AECOM

Environmental Protection Department

Contract No. HY/2012/06

Widening of Fanling Highway – Tai Hang to Wo Hop Shek Interchange

Monthly EM&A Report For May 2016

[6/2016]

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15 June 2016
By Fax (2805 5028) & Hand

Attn: Mr. James Penny

Dear Sir,

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 –May 2016 for the portion of Stage 2 works under Contract No. HY/2012/06

We refer to the revised Monthly EM&A Report – May 2016 received on 15 June 2016 submitted by the Environmental Team via email. Pursuant to Environmental Permit Condition 3.3, I hereby verify the Monthly EM&A Report – May 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 – Mr. Chung Lok Chin (Fax: 2714 5198)
AECOM – Mr. Y W Fung (Fax: 2891 0305)

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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 31 May 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-first 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 May 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
ER (Hyder-Arup-Black & Veatch Joint Venture)	Chief Resident Engineer	Edwin Chung	6115 0818	2638 0950
IEC (Mott MacDonald Hong Kong Limited)	Independent Environmental Checker	Steven Tang	2828 5920	2827 1823
Contractor (China State Construction Engineering (Hong Kong) Limited)	Environmental Officer	Michael Tsang	9277 4956	2672 2501
		C C Chow	9679 6315	2672 2501
ET (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 ±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 ±3 °C; the relative humidity (RH) was < 50% and not variable by more than ±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^3/min, and complied with the range specified in the updated EM&A Manual (i.e. 0.6-1.7 m^3/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 May 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 ($\mu g/m^3$)	Range ($\mu g/m^3$)	Action Level ($\mu g/m^3$)	Limit Level ($\mu g/m^3$)
AM2 (Fanling Government Secondary School)	72.5	67.1 – 79.6	317.8	500

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

Location	Average ($\mu g/m^3$)	Range ($\mu g/m^3$)	Action Level ($\mu g/m^3$)	Limit Level ($\mu g/m^3$)
AM2 (Fanling Government Secondary School)	30.7	17.1 – 46.1	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 May 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

	Average, dB(A), $L_{eq\ (30\ mins)}$	**Range, dB(A), $L_{eq\ (30\ mins)}$**	**Limit Level, dB(A), $L_{eq\ (30\ mins)}$**
M2*	70.2	68.8 – 71.8	75
M3#	63.7	60.6 – 65.3	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, 5 site inspections were carried out respectively on 3, 10, 19, 24 and 31 May 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 No adverse observation was identified in the reporting period.

Noise

4.1.5 No adverse observation was identified in the reporting period.

Water Quality

4.1.6 Mud trail was observed at NB42A. The contractor should remove the mud trail properly.

4.1.7 Mud trail was observed on public road at SA325. The contractor should clean up the mud trail properly.

4.1.8 Slurry and mud trail was observed near gully drain at site entrance of SA329. The contractor should clean up the slurry and mud trail properly.

Chemical and Waste Management

4.1.9 Refuse was found accumulated on ground at SA328. The contractor should remove the refuse properly and keep the site in a tidy and clean condition.

4.1.10 An oil drum without drip tray was observed onsite at NB58. The contractor should provide drip tray to the oil drum properly.

4.1.11 Oil stains were observed on ground at SA328. The contractor should remove the oil stains properly and provide sufficient measures to prevent oil leakage.

Landscape and Visual Impact

4.1.12 No adverse observation was identified in the reporting period.

Miscellaneous

4.1.13 Accumulated stagnant water was observed at SA340. The contractor should remove the stagnant water properly 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, 2,104 m^3 of inert C&D material was disposed of as public fill to Tuen Mun 38 (of which 0 m^3 was broken concrete), while 60 m^3 of general refuse was disposed of at NENT landfill. 66 kg of paper/cardboard packaging, 654 kg of plastics and 21,346 kg of metals were collected by recycling contractors in the reporting period. 734 m^3 of inert C&D materials was reused on site. 1,106 m^3 of inert C&D materials was reused in other projects. 264 m^3 of inert C&D materials was disposed of as public fill at NENT. 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	2,104 m^3 (of which 0 m^3 was broken concrete)	Tuen Mun 38
General refuse	60 m^3	NENT Landfill
Paper/cardboard packaging	66 kg	Recycling Contractors
Plastics	654 kg	Recycling Contractors
Metals	21,346 kg	Recycling Contractors
C&D materials reused on site	734 m^3	Site Area
C&D materials reused in other projects	1,106 m^3	Other projects
C&D materials reused in NENT for backfilling	264 m^3	NENT Landfill
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-RN0861-15	18/12/2015	03/06/2016	CSHK	Zone 4 Installation of watermain near Caltex Petrol Station
		GW-RN0055-16	29/01/2016	30/06/2016	CSHK	Zone 4 Drainage Inspection at Fanling Highway between CH23.7 and CH24.2
		GW-RN0091-16	20/02/2016	26/07/2016	CSHK	Zone2 Installation of Precast Beam (South Bound)
		GW-RN0134-16	06/03/2016	17/7/2016	CSHK	Zone 1 & 2 Installation of Noise Barrier near Tai Hang (South Bound)
		GW-RN0138-16	06/03/2016	31/07/2016	CSHK	Zone 2 Concreting for Noise Barrier Footings (South Bound)
		GW-RN0180-16	22/03/2016	13/08/2016	CSHK	Zone 2 Concreting on Deck 2A of KLHVB (North Bound)
		GW-RN0183-16	18/03/2016	13/08/2016	CSHK	Zone 2 Concreting on Deck 2B of KLHVB (South Bound)
		GW-RN0312-16	08/05/2016	18/09/2016	CSHK	Zone 4 Installation of Prefabricated Bridge Sement near Wo Hop Shek (North Bound)
		GW-RN0344-16	22/05/2016	31/07/2016	CSHK	Zone 2B Erection of meatal scaffold at P4 of KLHVH (North Bound)
		GW-RN0368-16	29/05/2016	23/10/2016	CSHK	Zone 4 Installation of Noise Barrier on Sunday

Statutory Reference	License/ Permit	License or Permit No.	Valid Period		License / Permit Holder	Remarks
			From	To		
						(North Bound)
		GW-RN0382-16	27/05/2016	03/11/2016	CSHK	Zone 4 Installation of Noise Barrier on Weekdays (North Bound)

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 June 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

5.2 Key Issues for the Coming Month

5.2.1 Key issues to be considered in June 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 June 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 5 environmental site inspections were carried out in May 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
- No adverse observation was identified in the reporting period.

Noise Impact
- No adverse observation was identified in the reporting period.

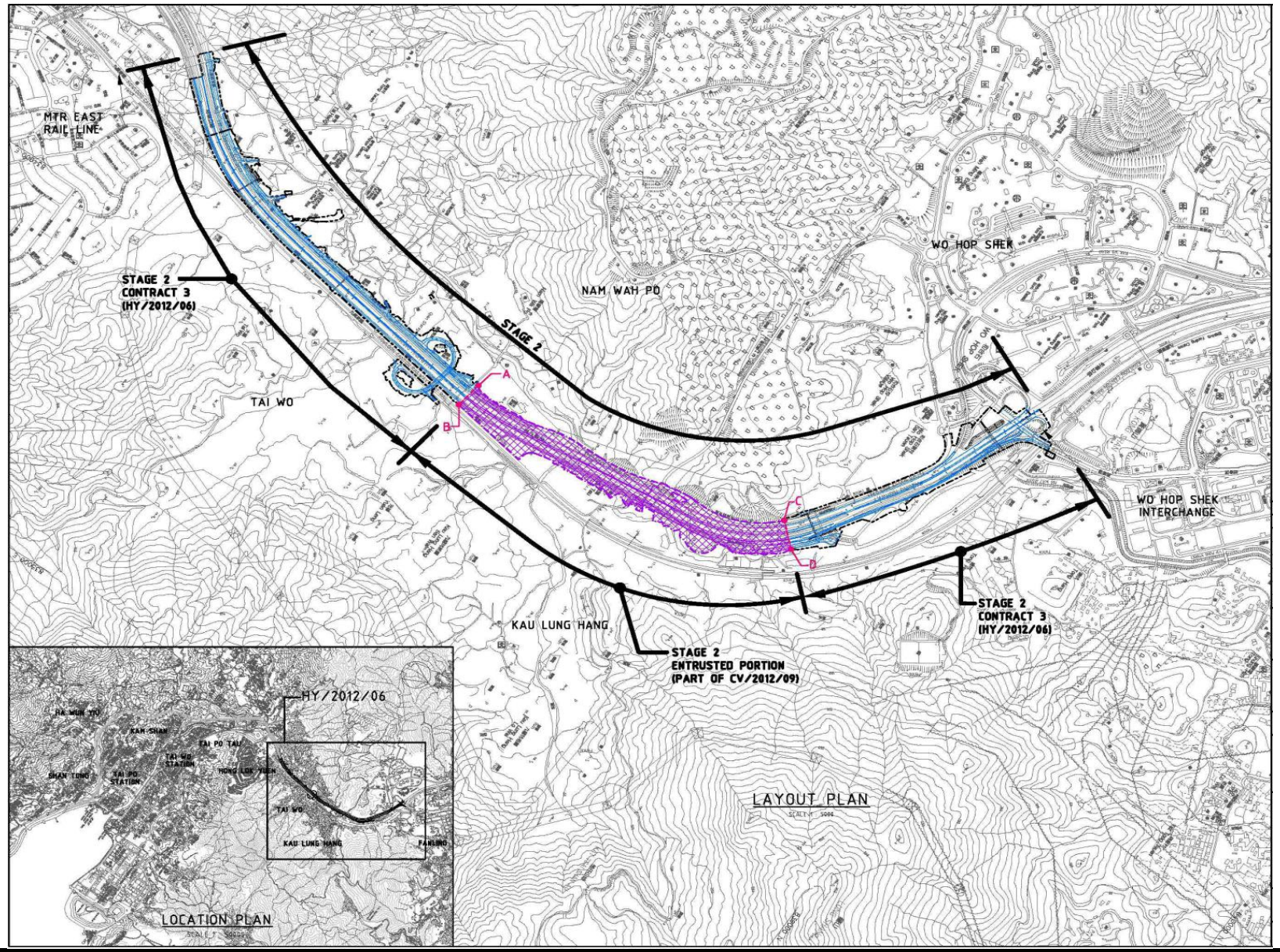
Water Quality Impact
- The Contractor should clear the mud trail and provide effective wheel washing facilities.

Chemical and Waste Management
- The Contractor should improve the site tidiness.
- The Contractor should provide drip tray to oil/chemical containers.
- The Contractor should remove the oil stains and prevent oil leakage.

Landscape and Visual Impact
- No adverse observation was identified in the reporting period.

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

FIGURES



	EASTING	NORTHING
A	833867.6259	837386.5638
B	833945.6833	837375.1412
C	833721.8117	838310.5250
D	833782.3083	838375.1303

CONTRACT NO. HY/2012/06

WIDENING OF FANLING HIGHWAY

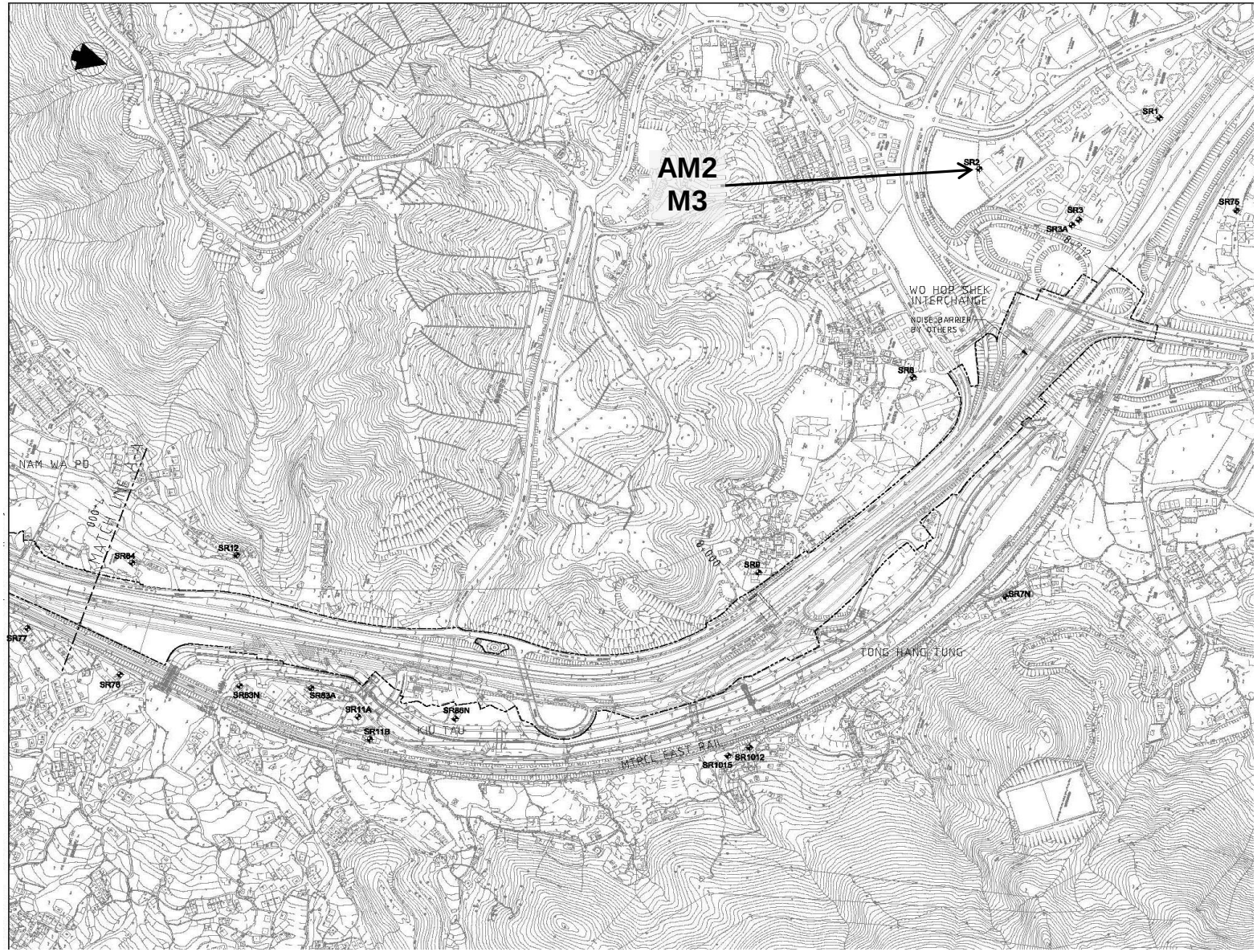
- TAI HANG TO WO HOP SHEK INTERCHANGE

AECOM

Layout Plan

Date: Dec 2013

Figure 1.1



CONTRACT NO. HY/2012/06

WIDENING OF FANLING HIGHWAY

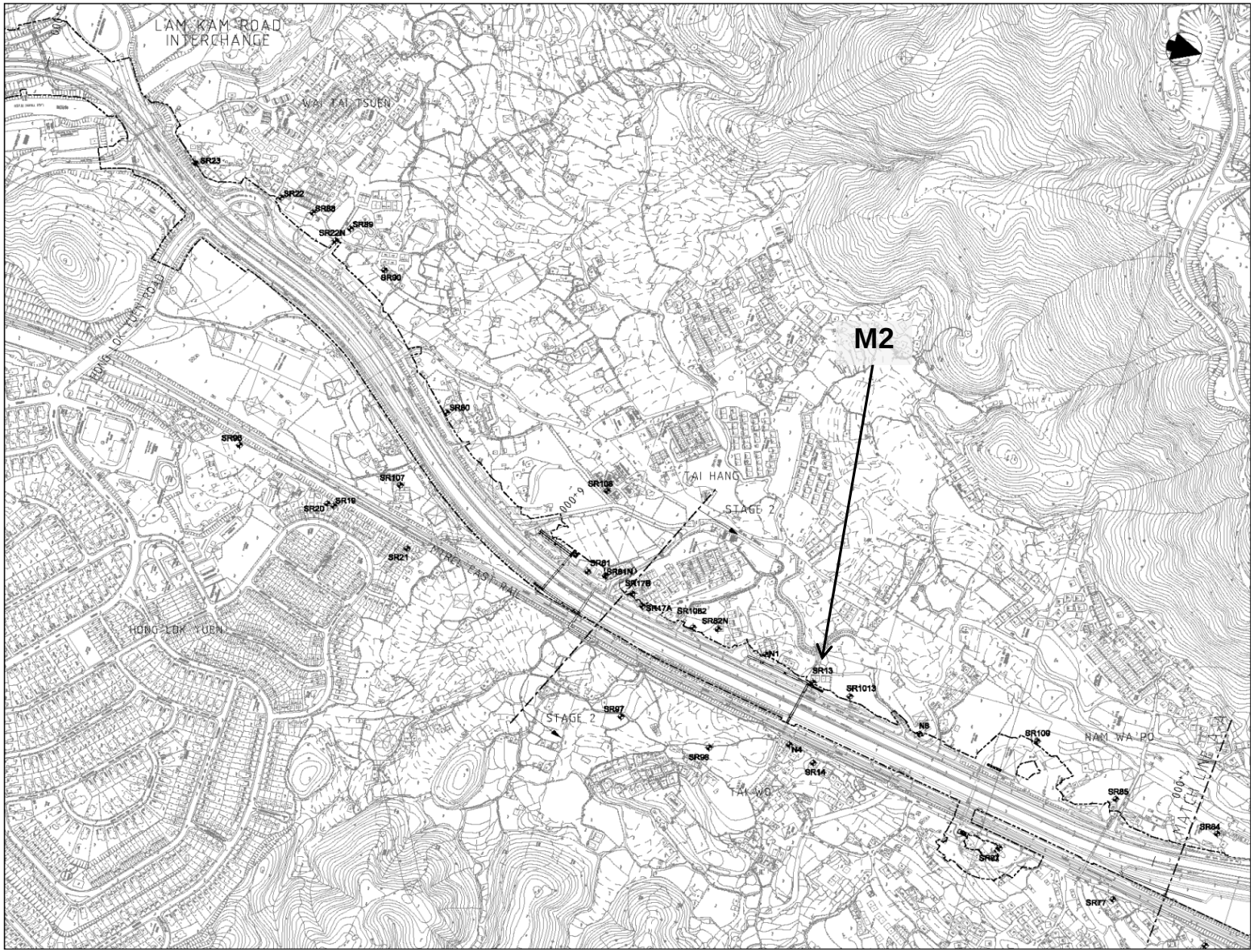
- TAI HANG TO WO HOP SHEK INTERCHANGE

AECOM

Locations of Monitoring Station

Date: Dec 2013

Figure 1.2a



CONTRACT NO. HY/2012/06

WIDENING OF FANLING HIGHWAY

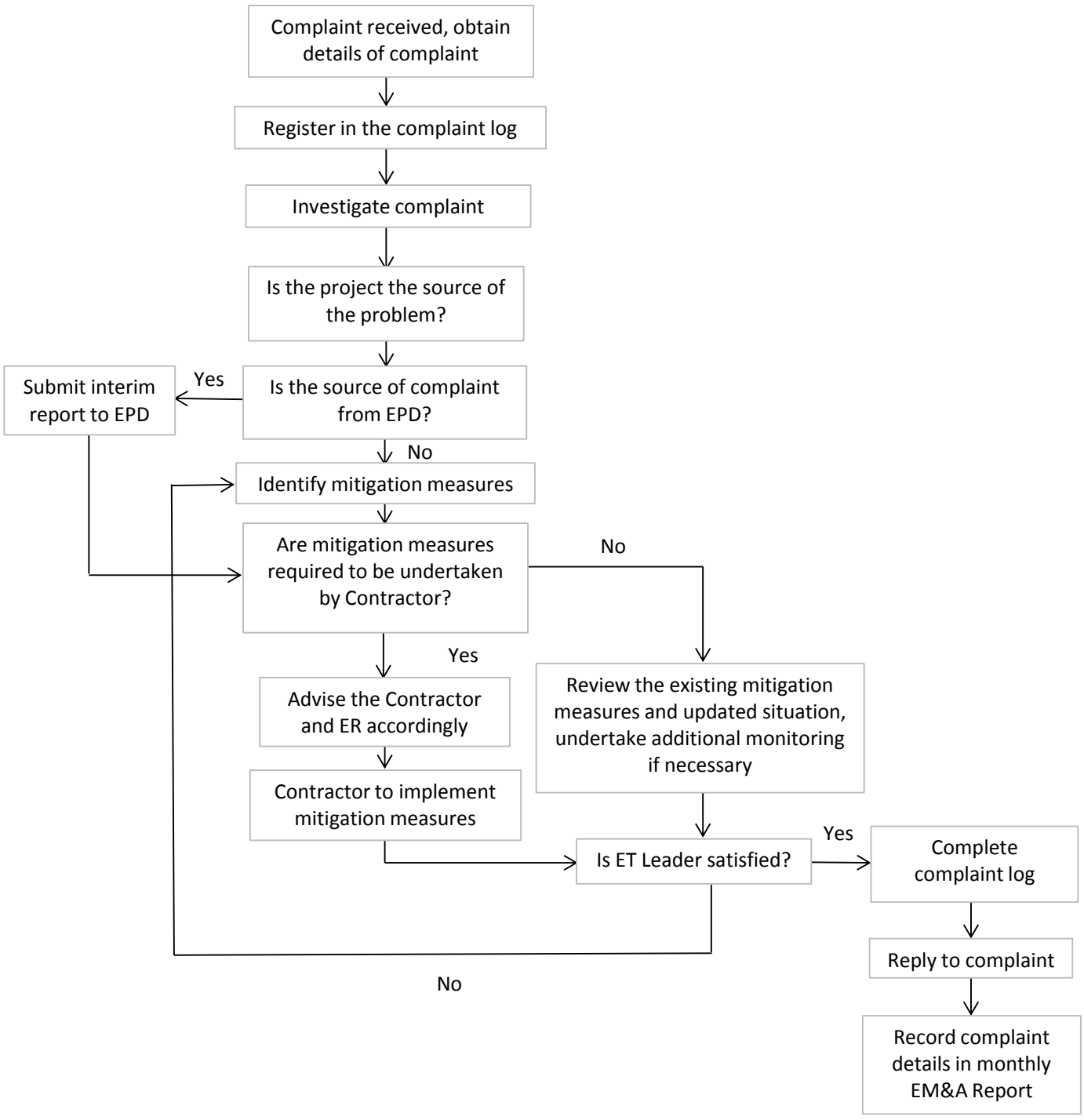
- TAI HANG TO WO HOP SHEK INTERCHANGE

AECOM

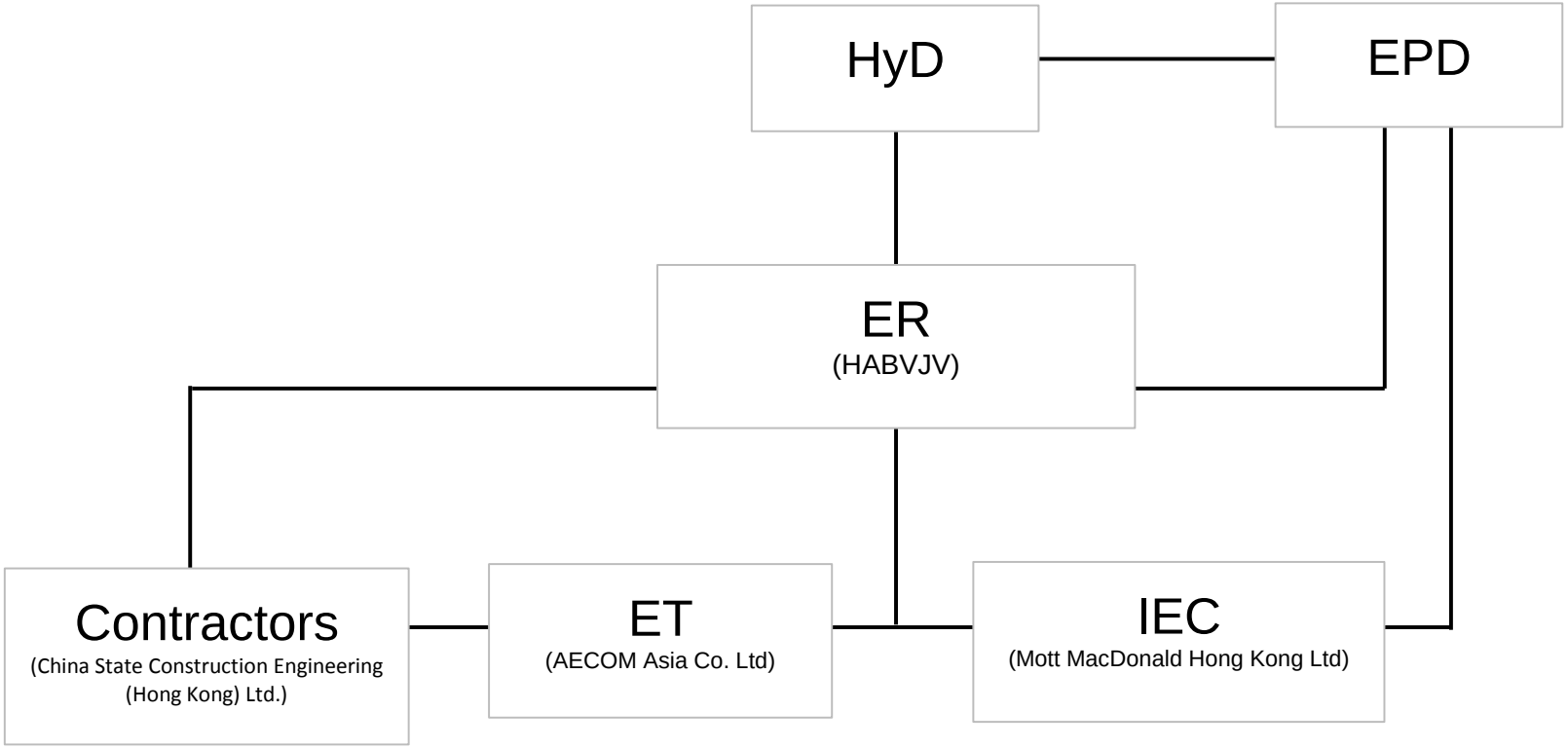
Locations of Monitoring Station

Date: Dec 2013

Figure 1.2b



APPENDIX A
PROJECT ORGANIZATION STRUCTURE



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

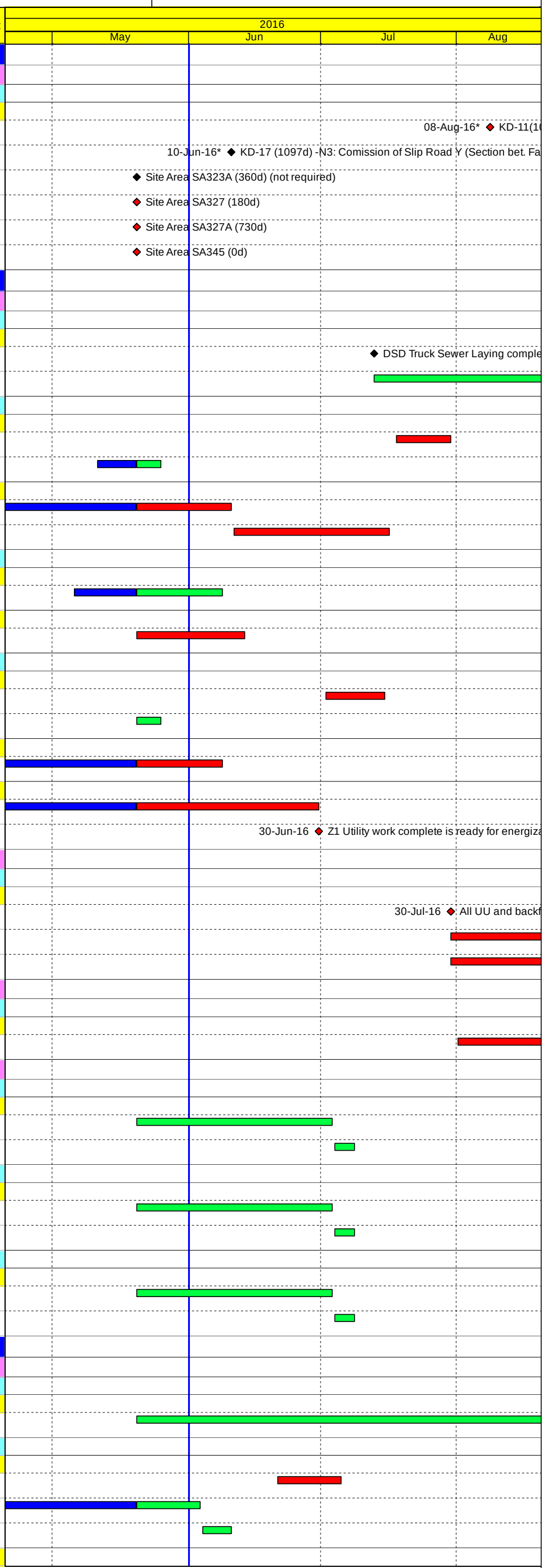
AECOM

Project Organization Structure

Project No.: 60307376 **Date: Dec 2013** **Appendix A**

APPENDIX B
CONSTRUCTION PROGRAMMES

Activity ID	Activity Name	Dur. % Complete	Rem. Duration	Original Duration	Start	Finish	Total Float
Contract Condition							
General							
Contract Condition							
Contract Condition							
KD11	KD-11(1061d)- S1:Achievement: Kau Lung Hang Veh. Bridge &	0%	0	0		08-Aug-16	0
KD17	KD-17 (1097d) -N3: Comission of Slip Road Y (Section bet. Fanling	0%	0	0		10-Jun-16*	39
POSSA323A	Site Area SA323A (360d) (not required)	0%	0	0	20-May-16		1511
POSSA327	Site Area SA327 (180d)	0%	0	0	20-May-16*		-505
POSSA327A	Site Area SA327A (730d)	0%	0	0	20-May-16*		-307
POSSA345	Site Area SA345 (0d)	0%	0	0	20-May-16*		-172
ZONE 1 (Ch. 5640 to 5880)							
Noise Barrier Along TWSR-West and Laying New Utilities							
DSD Southern Trunk Sewer, Water Main, Fire Main Works							
DSD Southern Trunk Sewer, Water Main Fire Main Works							
DSD0090	DSD Truck Sewer Laying complete	0%	0	0	13-Jul-16		19
DSD0100	DSD Trunk Sewer Laying - overall testing (Zone 1 & Zone 2)	0%	45	45	13-Jul-16	02-Sep-16	19
NB42 (Ch.5640-5740)-TWSR West Side							
Noise Barrier Works							
NB00115	NB42 (Ch5640-5740) - Backfilling	0%	12	12	18-Jul-16	30-Jul-16	2
NB00130	NB42 (Ch5640-5740) - NB post & panel installation	0%	5	5	11-May-16 A	25-May-16	887
DSD Southern Trunk Sewer, Water Main Fire Main Works							
TSZ10130	Watermain installation (along NB42)	55%	18	40	21-Mar-16 A	10-Jun-16	2
TSZ10140	Firemain installation (along NB42)	0%	30	30	11-Jun-16	16-Jul-16	2
NB42A (Ch.5750-5810)-TWSR West Side							
Noise Barrier Works							
NB00210	NB42A (Ch5750-5810) - NB post & panel installation	0%	17	5	06-May-16 A	08-Jun-16	875
DSD Southern Trunk Sewer, Water Main Fire Main Works							
TSZ10190	Firemain installation (along NB42A)	0%	20	20	20-May-16	13-Jun-16	-3
NB47B (Ch.5820-5880)-TWSR West Side							
Noise Barrier Works							
NB00235	NB47B (Ch5820-5880)- backfilling	0%	12	12	02-Jul-16	15-Jul-16	-30
NB00250	NB47B (Ch5820-5880)- NB post & panel installation	0%	5	5	20-May-16	25-May-16	887
DSD Southern Trunk Sewer, Water Main Fire Main Works							
TSZ10240	Firemain installation (along NB47B)	87.68%	17	138	13-Nov-15 A	08-Jun-16	-12
Underground Utility Works							
UUZ10121	Utility cable laying by Utility companies (along bay 311A)	59.3%	35	86	13-Jan-16 A	30-Jun-16	-114
UUZ10130	Z1 Utility work complete is ready for energization	0%	0	0		30-Jun-16	-114
Noise Barrier Along Fanling Highway N/B							
Site Clearance & Demolition of Existing Structure							
Underground Utility Works							
ADVZ20175	All UU and backfill along TWSR-W complete	0%	0	0		30-Jul-16	-51
ADVZ20180	Utility cable changeover period (NWT)	0%	184	184	30-Jul-16	30-Jan-17	-90
ADVZ20182	Additional Utilitly cable changeover period (PCCW, HCG)	0%	274	274	30-Jul-16	30-Apr-17	-180
TWSR-West Construction							
Drainage & Road Works							
Ch 5640-5880							
RDZ10090	Z1: New Tai Wo Service Road West - Drainage & Road works (2 lanes)	0%	176	176	01-Aug-16	08-Mar-17	-20
Noise Barrier Along Fanling Highway S/B							
NB44 (Ch.5700-5760)-FH S/B Side							
Noise Barrier Works							
NB01390	NB44 - NB production	0%	45	45	20-May-16	03-Jul-16	1051
NB01400	NB44 - NB post & panel installation	0%	5	5	04-Jul-16	08-Jul-16	851
NB45 (Ch.5760-5820)-FH S/B Side							
Noise Barrier Works							
NB01440	NB45 - NB production	0%	45	45	20-May-16	03-Jul-16	1051
NB01450	NB45 - NB post & panel installation	0%	5	5	04-Jul-16	08-Jul-16	851
NB46 (Ch.5820-5880)-FH S/B Side							
Noise Barrier Works							
NB01490	NB46 - NB production	0%	45	45	20-May-16	03-Jul-16	1051
NB01500	NB46 - NB post & panel installation	0%	5	5	04-Jul-16	08-Jul-16	851
ZONE 2 (Ch. 5880 to 6930)							
Noise Barrier Along TWSR-West and Laying New Utilities							
Site Clearance & Demolition of Existing Structure							
Demolition Work							
Z2.P2N.1250	Construction of proposed SHRINE	0%	165	165	20-May-16	03-Dec-16	707
NB47 (Ch.5880-5930)-TWSR West Side							
Noise Barrier Works							
NB00275	NB47 (Ch5880-5930)- backfilling	0%	12	12	21-Jun-16	05-Jul-16	9
NB00280	NB47 (Ch5880-5930)- NB production	80.52%	15	77	19-Mar-16 A	03-Jun-16	1056
NB00290	NB47 (Ch5880-5930)- NB post & panel installation	0%	5	5	04-Jun-16	10-Jun-16	854
DSD Southern Trunk Sewer, Water Main Fire Main Works							



Remaining Level of Effort
Actual Level of Effort
Actual Work
Remaining Work
Critical Remaining Work
Milestone
Crit. Milestone

Project ID:WP Rev 03 (1605)

Layout: 3 Month Rolling Program

Page 1 of 8

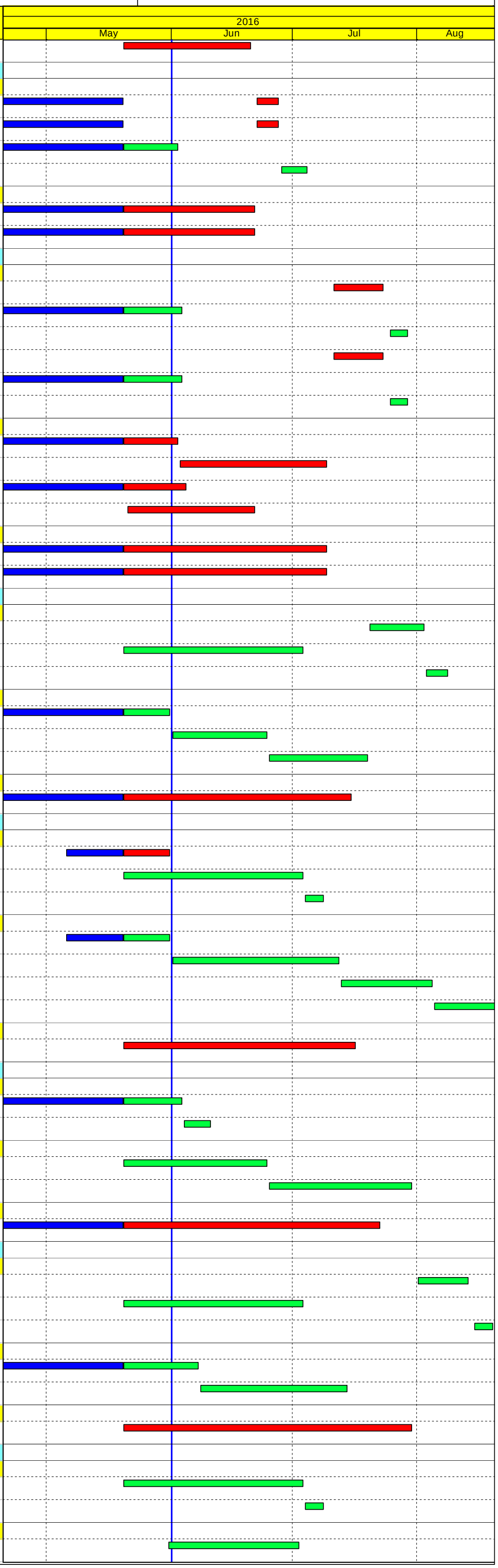
Contract No. HY/2012/06

Widening of Fanling Highway - Tai Hang to Wo Hop Shek Interchange

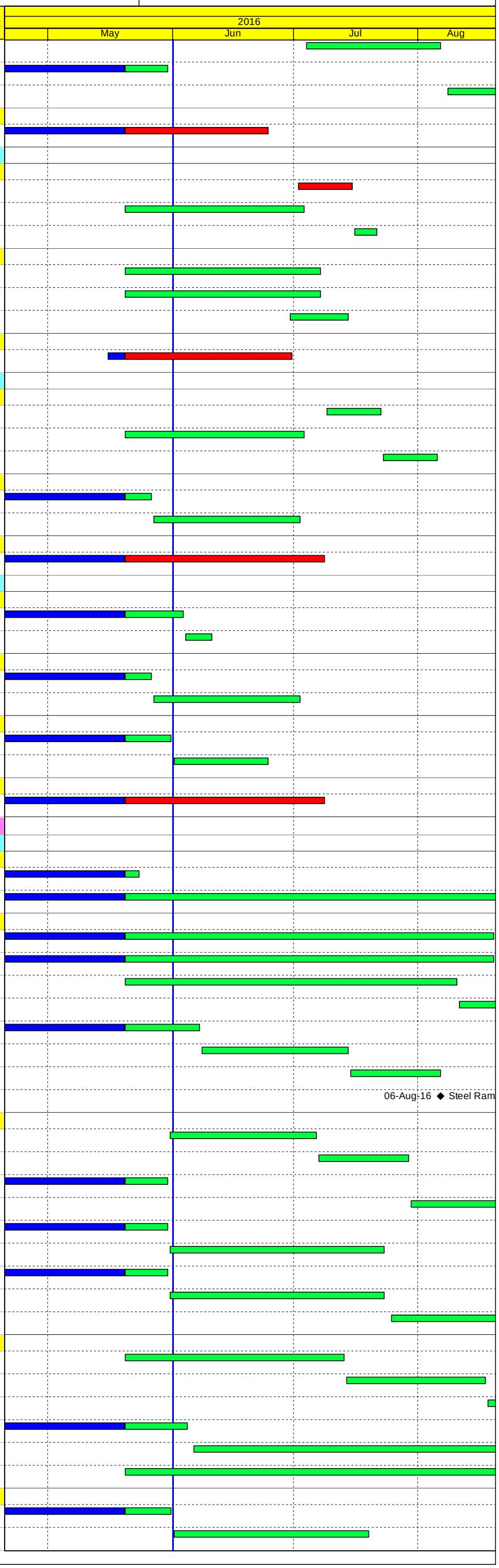
3 Month Rolling Program(20-May-16)

Date	Revision	C...	A
13-May-14	WP Rev 1		
30-Jun-14	WP Rev 1A		
28-Aug-15	WP Rev 2		
07-Apr-16	WP Rev 3		

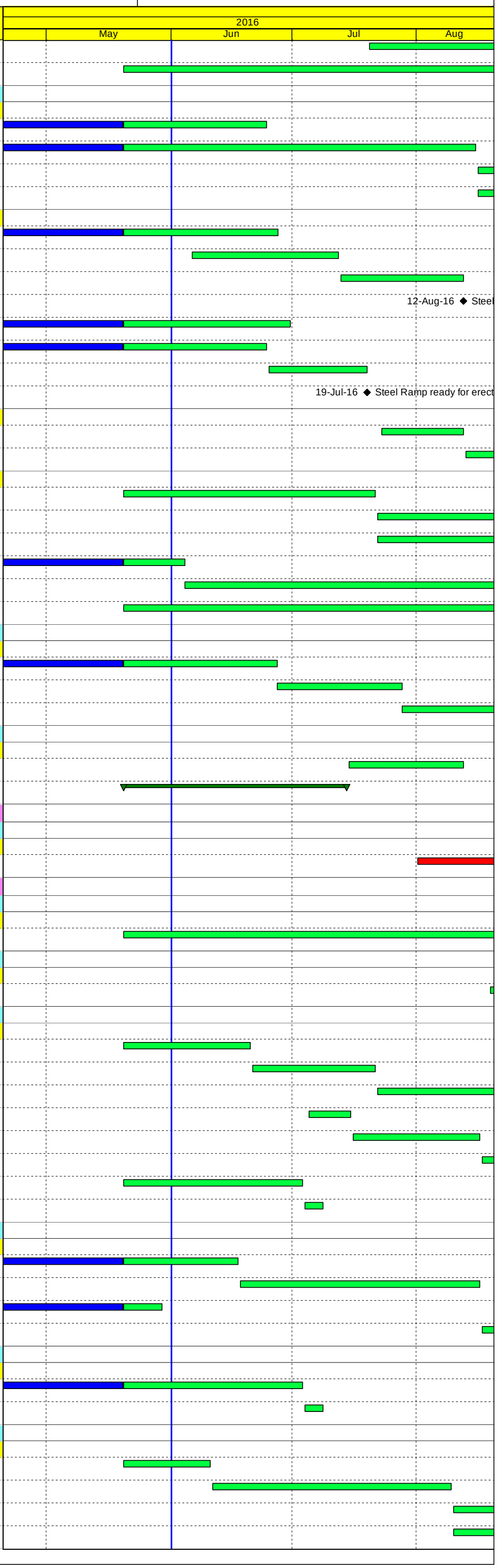
Activity ID	Activity Name	Dur. % Complete	Rem. Duration	Original Duration	Start	Finish	Total Float
TSZ10290	Firemain installation (along NB47)	0%	26	26	20-May-16	20-Jun-16	9
NB47A (Ch.5950-5975)-TWSR West Side							
Noise Barrier Works							
NB00330	NB47A - backfilling	97.6%	5	208	07-Sep-15 A	27-Jun-16	-15
NB00335	Backfilling (Along NB47A-above ID1)	97.3%	5	185	06-Oct-15 A	27-Jun-16	-15
NB00340	NB47A - NB production	92.89%	14	197	20-Oct-15 A	02-Jun-16	1057
NB00350	NB47A - NB post & panel installation	0%	5	5	28-Jun-16	04-Jul-16	835
Underground Utility Works							
UUZ20110	Utility cable laying by Utility companies (Along NB47A)	72.73%	27	99	13-Jan-16 A	21-Jun-16	-106
UUZ20240	Utility cable laying by Utility companies (Along NB47A-above	72.73%	27	99	13-Jan-16 A	21-Jun-16	-106
NB48 (Ch.5995-6120)-TWSR West Side							
Noise Barrier Works							
NB00390	NB48 (Ch5995-6060) - backfilling	0%	12	12	11-Jul-16	23-Jul-16	-7
NB00400	NB48 (Ch5995-6060) - NB production	80.26%	15	76	20-Mar-16 A	03-Jun-16	1056
NB00410	NB48 (Ch5995-6060) - NB post & panel installation	0%	5	5	25-Jul-16	29-Jul-16	813
NB00450	NB48 (Ch6060-6120) - backfilling	0%	12	12	11-Jul-16	23-Jul-16	-7
NB00460	NB48 (Ch6060-6120) - NB production	80.26%	15	76	20-Mar-16 A	03-Jun-16	1056
NB00470	NB48 (Ch6060-6120) - NB post & panel installation	0%	5	5	25-Jul-16	29-Jul-16	813
DSD Southern Trunk Sewer, Water Main Fire Main Works							
TSZ10430	Watermain installation (along NB48, 0-60m)	64.71%	12	34	21-Mar-16 A	02-Jun-16	-7
TSZ10440	Firemain installation (along NB48, 0-60m)	0%	30	30	03-Jun-16	09-Jul-16	-7
TSZ10480	Watermain installation (along NB48, 60-110m)	48.15%	14	27	19-Apr-16 A	04-Jun-16	8
TSZ10490	Firemain installation (along NB48, 60-110m)	0%	26	26	21-May-16	21-Jun-16	8
Underground Utility Works							
UUZ20120	Utility cable laying by Utility companies (Along NB48, 0-60m)	52.81%	42	89	21-Jan-16 A	09-Jul-16	-121
UUZ20130	Utility cable laying by Utility companies (Along NB48, 60-110m)	41.67%	42	72	05-Feb-16 A	09-Jul-16	-121
NB49 (Ch.6145-6215)-TWSR West Side							
Noise Barrier Works							
NB00520	NB49 - backfilling	0%	12	12	20-Jul-16	02-Aug-16	15
NB00530	NB49 - NB production	0%	45	45	20-May-16	03-Jul-16	1026
NB00540	NB49 - NB post & panel installation	0%	5	5	03-Aug-16	08-Aug-16	805
DSD Southern Trunk Sewer, Water Main Fire Main Works							
TSZ10510	DSD Trunk Sewer laying (along NB49)	44.44%	10	18	11-Apr-16 A	31-May-16	15
TSZ10530	Watermain installation (along NB49)	0%	20	20	01-Jun-16	24-Jun-16	15
TSZ10540	Firemain installation (along NB49)	0%	20	20	25-Jun-16	19-Jul-16	15
Underground Utility Works							
UUZ20140	Utility cable laying by Utility companies (Along NB49, 0-70m)	44.05%	47	84	03-Feb-16 A	15-Jul-16	-126
NB49B (Ch.6215-6235)-TWSR West Side							
Noise Barrier Works							
NB00580	NB49B - backfilling	16.67%	10	12	06-May-16 A	31-May-16	7
NB00590	NB49B - NB production	0%	45	45	20-May-16	03-Jul-16	1026
NB00600	NB49B - NB post & panel installation	0%	5	5	04-Jul-16	08-Jul-16	831
DSD Southern Trunk Sewer, Water Main Fire Main Works							
TSZ10550	Sheet Piling & Excavation(~5m below ground) (along NB49B)	52.38%	10	21	06-May-16 A	31-May-16	19
TSZ10570	DSD Trunk Sewer laying (along NB49B - ID2-1)	0%	34	34	01-Jun-16	12-Jul-16	19
TSZ10580	Watermain installation (along NB49B)	0%	20	20	13-Jul-16	04-Aug-16	23
TSZ10590	Firemain installation (along NB49B)	0%	20	20	05-Aug-16	27-Aug-16	23
Underground Utility Works							
UUZ20150	Utility cable laying by Utility companies (Along NB49B, 0-16m)	0%	48	48	20-May-16	16-Jul-16	-127
NB54 (Ch.6240-6280)-TWSR West Side							
Noise Barrier Works							
NB00710	NB54 - NB production	88.97%	15	136	20-Jan-16 A	03-Jun-16	1056
NB00720	NB54 - NB post & panel installation	0%	5	5	04-Jun-16	10-Jun-16	854
DSD Southern Trunk Sewer, Water Main Fire Main Works							
TSZ10630	Watermain installation (along NB54)	0%	30	30	20-May-16	24-Jun-16	47
TSZ10640	Firemain installation (along NB54)	0%	30	30	25-Jun-16	30-Jul-16	47
Underground Utility Works							
UUZ20160	Utility cable laying by Utility companies (Along NB54, 0-40m)	31.17%	53	77	21-Jan-16 A	22-Jul-16	-132
NB54A (Ch.6290-6350)-TWSR West Side							
Noise Barrier Works							
NB00770	NB54A - backfilling	0%	12	12	01-Aug-16	13-Aug-16	20
NB00780	NB54A - NB production	0%	45	45	20-May-16	03-Jul-16	1026
NB00790	NB54A - NB post & panel installation	0%	5	5	15-Aug-16	19-Aug-16	795
DSD Southern Trunk Sewer, Water Main Fire Main Works							
TSZ10680	Watermain installation (along NB54A)	63.64%	16	44	14-Mar-16 A	07-Jun-16	34
TSZ10690	Firemain installation (along NB54A)	0%	30	30	08-Jun-16	14-Jul-16	34
Underground Utility Works							
UUZ20170	Utility cable laying by Utility companies (Along NB54A, 0-60m)	0%	60	60	20-May-16	30-Jul-16	-139
NB57 (Ch.6365-6445)-TWSR West Side							
Noise Barrier Works							
NB00850	NB57 - NB production	0%	45	45	20-May-16 A	03-Jul-16	1026
NB00860	NB57 - NB post & panel installation	0%	5	5	04-Jul-16	08-Jul-16	831
DSD Southern Trunk Sewer, Water Main Fire Main Works							
TSZ10730	Watermain installation (along NB57)	0%	27	27	31-May-16	02-Jul-16	14



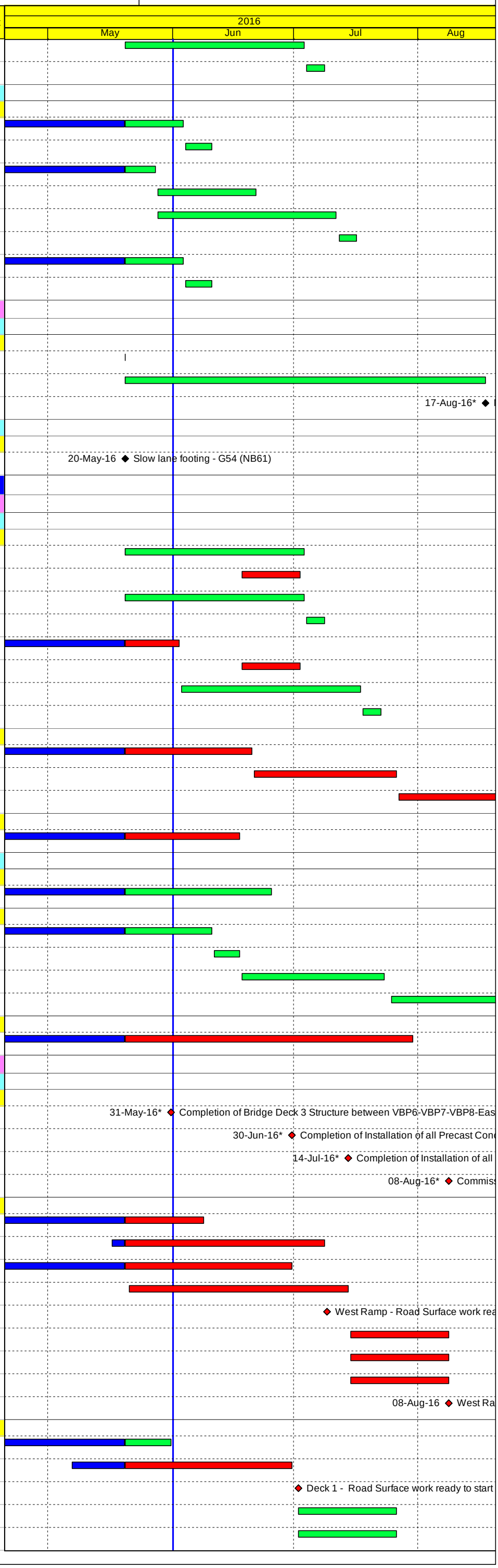
Activity ID	Activity Name	Dur. % Complete	Rem. Duration	Original Duration	Start	Finish	Total Float
TSZ10740	Firemain installation (along NB57)	0%	30	30	04-Jul-16	06-Aug-16	14
TSZ10785	PCCW drawpit by Pccw	87.84%	9	74	29-Jan-16 A	30-May-16	14
TSZ10990	Backfilling for UU and Firemain & Watermain	0%	12	12	08-Aug-16	20-Aug-16	14
Underground Utility Works							
UUZ20180	Utility cable laying by Utility companies (Along NB57, 0-80m)	55.88%	30	68	26-Feb-16 A	24-Jun-16	-109
NB58 (Ch.6445-6480)-TWSR West Side							
Noise Barrier Works							
NB00910	NB58 - backfilling	0%	12	12	02-Jul-16	15-Jul-16	-30
NB00920	NB58 - NB production	0%	45	45	20-May-16 A	03-Jul-16	1026
NB00930	NB58 - NB post & panel installation	0%	5	5	16-Jul-16	21-Jul-16	820
DSD Southern Trunk Sewer, Water Main Fire Main Works							
TSZ10780	Watermain installation (along NB58)	0%	40	40	20-May-16	07-Jul-16	27
TSZ10790	Firemain installation (along NB58)	0%	40	40	20-May-16	07-Jul-16	27
TSZ11010	Backfilling	0%	12	12	30-Jun-16	14-Jul-16	27
Underground Utility Works							
UUZ20190	Utility cable laying by Utility companies (Along NB58, 0-45m)	0%	35	12	16-May-16 A	30-Jun-16	-114
NB59 (Ch.6490-6590)-TWSR West Side							
Noise Barrier Works							
NB00980	NB59 - backfilling	0%	12	12	09-Jul-16	22-Jul-16	39
NB00990	NB59 - NB production	0%	45	45	20-May-16	03-Jul-16	1015
NB01000	NB59 - NB post & panel installation	0%	12	12	23-Jul-16	05-Aug-16	807
DSD Southern Trunk Sewer, Water Main Fire Main Works							
TSZ10830	Watermain installation (along NB59)	84.21%	6	38	11-Apr-16 A	26-May-16	44
TSZ10840	Firemain installation (along NB59)	0%	30	30	27-May-16	02-Jul-16	44
Underground Utility Works							
UUZ20200	Utility cable laying by Utility companies (Along NB59, 0-95m)	53.93%	41	89	29-Jan-16 A	08-Jul-16	-120
NB63 (Ch.6610-6700)-TWSR West Side							
Noise Barrier Works							
NB01040	NB63 - NB production	88.97%	15	136	20-Jan-16 A	03-Jun-16	1056
NB01050	NB63 - NB post & panel installation	0%	5	5	04-Jun-16	10-Jun-16	854
DSD Southern Trunk Sewer, Water Main Fire Main Works							
TSZ10330	Watermain installation (along NB63)	92.5%	6	80	15-Feb-16 A	26-May-16	56
TSZ10340	Firemain installation (along NB63)	0%	30	30	27-May-16	02-Jul-16	56
DSD Southern Trunk Sewer - Trenchless Construction							
TSZ11020	Watermain & Firemain installation above Trunk Sewer	90.48%	10	105	14-Dec-15 A	31-May-16	33
TSZ11025	Town gas pjpe laying (change of design)	0%	20	20	01-Jun-16	24-Jun-16	33
Underground Utility Works							
UUZ20230	Utility cable laying by Utility companies (Along NB63~100m)	88.52%	41	357	29-Jan-15 A	08-Jul-16	-120
Bridge Construction							
New Tai Hang Footbridge							
General							
THBF0335	Structure steel Shop drawing approval (THFB)	99.25%	3	399	04-Dec-14 A	23-May-16	1222
THBF0340	Structure steel procurement (THFB)	63.36%	122	333	22-Sep-15 A	18-Sep-16	17
TWSR-West/ FL Highway N/B Side Section							
THBF0140	THP5 - Pile cap, Pier and Pier Head	63.16%	77	209	31-Oct-15 A	19-Aug-16	158
THBF0180	THP8, THP9 - Pile cap, Pier and Pier Head	74.42%	77	301	13-Jul-15 A	19-Aug-16	218
THBF0220	THAB3 - pile cap & abutment wall	0%	69	69	20-May-16	10-Aug-16	199
THBF0230	THAB3 - Backfilling (~4m)	0%	27	27	11-Aug-16	10-Sep-16	199
THBF0270	THP6, THP7 - Pile cap, Pier and Pier Head	77.78%	16	72	01-Feb-16 A	07-Jun-16	139
THBF0310	THAB2 - pile cap & abutment wall	0%	30	30	08-Jun-16	14-Jul-16	139
THBF0320	THAB2 - Backfilling (~3m)	0%	20	20	15-Jul-16	06-Aug-16	139
THBF0325	Steel Ramp ready for erection (THFB-TWSR-W side)	0%	0	0		06-Aug-16	139
TWSR-East FL Highway S/B Side Section							
THBF0470	THAB1 - pile cap & abutment wall	0%	30	30	31-May-16	06-Jul-16	131
THBF0480	THAB1 - Backfilling (~3m)	0%	20	20	07-Jul-16	29-Jul-16	131
THBF0510	THP2 - Pile Test	85.33%	11	75	16-Feb-16 A	30-May-16	158
THBF0520	THP2 - Pile cap, Pier and Pier Head	0%	45	45	30-Jul-16	21-Sep-16	131
THBF0720	THP3 - Pile Test	85.33%	11	75	16-Feb-16 A	30-May-16	220
THBF0730	THP3 - Pile cap, Pier and Pier Head	0%	45	45	31-May-16	23-Jul-16	181
THBF0760	THP4 - Pile Test	85.33%	11	75	16-Feb-16 A	30-May-16	182
THBF0770	THP4 - Pile cap, Pier and Pier Head	0%	45	45	31-May-16	23-Jul-16	151
THBF0780	Modified existing column head of existing footbridge	0%	30	30	25-Jul-16	27-Aug-16	151
Lift at TWSR-W Side							
L1500	Temp work & Pile cap	0%	45	45	20-May-16	13-Jul-16	78
L1510	Lift pit (NF115)	0%	30	30	14-Jul-16	17-Aug-16	78
L1520	Lift shaft & roof	0%	52	52	18-Aug-16	20-Oct-16	78
L1556	Lift contractor sub-letting	92.13%	14	178	21-Sep-15 A	04-Jun-16	23
L1557	Lift submission & ordering period	0%	240	240	06-Jun-16	29-Mar-17	23
L1600	CLP Power available (by CLP)	0%	365	365	20-May-16	19-May-17	67
Lift at FLHY S/B							
L1345	THB (E) - Pre-bored H pile - NF78 (8 nos)	89.13%	10	92	31-Dec-15 A	31-May-16	49
L1350	Temp work & Pipe cap	0%	40	40	01-Jun-16	19-Jul-16	49



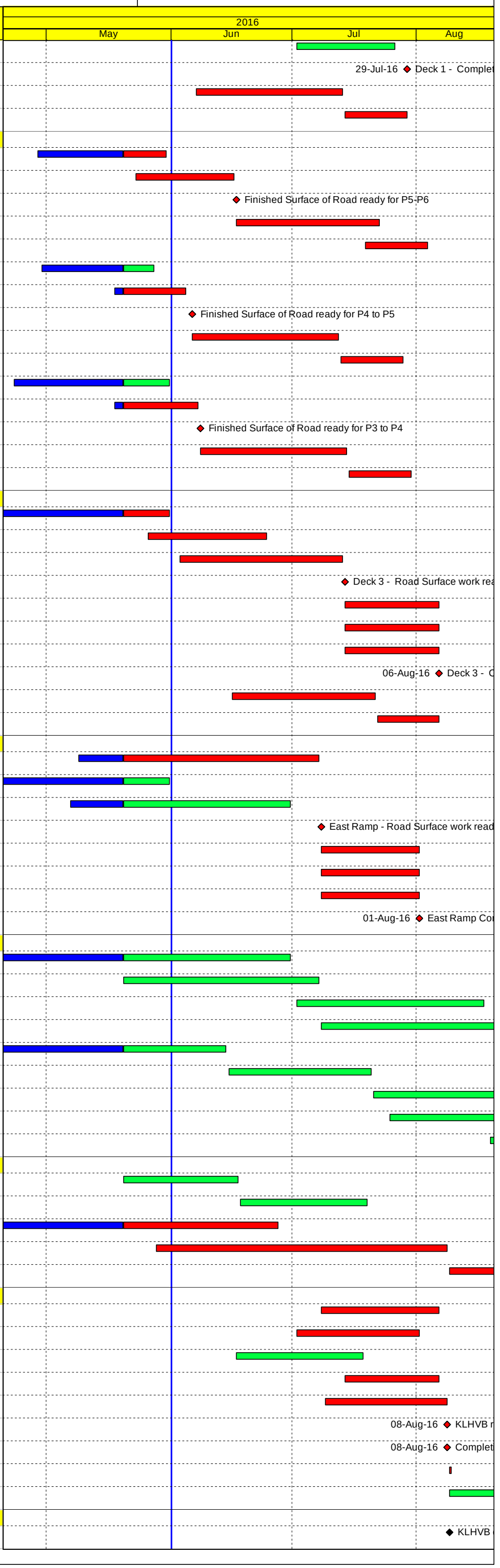
Activity ID	Activity Name	Dur. % Complete	Rem. Duration	Original Duration	Start	Finish	Total Float
L1360	Lift pit	0%	30	30	20-Jul-16	23-Aug-16	49
L1450	CLP Power available (by CLP)	0%	365	365	20-May-16	19-May-17	69
New Tai Wo Footbridge							
General							
TWFB1030	Structure steel Shop drawing approval (TWFB)	92.96%	30	426	04-Dec-14 A	24-Jun-16	97
TWFB1040	Structure steel procurement (TWFB)	73.33%	88	330	22-Aug-15 A	15-Aug-16	66
TWFB1050	Steel Staircase & Ramp prefabrication (TWFB-TWSR-W	0%	60	60	16-Aug-16	27-Oct-16	54
TWFB1090	Steel Bridge prefabrication (TWFB)	0%	60	60	16-Aug-16	27-Oct-16	619
TWSR-West/ FL Highway N/B Side Section							
TWFB1160	TWP1 - Pile cap, Pier and Pier Head	60.49%	32	81	18-Feb-16 A	27-Jun-16	185
TWFB1240	TWAB2 - pile cap & abutment wall	0%	30	30	06-Jun-16	12-Jul-16	711
TWFB1250	TWAB2 - Backfilling (~4m)	0%	27	27	13-Jul-16	12-Aug-16	711
TWFB1260	Steel Staircase ready for erection (THFB-TWSR-W side)	0%	0	0		12-Aug-16	711
TWFB1300	TWP4, TWP5 - Pile cap, Pier and Pier Head	72.66%	35	128	16-Nov-15 A	30-Jun-16	152
TWFB1340	TWAB1 - pile cap & abutment wall	82.35%	30	170	22-Oct-15 A	24-Jun-16	137
TWFB1350	TWAB1 - Backfilling (~3m)	0%	20	20	25-Jun-16	19-Jul-16	137
TWFB1360	Steel Ramp ready for erection (TWFB-TWSR-W side)	0%	0	0		19-Jul-16	137
Crossing Fanling Highway Section							
TWFB1410	TWP2 - Predrilling	0%	18	18	23-Jul-16	12-Aug-16	27
TWFB1420	TWP2 - Pre-bored H pile (6 nos)	0%	18	18	13-Aug-16	02-Sep-16	27
Lift at TWSR-W Side							
L1670	Lift shaft & roof	0%	52	52	20-May-16	21-Jul-16	640
L1680	Structural Laminated glass wall installation	0%	30	30	22-Jul-16	25-Aug-16	687
L1690	RC Link slab connect to bridge	0%	30	30	22-Jul-16	25-Aug-16	640
L1720	Lift contractor sub-letting	92.5%	13	177	21-Sep-15 A	04-Jun-16	486
L1730	Lift submission & ordering period	0%	270	270	04-Jun-16	10-May-17	486
L1780	CLP Power available (by CLP)	0%	365	365	20-May-16	19-May-17	669
Temporary Tai Wo Footbridge							
Design Works							
TWFB-T1010	Design preparation	87.41%	31	249	20-Jul-15 A	27-Jun-16	64
TWFB-T1020	Engineer Comment	0%	26	26	27-Jun-16	28-Jul-16	64
TWFB-T1030	Design amendment	0%	26	26	28-Jul-16	27-Aug-16	64
Demolition of Existing Tai Wo Footbridge							
TWSR-West/ FL Highway N/B Side Section							
TWFB-T1135	Demolish existing TWFB across TWSR-W	0%	25	25	15-Jul-16	12-Aug-16	27
TWFB-T1230	Watermain & Firemain at NB58 & backfill	0%	46	46	20-May-16	14-Jul-16	27
TWSR-West Construction							
Drainage & Road Works							
Ch 5880-6125							
RDZ20160	Z2 : New TWSR-West D&R Works (lane 1)	0%	120	120	01-Aug-16	21-Dec-16	-43
Noise Barrier Along Fanling Highway S/B							
NB51 (Ch.5935-6055)-FH S/B Side							
Noise Barrier Works							
NB02280	NB51 ID1-3 (0-25m) - Footing & Wall Structure	0%	90	90	20-May-16	03-Sep-16	394
NB52 (Ch.6055-6125) -FH S/B Side (MTRC I&P Area)							
Noise Barrier Works							
NB02362	Coordinate with MTRC for Precautionary Measure	0%	60	60	19-Aug-16	31-Oct-16	579
NB53 (Ch.6125-6300) -FH S/B Side (MTRC I&P Area)							
Noise Barrier Works							
NB02430	Precautionary Measure installation	0%	26	26	20-May-16	20-Jun-16	579
NB02440	NB53 (0-100m) - Sheet piling & Excavation	0%	26	26	21-Jun-16	21-Jul-16	579
NB02450	NB53 (0-100m) - Footing & Wall Structure	0%	60	60	22-Jul-16	30-Sep-16	579
NB02490	NB53 ID2-3 (100-125m), 18nos Predrilling	0%	10	10	05-Jul-16	15-Jul-16	662
NB02500	NB53 ID2-3 (100-125m) 18nos Piling- 1 rigs	0%	27	27	16-Jul-16	16-Aug-16	662
NB02510	NB53 ID2-3 (100-125m) - Sheet piling & Excavation	0%	21	21	17-Aug-16	09-Sep-16	662
NB02590	NB53 (125-180m) - NB production	0%	45	45	20-May-16	03-Jul-16	1026
NB02600	NB53 (125-180m) - NB post & panel installation	0%	5	5	04-Jul-16	08-Jul-16	831
NB55 (Ch.6300-6360)-FH S/B Side (MTRC I&P Area)							
Noise Barrier Works							
NB02640	NB55 - Footing & Wall Structure	94.58%	24	443	07-Nov-14 A	17-Jun-16	662
NB02650	NB55- backfilling	0%	50	50	18-Jun-16	16-Aug-16	662
NB02660	NB55 - NB production	90.57%	10	106	15-Jan-16 A	29-May-16	1061
NB02670	NB55 - NB post & panel installation	0%	5	5	17-Aug-16	22-Aug-16	793
NB56 (Ch.6360-6400)-FH S/B Side (MTRC I&P Area)							
Noise Barrier Works							
NB02730	NB56 - NB production	57.14%	45	105	20-Feb-16 A	03-Jul-16	1026
NB02740	NB56 - NB post & panel installation	0%	5	5	04-Jul-16	08-Jul-16	831
NB61 (Ch.6400-6560)-FH S/B Side (MTRC I&P Area)							
Noise Barrier Works							
NB02770	NB61 (0-50m) - Sheet piling & Excavation	0%	18	18	20-May-16	10-Jun-16	754
NB02780	NB61 (0-50m) - Footing & Wall Structure	0%	50	50	11-Jun-16	09-Aug-16	754
NB02790	NB61 (0-50m)- backfilling	0%	50	50	10-Aug-16	08-Oct-16	754
NB02800	NB61 (0-50m) - NB production	0%	45	45	10-Aug-16	23-Sep-16	944



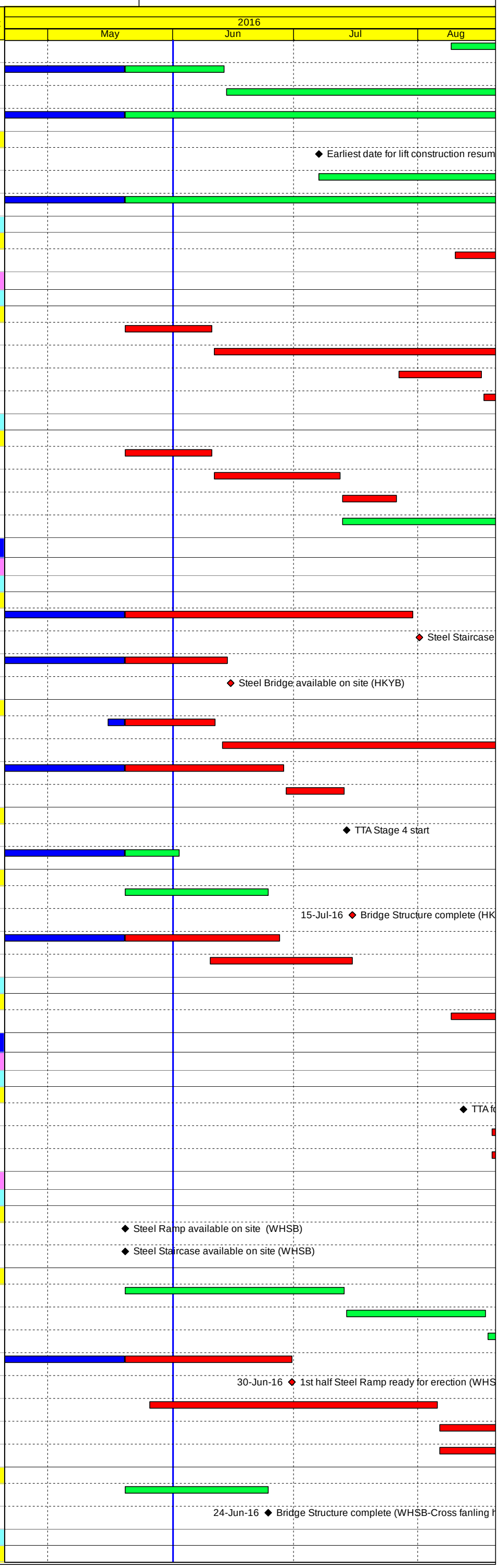
Activity ID	Activity Name	Dur. % Complete	Rem. Duration	Original Duration	Start	Finish	Total Float
NB02850	NB61 (50-160m) - NB production	0%	45	45	20-May-16	03-Jul-16	1026
NB02860	NB61 (50-160m) - NB post & panel installation	0%	5	5	04-Jul-16	08-Jul-16	831
NB61A (Ch.6560-6745)-FH S/B Side (MTRC I&P Area)							
Noise Barrier Works							
NB02920	NB61A (0-50m) - NB production	85.71%	15	105	20-Feb-16 A	03-Jun-16	1056
NB02930	NB61A (0-50m) - NB post & panel installation	0%	5	5	04-Jun-16	10-Jun-16	854
NB02970	NB61A ID2-3 (50-75m) - Footing & Wall Structure	97.92%	7	337	01-Apr-15 A	27-May-16	825
NB02980	NB61A ID2-3 (50-75m)- backfilling	0%	20	20	28-May-16	21-Jun-16	840
NB02990	NB61A ID2-3 (50-75m) - NB production	0%	45	45	28-May-16	11-Jul-16	1018
NB03000	NB61A ID2-3 (50-75m) - NB post & panel installation	0%	5	5	12-Jul-16	16-Jul-16	824
NB03040	NB61A (75-190m) - NB production	85.71%	15	105	20-Feb-16 A	03-Jun-16	1056
NB03050	NB61A (75-190m) - NB post & panel installation	0%	5	5	04-Jun-16	10-Jun-16	854
Other Works							
Site Clearance & Demolition of Existing Structure							
Contract Condition							
MCLT1050	Apply cert for exemption by DLO by Engineer	0%	0	0	20-May-16	20-May-16	1225
MCLT1090	New MCLT - finishes works	0%	75	75	20-May-16 A	17-Aug-16	112
MCLT1100	New MCLT completion	0%	0	0		17-Aug-16	112
TCSS Works							
G54							
TCSS1500	Slow lane footing - G54 (NB61)	0%	0	0		20-May-16	722
South Buffer Zone 1 (SBZ1) (within Zone 2)(Ch.6740 to 6930)							
Noise Barrier Along TWSR-West and Laying New Utilities							
NB63A (Ch.6710-6840)-TWSR West Side							
Noise Barrier Works							
NB01090	NB63A-1 - NB production	0%	45	45	20-May-16 A	03-Jul-16	422
NB01130	NB63A-2 - backfilling	0%	12	12	18-Jun-16	02-Jul-16	-19
NB01140	NB63A-2 - NB production	0%	45	45	20-May-16 A	03-Jul-16	422
NB01150	NB63A-2 - NB post & panel installation	0%	5	5	04-Jul-16	08-Jul-16	341
NB01170	NB63A-3 - Footing & Wall Structure (ch24.2-86.9) - 5 bays	85%	12	80	18-Jan-16 A	02-Jun-16	-7
NB01180	NB63A-3 - backfilling	0%	12	12	18-Jun-16	02-Jul-16	-19
NB01190	NB63A-3 - NB production	0%	45	45	03-Jun-16	17-Jul-16	408
NB01200	NB63A-3 - NB post & panel installation	0%	5	5	18-Jul-16	22-Jul-16	329
DSD Southern Trunk Sewer, Water Main Fire Main Works							
TSZ10860	DSD Trunk Sewer laying (along NB63A)	51.85%	26	54	14-Mar-16 A	20-Jun-16	9
TSZ10880	Watermain installation (along NB63A)	0%	30	30	21-Jun-16	26-Jul-16	9
TSZ10890	Firemain installation (along NB63A)	0%	30	30	27-Jul-16	30-Aug-16	9
Underground Utility Works							
UUZ20210	Utility cable laying by Utility companies (Along NB63A, 125m)	50%	24	48	18-Mar-16 A	17-Jun-16	-103
NB64 & NB64A (Ch.6860-6920)-TWSR West Side							
Noise Barrier Works							
NB001060	NB64 & NB64A -NB post & panel installation	6.06%	31	33	14-Mar-16 A	25-Jun-16	351
DSD Southern Trunk Sewer, Water Main Fire Main Works							
TSZ10910	DSD Trunk Sewer laying (along NB64)	0%	18	18	20-Apr-16 A	10-Jun-16	11
TSZ10920	Backfill up to NB64 footing level	0%	6	6	11-Jun-16	17-Jun-16	11
TSZ10930	Watermain installation (along NB64)	0%	30	30	18-Jun-16	23-Jul-16	11
TSZ10940	Firemain installation (along NB64)	0%	30	30	25-Jul-16	27-Aug-16	11
Underground Utility Works							
UUZ20220	Utility cable laying by Utility companies (Along NB64, 60m)	6.25%	60	64	29-Feb-16 A	30-Jul-16	-139
Bridge Construction							
Kau Lung Hang Vehicular Bridge							
Target Milestone							
MS03	Completion of Bridge Deck 3 Structure between	0%	0	0		31-May-16	0
MS04	Completion of Installation of all Precast Concrete Skins	0%	0	0		30-Jun-16*	0
MS05	Completion of Installation of all Parapet Walls and Planter Walls	0%	0	0		14-Jul-16*	2
MS06	Commissioning of Kau Lung Hang Vehicular Bridge to enable	0%	0	0		08-Aug-16	0
KLH Bridge - West Ramp							
KLH.1034	West Ramp Structure Work (6 bays after P3-4 beams lifting)	74.63%	17	67	20-Feb-16 A	08-Jun-16	0
KLH.1140	West Ramp - Backfilling & Drainage	8.89%	41	45	17-May-16 A	08-Jul-16	0
KLH.1180	West Ramp - Parapet skin (92nos)	31.37%	35	51	07-Apr-16 A	30-Jun-16	0
KLH.1240	West Ramp -Parapet Wall & Planter Wall	0%	45	45	21-May-16	14-Jul-16	0
KLH.1250	West Ramp - Road Surface work ready to start	0%	0	0	09-Jul-16		0
KLH.1260	West Ramp - barrier	0%	21	21	15-Jul-16	08-Aug-16	0
KLH.1280	West Ramp - Lighting	0%	21	21	15-Jul-16	08-Aug-16	0
KLH.1290	West Ramp - Planting	0%	21	21	15-Jul-16	08-Aug-16	0
KLH.1300	West Ramp Complete	0%	0	0		08-Aug-16	0
KLH Bridge - Deck 1							
KLH.3380	Deck 1 - Parapet skin (61nos)	82.46%	10	57	14-Mar-16 A	31-May-16	25
KLH.3390	Deck 1 - Parapet Wall & Planter Wall	22.22%	35	45	07-May-16 A	30-Jun-16	6
KLH.3400	Deck 1 - Road Surface work ready to start	0%	0	0	02-Jul-16		6
KLH.3410	Deck 1 - barrier	0%	21	21	02-Jul-16	26-Jul-16	11
KLH.3420	Deck 1 - Lighting	0%	21	21	02-Jul-16	26-Jul-16	11



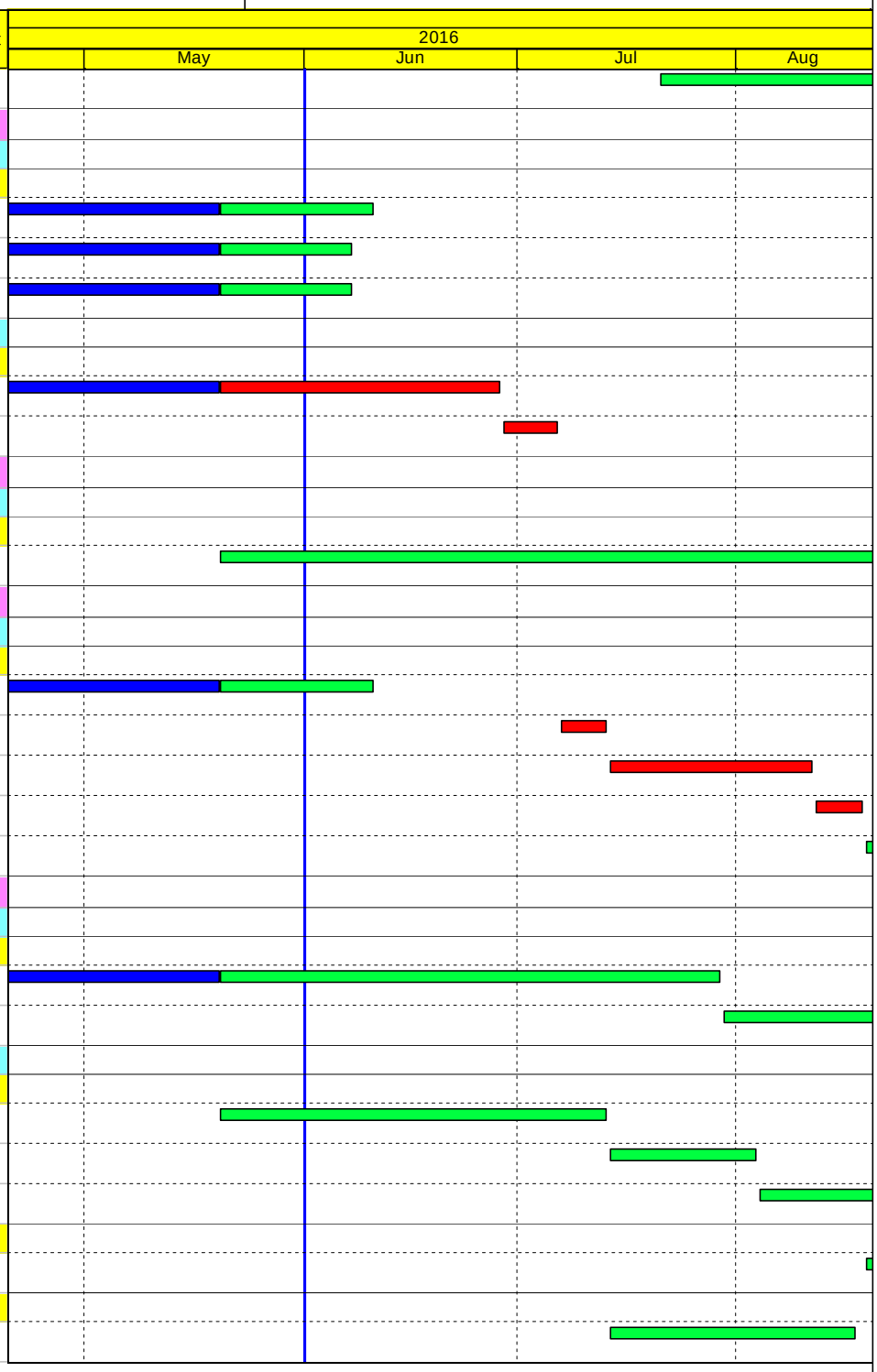
Activity ID	Activity Name	Dur. % Complete	Rem. Duration	Original Duration	Start	Finish	Total Float
KLH.3430	Deck 1 - Planting	0%	21	21	02-Jul-16	26-Jul-16	11
KLH.3440	Deck 1 - Complete	0%	0	0		29-Jul-16	8
KLH.3630	Pedestrian walkway Roof & Parapet P2 to P3	0%	30	30	07-Jun-16	13-Jul-16	8
KLH.3640	Pedestrian walkway floor finishes P2 to P3	0%	14	14	14-Jul-16	29-Jul-16	8
KLH Bridge - Deck 2							
KLH.3130	Precast Concrete Skin (P5 to P6)(14nos)	37.5%	5	8	29-Apr-16 A	30-May-16	2
KLH.3140	Parapet wall (P5 to P6)	0%	21	21	23-May-16	16-Jun-16	4
KLH.3150	Finished Surface of Road ready for P5-P6	0%	0	0	17-Jun-16		4
KLH.3160	Pedestrian walkway Roof & Parapet P5-P6	0%	30	30	17-Jun-16	22-Jul-16	4
KLH.3170	Pedestrian walkway floor finishes P5-P6	0%	14	14	19-Jul-16	03-Aug-16	4
KLH.3230	Precast Concrete Skin (P4 to P5)(12nos)	0%	7	5	30-Apr-16 A	27-May-16	16
KLH.3240	Parapet wall (P4 to P5)	53.33%	14	30	18-May-16 A	04-Jun-16	9
KLH.3250	Finished Surface of Road ready for P4 to P5	0%	0	0	06-Jun-16		9
KLH.3260	Pedestrian walkway Roof & Parapet P4 to P5	0%	30	30	06-Jun-16	12-Jul-16	9
KLH.3270	Pedestrian walkway floor finishes P4 to P5	0%	14	14	13-Jul-16	28-Jul-16	9
KLH.3330	Precast Concrete Skin (P3 to P4)(11nos)	0%	10	7	23-Apr-16 A	31-May-16	13
KLH.3340	Parapet wall (P3 to P4)	46.67%	16	30	18-May-16 A	07-Jun-16	7
KLH.3350	Finished Surface of Road ready for P3 to P4	0%	0	0	08-Jun-16		7
KLH.3360	Pedestrian walkway Roof & Parapet P3 to P4	0%	30	30	08-Jun-16	14-Jul-16	7
KLH.3370	Pedestrian walkway floor finishes P3 to P4	0%	14	14	15-Jul-16	30-Jul-16	7
KLH Bridge - Deck 3							
KLH.1380	Deck - VBP6 to VBP7	87.65%	10	81	20-Feb-16 A	31-May-16	0
KLH.3450	Deck 3 - Parapet skin (61nos)	0%	25	25	26-May-16*	24-Jun-16	0
KLH.3460	Deck 3 - Parapet Wall & Planter Wall	0%	33	33	03-Jun-16	13-Jul-16	1
KLH.3470	Deck 3 - Road Surface work ready to start	0%	0	0	14-Jul-16		1
KLH.3480	Deck 3 - barrier	0%	21	21	14-Jul-16	06-Aug-16	1
KLH.3490	Deck 3 - Lighting	0%	21	21	14-Jul-16	06-Aug-16	1
KLH.3500	Deck 3 - Planting	0%	21	21	14-Jul-16	06-Aug-16	1
KLH.3510	Deck 3 - Complete	0%	0	0		06-Aug-16	1
KLH.3650	Pedestrian walkway Roof & Parapet P6 to P7	0%	30	30	16-Jun-16	21-Jul-16	1
KLH.3660	Pedestrian walkway floor finishes P6 to P7	0%	14	14	22-Jul-16	06-Aug-16	1
KLH Bridge - East Ramp							
KLH.3530	East Ramp - Backfilling & Drainage	33.33%	40	60	09-May-16 A	07-Jul-16	1
KLH.3540	East Ramp - Parapet skin (79nos)	81.48%	10	54	23-Mar-16 A	31-May-16	13
KLH.3550	East Ramp -Parapet Wall & Planter Wall	22.22%	35	45	07-May-16 A	30-Jun-16	13
KLH.3560	East Ramp - Road Surface work ready to start	0%	0	0	08-Jul-16		1
KLH.3570	East Ramp - barrier	0%	21	21	08-Jul-16	01-Aug-16	6
KLH.3580	East Ramp - Lighting	0%	21	21	08-Jul-16	01-Aug-16	6
KLH.3590	East Ramp - Planting	0%	21	21	08-Jul-16	01-Aug-16	6
KLH.3600	East Ramp Complete	0%	0	0		01-Aug-16	6
KLH Bridge - Ramp R1							
Z2.KLH.1450	Ramp R1 - Pile caps and pier construction (R1P1)	86.22%	35	254	02-Jul-15 A	30-Jun-16	32
Z2.KLH.1670	Ramp R1 - Pile caps and pier construction (R1P3)	0%	40	40	20-May-16	07-Jul-16	27
Z2.KLH.1680	Ramp R1 - Ramp construction (Abutment R1 to R1P1)	0%	40	40	02-Jul-16	17-Aug-16	58
Z2.KLH.1685	Ramp R1 - Ramp construction (R1P1 to P1P3)	0%	40	40	08-Jul-16	23-Aug-16	27
Z2.KLH.1710	Ramp R1 - Abutment R1 - base slab & wall	91.98%	21	262	22-Jun-15 A	14-Jun-16	52
Z2.KLH.1720	Ramp R1 - Abutment R1 - Top slab	0%	30	30	15-Jun-16	20-Jul-16	52
Z2.KLH.1730	Ramp R1 - Abutment R1 - Staircase	0%	30	30	21-Jul-16	24-Aug-16	52
Z2.KLH.3610	Ramp R1 - Steel roof	0%	40	40	25-Jul-16	08-Sep-16	27
Z2.KLH.3620	Ramp R1 - finishes work	0%	30	30	19-Aug-16	23-Sep-16	27
KLH Bridge - Ramp R2							
Z2.KLH.1523	VO 028 - Boundary Wall to Hse 190B structure	0%	24	24	20-May-16*	17-Jun-16	822
Z2.KLH.1524	VO 028 - Boundary Wall to Hse 190B E&M, Drainage	0%	26	26	18-Jun-16	19-Jul-16	822
Z2.KLH.1530	Ramp R2 - Pile cap, abutment and pier construction	78.23%	32	147	20-Nov-15 A	27-Jun-16	1
Z2.KLH.1540	Ramp R2 - Ramp construction	0%	60	60	28-May-16	08-Aug-16	1
Z2.KLH.1545	Ramp R2 - Ramp construction (section after VBP6-7 deck)	0%	35	35	09-Aug-16	19-Sep-16	1
Bridge Road Work							
Z2.KLH.1930	Road Pavement Works (East Ramp)	0%	26	26	08-Jul-16	06-Aug-16	1
Z2.KLH.1940	Road Pavement Works (Deck 1)	0%	26	26	02-Jul-16	01-Aug-16	6
Z2.KLH.1950	Road Pavement Works (Deck 2)	0%	26	26	17-Jun-16	18-Jul-16	18
Z2.KLH.1960	Road Pavement Works (Deck 3)	0%	21	21	14-Jul-16	06-Aug-16	1
Z2.KLH.1970	Road Pavement Works (West Ramp)	0%	26	26	09-Jul-16	08-Aug-16	0
Z2.KLH.1980	KLHVB road work complete	0%	0	0		08-Aug-16	0
Z2.KLH.2020	Completion of Stage S1 of works (KD11)	0%	0	0		08-Aug-16	0
Z2.KLH.2030	Diversion of existing pedestrian to proposed Kiu Lung Hang Vehicular	0%	1	1	09-Aug-16	09-Aug-16	0
Z2.KLH.2040	Landscape work of KLHVB	0%	120	120	09-Aug-16	31-Dec-16	685
Lift at TWSR-W Side							
L01000	KLHVB completed	0%	0	0	09-Aug-16		74



Activity ID	Activity Name	Dur. % Complete	Rem. Duration	Original Duration	Start	Finish	Total Float
L01010	Demolish Temp NWP ramp	0%	26	26	09-Aug-16	07-Sep-16	74
L01093	Lift contractor sub-letting	90.91%	20	220	10-Aug-15 A	13-Jun-16	62
L01094	Lift submission & ordering period	0%	270	270	14-Jun-16	17-May-17	62
L01140	CLP Power available (by CLP)	12.07%	335	381	04-Apr-16 A	19-Apr-17	187
Lift at FLHY S/B							
L01180	Earliest date for lift construction resume	0%	0	0	07-Jul-16		60
L01190	Set up & Pile test	0%	45	45	07-Jul-16	27-Aug-16	60
L01300	CLP Power available (by CLP)	8.22%	335	365	04-Apr-16 A	19-Apr-17	190
Demolition of Existing Nam Wa Po Footbridge							
Demolition Work							
Z2.NWP.1060	Temporary support installation at existing Fanling Highway	0%	65	65	10-Aug-16	27-Oct-16	0
Noise Barrier Along Fanling Highway S/B							
NB62 (Ch.6745-6910)-FH S/B Side (MTRC I&P Area)							
Noise Barrier Works							
NB03080	NB62 (0-80m) - Sheet piling & Excavation	0%	18	18	20-May-16	10-Jun-16	-12
NB03090	NB62 (0-80m) - Footing & Wall Structure	0%	60	60	11-Jun-16	20-Aug-16	-12
NB03180	NB62 (110-170m) - Sheet piling & Excavation	0%	18	18	27-Jul-16	16-Aug-16	-17
NB03190	NB62 (110-170m) - Footing & Wall Structure	0%	60	60	17-Aug-16	28-Oct-16	-17
NB70 (Ch.6910-6930)-FH S/B Side							
Noise Barrier Works							
NB03250	NB70 - Sheet piling & Excavation	0%	18	18	20-May-16	10-Jun-16	-17
NB03260	NB70 - Footing & Wall Structure	0%	26	26	11-Jun-16	12-Jul-16	-17
NB03270	NB70- backfilling	0%	12	12	13-Jul-16	26-Jul-16	-17
NB03280	NB70 - NB production	0%	45	45	13-Jul-16	26-Aug-16	972
North Buffer Zone 2 (NBZ2) (within Zone 4) (Ch. 7925 to 8100)							
Bridge Construction							
New Ho Ka Yuen Footbridge							
General							
HKY1060	Steel Staircase & Ramp prefabrication (HKYB-TWSR-W	0%	60	45	01-Apr-16 A	30-Jul-16	-51
HKY1070	Steel Staircase & Ramp available on site (HKYB-TWSR-W side)	0%	0	0	01-Aug-16		-51
HKY1100	Steel Bridge prefabrication (HKYB)	65%	21	60	01-Apr-16 A	14-Jun-16	4
HKY1110	Steel Bridge available on site (HKYB)	0%	0	0	15-Jun-16		4
TWSR-West/ FL Highway N/B Side Section							
HKY1164	HKYP6 - additional rock breaking	36.67%	19	30	16-May-16 A	11-Jun-16	-70
HKY1170	HKYP6 - Pile cap, Pier and Pier Head	0%	60	60	13-Jun-16	22-Aug-16	-70
HKY1350	HKYAB4 - pile cap & abutment wall	40%	33	55	21-Mar-16 A	28-Jun-16	-36
HKY1360	HKYAB4 - Backfilling (~3m)	0%	12	12	29-Jun-16	13-Jul-16	-36
Crossing Fanling Highway Section							
HKY1416	TTA Stage 4 start	0%	0	0	14-Jul-16		1180
HKY1450	HKYP2 - Pile cap, Pier and Pier Head	84.62%	12	78	26-Feb-16 A	02-Jun-16	13
TWSR-East FL Highway S/B Side Section							
HKY1600	Finishes Work	0%	30	30	20-May-16	24-Jun-16	19
HKY1610	Bridge Structure complete (HKYFB-TWSR-E side)	0%	0	0		15-Jul-16	2
HKY1860	Erect Steel Ramp (HKYFB-TWSR-E side)	59.49%	32	79	20-Feb-16 A	27-Jun-16	2
HKY1870	Steel Ramp finishes work (HKYFB-TWSR-E side)	0%	30	30	10-Jun-16	15-Jul-16	2
Demolition of Existing Ho Ka Yuen Footbridge							
Crossing Fanling Highway Section							
HKY1680	Erect Temp platform for bridge demolition	0%	52	52	09-Aug-16	11-Oct-16	-66
ZONE 4 (Ch. 7925 to 8700)							
Noise Barrier Along Fanling Highway N/B							
NB77 (Ch.8090-8450)-FH N/B Side							
Noise Barrier Works							
NB4285	TTA for FH N/B (Stage 6) start	0%	0	0	12-Aug-16		12
NB4290	NB77 -Pre-drilling (Ch8090-8190)	0%	24	24	19-Aug-16	15-Sep-16	6
NB4350	NB77 -Pre-drilling (Ch8190-8290)	0%	108	108	19-Aug-16	28-Dec-16	0
Bridge Construction							
New Wo Hop Shek Pedstrian & Cycle Bridge							
General							
WHS1060	Steel Ramp available on site (WHSB)	0%	0	0	20-May-16		11
WHS1080	Steel Staircase available on site (WHSB)	0%	0	0	20-May-16		874
TWSR-West/ FL Highway N/B Side Section							
WHS1228	WHSP7 - Pile cap, Pier and Pier Head	0%	45	45	20-May-16	13-Jul-16	772
WHS1260	WHSAB1 - pile cap & abutment wall	0%	30	30	14-Jul-16	17-Aug-16	772
WHS1270	WHSAB1 - Backfilling (~4m)	0%	27	27	18-Aug-16	19-Sep-16	772
WHS1930	WHSP4 - Pile cap, Pier and Pier Head	86.94%	35	268	02-Jul-15 A	30-Jun-16	6
WHS1980	1st half Steel Ramp ready for erection (WHS-TWSR-W side)	0%	0	0		30-Jun-16	6
WHS1990	Erect 1st half ramp	0%	60	60	26-May-16	05-Aug-16	6
WHS2000	Erect temp pedestrian ramp besides 1st half ramp	0%	45	45	06-Aug-16	28-Sep-16	6
WHS2010	Erect temp access between existing bridge to 1st half ramp	0%	45	45	06-Aug-16	28-Sep-16	6
Crossing Fanling Highway Section							
WHS1490	Finishes Work	0%	30	30	20-May-16	24-Jun-16	86
WHS1500	Bridge Structure complete (WHSB-Cross fanling highway)	0%	0	0		24-Jun-16	86
Demolition of Existing Wo Hop Shek Pedstrian & Cycle Bridge							
Crossing Fanling Highway Section							



Activity ID	Activity Name	Dur. % Complete	Rem. Duration	Original Duration	Start	Finish	Total Float
WHS1790	Erect Temp platform for bridge demolition	0%	60	60	21-Jul-16	29-Sep-16	487
Slip Road Y Construction							
Drainage & Road Works							
TWSR-East FL Highway S/B Side Section							
RDZ41020	Construct Slip Rd Y @ existing TWSR-E junction	87.14%	18	140	01-Dec-15 A	10-Jun-16	21
RDZ41082	Construct Slip Rd Y (Ch7925-8050)(SA3460) - 1 lane @	92.04%	16	201	17-Sep-15 A	07-Jun-16	1209
RDZ41084	Construct Slip Rd Y (Ch7925-8050)(SA3460) - 1 temp	89.81%	16	157	11-Nov-15 A	07-Jun-16	34
Underground Utility Works							
DN600 and DN900 Watermain							
DN1056	Laying DN600 section after DN900 changeover Works	63.33%	33	90	01-Feb-16 A	28-Jun-16	0
DN1060	Watermain (DN600) changeover for TTA stage 4	0%	6	6	29-Jun-16	06-Jul-16	0
VO - Wall 76A Construction							
Retaining Wall W76A							
TWSR-East FL Highway S/B Side Section							
W76A1050	Drainage work for Caltex access road	0%	150	150	20-May-16	16-Nov-16	604
Fanling Highway Construction							
Drainage & Road Works							
TWSR-East FL Highway S/B Side Section							
RDZ41025	Construct FH S/B Lane 1,2 @ existing TWSR-E junction	85.6%	18	125	18-Dec-15 A	10-Jun-16	21
RDZ41050	Traffic Diversion for FH S/B road construction (Z4 TTA-Stage 4)	0%	6	6	07-Jul-16	13-Jul-16	0
RDZ41090	Remove FH central barrier	0%	25	25	14-Jul-16	11-Aug-16	0
RDZ41100	TTA for FH N/B Lane 1, 2, 3 construction (Ch7925-8600)(SA340)	0%	6	6	12-Aug-16	18-Aug-16	0
RDZ41114	Construct FH N/B Lane 3 (Ch7925-8600)	0%	68	68	19-Aug-16	09-Nov-16	165
Other Works							
Retaining Wall W77B							
TWSR-East FL Highway S/B Side Section							
RWZ4.1100	Base slab & Wall (0-3m high)-RW77B (Ch 0-40)	39.8%	59	98	01-Mar-16 A	29-Jul-16	143
RWZ4.1110	Backfilling (0-3m) - RW77B (Ch 0-40)	0%	30	30	30-Jul-16	02-Sep-16	173
TCSS Works							
TCSS Pre-Construction Works							
TCSS0120	Prepare Shop Drawing-TCSS	0%	45	45	20-May-16	13-Jul-16	253
TCSS0130	Shop Drawing Comment & Approval	0%	21	21	14-Jul-16	03-Aug-16	317
TCSS0140	Revised & Re-submission TCSS shop Drawing	0%	18	18	04-Aug-16	24-Aug-16	252
G35							
TCSS1550	Slip road island footing - G35 (CH8410, N/B)	0%	30	30	19-Aug-16	23-Sep-16	436
FVMS2 (Deleted by RFI-138, Pending for VO)							
TCSS1640	Slow lane footing - FVMS2 (CH8400, S/B)- Deleted by RFI-138	0%	30	30	14-Jul-16	17-Aug-16	587



APPENDIX C
IMPLEMENTATION SCHEDULE OF ENVIRONMENTAL MITIGATION MEASURES (EMIS)

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

Air Quality – Schedule of Recommended Mitigation Measures

Impact	Mitigation Measures	Timing	Implementation Status
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 $50m^3$ shall be enclosed, covered or dampened during dry or windy conditions.		V
	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 - Prevent off-site migration through use of sheet piles. - Minimise duration of works as far as practical. - All sewer and drainage connections should be sealed to prevent debris, soil, sand, etc, from entering public sewers/drains. - Site surface runoff should be settled to remove sand/silt before it is discharged into the existing storm drains.	During construction	V
	Road Widening Works, Earthworks and Culvert Extension Works - Wastewater generated from any concrete batching washdown of equipment or similar activities should be discharged into foul sewers, after the removal of settable solids, and pH adjustment as necessary. All sewage discharges from the study area should meet the TM standards and approval from EPD through the licensing process is required. - Sand traps, oil interceptors and other pollution prevention installations should be provided, properly cleaned and maintained. - Runoff from exposed working areas, unfinished slopes and from unlined temporary channels should be directed to stilling basins and/or silt traps before discharging to the drainage outfalls. - Regular inspections of stilling basins and/or silt traps are required to ensure that sediment is not conveyed into the existing drainage system. - Open stockpiles should be covered with a tarpaulin cover. - During the wet season, any exposed top soils should be covered with a tarpaulin, shotcreted or hydroseeded. - Sand and silt from wash-water from vehicle washing should be settled out before discharging into storm drains. - Fuels should be stored in bunded areas such that spillage can be easily collected.		V

Waste – Schedule of Recommended Mitigation Measures

Impact	Mitigation Measures	Timing	Implementation Status
Waste management during construction	General Waste - Transport of wastes off site as soon as possible. - Maintenance of accurate waste records. - Minimisation of waste generation for disposal (via reduction/recycling/re-use). - No on-site burning will be permitted. - Use of re-useable metal hoardings/signboards.	During construction	@
	Vegetation from site clearance - Segregation of materials to facilitate disposal. - Mulching to reduce bulk and where possible review opportunities for the possible beneficial use within landscaping areas.		V
	Demolition Wastes - Segregation of materials to facilitate disposal. - Appropriate stockpile management.		V
	Excavated Materials - Segregation of materials to facilitate disposal / reuse. - Appropriate stockpile management. - Re-use of excavated material on or off site (where possible). - Special handling and disposal procedures in the event that contaminated materials are excavated.		V
	Construction Wastes - Segregation of materials to facilitate recycling/reuse (within designated area in appropriate containers/stockpiles). - Appropriate stockpile management. - Planning to reduce over ordering and waste generation. - Recycling and re-use of materials where possible (e.g. metal, wood from formwork) - For material which cannot be re-used/recycled, collection should be carried out by an approved waste contractor for landfill disposal.		V
	Bentonite Slurries - Bentonite slurries should be reused as far as possible. - Disposal in accordance with Practice Note For Professional Persons ProPECC PN 1/94.		#

	Chemical Wastes - Storage within locked, covered and bunded area. - The storage area shall not be located adjacent to sensitive receivers e.g. drains. - Minimise waste production and recycle oils/solvents where possible. - A spill response procedure shall be in place and absorption material available for minor spillages. - Use appropriate and labelled containers. - Educate site workers on site cleanliness/waste management procedures. - If chemical wastes are to be generated, the contractor must register with EPD as a chemical waste producer. - The chemical wastes shall be collected by a licensed chemical waste collector.		@
	Municipal Wastes - Waste shall be stored within a temporary refuse collection facility, in appropriate containers prior to collection and disposal. - Regular, daily collections are required by an approved waste collector.		V

Ecology – Schedule of Recommended Mitigation Measures

Impact	Mitigation Measures	Timing	Implementation Status
Ecology during construction	Accurate Delineation of Works Area - Boundaries of proposed works areas shall be clearly identified and separated from external areas by a physical barrier to prevent encroachment of adjacent habitats. - Individual trees which fall within the works areas but which work plans do not require removal are to be retained and fenced off to maximize protection.	During construction	V
	Vegetation Clearance - No fires shall be lit within the works area for the purpose of burning cleared vegetation. - The Contractor shall give consideration to mulching the cleared vegetation for recycling within the works area / adjacent land.		V
	Dust generation There are a number of measures which shall be taken as specified in the Air Pollution Control (Construction Dust) Regulation on 'Dust Control Requirements, including the following key measures to be applied during construction: - Vehicle washing facilities to be provided at every discernible or designated vehicle exit point; - All temporary site access roads shall be sprayed with water to suppress dust as necessary; - All dusty materials should be sprayed with water immediately prior to any handling; and - All debris should be covered entirely by impervious sheeting or stored in a sheltered debris collection area.		V
	Surface Run-off In general, mitigation measures shall be in accordance with ProPECC PN1/94 on 'Construction Site Drainage'. Key measures include: - Bund and cover stock piles to avoid run-off; - Channel any run-off through a system of oil, grease and sediment / silt traps and reuse water on site where ever practical; - All vehicle maintenance to be undertaken within a bunded area; and - Maximise vegetation retention on-site to maximise absorption (minimise transport).		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.

APPENDIX D
SUMMARY OF ACTION AND LIMIT LEVELS

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/m3	500 μg/m3

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

Location	Action Level	Limit Level
AM2	200.7 μg/m3	260 μg/m3

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

APPENDIX E
CALIBRATION CERTIFICATES OF MONITORING EQUIPMENTS

TISCH Environmental

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

ORIFICE TRANSFER STANDARD CERTIFICATION WORKSHEET TE-5025A

Date - May 29, 2015 Rootsmeter S/N 0438320 Ta (K) - 297
Operator Tisch Orifice I.D. - 0988 Pa (mm) - 755.65

PLATE OR Run #	VOLUME START (m3)	VOLUME STOP (m3)	DIFF VOLUME (m3)	DIFF TIME (min)	METER DIFF Hg (mm)	ORFICE DIFF H2O (in.)
1	NA	NA	1.00	1.3980	3.2	2.00
2	NA	NA	1.00	0.9910	6.3	4.00
3	NA	NA	1.00	0.8790	7.8	5.00
4	NA	NA	1.00	0.8380	8.6	5.50
5	NA	NA	1.00	0.6890	12.6	8.00

DATA TABULATION

Vstd	(x axis) Qstd	(y axis)
0.9934	0.7106	1.4125
0.9893	0.9983	1.9976
0.9872	1.1231	2.2334
0.9862	1.1769	2.3424
0.9809	1.4237	2.8251

Qstd slope (m) = 1.97831
intercept (b) = 0.01264
coefficient (r) = 0.99985

y axis = SQRT[H2O(Pa/760)(298/Ta)]

Va	(x axis) Qa	(y axis)
0.9957	0.7123	0.8866
0.9917	1.0007	1.2539
0.9896	1.1258	1.4019
0.9886	1.1797	1.4703
0.9833	1.4271	1.7732

Qa slope (m) = 1.23878
intercept (b) = 0.00793
coefficient (r) = 0.99985

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}

AECOM

Total Suspended Particulates (TSP) Sampler
Field Calibration Report

Station: Fanling Government Secondary School (AM2)
Date: 24-Mar-16
Model No: TE-5170
Equipment No.: A-001-74T

Operator: Shum Kam Yuen
Next Due Date: 24-May-16
Verified Against: O.T.S -- 988
Expiration Date: 29-May-2016

Ambient Condition					
Temperature, Ta	291.0	Kelvin	Pressure, Pa	763.9	mmHg

Orifice Transfer Standard Information					
Equipment No.:	988	Slope, mc	1.97831	Intercept, bc	0.01264
Last Calibration Date:	29-May-15	**mc x Qstd + bc = [H x (Pa/760) x (298/Ta)]$^{1/2}$**			
Next Calibration Date:	29-May-16				

Calibration of TSP Sampler

Calibration Point	H in. of water	[H x (Pa/760) x (298/Ta)]$^{1/2}$	Qstd (m^3/min) **X - axis**	W in. of oil	[ΔW x (Pa/760) x (298/Ta)]$^{1/2}$ **Y-axis**
1	7.0	2.68	1.35	4.6	2.18
2	5.8	2.44	1.23	3.9	2.00
3	4.4	2.13	1.07	3.2	1.81
4	3.5	1.90	0.95	2.6	1.64
5	2.6	1.64	0.82	2.0	1.43

By Linear Regression of Y on X

Slope , mw = 1.3854 **Intercept, bw = 0.3102**

Correlation Coefficient* = 0.9986

Set Point Calculation

From the TSP Field Calibration Curve, take Qstd = 1.21 m^3/min (43 CFM)

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

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

Therefore, Set Point W = (m x Qstd + b)^2 x (760 / Pa) x (Ta / 298) = **3.83**

*If Correlation Coefficient < 0.990, check and recalibrate again.

Remarks:

QC Reviewer: Shum Ky Signature: K Date: 24/3/16

AECOM

Total Suspended Particulates (TSP) Sampler
Field Calibration Report

Station: Fanling Government Secondary School (AM2)
Date: 19-May-16
Model No: TE-5170
Equipment No.: A-001-74T

Operator: Shum Kam Yuen
Next Due Date: 19-Jul-16
Verified Against: O.T.S -- 988
Expiration Date: 29-May-2016

Ambient Condition					
Temperature, Ta	301.0	Kelvin	Pressure, Pa	756.2	mmHg

Orifice Transfer Standard Information					
Equipment No.:	988	Slope, mc	1.97831	Intercept, bc	0.01264
Last Calibration Date:	29-May-15	**mc x Qstd + bc = [H x (Pa/760) x (298/Ta)]$^{1/2}$**			
Next Calibration Date:	29-May-16				

Calibration of TSP Sampler

Calibration Point	H in. of water	[H x (Pa/760) x (298/Ta)]$^{1/2}$	Qstd (m^3/min) **X - axis**	W in. of oil	[ΔW x (Pa/760) x (298/Ta)]$^{1/2}$ **Y-axis**
1	6.9	2.61	1.31	4.7	2.15
2	5.8	2.39	1.20	3.8	1.93
3	4.5	2.11	1.06	3.1	1.75
4	3.6	1.88	0.95	2.6	1.60
5	2.4	1.54	0.77	1.8	1.33

By Linear Regression of Y on X

Slope , mw = **1.4781** **Intercept, bw =** **0.1881**

Correlation Coefficient* = **0.9977**

Set Point Calculation

From the TSP Field Calibration Curve, take Qstd = 1.21 m^3/min (43 CFM)

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

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

Therefore, Set Point W = (m x Qstd + b)^2 x (760 / Pa) x (Ta / 298) = **3.97**

*If Correlation Coefficient < 0.990, check and recalibrate again.

Remarks:

QC Reviewer: W.S Signature: W S Date: 19/5/16

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_o: *12500*	
Last Calibration Date*:	*7 May 2015*		

*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[1] (mg/m^3) **Y-axis**	Total Count[2]	Count/ Minute[3] **X-axis**
			Temp (°C)	R.H. (%)			
1	*08-05-15*	*09:15 - 10:15*	*26.9*	*76*	*0.04417*	*1763*	*29.38*
2	*08-05-15*	*10:15 - 11:15*	*26.9*	*76*	*0.04625*	*1851*	*30.85*
3	*08-05-15*	*11:15 - 12:15*	*26.9*	*77*	*0.04513*	*1805*	*30.08*
4	*08-05-15*	*12:15 - 13:15*	*27.1*	*77*	*0.04828*	*1926*	*32.10*

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: *0.9983*

Validity of Calibration Record: *8 May 2016*

Remarks:

QC Reviewer: *YW Fung* Signature: Date: 11 May 2015

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_o: *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[1] (mg/m^3) **Y-axis**	Total Count[2]	Count/ Minute[3] **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*	K_o: *12500*	
Last Calibration Date*:	*7 May 2015*		

*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[1] (mg/m^3) **Y-axis**	Total Count[2]	Count/ Minute[3] **X-axis**
			Temp (°C)	R.H. (%)			
1	*08-05-15*	*13:15 - 14:15*	*27.1*	*77*	*0.04986*	*1994*	*33.23*
2	*08-05-15*	*14:15 - 15:15*	*27.1*	*77*	*0.05083*	*2037*	*33.95*
3	*08-05-15*	*15:15 - 16:15*	*27.1*	*77*	*0.05012*	*2003*	*33.38*
4	*08-05-15*	*16:15 - 17:15*	*27.1*	*76*	*0.05241*	*2095*	*34.92*

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: *0.9968*

Validity of Calibration Record: *8 May 2016*

Remarks:

QC Reviewer: *YW Fung* Signature: _____ Date: 11 May 2015

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*	K_o: *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[1] (mg/m^3) **Y-axis**	Total Count[2]	Count/ Minute[3] **X-axis**
			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

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CERTIFICATE OF CALIBRATION

Certificate No.: 15CA0703 02-02 **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.:	2800927	,	2791214
Adaptors used:	-	,	-

Item submitted by

N.009 06

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

Date of test: 04-Jul-2015

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 ± 1 °C
Relative humidity:	60 ± 10 %
Air pressure:	1000 ± 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 ±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 responsess 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:** 06-Jul-2015 **Company Chop:** SOILS AND MATERIALS ENGINEERING COMPANY LTD. 綜合試驗有限公司

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.

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CERTIFICATE OF CALIBRATION

(Continuation Page)

Certificate No.: 15CA0703 02-02 **Page** 2 **of** 2

1, Electrical Tests

The electrical tests were perfomed 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	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 $1/10^3$ at 4kHz	Pass	0.3	
	1 ms burst duty factor $1/10^4$ 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.

- End -

Calibrated by: Fung Chi Yip **Date:** 04-Jul-2015

Checked by: Lam Tze Wai **Date:** 06-Jul-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.

綜合試驗有限公司
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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
Adaptors used:	-

Item submitted by

Curstomer:	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 ± 1 °C
Relative humidity:	50 ± 10 %
Air pressure:	1010 ± 5 hPa

Test specifications

1, 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.

2, The calibrator was tested with its axis vertical facing downwards at the specific frequency using insert voltage technique.

3, 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:** SOILS AND MATERIALS ENGINEERING COMPANY LTD. 綜合試驗有限公司

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

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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 μPa)

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.

- End -

Calibrated by: Fung Chi Yip **Date:** 03-Dec-2015

Checked by: Lam Tze Wai **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.

APPENDIX F
EM&A MONITORING SCHEDULES

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

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
1-May	2-May	3-May	4-May	5-May	6-May	7-May
			1-hr TSP 24-hr TSP Noise			
8-May	9-May	10-May	11-May	12-May	13-May	14-May
	1-hr TSP 24-hr TSP Noise				1-hr TSP 24-hr TSP	
15-May	16-May	17-May	18-May	19-May	20-May	21-May
				1-hr TSP 24-hr TSP Noise		
22-May	23-May	24-May	25-May	26-May	27-May	28-May
			1-hr TSP 24-hr TSP Noise			
29-May	30-May	31-May				
		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 June 2016

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

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

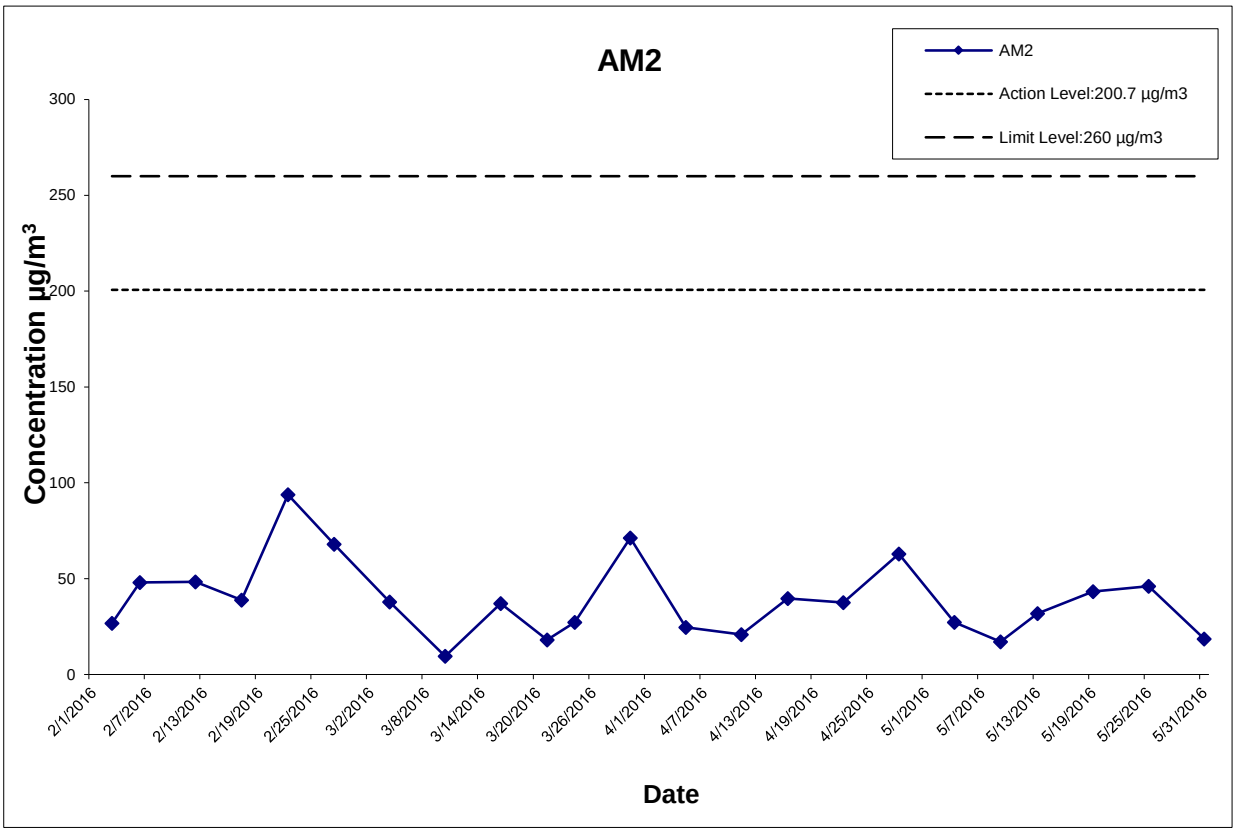
APPENDIX G
IMPACT AIR QUALITY MONITORING RESULTS AND THEIR GRAPHICAL PRESENTATION

Appendix G
Impact Air Quality Monitoring Results

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

Date	Weather Condition	Air Temp. (^{o}C)	Atmospheric Pressure(hPa)	Flow Rate (m^3/min.)		Av. flow (m^3/min)	Total vol. (m^3)	Filter Weight (g)		Particulate weight(g)	Elapse Time		Sampling Time(hrs.)	Conc. ($\mu g/m^3$)	Action Level ($\mu g/m^3$)	Limit Level ($\mu g/m^3$)
				Initial	Final			Initial	Final		Initial	Final				
4-May-16	Fine	25.8	1011.4	1.314	1.314	1.314	1892.2	2.8042	2.8556	0.0514	7154.03	7178.03	24.00	27.2	200.7	260
9-May-16	Rainy	28.7	1010.1	1.314	1.314	1.314	1892.2	2.8156	2.8480	0.0324	7178.03	7202.03	24.00	17.1	200.7	260
13-May-16	Sunny	25.5	1012.4	1.314	1.314	1.314	1892.2	2.8226	2.8828	0.0602	7202.03	7226.03	24.00	31.8	200.7	260
19-May-16	Sunny	25.5	1009.9	1.314	1.314	1.314	1892.2	2.8048	2.8867	0.0819	7226.03	7250.03	24.00	43.3	200.7	260
25-May-16	Sunny	28.0	1007.8	1.314	1.314	1.314	1892.2	2.8067	2.8940	0.0873	7250.03	7274.03	24.00	46.1	200.7	260
31-May-16	Sunny	29.9	1009.5	1.314	1.314	1.314	1892.2	2.8274	2.8625	0.0351	7274.03	7298.03	24.00	18.6	200.7	260

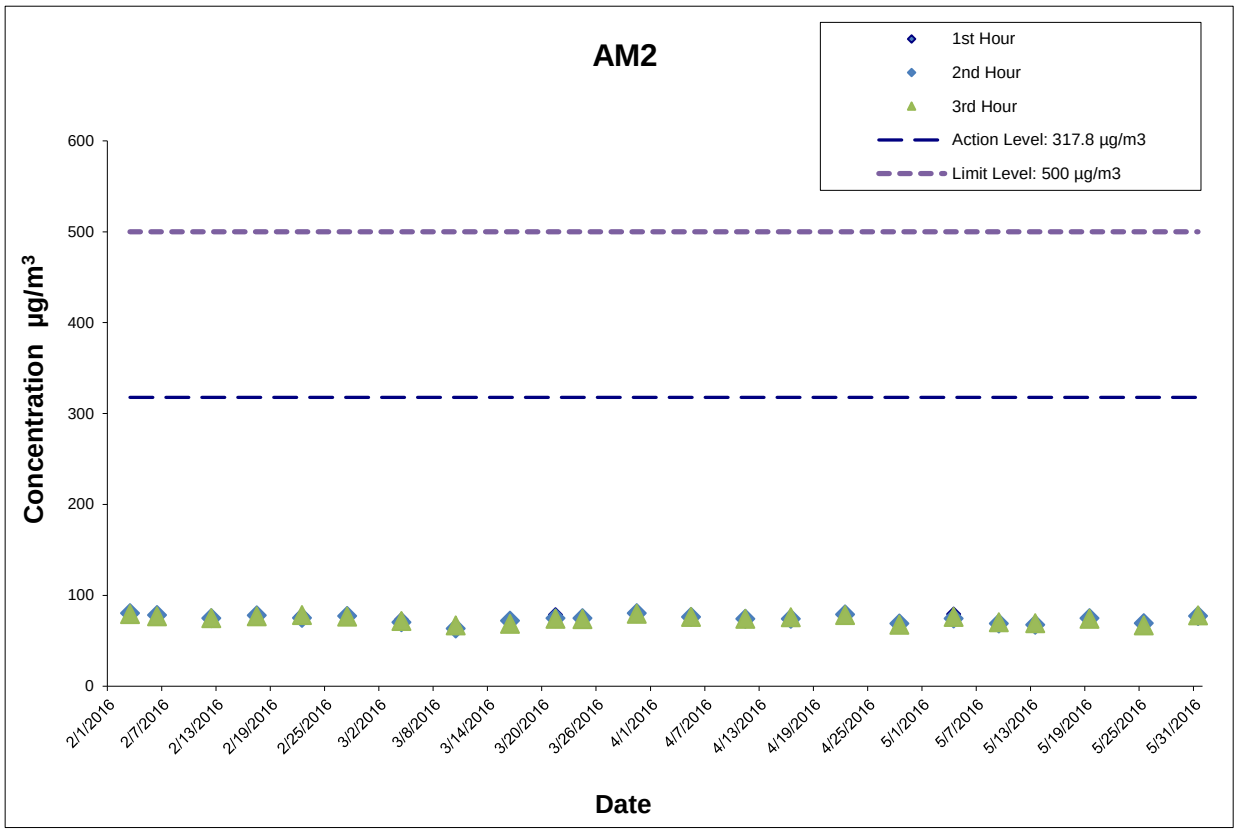
Average	30.7
Min	17.1
Max	46.1



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 Conc. ($\mu g/m^3$)	2nd Hour Conc. ($\mu g/m^3$)	3rd Hour Conc. ($\mu g/m^3$)
4-May-16	11:00	79.6	74.8	76.4
9-May-16	10:00	68.8	69.2	70.7
13-May-16	10:00	68.6	67.9	69.4
19-May-16	12:07	74.6	75.1	74.3
25-May-16	11:20	68.6	69.4	67.1
31-May-16	13:05	75.4	77.5	78.3
			Average	72.5
			Min	67.1
			Max	79.6



APPENDIX H
METEOROLOGICAL DATA FOR THE REPORTING MONTH

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Daily Extract of Meteorological Observations , May 2016 - Tai Po

Year 2016 Month 5 Go

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	1011.4	23.2	22.0	19.8	20.8	93	***	***	***
02	1010.7	27.5	24.7	22.9	23.3	92	***	***	***
03	1011.1	32.2	25.8	22.7	23.7	89	***	***	***
04	1011.3	27.1	24.8	22.3	23.5	93	***	***	***
05	1010.0	30.8	28.0	25.3	24.6	82	***	***	***
06	1009.5	31.1#	28.1	25.1#	24.5	81	***	***	***
07	1010.2	32.3	28.1	25.0	24.7	82	***	***	***
08	1011.0	30.6	28.1	26.0	24.9	83	***	***	***
09	1009.6	31.1	28.4	26.2	24.7	81	***	***	***
10	1008.0	28.2	25.2	22.9	23.8	92	***	***	***
11	1008.5	27.5	24.6	21.9	20.0	76	***	***	***
12	1009.6	26.7	24.8	23.3	21.1	80	***	***	***
13	1012.2	27.1#	25.5	23.8#	22.0	81	***	***	***
14	1013.9	26.9	25.1	23.7	23.1	89	***	***	***
15	1011.8	28.8	25.9	23.5	23.7	88	***	***	***
16	1011.2	27.9	24.3	21.3	18.6	72	***	***	***
17	1012.3	24.3	23.3	22.2	19.7	80	***	***	***
18	1012.0	25.5	24.0	23.3	19.5	76	***	***	***
19	1009.7	26.2	24.8	23.7	22.2	86	***	***	***
20	1006.8	25.1	24.3	23.8	23.7	97	***	***	***
21	1005.5	29.0	26.1	23.9	24.2	89	***	***	***
22	1007.6	28.8	26.6	24.8	22.6	79	***	***	***
23	1008.1	29.7	26.3	23.0	22.8	82	***	***	***
24	1007.5	30.3	27.1	23.9	23.7	83	***	***	***
25	1007.5	29.6	27.3	25.3	24.5	85	***	***	***
26	1007.5	28.8	27.1	25.9	24.7	87	***	***	***
27	1006.1	28.3	27.0	25.5	25.1	89	***	***	***
28	1007.1	30.9	26.9	23.9	24.8	89	***	***	***
29	1007.3	31.9	28.0	24.4	25.7	88	***	***	***
30	1008.1	32.7#	29.3	26.9#	25.8	82	***	***	***
31	1008.8	32.5#	29.8	27.2#	25.6	78	***	***	***

*** unavailable

data incomplete

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

Last revision date: <18 Feb 2016>

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Daily Extract of Meteorological Observations , May 2016 - Tai Mei Tuk

Year 2016 Month 5 Go

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	***	23.5	22.2	20.2	***	***	2.0	070	9.0
02	***	26.8	24.7	23.1	***	***	1.0	070	5.1
03	***	30.9#	25.9#	22.9#	***	***	7.0	270	7.1
04	***	28.8#	25.5	22.9#	***	***	1.0	070#	5.1#
05	***	31.5#	27.9	25.5#	***	***	0.0	170	6.7
06	***	29.3#	27.4#	21.2#	***	***	0.0	170	5.9
07	***	32.2#	28.8#	26.2#	***	***	0.0	170	4.0
08	***	27.5#	26.1#	23.3#	***	***	0.0	170	5.1
09	***	32.2#	28.6	26.6#	***	***	0.0	170	6.3
10	***	28.4	25.4	23.1	***	***	0.0#	250	11.3
11	***	31.1#	24.3#	22.0#	***	***	0.0#	110#	12.9#
12	***	28.6	24.9	22.8	***	***	0.0	110	16.1
13	***	28.5#	25.3	23.3#	***	***	0.0	090	15.8
14	***	26.3	24.5	23.3	***	***	11.0	090	17.7
15	***	30.3	26.0	23.5	***	***	1.0	160	9.9
16	***	27.3#	24.2	20.9#	***	***	0.0	030	15.2
17	***	24.4#	23.1	22.4#	***	***	0.0	110	19.8
18	***	25.9	23.7	22.1	***	***	0.0	100	17.0
19	***	25.9	24.2	23.3	***	***	0.0	100	15.4
20	***	24.4#	23.8	23.2#	***	***	50.5	070	16.8
21	***	28.4	25.6	23.7	***	***	47.0	260	11.6
22	***	29.8	26.7	24.4	***	***	0.0	060	11.0
23	***	30.6#	26.6	23.5#	***	***	0.0	160	2.3
24	***	32.0	27.4	24.0	***	***	0.0	160	4.8
25	***	30.0	26.9	25.2	***	***	0.0	090	14.2
26	***	28.5#	26.6	24.9#	***	***	0.5	090	20.5
27	***	28.3	26.4	25.1	***	***	7.5	090	17.3
28	***	31.2	26.5	23.8	***	***	41.5	240	13.6
29	***	31.1	27.9	24.4	***	***	10.0	240	8.8
30	***	32.5	29.5	26.9	***	***	0.0	240	10.4
31	***	32.2	29.7	27.6	***	***	0.0	250	14.7

*** unavailable

data incomplete

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

Last revision date: <18 Feb 2016>

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

Appendix I Impact Daytime Construction Noise Monitoring Results

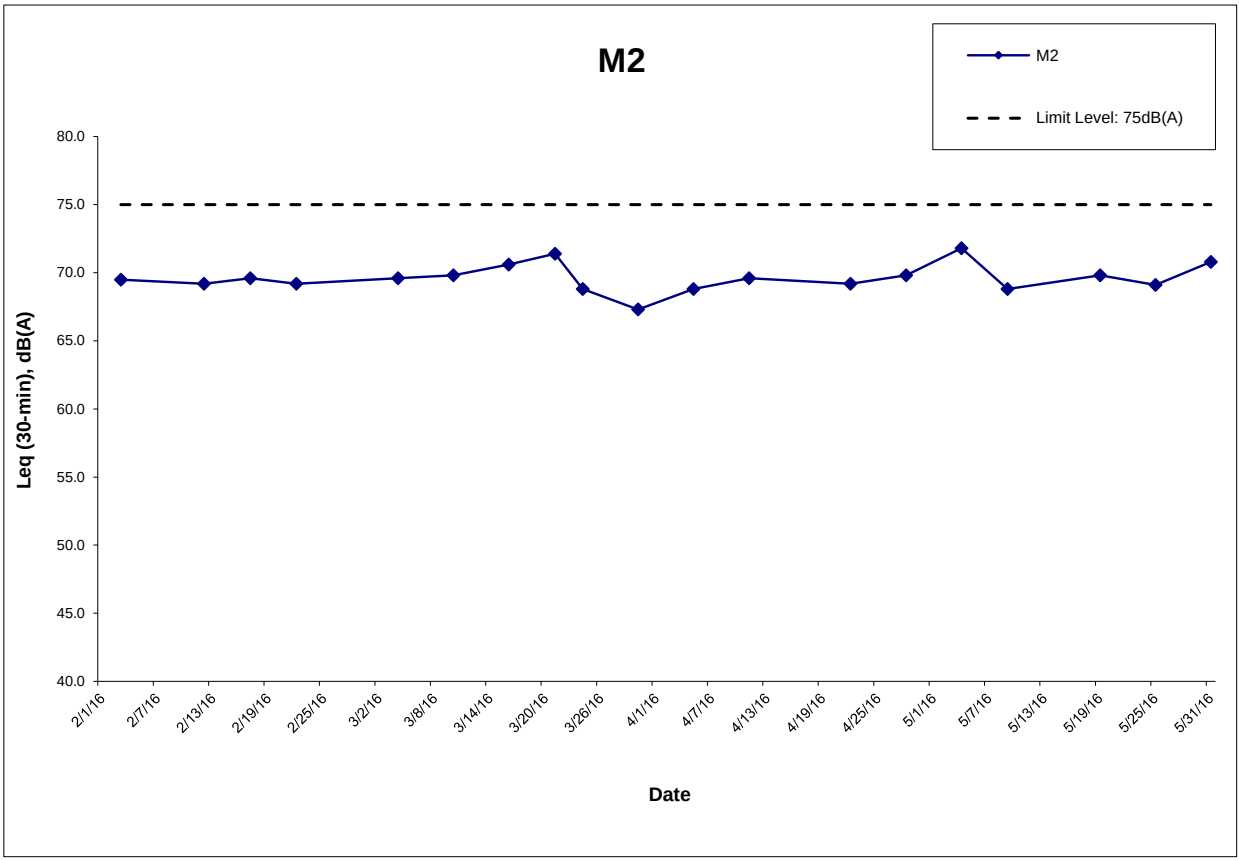
Location : M2 (West Tai Wo - Free Field)
Day time 07:00-19:00 hrs Normal Weekdays Impact Noise Monitoring Results

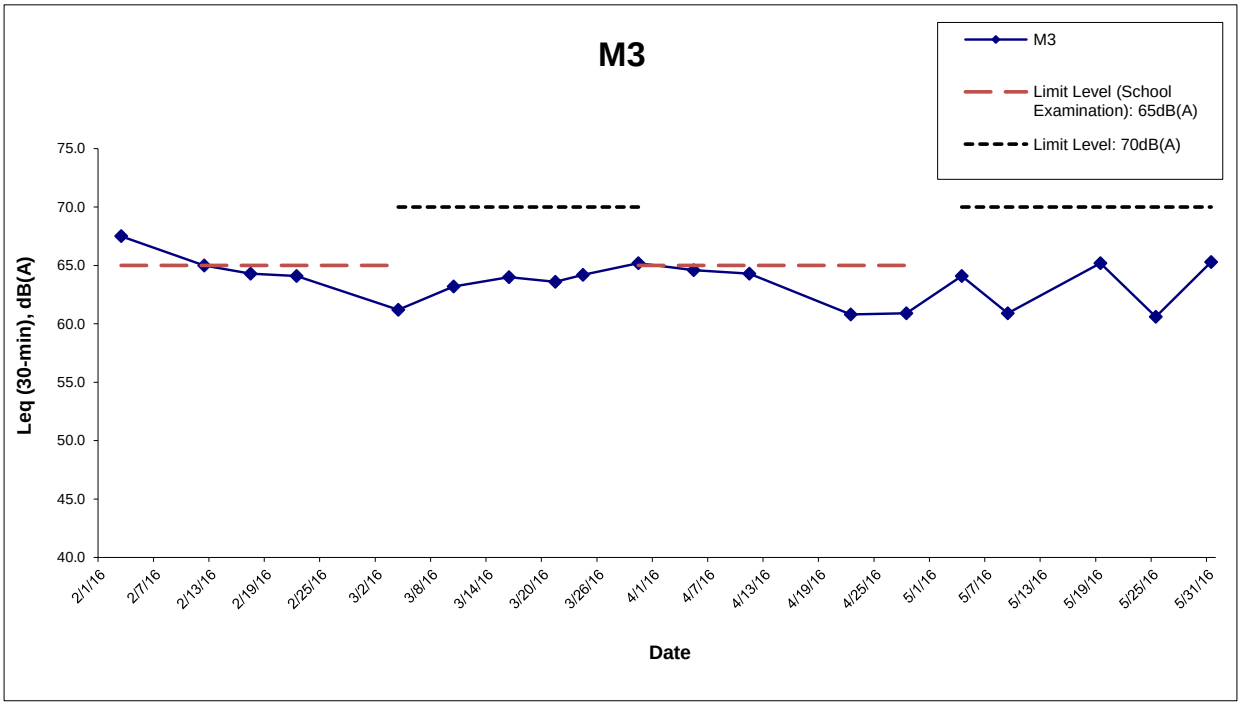
Date	Measured Noise Level for 30-min, dB(A)				Limit Level, dB(A)	Exceedance (Y/N)
	Start Time	Leq*	L10*	L90*		
4-May-16	13:10	71.8	74.9	68.8	75	N
9-May-16	10:15	68.8	71.0	66.5	75	N
19-May-16	15:02	69.8	72.1	66.3	75	N
25-May-16	11:35	69.1	72.0	68.0	75	N
31-May-16	14:05	70.8	72.5	67.0	75	N
	Min	68.8	71.0	66.3		
	Max	71.8	74.9	68.8		
	Average	70.2	72.7	67.4		

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		
4-May-16	11:00	64.1	67.8	61.2	70	N
9-May-16	10:00	60.9	62.0	58.0	70	N
19-May-16	15:43	65.2	67.1	62.6	70	N
25-May-16	11:20	60.6	61.5	57.0	70	N
31-May-16	13:10	65.3	67.0	62.0	70	N
	Min	60.6	61.5	57.0		
	Max	65.3	67.8	62.6		
	Average	63.7	65.8	60.7		

* +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.

APPENDIX J
EVENT ACTION PLAN

Appendix J – Event Action Plan

Event / Action Plan for Air Quality

Event	Action			
	ET Leader	**IEC**	**ER**	**Contractor**
Action Level				
Exceedance for one sample	1. Identify source; 2. Inform IEC and ER; 3. Repeat measurement to confirm finding; 4. Increase monitoring frequency to dailv.	1. Check monitoring data submitted by ET; 2. Check Contractor's working method.	1. Notify Contractor.	1. Rectify any unacceptable practice; 2. Amend working methods if appropriate.
Exceedance for two or more consecutive samples	1. Identify source; 2. Inform IEC and ER; 3. Repeat measurements to confirm findings; 4. Increase monitoring frequency to daily; 5. Discuss with IEC and Contractor on remedial actions required; 6. If exceedance continues, arrange meeting with IEC and ER; 7. If exceedance stops, cease additional monitoring.	1. Check monitoring data submitted by ET; 2. Check Contractor's working method; 3. Discuss with ET and Contractor on possible remedial measures; 4. Advise the ER on the effectiveness of the proposed remedial measures; 5. Supervise Implementation of remedial measures.	1. Confirm receipt of notification of failure in writing; 2. Notify Contractor; 3. Ensure remedial measures properly implemented.	1. Submit proposals for remedial actions to IEC within 3 working days of notification; 2. Implement the agreed proposals; 3. Amend proposal if appropriate.

Event / Action Plan for Air Quality

Event Action Level	Action			
	ET Leader	**IEC**	**ER**	**Contractor**
Limit Level				
Exceedance for one sample	1. Identify source; 2. Inform IEC, ER, Contractor and EPD; 3. Repeat measurement to confirm finding; 4. Increase monitoring frequency to daily; 5. Assess effectiveness of Contractor's remedial actions and keep IEC, EPD and ER informed of the results.	1. Check monitoring data submitted by ET; 2. Check Contractor's working method; 3. Discuss with ET and Contractor on possible remedial measures; 4. Advise ER on the effectiveness of the proposed remedial measures; 5. Supervise implementation of remedial measures.	1. Confirm receipt of notification of exceedance in writing; 2. Notify Contractor; 3. Ensure remedial measures properly implemented.	1. Take immediate action to avoid further exceedance; 2. Submit proposals for remedial actions to IEC within 3 working days of notification; 3. Implement the agreed proposals; 4. Amend proposal if appropriate.
Exceedance for two or more consecutive samples	1. Notify IEC, ER, Contractor and EPD; 2. Identify source; 3. Repeat measurement to confirm findings; 4. Increase frequency to daily; 5. Analyse Contractor's working procedures to determine possible mitigation to be; 6. Arrange meeting with IEC and ER to discuss the remedial actions to be taken; 7. Assess effectiveness of Contractor's remedial actions and keep IEC, EPD and ER informed of the results; 8. If exceedance stops, cease additional monitoring.	1. Discuss amongst ER, ET, and Contractor on the potential remedial actions; 2. Review Contractor's remedial actions whenever necessary to assure their effectiveness and advise ER accordingly; 3. Supervise the implementation of remedial measures.	1. Confirm receipt of notification of exceedance in writing; 2. Notify Contractor; 3. In consultation with the IEC, agree with the Contractor on the remedial measures to be implemented; 4. Ensure remedial measures properly implemented; 5. If exceedance continues, consider what portion of the work is responsible and instruct the Contractor to stop that portion of work until the exceedance is abated.	1. Take immediate action to avoid further exceedance; 2. Submit proposals for remedial actions to IEC within 3 working days of notification; 3. Implement the agreed proposals; 4. Resubmit proposals if problem still not under control; 5. Stop the relevant portion of works as determined by ER until the exceedance is abated.

Event / Action Plan for Noise Impact

Event Limit Level	Action			
	ET Leader	**IEC**	**ER**	**Contractor**
Action Level	1. Notify IEC and the Contractor. 2. Carry out investigation. 3. Report the results of investigation to IEC and the Contractor. 4. Discuss with the Contractor and formulate remedial measures. 5. Increase monitoring frequency to check mitigation effectiveness.	1. Review with analysed results submitted by ET. 2. Review the proposed remedial measures by the Contractor and advise ER accordingly. 3. Supervise the implement of remedial measures.	1. Confirm receipt of notification of failure in writing. 2. Notify the Contractor. 3. Require the Contractor to propose remedial measures for the analysed noise problem. 4. Ensure remedial measures are properly implemented.	1. Submit noise mitigation proposals to IEC. 2. Implement noise mitigation proposals.
Limit Level	1. Notify, IEC, ER, EPD and the Contractor. 2. Identify the source. 3. Repeat measurement to confirm findings. 4. Increase monitoring frequency. 5. Carry out analysis of Contractor's working procedures to determine possible mitigation to be implemented. 6. Inform IEC, ER, and EPD the causes & actions taken for the exceedances. 7. Assess effectiveness of the Contractor's remedial actions and keep IEC, EPD and ER informed of the results. 8. If exceedance stops, cease additional monitoring.	1. Discuss amongst ER, ET Leader and the Contractor on the potential remedial actions. 2. Review the Contractor's remedial actions whenever necessary to assure their effectiveness and advise ER accordingly. 3. Supervise the implementation of remedial measures.	1. Confirm receipt of notification of failure in writing. 2. Notify the Contractor. 3. Require the Contractor to propose remedial measures for the analysed noise problem. 4. Ensure remedial measures are properly implemented. 5. If exceedance continues, consider what activity of the work is responsible and instruct the Contractor to stop that activity of work until the exceedance is abated.	1. Take immediate action to avoid further exceedance. 2. Submit proposals for remedial actions to IEC within 3 working days of notification. 3. Implement the agreed proposals. 4. Resubmit proposals if problem still not under control. 5. Stop the relevant activity of works as determined by the ER until the exceedance is abated.

APPENDIX K
SITE INSPECTION SUMMARIES

Site Inspection Summary

Inspection Information

Contract No.	HY/2012/06
Date:	3 May 2016
Time:	14:00
Inspection No.:	129

Non-compliance

Nil

Observations

Follow-up Observation(s)

1. Proper NRMM label had been provided to the excavator at SA328. (Closed)
2. Stagnant water observed on ground at SA325 had been removed. (Closed)

New Observation(s)

3. Refuse was found accumulated on ground at SA328. The contractor should remove the refuse properly and keep the site in a tidy and clean condition.

Reminder(s)

Nil.

Remarks

Nil

	Name	Signature	Date
Prepared by	Adam Zhu		4 May 2016
Checked by	Y W Fung		4 May 2016

Site Inspection Summary

Inspection Information

Contract No.	HY/2012/06
Date:	10 May 2016
Time:	14:00
Inspection No.:	130

Non-compliance

Nil

Observations

Follow-up Observation(s)

1. Refuse has been segregated from the construction materials and properly collected and removed. (Closed)

New Observation(s)

3. Mud trail was observed at NB42A. The contractor should remove the mud trail properly.

Reminder(s)

Nil.

Remarks

Nil

	Name	Signature	Date
Prepared by	Adam Zhu		11 May 2016
Checked by	Y W Fung		11 May 2016

Site Inspection Summary

Inspection Information

Contract No.	HY/2012/06
Date:	19 May 2016
Time:	14:00
Inspection No.:	131

Non-compliance

Nil

Observations

Follow-up Observation(s)

1. Mud trail observed at NB42A had been cleaned up. (Closed)

New Observation(s)

2. An oil drum without drip tray was observed onsite at NB58. The contractor should provide drip tray to the oil drum properly.
3. Mud trail was observed on public road at SA325. The contractor should clean up the mud trail properly.

Reminder(s)

Nil.

Remarks

Nil

	Name	Signature	Date
Prepared by	Adam Zhu		20 May 2016
Checked by	Y W Fung		20 May 2016

Site Inspection Summary

Inspection Information

Contract No.	HY/2012/06
Date:	24 May 2016
Time:	14:00
Inspection No.:	132

Non-compliance

Nil

Observations

Follow-up Observation(s)

1. Drip tray had been provided to the oil drum properly at NB58. (Closed)
2. Mud trail observed on public road at SA325 had been cleaned up properly. (Closed)

New Observation(s)

3. Accumulated stagnant water was observed at SA340. The contractor should remove the stagnant water properly to prevent mosquito breeding.

Reminder(s)

Nil.

Remarks

Nil

	Name	Signature	Date
Prepared by	Adam Zhu		25 May 2016
Checked by	Y W Fung		25 May 2016

Site Inspection Summary

Inspection Information

Contract No.	HY/2012/06
Date:	31 May 2016
Time:	14:00
Inspection No.:	133

Non-compliance

Nil

Observations

Follow-up Observation(s)

1. Stagnant water observed at SA340 had been removed properly. (Closed)

New Observation(s)

2. Slurry and mud trail was observed near gully drain at site entrance of SA329. The contractor should clean up the slurry and mud trail properly.
3. Oil stains were observed on ground at SA328. The contractor should remove the oil stains properly and provide sufficient measures to prevent oil leakage.

Reminder(s)

Nil.

Remarks

Nil

	Name	Signature	Date
Prepared by	Adam Zhu		1 June 2016
Checked by	Y W Fung		1 June 2016

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

Appendix L

Statistics on Complaints, Notifications of Summons and Successful Prosecutions

	Date Received	Subject	Status	Total no. followed up by the ET this month	Total no. followed up by the ET since project commencement
Environmental complaints	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		

	Date Received	Subject	Status	Total no. followed up by the ET this month	Total no. followed up by the ET since project commencement
	23 October 2014	EPD referred an air complaint on 24 October 2014. A resident complained against the excavation works of Tai Wo Service Road West between Nam Wah Po & Tai Hang Tsuen, which have piled up high stockpiles, causing serious dust nuisance to his house. 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.	Closed		
	31 December 2014	EPD referred a water complaint on 31 December 2014. 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.	Closed		

	Date Received	Subject	Status	Total no. followed up by the ET this month	Total no. followed up by the ET since project commencement
	25 March 2015	EPD referred a water complaint on 25 March 2015. 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. The situation has continued for a few weeks and she asked the EPD to follow up as soon as possible.	Closed		
Notification of summons	-	-	-	0	0
Successful Prosecutions	-	-	-	0	0