Leighton-China States Joint Venture

Contract SCL1123 –
Exhibition Station & Western Approach Tunnel

Quarterly EM&A Report

for

FEP-13/364/2009/H & FEP-03/376/2009

[Period from Aug to Oct 2021]

(March 2022)

Verified by: Claudine LEE

Position: Independent Environmental Checker

Date: 4 March 2022

Leighton-China State Joint Venture

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Verified by: FUNG Yiu Wah

Position: Environmental Team Leader

Date: 4 March 2022

Leighton – China State J.V.

Shatin to Central Link -
Hung Hom to Admiralty Section

Works Contract 1123 -
CEDD Entrusted Work for Road P2 & other roads and Slip Road 3

Quarterly Environmental Monitoring and Audit Report

-August 2021 to October 2021-

[March 2022]

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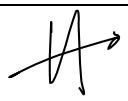
Prepared & Checked:	Barry Ho	
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EXECUTIVE SUMMARY

Shatin to Central Link Contract 1123 – CEDD Entrusted Work for Road P2 & other roads and Slip Road 3 (hereafter called "the Project") covers part of the construction of CEDD entrusted work under the granted Further Environmental Permit: FEP–03/376/2009 and FEP–13/364/2009 respectively.

The Project comprises the construction of Road P2 and other roads which are classified as primary/district distributor roads and Slip Road 3.

The EM&A programme commenced on 25 January 2021.The impact EM&A for the Project includes air quality and noise monitoring.

This report documents the findings of EM&A works conducted in the period between 1 August and 31 October 2021. As informed by the Contractor, major activities in the reporting period were:

Location	**Site Activities**		
	August 2021	**September 2021**	**October 2021**
Road P2 – West (Slip Road 3)	• Retaining wall construction • Backfill for road base	• Drainage and Road works	• Drainage and Road works
Road P2 – East (Hung Hing Road)	• TTM 2 on Convention Avenue and Hung Hing Road • Drainage works	• Drainage works • Road Pavement	• Drainage works • Road Pavement
Road P2 – Permanent PTI (Public Transport Interchange)	• Drainage works • Road works (concrete pavement and asphalt) • HEC cable connection	• Drainage works • Road works (concrete pavement and asphalt)	• Drainage works • Road works (concrete pavement and asphalt)

Breaches of Action and Limit Levels for Air Quality

No exceedance of Action and Limit Level of air quality was recorded in the reporting period.

Breaches of Action and Limit Levels for Noise

Regular Noise Monitoring

No Action Level exceedance was recorded since no noise related complaint was received in the reporting period.

No exceedance of Limit Level of noise was recorded in the reporting period.

Complaint, Notification of Summons and Successful Prosecution

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

Reporting Changes

There was no reporting change in the reporting period.

1. INTRODUCTION

Leighton – China State Joint Venture (JV) was commissioned by MTR as the Civil Contractor for CEDD Entrusted Works under Contract 1123. AECOM Asia Company Limited (AECOM) was appointed by JV as the Environmental Team (ET) to undertake the Environmental Monitoring and Audit (EM&A) programme during construction phase of the Project.

1.1 Purpose of the Report

1.1.1 This is the third quarterly EM&A Report which summaries the impact monitoring results and audit findings for the Project during the reporting period between 1 August and 31 October 2021.

1.2 Report Structure

1.2.1 This Quarterly EM&A Summary Report is organized as follows:

- Section 1: Introduction
- Section 2: Project Information
- Section 3: Environmental Monitoring Requirement
- Section 4: Implementation Status of Environmental Mitigation Measures
- Section 5: Monitoring Results
- Section 6: Environmental Site Inspection and Audit
- Section 7: Environmental Non-conformance
- Section 8: Future Key Issues
- Section 9: Conclusions and Recommendations

2 PROJECT INFORMATION

2.1 Background

2.1.1 Road P2 and other roads which are classified as primary/district distributor roads identified as DP2 which covered in the Environmental Permit No. EP-376/2009 in the approved Wan Chai Development Phase II (WDII) and Central – Wan Chai Bypass (CWB) comprising (i) a dual 2-lane primary distributor road, Road P2; and (ii) other new primary and district distributor roads connecting to the slip roads of the Central-Wan Chai Bypass.

2.1.2 Slip road 3 identified as part of DP1 which covered in the Environmental Permit No. EP-364/2009/H in the approved Wan Chai Development Phase II (WDII) and Central – Wan Chai Bypass (CWB) comprising (i) slip roads to connect the CWB to the local road system in the Wan Chai North and Causeway Bay area; and (ii) associated road lighting, road signing, traffic control and surveillance system (iii) other associated works.

2.1.3 The Environmental Impact Assessment Report for Central - Wan Chai Bypass and Island Eastern Corridor Link (CWB&IECL) EIA Report (Register No. AEIAR-041/2001) and the Wan Chai Development Phase II and Central-Wan Chai Bypass (WDII&CWB) EIA Report (Register No. AEIAR-125/2008) which were approved on 31 August 2001 and 11 December 2008 under the Environmental Impact Assessment Ordinance (EIAO). Following the approval of the EIA Report, an Environmental Permits (EPs) were granted on 13 November 2009 and 22 April 2020 respectively, which covers Road P2 and other roads which are classified as primary/district distributor roads **[DP2]** and Central – Wan Chai Bypass (CWB) including its Road Tunnel and Slip Roads **[DP1]** (EP No.: EP-376/2009 and EP-364/2009/H), for the construction and operation. Further Environmental Permits (FEP No. FEP-03/376/2009 and FEP-13/364/2009/H) were both subsequently granted from the Director of Environmental Protection (DEP) on 2 June 2020, which cover the construction works for DP2 and a part of DP1 respectively.

2.1.4 The site layout plan of the Project is shown in **Figure 1.1**.

2.2 Site Description

2.2.1 The major construction activities under CEDD Entrusted Works of Contract 1123 include:

(a) Site preparation;
(b) Construct for dual 2-lane primary distributor road, Road P2;
(c) Construct for other new primary and district distributor roads connecting to the slip roads of the Central-Wan Chai Bypass;
(d) Construct for slip roads to connect the CWB to the local road system in the Wan Chai North and Causeway Bay area;
(e) Construct for associated road lighting, road signing, traffic control and surveillance system; and
(f) Construct for other associated works;

2.3 Construction Programme and Activities

2.3.1 The major construction activities undertaken in the reporting period are summarised below:

Location	Site Activities		
	August 2021	**September 2021**	**October 2021**
Road P2 – West (Slip Road 3)	• Retaining wall construction • Backfill for road base	• Drainage and Road works	• Drainage and Road works
Road P2 – East (Hung Hing Road)	• TTM 2 on Convention Avenue and Hung Hing Road • Drainage works	• Drainage works • Road Pavement	• Drainage works • Road Pavement
Road P2 – Permanent PTI (Public Transport Interchange)	• Drainage works • Road works (concrete pavement and asphalt) • HEC cable connection	• Drainage works • Road works (concrete pavement and asphalt)	• Drainage works • Road works (concrete pavement and asphalt)

2.3.2 The construction programme is presented in **Appendix A**.

2.4 Project Organisation

2.4.1 The project organization structure is shown in **Appendix B**. The key personnel contact names and numbers for the Project are summarised in **Table 2.1.**

Table 2.1 Contact Information of Key Personnel

Party	Role	Position	Name	Telephone	Fax
MTR	Residential Engineer (ER)	Construction Manager	Mr. Mike Bezzano	3959 2128	3959 2200
Meinhardt	Independent Environmental Checker	Independent Environmental Checker	Ms. Claudine Lee	2859 5409	2540 1580
JV	Contractor	Project Director	Mr. Brian Shepstone	3973 0838	31051126
		Environmental Engineer	Mr. Andy Leung	3973 1498	
AECOM	Environmental Team (ET)	ET Leader	Mr. Y W Fung	3922 9366	2317 7609

2.5 Status of Environmental Licences, Notification and Permits

2.5.1 Relevant environmental licenses, permits and/or notifications on environmental protection for this Project and valid in the reporting period are summarized in **Table 2.2**.

Table 2.2 Status of Environmental Licenses, Notifications and Permits

Permit / License No. / Notification/ Reference No.	Valid Period		Status	Remarks
	From	To		
Environmental Permit				
FEP-03/376/2009	2 Jun 2020	End of Contract	Valid	
FEP-13/364/2009/H	2 Jun 2020	End of Contract	Valid	
Construction Noise Permit				
-	-	-	-	-
Wastewater Discharge License[1]				
-	-	-	-	-
Chemical Waste Producer Registration				
5213-135-L2881-01	02 Apr 2015	End of Contract	Valid	For whole site at Wan Chai Area
Marine Dumping Permit				
-	-	-	-	-
Billing Account for Construction Waste Disposal				
7021736	16 Feb 2015	End of Contract	Valid	For Disposal of C&D Waste
Notification Under Air Pollution Control (Construction Dust) Regulation				
385128	1 Mar 2015	End of Contract	Valid	For whole site at Wan Chai Area

Remark:
1. The Contractor was reminded to keep tracking on the site condition s and review its application for wastewater discharge license.

3 ENVIRONMENTAL MONITORING REQUIREMENT

3.1 Construction Dust Monitoring

Monitoring Requirements

3.1.1 In accordance with the approved EM&A Manuals, 24-hour and 1-hour Total Suspended Particulates (TSP) levels at the designated air quality monitoring station is required. Impact 24-hour monitoring should be carried out for at least once every 6 days and 1-hour TSP monitoring should be done at least 3 times every 6 days while the highest dust impact is expected. The Action and Limit level of the air quality monitoring is provided in **Appendix D**.

Monitoring Equipment

3.1.2 24-hour TSP air quality monitoring was performed using High Volume Sampler (HVS) located at the designated monitoring stations. The HVS meets all the requirements of the EM&A Manual.

3.1.3 A portable direct reading dust meter was used to carry out the 1-hour TSP monitoring.

3.1.4 Brand and model of the equipment is given in **Table 3.1**.

Table 3.1 Air Quality Monitoring Equipment

Equipment	Brand and Model
High Volume Sampler (24-hour TSP)	Andersen Total Suspended Particulate Mass Flow Controlled High Volume Air Sampler (Model No. GS 2310 (S/N:10273)) (Model No. GS 2310 (S/N:3384))
Calibration Kit (24-hour TSP)	TISCH Environmental Orifice (Model TE-5025A (S/N: 843))
Portable direct reading dust meter (1-hour TSP)	Sibata Digital Dust Monitor (Model No. LD-3)

Monitoring Locations

3.1.5 The monitoring station for construction dust monitoring pertinent to the Project has been identified based on the approved EM&A Manual for SCL (HUH-ADM) of the Project. The location of the construction dust monitoring stations are summarised in **Table 3.2** and shown in **Figure 3.1**.

Table 3.2 Locations of Construction Dust Monitoring Station

Station ID	Dust Monitoring Station
CMA5b[1]	Pedestrian Plaza
CMA6a[1]	WDII PRE Site Office

Remark:
1. According to the updated site layout of CEDD Entrusted Works and Updated EM&A Manual for EP-376/2009 and EP-364/2009, Pedestrian Plaza (CMA5b) and WDII PRE Site Office (CMA6A) were selected as the most affected sensitive receiver during the construction phase.

Monitoring Methodology

3.1.6 24-hour TSP Monitoring

(a) The HVS was installed in the vicinity of the air sensitive receivers. The following criteria were considered in the installation of the HVS as far as practicable: -

(i) A horizontal platform with appropriate support to secure the sampler against gusty wind was provided.
(ii) Two samplers should not be placed less than 2m apart from each others;

(iii) The distance between the HVS and any obstacles, such as buildings, was at least twice the height that the obstacle protrudes above the HVS.
(iv) A minimum of 2 meters separation from walls, parapets and penthouse for rooftop sampler.
(v) A minimum of 2 meters separation from any supporting structure, measured horizontally is required.
(vi) No furnace or incinerator flues nearby.
(vii) Airflow around the sampler was unrestricted.
(viii) The sampler was located more than 20 meters from any dripline.
(ix) Any wire fence and gate, required to protect the sampler, did not obstruct the monitoring process.
(x) Permission was obtained to set up the samplers and access to the monitoring station.
(xi) A secured supply of electricity was obtained to operate the sampler.

(b) Preparation of Filter Papers

(i) Glass fibre filters, G810 were labelled and sufficient filters that were clean and without pinholes were selected.
(ii) All filters were equilibrated in the conditioning environment for 24 hours before weighing. The conditioning environment temperature was around 25 °C and not variable by more than ±3 °C; the relative humidity (RH) was < 50% and not variable by more than ±5%. A convenient working RH was 40%.
(iii) All filter papers were prepared and analysed by ALS Technichem (HK) Pty Ltd., which is a HOKLAS accredited laboratory and has comprehensive quality assurance and quality control programmes.

(c) Field Monitoring

(i) The power supply was checked to ensure the HVS works properly.
(ii) The filter holder and the area surrounding the filter were cleaned.
(iii) The filter holder was removed by loosening the four bolts and a new filter, with stamped number upward, on a supporting screen was aligned carefully.
(iv) The filter was properly aligned on the screen so that the gasket formed an airtight seal on the outer edges of the filter.
(v) The swing bolts were fastened to hold the filter holder down to the frame. The pressure applied was sufficient to avoid air leakage at the edges.
(vi) Then the shelter lid was closed and was secured with the aluminium strip.
(vii) The HVS was warmed-up for about 5 minutes to establish run-temperature conditions.
(viii) A new flow rate record sheet was set into the flow recorder.
(ix) On site temperature and atmospheric pressure readings were taken and the flow rate of the HVS was checked and adjusted at around 1.3 m^3/min, and complied with the range specified in the EM&A Manual (i.e. 0.6-1.7 m^3/min).
(x) The programmable digital timer was set for a sampling period of 24 hrs, and the starting time, weather condition and the filter number were recorded.
(xi) The initial elapsed time was recorded.
(xii) At the end of sampling, on site temperature and atmospheric pressure readings were taken and the final flow rate of the HVS was checked and recorded.
(xiii) The final elapsed time was recorded.
(xiv) The sampled filter was removed carefully and folded in half length so that only surfaces with collected particulate matter were in contact.
(xv) It was then placed in a clean envelope and sealed.
(xvi) All monitoring information was recorded on a standard data sheet.
(xvii) Filters were then sent to ALS Technichem (HK) Pty Ltd. for analysis.

(d) Maintenance and Calibration

(i) The HVS and its accessories were maintained in good working condition, such as replacing motor brushes routinely and checking electrical wiring to ensure a continuous power supply.

(ii) HVSs were calibrated using TE-5025A Calibration Kit upon installation and thereafter at bi-monthly intervals.
(iii) Calibration certificate of the TE-5025A Calibration Kit and the HVSs are provided in **Appendix E**.

3.1.7 1-hour TSP Monitoring

(a) Measuring Procedures

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

(b) Maintenance and Calibration

(i) The 1-hour TSP meter was calibrated at 1-year intervals against a continuous particulate TEOM Monitor, Series 1400ab. Calibration certificates of the Laser Dust Monitors are provided in **Appendix E**.

Monitoring Schedule for the Reporting Period

3.1.8 The schedule for environmental monitoring between August and October 2021 is provided in **Appendix F.**

3.2 Construction Noise Monitoring

Monitoring Requirements

3.2.1 In accordance with the EM&A Manual, impact noise monitoring should be conducted for at least once a week during the construction phase of the Project. **Table 3.3** summarises the monitoring parameters, frequency and duration of impact noise monitoring. The Action and Limit level of the noise monitoring is provided in **Appendix D**.

Table 3.3 Noise Monitoring Parameters, Frequency and Duration

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

Monitoring Equipment

3.2.2 Noise monitoring was performed using sound level meter at each designated monitoring station. The sound level meters deployed comply with the International Electrotechnical Commission Publications (IEC) 651:1979 (Type 1) and 804:1985 (Type 1) specifications. Acoustic calibrator was deployed to check the sound level meters at a known sound pressure level. Brand and model of the equipment is given in **Table 3.4**.

Table 3.4 Noise Monitoring Equipment for Regular Noise Monitoring

Equipment	Brand and Model
Integrated Sound Level Meter	Model No. B&K 2250 (S/N: 3001291) Model No. B&K 2238 (S/N: 2800927) Model No. B&K 2270 (S/N: 2644597) Model No. B&K 2250-L (S/N: 2681366)
Acoustic Calibrator	Model No. B&K 4231 (S/N: 3014024) Model No. NC-74 (S/N: 34246490) Model No. MVI CAL21 (S/N: 34113610(2011)) Model No. B&K 4231 (S/N:3006428)

Monitoring Locations

3.2.3 The monitoring station for construction noise monitoring pertinent to the Project has been identified based on the approved EM&A Manual for SCL (HUH-ADM) of the Project. Location of the noise monitoring station is summarised in **Table 3.5** and shown in **Figure 3.1**.

Table 3.5 Noise Monitoring Station during Construction Phase

Identification No.	District	Alternative Noise Monitoring Location
M1a[1]	Wan Chai	Footbridge for Ex-Harbour Road Sports Centre

Remark:
1. According to the updated site layout of CEDD Entrusted Works and Updated EM&A Manual for EP-376/2009 and EP-364/2009, Footbridge for Ex-Harbour Road Sports Centre (M1a) was selected as the most affected sensitive receiver during the construction phase.

Monitoring Methodology

3.2.4 Monitoring Procedure

(a) Façade measurements were made at M1a.

(b) The battery condition was checked to ensure the correct functioning of the meter.

(c) Parameters such as frequency weighting, the time weighting and the measurement time were set as follows:

(i) frequency weighting: A
(ii) time weighting: Fast
(iii) time measurement: $L_{eq(30\text{-}minutes)}$ during non-restricted hours i.e. 0700 – 1900 on normal weekdays.

(d) Prior to and after each noise measurement, the meter was calibrated using the acoustic calibrator for 94 dB(A) at 1000 Hz. If the difference in the calibration level before and after measurement was more than 1 dB(A), the measurement would be considered invalid and repeat of noise measurement would be required after re-calibration or repair of the equipment.

(e) During the monitoring period, the L_{eq}, L_{10} and L_{90} were recorded. In addition, site conditions and noise sources were recorded on a standard record sheet.

(f) Noise measurement was paused during periods of high intrusive noise (e.g. dog barking, helicopter noise) if possible. Observations were recorded when intrusive noise was unavoidable.

(g) Noise monitoring was cancelled in the presence of fog, rain, wind with a steady speed exceeding 5m/s, or wind with gusts exceeding 10m/s.

3.2.5 Maintenance and Calibration

(a) The microphone head of the sound level meter was cleaned with soft cloth at regular intervals.

(b) The meter and calibrator were sent to the supplier or HOKLAS laboratory to check and calibrate at yearly intervals.

(c) Calibration certificates of the sound level meters and acoustic calibrators are provided in **Appendix E**.

Monitoring Schedule for the Reporting Period

3.2.6 The schedule for environmental monitoring August to October 2021 is provided in **Appendix F**.

4 IMPLEMENTATION STATUS OF ENVIRONMENTAL MITIGATION MEASURES

4.1.1 The Contractor has implemented environmental mitigation measures and requirements as stated in the EIA Reports, the EP and EM&A Manuals. The implementation status of the environmental mitigation measures during the reporting period is summarized in **Appendix C.** Status of required submissions under the EP during the reporting period is summarised in **Table 4.1**.

Table 4.1 Status of Required Submission under Further Environmental Permit

EP Condition	Submission	Submission Date
Condition 2.4 (FEP-13//364/2009/H & FEP-03/376/2009)	Construction Noise Management Plan	19 November 2020
Condition 2.5 (FEP-13//364/2009/H & FEP-03/376/2009)	Landscape Plan	3 November 2020
Condition 3.3 (FEP-13//364/2009/H & FEP-03/376/2009)	Quarterly EM&A Report for May to July 2021	25 October 2021
Condition 3.3 (FEP-13//364/2009/H & FEP-03/376/2009)	Monthly EM&A Report for August 2021	14 September 2021
Condition 3.3 (FEP-13//364/2009/H & FEP-03/376/2009)	Monthly EM&A Report for September 2021	12 October 2021
Condition 3.3 (FEP-13//364/2009/H & FEP-03/376/2009)	Monthly EM&A Report for October 2021	12 November 2021

5 MONITORING RESULTS

5.1 Construction Dust Monitoring

5.1.1 The monitoring results for 24-hour TSP and 1-hour TSP are summarised in **Table 5.1** and **Table 5.2** respectively. Detailed air quality monitoring results and wind monitoring data extracted from the nearest Automatic Weather Station are presented in **Appendix G**.

Table 5.1 Summary of 24-hour TSP Monitoring Result in the Reporting Period

ID	Average ($\mu g/m^3$)	Range ($\mu g/m^3$)	Action Level ($\mu g/m^3$)	Limit Level ($\mu g/m^3$)
CMA5b	39.0	20.4 – 71.6	209.9	260
CMA6a	26.5	10.3 – 50.5	207.1	260

Table 5.2 Summary of 1-hour TSP Monitoring Result in the Reporting Period

ID	Average ($\mu g/m^3$)	Range ($\mu g/m^3$)	Action Level ($\mu g/m^3$)	Limit Level ($\mu g/m^3$)
CMA5b	64.2	51.7 – 75.8	339.7	500
CMA6a	61.3	51.6 – 69.5	333	500

5.1.2 No Action and Limit Level exceedance were recorded for 1-hour TSP monitoring at the monitoring locations in the reporting period.

5.1.3 No Action and Limit Level exceedance were recorded for 24-hour TSP monitoring at the monitoring locations in the reporting period.

5.1.4 The event and action plan is annexed in **Appendix I**.

5.1.5 Major dust sources during the monitoring included construction dust, nearby traffic emission and other nearby construction sites.

5.2 Regular Construction Noise Monitoring

5.2.1 The monitoring results for noise are summarized in **Table 5.3** and the monitoring data is provided in **Appendix H**.

Table 5.3 Summary of Construction Noise Monitoring Results in the Reporting Period

ID	Range, dB(A), $L_{eq\ (30\ mins)}$	Limit Level, dB(A), $L_{eq\ (30\ mins)}$
M1a(*)	<Baseline	75

(*) Baseline correction will be made to the measured L_{eq} when the measured noise level exceeded the corresponding baseline noise level and presented in the table.

5.2.2 No Action Level exceedance was recorded since no noise related complaint was received in the reporting period.

5.2.3 No Limit Level exceedance of noise was recorded at the monitoring station in the reporting period.

5.2.4 The event and action plan is annexed in **Appendix I**.

5.2.5 Major noise sources during the monitoring included construction noise from the Project site, nearby traffic noise and the community.

5.3 Waste Management

5.3.1 C&D materials and wastes sorting were carried out on site. Receptacles were available for C&D wastes and general refuse collection.

5.3.2 As advised by the Contractor, 909 m^3 of inert C&D material was generated and disposed of as public fill in the reporting period. No inert C&D materials were reused in other projects or in the Contract in the reporting period. No fill material was imported in the reporting period. 11 m^3 of general refuse was generated in the reporting period. No metal, paper/cardboard packaging material, plastic was collected by recycling contractor in the reporting period. No chemical waste was collected by licensed contractor in the reporting period. No Type 1 and Type 2 of Marine sediment were disposed of at Confined Marine Disposal Facility to the East of Sha Chau. The waste flow table is annexed in **Appendix K**.

5.3.3 The Contractor is advised to properly maintain on site C&D materials and wastes collection, sorting and recording system and maximize reuse / recycle of C&D materials and wastes. The Contractor is reminded to properly maintain the site tidiness and dispose of the wastes accumulated on site regularly and properly.

5.3.4 The Contractor is reminded that chemical waste containers should be properly treated and stored temporarily in designated chemical waste storage area on site in accordance with the Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes

5.4 Landscape and Visual

5.4.1 Weekly inspection of the implementation of landscape and visual mitigation measures was conducted. A summary of the site inspection is provided in **Appendix C**.

6 ENVIRONMENTAL SITE INSPECTION AND AUDIT

6.1.1 Site inspections were carried out on a weekly basis to monitor the implementation of proper environmental pollution control and mitigation measures for the Project. A summary of the mitigation measures implementation schedule is provided in **Appendix C**.

6.1.2 In the reporting period, 13 site inspections were carried out between 1 August 2021 to 31 October 2021. No non-compliance was recorded during the site inspection. During environmental site inspections conducted during the reporting period, minor deficiencies were made.

6.1.3 All follow-up actions requested by Contractor's ET and IEC during the site inspection were undertaken as reported by the Contractor and confirmed in the following weekly site inspection conducted during the reporting period.

7 ENVIRONMENTAL NON-CONFORMANCE

7.1 Summary of Monitoring Exceedances

7.1.1 All 24-hour TSP result was below the Action and Limit level at all monitoring locations in the reporting period.

7.1.2 All 1-hour TSP result was below the Action and Limit level at all monitoring locations in the reporting period.

7.1.3 No Action Level exceedance was recorded since no noise related complaint was received in the reporting period.

7.1.4 No Limit Level exceedance for noise was recorded at all monitoring stations in the reporting period.

7.2 Summary of Environmental Non-Compliance

7.2.1 No environmental non-compliance was recorded in the reporting period.

7.3 Summary of Environmental Complaints

7.3.1 No environmental related complaint was received in the reporting period. Cumulative statistics on environmental complaints is provided in **Appendix J**.

7.4 Summary of Environmental Summon and Successful Prosecutions

7.4.1 No environmental related prosecution or notification of summons was received in the reporting period. Cumulative statistics on notification of summons and successful prosecutions is provided in **Appendix J**.

8 CONCLUSIONS AND RECOMMENDATIONS

8.1 Conclusions

8.1.1 24-hour TSP, 1-hour TSP and noise monitoring were carried out in the reporting period.

8.1.2 No Action and Limit Level exceedance was recorded for 24-hour TSP monitoring at the monitoring locations in the reporting period.

8.1.3 No Action and Limit Level exceedance was recorded for 1-hour TSP monitoring at the monitoring locations in the reporting period.

8.1.4 No Action Level exceedance was recorded since no noise related complaint was received in the reporting period.

8.1.5 No Limit Level exceedance for noise was recorded at all monitoring stations in the reporting period.

8.1.6 13 nos. of environmental site inspections were carried out in reporting period. Recommendations on remedial actions were given to the Contractor for the deficiencies identified during the site audit.

8.1.7 No environmental complaint was received in the reporting period.

8.1.8 No notification of summons and successful prosecution were received in the reporting period.

8.1.9 Referring to the Contractor's information, no notification of summons and successful prosecution was received in the reporting period.

8.2 Recommendations

8.2.1 According to the environmental site inspections performed in the reporting period, the following recommendations were provided: -

Air Quality Impact

- The Contractor was reminded to provide a cover or frequent watering for the open stockpile to prevent duct emission.

Construction Noise Impact

- No specific observation was identified in the reporting period.

Water Quality Impact

- The Contractor was advised to provide preventive measures and to ensure the site water is treated before discharge

Chemical and Waste Management

- No specific observation was identified in the reporting period.

Landscape & Visual Impact

- No specific observation was identified in the reporting period.

Permits/licenses

- The Contractor was advised to display the copy of FEP at the site entrance.

FIGURES

835500 E

836000 E

835500 E

DP1 連接路3 (FEP-03/364/2009/H)
SLIP ROAD 3 (FEP-03/364/2009/H)

816500 N

DP2 主要幹道和地區幹道 (FEP-03/376/2009)
PRIMARY AND DISTRICT DISTRIBUTOR ROADS(FEP-03/376/2009)

本許可證所涵蓋的工程項目範圍
PROJECT SCOPE COVERED BY THIS PERMIT

N

VICTORIA HARBOUR

維多利亞港
VICTORIA HARBOUR

維多利亞港
VICTORIA HARBOUR

60041297/RW/100/1003

60041297/RW/100/1004

816000 N

60041297/RW/100/1002

60041297/RW/100/1001

CAUSEWAY BAY

ADMIRALTY

815500 N

WAN CHAI

REV. 修訂	DESCRIPTION 內容摘要	D.E.	P.E. CHECKED 審核	DATE 日期
–	TENDER DRAWING	PSL	SLYY	OCT 13

土木工程拓展署
Civil Engineering and Development Department

CEDD ENTRUSTED WORKS

Site Layout Plan of CEDD Entrusted Works under Contract 1123

AECOM

DRG.NO. 圖紙編號 Figure 1.1

DESIGNED BY 設計 ST	CONTRACT NO. 合約編號	P. Dir. APPROVED 批准人 TKH
DRAWN BY 繪圖 TS	STATUS 階段	
SCALE 比例 A1 1:2500		
DIMENSIONS ARE IN 尺寸單位 METRES		

Plot File by : 1/11/2013

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DP1 連接路3 (FEP-03/364/2009/H)
SLIP ROAD 3 (FEP-03/364/2009/H)

DP2 主要幹道和地區幹道 (FEP-03/376/2009)
PRIMARY AND DISTRICT DISTRIBUTOR ROADS(FEP-03/376/2009)

本許可證所涵蓋的工程項目範圍
PROJECT SCOPE COVERED BY THIS PERMIT

空氣監察站
Dust Monitoring Station

噪音監察站
Noise Monitoring Station

835500 E
836000 E
835500 E
816500 N
816000 N
815500 N
N

VICTORIA HARBOUR
維多利亞港
VICTORIA HARBOUR
維多利亞港
VICTORIA HARBOUR

60041297/RW/100/1001
60041297/RW/100/1002
60041297/RW/100/1003
60041297/RW/100/1004

CMA5b - Pedestrian Plaza
M1a - Footbridge for Ex-Harbour Road Sports Centre
CMA6a - WDII PRE Site Office

ADMIRALTY
WAN CHAI
CAUSEWAY BAY

REV. 修訂	DESCRIPTION 內容摘要	D.E.	P.E. CHECKED 審核	DATE 日期
–	TENDER DRAWING	PSL	SLYY	OCT 13

CEDD 土木工程拓展署 Civil Engineering and Development Department

CEDD ENTRUSTED WORKS

Air Quality and Noise Monitoring Locations for CEDD Entrusted Works

AECOM

DRG.NO. 圖紙編號 Figure 3.1

DESIGNED BY 設計 ST	CONTRACT NO. 合約編號	P. Dir. APPROVED 批准人 TKH
DRAWN BY 繪圖 TS	STATUS 階段	
SCALE 比例 A1 1:2500		
DIMENSIONS ARE IN 尺寸單位 METRES		

Plot File by : 1/11/2013
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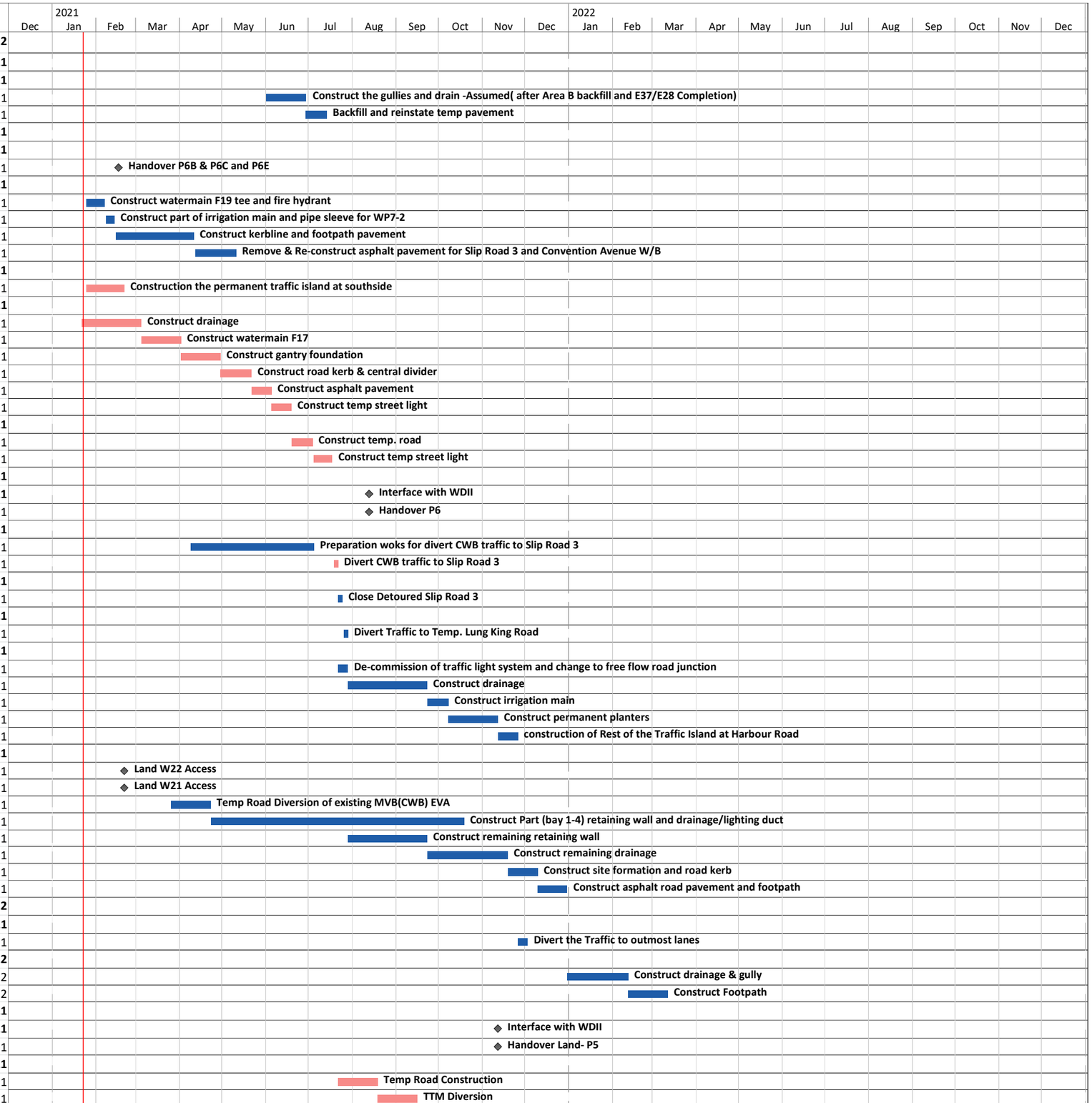
APPENDIX A

Construction Programme

ID	Task Name	Duration	Start	Finish
1	**CEDD Entrusted works- Road P2- Slip Road 3**	**785 d?**	**Jan 7 '20**	**Aug 3 '22**
2	**SR3- TTM 1**	**457 d**	**Jan 7 '20**	**Jul 13 '21**
9	**SR3- TTM 1.2 -Coach Park Area:**	**36 d**	**Jun 1 '21**	**Jul 13 '21**
10	Construct the gullies and drain -Assumed(after Area B backfill and	24 d	Jun 1 '21	Jun 28 '21
11	Backfill and reinstate temp pavement	12 d	Jun 29 '21	Jul 13 '21
17	**SR3- TTM 2a**	**289 d**	**May 28 '20**	**May 10 '21**
18	**Interface with WDII**	**147 d**	**Aug 22 '20**	**Feb 16 '21**
20	Handover P6B & P6C and P6E	0 d	Feb 16 '21	Feb 16 '21
23	**SR3 TTM 2a.2 – Slip Road 3 and Coach parking area**	**287 d**	**May 30 '20**	**May 10 '21**
26	Construct watermain F19 tee and fire hydrant	12 d	Jan 25 '21	Feb 6 '21
27	Construct part of irrigation main and pipe sleeve for WP7-2	6 d	Feb 8 '21	Feb 13 '21
28	Construct kerbline and footpath pavement	48 d	Feb 15 '21	Apr 10 '21
29	Remove & Re-construct asphalt pavement for Slip Road 3 and	24 d	Apr 12 '21	May 10 '21
30	**SR3 TTM 2a.3 – Reboundout-Planter No. 3**	**48 d**	**Dec 24 '20**	**Feb 20 '21**
32	Construction the permanent traffic island at southside	24 d	Jan 25 '21	Feb 20 '21
41	**SR3 TTM 2b.2 –Permanent Slip Road 3 construction (2nd portion)**	**126 d**	**Jan 22 '21**	**Jun 18 '21**
42	Construct drainage	36 d	Jan 22 '21	Mar 4 '21
43	Construct watermain F17	24 d	Mar 5 '21	Apr 1 '21
44	Construct gantry foundation	24 d	Apr 2 '21	Apr 29 '21
45	Construct road kerb & central divider	18 d	Apr 30 '21	May 21 '21
46	Construct asphalt pavement	12 d	May 22 '21	Jun 4 '21
47	Construct temp street light	12 d	Jun 5 '21	Jun 18 '21
48	**SR3 TTM 2b.3 -Temp Road (Temp LungKing Street)**	**24 d**	**Jun 19 '21**	**Jul 17 '21**
49	Construct temp. road	12 d	Jun 19 '21	Jul 3 '21
50	Construct temp street light	12 d	Jul 5 '21	Jul 17 '21
51	**SR3- TTM 3**	**265 d**	**Feb 20 '21**	**Dec 30 '21**
52	**Interface with WDII**	**0 d**	**Aug 12 '21**	**Aug 12 '21**
53	Handover P6	0 d	Aug 12 '21	Aug 12 '21
54	**SR3 TTM 3.1: Divert CEB to Permanent Slip Road 3**	**87 d**	**Apr 9 '21**	**Jul 21 '21**
55	Preparation woks for divert CWB traffic to Slip Road 3	72 d	Apr 9 '21	Jul 5 '21
56	Divert CWB traffic to Slip Road 3	3 d	Jul 19 '21	Jul 21 '21
57	**SR3 TTM 3.2 : Close Detoured Slip Road 3**	**3 d**	**Jul 22 '21**	**Jul 24 '21**
58	Close Detoured Slip Road 3	3 d	Jul 22 '21	Jul 24 '21
59	**SR3 TTM 3.3 : Temp lungKing Road**	**3 d**	**Jul 26 '21**	**Jul 28 '21**
60	Divert Traffic to Temp. Lung King Road	3 d	Jul 26 '21	Jul 28 '21
61	**SR3 TTM 3.4 -Reboundout**	**108 d**	**Jul 22 '21**	**Nov 25 '21**
62	De-commission of traffic light system and change to free flow road	6 d	Jul 22 '21	Jul 28 '21
63	Construct drainage	48 d	Jul 29 '21	Sep 22 '21
64	Construct irrigation main	12 d	Sep 23 '21	Oct 7 '21
65	Construct permanent planters	30 d	Oct 8 '21	Nov 11 '21
66	construction of Rest of the Traffic Island at Harbour Road	12 d	Nov 12 '21	Nov 25 '21
67	**SR3 TTM 3.5 -LungKing Street**	**265 d**	**Feb 20 '21**	**Dec 30 '21**
68	Land W22 Access	0 d	Feb 20 '21	Feb 20 '21
69	Land W21 Access	0 d	Feb 20 '21	Feb 20 '21
70	Temp Road Diversion of existing MVB(CWB) EVA	24 d	Mar 26 '21	Apr 22 '21
71	Construct Part (bay 1-4) retaining wall and drainage/lighting duct	150 d	Apr 23 '21	Oct 18 '21
72	Construct remaining retaining wall	48 d	Jul 29 '21	Sep 22 '21
73	Construct remaining drainage	48 d	Sep 23 '21	Nov 18 '21
74	Construct site formation and road kerb	18 d	Nov 19 '21	Dec 9 '21
75	Construct asphalt road pavement and footpath	18 d	Dec 10 '21	Dec 30 '21
76	**SR3- TTM 4**	**90 d**	**Nov 26 '21**	**Mar 11 '22**
77	**SR3 TTM 4.1 -Reboundout**	**6 d**	**Nov 26 '21**	**Dec 2 '21**
78	Divert the Traffic to outmost lanes	6 d	Nov 26 '21	Dec 2 '21
79	**SR3 TTM 4.2 - Lung King Street/Fenwick Pier Street**	**60 d**	**Dec 31 '21**	**Mar 11 '22**
80	Construct drainage & gully	36 d	Dec 31 '21	Feb 11 '22
81	Construct Footpath	24 d	Feb 12 '22	Mar 11 '22
82	**SR3- TTM 5**	**123 d**	**Jul 22 '21**	**Dec 13 '21**
83	**Interface with WDII**	**0 d**	**Nov 12 '21**	**Nov 12 '21**
84	Handover Land- P5	0 d	Nov 12 '21	Nov 12 '21
85	**SR3 TTM 5.1 -Temp Road Diversion for Lung Wo Road**	**48 d**	**Jul 22 '21**	**Sep 15 '21**
86	Temp Road Construction	24 d	Jul 22 '21	Aug 18 '21
87	TTM Diversion	24 d	Aug 19 '21	Sep 15 '21

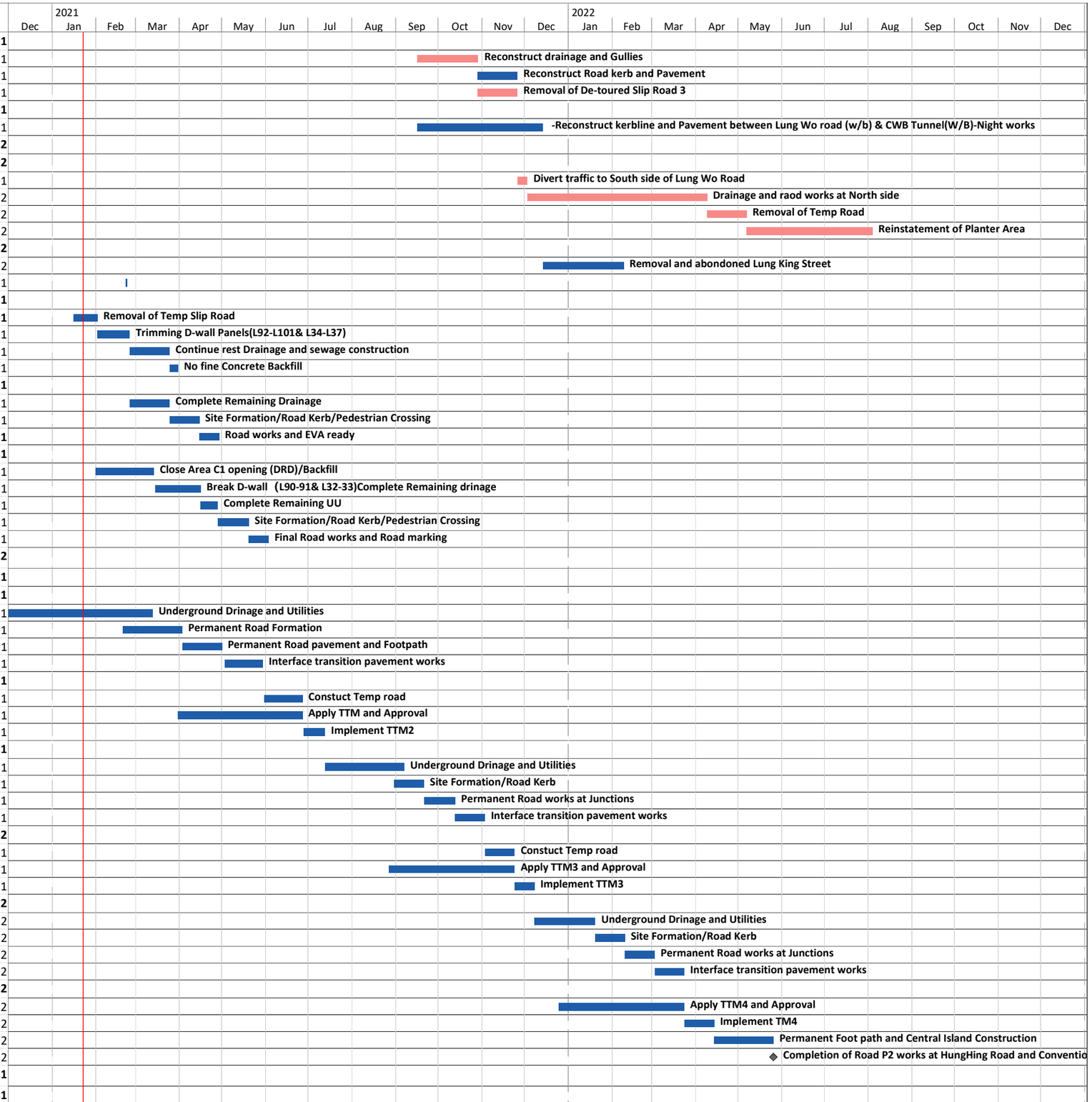


Critical Split | Task | Milestone | Summary | Manual Progress | Critical

CONTRACT NO.SCL1123
Shatin to Central Link
Contract 1123- Exhibition Station and Western Approach Tunnel

CEDD Entrusted Works

ID	Task Name	Duration	Start	Finish
88	**SR3 TTM 5.2 - Re-alignment Lung Wo Road(W/B)**	**60 d**	**Sep 16 '21**	**Nov 25 '21**
89	Reconstruct drainage and Gullies	36 d	Sep 16 '21	Oct 28 '21
90	Reconstruct Road kerb and Pavement	24 d	Oct 29 '21	Nov 25 '21
91	Removal of De-toured Slip Road 3	24 d	Oct 29 '21	Nov 25 '21
92	**SR5 TTM 5.3 -Reconstruct kerbline and Pavement between Lung**	**75 d**	**Sep 16 '21**	**Dec 13 '21**
93	-Reconstruct kerbline and Pavement between Lung Wo road (w/b) &	75 d	Sep 16 '21	Dec 13 '21
94	**SR3- TTM 6**	**448 d?**	**Feb 22 '21**	**Aug 3 '22**
95	**SR3 TTM 6.1 - Lung Wo Road North**	**213 d**	**Nov 26 '21**	**Aug 3 '22**
96	Divert traffic to South side of Lung Wo Road	6 d	Nov 26 '21	Dec 2 '21
97	Drainage and raod works at North side	108 d	Dec 3 '21	Apr 8 '22
98	Removal of Temp Road	24 d	Apr 9 '22	May 6 '22
99	Reinstatement of Planter Area	75 d	May 7 '22	Aug 3 '22
100	**SR3 TTM 6.2 - Abandoned Lung King Street**	**298 d?**	**Feb 22 '21**	**Feb 8 '22**
101	Removal and abondoned Lung King Street	48 d	Dec 14 '21	Feb 8 '22
102		1 d?	Feb 22 '21	Feb 22 '21
121	**Removal of Temp Slip Road**	**158 d**	**Sep 21 '20**	**Mar 30 '21**
128	**Removal of Temp Slip Road**	**14 d**	**Jan 16 '21**	**Feb 1 '21**
129	Trimming D-wall Panels(L92-L101& L34-L37)	20 d	Feb 2 '21	Feb 24 '21
130	Continue rest Drainage and sewage construction	24 d	Feb 25 '21	Mar 24 '21
131	No fine Concrete Backfill	5 d	Mar 25 '21	Mar 30 '21
132	**B400 (EVA)**	**54 d**	**Feb 25 '21**	**Apr 28 '21**
133	Complete Remaining Drainage	24 d	Feb 25 '21	Mar 24 '21
134	Site Formation/Road Kerb/Pedestrian Crossing	18 d	Mar 25 '21	Apr 14 '21
135	**Road works and EVA ready**	**12 d**	**Apr 15 '21**	**Apr 28 '21**
136	**B300**	**104 d**	**Feb 1 '21**	**Jun 2 '21**
137	Close Area C1 opening (DRD)/Backfill	36 d	Feb 1 '21	Mar 13 '21
138	Break D-wall（L90-91& L32-33)Complete Remaining drinage	28 d	Mar 15 '21	Apr 15 '21
139	Complete Remaining UU	10 d	Apr 16 '21	Apr 27 '21
140	Site Formation/Road Kerb/Pedestrian Crossing	18 d	Apr 28 '21	May 19 '21
141	Final Road works and Road marking	12 d	May 20 '21	Jun 2 '21
142	**CEDD Entrusted works-Road P2- Hung Hing Road**	**561 d**	**Jul 29 '20**	**May 25 '22**
143	**TTM1-Divert Convention Avenue and Hung Hing Road**	**255 d**	**Jul 29 '20**	**May 29 '21**
148	**TTM1-Road works at Convention Avenue and Hung Hing Road**	**174 d**	**Nov 4 '20**	**May 29 '21**
150	Underground Drinage and Utilities	90 d	Nov 25 '20	Mar 12 '21
151	Permanent Road Formation	36 d	Feb 20 '21	Apr 2 '21
152	Permanent Road pavement and Footpath	24 d	Apr 3 '21	Apr 30 '21
153	Interface transition pavement works	24 d	May 3 '21	May 29 '21
154	**TTM2-Divert East direction to permanent alignment**	**183 d**	**Mar 31 '21**	**Nov 2 '21**
155	Constuct Temp road	24 d	May 31 '21	Jun 26 '21
156	Apply TTM and Approval	75 d	Mar 31 '21	Jun 26 '21
157	Implement TTM2	12 d	Jun 28 '21	Jul 12 '21
158	**TTM2- Drainage and road works at Junctions**	**96 d**	**Jul 13 '21**	**Nov 2 '21**
159	Underground Drinage and Utilities	48 d	Jul 13 '21	Sep 6 '21
160	Site Formation/Road Kerb	18 d	Aug 31 '21	Sep 20 '21
161	Permanent Road works at Junctions	18 d	Sep 21 '21	Oct 12 '21
162	Interface transition pavement works	18 d	Oct 13 '21	Nov 2 '21
163	**TTM3- Diversion on Marsh Road/HungHing Road**	**177 d**	**Aug 27 '21**	**Mar 23 '22**
164	Constuct Temp road	18 d	Nov 3 '21	Nov 23 '21
165	Apply TTM3 and Approval	75 d	Aug 27 '21	Nov 23 '21
166	Implement TTM3	12 d	Nov 24 '21	Dec 7 '21
167	**TTM3- Drainage and road works at Junctions**	**90 d**	**Dec 8 '21**	**Mar 23 '22**
168	Underground Drinage and Utilities	36 d	Dec 8 '21	Jan 19 '22
169	Site Formation/Road Kerb	18 d	Jan 20 '22	Feb 9 '22
170	Permanent Road works at Junctions	18 d	Feb 10 '22	Mar 2 '22
171	Interface transition pavement works	18 d	Mar 3 '22	Mar 23 '22
172	**TTM4- Final Alignmeent**	**129 d**	**Dec 25 '21**	**May 25 '22**
173	Apply TTM4 and Approval	75 d	Dec 25 '21	Mar 23 '22
174	Implement TM4	18 d	Mar 24 '22	Apr 13 '22
175	Permanent Foot path and Central Island Construction	36 d	Apr 14 '22	May 25 '22
176	Completion of Road P2 works at HungHing Road and Convention Avenue	0 d	May 25 '22	May 25 '22
177	**CEDD Entrusted works-Road P2- Flemining Road**	**253 d**	**Nov 3 '20**	**Aug 31 '21**
178	**TTM1- Divert Road to North**	**123 d**	**Nov 3 '20**	**Mar 30 '21**



Critical Split | Task | Milestone | Summary | Manual Progress | Critical

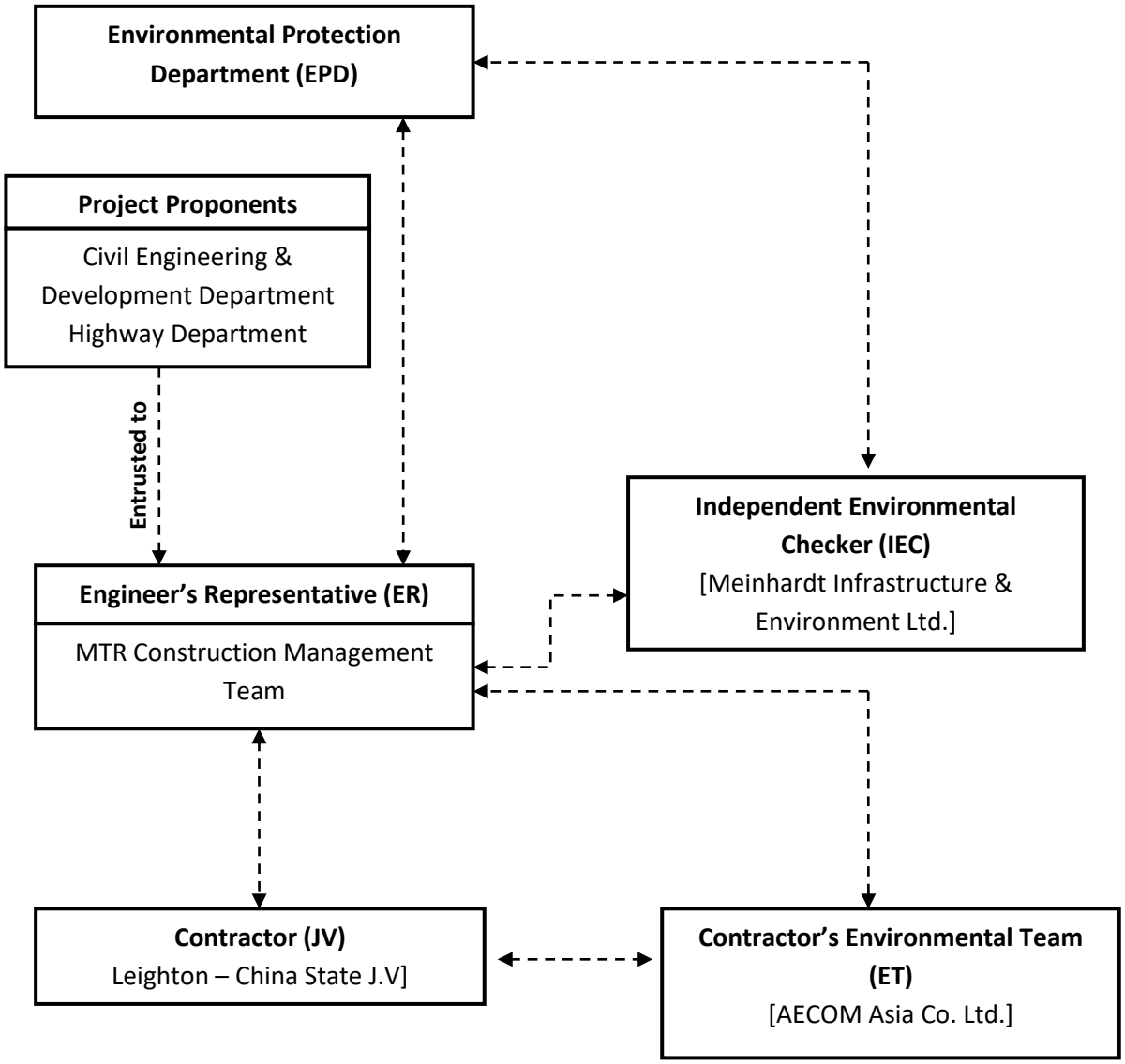
ID	Task Name	Duration	Start	Finish
181	Road Kerb and Footpath Pavement -South of Convention Avenue	48 d	Feb 3 '21	Mar 30 '21
182	Middle Part- Remaining Drainage work	28 d	Jan 16 '21	Feb 17 '21
183	Middle Part- Irrigation works and Road Kerb	28 d	Feb 18 '21	Mar 22 '21
184	**TTM2- Divert West direction to South**	**151 d**	**Jan 2 '21**	**Jun 28 '21**
185	Apply TTM2 and Approval	75 d	Jan 2 '21	Mar 31 '21
186	Implement TTM2	12 d	Mar 31 '21	Apr 13 '21
187	Remaining Drainage Works-Middle part	28 d	Apr 14 '21	May 17 '21
188	Irrigation and landscape works -Middle part	28 d	May 18 '21	Jun 18 '21
189	Road Kerb-North of Comvention Anenue	18 d	Jun 8 '21	Jun 28 '21
190	**TTM3- to Final Alignment**	**129 d**	**Apr 1 '21**	**Aug 31 '21**
191	Apply TTM2 and Approval	75 d	Apr 1 '21	Jun 29 '21
192	Permanent TTM at PTI approval (no drawing now)	75 d	Apr 1 '21	Jun 29 '21
193	Area C2-Road works Completed	0 d	Jun 29 '21	Jun 29 '21
194	works at Expro East completed	0 d	Jun 29 '21	Jun 29 '21
195	Implement TTM3- to Final Alignment	6 d	Jun 29 '21	Jul 6 '21
196	Road Kerb and Footpath Pavement/road lighting -North of Convention	24 d	Jul 7 '21	Aug 3 '21
197	Road Lighting /rails and Final touch up	24 d	Aug 4 '21	Aug 31 '21

Critical Split | Task | Milestone | Summary | Manual Progress | Critical

APPENDIX B

Project Organization Structure

Appendix B Project Organisation Structure



APPENDIX C

Implementation Schedule of Environmental Mitigation Measures

Appendix C – Environmental Mitigation Implementation Schedule

EIA Ref.	Recommended Mitigation Measures	Who to implement the measures?	Location of the measure	When to implement the measures?	Implementation Status
Construction Dust Impact					
Construction Phase					
S3.6.5	Four times a day watering of the work site with active operations	Contractor	Works areas	Construction phase	V
S3.8.1	Implementation of dust suppression measures stipulated in Air Pollution Control (Construction Dust) Regulation. The following mitigation measures, good site practices and a comprehensive dust monitoring and audit programme are recommended to minimise cumulative dust impacts. • Strictly limit the truck speed on site to below 10 km per hour and water spraying to keep the haul roads in wet condition; • Watering during excavation and material handling; • Provision of vehicle wheel and body washing facilities at the exit points of the site, combined with cleaning of public roads where necessary; and • Tarpaulin covering of all dusty vehicle loads transported to, from and between site locations.	Contractor	Works areas	Construction phase	V @ V V
/	***Dust suppression measures (con't)*** • De-bagging, batching and mixing processes carried out in sheltered areas during the use of bagged cement • The portion of any road where along the site boundary should be kept clear of dusty materials. • Use of frequent watering for any dusty construction process (e.g. breaking works) to reduce dust emissions.	Contractor	Works areas	Construction phase	V V V
/	***Emission from Vehicles and Plants*** • All vehicles shall be shut down in intermittent use. • Only well-maintained plant should be operated on-site and plant should be serviced regularly to avoid emission of black smoke. • All diesel fuelled construction plant within the works areas shall be powered by ultra low sulphur diesel fuel (ULSD)	Contractor	Works areas	Construction phase	V V V
Airborne Noise Impact					
Construction Phase					
S4.9.4	***Good Site Practice:*** • Only well-maintained plant shall be operated on-site and plant shall be serviced regularly during the construction program. • Silencers or mufflers on construction equipment shall be utilized and shall be properly maintained during the construction program. • Mobile plant, if any, shall be sited as far away from NSRs as possible. • Machines and plant (such as trucks) that may be in intermittent use shall be shut down between works periods or shall be throttled down to a minimum. • Plant known to emit noise strongly in one direction shall, wherever possible, be orientated so that the noise is directed away from the nearby NSRs. • Material stockpiles and other structures shall be effectively utilized, wherever practicable, in screening noise from onsite construction activities.	Contractor	Works areas	Construction phase	V V V V V V

Appendix C – Environmental Mitigation Implementation Schedule

EIA Ref.	Recommended Mitigation Measures	Who to implement the measures?	Location of the measure	When to implement the measures?	Implementation Status
For DP1 – CWB (Within the Project Boundary)					
S4.8.3 – S4.8.5	Use of quiet powered mechanical equipment, movable noise barrier and temporary noise barrier for the following tasks: • Slip road 8 tunnel • Construction of diaphragm wall and substructures of the tunnel approach ramp • Excavation • Construction of slabs • Backfill • Demolition and construction of substructures for the IEC • Demolition works of existing piers and crossheads of the marine section of the existing IEC Use of PME grouping for the following tasks: • At-grade roadwork • Substructure for IECL connection	Contractor	Works areas	Construction phase	N/A V V V N/A N/A N/A V N/A
For DP2 – WDII Major Roads (Road P2)					
S4.8.3 – S4.8.4	Use of quiet powered mechanical equipment, movable noise barrier and temporary noise barrier for the following tasks: • Temporary road diversion • Resurfacing • At-grade roadwork				V V V
Water Quality Impact					
Construction Phase					
S5.8	***Construction Runoff and Drainage:*** • Use of sediment traps, wheel washing facilities for vehicles leaving the site, and adequate maintenance of drainage systems to prevent flooding and overflow; • Permanent drainage channels shall incorporate sediment basins or traps and baffles to enhance deposition rates. The design of efficient silt removal facilities shall be based on the guidelines in Appendix A1 of ProPECC PN 1/94; • A sediment tank constructed from preformed individual cells of approximately 6 - 8 m^3 capacity can be used for settling ground water prior to disposal; • Oil interceptors shall be provided in the drainage system for the tunnels and regularly cleaned to prevent the release of oils and grease into the storm water drainage system after accidental spillages. The interceptor shall have a bypass to prevent flushing during periods of heavy rain; • Precautions and actions to be taken when a rainstorm is imminent or forecast, and during or after rainstorms. Particular attention shall be paid to the control of any silty surface runoff during storm events; • On-site drainage system shall be installed prior to the commencement of other construction activities. Sediment traps shall be installed in order to minimize the sediment loading of the effluent prior to discharge; • All temporary and permanent drainage pipes and culverts provided to facilitate runoff discharge shall be adequately designed for the controlled release of storm flows. All sediment control measures shall be regularly inspected and maintained to ensure proper and efficient operation at all times and particularly following rain storms. The temporarily diverted drainage shall be reinstated to its original condition when the construction work is finished or the temporary diversion is no longer required; • All fuel tanks and store areas shall be provided with locks and be sited on sealed areas, within bunds of a capacity equal to 110% of the storage capacity;	Contractor	Works areas	Construction phase	V V V V @ V V V

Appendix C – Environmental Mitigation Implementation Schedule

EIA Ref.	Recommended Mitigation Measures	Who to implement the measures?	Location of the measure	When to implement the measures?	Implementation Status
	• Minimum distances of 100 m shall be maintained between the storm water discharges and the existing or planned WSD flushing water intakes during construction phase				V
S5.8	***Sewage from Construction Work Force:*** Construction work force sewage discharges on site shall be connected to the existing trunk sewer or sewage treatment facilities. The construction sewage shall be handled by portable chemical toilets prior to the commission of the on-site sewer system. Appropriate numbers of portable toilets shall be provided by a licensed contractor to serve the large number of construction workers over the construction site. The Contractor shall also be responsible for waste disposal and maintenance practices.	Contractor	Works areas	Construction phase	V
S5.8	***Floating Debris and Refuse:*** Collection and removal of floating refuse shall be performed at regular intervals on a daily basis. The contractor shall be responsible for keeping the water within the site boundary and the neighbouring water free from rubbish.	Contractor	Works areas and adjacent water	Construction phase	V
S5.8	***Storm Water Discharges:*** Minimum distances of 100 m shall be maintained between the existing or planned stormwater discharges and the existing or planned WSD flushing water intakes.	Contractor	Works areas and adjacent water	Construction phase	V
Waste Management Implications					
Construction Phase					
S6.7.7	***Good Site Practices:*** Recommendations for good site practices during the construction activities include: • Nomination of an approved person, such as a site manager, to be responsible for good site practices, arrangements for collection and effective disposal to an appropriate facility, of all wastes generated at the site; • Training of site personnel in proper waste management and chemical waste handling procedures; • Provision of sufficient waste disposal points and regular collection for disposal; • Appropriate measures to minimise windblown litter and dust during transportation of waste by either covering trucks or by transporting wastes in enclosed containers; • Regular cleaning and maintenance programme for drainage systems, sumps and oil interceptors; and • A recording system for the amount of wastes generated, recycled and disposed of (including the disposal sites).	Contractor	Works areas	During planning and design stage, and construction stage	V V V V V V V
S6.7.8	***Waste Reduction Measures:*** Recommendations to achieve waste reduction include: • Sort C&D waste from demolition of the existing waterfront structures to recover recyclable portions such as metals. • Segregation and storage of different types of waste in different containers, skips or stockpiles to enhance reuse or recycling of materials and their proper disposal. • Encourage collection of aluminium cans, PET bottles and paper by providing separate labelled bins to enable these wastes to be segregated from other general refuse generated by the work force. • Any unused chemicals or those with remaining functional capacity shall be recycled. • Use of reusable non-timber formwork, such as in casting the tunnel box sections, to reduce the amount of C&D material. • Prior to disposal of C&D waste, it is recommended that wood, steel and other metals shall be separated for re-use and / or recycling to minimise the quantity of waste to be disposed of to landfill. • Proper storage and site practices to minimise the potential for damage or contamination of construction materials. • Plan and stock construction materials carefully to minimise amount of waste generated and avoid unnecessary generation of waste.	Contractor	Works areas	During planning and design stage, and construction stage	V V V V V V V V V

Appendix C – Environmental Mitigation Implementation Schedule

EIA Ref.	Recommended Mitigation Measures	Who to implement the measures?	Location of the measure	When to implement the measures?	Implementation Status
S6.7.10	***General Refuse:*** • General refuse shall be stored in enclosed bins or compaction units separate from C&D material. A licensed waste collector shall be employed by the contractor to remove general refuse from the site, separately from C&D material. • A collection area shall be provided where wastes can be stored and loaded prior to removal from site. An enclosed and covered area is recommended to reduce the occurrence of 'wind blow' light material.	Contractor	Works areas	Construction phase	V V
S6.7.11	***Chemical Wastes:*** After use, chemical wastes (for example, cleaning fluids, solvents, lubrication oil and fuel) shall be handled according to the Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes. Spent chemicals shall be collected by a licensed collector for disposal at the CWTF or other licensed facility in accordance with the Waste Disposal (Chemical Waste) (General) Regulation.	Contractor	Works areas	Construction phase	V
S6.7.12 – S6.7.13	***Construction and Demolition Material:*** • C&D material shall be sorted on-site into inert C&D material (that is, public fill) and C&D waste. All the suitable inert C&D material shall be broken down to 250 mm in size for reuse as public fill in the WDII reclamation. C&D waste, such as wood, glass, plastic, steel and other metals shall be reused or recycled and, as a last resort, disposed of to landfill. A suitable area shall be designated to facilitate the sorting process and a temporary stockpiling area will be required for the separated materials. • In order to monitor the disposal of public fill and C&D waste at public fill reception facilities and landfills, respectively, and to control fly tipping, a trip-ticket system shall be included as one of the contractual requirements and implemented by the Environmental Team undertaking the environmental monitoring and audit work. An Independent Environment Checker shall be responsible for auditing the results of the system.	Contractor	Works areas	Construction phase	V V
S6.7.14	***Bentonite Slurry:*** The disposal of residual used bentonite slurry shall follow the good practice guidelines stated in ProPECC PN 1/94 “Construction Site Drainage” and listed as follows: • If the disposal of a certain residual quantity cannot be avoided, the used slurry may be disposed of at the marine spoil grounds subject to obtaining a marine dumping licence from EPD on a case-by-case basis. • If the used bentonite slurry is intended to be disposed of through the public drainage system, it shall be treated to the respective effluent standards applicable to foul sewers, storm drains or the receiving waters as set out in the Technical Memorandum of Standards for Effluents Discharged into Drainage and Sewerage Systems, Inland and Coastal Waters. • If the used bentonite slurry is intended to be disposed to public fill reception facilities, it will be mixed with dry soil on site before disposal.	Contractor	Works areas	Construction phase	N/A N/A N/A
/	***Accidental spillage*** To prevent accidental spillage of chemicals, the following is recommended: • Proper storage and handling facilities will be provided. • All the tanks, containers, storage area will be bunded and the locations will be locked as far as possible from the sensitive watercourse and stormwater drains. • The contractor will register as a chemical waste producer if chemical wastes would be generated. Storage of chemical waste arising from the construction activities will be stored with suitable labels and warnings. • Disposal of chemical wastes will be conducted in compliance with the requirements as stated in the Waste disposal (Chemical Waste) (General) Regulation.	Contractor	Works areas	Construction phase	@ @ V V
Land Contamination Impact					
S.7.1.1	As no potential contaminative land uses were identified within the Study Area, adverse land contamination impacts associated with the construction and operation of the Project is not expected. As such, environmental protection and mitigation measures are considered not necessary and will not be covered in this EM&A Manual.	-	-	-	N/A

Appendix C – Environmental Mitigation Implementation Schedule

EIA Ref.	Recommended Mitigation Measures	Who to implement the measures?	Location of the measure	When to implement the measures?	Implementation Status
Landscape and Visual					
Construction Phase					
For DP1 – CWB (Within the Project Boundary) and DP2 - WDII Major Roads (Road P2)					
Table 10.5	CM1 - Topsoil, where identified, shall be stripped and stored for re-use in the construction of the soft landscape works, where practical.	Contractor	Works areas	Construction phase	V
	CM2 - Existing trees to be retained on site shall be carefully protected during construction.				N/A
	CM3 - Trees unavoidably affected by the works shall be transplanted where practical.				N/A
	CM4 - Compensatory tree planting shall be provided to compensate for felled trees.				N/A
	CM5 - Control of night-time lighting.				V
	CM6 - Erection of decorative screen hoarding compatible with the surrounding setting.				N/A

Legend: V = implemented;
x = not implemented;
@ = partially implemented;
N/A = not applicable

APPENDIX D

Summary of Action and Limit Levels

Appendix D – Summary of Action and Limit Levels

Table 1 Action and Limit Levels for 24-hour TSP

ID	Location	Action Level	Limit Level
CMA5b	Pedestrian Plaza	209.9 $\mu g/m^3$	260 $\mu g/m^3$
CMA6a	WDII PRE Site Office	207.1 $\mu g/m^3$	260 $\mu g/m^3$

Table 2 Action and Limit Levels for 1-hour TSP

ID	Location	Action Level	Limit Level
CMA5b	Pedestrian Plaza	339.7 $\mu g/m^3$	500 $\mu g/m^3$
CMA6a	WDII PRE Site Office	333 $\mu g/m^3$	500 $\mu g/m^3$

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

ID	Location	Action Level	Limit Level
M1a	Footbridge at EX-Wanchai Harbour Road Sports Centre	When one documented complaint is received	75 dB(A)

APPENDIX E

Calibration Certificates of Equipments

TISCH Environmental

RECALIBRATION DUE DATE:
January 7, 2022

Certificate of Calibration

Calibration Certification Information				
Cal. Date:	January 7, 2021	**Rootsmeter S/N:** 438320	**Ta:** 294	°K
Operator:	Jim Tisch		**Pa:** 756.4	mm Hg
Calibration Model #:	TE-5025A	**Calibrator S/N:** **0843**		

Run	Vol. Init (m3)	Vol. Final (m3)	ΔVol. (m3)	ΔTime (min)	ΔP (mm Hg)	ΔH (in H2O)
1	1	2	1	1.3970	4.2	2.00
2	3	4	1	0.9930	6.4	4.00
3	5	6	1	0.8790	8.0	5.00
4	7	8	1	0.8420	8.7	5.50
5	9	10	1	0.6950	12.7	8.00

Data Tabulation

Vstd (m3)	Qstd (x-axis)	$\sqrt{\Delta H\left(\frac{Pa}{Pstd}\right)\left(\frac{Tstd}{Ta}\right)}$ (y-axis)	Va	Qa (x-axis)	$\sqrt{\Delta H\left(Ta/Pa\right)}$ (y-axis)
1.0032	0.7181	1.4204	0.9944	0.7118	0.8817
1.0003	1.0073	2.0088	0.9915	0.9985	1.2469
0.9982	1.1356	2.2459	0.9894	1.1256	1.3941
0.9972	1.1843	2.3555	0.9885	1.1740	1.4621
0.9919	1.4272	2.8409	0.9832	1.4147	1.7634
QSTD	**m=**	**1.99914**	**QA**	**m=**	**1.25183**
	b=	**-0.01375**		**b=**	**-0.00854**
	r=	**0.99991**		**r=**	**0.99991**

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

AECOM Asia Company Limited
TSP High Volume Sampler
Field Calibration Report

Station	WDII PRE Site Office	Operator:	Shum Kam Yuen
Cal. Date:	16 Jul 2021	Next Due Date:	16 Sep 2021
Equipment No.:	A-001-79T	Serial No.	3384

Ambient Condition			
Temperature, Ta (K)	304.0	Pressure, Pa (mmHg)	755.1

Orifice Transfer Standard Information					
Serial No:	843	Slope, mc	1.99914	Intercept, bc	-0.1375
Last Calibration Date:	7 Jan 2021	**mc x Qstd + bc = [DH x (Pa/760) x (298/Ta)]$^{1/2}$**			
Next Calibration Date:	7 Jan 2022	**Qstd = {[DH x (Pa/760) x (298/Ta)]$^{1/2}$ -bc} / mc**			

Calibration of TSP Sampler

Resistance Plate No.	Orfice			HVS Flow Recorder	
	DH (orifice), in. of water	[DH x (Pa/760) x (298/Ta)]$^{1/2}$	Qstd (m^3/min) **X axis**	Flow Recorder Reading (CFM)	Continuous Flow Recorder Reading IC (CFM) **Y-axis**
18	7.1	2.63	1.38	45.0	44.41
13	6.1	2.44	1.29	40.0	39.48
10	4.5	2.09	1.12	32.0	31.58
7	3.2	1.77	0.95	24.0	23.69
5	2.4	1.53	0.83	19.0	18.75

By Linear Regression of Y on X

Slope , mw = **46.6734** **Intercept, bw =** **-20.4471**

Correlation Coefficient* = **0.9994**

*If Correlation Coefficient < 0.990, check and recalibrate.

Set Point Calculation

From the TSP Field Calibration Curve, take Qstd = 1.30m^3/min

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

mw x Qstd + bw = IC x [(Pa/760) x (298/Ta)]$^{1/2}$

Therefore, Set Point; IC = (mw x Qstd + bw) x [(760 / Pa) x (Ta / 298)]$^{1/2}$= **40.76**

Remarks: _____

QC Reviewer: WS CHAN Signature: _____ Date: 16/07/21

AECOM Asia Company Limited
TSP High Volume Sampler
Field Calibration Report

Station	WDII PRE Site Office	Operator:	Shum Kam Yuen
Cal. Date:	15 Sep 2021	Next Due Date:	15 Nov 2021
Equipment No.:	A-001-79T	Serial No.	3384

Ambient Condition			
Temperature, Ta (K)	303.0	Pressure, Pa (mmHg)	757.2

Orifice Transfer Standard Information					
Serial No:	843	Slope, mc	1.99914	Intercept, bc	-0.1375
Last Calibration Date:	7 Jan 2021	**mc x Qstd + bc = [DH x (Pa/760) x (298/Ta)]$^{1/2}$**			
Next Calibration Date:	7 Jan 2022	**Qstd = {[DH x (Pa/760) x (298/Ta)]$^{1/2}$ -bc} / mc**			

Calibration of TSP Sampler

Resistance Plate No.	Orfice			HVS Flow Recorder	
	DH (orifice), in. of water	[DH x (Pa/760) x (298/Ta)]$^{1/2}$	Qstd (m^3/min) X - **axis**	Flow Recorder Reading (CFM)	Continuous Flow Recorder Reading IC (CFM) **Y-axis**
18	7.0	2.62	1.38	45.0	44.54
13	6.0	2.42	1.28	40.0	39.60
10	4.5	2.10	1.12	33.0	32.67
7	3.1	1.74	0.94	24.0	23.76
5	2.4	1.53	0.84	20.0	19.80

By Linear Regression of Y on X

Slope , mw = **45.8197** **Intercept, bw =** **-18.8437**

Correlation Coefficient* = **0.9987**

*If Correlation Coefficient < 0.990, check and recalibrate.

Set Point Calculation

From the TSP Field Calibration Curve, take Qstd = 1.30m^3/min

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

mw x Qstd + bw = IC x [(Pa/760) x (298/Ta)]$^{1/2}$

Therefore, Set Point; IC = (mw x Qstd + bw) x [(760 / Pa) x (Ta / 298)]$^{1/2}$= **41.14**

Remarks: _____

QC Reviewer: WS CHAN Signature: _____ Date: 15/9/21

AECOM Asia Company Limited
TSP High Volume Sampler
Field Calibration Report

Station: Pedestrian Plaza
Operator: Choi Wing Ho
Cal. Date: 18-Jun-21
Next Due Date: 18-Aug-21
Equipment No.: A-001-70T
Serial No. 10273

Ambient Condition			
Temperature, Ta (K)	303	Pressure, Pa (mmHg)	754.0

Orifice Transfer Standard Information					
Serial No:	843	Slope, mc	1.99914	Intercept, bc	-0.01375
Last Calibration Date:	07-Jan-21	$mc \times Qstd + bc = [H \times (Pa/760) \times (298/Ta)]^{1/2}$			
Next Calibration Date:	07-Jan-22				

Calibration of TSP Sampler

Resistance Plate No.	Orifice			HVS Flow Recorder	
	DH (orifice), in. of water	$[DH \times (Pa/760) \times (298/Ta)]^{1/2}$	Qstd (m^3/min) X - axis	Flow Recorder Reading (CFM)	Continuous Flow Recorder Reading IC (CFM) Y-axis
18	6.8	2.58	1.30	44.0	43.46
13	5.6	2.34	1.18	38.0	37.54
10	4.6	2.12	1.07	33.0	32.60
7	3.5	1.85	0.93	27.0	26.67
5	2.5	1.56	0.79	21.0	20.74

By Linear Regression of Y on X

Slope , mw = 44.6383 **Intercept, bw =** -14.7355

Correlation Coefficient* = 0.9988

*If Correlation Coefficient < 0.990, check and recalibrate.

Set Point Calculation

From the TSP Field Calibration Curve, take Qstd = 1.30m^3/min

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

$$mw \times Qstd + bw = IC \times [(Pa/760) \times (298/Ta)]^{1/2}$$

Therefore, Set Point; $IC = (mw \times Qstd + bw) \times [(760 / Pa) \times (Ta / 298)]^{1/2}$ = **43.83**

Remarks:

QC Reviewer: WS CHAN Signature: Date: 18/6/21

AECOM Asia Company Limited
TSP High Volume Sampler
Field Calibration Report

Station	Pedestrian Plaza	Operator:	Choi Wing Ho
Cal. Date:	17-Aug-21	Next Due Date:	17-Oct-21
Equipment No.:	A-001-70T	Serial No.	10273

Ambient Condition			
Temperature, Ta (K)	305	Pressure, Pa (mmHg)	756.6

Orifice Transfer Standard Information					
Serial No:	843	Slope, mc	1.99914	Intercept, bc	-0.01375
Last Calibration Date:	07-Jan-21	$mc \times Qstd + bc = [H \times (Pa/760) \times (298/Ta)]^{1/2}$			
Next Calibration Date:	07-Jan-22				

Calibration of TSP Sampler

Resistance Plate No.	Orfice			HVS Flow Recorder	
	DH (orifice), in. of water	$[DH \times (Pa/760) \times (298/Ta)]^{1/2}$	Qstd (m^3/min) **X - axis**	Flow Recorder Reading (CFM)	Continuous Flow Recorder Reading IC (CFM) **Y-axis**
18	6.9	2.59	1.30	44.0	43.39
13	5.6	2.33	1.17	38.0	37.48
10	4.6	2.12	1.06	32.0	31.56
7	3.6	1.87	0.94	26.0	25.64
5	2.6	1.59	0.80	19.0	18.74

By Linear Regression of Y on X

Slope , mw = **49.5988** **Intercept, bw =** **-21.0863**

Correlation Coefficient* = **0.9996**

*If Correlation Coefficient < 0.990, check and recalibrate.

Set Point Calculation

From the TSP Field Calibration Curve, take Qstd = 1.30m^3/min

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

$$mw \times Qstd + bw = IC \times [(Pa/760) \times (298/Ta)]^{1/2}$$

Therefore, Set Point; IC = (mw x Qstd + bw) x [(760 / Pa) x (Ta / 298)]$^{1/2}$= **44.00**

Remarks: _____

QC Reviewer: WS CHAN Signature: _____ Date: 17/08/21

AECOM Asia Company Limited
TSP High Volume Sampler
Field Calibration Report

Station	Pedestrian Plaza	Operator:	Choi Wing Ho
Cal. Date:	15-Oct-21	Next Due Date:	15-Dec-21
Equipment No.:	A-001-70T	Serial No.	10273

Ambient Condition			
Temperature, Ta (K)	300	Pressure, Pa (mmHg)	756.6

Orifice Transfer Standard Information					
Serial No:	843	Slope, mc	1.99914	Intercept, bc	-0.01375
Last Calibration Date:	07-Jan-21	$mc \times Qstd + bc = [H \times (Pa/760) \times (298/Ta)]^{1/2}$			
Next Calibration Date:	07-Jan-22				

Calibration of TSP Sampler

Resistance Plate No.	Orifice			HVS Flow Recorder	
	DH (orifice), in. of water	$[DH \times (Pa/760) \times (298/Ta)]^{1/2}$	Qstd (m^3/min) **X-axis**	Flow Recorder Reading (CFM)	Continuous Flow Recorder Reading IC (CFM) **Y-axis**
18	6.8	2.59	1.30	44.0	43.75
13	5.6	2.35	1.18	38.0	37.79
10	4.6	2.13	1.07	33.0	32.82
7	3.5	1.86	0.94	26.0	25.86
5	2.6	1.60	0.81	20.0	19.89

By Linear Regression of Y on X

Slope , mw = **48.2634** **Intercept, bw =** **-19.2178**

Correlation Coefficient* = **0.9997**

*If Correlation Coefficient < 0.990, check and recalibrate.

Set Point Calculation

From the TSP Field Calibration Curve, take Qstd = 1.30m^3/min

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

$$mw \times Qstd + bw = IC \times [(Pa/760) \times (298/Ta)]^{1/2}$$

Therefore, Set Point; $IC = (mw \times Qstd + bw) \times [(760 / Pa) \times (Ta / 298)]^{1/2} =$ **43.77**

Remarks:

QC Reviewer: WS CHAN Signature: Date: 15/10/21

EQUIPMENT CALIBRATION RECORD

Type:	Laser Dust Monitor
Manufacturer/Brand:	SIBATA
Model No.:	LD-3
Equipment No.:	A.005.10a
Sensitivity Adjustment Scale Setting:	753 CPM
Operator:	Mike Shek (MSKM)

Standard Equimment

Equipment:	High Volume Sampler
Venue:	Fanling Government Secondary School
Model No.:	TE-5170
Serial No.:	3154
Last Calibration Date:	23-Apr-21

Calibration Result

Sensitivity Adjustment Scale Setting (Before Calibration): 753 CPM
Sensitivity Adjustment Scale Setting (After Calibration): 753 CPM

Hour	Date (dd/mm/yy)	Time	Ambient Condition		Concentration① (mg/m3) Y-axis	Total Count②	Count/ Minute③ X-axis
			Temp (°C)	R.H.(%)			
1	30/04/21	9:30-10:30	28.0	78	0.04950	1945	32.42
2	30/04/21	10:30-11:30	28.0	78	0.05045	2010	33.50
3	30/04/21	11:30-12:30	28.0	78	0.05250	2110	35.17
4	30/04/21	12:30-13:30	28.0	78	0.05520	2310	38.50

Note: ① Monitoring data was measured by High Volume Sampler
② Total Count was logged by Laser Dust Monitor
③ Count/minute was calculated by (Total Count/60)

By Linear Regression of Y on X

Slope (K-factor):	0.0015
Correlation coefficient:	0.9994

Validity of Calibration Record: 30-Apr-22

Remarks:

QC Reviewer: Yuting Signature: [signature] Date: 3-May-21

綜合試驗有限公司
SOILS & MATERIALS ENGINEERING CO., LTD.
香港新界葵涌永基路22-24號好爸爸創科大廈
Good Ba Ba Hitech Building, Nos. 22-24 Wing Kei Road, Kwai Chung, New Territories, Hong Kong
Tel: (852) 2873 6860 Fax: (852) 2555 7533 E-mail: smec@cigismec.com Website: www.cigismec.com

HOKLAS 028 CAL

CERTIFICATE OF CALIBRATION

Certificate No.: 20CA1019 02-01 **Page** 1 **of** 2

Item tested

Description:	Sound Level Meter (Type 1)	Microphone	Preamp
Manufacturer:	B & K	B & K	B & K
Type/Model No.:	2250	4950	ZC0032
Serial/Equipment No.:	3001291	3005374	23853
Adaptors used:	-	-	-

Item submitted by

Customer Name: AECOM ASIA CO LIMITED
Address of Customer: -
Request No.: -
Date of receipt: 19-Oct-2020

Date of test: 22-Oct-2020

Reference equipment used in the calibration

Description:	Model:	Serial No.	Expiry Date:	Traceable to:
Multi function sound calibrator	B&K 4226	2288444	23-Aug-2021	CIGISMEC
Signal generator	DS 360	61227	24-Dec-2020	CEPREI

Ambient conditions

Temperature: 22 ± 1 °C
Relative humidity: 55 ± 10 %
Air pressure: 1005 ± 5 hPa

Test specifications

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

Test results

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

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

Actual Measurement data are documented on worksheets.

Approved Signatory: Feng Junqi **Date:** 23-Oct-2020 **Company Chop:**

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

綜合試驗有限公司
SOILS & MATERIALS ENGINEERING CO., LTD.
香港新界葵涌永基路22-24號好爸爸創科大廈
Good Ba Ba Hitech Building, Nos. 22-24 Wing Kei Road, Kwai Chung, New Territories, Hong Kong
Tel: (852) 2873 6860 Fax: (852) 2555 7533 E-mail: smec@cigismec.com Website: www.cigismec.com

HOKLAS 028 CAL

CERTIFICATE OF CALIBRATION

(Continuation Page)

Certificate No.: 20CA1019 02-01 **Page** 2 **of** 2

1, Electrical Tests

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

Test:	Subtest:	Status:	Expanded Uncertainty (dB)	Coverage Factor
Self-generated noise	A	Pass	0.3	
	C	Pass	0.8	
	Lin	Pass	1.6	
Linearity range for Leq	At reference range , Step 5 dB at 4 kHz	Pass	0.3	
	Reference SPL on all other ranges	Pass	0.3	
	2 dB below upper limit of each range	Pass	0.3	
	2 dB above lower limit of each range	Pass	0.3	
Linearity range for SPL	At reference range , Step 5 dB at 4 kHz	Pass	0.3	
Frequency weightings	A	Pass	0.3	
	C	Pass	0.3	
	Lin	Pass	0.3	
Time weightings	Single Burst Fast	Pass	0.3	
	Single Burst Slow	Pass	0.3	
Peak response	Single 100μs rectangular pulse	Pass	0.3	
R.M.S. accuracy	Crest factor of 3	Pass	0.3	
Time weighting I	Single burst 5 ms at 2000 Hz	Pass	0.3	
	Repeated at frequency of 100 Hz	Pass	0.3	
Time averaging	1 ms burst duty factor $1/10^3$ at 4kHz	Pass	0.3	
	1 ms burst duty factor $1/10^4$ at 4kHz	Pass	0.3	
Pulse range	Single burst 10 ms at 4 kHz	Pass	0.4	
Sound exposure level	Single burst 10 ms at 4 kHz	Pass	0.4	
Overload indication	SPL	Pass	0.3	
	Leq	Pass	0.4	

2, Acoustic tests

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

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

3, Response to associated sound calibrator

N/A

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

- End -

Calibrated by: Fung Chi Yip **Date:** 22-Oct-2020

Checked by: Feng Junqi **Date:** 23-Oct-2020

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

綜合試驗有限公司
SOILS & MATERIALS ENGINEERING CO., LTD.
香港新界葵涌永基路22-24號好爸爸創科大廈
Good Ba Ba Hitech Building, Nos. 22-24 Wing Kei Road, Kwai Chung, New Territories, Hong Kong
Tel: (852) 2873 6860 Fax: (852) 2555 7533 E-mail: smec@cigismec.com Website: www.cigismec.com

HOKLAS 028 CAL

CERTIFICATE OF CALIBRATION

Certificate No.: 20CA0914 02 **Page** 1 **of** 2

Item tested

Description:	Sound Level Meter (Type 1)	,	Microphone
Manufacturer:	B & K	,	B & K
Type/Model No.:	2238	,	4188
Serial/Equipment No.:	2800927	,	2250455
Adaptors used:	-	,	-

Item submitted by

Customer Name:	AECOM ASIA CO., LTD.
Address of Customer:	-
Request No.:	-
Date of receipt:	14-Sep-2020

Date of test: 19-Sep-2020

Reference equipment used in the calibration

Description:	Model:	Serial No.	Expiry Date:	Traceable to:
Multi function sound calibrator	B&K 4226	2288444	23-Aug-2021	CIGISMEC
Signal generator	DS 360	61227	24-Dec-2020	CEPREI

Ambient conditions

Temperature:	22 ± 1 °C
Relative humidity:	55 ± 10 %
Air pressure:	1000 ± 5 hPa

Test specifications

1, The Sound Level Meter has been calibrated in accordance with the requirements as specified in BS 7580: Part 1: 1997 and the lab calibration procedure SMTP004-CA-152.

2, The electrical tests were performed using an electrical signal substituted for the microphone which was removed and replaced by an equivalent capacitance within a tolerance of ±20%.

3, The acoustic calibration was performed using an B&K 4226 sound calibrator and corrections was applied for the difference between the free-field and pressure responsess of the Sound Level Meter.

Test results

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

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

Actual Measurement data are documented on worksheets.

Approved Signatory: Feng Junqi **Date:** 20-Sep-2020 **Company Chop:** 綜合試驗有限公司 SOILS & MATERIALS ENGINEERING COMPANY LTD.

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

綜合試驗有限公司
SOILS & MATERIALS ENGINEERING CO., LTD.
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CERTIFICATE OF CALIBRATION

(Continuation Page)

Certificate No.: 20CA0914 02 **Page** 2 **of** 2

1, Electrical Tests

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

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

2, Acoustic tests

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

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

3, Response to associated sound calibrator

N/A

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

- End -

Calibrated by: Fung Chi Yip **Date:** 19-Sep-2020

Checked by: Feng Junqi **Date:** 20-Sep-2020

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

綜合試驗有限公司
SOILS & MATERIALS ENGINEERING CO., LTD.
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HOKLAS 028 CAL

CERTIFICATE OF CALIBRATION

Certificate No.: 21CA0309 02 **Page** 1 **of** 2

Item tested

Description:	Sound Level Meter (Type 1)	,	Microphone	Pream
Manufacturer:	B & K	,	B & K	B & K
Type/Model No.:	2270	,	4950	ZC0032
Serial/Equipment No.:	2644597	,	2879980	29398
Adaptors used:	-	,	-	-

Item submitted by

Customer Name:	AECOM ASIA CO LTD
Address of Customer:	-
Request No.:	-
Date of receipt:	09-Mar-2021

Date of test: 22-Mar-2021

Reference equipment used in the calibration

Description:	Model:	Serial No.	Expiry Date:	Traceable to:
Multi function sound calibrator	B&K 4226	2288444	23-Aug-2021	CIGISMEC
Signal generator	DS 360	33873	19-May-2021	CEPREI

Ambient conditions

Temperature:	22 ± 1 °C
Relative humidity:	55 ± 10 %
Air pressure:	1005 ± 5 hPa

Test specifications

1, The Sound Level Meter has been calibrated in accordance with the requirements as specified in BS 7580: Part 1: 1997 and the lab calibration procedure SMTP004-CA-152.

2, The electrical tests were performed using an electrical signal substituted for the microphone which was removed and replaced by an equivalent capacitance within a tolerance of ±20%.

3, The acoustic calibration was performed using an B&K 4226 sound calibrator and corrections was applied for the difference between the free-field and pressure responsess of the Sound Level Meter.

Test results

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

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

Actual Measurement data are documented on worksheets.

Approved Signatory: Feng Junqi **Date:** 24-Mar-2021 **Company Chop:** SOILS & MATERIALS ENGINEERING COMPANY LTD. 綜合試驗有限公司

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

綜合試驗有限公司
SOILS & MATERIALS ENGINEERING CO., LTD.
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HOKLAS 028 CAL

CERTIFICATE OF CALIBRATION

(Continuation Page)

Certificate No.: 21CA0309 02 **Page** 2 **of** 2

1, Electrical Tests

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

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

2, Acoustic tests

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

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

3, Response to associated sound calibrator

N/A

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

- End -

Calibrated by: Fung Chi Yip **Date:** 22-Mar-2021

Checked by: Chan Yuk Yiu **Date:** 24-Mar-2021

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

綜合試驗有限公司
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HOKLAS 028
CAL

CERTIFICATE OF CALIBRATION

Certificate No.: 21CA0319 01-01 **Page** 1 **of** 2

Item tested

Description:	Sound Level Meter (Type 1)	Microphone	Preamp
Manufacturer:	B & K	B & K	B & K
Type/Model No.:	2250-L	4950	ZC0032
Serial/Equipment No.:	2681366	2665582	17190
Adaptors used:	-	-	-

Item submitted by

Customer Name:	AECOM ASIA CO LTD
Address of Customer:	-
Request No.:	-
Date of receipt:	19-Mar-2021

Date of test: 23-Mar-2021

Reference equipment used in the calibration

Description:	Model:	Serial No.	Expiry Date:	Traceable to:
Multi function sound calibrator	B&K 4226	2288444	23-Aug-2021	CIGISMEC
Signal generator	DS 360	33873	19-May-2021	CEPREI

Ambient conditions

Temperature:	22 ± 1 °C
Relative humidity:	55 ± 10 %
Air pressure:	1005 ± 5 hPa

Test specifications

1, The Sound Level Meter has been calibrated in accordance with the requirements as specified in BS 7580: Part 1: 1997 and the lab calibration procedure SMTP004-CA-152.

2, The electrical tests were performed using an electrical signal substituted for the microphone which was removed and replaced by an equivalent capacitance within a tolerance of ±20%.

3, The acoustic calibration was performed using an B&K 4226 sound calibrator and corrections was applied for the difference between the free-field and pressure responsess of the Sound Level Meter.

Test results

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

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

Actual Measurement data are documented on worksheets.

Approved Signatory: Feng Junqi **Date:** 24-Mar-2021 **Company Chop:** SOILS AND MATERIALS ENGINEERING COMPANY LTD. 綜合試驗有限公司

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

綜合試驗有限公司
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HOKLAS 028 CAL

CERTIFICATE OF CALIBRATION

(Continuation Page)

Certificate No.: 21CA0319 01-01 **Page** 2 **of** 2

1, Electrical Tests

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

Test:	Subtest:	Status:	Expanded Uncertanity (dB)	Coverage Factor
Self-generated noise	A	Pass	0.3	
	C	Pass	0.8	
	Lin	Pass	1.6	
Linearity range for Leq	At reference range , Step 5 dB at 4 kHz	Pass	0.3	
	Reference SPL on all other ranges	Pass	0.3	
	2 dB below upper limit of each range	Pass	0.3	
	2 dB above lower limit of each range	Pass	0.3	
Linearity range for SPL	At reference range , Step 5 dB at 4 kHz	Pass	0.3	
Frequency weightings	A	Pass	0.3	
	C	Pass	0.3	
	Lin	Pass	0.3	
Time weightings	Single Burst Fast	Pass	0.3	
	Single Burst Slow	Pass	0.3	
Peak response	Single 100μs rectangular pulse	Pass	0.3	
R.M.S. accuracy	Crest factor of 3	Pass	0.3	
Time weighting I	Single burst 5 ms at 2000 Hz	Pass	0.3	
	Repeated at frequency of 100 Hz	Pass	0.3	
Time averaging	1 ms burst duty factor $1/10^3$ at 4kHz	Pass	0.3	
	1 ms burst duty factor $1/10^4$ at 4kHz	Pass	0.3	
Pulse range	Single burst 10 ms at 4 kHz	Pass	0.4	
Sound exposure level	Single burst 10 ms at 4 kHz	Pass	0.4	
Overload indication	SPL	Pass	0.3	
	Leq	Pass	0.4	

2, Acoustic tests

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

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

3, Response to associated sound calibrator

N/A

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

- End -

Calibrated by: Fung Chi Yip **Date:** 23-Mar-2021

Checked by: Chan Yuk Yiu **Date:** 24-Mar-2021

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

綜合試驗有限公司
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HOKLAS 028 CAL

CERTIFICATE OF CALIBRATION

Certificate No.: 20CA1019 02-02 **Page:** 1 **of** 2

Item tested

Description:	Acoustical Calibrator (Class 1)
Manufacturer:	B & K
Type/Model No.:	4231
Serial/Equipment No.:	3014024 / N004.04
Adaptors used:	-

Item submitted by

Curstomer:	AECOM ASIA CO LIMITED
Address of Customer:	-
Request No.:	-
Date of receipt:	19-Oct-2020

Date of test: 22-Oct-2020

Reference equipment used in the calibration

Description:	Model:	Serial No.	Expiry Date:	Traceable to:
Lab standard microphone	B&K 4180	2341427	11-May-2021	SCL
Preamplifier	B&K 2673	2743150	03-Jun-2021	CEPREI
Measuring amplifier	B&K 2610	2346941	03-Jun-2021	CEPREI
Signal generator	DS 360	33873	19-May-2021	CEPREI
Digital multi-meter	34401A	US36087050	19-May-2021	CEPREI
Audio analyzer	8903B	GB41300350	18-May-2021	CEPREI
Universal counter	53132A	MY40003662	18-May-2021	CEPREI

Ambient conditions

Temperature:	22 ± 1 °C
Relative humidity:	55 ± 10 %
Air pressure:	1005 ± 5 hPa

Test specifications

1, The Sound Calibrator has been calibrated in accordance with the requirements as specified in IEC 60942 1997 Annex B and the lab calibration procedure SMTP004-CA-156.

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

3, The results are rounded to the nearest 0.01 dB and 0.1 Hz and have not been corrected for variations from a reference pressure of 1013.25 hectoPascals as the maker's information indicates that the instrument is insensitive to pressure changes.

Test results

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

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

Approved Signatory: Feng Junqi **Date:** 23-Oct-2020 **Company Chop:**

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

綜合試驗有限公司
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CERTIFICATE OF CALIBRATION

(Continuation Page)

Certificate No.: 20CA1019 02-02 **Page:** 2 **of** 2

1, Measured Sound Pressure Level

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

(Output level in dB re 20 μPa)

Frequency Shown Hz	Output Sound Pressure Level Setting dB	Measured Output Sound Pressure Level dB	Estimated Expanded Uncertainty dB
1000	94.00	93.98	0.10

2, Sound Pressure Level Stability - Short Term Fluctuations

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

At 1000 Hz **STF = 0.014 dB**

Estimated expanded uncertainty 0.005 dB

3, Actual Output Frequency

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

At 1000 Hz **Actual Frequency = 1000.0 Hz**

Estimated expanded uncertainty 0.1 Hz Coverage factor k = 2.2

4, Total Noise and Distortion

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

At 1000 Hz **TND = 0.5 %**

Estimated expanded uncertainty 0.7 %

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

- End -

Calibrated by: Fung Chi Yip **Checked by:** Feng Junqi

Date: 22-Oct-2020 **Date:** 23-Oct-2020

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

綜合試驗有限公司
SOILS & MATERIALS ENGINEERING CO., LTD.
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HOKLAS 028 CAL

CERTIFICATE OF CALIBRATION

Certificate No.: 20CA1006 03 **Page:** 1 **of** 2

Item tested

Description:	Acoustical Calibrator (Class 1)
Manufacturer:	Rion Co., Ltd.
Type/Model No.:	NC-74
Serial/Equipment No.:	34246490 / N.004.10
Adaptors used:	-

Item submitted by

Curstomer:	AECOM ASIA CO LIMITED
Address of Customer:	-
Request No.:	-
Date of receipt:	06-Oct-2020

Date of test: 12-Oct-2020

Reference equipment used in the calibration

Description:	Model:	Serial No.	Expiry Date:	Traceable to:
Lab standard microphone	B&K 4180	2412857	11-May-2021	SCL
Preamplifier	B&K 2673	2743150	03-Jun-2021	CEPREI
Measuring amplifier	B&K 2610	2346941	03-Jun-2021	CEPREI
Signal generator	DS 360	33873	19-May-2021	CEPREI
Digital multi-meter	34401A	US36087050	19-May-2021	CEPREI
Audio analyzer	8903B	GB41300350	18-May-2021	CEPREI
Universal counter	53132A	MY40003662	18-May-2021	CEPREI

Ambient conditions

Temperature:	22 ± 1 °C
Relative humidity:	55 ± 10 %
Air pressure:	1005 ± 5 hPa

Test specifications

1, The Sound Calibrator has been calibrated in accordance with the requirements as specified in IEC 60942 1997 Annex B and the lab calibration procedure SMTP004-CA-156.

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

3, The results are rounded to the nearest 0.01 dB and 0.1 Hz and have not been corrected for variations from a reference pressure of 1013.25 hectoPascals as the maker's information indicates that the instrument is insensitive to pressure changes.

Test results

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

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

Approved Signatory: Feng Junqi **Date:** 12-Oct-2020 **Company Chop:**

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

綜合試驗有限公司
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HOKLAS 028 CAL

CERTIFICATE OF CALIBRATION

(Continuation Page)

Certificate No.: 20CA1006 03 **Page:** 2 **of** 2

1, Measured Sound Pressure Level

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

(Output level in dB re 20 μPa)

Frequency Shown Hz	Output Sound Pressure Level Setting dB	Measured Output Sound Pressure Level dB	Estimated Expanded Uncertainty dB
1000	94.00	94.10	0.10

2, Sound Pressure Level Stability - Short Term Fluctuations

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

At 1000 Hz **STF = 0.017 dB**

Estimated expanded uncertainty 0.005 dB

3, Actual Output Frequency

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

At 1000 Hz **Actual Frequency = 1002.1 Hz**

Estimated expanded uncertainty 0.1 Hz Coverage factor k = 2.2

4, Total Noise and Distortion

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

At 1000 Hz **TND = 1.6%**

Estimated expanded uncertainty 0.7 %

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

- End -

Calibrated by: Fung Chi Yip **Date:** 12-Oct-2020

Checked by: Feng Junqi **Date:** 12-Oct-2020

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

綜合試驗有限公司
SOILS & MATERIALS ENGINEERING CO., LTD.
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HOKLAS 028 CAL

CERTIFICATE OF CALIBRATION

Certificate No.: 21CA0319 01-02 **Page:** 1 **of** 2

Item tested

Description:	Acoustical Calibrator (Class 1)
Manufacturer:	MVI
Type/Model No.:	CAL21
Serial/Equipment No.:	34113610(2011) / N.004.11
Adaptors used:	Yes (BAC21)

Item submitted by

Curstomer:	AECOM ASIA CO., LTD.
Address of Customer:	-
Request No.:	-
Date of receipt:	19-Mar-2021

Date of test: 23-Mar-2021

Reference equipment used in the calibration

Description:	Model:	Serial No.	Expiry Date:	Traceable to:
Lab standard microphone	B&K 4180	2412857	11-May-2021	SCL
Preamplifier	B&K 2673	2743150	03-Jun-2021	CEPREI
Measuring amplifier	B&K 2610	2346941	03-Jun-2021	CEPREI
Signal generator	DS 360	33873	19-May-2021	CEPREI
Digital multi-meter	34401A	US36087050	19-May-2021	CEPREI
Audio analyzer	8903B	GB41300350	18-May-2021	CEPREI
Universal counter	53132A	MY40003662	18-May-2021	CEPREI

Ambient conditions

Temperature:	22 ± 1 °C
Relative humidity:	55 ± 10 %
Air pressure:	1005 ± 5 hPa

Test specifications

1, The Sound Calibrator has been calibrated in accordance with the requirements as specified in IEC 60942 1997 Annex B and the lab calibration procedure SMTP004-CA-156.

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

3, The results are rounded to the nearest 0.01 dB and 0.1 Hz and have not been corrected for variations from a reference pressure of 1013.25 hectoPascals as the maker's information indicates that the instrument is insensitive to pressure changes.

Test results

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

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

Approved Signatory: Feng Junqi **Date:** 24-Mar-2021 **Company Chop:** SOILS AND MATERIALS ENGINEERING COMPANY LTD. 綜合試驗有限公司

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

綜合試驗有限公司
SOILS & MATERIALS ENGINEERING CO., LTD.
香港新界葵涌永基路22-24號好爸爸創科大廈
Good Ba Ba Hitech Building, Nos. 22-24 Wing Kei Road, Kwai Chung, New Territories, Hong Kong
Tel: (852) 2873 6860 Fax: (852) 2555 7533 E-mail: smec@cigismec.com Website: www.cigismec.com

HOKLAS 028 CAL

CERTIFICATE OF CALIBRATION

(Continuation Page)

Certificate No.: 21CA0319 01-02 **Page:** 2 of 2

1, Measured Sound Pressure Level

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

(Output level in dB re 20 μPa)

Frequency Shown Hz	Output Sound Pressure Level Setting dB	Measured Output Sound Pressure Level dB	Estimated Expanded Uncertainty dB
1000	94.00	93.98	0.10

2, Sound Pressure Level Stability - Short Term Fluctuations

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

At 1000 Hz **STF = 0.010 dB**

Estimated expanded uncertainty 0.005 dB

3, Actual Output Frequency

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

At 1000 Hz **Actual Frequency = 1002.6 Hz**

Estimated expanded uncertainty 0.1 Hz Coverage factor k = 2.2

4, Total Noise and Distortion

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

At 1000 Hz **TND = 1.8 %**

Estimated expanded uncertainty 0.7 %

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

- End -

Calibrated by: Fung Chi Yip **Date:** 23-Mar-2021

Checked by: Chan Yuk Yiu **Date:** 24-Mar-2021

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

綜合試驗有限公司
SOILS & MATERIALS ENGINEERING CO., LTD.
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HOKLAS 028
CAL

CERTIFICATE OF CALIBRATION

Certificate No.: 21CA0401 02 **Page:** 1 **of** 2

Item tested

Description:	Acoustical Calibrator (Class 1)
Manufacturer:	B & K
Type/Model No.:	4231
Serial/Equipment No.:	3006428
Adaptors used:	-

Item submitted by

Curstomer:	AECOM
Address of Customer:	-
Request No.:	-
Date of receipt:	01-Apr-2021

Date of test: 05-Apr-2021

Reference equipment used in the calibration

Description:	Model:	Serial No.	Expiry Date:	Traceable to:
Lab standard microphone	B&K 4180	2412857	11-May-2021	SCL
Preamplifier	B&K 2673	2743150	03-Jun-2021	CEPREI
Measuring amplifier	B&K 2610	2346941	03-Jun-2021	CEPREI
Signal generator	DS 360	33873	19-May-2021	CEPREI
Digital multi-meter	34401A	US36087050	19-May-2021	CEPREI
Audio analyzer	8903B	GB41300350	18-May-2021	CEPREI
Universal counter	53132A	MY40003662	18-May-2021	CEPREI

Ambient conditions

Temperature:	22 ± 1 °C
Relative humidity:	55 ± 10 %
Air pressure:	1010 ± 5 hPa

Test specifications

1, The Sound Calibrator has been calibrated in accordance with the requirements as specified in IEC 60942 1997 Annex B and the lab calibration procedure SMTP004-CA-156.

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

3, The results are rounded to the nearest 0.01 dB and 0.1 Hz and have not been corrected for variations from a reference pressure of 1013.25 hectoPascals as the maker's information indicates that the instrument is insensitive to pressure changes.

Test results

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

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

Approved Signatory: Feng Junqi **Date:** 07-Apr-2021 **Company Chop:** SOILS AND MATERIALS ENGINEERING COMPANY LTD. 綜合試驗有限公司

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

綜合試驗有限公司
SOILS & MATERIALS ENGINEERING CO., LTD.
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HOKLAS 028 CAL

CERTIFICATE OF CALIBRATION

(Continuation Page)

Certificate No.: 21CA0401 02 **Page:** 2 **of** 2

1, Measured Sound Pressure Level

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

(Output level in dB re 20 μPa)

Frequency Shown Hz	Output Sound Pressure Level Setting dB	Measured Output Sound Pressure Level dB	Estimated Expanded Uncertainty dB
1000	94.00	94.23	0.10

2, Sound Pressure Level Stability - Short Term Fluctuations

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

At 1000 Hz **STF = 0.016 dB**

Estimated expanded uncertainty 0.005 dB

3, Actual Output Frequency

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

At 1000 Hz **Actual Frequency = 999.95 Hz**

Estimated expanded uncertainty 0.1 Hz Coverage factor k = 2.2

4, Total Noise and Distortion

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

At 1000 Hz **TND = 0.3 %**

Estimated expanded uncertainty 0.7 %

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

- End -

Calibrated by: Fung Chi Yip **Date:** 05-Apr-2021

Checked by: Chan Yuk Yiu **Date:** 07-Apr-2021

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

APPENDIX F

EM&A Monitoring Schedules

Shatin to Central Link 1123 - CEDD Entrusted Work
Road P2 & other roads and Slip Road 3
Tentative Impact Monitoring Schedule for August 2021

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

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

Air Quality Monitoring Station

CMA5b Pedestrian Plaza
CMA6a WDII PRE site office

Noise Monitoring Station

M1a Footbridge for Ex-Harbour Road Sports Centre

Monitoring Frequency

24-hr TSP Once every 6 days
1-hr TSP 3 times every 6 days (as required in of complaints)

Monitoring Frequency

Once per week

Shatin to Central Link 1123 - CEDD Entrusted Work

Road P2 & other roads and Slip Road 3

Tentative Impact Monitoring Schedule for September 2021

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

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

Air Quality Monitoring Station

CMA5b Pedestrian Plaza
CMA6a WDII PRE site office

Noise Monitoring Station

M1a Footbridge for Ex-Harbour Road Sports Centre

Monitoring Frequency

24-hr TSP Once every 6 days
1-hr TSP 3 times every 6 days (as required in of complaints)

Monitoring Frequency

Once per week

Shatin to Central Link 1123 - CEDD Entrusted Work
Road P2 & other roads and Slip Road 3
Tentative Impact Monitoring Schedule for October 2021

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

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

[1] Because of the adverse weather conditions of Tropical Cyclone Signal No.8 announced by HKO hoisted on 9/10/2021,the environmental monitoring was cancelled.

[2] Because of the adverse weather conditions of Tropical Cyclone Signal No.8 announced by HKO hoisted on 13/10/2021,the environmental monitoring was rescheduled to 15-Oct-2021.

Air Quality Monitoring Station

CMA5b	Pedestrian Plaza
CMA6a	WDII PRE site office

Monitoring Frequency

24-hr TSP	Once every 6 days
1-hr TSP	3 times every 6 days (as required in of complaints)

Noise Monitoring Station

M1a	Footbridge for Ex-Harbour Road Sports Centre

Monitoring Frequency

Once per week

APPENDIX G

Air Quality Monitoring Results and their Graphical Presentations

Appendix G
Air Quality Monitoring Results

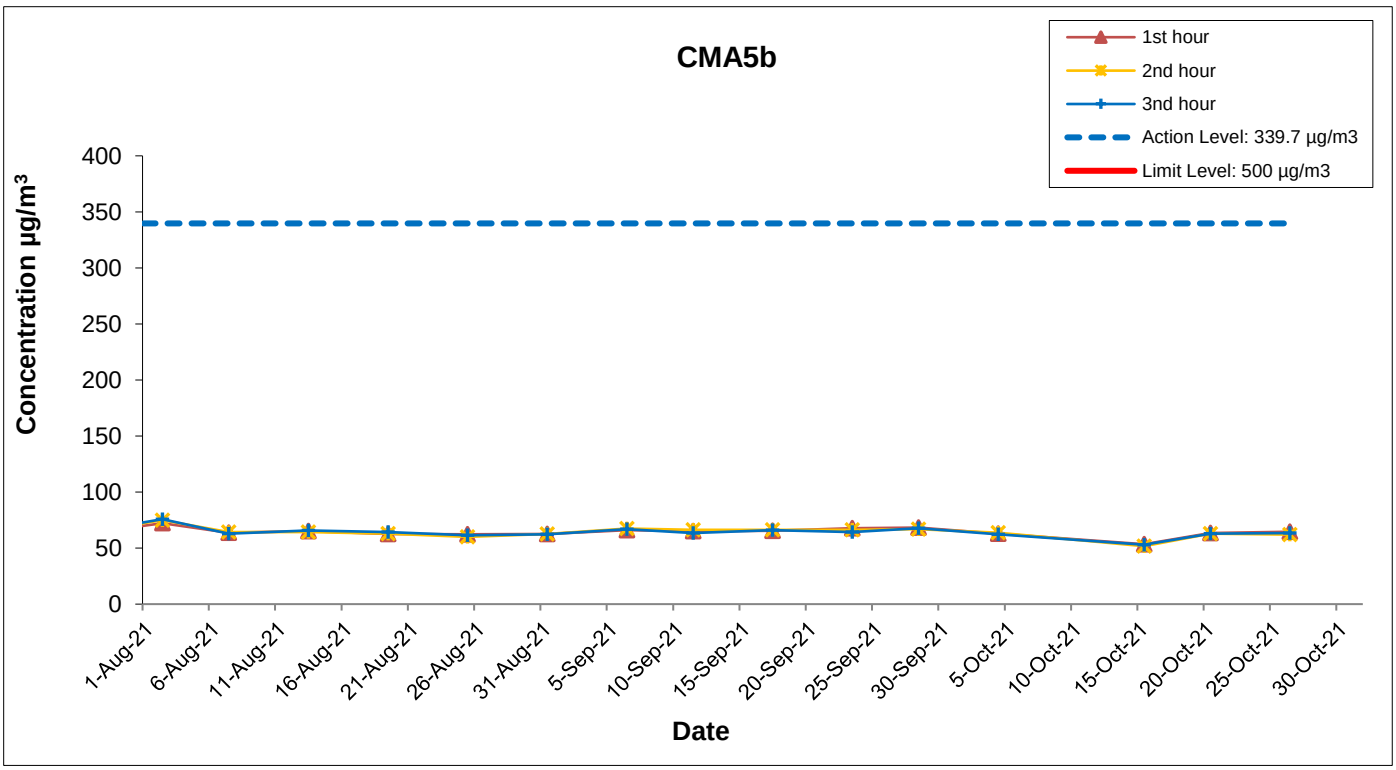
1-hour TSP Monitoring Results at Station CMA5b (Pedestrian Plaza)

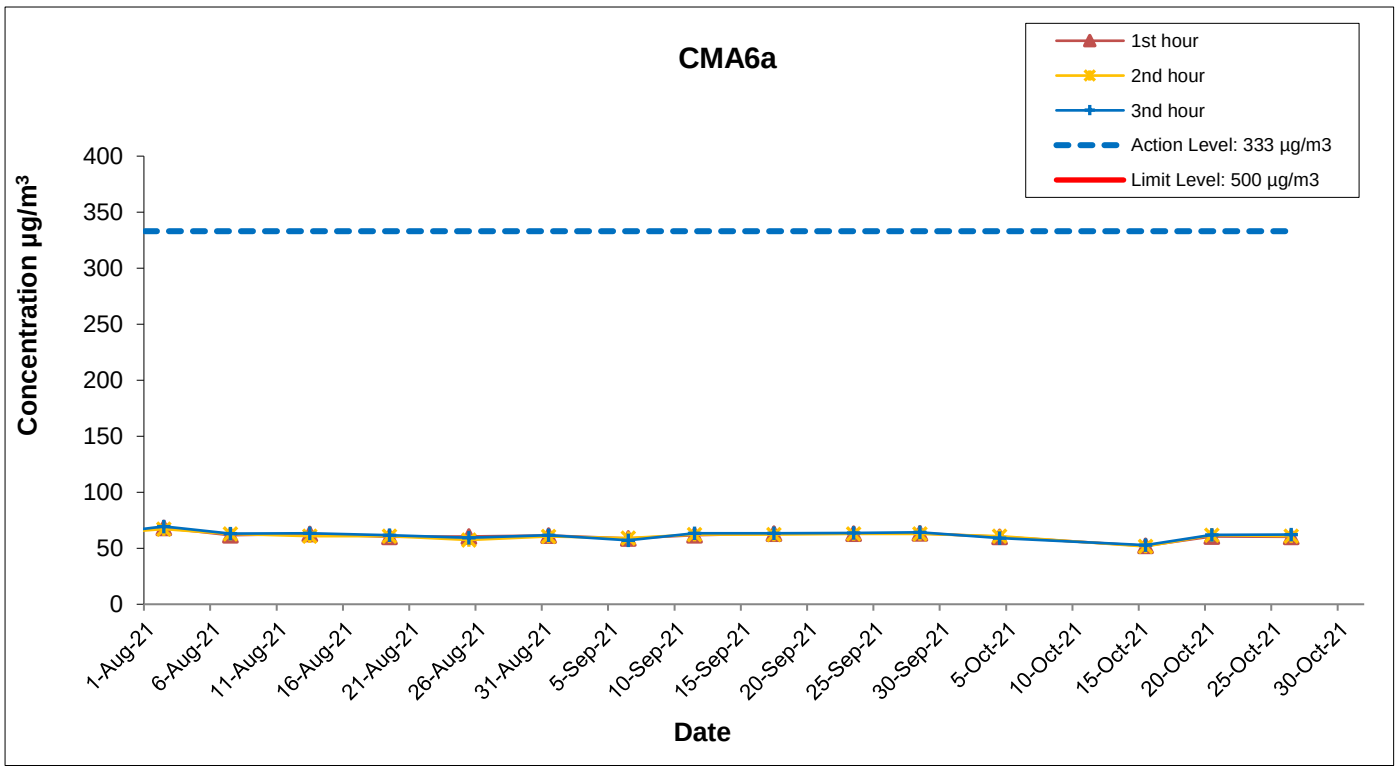
Date	Start Time (hh:mm)	Weather Condition	1st Hour Conc. ($\mu g/m^3$)	2nd Hour Conc. ($\mu g/m^3$)	3rd Hour Conc. ($\mu g/m^3$)
02-Aug-21	10:55	Sunny	72.2	74.9	75.8
07-Aug-21	10:35	Sunny	63.7	64.2	62.9
13-Aug-21	10:25	Fine	65.2	64.4	65.6
19-Aug-21	14:20	Rainy	62.7	63.0	64.2
25-Aug-21	10:30	Sunny	62.2	60.1	61.3
31-Aug-21	11:05	Fine	62.6	62.7	62.2
06-Sep-21	10:05	Sunny	65.9	67.4	66.8
11-Sep-21	14:35	Sunny	65.1	66.2	63.4
17-Sep-21	13:07	Sunny	65.3	66.3	66.0
23-Sep-21	13:35	Fine	67.6	66.2	64.3
28-Sep-21	10:35	Sunny	68.2	66.8	67.7
04-Oct-21	10:45	Sunny	63.0	63.8	62.2
15-Oct-21	14:00	Fine	53.4	51.7	53.0
20-Oct-21	11:20	Fine	63.3	62.9	63.0
26-Oct-21	10:15	Sunny	64.6	62.1	63.3
				Average	64.2
				Min	51.7
				Max	75.8

Appendix G
Air Quality Monitoring Results

1-hour TSP Monitoring Results at Station CMA6a (WDII PRE Site Office)

Date	Start Time (hh:mm)	Weather Condition	1st Hour Conc. ($\mu g/m^3$)	2nd Hour Conc. ($\mu g/m^3$)	3rd Hour Conc. ($\mu g/m^3$)
02-Aug-21	10:40	Sunny	68.2	67.1	69.5
07-Aug-21	10:50	Sunny	61.7	62.8	63.1
13-Aug-21	10:40	Fine	62.7	60.9	63.3
19-Aug-21	14:30	Rainy	60.1	60.7	61.6
25-Aug-21	10:20	Sunny	60.6	57.4	59.5
31-Aug-21	11:20	Fine	61.5	60.6	61.8
06-Sep-21	10:40	Sunny	58.7	59.2	57.0
11-Sep-21	14:50	Sunny	61.8	62.2	63.4
17-Sep-21	10:30	Sunny	63.1	62.2	63.5
23-Sep-21	13:50	Fine	63.1	62.9	63.7
28-Sep-21	10:45	Sunny	63.5	62.7	64.3
04-Oct-21	10:30	Sunny	60.1	60.9	59.1
15-Oct-21	15:30	Fine	52.1	51.6	52.7
20-Oct-21	11:35	Fine	60.6	61.8	62.0
26-Oct-21	10:00	Sunny	60.2	60.9	62.2
				Average	61.3
				Min	51.6
				Max	69.5





Shatin Central Link Contract No. 1123
Entrusted Work for Road P2 & other roads and Slip Road 3

AECOM

Graphical Presentation of Impact 1-hr TSP Monitoring Results

Date: **February 2022**

Appendix G

Appendix G
Air Quality Monitoring Results

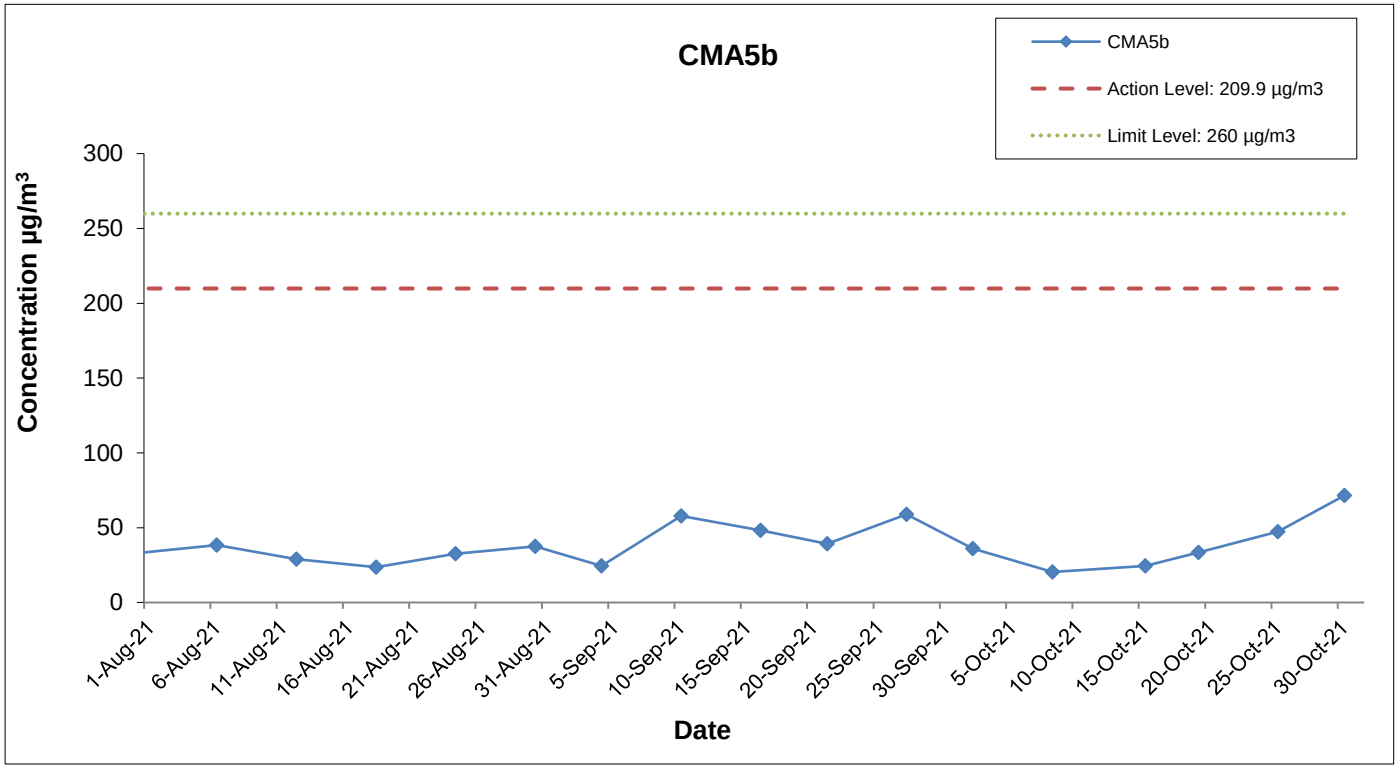
24-hour TSP Monitoring Results at Station CMA5b (Pedestrain Plaza)

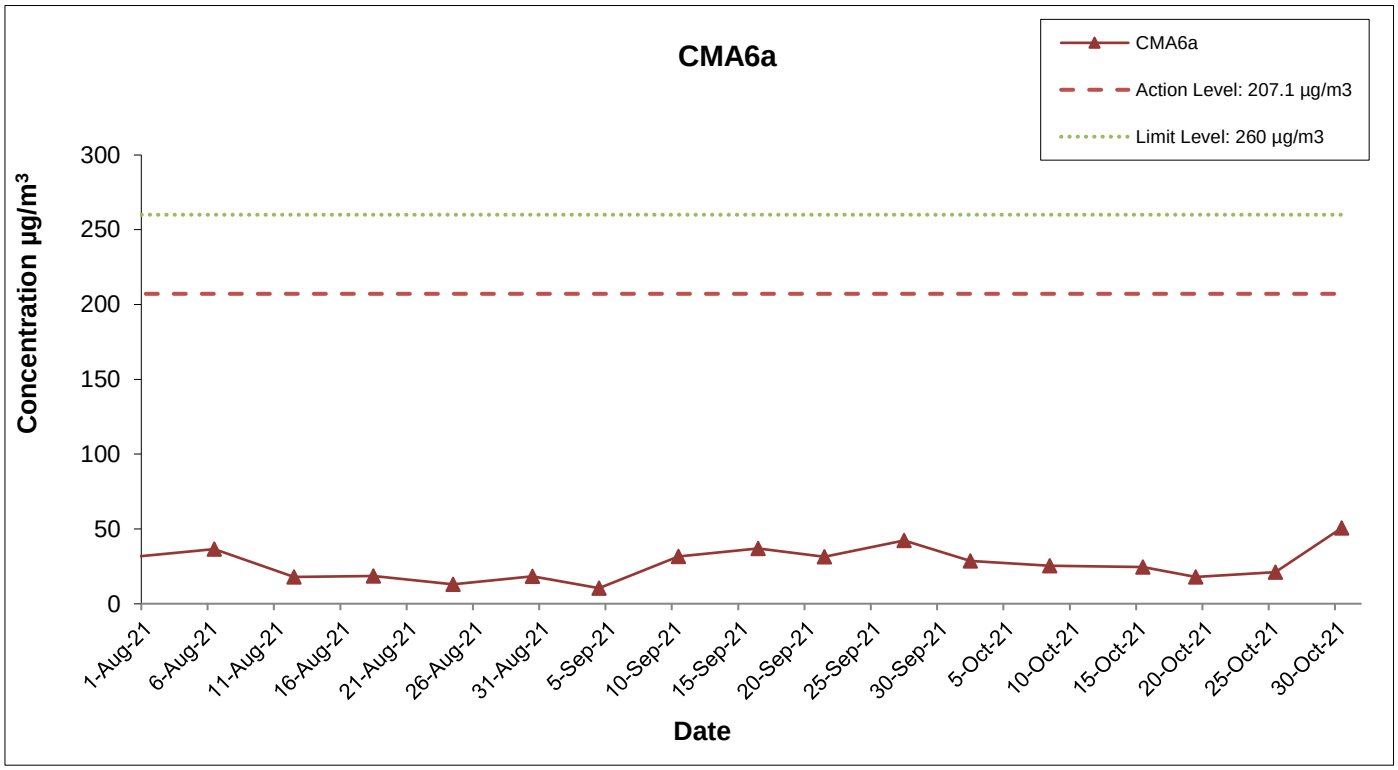
Start		End		Weather	Air	Atmospheric	Flow Rate (m^3/min.)		Av. flow	Total vol.	Filter Weight (g)		Particulate	Elapse Time		Sampling	Conc.
Date	Time	Date	Time	Condition	Temp. (^oC)	Pressure (hPa)	Initial	Final	(m^3/min)	(m^3)	Initial	Final	weight(g)	Initial	Final	Time(hrs.)	($\mu g/m^3$)
06-Aug-21	0:00	07-Aug-21	0:00	Sunny	28.6	998.0	1.34	1.34	1.34	1928.2	2.6728	2.7470	0.0742	27071.01	27095.01	24.00	38.5
12-Aug-21	0:00	13-Aug-21	0:00	Sunny	29.0	1008.9	1.34	1.34	1.34	1928.2	2.6848	2.7407	0.0559	27095.01	27119.01	24.00	29.0
18-Aug-21	0:00	19-Aug-21	0:00	Sunny	29.5	1008.2	1.34	1.34	1.34	1928.2	2.6725	2.7180	0.0455	27119.01	27143.01	24.00	23.6
24-Aug-21	0:00	25-Aug-21	0:00	Cloudy	29.6	1007.7	1.34	1.34	1.34	1928.2	2.6934	2.7561	0.0627	27143.01	27167.01	24.00	32.5
30-Aug-21	0:00	31-Aug-21	0:00	Fine	29.1	1011.4	1.34	1.34	1.34	1928.2	2.6752	2.7475	0.0723	27167.01	27191.01	24.00	37.5
04-Sep-21	0:00	05-Sep-21	0:00	Sunny	29.8	1008.3	1.34	1.34	1.34	1928.2	2.6699	2.7172	0.0473	27335.01	27359.01	24.00	24.5
10-Sep-21	0:00	11-Sep-21	0:00	Fine	30.5	1008.3	1.34	1.34	1.34	1928.2	2.6824	2.7940	0.1116	27359.01	27383.01	24.00	57.9
16-Sep-21	0:00	17-Sep-21	0:00	Fine	29.2	1009.4	1.34	1.34	1.34	1928.2	2.6860	2.7791	0.0931	27383.01	27407.01	24.00	48.3
21-Sep-21	0:00	22-Sep-21	0:00	Sunny	29.0	1009.5	1.34	1.34	1.34	1928.2	2.6897	2.7654	0.0757	27407.01	27431.01	24.00	39.3
27-Sep-21	0:00	28-Sep-21	0:00	Sunny	29.5	1010.8	1.34	1.34	1.34	1928.2	2.6855	2.7990	0.1135	27431.01	27455.01	24.00	58.9
02-Oct-21	0:00	03-Oct-21	0:00	Fine	30.0	1011.0	1.34	1.34	1.34	1928.2	2.6570	2.7265	0.0695	27455.01	27479.01	24.00	36.0
08-Oct-21	0:00	09-Oct-21	0:00	Rainy	25.5	1004.6	1.34	1.34	1.34	1928.2	2.6733	2.7126	0.0393	27479.01	27503.01	24.00	20.4
15-Oct-21	0:00	16-Oct-21	0:00	Cloudy	26.2	1010.4	1.33	1.33	1.33	1921.0	2.6592	2.7063	0.0471	27503.01	27527.01	24.00	24.5
19-Oct-21	0:00	20-Oct-21	0:00	Fine	28.9	1017.8	1.34	1.34	1.34	1928.2	2.6708	2.7355	0.0647	27527.01	27551.01	24.00	33.6
25-Oct-21	0:00	26-Oct-21	0:00	Fine	27.5	1016.6	1.34	1.34	1.34	1928.2	2.6574	2.7489	0.0915	27551.01	27575.01	24.00	47.5
30-Oct-21	0:00	31-Oct-21	0:00	Fine	26.2	1018.8	1.34	1.34	1.34	1928.2	2.6660	2.8041	0.1381	27575.01	27599.01	24.00	71.6
																Average	**39.0**
																Minimum	**20.4**
																Maximum	**71.6**

Appendix G
Air Quality Monitoring Results

24-hour TSP Monitoring Results at Station CMA6a (WDII PRE site office)

Start		End		Weather	Air	Atmospheric	Flow Rate (m^3/min.)		Av. flow	Total vol.	Filter Weight (g)		Particulate	Elapse Time		Sampling	Conc.
Date	Time	Date	Time	Condition	Temp. (^oC)	Pressure (hPa)	Initial	Final	(m^3/min)	(m^3)	Initial	Final	weight(g)	Initial	Final	Time(hrs.)	($\mu g/m^3$)
06-Aug-21	0:00	07-Aug-21	0:00	Sunny	28.6	998.0	1.33	1.33	1.33	1921.0	2.6732	2.7432	0.0700	9816.39	9840.39	24.00	36.4
12-Aug-21	0:00	13-Aug-21	0:00	Sunny	29.0	1008.9	1.33	1.33	1.33	1921.0	2.6707	2.7052	0.0345	9840.39	9864.39	24.00	18.0
18-Aug-21	0:00	19-Aug-21	0:00	Sunny	29.5	1008.2	1.33	1.33	1.33	1921.0	2.6900	2.7255	0.0355	9864.39	9888.39	24.00	18.5
24-Aug-21	0:00	25-Aug-21	0:00	Cloudy	29.6	1007.7	1.33	1.33	1.33	1921.0	2.6729	2.6978	0.0249	9888.39	9912.39	24.00	13.0
30-Aug-21	0:00	31-Aug-21	0:00	Fine	29.1	1011.4	1.33	1.33	1.33	1921.0	2.6739	2.7092	0.0353	9912.39	9936.39	24.00	18.4
04-Sep-21	0:00	05-Sep-21	0:00	Sunny	29.8	1008.3	1.33	1.33	1.33	1921.0	2.6794	2.6992	0.0198	10080.39	10104.39	24.00	10.3
10-Sep-21	0:00	11-Sep-21	0:00	Fine	30.5	1008.3	1.33	1.33	1.33	1921.0	2.6741	2.7346	0.0605	10104.39	10128.39	24.00	31.5
16-Sep-21	0:00	17-Sep-21	0:00	Fine	29.2	1009.4	1.33	1.33	1.33	1921.0	2.6795	2.7504	0.0709	10128.39	10152.39	24.00	36.9
21-Sep-21	0:00	22-Sep-21	0:00	Sunny	29.0	1009.5	1.33	1.33	1.33	1921.0	2.6995	2.7596	0.0601	10152.39	10176.39	24.00	31.3
27-Sep-21	0:00	28-Sep-21	0:00	Sunny	29.5	1010.8	1.33	1.33	1.33	1921.0	2.6957	2.7767	0.0810	10176.39	10200.39	24.00	42.2
02-Oct-21	0:00	03-Oct-21	0:00	Fine	30.0	1011.0	1.33	1.33	1.33	1921.0	2.6635	2.7184	0.0549	10200.39	10224.39	24.00	28.6
08-Oct-21	0:00	09-Oct-21	0:00	Rainy	25.5	1004.6	1.33	1.33	1.33	1921.0	2.6283	2.6771	0.0488	10224.39	10248.39	24.00	25.4
15-Oct-21	0:00	16-Oct-21	0:00	Cloudy	26.2	1010.4	1.33	1.33	1.33	1921.0	2.6592	2.7063	0.0471	10248.39	10272.39	24.00	24.5
19-Oct-21	0:00	20-Oct-21	0:00	Fine	28.9	1017.8	1.33	1.33	1.33	1921.0	2.6464	2.6809	0.0345	10272.39	10296.39	24.00	18.0
25-Oct-21	0:00	26-Oct-21	0:00	Fine	27.5	1016.6	1.33	1.33	1.33	1921.0	2.6623	2.7030	0.0407	10296.39	10320.39	24.00	21.2
30-Oct-21	0:00	31-Oct-21	0:00	Fine	26.2	1018.8	1.33	1.33	1.33	1921.0	2.6922	2.7893	0.0971	10320.39	10344.39	24.00	50.5
																Average	**26.5**
																Minimum	**10.3**
																Maximum	**50.5**





Shatin Central Link Contract No. 1123
Entrusted Work for Road P2 & other roads and Slip Road 3

AECOM

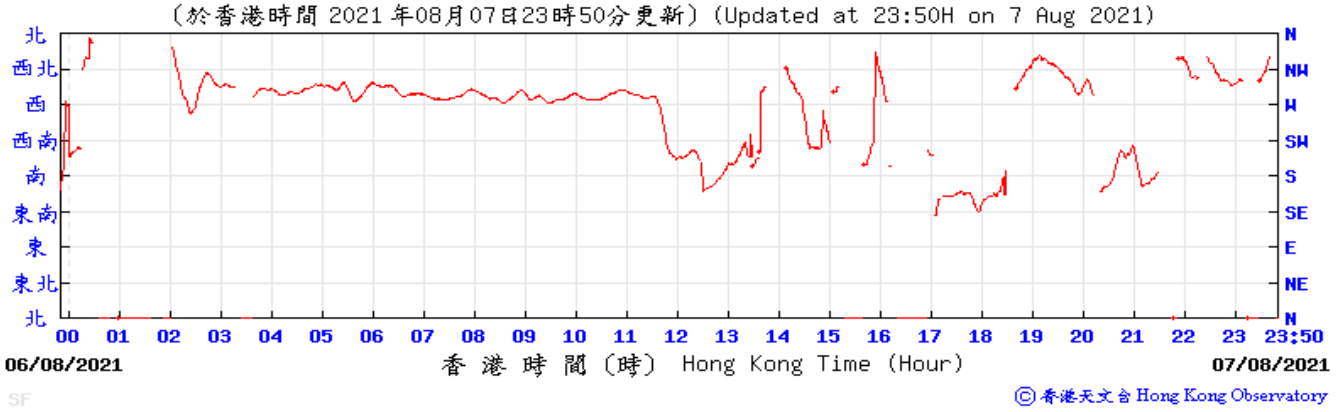
Graphical Presentation of Impact 24-hr TSP Monitoring Results

Date: **February 2022**

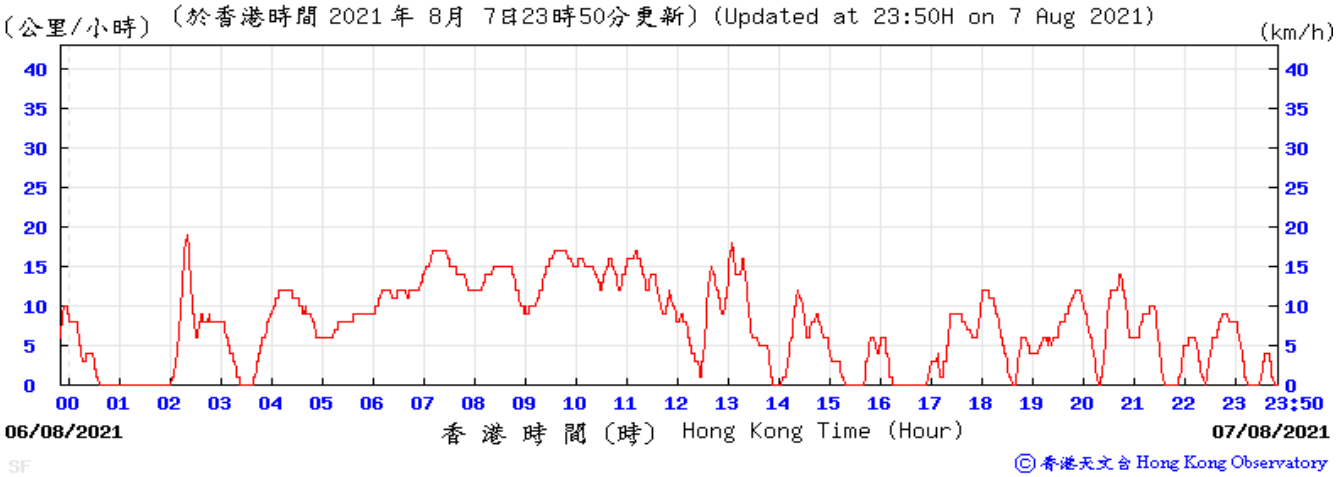
Appendix G

Appendix G – Extract of Meteorological Observations for Star Ferry Automatic Weather Station, August 2021

Wind Direction:

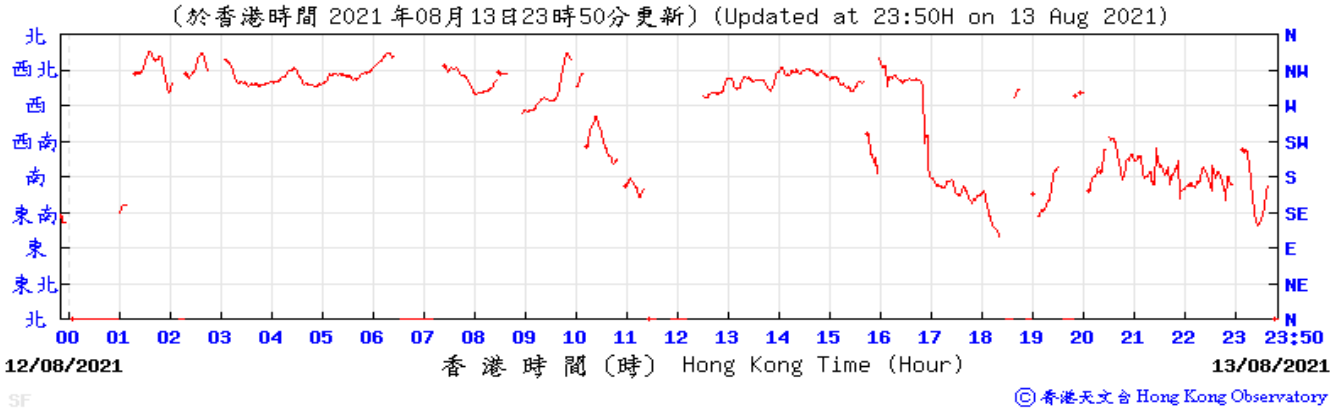


Wind Speed:



Appendix G – Extract of Meteorological Observations for Star Ferry Automatic Weather Station, August 2021

Wind Direction:



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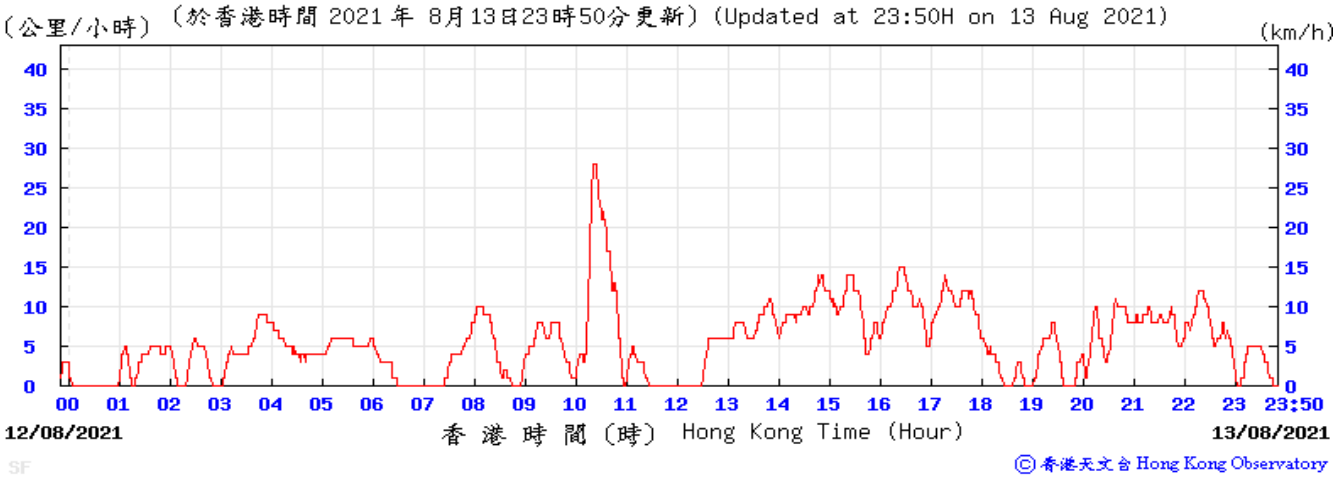
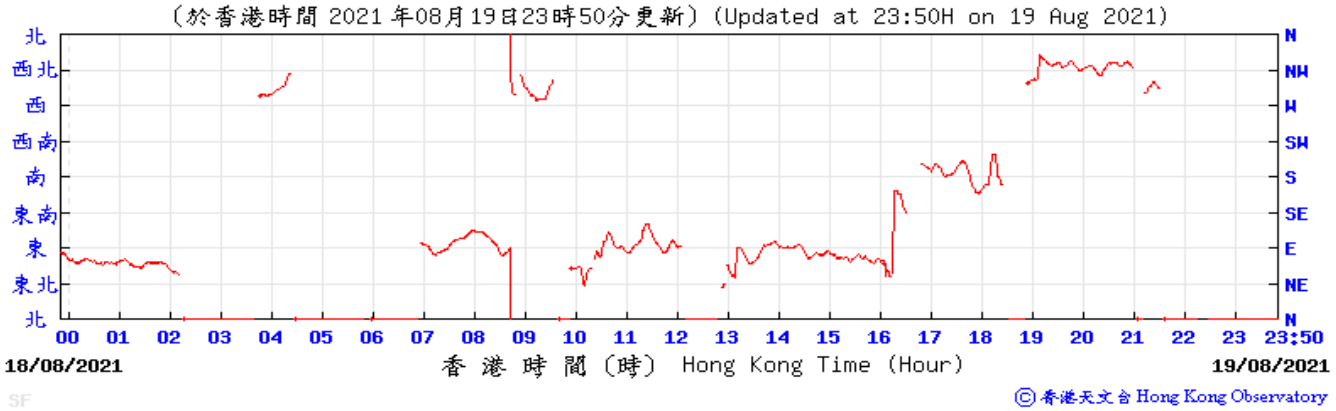


Appendix G – Extract of Meteorological Observations for Star Ferry Automatic Weather Station, August 2021

Wind Direction:



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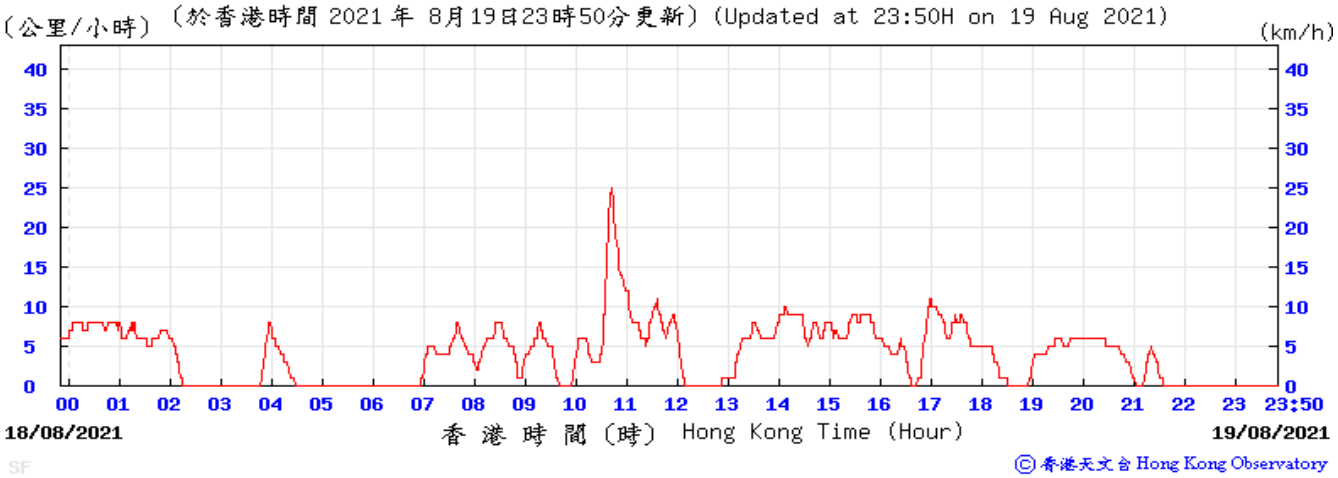
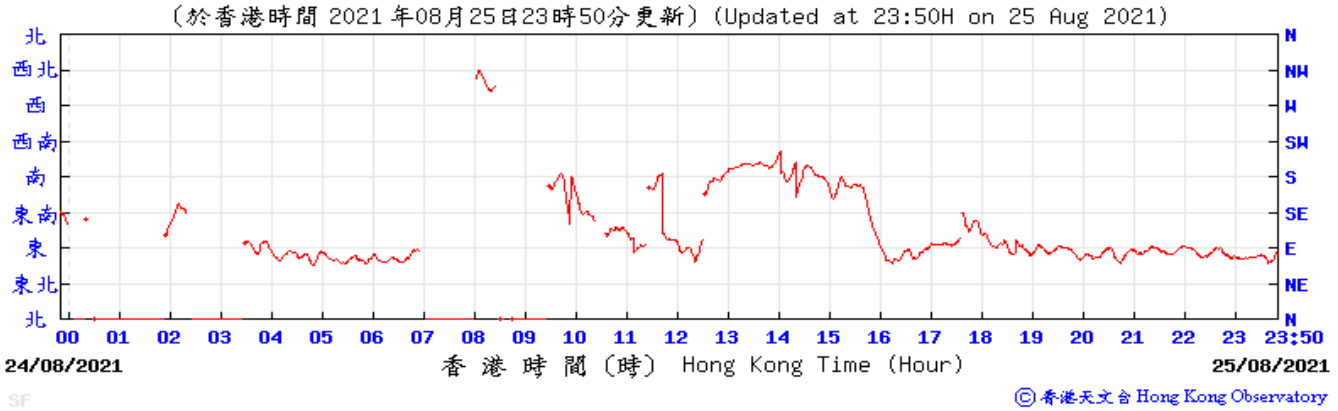


Appendix G – Extract of Meteorological Observations for Star Ferry Automatic Weather Station, August 2021

Wind Direction:



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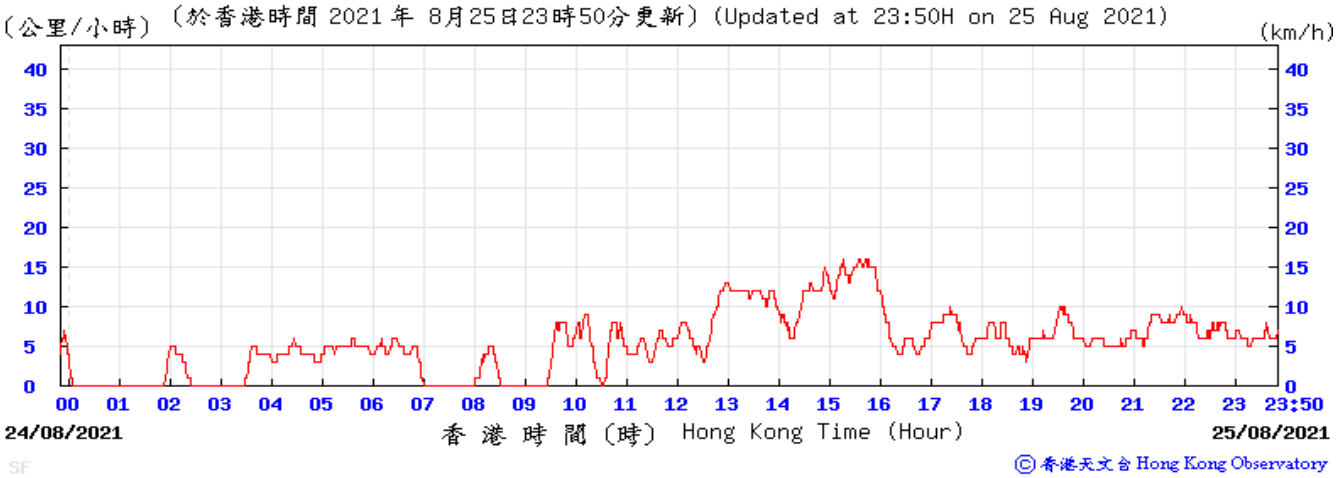
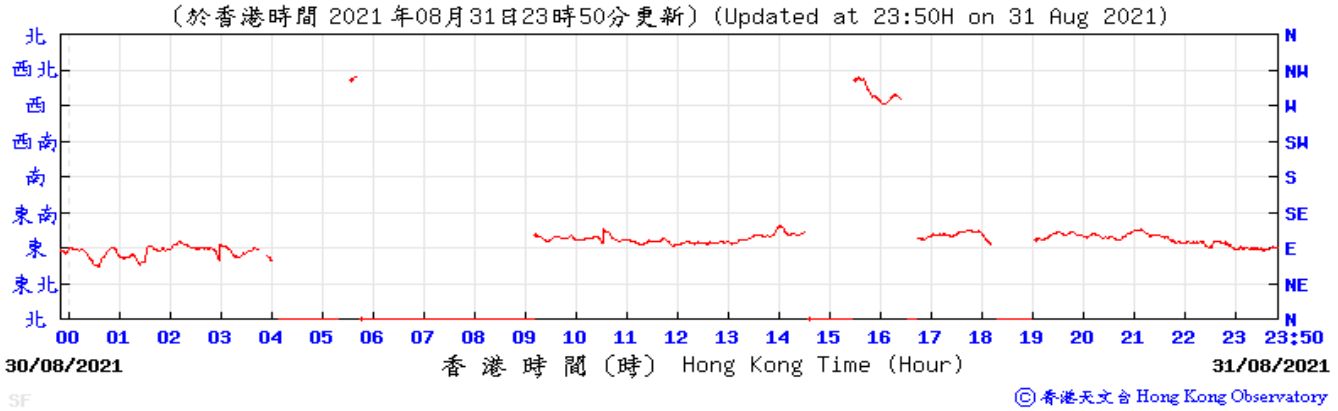


Appendix G – Extract of Meteorological Observations for Star Ferry Automatic Weather Station, August 2021

Wind Direction:



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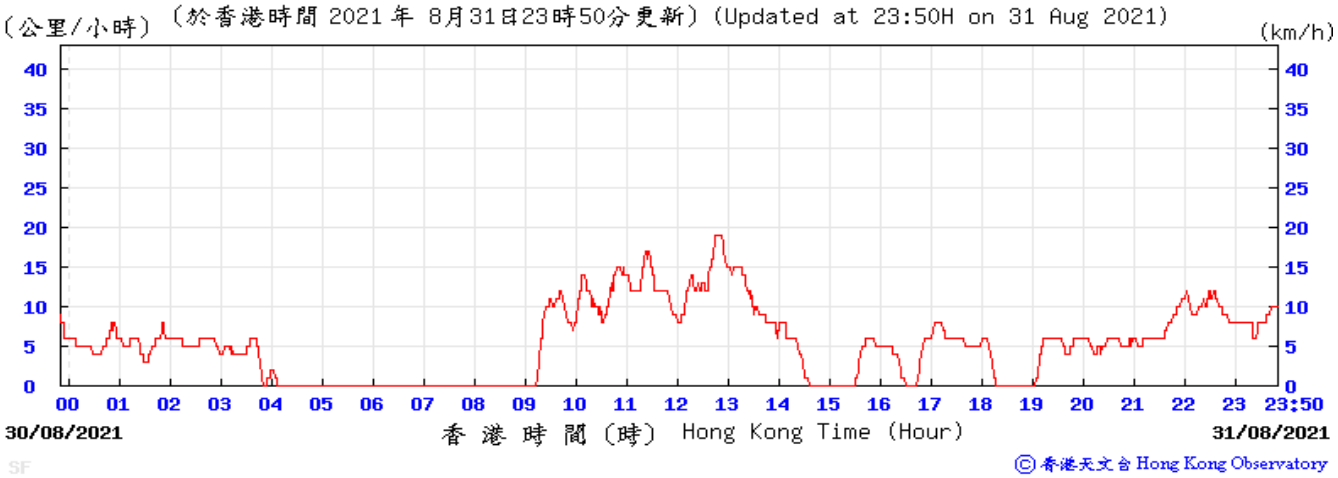
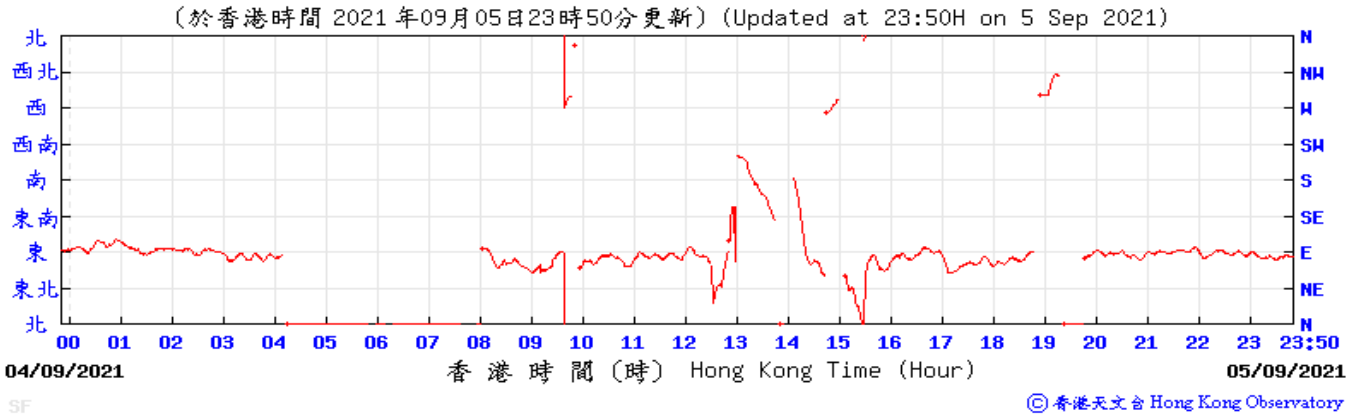


Appendix G – Extract of Meteorological Observations for Star Ferry Automatic Weather Station, September 2021

Wind Direction:



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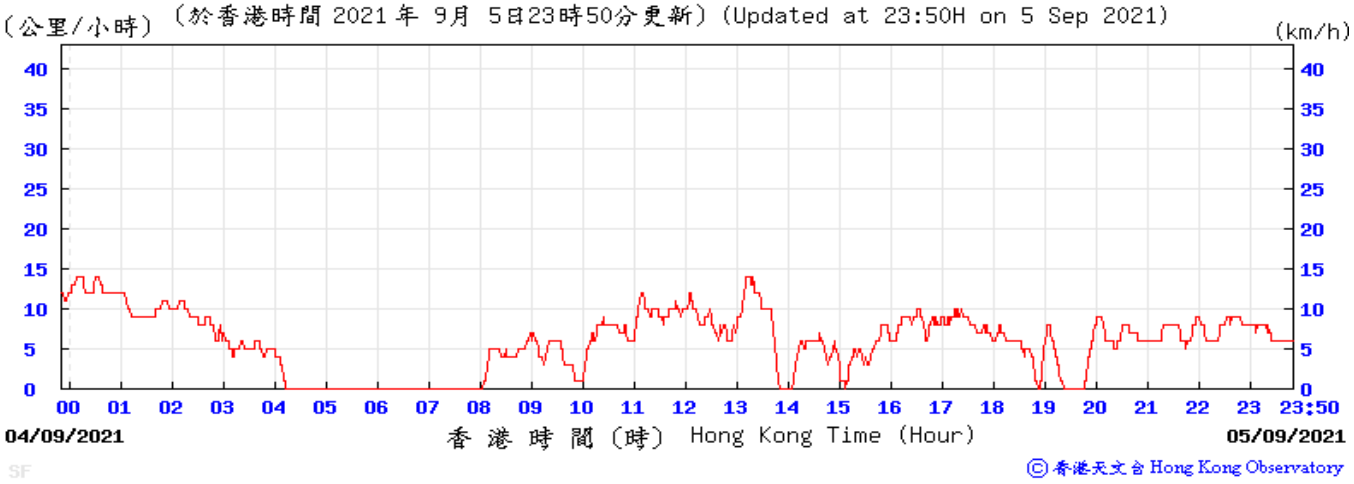
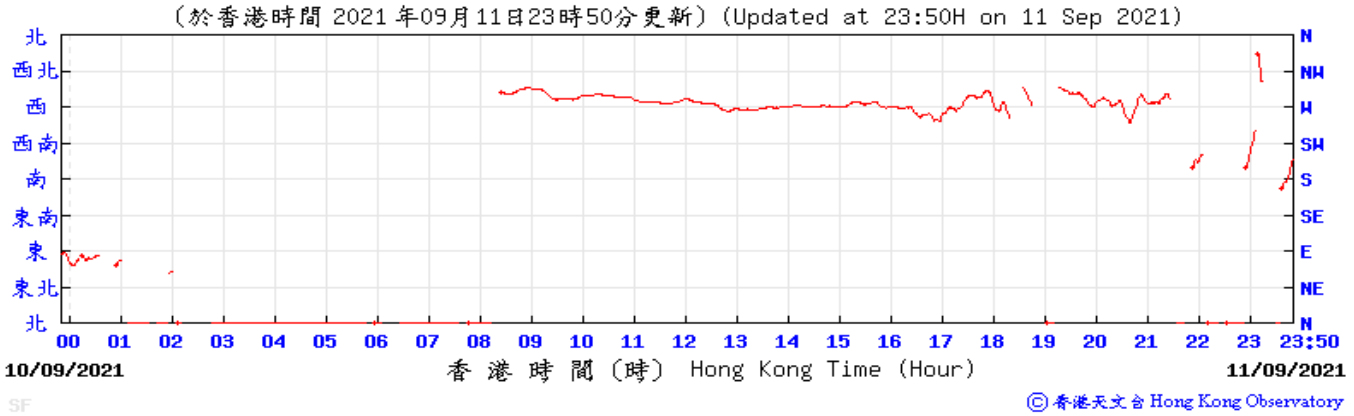


Appendix G – Extract of Meteorological Observations for Star Ferry Automatic Weather Station, September 2021

Wind Direction:



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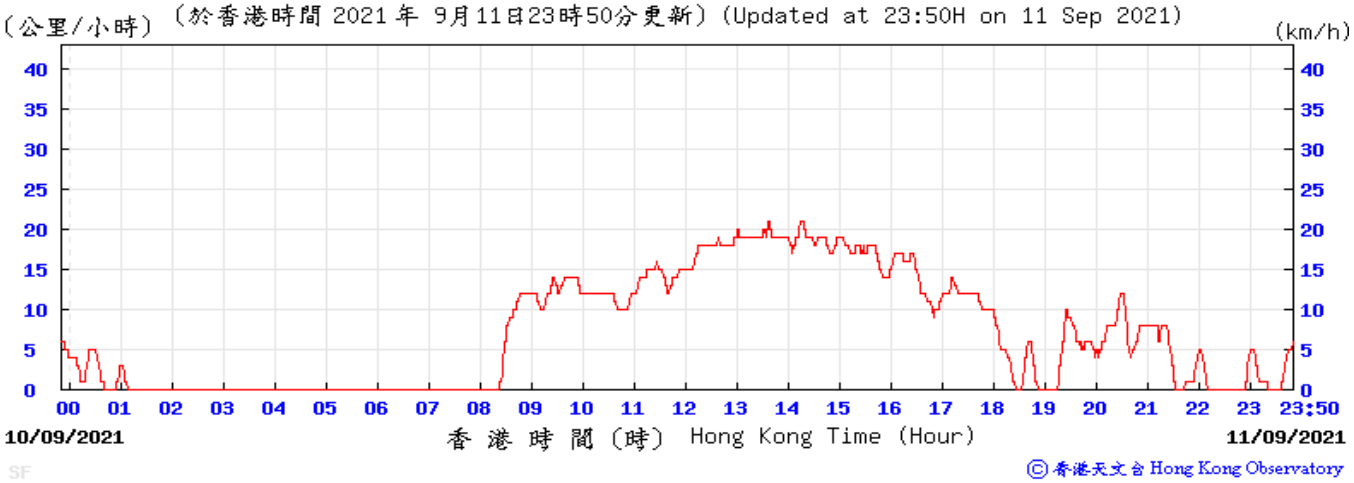

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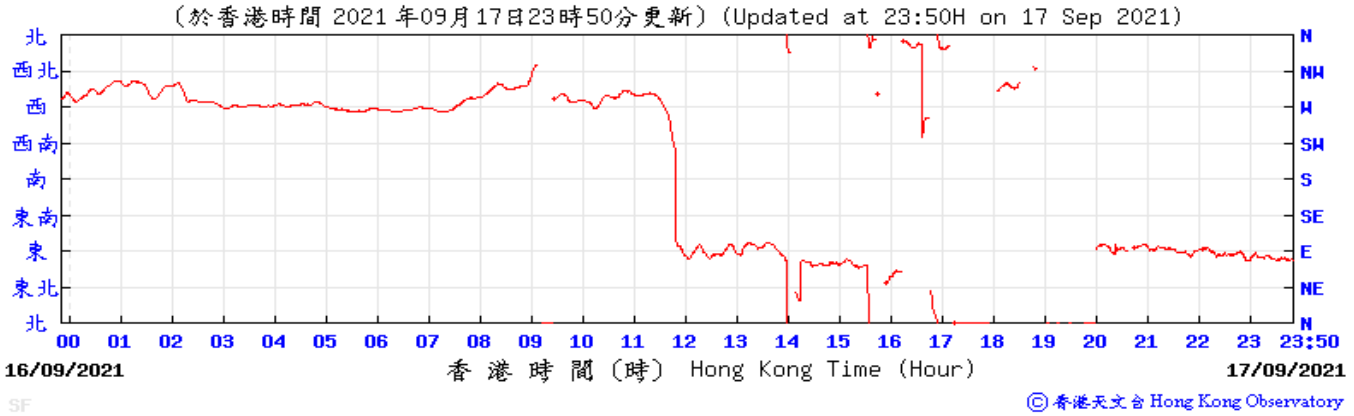
Wind Direction:



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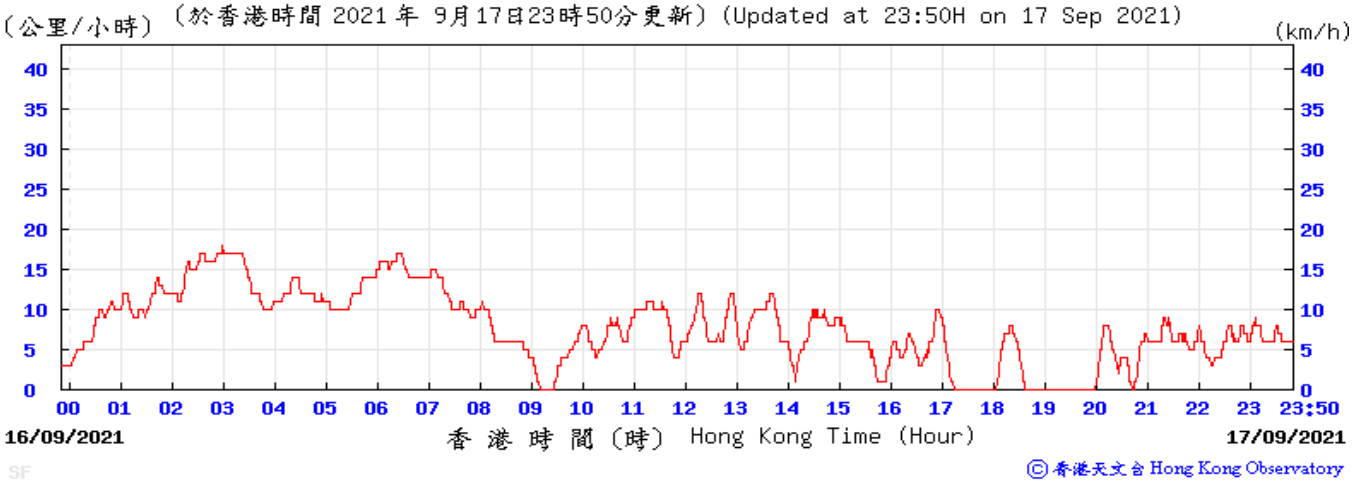

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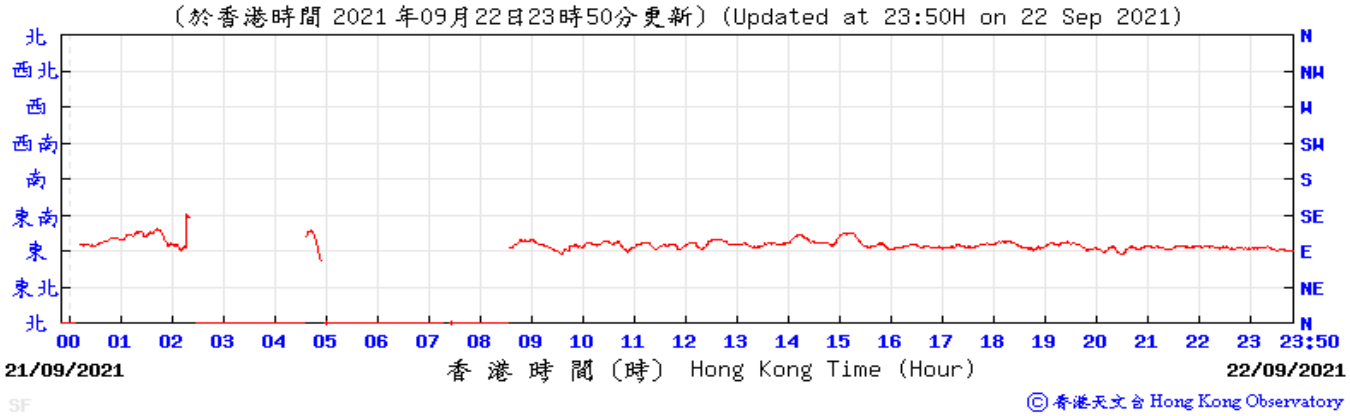
Wind Direction:



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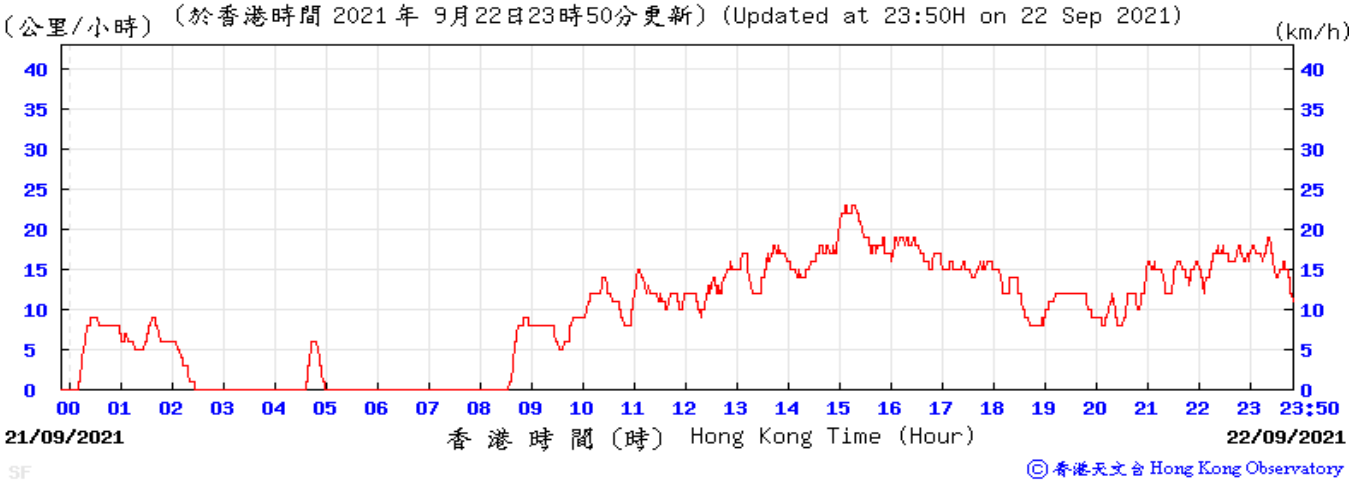

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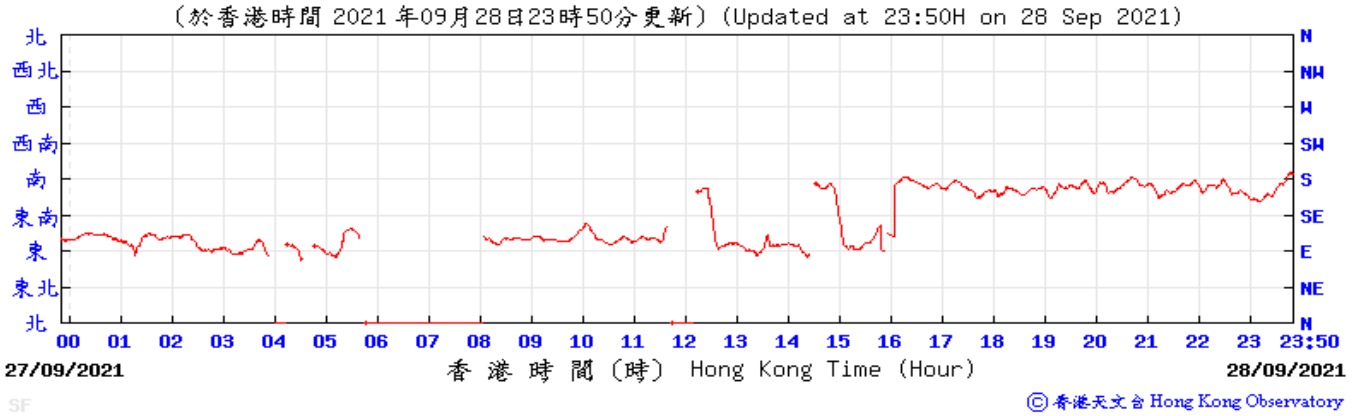
Wind Direction:



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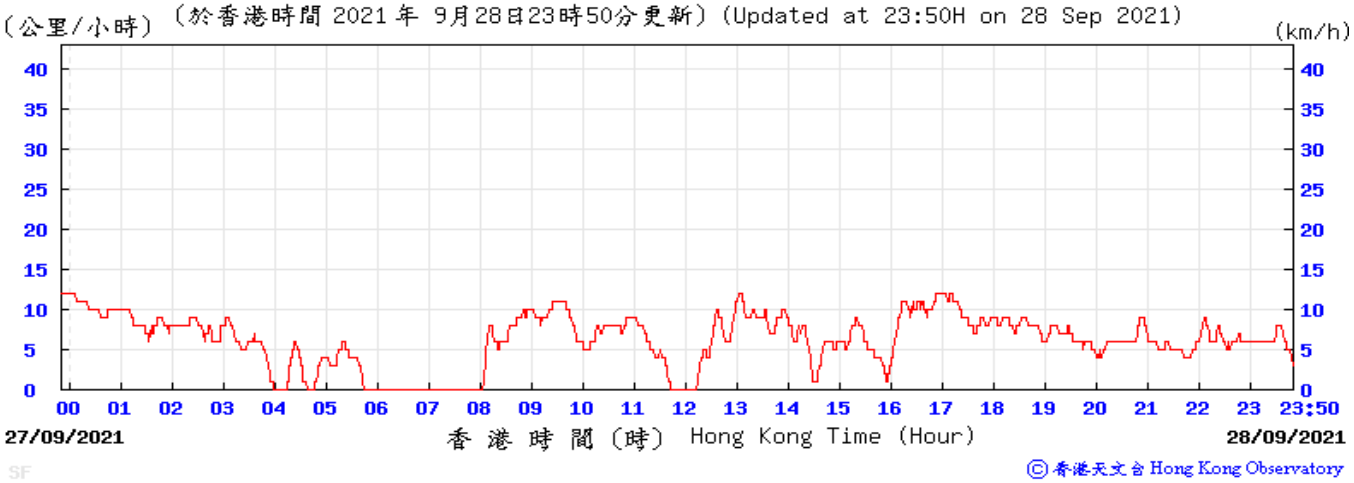

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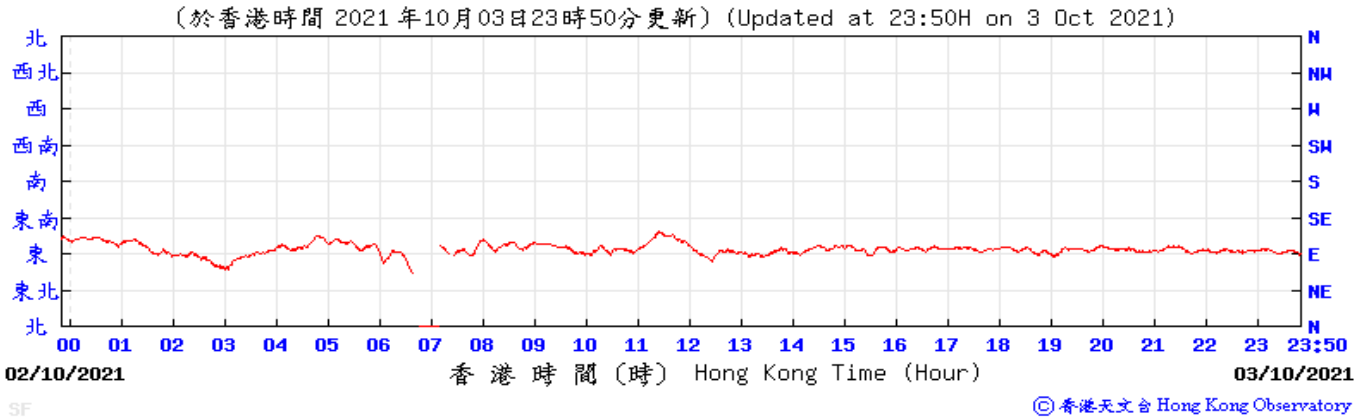
Wind Direction:



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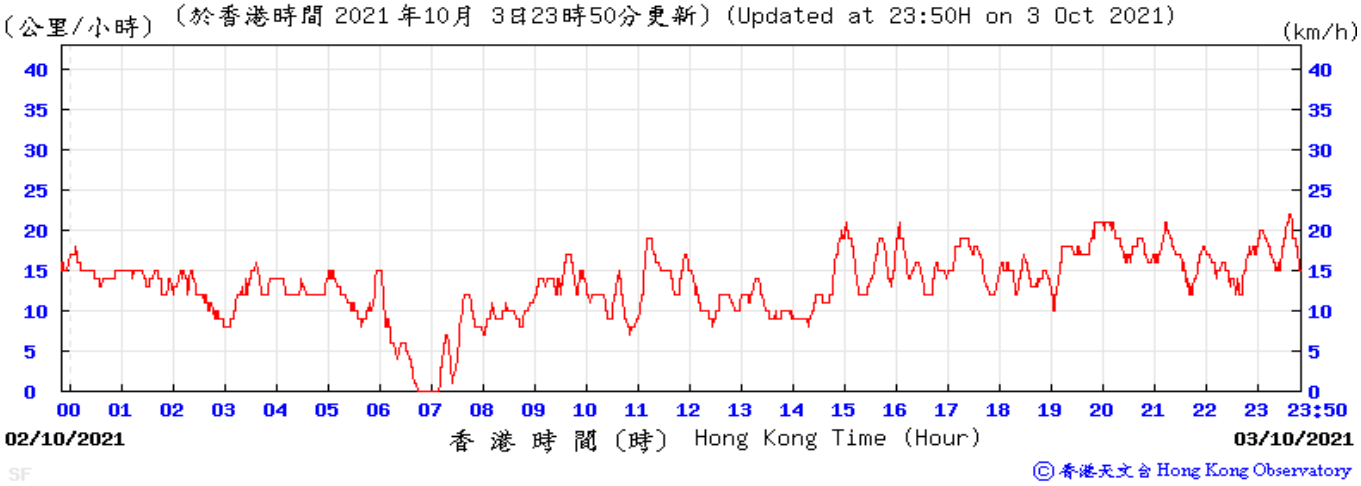

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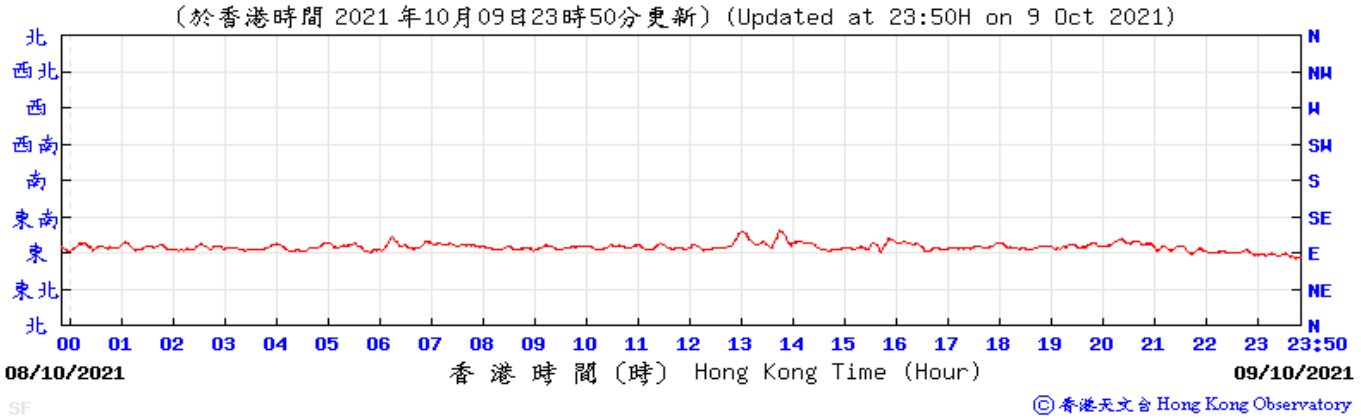
Wind Direction:



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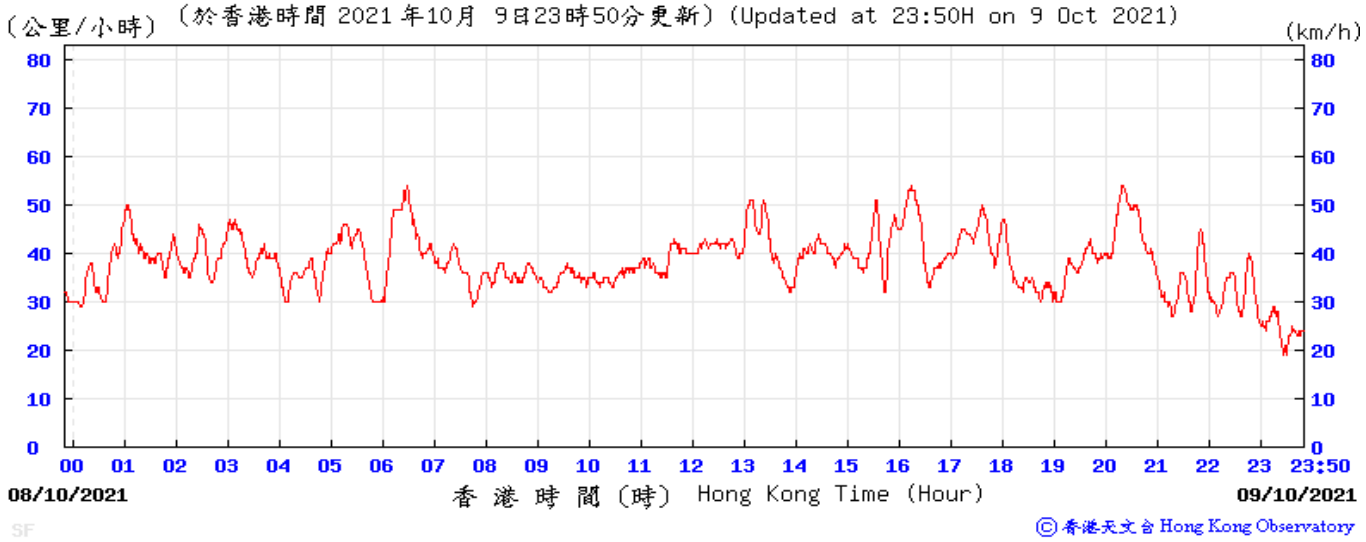
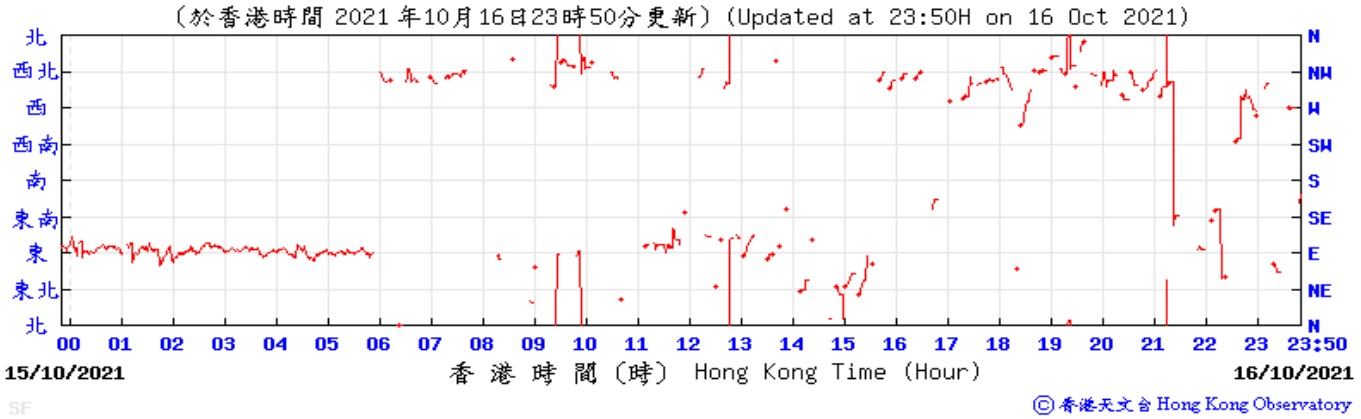


Appendix G – Extract of Meteorological Observations for Star Ferry Automatic Weather Station, October 2021

Wind Direction:



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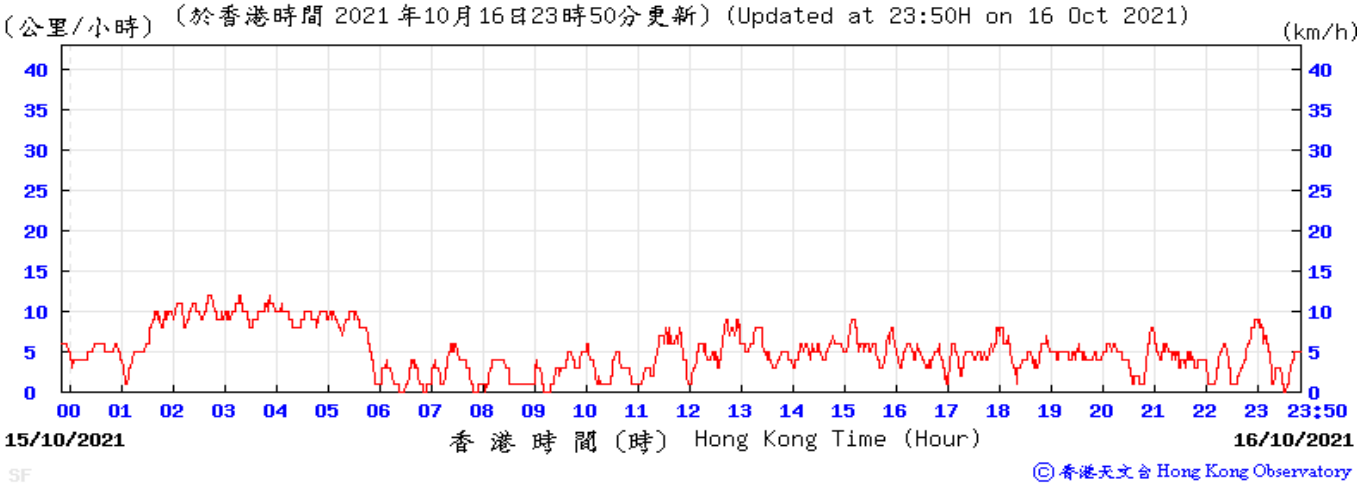

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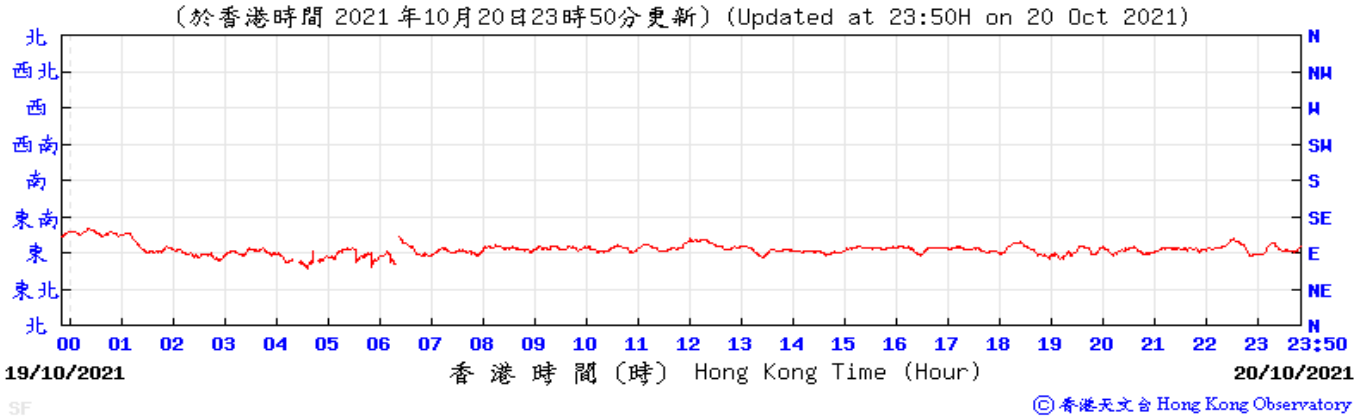
Wind Direction:



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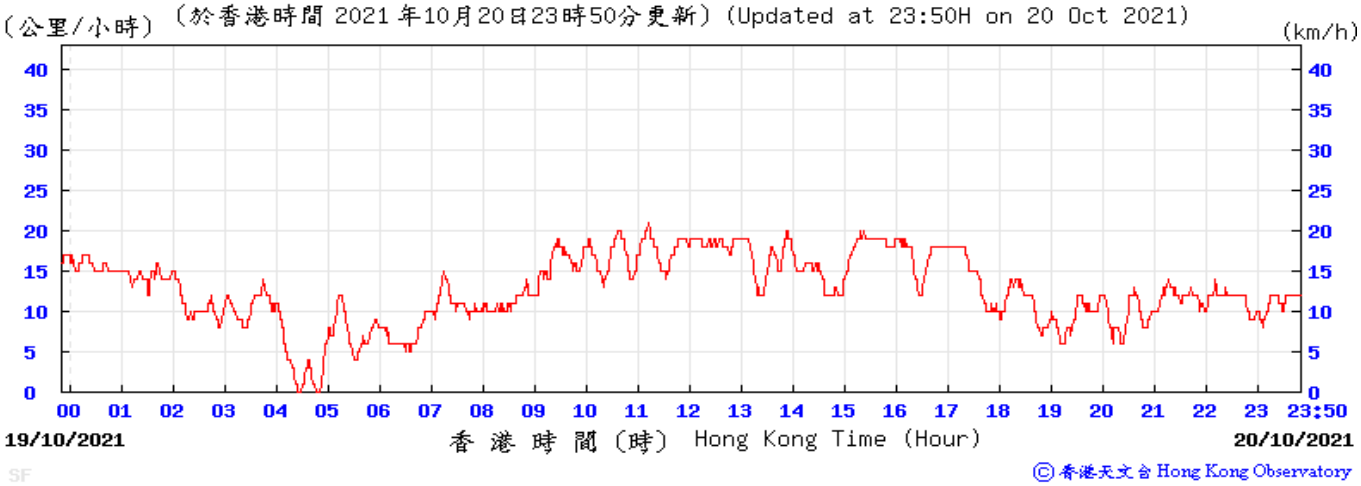
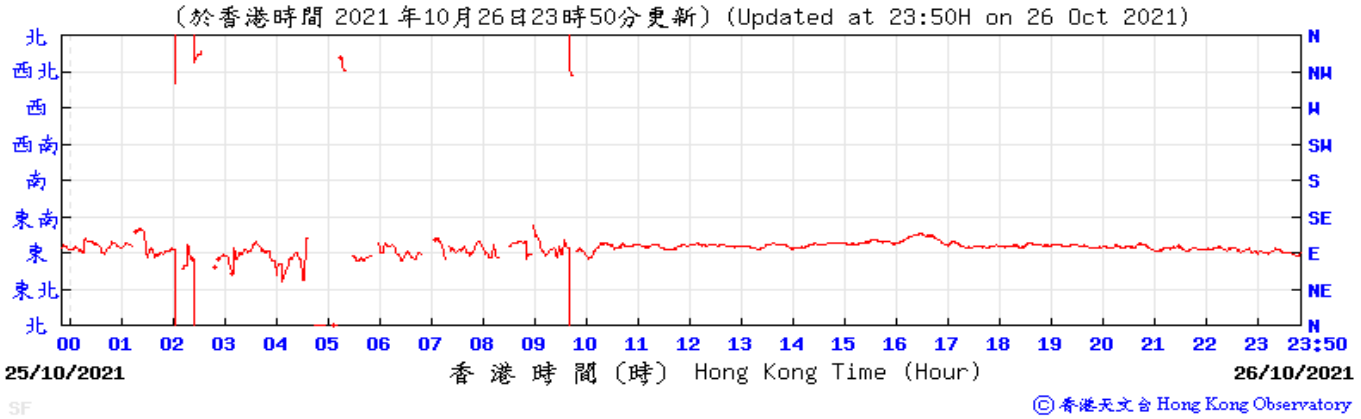


Appendix G – Extract of Meteorological Observations for Star Ferry Automatic Weather Station, October 2021

Wind Direction:



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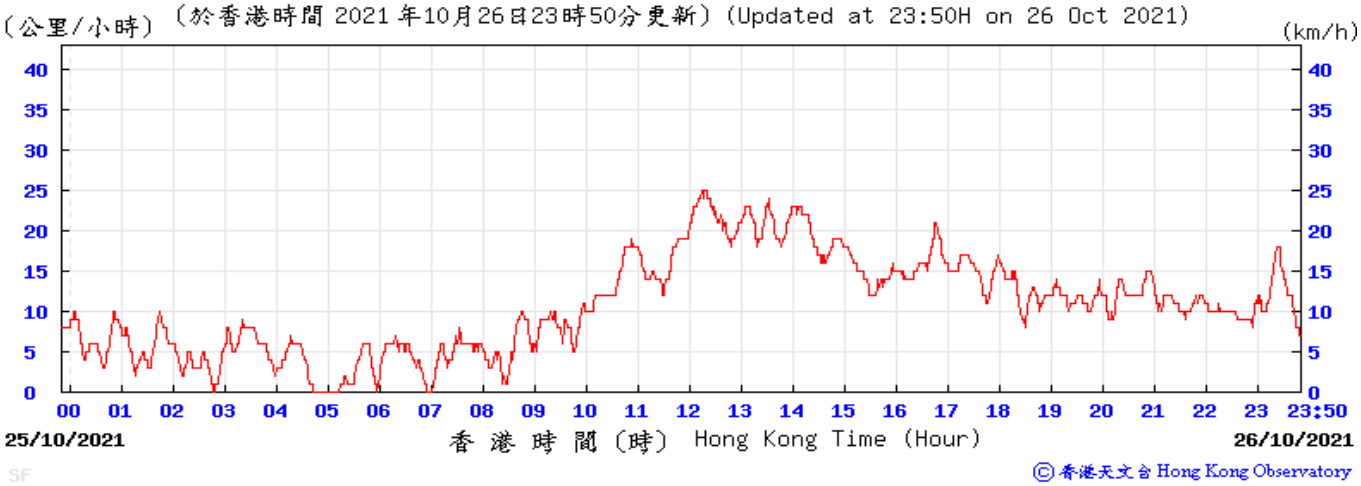
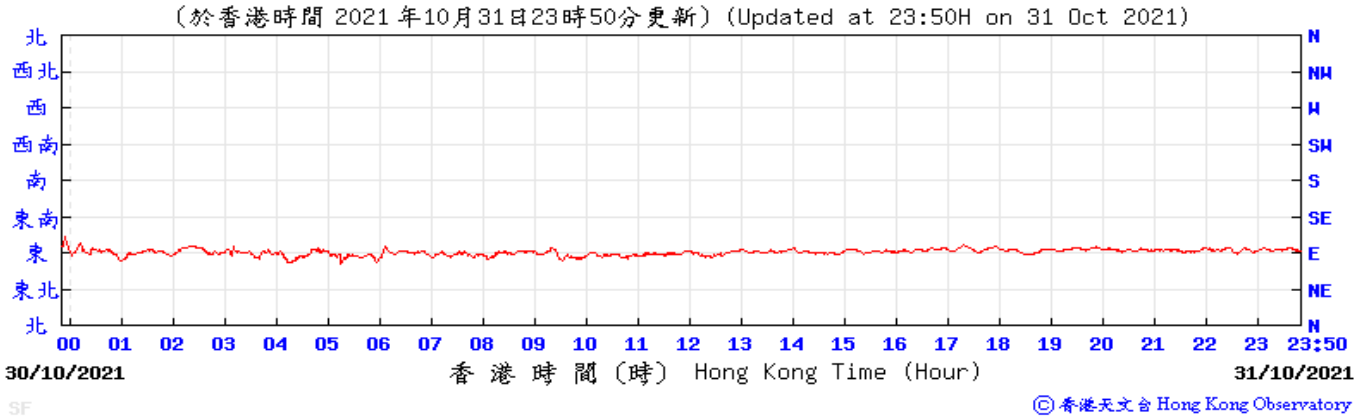


Appendix G – Extract of Meteorological Observations for Star Ferry Automatic Weather Station, October 2021

Wind Direction:



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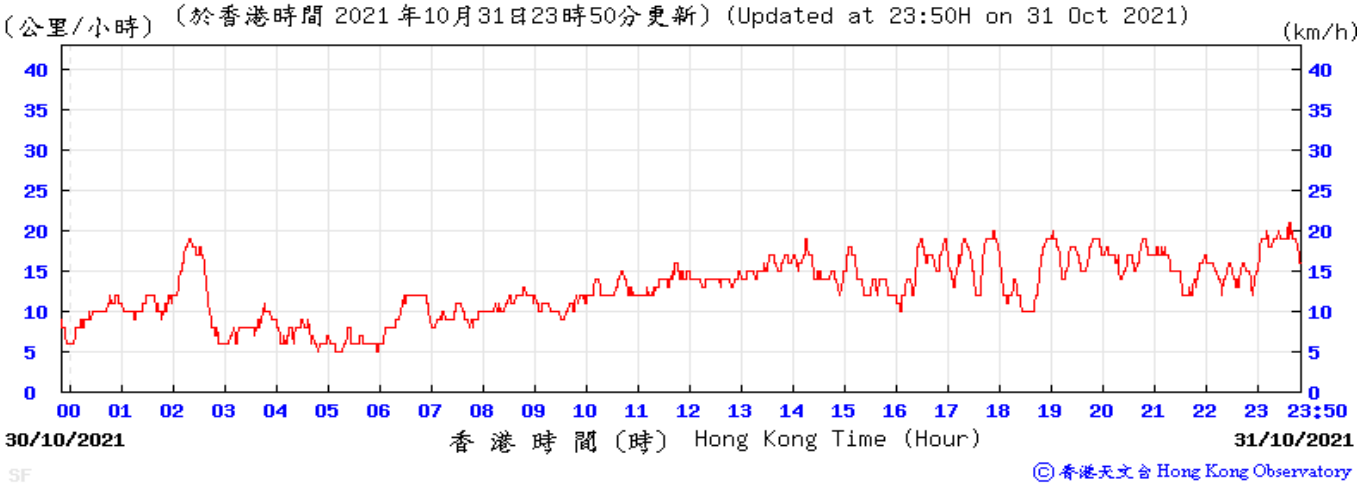


APPENDIX H

Noise Monitoring Results and their Graphical Presentations

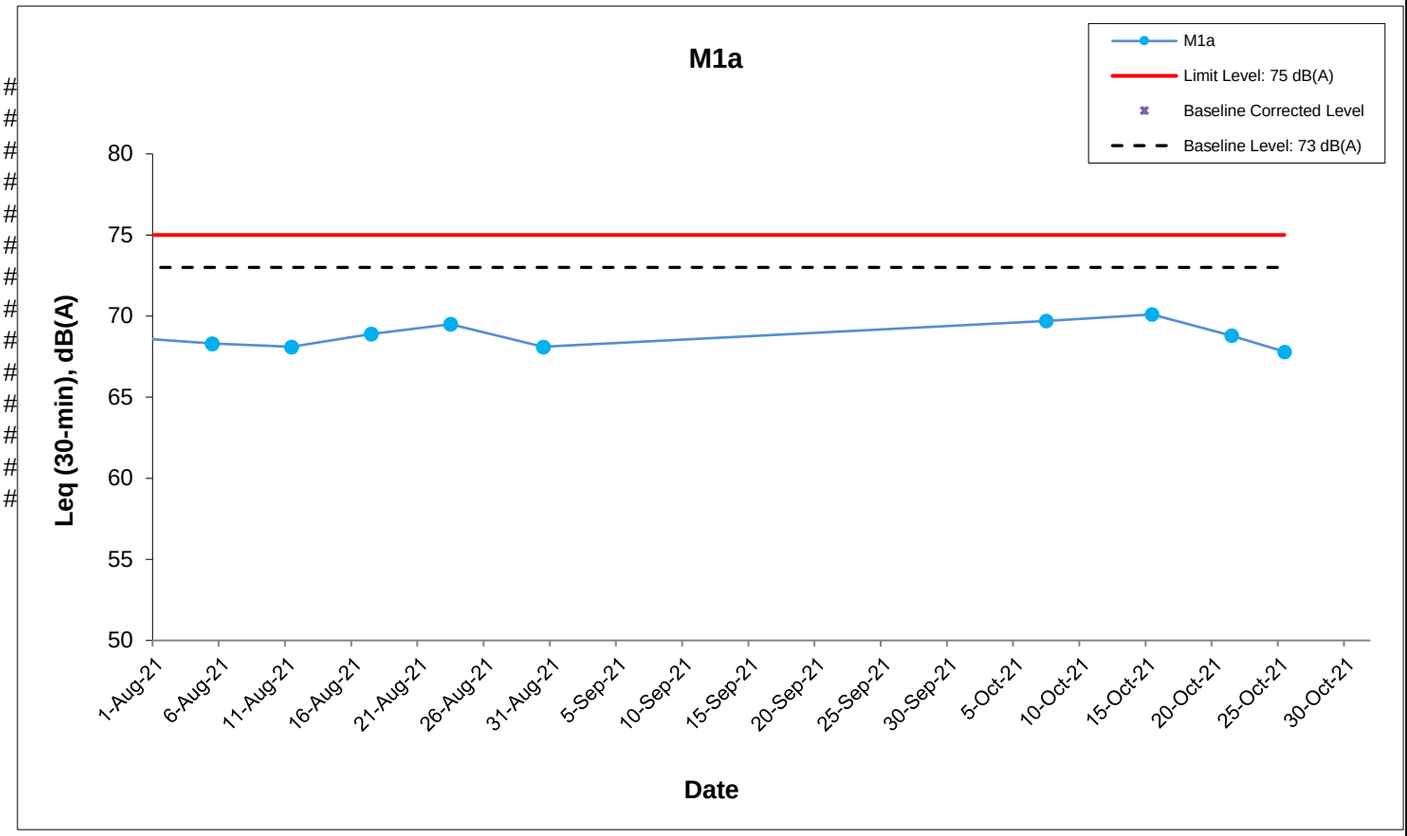
Appendix H Regular Construction Noise Monitoring Results

Daytime Noise Monitoring Results at Station M1a (Footbridge for Ex-Harbour Road Sport Centre)

Date	Weather Condition	Noise Level for 30-min, dB(A)+				Baseline Corrected Level, dB(A)	Baseline Noise Level, dB(A)	Limit Level, dB(A)	Exceedance (Y/N)
		Time	L90	L10	Leq				
5-Aug-21	Fine	14:10	66.0	69.8	68.3	<Baseline	73.0	75	N
11-Aug-21	Sunny	11:15	65.3	69.6	68.1	<Baseline	73.0	75	N
17-Aug-21	Sunny	13:35	66.2	70.5	68.9	<Baseline	73.0	75	N
23-Aug-21	Fine	10:50	66.9	71.1	69.5	<Baseline	73.0	75	N
30-Aug-21	Cloudy	13:50	66.0	69.8	68.1	<Baseline	73.0	75	N
5-Aug-21	Fine	14:10	66.0	69.8	68.3	<Baseline	73.0	75	N
11-Aug-21	Sunny	11:15	65.3	69.6	68.1	<Baseline	73.0	75	N
17-Aug-21	Sunny	13:35	66.2	70.5	68.9	<Baseline	73.0	75	N
23-Aug-21	Fine	10:50	66.9	71.1	69.5	<Baseline	73.0	75	N
30-Aug-21	Cloudy	13:50	66.0	69.8	68.1	<Baseline	73.0	75	N
7-Oct-21	Fine	10:45	65.8	71.1	69.7	<Baseline	73.0	75	N
15-Oct-21	Fine	15:40	68.2	71.4	70.1	<Baseline	73.0	75	N
21-Oct-21	Sunny	11:15	66.1	69.7	68.8	<Baseline	73.0	75	N
25-Oct-21	Sunny	11:00	65.2	69.0	67.8	<Baseline	73.0	75	N

+ - Façade measurement

Appendix H Regular Construction Noise Monitoring Results



Shatin Central Link Contract No. 1123
Entrusted Work for Road P2 & other roads and Slip Road 3

Graphical Presentation of Impact Noise Monitoring Results (Aug to Oct 2021)

Date: March 2022

Appendix H

APPENDIX I

Event Action Plan

Appendix I Event Action Plan

Event / Action Plan for Construction Dust Monitoring

EVENT	ACTION			
	ET	**IEC**	**ER**	**Contractor**
ACTION LEVEL				
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. Identify source(s), investigate the causes of exceedance and propose remedial measures; 2. Implement remedial measures; 3. Amend working methods agreed with the ER as appropriate.
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. Checking 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.

Appendix I Event Action Plan

EVENT	ACTION			
	ET	**IEC**	**ER**	**Contractor**
LIMIT LEVEL				
Exceedance for one sample	1. Identify source, investigate the causes of exceedance and propose remedial measures; 2. Inform ER, Contractor and EPD; 3. Repeat measurement to confirm finding; 4. Increase monitoring frequency to daily; 5. Assess effectiveness of Contractor's remedial actions and keep IEC, EPD and ER informed of the results.	1. Checking monitoring data submitted by ET; 2. Check Contractor's working method; 3. Discuss with ET and Contractor on possible remedial measures; 4. Advise the ER on the effectiveness of the proposed remedial measures; 5. Supervise implementation of remedial measures.	1. Confirm receipt of notification of failure in writing; 2. Notify Contractor; 3. Ensure remedial measures properly implemented.	1. Take immediate action to avoid further exceedance; 2. Submit proposals for remedial actions to IEC within 3 working days of notification; 3. Implement the agreed proposals; 4. Amend proposal if appropriate.
Exceedance for two or more consecutive samples	1. Notify IEC, ER, Contractor and EPD; 2. Identify source; 3. Repeat measurement to confirm findings; 4. Increase 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 consolidation with the IEC, agree with the Contractor on the remedial measures to be implemented; 4. Ensure remedial measures properly implemented; 5. If exceedance continues, consider what portion of the work is responsible and instruct the Contractor to stop that portion of work until the exceedance is abated.	1. Take immediate action to avoid further exceedance; 2. Submit proposals for remedial actions to IEC within 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.

Appendix I Event Action Plan

Event and Action Plan for Construction Noise Monitoring

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

APPENDIX J

Cumulative Statistics of Exceedances, Complaints, Notification of Summons and Successful Prosecutions

Appendix H

Cumulative Statistics on Complaints, Notifications of Summons and Successful Prosecutions

	Date Received	Subject	Status	Total no. received in this month	Total no. received since project commencement
Environmental complaints	-	-	-	0	0
Notification of summons	-	-	-	0	0
Successful Prosecutions	-	-	-	0	0

APPENDIX K

Waste Flow Table

MONTHLY SUMMARY WASTE FLOW TABLE

Contract No.: SCL 1123 - CEDD Entrusted Work for Road P2 & other roads and Slip Road 3
Reporting Month: August to October 2021

Monthly Summary Waste Flow Table for 2021

Month	Actual Quantities of Inert C&D Materials Generated Monthly						Actual Quantities of C&D Wastes Generated Monthly					Actual Quantities of Marine Dumping Monthly	
	Total Quantity Generated	Hard Rock and Large Broken Concrete	Reused in the Contract	Reused in Other Projects	Disposed as Public Fill	Imported Fill	Metals	Paper / Cardboard Packaging	Plastics	Chemical Waste	Others, e.g. general refuse	Type 1	Type 2
	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000m^3)	(in '000m^3)	(in '000m^3)
Jan	0.958	0.000	0.000	0.000	0.958	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Feb	0.598	0.000	0.000	0.000	0.598	0.051	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Mar	0.700	0.000	0.000	0.000	0.700	0.097	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Apr	0.741	0.000	0.000	0.000	0.741	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
May	0.176	0.000	0.000	0.000	0.176	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Jun	0.070	0.000	0.000	0.000	0.070	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
July	0.315	0.000	0.000	0.000	0.315	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.000
August	0.525	0.000	0.000	0.000	0.525	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
September	0.112	0.000	0.000	0.000	0.112	0.000	0.000	0.000	0.000	0.000	0.011	0.000	0.000
October	0.272	0.000	0.000	0.000	0.272	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
November													
December													
Total	4.467	0.000	0.000	0.000	3.558	0.148	0.000	0.000	0.000	0.000	0.001	0.000	0.000
Total (Reporting Months)	0.909	0.000	0.000	0.000	0.909	0.000	0.000	0.000	0.000	0.000	0.011	0.000	0.000