-Dec-16	06-Feb-17	4							
Z2.KLH.1920	Ramp R2 - finishes work (include barrier and lighting)	0%	30	30	24-Dec-16	08-Feb-17	-2							
<b>Bridge Road Work</b>														
Z2.KLH.2040	Landscape work of KLHVB	0%	120	120	21-Nov-16	25-Apr-17	599							
<b>Lift at TWSR-W Side</b>														
L01094	Lift submission & ordering period	31.63%	201	294	01-Aug-16 A	02-Aug-17	429							
L01140	CLP Power available (by CLP)	55.83%	182	412	04-Apr-16 A	20-May-17	685							
<b>Lift at FLHY S/B</b>														
L01180	Earliest date for lift construction resume	0%	0	0	10-Dec-16		417							
L01190	Set up & Pile test	0%	30	30	10-Dec-16	17-Jan-17	417							
L01200	Temp work & Pier cap	0%	45	45	18-Jan-17	18-Mar-17	417							

♦ Earliest date for lift construction resume

Activity ID	Activity Name	Dur. % Complete	Rem. Duration	Original Duration	Start	Finish	Total Float	2016				2017					
								Nov		Dec		Jan		Feb			
L01300	CLP Power available (by CLP)	51.69%	214	443	04-Apr-16 A	21-Jun-17	659										
<b>Demolition of Existing Nam Wa Po Footbridge</b>																	
<b>Demolition Work</b>																	
Z2.NWP.1060	Temporary support installation at existing Fanling Highway	0%	65	65	07-Dec-16	03-Mar-17	-21										
<b>TWSR-West Construction</b>																	
<b>Drainage &amp; Road Works</b>																	
<b>General</b>																	
CW01	1st interface connection to CW at S/B	0%	0	0		31-Jan-17	0										31-Jan-17* ◆ 1st interface con
<b>Noise Barrier Along Fanling Highway S/B</b>																	
<b>NB62 (Ch.6745-6910)-FH S/B Side (MTRC I&amp;P Area)</b>																	
<b>Noise Barrier Works</b>																	
NB03080	NB62 (0-80m) - Sheet piling & Excavation	0%	18	18	01-Nov-16 A	10-Dec-16	601										
NB03090	NB62 (0-80m) - Footing & Wall Structure	0%	60	60	12-Dec-16	02-Mar-17	601										
NB03130	NB62 (80-110m) Under bridge - Sheet piling & Excavation	0%	12	12	12-Dec-16	24-Dec-16	624										
NB03140	NB62 (80-110m) Under bridge - Footing & Wall Structure	0%	25	25	28-Dec-16	26-Jan-17	624										
NB03150	NB62 (80-110m) Under bridge - backfilling	0%	14	14	27-Jan-17	20-Feb-17	645										
NB03160	NB62 (80-110m) Under bridge - NB production	0%	45	45	27-Jan-17	12-Mar-17	774										
NB03180	NB62 (110-170m) - Sheet piling & Excavation	0%	18	18	21-Nov-16	10-Dec-16	601										
NB03190	NB62 (110-170m) - Footing & Wall Structure	0%	60	60	12-Dec-16	02-Mar-17	601										
<b>NB70 (Ch.6910-6930)-FH S/B Side</b>																	
<b>Noise Barrier Works</b>																	
NB03280	NB70 - NB production	81.33%	14	75	20-Sep-16 A	03-Dec-16	873										
NB03290	NB70- NB post & panel installation	0%	5	5	05-Dec-16	09-Dec-16	702										
<b>North Buffer Zone 2 (NBZ2) (within Zone 4) (Ch. 7925 to 8100)</b>																	
<b>Bridge Construction</b>																	
<b>New Ho Ka Yuen Footbridge</b>																	
<b>TWSR-West/ FL Highway N/B Side Section</b>																	
HKY1250	HKYAB3 - pile cap & abutment wall	57.65%	36	85	20-Aug-16 A	04-Jan-17	673										
HKY1260	HKYAB3 - Backfilling (~4m)	0%	12	12	05-Jan-17	18-Jan-17	673										
HKY1270	Steel Staircase ready for erection (THFB-TWSR-W side)	0%	0	0		18-Jan-17	673										18-Jan-17 ◆ Steel Staircase ready for er
HKY1273	Erect Staircase (HKY-TWSR-W side)	0%	30	30	19-Jan-17	02-Mar-17	673										
HKY1440	Remaining Finishes works of HKYFB	0%	150	150	21-Nov-16	02-Jun-17	556										
<b>TWSR-East FL Highway S/B Side Section</b>																	
HKY1870	Steel Ramp finishes work (HKYFB-TWSR-E side)	16.67%	30	36	13-Oct-16 A	24-Dec-16	721										
<b>Other Works</b>																	
<b>Slope Works</b>																	
<b>TWSR-East FL Highway S/B Side Section</b>																	
S1000	Slope S51-Fill ~3m	0%	40	40	21-Nov-16	09-Jan-17	615										
<b>ZONE 4 (Ch. 7925 to 8700)</b>																	
<b>Noise Barrier Along Fanling Highway N/B</b>																	
<b>NB75 (Ch.7930-8090)-FH N/B Side</b>																	
<b>Noise Barrier Works</b>																	
NB4040	NB75 -Pre-drilling (Ch7930-7990)	0%	24	24	28-Nov-16	24-Dec-16	61										
NB4050	NB75 - piling (NB75/01-05, 0.19m -24no)	0%	48	48	28-Dec-16	02-Mar-17	61										
NB4100	NB75 -Pre-drilling (Ch7990-8000)-(HKY-P1) & G34	0%	24	24	28-Dec-16	25-Jan-17	174										
NB4160	NB75 -Pre-drilling (Ch8000-8050)	0%	48	48	28-Dec-16	02-Mar-17	61										
<b>NB77 (Ch.8090-8450)-FH N/B Side</b>																	
<b>Noise Barrier Works</b>																	
NB4285	TTA for FH N/B (Stage 6) start	0%	0	0	28-Nov-16		0										◆ TTA for FH N/B (Stage 6) start
NB4290	NB77 -Pre-drilling (Ch8090-8190)	0%	24	24	28-Nov-16	24-Dec-16	0										
NB4300	NB77 - piling (NB77/01-08, 0.19m -34no)	0%	68	68	14-Dec-16	14-Mar-17	0										
NB4350	NB77 -Pre-drilling (Ch8190-8290)	0%	72	72	28-Nov-16	02-Mar-17	20										
NB4360	NB77 - piling (NB77/09-17, 0.19m -36no)	0%	72	72	10-Feb-17	11-May-17	20										
NB4410	NB77 -Pre-drilling (Ch8290-8390)	0%	60	60	28-Dec-16	16-Mar-17	14										
<b>Bridge Construction</b>																	
<b>New Wo Hop Shek Pedstrian &amp; Cycle Bridge</b>																	
<b>General</b>																	
WHS1120	Diversion of existing pedestrian from existing to proposed footbridge	0%	1	1	28-Nov-16	28-Nov-16	7										
<b>TWSR-West/ FL Highway N/B Side Section</b>																	
WHS1300	Existing WHS bridge structure removed	0%	0	0		16-Feb-17	287										16-Feb-17 ◆ E
WHS1350	WHSAB2 - Predrilling (VO018)	0%	24	24	17-Feb-17	16-Mar-17	287										
WHS2020	Diverse pedestrian from existing ramp to new ramp	0%	0	0		26-Nov-16	7										26-Nov-16 ◆ Diverse pedestrian from existing ramp to new ramp
<b>Crossing Fanling Highway Section</b>																	
WHS1490	Finishes Work	88%	6	50	20-Sep-16 A	26-Nov-16	7										
WHS1500	Bridge Structure complete (WHSB-Cross fanling highway)	0%	0	0		26-Nov-16	7										26-Nov-16 ◆ Bridge Structure complete (WHSB-Cross fanling highway)
<b>Demolition of Existing Wo Hop Shek Pedstrian &amp; Cycle Bridge</b>																	
<b>TWSR-West/ FL Highway N/B Side Section</b>																	
WHS1870	Install Temp support to remove existing ramp	0%	25	25	28-Nov-16	28-Dec-16	287										
WHS1880	Remove existing ramp for 2nd half new ramp construction	0%	35	35	29-Dec-16	16-Feb-17	287										
WHS1890	Demolish existing WHS footbridge (TWSR-W side)	0%	30	30	29-Nov-16	05-Jan-17	548										
WHS2030	Remove temp filled platform	0%	30	30	06-Jan-17	17-Feb-17	548										
<b>Crossing Fanling Highway Section</b>																	
WHS1790	Erect Temp platform for bridge demolition	7.5%	37	40	17-Oct-16 A	05-Jan-17	438										
WHS1800	Demolish existing WHS Footbridge	0%	60	60	06-Jan-17	24-Mar-17	438										
<b>TWSR-East FL Highway S/B Side Section</b>																	



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**APPENDIX C  
IMPLEMENTATION SCHEDULE OF  
ENVIRONMENTAL MITIGATION MEASURES  
(EMIS)**

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

### **Air Quality – Schedule of Recommended Mitigation Measures**

<b>Impact</b>	<b>Mitigation Measures</b>	<b>Timing</b>	<b>Implementation Status</b>
Air Quality during construction	Restricting heights from which materials are dropped, as far as practicable to minimize the fugitive dust arising from unloading/loading.	During construction	V
	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.		@
	Effective water sprays shall be used to control potential dust emission sources such as unpaved haul roads and active construction areas.		V
	All spraying of materials and surfaces shall avoid excessive water usage.		V
	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.		V
	Materials shall be dampened, if necessary, before transportation.		V
	Travelling speeds shall be controlled to reduce traffic induced dust dispersion and re-suspension within the site from the operating haul trucks.		V
	Vehicle washing facilities shall be provided to minimize the quantity of material deposited on public roads.		@

### Noise – Schedule of Recommended Mitigation Measures

Impact	Mitigation Measures	Timing	Implementation Status
Noise during construction	Use of silenced plant or plant equipped with mufflers or dampers in substitute of ordinary plant.	During construction	V
	Reduce the number of equipment and their percentage on-time.		V
	3.5 m and 5.5 m high temporary noise barrier at culvert construction work area (Figure 2a of the Environmental Permit).		V
	3 m high temporary noise barrier along the northern edge of Bridge 12 at ground level (Figure 2b of the Environmental Permit).		V
	2 m high temporary noise barrier along the northern edge of Bridge 12 at bridge level (Figure 2b of the Environmental Permit).		V
	2.5 m high temporary noise barrier along Tai Wo Service Road West (Figure 2c of the Environmental Permit).		V
	3.5m and 7m high temporary noise barrier along Tai Wo Services Road West near Tai Hang (Figure 2c of the Environmental Permit).		V
	7 m high temporary noise barrier along Tai Wo Service Road West near Tai Wo Footbridge work area (Figure 2d of the Environmental Permit).		V
	7 m high temporary noise barrier near Kiu Tau Footbridge work area (Figure 2d of the Environmental Permit).		V
	2.5 m high temporary noise barrier near river diversion work area (Figure 2e of the Environmental Permit).		N.A.

### Water Quality – Schedule of Recommended Mitigation Measures

Impact	Mitigation Measures	Timing	Implementation Status
Water quality during construction	Demolition and reconstruction of bridges <ul style="list-style-type: none"> <li>- Prevent off-site migration through use of sheet piles.</li> <li>- Minimise duration of works as far as practical.</li> <li>- All sewer and drainage connections should be sealed to prevent debris, soil, sand, etc, from entering public sewers/drains.</li> <li>- Site surface runoff should be settled to remove sand/silt before it is discharged into the existing storm drains.</li> </ul>	During construction	V
	Road Widening Works, Earthworks and Culvert Extension Works <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> <li>- Sand traps, oil interceptors and other pollution prevention installations should be provided, properly cleaned and maintained.</li> <li>- Runoff from exposed working areas, unfinished slopes and from unlined temporary channels should be directed to stilling basins and/or silt traps before discharging to the drainage outfalls.</li> <li>- Regular inspections of stilling basins and/or silt traps are required to ensure that sediment is not conveyed into the existing drainage system.</li> <li>- Open stockpiles should be covered with a tarpaulin cover.</li> <li>- During the wet season, any exposed top soils should be covered with a tarpaulin, shotcreted or hydroseeded.</li> <li>- Sand and silt from wash-water from vehicle washing should be settled out before discharging into storm drains.</li> <li>- Fuels should be stored in bunded areas such that spillage can be easily collected.</li> </ul>		@



### Waste – Schedule of Recommended Mitigation Measures

Impact	Mitigation Measures	Timing	Implementation Status
Waste management during construction	<b>General Waste</b> <ul style="list-style-type: none"> <li>- Transport of wastes off site as soon as possible.</li> <li>- Maintenance of accurate waste records.</li> <li>- Minimisation of waste generation for disposal (via reduction/recycling/re-use).</li> <li>- No on-site burning will be permitted.</li> <li>- Use of re-useable metal hoardings/signboards.</li> </ul>	During construction	@
	<b>Vegetation from site clearance</b> <ul style="list-style-type: none"> <li>- Segregation of materials to facilitate disposal.</li> <li>- Mulching to reduce bulk and where possible review opportunities for the possible beneficial use within landscaping areas.</li> </ul>		V
	<b>Demolition Wastes</b> <ul style="list-style-type: none"> <li>- Segregation of materials to facilitate disposal.</li> <li>- Appropriate stockpile management.</li> </ul>		V
	<b>Excavated Materials</b> <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>		V
	<b>Construction Wastes</b> <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>		@
	<b>Bentonite Slurries</b> <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>Chemical Wastes</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> <li>- A spill response procedure shall be in place and absorption material available for minor spillages.</li> <li>- Use appropriate and labelled containers.</li> <li>- Educate site workers on site cleanliness/waste management procedures.</li> <li>- If chemical wastes are to be generated, the contractor must register with EPD as a chemical waste producer.</li> <li>- The chemical wastes shall be collected by a licensed chemical waste collector.</li> </ul>		@
	<p>Municipal Wastes</p> <ul style="list-style-type: none"> <li>- Waste shall be stored within a temporary refuse collection facility, in appropriate containers prior to collection and disposal.</li> <li>- Regular, daily collections are required by an approved waste collector.</li> </ul>		V

### Ecology – Schedule of Recommended Mitigation Measures

Impact	Mitigation Measures	Timing	Implementation Status
Ecology during construction	<p>Accurate Delineation of Works Area</p> <ul style="list-style-type: none"> <li>- Boundaries of proposed works areas shall be clearly identified and separated from external areas by a physical barrier to prevent encroachment of adjacent habitats.</li> <li>- Individual trees which fall within the works areas but which work plans do not require removal are to be retained and fenced off to maximize protection.</li> </ul>	During construction	@
	<p>Vegetation Clearance</p> <ul style="list-style-type: none"> <li>- No fires shall be lit within the works area for the purpose of burning cleared vegetation.</li> <li>- The Contractor shall give consideration to mulching the cleared vegetation for recycling within the works area / adjacent land.</li> </ul>		V
	<p>Dust generation</p> <p>There are a number of measures which shall be taken as specified in the Air Pollution Control (Construction Dust) Regulation on 'Dust Control Requirements, including the following key measures to be applied during construction:</p> <ul style="list-style-type: none"> <li>- Vehicle washing facilities to be provided at every discernible or designated vehicle exit point;</li> <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>		V
	<p>Surface Run-off</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 stock piles 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>		V

### Landscape and Visual Impact – Schedule of Recommended Mitigation Measures

Impact	Mitigation Measures	Timing	Responsibility
Landscape & Visual during construction	Preservation of Existing Vegetation - Trees identified for retention within the project limit would be protected during the works; - The tree transplanting and planting works shall be implemented by approved Landscape Contractors.	During construction	V
	Temporary Works Areas - 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.		V
	Hoarding - A hoarding would be erected where practicable in the most visually sensitive locations to screen the temporary construction works from the local VSRs.		V
	Top Soils - 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.		#
	Protection of Important Landscape Features - Important features such as temples, Island House and kilns within the study area, although remote from the proposed works retained and adequately protected.		#

Legend:

V = implemented;

x = not implemented;

@ = partially implemented;

+ = recommended and immediately implemented during the site inspection by the Contractor;

N/A = not applicable - No such work was undertaken or no such material was used on site;

# = to be implemented.

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**APPENDIX D  
SUMMARY OF ACTION AND LIMIT LEVELS**

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## Appendix D - Summary of Action and Limit Levels

Table 1 – Action and Limit Levels for 1-hour TSP

Location	Action Level	Limit Level
AM2	317.8 µg/m <sup>3</sup>	500 µg/m <sup>3</sup>

Table 2 – Action and Limit Levels for 24-hour TSP

Location	Action Level	Limit Level
AM2	200.7 µg/m <sup>3</sup>	260 µg/m <sup>3</sup>

Table 3 – Action and Limit Levels for Construction Noise (0700-1900 hrs of normal weekdays)

Location	Action Level	Limit Level
M2	When one documented complaint, related to 0700 – 1900 hours on normal weekdays, is received from any one of the sensitive receivers	75 dB(A)
M3*		65/70 dB(A)

\*Daytime noise Limit Level of 70 dB(A) applies to education institutions, while 65dB(A) applies during school examination period

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**APPENDIX E  
CALIBRATION CERTIFICATES OF  
MONITORING EQUIPMENTS**

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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 - May 31, 2016 Rootmeter S/N 0438320 Ta (K) - 298  
 Operator Tisch Orifice I.D. - 0988 Pa (mm) - 754.38

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	1.3670	3.2	2.00
2	NA	NA	1.00	0.9750	6.4	4.00
3	NA	NA	1.00	0.8700	7.9	5.00
4	NA	NA	1.00	0.8260	8.7	5.50
5	NA	NA	1.00	0.6830	12.7	8.00

DATA TABULATION

Vstd	(x axis) Qstd	(y axis)	Va	(x axis) Qa	(y axis)
0.9884	0.7230	1.4090	0.9957	0.7284	0.8888
0.9842	1.0094	1.9926	0.9915	1.0170	1.2570
0.9821	1.1289	2.2278	0.9894	1.1373	1.4054
0.9811	1.1878	2.3365	0.9884	1.1967	1.4740
0.9758	1.4288	2.8179	0.9831	1.4394	1.7777
Qstd slope (m) = 1.99349			Qa slope (m) = 1.24829		
intercept (b) = -0.02737			intercept (b) = -0.01727		
coefficient (r) = 0.99988			coefficient (r) = 0.99988		
y axis = SQRT[H2O(Pa/760)(298/Ta)]			y axis = SQRT[H2O(Ta/Pa)]		

CALCULATIONS

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

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

For subsequent flow rate calculations:

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



## Total Suspended Particulates (TSP) Sampler Field Calibration Report

Station Fanling Government Secondary School (AM2)Operator: Shum Kam YuenDate: 19-Sep-16Next Due Date: 19-Nov-16Model No: TE-5170Verified Against: O.T.S -- 988Equipment No.: A-001-74TExpiration Date: 31-May-2017

Ambient Condition					
Temperature, Ta	304.0	Kelvin	Pressure, Pa	754.8	mmHg

Orifice Transfer Standard Information					
Equipment No.:	988	Slope, mc	1.99349	Intercept, bc	-0.02737
Last Calibration Date:	31-May-16	$mc \times Qstd + bc = [H \times (Pa/760) \times (298/Ta)]^{1/2}$			
Next Calibration Date:	31-May-17				

Calibration of TSP Sampler					
Calibration Point	H in. of water	[H x (Pa/760) x (298/Ta)] <sup>1/2</sup>	Qstd (m <sup>3</sup> /min) X - axis	W in. of oil	[ΔW x (Pa/760) x (298/Ta)] <sup>1/2</sup> Y-axis
1	7.0	2.61	1.32	4.7	2.14
2	5.7	2.36	1.20	4.0	1.97
3	4.4	2.07	1.05	3.0	1.71
4	3.6	1.87	0.95	2.4	1.53
5	2.4	1.53	0.78	1.7	1.29

**By Linear Regression of Y on X**Slope , mw = 1.6063Intercept, bw = 0.0253Correlation Coefficient\* = 0.9990**Set Point Calculation**From the TSP Field Calibration Curve, take Qstd = 1.21 m<sup>3</sup>/min (43 CFM)

From the Regression Equation, the "Y" value according to

$$m \times Qstd + b = [W \times (Pa/760) \times (298/Ta)]^{1/2}$$

Therefore, Set Point W =  $(m \times Qstd + b)^2 \times (760 / Pa) \times (Ta / 298) =$  3.98

\*If Correlation Coefficient &lt; 0.990, check and recalibrate again.

Remarks: \_\_\_\_\_

QC Reviewer: WS CHANSignature: Date: 20/9/16



## EQUIPMENT CALIBRATION RECORD

Type: Laser Dust Monitor  
 Manufacturer/Brand: SIBATA  
 Model No.: LD-3  
 Equipment No.: A.005.07a  
 Sensitivity Adjustment Scale Setting: 557 CPM  
 Operator: Mike Shek (MSKM)

### Standard Equipment

Equipment: Rupprecht & Patashnick TEOM®  
 Venue: Cyberport (Pui Ying Secondary School)  
 Model No.: Series 1400AB  
 Serial No: Control: 140AB219899803  
 Sensor: 1200C143659803 K<sub>0</sub>: 12500  
 Last Calibration Date\*: 7 May 2016

\*Remarks: Recommended interval for hardware calibration is 1 year

### Calibration Result

Sensitivity Adjustment Scale Setting (Before Calibration): 557 CPM  
 Sensitivity Adjustment Scale Setting (After Calibration): 557 CPM

Hour	Date (dd-mm-yy)	Time	Ambient Condition		Concentration <sup>1</sup> (mg/m <sup>3</sup> ) Y-axis	Total Count <sup>2</sup>	Count/ Minute <sup>3</sup> X-axis
			Temp (°C)	R.H. (%)			
1	07-05-16	12:15 - 13:15	28.1	77	0.04530	1812	30.20
2	07-05-16	13:15 - 14:15	28.2	76	0.04659	1863	31.05
3	07-05-16	14:15 - 15:15	28.4	78	0.04560	1824	30.40
4	07-05-16	15:15 - 16:15	28.5	77	0.04434	1774	29.57

Note: 1. Monitoring data was measured by Rupprecht & Patashnick TEOM®  
 2. Total Count was logged by Laser Dust Monitor  
 3. Count/minute was calculated by (Total Count/60)

By Linear Regression of Y or X

Slope (K-factor): 0.0015  
 Correlation coefficient: 0.9969

Validity of Calibration Record: 7 May 2017

Remarks:

QC Reviewer: YW Fung Signature:  Date: 09 May 2016

## EQUIPMENT CALIBRATION RECORD

Type: Laser Dust Monitor  
 Manufacturer/Brand: SIBATA  
 Model No.: LD-3  
 Equipment No.: A.005.09a  
 Sensitivity Adjustment Scale Setting: 797 CPM

Operator: Mike Shek (MSKM)

### Standard Equipment

Equipment: Rupprecht & Patashnick TEOM®  
 Venue: Cyberport (Pui Ying Secondary School)  
 Model No.: Series 1400AB  
 Serial No: Control: 140AB219899803  
 Sensor: 1200C143659803 Ko: 12500  
 Last Calibration Date\*: 7 May 2016

\*Remarks: Recommended interval for hardware calibration is 1 year

### Calibration Result

Sensitivity Adjustment Scale Setting (Before Calibration): 797 CPM  
 Sensitivity Adjustment Scale Setting (After Calibration): 797 CPM

Hour	Date (dd-mm-yy)	Time	Ambient Condition		Concentration <sup>1</sup> (mg/m <sup>3</sup> ) <b>Y-axis</b>	Total Count <sup>2</sup>	Count/ Minute <sup>3</sup> <b>X-axis</b>
			Temp (°C)	R.H. (%)			
1	07-05-16	11:45 - 12:45	28.2	77	0.04623	1847	30.78
2	07-05-16	12:45 - 13:45	28.2	78	0.04708	1885	31.42
3	07-05-16	13:45 - 14:45	28.3	76	0.04591	1836	30.60
4	07-05-16	14:45 - 15:45	28.4	77	0.04333	1726	28.77

Note: 1. Monitoring data was measured by Rupprecht & Patashnick TEOM®  
 2. Total Count was logged by Laser Dust Monitor  
 3. Count/minute was calculated by (Total Count/60)

By Linear Regression of Y or X

Slope (K-factor): 0.0015  
 Correlation coefficient: 0.9964

Validity of Calibration Record: 7 May 2017

Remarks:

QC Reviewer: YW Fung Signature:  Date: 09 May 2016



## CERTIFICATE OF CALIBRATION

Certificate No.: 16CA0704 03-01 Page 1 of 2

### Item tested

Description:	Sound Level Meter (Type 1)	Microphone
Manufacturer:	B & K	B & K
Type/Model No.:	2238	4188
Serial/Equipment No.:	2800927 / N.009.06	2791211
Adaptors used:	-	-

### Item submitted by

Customer Name: AECOM ASIA CO., LTD.  
Address of Customer: -  
Request No.: -  
Date of receipt: 04-Jul-2016

Date of test: 07-Jul-2016

### Reference equipment used in the calibration

Description:	Model:	Serial No.	Expiry Date:	Traceable to:
Multi function sound calibrator	B&K 4226	2288444	18-Jun-2017	CIGISMEC
Signal generator	DS 360	33873	18-Apr-2017	CEPREI
Signal generator	DS 360	61227	18-Apr-2017	CEPREI

### Ambient conditions

Temperature:  $22 \pm 1$  °C  
Relative humidity:  $60 \pm 10$  %  
Air pressure:  $1000 \pm 5$  hPa

### Test specifications

- 1, The Sound Level Meter has been calibrated in accordance with the requirements as specified in BS 7580: Part 1: 1997 and the lab calibration procedure SMTP004-CA-152.
- 2, The electrical tests were performed using an electrical signal substituted for the microphone which was removed and replaced by an equivalent capacitance within a tolerance of  $\pm 20\%$ .
- 3, The acoustic calibration was performed using an B&K 4226 sound calibrator and corrections was applied for the difference between the free-field and pressure response of the Sound Level Meter.

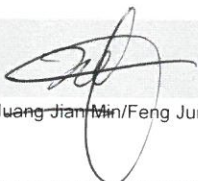
### Test results

This is to certify that the Sound Level Meter conforms to BS 7580: Part 1: 1997 for the conditions under which the test was performed.

Details of the performed measurements are presented on page 2 of this certificate.

Actual Measurement data are documented on worksheets.

Approved Signatory:

  
Huang Jian Min/Feng Jun Qi

Date: 09-Jul-2016

Company Chop:



Comments: The results reported in this certificate refer to the condition of the instrument on the date of calibration and carry no implication regarding the long-term stability of the instrument.



## CERTIFICATE OF CALIBRATION

(Continuation Page)

Certificate No.: 16CA0704 03-01 Page 2 of 2

### 1, Electrical Tests

The electrical tests were performed using an equivalent capacitance substituted for the microphone. The results are given in below with test status and the estimated uncertainties. The "Pass" means the result of the test is inside the tolerances stated in the test specifications. The "-" means the result of test is outside these tolerances.

Test:	Subtest:	Status:	Expanded Uncertainty (dB)	Coverage Factor
Self-generated noise	A	Pass	0.3	
	C	Pass	1.0	2.1
	Lin	Pass	2.0	2.2
Linearity range for Leq	At reference range, Step 5 dB at 4 kHz	Pass	0.3	
	Reference SPL on all other ranges	Pass	0.3	
	2 dB below upper limit of each range	Pass	0.3	
	2 dB above lower limit of each range	Pass	0.3	
Linearity range for SPL	At reference range, Step 5 dB at 4 kHz	Pass	0.3	
	Frequency weightings			
Time weightings	A	Pass	0.3	
	C	Pass	0.3	
	Lin	Pass	0.3	
Peak response	Single Burst Fast	Pass	0.3	
	Single Burst Slow	Pass	0.3	
	Single 100µs rectangular pulse	Pass	0.3	
R.M.S. accuracy	Crest factor of 3	Pass	0.3	
	Time weighting I			
Time averaging	Single burst 5 ms at 2000 Hz	Pass	0.3	
	Repeated at frequency of 100 Hz	Pass	0.3	
	1 ms burst duty factor 1/10 <sup>3</sup> at 4kHz	Pass	0.3	
Pulse range	1 ms burst duty factor 1/10 <sup>4</sup> at 4kHz	Pass	0.3	
	Sound exposure level			
Overload indication	Single burst 10 ms at 4 kHz	Pass	0.4	
	SPL	Pass	0.4	
Leq	Single burst 10 ms at 4 kHz	Pass	0.3	
	Leq	Pass	0.4	

### 2, Acoustic tests

The complete sound level meter was calibrated on the reference range using a B&K 4226 acoustic calibrator with 1000Hz and SPL 94 dB. The sensitivity of the sound level meter was adjusted. The test result at 125 Hz and 8000 Hz are given in below with test status and the estimated uncertainties.

Test:	Subtest	Status	Expanded Uncertainty (dB)	Coverage Factor
Acoustic response	Weighting A at 125 Hz	Pass	0.3	
	Weighting A at 8000 Hz	Pass	0.5	

### 3, Response to associated sound calibrator

N/A

The expanded uncertainties have been calculated in accordance with the ISO Publication "Guide to the expression of uncertainty in measurement", and gives an interval estimated to have a level of confidence of 95%. A coverage factor of 2 is assumed unless explicitly stated.

- End -

Calibrated by:

Date:

Fung Chi Yip  
07-Jul-2016

Checked by:

Date:

Lam Tze Wai  
09-Jul-2016

The standard(s) and equipment used in the calibration are traceable to national or international recognised standards and are calibrated on a schedule to maintain the required accuracy level.



## CERTIFICATE OF CALIBRATION

Certificate No.: 16CA0408 02 Page 1 of 2

### Item tested

Description:	Sound Level Meter (Type 1)	,	Microphone
Manufacturer:	B & K	,	B & K
Type/Model No.:	2238	,	4188
Serial/Equipment No.:	2285692	,	2791211
Adaptors used:	-	,	-

### Item submitted by

Customer Name: AECOM ASIA CO., LTD.  
Address of Customer: -  
Request No.: -  
Date of receipt: 08-Apr-2016

Date of test: 11-Apr-2016

### Reference equipment used in the calibration

Description:	Model:	Serial No.	Expiry Date:	Traceable to:
Multi function sound calibrator	B&K 4226	2288444	19-Jun-2016	CIGISMEC
Signal generator	DS 360	33873	16-Apr-2016	CEPREI
Signal generator	DS 360	61227	16-Apr-2016	CEPREI

### Ambient conditions

Temperature:  $21 \pm 1$  °C  
Relative humidity:  $50 \pm 10$  %  
Air pressure:  $1010 \pm 5$  hPa

### Test specifications

1. The Sound Level Meter has been calibrated in accordance with the requirements as specified in BS 7580: Part 1: 1997 and the lab calibration procedure SMTP004-CA-152.
2. The electrical tests were performed using an electrical signal substituted for the microphone which was removed and replaced by an equivalent capacitance within a tolerance of  $\pm 20\%$ .
3. The acoustic calibration was performed using an B&K 4226 sound calibrator and corrections was applied for the difference between the free-field and pressure responsiveness of the Sound Level Meter.


### Test results

This is to certify that the Sound Level Meter conforms to BS 7580: Part 1: 1997 for the conditions under which the test was performed.

Details of the performed measurements are presented on page 2 of this certificate.

Actual Measurement data are documented on worksheets.

Approved Signatory:

  
Huang Jian Min/Feng Jun Qi

Date: 12-Apr-2016

Company Chop:



Comments: The results reported in this certificate refer to the condition of the instrument on the date of calibration and carry no implication regarding the long-term stability of the instrument.



## CERTIFICATE OF CALIBRATION

(Continuation Page)

Certificate No.: 16CA0408 02 Page 2 of 2

### 1, Electrical Tests

The electrical tests were performed using an equivalent capacitance substituted for the microphone. The results are given in below with test status and the estimated uncertainties. The "Pass" means the result of the test is inside the tolerances stated in the test specifications. The "-" means the result of test is outside these tolerances.

Test:	Subtest:	Status:	Expanded Uncertainty (dB)	Coverage Factor
Self-generated noise	A	Pass	0.3	
	C	Pass	1.0	2.1
	Lin	Pass	2.0	2.2
Linearity range for Leq	At reference range , Step 5 dB at 4 kHz	Pass	0.3	
	Reference SPL on all other ranges	Pass	0.3	
	2 dB below upper limit of each range	Pass	0.3	
	2 dB above lower limit of each range	Pass	0.3	
Linearity range for SPL	At reference range , Step 5 dB at 4 kHz	Pass	0.3	
	A	Pass	0.3	
	C	Pass	0.3	
	Lin	Pass	0.3	
Time weightings	Single Burst Fast	Pass	0.3	
	Single Burst Slow	Pass	0.3	
Peak response	Single 100µs rectangular pulse	Pass	0.3	
	R.M.S. accuracy	Crest factor of 3	Pass	0.3
Time weighting I	Single burst 5 ms at 2000 Hz	Pass	0.3	
	Repeated at frequency of 100 Hz	Pass	0.3	
Time averaging	1 ms burst duty factor 1/10 <sup>3</sup> at 4kHz	Pass	0.3	
	1 ms burst duty factor 1/10 <sup>4</sup> at 4kHz	Pass	0.3	
Pulse range	Single burst 10 ms at 4 kHz	Pass	0.4	
Sound exposure level	Single burst 10 ms at 4 kHz	Pass	0.4	
Overload indication	SPL	Pass	0.3	
	Leq	Pass	0.4	

### 2, Acoustic tests

The complete sound level meter was calibrated on the reference range using a B&K 4226 acoustic calibrator with 1000Hz and SPL 94 dB. The sensitivity of the sound level meter was adjusted. The test result at 125 Hz and 8000 Hz are given in below with test status and the estimated uncertainties.

Test:	Subtest	Status	Expanded Uncertainty (dB)	Coverage Factor
Acoustic response	Weighting A at 125 Hz	Pass	0.3	
	Weighting A at 8000 Hz	Pass	0.5	

### 3, Response to associated sound calibrator

N/A

The expanded uncertainties have been calculated in accordance with the ISO Publication "Guide to the expression of uncertainty in measurement", and gives an interval estimated to have a level of confidence of 95%. A coverage factor of 2 is assumed unless explicitly stated.

Calibrated by:

Fung Chi Yip  
Date: 11-Apr-2016

- End -

Checked by:

Lam Tze Wai  
Date: 12-Apr-2016

The standard(s) and equipment used in the calibration are traceable to national or international recognised standards and are calibrated on a schedule to maintain the required accuracy level.





## CERTIFICATE OF CALIBRATION

Certificate No.: 15CA1203 03

Page: 1 of 2

### Item tested

Description: Acoustical Calibrator (Class 1)  
Manufacturer: Rion Co., Ltd.  
Type/Model No.: NC-73  
Serial/Equipment No.: 10307223 (N-4-23)  
Adaptors used: -

### Item submitted by

Customer: AECOM ASIA CO., LTD.  
Address of Customer: -  
Request No.: -  
Date of receipt: 03-Dec-2015

Date of test: 03-Dec-2015

### Reference equipment used in the calibration

Description:	Model:	Serial No.	Expiry Date:	Traceable to:
Lab standard microphone	B&K 4180	2341427	15-Apr-2016	SCL
Preamplifier	B&K 2673	2239857	22-Apr-2016	CEPREI
Measuring amplifier	B&K 2610	2346941	22-Apr-2016	CEPREI
Signal generator	DS 360	61227	16-Apr-2016	CEPREI
Digital multi-meter	34401A	US36087050	17-Apr-2016	CEPREI
Audio analyzer	8903B	GB41300350	17-Apr-2016	CEPREI
Universal counter	53132A	MY40003662	16-Apr-2016	CEPREI

### Ambient conditions

Temperature:  $22 \pm 1$  °C  
Relative humidity:  $50 \pm 10$  %  
Air pressure:  $1010 \pm 5$  hPa

### Test specifications

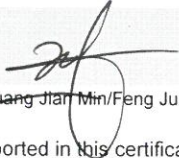
- The Sound Calibrator has been calibrated in accordance with the requirements as specified in IEC 60942 1997 Annex B and the lab calibration procedure SMTP004-CA-156.
- The calibrator was tested with its axis vertical facing downwards at the specific frequency using insert voltage technique.
- The results are rounded to the nearest 0.01 dB and 0.1 Hz and have not been corrected for variations from a reference pressure of 1013.25 hectoPascals as the maker's information indicates that the instrument is insensitive to pressure changes.

### Test results

This is to certify that the sound calibrator conforms to the requirements of annex B of IEC 60942: 1997 for the conditions under which the test was performed. This does not imply that the sound calibrator meets IEC 60942 under any other conditions.

Details of the performed measurements are presented on page 2 of this certificate.

Approved Signatory:

  
Huang Jian Min/Feng Jun Qi

Date: 04-Dec-2015

Company Chop:



Comments: The results reported in this certificate refer to the condition of the instrument on the date of calibration and carry no implication regarding the long-term stability of the instrument.



## CERTIFICATE OF CALIBRATION

(Continuation Page)

Certificate No.: 15CA1203 03

Page: 2 of 2

### 1, Measured Sound Pressure Level

The output Sound Pressure Level in the calibrator head was measured at the setting and frequency shown using a calibrated laboratory standard microphone and insert voltage technique. The results are given in below with the estimated uncertainties.

(Output level in dB re 20  $\mu$ Pa)

Frequency Shown Hz	Output Sound Pressure Level Setting dB	Measured Output Sound Pressure Level dB	Estimated Expanded Uncertainty dB
1000	94.00	94.04	0.10

### 2, Sound Pressure Level Stability - Short Term Fluctuations

The Short Term Fluctuations was determined by measuring the maximum and minimum of the fast weighted DC output of the B&K 2610 measuring amplifier over a 20 second time interval as required in the standard. The Short Term Fluctuation was found to be:

At 1000 Hz **STF = 0.002 dB**

Estimated expanded uncertainty 0.005 dB

### 3, Actual Output Frequency

The determination of actual output frequency was made using a B&K 4180 microphone together with a B&K 2673 preamplifier connected to a B&K 2610 measuring amplifier. The AC output of the B&K 2610 was taken to an universal counter which was used to determine the frequency averaged over 20 second of operation as required by the standard. The actual output frequency at 1 KHz was:

At 1000 Hz **Actual Frequency = 987.5 Hz**

Estimated expanded uncertainty 0.1 Hz Coverage factor k = 2.2

### 4, Total Noise and Distortion

For the Total Noise and Distortion measurement, the unfiltered AC output of the B&K 2610 measuring amplifier was connected to an Agilent Type 8903 B distortion analyser. The TND result at 1 KHz was:

At 1000 Hz **TND = 0.4 %**

Estimated expanded uncertainty 0.7 %

The expanded uncertainties have been calculated in accordance with the ISO Publication "Guide to the expression of uncertainty in measurement", and gives an interval estimated to have a level of confidence of 95%. A coverage factor of 2 is assumed unless explicitly stated.

Calibrated by: 

Date: 03-Dec-2015

- End -

Checked by: 

Date: 04-Dec-2015

The standard(s) and equipment used in the calibration are traceable to national or international recognised standards and are calibrated on a schedule to maintain the required accuracy level.

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**APPENDIX F  
EM&A MONITORING SCHEDULES**

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**Contract No. HY/2012/06**  
**Widening of Fanling Highway – Tai Hang to Wo Hop Shek Interchange**  
**Impact Monitoring and Audit Schedule for November 2016**

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
		1-Nov	2-Nov	3-Nov	4-Nov	5-Nov
		1-hr TSP 24-hr TSP Noise		Site Audit		
6-Nov	7-Nov	8-Nov	9-Nov	10-Nov	11-Nov	12-Nov
	1-hr TSP 24-hr TSP Noise	Site Audit				1-hr TSP 24-hr TSP
13-Nov	14-Nov	15-Nov	16-Nov	17-Nov	18-Nov	19-Nov
				Site Audit	1-hr TSP 24-hr TSP Noise	
20-Nov	21-Nov	22-Nov	23-Nov	24-Nov	25-Nov	26-Nov
		Site Audit		1-hr TSP 24-hr TSP Noise		
27-Nov	28-Nov	29-Nov	30-Nov			
			1-hr TSP 24-hr TSP Noise			

**Contract No. HY/2012/06**  
**Widening of Fanling Highway – Tai Hang to Wo Hop Shek Interchange**  
**Tentative Impact Monitoring and Audit Schedule for December 2016**

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
				1-Dec	2-Dec	3-Dec
				Site Audit		
4-Dec	5-Dec	6-Dec	7-Dec	8-Dec	9-Dec	10-Dec
		1-hr TSP 24-hr TSP Noise	Site Audit			
11-Dec	12-Dec	13-Dec	14-Dec	15-Dec	16-Dec	17-Dec
	1-hr TSP 24-hr TSP Noise			Site Audit		1-hr TSP 24-hr TSP
18-Dec	19-Dec	20-Dec	21-Dec	22-Dec	23-Dec	24-Dec
		Site Audit			1-hr TSP 24-hr TSP Noise	
25-Dec	26-Dec	27-Dec	28-Dec	29-Dec	30-Dec	31-Dec
			Site Audit	1-hr TSP 24-hr TSP Noise		

The schedule is subject to change due to unforeseeable circumstances (e.g. adverse weather, etc)

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**APPENDIX G  
IMPACT AIR QUALITY MONITORING  
RESULTS AND THEIR GRAPHICAL  
PRESENTATION**

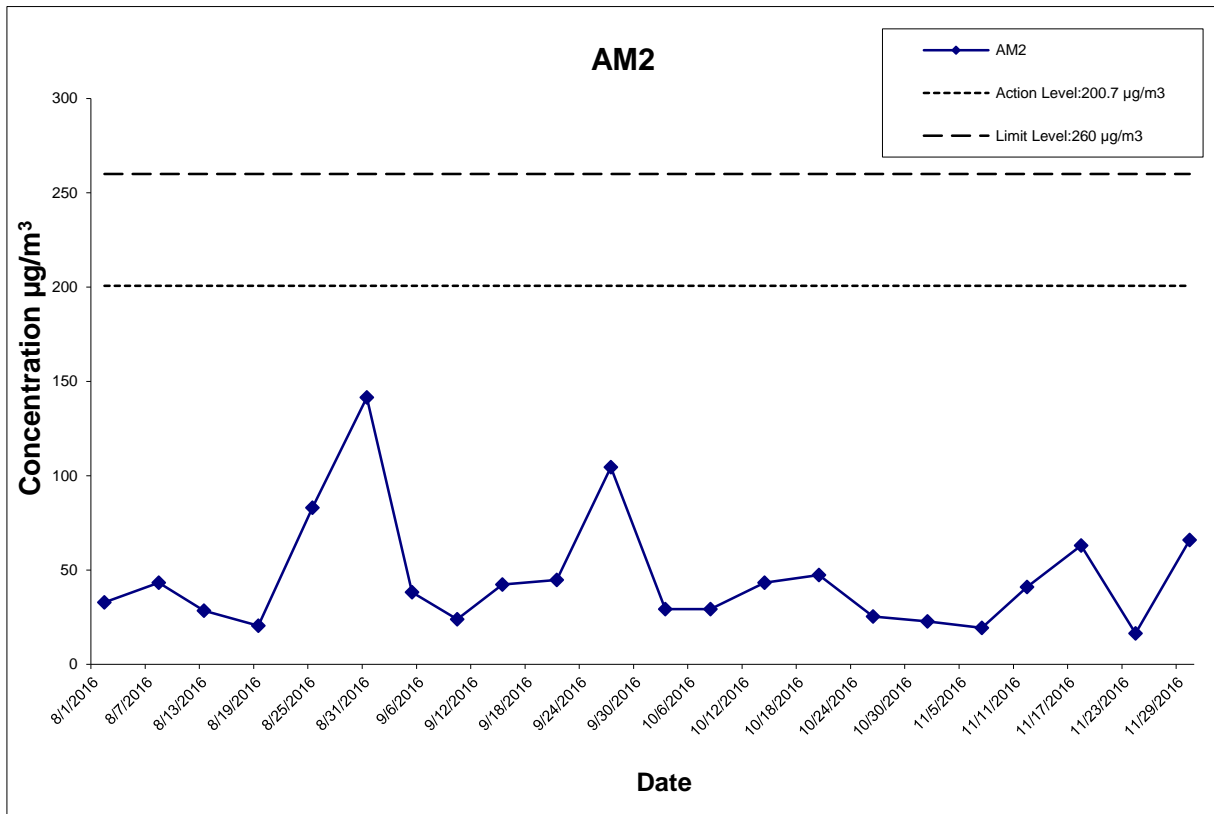
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**Appendix G**  
**Impact Air Quality Monitoring Results**

**24-hour TSP Monitoring Results at Station AM2 (Fanling Government Secondary School)**

Date	Weather Condition	Air Temp. (°C)	Atmospheric Pressure(hPa)	Flow Rate (m <sup>3</sup> /min.)		Av. flow (m <sup>3</sup> /min)	Total vol. (m <sup>3</sup> )	Filter Weight (g)		Particulate weight(g)	Elapse Time		Sampling Time(hrs.)	Conc. (µg/m <sup>3</sup> )	Action Level (µg/m <sup>3</sup> )	Limit Level (µg/m <sup>3</sup> )
				Initial	Final			Initial	Final		Initial	Final				
1-Nov-16	Cloudy	23.9	1019.7	1.314	1.314	1.314	1892.2	2.8452	2.8883	0.0431	7842.03	7866.03	24.00	22.8	200.7	260
7-Nov-16	Sunny	25.3	1016.6	1.314	1.314	1.314	1892.2	2.8396	2.8762	0.0366	7866.03	7890.03	24.00	19.3	200.7	260
12-Nov-16	Rainy	20.0	1018.8	1.314	1.314	1.314	1892.2	2.8313	2.9089	0.0776	7890.03	7914.03	24.00	41.0	200.7	260
18-Nov-16	Sunny	24.8	1014.2	1.314	1.314	1.314	1892.2	2.7963	2.9156	0.1193	7914.03	7938.03	24.00	63.0	200.7	260
24-Nov-16	Sunny	17.3	1018.6	1.314	1.314	1.314	1892.2	2.8568	2.8878	0.0310	7938.03	7962.03	24.00	16.4	200.7	260
30-Nov-16	Sunny	19.7	1022.3	1.314	1.314	1.314	1892.2	2.8376	2.9624	0.1248	7962.03	7986.03	24.00	66.0	200.7	260
													Average	38.1		
													Min	16.4		
													Max	66.0		



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CONTRACT NO. HY/2012/06  
 WIDENING OF FANLING HIGHWAY  
 - TAI HANG TO WO HOP SHEK INTERCHANGE



Graphical Presentation of Impact 24-hour TSP Monitoring Results

Project No.: 60307376

Date: Dec-16

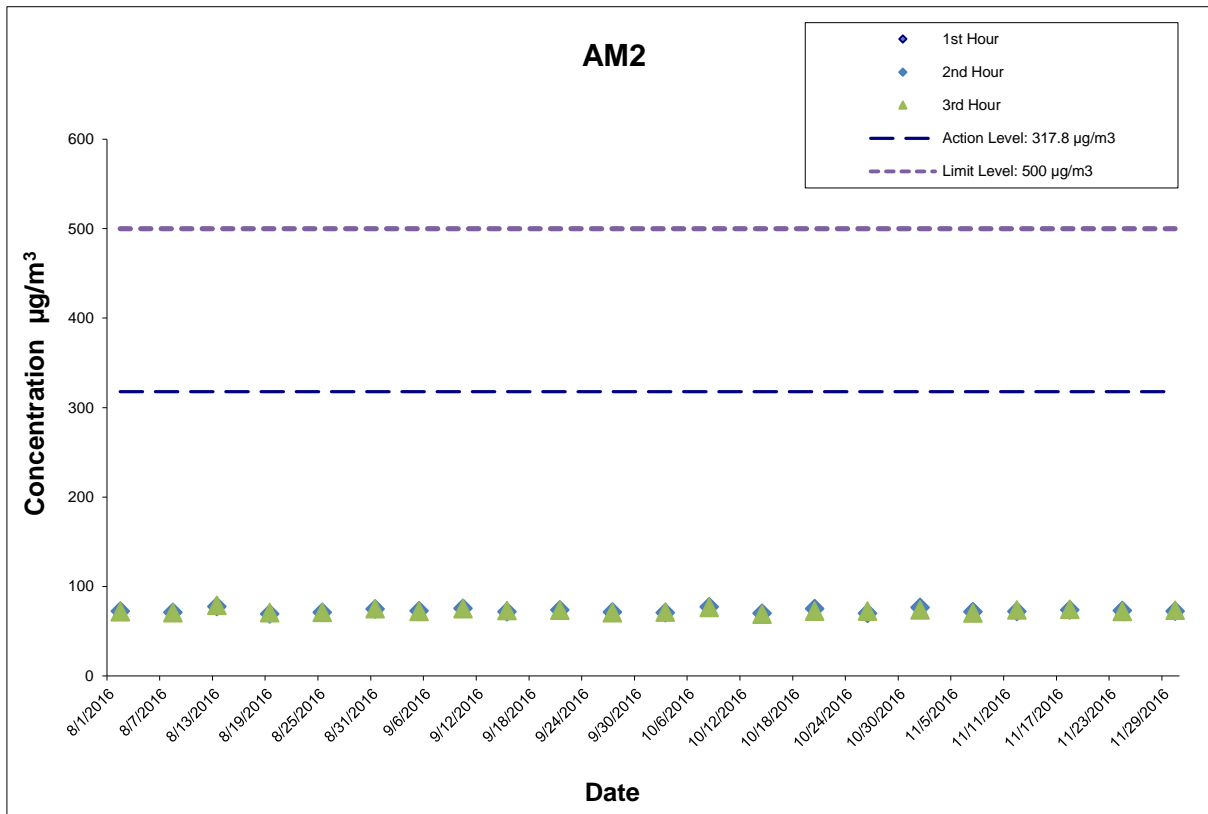
Appendix G



**Appendix G**  
**Impact Air Quality Monitoring Results**

**1-hour TSP Monitoring Results at Station AM2**  
**(Fanling Government Secondary School)**

Date	Start Time (hh:mm)	1st Hour	2nd Hour	3rd Hour
		Conc. ( $\mu\text{g}/\text{m}^3$ )	Conc. ( $\mu\text{g}/\text{m}^3$ )	Conc. ( $\mu\text{g}/\text{m}^3$ )
1-Nov-16	13:40	78.2	76.4	73.9
7-Nov-16	14:10	73.8	71.6	70.4
12-Nov-16	10:30	74.1	72.2	73.8
18-Nov-16	10:14	74.3	73.8	74.6
24-Nov-16	14:15	71.2	73.1	72.2
30-Nov-16	12:17	73.1	72.6	73.3
		Average		73.5
		Min		70.4
		Max		78.2



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CONTRACT NO. HY/2012/06  
 WIDENING OF FANLING HIGHWAY  
 - TAI HANG TO WO HOP SHEK INTERCHANGE



Graphical Presentation of Impact 1-hour TSP Monitoring Results

Project No.: 60307376

Date: Dec-16

Appendix G

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**APPENDIX H  
METEOROLOGICAL DATA FOR THE  
REPORTING MONTH**

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## Daily Extract of Meteorological Observations , November 2016 - Tai Po

Year  Month  

Day	Mean Pressure (hPa)	Air Temperature			Mean Dew Point (deg. C)	Mean Relative Humidity (%)	Total Rainfall (mm)	Prevailing Wind Direction (degrees)	Mean Wind Speed (km/h)
		Absolute Daily Max (deg. C)	Mean (deg. C)	Absolute Daily Min (deg. C)					
01	1019.7	24.8#	22.8	21.0#	17.8	74	***	***	***
02	1020.3	24.4#	21.7	19.7#	16.2	71	***	***	***
03	1019.2	23.5#	20.5	18.1#	14.7	70	***	***	***
04	1015.0	25.4#	20.7	16.6#	16.2	76	***	***	***
05	1012.7	25.6	22.1	18.8	19.5	85	***	***	***
06	1014.8	26.4	22.8	19.7	20.2	86	***	***	***
07	1016.3	27.3#	24.3	21.2#	21.8	86	***	***	***
08	1017.3	28.2#	24.4	21.0#	20.6	80	***	***	***
09	1019.7	20.9	19.0	17.0	16.2	84	***	***	***
10	1020.7	17.1	15.3	14.1	13.4	88	***	***	***
11	1019.0	20.6#	17.5	14.3#	14.9	84	***	***	***
12	1017.7	25.4#	22.9	20.2#	20.4	86	***	***	***
13	1016.7	27.2	24.5	22.8	22.1	87	***	***	***
14	1015.1	29.2#	25.1	21.9#	22.6	87	***	***	***
15	1015.5	29.2#	25.3	21.4#	22.0	83	***	***	***
16	1016.9	26.0	24.3	22.4	21.4	84	***	***	***
17	1016.3	27.3	24.5	22.5	20.9	81	***	***	***
18	1014.0	25.8	24.0	22.1	21.9	88	***	***	***
19	1012.8	26.2#	25.0	23.3#	22.0	84	***	***	***
20	1012.5	26.3	25.2	24.2	21.6	81	***	***	***
21	1012.6	24.9	24.3	23.3	21.9	86	***	***	***
22	1013.2	24.1#	22.2	21.1#	22.0	99	***	***	***
23	1016.3	21.3	19.5	14.6	19.0	97	***	***	***
24	1019.1	18.9	15.5	12.8	11.4	77	***	***	***
25	1016.7	20.5#	17.4	13.8#	14.4	83	***	***	***
26	1016.7	18.1	14.7	11.0	13.7	94	***	***	***
27	1017.3	18.6	14.5	10.7	11.7	84	***	***	***
28	1021.3	19.9	16.7	13.8	11.2	70	***	***	***
29	1022.7	19.0#	17.3	16.3#	12.1	71	***	***	***
30	1022.5	22.2	18.4	15.0	12.6	70	***	***	***

\*\*\* unavailable

# data incomplete

Rainfall measured in increment of 0.5 mm. Amount of &lt; 0.5 mm cannot be detected

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## Daily Extract of Meteorological Observations , November 2016 - Tai Mei Tuk

Year  Month  

Day	Mean Pressure (hPa)	Air Temperature			Mean Dew Point (deg. C)	Mean Relative Humidity (%)	Total Rainfall (mm)	Prevailing Wind Direction (degrees)	Mean Wind Speed (km/h)
		Absolute Daily Max (deg. C)	Mean (deg. C)	Absolute Daily Min (deg. C)					
01	***	24.2#	22.7	21.0#	***	***	0.0	040	14.3
02	***	24.9	21.7	19.5	***	***	0.0	050	16.7
03	***	23.9	20.4	18.5	***	***	0.0	050	13.0
04	***	26.1	21.3	17.4	***	***	0.0	280	4.5
05	***	26.7	22.6	19.8	***	***	0.0	280	5.0
06	***	26.4	23.1	20.9	***	***	0.0	070	8.2
07	***	27.0	24.1	22.0	***	***	0.0	060	10.8
08	***	28.6	24.0	19.0	***	***	0.0	050	13.2
09	***	20.4	19.0	17.1	***	***	1.0	050	11.9
10	***	17.2	15.7	13.9	***	***	6.0	060	7.1
11	***	21.2	18.0	14.9	***	***	0.5	260	5.5
12	***	25.4	22.8	20.5	***	***	0.0	050	11.0
13	***	26.7#	24.1	22.6#	***	***	0.0	060	9.9
14	***	30.2	25.1	22.3	***	***	0.0	060	4.1
15	***	29.9	25.0	22.4	***	***	0.0	090	11.3
16	***	26.2#	24.0	22.3#	***	***	0.0	100	18.3
17	***	26.9	24.0	22.0	***	***	0.0	060	12.9
18	***	26.4	23.7	22.0	***	***	1.0	060	10.3
19	***	25.5	24.5	23.4	***	***	2.5	060	11.0
20	***	26.0	24.9	24.1	***	***	0.0	100	18.2
21	***	24.8	23.8	23.2	***	***	0.5	090	15.9
22	***	23.5#	22.5#	22.0#	***	***	4.0#	060#	13.9#
23	***	***	***	***	***	***	***	***	***
24	***	***	***	***	***	***	***	***	***
25	***	***	***	***	***	***	***	***	***
26	***	***	***	***	***	***	***	***	***
27	***	***	***	***	***	***	***	***	***
28	***	19.0#	17.8#	16.9#	***	***	0.0#	020#	11.5#
29	***	20.5#	18.1	16.9#	***	***	0.0	040	10.8
30	***	21.4#	18.9	16.7#	***	***	0.0	040	16.8

\*\*\* unavailable

# data incomplete

Rainfall measured in increment of 0.5 mm. Amount of &lt; 0.5 mm cannot be detected

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**APPENDIX I  
IMPACT DAYTIME CONSTRUCTION NOISE  
MONITORING RESULTS AND THEIR  
GRAPHICAL PRESENTATION**

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## Appendix I Impact Daytime Construction Noise Monitoring Results

### Location : M2 (West Tai Wo - Free Field)

Day time 07:00-19:00 hrs Normal Weekdays Impact Noise Monitoring Results

Date	Measured Noise Level for 30-min, dB(A)				Limit Level, dB(A)	Exceedance (Y/N)
	Start Time	Leq*	L10*	L90*		
1-Nov-16	14:18	63.6	67.2	58.6	75	N
7-Nov-16	14:10	69.2	73.1	65.6	75	N
18-Nov-16	11:02	69.2	70.5	65.5	75	N
24-Nov-16	15:10	70.1	73.2	66.5	75	N
30-Nov-16	13:30	69.4	71.0	66.0	75	N
	Min	63.6	67.2	58.6		
	Max	70.1	73.2	66.5		
	Average	68.4	70.9	64.7		

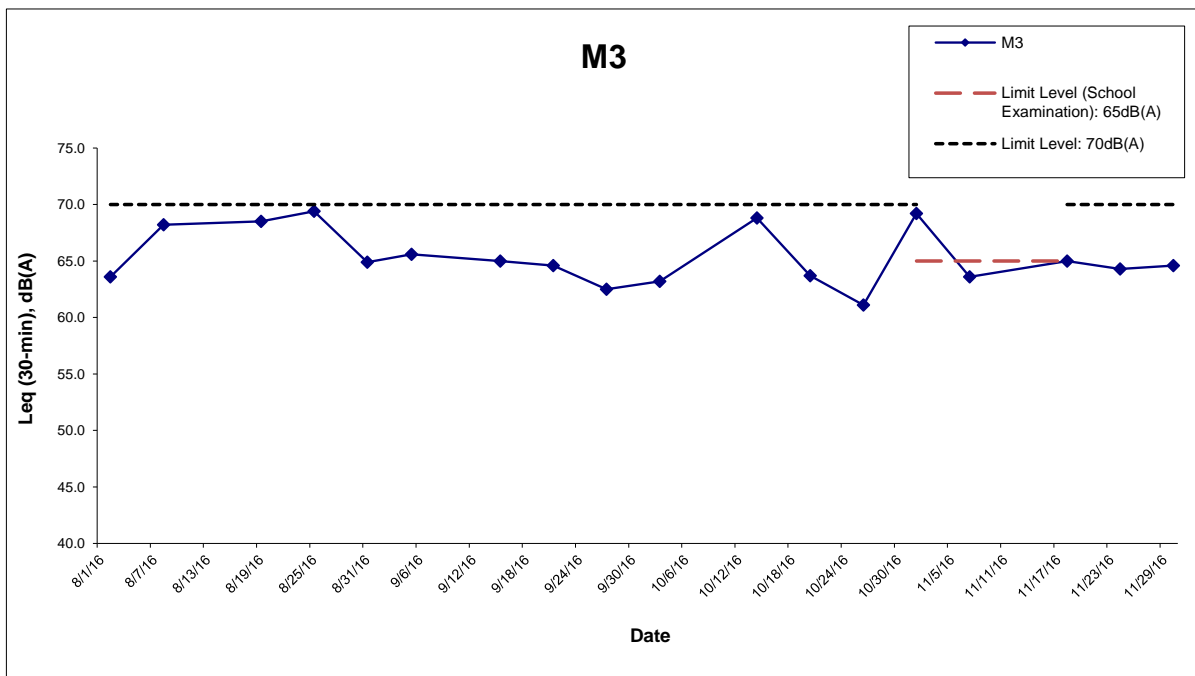
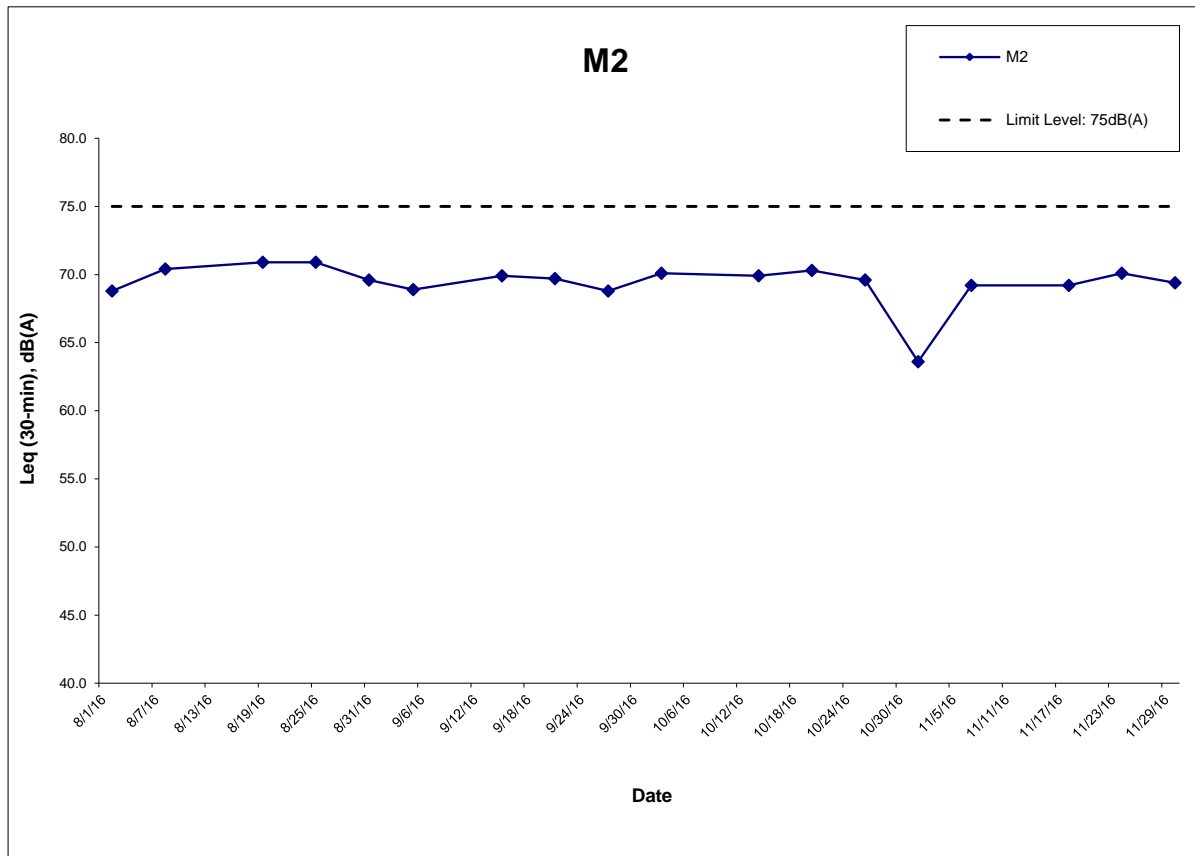
### Location : M3 (Fanling Government Secondary School- Façade)

Day time 07:00-19:00 hrs Normal Weekdays Impact Noise Monitoring Results

Date	Measured Noise Level for 30-min, dB(A)				Limit Level, dB(A)^	Exceedance (Y/N)
	Start Time	Leq	L10	L90		
1-Nov-16	13:29	69.2	71.8	66.8	70	N
7-Nov-16	13:18	63.6	67.3	59.2	65	N
18-Nov-16	10:14	65.0	66.5	61.5	70	N
24-Nov-16	14:15	64.3	67.8	60.2	70	N
30-Nov-16	14:12	64.6	66.0	61.0	70	N
	Min	63.6	66.0	59.2		
	Max	69.2	71.8	66.8		
	Average	66.2	68.6	63.2		

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

^ Limit Level of 70dB(A) applies to education institutes while 65dB(A) applies during school examination period.



Remark:

^ Limit Level of 70dB(A) applies to education institutes while 65dB(A) applies during school examination period.

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CONTRACT NO. HY/2012/06  
 WIDENING OF FANLING HIGHWAY  
 - TAI HANG TO WO HOP SHEK INTERCHANGE

Graphical Presentation of Impact Daytime Construction Noise  
 Monitoring Results



Project No.: 60307376      Date: Dec-16

Appendix I



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**APPENDIX J  
EVENT ACTION PLAN**

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## Appendix J – Event Action Plan

### Event / Action Plan for Air Quality

Event	Action			
	ET Leader	IEC	ER	Contractor
<b>Action Level</b>				
Exceedance for one sample	<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>
Exceedance for two or more consecutive samples	<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 Plan for Air Quality

Event Action Level	Action			
	ET Leader	IEC	ER	Contractor
<b>Limit Level</b>				
Exceedance for one sample	<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>
Exceedance for two or more consecutive samples	<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 / Action Plan for Noise Impact

Event Limit Level	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>

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**APPENDIX K  
SITE INSPECTION SUMMARIES**

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**Site Inspection Summary**

*Inspection Information*

Contract No.	HY/2012/06
Date:	3 November 2016
Time:	14:00
Inspection No.:	155

*Non-compliance*

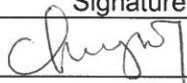
Nil
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*Observations*

	<p><u>Follow-up Observation(s)</u></p> <ol style="list-style-type: none"> <li>Sandy materials deposited near the existing drainage system at SA328 was cleared. (Closed)</li> <li>Drip tray was provided to the chemical container without secondary containment at SA325. (Closed)</li> </ol> <p><u>New Observation(s)</u></p> <ol style="list-style-type: none"> <li>Construction wastes were found scattered on the ground at NB63 and NB57. The Contractor should set up designated areas for temporary storage of construction wastes to maintain the site clean and tidy, and re-use them where possible.</li> <li>Chemical container without secondary containment was found at NB54A. The Contractor should keep chemical containers in designated storage areas, provide drip trays to prevent potential leakage, and dispose of chemical containers that are no longer in use promptly.</li> <li>Mud trail was observed at SA328. The Contractor should provide wheel washing facilities at the vehicle exit point and clean up the mud trails for dust suppression.</li> </ol> <p><u>Reminder (s)</u></p> <p>Nil.</p>
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*Remarks*

Nil
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	Name	Signature	Date
Prepared by	Candy Chung		3 November 2016
Checked by	Y W Fung	/	3 November 2016

**Site Inspection Summary**

*Inspection Information*

Contract No.	HY/2012/06
Date:	8 November 2016
Time:	14:00
Inspection No.:	156

*Non-compliance*

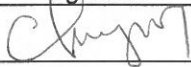
Nil
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*Observations*

	<p><u>Follow-up Observation(s)</u></p> <ol style="list-style-type: none"> <li>1. Construction wastes scattered on the ground at NB57 were removed, and a designated area for storage of construction wastes was provided at NB63 to maintain the site clean and tidy. (Closed)</li> <li>2. The chemical container without secondary containment at NB54A was removed. (Closed)</li> <li>3. The vehicle exit point with mud trail at SA328 was no longer in use; a new site entrance was used and was maintained in a clean condition. (Closed)</li> </ol> <p><u>New Observation(s)</u></p> <ol style="list-style-type: none"> <li>4. Retained water was found in the drip tray of a generator at SA326. The Contractor should remove the water to prevent mosquito breeding.</li> <li>5. Retained water was found in a skip at SA326. The Contractor should remove the water to prevent mosquito breeding.</li> </ol> <p><u>Reminder (s)</u></p> <p>Nil.</p>
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*Remarks*

Nil
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	Name	Signature	Date
Prepared by	Candy Chung		8 November 2016
Checked by	Y W Fung	/	8 November 2016

**Site Inspection Summary**

*Inspection Information*

Contract No.	HY/2012/06
Date:	17 November 2016
Time:	14:00
Inspection No.:	157

*Non-compliance*

Nil
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*Observations*

	<p><u>Follow-up Observation(s)</u></p> <ol style="list-style-type: none"> <li>1. Retained water found in the drip tray of generator at SA346 was removed. (Closed)</li> <li>2. Retained water found in the skip at SA326 was removed. (Closed)</li> </ol> <p><u>New Observation(s)</u></p> <ol style="list-style-type: none"> <li>3. General refuse was found scattered on the ground at SA329. The contractor should remove the wastes to keep the site clean and tidy.</li> <li>4. Debris was found in drainage at SA329. The contractor should remove the materials to ensure flow of water without obstruction.</li> <li>5. Exposed stockpiles were found at SA328. The contractor should remove or cover the dusty materials to avoid windblown dust emission.</li> </ol> <p><u>Reminder (s)</u></p> <p>Nil.</p>
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*Remarks*

Nil
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	Name	Signature	Date
Prepared by	Candy Chung		17 November 2016
Checked by	Y W Fung	/	17 November 2016



**Site Inspection Summary**

*Inspection Information*

Contract No.	HY/2012/06
Date:	22 November 2016
Time:	14:00
Inspection No.:	158

*Non-compliance*

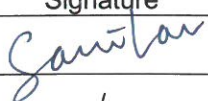
Nil
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*Observations*

	<p><u>Follow-up Observation(s)</u></p> <ol style="list-style-type: none"> <li>General refuse found at SA329 was removed. (Closed)</li> <li>Debris found in drainage at SA329 was removed and a PVC pipe was installed to prevent construction material falling into the drainage. (Closed)</li> <li>Exposed stockpiles at SA328 were covered entirely by impervious sheeting. (Closed)</li> </ol> <p><u>New Observation(s)</u></p> <ol style="list-style-type: none"> <li>Surface runoff of muddy water was observed at SA342. The Contractor should remove the muddy water.</li> <li>Construction wastes were found scattered at SA340 and SA342. The Contractor should clean up the wastes and maintain the site clean and tidy.</li> <li>Construction materials were found inside the fenced area of retained trees at SA340. The Contractor should remove the construction materials near trees for maximum protection.</li> </ol> <p><u>Reminder (s)</u></p> <p>Nil.</p>
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*Remarks*

Nil
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	Name	Signature	Date
Prepared by	Sammi Lam		22 November 2016
Checked by	Y W Fung	/	22 November 2016

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**APPENDIX L  
STATISTICS ON COMPLAINTS,  
NOTIFICATION OF SUMMONS AND  
SUCCESSFUL PROSECUTIONS**

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## Appendix L

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

	<b>Date Received</b>	<b>Subject</b>	<b>Status</b>	<b>Total no. followed up by the ET this month</b>	<b>Total no. followed up by the ET since project commencement</b>
<b>Environmental complaints</b>	19 December 2013	EPD referred a complaint from Lot no. 116 of Fui Sha Wai at Tai Hang of Tai Po which is concerned about the construction noise and diesel-like smell generated from construction activities nearby which caused nuisance and health problems on 19 December 2013 morning.	Closed	0	5
	24 February 2014	EPD referred an air-and-odour complaint on 24 February 2014. The complainant complained about the construction site located near the bus stop in Fui Sha Wai, Tai Hang, Tai Wo Service Road West. When construction works were carried out, odour, white smoke and dust were generated. The complainant asked for follow-up actions.	Closed		

<b>Date Received</b>	<b>Subject</b>	<b>Status</b>	<b>Total no. followed up by the ET this month</b>	<b>Total no. followed up by the ET since project commencement</b>
23 October 2014	<p>EPD referred an air complaint on 24 October 2014.</p> <p>A resident complained against the excavation works of Tai Wo Service Road West between Nam Wah Po &amp; Tai Hang Tsuen, which have piled up high stockpiles, causing serious dust nuisance to his house.</p> <p>The resident also complained that the stockpiles have not been covered and watered properly. He now requires the EPD to follow up. The location of complaint is near Lamppost Location EB5717.</p>	Closed		
31 December 2014	<p>EPD referred a water complaint on 31 December 2014.</p> <p>The complainant complained about the muddy river outside Tai Hang Village Office on 29 December 2014. It was suspected that the muddy water was discharged from the construction works of the Project. He required the EPD to follow up.</p>	Closed		

	<b>Date Received</b>	<b>Subject</b>	<b>Status</b>	<b>Total no. followed up by the ET this month</b>	<b>Total no. followed up by the ET since project commencement</b>
	25 March 2015	<p>EPD referred a water complaint on 25 March 2015.</p> <p>The complainant complained about the generation of the smell of gasoline from the Widening of Fanling Highway construction site on Tai Wo Service Road West, causing serious nuisance to nearby houses.</p> <p>The situation has continued for a few weeks and she asked the EPD to follow up as soon as possible.</p>	Closed		
<b>Notification of summons</b>	-	-	-	0	0
<b>Successful Prosecutions</b>	-	-	-	0	0