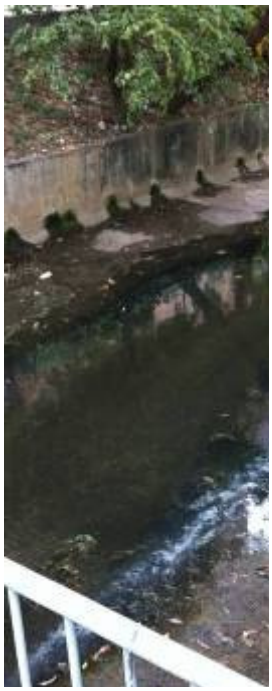

# Environmental Team Services for Contract No. CV/2011/01 Site formation and Infrastructural works near Tsing Lun Road and Tsz Tin Road in Area 54, Tuen Mun

## Monthly EM&A Report for March 2014 (Rev. A)

April 2014

Report No.: 298617/ENL/EM&A/28/A

CEDD

Mott MacDonald

# Environmental Team Services for Contract No. CV/2011/01 Site formation and Infrastructural works near Tsing Lun Road and Tsz Tin Road in Area 54, Tuen Mun

## Monthly EM&A Report for March 2014 (Rev. A)

April 2014

Report No.: 298617/ENL/EM&A/28/A

Civil Engineering and Development Department, 2/F, Civil Engineering and Development Building,
101 Princess Margaret Rd, Homantin, Kowloon

Mott MacDonald, 20/F AIA Kowloon Tower, Landmark East, 100 How Ming Street, Kwun Tong, Kowloon, Hong Kong
t +852 2828 5757 f +852 2827 1823, W www.mottmac.com

Mott MacDonald

**Pursuant to Condition 3.2 of Environmental Permit No. EP-331/2009, this Monthly EM&A Report for March 2014 has been reviewed and certified by the Environmental Team Leader (ETL) and verified by the Independent Environmental Checker (IEC).**

**Certified by:**

Terence Kong
Environmental Team Leader (ETL)
Mott MacDonald Hong Kong Limited

Date 14 April 2014

**Verified by:**

Sharifah Or
Independent Environmental Checker (IEC)
Atkins China Limited

Date 14 April 2014

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# EXECUTIVE SUMMARY

In September 2011, Mott MacDonald Hong Kong Limited (MMHK) was commissioned by the Civil Engineering and Development Department (CEDD) under Agreement No. LW 05/2011 to undertake the Environmental Team (ET) services (including environmental monitoring and audit (EM&A)) for the Site formation and Infrastructural works near Tsing Lun Road and Tsz Tin Road in Area 54, Tuen Mun (The Project).

The Environmental Permit (EP) for the "Widening of Tsing Lun Road, Tuen Mun" was granted by the Environmental Protection Department (EPD) on 17 March 2009. This is the 28th Monthly EM&A Report submitted under Condition 3.2 of the EP which summarises the findings on EM&A during the period from 1 to 31 March 2014.

**Exceedance of Action and Limit Levels**

No exceedance of Action or Limit Levels for Air Quality and no exceedance of Action Level for Noise monitoring was recorded in the reporting month.

Two exceedances of Limit level for construction noise were recorded on 6 and 12 March 2014 during the reporting month. Following ET's investigations, it was concluded that the exceedances on 6 and 12 March 2014 were unlikely to be Project-related. The exceedance investigation reports are presented in **Appendix L**.

**Implementation of Mitigation Measures**

Site inspections were carried out on 6, 12, 19 and 26 March 2014 to confirm the implementation measures undertaken by the Contractor in the reporting month. The outcomes are presented in **Section 4** and the status of implementation of mitigation measures in the site is shown in **Appendix J**.

**Record of Complaints**

There was no record of complaints received in the reporting month.

**Record of Notification of Summons and Successful Prosecutions**

There was no record of notification of summons and successful prosecution in the reporting month.

**Reporting Changes**

There are no reporting changes.

**Future Key Issues**

The major site works scheduled to be commissioned in the coming three months include:

- Construction of retaining wall
- Demolition of existing structures
- Construction of stormwater drain and sewage
- Construction of Noise barrier

- Construction of public toilet
- Construction of New Tsz Tin Road
- Construction of superstructure of footbridge
- Laying of watermain
- Roadworks
- Construction of hoarding

Potential environmental impacts due to the construction activities, including air quality, noise, water quality, waste and trees will be monitored or reviewed. The recommended environmental mitigation measures shall be implemented on site and weekly site inspections will be carried out to ensure that the environmental conditions are acceptable.

# 1. Introduction

## 1.1 Background

In September 2011, Mott MacDonald Hong Kong Limited (MMHK) was commissioned by the Civil Engineering and Development Department (CEDD) under Agreement No. LW 05/2011 to undertake the Environmental Team (ET) services (including environmental monitoring and audit (EM&A)) for the Site formation and Infrastructural works near Tsing Lun Road and Tsz Tin Road in Area 54, Tuen Mun (The Project). The construction of the project commenced on 8 December 2011.

The Monthly EM&A Report is required under the approved EM&A Manual and is submitted to fulfil Condition 3.2 of the Environmental Permit (EP) No. EP-331/2009 for the "Widening of Tsing Lun Road, Tuen Mun", which was granted by the Environmental Protection Department (EPD) on 17 March 2009.

This is the 28th Monthly EM&A Report presenting the monitoring works conducted from 1 to 31 March 2014. The purpose of this report is to summarise the finding in the EM&A of the project over the reporting period.

## 1.2 Project Organisation

The organisation chart and lines of communication with respect to the on-site environmental management structure together with the contact information of the key personnel are shown in **Appendix A**.

## 1.3 Environmental Status in the Reporting Period

During the reporting period, construction works of the Project undertaken include:

- Construction of watermain
- Construction of noise barrier
- Demolition of existing structures
- Construction of stormwater drain and sewage
- Roadworks
- Construction of superstructure of footbridge
- Construction of hoarding

The Construction Works Programme of the Project is provided in **Appendix B**. A layout plan of the Project is provided in **Figure 1.1 and Figure 1.2**.

## 1.4 Summary of EM&A Requirements

The EM&A programme requires environmental monitoring of air quality and noise as specified in the approved EM&A Manual.

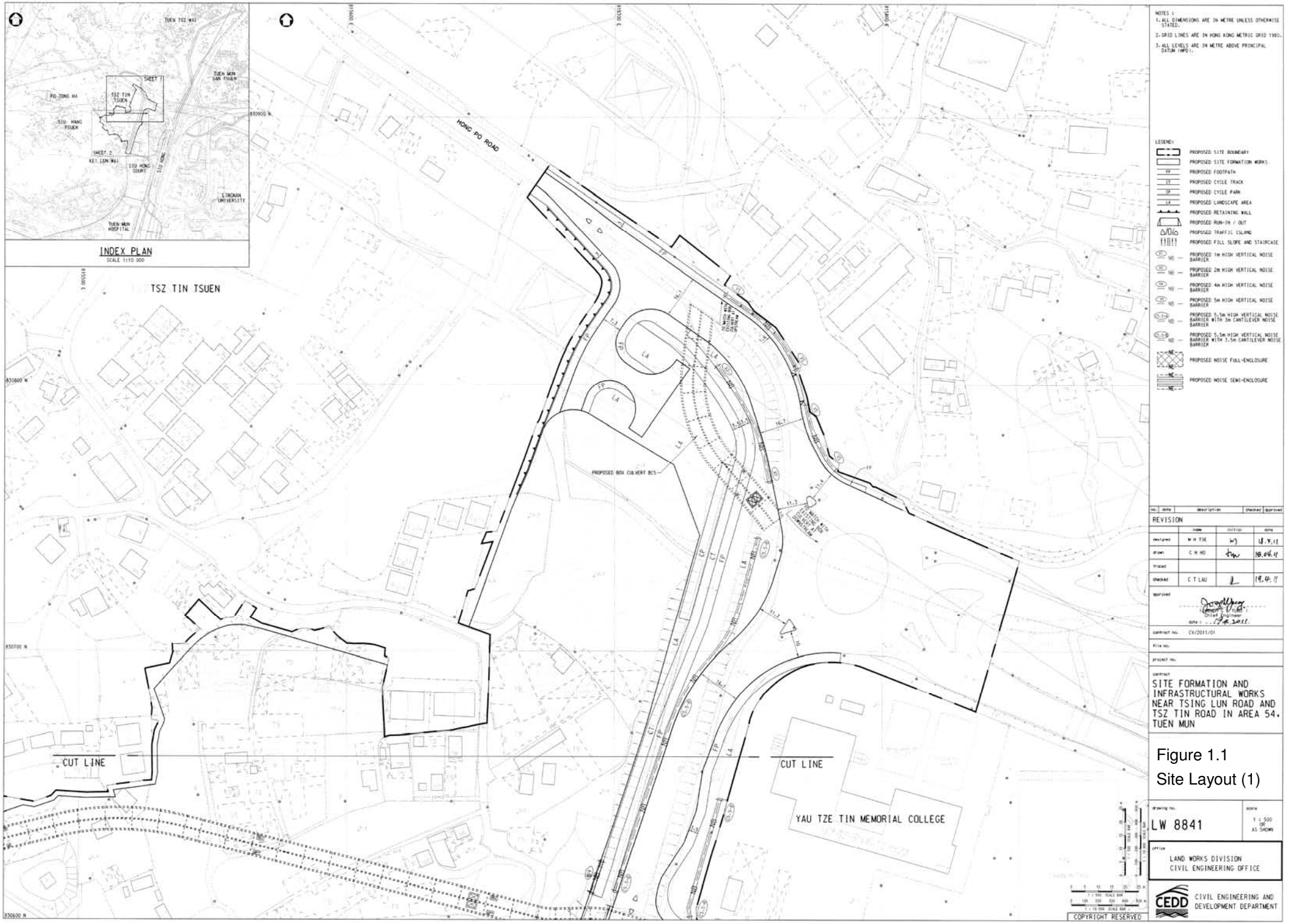
A summary of impact EM&A requirements is presented in **Table 1-1**.

Table 1-1: Summary of Impact EM&A Requirements

| Parameters | Descriptions | Locations | Frequencies |
|---|---|---|---|
| Air Quality | 24-Hour TSP | AM3 | Once every 6 days |
| | 1-Hour TSP | AM3 | 3 times every 6 days |
| Noise | $L_{eq}$, 30min | NM8, NM9 | Weekly |

The Environmental Quality Performance Limits for air quality and noise are shown in **Appendix C**.

The Event and Action Plan for air quality and noise monitoring are shown in **Appendix D**.


INDEX PLAN
SCALE 1:10 000
TSZ TIN TSUEN
HONG PO ROAD
PROPOSED BOX CULVERT BCS
CUT LINE
CUT LINE
YAU TZE TIN MEMORIAL COLLEGE
NOTES :
1. ALL DIMENSIONS ARE IN METRE UNLESS OTHERWISE STATED.
2. GRID LINES ARE IN HONG KONG METRIC GRID 1980.
3. ALL LEVELS ARE IN METRE ABOVE PRINCIPAL DATUM (mPD).
LEGEND :
PROPOSED SITE BOUNDARY
PROPOSED SITE FORMATION WORKS
PROPOSED FOOTPATH
PROPOSED CYCLE TRACK
PROPOSED CYCLE PARK
PROPOSED LANDSCAPE AREA
PROPOSED RETAINING WALL
PROPOSED RUN-IN / OUT
PROPOSED TRAFFIC ISLAND
PROPOSED FILL SLOPE AND STAIRCASE
PROPOSED 1m HIGH VERTICAL NOISE BARRIER
PROPOSED 2m HIGH VERTICAL NOISE BARRIER
PROPOSED 4m HIGH VERTICAL NOISE BARRIER
PROPOSED 5m HIGH VERTICAL NOISE BARRIER
PROPOSED 5.5m HIGH VERTICAL NOISE BARRIER WITH 3m CANTILEVER NOISE BARRIER
PROPOSED 5.5m HIGH VERTICAL NOISE BARRIER WITH 3.5m CANTILEVER NOISE BARRIER
PROPOSED NOISE FULL-ENCLOSURE
PROPOSED NOISE SEMI-ENCLOSURE
REVISION
designed M H TSE
drawn C H HO
traced
checked C T LAU
approved
Chief Engineer
date : 19.4.2011
contract no. CV/2011/01
file no.
project no.
contract
SITE FORMATION AND INFRASTRUCTURAL WORKS NEAR TSING LUN ROAD AND TSZ TIN ROAD IN AREA 54, TUEN MUN
Figure 1.1
Site Layout (1)
drawing no.
LW 8841
scale
1 : 500 OR AS SHOWN
office
LAND WORKS DIVISION
CIVIL ENGINEERING OFFICE
CEDD
CIVIL ENGINEERING AND DEVELOPMENT DEPARTMENT
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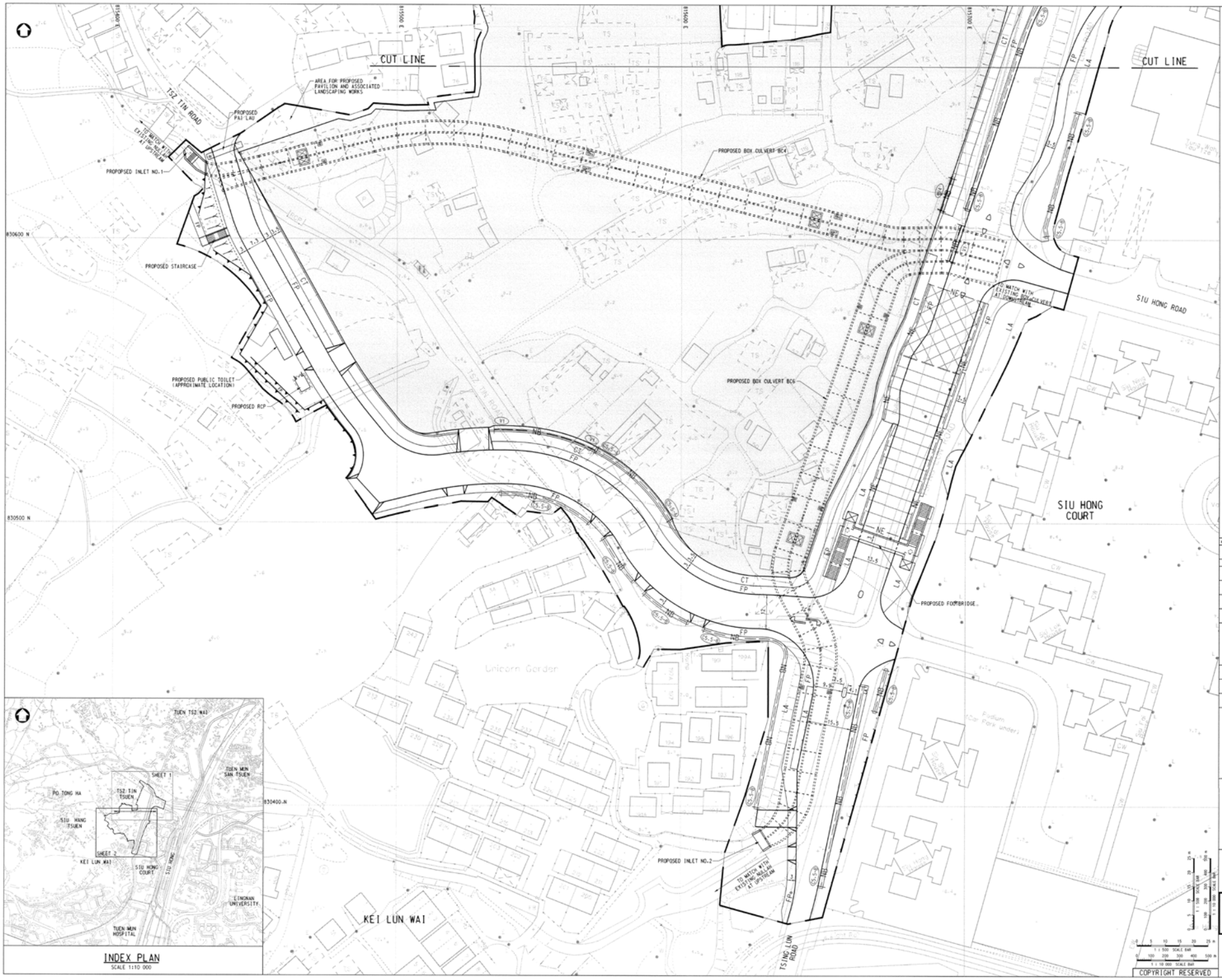


NOTES :

1. FOR NOTES AND LEGEND, REFER DRAWING NO. LW8841.

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| designed | M H TSE | | 18.4.11 |
| drawn | C H HO | | 18.04.11 |
| traced | | | |
| checked | C T LAU | | 19.4.11 |

approved

(Joseph C L TONG)
Chief Engineer
date : 19.4.2011

contract no. CV/2011/01

file no.

project no.

contract

SITE FORMATION AND INFRASTRUCTURAL WORKS NEAR TSING LUN ROAD AND TSZ TIN ROAD IN AREA 54, TUEN MUN

Figure 1.2
Site Layout (2)

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scale 1 : 500 OR AS SHOWN

office LAND WORKS DIVISION CIVIL ENGINEERING OFFICE

CEDD CIVIL ENGINEERING AND DEVELOPMENT DEPARTMENT

# 2. Impact Monitoring Methodology

## 2.1 Introduction

For air quality and construction noise, the monitoring methodology, including the monitoring locations, monitoring equipment used, monitoring parameters, and frequency and duration etc., are detailed in this Section. The environmental monitoring schedules for the reporting period and the tentative monitoring Schedule for the coming month are provided in **Appendix E**.

## 2.2 Air Quality

### 2.2.1 Monitoring Parameters, Frequency and Duration

**Table 2-1** summarizes the monitoring parameters, frequency and duration of the TSP monitoring.

Table 2-1: Air Quality Monitoring Parameters, Frequency and Duration

| Monitoring Station | Parameter | Frequency and Duration |
|---|---|---|
| Tung Wah Group of Hospitals (TWGHs) Yau Tze Tin Memorial College (AM3) | 24-hour TSP | At least once in every six-days |
| | 1-hour TSP | 3 times every six-days |

### 2.2.2 Monitoring Locations

Four monitoring stations (AM1, AM2, AM3 and AM4) were proposed in the EM&A Manual. Only AM3, i.e. TWGHs Yau Tze Tin Memorial College, was considered relevant to this project based on the scope and layout of the construction works. The location of the monitoring station is given in **Table 2-2** and is shown in **Figure 2.1**.

Table 2-2: Air Monitoring Station

| Monitoring Station | Location |
|---|---|
| AM3 | TWGHs Yau Tze Tin Memorial College, at roof of the Assembly Hall (accessed from 4/F) |

### 2.2.3 Monitoring Equipments

Continuous 24-hour TSP air quality monitoring was conducted using High Volume Sampler (HVS) (Model: GMWS-2310 Accu-vol) located at the designated monitoring station. The HVS meets all the requirements stated in Section 3.2 of the EM&A Manual. Portable direct reading dust meters were used to carry out the 1-hour TSP monitoring. **Table 2-3** summarizes the equipment used in the impact air quality monitoring. Copies of the calibration certificates for the HVS and portable dust meters are attached in **Appendix F**.

Table 2-3: TSP Monitoring Equipment

| Equipment | Model |
|---|---|
| **24-hr TSP monitoring** | |
| High Volume Sampler | GMWS 2310 Accu-vol (Serial no. 0890) |
| Calibrator | TE-5025A (Serial no. 2323) |
| **1-hr TSP monitoring** | |
| Portable direct reading dust meter | Dust Trak 8520 (Serial no. 85202623) |

### 2.2.4 Monitoring Methodology

24-hour TSP Monitoring

**Installation**

The HVS was installed at the building roof of the air sensitive receiver. The following criteria were considered in the installation of the HVS.

- A horizontal platform with appropriate support to secure the sampler against gusty wind was provided.
- The distance between the HVS and any obstacles, such as buildings, was at least twice the height that the obstacle protrudes above the HVS.
- A minimum of 2 metres separation from walls, parapets and penthouse was required for rooftop sampler.
- A minimum of 2 metres separation from any supporting structure, measured horizontally was required.
- No furnace or incinerator flues or building vent were nearby.
- Airflow around the sampler was unrestricted.
- The sampler has been more than 20 metres from any drip line.
- Permission was obtained to set up the samplers and to obtain access to the monitoring stations.
- A secured supply of electricity is needed to operate the samplers.

**Preparation of Filter Papers**

- Glass fibre filters were labelled and sufficient filters that were clean and without pinholes were selected.
- All filters were equilibrated in the conditioning environment for 24 hours before weighing. The conditioning environment temperature was around 25 ℃ and not variable by more than ±3 ℃ with relative humidity (RH) < 50% and was not variable by more than ±5 %. A convenient working RH was 40%.

**Field Monitoring Procedures**

- The power supply was checked to ensure the HVS works properly.

- The filter holder and the area surrounding the filter were cleaned.
- 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.
- The filter was properly aligned on the screen so that the gasket formed an airtight seal on the outer edges of the filter.
- The swing bolts were fastened to hold the filter holder down to the frame. The pressure applied should be sufficient to avoid air leakage at the edges.
- The shelter lid was closed and was secured with the aluminium strip.
- The HVS was warmed-up for about 5 minutes to establish run-temperature conditions.
- A new flow rate record sheet was set into the flow recorder.
- The flow rate of the HVS was checked and adjusted at around 1.3 $m^3$/min. The range specified in the EM&A Manual was between 0.6-1.7 $m^3$/min.
- The programmable timer was set for a sampling period of 24 hrs, and the starting time, weather condition and the filter number were recorded.
- The initial elapsed time was recorded.
- At the end of sampling, the sampled filter was removed carefully and folded in half length so that only surfaces with collected particulate matter were in contact.
- It was then placed in a clean plastic envelope and sealed.
- All monitoring information was recorded on a standard data sheet.
- Filters were sent to a Hong Kong Laboratory Accreditation Scheme (HOKLAS) accredited laboratory for analysis.

**Maintenance and Calibration**

- The HVS and its accessories are maintained in good working condition, such as replacing motor brushes routinely and checking electrical wiring to ensure a continuous power supply.
- HVSs were calibrated prior to monitoring.
- Calibration records for HVS are shown in **Appendix F**.

1-hour TSP Monitoring

**Field Monitoring**

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

- Set POWER to "ON", push BATTERY button, make sure that the meter's indicator is in the range with a red line and allow the instrument to stand for about 3 minutes (Then, the air sampling inlet has been capped).
- Push the knob at MEASURE position.
- Push "O-ADJ" button. (Then meter's indication is 0).

- Push the knob at SENSI ADJ position and set the meter's indication to S value described on the Test Report using the trimmer for SENSI ADJ.
- Pull out the knob and return it to MEASURE position.
- Push "START" button.

**Maintenance and Calibration**

- The 1-hour dust meter would be checked at 3-month intervals and calibrated at 1-year intervals throughout all stages of the air quality monitoring.
- Calibration records for direct dust meters are shown in **Appendix F**.

**Weather Condition**

- The wind data during the monitoring period were recorded and provided in **Appendix H**.

## 2.3 Construction Noise

### 2.3.1 Monitoring Parameters, Frequency and Duration

**Table 2-4** summarizes the monitoring parameters, frequency and duration of noise monitoring. The noise in A-weighted levels $L_{eq}$, $L_{10}$ and $L_{90}$ are recorded in a 30-minute interval between 0700 and 1900 hrs at the designated monitoring stations shown in **Figure 2.1**. For monitoring at hours other than daytime on normal weekdays, i.e. 0700-1900 on holidays, 1900-2300 and 2300-0700 of all days, the noise level will be measured in a 5-minute interval. One set of measurement for restricted hour shall include at least 3 consecutive $L_{eq}$(5 mins) results.

Table 2-4: Noise Monitoring Parameters, Period and Frequency

| Time Period | Parameters | Frequency |
|---|---|---|
| Daytime on normal weekdays (0700-1900 hrs) | $L_{eq}$, $L_{90}$ & $L_{10}$ (30 min) | Once every week (the time period to be monitoring will be randomly selected if there are works at hours other than daytime on normal weekdays; otherwise only the daytime on normal weekdays will be monitored) For restricted hours (outside daytime on normal weekdays), one set of measurement shall include at least 3 consecutive $L_{eq(5\ mins)}$ results. |
| Evening time on all days (1900-2300 hrs) and Holidays (including Sundays) during daytime and evening (0700-2300 hrs) | $L_{eq}$, $L_{90}$ & $L_{10}$ (5 min) | |
| All days during the night-time (2300-0700 hrs of the next day) | | |

### 2.3.2 Monitoring Equipment

Integrating Sound Level Meter was used for noise monitoring. It was a Type 1 sound level meter capable of giving a continuous readout of the noise level readings including equivalent continuous sound pressure level ($L_{Aeq}$) and percentile sound pressure level ($L_x$). They comply with International Electrotechnical Commission Publications 651:1979 (Type 1) and 804:1985 (Type 1). **Table 2-5** summarizes the noise monitoring equipment model being used.

Table 2-5: Noise Monitoring Equipments

| Monitoring Station | Equipment Model | |
|---|---|---|
| | Integrating Sound Level Meter | Calibrator |
| NM8 | Rion NL-18 (Serial no. 00360030) | Rion NC-73 (Serial no. 10997142) |
| NM9 | | |

### 2.3.3 Monitoring Locations

Ten monitoring stations (NM1 to NM10) were proposed in the EM&A Manual. Only NM8 and NM9, namely Siu Hong Court and Yau Tze Tin Memorial College respectively, were considered relevant to this project based on the scope and layout of the construction works. The exact locations of the stations were slightly adjusted during the baseline monitoring phase and described in **Table 2-6** and shown in **Figure 2.1**.

Table 2-6: Locations of Noise Monitoring Stations

| Monitoring Station | Locations | Type of measurement |
|---|---|---|
| NM8 | 3/F of Car Park at Siu Hong Court | Facade |
| NM9 | TWGHs Yau Tze Tin Memorial College, at roof of the Assembly Hall (accessed from 4/F) | Facade |

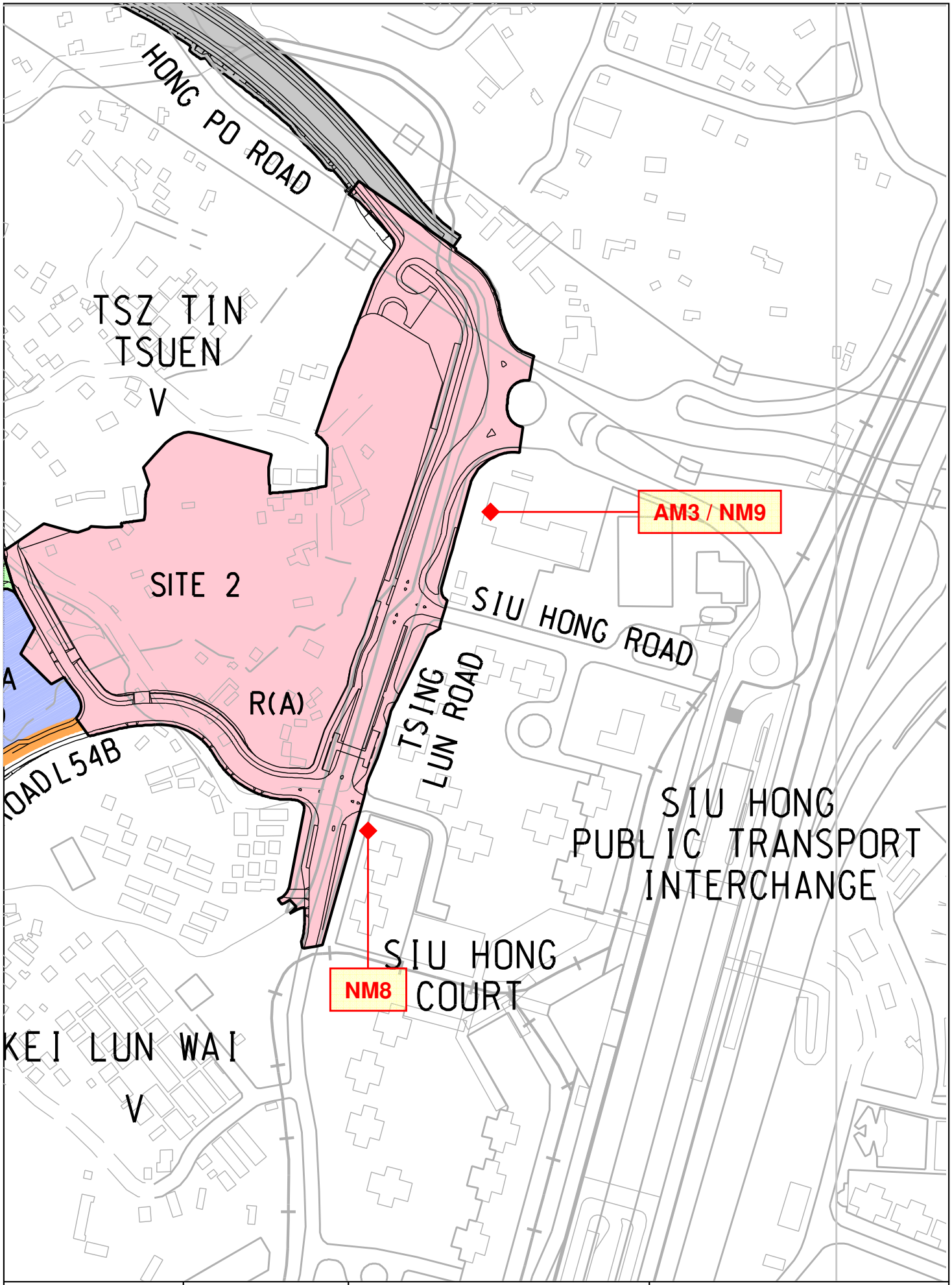
### 2.3.4 Monitoring Methodology

**Field Monitoring**

- The Sound Level Meter was set on a tripod at a height of at least 1.2 m above the ground.
- Façade measurement was made at the monitoring locations.
- The battery condition was checked to ensure the correct functioning of the meter.
- Parameters such as frequency weighting, the time weighting and the measurement time were set as follows:
  - frequency weighting: A
  - time weighting: Fast
  - time measurement: 30 minutes intervals (between 0700-1900 on normal weekdays); and 5 minutes intervals (0700-1900 on holidays, 1900-2300 and 2300-0700 of all days) and at least 3 consecutive measurements for one set of monitoring.
- Prior to and after each noise measurement, the meter was calibrated using a Calibrator for 94 dB at 1 kHz. If the difference in the calibration level before and after measurement was more than 1 dB, the measurement would be considered invalid has to be repeated after re-calibration or repair of the equipment.
- During the monitoring period, the $L_{eq}$, $L_{10}$ and $L_{90}$ were recorded. In addition, any site observations and noise sources were recorded on a standard record sheet.

**Maintenance and Calibration**

- The microphone head of the sound level meter and calibrator is cleaned with soft cloth at quarterly intervals.
- The meter and calibrator are sent to the supplier or HOKLAS laboratory to check and calibrate at yearly intervals.
- Calibration records are shown in **Appendix F**.




| | | | |
|---|---|---|---|
| Civil Engineering and Development Department | Mott MacDonald | Agreement No. LW 05/2011<br>Environmental Team Services for Contract No. CV/2011/01<br>Site formation and Infrastructural works near Tsing Lun Road and Tsz Tin Road in Area 54, Tuen Mun | Title:<br>Locations of Air Quality & Noise Monitoring Stations<br>Figure 2.1 |

# 3. Monitoring Results

## 3.1 Impact Monitoring

Impact monitoring for air quality and noise due to the construction work were undertaken in compliance with the EMA& Manual during the reporting month.

## 3.2 Air Quality

### 3.2.1 1-hr TSP

Results of 1-hour TSP at the monitoring location are summarised in **Table 3-1**. Graphical plots of the monitoring results are shown in **Appendix G**.

Table 3-1: Summary of 1-hour TSP monitoring results

| Monitoring Date | Start Time | 1-hr TSP (µg/m$^3$) | | | Range (µg/m$^3$) | Action Level (µg/m$^3$) | Limit Level (µg/m$^3$) |
|---|---|---|---|---|---|---|---|
| | | 1st Result | 2nd Result | 3rd Result | | | |
| **AM3** | | | | | | | |
| 06-Mar-14 | 08:25 | 112 | 116 | 120 | 81-182 | 329 | 500 |
| 12-Mar-14 | 08:20 | 81 | 86 | 94 | | | |
| 18-Mar-14 | 08:00 | 171 | 176 | 182 | | | |
| 24-Mar-14 | 08:00 | 127 | 132 | 136 | | | |
| 28-Mar-14 | 12:55 | 137 | 142 | 150 | | | |

### 3.2.2 24-hr TSP

Results of 24-hour TSP at the monitoring location are summarised in **Table 3-2**. Graphical plots of the monitoring results are shown in **Appendix G**.

Table 3-2: Summary of 24-hour TSP monitoring results

| Monitoring Date | Start Time | Monitoring Results (µg/m$^3$) | Range (µg/m$^3$) | Action Level (µg/m$^3$) | Limit Level (µg/m$^3$) |
|---|---|---|---|---|---|
| **AM3** | | | | | |
| 06-Mar-14 | 09:31 | 91 | 65- 91 | 179 | 260 |
| 12-Mar-14 | 09:00 | 87 | | | |
| 18-Mar-14 | 10:50 | 73 | | | |
| 24-Mar-14 | 08:05 | 65 | | | |
| 28-Mar-14 | 13:00 | 68 | | | |

No exceedance of 1-hour and 24-hour TSP (Action or Limit Level) was recorded in the reporting period.

## 3.3 Construction Noise

The construction noise monitoring results are summarized in **Table 3-3**. Graphical plots of the monitoring data are shown in **Appendix G**.

Table 3-3: Summary of Construction noise monitoring results

| Monitoring Date | Start Time | Mean & Range of Noise Levels, dB(A) | | | Limit Level for $L_{eq}$ (dB) |
|---|---|---|---|---|---|
| | | $L_{eq}$ | $L_{10}$ | $L_{90}$ | |
| **NM8** | | | | | |
| 06-Mar-14 | 09:40 | 73 | 75 | 71 | > 75 |
| 12-Mar-14 | 09:05 | 69 | 72 | 67 | |
| 18-Mar-14 | 09:00 | 71 | 73 | 69 | |
| 24-Mar-14 | 09:45 | 72 | 74 | 70 | |
| **NM9** | | | | | |
| 06-Mar-14 | 08:30 | 72 | 74 | 69 | >70 |
| 12-Mar-14 | 08:25 | 71 | 73 | 68 | |
| 18-Mar-14 | 10:20 | 70 | 72 | 68 | |
| 24-Mar-14 | 10:25 | 69 | 71 | 67 | |

Note: * Reduced to 70 dB(A) for schools and 65 dB(A) during school examination periods

# 4. Environmental Site Inspections

## 4.1 Site Inspection

Construction phase weekly site inspections were carried on 6, 12, 19, 26 March 2014. All observations have been recorded in the site inspection checklist and passed to the Contractor together with the appropriate recommended mitigation measures where necessary. The key observations from site inspections and associated recommendations are summarized in **Table 4-1**.

Table 4-1: Summary of Site Inspections and Recommendations

| Key Observations (Date) | ET Recommendation | Contactor's Responses / Action(s) Undertaken | Close-out (Date) |
|---|---|---|---|
| The tree no. K169 was observed to be in a bad condition with cracks in the bark. (15 Aug 2013) | To review the conditions of tree no. K169 and provide appropriate remedial measures. | Agreed and action being taken | On-going |
| Oil containers and oil pump at site office near Hong Po Road Exit and outside 瑞園 were observed without drip tray. (26 Feb 2014) | To provide appropriate storage facility to the oil containers. | Agreed and action taken | 12 Mar 2014 |
| Dark smoke was observed from the excavator BH002. (26 Feb 2014) | To provide maintenance to all plants on site to avoid dark smoke emission. | Agreed and action taken | 12 Mar 2014 |
| Cement mixing activities outside 瑞園 were observed without proper cover. (6 Mar 2014) | To provide 3-side and top enclosure. | Agreed and action taken | 12 Mar 2014 |
| Excavator BH002 outside Yau Tsz Tin Collage was observed to be emitting loud noise when moving. (12 Mar 2014) | To provide proper maintenance and relocate the excavator away from sensitive receiver to reduce noise impact. | Agreed and action taken | 19 Mar 2014 |
| The opened cement bag was observed without cover outside 瑞園. (12 Mar 2014) | To remove or cover the opened cement bag. | Agreed and action taken | 19 Mar 2014 |
| Open-air mixing of cement was observed near roundabout of Tsing Lun Road. (12 Mar 2014) | To provide proper coverings or enclosure for all cement mixing activities on site. | Agreed and action taken | 19 Mar 2014 |
| The inlet of the sedimentation tank near Hong Po Road entrance was observed not connected properly. (12 Mar 2014) | To ensure the inlet of the sedimentation tank is connected properly. | Agreed and action taken | 19 Mar 2014 |
| No designated location was provided for washing concrete truck and storage of the washed water. (12 Mar 2014) | To provide a designated location for washing concrete truck and storage of the washed water. | Agreed and action taken | 19 Mar 2014 |
| Several stockpiles of exposed C&D materials were observed, especially near Hong Po Road and the bus stop at Tsing Lun Road. (19 Mar 2014) | To provide tarpaulin covering or other suitable dust mitigation measures. | Agreed and action being taken | On-going |
| The construction materials was observed inside the tree protection zone of tree at pavilion and no tree protection zone was provided for tree no. H176B. (26 Mar 2014) | To remove the construction materials from tree protection zone and re-establish the tree protection zone. | Agreed and action taken | 2 Apr 2014 |
| Oil stains and oil leakage from excavators were observed at several places around site area. (26 Mar 2014) | To clear the oil stains and perform regular maintenance to avoid further leakage. | Agreed and action taken | 2 Apr 2014 |

| Key Observations (Date) | ET Recommendation | Contactor's Responses / Action(s) Undertaken | Close-out (Date) |
|---|---|---|---|
| An open bag of cement and the uncovered stockpiles were observed near tree no. K176B. (26 Mar 2014) | To remove an open cement bag and cover the stockpiles. | Agreed and action being taken | On-going |
| Muddy trail was observed from Tsing Lun Road and Tsz Tin Road. (26 Mar 2014) | To clear the muddy trail from Tsing Lun Road and Tsz Tin Road. | Agreed and action taken | 2 Apr 2014 |
| A breaker mounted excavator was observed working near Yau Tsz Tin College with cover opened and no water spraying was performed. (26 Mar 2014) | To review and enhance the noise and dust mitigation measures. | Agreed and action taken | 2 Apr 2014 |

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

The Contractor has been registered as a chemical waste producer for the Project. Construction and demolition (C&D) material sorting was carried out on site. A sufficient number of receptacles were available for general refuse collection.

The waste flow table is present in **Appendix I**.

## 4.3 Status of Environmental Licenses and Permits

The environmental permits, licenses, and/or notifications on environmental protection for this Project which were valid during the period is summarised in **Table 4-2**.

Table 4-2: Status of Environmental Submissions, Licenses and Permits

| Statutory Reference | Description | Permit /Reference No. | Status |
|---|---|---|---|
| EIAO | Environmental Permit | EP-331/2009 | Valid |
| APCO | Notification of Construction Work under APCO | 335179 | Valid |
| WPCO | Discharge License | WT00011754-2012 (Valid to: 31 Jan 2017) | Valid |
| WDO | Registration as Chemical Waste Producer | 0000-423-C1232-08 | Valid |
| WDO | Bill Account for disposal | WFG10240 | Valid |

Legend: EIAO – Environmental Impact Assessment Ordinance
APCO – Air Pollution Control Ordinance
WPCO – Water Pollution Control Ordinance
WDO – Waste Disposal Ordinance

## 4.4 Recommended Mitigation Measures

The EM&A programme followed the recommended mitigation measures in the EM&A Manual. The EM&A requirements as well as the summary of implementation status of the environmental mitigation measures are provided in **Appendix J**. In particular, the following mitigation measures were brought to attention during the site inspections:

**Air**

- Excavated dusty materials should be covered by impervious sheeting or sprayed with water to keep the entire surface wet.
- Every vehicle should be washed to remove dusty materials from its body and wheels before leaving a construction site.

**Noise**

- Silencers or mufflers on construction equipment should be utilised and should be properly maintained during the construction works.
- Plant known to emit noise strongly in one direction, should, where possible, be orientated to direct noise away from nearby NSRs.

**Water Quality**

- All drainage facilities and erosion and sediment control structures shall be regularly inspected and maintained to ensure proper and efficient operation at all times and particularly following rainstorms.
- All vehicles and mechanical plant shall be cleaned before leaving a construction site to ensure no earth, mud, debris and the like is deposited by them on roads.

**Waste Management**

- Chemical waste produced should be handled in accordance with the relevant guidelines and regulations.
- Construction solid waste, debris and rubbish on site shall be collected, handled and disposed of properly.

# 5. Report on Non-compliance, Complaints, Notifications of Summons and Successful Prosecutions

## 5.1 Record on Non-compliance of Action and Limit Levels

No exceedance of Action or Limit Levels for Air Quality and no exceedance of Action Level for Noise monitoring was recorded in the reporting month.

Two exceedances of Limit level for construction noise were recorded in the reporting month. The $L_{eq}$ (30 min) levels measured at NM9 (TWGHs Yau Tze Tin Memorial College) were:

- 72 dB(A) (08:30-09:00) on 6 March 2014, which exceeded the Limit Level of 70 dB(A).
- 71 dB(A) (08:25-08:55) on 12 March 2014, which exceeded the Limit Level of 70 dB(A).

The exceedance investigation reports are presented in **Appendix L**.

## 5.2 Record on Environmental Complaints Received

No environmental complaint was received during the reporting month. The cumulative statistics on complaints were provided in **Appendix K**.

## 5.3 Record on Notifications of Summons and Successful Prosecution

No notifications of summons or successful prosecution were received this month. The cumulative statistics on notifications of summons and successful prosecutions were provided in **Appendix K**.

## 5.4 Review of Reasons for and Implications of Non-compliance, Complaints, Summons and Prosecutions

Not applicable.

## 5.5 Follow-up Actions Taken

Not applicable.

# 6. Future Key Issues

## 6.1 Construction Works for the Coming Month(s)

The major site works scheduled to be commissioned in the coming three months include:

- Construction of retaining wall
- Demolition of existing structures
- Construction of stormwater drain and sewage
- Construction of Noise barrier
- Construction of public toilet
- Construction of New Tsz Tin Road
- Construction of superstructure of footbridge
- Laying of watermain
- Roadworks
- Construction of hoarding

## 6.2 Key Issues for the Coming Month

Key issues to be considered in the coming month include:

- Generation of dust from construction and demolition works;
- Noise impact from operating equipment and machinery on-site;
- Generation of site surface runoffs and wastewater from activities on-site;
- Management of stockpiles and slopes, particularly on rainy days;
- Sorting, recycling, storage and disposal of general refuse and construction waste; and
- Management of chemicals and avoidance of oil spillage on-site.

## 6.3 Monitoring Schedule for the Coming Month

Impact monitoring for air and noise in accordance with the approved EM&A Manual has commenced since 8 December 2011. The tentative monitoring schedule for the coming month is shown in the **Appendix E**.

## 6.4 Conclusions and Recommendations

### 6.4.1 Conclusions

The EM&A programme as recommended in the EMA& Manual has been undertaken in the reporting month since the construction commenced on 8 December 2011.

Monitoring of air quality and noise due to the Project was under way. In particular, the 1-hr TSP, 24-hr TSP and noise level (as $L_{eq}$) under monitoring have been checked against established Action and Limit levels. No exceedance of Action or Limit Levels for Air Quality was recorded in the reporting month. However, two exceedances of Limit level for construction noise were recorded on 6 and 12 March 2014 during the

reporting month. Following ET's investigations, it was concluded that the exceedances were unlikely to be Project-related.

### 6.4.2 Recommendations

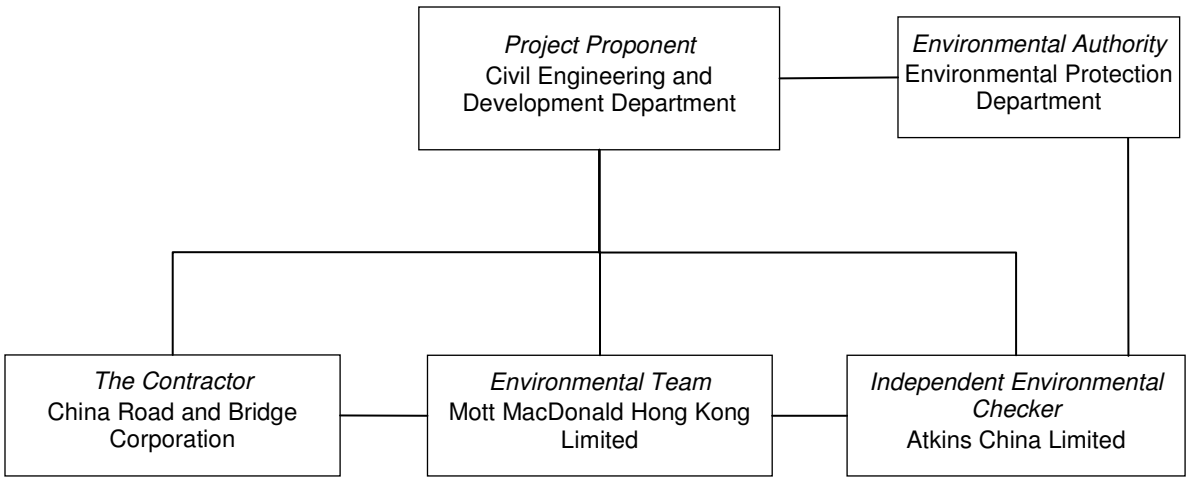
With considerations on the construction activities and environment, recommendations on mitigation measures for impacts on air quality, noise, water quality and waste were provided during site inspections and meetings.

School examinations are scheduled from 7 to 14 April 2014 and Hong Kong Diploma of Secondary Education (HKDSE) examinations are scheduled on 7, 8, 9, 11, 12, 14, 16, 24, 26 and 29 April 2014 at the TWGHs Yau Tze Tin Memorial College (NSR: NM9). In addition, construction of new roads, noise barriers, stormwater drain and sewerage and associated works near Siu Hong Court (NSR: M8), Unicorn Garden and TWGHs Yau Tze Tin Memorial College (NSR: NM9) are ongoing. Therefore, the Contractor has been reminded to strictly implement the recommended noise mitigation measures in EM&A Manual:

**Noise**

- Only well-maintained plant should be operated on-site and plant should be serviced regularly during the construction works.
- Machines and plant that may be in intermittent use should be shut down between work periods or should be throttled down to a minimum.
- Plant known to emit noise strongly in one direction, should, where possible, be orientated to direct noise away from nearby NSRs.
- Silencers or mufflers on construction equipment should be utilized and should be properly maintained during the construction works.
- Mobile plant should be sited as far away from NSRs as possible.
- Material stockpiles and other structures should be effectively utilized, where practicable, to screen noise from on-site construction activities.

# Appendix A. Project Organisation



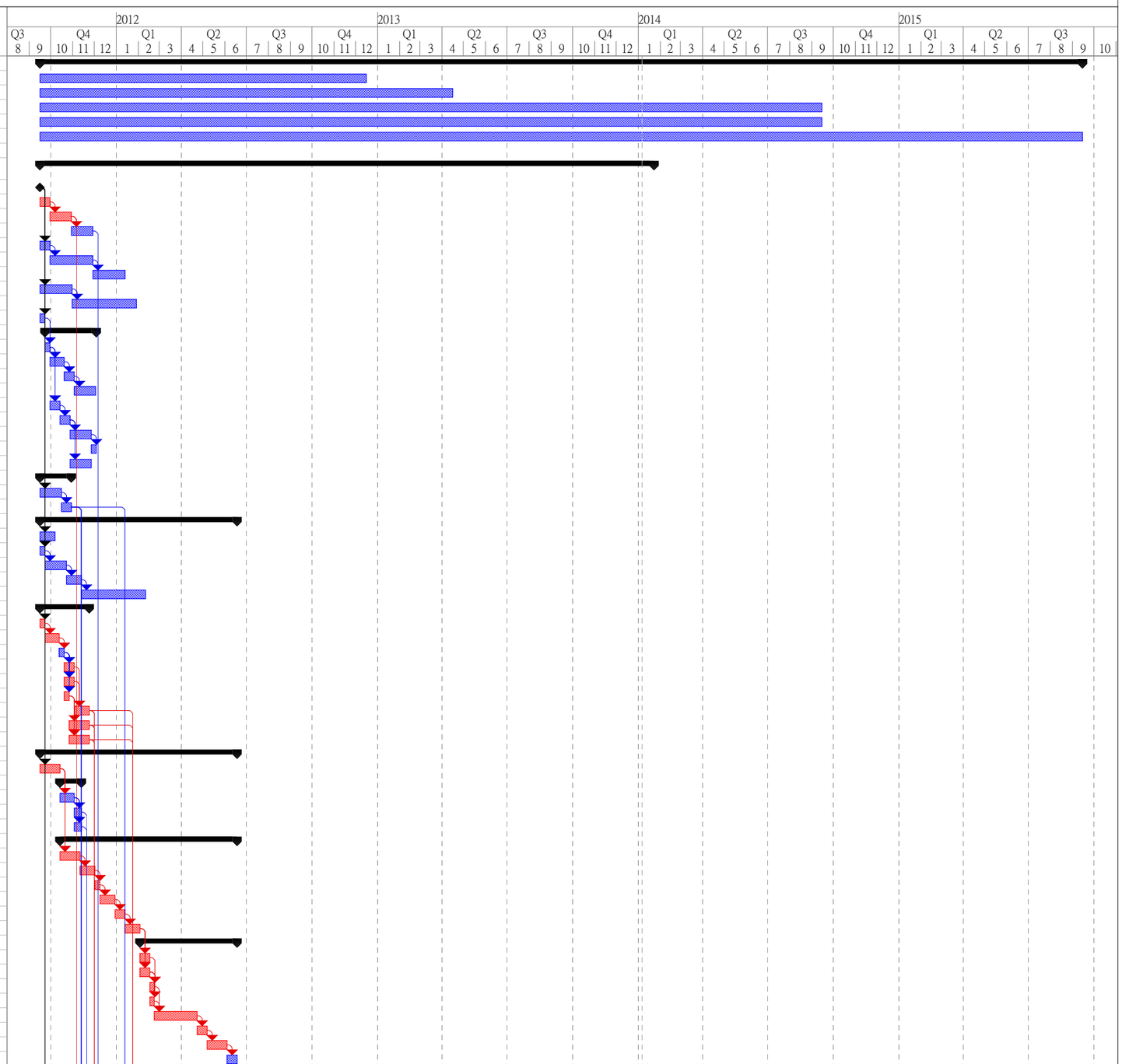

Contact information:

| Company / Department | Position | Name | Telephone / Mobile |
|---|---|---|---|
| Civil Engineering and Development Department | Engineer's Representative | Ms Jane Yip | 2762 5328 |
| Atkins China Ltd. | Independent Environmental Checker | Ms Sharifah Or | 2972 1000 |
| Mott MacDonald Hong Kong Ltd. | Environmental Team Leader | Mr Terence Kong | 2828 5919 |
| China Road and Bridge Corporation | Project Manager | Mr Raymond Mau | 9048 3669 |
| China Road and Bridge Corporation | Site Agent | Mr Kau Kwok-hung, Ken | 5335 9758 |
| China Road and Bridge Corporation | Environmental Officer | Mr Ray Ma | 5335 9755 |

# Appendix B. Tentative Construction Programme

# CRBC-China Road and Bridge Corporation
# Contract No. CV/2011/01
# Site Formation and Infrastructural Works near Tsing Lun Road and Tze Tin Road in Area 54, Tuen Mun
# Master Program (Version 0)

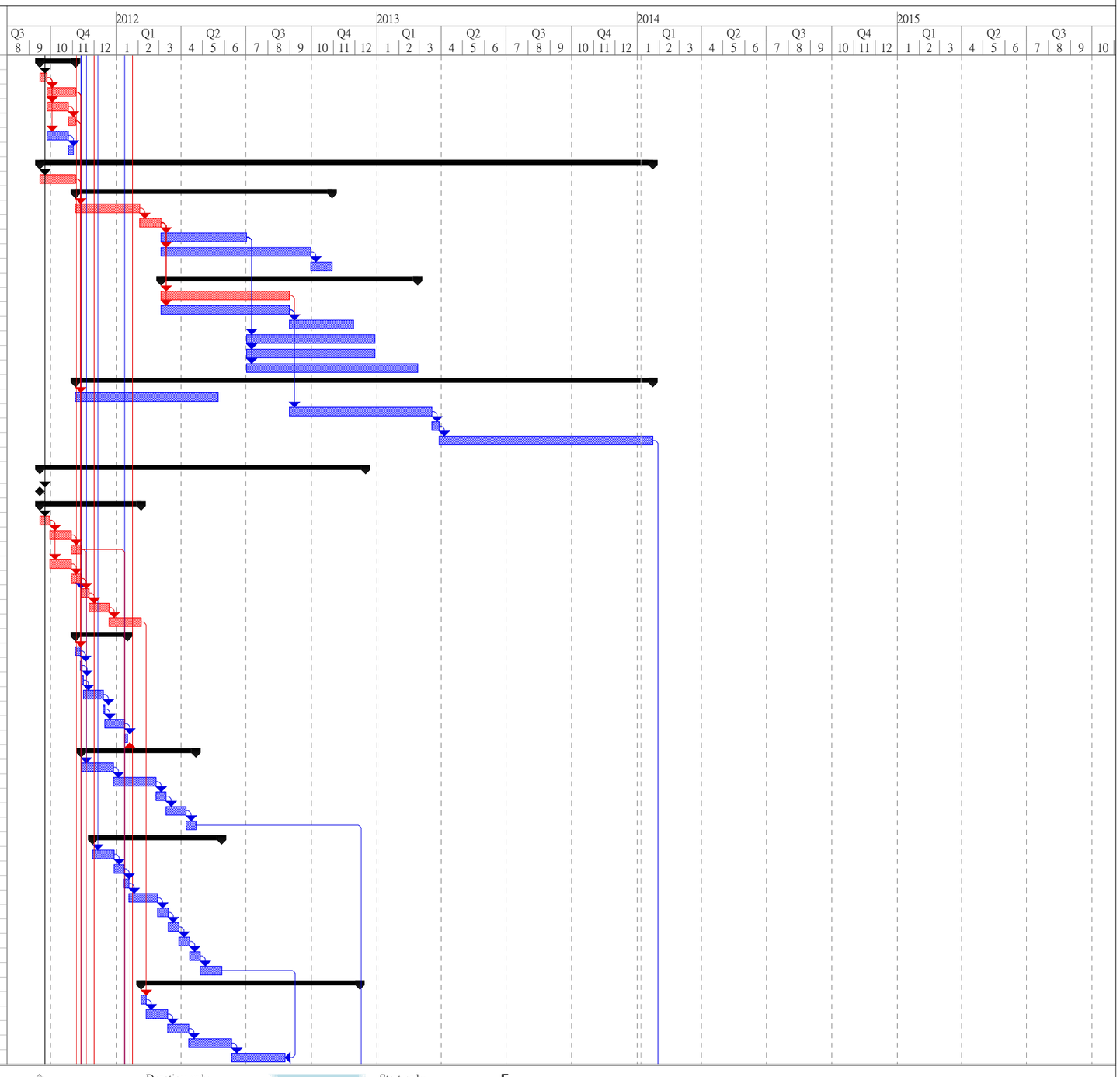
| ID | Task Name | Duration | Start | Finish |
|---|---|---|---|---|
| 1 | **Project Key Date** | **1460 days** | **Fri 16/9/11** | **Mon 14/9/15** |
| 2 | Section I of the Works ( Portion A of the Site ) | 457 days | Fri 16/9/11 | Sat 15/12/12 |
| 3 | Section II of the Works ( Portion B of the Site ) | 578 days | Fri 16/9/11 | Mon 15/4/13 |
| 4 | Section III of the Works ( Portion C of the Site ) | 1095 days | Fri 16/9/11 | Sun 14/9/14 |
| 5 | Section IV of the Works ( P&P of existing Trees within the Site ) | 1095 days | Fri 16/9/11 | Sun 14/9/14 |
| 6 | Section V of the Works ( Establishment Works ) | 1460 days | Fri 16/9/11 | Mon 14/9/15 |
| 7 | | | | |
| 8 | **Preliminary** | **860 days** | **Fri 16/9/11** | **Wed 22/1/14** |
| 9 | Commencement Day | 0 days | Fri 16/9/11 | Fri 16/9/11 |
| 10 | Establishment of SLG | 14 days | Fri 16/9/11 | Thu 29/9/11 |
| 11 | Utility coordination | 30 days | Fri 30/9/11 | Sat 29/10/11 |
| 12 | Update Existing Utilities Drawings from UU parties | 30 days | Sun 30/10/11 | Mon 28/11/11 |
| 13 | Submission of Independent Traffic Consultant ( ITC )to ER and approval | 14 days | Fri 16/9/11 | Thu 29/9/11 |
| 14 | Prepare TTA schemes by ITC | 60 days | Fri 30/9/11 | Mon 28/11/11 |
| 15 | Submission of TTA schemes for approval by Authorities | 45 days | Tue 29/11/11 | Thu 12/1/12 |
| 16 | Materials submission and approval by ER | 45 days | Fri 16/9/11 | Sun 30/10/11 |
| 17 | Delivery of materials and testing | 90 days | Mon 31/10/11 | Sat 28/1/12 |
| 18 | Mobilization of plants | 7 days | Fri 16/9/11 | Thu 22/9/11 |
| 19 | **ER and Contractor's Site Office** | **72 days** | **Fri 23/9/11** | **Sat 3/12/11** |
| 20 | Submission layout of works area WA1 and approval | 7 days | Fri 23/9/11 | Thu 29/9/11 |
| 21 | Site preparation works | 20 days | Fri 30/9/11 | Wed 19/10/11 |
| 22 | TTA submission for run-in of WA1 and approval by TD and RMO | 14 days | Thu 20/10/11 | Wed 2/11/11 |
| 23 | Hoarding Erection for works area WA1 | 30 days | Thu 3/11/11 | Fri 2/12/11 |
| 24 | Submission and approval of equipments and office for ER | 14 days | Fri 30/9/11 | Thu 13/10/11 |
| 25 | Delivery of material for RE's office | 14 days | Fri 14/10/11 | Thu 27/10/11 |
| 26 | Erection of ER's office | 30 days | Fri 28/10/11 | Sat 26/11/11 |
| 27 | Delivery of equipments for ER office | 7 days | Sun 27/11/11 | Sat 3/12/11 |
| 28 | Erection of contractor site office | 30 days | Fri 28/10/11 | Sat 26/11/11 |
| 29 | **Survey of the Site** | **44 days** | **Fri 16/9/11** | **Sat 29/10/11** |
| 30 | Carrying out initial surveys and setting out Site boundaries | 30 days | Fri 16/9/11 | Sat 15/10/11 |
| 31 | Structural survey record | 14 days | Sun 16/10/11 | Sat 29/10/11 |
| 32 | **Environmental Issue and base line monitoring** | **276 days** | **Fri 16/9/11** | **Sun 17/6/12** |
| 33 | Submission of EMP / WMP / TTS for approval | 21 days | Fri 16/9/11 | Thu 6/10/11 |
| 34 | Coordination with ET | 7 days | Fri 16/9/11 | Thu 22/9/11 |
| 35 | Submission of Methodology of base line monitoring by ET and approval | 30 days | Fri 23/9/11 | Sat 22/10/11 |
| 36 | Set up monitoring stations by ET | 21 days | Sun 23/10/11 | Sat 12/11/11 |
| 37 | Baseline Monitoring by ET | 90 days | Sun 13/11/11 | Fri 10/2/12 |
| 38 | **Asbestos Investigation and abatement** | **69 days** | **Fri 16/9/11** | **Wed 23/11/11** |
| 39 | Submission of Registered Asbestos Consultant and approval | 7 days | Fri 16/9/11 | Thu 22/9/11 |
| 40 | Asbestos Investigation | 20 days | Fri 23/9/11 | Wed 12/10/11 |
| 41 | Submission of preliminary asbestos assessment report | 7 days | Thu 13/10/11 | Wed 19/10/11 |
| 42 | Submission of asbestos investigation report (AIR) to ER and DEP | 14 days | Thu 20/10/11 | Wed 2/11/11 |
| 43 | Submission of asbestos abatement plan (AAP) to ER and DEP | 14 days | Thu 20/10/11 | Wed 2/11/11 |
| 44 | Submission of method statement prepared by registered asbestos contractor | 7 days | Thu 20/10/11 | Wed 26/10/11 |
| 45 | Obtained the endorsement from DEP | 21 days | Thu 3/11/11 | Wed 23/11/11 |
| 46 | Apply necessary trick ticket by registered asbestos contractor | 28 days | Thu 27/10/11 | Wed 23/11/11 |
| 47 | Notification to LD and DEP for commencement of works | 28 days | Thu 27/10/11 | Wed 23/11/11 |
| 48 | **Land Decontamination Assessment and Remediation Works** | **276 days** | **Fri 16/9/11** | **Sun 17/6/12** |
| 49 | Submission of Decontamination Specialist and approval | 28 days | Fri 16/9/11 | Thu 13/10/11 |
| 50 | **Site E** | **30 days** | **Fri 14/10/11** | **Sat 12/11/11** |
| 51 | Submission of method statement of cement solidification and approval | 20 days | Fri 14/10/11 | Wed 2/11/11 |
| 52 | Submission of treatment programme | 10 days | Thu 3/11/11 | Sat 12/11/11 |
| 53 | Submission of location plan and general arrangement and approval | 10 days | Thu 3/11/11 | Sat 12/11/11 |
| 54 | **Site G / Site H1** | **248 days** | **Fri 14/10/11** | **Sun 17/6/12** |
| 55 | Submission of Contamination Assessment Plan (CAP) to ER and DEP | 28 days | Fri 14/10/11 | Thu 10/11/11 |
| 56 | Approval of CAP by ER and DEP | 21 days | Fri 11/11/11 | Thu 1/12/11 |
| 57 | Mobilization of plant for SI works | 7 days | Fri 2/12/11 | Thu 8/12/11 |
| 58 | Site Investigation Works | 21 days | Fri 9/12/11 | Thu 29/12/11 |
| 59 | Sampling and laboratory test according to approved CAP | 14 days | Fri 30/12/11 | Thu 12/1/12 |
| 60 | Submission of Contamination Assessment Report (CAR) to ER and DEP for approval | 21 days | Fri 13/1/12 | Thu 2/2/12 |
| 61 | **If treatment works is necessary** | **136 days** | **Fri 3/2/12** | **Sun 17/6/12** |
| 62 | Submission of Remediation Action Plan (RAP) to ER and DEP for approval | 14 days | Fri 3/2/12 | Thu 16/2/12 |
| 63 | Submission of method statement of treatment and approval | 14 days | Fri 3/2/12 | Thu 16/2/12 |
| 64 | Submission of treatment programme | 6 days | Fri 17/2/12 | Wed 22/2/12 |
| 65 | Submission of location plan and general arrangement and approval | 6 days | Fri 17/2/12 | Wed 22/2/12 |
| 66 | Carry out the treatment works | 60 days | Thu 23/2/12 | Sun 22/4/12 |
| 67 | Sample collection and laboratory test | 14 days | Mon 23/4/12 | Sun 6/5/12 |
| 68 | Backfilling of treated materials | 28 days | Mon 7/5/12 | Sun 3/6/12 |
| 69 | Submission of remediation report to ER and DEP | 14 days | Mon 4/6/12 | Sun 17/6/12 |




Task — Summary — Inactive Milestone — Duration-only — Start-only
Critical Task — Split — Inactive Summary — Manual Summary Rollup — Finish-only
Milestone — Inactive Task — Manual Task — Manual Summary — Progress

# CRBC-China Road and Bridge Corporation
# Contract No. CV/2011/01
# Site Formation and Infrastructural Works near Tsing Lun Road and Tze Tin Road in Area 54, Tuen Mun
# Master Program (Version 0)

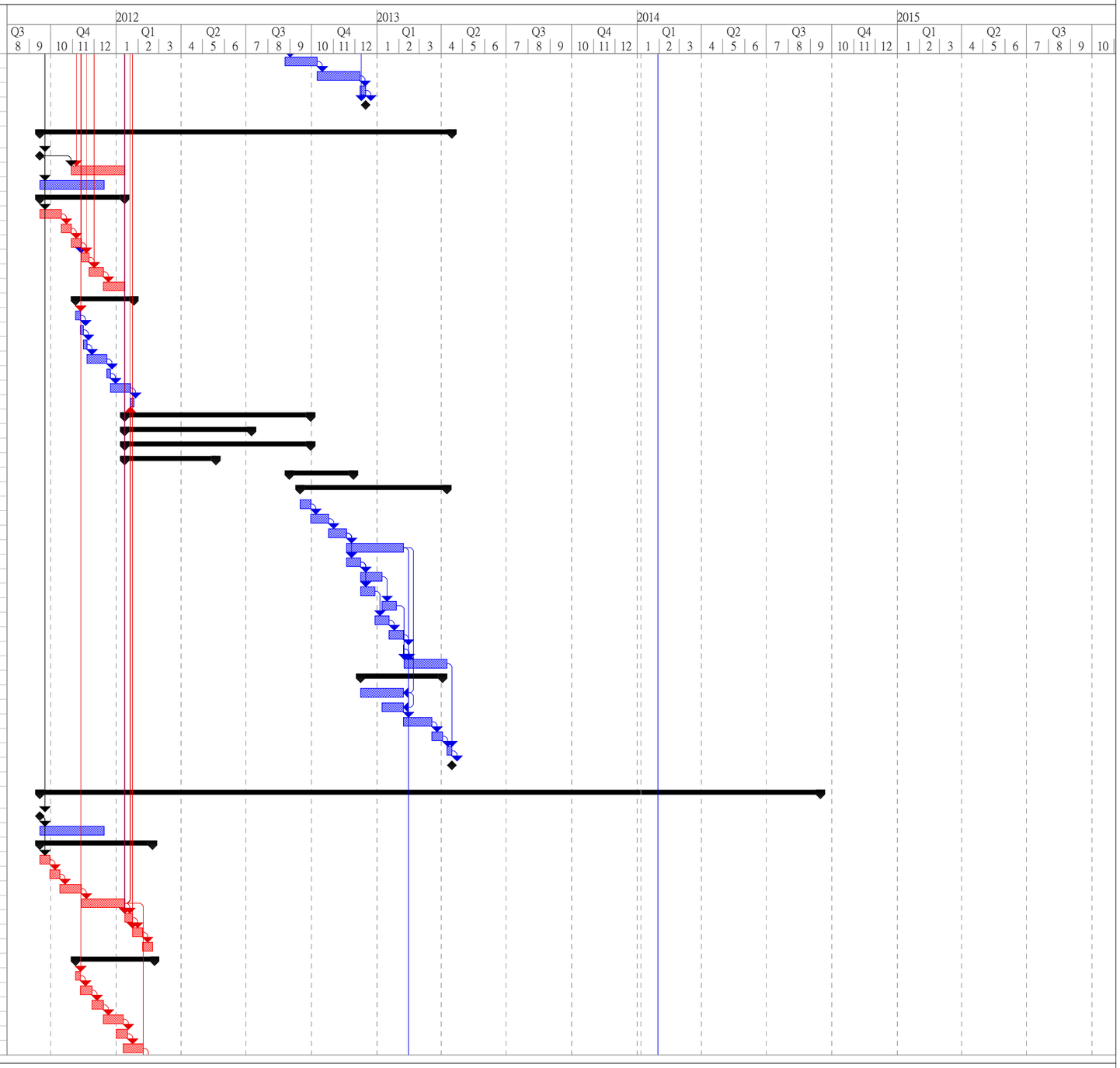
| ID | Task Name | Duration | Start | Finish |
|---|---|---|---|---|
| 70 | **Landscape Works** | **50 days** | **Fri 16/9/11** | **Fri 4/11/11** |
| 71 | Submission of Tree Specialist and approval by the ER | 10 days | Fri 16/9/11 | Sun 25/9/11 |
| 72 | Submission of methoodology for Tree Transplanting Works for ER's approval | 40 days | Mon 26/9/11 | Fri 4/11/11 |
| 73 | Carry out Tree Survey | 30 days | Mon 26/9/11 | Tue 25/10/11 |
| 74 | Prepare the tree survey report and approval by the ER | 10 days | Wed 26/10/11 | Fri 4/11/11 |
| 75 | Carry out the Tree Group Inspection Works | 30 days | Mon 26/9/11 | Tue 25/10/11 |
| 76 | Submission of Records for Tree Group Inspection Works | 7 days | Wed 26/10/11 | Tue 1/11/11 |
| 77 | **Noise Barriers** | **860 days** | **Fri 16/9/11** | **Wed 22/1/14** |
| 78 | Submission of Noise Barrier Specialist and approval by the ER | 50 days | Fri 16/9/11 | Fri 4/11/11 |
| 79 | **Technical / Design Submission and Approval By the ER** | **360 days** | **Sat 5/11/11** | **Mon 29/10/12** |
| 80 | Material, Technical and Design Submission with ICE Certificate | 90 days | Sat 5/11/11 | Thu 2/2/12 |
| 81 | Material, Technical and Design of noise barrier approval by the ER | 30 days | Fri 3/2/12 | Sat 3/3/12 |
| 82 | Finalization of setting out and alignment of noise barrier | 120 days | Sun 4/3/12 | Sun 1/7/12 |
| 83 | General arrangement and Shop Drawings submission | 210 days | Sun 4/3/12 | Sat 29/9/12 |
| 84 | General arrangement and Shop Drawings approval by the ER | 30 days | Sun 30/9/12 | Mon 29/10/12 |
| 85 | **Procurement of material, delivery and Test** | **360 days** | **Sun 4/3/12** | **Tue 26/2/13** |
| 86 | Holding down bolts materials | 180 days | Sun 4/3/12 | Thu 30/8/12 |
| 87 | Structural steel materials | 180 days | Sun 4/3/12 | Thu 30/8/12 |
| 88 | Carry out materials test | 90 days | Fri 31/8/12 | Wed 28/11/12 |
| 89 | PMMA transparent /Translucent panels | 180 days | Mon 2/7/12 | Fri 28/12/12 |
| 90 | Absorptive type noise barrier panels | 180 days | Mon 2/7/12 | Fri 28/12/12 |
| 91 | Aluminium profiles, cladding, EPDM sealing and fixing | 240 days | Mon 2/7/12 | Tue 26/2/13 |
| 92 | **Offsite Fabrication Yard for Steelworks** | **810 days** | **Sat 5/11/11** | **Wed 22/1/14** |
| 93 | ER's approval of PRC workshop | 200 days | Sat 5/11/11 | Tue 22/5/12 |
| 94 | Delivery structural steel to Offsite Fabrication Yard | 200 days | Fri 31/8/12 | Mon 18/3/13 |
| 95 | Verify the as-build of installed holding down bolts | 10 days | Tue 19/3/13 | Thu 28/3/13 |
| 96 | Fabrication ( Cut + Weld + Galvanising + Painting ) | 300 days | Fri 29/3/13 | Wed 22/1/14 |
| 97 | | | | |
| 98 | **Section I of the Works - Portion A** | **457 days** | **Fri 16/9/11** | **Sat 15/12/12** |
| 99 | Procession of Site | 0 days | Fri 16/9/11 | Fri 16/9/11 |
| 100 | **Site Clearance** | **142 days** | **Fri 16/9/11** | **Sat 4/2/12** |
| 101 | General Site Clearance Works | 14 days | Fri 16/9/11 | Thu 29/9/11 |
| 102 | Forming site access | 30 days | Fri 30/9/11 | Sat 29/10/11 |
| 103 | Tree Felling works | 14 days | Sun 30/10/11 | Sat 12/11/11 |
| 104 | Submission of Method Statement for Demolishing of existing village house | 30 days | Fri 30/9/11 | Sat 29/10/11 |
| 105 | Obtained Approval for method statement for demolshing of existing village house | 14 days | Sun 30/10/11 | Sat 12/11/11 |
| 106 | Demolition of Existing village houses (without abestos) | 11 days | Sun 13/11/11 | Wed 23/11/11 |
| 107 | Removal of asbestos materials and disposal | 28 days | Thu 24/11/11 | Wed 21/12/11 |
| 108 | Demolition of Existing village houses (with abestos) | 45 days | Thu 22/12/11 | Sat 4/2/12 |
| 109 | **Tree Transplanting for H941** | **73 days** | **Sat 5/11/11** | **Mon 16/1/12** |
| 110 | Preparation Works for tree transplant | 7 days | Sat 5/11/11 | Fri 11/11/11 |
| 111 | Crown Pruning | 2 days | Sat 12/11/11 | Sun 13/11/11 |
| 112 | Root pruning - Stage 1 | 2 days | Mon 14/11/11 | Tue 15/11/11 |
| 113 | Waiting for 2nd stage root pruning | 28 days | Wed 16/11/11 | Tue 13/12/11 |
| 114 | Root pruning - Stage 2 | 2 days | Wed 14/12/11 | Thu 15/12/11 |
| 115 | Waiting for transplant after 2nd stage root pruning | 28 days | Fri 16/12/11 | Thu 12/1/12 |
| 116 | Carry out the transplanting works | 4 days | Fri 13/1/12 | Mon 16/1/12 |
| 117 | **Treatment of Contaminated Materials** | **161 days** | **Sun 13/11/11** | **Sat 21/4/12** |
| 118 | Prepare the treatment area for cement solidification works | 45 days | Sun 13/11/11 | Tue 27/12/11 |
| 119 | Carry out the treatment works | 60 days | Wed 28/12/11 | Sat 25/2/12 |
| 120 | Sample collection and laboratory test | 14 days | Sun 26/2/12 | Sat 10/3/12 |
| 121 | Backfilling of treated materials | 28 days | Sun 11/3/12 | Sat 7/4/12 |
| 122 | Submission of remediation report to ER and DEP | 14 days | Sun 8/4/12 | Sat 21/4/12 |
| 123 | **Retaining Wall No.1** | **181 days** | **Tue 29/11/11** | **Sun 27/5/12** |
| 124 | Submission of Method Statement for ER / CLP consent | 30 days | Tue 29/11/11 | Wed 28/12/11 |
| 125 | Obtained Consent from ER / CLP for commencement of works | 14 days | Thu 29/12/11 | Wed 11/1/12 |
| 126 | UU Cordination / Detection | 7 days | Thu 12/1/12 | Wed 18/1/12 |
| 127 | Excavation for structure | 40 days | Thu 19/1/12 | Mon 27/2/12 |
| 128 | Bay 11 | 15 days | Tue 28/2/12 | Tue 13/3/12 |
| 129 | Bay 12 | 15 days | Wed 14/3/12 | Wed 28/3/12 |
| 130 | Bay 13 | 15 days | Thu 29/3/12 | Thu 12/4/12 |
| 131 | Bay 14 | 15 days | Fri 13/4/12 | Fri 27/4/12 |
| 132 | Backfilling abd compaction | 30 days | Sat 28/4/12 | Sun 27/5/12 |
| 133 | **Site Hoard, Drainage Works and Site Formation Works** | **307 days** | **Sun 5/2/12** | **Fri 7/12/12** |
| 134 | UU Detection | 7 days | Sun 5/2/12 | Sat 11/2/12 |
| 135 | U channel construction ( between CP 6.1 and SMH 6.1 ) | 30 days | Sun 12/2/12 | Mon 12/3/12 |
| 136 | U channel construction ( between CP 6.1 and CP1.1) | 30 days | Tue 13/3/12 | Wed 11/4/12 |
| 137 | Hoarding Erection ( between SMH and CP 1.1) | 60 days | Thu 12/4/12 | Sun 10/6/12 |
| 138 | Site Formation Works | 75 days | Mon 11/6/12 | Fri 24/8/12 |




Task
Summary
Inactive Milestone
Duration-only
Start-only
Critical Task
Split
Inactive Summary
Manual Summary Rollup
Finish-only
Milestone
Inactive Task
Manual Task
Manual Summary
Progress

# CRBC-China Road and Bridge Corporation
# Contract No. CV/2011/01
# Site Formation and Infrastructural Works near Tsing Lun Road and Tze Tin Road in Area 54, Tuen Mun
# Master Program (Version 0)

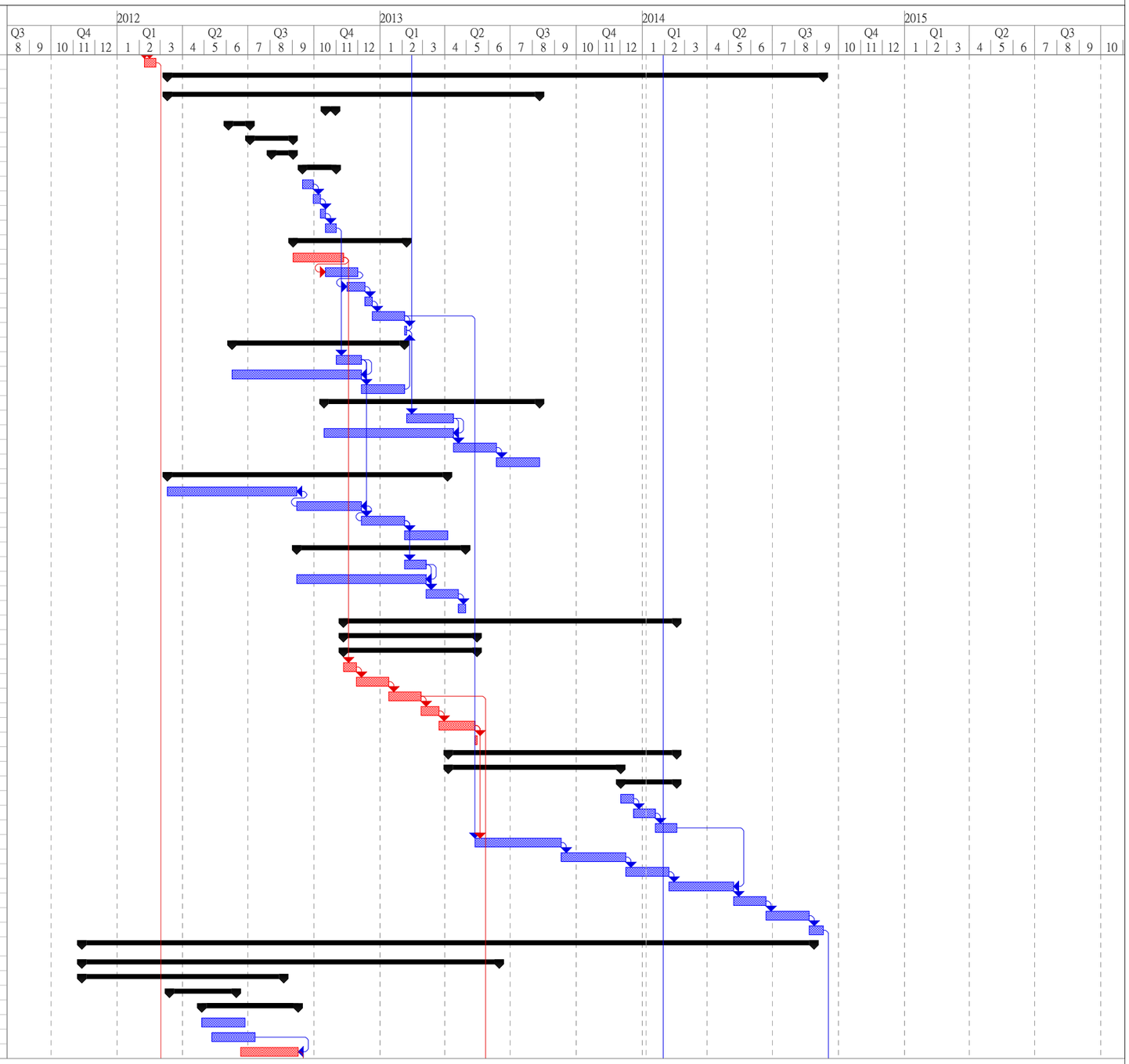
| ID | Task Name | Duration | Start | Finish |
|---|---|---|---|---|
| 139 | Hoarding Erection ( between CP1.1 and SMH 1.2) | 45 days | Sat 25/8/12 | Mon 8/10/12 |
| 140 | U channel construction ( between CP1.1 and SMH 1.2 & remainings) | 60 days | Tue 9/10/12 | Fri 7/12/12 |
| 141 | Preparation for Handover | 8 days | Sat 8/12/12 | Sat 15/12/12 |
| 142 | Completion of Section I of the Works | 0 days | Sat 15/12/12 | Sat 15/12/12 |
| 143 | | | | |
| 144 | **Section II of the Works - Portion B** | **578 days** | **Fri 16/9/11** | **Mon 15/4/13** |
| 145 | Procession of Site | 0 days | Fri 16/9/11 | Fri 16/9/11 |
| 146 | Diversion of existing overhead cables | 75 days | Sun 30/10/11 | Thu 12/1/12 |
| 147 | XP for Tsz Tin Road | 90 days | Fri 16/9/11 | Wed 14/12/11 |
| 148 | **Site Clearance** | **119 days** | **Fri 16/9/11** | **Thu 12/1/12** |
| 149 | General Site Clearance Works | 30 days | Fri 16/9/11 | Sat 15/10/11 |
| 150 | Forming site access | 14 days | Sun 16/10/11 | Sat 29/10/11 |
| 151 | Tree Felling works | 14 days | Sun 30/10/11 | Sat 12/11/11 |
| 152 | Demolition of Existing village houses (without abestos) | 11 days | Sun 13/11/11 | Wed 23/11/11 |
| 153 | Removal of asbestos materials and disposal | 20 days | Thu 24/11/11 | Tue 13/12/11 |
| 154 | Demolition of Existing village houses (with abestos) | 30 days | Wed 14/12/11 | Thu 12/1/12 |
| 155 | **Tree Transplanting Works ( 5 nrs )** | **82 days** | **Sat 5/11/11** | **Wed 25/1/12** |
| 156 | Preparation Works for tree transplant | 7 days | Sat 5/11/11 | Fri 11/11/11 |
| 157 | Crown Pruning | 4 days | Sat 12/11/11 | Tue 15/11/11 |
| 158 | Root pruning - Stage 1 | 5 days | Wed 16/11/11 | Sun 20/11/11 |
| 159 | Waiting for 2nd stage root pruning | 28 days | Mon 21/11/11 | Sun 18/12/11 |
| 160 | Root pruning - Stage 2 | 5 days | Mon 19/12/11 | Fri 23/12/11 |
| 161 | Waiting for transplant after 2nd stage root pruning | 28 days | Sat 24/12/11 | Fri 20/1/12 |
| 162 | Carry out the transplanting works | 5 days | Sat 21/1/12 | Wed 25/1/12 |
| 163 | **Box Culvert Works** | **261 days** | **Fri 13/1/12** | **Sat 29/9/12** |
| 164 | **Four Cell Box** | **178 days** | **Fri 13/1/12** | **Sun 8/7/12** |
| 168 | **Box Culvert BC4** | **261 days** | **Fri 13/1/12** | **Sat 29/9/12** |
| 197 | **Box Culvert BC6** | **128 days** | **Fri 13/1/12** | **Sat 19/5/12** |
| 213 | **Noise Barrier ( concrete structure )** | **90 days** | **Fri 31/8/12** | **Wed 28/11/12** |
| 218 | **Site Hoard, Drainage Works and Site Formation Works** | **206 days** | **Sat 15/9/12** | **Mon 8/4/13** |
| 219 | UU Detection | 15 days | Sat 15/9/12 | Sat 29/9/12 |
| 220 | U channel construction ( between SMH 6.1and CP 1.4 ) | 25 days | Sun 30/9/12 | Wed 24/10/12 |
| 221 | Hoarding Erection ( between SMH 6.1 and CP 1.4) | 25 days | Thu 25/10/12 | Sun 18/11/12 |
| 222 | Site Formation Works | 80 days | Mon 19/11/12 | Wed 6/2/13 |
| 223 | Hoarding Erection ( between CP1.6 and SMH 1.2) | 20 days | Mon 19/11/12 | Sat 8/12/12 |
| 224 | U channel construction ( between CP1.6 and SMH 1.2 & CP1.6 branch) | 30 days | Sun 9/12/12 | Mon 7/1/13 |
| 225 | Hoarding Erection ( between CP1.4 and CP1.5) | 20 days | Sun 9/12/12 | Fri 28/12/12 |
| 226 | U channel construction ( between CP1.4 and CP1.5) | 20 days | Tue 8/1/13 | Sun 27/1/13 |
| 227 | Hoarding Erection ( between CP1.6 and CP1.5) | 20 days | Sat 29/12/12 | Thu 17/1/13 |
| 228 | U channel construction ( between CP1.6 and CP1.5) | 20 days | Fri 18/1/13 | Wed 6/2/13 |
| 229 | Diversion od existing Tsz Tin Road to New Road | 1 day | Thu 7/2/13 | Thu 7/2/13 |
| 230 | Misc. Site formation, Hoarding and U channel on existing Tzs Tin Road | 60 days | Fri 8/2/13 | Mon 8/4/13 |
| 231 | **Demolishing of Existing Toilet and RCP** | **115 days** | **Sun 9/12/12** | **Tue 2/4/13** |
| 232 | Advance notic to FEHD | 60 days | Sun 9/12/12 | Wed 6/2/13 |
| 233 | Disconnect the power and water supply by UU | 30 days | Tue 8/1/13 | Wed 6/2/13 |
| 234 | Demolishing of existing Toilet and RCP | 40 days | Thu 7/2/13 | Mon 18/3/13 |
| 235 | Site tidy up and clearance | 15 days | Tue 19/3/13 | Tue 2/4/13 |
| 236 | Preparation for Handover | 7 days | Tue 9/4/13 | Mon 15/4/13 |
| 237 | Completion of Section II of the Works | 0 days | Mon 15/4/13 | Mon 15/4/13 |
| 238 | | | | |
| 239 | **Section III of the Works - Portion C** | **1095 days** | **Fri 16/9/11** | **Sun 14/9/14** |
| 240 | Procession of Site | 0 days | Fri 16/9/11 | Fri 16/9/11 |
| 241 | XP for Road Excavation Works | 90 days | Fri 16/9/11 | Wed 14/12/11 |
| 242 | **Site Clearance** | **158 days** | **Fri 16/9/11** | **Mon 20/2/12** |
| 243 | General Site Clearance Works | 14 days | Fri 16/9/11 | Thu 29/9/11 |
| 244 | Forming site access | 14 days | Fri 30/9/11 | Thu 13/10/11 |
| 245 | Tree Felling works | 30 days | Fri 14/10/11 | Sat 12/11/11 |
| 246 | Preparation of final location for transplanted trees | 61 days | Sun 13/11/11 | Thu 12/1/12 |
| 247 | Demolition of Existing village houses (without abestos) | 11 days | Fri 13/1/12 | Mon 23/1/12 |
| 248 | Removal of asbestos materials and disposal | 14 days | Tue 24/1/12 | Mon 6/2/12 |
| 249 | Demolition of Existing village houses (with abestos) | 14 days | Tue 7/2/12 | Mon 20/2/12 |
| 250 | **Tree Transplanting Works ( 32 nrs )** | **111 days** | **Sat 5/11/11** | **Thu 23/2/12** |
| 251 | Preparation Works for tree transplant | 7 days | Sat 5/11/11 | Fri 11/11/11 |
| 252 | Crown Pruning | 16 days | Sat 12/11/11 | Sun 27/11/11 |
| 253 | Root pruning - Stage 1 | 16 days | Mon 28/11/11 | Tue 13/12/11 |
| 254 | Waiting for 2nd stage root pruning | 28 days | Wed 14/12/11 | Tue 10/1/12 |
| 255 | Root pruning - Stage 2 | 16 days | Sun 1/1/12 | Mon 16/1/12 |
| 256 | Waiting for transplant after 2nd stage root pruning | 28 days | Wed 11/1/12 | Tue 7/2/12 |




Task — Summary — Inactive Milestone — Duration-only — Start-only
Critical Task — Split — Inactive Summary — Manual Summary Rollup — Finish-only
Milestone — Inactive Task — Manual Task — Manual Summary — Progress

# CRBC-China Road and Bridge Corporation
# Contract No. CV/2011/01
# Site Formation and Infrastructural Works near Tsing Lun Road and Tze Tin Road in Area 54, Tuen Mun
# Master Program (Version 0)

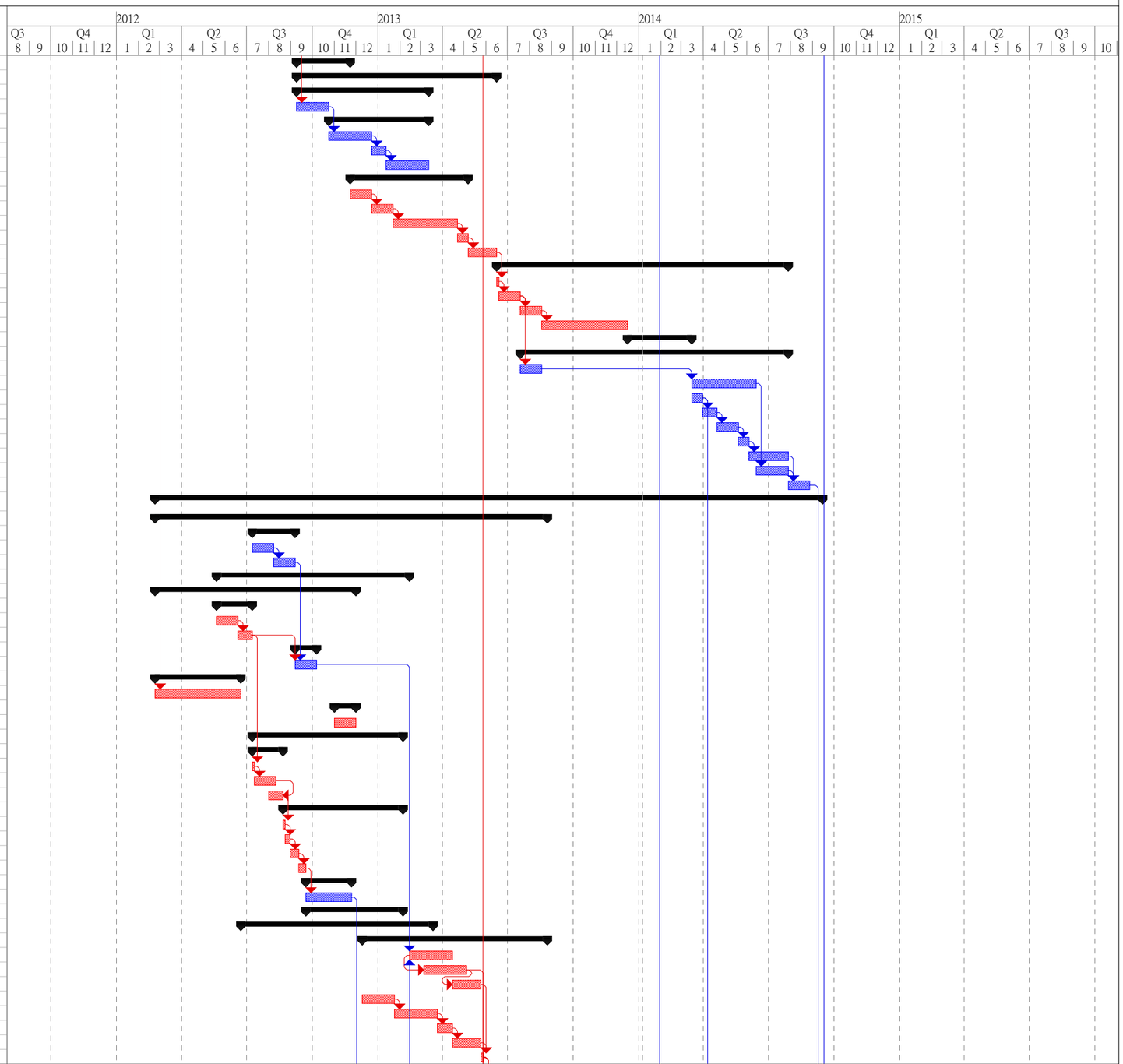
| ID | Task Name | Duration | Start | Finish |
|---|---|---|---|---|
| 257 | Carry out the transplanting works | 16 days | Wed 8/2/12 | Thu 23/2/12 |
| 258 | **Works at Tsz Tin Road** | **913 days** | **Sun 11/3/12** | **Tue 9/9/14** |
| 259 | **Works between CH.Z 1+36 and CH.L54B 1+75** | **518 days** | **Sun 11/3/12** | **Sat 10/8/13** |
| 260 | **Rataining Wall No.2A** | **14 days** | **Wed 17/10/12** | **Tue 30/10/12** |
| 263 | **Rataining Wall No.2B** | **30 days** | **Mon 4/6/12** | **Tue 3/7/12** |
| 267 | **Rataining Wall No.3** | **60 days** | **Wed 4/7/12** | **Sat 1/9/12** |
| 275 | **Rataining Wall No.4** | **30 days** | **Fri 3/8/12** | **Sat 1/9/12** |
| 280 | **Box Culvert BC4** | **47 days** | **Sat 15/9/12** | **Wed 31/10/12** |
| 281 | Drainage works (between M1 and M2) | 15 days | Sat 15/9/12 | Sat 29/9/12 |
| 282 | Bay A1 | 10 days | Sun 30/9/12 | Tue 9/10/12 |
| 283 | Bay A2 | 7 days | Wed 10/10/12 | Tue 16/10/12 |
| 284 | Inlet No.1 | 15 days | Wed 17/10/12 | Wed 31/10/12 |
| 285 | **Road & Drain Works** | **158 days** | **Sun 2/9/12** | **Wed 6/2/13** |
| 286 | Earthworks | 70 days | Sun 2/9/12 | Sat 10/11/12 |
| 287 | Drainage and Gravity Sewerage Works | 45 days | Wed 17/10/12 | Fri 30/11/12 |
| 288 | Water main laying works | 25 days | Fri 16/11/12 | Mon 10/12/12 |
| 289 | Interceptor Sewer ( RM ) | 10 days | Tue 11/12/12 | Thu 20/12/12 |
| 290 | Road Pavement works | 45 days | Fri 21/12/12 | Sun 3/2/13 |
| 291 | Implement of TTA | 3 days | Mon 4/2/13 | Wed 6/2/13 |
| 292 | **Construction of Proposed Pai Lau** | **240 days** | **Sat 9/6/12** | **Sun 3/2/13** |
| 293 | Reinforcement structure works | 35 days | Thu 1/11/12 | Wed 5/12/12 |
| 294 | Material approval and delivery | 180 days | Sat 9/6/12 | Wed 5/12/12 |
| 295 | Decoration Works | 60 days | Thu 6/12/12 | Sun 3/2/13 |
| 296 | **Construction of Pavilion** | **300 days** | **Mon 15/10/12** | **Sat 10/8/13** |
| 297 | Reinforcement structure works | 65 days | Thu 7/2/13 | Fri 12/4/13 |
| 298 | Material approval and delivery | 180 days | Mon 15/10/12 | Fri 12/4/13 |
| 299 | Decoration Works | 60 days | Sat 13/4/13 | Tue 11/6/13 |
| 300 | Landscape Works | 60 days | Wed 12/6/13 | Sat 10/8/13 |
| 301 | **Construction of Public Toilet** | **390 days** | **Sun 11/3/12** | **Thu 4/4/13** |
| 302 | Design Submission and Approval | 180 days | Sun 11/3/12 | Fri 7/9/12 |
| 303 | Material approval and delivery | 90 days | Fri 7/9/12 | Thu 6/12/12 |
| 304 | Reinforcement structure works | 60 days | Thu 6/12/12 | Sun 3/2/13 |
| 305 | E&M and Decoration Works | 60 days | Mon 4/2/13 | Thu 4/4/13 |
| 306 | **Construction of RCP** | **235 days** | **Fri 7/9/12** | **Mon 29/4/13** |
| 307 | RC Structure | 30 days | Mon 4/2/13 | Tue 5/3/13 |
| 308 | Material approval and delivery | 180 days | Fri 7/9/12 | Tue 5/3/13 |
| 309 | Steel work and external cladding | 45 days | Wed 6/3/13 | Fri 19/4/13 |
| 310 | Water supply and E&M | 10 days | Sat 20/4/13 | Mon 29/4/13 |
| 311 | **Works Between CH.L54B 1+75 and CH.L54B 0+35** | **464 days** | **Sun 11/11/12** | **Mon 17/2/14** |
| 312 | **Works at Northern Side** | **186 days** | **Sun 11/11/12** | **Wed 15/5/13** |
| 313 | **Road & Drain Works** | **186 days** | **Sun 11/11/12** | **Wed 15/5/13** |
| 314 | Demolishing of existing pavement area | 18 days | Sun 11/11/12 | Wed 28/11/12 |
| 315 | Drainage and gravity sewerage works | 45 days | Thu 29/11/12 | Sat 12/1/13 |
| 316 | Water main laying | 45 days | Sun 13/1/13 | Tue 26/2/13 |
| 317 | Interceptor Sewer ( RM ) | 25 days | Wed 27/2/13 | Sat 23/3/13 |
| 318 | Road Pavement works | 50 days | Sun 24/3/13 | Sun 12/5/13 |
| 319 | Implement of TTA | 3 days | Mon 13/5/13 | Wed 15/5/13 |
| 320 | **Works at Southern Side** | **318 days** | **Sat 6/4/13** | **Mon 17/2/14** |
| 321 | **Noise Barrier ( Concrete Structure )** | **240 days** | **Sat 6/4/13** | **Sun 1/12/13** |
| 331 | **Road & Drain Works** | **78 days** | **Mon 2/12/13** | **Mon 17/2/14** |
| 332 | Demolishing of existing pavement area | 18 days | Mon 2/12/13 | Thu 19/12/13 |
| 333 | Drainage and gravity sewerage works | 30 days | Fri 20/12/13 | Sat 18/1/14 |
| 334 | Road Pavement works | 30 days | Sun 19/1/14 | Mon 17/2/14 |
| 335 | Proposed Utilitiy Works | 120 days | Mon 13/5/13 | Mon 9/9/13 |
| 336 | Construction of U channel along Proposed Cycle Track | 90 days | Tue 10/9/13 | Sun 8/12/13 |
| 337 | ConstructionCycle Track | 60 days | Mon 9/12/13 | Thu 6/2/14 |
| 338 | Construction of Footpath | 90 days | Fri 7/2/14 | Wed 7/5/14 |
| 339 | Installation of Irrigation System | 45 days | Thu 8/5/14 | Sat 21/6/14 |
| 340 | Landscape Works | 60 days | Sun 22/6/14 | Wed 20/8/14 |
| 341 | Misc. works | 20 days | Thu 21/8/14 | Tue 9/9/14 |
| 342 | **Works at Hong Po Road** | **1019 days** | **Sun 13/11/11** | **Wed 27/8/14** |
| 343 | **Works at Southern side of Hong Po Road** | **581 days** | **Sun 13/11/11** | **Sat 15/6/13** |
| 344 | **Box Culvert BC5 and interface works** | **281 days** | **Sun 13/11/11** | **Sun 19/8/12** |
| 359 | **Retaining Wall No.1 and interface works** | **93 days** | **Wed 14/3/12** | **Thu 14/6/12** |
| 371 | **Earthworks** | **134 days** | **Sat 28/4/12** | **Sat 8/9/12** |
| 372 | Backfilling and compaction above and adjacent to RW 1 | 60 days | Sat 28/4/12 | Tue 26/6/12 |
| 373 | Demolishing of Existing open channel | 60 days | Sat 12/5/12 | Tue 10/7/12 |
| 374 | Backfilling and compaction above and adjacent to BC 5 | 80 days | Thu 21/6/12 | Sat 8/9/12 |




Task
Critical Task
Milestone
Summary
Split
Inactive Task
Inactive Milestone
Inactive Summary
Manual Task
Duration-only
Manual Summary Rollup
Manual Summary
Start-only
Finish-only
Progress

# CRBC-China Road and Bridge Corporation
# Contract No. CV/2011/01
# Site Formation and Infrastructural Works near Tsing Lun Road and Tze Tin Road in Area 54, Tuen Mun
# Master Program (Version 0)

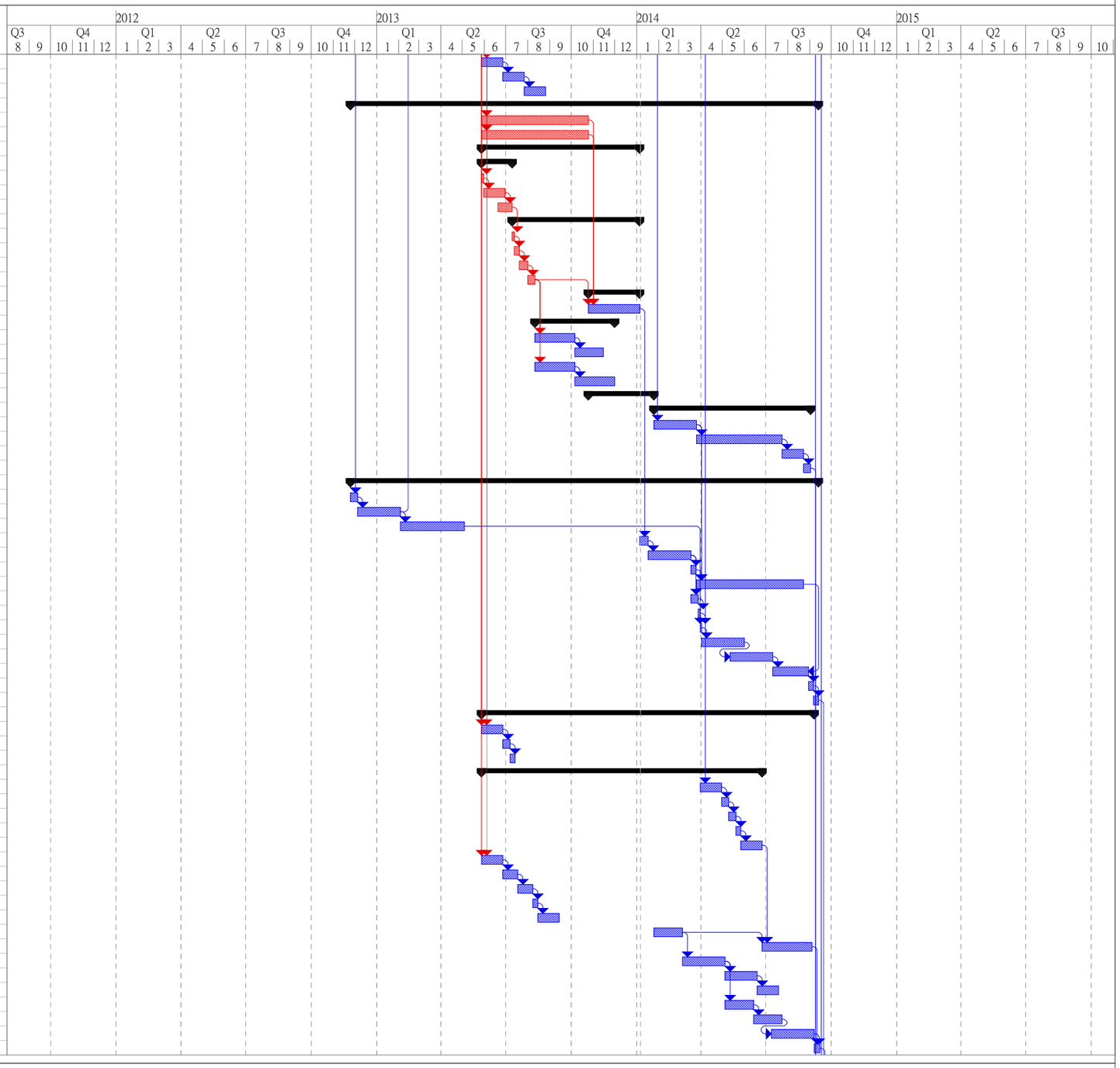
| ID | Task Name | Duration | Start | Finish |
|---|---|---|---|---|
| 375 | **Noise Barrier ( Concrete Structure )** | **75 days** | **Sun 9/9/12** | **Thu 22/11/12** |
| 381 | **Road & Drain Works** | **280 days** | **Sun 9/9/12** | **Sat 15/6/13** |
| 382 | **Works at Access Road to Housing Site** | **185 days** | **Sun 9/9/12** | **Tue 12/3/13** |
| 383 | Drainage Works adjacent to Portion A | 45 days | Sun 9/9/12 | Tue 23/10/12 |
| 384 | **Proposed footpath** | **140 days** | **Wed 24/10/12** | **Tue 12/3/13** |
| 385 | Utilities laying | 60 days | Wed 24/10/12 | Sat 22/12/12 |
| 386 | Street funiture | 20 days | Sun 23/12/12 | Fri 11/1/13 |
| 387 | Construction of footpath | 60 days | Sat 12/1/13 | Tue 12/3/13 |
| 388 | **Works at Hong Po Road** | **165 days** | **Fri 23/11/12** | **Mon 6/5/13** |
| 389 | Drainage works | 30 days | Fri 23/11/12 | Sat 22/12/12 |
| 390 | Water main laying | 30 days | Sun 23/12/12 | Mon 21/1/13 |
| 391 | Diversion of existing utlities | 90 days | Tue 22/1/13 | Sun 21/4/13 |
| 392 | Demolishing of existing footpath | 15 days | Mon 22/4/13 | Mon 6/5/13 |
| 393 | Road Pavement works and match existing | 40 days | Tue 7/5/13 | Sat 15/6/13 |
| 394 | **Works at Northern side of Hong Po Road** | **408 days** | **Sun 16/6/13** | **Mon 28/7/14** |
| 395 | Implement of TTA | 3 days | Sun 16/6/13 | Tue 18/6/13 |
| 396 | Demolishing of existing carriageway | 30 days | Wed 19/6/13 | Thu 18/7/13 |
| 397 | Relocation of existing public lighting | 30 days | Fri 19/7/13 | Sat 17/8/13 |
| 398 | Diversion of existing water main and utilities | 120 days | Sun 18/8/13 | Sun 15/12/13 |
| 399 | **Noise Barrier ( Concrete Structure )** | **90 days** | **Mon 16/12/13** | **Sat 15/3/14** |
| 407 | **Road & Drain Works** | **375 days** | **Fri 19/7/13** | **Mon 28/7/14** |
| 408 | Drainage works | 30 days | Fri 19/7/13 | Sat 17/8/13 |
| 409 | Reconstruction of existing drainage system | 90 days | Sun 16/3/14 | Fri 13/6/14 |
| 410 | Water main laying | 15 days | Sun 16/3/14 | Sun 30/3/14 |
| 411 | Installation of public lighting | 20 days | Mon 31/3/14 | Sat 19/4/14 |
| 412 | Laying of proposed utilities | 30 days | Sun 20/4/14 | Mon 19/5/14 |
| 413 | Erection of street funitures and traffic signs | 15 days | Tue 20/5/14 | Tue 3/6/14 |
| 414 | Construction of proposed footpath | 55 days | Wed 4/6/14 | Mon 28/7/14 |
| 415 | Road Pavement | 45 days | Sat 14/6/14 | Mon 28/7/14 |
| 416 | Misc. Works | 30 days | Tue 29/7/14 | Wed 27/8/14 |
| 417 | **Works at Tsing Lun Road** | **934 days** | **Fri 24/2/12** | **Sun 14/9/14** |
| 418 | **Works at Western side of Tsing Lun Road** | **549 days** | **Fri 24/2/12** | **Sun 25/8/13** |
| 419 | **Four Cell Box** | **60 days** | **Mon 9/7/12** | **Thu 6/9/12** |
| 420 | Bay 2 | 30 days | Mon 9/7/12 | Tue 7/8/12 |
| 421 | Bay 1 | 30 days | Wed 8/8/12 | Thu 6/9/12 |
| 422 | **Box Culvert BC6 and interface works** | **270 days** | **Sun 20/5/12** | **Wed 13/2/13** |
| 446 | **Earthworks** | **281 days** | **Fri 24/2/12** | **Fri 30/11/12** |
| 447 | **Between CH.T 1+10 and CH.T 2+30** | **50 days** | **Sun 20/5/12** | **Sun 8/7/12** |
| 448 | Demolishing of existing open channel | 30 days | Sun 20/5/12 | Mon 18/6/12 |
| 449 | Backfilling and compaction | 20 days | Tue 19/6/12 | Sun 8/7/12 |
| 450 | **Between CH.T 2+30 and CH.T 2+60** | **30 days** | **Fri 7/9/12** | **Sat 6/10/12** |
| 451 | Backfilling and compaction | 30 days | Fri 7/9/12 | Sat 6/10/12 |
| 452 | **Between CH.T 2+60 and CH.T 3+80** | **120 days** | **Fri 24/2/12** | **Fri 22/6/12** |
| 453 | Backfilling and compaction | 120 days | Fri 24/2/12 | Fri 22/6/12 |
| 454 | **Between CH.T 0+00 and CH.T 1+10** | **30 days** | **Thu 1/11/12** | **Fri 30/11/12** |
| 455 | Backfilling and compaction | 30 days | Thu 1/11/12 | Fri 30/11/12 |
| 456 | **Piling Work for Footbridge and Noise Barrier** | **211 days** | **Mon 9/7/12** | **Mon 4/2/13** |
| 457 | **Ground inestigation** | **43 days** | **Mon 9/7/12** | **Mon 20/8/12** |
| 458 | Mobilization of rige | 3 days | Mon 9/7/12 | Wed 11/7/12 |
| 459 | Site investigation (PS8.38S(1), 19nrs ) | 30 days | Thu 12/7/12 | Fri 10/8/12 |
| 460 | Lab. Test and report submission | 20 days | Wed 1/8/12 | Mon 20/8/12 |
| 461 | **Piling Works** | **168 days** | **Tue 21/8/12** | **Mon 4/2/13** |
| 462 | Mobilization of piling plant | 3 days | Tue 21/8/12 | Thu 23/8/12 |
| 463 | Establishment | 7 days | Fri 24/8/12 | Thu 30/8/12 |
| 464 | Preliminary pile (2nrs) | 12 days | Fri 31/8/12 | Tue 11/9/12 |
| 465 | Loading Test | 10 days | Wed 12/9/12 | Fri 21/9/12 |
| 466 | **Foot bridge** | **64 days** | **Sat 22/9/12** | **Sat 24/11/12** |
| 467 | Cap P1 and P3 (16 nrs) | 64 days | Sat 22/9/12 | Sat 24/11/12 |
| 468 | **Noise Barriers** | **136 days** | **Sat 22/9/12** | **Mon 4/2/13** |
| 473 | **Noise Barrier ( Concrete Structure )** | **269 days** | **Sat 23/6/12** | **Mon 18/3/13** |
| 497 | **Road & Drain Works** | **259 days** | **Mon 10/12/12** | **Sun 25/8/13** |
| 498 | Drainage works and Gravity sewerage works | 60 days | Thu 14/2/13 | Sun 14/4/13 |
| 499 | Interceptor Sewer ( RM ) | 60 days | Wed 6/3/13 | Sat 4/5/13 |
| 500 | Road Pavement works | 40 days | Mon 15/4/13 | Fri 24/5/13 |
| 501 | Construction of U channel along Proposed Cycle Track | 45 days | Mon 10/12/12 | Wed 23/1/13 |
| 502 | Proposed Utilitiy Works | 60 days | Thu 24/1/13 | Sun 24/3/13 |
| 503 | Installation of piblic lighting | 21 days | Mon 25/3/13 | Sun 14/4/13 |
| 504 | Construction of Footpath | 40 days | Mon 15/4/13 | Fri 24/5/13 |
| 505 | Implement of TTA | 3 days | Sat 25/5/13 | Mon 27/5/13 |




Task — Summary — Inactive Milestone — Duration-only — Start-only
Critical Task — Split — Inactive Summary — Manual Summary Rollup — Finish-only
Milestone — Inactive Task — Manual Task — Manual Summary — Progress

# CRBC-China Road and Bridge Corporation
# Contract No. CV/2011/01
# Site Formation and Infrastructural Works near Tsing Lun Road and Tze Tin Road in Area 54, Tuen Mun
# Master Program (Version 0)

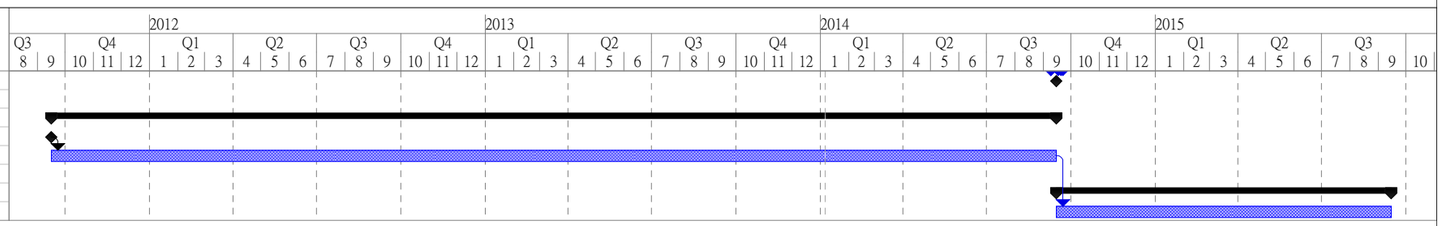
| ID | Task Name | Duration | Start | Finish |
|---|---|---|---|---|
| 506 | ConstructionCycle Track and park | 30 days | Tue 28/5/13 | Wed 26/6/13 |
| 507 | Installation of Irrigation System | 30 days | Thu 27/6/13 | Fri 26/7/13 |
| 508 | Landscape Works | 30 days | Sat 27/7/13 | Sun 25/8/13 |
| 509 | **Works at Eestern side of Tsing Lun Road** | **657 days** | **Sun 25/11/12** | **Fri 12/9/14** |
| 510 | Diversion of Existing Watermain by WSD | 150 days | Tue 28/5/13 | Thu 24/10/13 |
| 511 | Diversion of Existing Utilities | 150 days | Tue 28/5/13 | Thu 24/10/13 |
| 512 | **Piling Work for Footbridge and Noise Barrier** | **222 days** | **Tue 28/5/13** | **Sat 4/1/14** |
| 513 | **Ground inestigation** | **43 days** | **Tue 28/5/13** | **Tue 9/7/13** |
| 514 | Mobilization of rige | 3 days | Tue 28/5/13 | Thu 30/5/13 |
| 515 | Site investigation (PS8.38S(1), 20nrs ) | 30 days | Fri 31/5/13 | Sat 29/6/13 |
| 516 | Lab. Test and report submission | 20 days | Thu 20/6/13 | Tue 9/7/13 |
| 517 | **Piling Works** | **179 days** | **Wed 10/7/13** | **Sat 4/1/14** |
| 518 | Mobilization of piling plant | 3 days | Wed 10/7/13 | Fri 12/7/13 |
| 519 | Establishment | 7 days | Sat 13/7/13 | Fri 19/7/13 |
| 520 | Preliminary pile (2nrs) | 12 days | Sat 20/7/13 | Wed 31/7/13 |
| 521 | Loading Test | 10 days | Thu 1/8/13 | Sat 10/8/13 |
| 522 | **Foot bridge** | **72 days** | **Fri 25/10/13** | **Sat 4/1/14** |
| 523 | Cap P2 and P4 (18 nrs) | 72 days | Fri 25/10/13 | Sat 4/1/14 |
| 524 | **Noise Barriers** | **112 days** | **Sun 11/8/13** | **Sat 30/11/13** |
| 525 | Bay 1 SC (14 nrs) | 56 days | Sun 11/8/13 | Sat 5/10/13 |
| 526 | Bay 3 SC (10 nrs) | 40 days | Sun 6/10/13 | Thu 14/11/13 |
| 527 | Bay 5 SC (14 nrs) | 56 days | Sun 11/8/13 | Sat 5/10/13 |
| 528 | Bay 7 FC (14 nrs) | 56 days | Sun 6/10/13 | Sat 30/11/13 |
| 529 | **Noise Barrier ( Concrete Structure )** | **92 days** | **Fri 25/10/13** | **Fri 24/1/14** |
| 546 | **Noise Barrier Panel installtion** | **220 days** | **Sat 25/1/14** | **Mon 1/9/14** |
| 547 | Panel installtion to full / semi-enclouse noise barriers | 60 days | Sat 25/1/14 | Tue 25/3/14 |
| 548 | Panel installation (other than full / semi-enclosure types) | 120 days | Wed 26/3/14 | Wed 23/7/14 |
| 549 | Grouting of foot plates | 30 days | Thu 24/7/14 | Fri 22/8/14 |
| 550 | Misc. works | 10 days | Sat 23/8/14 | Mon 1/9/14 |
| 551 | **Footbridge** | **657 days** | **Sun 25/11/12** | **Fri 12/9/14** |
| 552 | Treatment of Pile Heads | 10 days | Sun 25/11/12 | Tue 4/12/12 |
| 553 | Structure work above Cap 1 & Cap 3 | 60 days | Wed 5/12/12 | Sat 2/2/13 |
| 554 | Precast Main Span | 90 days | Sun 3/2/13 | Fri 3/5/13 |
| 555 | Treatment of Pile Heads | 12 days | Sun 5/1/14 | Thu 16/1/14 |
| 556 | Structure work above Cap 2 & Cap 4 | 60 days | Fri 17/1/14 | Mon 17/3/14 |
| 557 | General clearing & handover works area for E&M works by others | 7 days | Tue 18/3/14 | Mon 24/3/14 |
| 558 | E&M Works by Others | 150 days | Wed 26/3/14 | Fri 22/8/14 |
| 559 | Bearing installation | 10 days | Tue 18/3/14 | Thu 27/3/14 |
| 560 | Implement of TTA | 3 days | Fri 28/3/14 | Sun 30/3/14 |
| 561 | Installation of Main Span | 2 days | Mon 31/3/14 | Tue 1/4/14 |
| 562 | Installation of steel structure works | 60 days | Wed 2/4/14 | Sat 31/5/14 |
| 563 | Installation of cladding system | 60 days | Mon 12/5/14 | Thu 10/7/14 |
| 564 | Finishing to the Footbridge | 50 days | Fri 11/7/14 | Fri 29/8/14 |
| 565 | Landscaping works | 7 days | Sat 30/8/14 | Fri 5/9/14 |
| 566 | Misc | 7 days | Sat 6/9/14 | Fri 12/9/14 |
| 567 | **Road & Drain Works** | **467 days** | **Tue 28/5/13** | **Sat 6/9/14** |
| 568 | Interceptor Sewer ( RM ) | 30 days | Tue 28/5/13 | Wed 26/6/13 |
| 569 | Pressure test | 10 days | Thu 27/6/13 | Sat 6/7/13 |
| 570 | Swabbing | 7 days | Sun 7/7/13 | Sat 13/7/13 |
| 571 | **watermain works** | **394 days** | **Tue 28/5/13** | **Wed 25/6/14** |
| 572 | Laying of watermain adjacent to existing roundabout | 30 days | Mon 31/3/14 | Tue 29/4/14 |
| 573 | Pressure test | 10 days | Wed 30/4/14 | Fri 9/5/14 |
| 574 | Swabbing and sterlization | 10 days | Sat 10/5/14 | Mon 19/5/14 |
| 575 | Water sample testing | 7 days | Tue 20/5/14 | Mon 26/5/14 |
| 576 | Connection works by WSD | 30 days | Tue 27/5/14 | Wed 25/6/14 |
| 577 | Laying of watermain at junction of Tsz Tin Road | 30 days | Tue 28/5/13 | Wed 26/6/13 |
| 578 | Pressure test | 21 days | Thu 27/6/13 | Wed 17/7/13 |
| 579 | Swabbing and sterlization | 21 days | Thu 18/7/13 | Wed 7/8/13 |
| 580 | Water sample testing | 7 days | Thu 8/8/13 | Wed 14/8/13 |
| 581 | Connection works by WSD | 30 days | Thu 15/8/13 | Fri 13/9/13 |
| 582 | Drainage works | 40 days | Sat 25/1/14 | Wed 5/3/14 |
| 583 | Road Pavement works | 70 days | Thu 26/6/14 | Wed 3/9/14 |
| 584 | Proposed Utilitiy Works | 60 days | Thu 6/3/14 | Sun 4/5/14 |
| 585 | Installation of Irrigation System | 45 days | Mon 5/5/14 | Wed 18/6/14 |
| 586 | Landscape Works | 30 days | Thu 19/6/14 | Fri 18/7/14 |
| 587 | Installation of public lighting | 40 days | Mon 5/5/14 | Fri 13/6/14 |
| 588 | Erection of street funitures and traffic signs | 40 days | Sat 14/6/14 | Wed 23/7/14 |
| 589 | Construction of Footpath | 60 days | Wed 9/7/14 | Sat 6/9/14 |
| 590 | Misc. works | 8 days | Sun 7/9/14 | Sun 14/9/14 |




Task — Summary — Inactive Milestone — Duration-only — Start-only
Critical Task — Split — Inactive Summary — Manual Summary Rollup — Finish-only
Milestone — Inactive Task — Manual Task — Manual Summary — Progress

# CRBC-China Road and Bridge Corporation
# Contract No. CV/2011/01
# Site Formation and Infrastructural Works near Tsing Lun Road and Tze Tin Road in Area 54, Tuen Mun
# Master Program (Version 0)

| ID | Task Name | Duration | Start | Finish |
|---|---|---|---|---|
| 591 | Completion of Section III of the Works | 0 days | Sun 14/9/14 | Sun 14/9/14 |
| 592 | | | | |
| 593 | **Section IV - P&R of existing tree within the site** | **1095 days** | **Fri 16/9/11** | **Sun 14/9/14** |
| 594 | Procession of Site | 0 days | Fri 16/9/11 | Fri 16/9/11 |
| 595 | P&R of tree within the site | 1095 days | Fri 16/9/11 | Sun 14/9/14 |
| 596 | | | | |
| 597 | **Section V - Establishment Works** | **365 days** | **Mon 15/9/14** | **Mon 14/9/15** |
| 598 | Establishment works | 365 days | Mon 15/9/14 | Mon 14/9/15 |




| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Task | Summary | Inactive Milestone | | Duration-only | | Start-only | |
| Critical Task | Split | Inactive Summary | | Manual Summary Rollup | | Finish-only | |
| Milestone | Inactive Task | Manual Task | | Manual Summary | | Progress | |

# Appendix C. Action and Limit Levels for Construction Phase

## Air Quality

The Action and Limit Levels for 1-hour and 24-hour TSP for the monitoring station are presented in following tables:

Table C1: Action and Limit Levels for 1-hour TSP

| Monitoring Station | Action Level ($\mu g/m^3$) | Limit Level ($\mu g/m^3$) |
|---|---|---|
| AM3 | 329 | 500 |

Table C2: Action and Limit Levels for 24-hour TSP

| Monitoring Station | Action Level ($\mu g/m^3$) | Limit Level ($\mu g/m^3$) |
|---|---|---|
| AM3 | 179 | 260 |

## Noise

The Action and Limit Levels for Noise for the monitoring stations are presented in following table:

Table C3: Action and Limit Levels for Construction Noise

| Time Period & Monitoring Locations | Action Level | Limit Level |
|---|---|---|
| **NM8** | | |
| 0700-1900 hours on normal weekdays | When one documented complaint is received from any one of the sensitive receivers | 75 dB(A) |
| **NM9** | | |
| 0700-1900 hours on normal weekdays | When one documented complaint is received from any one of the sensitive receivers | 70 dB(A) / 65 dB(A) * |
| **NM8, NM9** | | |
| 0700-2300 hrs on holidays; and 1900-2300 hrs on all other days | When one documented complaint is received from any one of the sensitive receivers | 65 dB(A) |
| 2300-0700 hrs of next day | When one documented complaint is received from any one of the sensitive receivers | 50 dB(A) |

Note: * Reduced to 70 dB(A) for schools and 65 dB(A) during school examination periods.

# Appendix D. Event and Action Plan for Air Quality and Noise

**Air Quality**

Should non-compliance of the air quality criteria occurs during construction stage, actions in accordance with the Event and Action Plan in the below table should be carried out.

Table D1: Event and Action Plan for Air Quality

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

| Event | Action | | | |
|---|---|---|---|---|
| | ET Leader | IEC | ER (Engineer's Representative) | Contractor |
| for one sample | investigate the causes of exceedance and propose remedial measures.<br>2. Inform ER and EPD.<br>3. Repeat measurement to confirm finding.<br>4. Increase monitoring frequency to daily.<br>5. Assess effectiveness of Contractor's remedial actions and keep IEC, EPD and ER informed of the results. | data submitted by ET.<br>2. Check the Contractor's working method.<br>3. Discuss with ET Leader and the Contractor on possible remedial measures.<br>4. Advise ER on the effectiveness of the proposed remedial measures.<br>5. Supervise implementation of remedial measures. | receipt of notification of exceedance in writing.<br>2. Notify the Contractor.<br>3. Ensure remedial measures properly implemented. | action to avoid further exceedance.<br>2. Submit proposals for remedial actions to IEC within 3 working days of notification.<br>3. Implement the agreed proposals.<br>4. Amend proposal if appropriate. |
| 2. Exceedance for two or more consecutive samples | 1. Notify IEC, ER, EPD and the Contractor.<br>2. Identify the source.<br>3. Repeat measurements to confirm findings.<br>4. Increase monitoring frequency to daily.<br>5. Carry out analysis of the Contractor's working procedures to determine possible mitigation to be implemented.<br>6. Arrange meeting IEC and ER to discuss the remedial actions to be taken.<br>7. Assess effectiveness of the Contractor's remedial actions and keep IEC, EPD and ER informed of the results.<br>8. If exceedance stops, cease additional monitoring. | 1. Discuss amongst ER, ET Leader and the Contractor on the potential remedial actions.<br>2. Review the Contractor's remedial actions whenever necessary and advise ER accordingly.<br>3. Supervise the implementation of remedial measures. | 1. Confirm receipt of notification of exceedance in writing.<br>2. Notify the Contractor.<br>3. In consultation with IEC, agree with the remedial measures to be implemented.<br>4. Ensure remedial measures are properly implemented.<br>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 | 1. Take immediate action to avoid further exceedance.<br>2. Submit proposals for remedial actions to IEC within 3 working days of notification.<br>3. Implement the agreed proposals.<br>4. Resubmit proposals if problem still not under control.<br>5. Stop the relevant activity of works as determined by ER until the exceedance is abated. |

| Event | Action | | | |
|---|---|---|---|---|
| | ET Leader | IEC | ER (Engineer's Representative) | Contractor |
| | | | is abated. | |

**Construction Noise**

In case the Action and Limit Levels are not complied during construction stage, the following Event and Action Plan should be followed:

Table D2: Event and Action Plan for Construction Noise

| Event | Action | | | |
|---|---|---|---|---|
| | ET Leader | IEC | ER | Contractor |
| **Action Level** | 1. Notify IEC and the Contractor.<br>2. Carry out investigation.<br>3. Report the results of investigation to IEC and the Contractor.<br>4. Discuss with the Contractor and formulate remedial measures.<br>5. Increase monitoring frequency to check mitigation measures. | 1. Review with analysed results submitted by ET.<br>2. Review the proposed remedial measures by the Contractor and advise ER accordingly.<br>3. Supervise the implement of remedial measures. | 1. Confirm receipt of notification of exceedance in writing.<br>2. Notify the Contractor.<br>3. Require the Contractor to propose remedial measures for the analysed noise problem.<br>4. Ensure remedial measures are properly implemented. | 1. Submit noise mitigation proposals to IEC.<br>2. Implement noise mitigation proposals. |

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

# Appendix E. Monitoring Schedule

Table E1: Monitoring Schedule for the reporting month

**Air Quality & Noise Monitoring Schedule for Mar 2014**

| Mar-14 | | | | | | |
|---|---|---|---|---|---|---|
| **Sun** | **Mon** | **Tue** | **Wed** | **Thu** | **Fri** | **Sat** |
| | | | | | | 1 |
| 2 | 3 | 4 | 5 | 6<br>24-hr TSP<br>1-hr TSP x 3<br>Noise<br>Weekly Audit | 7 | 8 |
| 9 | 10 | 11 | 12<br>24-hr TSP<br>1-hr TSP x 3<br>Noise<br>Weekly Audit | 13 | 14 | 15 |
| 16 | 17 | 18<br>24-hr TSP<br>1-hr TSP x 3<br>Noise | 19<br>Weekly Audit | 20 | 21 | 22 |
| 23 | 24<br>24-hr TSP<br>1-hr TSP x 3<br>Noise | 25 | 26<br>Weekly Audit | 27 | 28<br>24-hr TSP<br>1-hr TSP x 3 | 29 |
| 30 | 31 | | | | | |

Air Quality Monitoring (24-hr Total Suspended Particulates)
Air Quality Monitoring (1-hr Total Suspended Particulates) x 3 times
Noise Monitoring (30-min)
Weekly Audit

Table E2: Tentative Monitoring Schedule for the coming month

**Tentative Air Quality & Noise Monitoring Schedule for Apr 2014**

| Apr-14 | | | | | | |
|---|---|---|---|---|---|---|
| **Sun** | **Mon** | **Tue** | **Wed** | **Thu** | **Fri** | **Sat** |
| | | 1 | 2<br>Weekly Audit | 3<br>24-hr TSP<br>1-hr TSP x 3<br>Noise | 4 | 5<br>Ching Ming Festival |
| 6 | 7 | 8 | 9<br>24-hr TSP<br>1-hr TSP x 3<br>Noise<br>Weekly Audit | 10 | 11 | 12 |
| 13 | 14 | 15<br>24-hr TSP<br>1-hr TSP x 3<br>Noise | 16<br>Weekly Audit | 17 | 18<br>Good Friday | 19<br>The day following Good Friday |
| 20 | 21<br>Easter Monday | 22<br>24-hr TSP<br>1-hr TSP x 3<br>Noise | 23<br>Weekly Audit | 24 | 25 | 26 |
| 27 | 28<br>24-hr TSP<br>1-hr TSP x 3<br>Noise | 29 | 30<br>Weekly Audit | | | |

Air Quality Monitoring (24-hr Total Suspended Particulates)
Air Quality Monitoring (1-hr Total Suspended Particulates) x 3 times
Noise Monitoring (30-min)
Weekly Audit

# Appendix F. Calibration Certificates

High-Volume TSP Sampler
5-Point Calibration Record

| | | |
|---|---|---|
| Location | : | Yau Tze Tin |
| Calibrated by | : | K.F.Ho |
| Date | : | 21/02/2014 |

Sampler

| | | |
|---|---|---|
| Model | : | GMWS-2310 ACCU-VOL |
| Serial Number | : | S/N 0890 |

Calibration Orfice and Standard Calibration Relationship

| | | |
|---|---|---|
| Serial Number | : | 2454 |
| Service Date | : | 12 Mar 2013 |
| Slope (m) | : | 2.05818 |
| Intercept (b) | : | 0.01929 |
| Correlation Coefficient(r) | : | 0.99991 |

Standard Condition

| | | |
|---|---|---|
| Pstd (hpa) | : | 1013 |
| Tstd (K) | : | 298.18 |

Calibration Condition

| | | |
|---|---|---|
| Pa (hpa) | : | 1019 |
| Ta(K) | : | 283 |

| Resistance Plate | | dH [green liquid] (inch water) | Z | X=Qstd (cubic meter/min) | IC (chart) | Y (corrected) |
|---|---|---|---|---|---|---|
| 1 | 18 holes | 12.4 | 3.624 | 1.751 | 56 | 57.63 |
| 2 | 13 holes | 9.5 | 3.172 | 1.532 | 46 | 47.34 |
| 3 | 10 holes | 7.0 | 2.723 | 1.314 | 38 | 39.11 |
| 4 | 7 holes | 5.0 | 2.301 | 1.109 | 29 | 29.85 |
| 5 | 5 holes | 3.0 | 1.783 | 0.857 | 20 | 20.58 |

Sampler Calibration Relationship

Slope(m):41.360 Intercept(b): -15.382 Correlation Coefficient(r): 0.9991

Checked by: _____ Date: 25/02/2014

Magnum Fan

# CERTIFICATE OF CALIBRATION AND TESTING

TSI Incorporated, 500 Cardigan Road, Shoreview, MN 55126 USA
Tel: 1-800-874-2811 1-651-490-2811 Fax: 1-651-490-3824 http://www.tsi.com

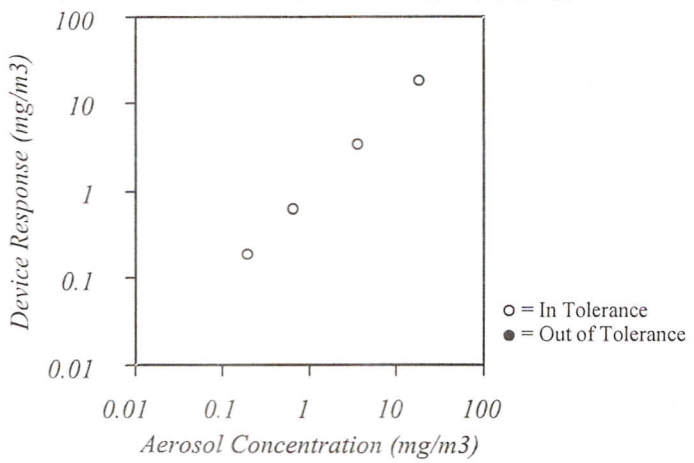
| Environment Condition | | |
|---|---|---|
| Temperature | 67.6 (19.8) | °F (°C) |
| Relative Humidity | 57 | %RH |
| Barometric Pressure | 28.69 (971.6) | inHg (hPa) |

| | |
|---|---|
| **Model** | **8520** |
| **Serial Number** | **85202623** |

☒ As Left ☐ As Found

☒ In Tolerance ☐ Out of Tolerance

**Concentration Linearity Plot**




System ID: DTII01-02

| Zero Stability Results | | | |
|---|---|---|---|
| Average: 0.000 :mg/m³ | Minimum: 0.000 :mg/m³ | Maximum: 0.001 :mg/m³ | Time: 2.00 :hrs. |

*TSI Incorporated does hereby certify that all materials, components, and workmanship used in the manufacture of this equipment are in strict accordance with the applicable specifications agreed upon by TSI and the customer and with all published specifications. All performance and acceptance tests required under this contract were successfully conducted according to required specifications. There is no NIST standard for optical mass measurements. Calibration of this instrument performed by TSI has been done using emery oil and has been nominally adjusted to respirable mass of standard ISO 12103-1, A1 test dust (Arizona dust). Our calibration ratio is greater than 1.2:1*

| Measurement Variable | System ID | Last Cal. | Cal. Due |
|---|---|---|---|
| Barometric Pressure | E003733 | 03-12-13 | 03-12-14 |
| Humidity | E002873 | 11-08-12 | 11-08-13 |
| DC Voltage | E003315 | 01-02-13 | 01-02-14 |
| Microbalance | M001324 | 01-04-13 | 01-04-15 |
| Flowmeter | E002006 | 03-05-13 | 03-05-14 |

| Measurement Variable | System ID | Last Cal. | Cal. Due |
|---|---|---|---|
| Temperature | E002873 | 11-08-12 | 11-08-13 |
| DC Voltage | E003314 | 01-02-13 | 01-02-14 |
| Photometer | E003319 | 02-19-13 | 08-19-13 |
| Pressure | E003511 | 11-07-12 | 11-07-13 |

Calibrated

☑ Final Function Check

July 23, 2013
Date

TSI P/N 2300157

輝創工程有限公司
Sun Creation Engineering Limited
Calibration and Testing Laboratory

# Certificate of Calibration
# 校正證書

Certificate No. : C134309
證書編號

**ITEM TESTED / 送檢項目** ( Job No. / 序引編號 : IC13-1709 )

| | | |
|---|---|---|
| Description / 儀器名稱 | : | Precision Integrating Sound Level Meter |
| Manufacturer / 製造商 | : | Rion |
| Model No. / 型號 | : | NL-18 |
| Serial No. / 編號 | : | 00360030 |
| Supplied By / 委託者 | : | Envirotech Services Co.<br>Shop 6, G/F., Casio Mansion, 209 Shaukeiwan Road,<br>Hong Kong |

**TEST CONDITIONS / 測試條件**

Temperature / 溫度 : (23 ± 2)°C
Relative Humidity / 相對濕度 : (55 ± 20)%
Line Voltage / 電壓 : ---

**TEST SPECIFICATIONS / 測試規範**

Calibration

**DATE OF TEST / 測試日期** : 12 July 2013

**TEST RESULTS / 測試結果**

The results apply to the particular unit-under-test only.
All results are within manufacturer's specification. (after adjustment)
The results are detailed in the subsequent page(s).

The test equipment used for calibration are traceable to National Standards via :
- The Government of The Hong Kong Special Administrative Region Standard & Calibration Laboratory
- Rohde & Schwarz Laboratory, Germany
- Fluke Everett Service Center, USA
- Agilent Technologies, USA

Tested By 測試 : K C Lee

Certified By 核證 : K M Wu

Date of Issue 簽發日期 : 15 July 2013

The test equipment used for calibration are traceable to the Nation Standards as specified in this certificate. This certificate shall not be reproduced except in full, without the prior written approval of this laboratory.
本證書所載校正用之測試器材均可溯源至國際標準。局部複印本證書需先獲本實驗所書面批准。

Sun Creation Engineering Limited – Calibration & Testing Laboratory
c/o 4 F, Tsing Shan Wan Exchange Building, 1 Hing On Lane, Tuen Mun, New Territories, Hong Kong
輝創工程有限公司 – 校正及檢測實驗所
c/o 香港新界屯門興安里一號青山灣機樓四樓
Tel/電話: 2927 2606 Fax/傳真: 2744 8986 E-mail/電郵: callab@suncreation.com Website/網址: www.suncreation.com

# Certificate of Calibration
# 校正證書

Certificate No. : C134309
證書編號

1. The unit-under-test (UUT) was allowed to stabilize in the laboratory for over 12 hours, and switched on to warm up for over 10 minutes before the commencement of the test.

2. Self-calibration using the internal standard (After Adjustment) was performed before the test from 6.1.2 to 6.4.

3. The results presented are the mean of 3 measurements at each calibration point.

4. Test equipment :

| Equipment ID | Description | Certificate No. |
|---|---|---|
| CL280 | 40 MHz Arbitrary Waveform Generator | C130019 |
| CL281 | Multifunction Acoustic Calibrator | DC130171 |

5. Test procedure : MA101N.

6. Results :

6.1 Sound Pressure Level

6.1.1 Reference Sound Pressure Level

6.1.1.1 Before Adjustment

| UUT Setting | | | | Applied Value | | UUT Reading (dB) | IEC 60651 Type 1 Spec. (dB) |
|---|---|---|---|---|---|---|---|
| Range (dB) | Mode | Frequency Weighting | Time Weighting | Level (dB) | Freq. (kHz) | | |
| 50 - 110 | LA | A | Fast | 94.00 | 1 | * 93.1 | ± 0.7 |

* Out of Mfr's Spec.

6.1.1.2 After Adjustment

| UUT Setting | | | | Applied Value | | UUT Reading (dB) | IEC 60651 Type 1 Spec. (dB) |
|---|---|---|---|---|---|---|---|
| Range (dB) | Mode | Frequency Weighting | Time Weighting | Level (dB) | Freq. (kHz) | | |
| 50 - 110 | LA | A | Fast | 94.00 | 1 | 94.1 | ± 0.7 |

6.1.2 Linearity

| UUT Setting | | | | Applied Value | | UUT Reading (dB) |
|---|---|---|---|---|---|---|
| Range (dB) | Mode | Frequency Weighting | Time Weighting | Level (dB) | Freq. (kHz) | |
| 60 - 120 | LA | A | Fast | 94.00 | 1 | 94.2 (Ref.) |
| | | | | 104.00 | | 104.2 |
| | | | | 114.00 | | 114.2 |

IEC 60651 Type 1 Spec. : ± 0.4 dB per 10 dB step and ± 0.7 dB for overall different.

The test equipment used for calibration are traceable to the Nation Standards as specified in this certificate. This certificate shall not be reproduced except in full, without the prior written approval of this laboratory.
本證書所載校正用之測試器材均可溯源至國際標準。局部複印本證書需先獲本實驗所書面批准。

# Certificate of Calibration
# 校正證書

Certificate No. : C134309
證書編號

6.2 Time Weighting

6.2.1 Continuous Signal

| UUT Setting | | | | Applied Value | | UUT Reading (dB) | IEC 60651 Type 1 Spec. (dB) |
|---|---|---|---|---|---|---|---|
| Range (dB) | Mode | Frequency Weighting | Time Weighting | Level (dB) | Freq. (kHz) | | |
| 50 - 110 | LA | A | Fast | 94.00 | 1 | 94.1 | Ref. |
| | | | Slow | | | 94.1 | ± 0.1 |

6.2.2 Tone Burst Signal (2 kHz)

| UUT Setting | | | | Applied Value | | UUT Reading (dB) | IEC 60651 Type 1 Spec. (dB) |
|---|---|---|---|---|---|---|---|
| Range (dB) | Mode | Frequency Weighting | Time Weighting | Level (dB) | Burst Duration | | |
| 50 -110 | LA | A | Fast | 106.00 | Continuous | 106.0 | Ref. |
| | LAmx | | | | 200 ms | 105.1 | -1.0 ± 1.0 |
| | LA | | Slow | | Continuous | 106.0 | Ref. |
| | LAmx | | | | 500 ms | 102.4 | -4.1 ± 1.0 |

6.3 Frequency Weighting

6.3.1 A-Weighting

| UUT Setting | | | | Applied Value | | UUT Reading (dB) | IEC 60651 Type 1 Spec. (dB) |
|---|---|---|---|---|---|---|---|
| Range (dB) | Mode | Frequency Weighting | Time Weighting | Level (dB) | Freq. | | |
| 50 - 110 | LA | A | Fast | 94.00 | 31.5 Hz | 54.4 | -39.4 ± 1.5 |
| | | | | | 63 Hz | 67.7 | -26.2 ± 1.5 |
| | | | | | 125 Hz | 77.7 | -16.1 ± 1.0 |
| | | | | | 250 Hz | 85.3 | -8.6 ± 1.0 |
| | | | | | 500 Hz | 90.7 | -3.2 ± 1.0 |
| | | | | | 1 kHz | 94.1 | Ref. |
| | | | | | 2 kHz | 95.3 | +1.2 ± 1.0 |
| | | | | | 4 kHz | 95.1 | +1.0 ± 1.0 |
| | | | | | 8 kHz | 93.0 | -1.1 (+1.5 ; -3.0) |
| | | | | | 12.5 kHz | 89.8 | -4.3 (+3.0 ; -6.0) |

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Sun Creation Engineering Limited – Calibration & Testing Laboratory
c/o 4/F, Tsing Shan Wan Exchange Building, 1 Hing On Lane, Tuen Mun, New Territories, Hong Kong
輝創工程有限公司 – 校正及檢測實驗所
c/o 香港新界屯門興安里一號青山灣機樓四樓
Tel 電話: 2927 2606 Fax 傳真: 2744 8986 E-mail 電郵: callab@suncreation.com Website 網址: www.suncreation.com

# Certificate of Calibration
# 校正證書

Certificate No. : C134309
證書編號

6.3.2 C-Weighting

| UUT Setting | | | | Applied Value | | UUT Reading (dB) | IEC 60651 Type 1 Spec. (dB) |
|---|---|---|---|---|---|---|---|
| Range (dB) | Mode | Frequency Weighting | Time Weighting | Level (dB) | Freq. | | |
| 50 - 110 | LC | C | Fast | 94.00 | 31.5 Hz | 91.0 | -3.0 ± 1.5 |
| | | | | | 63 Hz | 93.2 | -0.8 ± 1.5 |
| | | | | | 125 Hz | 93.9 | -0.2 ± 1.0 |
| | | | | | 250 Hz | 94.1 | 0.0 ± 1.0 |
| | | | | | 500 Hz | 94.1 | 0.0 ± 1.0 |
| | | | | | 1 kHz | 94.1 | Ref. |
| | | | | | 2 kHz | 93.9 | -0.2 ± 1.0 |
| | | | | | 4 kHz | 93.3 | -0.8 ± 1.0 |
| | | | | | 8 kHz | 91.0 | -3.0 (+1.5 ; -3.0) |
| | | | | | 12.5 kHz | 87.8 | -6.2 (+3.0 ; -6.0) |

6.4 Time Averaging

| UUT Setting | | | | Applied Value | | | | | UUT Reading (dB) | IEC 60804 Type 1 Spec. (dB) |
|---|---|---|---|---|---|---|---|---|---|---|
| Range (dB) | Mode | Frequency Weighting | Integrating Time | Freq. (kHz) | Burst Duration (ms) | Burst Duty Factor | Burst Level (dB) | Equivalent Level (dB) | | |
| 50 - 110 | LAeq | A | 10 sec. | 4 | 1 | 1/10 | 110 | 100 | 100.0 | ± 0.5 |
| | | | | | | $1/10^2$ | | 90 | 90.0 | ± 0.5 |
| | | | 60 sec. | | | $1/10^3$ | | 80 | 79.5 | ± 1.0 |
| | | | 5 min. | | | $1/10^4$ | | 70 | 69.7 | ± 1.0 |

Remarks : - UUT Microphone Model No. : UC-53A & S/N : 307435

- Mfr's Spec. : IEC 60651 Type 1 & IEC 60804 Type 1

- Uncertainties of Applied Value :

| | | |
|---|---|---|
| 94 dB | : 31.5 Hz - 125 Hz | : ± 0.35 dB |
| | 250 Hz - 500 Hz | : ± 0.30 dB |
| | 1 kHz | : ± 0.20 dB |
| | 2 kHz - 4 kHz | : ± 0.35 dB |
| | 8 kHz | : ± 0.45 dB |
| | 12.5 kHz | : ± 0.70 dB |
| 104 dB | : 1 kHz | : ± 0.10 dB (Ref. 94 dB) |
| 114 dB | : 1 kHz | : ± 0.10 dB (Ref. 94 dB) |
| Burst equivalent level | | : ± 0.2 dB (Ref. 110 dB continuous sound level) |

- The uncertainties are for a confidence probability of not less than 95 %.

Note :
The values given in this Certificate only relate to the values measured at the time of the test and any uncertainties quoted will not include allowance for the equipment long term drift, variations with environment changes, vibration and shock during transportation, overloading, mis-handling, or the capability of any other laboratory to repeat the measurement. Sun Creation Engineering Limited shall not be liable for any loss or damage resulting from the use of the equipment.

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c/o 香港新界屯門興安里一號青山灣機樓四樓
Tel 電話: 2927 2606 Fax 傳真: 2744 8986 E-mail 電郵: callab@suncreation.com Website 網址: www.suncreation.com

輝創工程有限公司
Sun Creation Engineering Limited
Calibration and Testing Laboratory

# Certificate of Calibration
# 校正證書

Certificate No. : C134307
證書編號

**ITEM TESTED / 送檢項目** ( Job No. / 序引編號 : IC13-1709 )

Description / 儀器名稱 : Sound Level Calibrator
Manufacturer / 製造商 : Rion
Model No. / 型號 : NC-73
Serial No. / 編號 : 10997142
Supplied By / 委託者 : Envirotech Services Co.
Shop 6, G/F., Casio Mansion, 209 Shaukeiwan Road,
Hong Kong

**TEST CONDITIONS / 測試條件**

Temperature / 溫度 : (23 ± 2)°C
Relative Humidity / 相對濕度 : (55 ± 20)%
Line Voltage / 電壓 : ---

**TEST SPECIFICATIONS / 測試規範**

Calibration check

**DATE OF TEST / 測試日期** : 12 July 2013

**TEST RESULTS / 測試結果**

The results apply to the particular unit-under-test only.
All results are within manufacturer's specification.
The results are detailed in the subsequent page(s).

The test equipment used for calibration are traceable to National Standards via :
- The Government of The Hong Kong Special Administrative Region Standard & Calibration Laboratory
- Rohde & Schwarz Laboratory, Germany
- Fluke Everett Service Center, USA
- Agilent Technologies, USA

Tested By 測試 : K C Lee

Certified By 核證 : K M Wu

Date of Issue 簽發日期 : 15 July 2013

The test equipment used for calibration are traceable to the Nation Standards as specified in this certificate. This certificate shall not be reproduced except in full, without the prior written approval of this laboratory.
本證書所載校正用之測試器材均可溯源至國際標準。局部複印本證書需先獲本實驗所書面批准。

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輝創工程有限公司 – 校正及檢測實驗所
c o 香港新界屯門興安里一號青山灣機樓四樓
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# Certificate of Calibration
# 校正證書

Certificate No. : C134307
證書編號

1. The unit-under-test (UUT) was allowed to stabilize in the laboratory for over 12 hours before the commencement of the test.

2. The results presented are the mean of 3 measurements at each calibration point.

3. Test equipment :

| Equipment ID | Description | Certificate No. |
|---|---|---|
| CL130 | Universal Counter | C133632 |
| CL281 | Multifunction Acoustic Calibrator | DC130171 |
| TST150A | Measuring Amplifier | C120886 |

4. Test procedure : MA100N.

5. Results :

5.1 Sound Level Accuracy

| UUT Nominal Value | Measured Value (dB) | Mfr's Spec. (dB) | Uncertainty of Measured Value (dB) |
|---|---|---|---|
| 94 dB, 1 kHz | 93.7 | ± 0.5 | ± 0.2 |

5.2 Frequency Accuracy

| UUT Nominal Value (kHz) | Measured Value (kHz) | Mfr's Spec. | Uncertainty of Measured Value (Hz) |
|---|---|---|---|
| 1 | 0.988 | 1 kHz ± 2 % | ± 1 |

Remark : The uncertainties are for a confidence probability of not less than 95 %.

Note :
The values given in this Certificate only relate to the values measured at the time of the test and any uncertainties quoted will not include allowance for the equipment long term drift, variations with environment changes, vibration and shock during transportation, overloading, mis-handling, or the capability of any other laboratory to repeat the measurement. Sun Creation Engineering Limited shall not be liable for any loss or damage resulting from the use of the equipment.

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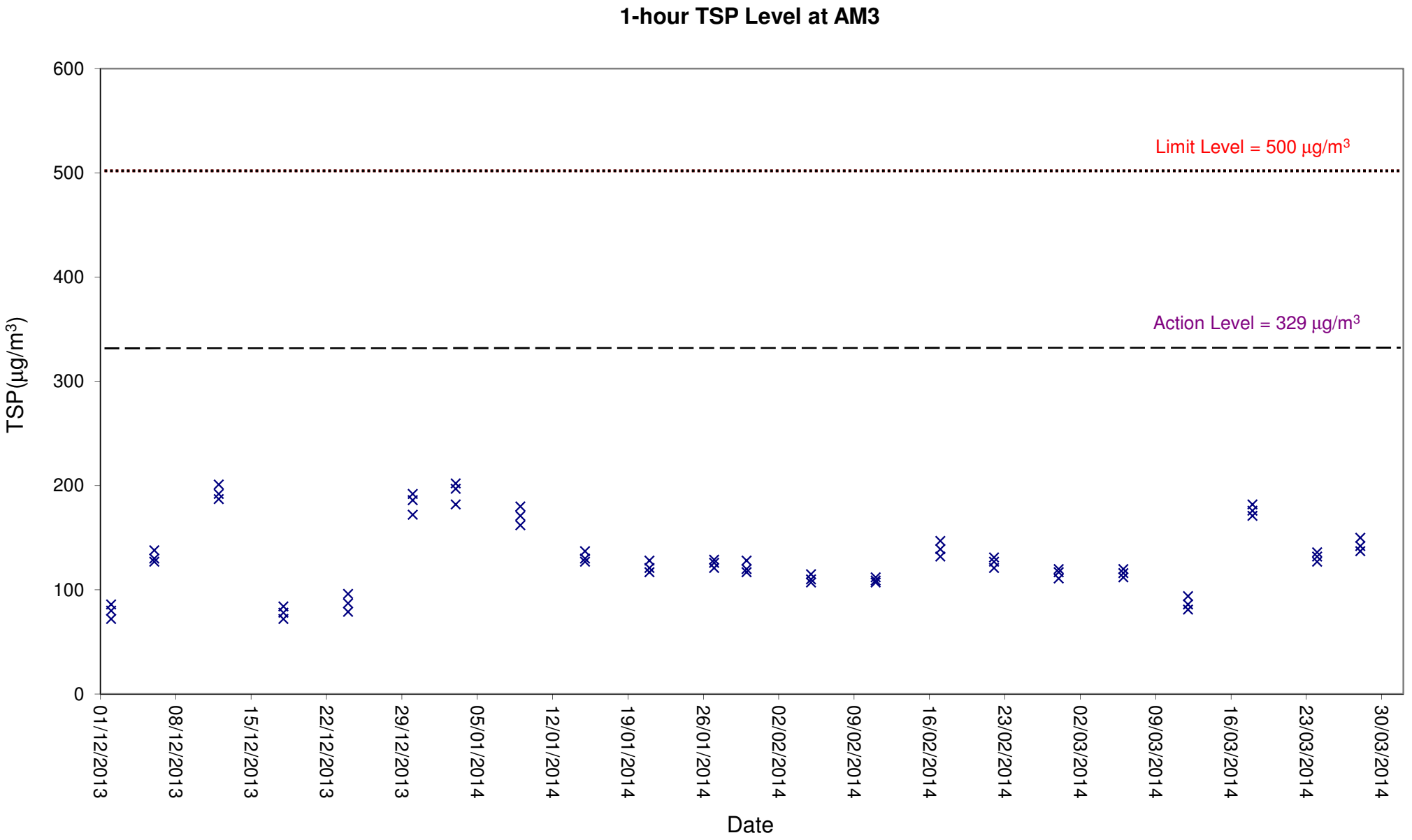
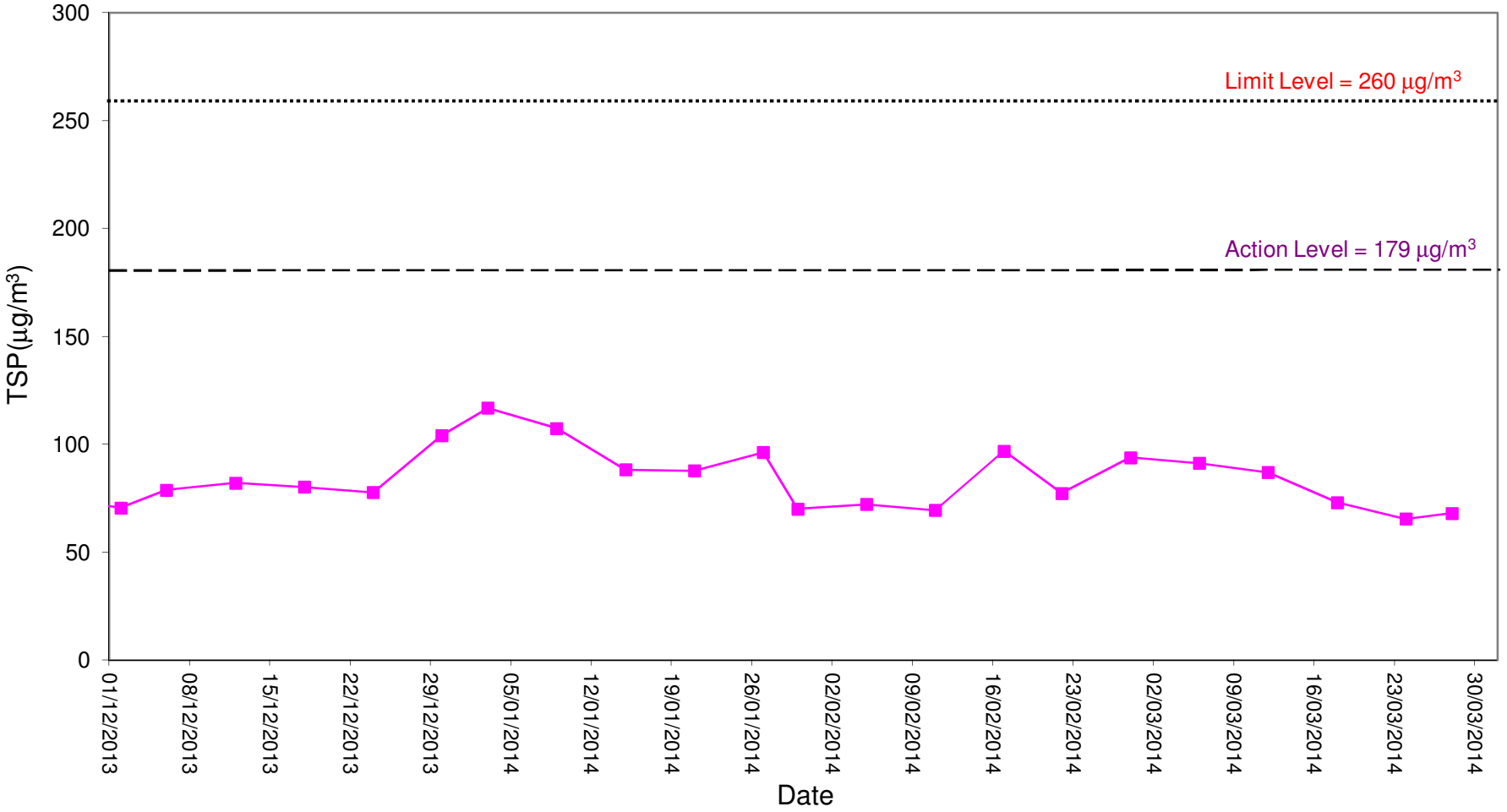
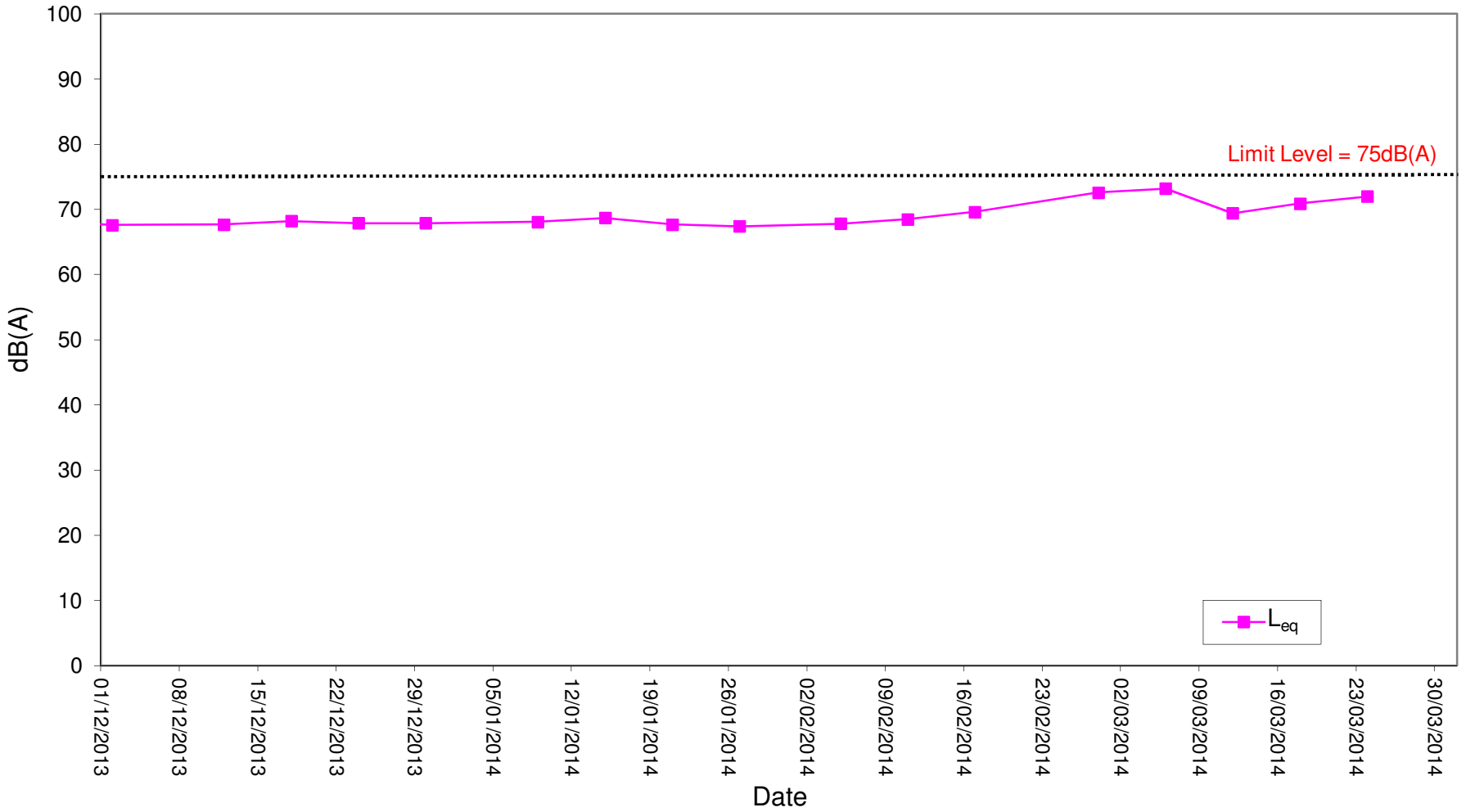
# Appendix G. Graphical plots of the monitoring results

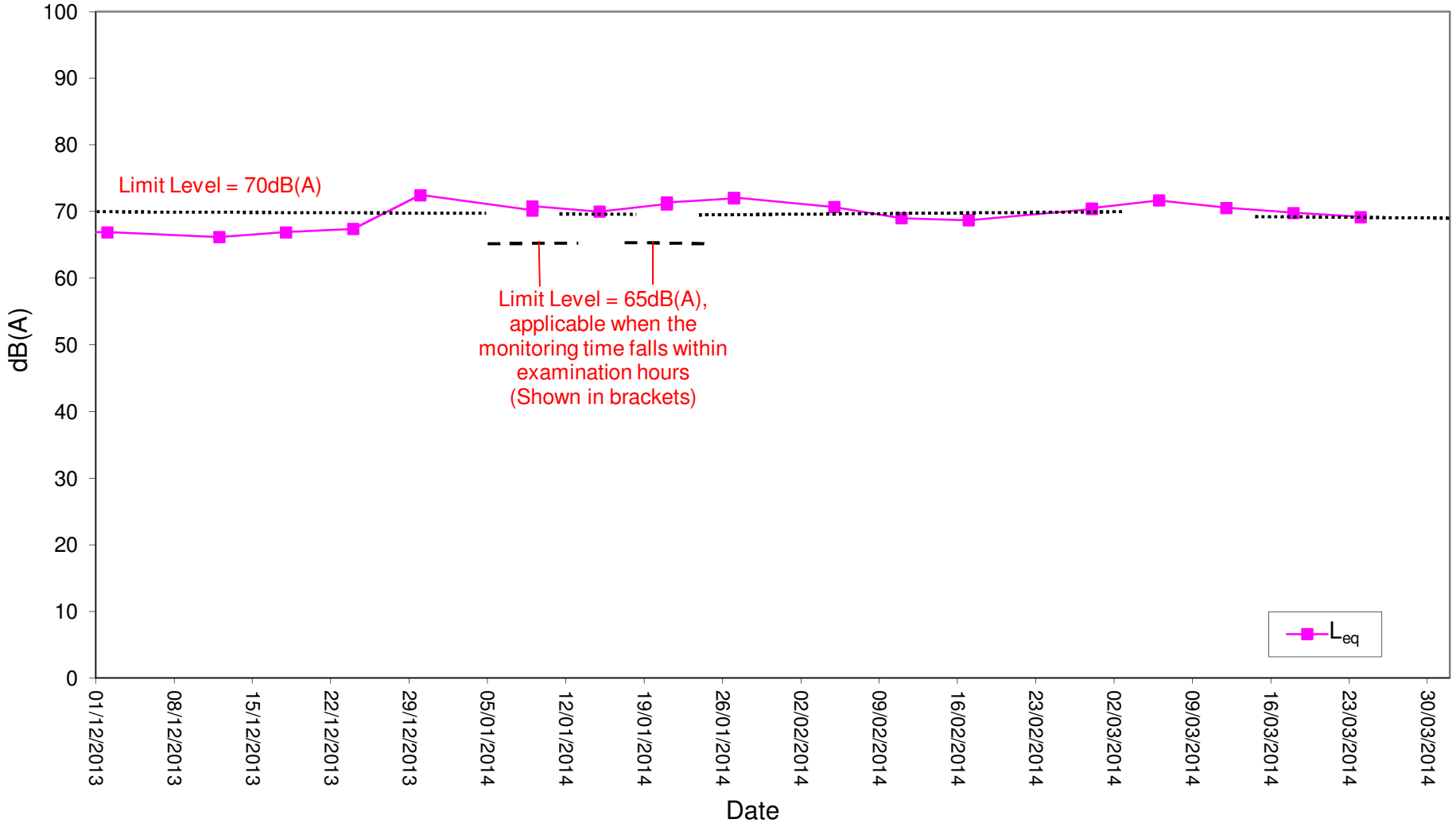

1-hour TSP Level at AM3
600
500
400
300
200
100
0
TSP(µg/m³)
Limit Level = 500 µg/m³
Action Level = 329 µg/m³
01/12/2013
08/12/2013
15/12/2013
22/12/2013
29/12/2013
05/01/2014
12/01/2014
19/01/2014
26/01/2014
02/02/2014
09/02/2014
16/02/2014
23/02/2014
02/03/2014
09/03/2014
16/03/2014
23/03/2014
30/03/2014
Date

## 24-hour TSP Level at AM3



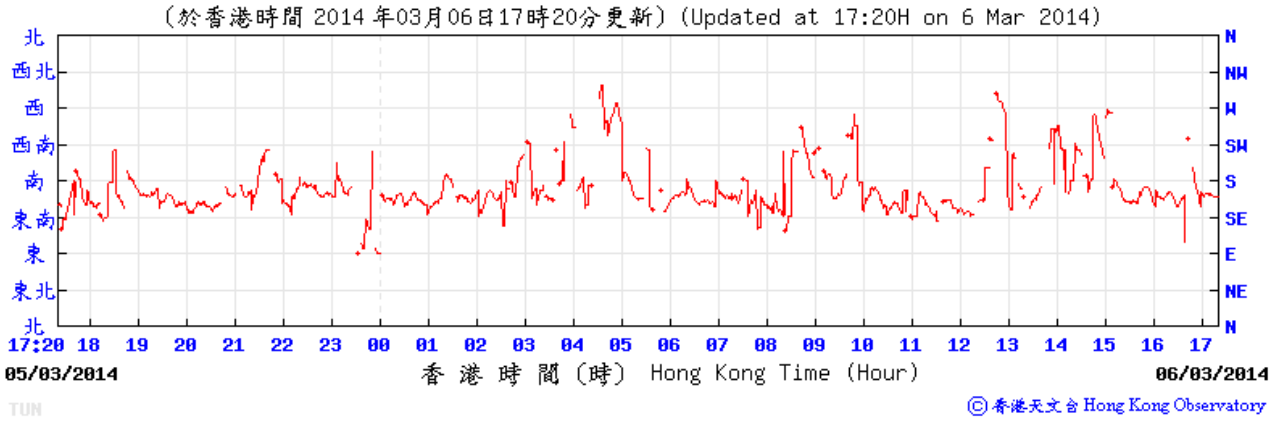

Noise Level for 30 min, dB(A), at NM8
100
90
80
70
60
50
40
30
20
10
0
dB(A)
Limit Level = 75dB(A)
Leq
01/12/2013
08/12/2013
15/12/2013
22/12/2013
29/12/2013
05/01/2014
12/01/2014
19/01/2014
26/01/2014
02/02/2014
09/02/2014
16/02/2014
23/02/2014
02/03/2014
09/03/2014
16/03/2014
23/03/2014
30/03/2014
Date

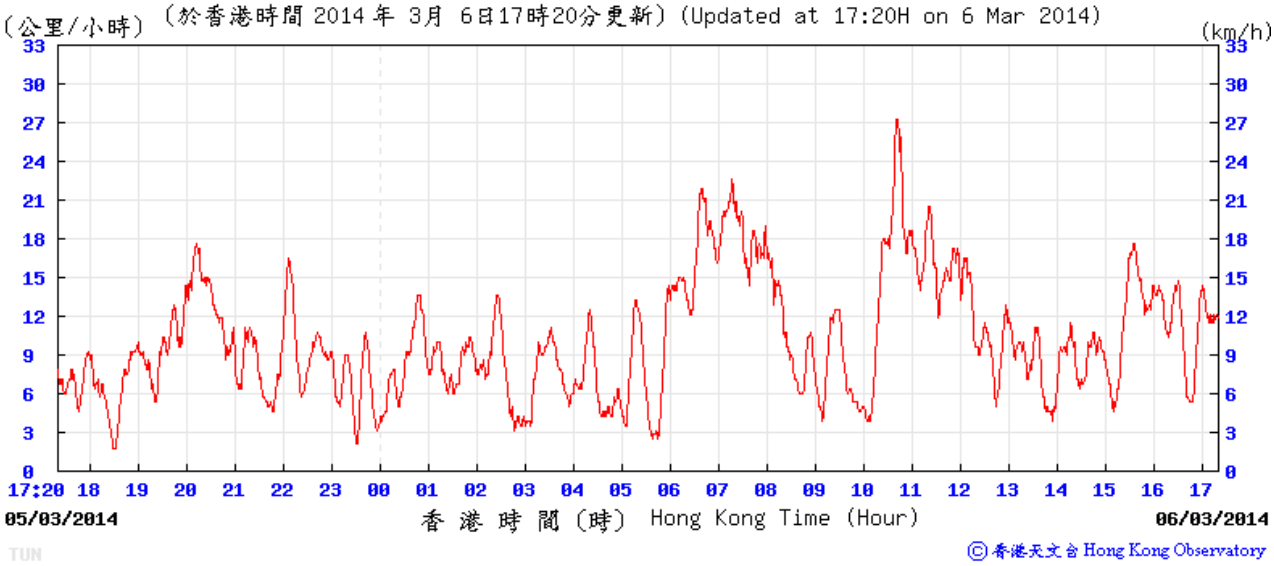
## Noise Level for 30 min, dB(A), at NM9

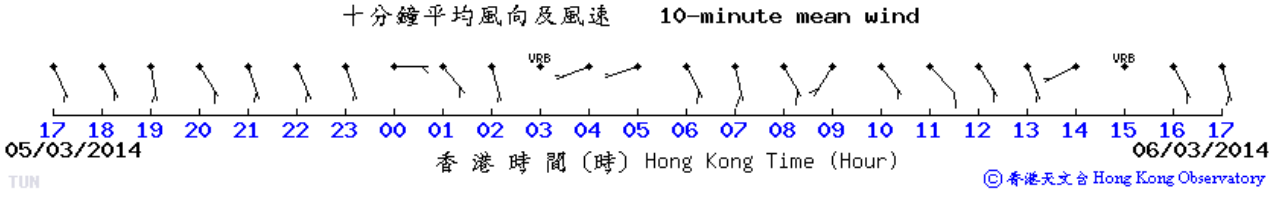


# Appendix H. Wind data from Hong Kong Observatory Weather Station

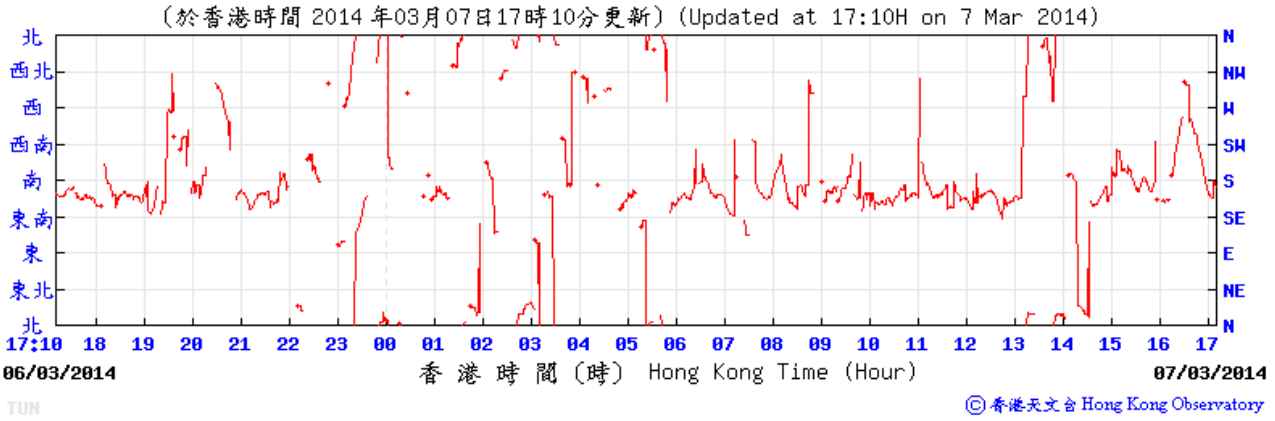
**Tuen Mun – 6 March 2014**

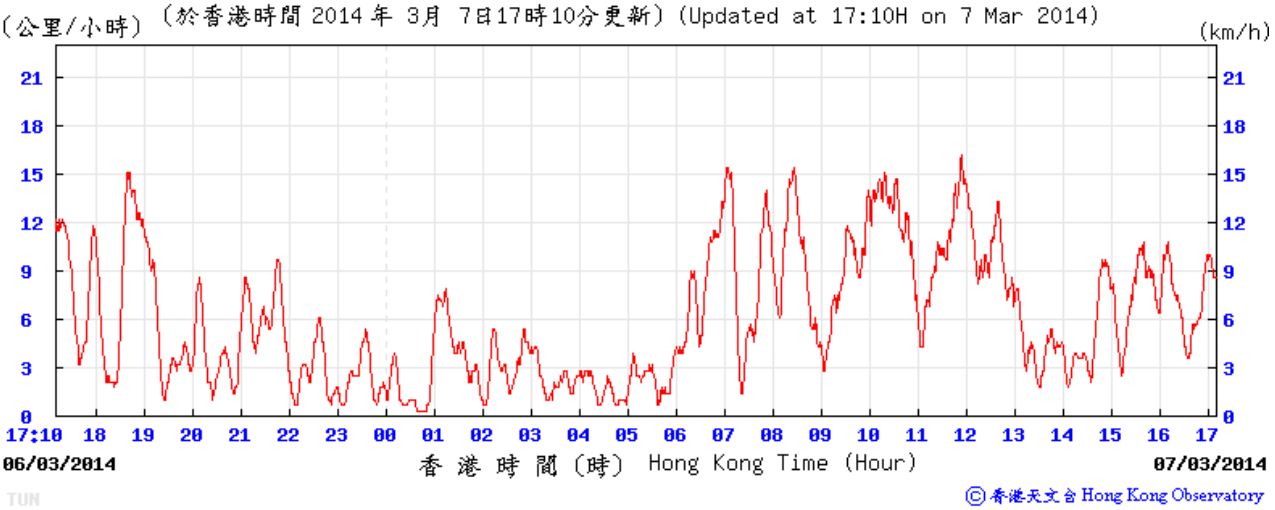


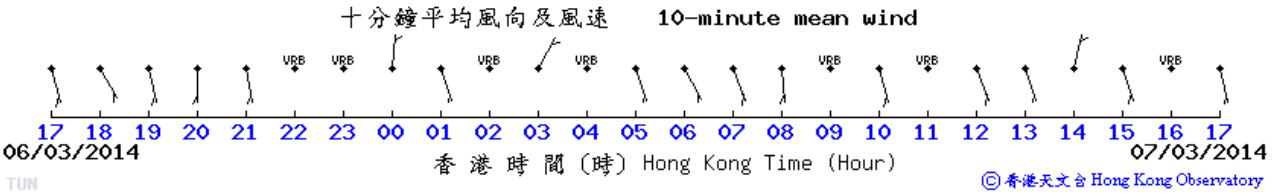



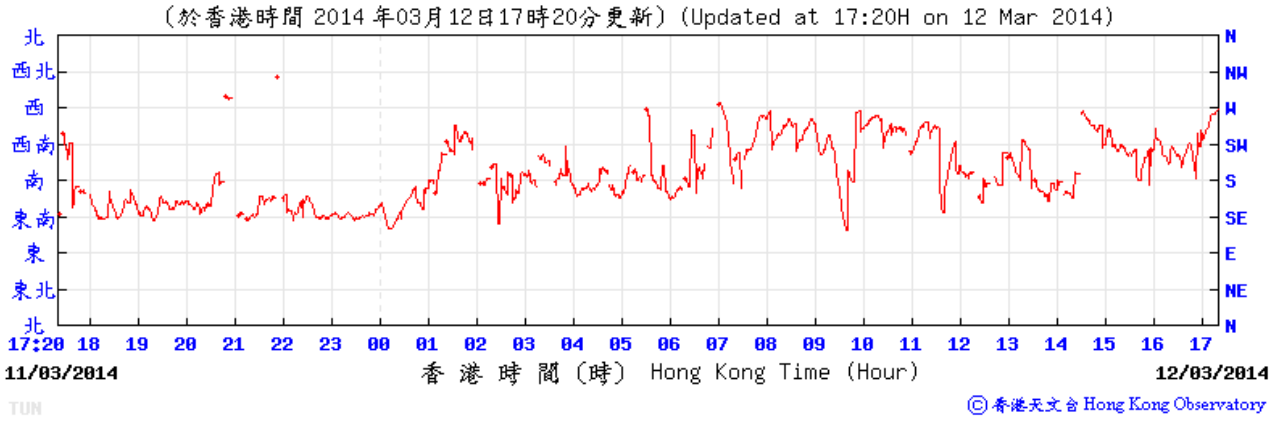
**Tuen Mun – 7 March 2014**

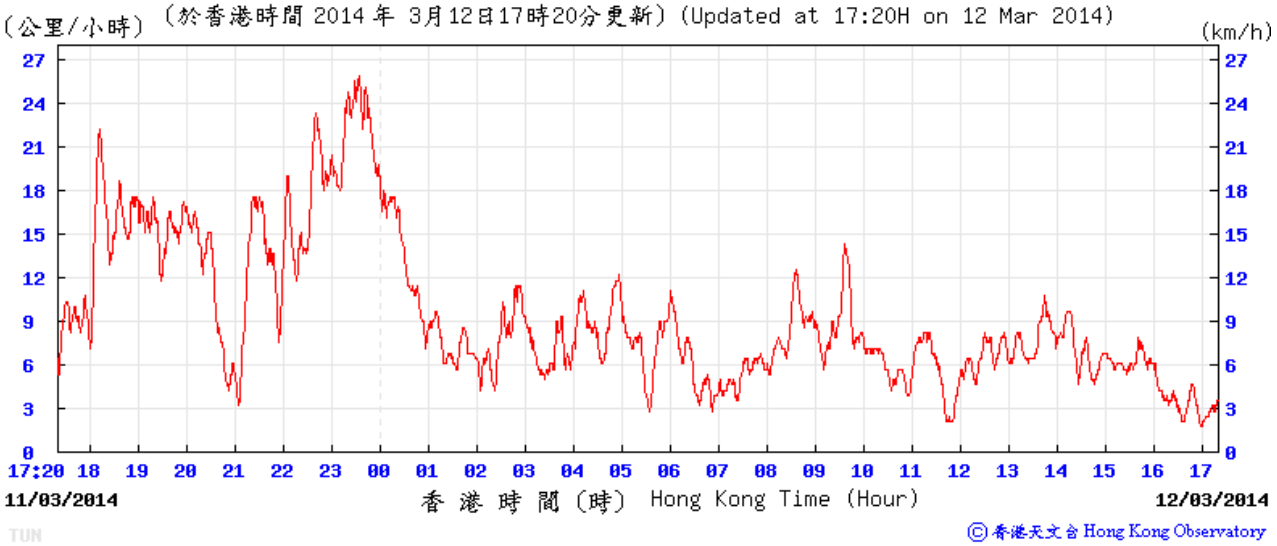


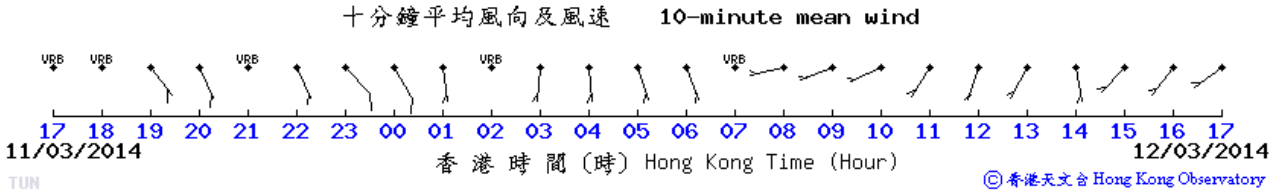



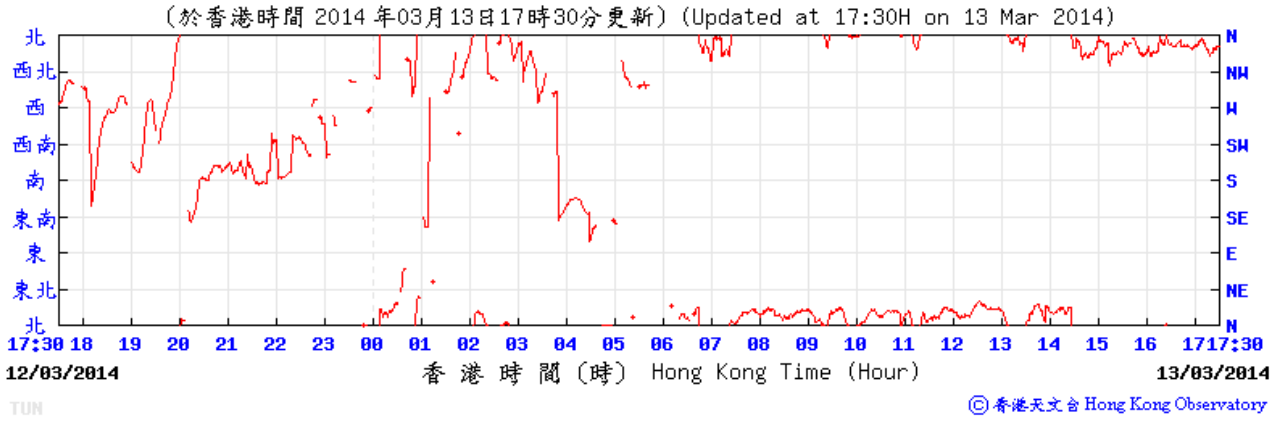
**Tuen Mun – 12 March 2014**

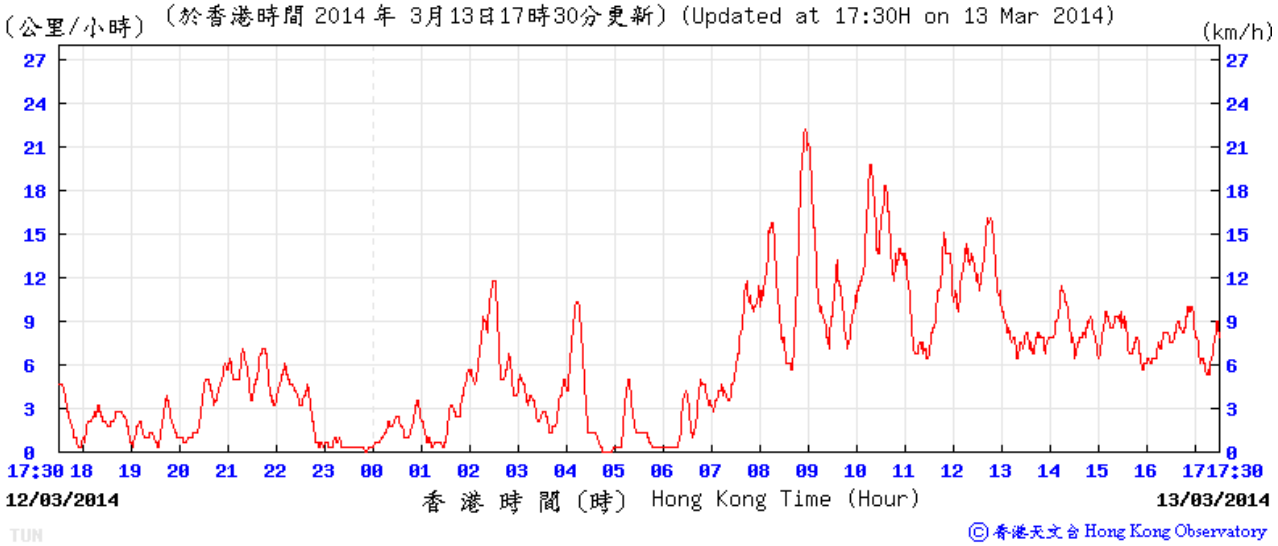


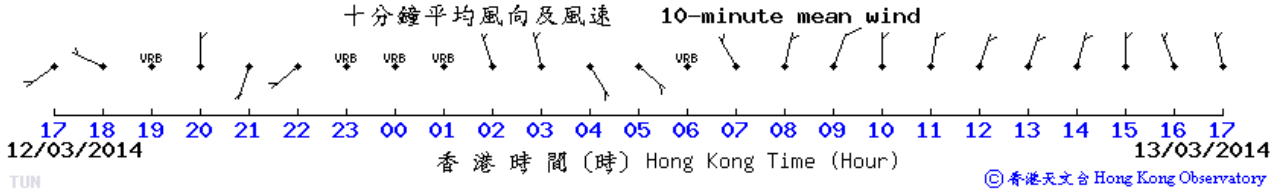



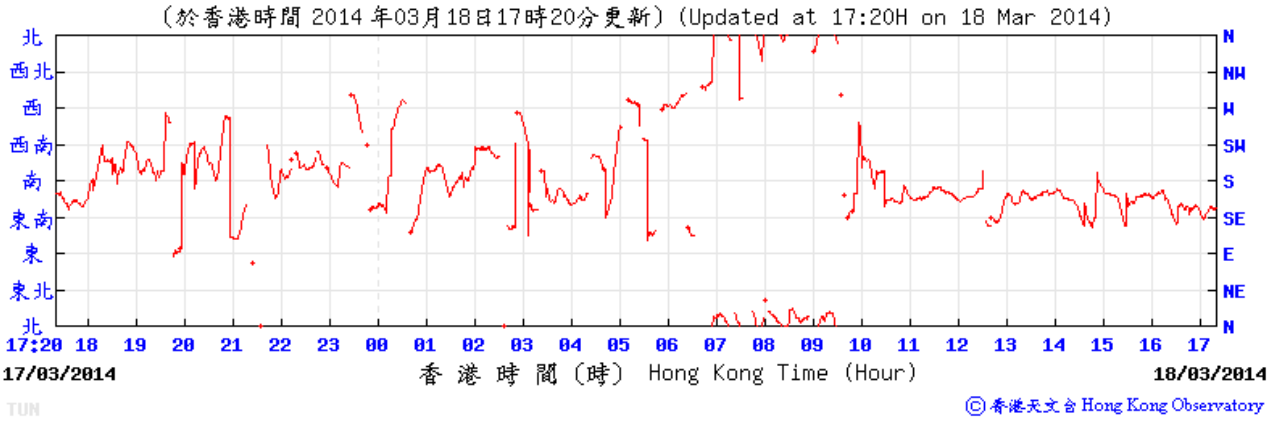
**Tuen Mun – 13 March 2014**

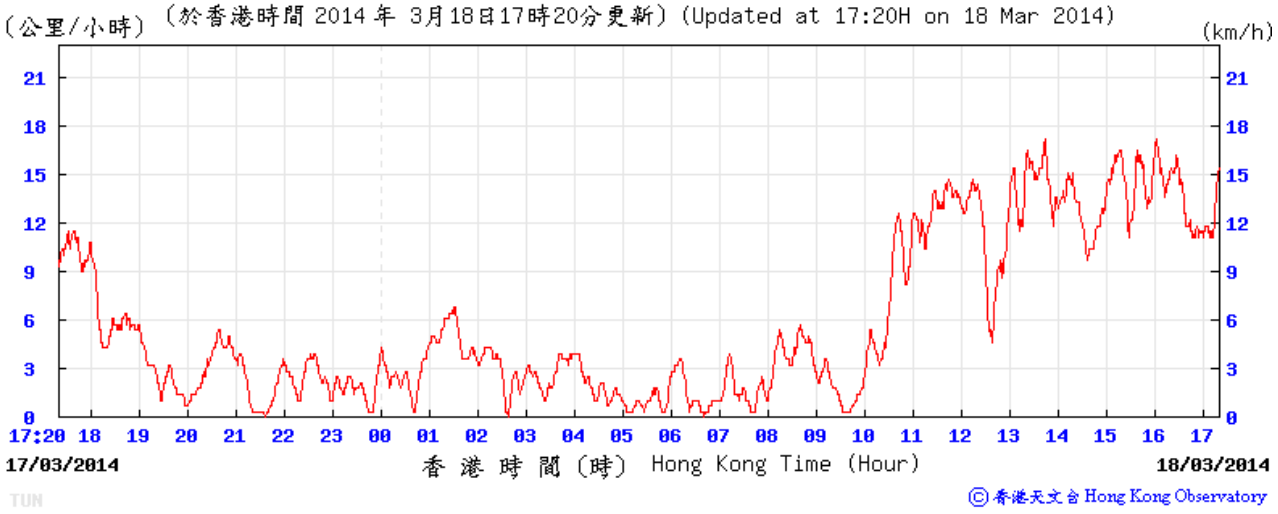


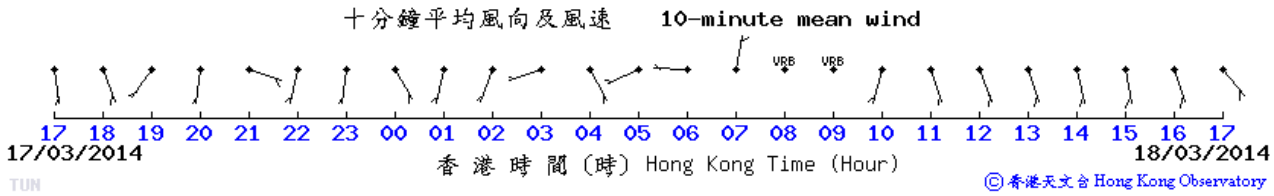



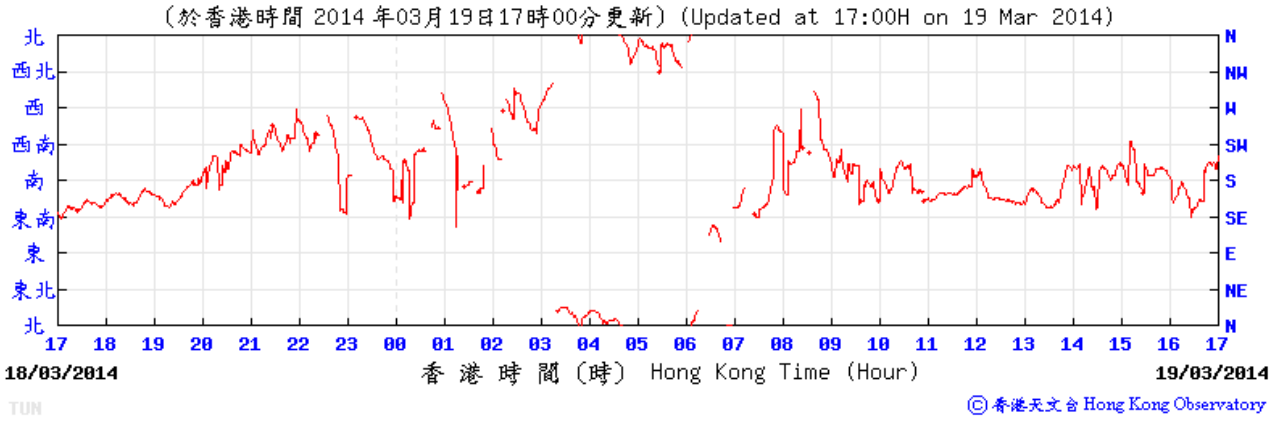
**Tuen Mun – 18 March 2014**

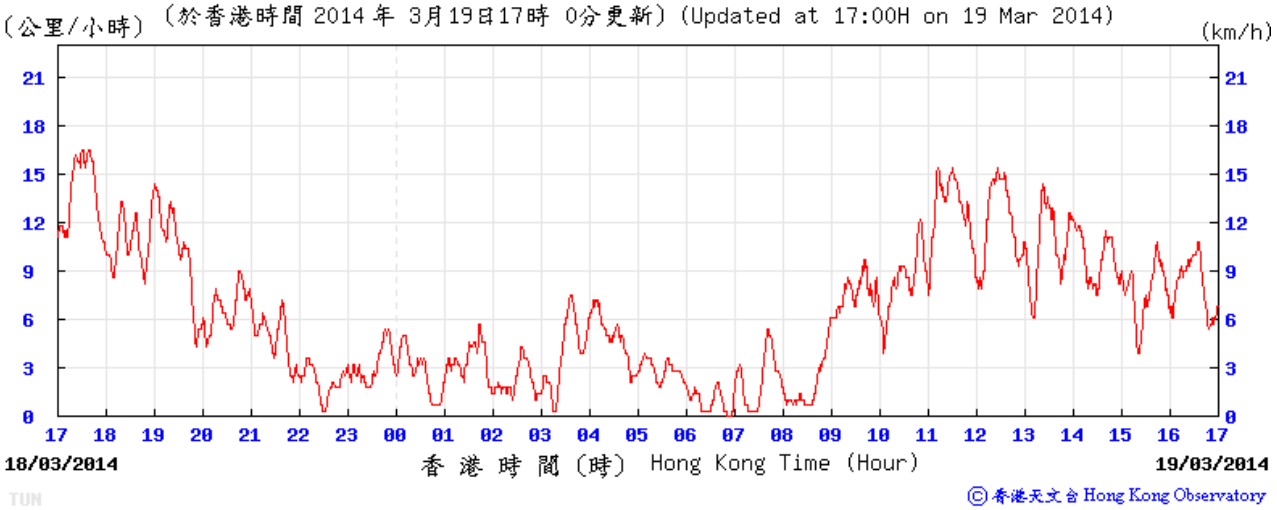


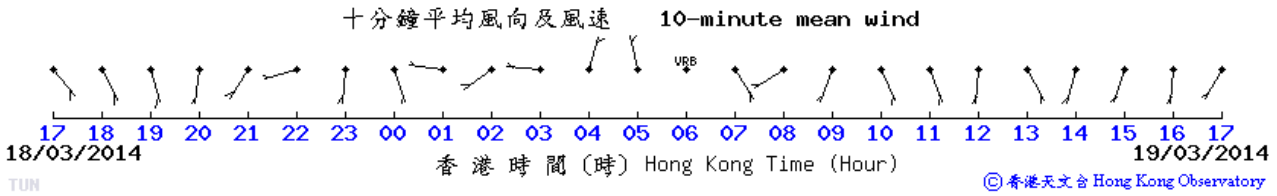



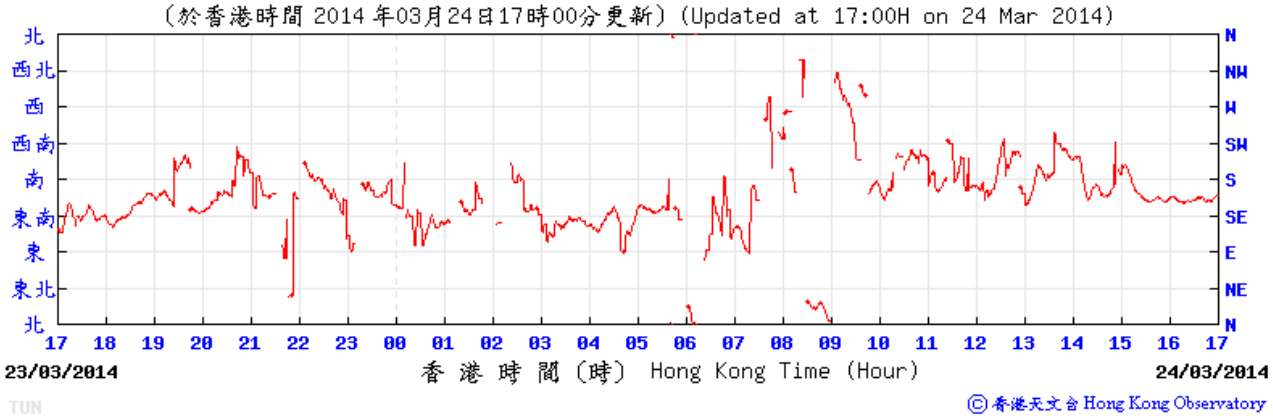
**Tuen Mun –19 March 2014**

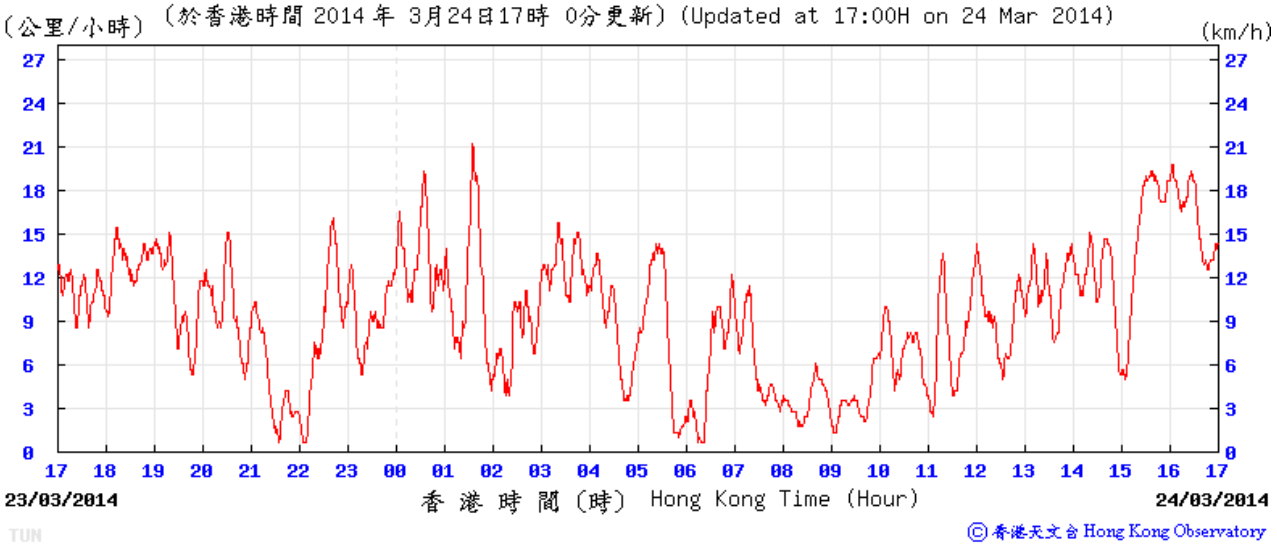


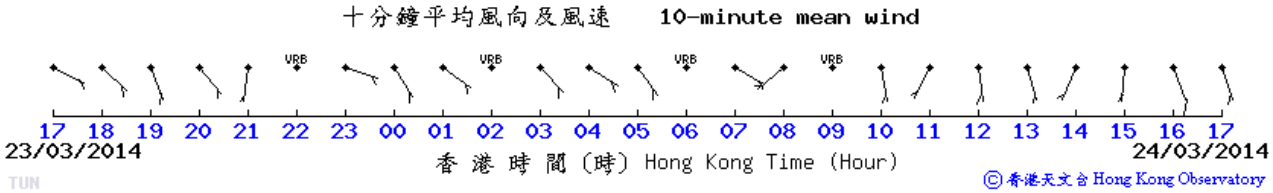



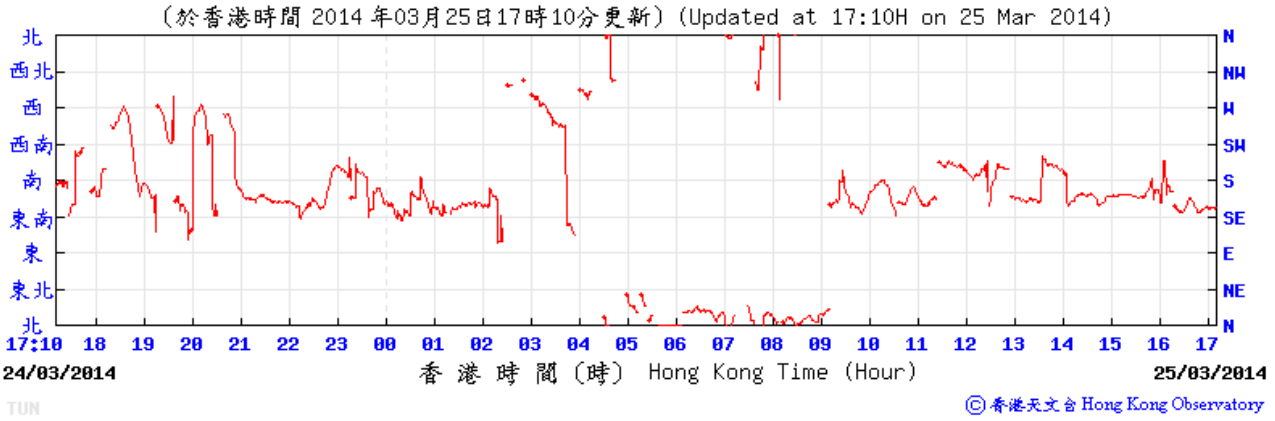
**Tuen Mun – 24 March 2014**

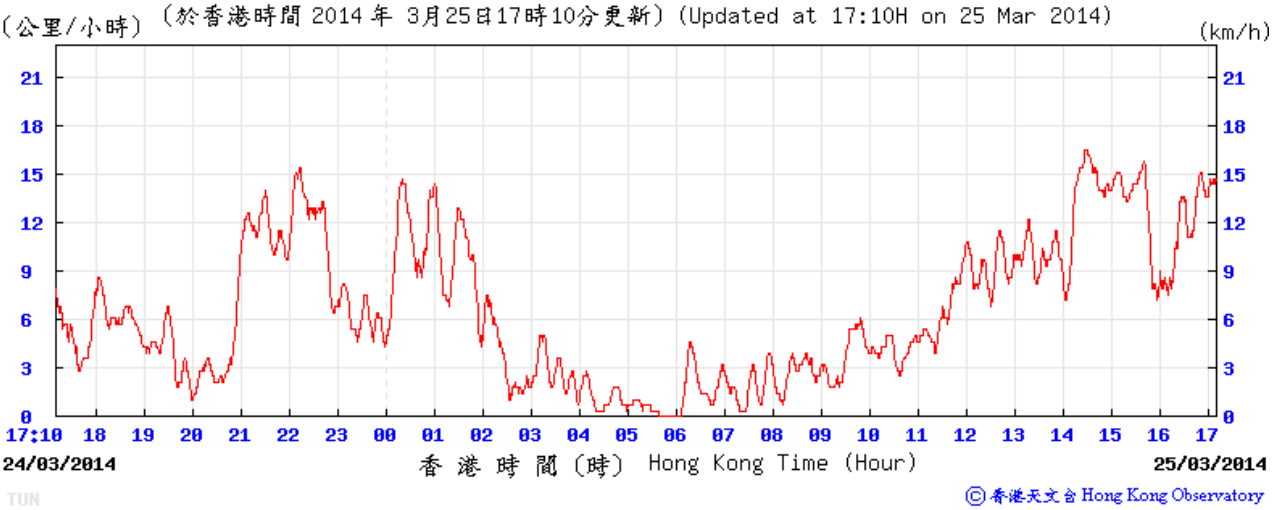


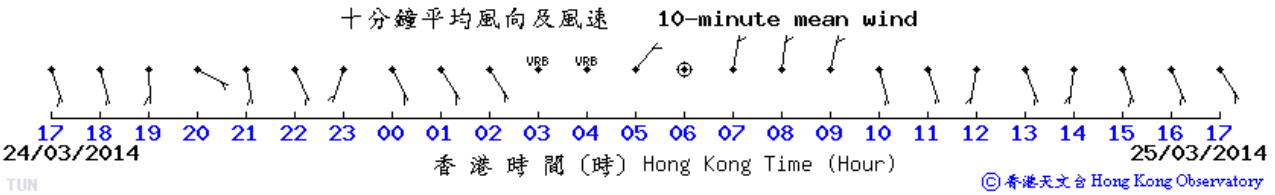



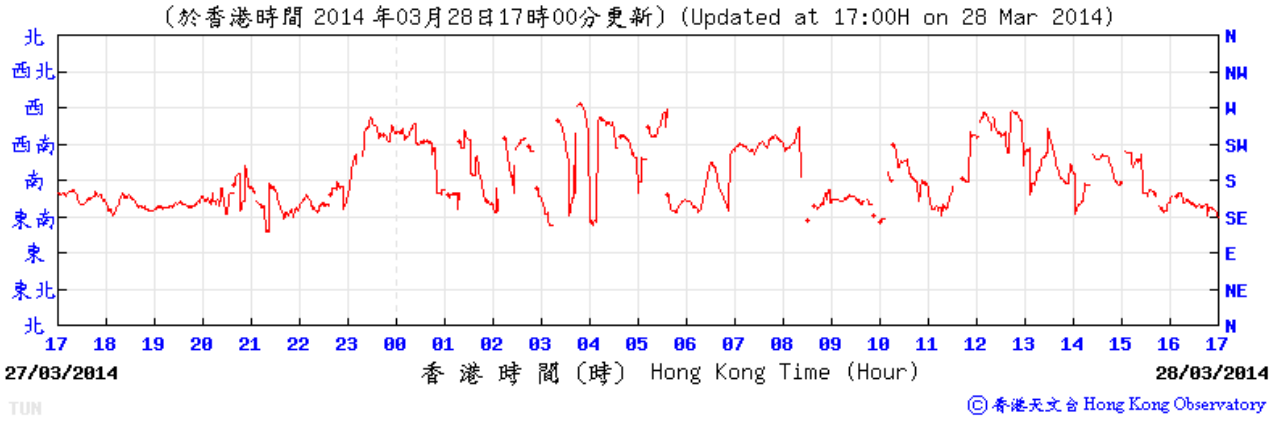
**Tuen Mun – 25 March 2014**

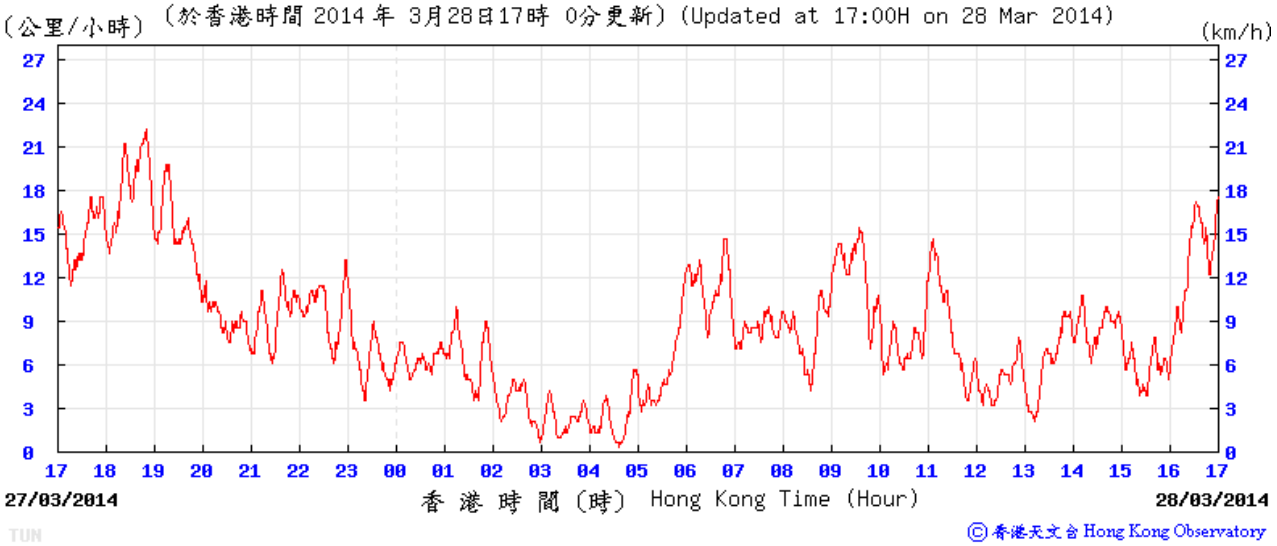


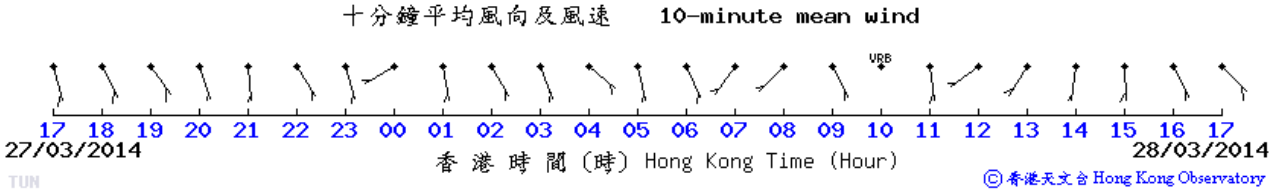



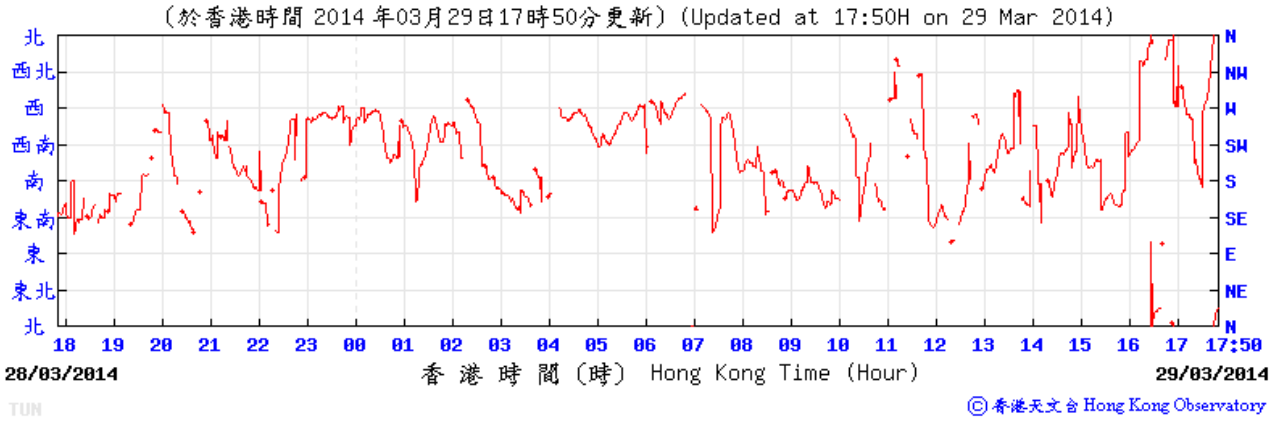
**Tuen Mun – 28 March 2014**

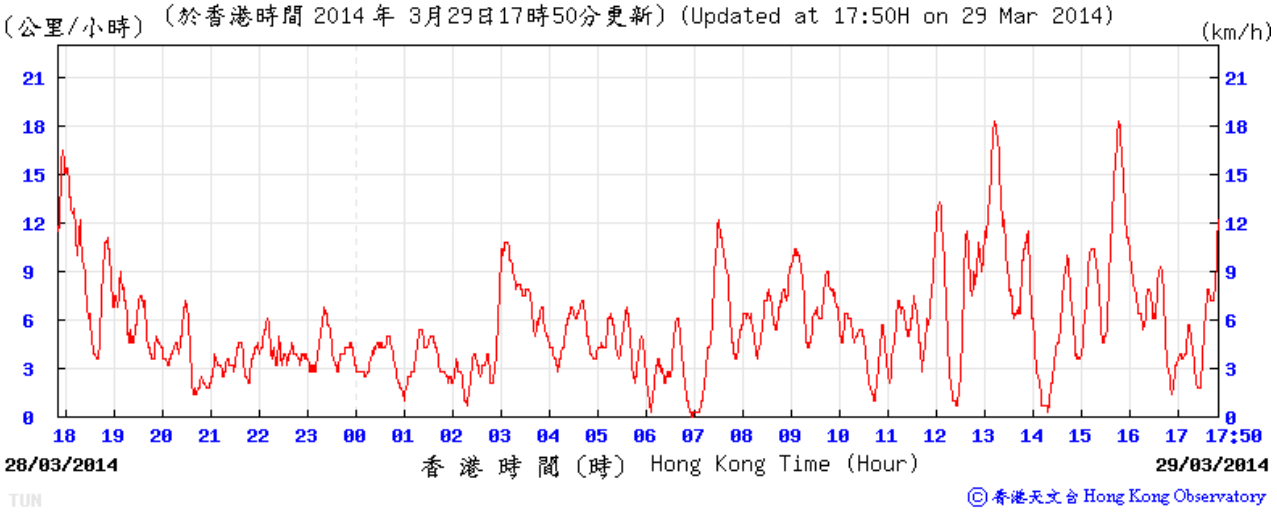


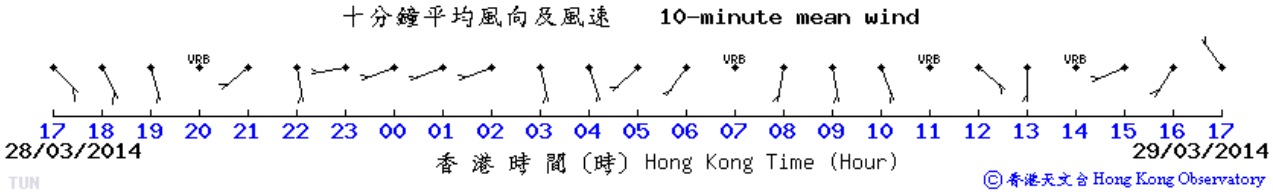



**Tuen Mun –29 March 2014**



# Appendix I. Waste Flow Table

Contract No.: CV/2011/01

# Monthly Summary Waste Flow Table for March 2014

| Month | Actual Quantities of Inert C&D Materials Generated Monthly | | | | | | Actual Quantities of C&D Wastes Generated Monthly | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Total Quantity Generated | Hard Rock and Large Broken Concrete | Reused in the Contract | Reused in other Projects | Disposed as Public Fill | Imported Fill | Metals | Paper/ cardboard packaging | Plastics (see Note 3) | Chemical Waste | Others, e.g. general refuse |
| | (in '000$m^3$) | (in '000$m^3$) | (in '000$m^3$) | (in '000$m^3$) | (in '000$m^3$) | (in '000$m^3$) | (in '000 kg) | (in '000kg) | (in '000kg) | (in '000kg) | (in '000$m^3$) |
| Yr 2013 | 6.81 | 6.81 | 4.88 | 0 | 1.93 | 1.62 | 65.88 | 0 | 0 | 23.13 | 0.988 |
| Jan | 0.35 | 0.35 | 0.35 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.024 |
| Feb | 0.21 | 0.21 | 0.21 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.01 |
| Mar | 0.25 | 0.25 | 0.25 | 0 | 0 | 1.78 | 0 | 0 | 0 | 0 | 0.011 |
| Apr | | | | | | | | | | | |
| May | | | | | | | | | | | |
| June | | | | | | | | | | | |
| Sub-total | 7.62 | 7.62 | 5.69 | 0 | 1.93 | 3.4 | 65.88 | 0 | 0 | 23.13 | 1.033 |
| July | | | | | | | | | | | |
| Aug | | | | | | | | | | | |
| Sept | | | | | | | | | | | |
| Oct | | | | | | | | | | | |
| Nov | | | | | | | | | | | |
| Dec | | | | | | | | | | | |
| Total | 7.62 | 7.62 | 5.69 | 0 | 1.93 | 3.4 | 65.88 | 0 | 0 | 23.13 | 1.033 |

| Forecast of Total Quantities of C&D Materials to be Generated from the Contract | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Total Quantity Generated | Hard Rock and Large Broken Concrete | Reused in the Contract | Reused in other Projects | Disposed as Public Fill | Imported Fill | Metals | Paper/ cardboard packaging | Plastics (see Note ) | Chemical Waste | Others, e.g. general refuse |
| (in '000$m^3$) | (in '000$m^3$) | (in '000$m^3$) | (in '000$m^3$) | (in '000$m^3$) | (in '000$m^3$) | (in '000 kg) | (in '000kg) | (in '000kg) | (in '000kg) | (in '000$m^3$) |
| 8.9 | 8.9 | 7 | 0 | 1.9 | 5 | 80 | 10 | 5 | 50 | 5 |

Notes: Plastics refer to plastic bottles/containers, plastic sheets/foam from packaging material

# Appendix J. Environmental Mitigation Measures - Implementation Status

Table J1: Air Quality – Recommended Mitigation Measures

| * EM&A / ^ EP ref: | Recommended measures | Implementation Status |
|---|---|---|
| *2.1.7, Table A | • Excavated dusty materials should be covered by impervious sheeting or sprayed with water to keep the entire surface wet. | P |
| | • Every vehicle should be washed to remove dusty materials from its body and wheels before leaving a construction site. | P |
| | • The load carried by vehicle should be covered by impervious sheeting to ensure no leakage of dusty materials from the vehicle. | ✓ |
| | • The heights from which fill materials are dropped should be controlled to a practical level to minimise the fugitive dust arising from unloading. | ✓ |
| | • The haul roads should be located away from ASRs. | ✓ |
| | • The haul roads should be sprayed with water to keep the entire road surface wet. | ✓ |
| | • Vehicle speed within the construction sites should be maintained at 20 km/h or below. | ✓ |

Table J2: Noise – Recommended Mitigation Measures

| * EM&A / ^ EP ref: | Recommended measures | Implementation Status |
|---|---|---|
| *3.8, Table A | • Only well-maintained plant should be operated on-site and plant should be serviced regularly during the construction works. | ✓ |
| *3.8, Table A | • Machines and plant that may be in intermittent use should be shut down between work periods or should be throttled down to a minimum. | ✓ |
| *3.8, Table A | • Plant known to emit noise strongly in one direction, should, where possible, be orientated to direct noise away from nearby NSRs. | P |
| *3.8, Table A | • Silencers or mufflers on construction equipment should be utilised and should be properly maintained during the construction works. | P |
| *3.8, Table A | • Mobile plant should be sited as far away from NSRs as possible. | ✓ |
| *3.8, Table A | • Material stockpiles and other structures should be effectively utilised, where practicable, to screen noise from on-site construction activities. | ✓ |
| *3.8, Table A | • Only well-maintained plant should be operated on-site and plant should be serviced regularly during the construction works. | ✓ |

Table J3: Water Quality – Recommended Mitigation Measures

| * EM&A / ^ EP ref: | Recommended measures | Implementation Status |
|---|---|---|
| *5.1, Table A | • A temporary drainage channel shall be provided to divert any runoff away from the site. | ✓ |
| *5.1, Table A ^2.4 | • Channels, earth bunds or sand bag barriers shall be provided on site to direct storm water to silt removal facilities. The design of efficient silt removal facilities shall be based on the guidelines in Appendix A1 of ProPECC PN 1/94. | ✓ |
| *5.1, Table A | • The overall slope of the site shall be kept to a minimum to reduce the erosive potential of surface water flows. | ✓ |
| *5.1, Table A | • All entrances and exits of construction sites shall be protected by coarse stone ballast. | ✓ |

| * EM&A / ^ EP ref: | Recommended measures | Implementation Status |
|---|---|---|
| *5.1, Table A | • Sediment tanks of sufficient capacity, constructed from pre-formed individual cells of approximately 6 to 8 $m^3$ capacity, are recommended as a general mitigation measure which can be used for settling storm water prior to disposal. | ✓ |
| *5.1, Table A ^2.6 | • All drainage facilities and erosion and sediment control structures shall be regularly inspected and maintained to ensure proper and efficient operation at all times and particularly following rainstorms. | P |
| *5.1, Table A | • Measures shall be taken to minimise the ingress of any site drainage into excavations. | ✓ |
| ^2.5 | • Water to be pumped out from trenches or foundation excavations shall be discharged into storm drains via silt removal facilities. | ✓ |
| *5.1, Table A | • Particular attention shall be paid to the control of silty surface runoff during storm events, especially for areas located near steep slopes. | ✓ |
| *5.1, Table A | • All vehicles and mechanical plant shall be cleaned before leaving a construction site to ensure no earth, mud, debris and the like is deposited by them on roads. | P |
| *5.1, Table A | • The bentonite, grouting and cement materials shall only be delivered to the construction site when they are to be used. | ✓ |
| *5.1, Table A | • Dusty materials shall be stored in a covered warehouse and the excess amount should be removed from the site. | ✓ |
| ^2.7 | • Construction waste, debris and rubbish shall be properly collected, handled and disposed of to avoid water quality impacts. | ✓ |
| ^2.8 | • Construction work force sewage shall be handled by temporary or permanent public toilets or by portable chemical toilets or sewage holding tanks with the sewage to be regularly collected. | ✓ |

Table J4: Waste Management – Recommended Mitigation Measures

| * EM&A / ^ EP ref: | Recommended measures | Implementation Status |
|---|---|---|
| *5.1, Table A | • Construction solid waste, debris and rubbish on site shall be collected, handled and disposed of properly. | P |
| | • Handle and store wastes in a manner which ensures that they are held securely without loss or leakage, thereby minimising the potential for pollution. | ✓ |
| | • Use waste hauliers authorised or licensed to collect specific category of waste, e.g. chemical wastes. | ✓ |
| | • Remove wastes in a timely manner. | ✓ |
| | • Maintain and clean waste storage areas regularly. | ✓ |
| | • Minimise windblown litter and dust during transportation by either covering trucks or transporting wastes in enclosed containers. | ✓ |
| | • Obtain the necessary waste disposal permits from the appropriate authorities. | ✓ |
| | • Dispose of waste at licensed waste disposal facilities. | ✓ |
| | • Develop procedures such as a ticketing system to facilitate tracking of loads, particularly for chemical waste, and to ensure that illegal disposal of wastes does not occur. | ✓ |
| | • Maintain records of the quantities of wastes generated, recycled and disposed. | ✓ |
| | • Surplus excavated materials shall be reused as fill material at public filling areas (PFA). | ✓ |
| | • Control measures shall be taken at the stockpiling area to prevent the generation of dust and pollution of stormwater channels. | ✓ |

| * EM&A / ^ EP ref: | Recommended measures | Implementation Status |
|---|---|---|
| | • Wetting the surface of the stockpiled soil with water when necessary especially during the dry season. | ✓ |
| *5.1, Table A | • Chemical waste produced should be handled in accordance with the relevant guidelines and regulations. | P |

Table J5: Terrestrial Ecology – Recommended Mitigation Measures

| * EM&A / ^ EP ref: | Recommended measures | Implementation Status |
|---|---|---|
| *4, Table A | • Regular checks shall be made to ensure that the work site boundaries are not exceeded and that no damage is being caused to the surrounding areas. | ✓ |
| *4 | • Wild and uncontrolled open fires shall be strictly prohibited within the work site boundary. | ✓ |

Table J6: Others

| * EM&A / ^ EP ref: | Recommended measures | Implementation Status |
|---|---|---|
| ^1.5 | • A copy of the valid Environmental Permit shall be displayed conspicuously on the Project site(s) at all vehicular site entrances/exits or at a convenient location for public information at all times. The most updated information about the Permit, including any amended Permit, shall be displayed at such locations. If the Permit Holder surrenders a part or whole of the Permit, the notice he send to the Director shall also be displayed at the same locations as the original Permit. The suspended, varied or cancelled Permit shall be removed from display at the Project site(s). | ✓ |
| n/a | • The required licenses should be obtained by the Contractor (including CNP (if any), WPCO license, etc.) | ✓ |

Legend:

| | |
|---|---|
| ✓ | Implemented |
| × | Not implemented |
| P | Partially implemented |
| N/A | Not applicable |

# Appendix K. Cumulative statistics on complaints, notifications of summons and successful prosecutions

Cumulative statistics for complaints, notifications of summons and successful prosecutions for the Project account for period starting from the date of commencement of construction (i.e. 8 Dec 2011) to the end of the reporting month and are summarized in the **Table K1** below.

Table K1: Statistics for complaints, notifications of summons and successful prosecutions

| Reporting Period | Cumulative Statistics | | |
|---|---|---|---|
| | Complaints | Notifications of summons | Successful prosecutions |
| This reporting month | 0 | 0 | 0 |
| From 8 Dec 2011 to end of the reporting month | 0 | 0 | 0 |

# Appendix L. Summary Exceedance Investigation Reports

# Incident Report on Action Level or Limit Level Non-compliance

| | | |
|---|---|---|
| Project | **Agreement No. LW 05/2011**<br>Environmental Team Services for Contract No. CV/2011/01<br>Site formation and Infrastructural works near<br>Tsing Lun Road and Tsz Tin Road in Area 54, Tuen Mun | |
| Ref. No. | 008 | |
| Date | 6 March 2014 | |
| Time (hh:mm) | 08:30-09:00 | |
| Monitoring Location* | NM9 (TWGHs Yau Tze Tin Memorial College) | |
| Parameter | Noise | |
| ~~Action Level~~ | ~~When one documented complaint is received~~ | |
| Limit Level | 0700–1900 hrs on normal weekdays | $L_{eq}$ (30 mins): 75 dB(A)<br>For schools, 70 dB(A) for schools and 65 dB(A) during school examination periods. |
| Measured Level (dB(A)) | $L_{eq}$ (30 min) = 72 dB(A)<br>Limit Level was 70 dB(A) since the monitoring location was a school | |
| Possible reason for Action or Limit Level Non-compliance | During the subject noise monitoring session (08:30-09:00), no noise generating works by the Contractor were observed within the Project site area opposite Siu Hong Court. Bored piling and crane operation at multiple nearby locations (about 75m, 150m, 200m and 300m from NM9) and backhoe operation (about 75m from NM9) by another contractor within an adjacent construction site, as well as general traffic noise, were also observed.<br>According to the site diary of 6 March 2014 provided by the Contractor, the major site activities conducted within the Project site area nearest to NM9 included the use of backhoe for excavation works at Tsing Lun Road near Unicorn Garden as well as backfilling works, removal of sheet piles and pipe laying works near Hong Po Road (about 100-150m from NM9).<br>Other works in the Project site conducted by the Contractor included:<br>• Fixing of precast concrete units and removal of formwork near BC6-14 (at Tsz Tin Road, about 200m from NM9); and<br>• Maintenance of working platform involving welding (at Tsz Tin Road, about 300m from NM9).<br>Site plant was switched off when not in use.<br>According to the EM&A Baseline Monitoring Report for this Project (submitted in November 2011) that the normal weekday background $L_{eq}$ (30 min) noise level at NM9 ranged from 64.6 to 80.0 dB(A), therefore indicating that the 70 dB(A) Noise Limit Level would be occasionally exceeded. The subject noise level recorded was within this range.<br>It was concluded that the exceedance was unlikely to be Project-related, but it is also noted that a major noise source originated from an adjacent site. | |
| Actions taken / to be taken | Although the exceedance was unlikely to be Project-related, nevertheless the Contractor is reminded to ensure that all noise mitigation measures recommended in the EM&A Manual are properly implemented within the Project site area.<br>No increase in noise monitoring frequency is recommended based on the findings | |

| | |
|---|---|
| | of this investigation. |
| Remarks | Nil. |

* Delete where inappropriate

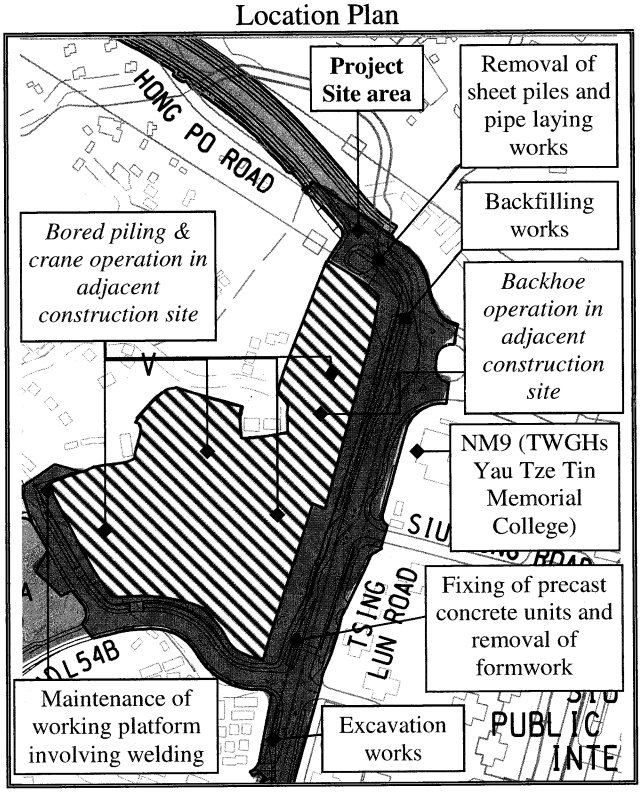
Prepared by: Terence Kong

Designation: Environmental Team Leader

Signature:

Date: 12 March 2014

Location Plan




Legend:

Project site

Adjacent construction site

# Incident Report on Action Level or Limit Level Non-compliance

| | | |
|---|---|---|
| Project | **Agreement No. LW 05/2011**<br>Environmental Team Services for Contract No. CV/2011/01<br>Site formation and Infrastructural works near<br>Tsing Lun Road and Tsz Tin Road in Area 54, Tuen Mun | |
| Ref. No. | 009 | |
| Date | 12 March 2014 | |
| Time (hh:mm) | 08:25-08:55 | |
| Monitoring Location* | NM9 (TWGHs Yau Tze Tin Memorial College) | |
| Parameter | Noise | |
| ~~Action Level~~ | ~~When one documented complaint is received~~ | |
| Limit Level | 0700–1900 hrs on normal weekdays | $L_{eq}$ (30 mins): 75 dB(A)<br>For schools, 70 dB(A) for schools and 65 dB(A) during school examination periods. |
| Measured Level (dB(A)) | $L_{eq}$ (30 min) = 71 dB(A)<br>Limit Level was 70 dB(A) since the monitoring location was a school | |
| Possible reason for Action or Limit Level Non-compliance | During the subject noise monitoring session (08:25-08:55), no noise generating works by the Contractor were observed within the Project site area opposite Siu Hong Court. Bored piling and crane operation at multiple nearby locations (about 75m, 150m, 200m and 300m from NM9) by another contractor within an adjacent construction site, as well as general traffic noise, were also observed.<br>According to the site diary of 12 March 2014 provided by the Contractor, the major site activities conducted within the Project site area nearest to NM9 included the use of backhoe for placing of concrete near Gate A (about 200m from NM9), trimming of sub-base for Tsing Lun Road roundabout (about 75m from NM9) as well as backfilling works and placing of concrete near Hong Po Road (about 100-150m from NM9).<br>Other works in the Project site conducted by the Contractor included:<br>• Fixing steel reinforcement for new lift near Gate A (about 200m from NM9); and<br>• Preparation of work for sheet piles near Unicorn Garden (about 250m from NM9)<br>Site plant was switched off when not in use.<br>According to the EM&A Baseline Monitoring Report for this Project (submitted in November 2011) that the normal weekday background $L_{eq}$ (30 min) noise level at NM9 ranged from 64.6 to 80.0 dB(A), therefore indicating that the 70 dB(A) Noise Limit Level would be occasionally exceeded. The subject noise level recorded was within this range.<br>It was concluded that the exceedance was unlikely to be Project-related, but it is also noted that a major noise source originated from an adjacent site. | |
| Actions taken / to be taken | Although the exceedance was unlikely to be Project-related, nevertheless the Contractor is reminded to ensure that all noise mitigation measures recommended in the EM&A Manual are properly implemented within the Project site area.<br>No increase in noise monitoring frequency is recommended based on the findings | |

| | |
|---|---|
| | of this investigation. |
| Remarks | Nil. |

* Delete where inappropriate

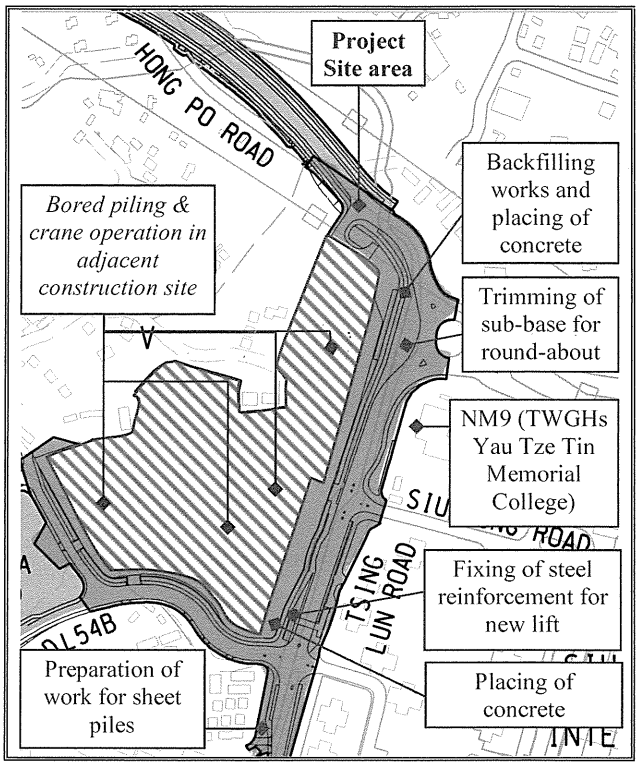
Prepared by: Terence Kong

Designation: Environmental Team Leader

Signature:

Date: 25 March 2014

Location Plan




Legend:

Project site

Adjacent construction site