Vol. 3 of 5

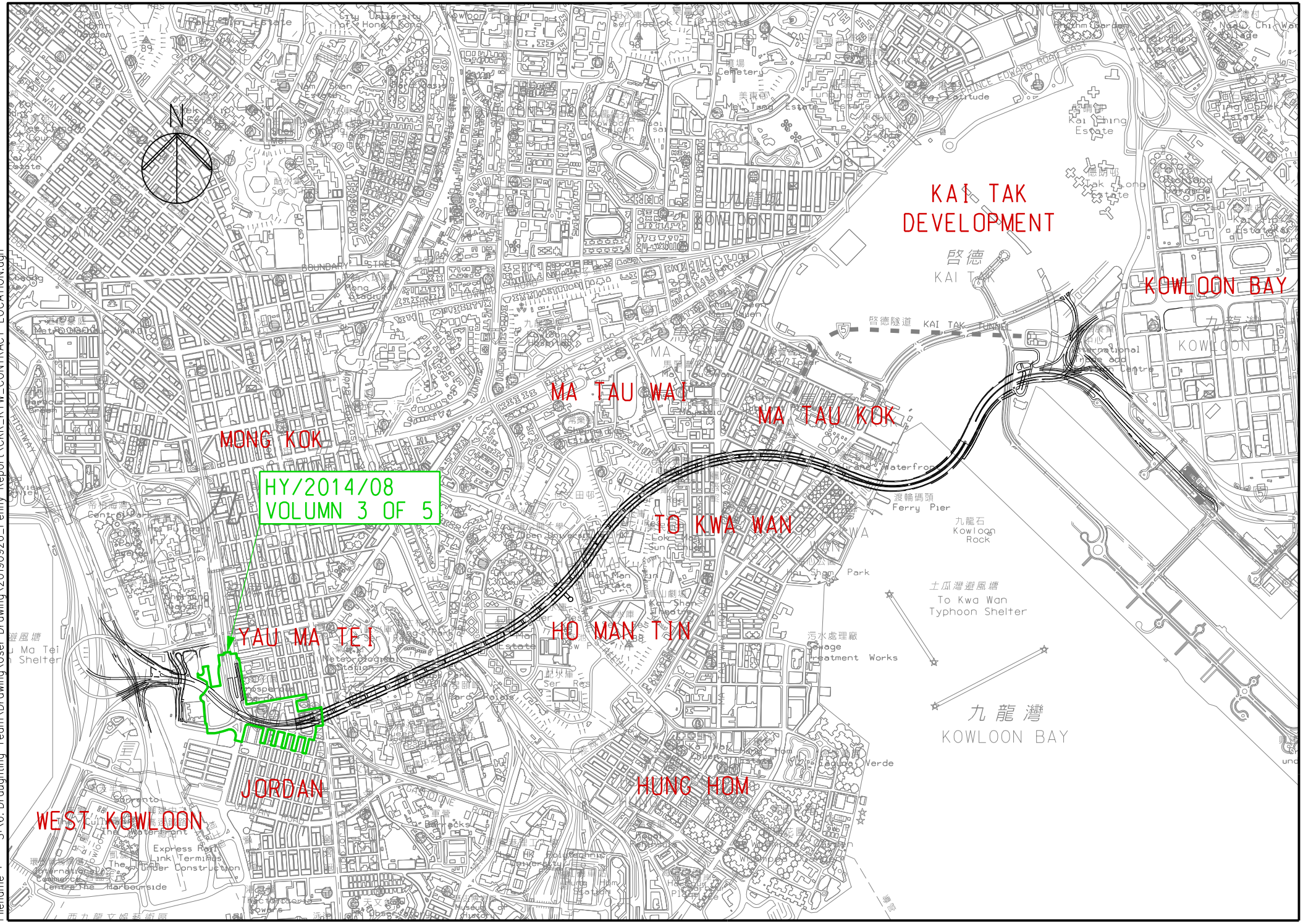
FEP-03/457/2013/D

Central Kowloon Route

Yau Ma Tei East

Contract No. HY/2014/08

February 2023



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路政署
HIGHWAYS DEPARTMENT
主要工程管理處
MAJOR WORKS PROJECT MANAGEMENT OFFICE

ERM

Environmental Permit No. EP-457/2013/D

Central Kowloon Route

Independent Environmental Checker Verification

Works Contract:	**Yau Ma Tei East (HY/2014/08)**

Reference Document/Plan

Document/~~Plan~~ to be ~~Certified~~/ Verified:	Monthly EM&A Report No.59 (February 2023)
Date of Report:	9 March 2023 (Rev. 1)
Date received by IEC:	9 March 2023

Reference EP Condition

Environmental Permit Condition: 3.4

Submission of Monthly EM&A Report of the Project

3.4 Four hard copies and one electronic copy of monthly EM&A Report shall be submitted to the Director within 2 weeks after the end of each reporting month throughout the entire construction period. The EM&A Reports shall include a summary of all non-compliance. The submissions shall be certified by the ET Leader and verified by the IEC as complying with the requirements as set out in the EM&A Manual before submission to the Director. Additional copies of the submission shall be provided to the Director upon request by the Director.

IEC Verification

I hereby verify that the above referenced document/~~plan~~ complies with the above referenced condition of EP-457/2013/D.

Ms Mandy To Date: 10 March 2023

Independent Environmental Checker

Our ref: 0436942_IEC Verification Cert_YMTE_Monthly EM&A Rpt No.59.docx

Build King – SK ecoplant Joint Venture

Central Kowloon Route Contract HY/2014/08

Section of Yau Ma Tei East

Monthly EM&A Report No. 59

(Period from 1 to 28 February 2023)

Rev. 1

(9 March 2023)

	Name	**Signature**
Prepared by	Kako H.L. Ho (Assistant Environmental Consultant)	
Checked & Reviewed by	Y.H. Law (Senior Environmental Consultant)	
Approved & Certified by	Kevin W. M. Li (Environmental Team Leader)	

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LIST OF APPENDICES

EXECUTIVE SUMMARY

A.1 Build King – SK ecoplant Joint Venture ("Contractor") commenced the construction works of Highway Department (HyD) Central Kowloon Route Contract No. HY/2014/08 – Section of Yau Ma Tei East ("The Project") on 20 April 2018. This is the 59th monthly Environmental Monitoring and Audit (EM&A) report presenting the EM&A works carried out during the period from 1 February 2023 to 28 February 2023.

A.2 A summary of the construction works reported by Main Contractor for the Project during the reporting month is listed below.

Construction Activities undertaken

- Construct D-wall panels, pumping test, excavation to roof slab & construct roof slab at Zone B
- Install Underground Utilities hanger support, excavation to roof slab and construct roof slab at Zone B
- Install Underground Utilities hanger support, excavation to roof slab and construct roof slab at Zone C
- Install Underground Utilities hanger support, excavation to roof slab and construct roof slab at Zone D
- Underground Utilities diversions, CLP Cable Tunnel A demolition, Jet Grouting, Pre-boring, D-wall construction, install kingposts/recharge well/observation well/pumping well and Pumping Test at Zone F
- Underground Utilities diversion, Jet Grouting, Preboring, Pipe Piles / D-wall construction, install king posts/ recharge well/observation well/pumping well and Pumping Test at Zone G
- Construct portal frame across, demolish existing Gascogine Road Flyover beams and construct end span at Portion 21
- Construct bridge deck for spans P2 to P6 at Gascogine Road Flyover
- Construct socketed H-piles, pile caps, ground beams, reinforced concrete columns and erect steel posts of Noise Enclosure at Zone 3
- Underground Utilities diversion, construct permanent & temporary pipe piles, barrette walls for Noise Enclosure at Zone 2

A.3 A summary of regular construction noise and construction dust monitoring activities in this reporting period is listed below:

Regular construction noise monitoring during normal working hours

W-N1A, W-P11, W-N18, W-N25A	5 times

Construction dust (24-hour TSP) monitoring

W-A1	5 times
W-A6	5 times

Construction dust (1-hour TSP) monitoring

W-A1, W-A6	15 times

A.4 Bi-weekly inspection of the implementation of landscape and visual mitigation measures was conducted on 2 and 16 February 2023. Details of the audit findings and implementation status are presented in Section 5.

A.5 Joint weekly site inspections were conducted by representatives of the Environmental Team (ET), Contractor and Engineer on 2, 9, 16 and 23 February 2023. One joint site inspection with IEC was also undertaken on 9 February 2023. Details of the audit findings and implementation status are presented in Section 5.

A.6 Details of waste management are presented in Section 3.

A.7 Eight Action Levels of construction noise were triggered during the reporting month as documented complaints were received. No exceedance of Limit Level of construction noise was recorded in the reporting month. No exceedance of the Action and Limit Level of 24-hour TSP and 1-hour TSP was recorded in the reporting month.

A.8 A total of eleven environmental complaints were received in the reporting month. After investigation with Contractor, precautionary measures had been proposed to the Contractor by ET. The interim reports for the complaints are shown in Appendix Q.

A.9 No non-compliance was reported in the reporting month.

A.10 No notification of summon or prosecution was received in this reporting month.

A.11 A summary of the construction activities provided by Main Contractor in the next reporting month is listed below:

Construction Activities to be undertaken

- Construction of Lower Ventilation Duct Columns at Zone A
- Construction of roof slab at west of box culvert and Excavation and Lateral Support works to roof slab at east side of box culvert of Zone B
- Complete install hanger support for existing underground utilities under traffic deck, excavation to roof slab in Zones B, C and D including remaining roof slab construction at Zone C3 and 2nd stage pumping test at Zone D
- Underground Utilities diversion and D-wall construction at Zone B3
- Underground Utilities diversion, jet grouting, pre-boring works and D-wall construction at Zone F
- Complete pipe piling and pre-boing works and commence D-wall construction at Zone G
- Works for reprovisioning of Gascogine Road Flyover at HKAA area: Construction of end span at P7L
- Bridge Works:
  i. FT1- Construct Stich segment S2 between P2L & P3L and relocate FT1 to P5R
  ii. FT2- Complete bridge deck construction for P2L
  iii. Temporary street furniture works (parapet and noise barriers installation) and external PT works (deviator diaphragm construction)
- Continue Excavation and Lateral Support and construction works for pile caps and ground beams construction for middle / east /west foundation for F02 Noise Enclosure
- Erection of Y columns, side columns and main beams for Noise Enclosure F02 in Zone 3 (night works)
- Works at Zone 2 Noise Enclosure scheduled as the following:

Construction Activities to be undertaken

i. Column A – Excavation and Lateral Support works and pile cap construction
ii. Column E - Complete backfilling following pile cap construction
iii. Columns G - Socket H- piling works
iv. Column A1 - Construct temporary RC pile cap and erect steel tower
v. Columns C - Complete design and fabrication of steel footing and install steel footing
vi. Columns D - Complete design and fabrication of steel footing and install steel footing

- Noise Enclosure steelworks fabrication at Fabrication Yard in Zhuhai, China
- Monitoring of instrumentation for all areas

1. BASIC PROJECT INFORMATION

1.1. Central Kowloon Route (CKR) is a 4.7 km long dual 3-lane trunk road in Central Kowloon linking Yau Ma Tei Interchange in West Kowloon with the road network on Kai Tak Development and Kowloon Bay in East Kowloon.

1.2. The Central Kowloon Route – Design and Construction Environmental Impact Assessment Report (Register No.: AEIAR-171/2013) was approved with conditions by the Environmental Protection Department (EPD) on 11 July 2013. An Environmental Permit (EP 457/2013) was issued on 9 August 2013. Variations of EP (VEP) was applied for and the EP (EP-457/2013/C) was issued by EPD on 16 January 2017. Variations of EP (VEP) was subsequently applied for and the latest EP (EP-457/2013/D) was issued by EPD on 15 June 2021. A Further EP (FEP-03/457/2013/D) was issued by EPD on 5 November 2021.

1.3. The construction of the CKR had been divided into different sections. This Contract No. HY/2014/08 – Section of Yau Ma Tei East (YMTE) covers part of the construction activities located at Yau Ma Tei under the EP and FEP which includes:

- Section of Yau Ma Tei East

i. Construction of Cut-and-Cover Tunnel in compliance with all statutory requirements and the requirements specified under the Contract while maintaining the traffic with all necessary provisions

ii. Construction and subsequent handover of Yau Ma Tei Access Shaft for facilitating the access and use by the contractor of Central Kowloon Route - Central Tunnel contract

iii. Demolition of existing buildings including Yau Ma Tei Multi-storey Carpark Building, Yau Ma Tei Specialist Clinic Extension Building and Yau Ma Tei Jade Hawker Bazaars

iv. Demolition and re-provisioning of Gascoigne Road Flyover and the underpinning works for the existing Ferry Street Flyover and Yau Ma Tei Police Station New Wing Building

v. Construction of civil provisions and coordination with the contractor of Central Kowloon Route - Tunnel Electrical & Mechanical contract

vi. Design and construction of Noise Barrier Works

vii. Prepare temporary traffic arrangement proposals, discuss at Traffic Management Liaison Group meeting and obtain its agreement and approval/ endorsement from relevant authorities at suitable times to enable the execution of the Works

The alignment and works area for the Contract No. HY/2014/08 - are shown in Appendix A.

1.4. A summary of the major construction activities undertaken in this reporting period is shown in Table 1.1. The construction programme is presented in Appendix B.

Table 1.1 Summary of the Construction Activities reported by Main Contractor during the Reporting Month

Construction Activities undertaken
● Construct D-wall panels, pumping test, excavation to roof slab & construct roof slab at Zone B ● Install Underground Utilities hanger support, excavation to roof slab and construct roof slab at Zone B ● Install Underground Utilities hanger support, excavation to roof slab and construct roof slab at Zone C ● Install Underground Utilities hanger support, excavation to roof slab and construct roof slab at Zone D ● Underground Utilities diversions, CLP Cable Tunnel A demolition, Jet Grouting, Pre-boring, D-wall construction, install kingposts/recharge well/observation well/pumping well and Pumping Test at Zone F ● Underground Utilities diversion, Jet Grouting, Preboring, Pipe Piles / D-wall construction, install king posts/ recharge well/observation well/pumping well and Pumping Test at Zone G ● Construct portal frame across, demolish existing Gascogine Road Flyover beams and construct end span at Portion 21 ● Construct bridge deck for spans P2 to P6 at Gascogine Road Flyover ● Construct socketed H-piles, pile caps, ground beams, reinforced concrete columns and erect steel posts of Noise Enclosure at Zone 3 ● Underground Utilities diversion, construct permanent & temporary pipe piles, barrette walls for Noise Enclosure at Zone 2

1.5. The project organisational chart specifying management structure and contact details are shown in Appendix C.

1.6. A summary of the valid permits, licences, and /or notifications on environmental protection for this Project is presented in Table 1.2.

Table 1.2 Summary of the Status of Valid Environmental Licence

Notification, Permit and Documentations

Permit/ Licences/ Notification /Reference No.	**Valid Period**		**Status**	**Remark**
	From	To		
Environmental Permit				
EP-457/2013/D	15 Jun 2021	End of Project	Valid	-
Further Environmental Permit				
FEP-03/457/2013/D	5 Nov 2021	End of Project	Valid	
Wastewater Discharge License				
WT00030660-2018	28 Mar 2018	31 Mar 2023	Valid	-
Notification of Construction Works under the Air Pollution Control (Construction Dust) Regulation				
471691	14 Sep 2021	End of Project	Notified	-
Chemical Waste Producer Registration				
WPN5213-225-B2526-01	14 Mar 2018	End of Project	Valid	-
Billing Account for Disposal of Construction Waste				
7029997	1 Feb 2018	End of Project	Valid	-

Permit/ Licences/ Notification /Reference No.	Valid Period		Status	Remark
	From	To		
Construction Noise Permit				
GW-RE0056-23	19 Jan 2023	18 Apr 2023	Valid	Construction Noise Permit at Zone 3
GW-RE1428-22	1 Jan 2023	28 Feb 2023	Supersede by GW-RE0192-23	Construction Noise Permit for Erection of Enclosure at Zone 3
GW-RE0192-23	1 Mar 2023	30 Apr 2023	Valid	
GW-RE0055-23	20 Jan 2023	19 Apr 2023	Valid	Construction Noise Permit at Zone B3 & F
GW-RE0037-23	21 Jan 2023	20 Apr 2023	Valid	Construction Noise Permit at Zone B2 & C
GW-RE1124-22	22 Oct 2022	19 Apr 2023	Valid	Construction Noise Permit at Zone A & B1
GW-RE1210-22	12 Nov 2022	11 Feb 2023	Supersede by GW-RE0205-23	Construction Noise Permit at Zone D & P3
GW-RE0205-23	2 Mar 2023	1 Apr 2023	Valid	
GW-RE1256-22	20 Nov 2022	19 May 2023	Valid	Construction Noise Permit at P6
GW-RE1361-22	10 Dec 2022	31 Jan 2023	Supersede by GW-RE0103-23	Construction Noise Permit for disassembly, assembly and launching of Form Traveler at Kansu Street between Shanghai Street and Canton Road
GW-RE0103-23	7 Feb 2023	29 Apr 2023	Valid	
GW-RE1363-22	12 Dec 2022	31 Jan 2023	Supersede by GW-RE0102-23	Construction Noise Permit at GRF for Temporary Erection of Bridge Decking
GW-RE0102-23	7 Feb 2023	29 Apr 2023	Valid	
GW-RE1471-22	11 Jan 2023	10 Feb 2023	Supersede by GW-RE0127-23	Construction Noise Permit for Central Divider Removal at GRF
GW-RE0127-23	11 Feb 2023	31 Mar 2023	Valid	
GW-RE0020-23	16 Jan 2023	15 Apr 2023	Valid	Construction Noise Permit at Multi-storey Carpark Building
GW-RE0086-23	31 Jan 2023	31 Mar 2023	Valid	Construction Noise Permit for disassembly, assembly and lanching of Form Traveller at P5

Permit/ Licences/ Notification /Reference No.	Valid Period		Status	Remark
	From	To		
GW-RE0062-23	6 Feb 2023	31 Mar 2023	Valid	Construction Noise Permit for Relocating Plant Pots
GW-RE0074-23	5 Feb 2023	26 Mar 2023	Valid	Construction Noise Permit for TTA Implementation of GRF Realignment
Marine Dumping Permit				
EP/MD/23-081	23 Dec 2022	22 Jun 2023	Valid	Type 1 – Open Sea Disposal
EP/MD/23-085	3 Jan 2023	2 Feb 2023	Supersede by EP/MD/23-092	Type 1 – Open Sea Disposal (Dedicated Site) & Type 2 - Confined Marine Disposal
EP/MD/23-092	3 Feb 2023	2 Mar 2023	Valid	

2. ENVIRONMENTAL STATUS

2.1. Environmental permit (EP) conditions under the EIAO, submission status under the EP and implementation status of mitigation measures had been reviewed and implemented on schedule. The status of required submissions under the EP (EP-457/2013/D) and FEP (FEP-03/457/2013/D) as of the reporting period for the Project are summarised in Table 2.1

Table 2.1 Summary of Status of Required Submission for EP-457/2013/D and FEP-03/457/2013/D for the Project

EP/FEP Condition (EP-457/2013/D) (FEP-03/457/2013/D)	**Submission**	**Submission date**
Condition 3.4	Monthly EM&A Report (Jan 2023)	14 Feb 2023

2.2. Details of the major construction activities reported by Main Contractor in this reporting period are shown in Table 2.2.

Table 2.2 Summary of the Construction Activities reported by Main Contractor during the Reporting Month

Construction activities undertaken	**Remarks on progress**
● Construct D-wall panels, pumping test, excavation to roof slab & construct roof slab at Zone B	● 96% completion
● Install Underground Utilities hanger support, excavation to roof slab and construct roof slab at Zone B	● 37% completion
● Install Underground Utilities hanger support, excavation to roof slab and construct roof slab at Zone C	● 42% completion
● Install Underground Utilities hanger support, excavation to roof slab and construct roof slab at Zone D	● 42% completion
● Underground Utilities diversions, CLP Cable Tunnel A demolition, Jet Grouting, Pre-boring, D-wall construction, install kingposts/ recharge well/observation well/pumping well and Pumping Test at Zone F	● 45% completion
● Underground Utilities diversion, Jet Grouting, Preboring, Pipe Piles / D-wall construction, install king posts/ recharge well/observation well/pumping well and Pumping Test at Zone G	● 46% completion
● Construct portal frame across, demolish existing Gascoigne Road flyover beams and construct end span at Portion 21	● 99% completion
● Construct bridge deck for spans P2 to P6 at Gascoigne Road flyover	● 95% completion
● Construct socketed H-piles, pile caps, ground beams, reinforced concrete columns and erect steel posts of Noise Enclosure at Zone 3	● 83% completion
● Underground Utilities diversion, construct permanent & temporary pipe piles, barrette walls for Noise Enclosure at Zone 2	● 64% completion

2.3. The drawing showing the project layout and the location of the monitoring station and environmental sensitive receivers are attached in Appendix A and Appendix K. Co-ordinates of the monitoring location are shown in Table 2.3.

Table 2.3 Summary for the location of the monitoring station

Monitoring Location	Location ID	Latitude	Longitude
Yau Ma Tei Catholic Primary School (Hoi Wang Road)*	W-A1/ W-N1A	22.31345	114.16409
Man Cheong Building	W-A6	22.308185	114.166033
Hydan Place	W-N18	22.30858	114.170185
Prosperous Garden Block 1	W-N25A	22.309846	114.168072
The Coronation Tower 1	W-P11	22.309824	114.165616

Remark: *The High Volume Sampler (HVS) at dust impact monitoring location W-A1 had been relocated on 6 Sep 2022 due to installation work of PV panel at Yau Ma Tei Catholic Primary School. The relocation of HVS was approved by ER and agreed with IEC.

3. MONITORING RESULTS

3.1. Monitoring Parameters

Air Quality

3.1.1. The impact monitoring had been carried out in accordance with section 5.8 of the approved EM&A Manual to determine the 1-hour and 24-hour total suspended particulates (TSP) levels at the monitoring locations in the reporting month.

3.1.2. The sampling frequency of at least once in every 6 days, shall be strictly observed at the monitoring stations for 24-hour TSP monitoring. For 1-hour TSP monitoring, the sampling frequency of at least 3 times in every 6 days should be undertaken when the highest dust impact occurs.

3.1.3. General meteorological conditions (wind speed, direction and precipitation) and notes regarding any significant adjacent dust producing sources had also been recorded throughout the impact monitoring period.

Noise

3.1.4. Construction noise level shall be measured in terms of the A-weighted equivalent continuous sound pressure level (L_{eq}). Leq (30min) shall be used as the monitoring parameter for the time period between 0700 and 1900 hours on normal weekdays.

3.1.5. For all other time periods, Leq (5min) shall be employed for comparison with the Noise Control Ordinance (NCO) criteria.

3.1.6. As supplementary information for data auditing, statistical results such as L_{10} and L_{90} shall also be obtained for reference.

3.2. Monitoring Equipment

Air Quality

3.2.1. 1-hour TSP levels and 24-hour TSP had been measured with direct reading dust meter and High Volume Samplers respectively. It has been demonstrated its capability in achieving comparable results with high volume sampling method as set out in the Title 40 of the Code of Federal Regulations, Chapter 1 (Part 50).

3.2.2. The 1-hour TSP meter was calibrated by the manufacturer prior to purchasing. Zero response of the instrument was checked before and after each monitoring event. Operation of the 1-hour TSP meter followed manufacturer's Operation and Service Manual. The 24-hour TSP meter was calibrated against firmware 80570-8100-V1.0.4, annually. Operation of the 24-hour TSP meter followed manufacturer's Operation and Service Manual. Valid calibration certificates of dust monitoring equipment are attached in Appendix H.

3.2.3. A summary of the equipment that was deployed for the 24- hour averaged monitoring is shown in Table 3.1. The TSP monitoring was conducted as per the schedule presented in Appendix G.

3.2.4. The equipment used for 1-hour TSP and 24-hour TSP measurement and calibration are summarised in Table 3.1

Table 3.1 Construction Dust Monitoring Equipment

Monitoring Parameter	Monitoring Equipment	Serial Number	Date of Calibration
1-hour TSP	LD-5R Digital Dust Indicator	0Z4545	3 Apr 2022
	LD-5R Digital Dust Indicator	992820	3 Apr 2022
	PC-3A(E) Digital Dust Indicator	JC2002224	3 Apr 2022
	PC-3A(E) Digital Dust Indicator	JC2002225	3 Apr 2022
24-hour TSP	TE-5170X High Volume Sampler	1084	31 Jan 2023 and 14 Feb 2023
	TE-5170X High Volume Sampler	1050	31 Jan 2023 and 14 Feb 2023
	TE-5025A Calibration Kit	3465	28 Jun 2022

Noise

3.2.5. Sound level meter in compliance with the International Electrotechnical Commission Publications 651: 1979 (Type 1) and 804: 1985 (Type 1) specifications has been used for carrying out the noise monitoring. The sound level meter has been checked using an acoustic calibrator. The wind speed and other metrological data has been recorded from Hong Kong Observatory- King's Park meteorological station, along with portable wind speed meter stand by as back up when the information are not available from HKO.

3.2.6. Acoustic calibrators and sound level meters using for the monitoring is within the valid period and were calibrated per year. Valid calibration certificate of noise monitoring equipment is attached in Appendix I.

3.2.7. The details of equipment using for monitoring are listed in Table 3.2, as below:

Table 3.2 Monitoring Equipment Used in Monitoring

Monitoring Equipment	Serial Number	Date of Calibration
Nti XL2 Sound Level Meter	A2A-13661-E0	22 Aug 2022
Rion NC-75 Sound Level Calibrator	34524163	9 May 2022

3.3. Monitoring Methodology and QA/QC results

Air Quality

3.3.1. The 1-hour TSP monitor, portable dust meters (Sibata Digital Dust Indicator Model LD-5R and PC-3A(E) digital dust indicator) were used for the impact monitoring. The 1-hour TSP meters provides a real time 1-hour TSP measurement based on 90^{o} light scattering. Three 1-hour TSP level were logged per every six days.

3.3.2. The 24-hour TSP monitor, High Volume Samplers (Tisch TE-5170X High Volume Air Sampler) were used for the impact monitoring. The 24-hour TSP monitoring consists of the following:

- The HVS was set at the monitoring location, with electricity supply connected and secured;
- HVS was calibrated before commencing the 1st measurement;
- The filter paper was weight and provided by HOKLAS lab (Acumen Laboratory and Testing Limited and ALS Technichem (HK) Pty Ltd) before and after the sampling. Certificate of HOKLAS accredited laboratory can be referred to Appendix J;
- The airflow over time during sampling process was recorded by the HVS.

3.3.3. HVSs were free-standing with no obstruction. The following criteria were considered in the installation of the HVS:

- Appropriate support to secure the samples against gusty wind needed to be provided the monitoring station;
- A minimum of 2m separation from walls, parapets and penthouses was required for rooftop samplers;
- No furnace or incinerator flues was nearby;
- Airflow around the sampler was unrestricted; and
- Permission could be obtained to set up the samplers and gain access to the monitoring station.

3.3.4. Preparation of Filter Papers

- Glass fiber filters were labelled and sufficient filters that were clean and without pinholes were selected;
- All filters were equilibrated in the conditioning environment for 24 hours before weighing. The conditioning environment temperature was around 25℃ and not varied by more than ±3℃; the relative humidity (RH)was 40%; and
- Acumen Laboratory and Testing Limited and ALS Technichem (HK) Pty Limited, as HOKLAS accredited laboratory, implemented comprehensive quality assurance and quality control programmes on the filters.

3.3.5. Field Monitoring

- The power supply was checked to ensure that the HVS was working properly;
- The filter holder and area surrounding the filter were cleaned;
- The filter holder was removed by loosening the foul 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 secured with an aluminum strip;
- The HVS was warmed- up for about 5 minutes to establish run- temperature conditions;
- A new flow rate record sheet was inserted into the flow recorder;
- The flow rates of the HVS was checked and adjusted to between 0.64-1.52m^3min^{-1}, which was within the range specified in the EM&A Manual (i.e. 0.6- 1.7m^3min^{-1});

- The programmable timer was set for a sampling period of 24 hours, and the starting time, weather condition and 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 so that only surfaces with collected particulate matter were in contact;
- The filter paper was placed in a clean plastic envelope and sealed; all monitoring information was recorded on a standard data sheet and
- The filters were sent to (Acumen Laboratory and Testing Ltd and ALS Technichem (HK) Pty Ltd) for analysis.

3.3.6. Maintenance and Calibration

- The HVS and their accessories were maintained in a good working condition. For example, motor brushes were replaced routinely and electrical wiring was checked to ensure a continuous power supply; and
- The flow rate of each HVS with mass flow controller was calibrated using an orifice calibrator, Initial calibrations of the dust monitoring equipment were conducted upon installation and prior to commissioning. Five- point calibration was carried out for HVS using TE-5025 Calibration Kit. HVS is calibrated bimonthly. The calibration records for the HVS is given in Appendix H.

3.3.7. Wind Data Monitoring

- The wind speed has been recorded from Hong Kong Observatory- King's Park meteorological station, along with portable wind speed meter stand by as back up when the information are not available from HKO.

Noise

3.3.8. All noise measurements by the meter were set to FAST response and on the A-weighted equivalent continuous sound pressure level (L_{eq}) in decibels dB(A). $L_{Aeq(30min)}$ was used as the monitoring metric for the time period between 0700 –1900 hours on normal weekdays. The measured noise levels were logged every 5 minutes throughout the monitoring period.

3.3.9. Prior to the noise measurement, the accuracy of the sound level meter was checked using an acoustic calibrator generating a known sound pressure level at a known frequency. Checking was conducted before and after the monitoring. The calibration level before and after the noise measurement is agreed to within 1.0 dB(A).

3.3.10. Noise measurements should not be made in presence of fog, rain, wind with a steady speed exceeding 5 ms^{-1} or wind with gusts exceeding 10 ms^{-1}. The wind speed was checked with a portable wind speed meter capable of measuring with speeds in ms^{-1}.

3.4. Monitoring Locations

Air Quality

3.4.1. During the site visit, both of the original proposed dust monitoring locations were rejected due to the condition at The Coronation was not favourable for monitoring and the access was declined by the management office of Hong Kong Community College (HKCC) of PolyU. Two alternative air monitoring stations Yau Ma Tei Catholic Primary School (Hoi Wang Road) and Man Cheong Building had been proposed by ET and approved by IEC. 2 designated air monitoring locations were identified and agreed with IEC and EPD. Details of air monitoring stations are described in Table 3.3. The location plan of air quality monitoring stations is shown in Appendix K.

Table 3.3 Location of the Dust Monitoring Stations

Air Quality Monitoring Station	Dust Monitoring Station
W-A1	Yau Ma Tei Catholic Primary School (Hoi Wang Road)
W-A6	Man Cheong Building

Noise

3.4.2. During the site visit, one of the original proposed noise monitoring locations Tak Cheong Building was rejected by the president of the owner's corporation. Alternative noise monitoring station Hydan place had been proposed by ET and approved by IEC. 4 noise sensitive receivers designated noise monitoring locations were identified and agreed with IEC and EPD. The designated monitoring stations are identified and access was granted by the premises. The details of noise monitoring stations are described in Table 3.4 and the location plan of noise monitoring station is shown in Appendix K.

Table 3.4 Noise Monitoring Stations

Noise Monitoring Station	Identified Noise Monitoring Station	Type of Measurement
W-N1A	Yau Ma Tei Catholic Primary School (Hoi Wang Road)	Façade
W-N18	Hydan Place	Façade
W-N25A	Prosperous Garden Block 1	Façade
W-P11	The Coronation Tower 1	Façade

3.5. Monitoring date, time, frequency and duration

3.5.1. A summary of impact monitoring duration, sampling parameter and frequency is presented in Table 3.5.

Table 3.5 Summary of Impact Monitoring Programme

Impact Monitoring	Duration	Sampling Parameter	Frequency
Dust	1-hour continuous measurement	1-hour TSP	3 times per six days
Dust	24-hour continuous sampling	24-hour TSP	Once per six days
Noise	30-minute continuous measurement	$L_{eq\ 30\ min}$, L_{10} and L_{90} as reference.	Once per week (0700 – 1900)

3.6. Result Summary

Air Quality

3.6.1. According to our field observations, the major dust source identified at the designated air quality monitoring stations in the reporting month are summarised in Table 3.6.

Table 3.6 Observation at Dust Monitoring Stations

Monitoring Station	Major Dust Source
W-A1	Nearby traffic
W-A6	Nearby traffic

3.6.2. Air quality impact monitoring for the reporting month was carried out on 2, 8, 14, 20 and 25 February 2023.

3.6.3. The results for 1-hour TSP and 24-hour TSP are summarized in Table 3.7 and Table 3.8. The measurement data and details of influencing factors such as weather conditions and site observation are presented in Appendix L.

Table 3.7 Summary of 1-hour TSP Monitoring Results

Monitoring Location	Range(μg/m^3)	Action Level(μg/m3)	Limit Level(μg/m3)
W-A1	57 - 72	319	500
W-A6	66 - 88	306	500

Table 3.8 Summary of 24-hour TSP Monitoring Results

Monitoring Location	Range(μg/m^3)	Action Level(μg/m3)	Limit Level(μg/m3)
W-A1	23 - 54	167	260
W-A6	22 - 45	166	260

Noise

3.6.4. According to our field observations, the major noise source identified at the designated noise monitoring station in the reporting month are summarised in Table 3.9:

Table 3.9 Observation at Noise Monitoring Stations

Monitoring Station	Major Noise Source
W-N1A	Nearby traffic
W-N18	Nearby traffic
W-N25A	Nearby traffic
W-P11	Nearby traffic

3.6.5. The construction noise impact monitoring for the reporting month was carried out on 2, 8, 14, 20 and 25 February 2023.

3.6.6. The result for noise monitoring is summarized in Table 3.10. The measurement data are shown in Appendix M.

Table 3.10 Summary of Noise Monitoring Results

Time Period	**Monitoring location**	**Parameter**	**Range, dB(A)**				
			L_{eq}	**L_{10}**	**L_{90}**	**Action Level**	**Limit Level#**
Normal working hour from 0700-1900	W-N1A*	Leq 30min	60.3 – 61.5	61.5 – 63.8	56.4 – 58.0	When one documented complaint is received	70dB(A) or 65 dB(A) during examination
	W-N18		70.1 – 73.9	72.8 – 75.4	66.6 – 68.2		75dB(A)#
	W-N25A		67.9 – 72.0	69.2 – 74.6	65.7 – 67.4		
	W-P11		67.1 – 71.2	68.6 – 73.4	64.6 – 67.3		

Remarks:
1. # If works are to be carried out during restricted hours, the conditions stipulated in the construction noise permit by the Noise Control Authority have to be followed.
2. *No examination was carried out at Yau Ma Tei Catholic Primary School during the monitoring dates in February 2023. The limit level of W-N1A would be 70 dB(A).

Waste management

3.6.7. The waste generated from this Project includes inert C&D materials, and non-inert C&D materials. Non-inert C&D materials are made up of general refuse, vegetative wastes and recyclable wastes such as plastics and paper/cardboard packaging waste. Steel materials generated from the project are also grouped into non-inert C&D materials as the materials were not disposed of with other inert C&D materials. With reference to relevant handling records and trip tickets of this Project, the quantities of different types of waste generated in the reporting month are summarised in Table 3.11. Details of cumulative waste management data are presented as a waste flow table in Appendix N.

Table 3.11 Quantities of waste generated from the Project

Reporting period	Quantity					
	Inert C&D Materials (in ‘tonnes)	Chemical Waste (in‘000 Kg)	Non-inert C&D Materials			
			Others, e.g. General Refuse disposed at Landfill (in ‘tonnes)	Recycled materials		
				Paper/card board (in ‘000 Kg)	Plastics (in ‘000 Kg)	Metals (in ‘000 Kg)
February-2023	9511.80	0.00	81.30	0.20	0.00	0.00

4. SUMMARY OF COMPLAINTS, NOTIFICATION OF SUMMONS AND PROSECUTIONS

4.1. The Environmental Complaint Handling Procedure is shown in below Table 4.1:

Table 4.1 Environmental Complaint Handling Procedure

Complaint Received via Project Hotline	Complaint Received via 1823 or from other government departments
Contractor notify ER, ET and IEC	ER notify Contractor, ET and IEC
Contractor log complaint and date of receipt onto the complaint database. Contractor, ER and ET to conduct investigation of complaint	
If complaint is considered not valid	If complaint is found valid
ET or ER to reply the complainant if necessary	Contractor to identify and implement remedial measures in consultation with the IEC, ET and ER.
	The ER, ET and IEC to review the effectiveness of the Contractor's remedial measures and the updated situation; ET to undertake additional monitoring and audit to verify the situation if necessary, and oversee that circumstances leading to the complaint do not recur. ER to conduct further inspection as necessary.
If the complaint is referred by the EPD, the Contractor to prepare interim report on the status of the complaint investigation and follow-up actions stipulated above, including the details of the remedial measures and additional monitoring identified or already taken, for submission to EPD within the time frame assigned by the EPD	
The ET to record the details of the complaint, results of the investigation, subsequent actions taken to address the complaint and updated situation including the effectiveness of the remedial measures, supported by regular and additional monitoring results in the monthly EM&A reports	

4.2. Should non-compliance of the criteria occur, action in accordance with the Event and Action Plan in Appendix D and Appendix E shall be carried out.

4.3. Eight Action Levels of construction noise were triggered during the reporting month as documented complaints were received. No exceedance of Limit Level of construction noise was recorded in the reporting month. No exceedance of the Action and Limit Level of 24-hour TSP and 1-hour TSP was recorded in the reporting month.

4.4. A total of eleven environmental complaints were received in the reporting month. After investigation with Contractor, precautionary measures had been proposed to the Contractor by ET. The interim reports for the complaints are shown in Appendix Q.

4.5. No non-compliance was reported in the reporting month.

4.6. No notification of summon and prosecution was received in the reporting period.

4.7. Statistics on complaints, notifications of summons and successful prosecutions are summarized in Appendix O.

5. EM&A SITE INSPECTION

5.1. Site inspections were carried out on a weekly basis to monitor the implementation of proper environmental pollution control and mitigation measures under the Contract. In the reporting period, four (4) site inspections were carried out on 2, 9, 16 and 23 February 2023, along with bi-weekly inspection of the implementation of landscape and visual mitigation measures conducted on 2 and 16 February 2023.

5.2. One joint site inspection with IEC also undertaken on 9 February 2023. Minor deficiencies were observed during weekly site inspection. Key observations during the site inspections are summarized in Table 5.1.

Table 5.1 Site Observations

Date	Environmental Observations	Follow-up Status
2 February 2023	1. Exposed earth at Zone B3 & P5 should be sprayed with water frequently. 2. The NRMM label of the excavator at Zone F was not in good condition. 3. The stockpile of dusty materials at Zone F should be covered with impervious sheeting. 4. Chemical oil at P5 should be treated as followed by the Code of Practice of Chemical Waste. 5. Cement bags at Zone D3 should be covered with impervious sheeting.	1. Water spraying had provided at Zone B3 & P5. 2. The excavator at Zone F had left. 3. The stockpile of dusty materials at Zone F had been disposed to government waste disposal facilities. 4. Chemical oil had been cleaned at P5. 5. Cement bags at Zone D3 had been covered with impervious sheeting.
9 February 2023	1. The chemical containers at Zone A should be placed on drip trays.	1. The chemical had been placed back on drip trays.
16 February 2023	1. Water pump should be applied for the stagnant water area in Zone B1. 2. Water spraying should be implemented more frequently on the exposed earth at Zone B3.	1. Water pump had been applied for the stagnant water area in Zone B1. 2. Water spraying had been implemented more frequently on the exposed earth at Zone B3.
23 February 2023	1. Water spraying should be provided when breaking rock in Zone D3. 2. Water spraying should be provided for exposed earth at Zone F.	1. Water spraying had been provided when breaking rock in Zone D3. 2. Water spraying had been provided for exposed earth at Zone F.

5.3. The Contractor had rectified all observation identified during environmental site inspection in the reporting period.

5.4. According to the EIA Study Report, Environmental Permit, contract documents and EM&A Manual, the mitigation measures detailed in the documents are implemented as much as practical during the reporting period. An updated Implementation Status of Environmental Mitigation Measures (EMIS) is provided in Appendix F.

6. FUTURE KEY ISSUES

6.1. The construction activities provided by Main Contractor in the next reporting month are:

Construction Activities to be undertaken

- Construction of Lower Ventilation Duct Columns at Zone A
- Construction of roof slab at west of box culvert and Excavation and Lateral Support works to roof slab at east side of box culvert of Zone B
- Complete install hanger support for existing underground utilities under traffic deck, excavation to roof slab in Zones B, C and D including remaining roof slab construction at Zone C3 and 2nd stage pumping test at Zone D
- Underground Utilities diversion and D-wall construction at Zone B3
- Underground Utilities diversion, jet grouting, pre-boring works and D-wall construction at Zone F
- Complete pipe piling and pre-boing works and commence D-wall construction at Zone G
- Works for reprovisioning of Gascogine Road Flyover at HKAA area: Construction of end span at P7L
- Bridge Works:
  i. FT1- Construct Stich segment S2 between P2L & P3L and relocate FT1 to P5R
  ii. FT2- Complete bridge deck construction for P2L
  iii. Temporary street furniture works (parapet and noise barriers installation) and external PT works (deviator diaphragm construction)
- Continue Excavation and Lateral Support and construction works for pile caps and ground beams construction for middle / east /west foundation for F02 Noise Enclosure
- Erection of Y columns, side columns and main beams for Noise Enclosure F02 in Zone 3 (night works)
- Works at Zone 2 Noise Enclosure scheduled as the following:
  i. Column A – Excavation and Lateral Support works and pile cap construction
  ii. Column E - Complete backfilling following pile cap construction
  iii. Columns G - Socket H- piling works
  iv. Column A1 - Construct temporary RC pile cap and erect steel tower
  v. Columns C - Complete design and fabrication of steel footing and install steel footing
  vi. Columns D - Complete design and fabrication of steel footing and install steel footing
- Noise Enclosure steelworks fabrication at Fabrication Yard in Zhuhai, China
- Monitoring of instrumentation for all areas

6.2. Potential environmental impacts arising from the above construction activities are mainly associated with dust, construction noise and waste management.

6.3. The tentative schedule of regular construction noise, 1-hour TSP and 24-hour TSP monitoring in the next reporting period is presented in Appendix P.

6.4. The construction programme for the Project for the next reporting month is presented in Appendix B.

7. CONCLUSION AND RECOMMENDATIONS

7.1. This 59th monthly EM&A Report presents the EM&A works undertaken during the period from 1 February 2023 to 28 February 2023 in accordance with the EM&A Manual and the requirement under EP- 457/2013/D and FEP-03/457/2013/D.

7.2. Eight Action Levels of construction noise were triggered during the reporting month as documented complaints were received. No exceedance of Limit Level of construction noise was recorded in the reporting month. No exceedance of the Action and Limit Level of 24-hour TSP and 1-hour TSP was recorded in the reporting month.

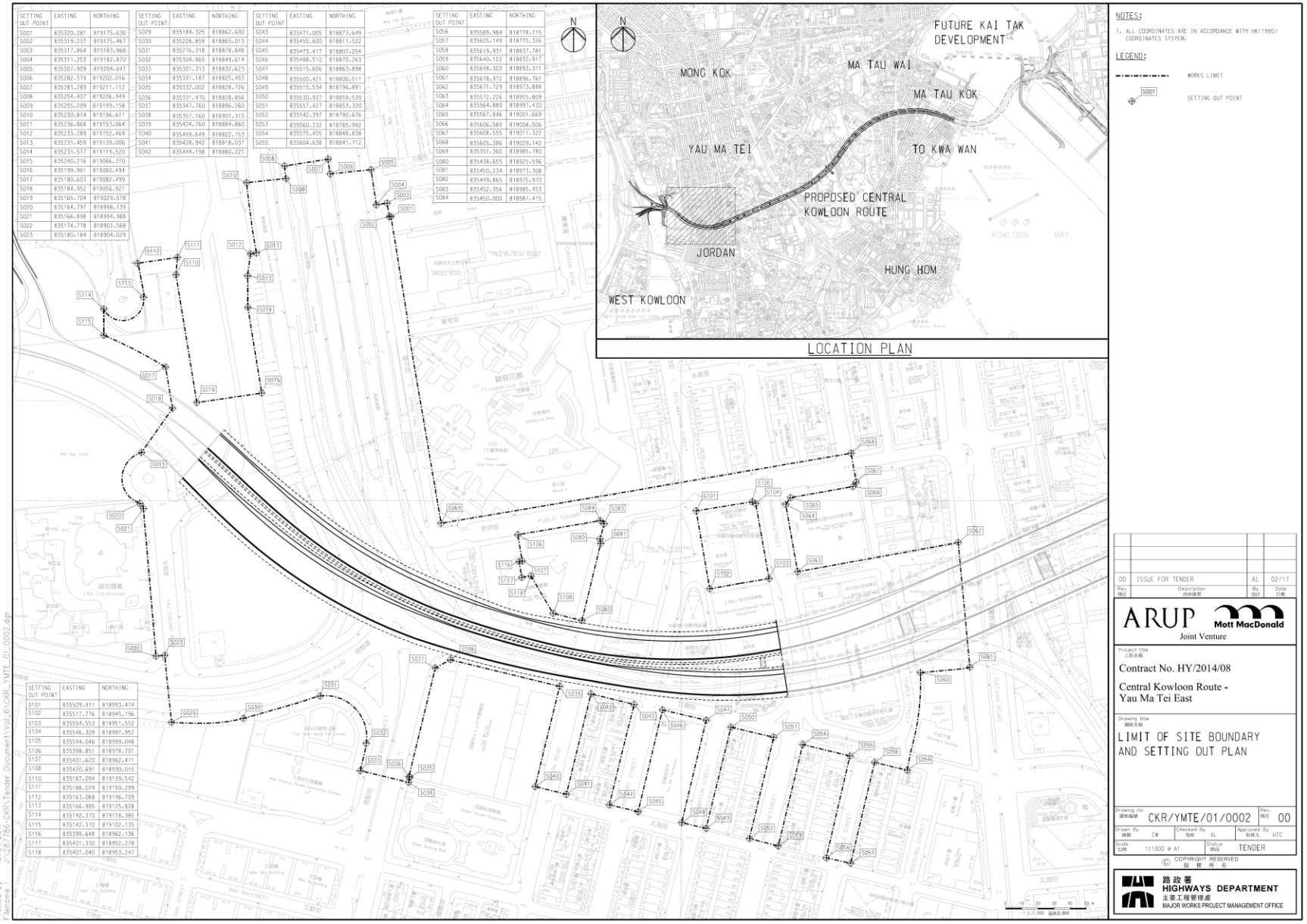
7.3. A total of eleven environmental complaints were received in the reporting month. After investigation with Contractor, precautionary measures had been proposed to the Contractor by ET. The interim reports for the complaints are shown in Appendix Q.

7.4. No non-compliance was reported in the reporting month.

7.5. No notification of summons or prosecution was received in the reporting month.

7.6. The ET will keep track on the construction works to confirm compliance of environmental requirements and the proper implementation of all necessary mitigation measures.

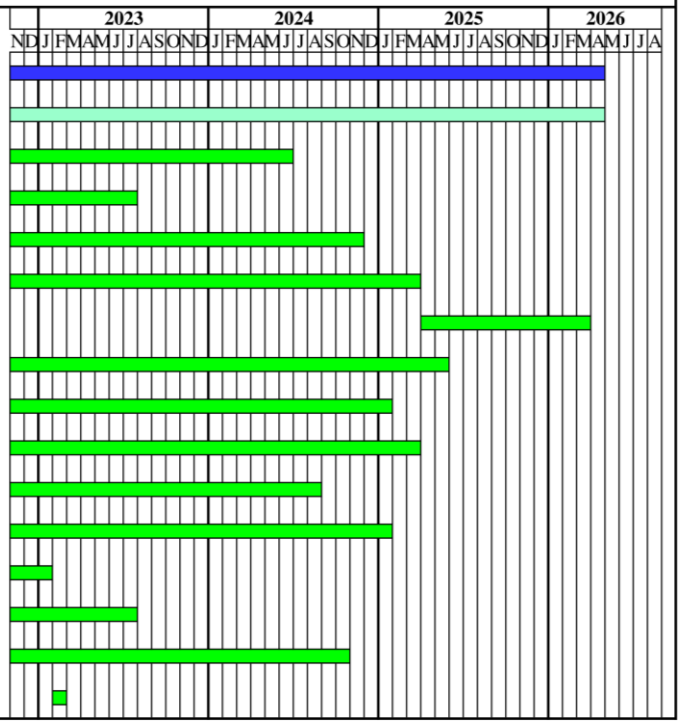
Appendix A
Alignment and Works Area For the Contract No. HY/2014/08


LOCATION PLAN
FUTURE KAI TAK DEVELOPMENT
MONG KOK
MA TAU WAI
MA TAU KOK
YAU MA TEI
TO KWA WAN
PROPOSED CENTRAL KOWLOON ROUTE
JORDAN
HUNG HOM
WEST KOWLOON
NOTES:
1. ALL COORDINATES ARE IN ACCORDANCE WITH HK1980 COORDINATES SYSYEM.
LEGEND:
WORKS LIMIT
SETTING OUT POINT
ISSUE FOR TENDER
ARUP
Mott MacDonald
Joint Venture
Contract No. HY/2014/08
Central Kowloon Route - Yau Ma Tei East
LIMIT OF SITE BOUNDARY AND SETTING OUT PLAN
CKR/YMTE/01/0002
TENDER
HIGHWAYS DEPARTMENT
MAJOR WORKS PROJECT MANAGEMENT OFFICE

Appendix B
Construction Programme

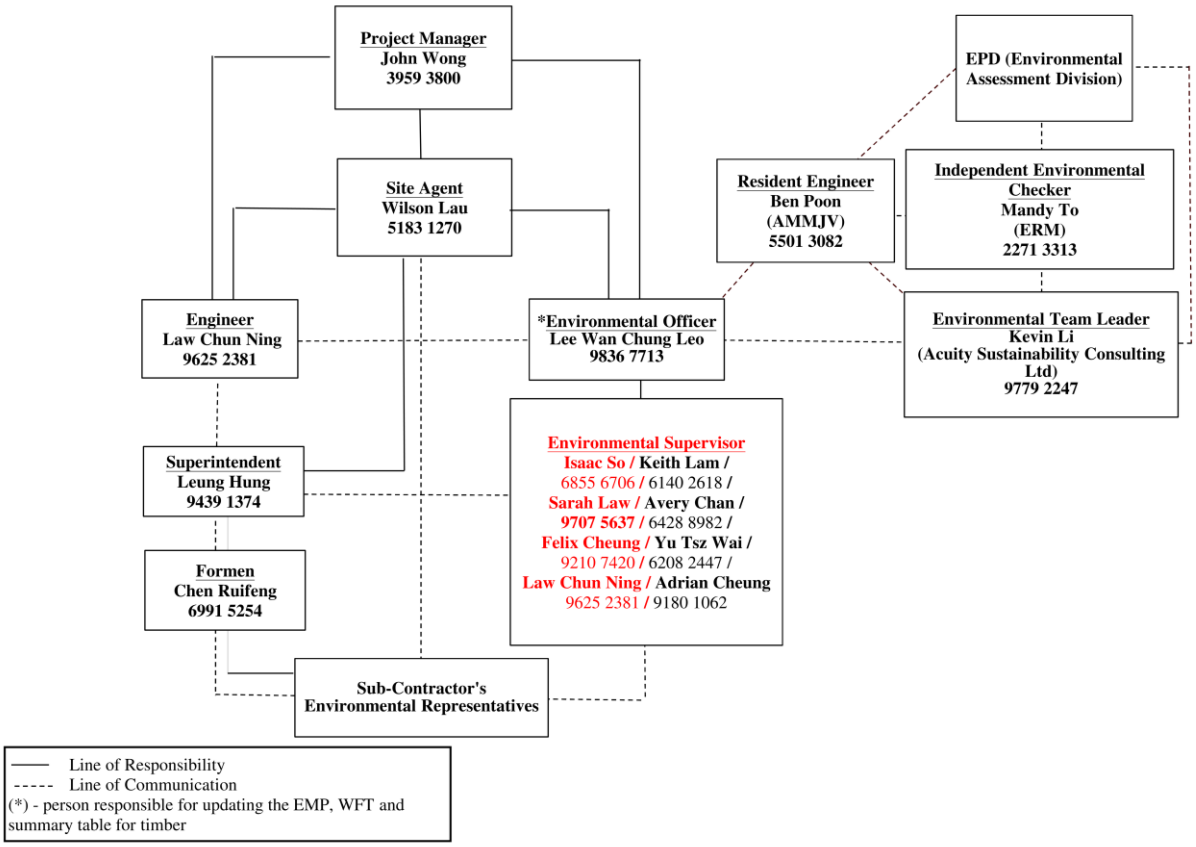
Construction Programme

Activity Name	Duration	Start	Finish
HY/2014/08 Central Kowloom Route - Yau Ma Tei East	**2996**	**8-Jan-18**	**22-Mar-26**
Construction Works	**2987**	**17-Jan-18**	**22-Mar-26**
Temporary Traffic Management in Underground (Portion 11 & 12)	1722	29-Sep-19	15-Jun-24
Works on Northern & Southern Parts of YMT Multi-Storey Car Park Building	674	1-Sep-21	6-Jul-23
All Works within TMTSC, Maintenance Depot Area, Public Square St/Kansu St Rest Garden, Access Road	2492	17-Jan-18	12-Nov-24
Preservation and Protection of Existing Trees	2622	17-Jan-18	22-Mar-25
Establishment Works	365	23-Mar-25	22-Mar-26
All Works in Underground	1195	14-Feb-22	23-May-25
Completion of Noise Enclosure	1602	26-Aug-20	13-Jan-25
All Remaining Works not Covered in Other Section	2482	6-Jun-18	22-Mar-25
Construction of C&C Tunnel Eastbound	2418	17-Jan-18	30-Aug-24
Construction of C&C Tunnel Westbound	2549	17-Jan-18	8-Jan-25
C&C Tunnel Works within Portion 13 & 20A, Cul-de-sac at Portion 20B & 24	1749	7-Apr-18	19-Jan-23
Demolition of Southern Part of Ex. YMT Multi-Storey Car Park Building	146	6-Feb-23	1-Jul-23
GRF Reprovisioning	1759	16-Dec-19	8-Oct-24
Completion of Diaphragm Walls and Roof Slabs of C&C Tunnels within Portion 27 and 28	1	7-Feb-23	7-Feb-23



Appendix C
Project Organization Chart

Project O-Chart



Appendix D
Dust Event-Action Plan (EAP)

EVENT	ACTION			
	ET	**IEC**	**ER**	**CONTRACTOR**
ACTION LEVEL				
1.Exceedance for one sample	1. Identify source, investigate the causes of exceedance and propose remedial measures; 2. Inform IEC and ER; 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 ER; 3. Advise the ER 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 ER; 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. Supervise Implementation of remedial measures.	1. Confirm receipt of notification of failure in writing; 2. Notify Contractor; 3. Ensure remedial measures properly implemented.	1. Submit proposals for remedial to ER within 3 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 ER, Contractor and	1. Check monitoring data submitted by ET; 2. Check Contractor's working method;	1. Confirm receipt of notification of failure in writing; 2. Notify Contractor;	1. Take immediate action to avoid further exceedance; 2. Submit proposals for remedial actions to IEC

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

Note:

ET – Environmental Team ER – Engineer's Representative

IEC – Independent Environmental Checker

Appendix E
Noise Event-Action Plan (EAP)

EVENT	ACTION			
	ET	**IEC**	**ER**	**CONTRACTOR**
Action Level	1. Identify source, investigate the causes of exceedance and propose remedial measures; 2. Notify IEC and Contractor; 3. Report the results of investigation to the IEC, ER and Contractor; 4. Discuss with the Contractor and formulate remedial measures; 5. Increase monitoring frequency to check mitigation effectiveness.	1.Review the analysed results submitted by the ET; 2. Review the proposed remedial measures by the Contractor and advise the ER accordingly; 3. Supervise the implementation of remedial measures.	1. Confirm receipt of notification of failure in writing; 2. Notify Contractor; 3. Require Contractor to propose remedial measures for the analysed noise problem; 4. Ensure remedial measures are properly implemented	1. Submit noise mitigation proposals to IEC; 2. Implement noise mitigation proposals.
Limit Level	1. Identify source; 2. Inform IEC, ER, EPD and Contractor; 3. Repeat measurements to confirm findings; 4. Increase monitoring frequency; 5. Carry out analysis of Contractor's working procedures to determine possible mitigation to be implemented; 6. Inform IEC, ER and EPD the causes and actions taken for the exceedances; 7. Assess effectiveness of Contractor's remedial actions	1. Discuss amongst ER, ET, and Contractor on the potential remedial actions; 2. Review Contractors remedial actions whenever necessary to assure their effectiveness and advise the ER accordingly; 3. Supervise the implementation of remedial measures.	1.Confirm receipt of notification of failure in writing; 2. Notify Contractor; 3. Require Contractor to propose remedial measures for the analysed noise problem; 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	1. Take immediate action to avoid further exceedance; 2. Submit proposals for remedial actions to IEC within 3 working days of notification; 3. Implement the agreed proposals; 4. Resubmit proposals if problem still not under control; 5. Stop the relevant portion of works as determined by the ER until the exceedance is abated.

EVENT	ACTION			
	ET	**IEC**	**ER**	**CONTRACTOR**
	and keep IEC, EPD and ER informed of the results; 8. If exceedance stops, cease additional monitoring.		abated.	

Note:

ET – Environmental Team

IEC – Independent Environmental Checker

ER – Engineer's Representative

Appendix F
Environmental Mitigation Implementation Schedule (EMIS)

Environmental Mitigation Implementation Schedule – Contract No. HY/2014/08 (Yau Ma Tei East)

EIA Ref.	EM&A Log Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Implementation Agent	Location / Timing	Implementation Stage	Requirements and/ or standards to be achieved	Implementation Status
Construction Dust Impact								
S4.3.10	D1	The contractor shall follow the procedures and requirements given in the Air Pollution Control (Construction Dust) Regulation	Minimize dust impact at the nearby sensitive receivers	Contractor	All construction sites	Construction stage	• APCO • To control the dust impact To meet HKAQO and TM-EIA criteria	• Implemented, deficiency rectified after observation
S4.3.10	D2	• Mitigation measures in form of regular watering under a good site practice should be adopted. Watering once per hour on exposed worksites and haul road should be conducted to achieve dust removal efficiencies of 91.7%. While the above watering frequencies are to be followed, the extent of watering may vary depending on actual site conditions but should be sufficient to maintain an equivalent intensity of no less than 1.3 L/m^2 to achieve the dust removal efficiency.	Minimize dust impact at the nearby sensitive receivers	Contractor	All construction sites	Construction stage	• APCO • To control the dust impact To meet HKAQO and TM-EIA criteria	• Implemented, deficiency rectified after observation
S4.3.10	D3	• Proper watering at exposed spoil should be undertaken throughout the construction phase; • Any excavated or stockpile of dusty material should be covered entirely by impervious sheeting or sprayed with water to maintain the entire surface wet and then removed or backfilled or reinstated where practicable within 24 hours of the excavation or unloading; • Any dusty materials remaining after a stockpile is removed should be wetted with water and cleared from the surface of roads; • A stockpile of dusty material should not be	Minimize dust impact at the nearby sensitive receivers	Contractor	All construction sites	Construction stage	• APCO • To control the dust impact To meet HKAQO and TM-EIA criteria	• Implemented, deficiency rectified after observation

Environmental Mitigation Implementation Schedule –
Contract No. HY/2014/08 (Yau Ma Tei East)

EIA Ref.	EM&A Log Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Implementation Agent	Location / Timing	Implementation Stage	Requirements and/ or standards to be achieved	Implementation Status
		extended beyond the pedestrian barriers, fencing or traffic cones; • The load of dusty materials on a vehicle leaving a construction site should be covered entirely by impervious sheeting to ensure that the dusty materials do not leak from the vehicle. • Where practicable, vehicle washing facilities with high pressure water jet should be provided at every discernible or designated vehicle exit point. The area where vehicle washing takes place and the road section between the washing facilities and the exit point should be paved with concrete, bituminous materials or hardcores; • When there are open excavation and reinstatement works, hoarding of not less than 2.4m high should be provided and properly maintained as far as practicable along the site boundary with provision for public crossing. Good site practice shall also be adopted by the Contractor to ensure the conditions of the hoardings are properly maintained throughout the construction period; • The portion of any road leading only to construction site that is within 30m of a vehicle entrance or exit should be kept clear of dusty materials; • Surfaces where any pneumatic or power-driven drilling, cutting, polishing or other mechanical breaking operation takes place should be sprayed with water or a dust suppression chemical						

Environmental Mitigation Implementation Schedule –
Contract No. HY/2014/08 (Yau Ma Tei East)

EIA Ref.	EM&A Log Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Implementation Agent	Location / Timing	Implementation Stage	Requirements and/ or standards to be achieved	Implementation Status
		continuously; • Any area that involves demolition activities should be sprayed with water or a dust suppression chemical immediately prior to, during and immediately after the activities so as to maintain the entire surface wet; • Any skip hoist for material transport should be totally enclosed by impervious sheeting; • Every stock of more than 20 bags of cement or dry-pulverised fuel ash (PFA) should be covered entirely by impervious sheeting or placed in an area sheltered on the top and the 3 sides; • Loading, unloading, transfer, handling or storage of bulk cement or dry PFA should be carried out in a totally enclosed system or facility, and any vent or exhaust should be fitted with an effective fabric filter or equivalent air pollution control system • Exposed earth should be properly treated by compaction, turfing, hydroseeding, vegetation planting or sealing with latex, vinyl, bitumen, shotcrete or other suitable surface stabilizer within six months after the last construction activity on the construction site or part of the construction site where the exposed earth lies.						
S4.3.10	D6	Implement regular dust monitoring under EM&A programme during the construction stage.	Monitoring of dust impact	Contractor	Selected rep. dust monitoring station	Construction stage	• TM-EIA	• Implemented
Construction Noise (Airborne)								

Environmental Mitigation Implementation Schedule – Contract No. HY/2014/08 (Yau Ma Tei East)

EIA Ref.	EM&A Log Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Implementation Agent	Location / Timing	Implementation Stage	Requirements and/ or standards to be achieved	Implementation Status
S5.4.1	N1	Implement the following good site practices: • Only well-maintained plant should be operated on-site and plant should be serviced regularly during the construction programme; • Machines and plant (such as trucks, cranes) that may be in intermittent use should be shut down between work periods or should be throttled down to a minimum; • Plant known to emit noise strongly in one direction, where possible, be orientated so that the noise is directed away from nearby NSRs; • Silencers or mufflers on construction equipment should be properly fitted and maintained during the construction works; • Mobile plant should be sited as far away from NSRs as possible and practicable; • Material stockpiles, mobile container site office and other structures should be effectively utilized, where practicable, to screen noise from on-site construction activities.	Control construction airborne noise	Contractor	All construction sites	Construction stage	• Annex 5, TM-EIAO	• Implemented
S5.4.1	N2	Install temporary hoarding located on the site boundaries between noisy construction activities and NSRs. The conditions of hoardings shall be properly maintained throughout the construction period.	Reduce the construction noise levels at low-level zone of NSRs through partial screening	Contractor	All construction sites	Construction stage	• Annex 5, TM-EIAO	• Implemented
S5.4.1	N3	Install movable noise barriers (typical design is wooden framed barrier with a small-cantilevered on a skid footing with 25mm thick internal sound absorptive lining), acoustic mat or full enclosure,	Sreen the noisy plant items to be used at all construction	Contractor	All construction sites where practicable	Construction stage	• Annex 5, TM-EIAO	• Implemented

Environmental Mitigation Implementation Schedule –
Contract No. HY/2014/08 (Yau Ma Tei East)

EIA Ref.	EM&A Log Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Implementation Agent	Location / Timing	Implementation Stage	Requirements and/ or standards to be achieved	Implementation Status
		screen the noisy plants including air compressors, generators and handheld breakers, etc.	sites					
S5.4.1	N4	Use 'Quiet plant'	Reduce the noise levels of plant items	Contractor	All construction sites where practicable	Construction stage	• Annex 5, TM-EIAO	• Implemented
S5.4.1	N5	Loading/ unloading activities should be carried out inside the full enclosure of mucking out points.	Reduce the noise levels of loading/ unloading activities	Contractor	Mucking out locations	Construction stage	• Annex 5, TM-EIAO	• Implemented
S5.4.1	N6	Sequencing operation of construction plants where practicable.	Operate sequentially within the same work site to reduce the construction airborne noise	Contractor	All construction sites where practicable	Construction stage	• Annex 5, TM-EIAO	• Implemented
S5.4.1	N7	Implement a noise monitoring programme under EM&A programme.	Monitor the construction noise levels at the selected representative locations	Contractor	Selected rep. noise monitoring station	Construction stage	• TM-EIAO	• Implemented
Water Quality (Construction Phase)								

Environmental Mitigation Implementation Schedule – Contract No. HY/2014/08 (Yau Ma Tei East)

EIA Ref.	EM&A Log Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Implementation Agent	Location / Timing	Implementation Stage	Requirements and/ or standards to be achieved	Implementation Status
S6.9.1.1	W1	In accordance with the Practice Note for Professional Persons on Construction Site Drainage, Environmental Protection Department, 1994 (ProPECC PN1/94), construction phase mitigation measures shall include the following: <u>Construction Runoff</u> • 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 (both temporary and permanent drainage pipes and culverts), earth bunds or sand bag barriers should be provided on site to direct stormwater to silt removal facilities. The design of the temporary on-site drainage system will be undertaken by the contractor prior to the commencement of construction; • The dikes or embankments for flood protection should be implemented around the boundaries of earthwork areas. Temporary ditches should be provided to facilitate the runoff discharge into an appropriate watercourse, through a silt/ sediment trap. The sediment/ silt traps should be incorporated in the permanent drainage channels to enhance deposition rates; • The design of efficient silt removal facilities should be based on the guidelines in Appendix A1 of ProPECC PN 1/94, which states that the retention time for silt/ sand traps should be 5 minutes under	To minimize water quality impact from the construction site runoff and general construction activities	Contractor	All construction sites where practicable	Construction stage	• Water Pollution Control Ordinance • ProPECC PN 1/94 • TM-EIAO • TM-DSS	• Implemented

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		maximum flow conditions. Sizes may vary depending upon the flow rate, but for a flow rate of 0.1 m3/s a sedimentation basin of 30 m3 would be required and for a flow rate of 0.5 m3/s the basin would be 150 m3. The detailed design of the sand/ silt traps shall be undertaken by the contractor prior to the commencement of construction; • All exposed earth areas should be completed and vegetated as soon as possible after earthworks have been completed, or alternatively, within 14 days of the cessation of earthworks where practicable. Exposed slope surfaces should be covered by tarpaulin or other means; • The overall slope of the site should be kept to a minimum to reduce the erosive potential of surface water flows, and all traffic areas and access roads protected by coarse stone ballast. An additional advantage accruing from the use of crushed stone is the positive traction gained during prolonged periods of inclement weather and the reduction of surface sheet flows; • 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 following rainstorms. Deposited silt and grit should be removed regularly and disposed of by spreading evenly over stable, vegetated areas; • Measures should be taken to minimize the ingress of site drainage into excavations. If the excavation						

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		of trenches in wet periods is necessary, they should be dug and backfilled in short sections wherever practicable. Water pumped out from trenches or foundation excavations should be discharged into storm drains via silt removal facilities; • Open stockpiles of construction materials (for example, aggregates, sand and fill material) of more than 50m3 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 should always be adequately covered and temporarily sealed so as to prevent silt, construction materials or debris being washed into the drainage system and storm runoff being directed into foul sewers; • Precautions be taken at any time of year when rainstorms are likely, actions to 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 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; • 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 site wheel washing facilities should be provided at every construction						

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		site exit where practicable. Wash-water should have sand and silt settled out and removed at least on a weekly basis 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; • Oil interceptors should be provided in the drainage system downstream of any oil/ fuel pollution sources. The oil interceptors should be emptied and cleaned regularly to prevent the release of oil and grease into the storm water drainage system after accidental spillage. A bypass should be provided for the oil interceptors to prevent flushing during heavy rain; • Construction solid waste, debris and rubbish on site should be collected, handled and disposed of properly to avoid water quality impacts; • All fuel tanks and storage areas should be provided with locks and sited on sealed areas, within bunds of a capacity equal to 110% of the storage capacity of the largest tank to prevent spilled fuel oils from reaching water sensitive receivers nearby; • Adopt best management practices; • All earth works should be conducted sequentially to limit the amount of construction runoff generated from exposed areas during the wet season (April to January) as far as practicable.						

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S6.9.1.2	W2	<u>Tunneling Works and Underground Works</u> • Cut-&-cover tunneling work should be conducted sequentially to limit the amount of construction runoff generated from exposed areas during the wet season (April to January) as far as practicable. • Uncontaminated discharge should pass through sedimentation tanks prior to off-site discharge; • The wastewater with a high concentration of SS should be treated (e.g. by sedimentation tanks with sufficient retention time) before discharge. Oil interceptors would also be required to remove the oil, lubricants and grease from the wastewater; • Direct discharge of the bentonite slurry (as a result of D-wall) is not allowed. It should be reconditioned and reused wherever practicable. Temporary storage locations (typically a properly closed warehouse) should be provided on site for any unused bentonite that needs to be transported away after all the related construction activities area completed. The requirements in ProPECC PN 1/94 should be adhered to in the handling and disposal of bentonite slurries.	To minimize construction water quality impact from tunneling works	Contractor	All tunneling portion	Construction stage	• Water Pollution Control Ordinance • ProPECC PN 1/94 • TM-DSS • TM-EIAO	• Implemented
S6.9.1.3	W3	<u>Sewage Effluent</u> • Portable chemical toilets and sewage holding tanks are recommended for handling the construction sewage generated by the workforce. A licensed contractor should be employed to provide appropriate and adequate portable toilets and be	To minimize water quality from sewage effluent	Contractor	All construction sites where practicable	Construction stage	• Water Pollution Control Ordinance • TM-DSS	• Implemented

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		responsible for appropriate disposal and maintenance.						
S6.9.1.5	W4	<u>Groundwater from Potential Contaminated Area:</u> • No direct discharge of groundwater from contaminated areas should be adopted. • A discharge license under the WPCO through the Regional Office of EPD for groundwater discharge should be applied. Prior to the excavation works within these potentially contaminated areas, the groundwater quality should be reviewed during the process of discharge license application. The compliance to the Technical Memorandum on Standards for Effluents Discharged into Drainage on Sewerage Systems, Inland and Coastal Waters (TM-DSS) and the existence of prohibited substance should be confirmed. If the review results indicated that the groundwater to be generated from the excavation works would be contaminated, the contaminated groundwater should be either properly treated in compliance with the requirements of the TM-DSS or properly recharged into the ground. • If wastewater treatment is deployed, the wastewater treatment unit shall deploy suitable treatment process (e.g. oil interceptor / activated carbon) to reduce the pollution level to an	To minimize groundwater quality impact from contaminated area	Contractor	Excavation areas where contamination is found	Construction stage	• Water Pollution Control Ordinance • TM-DSS • TM-EIAO	• Implemented

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		acceptable standard and remove any prohibited substances (e.g. TPH) to undetectable range. All treated effluent from wastewater treatment plant shall meet the requirements as stated in TM-DSS and should be discharged into the foul sewers. • If groundwater recharging wells are deployed, recharging wells should be installed as appropriate for recharging the contaminated groundwater back into the ground. The recharging wells should be selected at places where the groundwater quality will not be affected by the recharge operation as indicated in the Section 2.3 of TM-DSS. The baseline groundwater quality shall be determined prior to the selection of the recharge wells, and submit a working plan (including the laboratory analytical results showing the quality of groundwater at the proposed recharge location(s) as well as the pollutant levels of groundwater to be recharged) to EPD for agreement. Pollution levels of groundwater to be recharged shall not be higher than pollutant levels of ambient groundwater at the recharge well. Prior to recharge, any prohibited substances such as TPH products should be removed as necessary by installing the petrol interceptor.						
S6.9.1.6	W6	<u>Accidental Spillage</u> In order to prevent accidental spillage of chemicals, the following is recommended:	To minimize water quality impact from accidental	Contractor	All construction site where practicable	Construction stage	• Water Pollution Control Ordinance	• Implemented, deficiency rectified after observation

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		• All the tanks, containers, storage area should be bunded and the locations should be locked as far as possible from the sensitive watercourse and stormwater drains; • The Contractor should register as a chemical waste producer if chemical wastes would be generated. Storage of chemical waste arising from the construction activities should be stored with suitable labels and warnings. Disposal of chemical wastes should be conducted in compliance with the requirements as stated in the Waste Disposal (Chemical Waste) (General) Regulation.	spillage				• ProPECC PN 1/94 • TM-EIAO • TM-DSS	
Waste Management (Construction Waste)								
S7.4.1	WM1	<u>On-site sorting of C&D material</u> • Geological assessment should be carried out by competent persons on site during excavation to identify materials which are not suitable to use as aggregate in structural concrete (e.g. volcanic rock, Aplite dyke rock, etc.). Volcanic rock and Aplite dyke rock should be separated at the source sites as far as practicable and stored at designated stockpile area preventing them from delivering to crushing facilities. The crushing plant operator should also be reminded to set up measures to prevent unsuitable rock from ending up at concrete	Separation of unsuitable rock from ending up at concrete batching plants and be turned into concrete for structural use	Contractor	All construction sites	Construction stage	• DEVB (W) No. 6/2010	• Implemented

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		batching plants and be turned into concrete for structural use. Details regarding control measures at source site and crushing facilities should be submitted by the Contractor for the Engineer to review and agree. In addition, site records should also be kept for the types of rock materials excavated and the traceability of delivery will be ensured with the implementation of Trip Ticket System and enforced by site supervisory staff as stipulated under DEVB TC(W) No. 6/2010 for tracking of the correct delivery to the rock crushing facilities for processing into aggregates. Alternative disposal option for the reuse of volcanic rock and Aplite Dyke rock, etc. should be explored.						
S7.5.1	WM2	<u>Construction and Demolition Material</u> • Maintain temporary stockpiles and reuse excavated fill material for backfilling and reinstatement; • Carry out on-site sorting; • Make provisions in the Contract documents to allow and promote the use of recycled aggregates where appropriate; • Adopt 'selective demolition' technique to demolish the existing structures and facilities with a view to recovering broken concrete effectively for recycling purpose, where possible; • Implement a trip-ticket system for each works contract to ensure that the disposal of C&D materials are properly documented and verified; and	Good site practice to minimize the waste generation and recycle the C&D materials as far as practicable so as to reduce the amount for final disposal	Contractor	All construction sites	Construction stage	• Land (Miscellaneous Provisions) Ordinance • Waste Disposal Ordinance • ETWB TCW No. 19/2005	• Implemented

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		• Implement an enhanced Waste Management Plan similar to ETWBTC (Works) No. 19/2005 – "Environmental Management on Construction Sites" to encourage on-site sorting of C&D materials and to minimize their generation during the course of construction.						
S7.5.1	WM3	<u>C&D Waste</u> • Standard formwork or pre-fabrication should be used as far as practicable in order to minimize the arising of C&D materials. The use of more durable formwork or plastic facing for the construction works should be considered. Use of wooden hoardings should not be used, as in other projects. Metal hoarding should be used to enhance the possibility of recycling. The purchasing of construction materials will be carefully planned in order to avoid over ordering and wastage; • The Contractor should recycle as much of the C&D materials as possible on-site. Public fill and C&D waste should be segregated and stored in different containers or skips to enhance reuse or recycling of materials and their proper disposal. Where practicable, concrete and masonry can be crushed and used as fill. Steel reinforcement bar can be used by scrap steel mills. Different areas of the sites should be considered for such segregation and storage.	Good site practice to minimize the waste generation and recycle the C&D materials as far as practicable so as to reduce the amount for final disposal	Contractor	All construction sites	Construction stage	• Land (Miscellaneous Provisions) Ordinance • Waste Disposal Ordinance • ETWB TCW No. 19/2005	• Implemented

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S7.5.1	WM5	Land-based Sediment • All construction plant and equipment shall be designed and maintained to minimize the risk of silt, sediments, contaminants or other pollutants being released into the water column or deposited in the locations other than designated location; • All vessels shall be sized such that adequate draft is maintained between vessels and the sea bed at all states of the tide to ensure that undue turbidity is not generated by turbulence from vessel movement or propeller wash; • Before moving the vessels which are used for transporting dredged material, excess material shall be cleaned from the decks and exposed fittings of vessels and the excess materials shall never be dumped into the sea except at the approved locations; • Adequate freeboard shall be maintained on barges to ensure that decks are not washed by wave action. • The Contractors shall monitor all vessels transporting material to ensure that no dumping outside the approved location takes place. The Contractor shall keep and produce logs and other records to demonstrate compliance and that journeys are consistent with designated locations and copies of such records shall be submitted to the engineers; • The Contractors shall comply with the conditions in the dumping licence.	To control pollution due to marine sediment	Contractor	Along CKR alignment	Construction stage	• ETWB TCW No. 34/2002	• Implemented

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		• All bottom dumping vessels (Hopper barges) shall be fitted with tight fittings seals to their bottom openings to prevent leakage of material; • The material shall be placed into the disposal pit by bottom dumping; • Contaminated marine mud shall be transported by spit barge of not less than 750m3 capacity and capable of rapid opening and discharge at the disposal site; • Discharge shall be undertaken rapidly and the hoppers shall be closed immediately. Material adhering to the sides of the hopper shall not be washed out of the hopper and the hopper shall remain closed until the barge returns to the disposal site. • For Type 3 special disposal treatment, sealing of contaminant with geosynthetic containment before dropping designated mud pit would be a possible arrangement. A geosynthetic containment method is a method whereby the sediments are sealed in geosynthetic containers and, the containers would be dropped into the designated contaminated mud pit where they would be covered by further mud disposal and later by the mud pit capping at the disposal site, thereby fulfilling the requirements for fully confined mud disposal.						
S7.5.1	WM6	<u>Chemical Waste</u> • Chemical waste that is produced, as defined by Schedule 1 of the Waste Disposal (Chemical Waste) (General) Regulation, should be handled in	Control the chemical waste and ensure proper storage,	Contractor	All construction sites	Construction stage	• Waste Disposal (Chemical Waste)	• Implemented, deficiency rectified after observation

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		accordance with the Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes; • Containers used for the storage of chemical wastes should be suitable for the substance they are holding, resistant to corrosion, maintained in a good condition, and securely closed, have a capacity of less than 450 L unless the specification has been approved by EPD, and display a label in English and Chinese in accordance with instructions prescribed in Schedule 2 of the regulation; • The storage area for chemical wastes should be clearly labelled and used solely for the storage of chemical waste, enclosed on at least 3 sides, have an impermeable floor and bunding of sufficient capacity to accommodate 110% of the volume of the largest container or 20% of the total volume of waste stored in that area, whichever is the greatest, have adequate ventilation, covered to prevent rainfall entering, and arranged so that incompatible materials are adequately separated; • Disposal of chemical waste should be via a licensed waste collector, be to a facility licensed to receive chemical waste, such as the Chemical Waste Treatment Centre which also offers a chemical waste collection service and can supply the necessary storage containers, or be to a reuser of the waste, under approval from EPD.	handling and disposal				(General) Regulation • Code of Practice on the Packaging, Labelling and Storage of Chemical Waste	

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S7.5.1	WM7	<u>General Refuse</u> • General refuse generated on-site should be stored in enclosed bins or compaction units separately from construction and chemical wastes; • A reputable waste collector should be employed by the Contractor to remove general refuse from the site, separately from construction and chemical wastes, on a daily basis to minimize odour, pest and litter impacts. Burning of refuse on construction sites is prohibited by law. • Aluminum cans are often recovered from the waste stream by individual collectors if they are segregated and made easily accessible. Separate labelled bins for their deposit should be provided if feasible; • Office wastes can be reduced through the recycling of paper if volumes are large enough to warrant collection. Participation in a local collection scheme should be considered by the Contractor.	Minimize production of the general refuse and avoid odour, pest and litter impacts	Contractor	All construction sites	Construction stage	• Waste Disposal Ordinance	• Implemented
Land Contamination								
S8.9 & Appendix 8.4	LC2	<u>Excavation of the Contaminated Soil</u> • Prior to commencement of the excavation works at the contamination zone, the zone should be clearly marked out on site and the surface levels recorded. Excavation of contaminated material should be undertaken using dedicated earth-moving plant. • The excavated contaminated soils would be stockpiled at designated area on site and covered by sheet to prevent dispersion of contamination	The contaminated soil will be excavated for on-site reuse	Contractor	PBH4	Prior to commencement of construction works within the contaminated area	• Practice Guide (PG) for Investigation and Remediation of Contaminated Land	• Implemented

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<tr><th>EIA Ref.</th><th>EM&A Log Ref.</th><th>Recommended Mitigation Measures</th><th>Objectives of the Recommended Measures & Main Concerns to address</th><th>Implementation Agent</th><th>Location / Timing</th><th>Implementation Stage</th><th>Requirements and/ or standards to be achieved</th><th>Implementation Status</th></tr>
<tr><td></td><td></td><td>during stockpiling.
• The Contractor should pay attention to the selection of suitable groundwater lowering schemes and discharge points if the groundwater table is higher than the contaminated soils during excavation. The Contractor should also obtain a valid Water Pollution Control Ordinance (WPCO) discharge licence from EPD where applicable.</td><td rowspan="2"></td><td rowspan="2"></td><td rowspan="2"></td><td rowspan="2"></td><td rowspan="2">• Guidance Notes for Contaminated Land Assessment and Remediation
• Guidance Manual for Use of Risk-Based Remediation Goals (RBRGs) for Contaminated Land Management</td><td></td></tr>
<tr><td>S8.9 & Appendix 8.4</td><td>LC3</td><td>• Following completion of the excavation to the specified depth, at least one sample from the base of the excavation and four samples evenly distributed along the boundary of the excavation shall be taken for a closure assessment testing. The acceptance criterion is shown below:
<table><tr><th>Locations</th><th>Testing requirement</th><th>Acceptance Criteria</th></tr><tr><td>PBH4</td><td>PCBs</td><td>RBRGs (Public Park)</td></tr></table>• If the results of analysis below the RBRGs (Public Park), no further excavation will be required.

If the analysis indicates presence of contamination (i.e. noncompliance of the acceptance criteria), further excavation shall be carried out in 0.5m increment vertically and/or horizontally depending on the location(s) of the sample(s) which has exceeded the acceptance criteria. Further sampling shall also be conducted for compliance testing. The process of</td><td>• Implemented</td></tr>
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		excavation, sampling and compliance testing should continue until all contaminated materials are removed and should be supervised by a Land Contamination Specialist.						
Appendix 8.4	LC4	A Remediation Report (RR) to demonstrate adequate clean-up shall be prepared and submitted to EPD for endorsement prior to the commencement of any construction/development works within the sites. No construction/development works shall be carried out prior to the endorsement of the RR by EPD.						• Implemented
Hazard to Life								
S9.18	H1	Blasting activities regarding transport and use of explosives should be supervised and audited by competent site staff to ensure full compliance with the blasting permit conditions.	To ensure that the risks from the proposed explosives handling and transport would be acceptable	Contractor	Works areas at which explosives would be used	Construction stage	• Dangerous Goods Ordinance	• N/A
S9.6, para.4	H2	Detonators shall not be transported in the same vehicle with other Category 1 Dangerous Goods.	To reduce the risk of explosion during the transport of cartridged emulsion	Contractor	-	Construction stage	• Dangerous Goods Ordinance	• N/A
S9.6, para.8	H3	The explosives delivery trucks should be approved by Mines Division and should meet the regulatory requirements for transport of explosives.	To comply with the requirements for approval of an explosives	Contractor	-	Construction stage	• Dangerous Goods Ordinance	• N/A

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			delivery vehicle					
S9.10, para.7 and S9.18	H4	Blast cover should be provided for shaft at HMT, and kept closed during blasting. Provision of blast doors or heavy duty blast curtains should be implemented at the shaft to prevent flyrock and control the air overpressure.	To ensure safe use of explosives	Contractor	Shaft	Construction stage	-	• N/A
S9.16	H5	Only the required quantity of explosives for a particular blast should be transported to avoid the return.	To reduce risks during explosives transport	Contractor	Works areas at which explosives would be used	Construction stage	-	• N/A
S9.18	H7	The approved truck dedicated for transport of explosives should comply with the "Guidance Note on Requirements for Approval of an Explosives Delivery Vehicle" issued by CEDD Mines Division. The truck should be periodically inspected and properly maintained in good operation conditions. The fuel carried in the fuel tank should be minimized to reduce the duration of fire. Adequate fire fighting equipment shall be provided, inspected and replaced periodically (e.g. fire extinguishers).	To reduce the risk during explosives transport	Contractor	Works areas of which explosives would be used	Construction stage	• Dangerous Goods Ordinance	• N/A
S9.18	H8	The driver and his assistant should be physically healthy, experienced and have good safe driving records. The driver should hold a proper driving licence for the approved transport truck. Dedicated training programme and regular road safety briefing	To reduce the risk during explosives transport	Contractor	Works areas at which explosives would be used	Construction stage	-	• N/A

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		sessions/ workshops should be provided to enhance their safe driving attitude and practice. Smoking should be strictly prohibited.						
S9.18	H9	Emergency response plans in case of road accident should be prepared and implemented. The driver and his assistant should be familiar with the emergency procedures including evacuation, and proper communication/ fire-fighting equipment should be provided to the driver and his assistant.	To reduce the risk during explosives transport	Contractor	Works areas at which explosives would be used	Construction stage	-	• N/A
S9.18	H10	Close liaison and communication among Mines Division, Contractors for transport of explosives, and working staff of the blasting should be established. In case of any change of work schedule leading to cancellation or variation of explosives required, relevant parties should be informed in time to avoid unused explosives at the work sites.	To reduce the risk during explosives transport	Contractor	Works areas at which explosives would be used	Construction stage	-	• N/A
S9.18	H11	Close liaison and communication with Fire Services Department should be established to reduce the accidental detonation escalated from a fire. The contractors for transport of explosives should use the preferred transport routes as far as practicable.	To reduce the risk during explosives transport	Contractor	Works areas at which explosives would be used	Construction stage	-	• N/A
S9.18	H12	Contingency plan should be prepared for transport of explosives under severe weather conditions such as rainstorms and thunderstorms.	To reduce the risk during explosives transport	Contractor	Works areas at which explosives would be used	Construction stage	-	• N/A

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S9.18	H13	For explosive transport, all packages of explosives on the truck should be properly stored in the truck compartment as required. Packaging of the explosives should remain intact (i.e. damage free) until they are transferred to the blasting site.	To reduce the risk during explosives transport	Contractor	Works areas at which explosives would be used	Construction stage	-	• N/A
S9.18	H14	Availability of a parking space should be ensured before commencement of transport of explosives. Location for loading and unloading of explosives should be as close as possible to the shaft. No hot work should be performed in the vicinity during the time of loading and unloading.	To reduce the risk during explosives transport	Contractor	Works areas at which explosives would be used	Construction stage	-	• N/A
S9.18	H22	It is recommended to explore to minimize the use of the cartridged emulsion explosives and maximize the use of bulk emulsion explosive as far as practicable.	To reduce the risk during explosives transport	Contractor	Works areas at which explosives would be used	Construction stage	-	• N/A
S9.18	H24	It is recommended to explore to use smaller explosive charges such as 'cast boosters' or 'mini-cast booster' instead of cartridged emulsion as primers for bulk emulsion. This option reduces the quantity of explosives required for transportation for the sections where bulk emulsion will be used.	To reduce the risk during explosives transport	Contractor	Works areas at which explosives would be used	Construction stage	-	• N/A
Landscape & Visual								
S10.10.1 Table 10.11	LV3	<u>Good Site Management</u> • Large temporary stockpiles of excavated material shall be covered with unobtrusive sheeting to prevent dust and dirt spreading to adjacent landscape areas and vegetation, and to create a neat and tidy visual appearance.	Minimize visual impact	Contractor	Within Project site	Construction stage	-	• Implemented

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EIA Ref.	EM&A Log Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Implementation Agent	Location / Timing	Implementation Stage	Requirements and/ or standards to be achieved	Implementation Status
		• Construction plant and building material shall be orderly and carefully stored in order to create a neat and tidy visual appearance.						
S10.10.1 Table 10.11	LV4	Screen Hoarding • Decorative screen hoarding should be erected to screen the public from the construction area. It should be designed to be compatible with the existing urban context.	Minimize visual impact	Contractor	Within Project site	Construction stage	-	• Implemented
S10.10.1 Table 10.11	LV5	Lighting Control during Construction • All lighting in the construction site shall be carefully controlled to minimize light pollution and night-time glare to nearby residencies and GIC. The Contractor shall consider other security measures, which shall minimize the visual impacts.	Minimize visual impact	Contractor	Within Project site	Construction stage	-	• Implemented
S10.10.1 Table 10.11	LV6	Erosion Control • The potential for soil erosion shall be reduced by minimizing the extent of vegetation disturbance on site and by providing a protective cover over newly exposed soil.	Minimize landscape impact	Contractor	Within Project site	Construction stage	-	• N/A
S10.10.1 Table 10.11	LV7	Tree Protection & Preservation • Carefully protected during construction. Tree protection measures will be detailed at the Tree Removal Application stage and plans submitted to the relevant Government Department for approval in due course in accordance with ETWB TC no. 3/2006.	Minimize landscape and visual impact	Contractor	Within Project site	Construction stage	• 'Guidelines for Tree Risk Management and Assessment Arrangement on an Area Basis and on a Tree Basis', Greening,	• Implemented

Environmental Mitigation Implementation Schedule –
Contract No. HY/2014/08 (Yau Ma Tei East)

EIA Ref.	EM&A Log Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Implementation Agent	Location / Timing	Implementation Stage	Requirements and/ or standards to be achieved	Implementation Status
							Landscape and Tree Management (GLTM) Section, DEVB • Latest recommended horticultural practices from GLTM Section, DEVB	
S10.10.1 Table 10.11	LV8	<u>Tree Transplantation</u> • For trees unavoidably affected by the Project that have to be removed, where practical transplantation will be chosen as the top priority method of removal. If this is not possible or practical compensatory planting will be provided for trees unavoidably felled (See LV10). For trees unavoidably affected by the Project works that are transplanted, transplantation must be carried out in accordance with ETWB TCW 2/2004 and 3/2006.	Minimize landscape and visual impact	Contractor	Within Project site and designated off-site locations	Prior to Construction stage	• ETWB TCW 3/2006 • Latest recommended horticultural practices from Greening, Landscape and Tree Management (GLTM) Section, DEVB • ETWB TCW	• N/A

Environmental Mitigation Implementation Schedule –
Contract No. HY/2014/08 (Yau Ma Tei East)

EIA Ref.	EM&A Log Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Implementation Agent	Location / Timing	Implementation Stage	Requirements and/ or standards to be achieved	Implementation Status
							2/2004	
S10.10.1 Table 10.11	LV9	<u>Compensatory Planting</u> • For trees unavoidably affected by the Project that have to be removed, where practical transportation will be chosen as the top priority method of removal but if this is not possible or practical compensatory planting will be provided for trees unavoidably felled. All felled trees shall be compensated for by planting trees to the satisfaction of relevant Government projects. Required numbers and locations of compensatory trees shall be determined and agreed separately with Government during the Tree Felling Application process under ETWBTC 3/2006. • Compensatory tree planting may be incorporated into public open spaces and along roadside amenity areas affected by the construction works and therefore be part of the bigger wider planting plans. Onsite compensation planting is preferred but if necessary, additional receptor sites outside the Works Area shall be agreed separately with Government during the Tree Felling Application process.	Minimize visual impact and also enhance landscape	Contractor	Within Project site	Construction stage	• ETWB TCW 3/2006 • Latest recommended horticultural practices from Greening, Landscape and Tree Management (GLTM) Section, DEVB • ETWB TCW 2/2004	• N/A
Cultural Heritage Impact (Construction Phase)								

Environmental Mitigation Implementation Schedule – Contract No. HY/2014/08 (Yau Ma Tei East)

EIA Ref.	EM&A Log Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Implementation Agent	Location / Timing	Implementation Stage	Requirements and/ or standards to be achieved	Implementation Status
S11.4.4	CH1	The contractor should be alerted during the construction on the possibility of locating archaeological remains and as a precautionary measure, AMO shall be informed immediately in case of discovery of antiquities or supposed antiquities in the subject sites.	To preserve any cultural heritage items which may be removed and damaged by the excavation	Contractor	During construction works for cut and cover tunnels	Construction stage	• AMOs requirements	• Implemented
S12.6.1	CH3	• Protective covering should be provided for the buildings in the form of plastic sheeting; • Buffer zones should be provided between the construction works and the external walls of the buildings and should be as large as site restrictions allow and be marked out by temporary fencing or hoarding; • An underpinning scheme is required to transfer the existing column loadings to a deeper rock stratum. The supporting system includes cutting the existing ground floor slab to expose the existing pile caps and then construct transfer beams at both sides of the pile caps. The transfer beams will tie up with the existing caps. Loadings of the transfer beams will be transferred to the rock socket piles installed at the two ends of the beams; • The AAA settlement and tilting limit should be 6/8/10 mm and1/2000, 1/1500 and 1/1000; • Monitoring of vibration levels will be undertaken during the construction phase and the Alert, Alarm and Action (AAA) vibration limit will be set at 5/6/7.5 mm/s. The monitoring proposal should be sent to AMO for comment;.	Protect the building from damage from construction works	Contractor	Yau Ma Tei Police Station (Old Wing) (CKR-01)	Prior to commencement of and during the construction phase	• Guidelines for Cultural Heritage Impact Assessment • EIAO-TM Annex 10 and Annex 19 • AMO Proposed Vibration Limits	• Implemented

Environmental Mitigation Implementation Schedule –
Contract No. HY/2014/08 (Yau Ma Tei East)

EIA Ref.	EM&A Log Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Implementation Agent	Location / Timing	Implementation Stage	Requirements and/ or standards to be achieved	Implementation Status
		• Regular site inspections and monitoring works will be carried out by the contractor and the monitoring results will be submitted to the resident site staff of HyD to ensure compliance.						
S12.6.1		• Adopting diaphragm wall construction method; • Grout curtain should be provided in front of the building; • Recharging system should be installed as a contingency measure to mitigate the fluctuation of water table; • the AAA settlement and tilting limit should be 6/8/10 mm and 1/2000, 1/1500 and 1/1000; • Monitoring of vibration levels will be undertaken during the construction phase and the Alert, Alarm and Action (AAA) vibration limit will be set at 5/6/7.5 mm/s. The monitoring proposal should be sent to AMO for comment;. • Regular site inspections and monitoring works will be carried out by the contractor and the monitoring results will be submitted to the resident site staff of HyD to ensure compliance.	Protect the building from damage from construction works	Contractor	Yau Ma Tei Police Station (Old Wing) (CKR-01)	Prior to commencement of and during the construction phase	• Guidelines for Cultural Heritage Impact Assessment • EIAO-TM Annex 10 and Annex 19 • AMO Proposed Vibration Limits	• Implemented
S12.6.1 Table 12.2		• The Alert, Alarm and Action (AAA) vibration limit will be set at 3/4/5 mm/s and a condition survey shall be carried out by the project proponent prior to the construction phase to confirm this assessment • Vibration monitoring of the structure shall be employed during the construction phase to ensure that the level is not exceeded. The monitoring proposal should be sent to AMO for comment.	Protect the building from damage from construction works	Contractor	Tin Hau Temple (CKR-02)	Prior to commencement of and during the construction phase	• Guidelines for Cultural Heritage Impact Assessment • EIAO-TM Annex 10 and Annex 19 • AMO	• Implemented

Environmental Mitigation Implementation Schedule –
Contract No. HY/2014/08 (Yau Ma Tei East)

EIA Ref.	EM&A Log Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Implementation Agent	Location / Timing	Implementation Stage	Requirements and/ or standards to be achieved	Implementation Status
							Proposed Vibration Limits	
EM&A Project								
S13.2	EM1	An Independent Environmental Checker needs to be employed as per the EM&A Manual	Control EM&A Performance	Highways Department	All construction sites	Construction stage	• EIAO Guidance Note No. 4/2010 • TM-EIAO	• Implemented
S13.2-13.4	EM2	• An Environmental Team needs to be employed as per the EM&A Manual; • Prepare a systematic Environmental Management Plan to ensure effective implementation of the mitigation measures; • An environmental impact monitoring needs to be implemented by the Environmental Team to ensure all the requirements given in the EM&A Manual are fully complied with.	Perform environmental monitoring & auditing	Highways Department/ Contractor	All construction sites	Construction stage	• EIAO Guidance Note No. 4/2010 • TM-EIAO	• Implemented

Appendix G
Monitoring Schedule of the Reporting Month

Impact Monitoring Schedule for YMTE						
Feb-23						
Sun	Mon	Tue	Wed	Thu	Fri	Sat
			1	2	3	4
				Impact Air monitoring for W-A6 &W-A1 Noise monitoring for W-N1A, W-P11,W-N18 & W-N25A		
5	6	7	8	9	10	11
			Impact Air monitoring for W-A6 &W-A1 Noise monitoring for W-N1A, W-P11,W-N18 & W-N25A			
12	13	14	15	16	17	18
		Impact Air monitoring for W-A6 &W-A1 Noise monitoring for W-N1A, W-P11,W-N18 & W-N25A				
19	20	21	22	23	24	25
	Impact Air monitoring for W-A6 &W-A1 Noise monitoring for W-N1A, W-P11,W-N18 & W-N25A					Impact Air monitoring for W-A6 &W-A1 Noise monitoring for W-N1A, W-P11,W-N18 & W-N25A
26	27	28				

Appendix H
Calibration Certificates
(Air Monitoring)

ACUITY SUSTAINABILITY CONSULTING LIMITED
Website: www.acuityhk.com
Unit E, 12/F, Ford Glory Plaza
Nos. 37-39 Wing Hong Street,
Cheung Sha Wan, Kowloon.
Tel.: (852) 2698 6833
Fax.: (852) 2698 9383

Sibata LD-5R K-Factor Verification Test by Total Suspended Particulates HVS Test Report

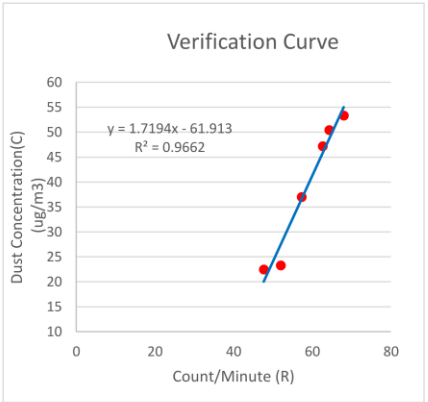
Verification Test Date: 27-Mar-22 to 3-Apr-22
Next Verification Test Date: 4-Apr-23
Unit-under-Test- Model No. Sibata LD-5R
Unit-under-Test Serial No. 0Z4545
Our Report Refrence No. RPT-22-HVS-0006

Standard Equipment Information			
Verification Equipment Type		Tisch's TSP HVS	Tish HVS Calibrator
Standard Equipment Model No.		TE-5170X	TE-5028A
Equipment serial no.	MFC	1049	3702
Last Calibration Date		22-Mar-22	3-Aug-21
Next Calibration Date		21-Jun-22	4-Aug-22

Verification Test No.	Date	Time			K-Factor	Counts/ Minute (R)	Total Counts (TC)	TSP Sample ID No.	Dust Concentration (ug/m3), (C)
		Start-time	End-time	Elapsed Time (in min)	K-Factor (K=C/R)	x-axis			y axis
1	27/3/2022	4945.81	4949.09	196.80	0.00078	64	12661	R220486/1	50
2	27/3/2022	4949.09	4952.83	224.40	0.00078	68	15259	R220486/2	53
3	27/3/2022	4952.83	4956.42	215.40	0.00075	63	13498	R220486/3	47
4	3/4/2022	4991.80	4995.40	216.00	0.00047	48	10296	R220538/1	22
5	3/4/2022	4995.40	4998.79	203.40	0.00045	52	10577	R220538/2	23
6	3/4/2022	4998.79	5002.26	208.20	0.00065	57	11937	R220538/3	37
					0.00065				

K-Factor to be inputted in LD-5R (corrected 1 decimal point): 0.6

By Linear Regression of y on x:
slope, mh= 1.7194
intercept,ch= -61.9131
*Correlation Coefficient,R= 0.9829
Verification Test Result: Strong Correlation, Results were accepted.
* If the Correlation Coefficient, R is <0.5. Checking and Re-verification are required.



Verified By: _____ Date: 14-04-2022
Field Supervisor

ACUITY SUSTAINABILITY CONSULTING LIMITED
Website: www.acuityhk.com
Unit E, 12/F, Ford Glory Plaza, Nos. 37-39 Wing Hong Street, Cheung Sha Wan, Kowloon.
Tel.: (852) 2698 6833
Fax.: (852) 2698 9383

Sibata LD-5R K-Factor Verification Test by Total Suspended Particulates HVS Test Report

Verification Test Date:	27-Mar-22	to	3-Apr-22
Next Verification Test Date:	4-Apr-23		
Unit-under-Test- Model No.	Sibata LD-5R		
Unit-under-Test Serial No.	992820		
Our Report Refrence No.	RPT-22-HVS-0004		

Standard Equipment Information			
Verification Equipment Type		Tisch's TSP HVS	Tish HVS Calibrator
Standard Equipment Model No.		TE-5170X	TE-5028A
Equipment serial no.	MFC	1049	3702
Last Calibration Date		22-Mar-22	3-Aug-21
Next Calibration Date		21-Jun-22	4-Aug-22

Verification Test No.	Date	Time			K-Factor	Counts/ Minute (R)	Total Counts (TC)	TSP Sample ID No.	Dust Concentration (ug/m3), (C)
		Start-time	End-time	Elapsed Time (in min)	K-Factor (K=C/R)	x-axis			y axis
1	27/3/2022	4945.81	4949.09	196.80	0.00083	61	12005	R220486/1	50
2	27/3/2022	4949.09	4952.83	224.40	0.00082	65	14586	R220486/2	53
3	27/3/2022	4952.83	4956.42	215.40	0.00081	58	12493	R220486/3	47
4	3/4/2022	4991.80	4995.40	216.00	0.00047	48	10296	R220538/1	22
5	3/4/2022	4995.40	4998.79	203.40	0.00047	50	10102	R220538/2	23
6	3/4/2022	4998.79	5002.26	208.20	0.00067	56	11590	R220538/3	37
					0.00068				

K-Factor to be inputted in LD-5R (corrected 1 decimal point): 0.7

By Linear Regression of y on x:

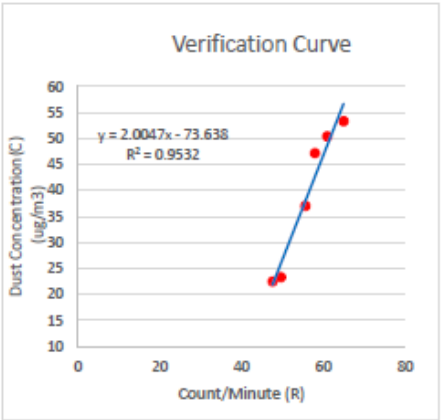
slope, mh= 2.0047

intercept,ch= -73.6384

*Correlation Coefficient,R= 0.9763

Verification Test Result: Strong Correlation, Results were accepted.

* If the Correlation Coefficient, R is <0.5. Checking and Re-verification are required.



Verified By: _____ Date: 14-04-2022

Field Supervisor

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Website: www.acuityhk.com
Unit E, 12/F, Ford Glory Plaza
Nos. 37-39 Wing Hong Street,
Cheung Sha Wan, Kowloon.
Tel.: (852) 2698 6833
Fax: (852) 2698 9383

PC-3A(E) K-Factor Verification Test by Total Suspended Particulates HVS Test Report

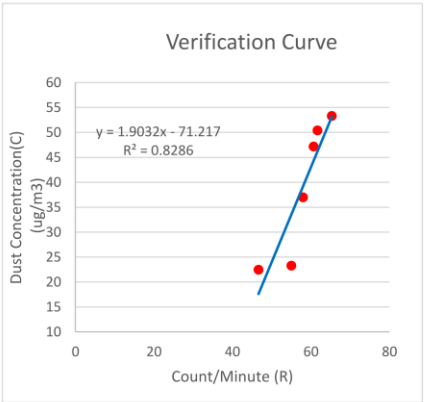
Verification Test Date: 27-Mar-22 to 3-Apr-22
Next Verification Test Date: 4-Apr-23
Unit-under-Test- Model No. PC-3A(E)
Unit-under-Test Serial No. JC2002224
Our Report Refrence No. RPT-22-HVS-0010

Standard Equipment Information			
Verification Equipment Type		Tisch's TSP HVS	Tish HVS Calibrator
Standard Equipment Model No.		TE-5170X	TE-5028A
Equipment serial no.	MFC	1049	3702
Last Calibration Date		22-Mar-22	3-Aug-21
Next Calibration Date		21-Jun-22	4-Aug-22

Verification Test No.	Date	Time			K-Factor	Counts/ Minute (R)	Total Counts (TC)	TSP Sample ID No.	Dust Concentration (ug/m3), (C)
		Start-time	End-time	Elapsed Time (in min)	K-Factor (K=C/R)	x-axis			y axis
1	27/3/2022	4945.81	4949.09	196.80	0.00082	62	12136	R220486/1	50
2	27/3/2022	4949.09	4952.83	224.40	0.00082	65	14661	R220486/2	53
3	27/3/2022	4952.83	4956.42	215.40	0.00078	61	13068	R220486/3	47
4	3/4/2022	4991.80	4995.40	216.00	0.00048	47	10080	R220538/1	22
5	3/4/2022	4995.40	4998.79	203.40	0.00042	55	11187	R220538/2	23
6	3/4/2022	4998.79	5002.26	208.20	0.00064	58	12076	R220538/3	37
					0.00066				

K-Factor to be inputted in LD-5R (corrected 1 decimal point): 0.7

By Linear Regression of y on x:
slope, mh= 1.9032
intercept,ch= -71.2168
*Correlation Coefficient,R= 0.9103
Verification Test Result: Strong Correlation, Results were accepted.
* If the Correlation Coefficient, R is <0.5. Checking and Re-verification are required.



Verified By: _____ Date: 14-04-2022
Field Supervisor

ACUITY SUSTAINABILITY CONSULTING LIMITED
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Nos. 37-39 Wing Hong Street,
Cheung Sha Wan, Kowloon.
Tel.: (852) 2698 6833
Fax: (852) 2698 9383

PC-3A(E) K-Factor Verification Test by Total Suspended Particulates HVS Test Report

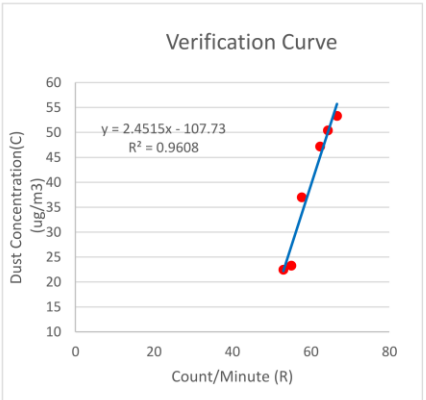
Verification Test Date: 27-Mar-22 to 3-Apr-22
Next Verification Test Date: 4-Apr-23
Unit-under-Test- Model No. PC-3A(E)
Unit-under-Test Serial No. JC2002225
Our Report Refrence No. RPT-22-HVS-0011

Standard Equipment Information			
Verification Equipment Type		Tisch's TSP HVS	Tish HVS Calibrator
Standard Equipment Model No.		TE-5170X	TE-5028A
Equipment serial no.	MFC	1049	3702
Last Calibration Date		22-Mar-22	3-Aug-21
Next Calibration Date		21-Jun-22	4-Aug-22

Verification Test No.	Date	Time			K-Factor	Counts/ Minute (R)	Total Counts (TC)	TSP Sample ID No.	Dust Concentration (ug/m3), (C)
		Start-time	End-time	Elapsed Time (in min)	K-Factor (K=C/R)	x-axis			y axis
1	27/3/2022	4945.81	4949.09	196.80	0.00078	64	12661	R220486/1	50
2	27/3/2022	4949.09	4952.83	224.40	0.00080	67	14960	R220486/2	53
3	27/3/2022	4952.83	4956.42	215.40	0.00076	62	13427	R220486/3	47
4	3/4/2022	4991.80	4995.40	216.00	0.00042	53	11448	R220538/1	22
5	3/4/2022	4995.40	4998.79	203.40	0.00042	55	11187	R220538/2	23
6	3/4/2022	4998.79	5002.26	208.20	0.00064	58	12006	R220538/3	37
					0.00064				

K-Factor to be inputted in LD-5R (corrected 1 decimal point): 0.6

By Linear Regression of y on x:
slope, mh= 2.4515
intercept,ch= -107.7256
*Correlation Coefficient,R= 0.9802
Verification Test Result: Strong Correlation, Results were accepted.
* If the Correlation Coefficient, R is <0.5. Checking and Re-verification are required.



Verified By: _____ Date: 14-04-2022
Field Supervisor

TISCH Environmental

RECALIBRATION DUE DATE:
June 28, 2023

Certificate of Calibration

Calibration Certification Information				
Cal. Date:	June 28, 2022	**Rootsmeter S/N:** 438320	**Ta:** 296	°K
Operator:	Jim Tisch		**Pa:** 755.1	mm Hg
Calibration Model #:	TE-5025A	**Calibrator S/N:** 3465		

Run	Vol. Init (m3)	Vol. Final (m3)	ΔVol. (m3)	ΔTime (min)	ΔP (mm Hg)	ΔH (in H2O)
1	1	2	1	1.4290	3.2	2.00
2	3	4	1	1.0130	6.4	4.00
3	5	6	1	0.9050	7.9	5.00
4	7	8	1	0.8590	8.8	5.50
5	9	10	1	0.7110	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)
0.9961	0.6970	1.4144	0.9958	0.6968	0.8854
0.9918	0.9791	2.0003	0.9915	0.9788	1.2522
0.9899	1.0938	2.2364	0.9895	1.0934	1.4000
0.9887	1.1509	2.3456	0.9883	1.1506	1.4683
0.9834	1.3831	2.8289	0.9830	1.3826	1.7708
QSTD	**m=**	**2.05924**	**QA**	**m=**	**1.28946**
	b=	**-0.01929**		**b=**	**-0.01207**
	r=	**0.99998**		**r=**	**0.99998**

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

InnoTech Instrumentation Co. Ltd.
創 新 科 儀 有 限 公 司

HIVOL SAMPLER CALIBRATION DATA SHEET (TSP)

Site Information

Location:	YMT Catholic Primary School	Site ID:	W-A1	Date:	31-Jan-2023
Serial No:	1084	Model:	TE-5170X	Operator:	Andy

Ambient Condition

Corrected Pressure (mm Hg):	768.6	Temperature (deg K):	290.1

Calibration Orifice

Model:	TE-5025A	Slope:	1.28946
Serial No.:	3465	Intercept:	-0.01207
Calibration Due Date:	28-Jun-23	Corr. Coeff:	0.99998

Calibration Data

Plate or Test #	In,H2O (in)	Qa, X-Axis (m3/min)	I, CFM (chart)	IC, Y-Axis (corrected)
1	1.82	1.076	37.4	38.12
2	2.16	1.171	37.8	38.53
3	2.85	1.344	38.5	39.24
4	3.71	1.532	39.2	39.96
5	4.09	1.608	39.6	40.37

Sampler Calibtation Relationship (Qa on x-axis, IC on y-axis)

m= 4.1300 b= 33.6849 Corr. Coeff= 0.9993

Sampler set point(SSP) 38 CFM

Calculations

Qstd = 1/m[Sqrt(H2O(Pa/Pstd)(Tstd/Ta))-b]
IC = I[Sqrt(Pa/Pstd)(Tstd/Ta)]

Qstd = standard flow rate
IC = corrected chart response
I = actual chart response
m = calibrator Qstd slope
b = calibrator Qstd intercept
Ta = actual temperature during calibration (deg K)
Pa = actual pressure during calibration (mm Hg)
Tstd = 298 deg K
Pstd = 760 mm Hg
For subsequent calculation of sampler flow:
(1.21*m+b)/[Sqrt(298/Tav)(Pav/760)]

m = sampler slope
b = sampler intercept
I = chart response
Tav = average temperature
Pav = average pressure

Checked by: _____ Date: 31-Jan-23

InnoTech Instrumentation Co. Ltd.
創 新 科 儀 有 限 公 司

HIVOL SAMPLER CALIBRATION DATA SHEET (TSP)

Site Information

Location:	Man Cheong Building	Site ID:	W-A6	Date:	31-Jan-2023
Serial No:	1050	Model:	TE-5170X	Operator:	Andy

Ambient Condition

Corrected Pressure (mm Hg):	768.6	Temperature (deg K):	290.1

Calibration Orifice

Model:	TE-5025A	Slope:	1.28946
Serial No.:	3465	Intercept:	-0.01207
Calibration Due Date:	28-Jun-23	Corr. Coeff:	0.99998

Calibration Data

Plate or Test #	In,H2O (in)	Qa, X-Axis (m3/min)	I, CFM (chart)	IC, Y-Axis (corrected)
1	1.44	0.958	36.9	37.61
2	2.34	1.219	37.9	38.63
3	3.06	1.392	38.7	39.45
4	3.65	1.520	39.2	39.96
5	4.13	1.616	39.6	40.37

Sampler Calibtation Relationship (Qa on x-axis, IC on y-axis)

m= 4.2154 b= 33.5516 Corr. Coeff= 0.9995

Sampler set point(SSP) 38 CFM

Calculations

Qstd = 1/m[Sqrt(H2O(Pa/Pstd)(Tstd/Ta))-b]
IC = I[Sqrt(Pa/Pstd)(Tstd/Ta)]

Qstd = standard flow rate
IC = corrected chart response
I = actual chart response
m = calibrator Qstd slope
b = calibrator Qstd intercept
Ta = actual temperature during calibration (deg K)
Pa = actual pressure during calibration (mm Hg)
Tstd = 298 deg K
Pstd = 760 mm Hg
For subsequent calculation of sampler flow:
(1.21*m+b)/[Sqrt(298/Tav)(Pav/760)]

m = sampler slope
b = sampler intercept
I = chart response
Tav = average temperature
Pav = average pressure

Checked by: _____ Date: 31-Jan-23

InnoTech Instrumentation Co. Ltd.
創 新 科 儀 有 限 公 司

HIVOL SAMPLER CALIBRATION DATA SHEET (TSP)

Site Information

Location:	YMT Catholic Primary School	Site ID:	W-A1	Date:	14-Feb-2023
Serial No:	1084	Model:	TE-5170X	Operator:	Andy

Ambient Condition

Corrected Pressure (mm Hg):	769.3	Temperature (deg K):	291.7

Calibration Orifice

Model:	TE-5025A	Slope:	1.28946
Serial No.:	3465	Intercept:	-0.01207
Calibration Due Date:	28-Jun-23	Corr. Coeff:	0.99998

Calibration Data

Plate or Test #	In,H2O (in)	Qa, X-Axis (m3/min)	I, CFM (chart)	IC, Y-Axis (corrected)
1	1.22	0.881	36.0	36.61
2	1.75	1.053	36.6	37.22
3	2.36	1.221	37.2	37.83
4	3.51	1.487	38.3	38.95
5	4.07	1.600	38.7	39.36

Sampler Calibtation Relationship (Qa on x-axis, IC on y-axis)

m= 3.8630 b= 33.1725 Corr. Coeff= 0.9994

Sampler set point(SSP) 37 CFM

Calculations

Qstd = 1/m[Sqrt(H2O(Pa/Pstd)(Tstd/Ta))-b]
IC = I[Sqrt(Pa/Pstd)(Tstd/Ta)]

Qstd = standard flow rate
IC = corrected chart response
I = actual chart response
m = calibrator Qstd slope
b = calibrator Qstd intercept
Ta = actual temperature during calibration (deg K)
Pa = actual pressure during calibration (mm Hg)
Tstd = 298 deg K
Pstd = 760 mm Hg
For subsequent calculation of sampler flow:
(1.21*m+b)/[Sqrt(298/Tav)(Pav/760)]

m = sampler slope
b = sampler intercept
I = chart response
Tav = average temperature
Pav = average pressure

Checked by: _____ Date: 14-Feb-23

InnoTech Instrumentation Co. Ltd.
創 新 科 儀 有 限 公 司

HIVOL SAMPLER CALIBRATION DATA SHEET (TSP)

Site Information

Location:	Man Cheong Building	Site ID:	W-A6	Date:	14-Feb-2023
Serial No:	1050	Model:	TE-5170X	Operator:	Andy

Ambient Condition

Corrected Pressure (mm Hg):	769.3	Temperature (deg K):	291.7

Calibration Orifice

Model:	TE-5025A	Slope:	1.28946
Serial No.:	3465	Intercept:	-0.01207
Calibration Due Date:	28-Jun-23	Corr. Coeff:	0.99998

Calibration Data

Plate or Test #	In,H2O (in)	Qa, X-Axis (m3/min)	I, CFM (chart)	IC, Y-Axis (corrected)
1	1.34	0.922	36.4	37.02
2	1.66	1.026	36.9	37.53
3	2.72	1.310	38.1	38.75
4	3.25	1.431	38.6	39.26
5	4.13	1.612	39.3	39.97

Sampler Calibtation Relationship (Qa on x-axis, IC on y-axis)

m= 4.2701 b= 33.1218 Corr. Coeff= 0.9995

Sampler set point(SSP) 38 CFM

Calculations

Qstd = 1/m[Sqrt(H2O(Pa/Pstd)(Tstd/Ta))-b]
IC = I[Sqrt(Pa/Pstd)(Tstd/Ta)]

Qstd = standard flow rate
IC = corrected chart response
I = actual chart response
m = calibrator Qstd slope
b = calibrator Qstd intercept
Ta = actual temperature during calibration (deg K)
Pa = actual pressure during calibration (mm Hg)
Tstd = 298 deg K
Pstd = 760 mm Hg
For subsequent calculation of sampler flow:
(1.21*m+b)/[Sqrt(298/Tav)(Pav/760)]

m = sampler slope
b = sampler intercept
I = chart response
Tav = average temperature
Pav = average pressure

Checked by: _____ Date: 14-Feb-23

Appendix I
Calibration Certificates (Noise)

(A+A)*L Acoustics and Air Testing Laboratory Co. Ltd. 聲學及空氣測試實驗室有限公司

Certificate of Calibration

for

Description:	***Sound Level Meter***
Manufacturer:	***NTi Audio***
Type No.:	***XL2 (Serial No.: A2A-13661-E0)***
Microphone:	***ACO 7052 (Serial No.:68914)***
Preamplifier:	***NTi Audio MA220 (M2211) (Serial No.:6282)***

Submitted by:

Customer:	*Acuity Sustainability Consulting Limited*
Address:	*Unit E, 12/F., Ford Glory Plaza,*
	Nos. 37-39 Wing Hong Street,
	Cheung Sha Wan, Kowloon, Hong Kong

Upon receipt for calibration, the instrument was found to be:

☑ **Within (31.5Hz – 8kHz)**
☐ **Outside**

the allowable tolerance.

The test equipment used for calibration are traceable to National Standards via:
- The Government of The Hong Kong Special Administrative Region Standard & Calibration Laboratory

Date of receipt: 20 August 2022

Date of calibration: 22 August 2022

Date of NEXT calibration: 21 August 2023

Calibrated by: _____
Calibration Technician

Certified by: _____
Mr. Ng Yan Wa
Laboratory Manager

Date of issue: 22 August 2022

Certificate No.: APJ22-071-CC001

ACOUSTICS AND AIR TESTING LABORATORY CO. LTD. (A+A)*L

Room 422,Leader Industrial Centre,57-59 Au Pui Wan Street ,Fo Tan, Shatin,N.T.,Hong Kong
Tel: (852) 2668 3423 Fax:(852) 2668 6946
Homepage: http://www.aa-lab.com E-mail : inquiry@aa-lab.com

(A+A)*L Acoustics and Air Testing Laboratory Co. Ltd.
聲學及空氣測試實驗室有限公司

1. *Calibration Precaution:*

- The unit-under-test (UUT) was allowed to stabilize in the laboratory for over 24 hours, and switched on to warm up for over 10 minutes before the commencement of the test.
- The results presented are the mean of 3 measurements at each calibration point.

2. *Calibration Conditions:*

Air Temperature:	23.4 °C
Air Pressure:	1005 hPa
Relative Humidity:	68.5 %

3. *Calibration Equipment:*

	Type	Serial No.	Calibration Report Number	Traceable to
Multifunction Calibrator	B&K 4226	2288467	AV220061	HOKLAS

4. *Calibration Results*

Sound Pressure Level

Reference Sound Pressure Level

Setting of Unit-under-test (UUT)			Applied value		UUT Reading, dB	IEC 61672 Class 1 Specification, dB
Range, dB	Freq. Weighting	Time Weighting	Level, dB	Frequency, Hz		
30-130	dBA SPL	Fast	94	1000	93.8	±0.4

Linearity

Setting of Unit-under-test (UUT)			Applied value		UUT Reading, dB	IEC 61672 Class 1 Specification, dB
Range, dB	Freq. Weighting	Time Weighting	Level, dB	Frequency, Hz		
30-130	dBA SPL	Fast	94	1000	93.8	Ref
			104		103.8	±0.3
			114		114.0	±0.3

Time Weighting

Setting of Unit-under-test (UUT)			Applied value		UUT Reading, dB	IEC 61672 Class 1 Specification, dB
Range, dB	Freq. Weighting	Time Weighting	Level, dB	Frequency, Hz		
30-130	dBA SPL	Fast	94	1000	93.8	Ref
		Slow			93.8	±0.3

Room 422,Leader Industrial Centre,57-59 Au Pui Wan Street ,Fo Tan, Shatin,N.T.,Hong Kong
Tel: (852) 2668 3423 Fax:(852) 2668 6946
Homepage: http://www.aa-lab.com E-mail : inquiry@aa-lab.com

Frequency Response

Linear Response

Setting of Unit-under-test (UUT)			Applied value		UUT Reading,	IEC 61672 Class 1
Range, dB	Freq. Weighting	Time Weighting	Level, dB	Frequency, Hz	dB	Specification, dB
30-130	dB SPL	Fast	94	31.5	93.9	±2.0
				63	94.0	±1.5
				125	93.9	±1.5
				250	93.8	±1.4
				500	93.8	±1.4
				1000	93.8	Ref
				2000	93.4	±1.6
				4000	93.0	±1.6
				8000	92.2	+2.1; -3.1

A-weighting

Setting of Unit-under-test (UUT)			Applied value		UUT Reading,	IEC 61672 Class 1
Range, dB	Freq. Weighting	Time Weighting	Level, dB	Frequency, Hz	dB	Specification, dB
30-130	dBA SPL	Fast	94	31.5	54.6	-39.4 ±2.0
				63	67.7	-26.2 ±1.5
				125	77.8	-16.1 ±1.5
				250	85.2	-8.6 ±1.4
				500	90.6	-3.2 ±1.4
				1000	93.8	Ref
				2000	94.6	+1.2 ±1.6
				4000	94.0	+1.0 ±1.6
				8000	91.2	-1.1 +2.1; -3.1

C-weighting

Setting of Unit-under-test (UUT)			Applied value		UUT Reading,	IEC 61672 Class 1
Range, dB	Freq. Weighting	Time Weighting	Level, dB	Frequency, Hz	dB	Specification, dB
30-130	dBC SPL	Fast	94	31.5	90.9	-3.0 ±2.0
				63	93.1	-0.8 ±1.5
				125	93.7	-0.2 ±1.5
				250	93.8	-0.0 ±1.4
				500	93.8	-0.0 ±1.4
				1000	93.8	Ref
				2000	93.3	-0.2 ±1.6
				4000	92.2	-0.8 ±1.6
				8000	89.3	-3.0 +2.1; -3.1

Room 422,Leader Industrial Centre,57-59 Au Pui Wan Street ,Fo Tan, Shatin,N.T.,Hong Kong
Tel: (852) 2668 3423 Fax:(852) 2668 6946
Homepage: http://www.aa-lab.com E-mail : inquiry@aa-lab.com

5. *Calibration Results Applied*

The results apply to the particular unit-under-test only. All calibration points are within manufacture's specification as IEC 61672 Class 1.

Uncertainties of Applied Value:

94 dB	31.5 Hz	± 0.10
	63 Hz	± 0.10
	125 Hz	± 0.05
	250 Hz	± 0.05
	500 Hz	± 0.05
	1000 Hz	± 0.05
	2000 Hz	± 0.05
	4000 Hz	± 0.05
	8000 Hz	± 0.10
104 dB	1000 Hz	± 0.05
114 dB	1000 Hz	± 0.05

The uncertainties are evaluated for a 95% confidence level.

Note:
The values given in this certification only related to the values measured at the time of the calibration and any uncertainties quoted will not allow for the equipment long-term drift, variations with environmental changes, vibration and shock during transportation, overloading, mis-handling, or the capability of any other laboratory to repeat the calibration. (A+A)*L shall not be liable for any loss or damage resulting from the use of the equipment.

Room 422,Leader Industrial Centre,57-59 Au Pui Wan Street ,Fo Tan, Shatin,N.T.,Hong Kong
Tel: (852) 2668 3423 Fax:(852) 2668 6946
Homepage: http://www.aa-lab.com E-mail : inquiry@aa-lab.com

Certificate No. D224269E

JCSS 0197

CALIBRATION CERTIFICATE

Product	:	SOUND CALIBRATOR
Type	:	NC-75
Serial number	:	34524163
Manufacturer	:	RION CO., LTD.
Calibration quantities	:	Sound pressure level (with reference standard microphone)
Calibration method	:	Measured by specified secondary standard microphone according to JCSS calibration procedure specified by RION.
Ambient conditions	:	Temperature 23.4 ℃, Relative humidity 48 %, Static pressure 100.9 kPa
Calibration date	:	09/05/2022 (DD/MM/YYYY)
Calibration location	:	3-20-41 Higashimotomachi, Kokubunji, Tokyo 185-8533, Japan RION CO., LTD. Calibration Room

We hereby certify that the results of this calibration were as follows.

Issue date : 12/05/2022 (DD/MM/YYYY)

Junichi Kawamura
Manager
Quality Assurance Section,
Quality Assurance Department,
Environmental Instrument Division,
RION CO., LTD.
3-20-41 Higashimotomachi, Kokubunji,
Tokyo 185-8533, Japan

This certificate is based on article 144 of the Measurement Law and indicates the result of calibration in accordance with measurement standards traceable to Primary Measurement Standards (National Standards) which realizes the physical units of measurement according to the International System of Units (SI).
The accreditation symbol is attestation of which the result of calibration is traceable to Primary Measurement Standards (National Standards).
The certificate shall not be reproduced except in full, without the written approval of the issuing laboratory.
The calibration laboratory who issued this calibration certificate conforms to ISO/IEC 17025:2017.
This calibration certificate was issued by the calibration laboratory accredited by IAJapan who is a signatory to the Mutual Recognition Arrangement (MRA) of International Laboratory Accreditation Cooperation (ILAC) and Asia Pacific Accreditation Cooperation (APAC). This (These) calibration result(s) may be accepted internationally through ILAC/APAC MRA.

RION

Certificate No. D224269E

CALIBRATION RESULT

1. Sound pressure level (with reference standard microphone)

Measured value	Expanded uncertainty *1
93.98 dB	0.09 dB

Specified secondary standard microphone:
Type : 4160
Serial number : 2973341
Reference Sound pressure : 2×10^{-5} Pa

*1 Defines an interval estimated to have a level of confidence of approximately 95 %.
Coverage factor k=2

Calibration result is the calibration value in ambient conditions during calibration.

BE OUT OF JCSS CALIBRATION

1. Frequency

Measured value	Measurement uncertainty (k=2)
1000.0 Hz	3.9×10^{-4} Hz

Working measurement standard universal counter:
Type : 53132A
Serial number : MY40005574
(JCSS Calibration Certificate No. 21081499079575510)

2. Total distortion

Measured value
0.3 %

Working measurement standard distortion meter:
Type : VA-2230A
Serial number : 11076061
(A2LA Calibration Certificate No. 1501-03080)

- closing -

RION

Appendix J
The Certification of Laboratory with HOKLAS Accredited Analytical Tests

Hong Kong Accreditation Service
香港認可處

Certificate of Accreditation
認可證書

This is to certify that
特此證明

ACUMEN LABORATORY AND TESTING LIMITED
浩科檢測中心有限公司

Flat/Rm D, 12/F, Ford Glory Plaza, Nos. 37-39 Wing Hong Street, Cheung Sha Wan, Kowloon, Hong Kong
香港九龍長沙灣永康街37-39號福源廣場12樓D室

is accredited by the Hong Kong Accreditation Service (HKAS) to ISO/IEC 17025:2017
for performing specific laboratory activities as listed in the scope of accreditation within the test category of
獲香港認可處根據ISO/IEC 17025:2017認可
進行載於認可範圍內下述測試類別中的指定實驗所活動

Environmental Testing
環境測試

This accreditation to ISO/IEC 17025:2017 demonstrates technical competence for a defined scope and the implementation of a management system relevant to laboratory operation (see joint IAF-ILAC-ISO Communiqué).
此項 ISO/IEC 17025:2017 的認可資格證明此實驗所具備指定範疇內所須的技術能力並實施一套與實驗所運作相關的管理體系（見國際認可論壇、國際實驗所認可合作組織及國際標準化組織的聯合公報）。

The common seal of HKAS is affixed hereto by the authority of the HKAS Executive
現經香港認可處執行幹事授權在此蓋上香港認可處的印章

SHUM Wai-leung, Executive Administrator
執行幹事 沈偉良
Issue Date : 15 November 2021
簽發日期：二零二一年十一月十五日

Registration Number : HOKLAS 241
註冊號碼：

Date of First Registration : 16 July 2014
首次註冊日期：二零一四年七月十六日

This certificate is issued subject to the terms and conditions laid down by HKAS
本證書按照香港認可處訂立的條款及條件發出

L 002316

Hong Kong Accreditation Service
香港認可處

Certificate of Accreditation
認可證書

This is to certify that
特此證明

ALS TECHNICHEM (HK) PTY LIMITED

11/F, Chung Shun Knitting Centre, 1-3 Wing Yip Street, Kwai Chung, New Territories, Hong Kong
香港新界葵涌永業街1-3號忠信針織中心11樓

is accredited by the Hong Kong Accreditation Service (HKAS) to ISO/IEC 17025:2017
for performing specific laboratory activities as listed in the scope of accreditation within the test category of
獲香港認可處根據ISO/IEC 17025:2017認可
進行載於認可範圍內下述測試類別中的指定實驗所活動

Environmental Testing
環境測試

This accreditation to ISO/IEC 17025:2017 demonstrates technical competence for a defined scope and the implementation of a management system relevant to laboratory operation (see joint IAF-ILAC-ISO Communiqué).
此項 ISO/IEC 17025:2017 的認可資格證明此實驗所具備指定範疇內所須的技術能力並實施一套與實驗所運作相關的管理體系
(見國際認可論壇、國際實驗所認可合作組織及國際標準化組織的聯合公報)。

The common seal of HKAS is affixed hereto by the authority of the HKAS Executive
現經香港認可處執行機關授權在此蓋上香港認可處的印章

SHUM Wai-leung, Executive Administrator
執行幹事 沈偉良
Issue Date : 28 February 2020
簽發日期：二零二零年二月二十八日

Registration Number : HOKLAS 066
註冊號碼：

Date of First Registration : 15 September 1995
首次註冊日期：一九九五年九月十五日

This certificate is issued subject to the terms and conditions laid down by HKAS
本證書按照香港認可處訂立的條款及條件發出

L001934

Appendix K
Location Plan of Noise and Air Quality Monitoring Station


LEGEND:
WORKS LIMIT
DUST MONITORING L
NOISE MONITORING
RELOCATION OF DUST IMPACT MONITORING OF HVS AT W-A1
W-A1/W-N1A
W-P11
W-N25A
W-N18
W-A6
NATHAN ROAD
WYLIE ROAD
QUEEN ELIZABETH HOSPITAL
CASCOIGNE ROAD
YAU MA TEI
819500 N
819000 N
00 ISSUE FOR TENDER
ARUP
Joint Venture
Contract No. HY/2014/08
Central Kowloon Route - Yau Ma Tei East
APPENDIX A
LOCATION PLAN OF N
DUST MONITORING ST
CKR/YMTE/02/0
HIGHWAYS DE
MAJOR WORKS PROJECT
Printed by : 03/04/2018
Filename : E:\0 YMTE\Wa\For Others\Leo\180403 02_0001 Edit\E-CKR_YMTE_02_0001_DRG-00-edited A.dgn

Appendix L
Monitoring Data (Air Monitoring)

Location: Yau Ma Tei Catholic Primary School (Hoi Wang Road) (W-A1)
Monitoring date: 2, 8, 14, 20 and 25 February 2023
Parameter : TSP 1-hour
Other Factors Nearby traffic

Date	1-hour TSP (μg/m³)				
	Weather	Start Time	1st Hour (μg/m³)	2nd Hour (μg/m³)	3rd Hour (μg/m³)
02/02/2023	Sunny	14:32	64	57	62
08/02/2023	Cloudy	9:35	59	62	69
14/02/2023	Fine	15:00	67	63	70
20/02/2023	Fine	13:13	72	68	66
25/02/2023	Sunny	10:46	63	66	58
Minimum: 57 μg/m³			Maximum: 72 μg/m³		

Location: Man Cheong Building (W-A6)
Monitoring date: 2, 8, 14, 20 and 25 February 2023
Parameter : TSP 1-hour
Other Factors Nearby traffic

Date	1-hour TSP (μg/m³)				
	Weather	Start Time	1st Hour (μg/m³)	2nd Hour (μg/m³)	3rd Hour (μg/m³)
02/02/2023	Sunny	13:50	72	77	71
08/02/2023	Cloudy	11:12	74	82	75
14/02/2023	Fine	14:16	78	88	72
20/02/2023	Fine	9:40	69	74	82
25/02/2023	Sunny	10:15	66	71	78
Minimum: 66 μg/m³			Maximum: 88 μg/m³		

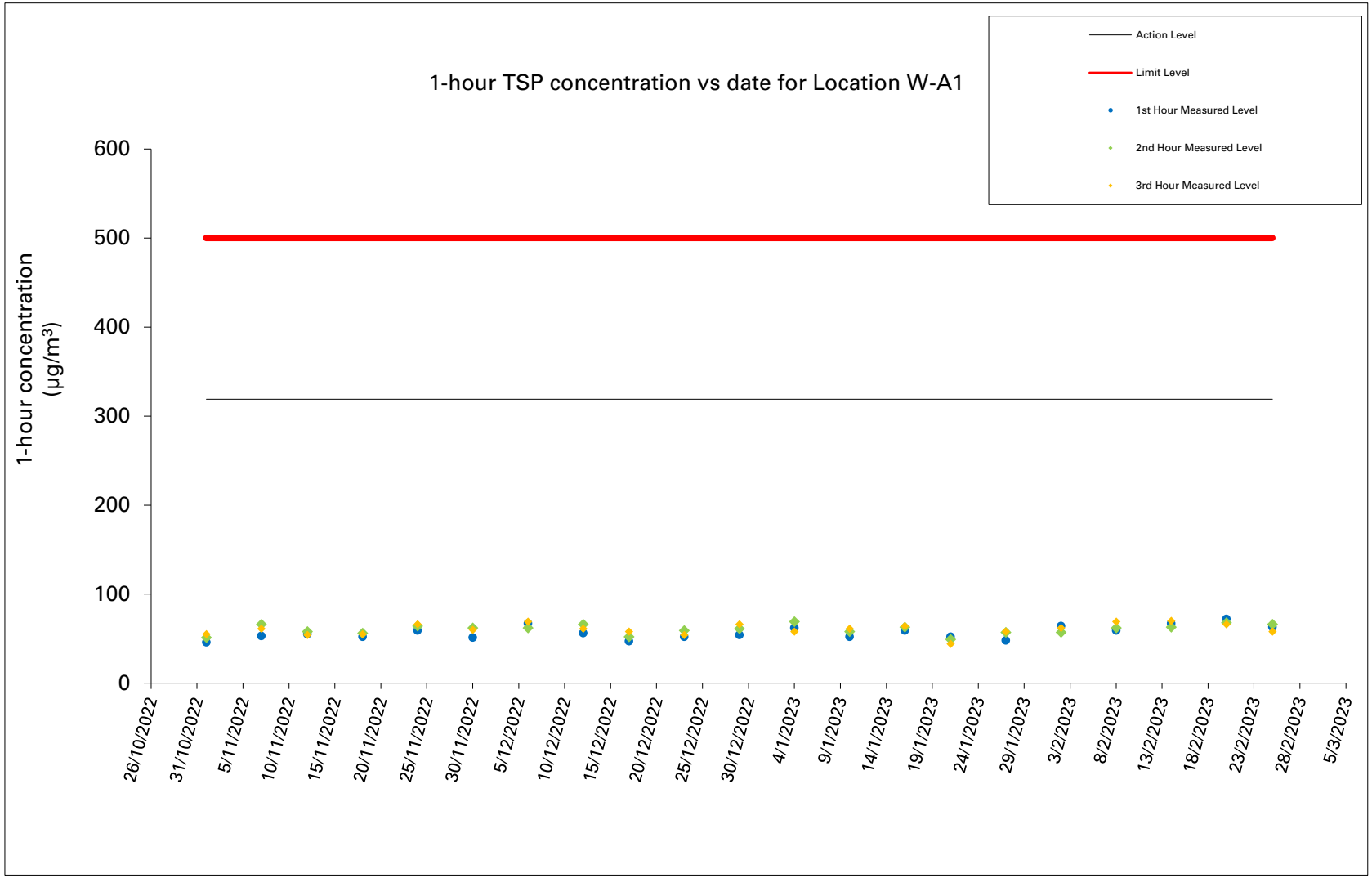


Figure 1: Graphical Illustration of Measured 1-hour TSP (µg/m^3) Levels at W-A1

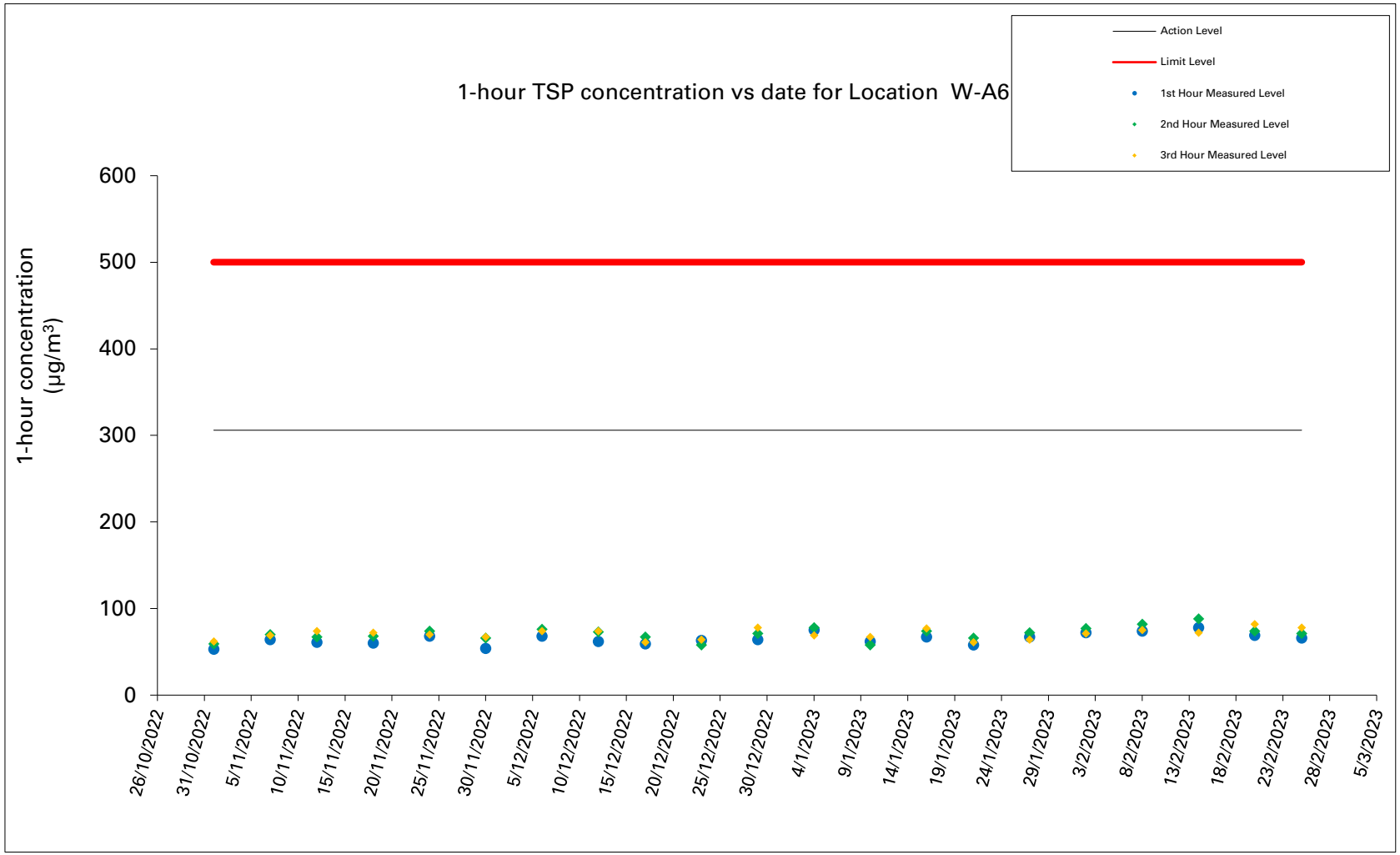


Figure 2: Graphical Illustration of Measured 1-hour TSP (µg/m^3) Levels at W-A6

Location: Yau Ma Tei Catholic Primary School (Hoi Wang Road) (W-A1)
Monitoring date: 2, 8, 14, 20 and 25 February 2023
Parameter : TSP 24-hour
Other Factors Nearby traffic

											Date of Calibration:	31-Jan-23			Slope =	4.1300
											Calibration due date:	15-Feb-23			Intercept =	33.6849
											Date of Calibration:	14-Feb-23			Slope =	3.8630
											Calibration due date:	1-Mar-23			Intercept =	33.1725
Start Date	**Weather Condition**	**Elapse Time**			**Chart Reading**			**Avg Air Temp**	**Avg Atmospheric Pressure**	**Flow Rate**	**Standard Air Volume**	**Filter Weight (g)**		**Particulate weight**	**Conc.**	
		Initial	**Final**	**Actual (min)**	**Min**	**Max**	**Avg**	**(°C)**	**(hPa)**	**(m^3/min)**	**(m^3)**	**Initial**	**Final**	**(g)**	**(μg/m^3)**	
2/2/2023	Sunny	7735.8	7759.8	1440.0	41	42	41.5	18.7	1018.4	2.05	2956	2.6741	2.7723	0.0982	33	
8/2/2023	Cloudy	7759.8	7783.8	1440.0	41	42	41.5	19.0	1016.7	2.03	2923	2.6608	2.7365	0.0757	26	
14/2/2023	Fine	7784.2	7808.2	1440.0	40	41	40.5	17.4	1021.2	1.86	2671	2.6595	2.7208	0.0613	23	
20/2/2023	Fine	7808.2	7832.2	1440.0	41	43	42.0	19.0	1020.9	2.48	3571	2.6774	2.8716	0.1942	54	
25/2/2023	Sunny	7832.2	7856.2	1440.0	41	42	41.5	17.0	1027.9	2.46	3544	2.6700	2.7865	0.1165	33	
										Maximum:	54 μg/m^3		Minimum:	23 μg/m^3		

Location: Man Cheong Building (W-A6)
Monitoring date: 2, 8, 14, 20 and 25 February 2023
Parameter : TSP 24-hour
Other Factors Nearby traffic

Date of Calibration:	31-Jan-23	Slope =	4.2154
Calibration due date:	15-Feb-23	Intercept =	33.5516
Date of Calibration:	14-Feb-23	Slope =	4.2701
Calibration due date:	1-Mar-23	Intercept =	33.1218

Start Date	Weather Condition	Elapse Time			Chart Reading			Avg Air Temp	Avg Atmospheric Pressure	Flow Rate	Standard Air Volume	Filter Weight (g)		Particulate weight	Conc.
		Initial	Final	Actual (min)	Min	Max	Avg	(^oC)	(hPa)	(m^3/min)	(m^3)	Initial	Final	(g)	($\mu g/m^3$)
2/2/2023	Sunny	7323.6	7347.6	1440.00	48	50	49.0	18.7	1018.4	3.85	5545	2.6780	2.8025	0.1245	22
8/2/2023	Cloudy	7347.6	7371.6	1440.00	41	42	41.5	19.0	1016.7	2.02	2909	2.6737	2.7805	0.1068	37
14/2/2023	Fine	7371.9	7395.9	1440.00	37	41	39.0	17.4	1021.2	1.49	2140	2.6698	2.7510	0.0812	38
20/2/2023	Fine	7395.9	7419.9	1440.00	38	55	46.5	19.0	1020.9	3.33	4793	2.6729	2.8736	0.2007	42
25/2/2023	Sunny	7419.9	7443.9	1440.00	41	42	41.5	17.0	1027.9	2.24	3223	2.6623	2.8079	0.1456	45
										Maximum:	45 $\mu g/m^3$		Minimum:	22 $\mu g/m^3$	

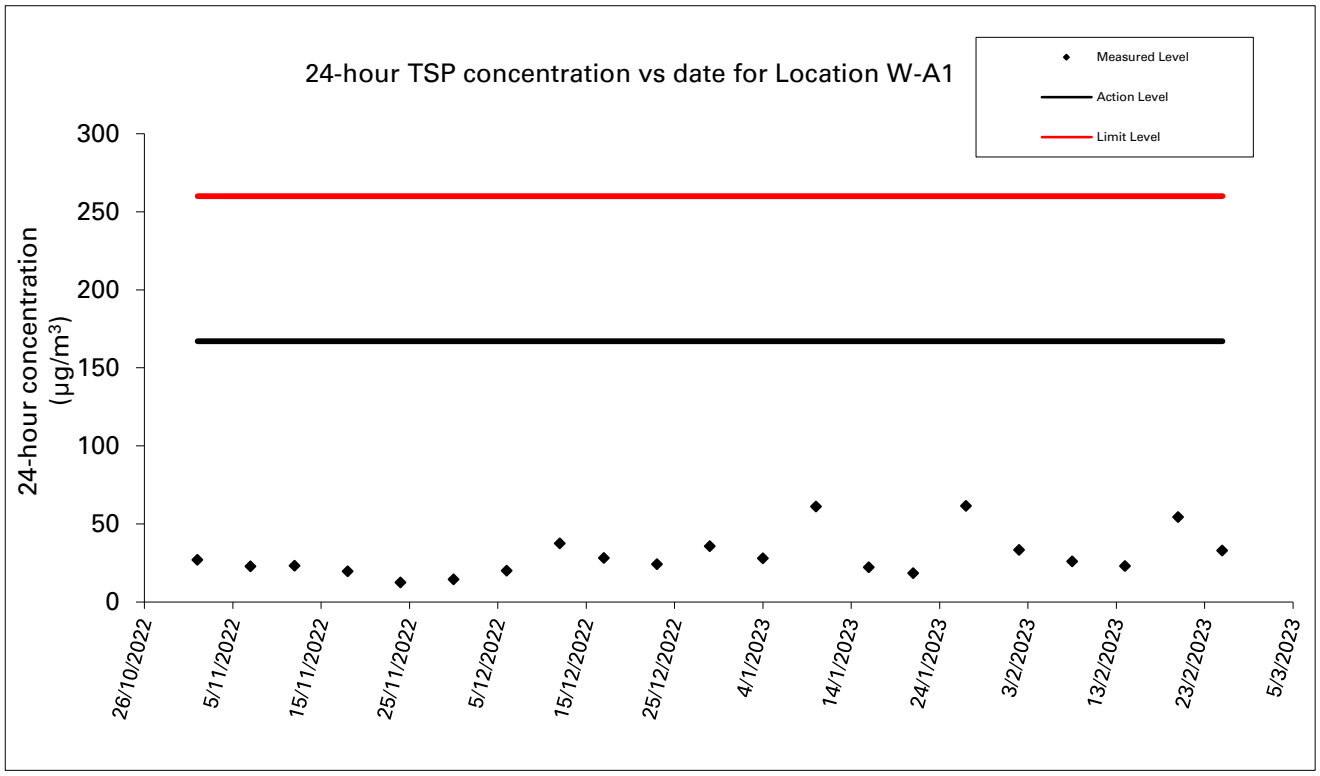


Figure 3: Graphical Illustration of Measured 24-hour TSP (µg/m^3) Levels at W-A1

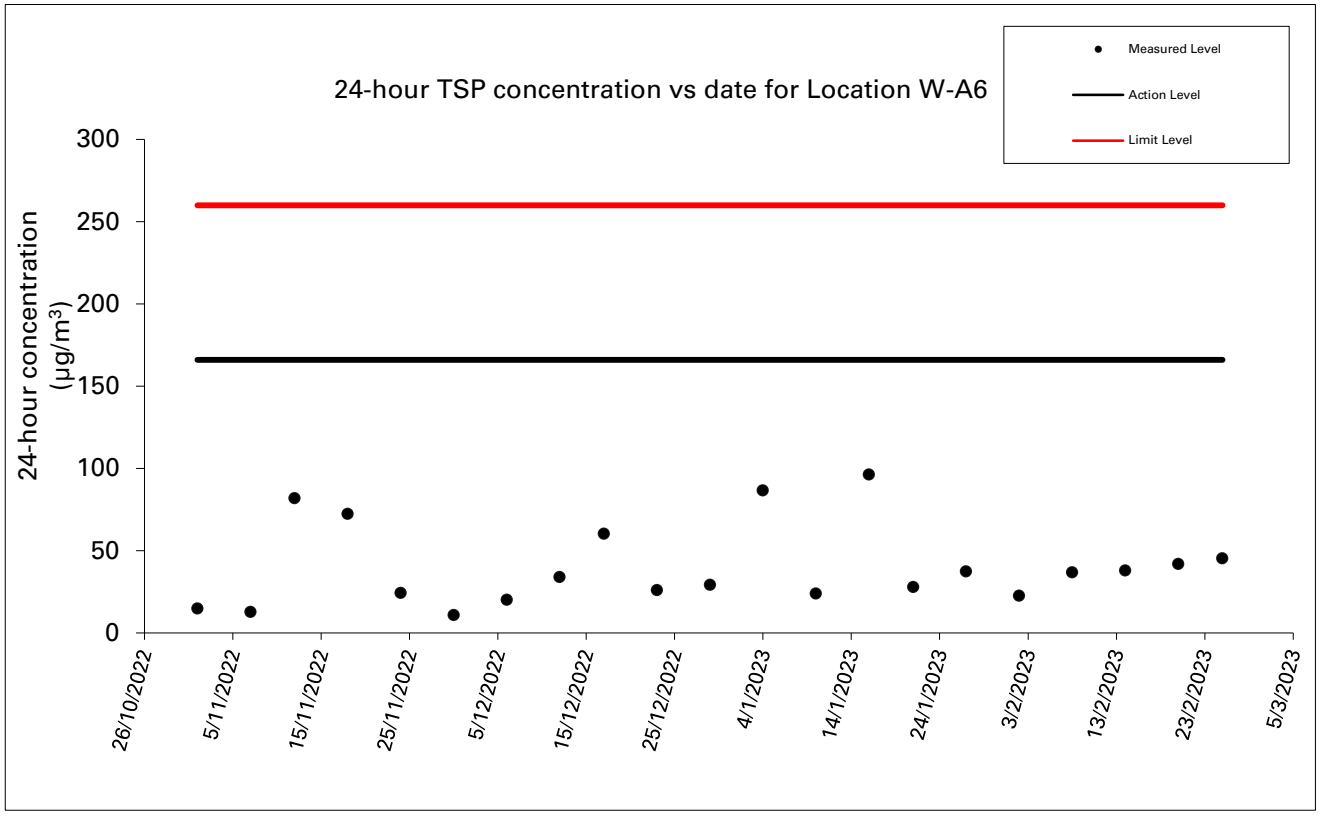
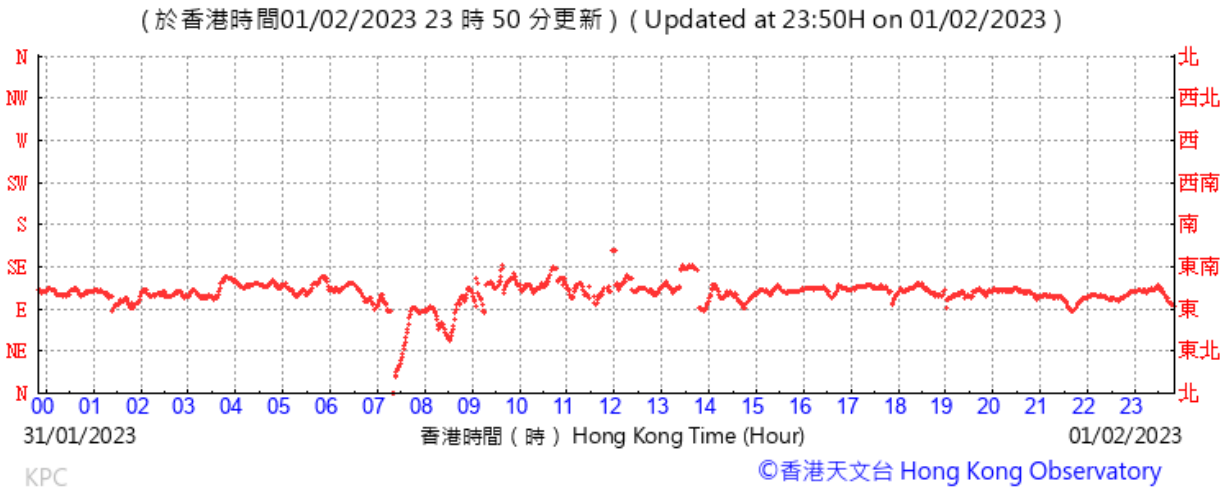
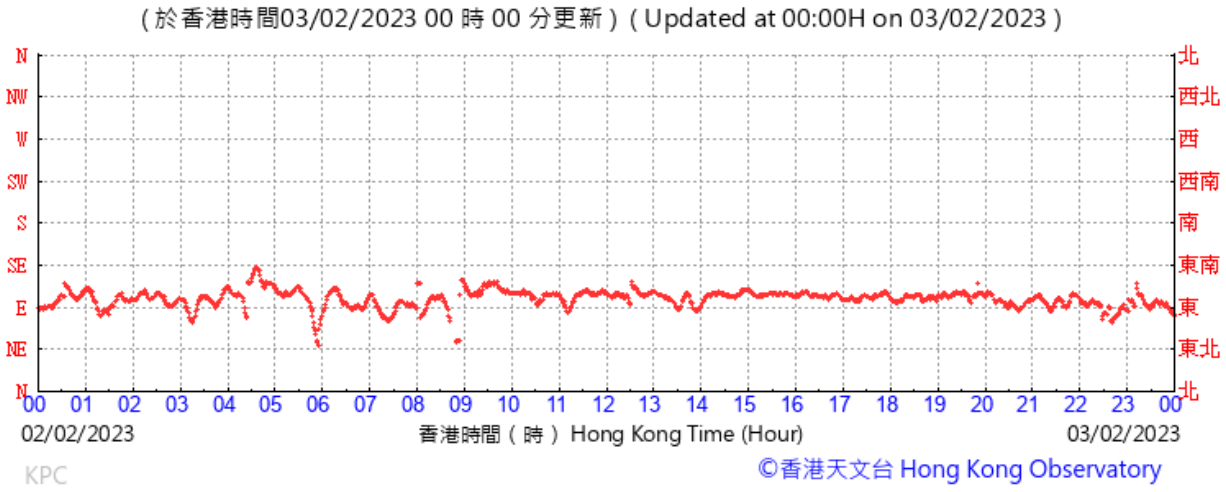
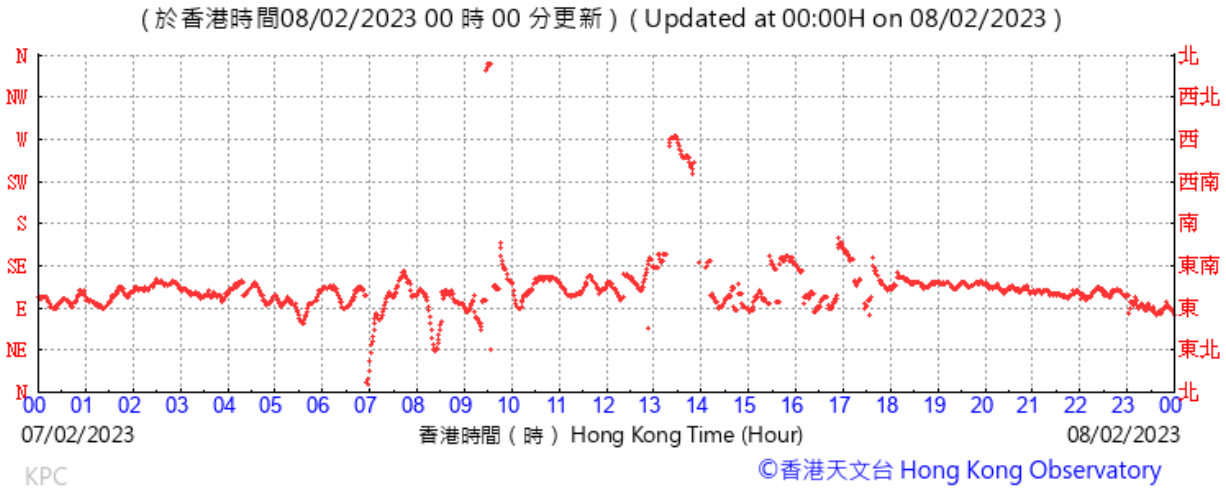


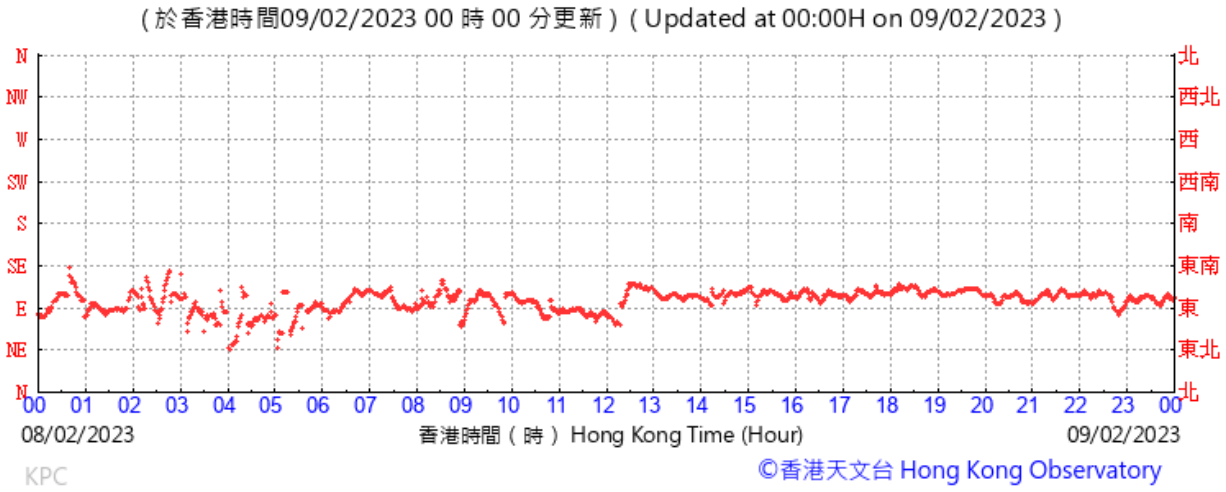
Figure 4: Graphical Illustration of Measured 24-hour TSP (µg/m^3) Levels at W-A6

Wind direction data for 2, 3, 8, 9, 14, 15, 20, 21, 25 and 26 February 2023





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香港時間 (時) Hong Kong Time (Hour)
09/02/2023
KPC
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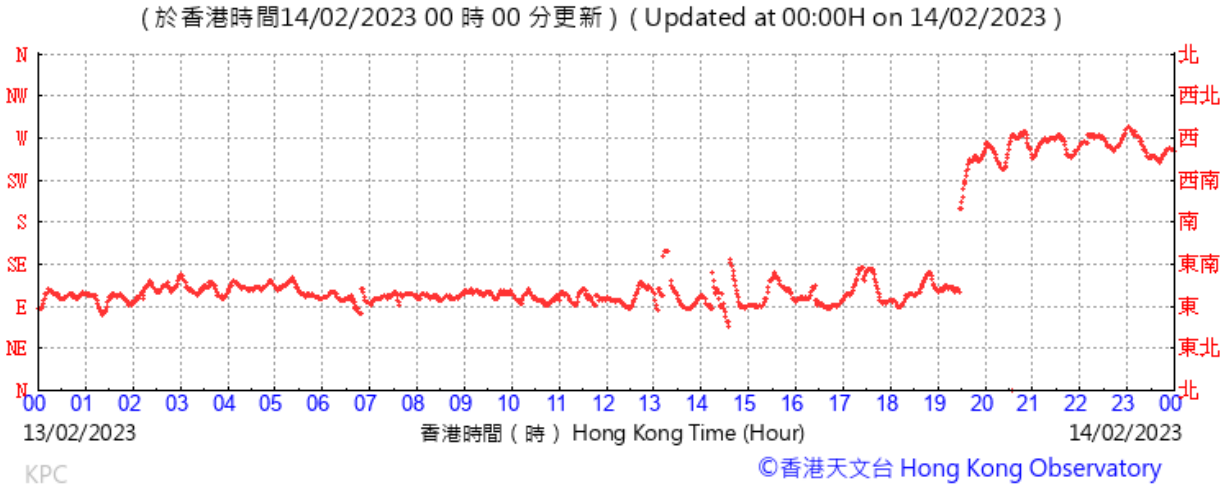
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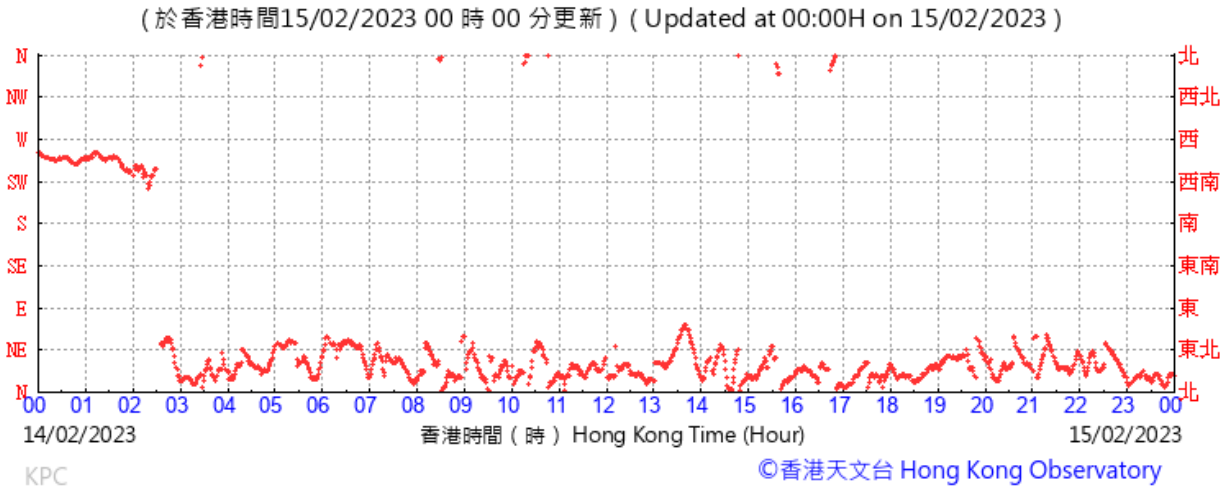
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香港時間 (時) Hong Kong Time (Hour)
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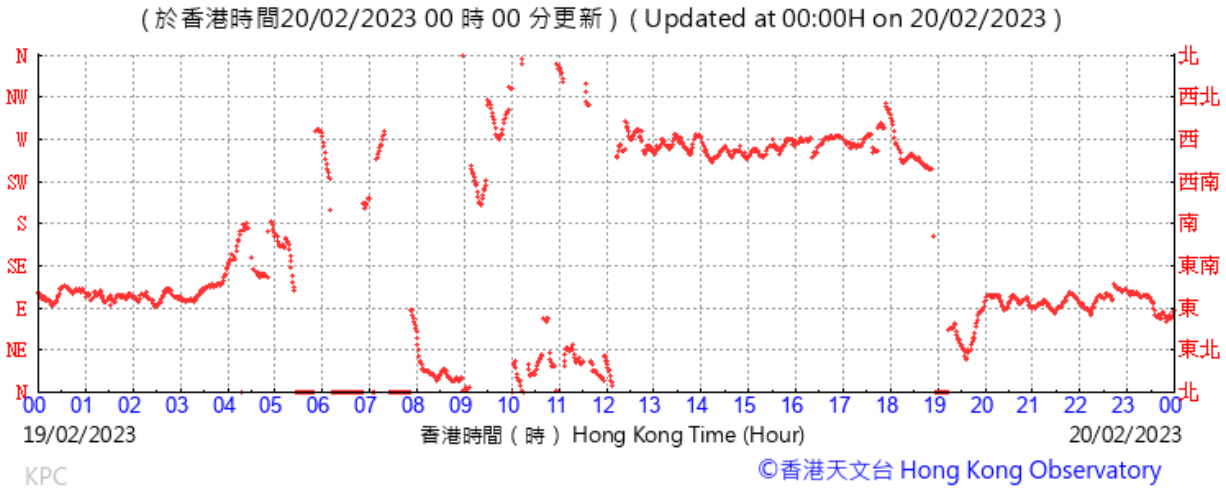
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香港時間 (時) Hong Kong Time (Hour)
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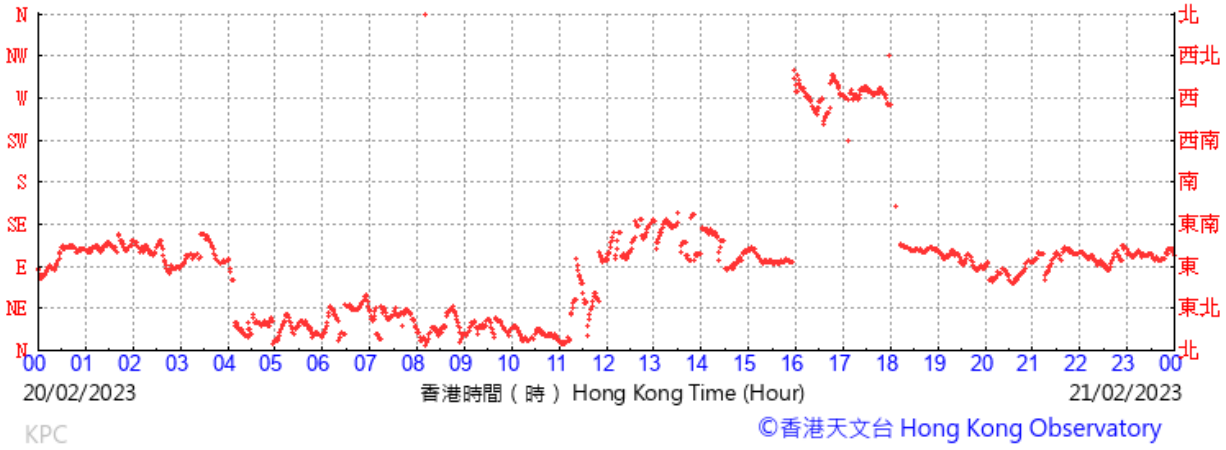
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香港時間 (時) Hong Kong Time (Hour)
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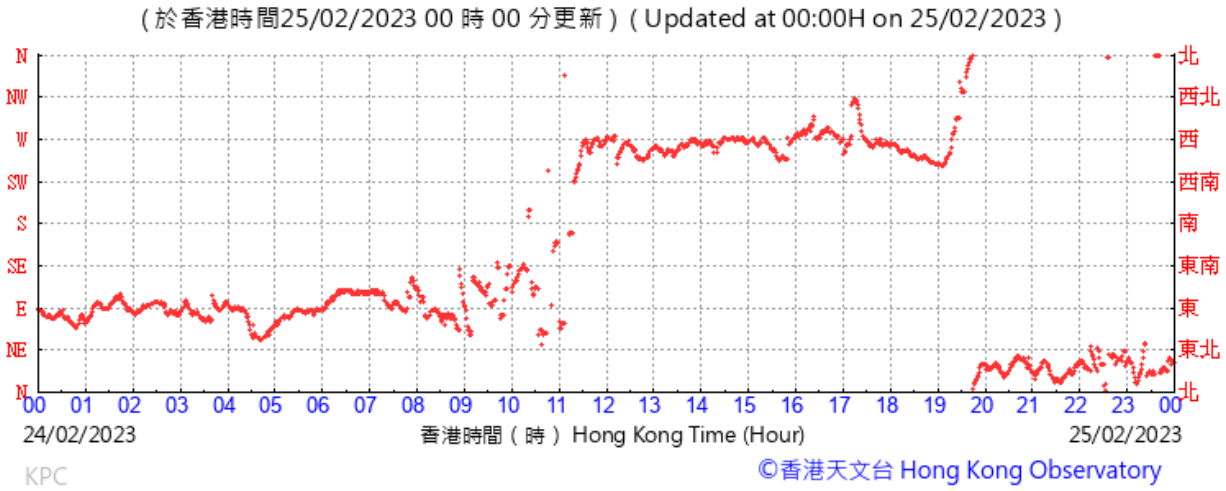
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香港時間 (時) Hong Kong Time (Hour)
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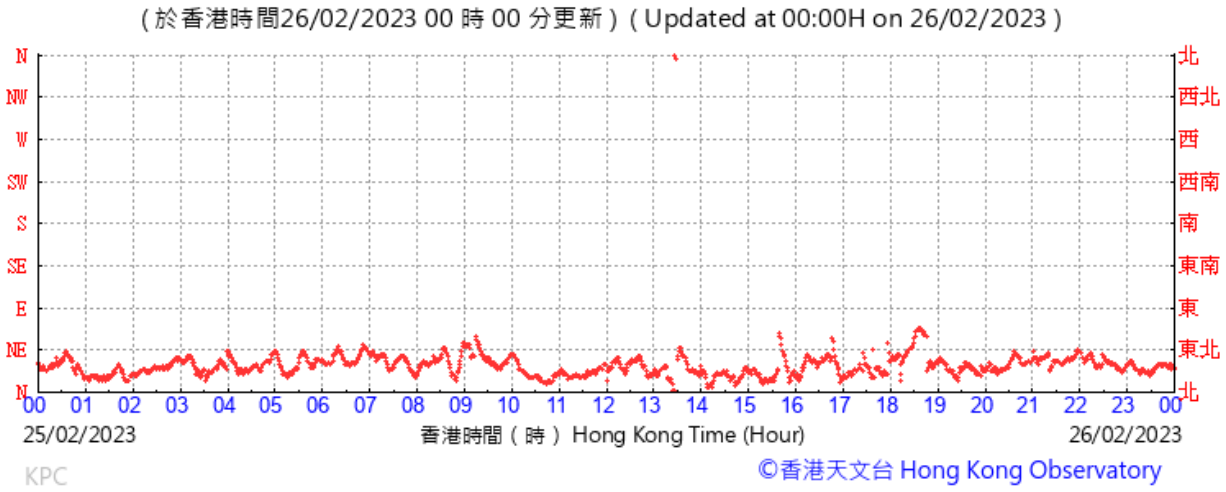
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香港時間 (時) Hong Kong Time (Hour)
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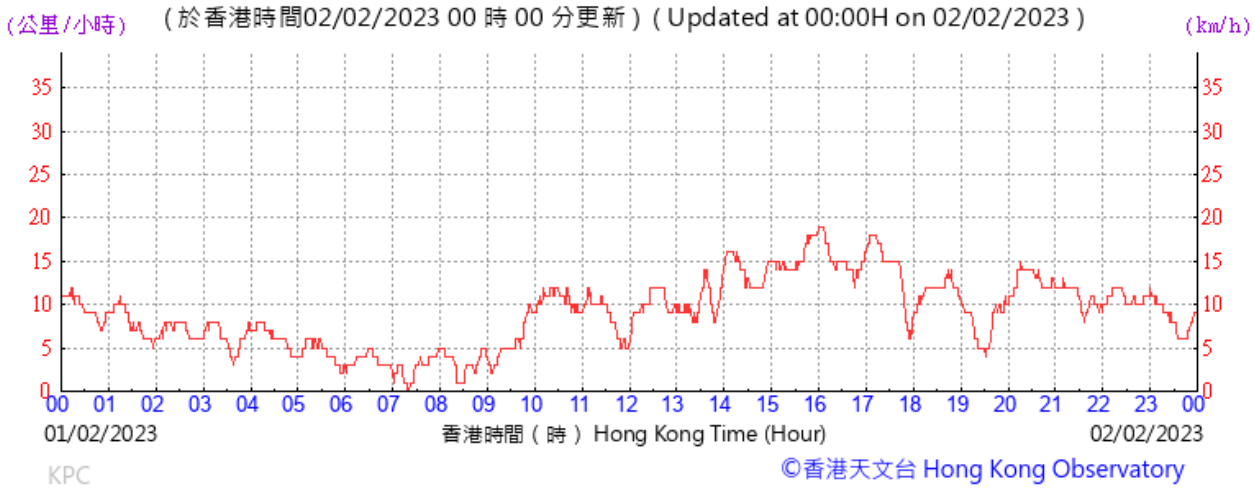
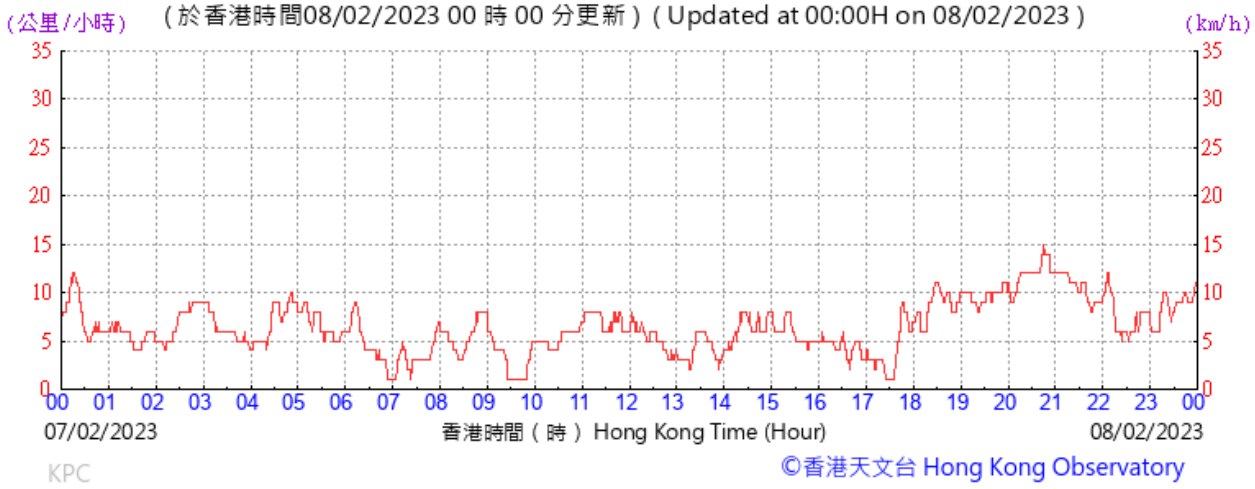
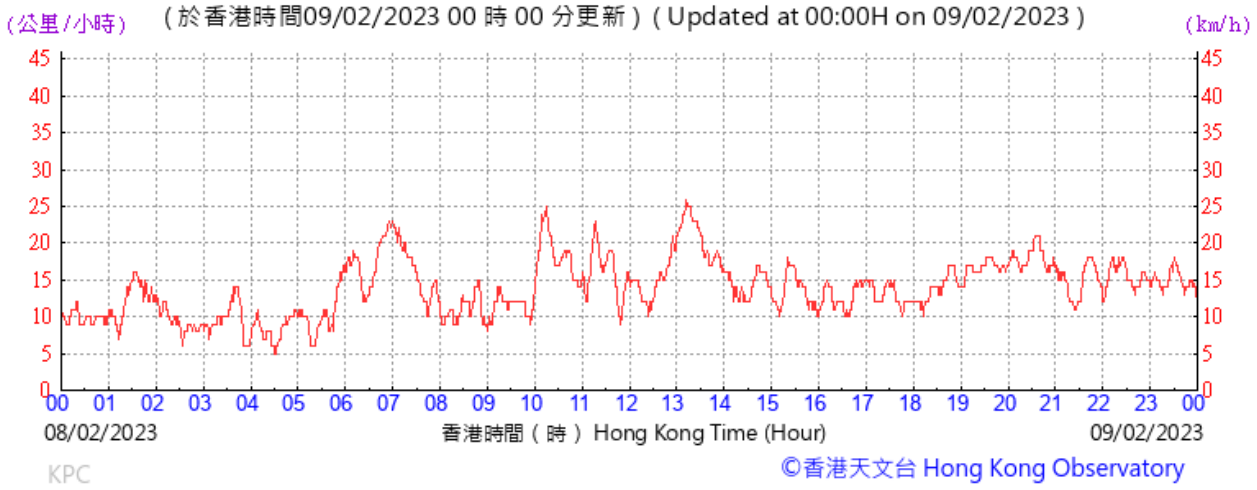
Wind speed data for 2, 3, 8, 9, 14, 15, 20, 21, 25 and 26 February 2023



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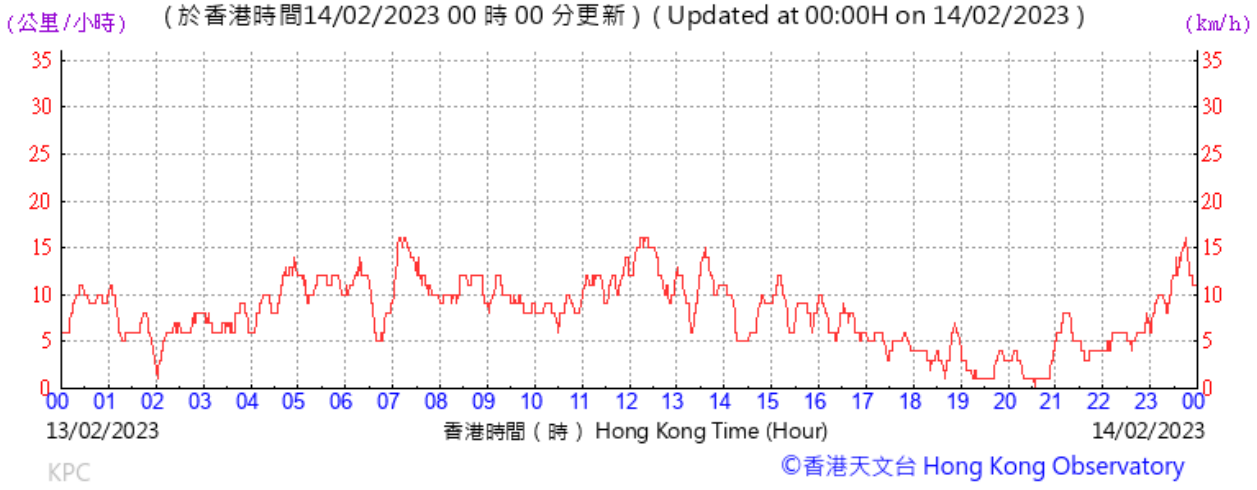
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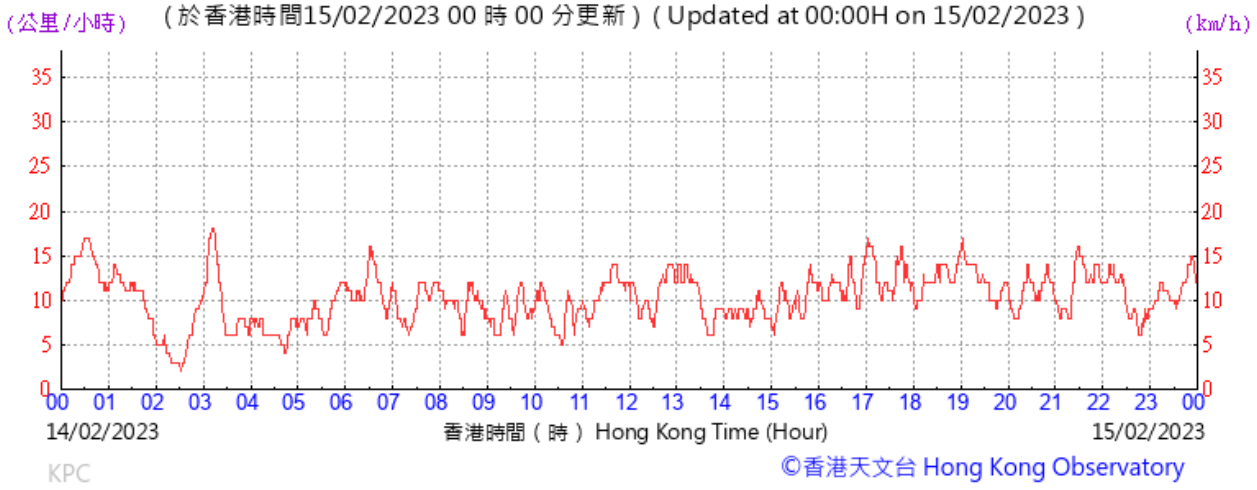
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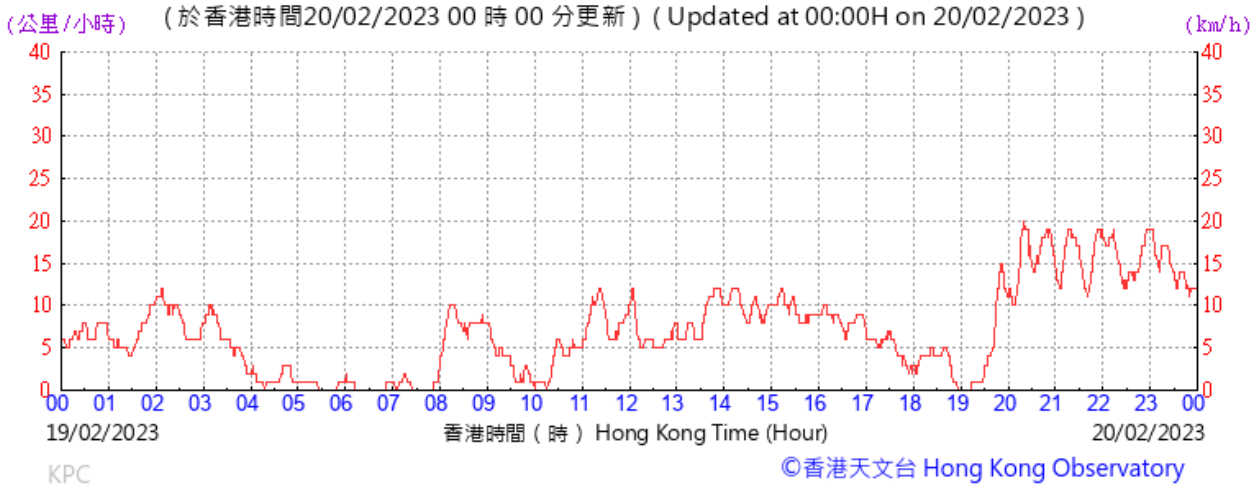
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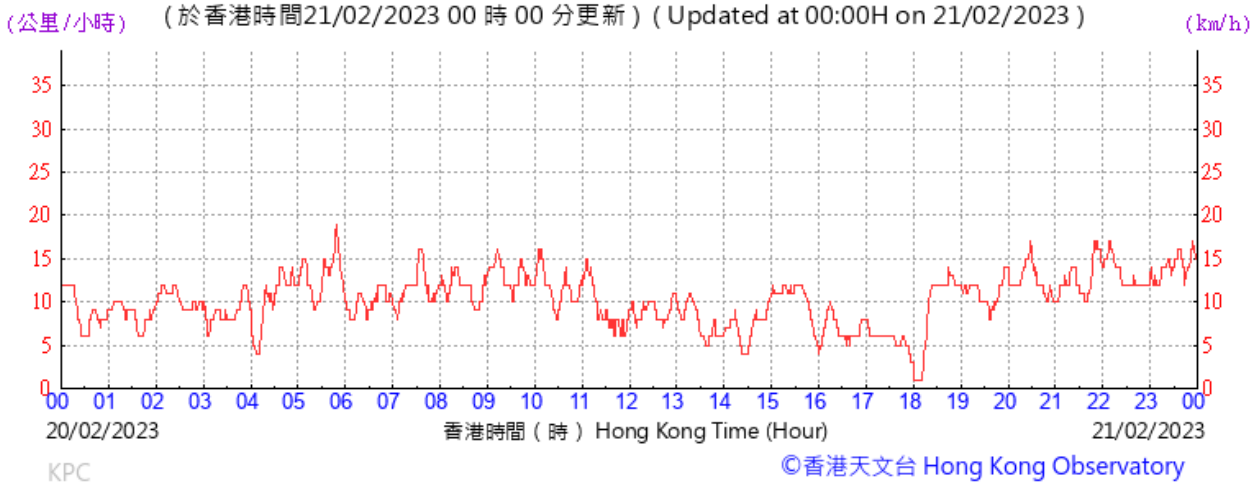
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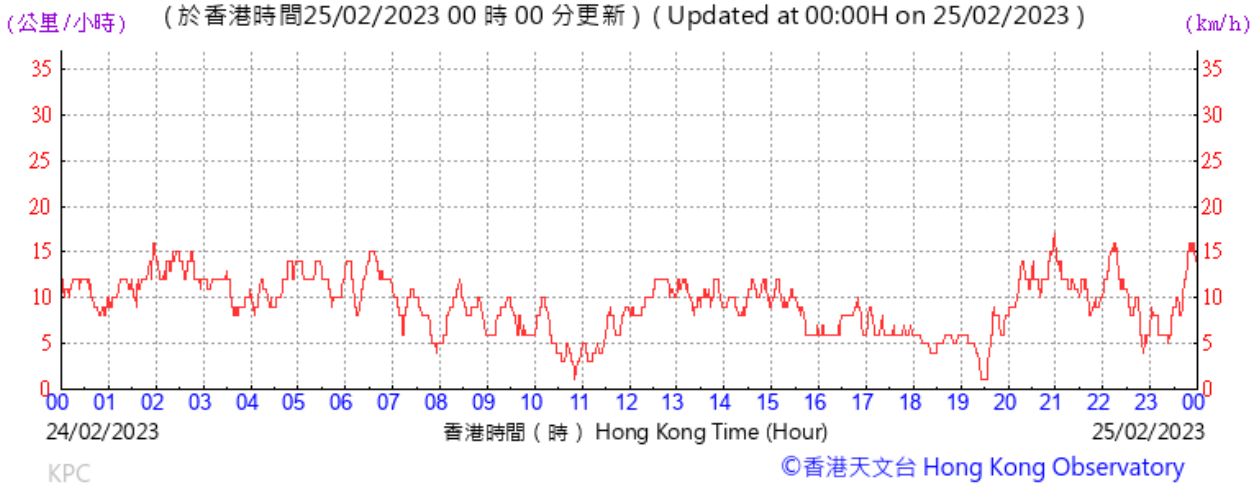
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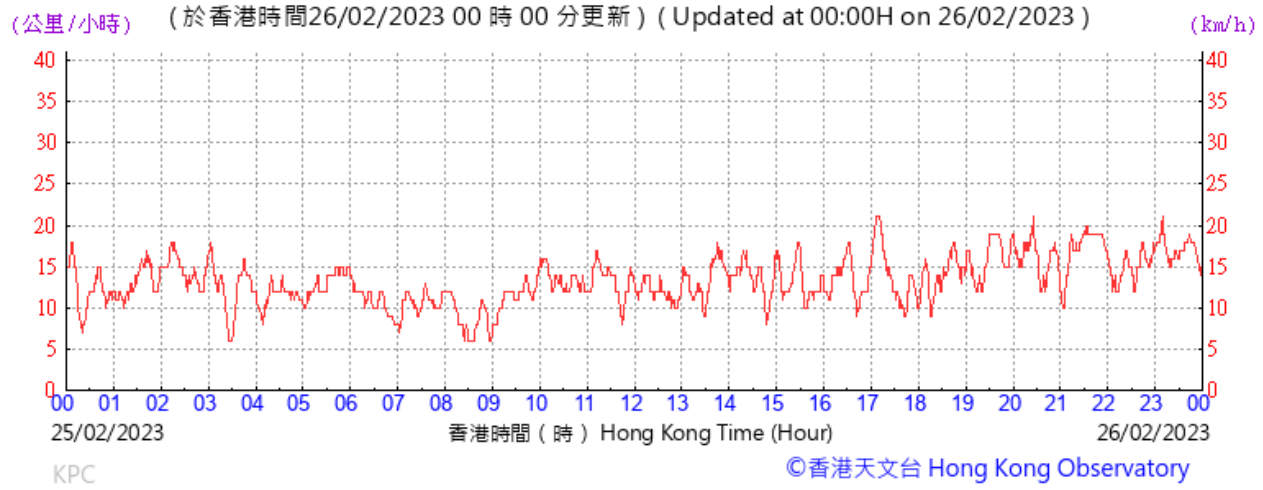
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香港時間(時) Hong Kong Time (Hour)
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Appendix M
Monitoring Data (Noise)

Location: Yau Ma Tei Catholic Primary School (Hoi Wang Road) (W-N1A)

Monitoring date: 2, 8, 14, 20 and 25 February 2023

Parameter : L_{eq}, L_{10}, L_{90}

Other Factors Nearby traffic

Noise Monitoring data:

Date	Weather	Start Time	-	End Time	L_{eq}	L_{10}	L_{90}	Wind speed (m/s)
02/02/2023	Sunny	14:34	-	15:04	61.1	63.0	58.0	3.7
08/02/2023	Cloudy	9:35	-	10:05	60.3	61.5	57.8	0.6
14/02/2023	Fine	15:03	-	15:33	60.5	63.1	56.4	2.8
20/02/2023	Fine	13:15	-	13:45	61.1	63.5	56.6	1.7
25/02/2023	Sunny	10:48	-	11:18	61.5	63.8	56.9	0.8

Remark: 1. No examination was carried out at Yau Ma Tei Catholic Primary School during the monitoring days in February 2023. The limit level of W-N1A would be 70 dB(A).

Location: Hydan Place (W-N18)

Monitoring date: 2, 8, 14, 20 and 25 February 2023

Parameter : L_{eq}, L_{10}, L_{90}

Other Factors Nearby traffic

Noise Monitoring data:

Date	Weather	Start Time	-	End Time	L_{eq}	L_{10}	L_{90}	Wind speed (m/s)
02/02/2023	Sunny	16:34	-	17:04	70.1	72.8	67.2	3.6
08/02/2023	Cloudy	11:47	-	12:17	71.8	74.9	67.8	1.8
14/02/2023	Fine	11:04	-	11:34	71.8	74.5	66.6	3.3
20/02/2023	Fine	10:10	-	10:40	73.9	74.8	68.2	0.3
25/02/2023	Sunny	11:43	-	12:13	73.2	75.4	67.2	2.2

Location: Prosperous Garden Block 1 (W-N25A)

Monitoring date: 2, 8, 14, 20 and 25 February 2023

Parameter : L_{eq}, L_{10}, L_{90}

Other Factors Nearby traffic

Noise Monitoring data:

Date	Weather	Start Time	-	End Time	L_{eq}	L_{10}	L_{90}	Wind speed (m/s)
02/02/2023	Sunny	12:38	-	13:08	67.9	69.2	65.7	3.1
08/02/2023	Cloudy	13:50	-	14:20	71.4	74.6	66.5	1.4
14/02/2023	Fine	10:15	-	10:45	70.9	74.1	66.2	2.1
20/02/2023	Fine	10:51	-	11:21	70.2	73.5	66.0	2.3
25/02/2023	Sunny	13:24	-	13:54	72.0	74.6	67.4	2.8

Location: The Coronation Tower 1 (W-P11)

Monitoring date: 2, 8, 14, 20 and 25 February 2023

Parameter : L_{eq}, L_{10}, L_{90}

Other Factors Nearby traffic

Noise Monitoring data:

Date	Weather	Start Time	-	End Time	L_{eq}	L_{10}	L_{90}	Wind speed (m/s)
02/02/2023	Sunny	15:27	-	15:57	67.6	68.9	66.3	3.3
08/02/2023	Cloudy	10:25	-	10:55	71.2	73.4	67.3	1.7
14/02/2023	Fine	13:37	-	14:07	68.9	70.4	66.5	2.5
20/02/2023	Fine	11:44	-	12:14	67.2	68.7	64.6	1.9
25/02/2023	Sunny	9:27	-	9:57	67.1	68.6	64.7	1.7

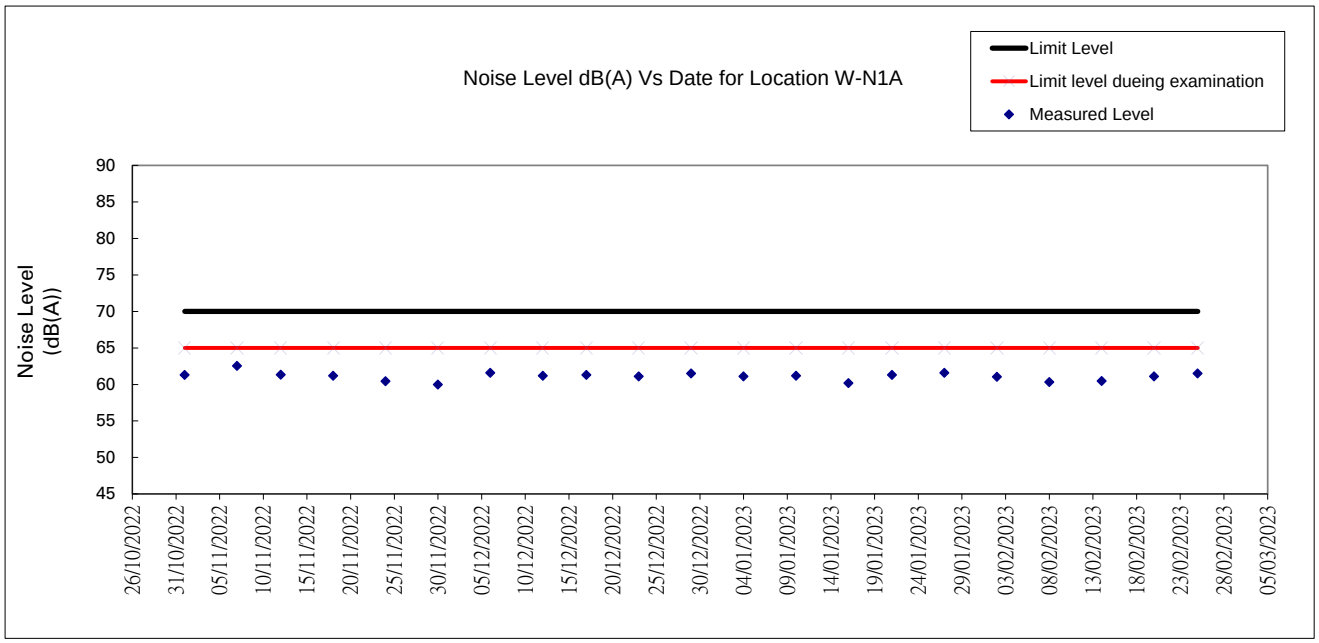


Figure 1: Graphical Illustration of Measured Noise Levels at W-N1A

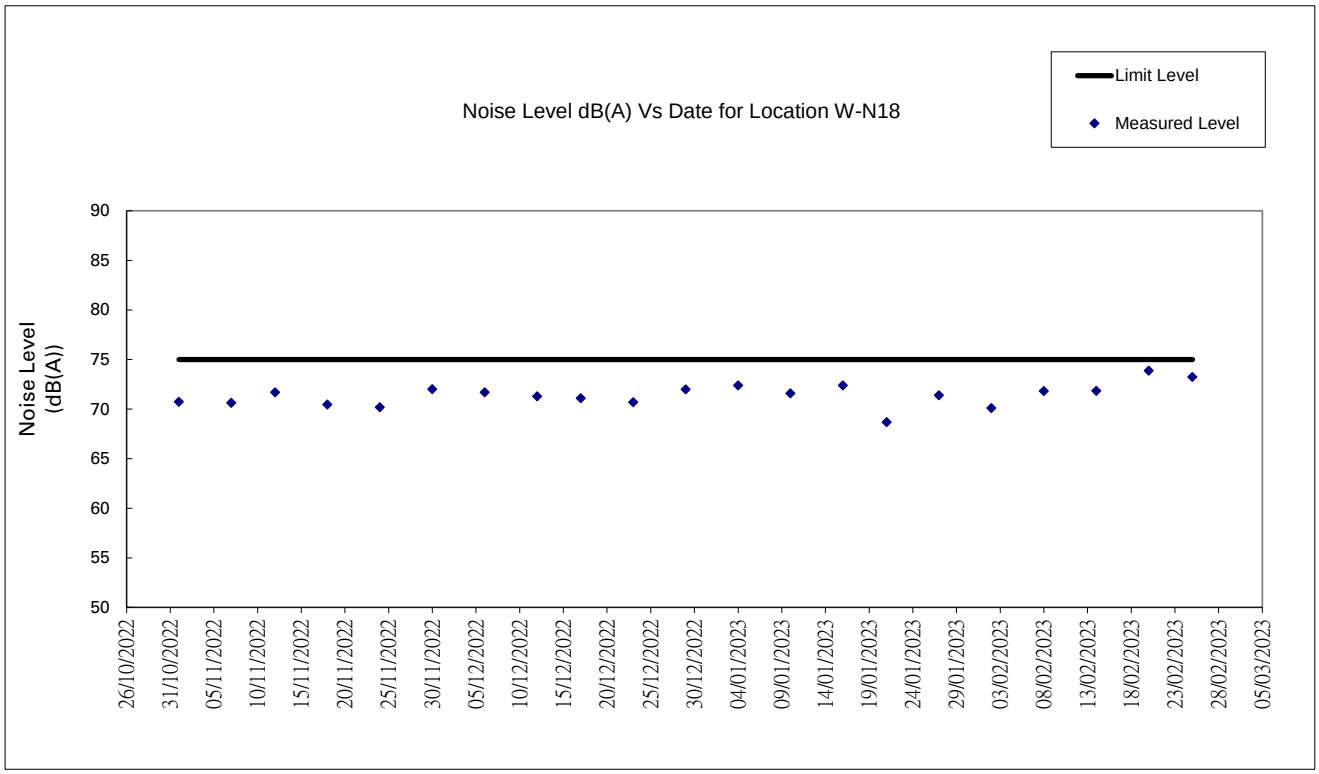


Figure 2: Graphical Illustration of Measured Noise Levels at W-N18

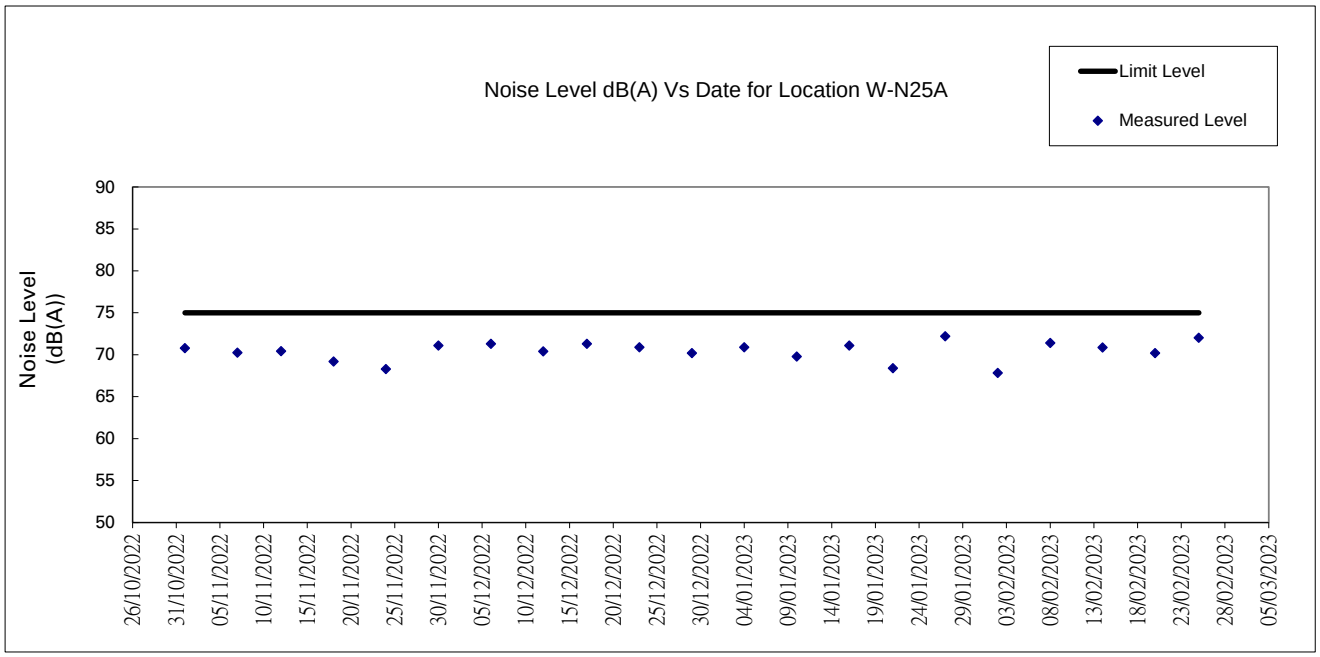


Figure 3: Graphical Illustration of Measured Noise Levels at W-N25A

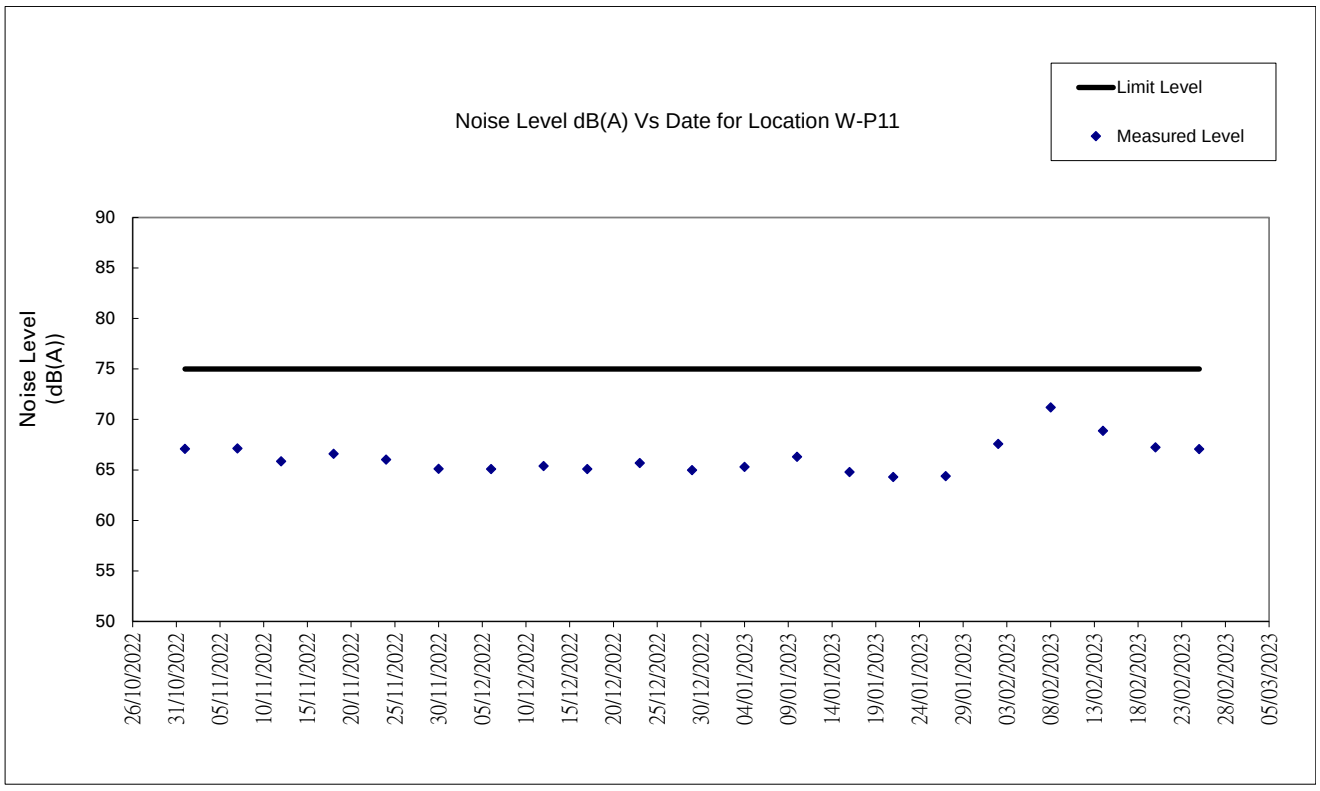


Figure 4: Graphical Illustration of Measured Noise Levels at W-P11

Appendix N
Waste Flow Table

Monthly Summary Waste Flow Table

Name of Department: Highways Department **Contract No. / Works Order No.: HY/2014/08**

Monthly Summary Waste Flow Table for February 2023

[to be submitted not later than the 15th day of each month following reporting month] (All quantities shall be rounded off to 1 decimal place.)

Month		Actual Quantities of Inert Construction Waste Generated Monthly				
	(a)=(b)+(c)+(d)+(e)+ (f)+ (g)+ (h)+ (i)+ (j)+ (k) Total Quantity Generated	(b) Hard Rock and Large Broken	(c) Reused in the Contract	(d) Reused in other Projects	(e) Disposed of as Public Fill	(f) Imported Fill
	(in 'tonnes)	(in 'tonnes)	(in 'tonnes)	(in 'tonnes)	(in 'tonnes)	(in 'tonnes)
Jan-23	7222.30	304.00	0.00	0.00	6860.90	0.00
Feb-23	9593.30	3125.30	0.00	3197.40	3189.10	0.00
Mar-23						
Apr-23						
May-23						
Jun-23						
Sub-total	16815.60	3429.30	0.00	3197.40	10050.00	0.00
Jul-23						
Aug-23						
Sep-23						
Oct-23						
Nov-23						
Dec-23						
Total	16815.60	3429.30	0.00	3197.40	10050.00	0.00
2018	51057.90	0.00	0.00	0.00	47715.60	2877.40
2019	112830.10	541.00	1523.80	13525.00	93132.90	3155.60
2020	193021.92	58778.00	1205.60	19108.60	112556.80	0.00
2021	104679.02	6461.30	1393.70	1144.70	92950.20	1542.90
2022	114787.22	3600.50	1804.50	18471.20	90202.70	0.00
Accumulated Total	593191.76	72810.10	5927.60	55446.90	446608.20	7575.90

Month	Actual Quantities of Non-inert Construction Waste Generated Monthly								
	(g) Metals		(h) Paper/ cardboard packaging		(i) Plastics		(j) Chemical Waste		(k) Others, e.g. General Refuse disposed at Landfill
	(in '000kg)		(in '000kg)		(in '000kg)		(in '000kg)		(in 'tonnes)
	generated	recycled	generated	recycled	generated	recycled	generated	recycled	generated
Jan-23	0.00	0.00	0.00	0.20	0.00	0.00	0.00	0.00	57.20
Feb-23	0.00	0.00	0.00	0.20	0.00	0.00	0.00	0.00	81.30
Mar-23									
Apr-23									
May-23									
Jun-23									
Sub-total	0.00	0.00	0.00	0.40	0.00	0.00	0.00	0.00	138.50
Jul-23									
Aug-23									
Sep-23									
Oct-23									
Nov-23									
Dec-23									
Total	0.00	0.00	0.00	0.40	0.00	0.00	0.00	0.00	138.50
2018	28.40	0.00	0.00	0.00	0.00	0.00	2.00	0.00	434.50
2019	0.00	9.10	3.40	6.80	0.00	0.00	5.20	0.00	927.30
2020	69.20	0.00	3.30	0.00	0.02	0.00	25.30	0.00	1275.10
2021	30.20	0.00	4.80	0.00	0.02	0.00	25.50	0.00	1125.70
2022	108.60	0.00	3.30	0.40	0.02	0.00	1.20	0.00	594.80
Accumulated Total	236.40	9.10	14.80	7.60	0.06	0.00	59.20	0.00	4495.90

Remark: Construction waste records for Jan 2023 had been updated.

Appendix O
Statistics on Complaint, Notifications of Summons and Successful Prosecutions

Statistical Summary of Exceedances

Air Quality		
Reporting Period	**Action Level**	**Limit Level**
1 - 28 February 2023	0	0
Noise		
Reporting Period	**Action Level**	**Limit Level**
1 - 28 February 2023	8	0

Statistical Summary of Environmental Complaints

Reporting Period	**Environmental Complaint Statistics**		
	Frequency	**Cumulative**	**Complaint Nature**
1 - 28 February 2023	11	68	Noise, air and water quality

Statistical Summary of Environmental Non-compliance

Reporting Period	**Environmental Non-compliance Statistics**		
	Frequency	**Cumulative**	**Details**
1 - 28 February 2023	0	1	N/A

Statistical Summary of Environmental Summons

Reporting Period	**Environmental Summons Statistics**		
	Frequency	**Cumulative**	**Details**
1 - 28 February 2023	0	1	N/A

Statistical Summary of Environmental Prosecution

Reporting Period	**Environmental Prosecution Statistics**		
	Frequency	**Cumulative**	**Details**
1 - 28 February 2023	0	0	N/A

Appendix P
Monitoring Schedule of the Coming Month

Impact Monitoring Schedule for YMTE						
Mar-23						
Sun	Mon	Tue	Wed	Thu	Fri	Sat
			1	2	3	4
					Impact Air monitoring for W-A6 &W-A1 Noise monitoring for W-N1A, W-P11,W-N18 & W-N25A	
5	6	7	8	9	10	11
				Impact Air monitoring for W-A6 &W-A1 Noise monitoring for W-N1A, W-P11,W-N18 & W-N25A		
12	13	14	15	16	17	18
			Impact Air monitoring for W-A6 &W-A1 Noise monitoring for W-N1A, W-P11,W-N18 & W-N25A			
19	20	21	22	23	24	25
		Impact Air monitoring for W-A6 &W-A1 Noise monitoring for W-N1A, W-P11,W-N18 & W-N25A				
26	27	28	29	30	31	
	Impact Air monitoring for W-A6 &W-A1 Noise monitoring for W-N1A, W-P11,W-N18 & W-N25A					

Appendix Q
Interim Report for the Complaint

Interim Report on Environmental Complaint

Project	Central Kowloon Route, Yau Ma Tei East Section
Complaint Code	EC059-CKRYMTE20230201_001
Complaint description	The complainant made the complaint on 1 Feb 2023, about the nearly 24-hour construction noise from the site areas between Temple Street and Ferry Street start from Nov 2022.
Parameter	Construction Noise
Investigation finding	The complaint was received on 1 Feb 2023 and was concerned about the construction noise from the site areas between Temple Street and Ferry Street ("the concerned area"). The investigation period would be from 1 Nov 2022 to 1 Feb 2023. For construction works undertaken within permitted hours, the Contractor conducted construction activities under the stipulated NCO requirement. No percussive pilling was carried out in the concerned area. With reference to the results of weekly noise during the investigation period, no exceedance of limit level was found. The weekly environmental inspection site walks were conducted, environmental deficiencies regarding construction noise were found in the concerned area and the contractor rectified immediately after observation. Proper noise mitigation measures have been implemented by the contractor in the investigation period with reference to the suggestion listed in the approved EM&A manual and Section 3.2 of CNMMP (Rev.16.1) which includes: a) Sequentially operating noisy equipment to alleviate noise impacts from construction activities to the NSRs. b) All machines and plants were planned to be located as far as the surrounding NSRs to avoid disturbance. For construction works undertaken within restricted hours, the Contractor applied for valid Construction Noise Permits (CNP) which were granted from EPD, when carried out evening or nighttime works in the concerned area. No violation and non-compliance of CNP was observed or recorded. The contractor had followed the requirements as stipulated in CNP. Considering the fulfillment of stipulated requirements by the Contractor for EM&A manual, CNMMP and CNP, it is concluded that there was no non-compliance of the Project regarding noise impact from construction site.
Actions taken / to be taken	The Contractor had followed EM&A Manual, CNMMP and granted CNP strictly to implement mitigation measures in order to minimize nuisance to the public. In view of public concerns, the following additional remedial measures are taken: • Provide site supervision to ensure the noise barriers had been proper erected to alleviate noise impacts; • Carry out site inspection to ensure all PME have regular maintenance and in proper function; • Provide training to workers of using PME carefully to minimize noise; • Notice to frontline workers to remind them to switch off PME when not in use to avoid excessive noise; and • Review the working hour and method to reduce noise nuisance to Noise Sensitive Receivers (NSRs) during event and night-time.
Remarks (Shown in next page)	1. Works location of the concerned area 2. Noise barrier at the concerned area

Prepared by ET (Acuity Sustainability Consulting Limited)	Janice Lee	
Reviewed by ETL (Acuity Sustainability Consulting Limited)	Kevin Li	
Verified by IEC (ERM-Hong Kong, Limited)	Mandy To	
Date	2 February 2023	

Remark 1: Works location of the concerned area

Remark 2: Noise barrier at the concerned area

Interim Report on Environmental Complaint

Project	Central Kowloon Route, Yau Ma Tei East Section
Complaint Code	EC060-CKRYMTE20230208_001
Complaint description	The complainant made the complaint on 8 Feb 2023, about the nearly 24-hour construction noise, especially when using metal tools after 1900, from the site areas near Prosperous Garden Block 5 start from Jan 2023.
Parameter	Construction Noise
Investigation finding	The complaint was received on 8 Feb 2023 and was concerned about the construction noise from the site areas near Prosperous Garden Block 5 ("the concerned area"). The investigation period would be from 1 Jan 2023 to 8 Feb 2023. For construction works undertaken within permitted hours, the Contractor conducted construction activities under the stipulated NCO requirement. No percussive pilling was carried out in the concerned area. With reference to the results of weekly noise during the investigation period, no exceedance of limit level was found. The weekly environmental inspection site walks were conducted, environmental deficiencies regarding construction noise were found in the concerned area and the contractor rectified immediately after observation. Proper noise mitigation measures have been implemented by the contractor in the investigation period with reference to the suggestion listed in the approved EM&A manual and Section 3.2 of CNMMP (Rev.16.1) which includes: a) Sequentially operating noisy equipment to alleviate noise impacts from construction activities to the NSRs. b) All machines and plants were planned to be located as far as the surrounding NSRs to avoid disturbance. For construction works undertaken within restricted hours, the Contractor applied for valid Construction Noise Permits (CNP) which were granted from EPD, when carried out evening or nighttime works in the concerned area. As confirmed by the Contractor, CNP conditions had been strictly followed when carried out and operated specific PCW and PMEs during restricted hours. No violation and non-compliance of CNP was observed or recorded. The contractor had followed the requirements as stipulated in CNP. Considering the fulfillment of stipulated requirements by the Contractor for EM&A manual, CNMMP and CNP, it is concluded that there was no non-compliance of the Project regarding noise impact from construction site.
Actions taken / to be taken	The Contractor had followed EM&A Manual, CNMMP and granted CNP strictly to implement mitigation measures in order to minimize nuisance to the public. In view of public concerns, the following additional remedial measures are taken: • Provide site supervision to ensure the noise barriers had been proper erected to alleviate noise impacts; • Carry out site inspection to ensure all PMEs are well-maintained and in proper function to avoid excessive noise; • Provide training to workers of using PME and tools carefully to minimize noise; • Provide site supervision to ensure the noise mitigations required in the CNP are maintained properly to alleviate noise impacts; and • Review the working hour and method to reduce noise nuisance to Noise Sensitive Receivers (NSRs) during event and night-time.
Remarks (Shown in next page)	1. Works location of the concerned area 2. Noise barrier at the concerned area

Prepared by ET (Acuity Sustainability Consulting Limited)	Janice Lee	
Reviewed by ETL (Acuity Sustainability Consulting Limited)	Kevin Li	
Verified by IEC (ERM-Hong Kong, Limited)	Mandy To	
Date	14 February 2023	

Remark 1: Works location of the concerned area

Remark 2: Noise barrier at the concerned area

Interim Report on Environmental Complaint

Project	Central Kowloon Route, Yau Ma Tei East Section
Complaint Code	EC061-CKRYMTE20230208_002
Complaint description	The complainant made the complaint on 8 Feb 2023, about equipment generating dust and unpleasant smell covering day and night from the site areas near Kansu Street for years.
Parameter	Air quality
Investigation finding	The complaints were concerned about the air quality from the site areas near Kansu Street ("the concerned area") for years. For construction works undertaken during permitted or restricted hours, all equipment operated on site was under regular maintenance, no malfunction of equipment, no open burning nor black smoke emission was observed and recorded as confirmed by the Contractor. The Contractor had implemented air mitigation measures when using equipment, including water spraying before loading and unloading dusty materials, drilling and other dusty operations. With reference to the results of weekly air impact monitoring, no exceedance of limit level was found. The weekly environmental inspection site walks were conducted, environmental deficiencies regarding air quality were found in the concerned area and the Contractor rectified immediately after observation. Considering the fulfillment of stipulated requirements by the Contractor for EM&A manual, it is concluded that there was no non-compliance of the Project regarding air impact from construction site.
Actions taken / to be taken	The Contractor had followed EM&A Manual strictly to implement mitigation measures in order to minimize dust emission to the public. In view of public concerns, the following additional remedial measures are taken: • Increase the water spraying frequencies on dusty operations/exposed earth/dusty materials to reduce dust emission; • Carry out site inspection to ensure all PMEs are well-maintained and in proper function to avoid potential generation of unpleasant smell; and • Provide training to the frontline workers when loading and unloading of dusty materials carefully to diminish generating dust.
Remarks (Shown in next page)	1. Works location of the concerned area 2. Exposed earth was sprayed with water to suppress dust

Prepared by ET (Acuity Sustainability Consulting Limited)	Janice Lee	
Reviewed by ETL (Acuity Sustainability Consulting Limited)	Kevin Li	
Verified by IEC (ERM-Hong Kong, Limited)	Mandy To	
Date	15 February 2023	

Remark 1: Works location of the concerned area

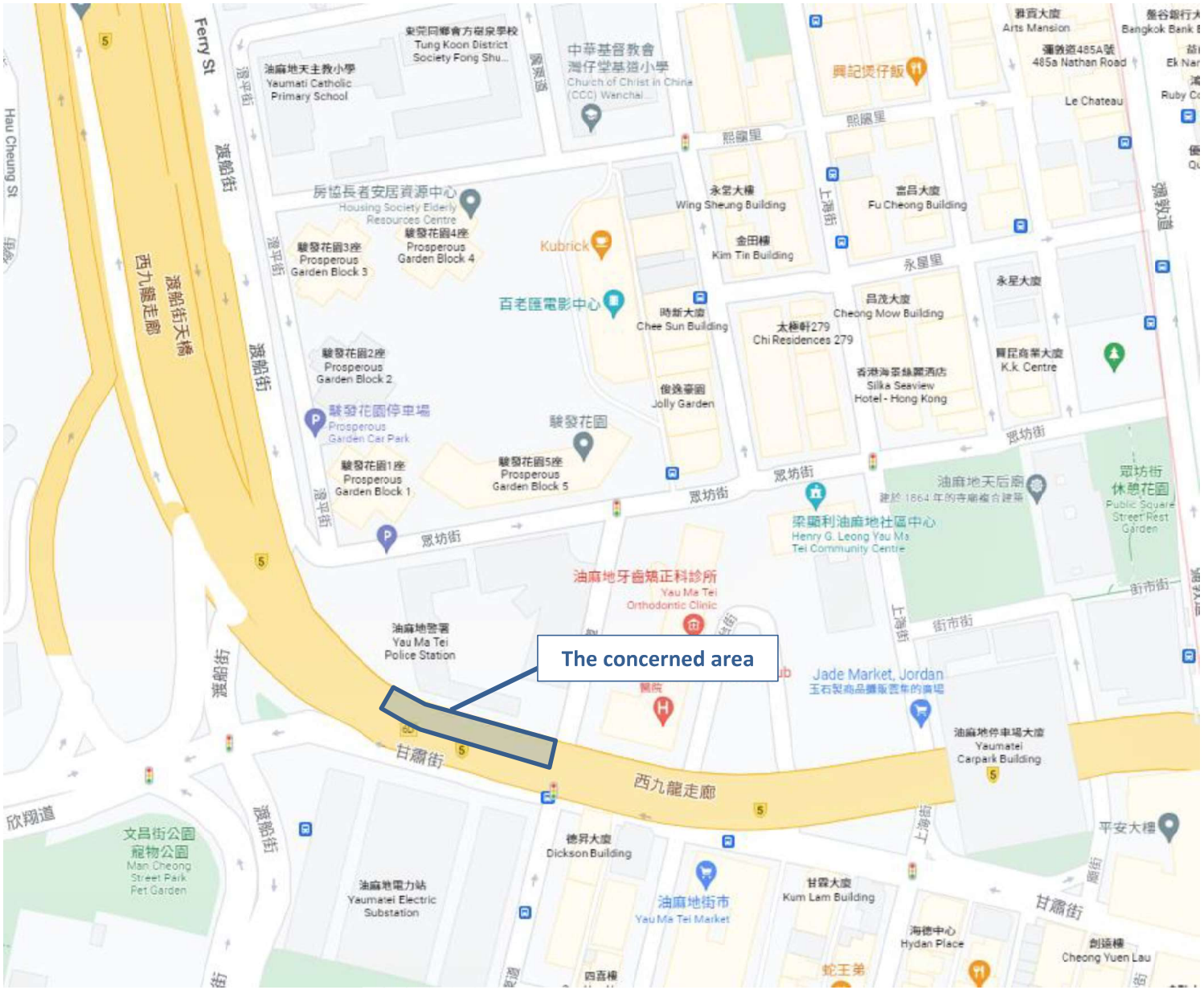
Remark 2: Exposed earth was sprayed with water to suppress dust

Interim Report on Environmental Complaint

Project	Central Kowloon Route, Yau Ma Tei East Section
Complaint Code	EC062-CKRYMTE20230209_001
Complaint description	The complainant made the complaint on 8 Feb 2023, about long-term construction noise from the site areas at Gascoigne Road Flyover.
Parameter	Construction Noise
Investigation finding	The complaint was concerned about the construction noise from the site areas at Gascoigne Road Flyover (GRF), while only P2 ("the concerned area") was conducting works in GRF in the investigation period. Since the complainant did not specify the concerning date, the investigation period would be from 2 to 8 Feb 2023. For construction works undertaken within permitted hours, the major construction activities generating noise impacts include rebar fixing, concreting and stranding threading regard to site records. The Contractor conducted construction activities under the stipulated NCO requirement. No percussive pilling was carried out in the concerned area. With reference to the results of weekly noise impact monitoring on 2 Feb 2023, no exceedance of limit level was found. The weekly environmental inspection site walk was conducted on 2 Feb 2023, no environmental deficiency regarding construction noise was found in the concerned area. Proper noise mitigation measures have been implemented by the contractor in the investigation period with reference to the suggestion listed in the approved EM&A manual and Section 3.2 of CNMMP (Rev.16.1) which includes: a) Sequentially operating noisy equipment to alleviate noise impacts from construction activities to the NSRs. b) All machines and plants were planned to be located as far as the surrounding NSRs to avoid disturbance. For construction works undertaken within restricted hours, the Contractor applied for valid Construction Noise Permits (CNP) (Permit No:GW-RE0037-23) which was granted from EPD, effective on 21 Jan 2023 with covered of the construction site at Canton Road between Public Square and Kansu Street, Yau Ma Tei, Kowloon, where indicated as Working Zone A and Working Zone B. P2 was included in Working Zone A. As noted by the contractor, no Prescribed Construction Work (PCW) was carried out and only one hydraulic pump (electric) was operated during 2300-0500 in the investigation period. The hydraulic pump (electric) which was classified in PME Group E of CNP, only one was allowed to operate during 0000-2400 on general holidays, 0000-0700 and 1900 2400 on any day not being a general holiday in Working Zone A. As confirmed by the Contractor, CNP conditions had been strictly followed when operated PME during restricted hours. No violation and non-compliance of CNP was observed or recorded. The Contractor had followed the requirements as stipulated in CNP. Considering the fulfillment of stipulated requirements by the Contractor for EM&A manual, CNMMP and CNP, it is concluded that there was no non-compliance of the Project regarding noise quality impact from construction site.
Actions taken / to be taken	The Contractor had followed EM&A Manual, CNMMP and granted CNP strictly to implement mitigation measures in order to minimize nuisance to the public. In view of public concerns, the following additional remedial measures are taken: • Carry out site inspection to ensure all PMEs are well-maintained and in proper function to avoid excessive noise; • Provide training to workers of using PME carefully to minimize noise; • Reschedule the operation time of the noisy equipment to less sensitive hours; • Provide site supervision to ensure the noise mitigation measures required in the CNP are maintained properly to alleviate noise impacts; and • Review the working hours and method to reduce noise nuisance to Noise Sensitive Receivers (NSRs) during event and night-time.

Remarks (Shown in next page)	1. Works location of the concerned area	
Prepared by ET (Acuity Sustainability Consulting Limited)	Janice Lee	
Reviewed by ETL (Acuity Sustainability Consulting Limited)	Kevin Li	
Verified by IEC (ERM-Hong Kong, Limited)	Mandy To	
Date	15 February 2023	

Remark 1: Works location of the concerned area



Interim Report on Environmental Complaint

Project	Central Kowloon Route, Yau Ma Tei East Section
Complaint Code	EC063-CKRYMTE20230210_001
Complaint description	The complainant made the complaint on 8 Feb 2023, about (a) long-term construction noise; and (b) equipment generating dust and unpleasant smell covering day and night; from the site areas Gascoigne Road Flyover (near Yau Ma Tei Market).
Parameter	Construction Noise and air quality
Investigation finding	The complaint was concerned about the construction noise and air quality from the site areas Gascoigne Road Flyover (near Yau Ma Tei Market) ("the concerned area"). Since the complainant did not specify the concerning date, the investigation period would be from 2 to 8 Feb 2023. According to site records, the major construction activities generating noise and dust impact include pre boring and D-wall construction. (a) Regard to the complaint on long-term construction noise For construction works undertaken within permitted hours, the Contractor conducted construction activities under the stipulated NCO requirement. No percussive pilling was carried out in the concerned area. With reference to the results of weekly noise impact monitoring on 2 Feb 2023, no exceedance of limit level was found. The weekly environmental inspection site walk was conducted on 2 Feb 2023, no environmental deficiency regarding construction noise was found in the concerned area. Proper noise mitigation measures have been implemented by the contractor in the investigation period with reference to the suggestion listed in the approved EM&A manual and Section 3.2 of CNMMP (Rev.16.1) which includes: a) Temporary noise barrier had been installed to the nearby noisy equipment to screen noise from the nearest sensitive receivers NSRs; b) Sequentially operating noisy equipment to alleviate noise impacts from construction activities to the NSRs. c) All machines and plants were planned to be located as far as the surrounding NSRs to avoid disturbance. For construction works undertaken within restricted hours, the Contractor applied for valid Construction Noise Permits (CNP) which were granted from EPD, when carried out evening or nighttime works in the concerned area. As confirmed by the Contractor, CNP conditions had been strictly followed when carried out and operated specific PCW and PMEs during restricted hours. No violation and non-compliance of CNP was observed or recorded. The Contractor had followed the requirements as stipulated in CNP. (b) Regard to the complaint on equipment generating dust and unpleasant smell covering day and night For construction works undertaken during permitted or restricted hours, all equipment operated on site was under regular maintenance, no malfunction of equipment, no open burning nor black smoke emission was observed and recorded as confirmed by the Contractor. The Contractor had implemented air quality mitigation measures when using the equipment, including water spraying before loading and unloading dusty materials, drilling and other dusty operations. With reference to the results of weekly air impact monitoring on 2 Feb 2023, no exceedance of limit level was found. The weekly environmental inspection site walk was conducted on 2 Feb 2023, environmental deficiencies regarding air quality were found in the concerned area and the Contractor rectified immediately after observation. Considering the fulfillment of stipulated requirements by the Contractor for EM&A manual, CNMMP and CNP, it is concluded that there was no non-compliance of the Project regarding noise and air quality impacts from construction site.

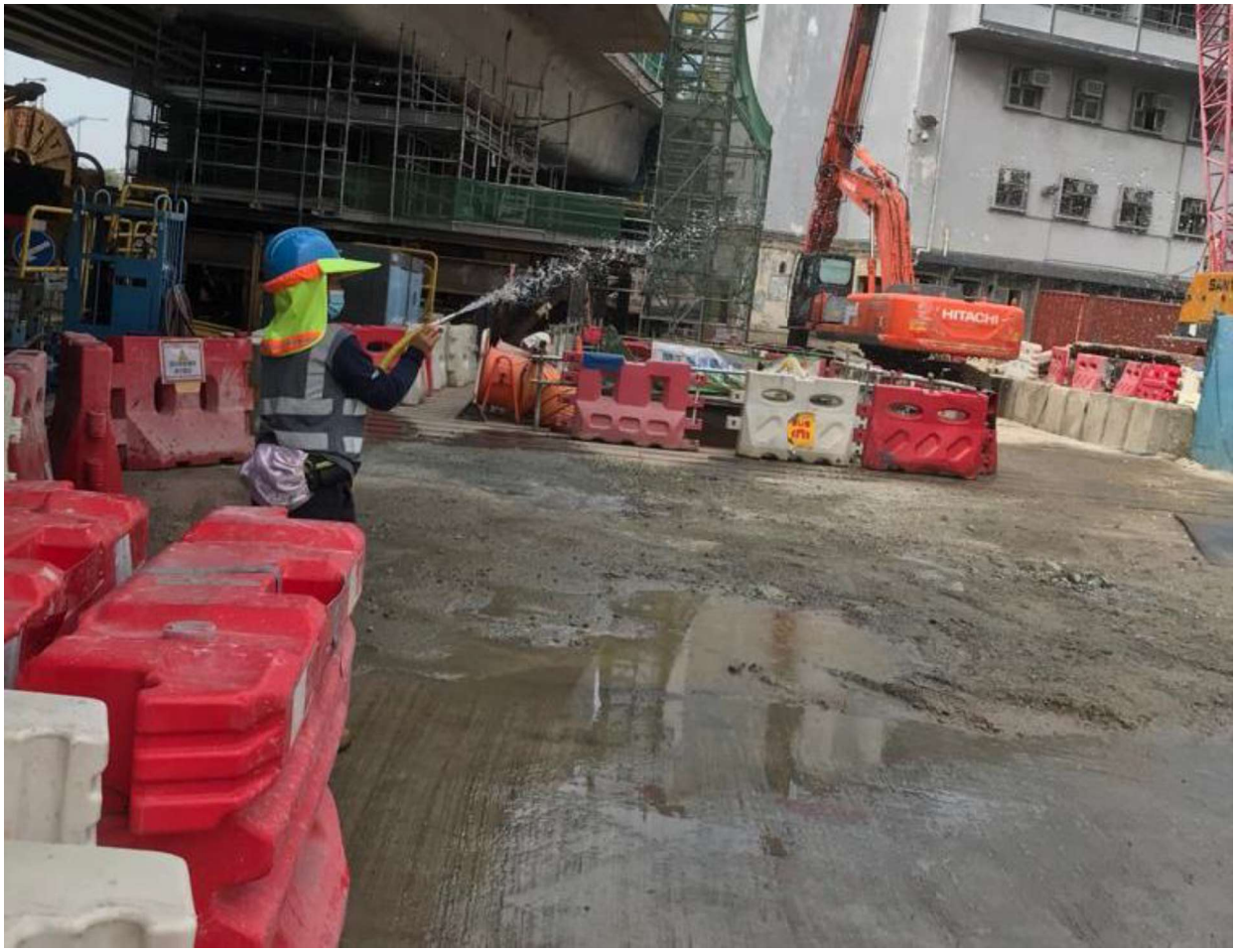
Actions taken / to be taken	The Contractor had followed EM&A Manual, CNMMP and granted CNP strictly to implement mitigation measures in order to minimize nuisance to the public. In view of public concerns, the following additional remedial measures are taken: (a) related to noise quality: • Provide site supervision to ensure the noise barriers had been proper erected to alleviate noise impacts; • Carry out site inspection to ensure all PMEs are well-maintained and in proper function to avoid excessive noise; • Provide training to workers of using PME carefully to minimize noise; • Reschedule the operation time of the noisy equipment to less sensitive hours; • Provide site supervision to ensure the noise mitigation measures required in the CNP are maintained properly to alleviate noise impacts; and • Review the working hours and method to reduce noise nuisance to Noise Sensitive Receivers (NSRs) during event and night-time. (b) related to air quality: • Increase the water spraying frequencies on dusty operation/exposed earth/dusty materials to reduce dust emission; • Carry out site inspection to ensure all PMEs are well-maintained and in proper function to avoid potential generation of unpleasant smell; and • Provide training to the frontline workers when loading and unloading of dusty materials carefully to diminish generating dust.
Remarks (Shown in next page)	1. Works location of the concerned area 2. Erected noise barriers at the concerned area 3. Exposed earth was sprayed with water to suppress dust

Prepared by ET (Acuity Sustainability Consulting Limited)	Janice Lee	
Reviewed by ETL (Acuity Sustainability Consulting Limited)	Kevin Li	
Verified by IEC (ERM-Hong Kong, Limited)	Mandy To	
Date	15 February 2023	

Remark 1: Works location of the concerned area

Remark 2: Erected noise barriers at the concerned area

Remark 3: Exposed earth was sprayed with water to suppress dust



Interim Report on Environmental Complaint

Project	Central Kowloon Route, Yau Ma Tei East Section
Complaint Code	EC064-CKRYMTE20230214_001, ICC_162 #3-7590812307
Complaint description	The same complaint was received by EPD and ICC on 14 Feb 2023 respectively, which was about welding generating unpleasant smell from the project site every day.
Parameter	Air quality
Investigation finding	The complaint was concerned about the air quality from the project site. Since the complainant did not specify the concerning date, we assume the investigation period would be on 1 week basis, 8 to 14 Feb 2023. The concerned areas[1] were suspected to be Zone D3 and G. According to site record, the concerned areas were carrying out welding occasionally during daytime. All equipment operated on site was under regular maintenance, no malfunction of equipment, no open burning nor black smoke emission was observed and recorded as confirmed by the Contractor. The Contractor had implemented air mitigation measures when welding works were being carried out, including increase the number of air blowers to enhance air ventilation. A weekly environmental inspection site walk was conducted on 16 Feb 2023, the Contractor had implemented remedial measures properly. Considering the fulfillment of stipulated requirements by the Contractor for EM&A manual, it is concluded that there was no non-compliance of the Project regarding air impact from construction site.
Actions taken / to be taken	The Contractor had followed EM&A Manual strictly to implement mitigation measures in order to minimize air pollution to the public. In view of public concerns, the following additional remedial measures are taken or to be taken: • Carry out site inspection to ensure all PMEs are well-maintained and in proper function to avoid potential generation of unpleasant smell; • Divert the exhaust of air blower away from ASRs; and • Increase the number of air blower when conducting welding if necessary.
Remarks (Shown in next page)	1. Works location of the concerned area 2. Air blowers were provided at the concerned areas

Prepared by ET (Acuity Sustainability Consulting Limited)	Kako Ho	
Reviewed by ETL (Acuity Sustainability Consulting Limited)	Kevin Li	
Verified by IEC (ERM-Hong Kong, Limited)	Mandy To	
Date	20 February 2023	

Remark 1: Works location of the concerned area

Remark 2: Air blowers were provided at the concerned areas

Interim Report on Environmental Complaint

Project	Central Kowloon Route, Yau Ma Tei East Section
Complaint Code	EC065-CKRYMTE20230224_001, YMT E ICC_ 16 0 .r2
Complaint description	A same complainant was received by EPD and ICC respectively on 23 Feb 2023, about the construction noise especially "cleaning street" sound and hammering of metal sound, from Reprovision of Gascoigne Road Flyover (RGRF) (near Yau Ma Tei Market) during 22 Feb 2023 night-time.
Parameter	Construction Noise
Investigation finding	The complaint was concerned about the hammering of metal sound from P2 and "cleaning street" sound from P4 during 22 Feb 2023 night-time. For the concerned area P2, the Contractor applied for valid Construction Noise Permits (CNP) (Permit No:GW-RE0037-23) which was granted from EPD, effective on 21 Jan 2023 with covered of the construction site at Canton Road between Public Square and Kansu Street, Yau Ma Tei, Kowloon, where indicated as Working Zone A and Working Zone B. P2 was included in Working Zone A. As noted by the contractor, only one hydraulic pump (electric) was operated during 2200-0200 from 22 to 23 Feb 2023. The hydraulic pump (electric) which was classified in PME Group E of CNP, only one was allowed to operate during 0000-2400 on general holidays, 0000-0700 and 1900-2400 on any day not being a general holiday in Working Zone A. According to the information given by the contractor, the hydraulic pump is used for the launching of form traveller, which requires advance checking of hydraulic system and safety elements. Stress bars are then lossened and the bottom form of the form traveler is lowered down. The couplers at the anchorage are removed to allow the form traveller launching. The hydraulic pump is activated to move the form traveller on the rail and it moves along the rail by using the reaction jacks load on the reaction pins. The couplers and all the necessary stress bars would be reinstalled and locked again at a designated safe position to complete the launching operation and stabilize the temporary structure for sake of road safety. However, the launching operation was suspended for safety reason due to the collision of protruded steel reinforcement bars which produced unexpected crashing sound at around 2245 on 22 Feb 2023. Due to the above-mentioned accident, the launching operation of traveller was not completed and unable to lock at a safe position which pose sequence safety concern to nearby road users. To eliminate the potential safety concern, a night-time Temporary Traffic Arrangement was made at Kansu Street for the emergency repairing works. The emergency repairing works (include the use of hammer) was completed, and the traveller was able to move to designated safe position at 0200 on 23 February 2023. For the concerned area P4, no PCW nor PME was conducted and operated on 22 Feb 2023 night-time as confirmed by the Contractor, whereas only preparation works were carried out during 2000-0500 from 22 to 23 Feb 2023. According to the video provided by the complainant, background traffic noise was observed, and no obvious "cleaning street" sound was observed from P4. It is concluded that the concerned hammering of metal sound was suspected to come from the collision of steel bars and hammering of traveller in P2. Change of circumstance on CNP conditions was observed due to immediate safety concern.

Actions taken / to be taken	In view of public concerns, the following preventative measures are taken / to be taken by Contractor: • Regular maintenance of PME to reduce the need of emergency maintenance required during the restricted hours; • Review the construction programme and schedule of works to allow buffer time in case of emergency; • In case of emergency repairing required, consider quite repairing method if possible; • In case of emergency repairing required, make use of any noise mitigation measures and control of the tools use to avoid excessive noise emissions; • Carry out thorough inspection prior to the launching operation to identify any obstruction on the launching route; and • Provide site supervision to ensure the noise mitigation measures required in the CNP are maintained properly to alleviate noise impacts.	
Remarks (Shown in next page)	1. Works location of the concerned area	
Prepared by ET (Acuity Sustainability Consulting Limited)	Janice Lee	
Reviewed by ETL (Acuity Sustainability Consulting Limited)	Kevin Li	
Verified by IEC (ERM-Hong Kong, Limited)	Mandy To	
Date	3 March 2023	

Remark 1: Works location of the concerned area

Interim Report on Environmental Complaint

Project	Central Kowloon Route, Yau Ma Tei East Section
Complaint Code	EC066-CKRYMTE20230224_002
Complaint description	The complainant complained about the construction noise from the project site on 28 Dec 2022 at around 1923 and 1943.
Parameter	Construction Noise
Investigation finding	The complaint was concerned about the construction noise from the concrete pump truck at site area P2[1] on 28 Dec 2022 at around 1923 and 1943. For the concerned area P2, the contractor applied for valid Construction Noise Permits (CNP) (Permit No: GW-RE1116-22) which was granted from EPD, effective on 21 Oct 2022 with covered of the construction site at Canton Road between Public Square and Kansu Street, Yau Ma Tei, Kowloon, indicated as Working Zone A and Working Zone B. P2 was included in Working Zone A. The CNP allows the contractor conduct PCW and operate PME during restricted hour according to the conditions setting out in the CNP GW-RE1116-22. According to the videos provided by the complainant, concrete residues from concrete pump truck were observed during the concerned period. As noted by the contractor, the concreting works was carried out at P2L-5. Concreting works had been completed at around 1845. While removing the concrete inside the concrete pump truck, blockage was found in the jib which had to be fixed immediately to release the pressurized concrete residues. Otherwise, the pump truck would be scrapped and pressurized residues might eject at uncertain moment on road which will endanger road users. The emergency repair was performed immediately and completed at around 1920. After repairment, concrete residues poured from the concrete pump truck, as shown in the videos, and the repaired jib of the concrete pump truck was return to the safe position. No Prescribed Construction Work (PCW) nor Powered Mechanical Equipment (PME) was conducted or operated for construction purpose during restricted hours on 28 Dec 2022 as confirmed by the contractor. Change of circumstances on CNP conditions was observed due to immediate safety concern.
Actions taken / to be taken	In view of public concerns, the following preventative measures were taken / to be taken: • Regular maintenance of PME to reduce the need of emergency maintenance required during the restricted hours; • Review the construction programme and schedule of works to allow buffer time in case of emergency, e.g., plan the concreting works to be completed before 18:15; • In case of emergency repairing required, make use of any noise mitigation measures and control of the tools use to avoid excessive noise emissions; and
Remarks (Shown in next page)	1. Works location of the concerned area

Prepared by ET (Acuity Sustainability Consulting Limited)	Kako Ho	
Reviewed by ETL (Acuity Sustainability Consulting Limited)	Kevin Li	
Verified by IEC (ERM-Hong Kong, Limited)	Mandy To	
Date	3 March 2023	

Remark 1: Works location of the concerned area

Interim Report on Environmental Complaint

Project	Central Kowloon Route, Yau Ma Tei East Section
Complaint Code	EC067-CKRYMTE20230224_003
Complaint description	The complainant complained that dripping water was found from the construction site at Gascoigne Road Flyover, near Shanghai Street to the pedestrian zone on 24 Feb 2023.
Parameter	Water Quality
Investigation finding	The complainant made the complaint on 24 Feb 2023 and was concerned about the dripping water from P5. According to site record, welding works were conducted at P5 during daytime. The dripping water was suspected from water hose which was not closed tightly. Since the dripping water was directly discharged from water hose, the dripping water was not classified as wastewater as confirmed by the contractor. Considering the fulfillment of stipulated requirements by the Contractor for EM&A manual, it is concluded that there was no non-compliance of the Project regarding water impact from construction site.
Actions taken / to be taken	The Contractor had followed EM&A Manual strictly to implement mitigation measures in order to minimize water pollution to the public. In view of public concerns, the following preventative measures were taken / to be taken: • The loosened water hose was closed tightly; • Provide checking and maintenance on water hose regularly to prevent damage or loosening. If any dripping is observed, the following additional remedial measures will be taken: • Add impervious sheeting at the base of the bridge to block water dripping from the bridge; • Provide bund along the bridge to prevent surface runoff outside the construction site; and • Divert dripping water to the site for treatment.
Remarks (Shown in next page)	1. Works location of the concerned area

Prepared by ET (Acuity Sustainability Consulting Limited)	Kako Ho	
Reviewed by ETL (Acuity Sustainability Consulting Limited)	Kevin Li	
Verified by IEC (ERM-Hong Kong, Limited)	Mandy To	
Date	3 March 2023	

Remark 1: Works location of the concerned area

Interim Report on Environmental Complaint

Project	Central Kowloon Route, Yau Ma Tei East Section
Complaint Code	EC068-CKRYMTE2023027_001
Complaint description	The complainant complained about the construction noise from the project site on 24 Feb 2023 at around 1913 and 1936.
Parameter	Construction Noise
Investigation finding	The complaint was concerned about the construction noise from the crane at site area P4[1] on 24 Feb 2023 at around 1913 and 1936. According to the videos provided by the complainant, a crane was performing lifting during the concerned period. As noted by the contractor, all concreting works had been completed before 1900 and no operation for construction purpose was performed after 1900. At around 1900, an empty concrete skip was found placed next to the shaft opening at Zone D3 but no rigid fencing was observed at the edge of shaft opening. In order to eliminate the falling hazard of the concrete skip which may endanger the worker at underground, the empty concrete skip was lifted to the bridge deck level of P4 by using a mobile crane after 1900, as shown in the videos. No Prescribed Construction Work (PCW) was conducted during restricted hours on 24 Feb 2023 as confirmed by the contractor. The current CNPs did not cover the concerned area. Due to safety concern to nearby workers, the concrete skip was relocated to a safe position by using mobile crane as an emergency and change of circumstances on CNP conditions was observed.
Actions taken / to be taken	In view of safety concern, the following preventative measures were taken / to be taken: • Regular safety checking to ensure all equipment are stored in safety location to avoid unnecessary / emergency relocation of equipment during restricted hours; • Review the site planning and provide suitable storage area for concrete skip or other construction materials to prevent the recurrence of similar case; and • In case of emergency repairing required, make use of any noise mitigation measures and control of the tools use to avoid excessive noise emissions.
Remarks (Shown in next page)	1. Works location of the concerned area

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Verified by IEC (ERM-Hong Kong, Limited)	Mandy To	
Date	6 March 2023	

Remark 1: Works location of the concerned area

Interim Report on Environmental Complaint

Project	Central Kowloon Route, Yau Ma Tei East Section
Complaint Code	EC069-CKRYMTE2023028_001
Complaint description	The complainant complained about the construction noise from the project site on 7 Feb 2023 at around 1918 and 1921.
Parameter	Construction Noise
Investigation finding	The complaint was concerned about the construction noise from the concrete pump truck at site area P2[1] on 7 Feb 2023 at around 1918 and 1921. For the concerned area P2, the contractor applied for valid Construction Noise Permits (CNP) (Permit No: GW-RE0037-23) which was granted from EPD, effective on 21 Jan 2023 with covered of the construction site at Canton Road between Public Square Street and Kansu Street, Yau Ma Tei, Kowloon, indicated as Working Zone A and Working Zone B. P2 was included in Working Zone A. The CNP allows the contractor conduct PCW and operate PME during restricted hour according to the conditions setting out in the CNP GW-RE0037-23. According to the videos provided by the complainant, concrete pump truck were operating during the concerned period. As noted by the contractor, all concreting works had been stopped before 1900 and no operation for construction purpose was performed after 1900. After concreting works at 18:45, cleaning up works were carried out but the jib of concrete pump truck was found out of order and cannot be lowered down. To ensure road safety, jib of the concrete pump truck must be lowered down before leaving the site. For the road safety consideration, emergency repairing was immediately carried out to fix the jib and the repairing was completed at around 19:30. Due to immediate safety concern, change of circumstances on CNP conditions was observed due to emergency repairing of concrete pump truck.
Actions taken / to be taken	In view of public concerns, the following preventative measures were taken / to be taken: • Regular maintenance of PME to reduce the need of emergency maintenance required during the restricted hours; • Plan the day to day construction work properly to give buffer for subsequent tidying work such as plant cleansing and repairing to ensure all PME are stopped before 7:00pm; and • In case of emergency repairing required, make use of any noise mitigation measures and control of the tools use to avoid excessive noise emissions.
Remarks (Shown in next page)	1. Works location of the concerned area

Prepared by ET (Acuity Sustainability Consulting Limited)	Kako Ho	
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Date	6 March 2023	

Remark 1: Works location of the concerned area