MOTT MACDONALD

Development at West Kowloon Cultural District

Monthly Environmental Monitoring and Audit (EM&A) Report for September 2019

October 2019

3/F International Trade Tower
348 Kwun Tong Road
Kwun Tong
Kowloon
Hong Kong

T +852 2828 5757
F +852 2827 1823
mottmac.hk

Development at West Kowloon Cultural District

Monthly Environmental Monitoring and Audit (EM&A) Report for September 2019

October 2019

This Monthly EM&A Report has been reviewed and certified by the Environmental Team Leader (ETL) and verified by the Independent Environmental Checker (IEC).

Certified by:

Brian Tam
Environmental Team Leader (ETL)
West Kowloon Cultural District Authority

Date 12.10.2019

Verified by:

Fredrick Leong
Independent Environmental Checker (IEC)
Meinhardt Infrastructure & Environment Ltd

Date 14.10.2019

Contents

Executive Summary

Mott MacDonald Hong Kong Limited (MMHK) was commissioned to undertake the Environmental Team (ET) services (including environmental monitoring and audit (EM&A)) for the construction of M+ Museum Main Works (Contract No.: CC/2015/3A/022) and Lyric Theatre Complex including the Foundation Works (Contract No.: CC/2015/3A/014) and L1 Contract (Contract No. CC/2017/3A/030) at West Kowloon Cultural District (WKCD) (The Project) as part of the WKCD development. The Project Proponent is the West Kowloon Cultural District Authority (WKCDA). The construction works and EM&A programme for M+ Museum and Lyric Theatre Complex commenced on 31 October 2015 and 1 March 2016 respectively.

The overall works for the WKCD fall under two separate categories of Designated Project (DP) of the Environmental Impact Assessment Ordinance (EIAO), namely an "engineering feasibility study of urban development projects with a study area covering more than 20 ha or involving a total population of more than 100 000" (Item 3 of Schedule 3) and "an underpass more than 100m in length under the built areas" (Item A.9, Part I, Schedule 2). An Environmental Permit No. EP-453/2013/B (EP) was issued with respect to the "Underpass Road and Austin Road Flyover Serving the West Kowloon Cultural District" which specifically includes the abovementioned category of DP under Item A.9, Part I, Schedule 2 of the EIAO.

This Monthly EM&A Report presents the monitoring works at M+ Museum and Lyric Theatre Complex from 1 September to 30 September 2019.

Exceedance of Action and Limit Levels

There was no breach of Action or Limit levels for Air Quality (1-hour TSP and 24-hour TSP) and Noise in this reporting month.

Implementation of Mitigation Measures

Construction phase weekly site inspections were carried out 3, 10, 17 and 24 September 2019 for M+ Museum and 4, 11, 18 and 25 September 2019 for Lyric Theatre Complex to confirm the implementation measures undertaken by the Contractors 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**.

Landscape and visual impact inspections were conducted as part of the abovementioned weekly site inspections during the reporting month. No adverse comment on landscape and visual aspects was made during these inspections.

EPD site inspection with contractor was conducted on 27 September 2019 at M+ Museum. No adverse comment was made.

FEHD site inspection with contractor was conducted on 30 September 2019 at Lyric Theatre Complex. No adverse comment was made. FEHD reminded the contractor to repair any damaged water barriers, cover the water inlets of all water barriers and remove the stagnant water on tarpaulin sheet regularly.

Record of Complaints

No environmental complaint was recorded in the reporting month.

Record of Notification of Summons and Successful Prosecutions

No notification of summons and successful prosecution were recorded in the reporting month.

Future Key Issues

The major site works for M+ Museum scheduled to be commissioned in the coming month include:

- Structure
  - M+ Podium: Structural works completed
  - CSF RT/F: Structural works completed
  - RDE 15F: Structure work for Slab rebar & column preparation
- Facade
  - Installation of panels on M+ tower completed
  - Installation of façade on 12/F of RDE
- MEP
  - BEL, ELV, BFS, BPD, BME works from B2 to 3/F of M+
  - BEL, ELV, BFS, BPD, BME works from G/F to 15/F of RDE
  - BEL, ELV, BFS, BPD, BME works from G/F to 11/F
- ABWF
  - Block wall erection, Floor screed for plant room area and corridor area, wall plastering work up to M+ G/F – 3/F
  - Blockwork plaster, paint/sealer, plaster, drywall subframe, Front of house work wall plastering work up to M+ 16/F
  - Steel platform, Platering, Artwall/drywall stud erection, False ceiling sub-frame installation of RDE from 1/F to 5/F
  - Fairface remedial work, gypsum block, waterproofing, flor screed, foamglas and gypsum block, skim coat and painting, self-levelling screed, floating floor of CSF building from 1/F to 8/F

The major site works for Lyric Theatre Complex scheduled to be commissioned in the coming month include:

- Concreting and rebar fixing in main cofferdam and Area 6;
- Installation of ELS;
- Grouting activities;
- Installation of formwork;
- Concrete breaking; and
- Clutches pipe pile

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

1 Introduction

1.1 Background

Mott MacDonald Hong Kong Limited (MMHK) was commissioned to undertake the Environmental Team (ET) services (including environmental monitoring and audit (EM&A)) for the construction of M+ Museum Main Works (Contract No.: CC/2015/3A/022) and Lyric Theatre Complex including the Foundation Works (Contract No.: CC/2015/3A/014) and L1 Contract (Contract No. CC/2017/3A/030) at West Kowloon Cultural District (WKCD) (The Project) as part of the WKCD development. The Project Proponent is the West Kowloon Cultural District Authority (WKCDA). The construction works and EM&A programme for M+ Museum and Lyric Theatre Complex commenced on 31 October 2015 and 1 March 2016 respectively.

The overall works for the WKCD fall under two separate categories of Designated Project (DP) of the Environmental Impact Assessment Ordinance (EIAO), namely an “engineering feasibility study of urban development projects with a study area covering more than 20 ha or involving a total population of more than 100 000” (Item 3 of Schedule 3) and “an underpass more than 100m in length under the built areas” (Item A.9, Part I, Schedule 2). An Environmental Permit No. EP-453/2013/B (EP) was issued with respect to the “Underpass Road and Austin Road Flyover Serving the West Kowloon Cultural District” which specifically includes the abovementioned category of DP under Item A.9, Part I, Schedule 2 of the EIAO. The captioned projects include part of the abovementioned underpass road located within the site boundary also falls under this same category.

The M+ Museum development aims to provide an iconic presence for the M+ Museum, semi-transparent vertical plane, housing education facilities, a public restaurant and museum offices. At ground and lower levels, generous access will be provided to the park and other West Kowloon Cultural District facilities, alongside a public resource centre, theatres, retail and dining, and back-of-house functions.

The 1,200-seat Lyric Theatre Complex will be Hong Kong’s first world-class facility for dance performances, including ballet, contemporary and Chinese dance forms. In the run up to the opening of further major performing arts venues in the WKCD, it will also be used for a wide variety of performing arts events including drama, opera and musical performances. The Lyric Theatre Complex will act as a platform for Hong Kong’s leading arts organisations, and be a new major venue to show programmes from Asia and worldwide.

The Monthly EM&A Report is prepared in accordance with the Condition 3.4 of the Environmental Permit No. EP-453/2013/B. This Monthly EM&A Report presents the monitoring works at M+ Museum and Lyric Theatre Complex from 1 September to 30 September 2019. The purpose of this report is to summarise the findings 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 at M+ Museum undertaken include:

- Structure
  - M+ Podium: Structural works completed

  - CSF RT/F: Structural works completed
  - RDE 15F: Structure work for Slab rebar & column preparation
- Facade
  - Installation of panels on M+ tower completed
  - Installation of façade on 10/F of RDE
- MEP
  - BEL, ELV, BFS, BPD, BME works from B2 to 3/F of M+
  - BEL, ELV, BFS, BPD, BME works from G/F to 15/F of RDE
  - BEL, ELV, BFS, BPD, BME works from G/F to 11/F
- ABWF
  - Block wall erection, Floor screed for plant room area and corridor area, wall plastering work up to M+ G/F – 3/F
  - Blockwork plaster, paint/sealer, plaster, drywall subframe, Front of house work wall plastering work up to M+ 16/F
  - Steel platform, Platering, Artwall/drywall stud erection, False ceiling sub-frame installation of RDE from 1/F to 5/F
  - Fairface remedial work, gypsum block, waterproofing, flor screed, foamglas and gypsum block, skim coat and painting, self-levelling screed, floating floor of CSF building from 1/F to 8/F

During the reporting period, construction works at Lyric Theatre Complex undertaken include:

- Excavation work at Main Cofferdam
- Drainage work (PIW works)
- Extended basement structure construction of Area 06 and Main Cofferdam

The Construction Works Programme of M+ Museum and Lyric Theatre Complex is provided in **Appendix B**. A layout plan of the Project is provided in **Figure 1**. Please refer to **Table 4.3** and **Table 4.4** on the status of the environmental licenses.

1.4 Summary of EM&A Requirements

The EM&A programme requires environmental monitoring of air quality, noise, landscape and visual 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	AM1 - International Commerce Centre	At least once every 6 days
	1-Hour TSP	AM1 - International Commerce Centre	At least 3 times every 6 days
	24-Hour TSP	AM2B - 1st Floor of Gammon's Site Office	At least once every 6 days
	1-Hour TSP	AM2B - 1st Floor of Gammon's Site Office	At least 3 times every 6 days
Noise	L_{eq}, 30 minutes	NM1A - International Commerce Centre	Weekly
Landscape & Visual	Monitor implementation of proposed mitigation measures during the construction stage	As described in Table 9.1 and 9.2 of the EM&A Manual	Bi-weekly

Given that the Project covers only a small part of the whole WKCD area (i.e. M+ Museum, Lyric Theatre Complex and respective portions of underpass road), it was proposed that the EM&A programme for the Project should only require 1 noise monitoring station and 2 air quality monitoring stations located closest to the Project area. Currently, the works under the captioned project are confined in the western part of the WKCD site. Therefore, only the monitoring stations AM1, AM2 and NM1 were set up. Other monitoring locations are too far away (i.e. AM3 to AM5 and NM2 to NM5) are not included in this EM&A programme until the construction of the corresponding area commences.

The Harbourside management office formally rejected our proposal of setting up air quality and noise monitoring equipment on its premises at the podium level of Tower 1 (AM2/NM1) on 10 November 2015. Alternative noise monitoring location was identified at The Arch (NM2), however The Arch management office formally rejected our proposal of setting up noise monitoring equipment on its premises on 23 November 2015. Nevertheless, suitable air quality monitoring location at AM2 was identified on the ground floor in front of The Harbourside Tower 1, which is at the same location as that of baseline monitoring for consistency. No management approval is required at the ground floor for conducting the air monitoring. However, the electricity supply at AM2 was suspended from 31 August 2016 and was no longer available. In order to have a more secure electricity supply, an alternative air monitoring location (AM2A) was identified at Austin Road West opposite to The Harbourside Tower 1, which is close to Lyric Theatre Complex site entrance. This alternative air monitoring location was approved by EPD on 28 September 2016. Due to works programme, the air monitoring location AM2A has been relocated to the alternative monitoring location AM2B at the 1st floor of Gammon's site office, which was approved by EPD on 21 February 2019. Meanwhile, the opportunity of setting up the air monitoring location at The Harbourside is being explored. Noise monitoring at G/F of Harbourside will not be representative. Approval from the management office of the International Commerce Centre has been granted on 29 February 2016 for conducting noise monitoring at the alternative noise monitoring location identified at the podium floor (NM1A) which is free from screening to the construction activities. Therefore, 2 air quality monitoring stations and 1 noise impact monitoring station were confirmed for the impact monitoring.

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

The Event and Action Plan for air quality, construction noise. landscape and visual are shown in **Appendix D**.

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**.

2 Impact Monitoring Methodology

2.1 Introduction

For air quality and noise, the monitoring methodology, including the monitoring locations, monitoring equipment used, monitoring parameters, and frequency and duration etc., for air quality and noise 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**.

For landscape and audit impact, the relevant EM&A monitoring requirements and details are also presented in this Section.

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

Parameter	Frequency	Duration
24-hour TSP	At least once in every six-days	24 hours
1-hour TSP	At least 3 times every six-days	60 minutes

2.2.2 Monitoring Locations

Currently, the works under the captioned project are confined in the western part of the WKCD site. Therefore, only the monitoring stations AM1 and AM2B were set up at the proposed locations in accordance with updated EM&A Manual. Location of the monitoring station is given in **Table 2.2** and shown in **Figure 1**.

Table 2.2: Air Quality Monitoring Station

Monitoring Station	Location
AM1	International Commerce Centre (ICC)
AM2B	1st Floor of Gammon's Site Office

2.2.3 Monitoring Equipment

Continuous 24-hour TSP air quality monitoring was conducted using High Volume Sampler (HVS) (Model: TE-5170) located at the designated monitoring station. The HVS meets all the requirements stated in of the EM&A Manual. Portable direct reading dust meter was 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, calibration kit and portable dust meters are attached in **Appendix F**.

Table 2.3: TSP Monitoring Equipment

Equipment	Model
24-hour TSP monitoring	
High Volume Sampler	TE-5170 (Serial No.: 0767 and 8919)
Calibrator	TE-5025A (Orifice I.D.: 2454)
1-hour TSP monitoring	
Portable direct reading dust meter	Sibata LD-3B (Serial No.: 235780 and 6Z7784)

Calibration of the HVS (five point calibration) using Calibration Kit was carried out every two months. The HVS calibration orifice will be calibrated annually. Calibration certificate of the TE-5025A Calibration Kit and the HVS are provided in **Appendix F**

The 1-hour TSP monitoring should be determined periodically (e.g. annually) by the HVS to check the validity and accuracy of the results measured by direct reading method.

2.2.4 Monitoring Methodology

24-hour TSP Monitoring

Installation

The HVS was installed at the site boundary. 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 sampler and to obtain access to the monitoring station.
- A secured supply of electricity is needed to operate the sampler.

Preparation of Filter Papers

- Glass fibre filters were labelled and sufficient filters that were clean and without pinholes were selected.
- The filters used are specified to have a minimum collection efficiency of 99 percent for 0.3 µm (DOP) particles.
- All filters were equilibrated in the conditioning environment for 24 hours before weighing. The conditioning environment temperature was around 25 °C and not variable by more than ±3 °C with relative humidity (RH) < 50% and was not variable by more than ±5 %. A convenient working RH was 40%. All preparation of filters was done by Hong Kong Laboratory Accreditation Scheme (HOKLAS) accredited laboratory.

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 hours, 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 upon installation and thereafter at bi-monthly intervals. The calibration kits were calibrated annually.
- Calibration records for HVS and calibration kit 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:

- Turn the power on.
- Close the air collecting opening cover.
- Push the "TIME SETTING" switch to [BG].
- Push "START/STOP" switch to perform background measurement for 6 seconds.
- Turn the knob at SENSI ADJ position to insert the light scattering plate.
- Leave the equipment for 1 minute upon "SPAN CHECK" is indicated in the display.
- Push "START/STOP" switch to perform automatic sensitivity adjustment. This measurement takes 1 minute.
- Pull out the knob and return it to MEASURE position.
- Setting time period of 1 hour for the 1-hour TSP measurement.
- Push "START/STOP" to start the 1-hour TSP measurement.
- Regular checking of the time period setting to ensure monitoring time of 1 hour.

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

- Meteorological data extracted from Hong Kong Observatory for the reporting month is provided in **Appendix H**.

2.3 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 hours.

Table 2.4: Noise Monitoring Parameters, Period and Frequency

Time Period	Parameters	Frequency
Daytime on normal weekdays (0700-1900 hours)	L_{eq}(30 min), L_{90}(30 min) & L_{10} (30 min)	Once every week

2.3.2 Monitoring Location

Currently, the works under the captioned project are confined in the western part of the WKCD site. Therefore, only the monitoring station NM1A was set up at the proposed location in accordance with updated EM&A Manual. Location of the monitoring station is given in **Table 2.5** and shown in **Figure 1**.

Table 2.5: Noise Monitoring Station

Monitoring Station	Location
NM1A	International Commerce Centre (ICC)

2.3.3 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 2.6** summarizes the noise monitoring equipment model being used.

Table 2.6: Noise Monitoring Equipments

Monitoring Station	Equipment Model	
	Integrating Sound Level Meter	Calibrator
NM1A	Rion NL-52 (Serial No. 00542913)	LARSON DAVIS CAL200 (Serial No. 15678)

2.3.4 Monitoring Methodology

Field Monitoring

- The microphone of the Sound Level Meter was set at least 1.2 m above the ground.
- Free Field 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)
- 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 and 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.
- A correction of +3dB(A) was made to the free field measurements.

Maintenance and Calibration

- The microphone head of the sound level meter and calibrator is cleaned with soft cloth at quarterly intervals.
- The sound level 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**.

Weather Condition

– Meteorological data extracted from Hong Kong Observatory for the reporting month is provided in **Appendix H**.

2.4 Landscape and Visual

2.4.1 Monitoring Program

Table 2.7 details the monitoring program (as proposed in the WKCD EIA report) for landscape and visual impact during the construction phase.

Table 2.7: Monitoring Program for Landscape and Visual Impact during Construction Phase

Stage	Monitoring Task	Frequency	Report	Approval
Construction	Monitor implementation of proposed mitigation measures during the construction stage.	Bi-weekly	ET to report on Contractor's compliance	Counter-signed by IEC

During the landscape and visual impact monitoring, any changes in relation to the landscape and visual amenity should be monitored with reference to the baseline conditions of the site. In addition, mitigation measures were proposed in the WKCD EIA report to minimise the landscape and visual impacts during the construction phase. The proposed mitigation measures as shown in Table 9.1 and Table 9.2 of the EM&A Manual should be checked for proper implementation.

3 Monitoring Results

3.1 Impact Monitoring

Construction impact monitoring for air quality, noise and landscape and visual impact was undertaken in compliance with the EM&A Manual during the reporting month.

3.2 Air Quality Monitoring

3.2.1 1-hour TSP

Results of 1-hour TSP at the monitoring location AM1 and AM2B 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 Station	Monitoring Date	Start Time	1-hour TSP (μg/m³)			Range (μg/m³)	Action Level (μg/m³)	Limit Level (μg/m³)
			1st Result	2nd Result	3rd Result			
AM1	04-Sep-19	13:04	65	72	79	24 – 79	273.7	500
	10-Sep-19	13:02	34	29	35			
	16-Sep-19	08:05	24	29	30			
	20-Sep-19	08:20	29	27	25			
	26-Sep-19	13:08	40	35	32			
AM2B	04-Sep-19	13:18	67	73	80	38 – 80	274.2	500
	10-Sep-19	13:14	44	41	38			
	16-Sep-19	08:20	41	38	39			
	20-Sep-19	08:34	41	49	52			
	26-Sep-19	13:22	49	55	59			

3.2.2 24-hour TSP

Results of 24-hour TSP at the monitoring location AM1 and AM2B 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 Station	Monitoring Date	Start Time	Monitoring Results (μg/m³)	Range (μg/m³)	Action Level (μg/m³)	Limit Level (μg/m³)
AM1	04-Sep-19	08:02	36	10 – 36	143.6	260
	10-Sep-19	10:30	14			
	16-Sep-19	08:07	10			
	20-Sep-19	08:18	12			
	26-Sep-19	08:10	16			
AM2B	04-Sep-19	08:16	49	15 – 49	151.1	260
	10-Sep-19	08:12	26			
	16-Sep-19	08:18	15			
	20-Sep-19	08:32	30			
	26-Sep-19	08:24	38			

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

3.3 Noise Monitoring

The construction noise monitoring results at the monitoring location NM1A are summarized in **Table 3.3**. Graphical plots of the monitoring data and the station set-up of a free-field measurement are shown in **Appendix G**.

Table 3.3: Summary of noise monitoring results during normal weekdays

Monitoring Date	Start Time	End Time	L_{eq} (30 mins)*, dB(A)	Limit Level for L_{eq} (dB(A))
04-Sep-19	10:25	10:55	69.0	75
10-Sep-19	09:25	09:55	68.8	
16-Sep-19	10:28	10:58	68.5	
26-Sep-19	10:30	11:00	68.6	

Remarks:

* +3dB (A) correction was applied to free-field measurement.

No exceedance (Action/Limit Level) of construction noise was recorded in the reporting period as no noise related environmental complaint was received during the reporting period and noise levels recorded during the monitoring period were below 75 dB(A).

3.4 Landscape and Visual Impact

Landscape and visual impact inspections were conducted as part of the weekly site inspections on 3 and 17 September 2019 for M+ Museum, and 11 and 25 September 2019 for Lyric Theatre Complex during the reporting month. As reviewed by the registered Landscape Architect, no adverse comment on landscape and visual aspects was made during these inspections.

The landscape and visual mitigation measures were implemented during the reporting period. The summary of implementation status of the environmental mitigation measures is provided in **Appendix J**.

4 Environmental Site Inspection

4.1 Site Inspection

4.1.1 M+ Museum

Construction phase weekly site inspections were carried out on 3, 10, 17 and 24 September 2019. The joint site inspection with IEC, ET, ER and Contractor was held on 17 September 2019. All observations have been recorded in the site inspection checklist and passed to the Contractor together with the appropriate recommended mitigation measures where necessary.

EPD site inspection with contractor was conducted on 27 September 2019. Wastewater treatment facilities had inspected. Regular water sampling was taken on wastewater treatment facilities. No adverse comment was made.

The key observations from the site inspections and associated recommendations are summarized in **Table 4.1**.

Table 4.1: Summary of Site Inspections and Recommendations for M+ Museum

Inspection Date	Parameter	Observation / Recommendation	Contactor's Responses / Action(s) Undertaken	Close-out (Date)
3 Sep 2019	Water quality	Effluent quality of wetsep was checked. It was found visually clear when comparing with standard solution and within proper pH range.	N/A	N/A
10 Sep 2019	Water quality	Suspended solid was observed at wetsep. The contractor was reminded to further clear the suspended solid to keep the good quality of discharge water.	The contractor has removed the suspended solid in the wetsep to keep the good quality of discharge water.	16 Sep 2019
17 Sep 2019	Air quality	Dusty road was observed. The contractor was reminded to increase water spraying to avoid dust impact.	The contractor has increased water spraying frequency to avoid dust impact.	17 Sep 2019
17 Sep 2019	Water quality	Effluent quality of wetsep was checked. It was found visually clear when comparing with standard solution and within proper pH range.	N/A	N/A
24 Sep 2019	Air quality	Dusty road was observed at Gate 6. The contractor was reminded to increase water spraying to avoid dust impact.	The contractor has increased water spraying frequency to avoid dust impact.	24 Sep 2019
24 Sep 2019	Water quality	Effluent quality of wetsep was checked. It was found visually clear when comparing with standard solution and within proper pH range.	N/A	N/A

4.1.2 Lyric Theatre Complex

Construction phase weekly site inspections were carried out on 4, 11, 18 and 25 September 2019. The joint site inspection with IEC, ET, ER and Contractor was held on 18 September 2019. All observations have been recorded in the site inspection checklist and passed to the Contractor together with the appropriate recommended mitigation measures where necessary.

FEHD site inspection with contractor was conducted on 30 September 2019. Area 6, Main Cofferdam had inspected. No adverse comment was made. FEHD reminded the contractor to repair any damaged

water barriers, cover the water inlets of all water barriers and remove the stagnant water on tarpaulin sheet regularly.

The key observations from the site inspections and associated recommendations are summarized in **Table 4.2**.

Table 4.2: Summary of Site Inspections and Recommendations for Lyric Theatre Complex

Inspection Date	Parameter	Observation / Recommendation	Contactor's Responses / Action(s) Undertaken	Close-out (Date)
11 Sep 2019	Air Quality	Stockpile was observed without cover (area 6). The contractor was reminded to cover it with impervious sheeting.	The contractor has covered the stockpile with impervious sheeting.	13 Sep 2019
11 Sep 2019	Waste Management	Chemical was observed near wetsep (area 6). The contractor was reminded to storage it in proper chemical container.	The contractor has relocated the chemical to a suitable place.	13 Sep 2019
25 Sep 2019	Waste Management	Oil leakage was observed on the ground (near AISO Office). The contractor was reminded to clear the oil stain and treat the contaminated soil as chemical waste.	The contractor has cleared the oil stain and treated the contaminated soil as chemical waste.	25 Sep 2019

4.2 Advice on the Solid and Liquid Waste Management Status

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

4.2.1 M+ Museum

As advised by the Contractor, 0 tonnes, 123.15 tonnes, 95.03 tonnes, 259.24 tonnes of inert C&D material were disposed of as public fill to Chai Wan Public Fill Barging Point, Tuen Mun Area 38, Tseung Kwan O Area 137 Public Fill and Tseung Kwan O Area 137 Sorting Facility respectively, while 560.5 tonnes of general refuse were disposed of at SENT landfill. 46.7 tonnes of metals, 0 tonne of paper/cardboard packaging, 0 tonne of plastic and 420.0 tonnes of timber were collected by recycling contractors in the reporting month. 0 tonne of inert C&D materials was reused on site. 0 tonnes of inert C&D materials were reused in other projects and 259.2 tonnes of inert C&D materials were disposed to sorting facility. 0 tonne of chemical waste was collected by licensed contractors in the reporting period.

The cumulative waste generation records for M+ Museum are shown in **Appendix I**.

4.2.2 Lyric Theatre Complex

As advised by the Contractor, 1,323.06 tonnes and 1,555.15 tonnes of inert C&D material were disposed of as public fill to Tseung Kwan O Area 137 Public Fill and Tuen Mun Area 38 Public Fill respectively, while 127.4 tonnes of general refuse were disposed of at SENT and WENT landfill. 19.0 tonnes of metals, 0 tonne of paper/cardboard packaging, 0.6 tonne of plastic and 0 tonne of timber was collected by recycling contractors in the reporting month. 0 tonne of inert C&D materials was reused on site. 0 tonnes of inert C&D materials were reused in other projects and 95.2 tonnes of inert C&D materials were imported for reuse at site. 28.9 tonnes of inert C&D materials were disposed to sorting facility and 0 tonne of chemical waste was collected by licensed contractors in the reporting period.

The actual amounts of different types of waste generated by the activities of construction works at Lyric Theatre Complex in the reporting month are shown 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 are summarised in **Tables 4.3** and **4.4**.

4.3.1 M+ Museum

Table 4.3: Status of Environmental Submissions, Licenses and Permits for M+ Museum

Permit / License No. / Notification / Reference No.	Valid Period		Status	Remarks
	From	To		
Chemical Waste Producer Registration				
WPN5213-217-G2347-53	04-Oct-18	--	Valid	--
Billing Account Construction Waste Disposal				
7031993	03-Oct-18	--	Account Active	--
Construction Noise Permit				
GW-RE0669-19	28-Aug-19	26-Feb-20	Valid	--
Wastewater Discharge License				
WT-00033363-2019	21-Mar-19	31-Mar-24	Valid	--
Notification under Air Pollution Control (Construction Dust) Regulation				
437339	12-Sep-18	--	Notified	--

4.3.2 Lyric Theatre Complex

Table 4.4: Status of Environmental Submissions, Licenses and Permits for Lyric Theatre Complex

Permit / License No. / Notification / Reference No.	Valid Period		Status	Remarks
	From	To		
Chemical Waste Producer Registration				
WPN5213-217-G2347-39	17-Feb-16	--	Valid	--
Billing Account Construction Waste Disposal				
7029925	22-Jan-18	--	Account Active	--
Billing Account for Vessel Disposal of Construction Waste				
7033007	23-Aug-19	22-Nov-19	Account Active	--
Construction Noise Permit				
GW-RE0483-19	21-Jun-19	16-Dec-19	Valid	--
Wastewater Discharge License				
WT-00030694-2018	6-Apr-18	30-Apr-23	Valid	--
Notification under Air Pollution Control (Construction Dust) Regulation				
429708	16-Jan-18	--	Notified	--

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:

4.4.1 M+ Museum

Water Quality

- Ensure proper and efficient operation of the wastewater treatment facilities

Air Quality

- Haul road should be sprayed with water during operation.

4.4.2 Lyric Theatre Complex

Air Quality

- Stockpile should be fully covered with impervious sheeting to prevent emission of fugitive dust.

Waste Management

- Chemical should be stored in proper chemical container.
- Suitable drip tray should be provided for chemicals to prevent leakage.

5 Compliance with Environmental Permit

The status of the required submission under the EP during the reporting period is summarized in **Table 5.1**.

Table 5.1: Status of Submissions under the Environmental Permit

EP Condition	Submission	Submission Date
Condition 3.4	Monthly EM&A Report for August 2019	13 September 2019

6 Report in Non-compliance, Complaints, Notification of Summons and Successful Prosecutions

6.1 Record on Non-compliance of Action and Limit Levels

There was no breach of Action or Limit Levels for Air Quality and Noise monitoring in the reporting month.

6.2 Record on Environmental Complaints Received

No environmental complaint was received in the reporting month.

The cumulative statistics on complaints were provided in **Appendix K**.

6.3 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**.

7 Future Key Issues

7.1 Construction Works for the Coming Month(s)

7.1.1 M+ Museum

The major site works for M+ Museum scheduled to be commissioned in the coming month include:

- Structure
  - M+ Podium: Structural works completed
  - CSF RT/F: Structural works completed
  - RDE 15F: Structure work for Slab rebar & column preparation
- Facade
  - Installation of panels on M+ tower completed
  - Installation of façade on 12/F of RDE
- MEP
  - BEL, ELV, BFS, BPD, BME works from B2 to 3/F of M+
  - BEL, ELV, BFS, BPD, BME works from G/F to 15/F of RDE
  - BEL, ELV, BFS, BPD, BME works from G/F to 11/F
- ABWF
  - Block wall erection, Floor screed for plant room area and corridor area, wall plastering work up to M+ G/F – 3/F
  - Blockwork plaster, paint/sealer, plaster, drywall subframe, Front of house work wall plastering work up to M+ 16/F
  - Steel platform, Platering, Artwall/drywall stud erection, False ceiling sub-frame installation of RDE from 1/F to 5/F
  - Fairface remedial work, gypsum block, waterproofing, flor screed, foamglas and gypsum block, skim coat and painting, self-levelling screed, floating floor of CSF building from 1/F to 8/F

7.1.2 Lyric Theatre Complex

The major site works for Lyric Theatre Complex scheduled to be commissioned in the coming month include:

- Concreting and rebar fixing in main cofferdam and Area 6;
- Installation of ELS;
- Grouting activities;
- Installation of formwork;
- Concrete breaking; and
- Clutches pipe pile

7.2 Key Issues for the Coming Month

7.2.1 M+ Museum

Key issues to be considered in the coming month include:

- Generation of dust from construction 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.

7.2.2 Lyric Theatre Complex

Key issues to be considered in the coming month include:

- Generation of dust from construction 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.

7.3 Monitoring Schedule for the Coming Month

The environmental site inspection and environmental monitoring will be continued in the coming month. Impact monitoring for air quality and noise in accordance with the approved EM&A Manual has commenced since 31 October 2015 and 5 March 2016 respectively. The tentative monitoring schedule for the coming month is shown in the **Appendix E**.

8 Conclusions and Recommendations

8.1 Conclusions

The EM&A programme as recommended in the EM&A Manual has been undertaken since the construction of M+ Museum main works commenced on 31 October 2015, and the construction of Lyric Theatre Complex commenced on 1 March 2016.

Monitoring of air quality and noise with respect to the Projects is underway. In particular, the 1-hour TSP, 24-hour TSP, noise level (as L_{eq}, 30 minutes) under monitoring have been checked against established Action and Limit levels. There was no breach of Action and Limit Levels for 1-hour TSP, 24-hour TSP and noise in the reporting month.

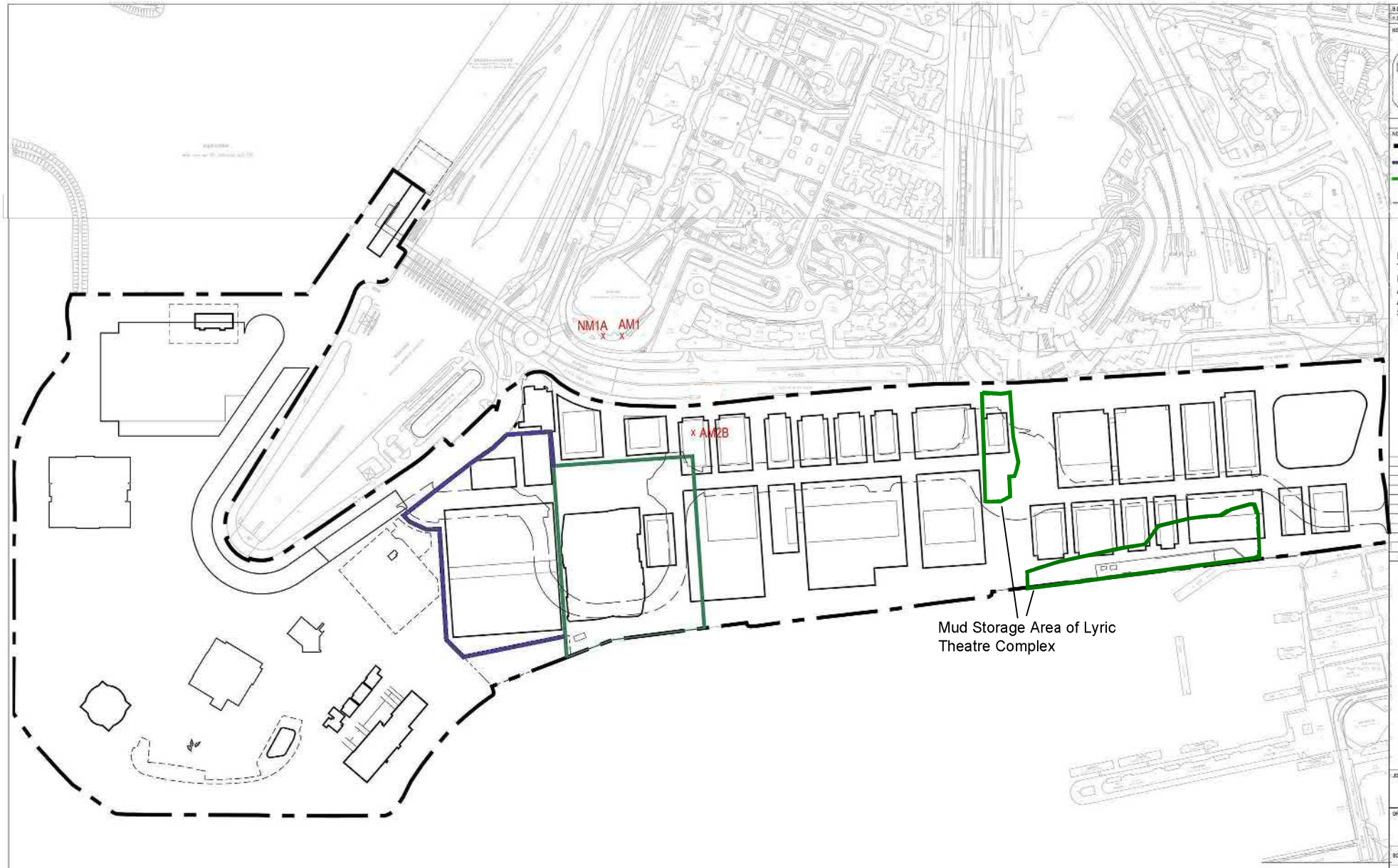
No environmental complaint was recorded in the reporting month. No notifications of summons or successful prosecution were received during the reporting month.

Weekly construction phase site inspections and bi-weekly landscape and visual impact inspections were conducted during the reporting month as required. It was observed that the Contractors had implemented all possible and feasible mitigation measures to mitigate the potential environmental impacts during construction phase works.

8.2 Recommendations

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

Figure 1 Site Layout Plan and Monitoring Stations



B.D. REF:
R.S.D. REF:

KEY PLAN

KEY PLAN

NOTES:

WKCD BOUNDARY

M+ MUSEUM BOUNDARY

LYRIC THEATRE BOUNDARY

BOUNDARY OF UNDERPASS ROAD SERVING THE PLANNED WKCD

X CONSTRUCTION AIR/NOISE MONITORING STATION

REMARKS:
THE AIR MONITORING STATION AM2A HAS BEEN RELOCATED TO THE ALTERNATIVE MONITORING STATION AM2B AT 1ST FLOOR OF GAMMON'S SITE OFFICE ON 26 FEBRUARY 2019.

REV.	DATE	DESCRIPTION	INITIAL

JOB TITLE: **DEVELOPMENT AT WEST KOWLOON CULTURAL DISTRICT**

DRAWING TITLE: **SITE LAYOUT PLAN AND MONITORING STATIONS**

SCALE	1:100	PRINTED	A1
CHECKED		DATE	
APPROVED		DATE	
DRAWN	TY	DATE	05-10-2015

CONTRACT NO.: -

DRAWING NO.: **FIGURE 1** REV.: XA

CAD REF NAME: XXXXX-AUT-PMS DWG-P80-L080-0080-XXX.dwg

AUTHORITY

westKowloon
西九文化區

A1 (841mm x 594mm) Sheet Size

Appendices

A. Project Organisation

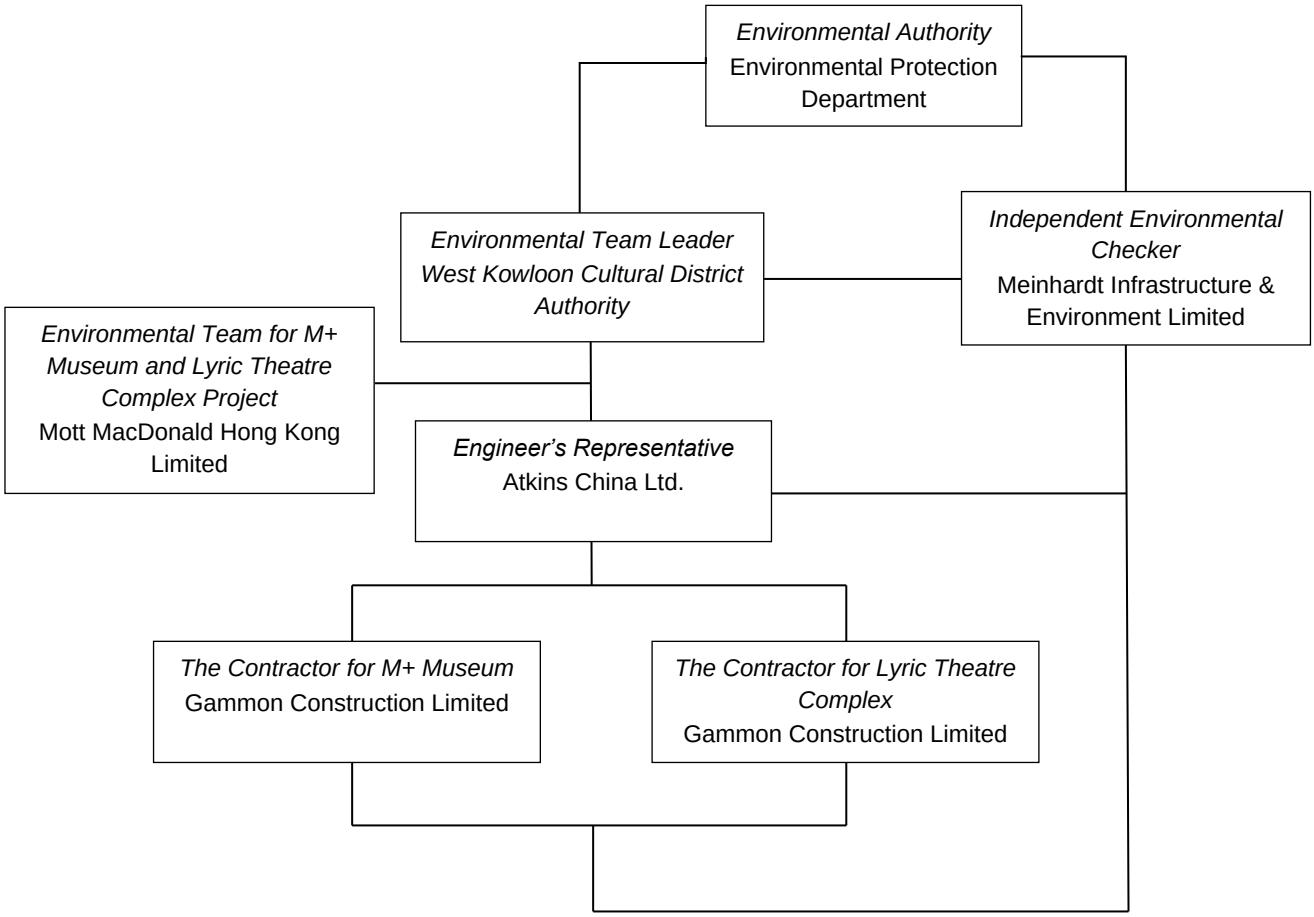


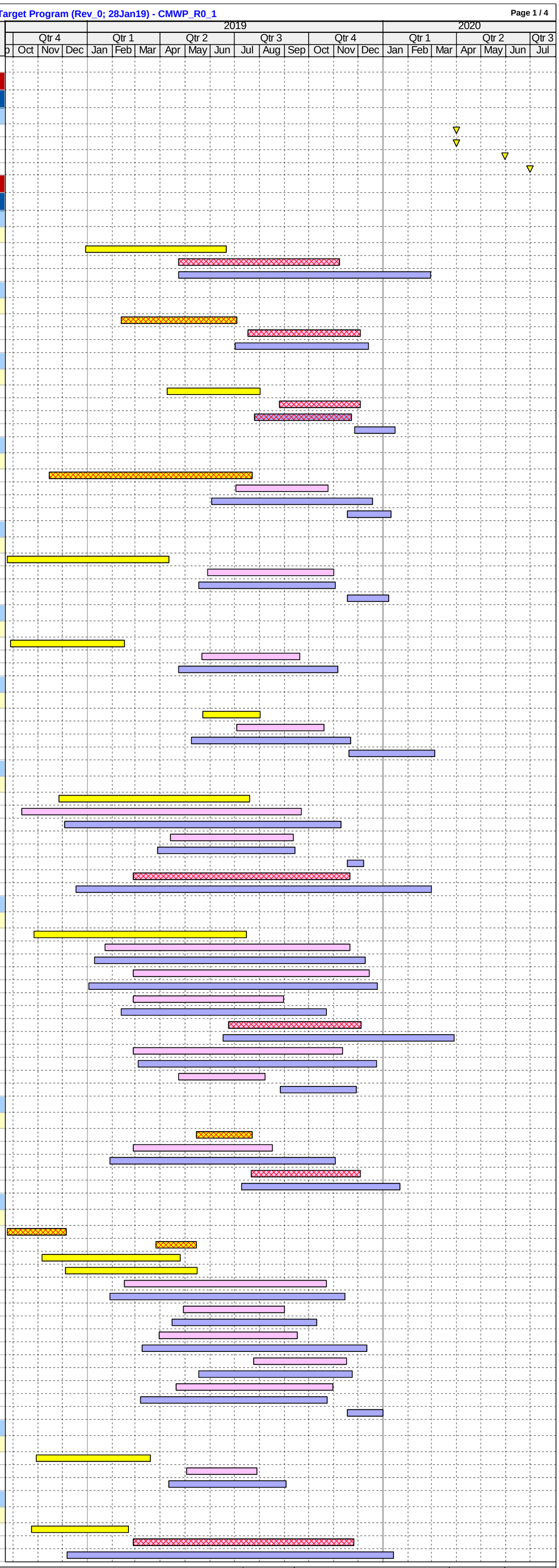
Table A-1: Contact information

Company Name	Role	Name	Telephone
Atkins China Ltd.	Assistant Resident Engineer	Ms. Gloria Lui	5506 6361
Meinhardt Infrastructure & Environment Limited	Independent Environmental Checker	Mr. Fredrick Leong	2859 1739
Gammon Construction Limited (M+ Museum)	Environmental Manager	Mr. Andy Leung	9489 0035
Gammon Construction Limited (Lyric Theatre Complex)	Environmental Manager	Ms. Sammie Chan	9864 4296
Mott MacDonald Hong Kong Ltd.	Contractor's Environmental Team Leader	Mr. Thomas Chan	2828 5757
West Kowloon Cultural District Authority	Senior Environmental Specialist	Mr. Brian Tam	2200 0059

B. Tentative Construction Programme

M+ Museum

ID	Activity	OD	Start	Finish	TF
	CMWP - M+ Project Remaining Works @ 10 Sep 2018 Target Program (Rev_0; 28Jan19)				
	GENERAL & PRELIMINARIES (Remaining Works @ 10 SEP 2018)				
	PROJECT KEY COMPLETION DATES				
	Completion Obligations (*constrained dates for critical paths)				
OP1	Podium, M+ Tower & CSF - Obtain OP for the Whole of M+	0		31-Mar-20*	0
PC2	CSF - Obtain PC for H'over to Employer (Incl. Zone B2_Z07 - Loading Bays)	0		31-Mar-20*	1
OP2	RDE - Obtain OP for H'over to Employer	0		30-May-20*	1
PC1	Podium, M+ Tower & RDE - Obtain PC for H'over to Employer	0		30-Jun-20*	0
	BASEMENT & PODIUM				
	Construction				
	***Auditorium > GF**				
	Level 2 Summary				
1202	[LoE] POD_GF_AUD - Rem Structural Works	140	29-Dec-18	21-Jun-19	180
9350	[LoE] POD_GF_AUD - MEP 1st, 2nd & final fix	165	23-Apr-19	07-Nov-19	5
9351	[LoE] POD_GF_AUD - ABWF Works	253	23-Apr-19	28-Feb-20	101
	Cinemas (B1-GF)				
	Level 2 Summary				
9352	[LoE] POD_GF_Cinema - Structural Works	120	11-Feb-19	04-Jul-19	2
9361	[LoE] POD_GF_Cinema - MEP Works	116	18-Jul-19	03-Dec-19	13
9371	[LoE] POD_GF_Cinema - ABWF Works	139	02-Jul-19	13-Dec-19	52
	Moving Image Centre Lobby/Bar & Museum Shop No.2 (B1-GF) - POD_B1_Z09b				
	Level 2 Summary				
9380	LoE] POD_B1_Z09b - Struct'l Works	97	09-Apr-19	02-Aug-19	17
9381	LoE] POD_B1_Z09b - MEP Works	83	26-Aug-19	03-Dec-19	1
9382	LoE] POD_B1_Z09b - ABWF Wrks (Drying w/ Wild Air not req'd)	100	26-Jul-19	22-Nov-19	1
9489	LoE] POD_B1_Z09b - ABWF Wrks (Drying w/ Wild Air req'd)	41	27-Nov-19	15-Jan-20	132
	Lecture Theatre & Adjacent Areas				
	Level 2 Summary				
1203	[LoE] POD_GF_LTH - Struct'l WOrks	203	15-Nov-18	23-Jul-19	10
8205	[LoE] POD_GF_LTH - MEP Works	95	03-Jul-19	24-Oct-19	35
8204	[LoE] POD_GF_LTH - ABWF Wrks (Drying w/ Wild Air not req'd)	166	03-Jun-19	18-Dec-19	148
9383	[LoE] POD_GF_LTH - ABWF Wrks (Drying w/ Wild Air req'd)	45	18-Nov-19	10-Jan-20	136
	Learning Centre & Adjacent Areas (GF & 1/F)				
	Level 2 Summary				
9398	[LoE] POD_GF_LC & Adj Areas (GF & 1/F) - Struct'l Wrks	160	24-Sep-18	11-Apr-19	71
9399	[LoE] POD_GF_LC & Adj Areas (GF & 1/F) - MEP Wrks	129	29-May-19	31-Oct-19	89
9426	[LoE] POD_GF_LC & Adj Areas (GF & 1/F) - ABWF Wrks (Drying w/ Wild Air not req	140	18-May-19	02-Nov-19	193
9451	[LoE] POD_GF_LC & Adj Areas (GF & 1/F)_L2SUM - ABWF Wrks (Drying w/ Wild A	42	18-Nov-19	07-Jan-20	139
	Moving Image Centre (GF-1M) - POD_GF_Z01				
	Level 2 Summary				
9452	[LoE] POD_GF_Z01_MIC (GF-1M) - Struct'l Works	111	28-Sep-18	15-Feb-19	51
9453	[LoE] POD_GF_Z01_MIC (GF-1M - MEP Works	101	22-May-19	19-Sep-19	63
9454	[LoE] POD_GF_Z01_MIC (GF-1M - ABWF Works	163	23-Apr-19	05-Nov-19	191
	Found & Industrial Spaces (B2-GF) - POD_B2_Z13				
	Level 2 Summary				
9852	[LoE] POD_GF_B2_Z13_Fnd & Ind'l Sps (B2-GF) - Struct Works _Floating Slab	60	23-May-19	02-Aug-19	50
9455	[LoE] POD_GF_B2_Z13_Fnd & Ind'l Sps (B2-GF) - MEP Wrks	90	04-Jul-19	19-Oct-19	16
9456	[LoE] POD_GF_B2_Z13_Fnd & Ind'l Sps (B2-GF) - ABWF Wrks (Drying w/ Wild Air	164	09-May-19	21-Nov-19	99
9457	[LoE] POD_GF_B2_Z13_Fnd & Ind'l Sps (B2-GF) - ABWF Wrks (Drying w/ Wild Air	82	20-Nov-19	04-Mar-20	97
	Level B2				
	Level 2 Summary				
9458	[LoE] POD_B2 - Struct'l Works	192	26-Nov-18	20-Jul-19	37
9459	[LoE] POD_B2_Z01 to B2_Z04_Plant Rms - MEP Works	282	12-Oct-18	21-Sep-19	61
9460	[LoE] POD_B2_Z01 to B2_Z04_Plant Rms - ABWF Works	279	03-Dec-18	09-Nov-19	187
9461	[LoE] POD_B2_Z05 to B2_Z06_Toilets - MEP Works	127	13-Apr-19	11-Sep-19	129
9462	[LoE] POD_B2_Z05 to B2_Z06_Toilets - ABWF Wrks (Drying w/ Wild Air not req'd)	142	28-Mar-19	13-Sep-19	227
9767	[LoE] POD_B2_Z05 to B2_Z06_Toilets - ABWF Wrks (Drying w/ Wild Air req'd)	18	18-Nov-19	07-Dec-19	163
9465	[LoE] POD_B2_Z07 to B2_Z08_Plant Rms - MEP Works	223	26-Feb-19	20-Nov-19	12
9466	[LoE] POD_B2_Z07 to B2_Z08_Plant Rms - ABWF Works	354	17-Dec-18	29-Feb-20	100
	Level B1				
	Level 2 Summary				
9471	[LoE] POD_B1 - Structural Works	213	27-Oct-18	16-Jul-19	26
9472	[LoE] POD_B1_Z02 to B1_Z05_ BoH/Plant Rm/Kit - MEP Works	247	22-Jan-19	20-Nov-19	160
9475	[LoE] POD_B1_Z02 to B1_Z05_BoH/Plant Rm/Kit - ABWF Works	274	09-Jan-19	09-Dec-19	162
9476	[LoE] POD_B1_Z06_Toilets - MEP Works	244	26-Feb-19	14-Dec-19	51
9477	[LoE] POD_B1_Z06_Toilets - ABWF Works	293	02-Jan-19	24-Dec-19	149
9479	[LoE] POD_B1_Z07_BoH/Lobbies/Non-FR Corr - MEP Works	156	26-Feb-19	30-Aug-19	79
9480	[LoE] POD_B1_Z07_BoH/Lobbies/Non-FR Corr - ABWF Works	211	11-Feb-19	22-Oct-19	203
9482	[LoE] POD_B1_Z08/09a/10_FoH_ - MEP Works	137	24-Jun-19	04-Dec-19	0
9483	[LoE] POD_B1_Z08/09a/10_FoH_ - ABWF Works	233	17-Jun-19	28-Mar-20	76
9484	[LoE] POD_B1_Z11/12/14/16/17/18a_BoH/R Corr/Lobby/Carpark_Z - MEP Works	215	26-Feb-19	11-Nov-19	20
9485	[LoE] POD_B1_Z11/12/14/16/17/18a_BoH/R Corr/Lobby/Carpark_ - ABWF Works	246	04-Mar-19	23-Dec-19	150
9486	[LoE] POD_B1_Z15_Carriageway & Ramp - Stage 1_ ABWF & MEP Works	90	23-Apr-19	08-Aug-19	74
9487	[LoE] POD_B1_Z15_Carriageway & Ramp - Stage 2_ ABWF & MEP Works	78	27-Aug-19	28-Nov-19	97
	Level LGF				
	Level 2 Summary				
9488	[LoE] POD_LG - Structural Works	58	15-May-19	23-Jul-19	1
9490	[LoE] POD_LG_Z01/02/03_BoH/FR Corr/Lob/Carpark - MEP Works	144	26-Feb-19	16-Aug-19	91
9491	[LoE] POD_LG_Z01/02/03_BoH/FR Corr/Lob/Carpark - ABWF Works	227	28-Jan-19	02-Nov-19	193
9492	[LoE] POD_LG_Z04/5/6/18d_Multi-Media/Cine Lob/Corr/BoH - MEP Works	113	22-Jul-19	03-Dec-19	1
9493	[LoE] POD_LG_Z04/5/6/18d_Multi-Media/Cine Lob/Corr/BoH - ABWF Works	163	10-Jul-19	21-Jan-20	127
	Level GF				
	Level 2 Summary				
9494	[LoE] POD_GF - Structural Works_Slab (excl. FG/5-7)	60	24-Sep-18	05-Dec-18	0
9495	[LoE] POD_GF - Structural Works_Slab_FG/5-7	42	26-Mar-19	15-May-19	3
9496	[LoE] POD_GF - Structural Works_Walls	138	06-Nov-18	25-Apr-19	35
9497	[LoE] POD_GF - Structural Works_Staircases	131	04-Dec-18	16-May-19	84
9520	[LoE] POD_GF_Z02_Toilets/BoH/Corr/Lob - MEP Works	207	15-Feb-19	22-Oct-19	97
9523	[LoE] POD_GF_Z02_Toilets/BoH/Corr/Lob - ABWF Works	237	28-Jan-19	14-Nov-19	183
9524	[LoE] POD_GF_Z03_Museum Shop & BoH - MEP Works	105	29-Apr-19	31-Aug-19	78
9525	[LoE] POD_GF_Z03_Museum Shop & BoH - ABWF Works	148	15-Apr-19	10-Oct-19	213
9526	[LoE] POD_GF_Z07_FoH Main Lobby - MEP Works	141	30-Mar-19	16-Sep-19	30
9527	[LoE] POD_GF_Z07_FoH Main Lobby - ABWF Works	231	09-Mar-19	11-Dec-19	160
9528	[LoE] POD_GF_Z08 & GF_Z04_Ext Perimeter & Courtyard - MEP Works	96	25-Jul-19	16-Nov-19	15
9529	[LoE] POD_GF_Z08 & GF_Z04_Ext Perimeter & Courtyard - ABWF Works	158	18-May-19	23-Nov-19	175
9530	[LoE] POD_GF_Z09_Temp Exh. & BoH Surrounding - MEP Works	160	20-Apr-19	30-Oct-19	30
9531	[LoE] POD_GF_Z09_Temp Exh. & BoH Surndg - ABWF Works (Drying w/ Wild Air r	191	07-Mar-19	23-Oct-19	96
9532	[LoE] POD_GF_Z09_Temp Exh. & BoH Surndg - ABWF Works (Drying w/ Wild Air r	37	18-Nov-19	31-Dec-19	144
	Level 1				
	Level 2 Summary				
9533	[LoE] POD_L1 - Structural Works	113	30-Oct-18	19-Mar-19	90
9534	[LoE] POD_L1_Museum Shop Offices/Store/Lob - MEP Works	73	03-May-19	29-Jul-19	107
9535	[LoE] POD_L1_Museum Shop Offices/Store/Lob - ABWF Works	121	11-Apr-19	02-Sep-19	243
	Level 1MF				
	Level 2 Summary				
9536	[LoE] POD_1M - Structural Works	95	24-Oct-18	20-Feb-19	83
9537	[LoE] POD_1M_Z01 to 1M_Z04_MEP Plant Rms/Lob/Corr - MEP Works	227	26-Feb-19	25-Nov-19	2
9538	[LoE] POD_1M_Z01 to 1M_Z04_MEP Plant Rms/Lob/Corr - ABWF Works	329	06-Dec-18	13-Jan-20	134



Gammon

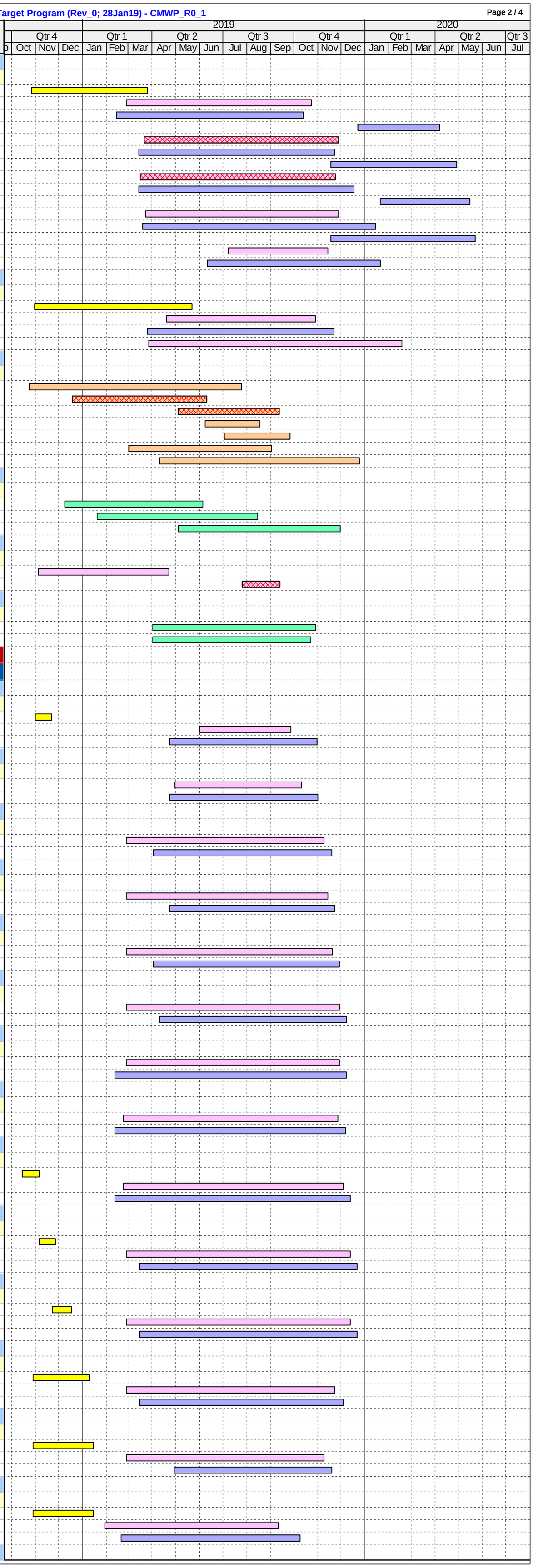
Milestone
Current - Other Works
Current - Struct Works
Current - MEP Works
Current - ABWF Works
Current - Fcd Works
Critical Works

CMWP - M+ Project Remaining Works @ 10 Sep 2018 Target Program (Rev_0; 28Jan19)

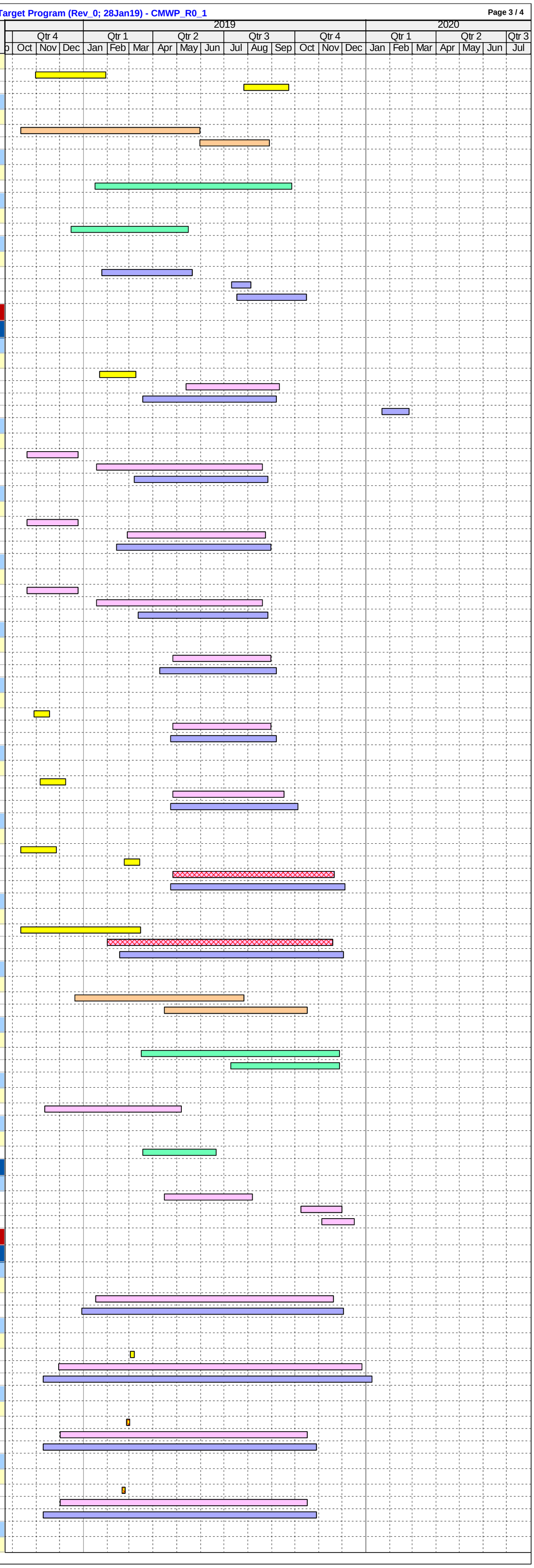
Target Programme - Level 2 Summary Bar Chart

Date	Revision	Checked	Approved
28-Jan-19	CMWP Rev. 0 - Submission For Approval	NS	BG

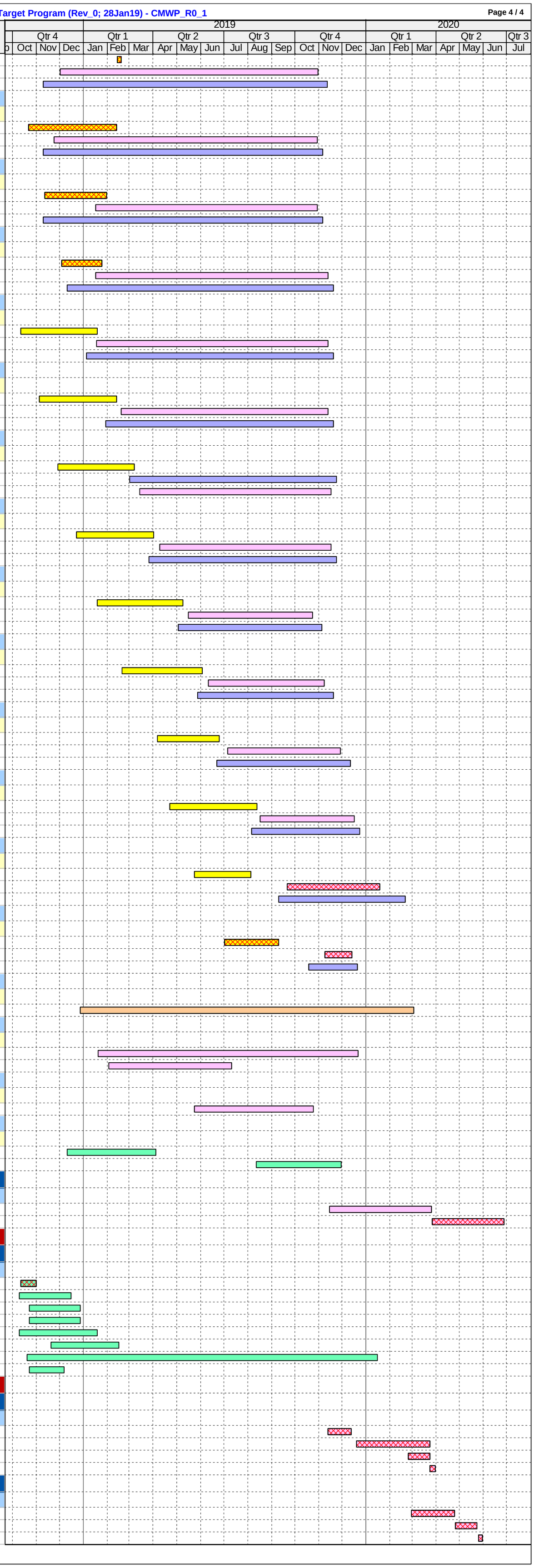
ID	Activity	OD	Start	Finish	TF
	Level 2				
	Level 2 Summary				
9543	[LoE] POD_L2 - Structural Works	120	27-Oct-18	25-Mar-19	27
9547	[LoE] POD_L2_Z01_Temp Exh/Gal/BoH/Lob/Corr - MEP Works	199	26-Feb-19	23-Oct-19	36
9548	[LoE] POD_L2_Z01_Temp Exh/Gal/BoH/Lob/Corr - ABWF Wrks (Drying w/ Wild Air	201	13-Feb-19	12-Oct-19	205
9549	[LoE] POD_L2_Z01_Temp Exh/Gal/BoH/Lob/Corr - ABWF Wrks (Drying w/ Wild Air	81	23-Dec-19	06-Apr-20	70
9550	[LoE] POD_L2_Z02_Gal/BoH/Lob/Corr - MEP Works	209	21-Mar-19	27-Nov-19	6
9551	[LoE] POD_L2_Z02_Gal/BoH/Lob/Corr - ABWF Wrks (Drying w/ Wild Air not req'd)	211	14-Mar-19	22-Nov-19	176
9552	[LoE] POD_L2_Z02_Gal/BoH/Lob/Corr - ABWF Wrks (Drying w/ Wild Air req'd)	130	18-Nov-19	28-Apr-20	51
9553	[LoE] POD_L2_Z03_Gal/BoH/Lob/Corr - MEP Works	210	16-Mar-19	23-Nov-19	9
9554	[LoE] POD_L2_Z03_Gal/BoH/Lob/Corr - ABWF Wrks (Drying w/ Wild Air not req'd)	232	14-Mar-19	17-Dec-19	155
9555	[LoE] POD_L2_Z03_Gal/BoH/Lob/Corr - ABWF Wrks (Drying w/ Wild Air req'd)	91	21-Jan-20	15-May-20	37
9557	[LoE] POD_L2_Z04_Gal/BoH/Lob/Corr - MEP Works	207	23-Mar-19	27-Nov-19	66
9558	[LoE] POD_L2_Z04_Gal/BoH/Lob/Corr - ABWF Wrks (Drying w/ Wild Air not req'd)	250	19-Mar-19	14-Jan-20	133
9559	[LoE] POD_L2_Z04_Gal/BoH/Lob/Corr - ABWF Wrks (Drying w/ Wild Air req'd)	150	18-Nov-19	22-May-20	31
9560	[LoE] POD_L2_Z05_Plaza - MEP Works	108	08-Jul-19	14-Nov-19	18
9561	[LoE] POD_L2_Z05_Plaza - ABWF Works	186	11-Jun-19	20-Jan-20	128
	Level L3				
	Level 2 Summary				
9562	[LoE] POD_L3 - Structural Works	165	31-Oct-18	22-May-19	65
9563	[LoE] POD_L3_Z01 & L3_Z02 - MEP Works	159	19-Apr-19	29-Oct-19	32
9564	[LoE] POD_L3_Z01 & L3_Z02 - ABWF Works	201	25-Mar-19	22-Nov-19	177
9751	[LoE] POD_L3_Hard & Soft Landscaping incl MEP Works	264	27-Mar-19	17-Feb-20	112
	EWS (External Wall System)				
	Level 2 Summary				
1210	[LoE] POD_EWS_1MF - Podium Level 1MF Install Facade	224	24-Oct-18	25-Jul-19	51
8049	[LoE] POD_EWS_L2 - Podium Level 2 Install Facade	139	18-Dec-18	10-Jun-19	13
9565	[LoE] POD_EWS_B1F - Pisa South Peri_Install GW	110	04-May-19	11-Sep-19	1
9566	[LoE] POD_EWS_GF - Pisa Ceramic Tube Wall/GW w/ Ceramic Mullion Install	60	08-Jun-19	17-Aug-19	18
9567	[LoE] POD_EWS_2F_BF/11-13 - Pisa_East/West_Install GW	72	03-Jul-19	25-Sep-19	118
9568	[LoE] POD_EWS_3F- Skylight/Shop Front Glazing/Garden Roof & Wall Install	154	01-Mar-19	02-Sep-19	16
9569	[LoE] POD_EWS_GF- Corrugated Alum Perforated Panels	216	10-Apr-19	24-Dec-19	43
	Vertical Transportation				
	Level 2 Summary				
9752	[LoE] POD_Verti_ Transport_Lift - Fireman's Lift	144	08-Dec-18	05-Jun-19	95
9753	[LoE] POD_Verti_ Transport_Lift - Other Lift	168	19-Jan-19	14-Aug-19	37
9754	[LoE] POD_Verti_ Transport_Esc - Escalators	175	04-May-19	29-Nov-19	64
	Risers				
	Level 2 Summary				
9570	[LoE] POD_Risers (Stg 1_Duct 1/2/3/5)	136	05-Nov-18	22-Apr-19	108
9787	[LoE] POD_Risers (Stg 2_Duct 4)	42	26-Jul-19	12-Sep-19	2
	Staircases				
	Level 2 Summary				
9761	[LoE] POD_Staircases - Not Required for Pressurisation	174	01-Apr-19	28-Oct-19	198
9762	[LoE] POD_Staircases - Required for Pressurisation	169	01-Apr-19	22-Oct-19	203
	M+ TOWER				
	Construction				
	Level 4				
	Level 2 Summary				
9851	[LoE] TW_L4 - Rem Structural Works (ST-02/02A)	18	01-Nov-18	21-Nov-18	201
6562	[LoE] TW_L4 - MEP Works (excl other prelim works)	98	01-Jun-19	26-Sep-19	21
6561	[LoE] TW_L4 - ABWF Works (excl wet trades or other prelim works)	158	23-Apr-19	30-Oct-19	90
	Level 5				
	Level 2 Summary				
6546	[LoE] TW_L5 - MEP Works (excl other prelim works)	135	30-Apr-19	10-Oct-19	99
6545	[LoE] TW_L5 - ABWF Works (excl wet trades or other prelim works)	159	23-Apr-19	31-Oct-19	89
	Level 6				
	Level 2 Summary				
6559	[LoE] TW_L5 - MEP Works (excl other prelim works)	213	26-Feb-19	08-Nov-19	74
6558	[LoE] TW_L6 - ABWF Works (excl wet trades or other prelim works)	191	02-Apr-19	18-Nov-19	74
	Level 7				
	Level 2 Summary				
6557	[LoE] TW_L7 - MEP Works (excl other prelim works)	217	26-Feb-19	13-Nov-19	70
6556	[LoE] TW_L7 - ABWF Works (excl wet trades or other prelim works)	178	23-Apr-19	22-Nov-19	70
	Level 8				
	Level 2 Summary				
6555	[LoE] TW_L8 - MEP Works (excl other prelim works)	222	26-Feb-19	19-Nov-19	67
6554	[LoE] TW_L8 - ABWF Works (excl wet trades or other prelim works)	200	02-Apr-19	28-Nov-19	65
	Level 9				
	Level 2 Summary				
6553	[LoE] TW_L9 - MEP Works (excl other prelim works)	230	26-Feb-19	28-Nov-19	57
6552	[LoE] TW_L9 - ABWF Works (excl wet trades or other prelim works)	202	10-Apr-19	07-Dec-19	57
	Level 10				
	Level 2 Summary				
6551	[LoE] TW_L10 - MEP Works (excl other prelim works)	230	26-Feb-19	28-Nov-19	57
6550	[LoE] TW_L10 - ABWF Works (excl wet trades or other prelim works)	251	11-Feb-19	07-Dec-19	57
	Level 11				
	Level 2 Summary				
6548	[LoE] TW_L11 - MEP Works (excl other prelim works)	231	22-Feb-19	26-Nov-19	58
6547	[LoE] TW_L11 - ABWF Works (excl wet trades or other prelim works)	250	11-Feb-19	06-Dec-19	58
	Level 12				
	Level 2 Summary				
6563	[LoE] TW_L12 - Structural Works (ST-02/02a)	18	15-Oct-18	05-Nov-18	161
6565	[LoE] TW_L12 - MEP Works (excl other prelim works)	237	22-Feb-19	03-Dec-19	53
6564	[LoE] TW_L12 - ABWF Works (excl wet trades or other prelim works)	255	11-Feb-19	12-Dec-19	53
	Level 13				
	Level 2 Summary				
6566	[LoE] TW_L13 - Structural Works (ST-02/02a)	18	06-Nov-18	26-Nov-18	161
6568	[LoE] TW_L13 - MEP Works (excl other prelim works)	242	26-Feb-19	12-Dec-19	50
6567	[LoE] TW_L13 - ABWF Works (excl wet trades or other prelim works)	235	15-Mar-19	21-Dec-19	45
	Level 14				
	Level 2 Summary				
6569	[LoE] TW_L14 - Structural Works (ST-03, 02, 02a)	22	22-Nov-18	17-Dec-18	161
6572	[LoE] TW_L14 - MEP Works	242	26-Feb-19	12-Dec-19	50
6570	[LoE] TW_L14 - ABWF Works (excl wet trades or other prelim works)	235	15-Mar-19	21-Dec-19	45
	Level 15				
	Level 2 Summary				
6573	[LoE] TW_L15 - Structural Works (ST-02/02a/03 & East Core Rem Structure)	61	29-Oct-18	09-Jan-19	161
6575	[LoE] TW_L15 - MEP Works	225	26-Feb-19	23-Nov-19	67
6574	[LoE] TW_L15 - ABWF Works (excl wet trades or other prelim works)	218	15-Mar-19	03-Dec-19	62
	Level 16				
	Level 2 Summary				
6576	[LoE] TW_L16 - Structural Works (Rem Superstructure & Stair Cases)	65	29-Oct-18	14-Jan-19	101
6578	[LoE] TW_L16 - MEP Works	213	26-Feb-19	09-Nov-19	79
6577	[LoE] TW_L16 - ABWF Works (excl wet trades or other prelim works)	169	29-Apr-19	19-Nov-19	74
	Level RF				
	Level 2 Summary				
6579	[LoE] TW_RF - Structural Works (Rem Super-structure Works)	65	29-Oct-18	14-Jan-19	101
6581	[LoE] TW_RF - MEP Works	183	29-Jan-19	11-Sep-19	118
6580	[LoE] TW_RF - ABWF Works	192	19-Feb-19	09-Oct-19	109
	Level URF				



ID	Activity	OD	Start	Finish	TF
	Level 2 Summary				
6583	[LoE] TW_URF - Structural Works	75	31-Oct-18	29-Jan-19	34
9857	[LoE] TW_URF - MEP Works	48	27-Jul-19	23-Sep-19	43
	EWS (External Wall System)				
	Level 2 Summary				
4246	[LoE] TW_EWS - Facade Erection (Super Structure Weather Tight Phase)	187	12-Oct-18	31-May-19	29
9858	[LoE] TW_EWS - Facade Erection (Wet Zone)	75	31-May-19	29-Aug-19	141
	Vertical Transportation				
	Level 2 Summary				
4247	[LoE] TW_Lift - Lifts Install (Shaft & Lift Works Summarised)	208	15-Jan-19	26-Sep-19	117
	Risers				
	Level 2 Summary				
1234	[LoE] TW_Riser - Risers	120	15-Dec-18	16-May-19	95
	Staircases				
	Level 2 Summary				
4248	[LoE] TW_ST - ST02a and ST02 ABWF & MEP Works	93	24-Jan-19	21-May-19	224
9859	[LoE] TW_ST - ST02a and ST02 Finishing Works	22	11-Jul-19	05-Aug-19	161
9860	[LoE] TW_ST - ST01 and ST03 ABWF & MEP Works	74	18-Jul-19	16-Oct-19	103
	CSF BUILDING				
	Construction				
	Level GF				
	Level 2 Summary				
9861	[LoE] CSF_GF - Rem Parapet Wall, Struct Remedial Works	36	21-Jan-19	09-Mar-19	79
5790	[LoE] CSF_GF - MEP Works	102	13-May-19	10-Sep-19	144
5789	[LoE] CSF_GF - ABWF Works (excl wet trades / other prelim works)	145	18-Mar-19	06-Sep-19	165
9862	[LoE] CSF_GF - ABWF Works (Drying w/ Wild Air req'd))	23	22-Jan-20	25-Feb-20	30
	Level 1				
	Level 2 Summary				
5501	[LoE] CSF_L1 - MEP Works (early works)	56	20-Oct-18	24-Dec-18	233
9864	[LoE] CSF_L1 - MEP Works	174	17-Jan-19	19-Aug-19	71
5500	[LoE] CSF_L1 - ABWF Works (excl wet trades / other prelim works)	144	07-Mar-19	26-Aug-19	175
	Level 2				
	Level 2 Summary				
5731	[LoE] CSF_L2 - MEP Works (early works)	56	20-Oct-18	24-Dec-18	232
9865	[LoE] CSF_L2 - MEP Works	150	26-Feb-19	23-Aug-19	79
5730	[LoE] CSF_L2 - ABWF Works (excl wet trades / other prelim works)	168	12-Feb-19	30-Aug-19	171
	Level 3				
	Level 2 Summary				
5677	[LoE] CSF_L3 - MEP Works (early works)	56	20-Oct-18	24-Dec-18	233
9867	[LoE] CSF_L3 - MEP Works	174	17-Jan-19	19-Aug-19	101
5676	[LoE] CSF_L3 - ABWF Works (excl wet trades / other prelim works)	140	12-Mar-19	26-Aug-19	175
	Level 4				
	Level 2 Summary				
5621	[LoE] CSF_L4 - MEP Works	106	26-Apr-19	30-Aug-19	61
5620	[LoE] CSF_L4 - ABWF Works (excl wet trades / other prelim works)	127	09-Apr-19	06-Sep-19	165
	Level 5				
	Level 2 Summary				
5502	[LoE] CSF_L5 - Structural Works (ST-52)	18	29-Oct-18	17-Nov-18	154
5566	[LoE] CSF_L5 - MEP Works	106	26-Apr-19	30-Aug-19	73
5565	[LoE] CSF_L5 -ABWF Works (excl wet trades / other prelim works)	115	23-Apr-19	06-Sep-19	165
	Level 6				
	Level 2 Summary				
5791	[LoE] CSF_L6 - Structural Works	29	06-Nov-18	08-Dec-18	154
5849	[LoE] CSF_L6 - MEP Works	119	26-Apr-19	16-Sep-19	48
5848	[LoE] CSF_L6 - ABWF Works (excl wet trades / other prelim works)	137	23-Apr-19	04-Oct-19	143
	Level 7				
	Level 2 Summary				
5850	[LoE] CSF_L7 - Structural Works (Perim. Wall to 8/F)	38	12-Oct-18	26-Nov-18	170
9868	[LoE] CSF_L7 - Structural Works (ST-52)	18	22-Feb-19	14-Mar-19	98
6105	[LoE] CSF_L7 - MEP Works	173	26-Apr-19	20-Nov-19	9
6104	[LoE] CSF_L7 - ABWF Works (excl wet trades / other prelim works)	188	23-Apr-19	04-Dec-19	92
	Level 8 & Roof Level				
	Level 2 Summary				
6255	[LoE] CSF_L8 - Structural Works	124	12-Oct-18	15-Mar-19	31
6257	[LoE] CSF_L8 - MEP Works	237	31-Jan-19	18-Nov-19	8
6256	[LoE] CSF_L8 - ABWF Works	241	16-Feb-19	02-Dec-19	94
	EWS (External Wall System)				
	Level 2 Summary				
3844	[LoE] CSF_L8_&_Roof - EWS (External Wall System)	177	20-Dec-18	27-Jul-19	42
6331	[LoE] CSF_L8_&_Roof - Roof Waterpoofing & Panels	153	15-Apr-19	16-Oct-19	30
	Vertical Transportation				
	Level 2 Summary				
3845	[LoE] CSF_LT-51/LT-53	213	16-Mar-19	27-Nov-19	54
6163	[LoE] CSF_LT-52	118	10-Jul-19	27-Nov-19	54
	Risers				
	Level 2 Summary				
3846	[LoE] CSF_RISERS - Risers MEP Works	142	12-Nov-18	07-May-19	125
	Staircases				
	Level 2 Summary				
6187	[LoE] CSF_ST - Stair Cases (ST51 & ST52)	80	18-Mar-19	21-Jun-19	230
	Testing & Commissioning				
	Level 2 Summary				
3896	[LoE] Level 2 Summary - Wild Air Stage 1 T&C (1/F to 5/F)	96	15-Apr-19	07-Aug-19	130
6332	[LoE] Level 2 Summary - Wild Air Stage 2 T&C (GF, 6/F to 8/F)	46	09-Oct-19	30-Nov-19	34
9743	[LoE] Level 2 Summary - CSF MC T&C for FSD All Levels (major items)	36	05-Nov-19	16-Dec-19	50
	RDE BUILDING				
	Construction				
	Level GF				
	Level 2 Summary				
6588	[LoE] RDE_GF - MEP Works	251	16-Jan-19	19-Nov-19	29
6587	[LoE] RDE_GF - ABWF Works	276	29-Dec-18	02-Dec-19	168
	Level 1				
	Level 2 Summary				
6589	[LoE] RDE_L1 - Structural Works (late cast area)	5	02-Mar-19	07-Mar-19	112
6591	[LoE] RDE_L1 - MEP Works	321	29-Nov-18	26-Dec-19	16
6590	[LoE] RDE_L1 - ABWF Works	347	10-Nov-18	08-Jan-20	138
	Level 2				
	Level 2 Summary				
6592	[LoE] RDE_L2 - Structural Works (late cast area)	5	25-Feb-19	01-Mar-19	13
6595	[LoE] RDE_L2 - MEP Works	259	01-Dec-18	16-Oct-19	58
6594	[LoE] RDE_L2 - ABWF Works	287	10-Nov-18	29-Oct-19	198
	Level 3				
	Level 2 Summary				
6596	[LoE] RDE_L13 - Structural Works (late cast strip)	5	19-Feb-19	23-Feb-19	13
6598	[LoE] RDE_L13 - MEP Works	259	01-Dec-18	16-Oct-19	58
6597	[LoE] RDE_L13 - ABWF Works	287	10-Nov-18	29-Oct-19	198
	Level 4				
	Level 2 Summary				

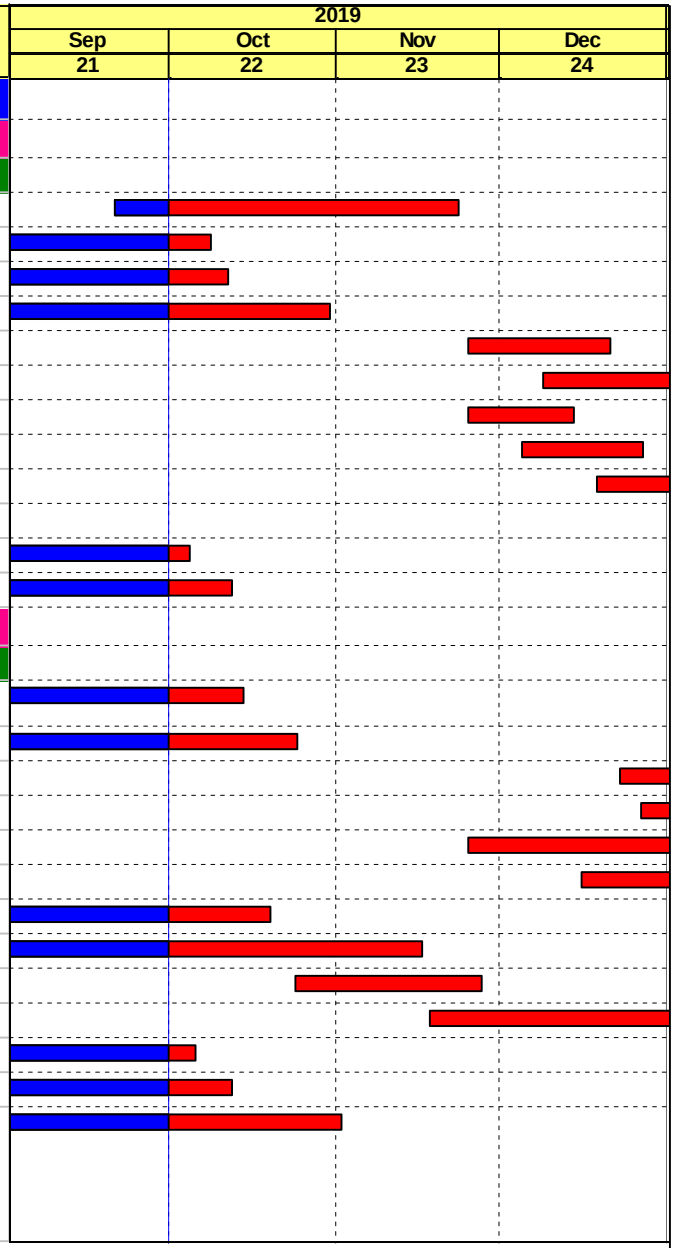


ID	Activity	OD	Start	Finish	TF
6599	[LoE] RDE_L4 - Structural Works (late cast strip)	5	13-Feb-19	18-Feb-19	13
6601	[LoE] RDE_L4 - MEP Works	271	01-Dec-18	30-Oct-19	46
6600	[LoE] RDE_L4 - ABWF Works	299	10-Nov-18	11-Nov-19	186
Level 5					
Level 2 Summary					
6602	[LoE] RDE_L5 - Structural Works (ST & late cast strip)	90	22-Oct-18	12-Feb-19	13
6605	[LoE] RDE_L5 - MEP Works	277	23-Nov-18	29-Oct-19	47
6603	[LoE] RDE_L5 - ABWF Works	294	10-Nov-18	05-Nov-19	191
Level 6					
Level 2 Summary					
6584	[LoE] RDE_L6 - Structural Works (ST & Late Cast Strip)	67	12-Nov-18	30-Jan-19	13
6586	[LoE] RDE_L6 - MEP Works	233	16-Jan-19	29-Oct-19	47
6585	[LoE] RDE_L6 - ABWF Works	294	10-Nov-18	05-Nov-19	191
Level 7					
Level 2 Summary					
6606	[LoE] RDE_L7 - Structural Works (ST & Late Cast Strip)	44	03-Dec-18	24-Jan-19	13
6608	[LoE] RDE_L7 - MEP Works	245	16-Jan-19	12-Nov-19	35
6607	[LoE] RDE_L7 - ABWF Works	281	10-Dec-18	19-Nov-19	179
Level 8					
Level 2 Summary					
6609	[LoE] RDE_L8 - Structural Works (Rem Slab/Columns; ST & Late Cast Strip)	82	12-Oct-18	18-Jan-19	176
6611	[LoE] RDE_L8 - MEP Works	244	17-Jan-19	12-Nov-19	35
6610	[LoE] RDE_L8 - ABWF Works	261	04-Jan-19	19-Nov-19	179
Level 9					
Level 2 Summary					
6612	[LoE] RDE_L9 - Structural Works, ST & Staircases	78	05-Nov-18	12-Feb-19	89
6614	[LoE] RDE_L9 - MEP Works	223	18-Feb-19	12-Nov-19	35
6613	[LoE] RDE_L9 - ABWF Works	240	29-Jan-19	19-Nov-19	179
Level 10					
Level 2 Summary					
6616	[LoE] RDE_L10 - Structural Works & Staircases	78	28-Nov-18	07-Mar-19	87
6617	[LoE] RDE_L10 - ABWF Works	223	01-Mar-19	23-Nov-19	175
6618	[LoE] RDE_L10 - MEP Works	206	14-Mar-19	16-Nov-19	31
Level 11					
Level 2 Summary					
9878	[LoE] RDE_L11 - Structural Works & Staircases	78	22-Dec-18	01-Apr-19	84
6621	[LoE] RDE_L11 - MEP Works	185	09-Apr-19	16-Nov-19	31
6620	[LoE] RDE_L11 - ABWF Works	202	26-Mar-19	23-Nov-19	175
Level 12					
Level 2 Summary					
6622	[LoE] RDE_L12 - Structural Works & Staircases	88	18-Jan-19	09-May-19	71
6624	[LoE] RDE_L12 - MEP Works	133	16-May-19	23-Oct-19	52
6623	[LoE] RDE_L12 - ABWF Works	154	03-May-19	05-Nov-19	192
Level 13					
Level 2 Summary					
6625	[LoE] RDE_L13 - Needle Beam, Structural Works & Staircases	88	19-Feb-19	03-Jun-19	68
6628	[LoE] RDE_L13 - MEP Works	125	11-Jun-19	07-Nov-19	39
6627	[LoE] RDE_L13 - ABWF Works	146	28-May-19	20-Nov-19	179
Level 14					
Level 2 Summary					
6629	[LoE] RDE_L14 - Structural Works & Staircases	67	06-Apr-19	25-Jun-19	68
6631	[LoE] RDE_L14 - MEP Works	122	06-Jul-19	28-Nov-19	21
6630	[LoE] RDE_L14 - ABWF Works	143	22-Jun-19	11-Dec-19	161
Level 15					
Level 2 Summary					
6632	[LoE] RDE_L15 - Structural Works & Staircases	94	22-Apr-19	12-Aug-19	46
6634	[LoE] RDE_L15 - MEP Works	101	17-Aug-19	16-Dec-19	24
6633	[LoE] RDE_L15 - ABWF Works	117	06-Aug-19	23-Dec-19	150
Level 15 M/F					
Level 2 Summary					
6635	[LoE] RDE_L15MF - Needle Beam, Struct'l Works & Staircases	61	24-May-19	05-Aug-19	29
6638	[LoE] RDE_L15MF - MEP Works	99	21-Sep-19	18-Jan-20	3
6636	[LoE] RDE_L15MF - ABWF Works	129	10-Sep-19	20-Feb-20	108
Level 15M/F UF & RF					
Level 2 Summary					
6639	[LoE] RDE_L15MF UF & RF - Structural Works	60	02-Jul-19	09-Sep-19	0
6641	[LoE] RDE_L15MF UF & RF - MEP Works	30	09-Nov-19	13-Dec-19	14
6640	[LoE] RDE_L15MF UF & RF - ABWF Works	54	19-Oct-19	20-Dec-19	146
EWS (External Wall System)					
L2 Summary					
3835	[LoE] RDE_FCD - EWS Facade Install to Weather Tight Stage to Roof Lvl	347	27-Dec-18	02-Mar-20	99
Vertical Transportation					
Level 2 Summary					
5413	[LoE] RDE_FCD - Lifts	276	19-Jan-19	21-Dec-19	22
5414	[LoE] RDE_FCD - Escalators	127	02-Feb-19	11-Jul-19	216
Risers					
Level 2 Summary					
1235	[LoE] RDE_Duct_D - Electrical Riser Duct	127	24-May-19	24-Oct-19	21
Staircases					
Level 2 Summary					
5415	[LoE] RDE_ST - Staircases ST-71/72	92	10-Dec-18	04-Apr-19	368
5416	[LoE] RDE_ST - Staircases ST-73/74	92	12-Aug-19	29-Nov-19	170
Testing & Commissioning					
Level 2 Summary					
7642	[LoE] RDE - T&C (early works)	104	15-Nov-19	25-Mar-20	25
7672	[LoE] RDE - T&C (back end works)	78	26-Mar-20	27-Jun-20	1
EXTERNAL WORKS					
Construction					
Level 2 Summary					
9873	[LoE] ICP_REM - Interfacing Carpark Misc. Works	16	12-Oct-18	31-Oct-18	0
9877	[LoE] IPA_Portion 1 - External Works	57	10-Oct-18	15-Dec-18	228
9879	[LoE] IPA_Portion 2 - External Works	56	23-Oct-18	27-Dec-18	445
9880	[LoE] IPA_Portion 3 - External Works	56	23-Oct-18	27-Dec-18	445
9881	[LoE] IPA_Portion 4 - External Works	84	10-Oct-18	18-Jan-19	427
9882	[LoE] IPA_300T Crane Area - External Works	69	19-Nov-18	15-Feb-19	409
9887	[LoE] Along Building Boundary - External Works	371	20-Oct-18	15-Jan-20	26
9883	[LoE] Promenade - External Works	39	23-Oct-18	06-Dec-18	462
COMPLETION STATUTORY INSPECTIONS & APPROVALS					
Basement, Podium, M+ Tower & CSF Building					
FSD & BD					
FSD1	FSD - FSD Inspection/Re-Inspection/Remedial Works - Advanced Layout Inspectio	26	13-Nov-19	12-Dec-19	5
FSD2	FSD - FSD Inspection/Re-Inspection/Remedial Works - FS SYSTEMS INSPECTIO	72	19-Dec-19	23-Mar-20	0
BD	BD - Inspection/Re-Inspection	24	24-Feb-20	23-Mar-20	0
1189	BD - Obtain OP for Basement/Podium/M+/CSF	6	23-Mar-20	30-Mar-20	0
RDE Building					
FSD & BD					
RDE_FSD	RDE_FSD - FSD Inspection/Re-Inspection/Remedial Works (layouts & systems)	48	28-Feb-20	24-Apr-20	0
RDE_BD	RDE_BD - Inspection/Re-Inspection	24	25-Apr-20	23-May-20	0
7490	RDE_BD - Obtain OP for RDE	6	25-May-20	30-May-20	0



Lyric Theatre Complex

Activity ID	Activity Name	Start Date	Finish Date
L1 Contract for Lyric Theatre Complex (3MRP) - Enviromental			
Cost Centre B - Excavation and Lateral Support (ELS) Stage 2			
Excavation and ELS Works (Stage 2)			
BB200940	Implement Remedial Measures (67 nos. of Clutch Pipe Piles)	21-Sep-19 A	23-Nov-19
CB160800	[South - Area 1 & 2] Excavate to -9.0, -11.3, -14.2mPD w/ Soil Berm (29,690 cu.m)	26-Apr-19 A	08-Oct-19
CB160900	[South - Area 1 & 2] Pile Head Treatment at Central Portion (54 nr BP)	08-May-19 A	11-Oct-19
CB161020	[South - Area 1 & 2] Install 5th Layer of Strut S5	09-Jul-19 A	30-Oct-19
CB161030	[South - Area 1 & 2] Excavate South / West Soil Berm to -12.4mPD (18,145 cu.m)	25-Nov-19	21-Dec-19
CB161040	[South - Area 1 & 2] Pile Head Treatment at South / West (22 nr BP)	09-Dec-19	08-Jan-20
CB161060	[South - Area 1 & 2] Excavate East Soil Berm to -12.0mPD (9,750 cu.m)	25-Nov-19	14-Dec-19
CB161070	[South - Area 1 & 2] Install 6th Layer of Strut S6	05-Dec-19	27-Dec-19
CB161100	[South - Area 1 & 2] Excavate East Berm to Formation Level -14.2mPD (4,750 cu.m)	19-Dec-19	11-Jan-20
CB161210	[South/North] BA14 Completion of ELS - BD Submission & Acknowledgement	11-Jan-20	17-Jan-20
CB162000	[North - Area 3 & 4] Excavate to Formation Level -9.6 mPD (46,575 cu.m)	18-Apr-19 A	04-Oct-19
CB162100	[North - Area 3 & 4] Pile Head Treatment (52 nr BP)	23-May-19 A	12-Oct-19
Cost Centre C - Basement			
Cost Centre C1 - Essential Basement Structure (Excl. AET Protection & Box Culvert)			
CC100100	[South - L01] Blinding Layer for Pile Cap / B2 Slab at Central Portion	30-Apr-19 A	14-Oct-19
CC100200	[South - L01] Construct Central Pile Cap / B2 Slab at -11.3mPD & -14.2mPD	09-May-19 A	24-Oct-19
CC100210	[South - L01] Blinding Layer for Pile Cap / B2 Slab at South / West	23-Dec-19	15-Jan-20
CC100220	[South - L01] Construct South / West Pile Cap / B2 Slab at -12.4mPD	27-Dec-19	08-Feb-20
CC100420	[South - L01] Construct Central B2-B1 Columns & Structural Walls	25-Nov-19	15-Jan-20
CC100440	[South - L01] Construct Central B1 Beam & Slab	16-Dec-19	08-Feb-20
CC101400	[North - L04] Blinding Layer for Pile Cap / B2 Slab	12-Jun-19 A	19-Oct-19
CC101500	[North - L04] Construct Pile Cap / B2 Slab at -9.6mPD	22-Jun-19 A	16-Nov-19
CC101600	[North - L04] Remove Strut Layer S4	24-Oct-19	27-Nov-19
CC101700	[North - L04] Construct B2-B1 Columns & Structural Walls	18-Nov-19	15-Jan-20
CC102420	[Area 6 - L06] Construct B1-B1M Columns & Structural Walls	10-Dec-18 A	05-Oct-19
CC102430	[Area 6 - L06] Construct B1M Beam & Slab	14-Jan-19 A	12-Oct-19
CC102510	[Area 6 - L06] Construct B1M-GF Columns & Structural Walls	13-May-19 A	01-Nov-19



Remaining Work
Critical Remaining Work
Actual Work
Milestone

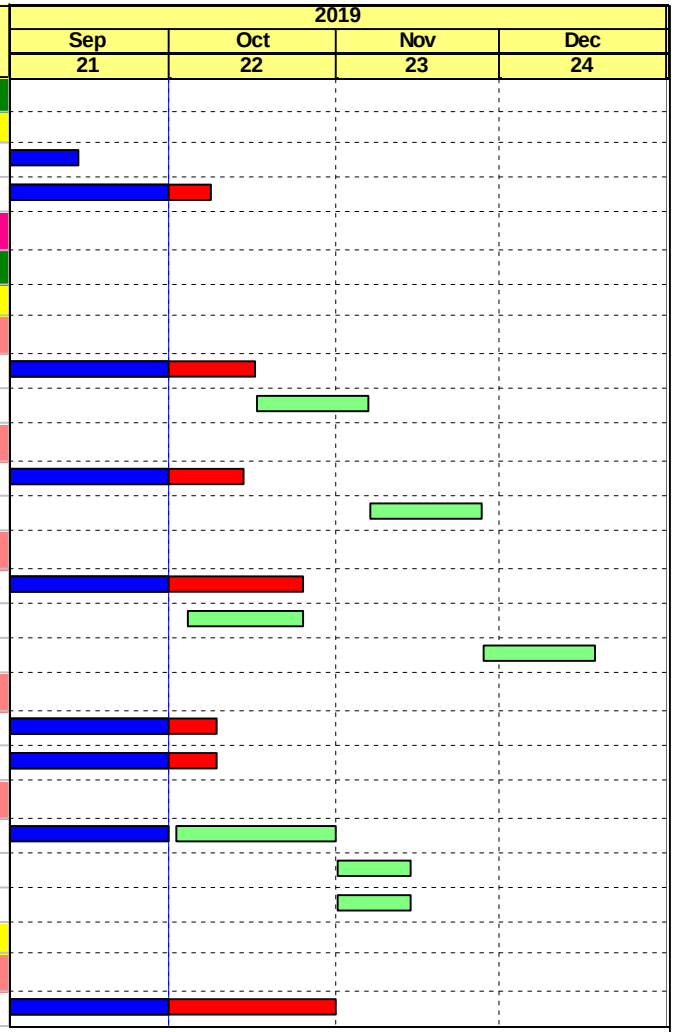
Project ID: L13MRP-2019030-Er

Layout: L1-3MRP (Env)

West Kowloon Cultural District Authority
L1 Contract for Lyric Theatre Complex & Extended Basement
Three Month Rolling Programme (3MRP) - Status as of 30 Sep 2019

Gammon

Activity ID	Activity Name	Start Date	Finish Date
CAI No. 012 Advance Works for Artist Square Bridge			
P34 Stair & Lift Tower			
CAI12320	ELS Works & Excavate to Formation Level	21-Aug-19 A	14-Sep-19 A
CAI12330	Trim Pile Heads, Blinding Layer & Construct Pile Cap	31-Aug-19 A	08-Oct-19
Cost Centre D - Public Infrastructure Works (PIW)			
Cost Centre D2 - Austin Road West Lay-by			
Cost Centre D2.1 Roadworks and Remaining			
MC30-Ch.170 to MC30-Ch.150			
CD210730	MC30-Ch170-150: Roadworks & Footpath	30-Jan-19 A	16-Oct-19
CD210750	MC30-Ch170-150: Install Street Furniture & Lighting	17-Oct-19	06-Nov-19
MC30-Ch.150 to MC30-Ch.100			
CD210630	MC30-Ch150-100: Roadworks & Footpath	13-Feb-19 A	14-Oct-19
CD210650	MC30-Ch150-100: Install Street Furniture & Lighting	07-Nov-19	27-Nov-19
MC30-Ch.100 to MC30-Ch.50			
CD210530	MC30-Ch100-50: Roadworks & Footpath	11-Jul-19 A	25-Oct-19
CD210535	MC30-Ch100-50: Maintenance Staircase	04-Oct-19	25-Oct-19
CD210550	MC30-Ch100-50: Install Street Furniture & Lighting	28-Nov-19	18-Dec-19
MC30-Ch.50 to MC30-Ch.00			
CD210420	MC30-Ch50-00: DN450 Freshwater (0+64 - 0+14)	14-Mar-19 A	09-Oct-19
CD210425	MC30-Ch50-00: DN450 Salt Water (0+062 - 0+12)	14-Mar-19 A	09-Oct-19
MC20-Ch.140 to MC20-Ch.100			
CD210310	MC20-Ch140-100: Road Drainage (WL1.12 to WL1.9)	06-Jun-19 A	31-Oct-19
CD210320	MC20-Ch140-100: DN450 Freshwater (0+14 - 0+00)	01-Nov-19	14-Nov-19
CD210325	MC20-Ch140-100: DN450 Salt Water (0+12 - 0+00)	01-Nov-19	14-Nov-19
Cost Centre D2.2 Drainage			
MC20-Ch.140 to MC20-Ch.00			
CD220190	MC20-Ch140-00: 1800mm dia Drainage (SF1.1 to SF1.1B) - 30m	02-Jul-19 A	31-Oct-19



Remaining Work
Critical Remaining Work
Actual Work
Milestone

Project ID: L13MRP-2019030-Er
Layout: L1-3MRP (Env)

West Kowloon Cultural District Authority
L1 Contract for Lyric Theatre Complex & Extended Basement
Three Month Rolling Programme (3MRP) - Status as of 30 Sep 2019

Gammon

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 C-1: Action and Limit Levels for 1-hour TSP

Monitoring Station	Action Level (mg/m^3)	Limit Level (mg/m^3)
AM1	273.7	500
AM2B	274.2	500

Table C-2: Action and Limit Levels for 24-hour TSP

Monitoring Station	Action Level ($\mu g/m^3$)	Limit Level ($\mu g/m^3$)
AM1	143.6	260
AM2B	151.1	260

Noise

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

Table C-3: Action and Limit Levels for Construction Noise

Time Period & Monitoring Locations	Action Level	Limit Level
NM1A		
0700-1900 hours on normal weekdays	When one documented complaint is received from any one of the sensitive receivers	75 dB(A)

D. Event and Action Plan for Air Quality, Noise, Landscape and Visual Impact

Air Quality

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

Table D-1: Event and Action Plan for Air Quality

Event	Action			
	ET	IEC	WKCDA	Contractor
Action Level				
1. Exceedance for one sample	1. Identify source, investigate the causes of exceedance and propose remedial measures; 2. Inform IEC and WKCDA; 3. Repeat measurement to confirm finding; 4. Increase monitoring frequency to daily.	1. Check monitoring data submitted by ET; 2. Check Contractor's working method.	1. Notify Contractor	1. Rectify any unacceptable practice; 2. Amend working methods if appropriate.
2. Exceedance for two or more consecutive samples	1. Identify source; 2. Inform IEC and WKCDA; 3. Advise the WKCDA on the effectiveness of the proposed remedial measures; 4. Repeat measurements to confirm findings; 5. Increase monitoring frequency to daily; 6. Discuss with IEC and Contractor on remedial actions required; 7. If exceedance continues, arrange meeting with IEC and WKCDA; 8. If exceedance stops, cease additional monitoring.	1. Check monitoring data submitted by ET; 2. Check Contractor's working method; 3. Discuss with ET and Contractor on possible remedial measures; 4. Advise the ET on the effectiveness of the proposed remedial measures; 5. Monitor the implementation of remedial measures.	1. Confirm receipt of notification of failure in writing; 2. Notify Contractor; 3. Ensure remedial measures properly implemented.	1. Submit proposals for remedial to WKCDA within three working days of notification; 2. Implement the agreed proposals; 3. Amend proposal if appropriate.
Limit Level				
1. Exceedance for one sample	1. Identify source, investigate the causes of exceedance and propose remedial measures; 2. Inform WKCDA, Contractor and EPD; 3. Repeat measurement to confirm finding; 4. Increase monitoring frequency to daily; 5. Assess effectiveness of Contractor's remedial actions and keep IEC, EPD and WKCDA informed of the results.	1. Check monitoring data submitted by ET; 2. Check Contractor's working method; 3. Discuss with ET and Contractor on possible remedial measures; 4. Advise the WKCDA on the effectiveness of the proposed remedial measures; 5. Monitor the implementation of remedial measures.	1. Confirm receipt of notification of failure in writing; 2. Notify Contractor; 3. Ensure remedial measures properly implemented.	1. Take immediate action to avoid further exceedance; 2. Submit proposals for remedial actions to IEC within three working days of notification; 3. Implement the agreed proposals; 4. Amend proposal if appropriate.

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

Event	Action			
	ET	IEC	WKCDA	Contractor
Action Level	1. Notify WKCDA, IEC and Contractor; 2. Carry out investigation; 3. Report the results of investigation to the IEC, WKCDA and Contractor; 4. Discuss with the IEC and Contractor on remedial measures required; 5. Increase monitoring frequency to check mitigation effectiveness.	1. Review the investigation results submitted by the ET; 2. Review the proposed remedial measures by the Contractor and advise the WKCDA accordingly; 3. Advise the WKCDA on the effectiveness of the proposed remedial measures.	1. Confirm receipt of notification of failure in writing; 2. Notify Contractor; 3. In consolidation with the IEC, agree with the Contractor on the remedial measures to be implemented; 4. Supervise the implementation of remedial measures.	1. Submit noise mitigation proposals to IEC and WKCDA; 2. Implement noise mitigation proposals.
Limit Level	1. Inform IEC, WKCDA, Contractor and EPD; 2. Repeat measurements to confirm findings; 3. Increase monitoring frequency; 4. Identify source and investigate the cause of exceedance; 5. Carry out analysis of Contractor's working procedures; 6. Discuss with the IEC, Contractor and WKCDA on remedial measures required; 7. Assess effectiveness of Contractor's remedial actions and keep IEC, EPD and WKCDA informed of the results; 8. If exceedance stops, cease additional monitoring.	1. Discuss amongst WKCDA, ET, and Contractor on the potential remedial actions; 2. Review Contractor's remedial actions whenever necessary to assure their effectiveness and advise the WKCDA accordingly.	1. Confirm receipt of notification of failure in writing; 2. Notify Contractor; 3. In consolidation with the IEC, agree with the Contractor on the remedial measures to be implemented; 4. Supervise the implementation of remedial measures; 5. If exceedance continues, consider stopping the Contractor to continue working on that portion of work which causes the exceedance until the exceedance is abated.	1. Take immediate action to avoid further exceedance; 2. Submit proposals for remedial actions to IEC and WKCDA within 3 working days of notification; 3. Implement the agreed proposals; 4. Submit further proposal if problem still not under control; 5. Stop the relevant portion of works as instructed by the WKCDA until the exceedance is abated.

Landscape and Visual Impact

In case of non-compliance of landscape and visual impacts, procedures in accordance with the Event and Action Plan should be followed:

Table D-3: Event and Action Plan for Landscape and Visual Impact

Event	Action			
	ET	IEC	WKCDA	Contractor
Design Check	1. Design check to make sure the design complies with all the proposed mitigation measures in the EIA report; 2. Prepare and submit report.	1. Check report submitted by ET; 2. Recommend remedial design if necessary.	1. Undertake remedial design if necessary.	-
Non-conformity on one occasion	1. Identify source of non-conformity; 2. Report to IEC and WKCDA; 3. Discuss remedial actions with IEC, WKCDA and Contractor; 4. Monitor remedial actions until rectification has been completed.	1. Check and verify source of non-conformity; 2. Discuss remedial actions with ET and Contractor; 3. Advise WKCDA on effectiveness of proposed remedial actions; 4. Check implementation of remedial actions.	1. Notify Contractor; 2. Ensure remedial actions are properly implemented.	1. Amend working method as necessary; 2. Rectify damage and undertake necessary replacement and remedial actions.
Repeated non-conformity	1. Identify source of non-conformity; 2. Report to IEC and WKCDA; 3. Increase monitoring frequency; 4. Discuss remedial actions with IEC, WKCDA and Contractor; 5. Monitor remedial actions until rectification has been completed; 6. If non-conformity rectified, reduce monitoring frequency back to normal.	1. Check and verify source of non-conformity; 2. Check Contractor's working method; 3. Discuss remedial actions with ET and Contractor; 4. Advise WKCDA on effectiveness of proposed remedial actions; 5. Supervise implementation of remedial actions.	1. Notify Contractor; 2. Ensure remedial actions are properly implemented.	1. Amend working method as necessary; 2. Rectify damage and undertake necessary replacement and remedial actions.

E. Monitoring Schedule

SEPTEMBER 2019

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
1	2	3 M+ Landscape & Visual Inspection	4 AM1, AM2B - 24hrTSP, 1hr TSP x3 NM1A - Noise Impact Monitoring	5	6	7
8	9	10 AM1, AM2B - 24hrTSP, 1hr TSP x3 NM1A - Noise Impact Monitoring	11 L1 Landscape & Visual Inspection	12	13	14
15	16 AM1, AM2B - 24hrTSP, 1hr TSP x3 NM1A - Noise Impact Monitoring	17 M+ Landscape & Visual Inspection	18	19	20 AM1, AM2B - 24hrTSP, 1hr TSP x3	21
22	23	24	25 L1 Landscape & Visual Inspection	26 AM1, AM2B - 24hrTSP, 1hr TSP x3 NM1A - Noise Impact Monitoring	27	28
29	30					

Notes:
AM1 - International Commerce Centre (ICC)
AM2B - 1st Floor of Gammon's Site Office
NM1A - International Commerce Centre (ICC)

OCTOBER 2019

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
		1	2 AM1, AM2B - 24hrTSP, 1hr TSP x3 NM1A - Noise Impact Monitoring	3	4	5
6	7	8 AM1, AM2B - 24hrTSP, 1hr TSP x3 NM1A - Noise Impact Monitoring	9	10	11	12
13	14 AM1, AM2B - 24hrTSP, 1hr TSP x3 NM1A - Noise Impact Monitoring	15	16	17	18 AM1, AM2B - 24hrTSP, 1hr TSP x3	19
20	21	22	23	24 AM1, AM2B - 24hrTSP, 1hr TSP x3 NM1A - Noise Impact Monitoring	25	26
27	28	29	30 AM1, AM2B - 24hrTSP, 1hr TSP x3 NM1A - Noise Impact Monitoring	31		
		Notes: AM1 - International Commerce Centre (ICC) AM2B - 1st Floor of Gammon's Site Office NM1A - International Commerce Centre (ICC)				

F. Calibration Certifications

High-Volume TSP Sampler
5-Point Calibration Record

Location	:	AM1(ICC)
Calibrated by	:	K.T.Ho
Date	:	04/08/2019

Sampler

Model	:	TE-5170
Serial Number	:	S/N 0767

Calibration Orifice and Standard Calibration Relationship

Serial Number	:	2454
Service Date	:	25 February 2019
Slope (m)	:	2.07076
Intercept (b)	:	-0.02917
Correlation Coefficient(r)	:	1.00000

Standard Condition

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

Calibration Condition

Pa (hpa)	:	1000
Ta(K)	:	303

Resistance Plate		dH [green liquid] (inch water)	Z	X=Qstd (cubic meter/min)	IC (chart)	Y (corrected)
1	18 holes	12.2	3.459	1.684	62	61.40
2	13 holes	8.8	2.938	1.433	52	51.49
3	10 holes	6.4	2.505	1.224	40	39.61
4	7 holes	4.0	1.980	0.970	30	29.71
5	5 holes	2.6	1.597	0.785	18	17.82

Notes:Z=SQRT{dH(Pa/Pstd)(Tstd/Ta)}, X=Z/m-b ,Y(Corrected Flow)=IC*{SQRT(Pa/Pstd)(Tstd/Ta)}

Sampler Calibration Relationship

Slope(m):48.004 Intercept(b): -18.526 Correlation Coefficient(r): 0.9969

Checked by: Magnum Fan Date: 08/08/2019

High-Volume TSP Sampler
5-Point Calibration Record

Location	:	AM2B (The Harbourside)
Calibrated by	:	K.T.Ho
Date	:	20/07/2019

Sampler

Model	:	TE-5170
Serial Number	:	S/N 8919

Calibration Orifice and Standard Calibration Relationship

Serial Number	:	2454
Service Date	:	25 February 2019
Slope (m)	:	2.07076
Intercept (b)	:	-0.02917
Correlation Coefficient(r)	:	1.00000

Standard Condition

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

Calibration Condition

Pa (hpa)	:	1005
Ta(K)	:	303

Resistance Plate		dH [green liquid] (inch water)	Z	X=Qstd (cubic meter/min)	IC (chart)	Y (corrected)
1	18 holes	12.0	3.422	1.667	60	59.27
2	13 holes	8.2	2.829	1.380	50	49.39
3	10 holes	6.0	2.420	1.183	40	39.51
4	7 holes	3.8	1.926	0.944	30	29.63
5	5 holes	2.4	1.530	0.753	20	19.76

Notes:Z=SQRT{dH(Pa/Pstd)(Tstd/Ta)}, X=Z/m-b ,Y(Corrected Flow)=IC*{SQRT(Pa/Pstd)(Tstd/Ta)}

Sampler Calibration Relationship

Slope(m):43.441 Intercept(b):-11.976 Correlation Coefficient(r): 0.9976

Checked by: Magnum Fan Date: 25/07/2019

High-Volume TSP Sampler
5-Point Calibration Record

Location	:	AM2B (The Harbourside)
Calibrated by	:	K.T.Ho
Date	:	20/09/2019

Sampler

Model	:	TE-5170
Serial Number	:	S/N 8919

Calibration Orifice and Standard Calibration Relationship

Serial Number	:	2454
Service Date	:	25 February 2019
Slope (m)	:	2.07076
Intercept (b)	:	-0.02917
Correlation Coefficient(r)	:	1.00000

Standard Condition

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

Calibration Condition

Pa (hpa)	:	1005
Ta(K)	:	303

Resistance Plate		dH [green liquid] (inch water)	Z	X=Qstd (cubic meter/min)	IC (chart)	Y (corrected)
1	18 holes	12.2	3.450	1.680	60	59.27
2	13 holes	8.6	2.897	1.413	50	49.39
3	10 holes	6.0	2.420	1.183	40	39.51
4	7 holes	4.0	1.976	0.968	26	25.68
5	5 holes	2.6	1.593	0.783	18	17.78

Notes:Z=SQRT{dH(Pa/Pstd)(Tstd/Ta)}, X=Z/m-b ,Y(Corrected Flow)=IC*{SQRT(Pa/Pstd)(Tstd/Ta)}

Sampler Calibration Relationship

Slope(m):47.432 Intercept(b):-18.850 Correlation Coefficient(r): 0.9950

Checked by:_____ Date: 22/09/2019

Magnum Fan

TISCH Environmental

RECALIBRATION DUE DATE:
February 25, 2020

Certificate of Calibration

Calibration Certification Information				
Cal. Date:	February 25, 2019	**Rootsmeter S/N:** 438320	**Ta:** 294	°K
Operator:	Jim Tisch		**Pa:** 762.0	mm Hg
Calibration Model #:	TE-5025A	**Calibrator S/N:** **2454**		

Run	Vol. Init (m3)	Vol. Final (m3)	ΔVol. (m3)	ΔTime (min)	ΔP (mm Hg)	ΔH (in H2O)
1	1	2	1	1.4400	3.2	2.00
2	3	4	1	1.0200	6.4	4.00
3	5	6	1	0.9120	7.9	5.00
4	7	8	1	0.8700	8.8	5.50
5	9	10	1	0.7180	12.8	8.00

Data Tabulation

Vstd (m3)	Qstd (x-axis)	$\sqrt{\Delta H\left(\frac{Pa}{Pstd}\right)\left(\frac{Tstd}{Ta}\right)}$ (y-axis)	Va	Qa (x-axis)	$\sqrt{\Delta H\left(Ta/Pa\right)}$ (y-axis)
1.0120	0.7028	1.4257	0.9958	0.6915	0.8784
1.0077	0.9880	2.0162	0.9916	0.9722	1.2423
1.0057	1.1028	2.2542	0.9896	1.0851	1.3889
1.0045	1.1546	2.3642	0.9885	1.1362	1.4567
0.9992	1.3916	2.8513	0.9832	1.3694	1.7569
QSTD	**m=**	**2.07076**	**QA**	**m=**	**1.29667**
	b=	**-0.02917**		**b=**	**-0.01797**
	r=	**1.00000**		**r=**	**1.00000**

Calculations

Vstd=	ΔVol((Pa-ΔP)/Pstd)(Tstd/Ta)	**Va=**	ΔVol((Pa-ΔP)/Pa)
Qstd=	Vstd/ΔTime	**Qa=**	Va/ΔTime

For subsequent flow rate calculations:

Qstd= $1/m\left(\left(\sqrt{\Delta H\left(\frac{Pa}{Pstd}\right)\left(\frac{Tstd}{Ta}\right)}\right)-b\right)$

Qa= $1/m\left(\left(\sqrt{\Delta H\left(Ta/Pa\right)}\right)-b\right)$

Standard Conditions	
Tstd:	298.15 °K
Pstd:	760 mm Hg

Key
ΔH: calibrator manometer reading (in H2O)
ΔP: rootsmeter manometer reading (mm Hg)
Ta: actual absolute temperature (°K)
Pa: actual barometric pressure (mm Hg)
b: intercept
m: slope

RECALIBRATION

US EPA recommends annual recalibration per 1998 40 Code of Federal Regulations Part 50 to 51, Appendix B to Part 50, Reference Method for the Determination of Suspended Particulate Matter in the Atmosphere, 9.2.17, page 30

Tisch Environmental, Inc.
145 South Miami Avenue
Village of Cleves, OH 45002

www.tisch-env.com
TOLL FREE: (877)263-7610
FAX: (513)467-9009

ALS Technichem (HK) Pty Ltd

ALS Laboratory Group

ANALYTICAL CHEMISTRY & TESTING SERVICES

SUB-CONTRACTING REPORT

CONTACT	: MR K.W. FAN	WORK ORDER	: **HK1864495**
CLIENT	: ENVIROTECH SERVICES CO.		
ADDRESS	: RM113, 1/F, MY LOFT, 9 HOI WING ROAD, TUEN MUN, N.T. HONG KONG	SUB-BATCH	: 1
		DATE RECEIVED	: 11-DEC-2018
		DATE OF ISSUE	: 28-DEC-2018
PROJECT	: ----	NO. OF SAMPLES	: 1
		CLIENT ORDER	: ----

General Comments

- Sample(s) were received in ambient condition.
- Sample(s) analysed and reported on as received basis.
- Calibration was subcontracted to and analysed by Action United Enviro Services.

Signatories

This document has been signed by those names that appear on this report and are the authorised signatories

Signatories	*Position*
Richard Fung	General Manager

This is the Final Report and supersedes any preliminary report with this batch number.

Results apply to sample(s) as submitted. All pages of this report have been checked and approved for release.

ALS Technichem (HK) Pty Ltd
Part of the ALS Laboratory Group
11/F. Chung Shun Knitting Centre 1 - 3 Wing Yip Street Kwai Chung N.T. Hong Kong
Tel. +852 2610 1044 Fax +852 2610 2021 www.alsglobal.com

WORK ORDER	: HK1864495
SUB-BATCH	: 1
CLIENT	: ENVIROTECH SERVICES CO.
PROJECT	: ---

ALS Lab ID	Client's Sample ID	Sample Type	Sample Date	External Lab Report No.
HK1864495-001	S/N: 235780	Equipments	11-Dec-2018	S/N: 235780

Equipment Verification Report (TSP)

Equipment Calibrated:

Type:	Laser Dust monitor
Manufacturer:	Sibata LD-3B
Serial No.	235780
Equipment Ref:	Nil
Job Order	HK1864495

Standard Equipment:

Standard Equipment:	Higher Volume Sampler
Location & Location ID:	AUES office (calibration room)
Equipment Ref:	HVS 018
Last Calibration Date:	21 September 2018

Equipment Verification Results:

Testing Date: 17&18 December 2018

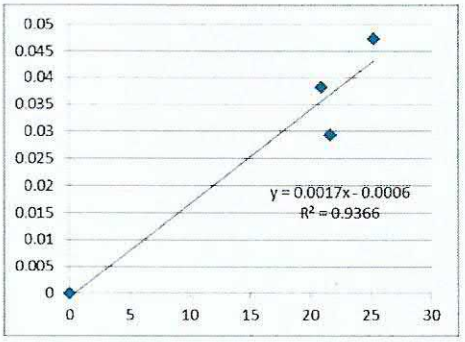
Hour	Time	Mean Temp °C	Mean Pressure (hPa)	Concentration in mg/m³ (Standard Equipment)	Total Count (Calibrated Equipment)	Count/Minute (Total Count/min)
2hr03min	12:20 ~ 14:23	18.0	1022.2	0.038	2557	20.9
2hr14min	09:11 ~ 11:25	18.1	1022.2	0.029	2891	21.6
2hr14min	11:33 ~ 13:47	18.1	1022.2	0.047	3379	25.3

Linear Regression of Y or X

Slope (K-factor): 0.0017

Correlation Coefficient 0.9678

Date of Issue 28 December 2018



Remarks:

1. **Strong** Correlation (R>0.8)
2. Factor 0.0017 should be applied for TSP monitoring

*If R<0.5, repair or re-verification is required for the equipment

Operator : Fai So Signature : Date : 28 December 2018

QC Reviewer : Ben Tam Signature : Date : 28 December 2018

ALS Technichem (HK) Pty Ltd

ALS Laboratory Group

ANALYTICAL CHEMISTRY & TESTING SERVICES

SUB-CONTRACTING REPORT

CONTACT	: MR K.W. FAN	WORK ORDER	: **HK1864496**
CLIENT	: **ENVIROTECH SERVICES CO.**		
ADDRESS	: RM113, 1/F, MY LOFT, 9 HOI WING ROAD, TUEN MUN, N.T. HONG KONG	SUB-BATCH	: 1
		DATE RECEIVED	: 11-DEC-2018
		DATE OF ISSUE	: 28-DEC-2018
PROJECT	: ----	NO. OF SAMPLES	: 1
		CLIENT ORDER	: ----

General Comments

- Sample(s) were received in ambient condition.
- Sample(s) analysed and reported on as received basis.
- Calibration was subcontracted to and analysed by Action United Enviro Services.

Signatories

This document has been signed by those names that appear on this report and are the authorised signatories

Signatories	*Position*
Richard Fung	General Manager

This is the Final Report and supersedes any preliminary report with this batch number.

Results apply to sample(s) as submitted. All pages of this report have been checked and approved for release.

ALS Technichem (HK) Pty Ltd
Part of the **ALS Laboratory Group**
11/F Chung Shun Knitting Centre 1 - 3 Wing Yip Street Kwai Chung N.T. Hong Kong
Tel. +852 2610 1044 Fax +852 2610 2021 **www.alsglobal.com**

WORK ORDER	: HK1864496
SUB-BATCH	: 1
CLIENT	: ENVIROTECH SERVICES CO.
PROJECT	: ----

ALS Lab ID	Client's Sample ID	Sample Type	Sample Date	External Lab Report No.
HK1864496-001	S/N: 6Z7784	Equipments	11-Dec-2018	S/N: 6Z7784

Equipment Verification Report (TSP)

Equipment Calibrated:

Type:	Laser Dust monitor
Manufacturer:	Sibata LD-3B
Serial No.	6Z7784
Equipment Ref:	Nil
Job Order	HK1864496

Standard Equipment:

Standard Equipment:	Higher Volume Sampler
Location & Location ID:	AUES office (calibration room)
Equipment Ref:	HVS 018
Last Calibration Date:	21 September 2018

Equipment Verification Results:

Testing Date: 17&18 December 2018

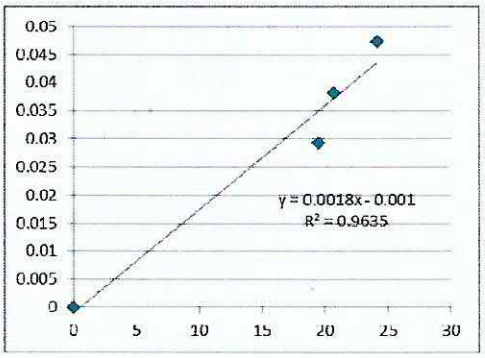
Hour	Time	Mean Temp °C	Mean Pressure (hPa)	Concentration in mg/m^3 (Standard Equipment)	Total Count (Calibrated Equipment)	Count/Minute (Total Count/min)
2hr03min	12:20 ~ 14:23	18.0	1022.2	0.038	2533	20.7
2hr14min	09:11 ~ 11:25	18.1	1022.2	0.029	2601	19.4
2hr14min	11:33 ~ 13:47	18.1	1022.2	0.047	3232	24.2

Linear Regression of Y or X

Slope (K-factor): 0.0018

Correlation Coefficient 0.9816

Date of Issue 28 December 2018



Remarks:

1. **Strong** Correlation (R>0.8)
2. Factor 0.0018 should be applied for TSP monitoring

*If R<0.5, repair or re-verification is required for the equipment

Operator : Fai So Signature : Date : 28 December 2018

QC Reviewer : Ben Tam Signature : Date : 28 December 2018

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

Certificate of Calibration
校正證書

Certificate No. : C185972
證書編號

ITEM TESTED / 送檢項目 (Job No. / 序引編號 : IC18-2180) Date of Receipt / 收件日期 : 24 October 2018

Description / 儀器名稱 : Sound Level Meter
Manufacturer / 製造商 : Rion
Model No. / 型號 : NL-52
Serial No. / 編號 : 00542913
Supplied By / 委託者 : Envirotech Services Co.
Room 113, 1/F, My Loft, 9 Hoi Wing Road, Tuen Mun,
New Territories, Hong Kong

TEST CONDITIONS / 測試條件

Temperature / 溫度 : (23 ± 2)°C Relative Humidity / 相對濕度 : (50 ± 25)%
Line Voltage / 電壓 : ---

TEST SPECIFICATIONS / 測試規範

Calibration

DATE OF TEST / 測試日期 : 4 November 2018

TEST RESULTS / 測試結果

The results apply to the particular unit-under-test only.
The results do not exceed 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
- The Bruel & Kjaer Calibration Laboratory, Denmark
- Agilent Technologies / Keysight Technologies
- Rohde & Schwarz Laboratory, Germany
- Fluke Everett Service Center, USA

Tested By 測試 : K C Lee
Engineer

Certified By 核證 : H C Chan
Engineer

Date of Issue 簽發日期 : 7 November 2018

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. : C185972
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 6.1.1.2 to 6.3.2.

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	C180024
CL281	Multifunction Acoustic Calibrator	CDK1806821

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 61672 Class 1 Spec. (dB)
Range (dB)	Function	Frequency Weighting	Time Weighting	Level (dB)	Freq. (kHz)		
30 - 130	L_A	A	Fast	94.00	1	* 95.9	± 1.1

*Out of IEC 61672 Class 1 Spec.

6.1.1.2 After Adjustment

UUT Setting				Applied Value		UUT Reading (dB)	IEC 61672 Class 1 Spec. (dB)
Range (dB)	Function	Frequency Weighting	Time Weighting	Level (dB)	Freq. (kHz)		
30 - 130	L_A	A	Fast	94.00	1	94.0	± 1.1

6.1.2 Linearity

UUT Setting				Applied Value		UUT Reading (dB)
Range (dB)	Function	Frequency Weighting	Time Weighting	Level (dB)	Freq. (kHz)	
30 - 130	L_A	A	Fast	94.00	1	94.0 (Ref.)
				104.00		104.0
				114.00		114.0

IEC 61672 Class 1 Spec. : ± 0.6 dB per 10 dB step and ± 1.1 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. : C185972
證書編號

6.2 Time Weighting

UUT Setting				Applied Value		UUT Reading (dB)	IEC 61672 Class 1 Spec. (dB)
Range (dB)	Function	Frequency Weighting	Time Weighting	Level (dB)	Freq. (kHz)		
30 - 130	L_A	A	Fast	94.00	1	94.0	Ref.
			Slow			94.0	± 0.3

6.3 Frequency Weighting

6.3.1 A-Weighting

UUT Setting				Applied Value		UUT Reading (dB)	IEC 61672 Class 1 Spec. (dB)
Range (dB)	Function	Frequency Weighting	Time Weighting	Level (dB)	Freq.		
30 - 130	L_A	A	Fast	94.00	63 Hz	67.8	-26.2 ± 1.5
					125 Hz	77.8	-16.1 ± 1.5
					250 Hz	85.3	-8.6 ± 1.4
					500 Hz	90.7	-3.2 ± 1.4
					1 kHz	94.0	Ref.
					2 kHz	95.2	+1.2 ± 1.6
					4 kHz	95.0	+1.0 ± 1.6
					8 kHz	93.0	-1.1 (+2.1 ; -3.1)
					12.5 kHz	89.6	-4.3 (+3.0 ; -6.0)

6.3.2 C-Weighting

UUT Setting				Applied Value		UUT Reading (dB)	IEC 61672 Class 1 Spec. (dB)
Range (dB)	Function	Frequency Weighting	Time Weighting	Level (dB)	Freq.		
30 - 130	L_C	C	Fast	94.00	63 Hz	93.1	-0.8 ± 1.5
					125 Hz	93.8	-0.2 ± 1.5
					250 Hz	94.0	0.0 ± 1.4
					500 Hz	94.0	0.0 ± 1.4
					1 kHz	94.0	Ref.
					2 kHz	93.8	-0.2 ± 1.6
					4 kHz	93.2	-0.8 ± 1.6
					8 kHz	91.1	-3.0 (+2.1 ; -3.1)
					12.5 kHz	87.6	-6.2 (+3.0 ; -6.0)

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。

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

Certificate of Calibration
校正證書

Certificate No. : C185972
證書編號

Remarks : - UUT Microphone Model No. : UC-53A & S/N : 320728

- Mfr's Spec. : IEC 61672 Class 1

- Uncertainties of Applied Value :

94 dB	: 63 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)

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

Note :
Only the original copy or the laboratory's certified true copy is valid.

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.

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, 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四樓
Tel/電話: (852) 2927 2606 Fax/傳真: (852) 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 & Testing Laboratory

Certificate of Calibration
校正證書

Certificate No. : C185607
證書編號

ITEM TESTED / 送檢項目 (Job No. / 序引編號 : IC18-1968) Date of Receipt / 收件日期 : 27 September 2018

Description / 儀器名稱 : Precision Acoustic Calibrator
Manufacturer / 製造商 : LARSON DAVIS
Model No. / 型號 : CAL200
Serial No. / 編號 : 15678
Supplied By / 委託者 : Envirotech Services Co.
Room 113, 1/F, My Loft, 9 Hoi Wing Road, Tuen Mun,
New Territories, Hong Kong

TEST CONDITIONS / 測試條件

Temperature / 溫度 : (23 ± 2)°C Relative Humidity / 相對濕度 : (50 ± 25)%
Line Voltage / 電壓 : ---

TEST SPECIFICATIONS / 測試規範

Calibration check

DATE OF TEST / 測試日期 : 14 October 2018

TEST RESULTS / 測試結果

The results apply to the particular unit-under-test only.
The results do not exceed 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
- The Bruel & Kjaer Calibration Laboratory, Denmark
- Agilent Technologies / Keysight Technologies
- Rohde & Schwarz Laboratory, Germany
- Fluke Everett Service Center, USA

Tested By 測試 : K C Lee
Engineer

Certified By 核證 : H C Chan
Engineer

Date of Issue 簽發日期 : 19 October 2018

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, 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四樓
Tel/電話: (852) 2927 2606 Fax/傳真: (852) 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 & Testing Laboratory

Certificate of Calibration
校正證書

Certificate No. : C185607
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	C183775
CL281	Multifunction Acoustic Calibrator	CDK1806821
TST150A	Measuring Amplifier	C181288

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	94.0	± 0.2	± 0.2
114 dB, 1 kHz	113.9		

5.2 Frequency Accuracy

UUT Nominal Value (kHz)	Measured Value (kHz)	Mfr's Spec.	Uncertainty of Measured Value (Hz)
1	1.000	1 kHz ± 1 %	± 1

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

Note :
Only the original copy or the laboratory's certified true copy is valid.

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.

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。

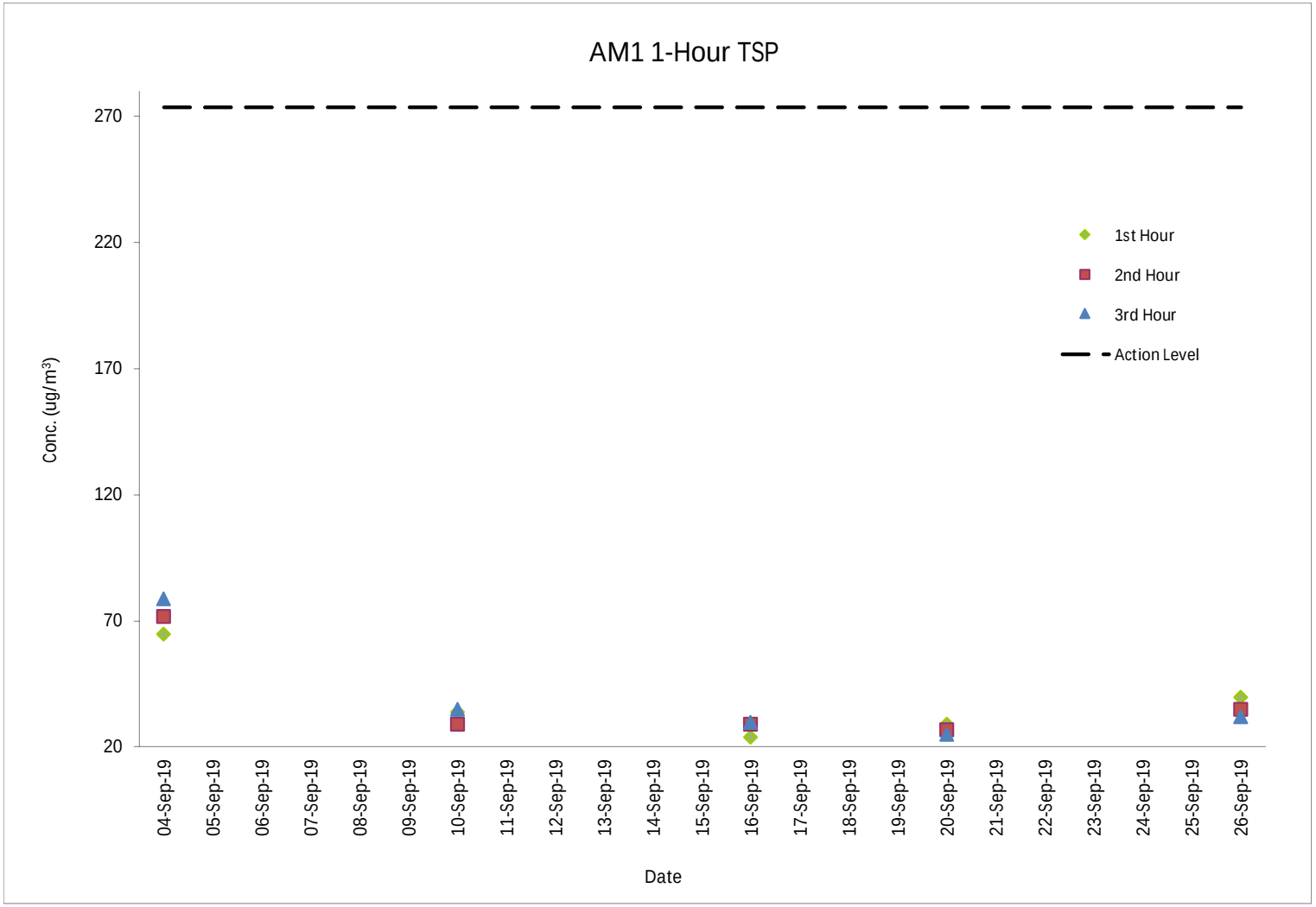
Sun Creation Engineering Limited – Calibration & Testing Laboratory
c/o 4/F, 1 Hing On Lane, Tuen Mun, New Territories, Hong Kong
輝創工程有限公司 — 校正及檢測實驗所
c/o 香港新界屯門興安里一號四樓
Tel/電話: (852) 2927 2606 Fax/傳真: (852) 2744 8986 E-mail/電郵: callab@suncreation.com Website/網址: www.suncreation.com

G. Graphical Plots of the Monitoring Results

Air Quality Monitoring Result at Station AM1 (1-hour TSP)

Date	Weather Condition	Time	Conc. ($\mu g/m^3$)			Action Level ($\mu g/m^3$)	Limit Level ($\mu g/m^3$)
			1st Hour	2nd Hour	3rd Hour		
04-Sep-19	Rainy	13:04 - 16:04	65	72	79	273.7	500
10-Sep-19	Sunny	13:02 - 16:02	34	29	35	273.7	500
16-Sep-19	Fine	8:05 - 11:05	24	29	30	273.7	500
20-Sep-19	Sunny	8:20 - 11:20	29	27	25	273.7	500
26-Sep-19	Sunny	13:08 - 16:08	40	35	32	273.7	500

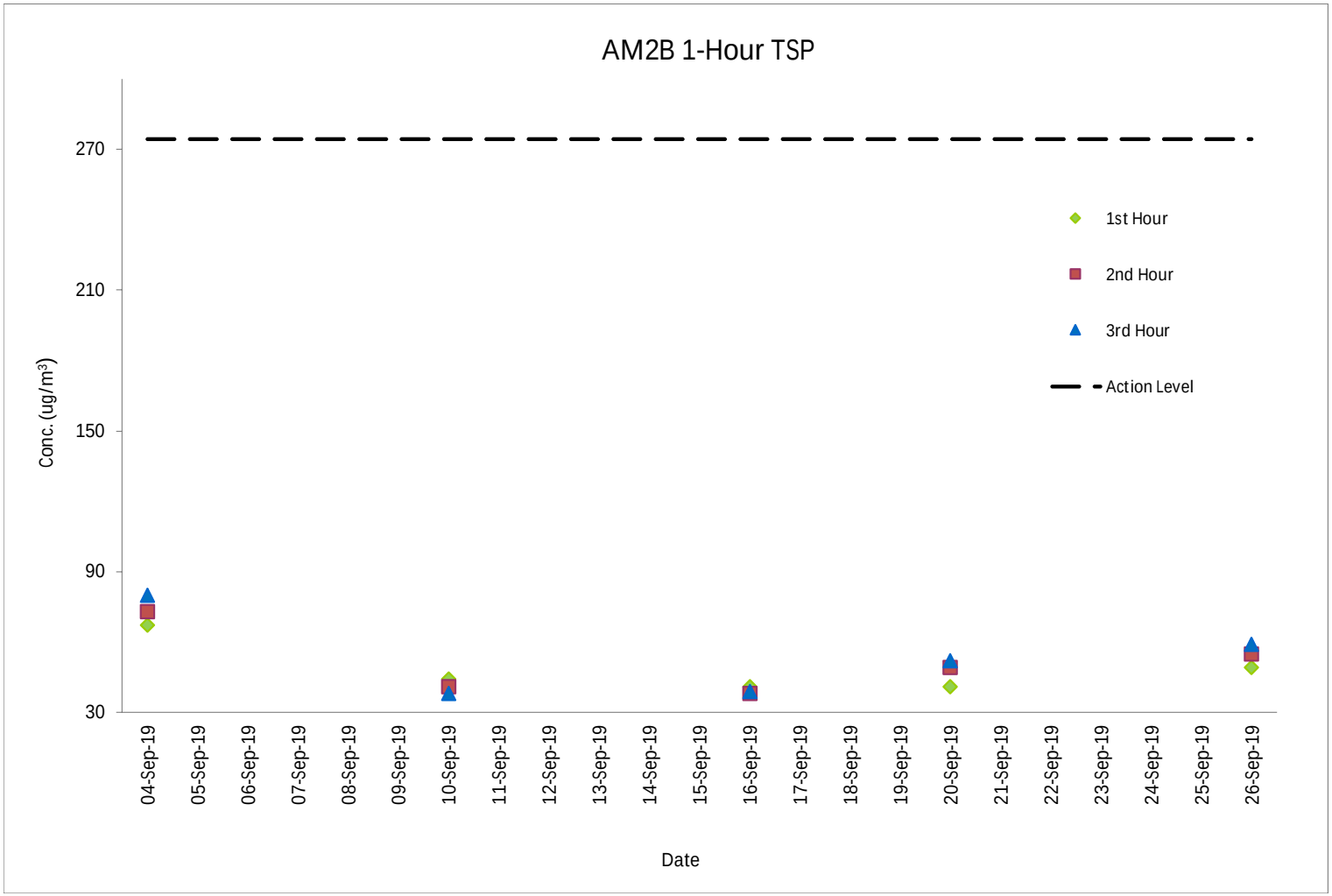
Graphical Presentation of Air Quality Monitoring Result at Station AM1 (1-hour TSP)



Air Quality Monitoring Result at Station AM2B (1-hour TSP)

Date	Weather Condition	Time	Conc. ($\mu g/m^3$)			Action Level ($\mu g/m^3$)	Limit Level ($\mu g/m^3$)
			1st Hour	2nd Hour	3rd Hour		
04-Sep-19	Rainy	13:18 - 16:18	67	73	80	274.2	500
10-Sep-19	Sunny	13:14 - 16:14	44	41	38	274.2	500
16-Sep-19	Fine	8:20 - 11:20	41	38	39	274.2	500
20-Sep-19	Sunny	8:34 - 11:34	41	49	52	274.2	500
26-Sep-19	Sunny	13:22 - 16:22	49	55	59	274.2	500

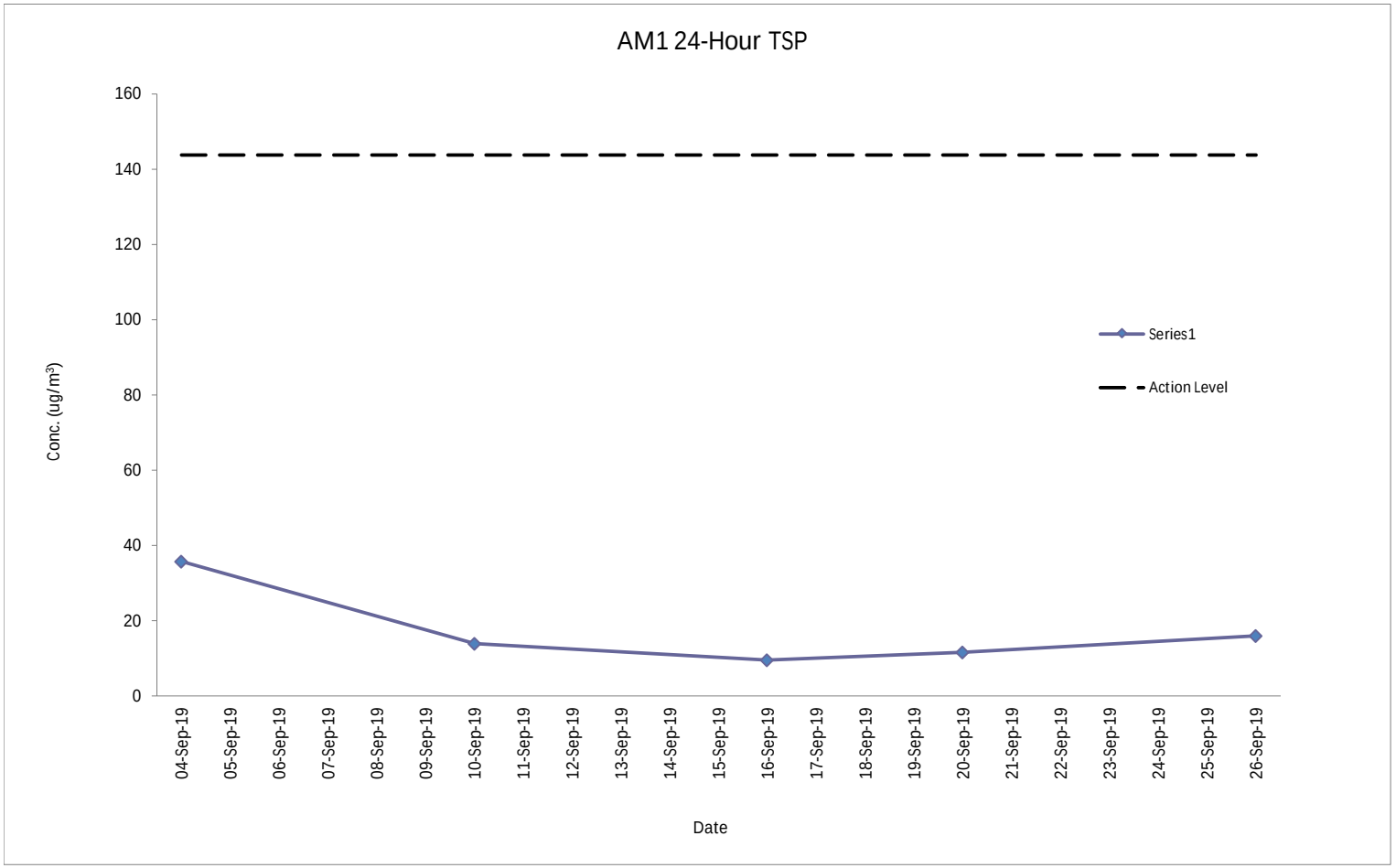
Graphical Presentation of Air Quality Monitoring Result at Station AM2B (1-hour TSP)



Air Quality Monitoring Result at Station AM1 (24-hour TSP)

Start		Finish		Filter Weight (g)		Elapsed Time Reading (hrs)		Sampling Time (hrs)	Flow Rate (m^3/min)			Conc. ($\mu g/m^3$)	Weather Condition	Action Level ($\mu g/m^3$)	Limit Level ($\mu g/m^3$)
Date	Time	Date	Time	Initial	Final	Initial	Final		Initial	Final	Average				
04-Sep-19	08:02	05-Sep-19	08:02	2.6779	2.7429	24696.38	24720.38	24	1.26	1.26	1.26	36	Rainy	143.6	260
10-Sep-19	10:30	11-Sep-19	10:30	2.7063	2.7317	24720.38	24744.38	24	1.26	1.26	1.26	14	Sunny	143.6	260
16-Sep-19	08:07	17-Sep-19	08:07	2.6776	2.6951	24744.38	24768.38	24	1.26	1.26	1.26	10	Fine	143.6	260
20-Sep-19	08:18	21-Sep-19	08:18	2.6915	2.7126	24768.38	24792.38	24	1.26	1.26	1.26	12	Sunny	143.6	260
26-Sep-19	08:10	27-Sep-19	08:10	2.6675	2.6966	20792.38	20816.38	24	1.26	1.26	1.26	16	Sunny	143.6	260

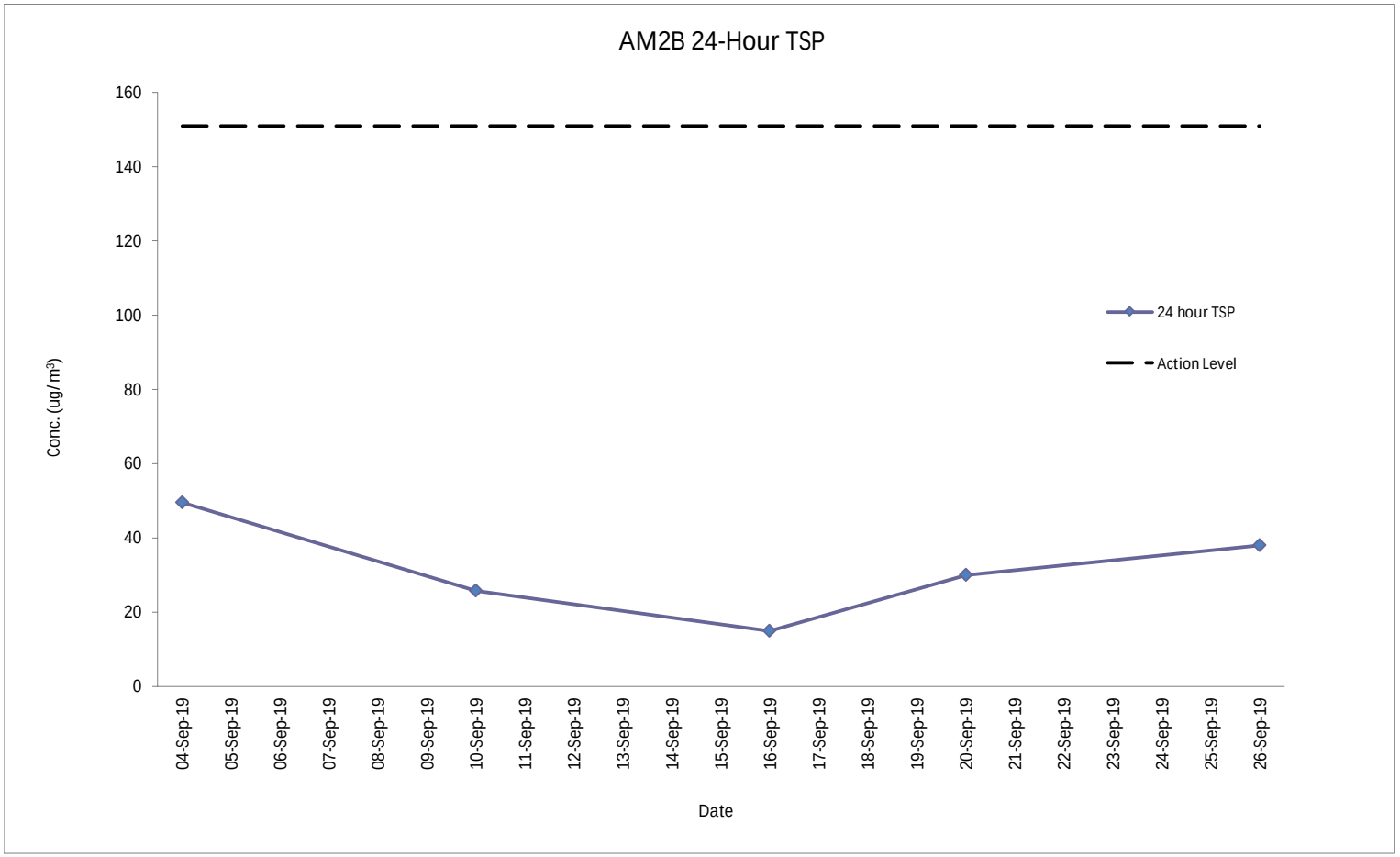
Graphical Presentation of Air Quality Monitoring Result at Station AM1 (24-hour TSP)



Air Quality Monitoring Result at Station AM2B (24-hour TSP)

Start		Finish		Filter Weight (g)		Elapsed Time Reading (hrs)		Sampling Time (hrs)	Flow Rate (m^3/min)			Conc. ($\mu g/m^3$)	Weather Condition	Action Level ($\mu g/m^3$)	Limit Level ($\mu g/m^3$)
Date	Time	Date	Time	Initial	Final	Initial	Final		Initial	Final	Average				
04-Sep-19	08:16	05-Sep-19	08:16	2.6915	2.7798	20351.05	20375.05	24	1.24	1.24	1.24	49	Rainy	151.1	260
10-Sep-19	08:12	11-Sep-19	08:12	2.7138	2.7598	20375.05	20399.05	24	1.24	1.24	1.24	26	Sunny	151.1	260
16-Sep-19	08:18	17-Sep-19	08:18	2.6883	2.7150	20399.05	20423.05	24	1.24	1.24	1.24	15	Fine	151.1	260
20-Sep-19	08:32	21-Sep-19	08:32	2.6730	2.7264	20323.05	20347.05	24	1.24	1.24	1.24	30	Sunny	151.1	260
26-Sep-19	08:24	27-Sep-19	08:24	2.6780	2.7479	20347.05	20371.05	24	1.28	1.28	1.28	38	Sunny	151.1	260

Graphical Presentation of Air Quality Monitoring Result at Station AM2B (24-hour TSP)



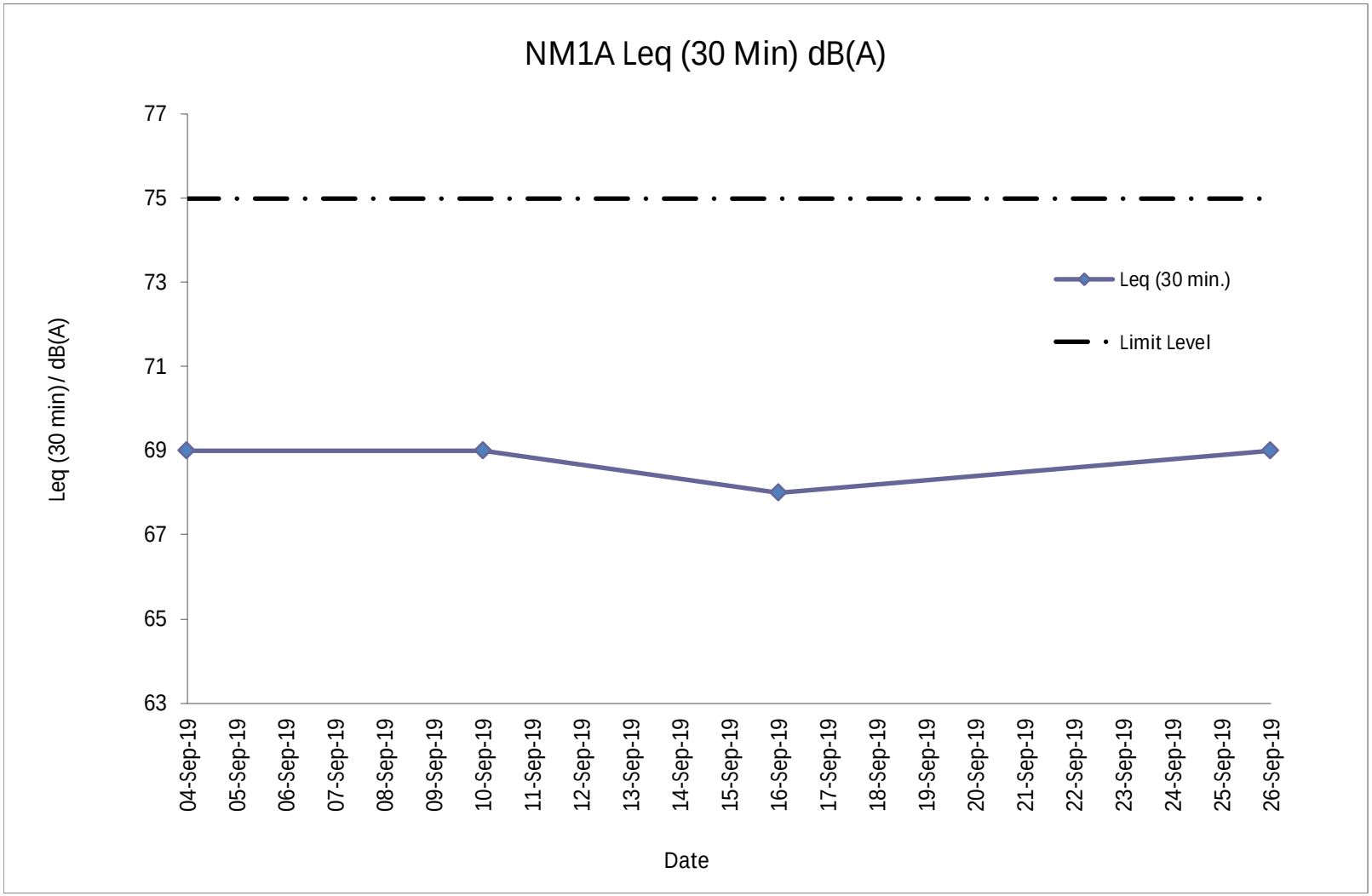
Noise Monitoring Result at Station NM1A

Date	Time	Measured L_{10}, dB(A)	Measured L_{90}, dB(A)	L_{eq} (30 min.)*, dB(A)
04-Sep-19	10:25	67.9	63.4	69.0
04-Sep-19	10:30	68.0	64.4	
04-Sep-19	10:35	68.4	64.1	
04-Sep-19	10:40	66.1	62.7	
04-Sep-19	10:45	67.9	63.0	
04-Sep-19	10:50	68.5	64.0	
10-Sep-19	09:25	68.1	64.3	68.8
10-Sep-19	09:30	67.4	63.2	
10-Sep-19	09:35	66.9	62.7	
10-Sep-19	09:40	67.5	63.0	
10-Sep-19	09:45	68.1	64.1	
10-Sep-19	09:50	68.9	64.7	
16-Sep-19	10:28	66.9	62.4	68.5
16-Sep-19	10:33	67.0	63.7	
16-Sep-19	10:38	68.5	64.1	
16-Sep-19	10:43	67.7	63.5	
16-Sep-19	10:48	66.0	62.7	
16-Sep-19	10:53	67.9	63.9	
26-Sep-19	10:30	67.2	63.4	68.6
26-Sep-19	10:35	68.3	64.0	
26-Sep-19	10:40	66.9	62.7	
26-Sep-19	10:45	68.1	64.8	
26-Sep-19	10:50	67.0	63.2	
26-Sep-19	10:55	66.2	62.9	

Remarks:
* +3dB (A) correction was applied to free-field measurement.

The station set-up of a free-field measurement at Station NM1A.

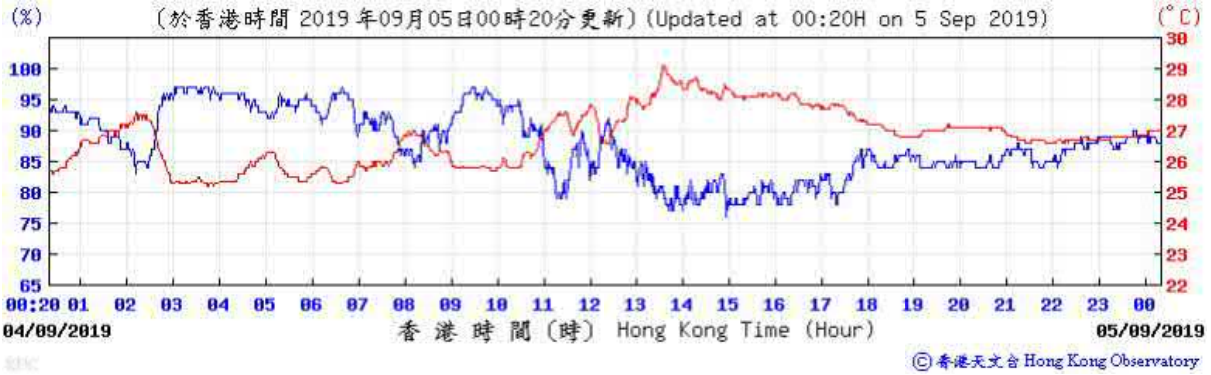
Graphical Presentation Noise Monitoring Result at Station NM1A



H. Meteorological Data Extracted from Hong Kong Observatory

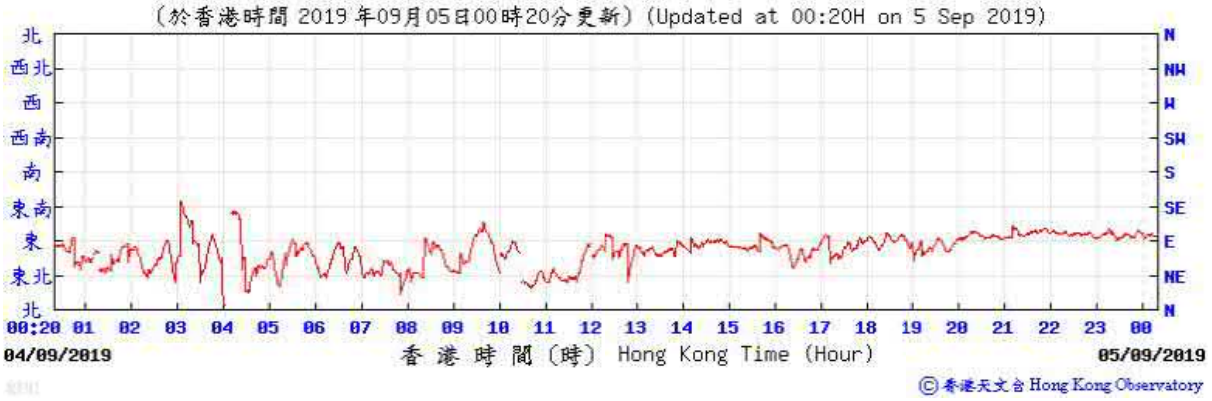
Extract of Meteorological Observations for King's Park Automatic Weather Station, September 2019

Temperature/Humidity:

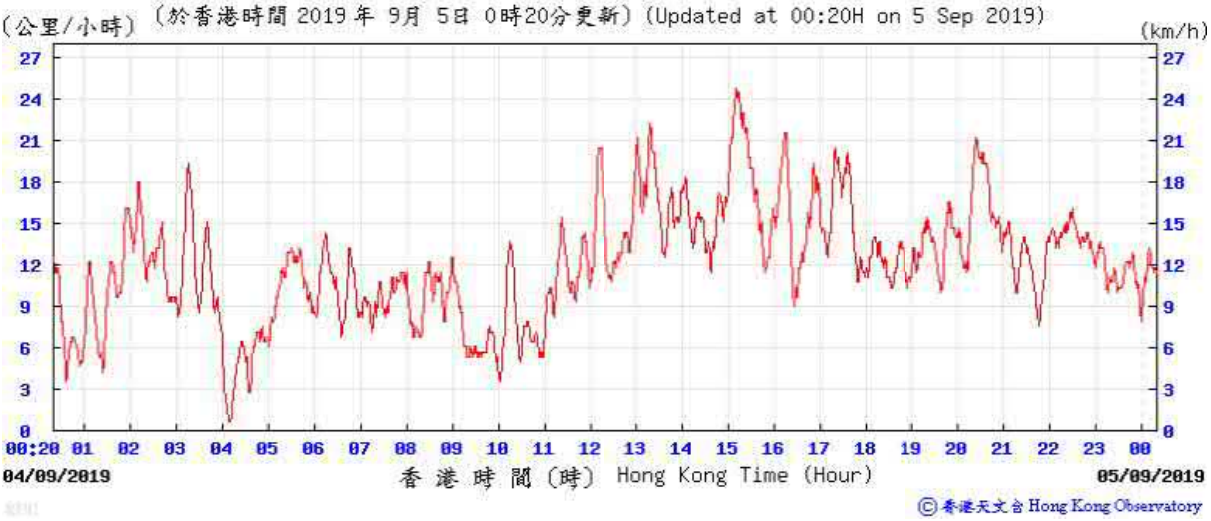


Pressure:

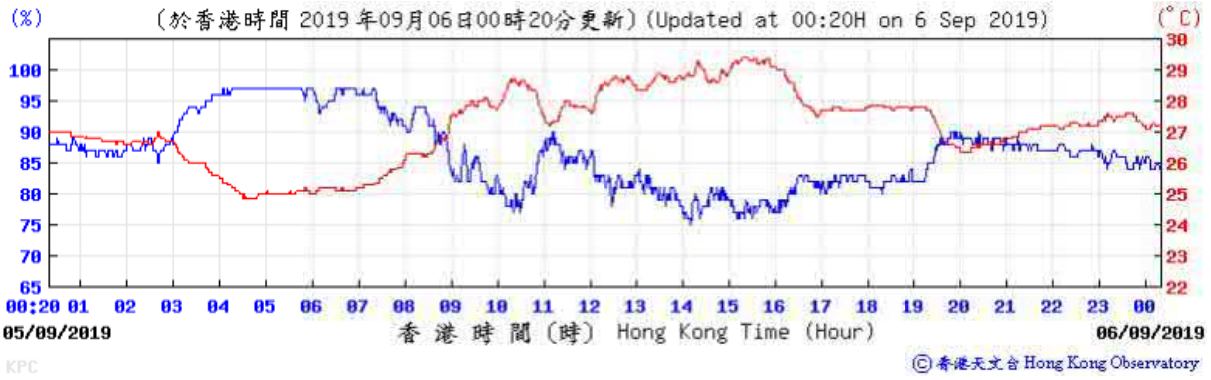
Wind Direction:



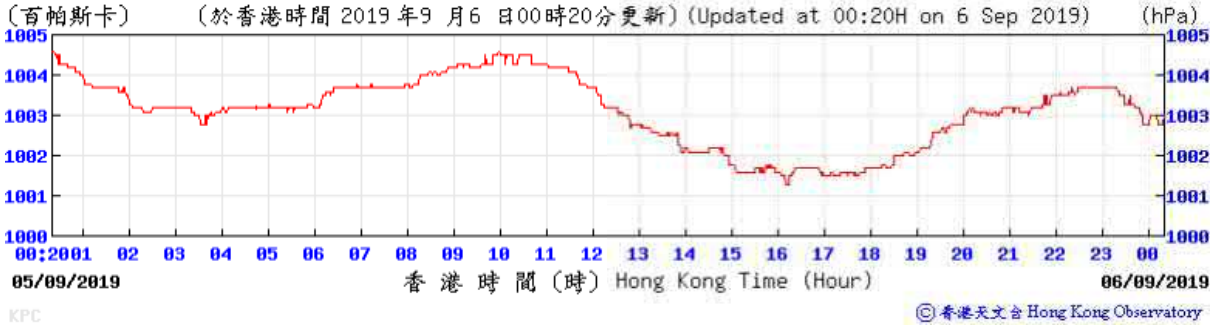
Wind Speed:



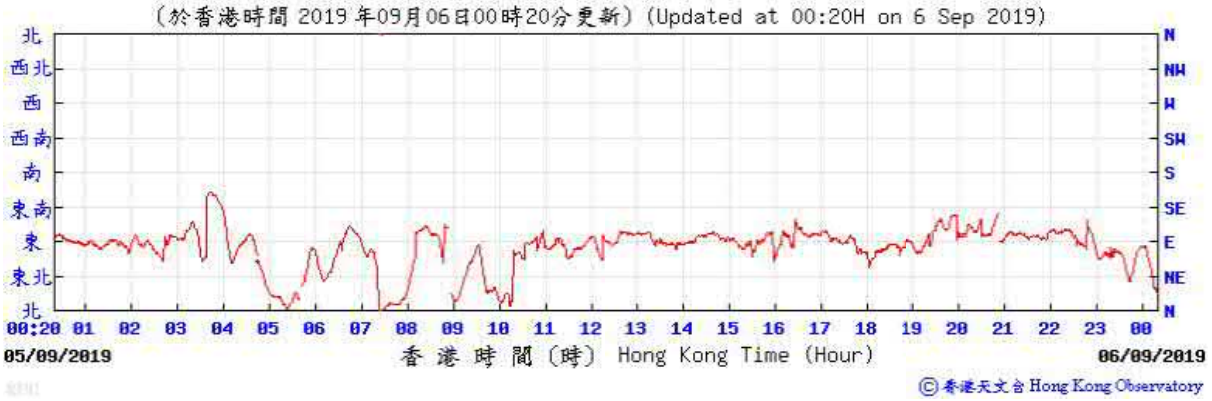
Temperature/Humidity:



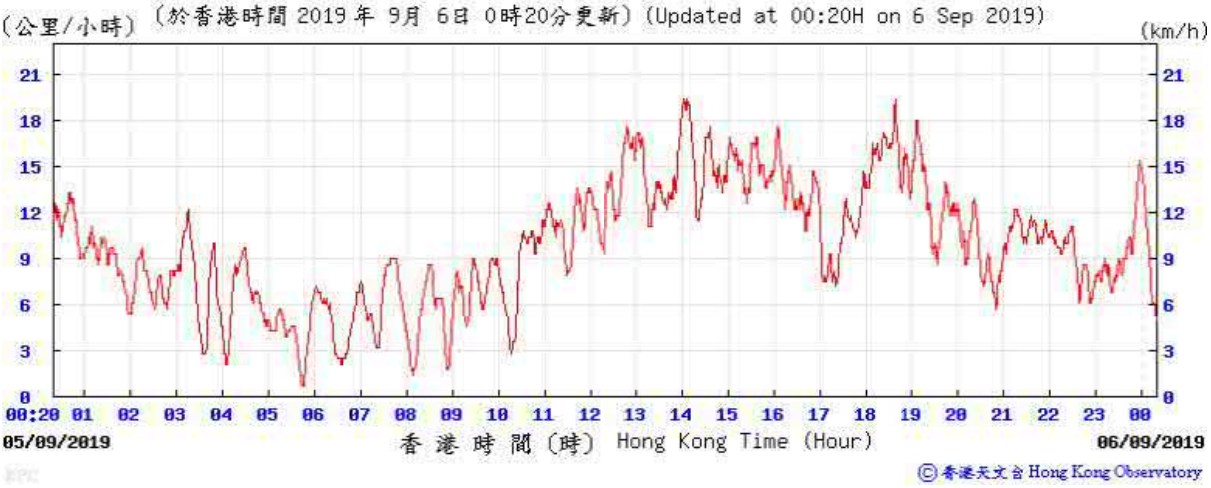
Pressure:



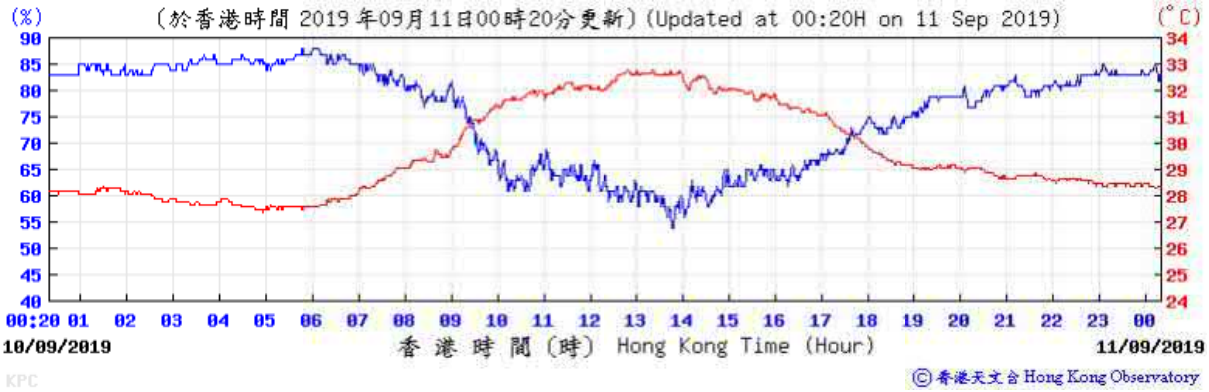
Wind Direction:



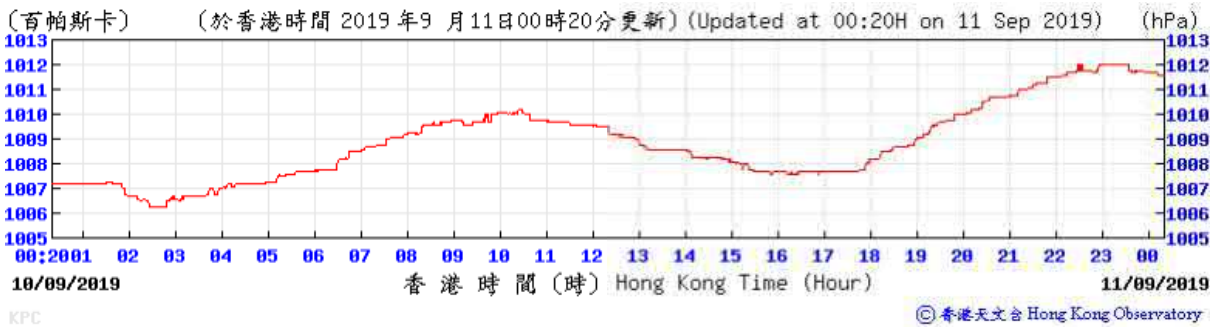
Wind Speed:



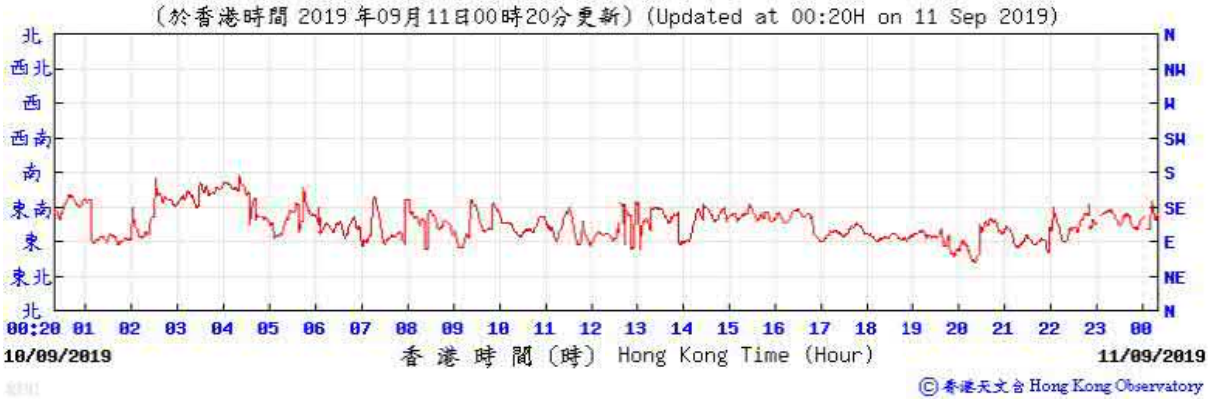
Temperature/Humidity:



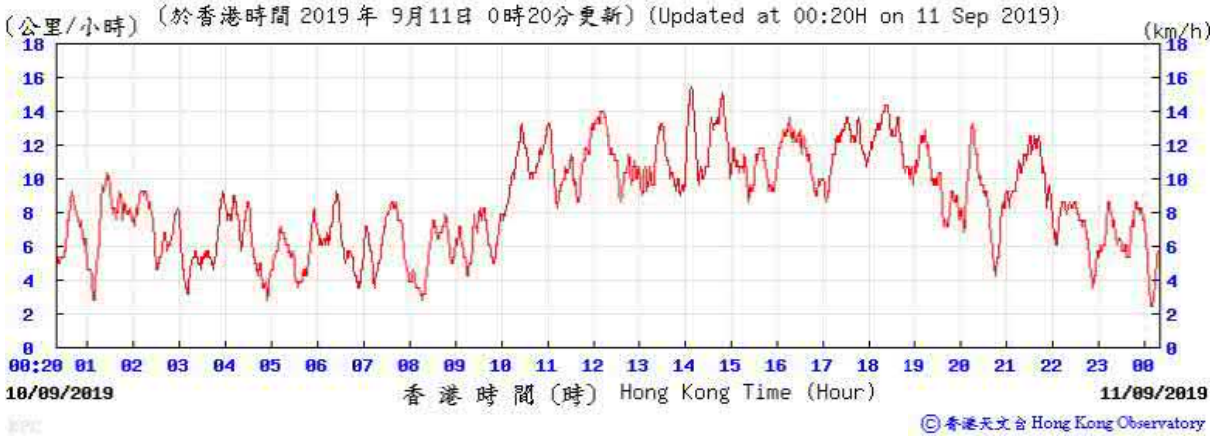
Pressure:



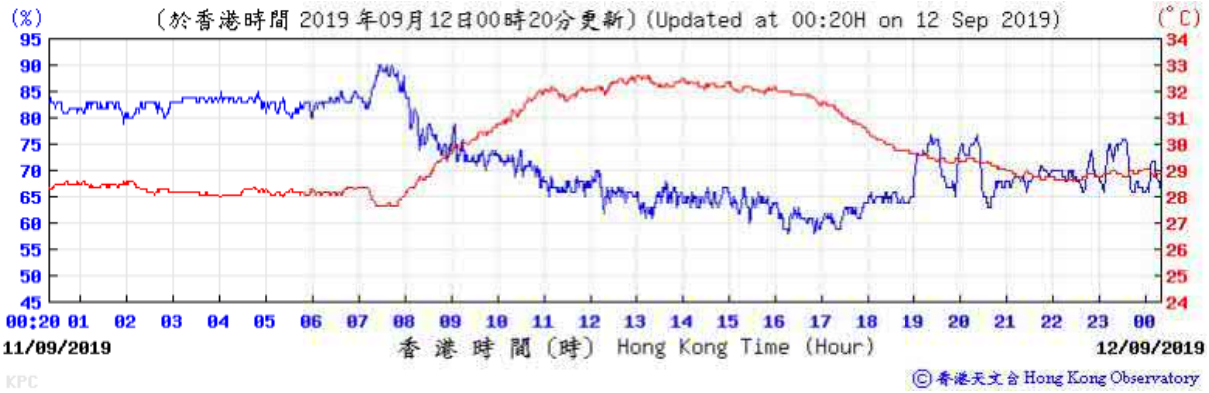
Wind Direction:



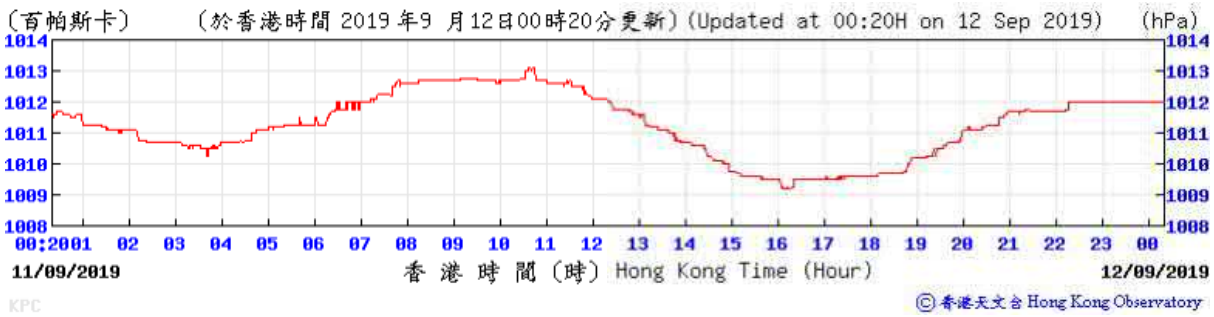
Wind Speed:



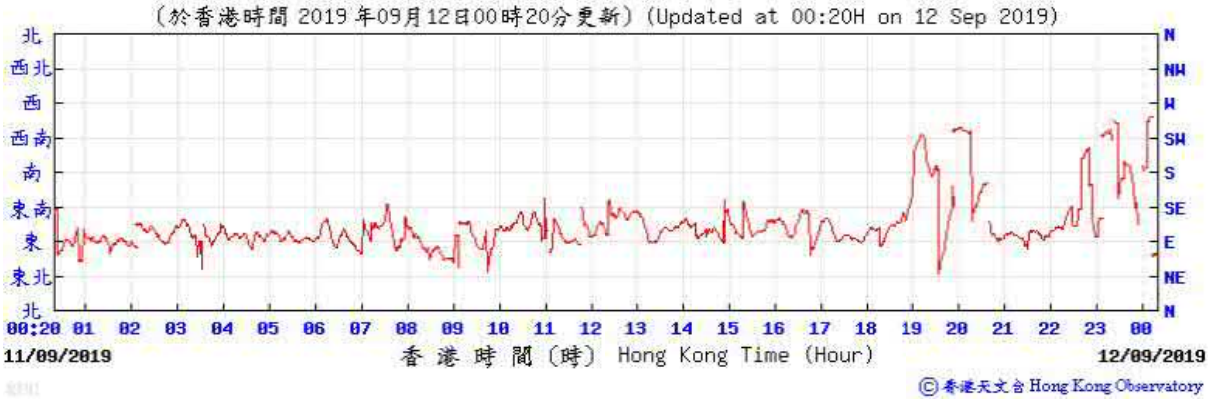
Temperature/Humidity:



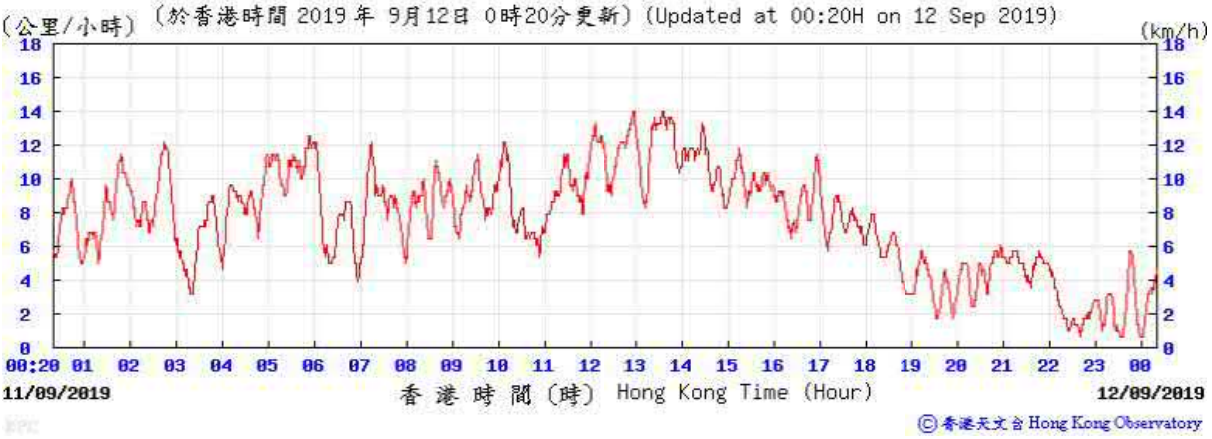
Pressure:



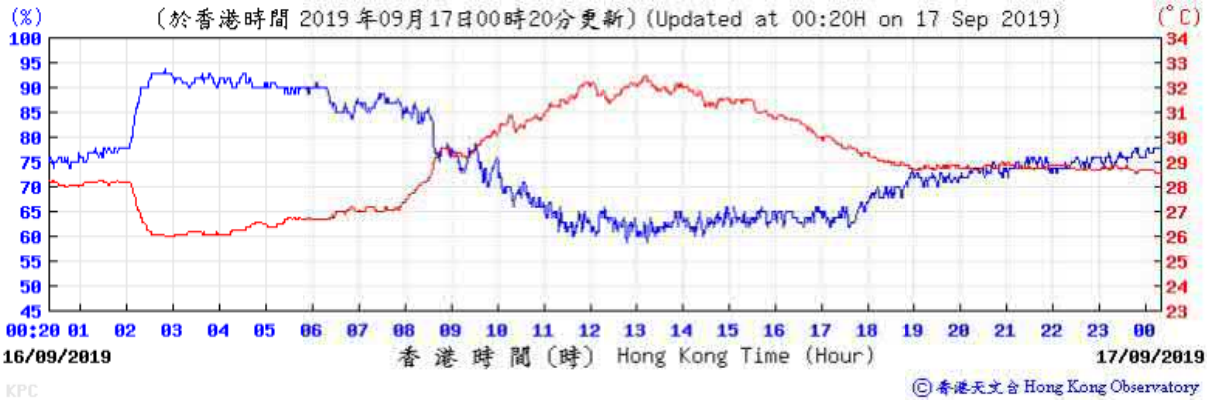
Wind Direction:



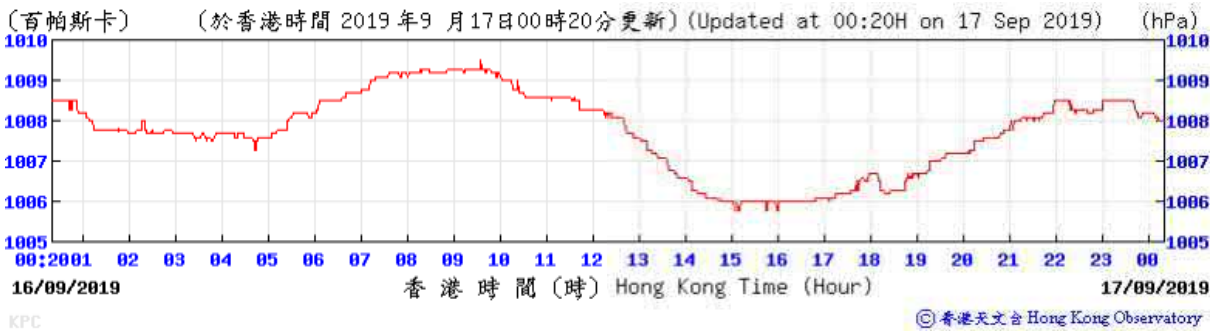
Wind Speed:



Temperature/Humidity:

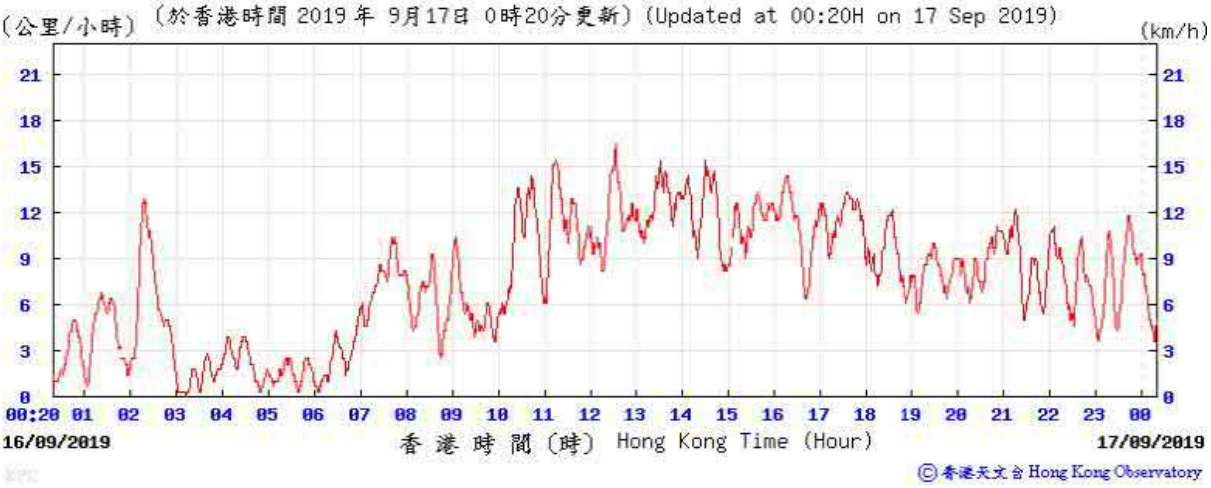


Pressure:

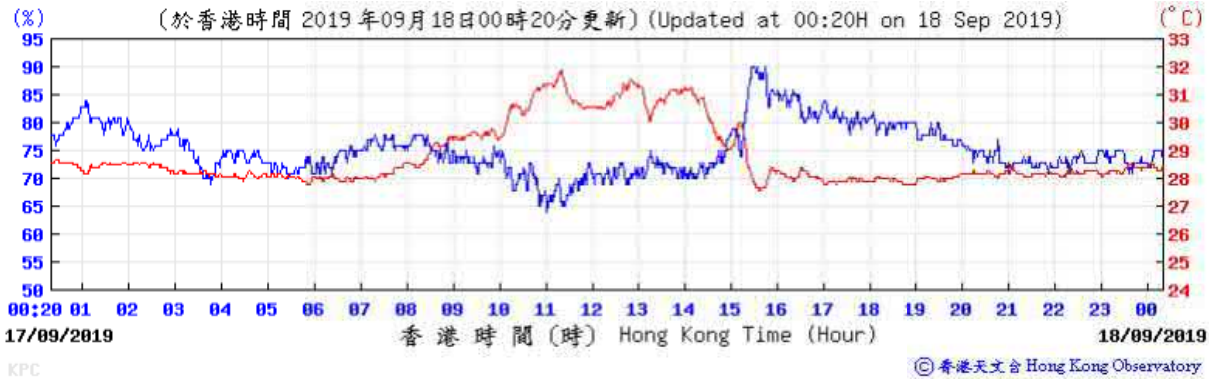


Wind Direction:

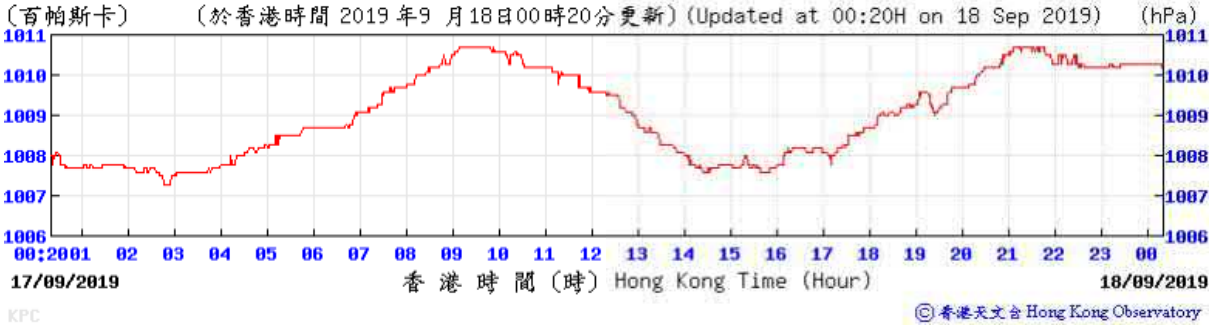
Wind Speed:



Temperature/Humidity:

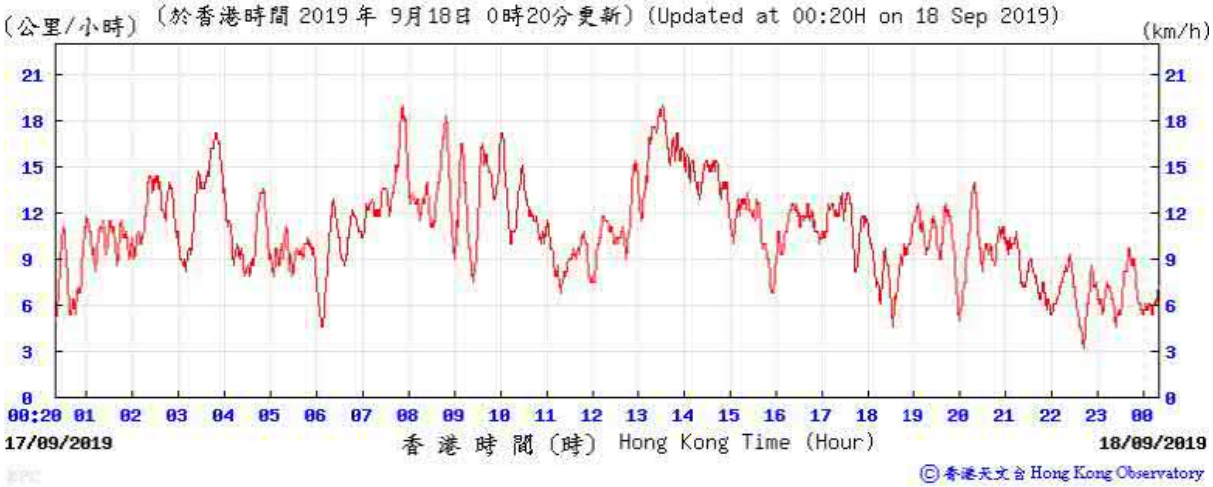


Pressure:

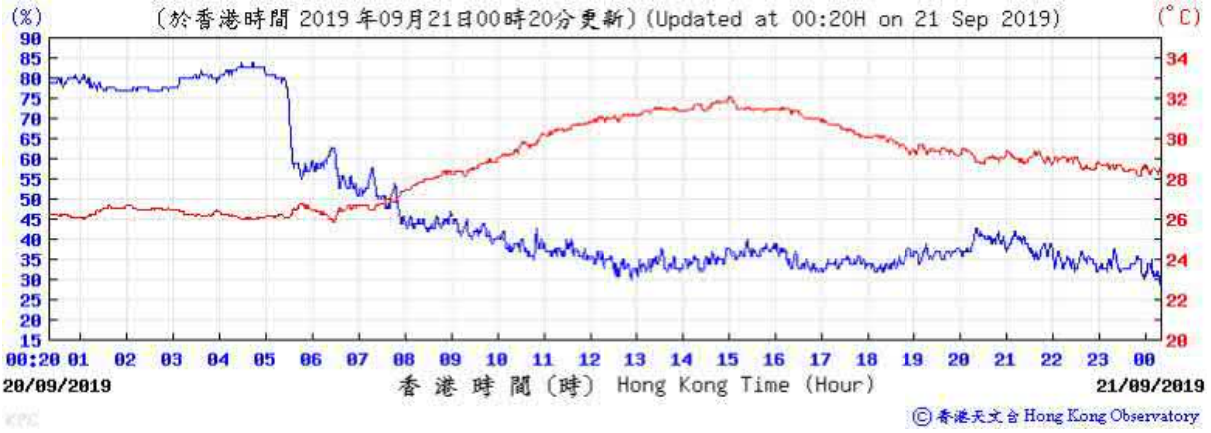


Wind Direction:

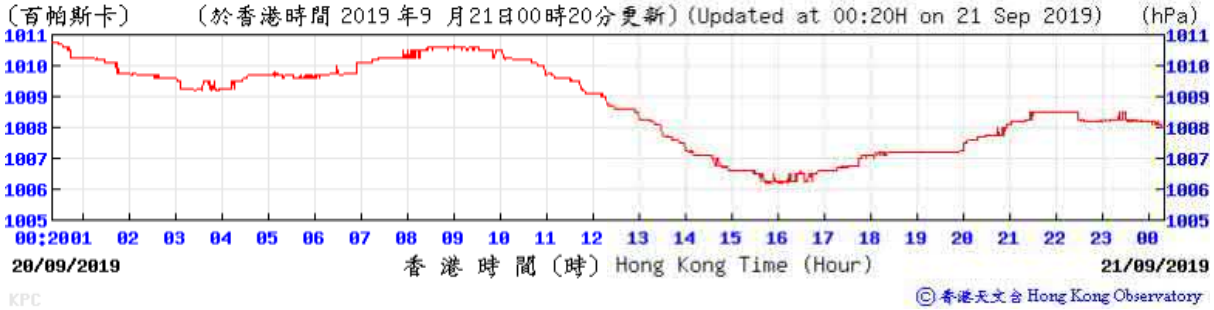
Wind Speed:



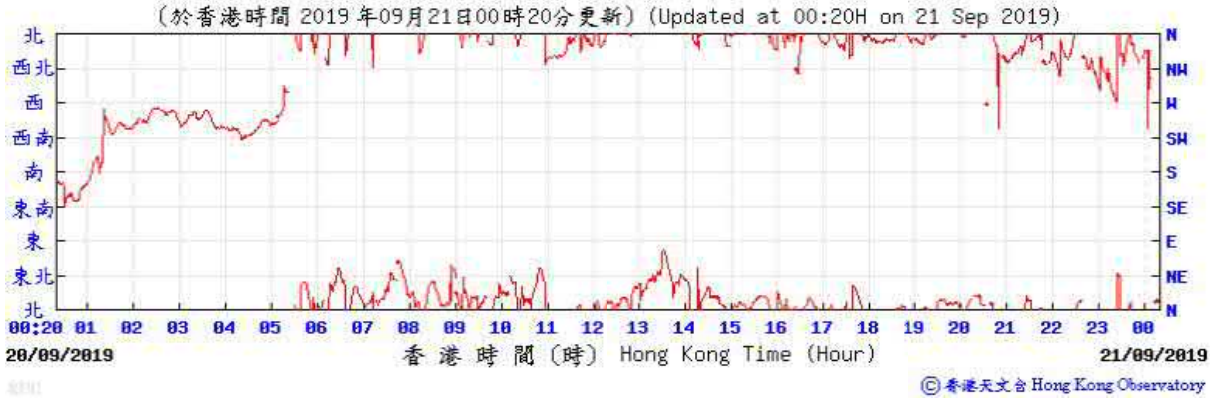
Temperature/Humidity:



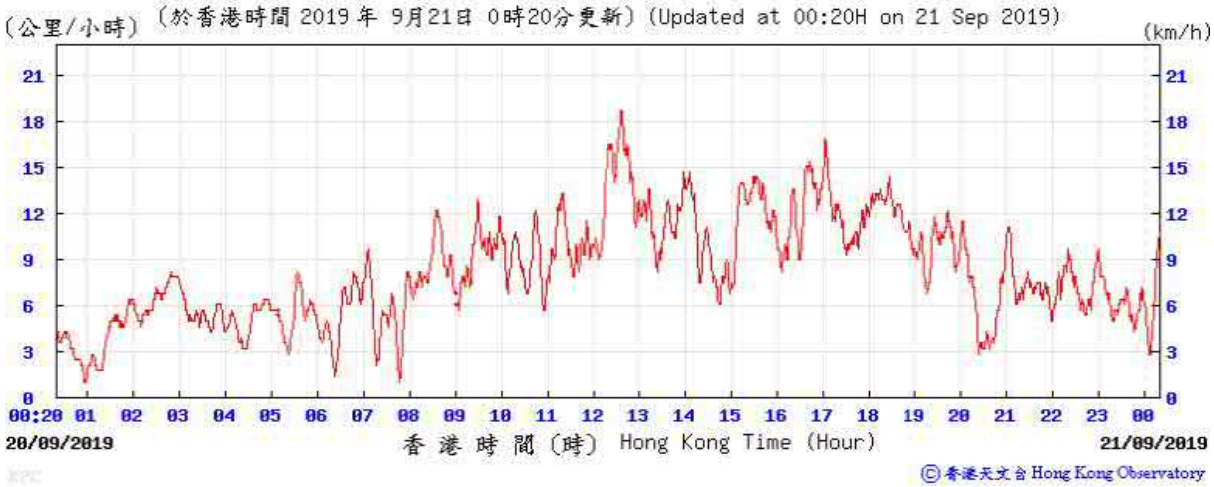
Pressure:



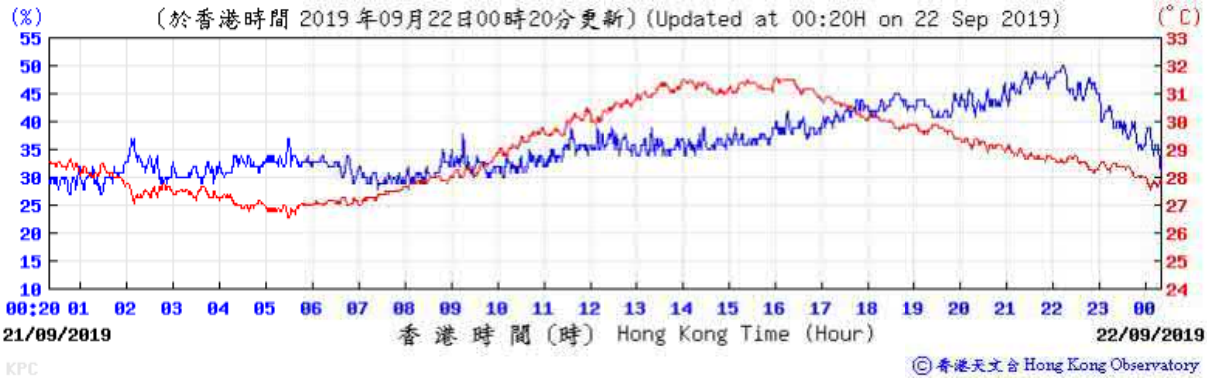
Wind Direction:



Wind Speed:



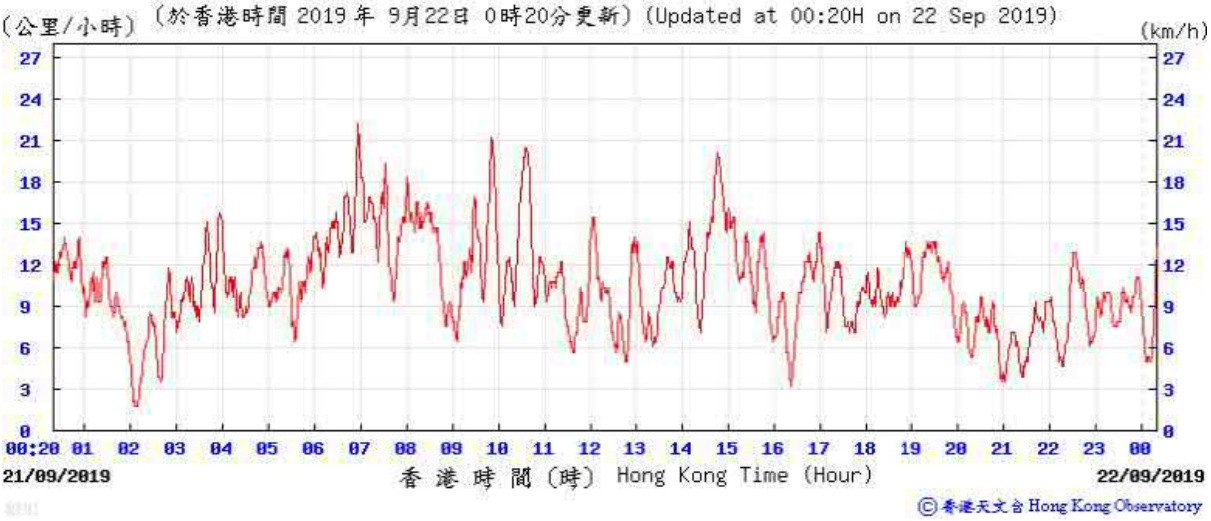
Temperature/Humidity:



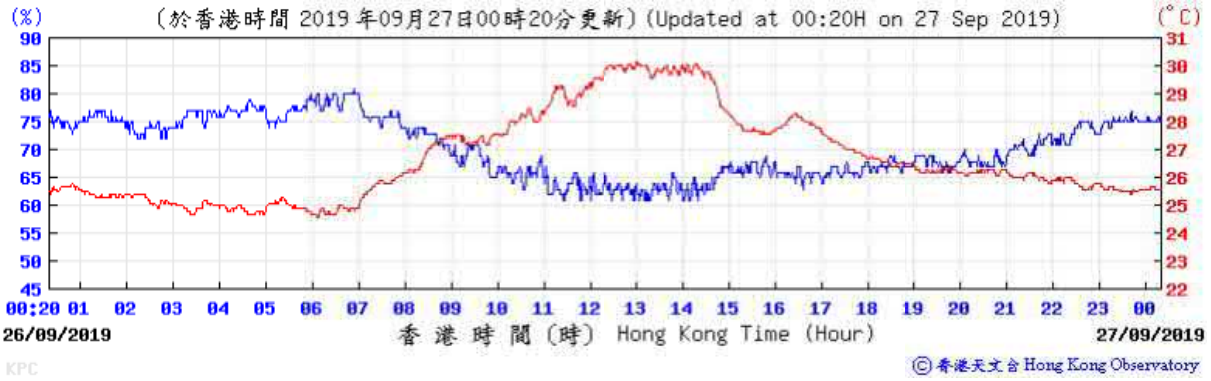
Pressure:

Wind Direction:

Wind Speed:

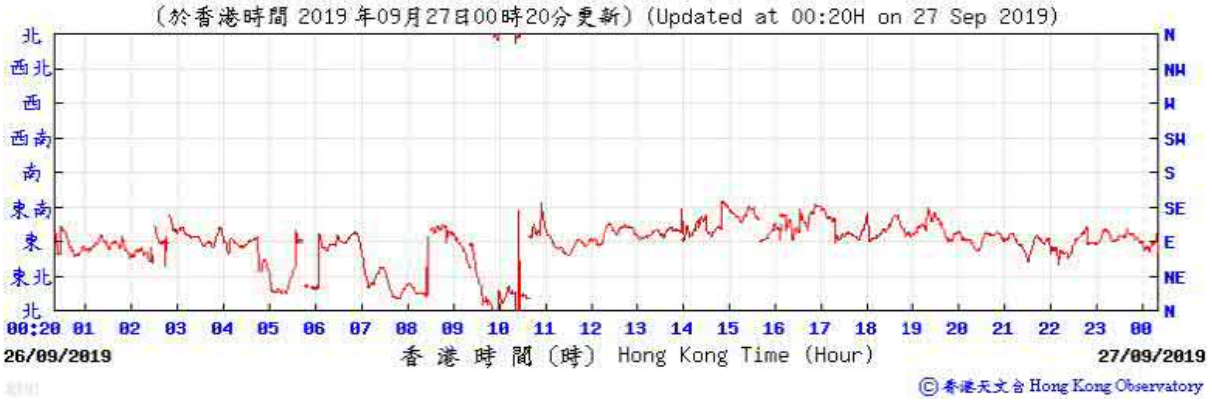


Temperature/Humidity:



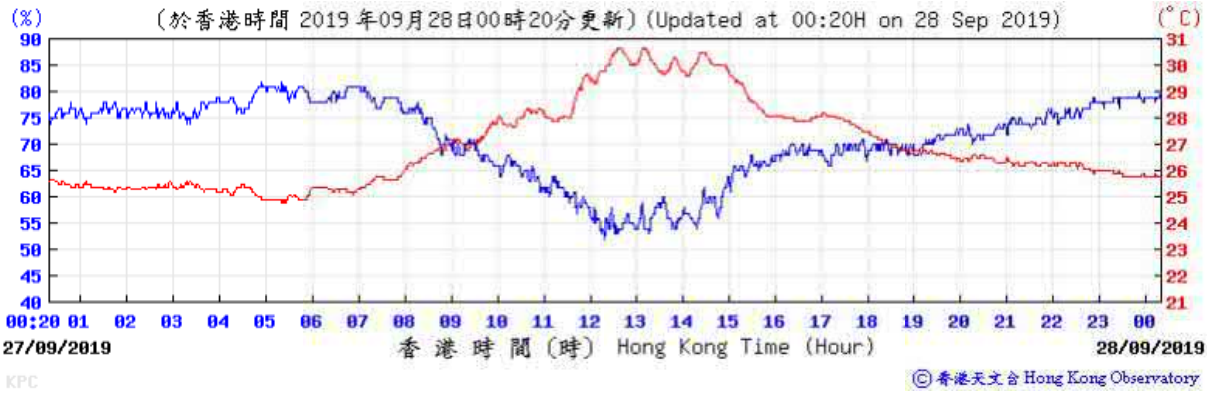
Pressure:

Wind Direction:

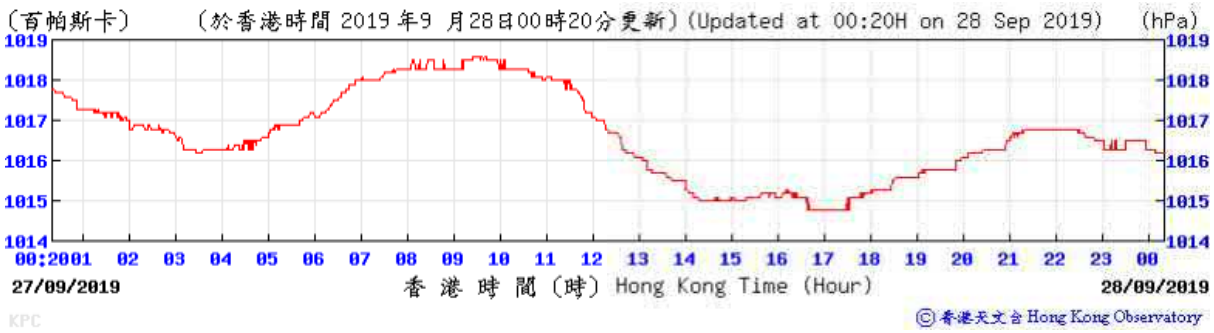


Wind Speed:

Temperature/Humidity:

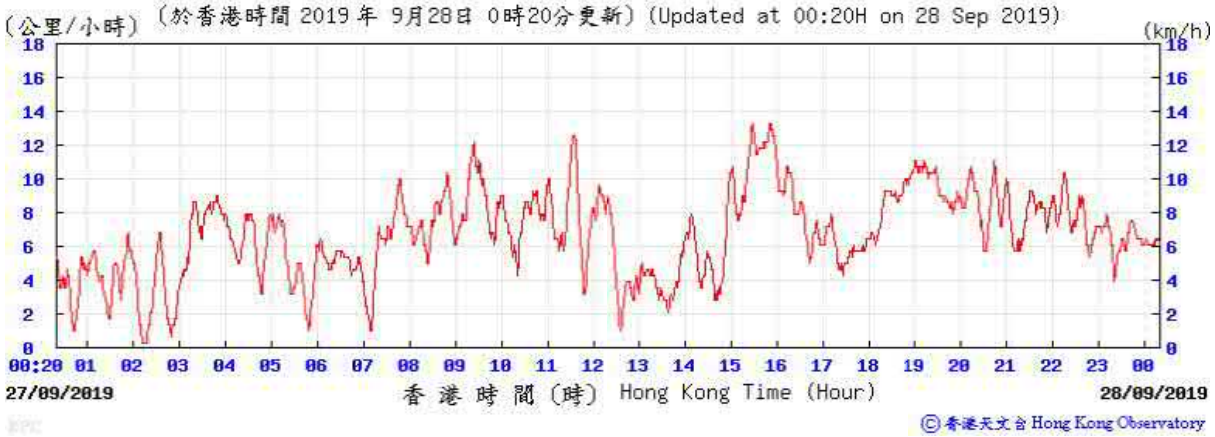


Pressure:



Wind Direction:

Wind Speed:



I. Waste Flow table

M+ Museum

Table I-1: Monthly Waste Flow Table for M+ Museum

Month	Actual Quantities of Inert C&D Materials Generated Monthly							Actual Quantities of C&D Wastes Generated Monthly					
	Total Quantity Generated	Hard Rocks and Large Broken Concrete	Reused in the Contract	Reused in other Projects	Disposed as Public Fill	Disposed to Sorting Facility	Imported Fill	Metals	Paper/ Cardboard Packaging	Plastics	Wood/ Timber	Chemical Waste	Others, e.g. General Refuse
	(in tonnes)	(in tonnes)	(in tonnes)	(in tonnes)	(in tonnes)	(in tonnes)	(in tonnes)	(in tonnes)	(in tonnes)	(in tonnes)	(in tonnes)	(in tonnes)	(in tonnes)
2015													
Nov	46607.4	0.0	0.0	8240.0	38367.4	0.0	0.0	76.2	0.0	0.0	0.0	0.0	67.6
Dec	29652.9	0.0	0.0	29621.4	31.5	0.0	0.0	26.3	0.0	0.0	0.0	1.0	66.0
Sub-total (2015)	76260.3	0.0	0.0	37861.4	38398.9	0.0	0.0	102.5	0.0	0.0	0.0	1.0	133.6
2016													
Jan	21077.4	0.0	6352.0	14576.0	149.4	0.0	0.0	18.8	0.0	0.0	0.0	0.0	23.2
Feb	7626.2	0.0	3424.0	4048.0	154.2	0.0	0.0	59.8	0.0	0.0	0.0	0.0	20.5
Mar	10442.5	0.0	1600.0	7888.0	954.5	0.0	0.0	29.7	0.0	0.0	0.0	0.0	46.3
Apr	30413.2	0.0	6352.0	23408.0	653.2	0.0	0.0	25.8	0.1	0.0	27.8	0.0	34.5
May	24083.5	0.0	112.0	23216.0	755.5	0.0	0.0	61.5	0.4	0.0	33.6	0.0	62.3
Jun	7880.1	0.0	4736.0	2384.0	760.1	0.0	0.0	106.6	0.1	0.0	14.6	0.0	52.8
Jul	5893.1	0.0	2656.0	2240.0	997.1	0.0	0.0	77.6	0.0	0.0	33.6	0.0	83.1
Aug	13709.6	0.0	0.0	12432.0	1277.6	0.0	0.0	111.3	0.2	0.0	38.5	0.0	104.9
Sep	6702.0	0.0	0.0	5648.0	1000.1	53.9	0.0	104.2	0.0	0.0	45.5	0.2	107.9
Oct	2103.6	0.0	0.0	496.0	1595.4	12.2	0.0	83.0	0.4	0.0	73.5	0.0	108.2
Nov	3302.7	0.0	0.0	2384.0	855.5	63.2	0.0	88.4	0.6	0.0	63.0	0.0	129.1
Dec	899.8	0.0	0.0	736.0	126.8	37.0	0.0	48.3	0.6	0.0	70.0	0.0	89.0
Sub-total (2016)	134133.5	0.0	25232.0	99456.0	9279.3	166.3	0.0	814.9	2.3	0.0	400.1	0.2	861.8
2017													
Jan	675.2	0.0	0.0	432.0	237.9	5.3	0.0	79.5	1.0	0.0	70.0	0.0	79.7
Feb	927.7	0.0	0.0	768.0	125.6	34.0	0.0	70.5	0.6	0.0	84.0	0.0	81.4
Mar	1856.7	0.0	0.0	1280.0	466.9	109.8	0.0	62.8	0.4	0.0	98.0	0.0	148.5
Apr	642.4	0.0	0.0	160.0	324.9	157.5	0.0	87.5	0.7	0.0	175.0	0.0	102.5
May	1118.2	0.0	0.0	528.0	416.4	173.7	0.0	118.3	0.0	0.0	280.0	0.0	139.0
Jun	650.0	0.0	0.0	0.0	451.6	198.4	0.0	199.7	1.4	0.0	350.0	0.0	98.7
Jul	1762.0	0.0	0.0	0.0	1466.6	295.4	0.0	36.9	1.2	0.0	244.0	0.0	164.2
Aug	1231.5	0.0	0.0	0.0	867.5	364.0	0.0	50.9	0.9	0.0	59.0	0.0	186.9
Sep	1681.7	0.0	0.0	0.0	1342.0	339.7	0.0	52.3	0.7	0.0	77.0	0.0	265.3
Oct	483.6	0.0	0.0	0.0	242.5	241.1	0.0	374.8	0.6	0.0	24.1	0.0	128.5
Nov	822.8	0.0	0.0	0.0	344.5	478.3	0.0	948.5	0.7	0.0	140.0	0.2	219.1
Dec	601.3	0.0	0.0	0.0	236.2	365.1	0.0	903.6	0.8	0.0	320.0	0.0	241.9
Sub-total (2017)	12453.0	0.0	0.0	3168.0	6522.6	2762.4	0.0	2985.3	8.9	0.0	1921.1	0.2	1855.5

Month	Actual Quantities of Inert C&D Materials Generated Monthly							Actual Quantities of C&D Wastes Generated Monthly					
	Total Quantity Generated	Hard Rocks and Large Broken Concrete	Reused in the Contract	Reused in other Projects	Disposed as Public Fill	Disposed to Sorting Facility	Imported Fill	Metals	Paper/ Cardboard Packaging	Plastics	Wood/ Timber	Chemical Waste	Others, e.g. General Refuse
	(in tonnes)	(in tonnes)	(in tonnes)	(in tonnes)	(in tonnes)	(in tonnes)	(in tonnes)	(in tonnes)	(in tonnes)	(in tonnes)	(in tonnes)	(in tonnes)	(in tonnes)
2018													
Jan	1015.3	0.0	0.0	0.0	574.1	441.2	0.0	773.3	1.5	0.0	100.0	0.0	183.6
Feb	847.6	0.0	0.0	0.0	608.3	239.3	0.0	34.0	1.0	0.0	25.0	0.0	154.9
Mar	1507.0	0.0	0.0	0.0	1102.1	404.9	0.0	39.5	1.5	0.0	120.0	0.0	264.1
Apr	2942.8	0.0	0.0	0.0	2542.4	400.4	0.0	60.1	0.3	0.0	100.0	0.0	252.5
May	2109.2	0.0	0.0	0.0	1593.3	515.9	0.0	37.0	0.4	0.0	70.0	0.0	311.4
Jun	1697.6	0.0	0.0	0.0	1162.4	535.2	0.0	47.0	0.3	0.0	105.0	0.0	188.2
Jul	945.5	0.0	0.0	0.0	646.1	299.4	0.0	15.2	0.4	0.0	150.0	0.0	277.6
Aug	730.8	0.0	0.0	0.0	461.4	269.4	0.0	0.0	0.0	0.0	40.0	0.0	109.1
Sep	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Oct	1193.1	0.0	0.0	0.0	895.7	297.5	0.0	129.3	2.7	0.0	200.0	0.0	116.6
Nov	1608.9	0.0	0.0	0.0	841.1	767.7	0.0	45.8	1.1	0.0	245.0	0.0	213.9
Dec	1313.8	0.0	0.0	170.4	341.9	801.5	0.0	256.7	0.8	0.0	180.0	0.0	198.2
Sub-total (2018)	15911.4	0.0	0.0	170.4	10768.7	4972.3	0.0	1437.9	9.9	0.0	1335.0	0.0	2270.2
2019													
Jan	1632.5	0.0	0.0	153.6	572.3	906.6	0.0	192.1	0.8	0.0	40.0	0.0	303.9
Feb	618.5	0.0	0.0	0.0	397.4	221.2	0.0	43.4	1.2	0.0	20.0	0.0	429.7
Mar	1555.1	0.0	0.0	441.6	920.2	193.2	0.0	31.8	0.0	0.0	20.0	0.0	645.2
Apr	327.4	0.0	0.0	0.0	127.3	200.2	0.0	48.9	1.3	0.0	300.0	0.9	477.4
May	712.8	0.0	0.0	361.9	116.7	234.3	0.0	81.0	0.8	0.0	320.0	0.0	531.1
Jun	219.9	0.0	0.0	0.0	95.6	124.4	0.0	123.4	0.5	0.0	350.0	0.0	448.0
Jul	445.8	0.0	0.0	0.0	171.6	274.1	0.0	57.1	1.1	0.0	300.0	0.6	553.1
Aug	692.6	0.0	0.0	55.2	354.1	283.3	0.0	1.5	0.0	0.0	0.0	0.0	596.8
Sep	477.4	0.0	0.0	0.0	218.2	259.2	0.0	46.7	0.0	0.0	420.0	0.0	560.5
Sub-total (2019)	6682.0	0.0	0.0	1012.3	2973.3	2696.4	0.0	625.9	5.6	0.0	1770.0	1.5	4545.7
Total	**245440.2**	**0.0**	**25232.0**	**141668.1**	**67942.7**	**10597.5**	**0.0**	**5966.4**	**26.8**	**0.0**	**5426.2**	**2.8**	**9666.8**

Month	Actual Quantities of Inert C&D Materials Generated Monthly							Actual Quantities of C&D Wastes Generated Monthly					
	Total Quantity Generated	Hard Rocks and Large Broken Concrete	Reused in the Contract	Reused in other Projects	Disposed as Public Fill	Disposed to Sorting Facility	Imported Fill	Metals	Paper/ Cardboard Packaging	Plastics	Wood/ Timber	Chemical Waste	Others, e.g. General Refuse
	(in tonnes)	(in tonnes)	(in tonnes)	(in tonnes)	(in tonnes)	(in tonnes)	(in tonnes)	(in tonnes)	(in tonnes)	(in tonnes)	(in tonnes)	(in tonnes)	(in tonnes)

Note:
0 tonnes, 123.15 tonnes, 95.03 tonnes, 259.24 tonnes of inert C&D material were disposed of as public fill to Chai Wan Public Fill Barging Point, Tuen Mun Area 38, Tseung Kwan O Area 137 Public Fill and Tseung Kwan O Area 137 Sorting Facility respectively in the reporting month.
-For inert C&D materials reused in other projects, the projects refer to (1) Green Valley; (2) Advance Works for Shek Wu Hui Sewage Treatment Works (3) Design and Construction of Kai Tak Cable Tunnel, CLP; (4) MTR Contract 1002 Whampoa Station and Overrun Tunnel; (5) CEDD Tuen Mun Area 54 Contract No. CV/2015/03; (6) Union Construction Ltd.'s site; (7) Foundation Works at Marriot Hotel at Ocean Park.(8) Ming Tai warehoues (9) No.1 Plantation Road; (10) L1 Lyric Theatre

Lyric Theatre Complex

Table I-2: Monthly Waste Flow Table for Lyric Theatre Complex

Month	Actual Quantities of Inert C&D Materials Generated Monthly							Actual Quantities of C&D Wastes Generated Monthly					
	Total Quantity Generated	Hard Rocks and Large Broken Concrete	Reused in the Contract	Reused in other Projects	Disposed as Public Fill	Disposed to Sorting Facilty	Imported Fill	Metals	Paper/ Cardboard Packaging	Plastics	Wood/ Timber	Chemical Waste	Others, e.g. General Refuse
	(in tonnes)	(in tonnes)	(in tonnes)	(in tonnes)	(in tonnes)	(in tonnes)	(in tonnes)	(in tonnes)	(in tonnes)	(in tonnes)	(in tonnes)	(in tonnes)	(in tonnes)
2016													
Mar	2702.1	0.0	0.0	0.0	2702.1	0.0	0.0	4.5	0.1	0.0	0.0	0.0	30.6
Apr	8631.5	0.0	0.0	0.0	8631.5	0.0	0.0	16.0	0.0	0.0	0.0	0.0	19.2
May	12487.8	0.0	0.0	0.0	12487.8	0.0	0.0	34.0	0.0	0.0	0.0	0.7	60.5
Jun	8600.8	0.0	0.0	0.0	8600.8	0.0	0.0	31.4	0.2	0.0	0.0	0.5	13.5
Jul	12624.2	0.0	0.0	0.0	12624.2	0.0	0.0	19.6	0.0	0.0	0.0	2.0	9.9
Aug	14419.9	0.0	0.0	0.0	14419.9	0.0	0.0	43.9	0.0	0.0	0.0	0.0	11.1
Sep	13671.3	0.0	0.0	0.0	13671.3	0.0	0.0	59.8	0.0	0.0	0.0	1.6	12.4
Oct	13088.9	0.0	0.0	0.0	13088.9	0.0	0.0	36.9	0.2	1.5	0.0	0.0	15.2
Nov	12424.7	0.0	0.0	0.0	12424.7	0.0	0.0	74.7	0.0	0.0	0.0	1.4	10.2
Dec	12487.6	0.0	0.0	0.0	12487.6	0.0	0.0	13.9	0.0	0.0	0.0	1.3	9.0
Sub-total (2016)	111138.8	0.0	0.0	0.0	111138.8	0.0	0.0	334.5	0.4	1.5	0.0	7.6	191.6
2017													
Jan	9607.8	0.0	0.0	0.0	9607.8	0.0	0.0	29.5	0.0	0.0	0.0	0.0	7.3
Feb	9108.2	0.0	0.0	0.0	9108.2	0.0	0.0	50.2	0.2	0.0	0.0	0.7	9.8
Mar	11361.7	0.0	0.0	0.0	11361.7	0.0	0.0	16.1	0.0	0.0	0.0	1.4	8.5
Apr	2591.5	0.0	0.0	0.0	2591.5	0.0	0.0	35.7	0.0	0.0	0.0	0.0	4.7
May	2579.3	0.0	0.0	99.0	2480.3	0.0	0.0	20.9	0.1	0.0	0.0	0.5	10.0
Jun	476.0	0.0	0.0	341.0	129.7	5.3	0.0	0.0	0.0	0.0	0.0	0.0	7.6
Jul	3419.0	0.0	0.0	804.0	2615.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	17.8
Aug	3730.9	0.0	0.0	1377.5	2353.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.4
Sep	2108.2	0.0	0.0	1133.5	974.7	0.0	0.0	34.6	0.2	0.0	0.0	0.0	10.8
Oct	9159.0	0.0	0.0	7868.0	1291.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7	9.3
Nov	5095.4	0.0	0.0	4352.0	725.2	18.1	0.0	0.0	0.0	0.0	0.0	0.0	38.8
Dec	3856.2	0.0	0.0	3076.0	780.2	0.0	0.0	0.0	0.2	0.0	0.0	0.4	8.4
Sub-total (2017)	63093.1	0.0	0.0	19051.0	44018.7	23.4	0.0	187.1	0.7	0.0	0.0	3.8	137.3

Month	Actual Quantities of Inert C&D Materials Generated Monthly							Actual Quantities of C&D Wastes Generated Monthly					
	Total Quantity Generated	Hard Rocks and Large Broken Concrete	Reused in the Contract	Reused in other Projects	Disposed as Public Fill	Disposed to Sorting Facilty	Imported Fill	Metals	Paper/ Cardboard Packaging	Plastics	Wood/ Timber	Chemical Waste	Others, e.g. General Refuse
	(in tonnes)	(in tonnes)	(in tonnes)	(in tonnes)	(in tonnes)	(in tonnes)	(in tonnes)	(in tonnes)	(in tonnes)	(in tonnes)	(in tonnes)	(in tonnes)	(in tonnes)
2018													
Jan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Feb	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.5
Mar	6120.2	0.0	0.0	5782.0	338.2	0.0	0.0	0.0	0.0	1.0	0.0	0.5	17.6
Apr	14460.3	0.0	0.0	12484.1	1976.3	0.0	0.0	0.0	0.0	0.2	0.0	0.0	7.6
May	59783.7	0.0	0.0	46989.0	12794.7	0.0	0.0	59.6	0.0	0.0	0.0	0.0	9.4
Jun	53117.5	0.0	0.0	37642.8	15474.7	0.0	0.0	51.5	0.2	0.0	0.0	0.0	12.8
Jul	89901.5	0.0	0.0	85317.1	4584.4	0.0	165.1	114.6	0.0	0.0	0.0	0.0	41.3
Aug	35137.3	0.0	0.0	33731.6	1405.7	0.0	214.3	148.1	0.0	0.0	0.0	0.0	48.5
Sep	4837.3	0.0	0.0	4641.2	109.2	87.0	174.6	40.0	0.0	0.0	0.0	0.0	179.2
Oct	19021.9	0.0	0.0	11301.0	7564.7	156.1	0.0	106.3	0.4	0.0	0.0	0.0	528.5
Nov	104165.3	0.0	0.0	79811.6	24348.4	5.3	0.0	54.5	0.0	0.6	0.0	0.0	31.5
Dec	62987.1	0.0	0.0	51284.4	11697.1	5.6	0.0	95.1	0.0	0.6	0.0	0.0	65.9
Sub-total (2018)	449532.1	0.0	0.0	368984.8	80293.2	254.0	553.9	669.7	0.5	2.4	0.0	0.5	943.7
2019													
Jan	74479.1	0.0	0.0	69249.5	5229.7	0.0	318.0	326.7	0.2	0.0	0.0	0.0	76.3
Feb	21969.9	0.0	0.0	17723.9	4246.0	0.0	16.5	55.2	0.0	0.0	0.0	0.0	26.7
Mar	19311.4	0.0	0.0	8569.4	10742.0	0.0	337.8	64.5	0.0	0.0	0.0	0.0	36.3
Apr	28559.9	0.0	0.0	21280.3	7279.6	0.0	0.0	32.6	0.0	0.8	0.0	0.0	24.9
May	45418.0	0.0	0.0	11200.6	34217.4	0.0	0.0	27.4	0.2	0.5	0.0	0.0	33.7
Jun	66763.1	0.0	0.0	24009.7	42742.5	10.9	59.2	11.9	0.0	0.9	0.0	0.0	35.3
Jul	36606.6	0.0	0.0	1632.7	34947.9	26.0	64.4	120.7	0.0	0.0	0.0	0.0	57.9
Aug	2512.9	0.0	0.0	0.0	2485.1	27.8	31.9	40.2	0.0	0.8	0.0	0.0	66.3
Sep	2907.1	0.0	0.0	0.0	2878.2	28.9	95.2	19.0	0.0	0.6	0.0	0.0	127.4
Sub-total (2019)	298528.0	0.0	0.0	153666.0	144768.3	93.7	923.0	698.0	0.4	3.6	0.0	0.0	484.8
Total	**922292.0**	**0.0**	**0.0**	**541701.9**	**380219.0**	**371.1**	**1476.9**	**1889.2**	**2.0**	**7.5**	**0.0**	**11.9**	**1757.4**

Note:
- 1,323.06 tonnes and 1,555.15 tonnes of inert C&D material were disposed of as public fill to Tseung Kwan O Area 137 Public Fill and Tuen Mun Area 38 Public Fill respectively in the reporting month.

J. Environmental Mitigation Measures – Implementation Status

Table J-1: Environmental Mitigation Measures Implementation Status

EM&A Ref.	Recommendation Measures	Implementation Stage	
		M+ Museum	Lyric Theatre Complex
Air Quality Impact (Construction)			
2.1 & 10.3.1	**General Dust Control Measures**		
	Frequent water spraying for active construction areas (12 times a day or once every one hour), including Heavy construction activities such as construction of buildings or roads, drilling, ground excavation, cut and fill operations (i.e., earth moving)	Obs	✓
2.1 & 10.3.1	**Best Practice For Dust Control**		
	The relevant best practices for dust control as stipulated in the Air Pollution Control (construction Dust) Regulation should be adopted to further reduce the construction dust impacts from the Project. These best practices include:		
	Good Site Management		
	• Good site management is important to help reducing potential air quality impact down to an acceptable level. As a general guide, the Contractor should maintain high standard of housekeeping to prevent emission of fugitive dust. Loading, unloading, handling and storage of raw materials, wastes or by-products should be carried out in a manner so as to minimise the release of visible dust emission. Any piles of materials accumulated on or around the work areas should be cleaned up regularly. Cleaning, repair and maintenance of all plant facilities within the work areas should be carried out in a manner minimising generation of fugitive dust emissions. The material should be handled properly to prevent fugitive dust emission before cleaning.	✓	Obs
	Disturbed Parts of the Roads		
	• Each and every main temporary access should be paved with concrete, bituminous hardcore materials or metal plates and kept clear of dusty materials; or	✓	✓
	• Unpaved parts of the road should be sprayed with water or a dust suppression chemical so as to keep the entire road surface wet.	✓	✓
	Exposed Earth		
	• Exposed earth should be properly treated by compaction, hydroseeding, vegetation planting or seating with latex, vinyl, bitumen within six months after the last construction activity on the site or part of the site where the exposed earth lies.	N/A	N/A
	Loading, Unloading or Transfer of Dusty Materials		
	• All dusty materials should be sprayed with water immediately prior to any loading or transfer operation so as to keep the dusty material wet.	✓	✓

EM&A Ref.	Recommendation Measures	Implementation Stage	
		M+ Museum	Lyric Theatre Complex
	Debris Handling		
	• Any debris should be covered entirely by impervious sheeting or stored in a debris collection area sheltered on the top and the three sides.	✓	✓
	• Before debris is dumped into a chute, water should be sprayed so that it remains wet when it is dumped.	✓	✓
	Transport of Dusty Materials		
	• Vehicle used for transporting dusty materials/spoils should be covered with tarpaulin or similar material. The cover should extend over the edges of the sides and tailboards.	✓	✓
	Wheel washing		
	• Vehicle wheel washing facilities should be provided at each construction site exit. Immediately before leaving the construction site, every vehicle should be washed to remove any dusty materials from its body and wheels.	✓	✓
	Use of vehicles		
	• The speed of the trucks within the site should be controlled to about 10km/hour in order to reduce adverse dust impacts and secure the safe movement around the site.	✓	✓
	• Immediately before leaving the construction site, every vehicle should be washed to remove any dusty materials from its body and wheels.	✓	✓
	• Where a vehicle leaving the construction site is carrying a load of dusty materials, the load should be covered entirely by clean impervious sheeting to ensure that the dusty materials do not leak from the vehicle.	✓	✓
	Site hoarding		
	• Where a site boundary adjoins a road, street, service lane or other area accessible to the public, hoarding of not less than 2.4m high from ground level should be provided along the entire length of that portion of the site boundary except for a site entrance or exit.	✓	✓
2.1 & 10.3.1	**Best Practicable Means for Cement Works (Concrete Batching Plant)** The relevant best practices for dust control as stipulated in the Guidance Note on the Best Practicable Means for Cement Works (Concrete Batching Plant) BPM 3/2(93) should be followed and implemented to further reduce the construction dust impacts of the Project. These best practices include:		
	Exhaust from Dust Arrestment Plant		
	• Wherever possible the final discharge point from particulate matter arrestment plant, where is not necessary to achieve dispersion from residual pollutants, should be at low level to minimise the effect on the local community in the case of abnormal emissions and to facilitate maintenance and inspection	✓	✓

EM&A Ref.	Recommendation Measures	Implementation Stage	
		M+ Museum	Lyric Theatre Complex
	Emission Limits		
	• All emissions to air, other than steam or water vapour, shall be colourless and free from persistent mist or smoke	✓	✓
	Engineering Design/Technical Requirements		
	• As a general guidance, the loading, unloading, handling and storage of fuel, raw materials, products, wastes or by-products should be carried out in a manner so as to prevent the release of visible dust and/or other noxious or offensive emissions	✓	✓
	Non-Road Mobile Machinery (NRMM):		
-	All NRMMs operating on-site which are subject to emission control of Air Pollution Control (Non-road Mobile Machinery) (Emission) Regulation are approved/exempted (as the case may be) and affixed with the requisite approval/exemption labels.	✓	✓
Noise Impact (Construction)			
3.1 & 10.4.1	**Good Site Practice**		
	Good site practice and noise management can significantly reduce the impact of construction site activities on nearby NSRs. The following package of measures should be followed during each phase of construction:		
	• only well-maintained plant to be operated on-site and plant should be serviced regularly during the construction works;	✓	✓
	• machines and plant that may be in intermittent use to 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 the NSRs;	✓	✓
	• mobile plant should be sited as far away from NSRs as possible; and	✓	✓
	• material stockpiles and other structures to be effectively utilised, where practicable, to screen noise from on-site construction activities.	✓	✓
3.1 & 10.4.1	**Adoption of Quieter PME**		
	The recommended quieter PME adopted in the assessment were taken from the EPD's QPME Inventory and "*Sound Power Levels of Other Commonly Used PME*" are presented in **Table 4.26** in the EIA report. It should be noted that the silenced PME selected for assessment can be found in Hong Kong.	✓	✓

EM&A Ref.	Recommendation Measures	Implementation Stage	
		M+ Museum	Lyric Theatre Complex
3.1 & 10.4.1	**Use of Movable Noise Barriers** Movable noise barriers can be very effective in screening noise from particular items of plant when constructing the Project. Noise barriers located along the active works area close to the noise generating component of a PME could produce at least 10 dB(A) screening for stationary plant and 5 dB(A) for mobile plant provided the direct line of sight between the PME and the NSRs is blocked.	N/A	✓
3.1 & 10.4.1	**Use of Noise Enclosure/ Acoustic Shed** The use of noise enclosure or acoustic shed is to cover stationary PME such as air compressor and concrete pump. With the adoption of the noise enclosure, the PME could be completely screened, and noise reduction of 15 dB(A) can be achieved according to the EIAO Guidance Note No. 9/2010.	N/A	N/A
3.1 & 10.4.1	**Use of Noise Insulating Fabric** Noise insulating fabric can also be adopted for certain PME (e.g. drill rig, pilling machine etc). The fabric should be lapped such that there are no openings or gaps on the joints. According to the approved Tsim Sha Tsui Station Northern Subway EIA report (AEIAR-127/2008), a noise reduction of 10 dB(A) can be achieved for the PME lapped with the noise insulating fabric.	N/A	✓
3.1 & 10.4.1	**Scheduling of Construction Works outside School Examination Periods** During construction phase, the contractor should liaise with the educational institutions (including NSRs LCS and CRGPS) to obtain the examination schedule and avoid the noisy construction activities during school examination periods.	N/A	N/A
Water Quality Impact (Construction)			
4.1 & 10.5.1	**Construction site runoff and drainage** The site practices outlined in ProPECC Note PN 1/94 should be followed as far as practicable in order to minimise surface runoff and the chance of erosion. The following measures are recommended to protect water quality and sensitive uses of the coastal area, and when properly implemented should be sufficient to adequately control site discharges so as to avoid water quality impacts:		
	• At the start of site establishment, perimeter cut-off drains to direct off-site water around the site should be constructed with internal drainage works and erosion and sedimentation control facilities implemented. Channels, earth bunds or sand bag barriers should be provided on site to direct storm water to silt removal facilities. The design of the temporary on-site drainage system should be undertaken by the WKCDA's Contractor prior to the commencement of construction;	✓	✓
	• Sand/silt removal facilities such as sand/silt traps and sediment basins should be provided to remove sand/silt particles from runoff to meet the requirements of the TM standards under the WPCO. The design of efficient silt removal facilities should be based on the guidelines in Appendix A1 of ProPECC Note PN 1/94. Sizes may vary depending upon the flow rate. The detailed design of the sand/silt traps should be undertaken by the WKCDA's Contractor prior to the commencement of construction.	✓	✓

EM&A Ref.	Recommendation Measures	Implementation Stage	
		M+ Museum	Lyric Theatre Complex
	• All drainage facilities and erosion and sediment control structures should be regularly inspected and maintained to ensure proper and efficient operation at all times and particularly during rainstorms. Deposited silt and grit should be regularly removed, at the onset of and after each rainstorm to ensure that these facilities are functioning properly at all times.	Rem	Obs / Rem
	• Measures should be taken to minimize the ingress of site drainage into excavations. If excavation of trenches in wet periods is necessary, they should be dug and backfilled in short sections wherever practicable. Water pumped out from foundation excavations should be discharged into storm drains via silt removal facilities.	✓	✓
	• All vehicles and plant should be cleaned before leaving a construction site to ensure no earth, mud, debris and the like is deposited by them on roads. An adequately designed and sited wheel washing facility should be provided at construction site exit where practicable. Wash-water should have sand and silt settled out and removed regularly to ensure the continued efficiency of the process. The section of access road leading to, and exiting from, the wheel-wash bay to the public road should be paved with sufficient backfall toward the wheel-wash bay to prevent vehicle tracking of soil and silty water to public roads and drains.	✓	✓
	• Open stockpiles of construction materials or construction wastes on-site should be covered with tarpaulin or similar fabric during rainstorms. Measures should be taken to prevent the washing away of construction materials, soil, silt or debris into any drainage system.	✓	✓
	• Manholes (including newly constructed ones) should be adequately covered and temporarily sealed so as to prevent silt, construction materials or debris being washed into the drainage system and stormwater runoff being directed into foul sewers.	✓	✓
	• Precautions should be taken at any time of the year when rainstorms are likely. Actions should be taken when a rainstorm is imminent or forecasted and actions to be taken during or after rainstorms are summarized in Appendix A2 of ProPECC Note PN 1/94. Particular attention should be paid to the control of silty surface runoff during storm events, especially for areas located near steep slopes.	✓	✓
	• Bentonite slurries used in piling or slurry walling should be reconditioned and reused wherever practicable. Temporary enclosed storage locations should be provided on-site for any unused bentonite that needs to be transported away after all the related construction activities are completed. The requirements in ProPECC Note PN 1/94 should be adhered to in the handling and disposal of bentonite slurries.	N/A	N/A
	Barging facilities and activities		
	Recommendations for good site practices during operation of the proposed barging point include:		
	• All vessels should be sized so that adequate clearance is maintained between vessels and the seabed in all tide conditions, to ensure that undue turbidity is not generated by turbulence from vessel movement or propeller wash;	N/A	N/A

EM&A Ref.	Recommendation Measures	Implementation Stage	
		M+ Museum	Lyric Theatre Complex
	• Loading of barges and hoppers should be controlled to prevent splashing of material into the surrounding water. Barges or hoppers should not be filled to a level that will cause the overflow of materials or polluted water during loading or transportation;	N/A	N/A
	• All hopper barges should be fitted with tight fitting seals to their bottom openings to prevent leakage of material; and	N/A	N/A
	• Construction activities should not cause foam, oil, grease, scum, litter or other objectionable matter to be present on the water within the site.	N/A	N/A
4.1 & 10.5.1	**Sewage effluent from construction workforce**		
	Temporary sanitary facilities, such as portable chemical toilets, should be employed on-site where necessary to handle sewage from the workforce. A licensed contractor should be employed to provide appropriate and adequate portable toilets and be responsible for appropriate disposal and maintenance.	✓	✓
4.1 & 10.5.1	**General construction activities**		
	• Construction solid waste, debris and refuse generated on-site should be collected, handled and disposed of properly to avoid entering any nearby storm water drain. Stockpiles of cement and other construction materials should be kept covered when not being used.	✓	✓
	• Oils and fuels should only be stored in designated areas which have pollution prevention facilities. To prevent spillage of fuels and solvents to any nearby storm water drain, all fuel tanks and storage areas should be provided with locks and be sited on sealed areas, within bunds of a capacity equal to 110% of the storage capacity of the largest tank. The bund should be drained of rainwater after a rain event.	✓	✓
Waste Management Implications (Construction)			
6.1 & 10.7.1	**Good Site Practices**		
	Recommendations for good site practices during the construction activities include:		
	• Nomination of an approved person, such as a site manager, to be responsible for good site practices, arrangements for collection and effective disposal to an appropriate facility, of all wastes generated at the site	✓	✓
	• Training of site personnel in proper waste management and chemical handling procedures	✓	✓
	• Provision of sufficient waste disposal points and regular collection of waste	✓	✓
	• Appropriate measures to minimise windblown litter and dust/odour during transportation of waste by either covering trucks or by transporting wastes in enclosed containers	✓	✓
	• Provision of wheel washing facilities before the trucks leaving the works area so as to minimise dust introduction to public roads	✓	✓
	• Well planned delivery programme for offsite disposal such that adverse environmental impact from transporting the inert or non-inert C&D materials is not anticipated	✓	✓

EM&A Ref.	Recommendation Measures	Implementation Stage	
		M+ Museum	Lyric Theatre Complex
6.1 & 10.7.1	**Waste Reduction Measures** Recommendations to achieve waste reduction include:		
	• Sort inert C&D material to recover any recyclable portions such as metals	✓	✓
	• Segregation and storage of different types of waste in different containers or skips to enhance reuse or recycling of materials and their proper disposal	✓	✓
	• Encourage collection of recyclable waste such as waste paper and aluminium cans by providing separate labelled bins to enable such waste to be segregated from other general refuse generated by the work force	✓	✓
	• Proper site practices to minimise the potential for damage or contamination of inert C&D materials	✓	✓
	• Plan the use of construction materials carefully to minimise amount of waste generated and avoid unnecessary generation of wastes	✓	✓
6.1 & 10.7.1	**Inert and Non-inert C&D Materials** In order to minimise impacts resulting from collection and transportation of inert C&D material for off-site disposal, the excavated materials should be reused on-site as fill material as far as practicable. In addition, inert C&D material generated from excavation works could be reused as fill materials in local projects that require public fill for reclamation.	✓	✓
	• The surplus inert C&D material will be disposed of at the Government's PFRFs for beneficial use by other projects in Hong Kong.	✓	✓
	• Liaison with the CEDD Public Fill Committee (PFC) on the allocation of space for disposal of the inert C&D materials at PFRF is underway. No construction work is allowed to proceed until all issues on management of inert C&D materials have been resolved and all relevant arrangements have been endorsed by the relevant authorities including PFC and EPD.	✓	✓
	• The C&D materials generated from general site clearance should be sorted on site to segregate any inert materials for reuse or disposal of at PFRFs whereas the non-inert materials will be disposed of at the designated landfill site.	✓	✓
	• In order to monitor the disposal of inert and non-inert C&D materials at respectively PFRFs and the designated landfill site, and to control fly-tipping, it is recommended that the Contractor should follow the Technical Circular (Works) No. 6/2010 for Trip Ticket System for Disposal of Construction & Demolition Materials issued by Development Bureau. In addition, it is also recommended that the Contractor should prepare and implement a Waste Management Plan detailing their various waste arising and waste management practices in accordance with the relevant requirements of the Technical Circular (Works) No. 19/2005 Environmental Management on Construction Site.	✓	✓

EM&A Ref.	Recommendation Measures	Implementation Stage	
		M+ Museum	Lyric Theatre Complex
6.1 & 10.7.1	**Chemical Waste**		
	• If chemical wastes are produced at the construction site, the Contractor will be required to register with the EPD as a chemical waste producer and to follow the guidelines stated in the "Code of Practice on the Packaging Labelling and Storage of Chemical Wastes". Good quality containers compatible with the chemical wastes should be used, and incompatible chemicals should be stored separately. Appropriate labels should be securely attached on each chemical waste container indicating the corresponding chemical characteristics of the chemical waste, such as explosive, flammable, oxidizing, irritant, toxic, harmful, corrosive, etc. The Contractor should use a licensed collector to transport and dispose of the chemical wastes at the approved Chemical Waste Treatment Centre or other licensed recycling facilities, in accordance with the Waste Disposal (Chemical Waste) (General) Regulation.	✓	Obs
	• Potential environmental impacts arising from the handling activities (including storage, collection, transportation and disposal of chemical waste) are expected to be minimal with the implementation of appropriate mitigation measures as recommended.	✓	Obs
6.1 & 10.7.1	**General Refuse**		
	General refuse should be stored in enclosed bins or compaction units separated from inert C&D materials. A reputable waste collector should be employed by the Contractor to remove general refuse from the site, separately from inert C&D materials. Preferably an enclosed and covered area should be provided to reduce the occurrence of 'wind blown' light material.	✓	✓
Land Contamination (Construction)			
7.1 & 10.8.1	The potential for land contamination issues at the TST Fire Station due to its future relocation will be confirmed by site investigation after land acquisition. Where necessary, mitigation measures for minimising potential exposure to contaminated materials (if any) or remediation measures will be identified. If contaminated land is identified (e.g., during decommissioning of fuel oil storage tanks) after the commencement of works, mitigation measures are proposed in order to minimise the potentially adverse effects on the health and safety of construction workers and impacts arising from the disposal of potentially contaminated materials.		
	The following measures are proposed for excavation and transportation of contaminated material:		
	• To minimize the chance for construction workers to come into contact with any contaminated materials, bulk earth-moving excavation equipment should be employed;	N/A	N/A
	• Contact with contaminated materials can be minimised by wearing appropriate clothing and personal protective equipment such as gloves and masks (especially when interacting directly with contaminated material), provision of washing facilities and prohibition of smoking and eating on site;	N/A	N/A
	• Stockpiling of contaminated excavated materials on site should be avoided as far as possible;	N/A	N/A

EM&A Ref.	Recommendation Measures	Implementation Stage	
		M+ Museum	Lyric Theatre Complex
	• The use of contaminated soil for landscaping purpose should be avoided unless pre-treatment was carried out;	N/A	N/A
	• Vehicles containing any contaminated excavated materials should be suitably covered to reduce dust emissions and/or release of contaminated wastewater;	N/A	N/A
	• Truck bodies and tailgates should be sealed to stop any discharge;	N/A	N/A
	• Only licensed waste haulers should be used to collect and transport contaminated material to treatment/disposal site and should be equipped with tracking system to avoid fly tipping;	N/A	N/A
	• Speed control for trucks carrying contaminated materials should be exercised;	N/A	N/A
	• Observe all relevant regulations in relation to waste handling, such as Waste Disposal Ordinance (Cap. 354), Waste Disposal (Chemical Waste) (General) Regulation (Cap. 354) and obtain all necessary permits where required; and	N/A	N/A
	• Maintain records of waste generation and disposal quantities and disposal arrangements.	N/A	N/A
Ecological Impact (Construction)			
	No mitigation measure is required.		
Landscape and Visual Impact (Construction)			
Table 9.1 & 10.8 (CM1)	Trees should be retained in situ on site as far as possible. Should tree removal be unavoidable due to construction impacts, trees will be transplanted or felled with reference to the stated criteria in the Tree Removal Applications to be submitted to relevant government departments for approval in accordance to ETWB TCW No. 29/2004 and 3/2006.	N/A	N/A
Table 9.1 & 10.8 (CM2)	Compensatory tree planting shall be incorporated to the proposed project and maximize the new tree, shrubs and other vegetation planting to compensate tree felled and vegetation removed. Also, implementation of compensatory planting should be of a ratio not less than 1:1 in terms of quality and quantity within the site.	N/A	N/A
Table 9.1 & 10.8 (CM3)	Buffer trees for screening purposes to soften the hard architectural and engineering structures and facilities.	N/A	N/A
Table 9.1 & 10.8 (CM4)	Softscape treatments such as vertical green wall panel /planting of climbing and/or weeping plants, etc, to maximize the green coverage and soften the hard architectural and engineering structures and facilities.	N/A	N/A
Table 9.1 & 10.8 (CM5)	Roof greening by means of intensive and extensive green roof to maximize the green coverage and improve aesthetic appeal and visual quality of the building/structure.	N/A	N/A
Table 9.1 & 10.8 (CM6)	Sensitive streetscape design should be incorporated along all new roads and streets.	N/A	N/A
Table 9.1 & 10.8 (CM7)	Structure, ornamental planting shall be provided along amenity strips to enhance the landscape quality.	N/A	N/A

		Implementation Stage	
EM&A Ref.	Recommendation Measures	M+ Museum	Lyric Theatre Complex
Table 9.1 & 10.8 (CM8)	Landscape design shall be incorporated to architectural and engineering structures in order to provide aesthetically pleasing designs.	N/A	N/A
Table 9.1 (CM9)	Minimize the structure of marine facilities to be built on the seabed and foreshore in order to minimize the affected extent to the waterbody	N/A	N/A
Table 9.2 & 10.9 (MCP1)	Use of decorative screen hoarding/boards	✓	✓
Table 9.2 & 10.9 (MCP2)	Early introduction of landscape treatments	N/A	N/A
Table 9.2 & 10.9 (MCP3)	Adoption of light colour for the temporary ventilation shafts for the basement during the transition period.	N/A	N/A
Table 9.2 & 10.9 (MCP4)	Control of night time lighting	✓	✓
Table 9.2 & 10.9 (MCP5)	Use of greenery such as grass cover for the temporary open areas will help achieve the visual balance and soften the hard edges of the structures.	N/A	N/A

N/A - Not Applicable
✓ - Implemented
Obs - Observed
Rem - Reminder

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 works (i.e. 31 October 2015 for M+ Museum main works and 1 March 2016 for Lyric Theatre Complex) to the end of the reporting month and are summarised in the **Table K-1** and **Table K-2** below respectively.

Table K-1: Statistics for complaints, notifications of summons and successful prosecutions for M+ Museum Main Works

Reporting Period	Cumulative Statistics		
	Complaints	**Notifications of summons**	**Successful prosecutions**
This reporting month	0	0	0
From 31 October 2015 to end of the reporting month	8	1	0

Table K-2: Statistics for complaints, notifications of summons and successful prosecutions for Lyric Theatre Complex

Reporting Period	Cumulative Statistics		
	Complaints	**Notifications of summons**	**Successful prosecutions**
This reporting month	0	0	0
From 1 March 2016 to end of the reporting month	10	0	0