

Our ref: 12-3-2021

12-3-2021

By hand

Environmental Protection Department
Environmental Assessment Division
Metro Assessment Group
Kowloon Section (2)
27th floor, Southorn Centre,
130 Hennessy Road,
Wan Chai, Hong Kong
(Attn: Mr. TANG Ho Him, Matthew)

Dear Mr. TANG,

Contract No. EDO 15/2018

Environmental Monitoring Works for Contract No. ED/2018/01 – Kai Tak Development – Stage 4 infrastructure at the Former Runway and South Apron

Submission of Monthly EM&A Report for February 2021

I refer to the Environment Permit (EP) No. EP-337/2009 and EP-445/2013/A for the captioned project.

Pursuant to Condition 3.3 of the EP-337/2009 and Condition of the 3.2 of the EP-445/2013/A, please find enclosed four hard copies and one electronic copy of Monthly EM&A Report for February 2021, which has been certified by the ET leader and verified by the IEC for your reference.

Thank you very much for your attention and please feel free to contact Mr. Lee at 2618 2166 should you require further information.

Yours faithfully,

For and on behalf of

Ka Shing Management Consultant Limited

AKCL

Applied knowledge center limited

Company Secretary

Encl. Monthly EM&A report in February 2021

Environmental Monitoring and Audit Report
for
Contract No. ED/2018/01 –
Kai Tak Development – Stage 4 infrastructure at the
former runway and south apron

Contract No.: EDO 15/2018

February 2021

(Version 1.1)

Certified By:  _____

(Environmental Team Leader)

Ref.: CEDKTDS4EM00_0_0140L.21

12 March 2021

AECOM Asia Company Limited
8/F, Grand Central Plaza, Tower 2
138 Shatin Rural Committee Road
Shatin, Hong Kong

By Post and Email

Attention: Mr. Clive Cheng

Dear Sir,

**Re: Contract No. ED/2018/01 – Kai Tak Development
Stage 4 Infrastructure at the Former Runway and South Apron**

Monthly EM&A Report for February 2021

Reference is made to the Environmental Team's submission of the Monthly EM&A Report for February 2021 (Version 1.1) certified by the ET Leader and provided to us via email on 12 March 2021. Please be informed that we have no adverse comment on the captioned submission. We hereby verify the captioned submission in accordance with Condition 3.3 of EP-337/2009 and Condition 3.2 of EP-445/2013/A.

The ET Leader is reminded that it is the ET's responsibility to ensure the reported information be true, valid and correct as per Condition 3.4 of EP-337/2009 and Condition 3.3 of EP-445/2013/A.

Thank you for your attention. Please do not hesitate to contact the undersigned should you have any queries.

Yours faithfully,

For and on behalf of

Ramboll Hong Kong Limited



Manson Yeung

Independent Environmental Checker

c.c.	CEDD	Attn.: Mr. Ronald Siu	Fax: 2739 0076
	Ka Shing	Attn.: Mr. Chan Pang	By email
	Penta-Ocean	Attn.: Mr. Daniel Ho	Fax: 2572 4080

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EXECUTIVE SUMMARY

1. This is the 14th Monthly Environmental Monitoring & Audit (EM&A) report which summaries the findings of the EM&A Programme during the reporting period from 1 to 28 February 2021.

Breaches of Action and Limit Levels

2. 1-hour TSP monitoring was conducted as scheduled in the reporting month. No Action/Limit Level exceedance was recorded.
3. 24-hour TSP monitoring was conducted as scheduled in the reporting month. No Action/Limit Level exceedance was recorded.
4. Construction noise monitoring was conducted as scheduled in the reporting month. No Action/Limit Level exceedance was recorded.
5. Summary of the non-compliance in the reporting month for the Project is tabulated in Table I.

Table I Non-compliance Record in the Reporting Month

Parameter	No. of Exceedance		Action Taken
	Action Level	Limit Level	
1-hr TSP	0	0	N/A
24-hr TSP	0	0	N/A
Construction noise	0	0	N/A

Complaint log

6. No complaint was received in the reporting month. Summary of complaints in the reporting month is tabulated in Table II.

Table II Summary of complaints in the Reporting Month

Date of complaint received	Date of complaint	Description of complaint	Investigation / Recommendations / Action take	Close-out date / Status
No complaint	NA	NA	NA	NA

Date of complaint received	Date of complaint	Description of complaint	Investigation / Recommendations / Action take	Close-out date / Status
was received in the reporting month.				

Notifications of summons and successful prosecutions

7. No notification of summons and successful prosecutions was received in the reporting month. Summary of summons and successful prosecutions in the reporting month is tabulated in Table III.

Table III Summary of summons and successful prosecutions in the Reporting Month

Date of receiving notification of summons or prosecutions	Date of event	Description of event	Action take	Close-out date / Status
No notification of summons and successful prosecutions were received in the reporting month.	NA	NA	NA	NA

Report changes

8. There was no reporting change in the reporting month.

Key construction works in the reporting month

9. Major construction activities undertaken during the reporting month included:

- North Approach Ramp – Construction of wall, intermediate slab and column
- Bridge D3 – Construction of pile cap & pier
- North Depressed Road – Construction of wall & top slab / dismantling of wailing & strut of cofferdam
- Underpass – Excavation and construction of base slab
- South Approach Ramp – Installation of sheet pile and excavation
- Landscaped Deck – Construction of bored piles
- District Cooling System seawater intake box culvert - Construction of cofferdam
- Noise barrier – Installation of steel structure and PMMA panel
- Lift 3 – Construction of cofferdam for footing

Future key issues

10. The future key issues and potential impact in the coming month are given in Table IV.

Table IV Summary of future key issues and potential impact in the coming month

Future key issues in the coming month	Potential impact
North Approach Ramp – Construction of wall, intermediate slab and column	Noise and Air Quality
Bridge D3 – Construction of pile cap and pier	Noise and Air Quality
North Depressed Road – Construction of wall & top slab / dismantling of wailing & strut of cofferdam	Noise and Air Quality
Underpass – Excavation and construction of base slab	Noise and Air Quality
South Approach Ramp – Installation of sheet pile and excavation	Noise and Air Quality
Landscaped Deck – Construction of bored piles	Noise and Air Quality
District Cooling System seawater intake box culvert - Construction of cofferdam and box structure	Noise and Air Quality
Noise barrier – Installation of steel structure and PMMA panel	Noise and Air Quality
Lift 3 – Construction of cofferdam for footing	Noise and Air Quality
Lift 4 – Excavation for footing	Noise and Air Quality
South Depressed Road – Excavation and Installation of Lateral Support works	Noise and Air Quality

INTRODUCTION

Project Background

- 1.1 The Kai Tak Development (KTD) is located in the south-eastern part of Kowloon Peninsula of the HKSAR, comprising the apron and runway areas of the former Kai Tak Airport and existing waterfront areas at To Kwa Wan, Ma Tau Kok, Kowloon Bay, Kwun Tong and Cha Kwo Ling.
- 1.2 Contract No. ED/2018/01 - Kai Tak Development – stage 4 infrastructure at the former runway and south apron (The Project), comprises mainly the design and construction of a dual two-lane Road D3 (Metro Park Section), a single 2-lane Road L12d, a salt water pumping station, a sewage pumping station, landscaped deck and promenade above and adjoining Road D3 (Metro Park Section) respectively, some remaining road works at Road L14, noise barrier at Road D3A, and other associated works at the former runway and south apron. The proposed works are shown in Figure 1 and Figure 2. During the course of the Contract No. ED/2018/01, there may be modification of noise barriers in association with the construction of footbridges connecting to the landscaped deck of Road D3A by developers of adjacent lands (Figure 3). The proposed works and site boundary are shown in Figure 4.
- 1.3 Civil Engineering and Development Department (CEDD) had completed an Environmental Impact Assessment (EIA) and is the Permit Holder.
- 1.4 The construction work under ED/2018/01 comprises the EM&A Manuals (EIA Register Nos. AEIAR-130/2009 for Kai Tak Development and EIA Register Nos. AEIAR-170/2013 for Roads D3A and D4A) and Environmental Permit (EP) Nos. EP-337/2009, EP-445/2013 and Variation to the EP (VEP) No. EP-445/2013/A.
- 1.5 Air quality and noise monitoring has been proposed in the EM&A Manual with EIA Register Nos. AEIAR-130/2009 for Kai Tak Development while no air quality and noise monitoring are proposed in EM&A Manual with EIA Register Nos. AEIAR-170/2013 for Roads D3A and D4A.

Project Organization

1.6 The project organization chart and with respect to the EM&A programme is shown in Appendix A. Information of key personnel contact names and telephone numbers are summarized in Table 1.1.

Table 1.1 Contact Information of Key Personnel

Party	Role	Contact Person	Position	Phone No.	Fax No.
Civil Engineering and Development Department (CEDD)	Project Proponent	Mr. Ronald Siu	Senior Engineer	3579 2452	2739 0076
		Mr. Edwin Chan	Engineer	3579 2458	2739 0076
AECOM Asia Co. Ltd. (AECOM)	Supervisor (act as Engineers' Representative (ER) listed in EM&A Manual)	Mr. Clive Cheng	CRE	3911 4201	3911 4288
Ramboll Hong Kong Limited (Ramboll)	Independent Environmental Checker (IEC)	Mr. Manson Yeung	IEC	9700 6767	3465 2899
Ka Shing Management Consultant Limited (Ka Shing)	Environmental Team (ET)	Mr. Chan Pang	ET Leader	6082 2973	2120 7752
Penta-Ocean Construction Co., Ltd. (Penta-Ocean)	Contractor	Mr. Tony Tang	Environmental Officer	9433 2628	3465 8898




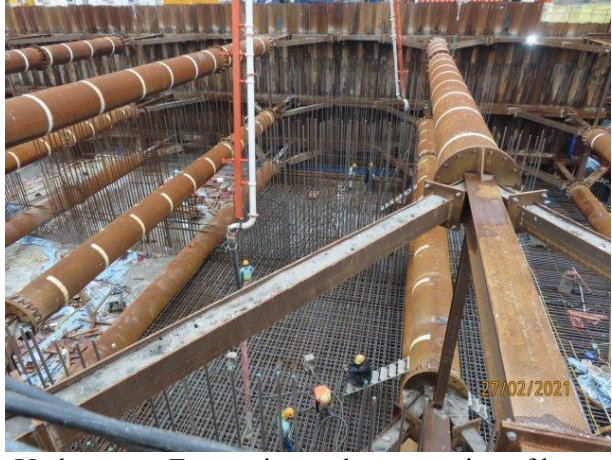
Works Area and Construction Programme

1.7 The construction works commenced on 20 January 2020. The construction programme of the Project is given in Appendix B.

Construction works undertaken during reporting month

1.8 Major construction works of the Project in the reporting month are summarized in Table 1.2:

Table 1.2 Major activities of the Project during reporting month

 <p>North Approach Ramp – Construction of wall, intermediate slab and column</p>	 <p>Bridge D3 – Construction of pile cap & pier</p>
 <p>North Depressed Road – Construction of wall & top slab / dismantling of wailing & strut of cofferdam</p>	 <p>Underpass – Excavation and construction of base slab</p>



South Approach Ramp – Installation of sheet pile and excavation



Landscaped Deck – Construction of bored piles



District Cooling System seawater intake box culvert - Construction of cofferdam



Noise barrier – Installation of steel structure and PMMA panel



Lift 3 – Construction of cofferdam for footing

Submission Status under the Environmental Permits

1.9 The status of required submission under Environmental Permit (EP) conditions under EP-337/2009, EP-445/2013 and Variation to the EP (VEP) No. EP-445/2013/A are summarized in Table 1.3.

Table 1.3 Summary of Status of Required Submission of EPs

EP Condition EP-337/2009	EP Condition EP-445/2013	EP Condition EP-445/2013/A	Submission	Submission Date
Condition 1.11	Condition 1.12	Condition 1.12	Notification of Commencement Date of Construction of the Project	6 Jan 2020
Condition 2.3	Condition 2.3	Condition 2.3	Management Organization of Main Construction Companies	9 Sep 2019
Condition 2.3	Condition 2.3	Condition 2.3	Updated Management Organization of Main Construction Companies	28 May 2020
Condition 2.4	Condition 2.4	Condition 2.4	Design Drawings	6 Jan 2020
Condition 2.11	Condition 2.5	Condition 2.5	Landscape Mitigation Plans	13 Nov 2020
Condition 3.2	NA	NA	Baseline Monitoring Report	2 Jan 2020
Condition 3.2	NA	NA	Revised Baseline Monitoring Report	28 Mar 2020
Condition 3.3	Condition 3.2	Condition 3.2	Monthly EM&A Report (January 2021)	11 Feb 2021

2. AIR QUALITY MONITORING

Monitoring Requirements

2.1 In accordance with EM&A Manuals (EIA Register Nos. AEIAR-130/2009), impact air quality monitoring shall be carried out during the construction phase of the Project. For regular impact monitoring, a sampling frequency of at least once in every six days will be strictly observed at all of the monitoring stations for 24-hour TSP. For 1-hour TSP monitoring, the sampling frequency of at least three times in every six days will be undertaken when the highest dust impact occurs.

Monitoring Locations

2.2 Three designated monitoring stations were selected for air quality monitoring programme. Impact air quality monitoring was conducted at three air quality monitoring stations in the reporting month. Table 2.1 describes the air quality monitoring locations, which are also depicted in Figure 5.

Table 2.1 Locations of Air Quality Monitoring Stations

Air Quality Monitoring Locations for the Project	Location of Measurement
AM3 - Sky Tower	Podium floor near T7
AM4(A) - The Hong Kong Society for the Blind's Factory cum Sheltered Workshop	Rooftop
AM7 - Hong Kong Children's Hospital	Rooftop

Monitoring Parameters, Frequency and Duration

2.3 The air quality monitoring locations and monitoring frequency are listed in Table 2.2.

Table 2.2 Air Quality Monitoring Parameters, Frequency and Duration

Air Monitoring Station	Location for Measurement	Parameter	Duration	Frequency
AM3 - Sky Tower	Podium floor near T7	- 24-hour average TSP - 1-hour average TSP	- 24 hours	- Once every 6 days
AM4(A) - The Hong Kong Society for the Blind's Factory cum Sheltered Workshop	Rooftop		- 1 hour	- Three times every 6 days
AM7 - Hong Kong Children's Hospital	Rooftop			

2.4 The monitoring schedule for reporting month and next month is presented in Appendix C.

2.5 Photographic records of the impact monitoring setup are shown in Appendix D.

Monitoring Equipment

2.6 24-hour average TSP and 1-hour average TSP levels were measured for impact monitoring. 24-hour average TSP levels were measured by the High Volume Samplers (HVS) and 1-hour average TSP levels were measured by direct reading method to indicate short-term impacts. Wind data monitoring equipment was set up at conspicuous locations for logging wind speed and wind direction near to the dust monitoring locations. Table 2.3 summarizes the equipment to be used in the air quality monitoring.

Table 2.3 Air Quality Monitoring Equipment

Equipment	Model	Quantity
HVS Sampler	TE-5170 X c/w of TSP sampling inlet	3
Calibrator	TISCH TE-5025A	1
1-hour TSP Dust Meter	TSI Model AM510 SidePak Personal Aerosol Monitor	2
Wind Anemometer	Davis Vantage Pro2 Weather Station	1

2.7 High volume samplers (HVS) (TE-5170 X c/w of TSP sampling inlet) comprising with appropriate sampling inlets were employed for 24-hour TSP monitoring. The sampler was composed of a motor, a filter holder, a flow controller and a sampling inlet and its performance specification complied with that required by USEPA Standard Title 40, Code of Federation Regulations Chapter 1 (Part 50).

2.8 Calibration certificates, catalogue of equipment are given in Appendix E.

Monitoring Methodology and QA/QC Procedure

24-hour TSP Monitoring

Operating/Analytical Procedures

2.9 Setup criteria of HVS are shown as follows:

- A horizontal platform with appropriate support to secure the samplers against gusty wind was provided.
- No two samplers were placed less than 2m apart.
- The distance between the sampler and an obstacle, such as buildings, was at least twice the height that the obstacle protrudes above the sampler.
- A minimum of 2m of separation from walls, parapets and penthouses was set for the rooftop samples.
- A minimum of 2m separation from any supporting structure, measured horizontally was set.
- No furnaces or incineration flues was nearby.
- Airflow around the sampler was unrestricted.
- The sampler was more than 20m from the dripline.
- Any wire fence and gate, to protect the samplers, was not caused any obstruction during monitoring.
- Permission were obtained to setup the samplers and to obtain access to the monitoring stations.
- A secured supply of electricity was provided to operate the samplers.

2.10 Prior to the commencement of the dust sampling, the flow rate of the HVS was properly set (between 1.1 m³/min. and 1.7 m³/min.) in accordance with the manufacturer's instruction to within the range recommended in USEPA Standard Title 40, CFR Part 50.

2.11 For TSP sampling, Glass Fiber Filter Media 8" x 10" have a collection efficiency of > 99 % for particles of 0.3 µm diameter were used.

2.12 The power supply was checked to ensure the sampler worked properly. On sampling, the sampler was operated for 5 minutes to establish thermal equilibrium before placing any filter media at the designated air monitoring station.

- 2.13 The filter holding frame was removed by loosening the four nuts and a weighted and conditioned filter was carefully centered with the stamped number upwards, on a supporting screen.
- 2.14 The filter was aligned on the screen so that the gasket formed an airtight seal on the outer edges of the filter. Then the filter holding frame was tightened to the filter holder with swing bolts. The applied pressure was sufficient to avoid air leakage at the edges.
- 2.15 The shelter lid was closed and secured with the aluminium strip.
- 2.16 The timer was programmed. Information was recorded on the record sheet, which included the starting time, the weather condition and the filter number (the initial weight of the filter paper can be found out by using the filter number).
- 2.17 After sampling, the filter was removed from the HVS and put into a clean and labeled seal plastic bag to avoid cross contamination. The elapsed time was also be recorded. The sampled filters were sent to the Castco Testing Centre Limited for weighting.
- 2.18 Before weighing, all filters were equilibrated in a conditioning environment for 24 hours. The conditioning environment temperature was between 25°C and 30°C and not vary by more than $\pm 3^\circ\text{C}$; the relative humidity (RH) was less than 50% and not vary by more than $\pm 5\%$. A convenient working RH is 40%.

Maintenance/Calibration

2.19 The following maintenance/calibration are required for the HVS:

- The HVS and their accessories were properly maintained. Appropriate maintenance such as routine motor brushes replacement and electrical wiring checking were made to ensure that the equipment and necessary power supply are in good working condition.
- High volume samplers were calibrated with at bi-monthly intervals using TE-5025A Calibration Kit throughout all stages of the air quality monitoring.

1-hour TSP Monitoring

Measurement Procedures

2.20 The measurement procedures of the 1-hour TSP were conducted in accordance with the

Manufacturer's Instruction Manual as follows:

- Set up the dust meter on a tripod at 1.2m level.
- Turned on the dust meter and check the battery, if too low, change new ones. Pointed the meter to the source area or the planned measurement area.
- The zero calibration of the instrument was conducted before and after each sampling.
- TSP levels were recorded for 1-hour with 5-minute data logging interval.
- Recorded down the general meteorological conditions, Test ID no., start/end time, initial/final reading at each sampling location for data processing.
- Recorded any activities that may generate dust during measurement period.

Maintenance/Calibration

2.21 The following maintenance/calibration are required for the direct dust meters:

- To validity the accuracy of dust meter, compare the results measured by dust meter and HVS by direct reading method every 12 months throughout all stages of the air quality monitoring.

Wind Data Monitoring

2.22 Wind Anemometer was installed at the roof-top of AM7 - Hong Kong Children's Hospital with 10m above ground and clear of constructions or turbulence caused by the buildings.

2.23 The wind data was captured by a data logger and the data was downloaded at least once per month for analysis.

2.24 The wind data monitoring equipment will be re-calibrated at least once every six months.

2.25 Wind direction is divided into 16 sectors of 22.5 degrees each.

2.26 Details of weather information during the monitoring period are shown in Appendix F.

Action and Limit Levels

2.27 The Action and Limit Levels of 24-hour average TSP and 1-hour average TSP are summarized

in Table 2.4 and Table 2.5 respectively.

Table 2.4 Action and Limit Levels of 24-hour average TSP for Construction Dust Monitoring

Parameter	Air Monitoring Station	Action Level, $\mu\text{g}/\text{m}^3$	Limit Level, $\mu\text{g}/\text{m}^3$
24-hour average TSP	AM3	182	260
	AM4(A)	187	260
	AM7	181	260

Table 2.5 Action and Limit Levels of 1-hour average TSP for Construction Dust Monitoring

Parameter	Air Monitoring Station	Action Level, $\mu\text{g}/\text{m}^3$	Limit Level, $\mu\text{g}/\text{m}^3$
1-hour average TSP	AM3	297	500
	AM4(A)	326	500
	AM7	315	500

Impact Air Quality Monitoring results

2.28 Impact monitoring results for 24-hour average TSP and 1-hour average TSP levels at the designed air quality monitoring stations are summarized in Table 2.6 and Table 2.7 respectively.

Table 2.6 Summary of 24-hour average TSP Monitoring Data during the reporting month

Air Monitoring Station	Average TSP Concentration, $\mu\text{g}/\text{m}^3$	Range, $\mu\text{g}/\text{m}^3$	Action Level, $\mu\text{g}/\text{m}^3$	Limit Level, $\mu\text{g}/\text{m}^3$
AM3	81	35 – 127	182	260
AM4(A)	97	21 – 137	187	260
AM7	85	23 – 138	181	260

Table 2.7 Summary of 1-hour average TSP Monitoring Data during the reporting month

Air Monitoring Station	Average TSP Concentration, $\mu\text{g}/\text{m}^3$	Range, $\mu\text{g}/\text{m}^3$	Action Level, $\mu\text{g}/\text{m}^3$	Limit Level, $\mu\text{g}/\text{m}^3$
AM3	52	28 – 91	297	500
AM4(A)	64	18 – 96	326	500
AM7	53	14 – 77	315	500

2.29 There was no Action and Limit Level exceedance of 24-hour average TSP and 1-hour average TSP levels recorded during the reporting month.

2.30 Graphical presentation and detailed monitoring results of 24-hour average TSP and 1-hour

average TSP levels are shown in Appendix G and Appendix H respectively.

2.31 The Event and Action Plan is provided in Appendix I.

2.32 Non-project related construction activities in the adjacent construction sites were observed during the reporting period and may affect the monitoring results.

3. NOISE MONITORING

Monitoring Requirements

- 3.1 In accordance with EM&A Manuals (EIA Register Nos. AEIAR-130/2009), impact noise monitoring shall be carried out during the construction phase of the Project.
- 3.2 Regular monitoring, $L_{Aeq, 30\text{-minute}}$, for each station will be on a weekly basis and conduct one set of measurements between 0700 – 1900 on normal weekdays.
- 3.3 If construction works are extended to include works during 1900 – 0700 as well as public holidays and Sundays, additional weekly impact monitoring will be carried out during the respective restricted hours periods.

Monitoring Locations

- 3.4 Two designated monitoring stations were selected for noise monitoring programme. Impact noise monitoring was conducted at two noise monitoring stations in the reporting month. Table 3.1 describes the noise monitoring locations, which are also depicted in Figure 6.

Table 3.1 Locations of Noise Monitoring Stations

Noise Monitoring Locations for the Project	Location of Measurement
M11 - The Hong Kong Society for the Blind's Factory cum Sheltered Workshop	Rooftop (Façade)
M12 - Hong Kong Children's Hospital	Rooftop (Façade)

Monitoring Parameters, Frequency and Duration

- 3.5 The noise monitoring locations and monitoring frequency are listed in Table 3.2.

Table 3.2 Noise Monitoring Parameters, Frequency and Duration

Noise Monitoring Station	Location for Measurement	Parameter	Frequency and Duration
M11 - The Hong Kong Society for the Blind's Factory cum Sheltered Workshop	Rooftop (Façade)	L_{Aeq} , L_{A10} and L_{A90}	30 - minutes measurement at each monitoring station between 0700 – 1900 hrs on normal weekdays (Monday to Saturday) at frequency of once per week.
M12 - Hong Kong Children's Hospital	Rooftop (Façade)		

3.6 The monitoring schedule for reporting month and next month is presented in Appendix C.

3.7 Photographic records of the monitoring setup are shown in Appendix D.

Monitoring Equipment

3.8 As referred to in the Technical Memorandum (TM) issued under the Noise Control Ordinance (NCO), sound level meters in compliance with the IEC 61672-1 (Type 1) standard [this standard replaced the International Electrotechnical Commission Publications 60651:1979 (Type 1) and 60804:1985 (Type 1)] were used for noise monitoring. Table 3.3 summarizes the equipment to be used in the noise monitoring.

Table 3.3 Noise Monitoring Equipment

Equipment	Model	Quantity
Sound Level Meter	RION NL52	2
Sound Level Calibrator	RION NC 74	2
Air Flowmeter	TSI TA440 Air Velocity	2

3.9 Calibration certificates, catalogue of equipment are given in Appendix J.

Monitoring Methodology and QA/QC Procedure

3.10 The noise level measurement was conducted at 1m from the exterior of the nearby noise sensitive receivers building façade and at 1.2m above the ground and facing to the source area or the planned measurement area.

3.11 No noise measurement was conducted in the presence of fog, rain, wind with a steady speed exceeding 5 m/s or wind with gusts exceeding 10 m/s. Air flow was measured by air flow

meter.

3.12 Turned on the sound level meter and check the battery, if too low, change new ones.

3.13 Calibration was conducted immediately prior to and after each noise measurement, the accuracy of the sound level meters was checked by using sound calibrator generating 1,000 Hz with 94dB. Measurement data was found to be valid only if the calibration levels from before and after the noise measurement agreed to within 1.0 dB.

3.14 Noise level was recorded.

3.15 Recorded any activities that may generate noise during measurement period.

Maintenance and Calibration

3.16 The microphone head of the sound level meter and calibrator was cleaned with a soft cloth at quarterly intervals.

3.17 The sound level meter and sound calibrator were calibrated annually.

3.18 Calibration for sound level meter was conducted immediately prior to and following each noise measurement by using sound calibrator generating a known sound pressure level at a known frequency (1,000 Hz with 94dB). Measurements may be accepted as valid only if the calibration levels from before and after the noise measurement agree to within 1.0 dB.

Action and Limit Levels

3.19 The Baseline Noise Levels and Action and Limit Levels for construction noise is presented in Table 3.4.

Table 3.4 Baseline Noise Level and Action and Limit Levels for Construction Noise Monitoring

Time Period	Noise Monitoring Station	Baseline Noise Levels, dB (A)	Action Level	Limit Level [^]
0700 – 1900 on normal weekdays	M11	68.3	When one documented complaint is received.	75 dB(A)
	M12	61.9		

Note: ^ If works are to be carried out during restricted hours, the conditions stipulated in the Construction Noise Permit

(CNP) issued by the Noise Control Authority have to be followed.

Impact Noise Monitoring results

3.20 Impact noise monitoring results at the designed noise monitoring stations are summarized in Table 3.5 respectively.

Table 3.5 Summary of Noise Monitoring Data during the reporting month

Noise Monitoring Station	Measured $L_{Aeq, 30-min}$, Average, dB(A)	Measured $L_{Aeq, 30-min}$, Range, dB(A)	Action Level	Limit Level [^]
M11	69.7	62.8 – 72.1	When one documented complaint is received	75 dB(A)
M12	65.2	64.2 – 67.0		

Note: [^] If works are to be carried out during restricted hours, the conditions stipulated in the Construction Noise Permit (CNP) issued by the Noise Control Authority have to be followed.

3.21 There were no action level exceedance of noise monitoring and limit level exceedance of $L_{Aeq, 30min}$ recorded during the reporting month.

3.22 Graphical presentation and detailed monitoring results are shown in Appendix K.

3.23 The Event and Action Plan is provided in Appendix L.

3.24 Non-project related construction activities in the adjacent construction sites were observed during the reporting period and may affect the monitoring results.

4. COMPARISON OF EM&A RESULTS WITH EIA PREDICTIONS

4.1 The environmental impacts predictions were given in Agreement No. CE 35/2006(CE) Kai Tak Development Engineering Study cum Design and Construction of Advance Works - Investigation, Design and Construction - Kai Tak Development Environmental Impact Assessment Report, EIA Register Nos. AEIAR-130/2009 for Kai Tak Development (The EIA Report). The EM&A data was compared with the EIA predictions as summarized in Table 4.1 to Table 4.3.

Table 4.1 Comparison of 24-hour average TSP Monitoring Data with EIA predictions

Air Monitoring Station	ASR No. in EIA report	Predicted Cumulative Maximum 24-hour average TSP concentration		Measured 24-hr average TSP in Reporting Month (February 2021) $\mu\text{g}/\text{m}^3$
		Scenario 1 (Mid 2009 to Mid 2013), $\mu\text{g}/\text{m}^3$	Scenario 2 (Mid 2013 to Late 2016), $\mu\text{g}/\text{m}^3$	
AM3 - Sky Tower	A40 [^]	106	138	35 – 127
AM4(A) - The Hong Kong Society for the Blind's Factory cum Sheltered Workshop	A43 [^]	123	195	21 – 137
AM7 – Hong Kong Children's Hospital	PA60	NA	NA	23 – 138

Note:

[^] Prediction results are given in the Table 3.13 of the EIA report EIA Register Nos. AEIAR-130/2009 for Kai Tak Development.

Table 4.2 Comparison of 1-hour average TSP Monitoring Data with EIA predictions

Air Monitoring Station	ASR No. in EIA report	Predicted Cumulative Maximum 1-hour average TSP concentration		Measured 1-hr average TSP in Reporting Month (February 2021) $\mu\text{g}/\text{m}^3$
		Scenario 1 (Mid 2009 to Mid 2013), $\mu\text{g}/\text{m}^3$	Scenario 2 (Mid 2013 to Late 2016), $\mu\text{g}/\text{m}^3$	
AM3 - Sky Tower	A40	217 [^]	247 [^]	28 – 91
AM4(A) - The Hong Kong Society for the Blind's Factory cum Sheltered Workshop	A43	283 [^]	409 [^]	18 – 96
AM7 – Hong Kong Children's Hospital	PA60	NA	NA	14 – 77

Note:

[^] Prediction results are given in the Table 3.13 of the EIA report EIA Register Nos. AEIAR-130/2009 for Kai Tak Development.

Table 4.3 Comparison of Noise Monitoring Data with EIA predictions

Noise Monitoring Station	NSR No. in EIA report	Predicted Mitigated Construction Noise Levels during Normal Daytime Working Hour L _{Aeq, 30min} , dB(A)	Measured Noise Level in Reporting Month (February 2021) L _{Aeq, 30min} , dB(A)
M11 - The Hong Kong Society for the Blind's Factory cum Sheltered Workshop	N18	50 – 76*	62.8 – 72.1
M12 - Hong Kong Children's Hospital	PN83, PN84, PN84A	NA	64.2 – 67.0

Note:

* Prediction results are given in the Table 3.20 of the EIA report EIA Register Nos. AEIAR-130/2009 for Kai Tak Development.

- 4.2 24-hour TSP monitoring results at AM3 and AM4(A) were recorded higher than the Scenario 1 (Mid 2009 to Mid 2013) prediction but lower than the Scenario 2 (Mid 2013 to Late 2016) in the EIA Report. Non-project related construction activities in the adjacent construction sites were observed during the reporting period and may affect the monitoring results.
- 4.3 No prediction in the EIA Report for 24-hour TSP monitoring results at AM7.
- 4.4 1-hour TSP monitoring results at AM3, AM4(A) were recorded lower than the prediction in the EIA Report.
- 4.5 No prediction in the EIA Report for 1-hour TSP monitoring results at AM7.
- 4.6 Noise monitoring results at M11 was recorded lower than the prediction in the EIA Report.
- 4.7 No prediction in the EIA Report for noise monitoring results at M12.

5. LANDSCAPE AND VISUAL MONITORING

5.1 In accordance with EM&A Manuals (EIA Register Nos. AEIAR-130/2009 and AEIAR-170/2013), Landscape and Visual Monitoring shall be carried out during the construction phase of the Project. Regular impact monitoring will be conducted at least once per week.

Results and Observations

5.2 Site inspections were carried out on a weekly basis to monitor the timely implementation of proper environmental management practices and mitigation measures in the Project site.

5.3 Site inspections were conducted on 5, 9, 18 and 25 February 2021 in the reporting month.

5.4 The summaries of site audits are attached in Table 5.1.

Table 5.1 Summary of observations of Landscape and Visual impact during the reporting month

Inspection Date	Key Observations	Recommendations / Actions	Close-out Date / Status
5 February 2021	No	NA	NA
9 February 2021	No	NA	NA
18 February 2021	No	NA	NA
25 February 2021	No	NA	NA

5.5 No non-compliance of the landscape and visual impact was recorded in the reporting month.

5.6 Should non-compliance of the landscape and visual impact occur, action in accordance with the action plan presented in Appendix M shall be performed.

6. ENVIRONMENTAL SITE INSPECTION AND AUDIT



Site Inspection


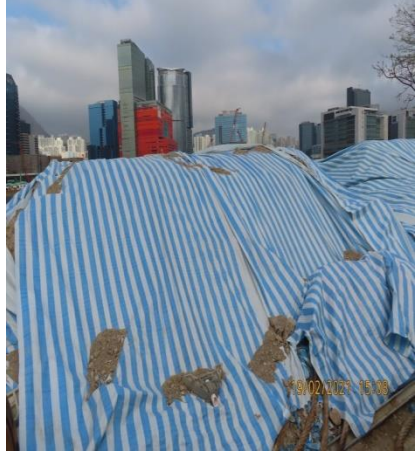


6.1 Site inspections were carried out on a weekly basis to monitor the timely implementation of proper environmental management practices and mitigation measures in the Project site.

6.2 Site inspections were conducted on 5, 9, 18 and 25 February 2021 in the reporting month.

6.3 The summaries of site audits are attached in Table 6.1.

Table 6.1 Summary of site inspections observations during the reporting month

Inspection Date	Key Observations	Recommendations / Actions	Close-out Date / Status
5 February 2021	 <p>Observation: The drip tray was missing under the diesel container</p>	 <p>Action Taken: Drip tray is used to dispatch the diesel container.</p>	Closed-out 9 February 2021
9 February 2021	No	NA	NA

Inspection Date	Key Observations	Recommendations / Actions	Close-out Date / Status
18 February 2021	 <p>Observation: The open stockpiles of construction materials on sites should be covered.</p>	 <p>Action Taken: The open stockpiles of construction materials on sites were covered.</p>	Closed-out 25 February 2021
25 February 2021	 <p>Observation: The open stockpiles of construction materials on sites should be covered.</p>	 <p>Follow-up: The open stockpiles of construction materials on sites still not covered.</p>	Pending 4 March 2021

Status of Waste Management

6.4 The amount of wastes generated by the major site activities of the work contracts within the Project during the reporting month is shown in Appendix N.

6.5 The Contractor was registered as a chemical waste producer for the Project. The Contractor was 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.

Status of Environmental Licenses, Notification and Permits

6.6 A summary of the relevant permits, licenses and/or notifications on environmental protection for the Project is shown in Table 6.2. Environmental licenses and notifications are reported in Appendix O.

Table 6.2 Summary of Environmental Licenses, Notifications and Permits

Environmental Licenses, Notifications and Permits	Ref. No.	Valid Form	Valid Till
Environmental Permit under EIAO	EP-337/2009	23 Apr 2009	N/A
	EP-445/2013	3 May 2013	N/A
	EP-445/2013/A	13 Aug 2014	N/A
Construction Dust Notification under APCO	445956	6 June 2019	N/A
Wastewater Discharge License under WPCO	WT00034610-2019	26 Sep 2019	30 Sep 2024
Waste Disposal Billing Account	7034450	28 June 2019	N/A
Registration as a Chemical Waste Producer	5218-286-P3182-03	18 Jul 2019	N/A
Construction Noise Permit	GW-RE0735-20	9 Sep 2020	6 Mar 2021
	GW-RE0991-20	26 Nov 2020	25 May 2021
	GW-RE1044-20	10 Dec 2020	01 June 2021
	GW-RE1074-20	18 Dec 2020	17 June 2021
	GW-RE0020-21	15 Jan 2021	11 June 2021
	GW-RE0021-21	15 Jan 2021	11 June 2021

Implementation Status of Environmental Mitigation Measures

6.7 The Contractor has implemented environmental mitigation measures and requires as stated in the EIA reports, the EP and the EM&A Manuals. The implementation status of the mitigation measures during the reporting month is summarized in Appendix P.

6.8 In response to the site audit findings, the Contractor carried out corrective actions with summary given in Appendix P.

Environmental Complaint and Non-compliance

6.9 No complaint was received in the reporting month. Summary of complaints in the reporting month is tabulated in Table 6.3.

Table 6.3 Summary of complaints in the Reporting Month

Date of complaint received	Date of complaint	Description of complaint	Investigation / Recommendations / Action take	Close-out date / Status
No complaint was received in the reporting month.	NA	NA	NA	NA

6.10 Complaint log and Complaint Investigation report are shown in Appendix Q.

Notifications of summons and successful prosecutions

6.11 No notification of summons and successful prosecutions was received in the reporting month. Summary of summons and successful prosecutions in the reporting month is tabulated in Table 6.4.

Table 6.4 Summary of summons and successful prosecutions in the Reporting Month

Date of receiving notification of summons or prosecutions	Date of event	Description of event	Action take	Close-out date / Status
No notification of summons and successful prosecutions were received in the reporting	NA	NA	NA	NA

Date of receiving notification of summons or prosecutions	Date of event	Description of event	Action take	Close-out date / Status
month.				

6.12 The summaries of cumulative environmental complaint, warning, summon and notification of successful prosecution for the Project is presented in Appendix Q.

7. FUTURE KEY ISSUES

Construction Programme in the coming month

7.1 The major construction activities and potential impacts in the next reporting month as follow:

Table 7.1 Summary of future key issues and potential impact in the coming month

Future key issues in the coming month	Potential impact
North Approach Ramp – Construction of wall, intermediate slab and column	Noise and Air Quality
Bridge D3 – Construction of pile cap and pier	Noise and Air Quality
North Depressed Road – Construction of wall & top slab / dismantling of wailing & strut of cofferdam	Noise and Air Quality
Underpass – Excavation and construction of base slab	Noise and Air Quality
South Approach Ramp – Installation of sheet pile and excavation	Noise and Air Quality
Landscaped Deck – Construction of bored piles	Noise and Air Quality
District Cooling System seawater intake box culvert - Construction of cofferdam and box structure	Noise and Air Quality
Noise barrier – Installation of steel structure and PMMA panel	Noise and Air Quality
Lift 3 – Construction of cofferdam for footing	Noise and Air Quality
Lift 4 – Excavation for footing	Noise and Air Quality
South Depressed Road – Excavation and Installation of Lateral Support works	Noise and Air Quality

7.2 The mitigation measures for environmental impact including Air Quality, Construction Noise, Water Quality, Chemical and Waste Management, Landscape and Visual shall be implemented:

- Sufficient watering of the works site with the active dust emitting activities,
- Limitation of the speed for vehicles on unpaved site roads,
- Properly cover the stockpiles,
- Good maintenance to the plant and equipment,
- Use of quieter plant and Quality Powered Mechanical Equipment (QPME),
- Provide movable noise barriers,
- Appropriate desilting/ sedimentation devices provided on site for treatment before discharge,
- Well maintain the drainage system to prevent the spillage of wastewater during heavy rainfall,

- Onsite waste sorting and implementation of trip ticket system,
- Good management and control on construction waste reduction,
- Erection of decorative screen hoarding,
- Strictly following the Environmental Permits and Licenses, and
- Provide sufficient mitigation measures as recommended in Approved EIA Reports.

Environmental Site Inspection and Monitoring Schedule for next month

7.3 The tentative schedule for weekly site inspection and air quality and noise monitoring in the next month is provided in Appendix C.

8. CONCLUSIONS

- 8.1 Environmental monitoring works were performed in the reporting month and all monitoring results were checked and reviewed.
- 8.2 1-hour TSP monitoring was conducted as scheduled in the reporting month. No Action/Limit Level exceedance was recorded.
- 8.3 24-hour TSP monitoring was conducted as scheduled in the reporting month. No Action/Limit Level exceedance was recorded.
- 8.4 Construction noise monitoring was conducted as scheduled in the reporting month. No Action/Limit Level exceedance was recorded.
- 8.5 No complaint was received in the reporting month.
- 8.6 No notification of summons and successful prosecutions was received in the reporting month.

Figure

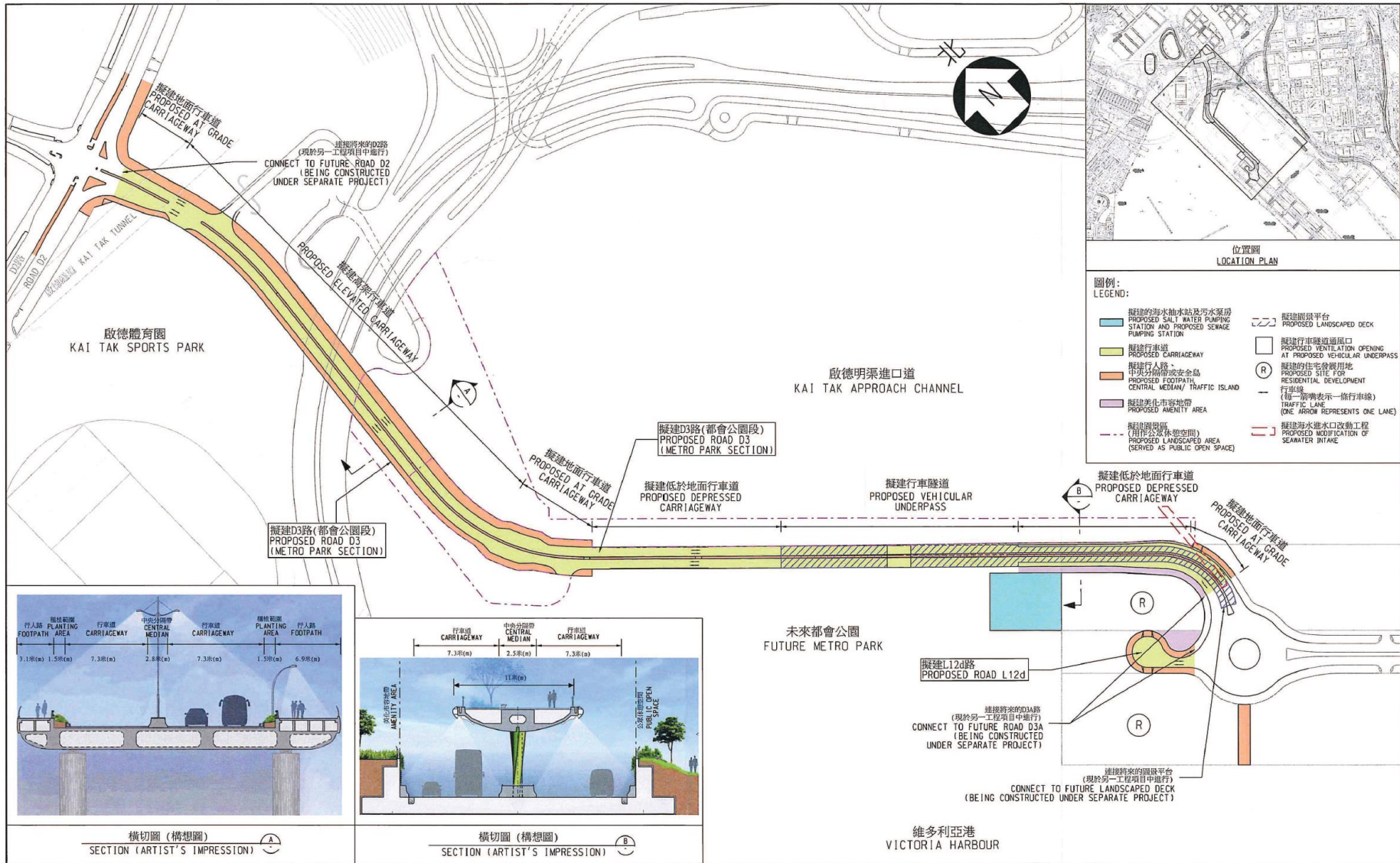


Figure 1 – Proposed works of Contract No. ED/2018/01

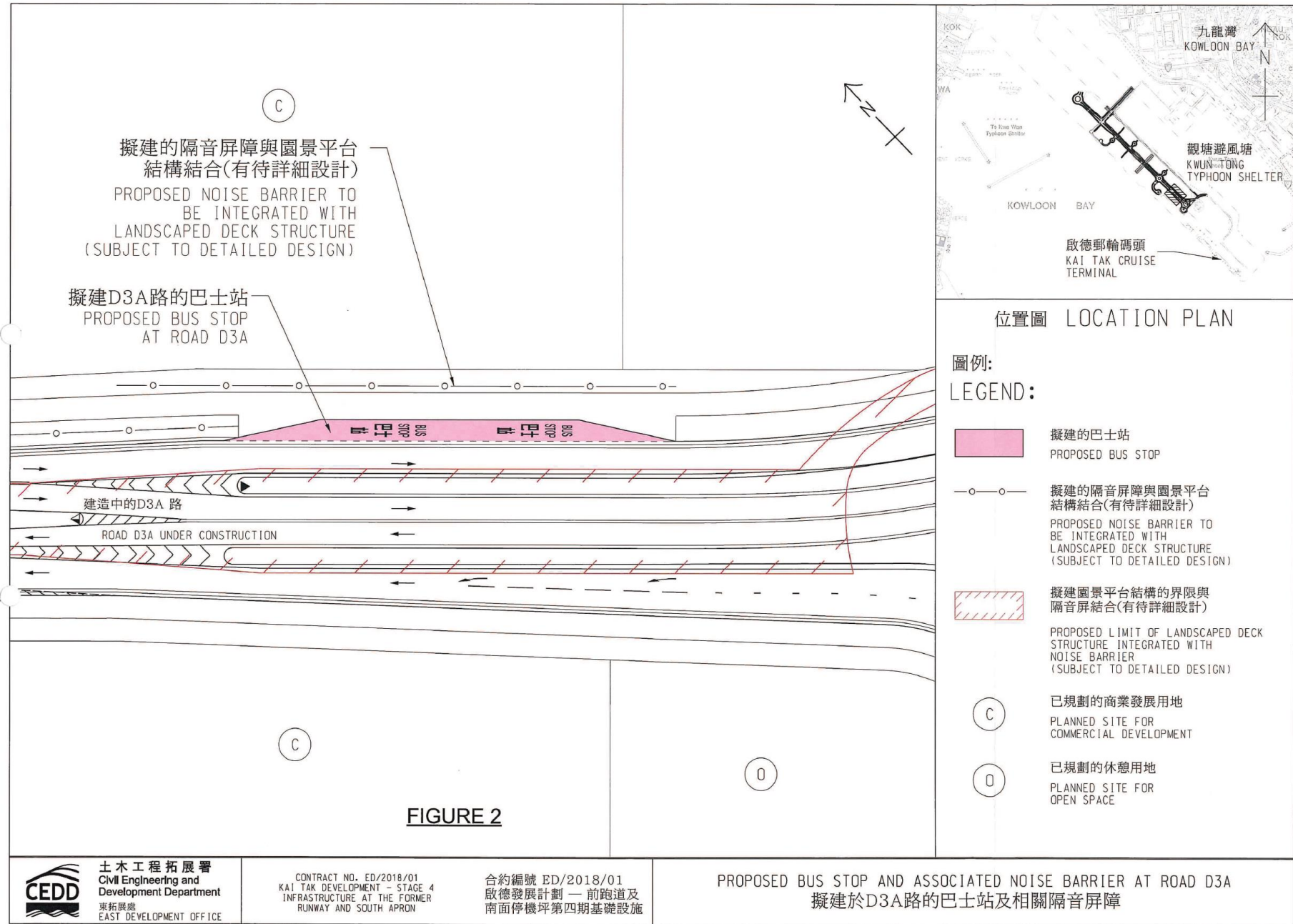


Figure 2 – Proposed Bus Stop And Associated Noise Barrier At Road D3A



Path : Z:\KL2014011TO Team\Drawing (Internal Use)\KTD-400-KTD-499\KTD-414 (PL Location).dgn

Print Date : 7/3/2019

Figure 3 – Future Pedestrian Connection Between Landscaped Deck And Private Developments

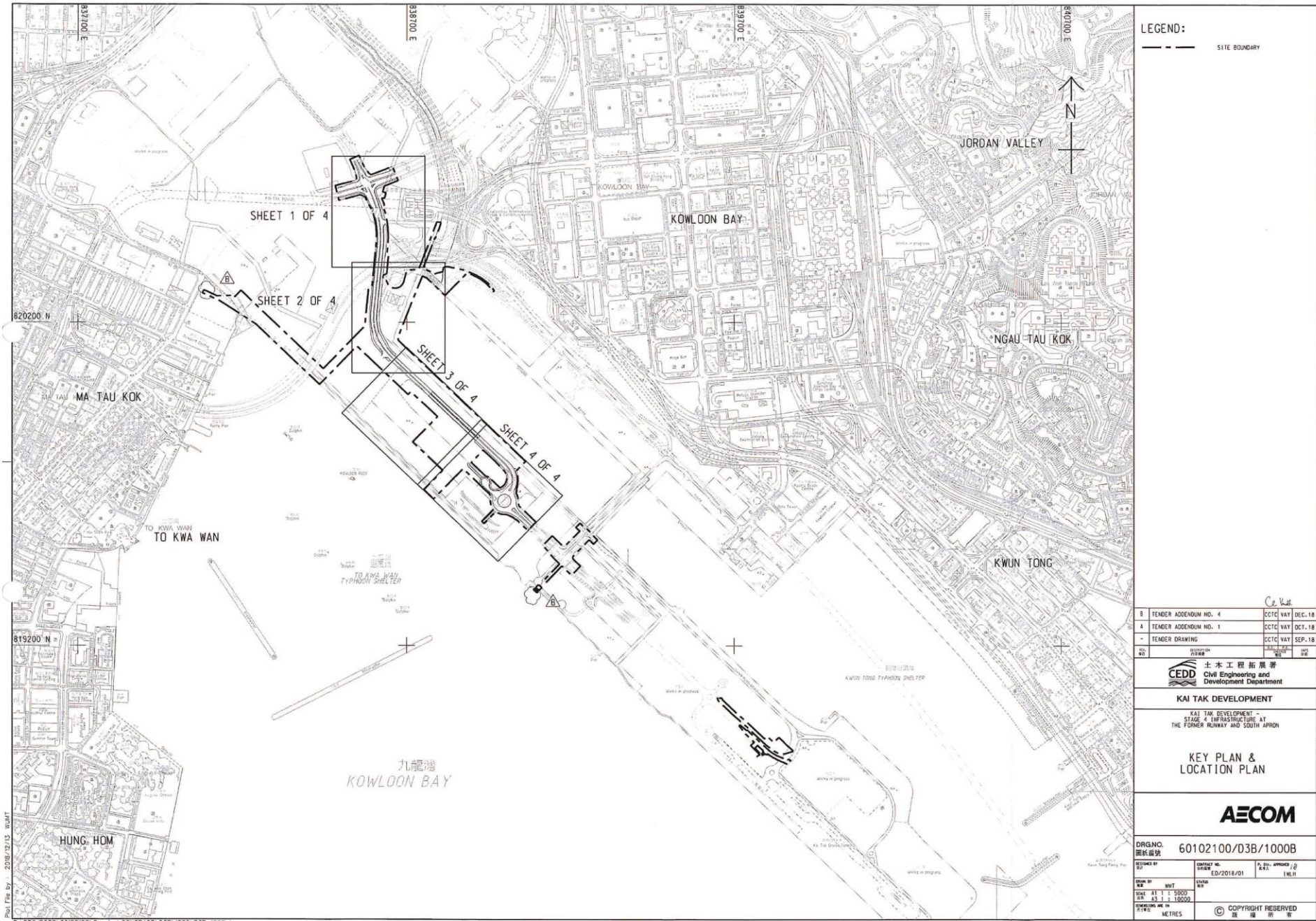


Figure 4 – Site Layout Plan

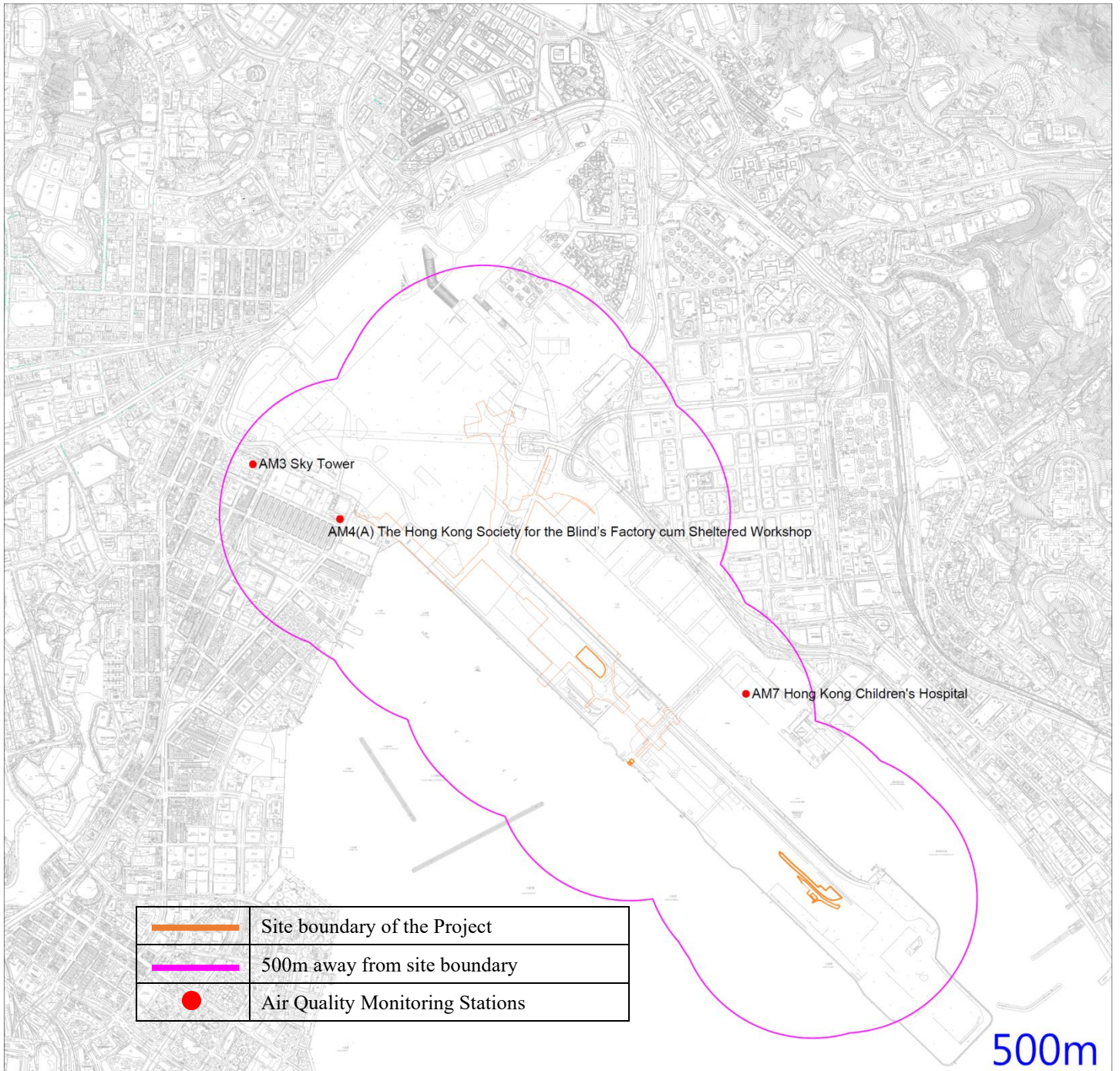


Figure 5 – Air Quality Monitoring Stations

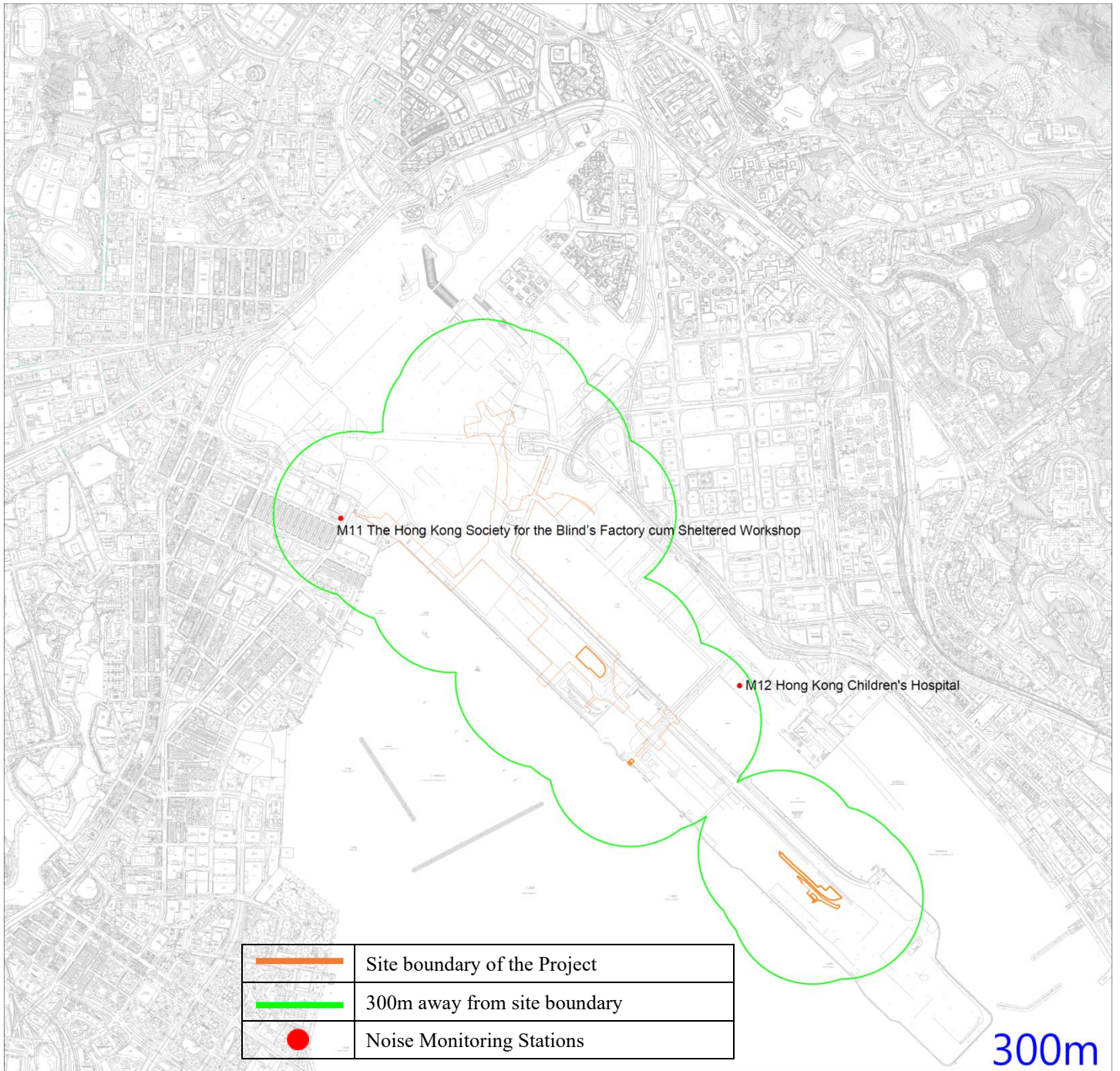


Figure 6 – Noise Monitoring Stations

Appendix A – Organization Chart of EM&A Team



Appendix B – Construction Programme

Appendix C – Environmental monitoring schedules

Contract No. EDO 15/2018 Environmental Monitoring at Kai Tak Development Stage 4 Infrastructure at the former runway and south apron
Environmental Monitoring and Weekly Site Inspection Schedule for February 2021

February 2021

Sun	Mon	Tue	Wed	Thu	Fri	Sat
	1	2 24-hr TSP: AM3, AM4(A), AM7 1-hr X3 TSP: AM3, AM4(A), AM7 30-min Noise: M11, M12	3	4	5 Weekly Site Inspection + SSMC meeting	6
7	8 24-hr TSP: AM3, AM4(A), AM7 1-hr X3 TSP: AM3, AM4(A), AM7 30-min Noise: M11, M12	9 Weekly Site Inspection	10	11 24-hr TSP: AM3, AM4(A), AM7 1-hr X3 TSP: AM3, AM4(A), AM7	12	13
14	15	16	17 24-hr TSP: AM3, AM4(A), AM7 1-hr X3 TSP: AM3, AM4(A), AM7 30-min Noise: M11, M12	18 Weekly Site Inspection	19	20
21	22	23 24-hr TSP: AM3, AM4(A), AM7 1-hr X3 TSP: AM3, AM4(A), AM7 30-min Noise: M11, M12	24	25 Weekly Site Inspection	26	27
28						

NOTE:

- 1) Site inspection schedule and Impact monitoring schedule may be changed due to unforeseen circumstance (e.g. adverse weather).

Air Quality Monitoring Station

AM3 - Sky Tower

AM4(A) - The Hong Kong Society for the Blind's Factory cum Sheltered Workshop

AM7 - Hong Kong Children's Hospital

Noise Quality Monitoring Station

M11 - The Hong Kong Society for the Blind's Factory cum Sheltered Workshop

M12 - Hong Kong Children's Hospital

Contract No. EDO 15/2018 Environmental Monitoring at Kai Tak Development Stage 4 Infrastructure at the former runway and south apron
Propose Environmental Monitoring and Weekly Site Inspection Schedule for March 2021

March 2021

Sun	Mon	Tue	Wed	Thu	Fri	Sat
	1 24-hr TSP: AM3, AM4(A), AM7 1-hr X3 TSP: AM3, AM4(A), AM7 30-min Noise: M11, M12	2	3	4 Weekly Site Inspection	5	6 24-hr TSP: AM3, AM4(A), AM7 1-hr X3 TSP: AM3, AM4(A), AM7
7	8	9	10	11 Weekly Site Inspection + SSMC meeting	12 24-hr TSP: AM3, AM4(A), AM7 1-hr X3 TSP: AM3, AM4(A), AM7 30-min Noise: M11, M12	13
14	15	16	17	18 Weekly Site Inspection 24-hr TSP: AM3, AM4(A), AM7 1-hr X3 TSP: AM3, AM4(A), AM7 30-min Noise: M11, M12	19	20
21	22	23	24 24-hr TSP: AM3, AM4(A), AM7 1-hr X3 TSP: AM3, AM4(A), AM7 30-min Noise: M11, M12	25 Weekly Site Inspection	26	27
28	29 24-hr TSP: AM3, AM4(A), AM7 1-hr X3 TSP: AM3, AM4(A), AM7 30-min Noise: M11, M12	30	31			

NOTE:

- 1) Site inspection schedule and Impact monitoring schedule may be changed due to unforeseen circumstance (e.g. adverse weather).

Air Quality Monitoring Station

AM3 - Sky Tower
AM4(A) - The Hong Kong Society for the Blind's Factory cum Sheltered Workshop
AM7 - Hong Kong Children's Hospital

Noise Quality Monitoring Station

M11 - The Hong Kong Society for the Blind's Factory cum Sheltered Workshop
M12 - Hong Kong Children's Hospital

Appendix D – Photographic records

Impact Air Quality Monitoring



Measurement setup at AM3



Measurement setup at AM4(A)



Measurement setup at AM7

Impact Noise Monitoring



Measurement setup at M11



Measurement setup at M12



Weather Station at the rooftop of Hong Kong Children's Hospital

**Appendix E – Calibration certificates, catalogue of air quality
monitoring equipment**

Catalogue of High Volume Sampler (HVS)



TSP MFC

Total Suspended Particulate, Mass Flow Controlled



MFC TSP
Ambient Air Sampler

The TE-5170 is a high volume ambient Total Suspended Particulate (TSP) air sampler featuring a mass flow controller (MFC) for accurate and consistent particulate sampling. The mass flow controller adjust the motor speed as the filter media collects particulate to maintain a constant flow rate throughout the entire sample duration. The system utilizes a stainless steel filter holder for use with standard 8" x 10" filter paper. The anodized aluminum shelter and robust electrical components allow the system to operate a continuous 24 hour sample.

ABOUT US: Tisch Environmental Inc. Tisch Environmental is the benchmark for high volume air sampling, particulate, metals, volatiles, and specialty monitoring equipment. Since the company's inception in 1953 as General Metal Works, our product line has expanded from the first high volume air sampler to include high-tech and custom samplers. Our clients are professionals from every sector of the regulatory and industrial markets.

- ✔ Meets EPA CFR, Appendix B to Part 50
- ✔ Total Suspended Particulate(TSP)
- ✔ Mass Flow Controlled
- ✔ 7-Day Mechanical Timer
- ✔ Elapsed Time Indicator
- ✔ Aluminum Outdoor Shelter
- ✔ Brush Style Motor
- ✔ Dickson Chart Recorder, 24 Hour
- ✔ Stainless Steel Filter Holder
- ✔ 36-60 CFM
- ✔ Made In USA

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Tisch Environmental
145 S. Miami Ave
Cleveland, OH 45002
513-467-9000
sales@tisch-env.com



TSP MFC

MFC TSP Ambient Air Sampler

General System Specifications

Particulate Size:Total Suspended Particulate (TSP)
EPA Designation: CFR 40 Part 50 Appendix B
Flow Controller: Mass Flow Controller
Motor Style:Brush Style Motor Assembly
Pressure Recorder:Dickson Chart Recorder, 24 hour
Timer:7 Day Mechanical
Elapsed Time Indicator:Mechanical, Hours and Tenths
Flow Range:39-60CFM, 1.09M³M-1.68M³M
Housing:Anodized Aluminum
Filter Holder:Stainless Steel, 8" x 10"
4" Recorder Charts: Box of 100
Filter Holder: 8" x 10" Stainless Steel with hold down frame

Applications

US EPA Reference Method Sampling, CFR Appendix J Part 50 Regulatory Compliance
 Institutional Studies
 Construction Sites
 Bridge and Water Tower Painting Sites
 Fence Line Monitoring
 Industrial Monitoring
 Landfill Monitoring
 Public Health Applications

Optional Equipment

TE-3000 Filter Holder Cartridge
 TE-G653 8" x 10" Glass Fiber Filter Media
 TE-33384 Motor Brush Set (110volt)
 TE-33378 Motor Brush Set (220volt)
 TE-116311 Replacement Motor (110volt)
 TE-116312 Replacement Motor (220volt)
 TE-106 Recorder Charts
 TE-160 Recorder Pen Points
 TE-5018 Gasket 8" x 10"

Available Models

TE-5170 TSP MFC, 110 Volt 60 Hertz, 8 Amps
 TE-5170X TSP MFC, 220 Volt 50 Hertz 4 Amps
 TE-5170XZ TSP MFC, 220 Volts 60 Hertz, 4 Amps

Calibration Equipment

TE-5028 -Variable Flow Calibration Kit
 TE-HVC-V Xcalibrator HiVol Calibrator

Physical Specifications

Weight: 75lbs, Shelter
Shipping Dimensions: 46"W x 23"L x 20" H, Shelter
 19"W x 19"L x 20"H, Lid
Assembled Dimensions: 28"W x 28"L x 61"H

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Calibration Certificate of HVS

Air Sampler Calibration Curve Plotting & Calculation (Dickson recorder)

Calibration curve ref. No. : ATSPC-01-2020120902 Date of calibration : 09/12/2020

Location : Sky Tower Sampler : TE-5170X

Calibration Data

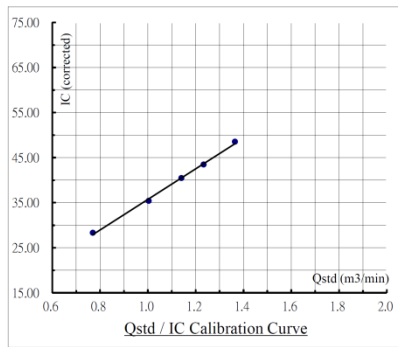
Ambient barometric pressure, Pa = 762.9 (mmHg) Ambient temperature, Ta = 292.95 (deg K)
 Qstd Slope, m = 2.04882 Qstd Intercept, b = -0.011270

Calibration Curve

Plate No.	H ₂ O (in)	Qstd (m ³ / min)	I (chart)	IC (corrected)
18	7.60	1.365	48.0	48.50
13	6.20	1.234	43.0	43.45
10	5.30	1.141	40.0	40.42
7	4.10	1.004	35.0	35.37
5	2.40	0.770	28.0	28.29

Subsequent calculation of sampler flow

Method	Calibration equation	Slope, m	Intercept, b	Corr. coeff., r
Dickson recorder	$Qstd = 1 / m [(1) (\text{Sqrt} ((Pa / 760) (298 / Ta))) - b]$	33.913	1.8063	0.9988



Calibration curve requirements : (A). $r > 0.990$; (B). At least 3 Qstd numbers are in the TSP range (1.1 - 1.7 m³ / min).

Remark : $Qstd (m^3 / min) = 1/m [\text{Sqrt} (H_2O (Pa / 760) (298 / Ta)) - b]$
 $IC (corrected) = I [\text{Sqrt} ((Pa / 760) (298 / Ta))]$
 $FLOW (corrected) = \text{Sqrt} (FLOW (mano) (Pa / 760) (298 / Ta))$

Calibrated by : Checked by :
 Name : (Poon Tsz Wing) Name : (Wong Yin Tong)

Form No. INS-HVS-CAL.d4 16 01 2020

Air Sampler Calibration Curve Plotting & Calculation (Dickson recorder)

Calibration curve ref. No. : ATSPC-01-2021020602 Date of calibration : 06/02/2021

Location : Sky Tower Sampler : TE-5170X

Calibration Data

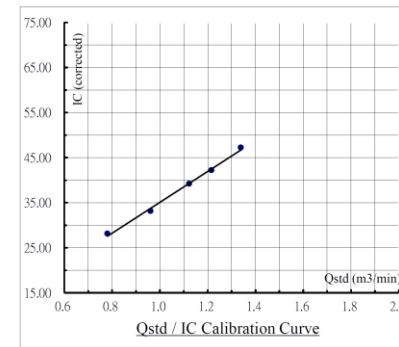
Ambient barometric pressure, Pa = 762.8 (mmHg) Ambient temperature, Ta = 296.55 (deg K)
 Qstd Slope, m = 2.04882 Qstd Intercept, b = -0.011270

Calibration Curve

Plate No.	H ₂ O (in)	Qstd (m ³ / min)	I (chart)	IC (corrected)
18	7.40	1.339	47.0	47.20
13	6.10	1.216	42.0	42.18
10	5.20	1.123	39.0	39.17
7	3.80	0.961	33.0	33.14
5	2.50	0.781	28.0	28.12

Subsequent calculation of sampler flow

Method	Calibration equation	Slope, m	Intercept, b	Corr. coeff., r
Dickson recorder	$Qstd = 1 / m [(1) (\text{Sqrt} ((Pa / 760) (298 / Ta))) - b]$	34.230	0.8565	0.9977



Calibration curve requirements : (A). $r > 0.990$; (B). At least 3 Qstd numbers are in the TSP range (1.1 - 1.7 m³ / min).

Remark : $Qstd (m^3 / min) = 1/m [\text{Sqrt} (H_2O (Pa / 760) (298 / Ta)) - b]$
 $IC (corrected) = I [\text{Sqrt} ((Pa / 760) (298 / Ta))]$
 $FLOW (corrected) = \text{Sqrt} (FLOW (mano) (Pa / 760) (298 / Ta))$

Calibrated by : Checked by :
 Name : (Poon Tsz Wing) Name : (Wong Yin Tong)

Form No. INS-HVS-CAL.d4 16 01 2020

Calibration Certificate of HVS

Air Sampler Calibration Curve Plotting & Calculation (Dickson recorder)

Calibration curve ref. No. : ATSPC-01-2020120901 Date of calibration : 09/12/2020
 The Hong Kong Society for the Blind's
 Location : Factory cum Sheltered Workshop Sampler : TE-5170X

Calibration Data

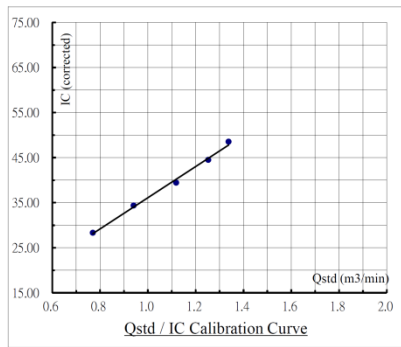
Ambient barometric pressure, Pa = 762.9 (mmHg) Ambient temperature, Ta = 292.95 (deg K)
 Qstd Slope, m = 2.04882 Qstd Intercept, b = -0.011270

Calibration Curve

Plate No.	H ₂ O (in)	Qstd (m ³ / min)	I (chart)	IC (corrected)
18	7.30	1.338	48.0	48.50
13	6.40	1.253	44.0	44.46
10	5.10	1.119	39.0	39.41
7	3.60	0.941	34.0	34.36
5	2.40	0.770	28.0	28.29

Subsequent calculation of sampler flow

Method	Calibration equation	Slope, m	Intercept, b	Corr. coeff., r
Dickson recorder	$Qstd = 1 / m [(I) (\text{Sqrt} ((Pa / 760) (298 / Ta))) - b]$	34.575	1.5174	0.9972



Calibration curve requirements : (A). $r > 0.990$; (B). At least 3 Qstd numbers are in the TSP range (1.1 - 1.7 m³ / min).

Remark : $Qstd (m^3 / min) = 1/m [\text{Sqrt} (H_2O (Pa / 760) (298 / Ta)) - b]$
 $IC (corrected) = I [\text{Sqrt} ((Pa / 760) (298 / Ta))]$
 $FLOW (corrected) = \text{Sqrt} (FLOW (mano) (Pa / 760) (298 / Ta))$

Calibrated by :  Checked by : 
 Name : (Poon Tsz Wing) Name : (Wong Yin Tong)

Form No. INS-HVS-CAL.d4 16 01 2020

Air Sampler Calibration Curve Plotting & Calculation (Dickson recorder)

Calibration curve ref. No. : ATSPC-01-2021020601 Date of calibration : 06/02/2021
 The Hong Kong Society for the Blind's
 Location : Factory cum Sheltered Workshop Sampler : TE-5170X

Calibration Data

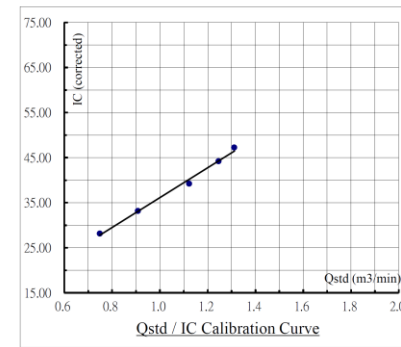
Ambient barometric pressure, Pa = 762.8 (mmHg) Ambient temperature, Ta = 296.55 (deg K)
 Qstd Slope, m = 2.04882 Qstd Intercept, b = -0.011270

Calibration Curve

Plate No.	H ₂ O (in)	Qstd (m ³ / min)	I (chart)	IC (corrected)
18	7.10	1.312	47.0	47.20
13	6.40	1.246	44.0	44.19
10	5.20	1.123	39.0	39.17
7	3.40	0.909	33.0	33.14
5	2.30	0.749	28.0	28.12

Subsequent calculation of sampler flow

Method	Calibration equation	Slope, m	Intercept, b	Corr. coeff., r
Dickson recorder	$Qstd = 1 / m [(I) (\text{Sqrt} ((Pa / 760) (298 / Ta))) - b]$	33.151	2.9658	0.9965



Calibration curve requirements : (A). $r > 0.990$; (B). At least 3 Qstd numbers are in the TSP range (1.1 - 1.7 m³ / min).

Remark : $Qstd (m^3 / min) = 1/m [\text{Sqrt} (H_2O (Pa / 760) (298 / Ta)) - b]$
 $IC (corrected) = I [\text{Sqrt} ((Pa / 760) (298 / Ta))]$
 $FLOW (corrected) = \text{Sqrt} (FLOW (mano) (Pa / 760) (298 / Ta))$

Calibrated by :  Checked by : 
 Name : (Poon Tsz Wing) Name : (Wong Yin Tong)

Form No. INS-HVS-CAL.d4 16 01 2020

Calibration Certificate of HVS

Air Sampler Calibration Curve Plotting & Calculation (Dickson recorder)

Calibration curve ref. No. : ATSPC-01-2020120903 Date of calibration : 09/12/2020

Location : Hong Kong Children's Hospital Sampler : TE-5170X

Calibration Data

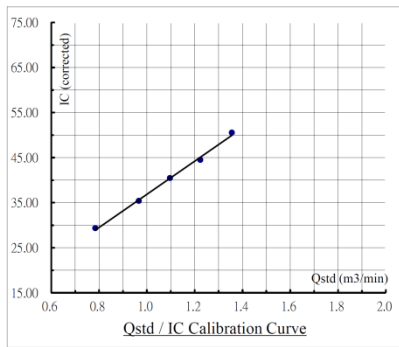
Ambient barometric pressure, Pa = 762.9 (mmHg) Ambient temperature, Ta = 292.95 (deg K)
 Qstd Slope, m = 2.04882 Qstd Intercept, b = -0.011270

Calibration Curve

Plate No.	H ₂ O (in)	Qstd (m ³ / min)	I (chart)	IC (corrected)
18	7.50	1.356	50.0	50.52
13	6.10	1.224	44.0	44.46
10	4.90	1.097	40.0	40.42
7	3.80	0.967	35.0	35.37
5	2.50	0.785	29.0	29.30

Subsequent calculation of sampler flow

Method	Calibration equation	Slope, m	Intercept, b	Corr. coeff., r
Dickson recorder	$Qstd = 1 / m1 [(1) (\text{Sqrt} ((Pa / 760) (298 / Ta))) - b1]$	36.744	0.1175	0.9983



Calibration curve requirements : (A). $r > 0.990$; (B). At least 3 Qstd numbers are in the TSP range (1.1 - 1.7 m³ / min).

Remark : $Qstd (m^3 / min) = 1/m [\text{Sqrt} (H_2O (Pa / 760) (298 / Ta)) - b]$
 $IC (\text{corrected}) = 1 [\text{Sqrt} ((Pa / 760) (298 / Ta))]$
 $FLOW (\text{corrected}) = \text{Sqrt} (FLOW (\text{mano}) (Pa / 760) (298 / Ta))$

Calibrated by : Checked by :
 Name : (Poon Tsz Wing) Name : (Wong Yin Tong)

Air Sampler Calibration Curve Plotting & Calculation (Dickson recorder)

Calibration curve ref. No. : ATSPC-01-2021020603 Date of calibration : 06/02/2021

Location : Hong Kong Children's Hospital Sampler : TE-5170X

Calibration Data

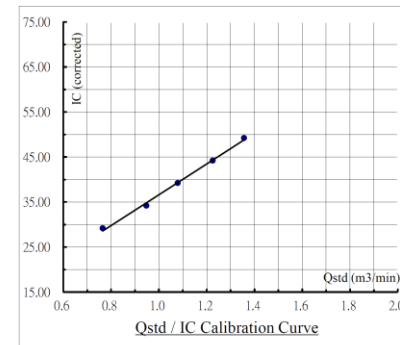
Ambient barometric pressure, Pa = 762.8 (mmHg) Ambient temperature, Ta = 296.55 (deg K)
 Qstd Slope, m = 2.04882 Qstd Intercept, b = -0.011270

Calibration Curve

Plate No.	H ₂ O (in)	Qstd (m ³ / min)	I (chart)	IC (corrected)
18	7.60	1.357	49.0	49.21
13	6.20	1.226	44.0	44.19
10	4.80	1.079	39.0	39.17
7	3.70	0.948	34.0	34.15
5	2.40	0.765	29.0	29.13

Subsequent calculation of sampler flow

Method	Calibration equation	Slope, m	Intercept, b	Corr. coeff., r
Dickson recorder	$Qstd = 1 / m1 [(1) (\text{Sqrt} ((Pa / 760) (298 / Ta))) - b1]$	34.204	2.4003	0.9981



Calibration curve requirements : (A). $r > 0.990$; (B). At least 3 Qstd numbers are in the TSP range (1.1 - 1.7 m³ / min).

Remark : $Qstd (m^3 / min) = 1/m [\text{Sqrt} (H_2O (Pa / 760) (298 / Ta)) - b]$
 $IC (\text{corrected}) = 1 [\text{Sqrt} ((Pa / 760) (298 / Ta))]$
 $FLOW (\text{corrected}) = \text{Sqrt} (FLOW (\text{mano}) (Pa / 760) (298 / Ta))$

Calibrated by : Checked by :
 Name : (Poon Tsz Wing) Name : (Wong Yin Tong)

Calibration Certificate for Calibrator



RECALIBRATION DUE DATE:
July 17, 2021

Certificate of Calibration

Calibration Certification Information			
Cal. Date: July 17, 2020	Rootsmeter S/N: 438320	Ta: 296	°K
Operator: Jim Tisch		Pa: 753.4	mm Hg
Calibration Model #: TE-5025A	Calibrator S/N: 0006		

Run	Vol. Init (m3)	Vol. Final (m3)	ΔVol. (m3)	ΔTime (min)	ΔP (mm Hg)	ΔH (in H2O)
1	1	2	1	1.4300	3.2	2.00
2	3	4	1	1.0100	6.4	4.00
3	5	6	1	0.9010	7.9	5.00
4	7	8	1	0.8570	8.8	5.50
5	9	10	1	0.7090	12.8	8.00

Data Tabulation					
Vstd (m3)	Qstd (x-axis)	$\sqrt{\Delta H \left(\frac{Pa}{Pstd} \right) \left(\frac{Tstd}{Ta} \right)}$ (y-axis)	Va	Qa (x-axis)	$\sqrt{\Delta H \left(\frac{Ta}{Pa} \right)}$ (y-axis)
0.9937	0.6949	1.4128	0.9958	0.6963	0.8865
0.9895	0.9797	1.9980	0.9915	0.9817	1.2536
0.9875	1.0960	2.2338	0.9895	1.0982	1.4016
0.9863	1.1509	2.3428	0.9883	1.1532	1.4700
0.9810	1.3837	2.8255	0.9830	1.3865	1.7729
QSTD	m=	2.04882	QA	m=	1.28293
	b=	-0.01127		b=	-0.00707
	r=	0.99999		r=	0.99999

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

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

Catalogue of Dust Meter (TSI Sidepak AM510)

The SidePak AM510 monitor's easy-to-read display shows your data as both real-time aerosol mass-concentration and 8-hour time-weighted average (TWA). With its convenient data logging and long battery life, the AMS10 is also ideal for extended sampling. The easy-to-use TrakPro Data Analysis Software lets you create effective graphs and reports.

User Friendly

- + Small, lightweight and quiet to maximize worker acceptance
- + Rugged design with secure belt clip
- + Easy-to-understand user interface with only four keys
- + Lockable keypad prevents tampering while sampling
- + User-adjustable sample flow rate
- + Define, label and store multiple calibration constants
- + Easy-to-read LCD display
- + Convenient, threaded tripod socket accommodates area sampling

Advanced Features

- + Smart Battery Management System provides precise run time information, maximizes battery capacity and speeds charging
- + Integrated pump allows use of size-selective aerosol inlet conditioners
- + Built-in impactors let you choose "none," 1.0, 2.5 or 10-micron cut off
- + 10-mm Dorr-Oliver cyclone for respirable sampling
- + Display shows real-time concentrations (mg/m³) and "on-the-fly" TWA as you data log
- + Display statistics: max, min and average readings, elapsed time and 8-hour TWA

Quick and Easy Reports

- + Convenient preprogramming for occupational exposure sampling
- + Data log for long periods and store multiple tests
- + Analyze data, print graphs and create reports with TrakPro Data Analysis Software
- + USB port lets you conveniently connect to your computer

Power to Spare

- + Long-lasting NiMH rechargeable battery packs eliminate "memory" issues
- + Choice of rechargeable NiMH smart battery packs or AA-cell pack

Model AMS10

SidePak Personal Aerosol Monitor

Sensitivity

Sensor Type 90° light scattering, 670 nm laser diode
 Aerosol Concentration Range 0.001 to 20 mg/m³ (calibrated to respirable fraction of ISO 12103-1, A1 test dust)
 Particle Size Range 0.1 to 10 micrometer (µm)
 Minimum Resolution 0.001 mg/m³
 Zero stability ±0.001 mg/m³ over 24 hours using 10-second time-constant
 Temperature Coefficient Approximately +0.0005 mg/m³ per °C (for variations from temperature at which instrument was last zeroed)

Flow Rate

Range User-adjustable, 0.7 to 1.8 liters/min (L/min)

Temperature Range

Operating Range 32 to 120°F (0 to 50°C)
 Storage Range -4 to 140°F (-20 to 60°C)

Operational Humidity

0 to 95% RH, non-condensing

Time Constant (LCD display)

Range User-adjustable, 1 to 60 seconds

Data Logging

Data Points Approx. 31,000
 Logging Interval User-adjustable, 1 second to 1 hour

User-Select Calibration Factors

Factory Setting 1.0 (non-adjustable)
 User-defined Settings 3, with user-defined labels
 Range 0.1 to 10.0, user-adjustable

Physical

External Dimensions 4.2 x 3.7 x 2.8 in. (106 x 92 x 70 mm) with 801723, 801724, 801729 or 801743 battery
 5.1 x 3.7 x 2.8 in. (130 x 92 x 70 mm) with 801708, 801722, 801728, 801735, or 801736 battery
 Weight 16 oz (0.46 kg) with 801723, 801724, 801729 or 801743 battery
 19 oz (0.54 kg) with 801708, 01722, 801728, 801735, or 801736 battery
 Display 2 line x 12 character LCD
 Tripod Socket 1/4"-20 female thread

Power Supply/Charger (P/N 2613210)

Input Voltage Range 100 to 240 VAC, 50 to 60 Hz
 Output Voltage 9 VDC @ 1.0 A

Maintenance

Factory Clean/Calibrate Recommended annually
 User Zero Calibration Before each use
 User Flow Calibration As needed

Communications Interface

Type USB 1.1
 Connector, Instrument USB Mini-B (socket)

Minimum Computer Requirements for TrakPro™ Data Analysis Software

Communications Port Universal Serial Bus (USB) v 1.1 or higher
 Operating System Microsoft Windows® XP, or 7 (32-bit or 64-bit) operating systems

Battery Performance

Battery Options	Charge Time (hrs)*	Intrinsic Safety Rating	Run Time (hrs @ 1.7 L/min)
1600 mAh NiMH Pack, 4.8 V (P/N 801723)	3.0	No	7.1
1650 mAh NiMH Pack, 4.8V (P/N 801724, 801729 or 801743)	3.5	CSA**	7.5
2700 mAh NiMH Pack, 4.8 V (P/N 801722 or 801728)	5.5	No	12.0
2700 mAh NiMH Pack, 4.8 V (P/N 801735)	5.5	No	12.0
6-Cell AA-size Alkaline Pack*** (P/N 801708 or 801736 with six user-supplied AA cells)	N/A	No	22.5

*Of a fully depleted battery
 **All dust plugs and dust gaskets must be installed.
 ***Using Energizer AA-size, E91 alkaline batteries.

Battery Level Indicator

The Smart Battery Management System™ technology utilizes a built-in "gauge" in the SidePak™ battery packs. The gauge monitors battery capacity and calculates run time information by dividing capacity of the battery (mAh) by the instantaneous current consumed by the instrument (mA). This calculation is correct for current operating conditions and can change due to current (mA) consumption or changes in battery capacity.



Calibration Certificate of Dust Meter (TSI Sidepak AM510)

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

Environment Conditions				Model					
Temperature	73.70 (23.2)	°F (°C)	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%;">Model</td> <td style="text-align: center;">AM510</td> </tr> <tr> <td>Serial Number</td> <td style="text-align: center;">11208032</td> </tr> </table>			Model	AM510	Serial Number	11208032
Model	AM510								
Serial Number	11208032								
Relative Humidity	25.0	%RH							
Barometric Pressure	29.20 (988.8)	inHg (hPa)							

As Left In Tolerance
 As Found Out of Tolerance

Concentration Linearity Plot

System ID: DT1101-02

CONCENTRATION								Unit: mg/m ³	
#	STANDARD	MEASURED	ALLOWABLE RANGE	#	STANDARD	MEASURED	ALLOWABLE RANGE		
1	1.742	1.689	1.568-1.916	3	0.069	0.068	0.048-0.090		
2	0.252	0.239	0.214-0.290	4	14.934	14.818	13.441-16.427		

TSI Incorporated does hereby certify that all materials, components, and workmanship used in the manufacture of this equipment are in strict accordance with the applicable specifications agreed upon by TSI and the customer and with all published specifications. All performance and acceptance tests required under this contract were successfully conducted according to required specifications. There is no NIST standard for optical mass measurements. Calibration of this instrument performed by TSI has been done using emery oil and has been nominally adjusted to respirable mass per standard ISO 12103-1, Al test dust (Arizona dust). Our calibration ratio is greater than 4:1

Measurement Variable	System ID	Last Cal.	Cal. Due	Measurement Variable	System ID	Last Cal.	Cal. Due
DC Voltage	E003314	01-15-20	01-31-21	DC Voltage	E003315	01-15-20	01-31-21
Photometer	E005612	02-25-20	08-31-20	Microbalance	M001324	10-03-18	10-31-20
Pressure	E003511	10-04-19	10-31-20	Flowmeter	E005140	01-09-20	01-31-21

 Calibrated

May 6, 2020

 Date

Personal Aerosol Monitor Performance check with High Volume Sampler

Performance Check ref. No. AS0210201-1 Report Issue Date 1/2/2021
 Date of performance check 25/1/2021

Objective:

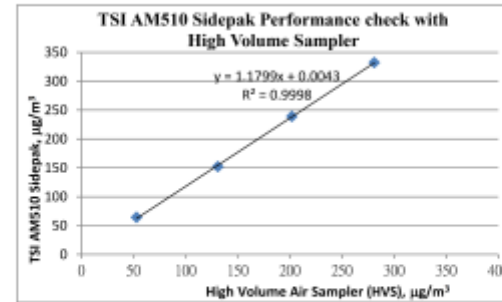
A dust meter and a Total Suspended Particulate High Volume Air Sampler (HVS) were placed together to measure the Total Suspended Particulate (TSP) concentrations simultaneously to check the performance.

Equipment Used:

Equipment	Manufacturer and Model	Serial Number
Personal Aerosol Monitor	TSI AM510 Sidepak	11208032
Total Suspended Particulate High Volume Air Sampler	GS2310	10346

Result:

Equipment	Measurement Result, µg/m ³			
TSI AM510 Sidepak	64	152	239	332
High Volume Air Sampler (HVS)	53	131	202	281



Tested by: (Signature) Checked by: (Signature)
 Name: (Poon Tsz Wing) Name: (Wong Yin Tong)

Form No. ENV-CAL-SAMPLER-CCT-4/12/12/2000

Calibration Certificate of Dust Meter (TSI Sidepak AM510)

CERTIFICATE OF CALIBRATION AND TESTING <small>TSI Incorporated, 500 Cardigan Road, Shoreview, MN 55126 USA Tel: 1-800-874-2811 1-651-490-2811 Fax: 1-651-490-3824 http://www.tsi.com</small>							
Environment Conditions Temperature: 73.79 (23.2) °F (°C) Relative Humidity: 45.5 %RH Barometric Pressure: 28.97 (981.0) inHg (hPa)				Model : AM510 Serial Number : 11506009			
<input checked="" type="checkbox"/> As Left <input type="checkbox"/> As Found		<input checked="" type="checkbox"/> In Tolerance <input type="checkbox"/> Out of Tolerance					
Concentration Linearity Plot 							
System ID: D11101-02							
CONCENTRATION Unit: mg/m³							
#	STANDARD	MEASURED	ALLOWABLE RANGE	#	STANDARD	MEASURED	ALLOWABLE RANGE
1	1.966	1.924	1.769-2.163	3	0.083	0.083	0.058-0.108
2	0.285	0.293	0.242-0.328	4	15.404	15.375	13.864-16.944
<small>TSI Incorporated does hereby certify that all materials, components, and workmanship used in the manufacture of this equipment are in strict accordance with the applicable specifications agreed upon by TSI and the customer, and with all published specifications. All performance and acceptance tests required under this contract were successfully conducted in conformance with required specifications. There is no NIST standard for optical mass measurements. Calibration of this instrument performed by TSI has been done using primary oil and has been nominally adjusted to respirable mass per standard ISO 12103-1. All test data (reference data) for calibration ratio is greater than 1:1.</small>							
Measurement Variable System ID Last Cal. Cal. Due DC Voltage E003314 01-15-20 01-31-21 Photometer E005612 02-25-20 08-31-20 Pressure E003511 10-04-19 10-31-20		Measurement Variable System ID Last Cal. Cal. Due DC Voltage E003315 01-15-20 01-31-21 Microbalance M001324 10-03-18 10-31-20 Flowmeter E005140 01-09-20 01-31-21					
 _____ Calibrated				July 10, 2020 _____ Date			

Personal Aerosol Monitor Performance check with High Volume Sampler

Performance Check ref. No. : AS0210201-3 Report Issue Date: 1/2/2021
 Date of performance check : 25/1/2021

Objective:

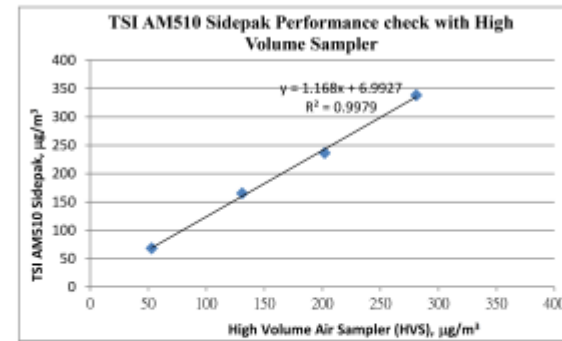
A dust meter and a Total Suspended Particulate High Volume Air Sampler (HVS) were placed together to measure the Total Suspended Particulate (TSP) concentrations simultaneously to check the performance.

Equipment Used:

Equipment	Manufacturer and Model	Serial Number
Personal Aerosol Monitor	TSI AM510 Sidepak	11506009
Total Suspended Particulate High Volume Air Sampler	GS2310	10346

Results:

Equipment	Measurement Result, µg/m ³			
TSI AM510 Sidepak	68	165	236	338
High Volume Air Sampler (HVS)	53	131	202	281



Tested by : Checked by :
 Name : (Poon Tsz Wing) Name : (Wong Yin Tong)

Form No. ENV CAL SAMPLER CC 4/12/12/2003

Catalogue of Weather Station

Cabled Vantage Pro2™ & Vantage Pro2 Plus™ Stations



**6152C
6162C**
Vantage Pro2™

The Vantage Pro2™ (# 6152C) and Vantage Pro2™ Plus (# 6162C) cabled weather stations include two components: the Integrated Sensor Suite (ISS) and the console. The ISS contains the sensor interface module (SIM), rain collector, an anemometer, and a passive radiation shield. The Vantage Pro2 console provides the user interface, data display, and calculations. The Vantage Pro2 Plus weather station includes two additional sensors that are optional on the Vantage Pro2 and purchased separately: the UV Sensor and the Solar Radiation Sensor. The console and ISS are powered by an AC-power adapter connected to the console. Batteries can be installed in the console to provide a backup power supply. Use WeatherLink® to let your weather station interface with a computer, log data, and upload weather information to the Internet. The 6152C and 6162C models rely on passive shielding to reduce solar-radiation induced temperature errors in the outside temperature sensor readings.

Integrated Sensor Suite (ISS)

Operating Temperature	-40° to +150°F (-40° to +65°C)
Non-operating Temperature	-40° to +158°F (-40° to +70°C)
Current Draw	5 mA (average) at 4 to 6 VDC for ISS only. 10 mA average for both console and ISS
Connectors, Sensor	Modular RJ-11
Cable Type	4-conductor, 26 AWG
Cable Length, Anemometer	40' (12 m) (included); 240' (73 m) (maximum recommended)

Note: Maximum displayable wind decreases as the length of cable increases. At 140' (42 m) of cable, the maximum wind speed displayed is 135 mph (60 m/s); at 240' (73 m), the maximum wind speed displayed is 100 mph (34 m/s).

Wind Speed Sensor	Solid state magnetic sensor
Wind Direction Sensor	Wind vane with potentiometer
Rain Collector Type	Tipping bucket, 0.01" per tip (0.2 mm with metric rain adapter), 33.2 in ² (214 cm ²) collection area
Temperature Sensor Type	PN Junction Silicon Diode
Relative Humidity Sensor Type	Film capacitor element
Housing Material	UV-resistant ABS, polypropylene
Sensor Inputs	
RF Filtering	RC low-pass filter on each signal line

ISS Dimensions(not including anemometer or bird spikes):

Vantage Pro2 with Standard Rad Shield	14.0" x 9.4" x 14.5" (356 mm x 239 mm x 368 mm)
Vantage Pro2 with Fan-Aspirated Rad Shield	20.8" x 9.4" x 16.0" (528 mm x 239 mm x 406 mm)
Vantage Pro2 Plus with Standard Rad Shield	14.3" x 9.7" x 14.5" (363 mm x 246 mm x 368 mm)
Vantage Pro2 Plus with Fan-Aspirated Rad Shield	21.1" x 9.7" x 16.0" (536 mm x 246 mm x 406 mm)

DAVIS **® Davis Instruments** 3465 Diablo Ave., Hayward, CA 94545-2778 USA
(510) 732-9229 • FAX (510) 670-0589 • sales@davisinstruments.com • www.davisinstruments.com

DS6152C, 6162C Rev. W 12/7/18
1

7
Vantage Pro2™

Ultra Violet (UV) Radiation Index (requires UV sensor)

Resolution and Units	0.1 Index
Range	0 to 16 Index
Accuracy	±5% of full scale (Reference: Yankee UVB-1 at UV index 10 (Extremely High))
Cosine Response	±4% FS (0° to 90° zenith angle)
Update Interval	50 seconds to 1 minute (5 minutes when dark)
Current Graph Data	Instant Reading and Hourly Average; Daily, Monthly High
Historical Graph Data	Hourly Average, Daily, Monthly Highs
Alarm	High Threshold from Instant Calculation

Wind

Wind Chill (Calculated)	
Resolution and Units	1°F or 1°C (user-selectable); °C is converted from °F and rounded to the nearest 1°C
Range	-110° to +135°F (-79° to +57°C)
Accuracy	±2°F (±1°C) (typical)
Update Interval	10 to 12 seconds
Source	United States National Weather Service (NWS)/NOAA
Equation Used	Osczevski (1995) (adopted by US NWS in 2001)
Variables Used	Instant Outside Temperature and 10-min. Avg. Wind Speed
Current Display Data	Instant Calculation
Current Graph Data	Instant Calculation; Hourly, Daily and Monthly Low
Historical Graph Data	Hourly, Daily and Monthly Lows
Alarm	Low Threshold from Instant Calculation
Wind Direction	
Range	1 - 360°
Display Resolution	16 points (22.5°) on compass rose, 1° in numeric display
Accuracy	±3°
Update Interval	2.5 to 3 seconds
Current Graph Data	Instant Reading (user adjustable); 10-min. Dominant; Hourly, Daily, Monthly Dominant
Historical Graph Data	Past 6 10-min. Dominants on compass rose only; Hourly, Daily, Monthly Dominants
Wind Speed	
Resolution and Units	1 mph, 1 km/h, 0.4 m/s, or 1 knot (user-selectable) Measured in mph; other units are converted from mph and rounded to nearest 1 km/hr, 0.1 m/s, or 1 knot.
Range	0 to 200 mph, 0 to 173 knots, 0 to 89 m/s, 0 to 322 km/h
Update Interval	Instant Reading: 2.5 to 3 seconds, 10-minute Average: 1 minute
Accuracy	±2 mph (2 kts, 3.2 km/h, 0.9 m/s) or ±5%, whichever is greater
Maximum Cable Length	540' (165 m) (Note that maximum wind speed reading decreases as length of cable from anemometer to ISS increases.)
Current Display Data	Instant
Current Graph Data	Instant Reading; 10-minute and Hourly Average; Hourly High; Daily, Monthly and Yearly High with Direction of High
Historical Graph Data	10-min. and Hourly Averages; Hourly Highs; Daily, Monthly and Yearly Highs with Direction of Highs
Alarms	High Thresholds from Instant Reading and 10-minute Average

Calibration Certificate of Weather Station



Calibration Certificate

Certificate No.: CC0022012

1. Description

Calibration item :	a) Temperature b) Relative humidity c) Wind Speed d) Wind Direction
Equipment description :	Weather Station
Manufacturer :	Davis Vantage Pro 2
Type / Model No. :	6312CEU
Serial No. :	AY170606003
Assigned equipment no. :	N/A
Adjustment :	N/A
Remark :	Received with good condition

2. Customer information

Customer :	Castco Testing Centre Limited
Address :	33, On Kui Street, Fanling, N.T.
Date of receipt :	8 December 2020

3. Date of performance of the calibration

Date of calibration :	11 December 2020
-----------------------	------------------

Approved Signatory

Warren Yeung

Company Chop:

Certificate issue date: 15 December 2020



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CT-860-02
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cc0022012

Cal Lab Limited
Address: Room 2103, Technology Plaza, 29-35 Sha Tsui Road, Tuen Wan, NT, Hong Kong
Tel : (852)25680106 Fax(852)30116194 Email : info@calab.com.hk Website:calab.com.hk



4. Result of Calibration

a) Temperature

Reference reading ; °C	Reading ; °C	Error of indication ; °C
15.0	15	0.0
20.0	20	0.0
25.0	25	0.0
30.0	30	0.0

Estimated expanded uncertainty: 1 °C

Technical Requirement: N/A

Note: The technical requirement is refer to JF 1183-2007

CT-001-04

b) Relative Humidity

Temperature setting of humidity chamber : 23 °C

Reference reading ; % RH	Reading ; % RH	Error of indication ; % RH
40.03	41.3	1.3
50.00	52.0	2.0
70.07	72.3	2.3

Estimated expanded uncertainty: 2.5 %RH

Technical Requirement: N/A

Note: The technical requirement is refer to JIS 1076-2001

CT-002-04

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Calibration Certificate of Weather Station



c) Wind Speed

Reference reading ; m/s	Measured reading ; m/s	Error of indication ; %
0.0	0.0	N/A
2.0	2.0	0.0
5.0	4.9	-2.0
10.0	9.8	-2.0
15.0	14.7	-2.0
20.0	19.7	-2.0

Estimated expanded uncertainty: 0.5 m/s Technical Requirement: +/-5% or 1 m/s

a) Wind direction

Reference reading	Measured reading	Error of indication
0°	0°	0°
45°	45°	0°
90°	90°	0°
135°	135°	0°
180°	180°	0°
225°	225°	0°
270°	270°	0°
315°	315°	0°

Estimated expanded uncertainty: 5° Technical Requirement: N/A

Note: The arrow head was adjusted to the magnetic north before performing calibration.

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cc002012

Cal Lab Limited
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Tel: (852)25680106 Fax: (852)30116194 Email: info@callab.com.hk Website: callab.com.hk



5. Reference method for calibration

Temperature	JIF 1183-2007
Relative humidity	JIG 1076-2001
Wind Speed	SCP-251
Wind Direction	SCP-252

6. Environment condition of calibration

Temperature ; °C	24.3 °C
Relative humidity ; %RH	48 %RH

7. Reference equipment used in the calibration

Item	Model	Serial No.	Expiry date	Traceable to
Platinum resistance thermometer	KPPRHT-A-1	KCI I-1095, KCI P-1095	4 Mar 2022	SMQ
Humidity sensor	KPPRHT-A-1	KCI I-1095, KCI P-1095	4 Mar 2022	SMQ
Reference Anemometer	405-V1	41543692	1 Jan 2021	SMQ

- Note1: The estimated expanded uncertainties have been calculated in "Evaluation and expression of uncertainty in measurement" and give an internal estimated to have a level of confidence of 95%. A coverage factor of 2 is assumed unless explicitly stated.
- Note2: The standard (s) and instrument used in the calibration are traceable to national or international recognized standard and are calibrated on a schedule to maintain the accuracy and good condition.
- Note3: The result 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.
- Note4: The result shown in this calibration certificate relate only to the item calibrated, and the result only applies to the calibration item as received.

Calibrated by: *[Signature]* Date: 11 December 2020

Checked by: *[Signature]* Date: 11 December 2020

*** End of Certificate ***

CF-EMD-02

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Cal Lab Limited
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Tel: (852)25680106 Fax: (852)30116194 Email: info@callab.com.hk Website: callab.com.hk

Appendix F – Weather information

General Information

Date	Absolute Daily Min Temperature (°C)	Absolute Daily Max Temperature (°C)	Total Rainfall (mm)
01/02/2021	17.2	25.1	0
02/02/2021	17.7	27.6	0
03/02/2021	16.7	21.7	0
04/02/2021	16.8	23.8	0
05/02/2021	17.3	23.9	0
06/02/2021	17.5	25.7	0
07/02/2021	18.1	24.1	0
08/02/2021	18.2	22.7	0
09/02/2021	17.3	19.7	Trace
10/02/2021	15.8	17.4	32.2
11/02/2021	15.3	19.9	0
12/02/2021	15.5	22.3	0
13/02/2021	16.5	23.8	0
14/02/2021	17.4	22.8	0
15/02/2021	17.8	26.2	0
16/02/2021	18.2	24.2	0
17/02/2021	18.3	24.6	0
18/02/2021	16.7	22.9	0
19/02/2021	15.8	22.9	0
20/02/2021	16.7	23.9	0
21/02/2021	17.3	24.9	0
22/02/2021	18.4	26	0
23/02/2021	18.8	26.4	0
24/02/2021	18.9	22.9	Trace
25/02/2021	18.8	22.7	1.8
26/02/2021	20.4	25.1	14.7
27/02/2021	18.1	20.8	13.4
28/02/2021	18.1	22.8	Trace

NOTE1: The above weather information was obtained from manned weather station of Hong Kong Observatory.

NOTE2: Trace means rainfall less than 0.05 mm

<https://www.hko.gov.hk/en/cis/dailyExtract.htm?y=2021&m=2>

Mean Wind Speed and Wind Direction recorded by the weather station setup at the rooftop of Hong Kong Children's Hospital

Date	Time	Wind Speed (m/s)	Wind Direction	Date	Time	Wind Speed (m/s)	Wind Direction	Date	Time	Wind Speed (m/s)	Wind Direction	Date	Time	Wind Speed (m/s)	Wind Direction
01/02/2021	0:00	0.9	112.5	02/02/2021	0:00	0.4	112.5	03/02/2021	0:00	3.1	112.5	04/02/2021	0:00	0.4	22.5
01/02/2021	1:00	0.9	112.5	02/02/2021	1:00	0.4	112.5	03/02/2021	1:00	3.6	90	04/02/2021	1:00	0.9	67.5
01/02/2021	2:00	1.3	112.5	02/02/2021	2:00	0.4	112.5	03/02/2021	2:00	2.2	67.5	04/02/2021	2:00	1.3	67.5
01/02/2021	3:00	0.9	112.5	02/02/2021	3:00	0.4	112.5	03/02/2021	3:00	2.7	90	04/02/2021	3:00	1.3	45
01/02/2021	4:00	0.9	112.5	02/02/2021	4:00	0.4	112.5	03/02/2021	4:00	1.8	90	04/02/2021	4:00	1.3	90
01/02/2021	5:00	0.9	112.5	02/02/2021	5:00	0.4	112.5	03/02/2021	5:00	1.8	90	04/02/2021	5:00	1.3	67.5
01/02/2021	6:00	0.9	90	02/02/2021	6:00	0.9	112.5	03/02/2021	6:00	1.3	45	04/02/2021	6:00	1.3	90
01/02/2021	7:00	0.9	45	02/02/2021	7:00	1.3	112.5	03/02/2021	7:00	1.8	112.5	04/02/2021	7:00	1.3	67.5
01/02/2021	8:00	0.9	22.5	02/02/2021	8:00	1.3	112.5	03/02/2021	8:00	1.8	90	04/02/2021	8:00	0.9	112.5
01/02/2021	9:00	0.4	112.5	02/02/2021	9:00	1.3	112.5	03/02/2021	9:00	1.8	45	04/02/2021	9:00	1.3	90
01/02/2021	10:00	0.9	67.5	02/02/2021	10:00	2.2	112.5	03/02/2021	10:00	1.8	90	04/02/2021	10:00	0.9	112.5
01/02/2021	11:00	0.9	90	02/02/2021	11:00	1.8	135	03/02/2021	11:00	1.3	67.5	04/02/2021	11:00	0.9	112.5
01/02/2021	12:00	1.8	112.5	02/02/2021	12:00	1.3	135	03/02/2021	12:00	1.3	45	04/02/2021	12:00	0.9	112.5
01/02/2021	13:00	1.8	135	02/02/2021	13:00	1.8	135	03/02/2021	13:00	1.8	45	04/02/2021	13:00	1.3	112.5
01/02/2021	14:00	1.8	112.5	02/02/2021	14:00	1.3	90	03/02/2021	14:00	1.8	90	04/02/2021	14:00	1.3	112.5
01/02/2021	15:00	1.8	67.5	02/02/2021	15:00	1.8	112.5	03/02/2021	15:00	1.3	67.5	04/02/2021	15:00	1.8	90
01/02/2021	16:00	2.2	112.5	02/02/2021	16:00	1.8	135	03/02/2021	16:00	1.3	67.5	04/02/2021	16:00	1.8	90
01/02/2021	17:00	2.2	22.5	02/02/2021	17:00	2.2	90	03/02/2021	17:00	1.3	67.5	04/02/2021	17:00	1.8	90
01/02/2021	18:00	1.8	90	02/02/2021	18:00	2.7	45	03/02/2021	18:00	2.2	90	04/02/2021	18:00	2.2	90
01/02/2021	19:00	1.8	67.5	02/02/2021	19:00	2.7	112.5	03/02/2021	19:00	1.8	90	04/02/2021	19:00	2.2	90
01/02/2021	20:00	0.9	90	02/02/2021	20:00	2.2	112.5	03/02/2021	20:00	0.9	67.5	04/02/2021	20:00	1.8	112.5
01/02/2021	21:00	0.9	45	02/02/2021	21:00	2.2	135	03/02/2021	21:00	1.8	90	04/02/2021	21:00	1.3	90
01/02/2021	22:00	0.9	67.5	02/02/2021	22:00	2.7	112.5	03/02/2021	22:00	2.2	112.5	04/02/2021	22:00	0.4	135
01/02/2021	23:00	0.9	112.5	02/02/2021	23:00	3.1	112.5	03/02/2021	23:00	0.9	90	04/02/2021	23:00	0.4	90

Mean Wind Speed and Wind Direction recorded by the weather station setup at the rooftop of Hong Kong Children's Hospital

Date	Time	Wind Speed (m/s)	Wind Direction	Date	Time	Wind Speed (m/s)	Wind Direction	Date	Time	Wind Speed (m/s)	Wind Direction	Date	Time	Wind Speed (m/s)	Wind Direction
05/02/2021	0:00	0.4	112.5	06/02/2021	0:00	2.7	135	07/02/2021	0:00	0	112.5	08/02/2021	0:00	0.9	112.5
05/02/2021	1:00	0.9	67.5	06/02/2021	1:00	2.7	112.5	07/02/2021	1:00	0	45	08/02/2021	1:00	1.3	90
05/02/2021	2:00	0.9	22.5	06/02/2021	2:00	1.8	112.5	07/02/2021	2:00	0	112.5	08/02/2021	2:00	2.2	112.5
05/02/2021	3:00	0.4	67.5	06/02/2021	3:00	0.4	112.5	07/02/2021	3:00	0.4	90	08/02/2021	3:00	1.8	157.5
05/02/2021	4:00	0.9	292.5	06/02/2021	4:00	0.4	112.5	07/02/2021	4:00	1.3	337.5	08/02/2021	4:00	1.8	67.5
05/02/2021	5:00	1.8	67.5	06/02/2021	5:00	0	112.5	07/02/2021	5:00	1.3	67.5	08/02/2021	5:00	2.2	67.5
05/02/2021	6:00	1.3	90	06/02/2021	6:00	0.4	0	07/02/2021	6:00	1.8	90	08/02/2021	6:00	2.7	90
05/02/2021	7:00	1.3	67.5	06/02/2021	7:00	0.4	112.5	07/02/2021	7:00	1.3	67.5	08/02/2021	7:00	2.7	90
05/02/2021	8:00	0.9	67.5	06/02/2021	8:00	0.4	0	07/02/2021	8:00	1.8	67.5	08/02/2021	8:00	2.2	90
05/02/2021	9:00	0.9	135	06/02/2021	9:00	0	0	07/02/2021	9:00	2.2	90	08/02/2021	9:00	2.7	67.5
05/02/2021	10:00	0.9	45	06/02/2021	10:00	0	0	07/02/2021	10:00	2.2	67.5	08/02/2021	10:00	2.2	90
05/02/2021	11:00	1.3	45	06/02/2021	11:00	0	112.5	07/02/2021	11:00	2.2	90	08/02/2021	11:00	2.2	67.5
05/02/2021	12:00	1.8	90	06/02/2021	12:00	1.8	112.5	07/02/2021	12:00	1.8	67.5	08/02/2021	12:00	1.8	90
05/02/2021	13:00	1.8	45	06/02/2021	13:00	1.3	112.5	07/02/2021	13:00	2.2	90	08/02/2021	13:00	4.5	90
05/02/2021	14:00	1.3	67.5	06/02/2021	14:00	1.3	112.5	07/02/2021	14:00	2.2	90	08/02/2021	14:00	4	90
05/02/2021	15:00	1.8	90	06/02/2021	15:00	0.9	112.5	07/02/2021	15:00	2.7	67.5	08/02/2021	15:00	4	90
05/02/2021	16:00	2.7	315	06/02/2021	16:00	0.9	112.5	07/02/2021	16:00	3.1	67.5	08/02/2021	16:00	3.1	112.5
05/02/2021	17:00	2.2	247.5	06/02/2021	17:00	0.4	112.5	07/02/2021	17:00	2.7	67.5	08/02/2021	17:00	2.7	90
05/02/2021	18:00	0.9	315	06/02/2021	18:00	0.4	112.5	07/02/2021	18:00	2.7	67.5	08/02/2021	18:00	3.1	67.5
05/02/2021	19:00	0.9	45	06/02/2021	19:00	0	112.5	07/02/2021	19:00	3.6	45	08/02/2021	19:00	3.1	90
05/02/2021	20:00	1.8	337.5	06/02/2021	20:00	0	112.5	07/02/2021	20:00	3.1	90	08/02/2021	20:00	2.2	90
05/02/2021	21:00	1.8	90	06/02/2021	21:00	0.4	112.5	07/02/2021	21:00	3.1	45	08/02/2021	21:00	2.7	90
05/02/2021	22:00	1.3	337.5	06/02/2021	22:00	0.4	112.5	07/02/2021	22:00	3.1	45	08/02/2021	22:00	2.7	90
05/02/2021	23:00	1.8	90	06/02/2021	23:00	0.4	112.5	07/02/2021	23:00	2.7	67.5	08/02/2021	23:00	2.7	45

Mean Wind Speed and Wind Direction recorded by the weather station setup at the rooftop of Hong Kong Children's Hospital

Date	Time	Wind Speed (m/s)	Wind Direction	Date	Time	Wind Speed (m/s)	Wind Direction	Date	Time	Wind Speed (m/s)	Wind Direction	Date	Time	Wind Speed (m/s)	Wind Direction
09/02/2021	0:00	0.4	67.5	10/02/2021	0:00	0	247.5	11/02/2021	0:00	0.4	270	12/02/2021	0:00	0.9	112.5
09/02/2021	1:00	0.4	90	10/02/2021	1:00	0.9	247.5	11/02/2021	1:00	0.4	270	12/02/2021	1:00	0.4	112.5
09/02/2021	2:00	0.4	112.5	10/02/2021	2:00	0.4	225	11/02/2021	2:00	0.4	90	12/02/2021	2:00	0.4	112.5
09/02/2021	3:00	1.3	45	10/02/2021	3:00	0.9	67.5	11/02/2021	3:00	0.4	90	12/02/2021	3:00	0.4	112.5
09/02/2021	4:00	0.9	45	10/02/2021	4:00	0.4	270	11/02/2021	4:00	0.4	112.5	12/02/2021	4:00	0.4	112.5
09/02/2021	5:00	0.4	45	10/02/2021	5:00	0.4	247.5	11/02/2021	5:00	0.4	90	12/02/2021	5:00	1.8	112.5
09/02/2021	6:00	0.4	67.5	10/02/2021	6:00	0.4	180	11/02/2021	6:00	0.9	112.5	12/02/2021	6:00	2.2	157.5
09/02/2021	7:00	0.4	315	10/02/2021	7:00	0.4	247.5	11/02/2021	7:00	0.9	90	12/02/2021	7:00	2.7	135
09/02/2021	8:00	0.9	270	10/02/2021	8:00	0.4	270	11/02/2021	8:00	1.3	90	12/02/2021	8:00	2.7	270
09/02/2021	9:00	0.4	337.5	10/02/2021	9:00	0.4	135	11/02/2021	9:00	1.3	112.5	12/02/2021	9:00	2.7	112.5
09/02/2021	10:00	0.9	292.5	10/02/2021	10:00	0.4	157.5	11/02/2021	10:00	1.3	90	12/02/2021	10:00	0.4	112.5
09/02/2021	11:00	0.4	337.5	10/02/2021	11:00	0.4	157.5	11/02/2021	11:00	1.3	112.5	12/02/2021	11:00	0.4	202.5
09/02/2021	12:00	0.9	315	10/02/2021	12:00	0.4	202.5	11/02/2021	12:00	1.3	112.5	12/02/2021	12:00	0.4	225
09/02/2021	13:00	0.9	112.5	10/02/2021	13:00	1.3	225	11/02/2021	13:00	2.2	90	12/02/2021	13:00	0.4	247.5
09/02/2021	14:00	0.9	225	10/02/2021	14:00	1.3	247.5	11/02/2021	14:00	1.8	112.5	12/02/2021	14:00	0.4	157.5
09/02/2021	15:00	0.9	112.5	10/02/2021	15:00	0.9	135	11/02/2021	15:00	1.3	112.5	12/02/2021	15:00	1.3	225
09/02/2021	16:00	0.4	67.5	10/02/2021	16:00	0.9	112.5	11/02/2021	16:00	0.9	112.5	12/02/2021	16:00	0.4	225
09/02/2021	17:00	0.4	337.5	10/02/2021	17:00	1.3	112.5	11/02/2021	17:00	0.9	112.5	12/02/2021	17:00	0.4	225
09/02/2021	18:00	0.4	135	10/02/2021	18:00	1.3	135	11/02/2021	18:00	1.3	112.5	12/02/2021	18:00	0.4	225
09/02/2021	19:00	0.4	112.5	10/02/2021	19:00	0.9	112.5	11/02/2021	19:00	0.9	112.5	12/02/2021	19:00	0.4	225
09/02/2021	20:00	0.4	180	10/02/2021	20:00	1.3	112.5	11/02/2021	20:00	1.3	90	12/02/2021	20:00	0.4	225
09/02/2021	21:00	0.9	180	10/02/2021	21:00	0.9	112.5	11/02/2021	21:00	0.9	112.5	12/02/2021	21:00	0.4	247.5
09/02/2021	22:00	0.9	315	10/02/2021	22:00	1.3	112.5	11/02/2021	22:00	0.9	135	12/02/2021	22:00	0.9	247.5
09/02/2021	23:00	0.9	292.5	10/02/2021	23:00	0.9	112.5	11/02/2021	23:00	0.9	270	12/02/2021	23:00	0.4	247.5

Mean Wind Speed and Wind Direction recorded by the weather station setup at the rooftop of Hong Kong Children's Hospital

Date	Time	Wind Speed (m/s)	Wind Direction	Date	Time	Wind Speed (m/s)	Wind Direction	Date	Time	Wind Speed (m/s)	Wind Direction	Date	Time	Wind Speed (m/s)	Wind Direction
13/02/2021	0:00	0	270	14/02/2021	0:00	1.8	45	15/02/2021	0:00	0	202.5	16/02/2021	0:00	0.9	45
13/02/2021	1:00	0	270	14/02/2021	1:00	1.3	90	15/02/2021	1:00	0	135	16/02/2021	1:00	0.9	135
13/02/2021	2:00	0.4	270	14/02/2021	2:00	1.3	90	15/02/2021	2:00	0.4	45	16/02/2021	2:00	1.3	112.5
13/02/2021	3:00	0.4	270	14/02/2021	3:00	1.3	112.5	15/02/2021	3:00	0.4	0	16/02/2021	3:00	1.3	90
13/02/2021	4:00	0.9	270	14/02/2021	4:00	1.8	45	15/02/2021	4:00	0.9	90	16/02/2021	4:00	1.8	90
13/02/2021	5:00	0.9	270	14/02/2021	5:00	1.3	45	15/02/2021	5:00	0.9	90	16/02/2021	5:00	1.8	90
13/02/2021	6:00	1.8	247.5	14/02/2021	6:00	1.3	112.5	15/02/2021	6:00	0.9	45	16/02/2021	6:00	1.3	90
13/02/2021	7:00	1.8	157.5	14/02/2021	7:00	1.3	90	15/02/2021	7:00	0.9	292.5	16/02/2021	7:00	1.3	90
13/02/2021	8:00	1.8	157.5	14/02/2021	8:00	1.8	90	15/02/2021	8:00	0.9	247.5	16/02/2021	8:00	0.9	180
13/02/2021	9:00	2.2	135	14/02/2021	9:00	1.3	90	15/02/2021	9:00	0.9	112.5	16/02/2021	9:00	0.9	180
13/02/2021	10:00	1.3	112.5	14/02/2021	10:00	1.3	112.5	15/02/2021	10:00	0.9	22.5	16/02/2021	10:00	1.3	112.5
13/02/2021	11:00	1.3	90	14/02/2021	11:00	1.8	112.5	15/02/2021	11:00	0.9	22.5	16/02/2021	11:00	2.2	90
13/02/2021	12:00	1.3	90	14/02/2021	12:00	1.3	67.5	15/02/2021	12:00	1.3	22.5	16/02/2021	12:00	1.8	112.5
13/02/2021	13:00	1.8	22.5	14/02/2021	13:00	1.8	135	15/02/2021	13:00	1.3	112.5	16/02/2021	13:00	0.4	90
13/02/2021	14:00	1.3	45	14/02/2021	14:00	1.3	112.5	15/02/2021	14:00	1.8	67.5	16/02/2021	14:00	0.9	112.5
13/02/2021	15:00	0.9	67.5	14/02/2021	15:00	0.9	90	15/02/2021	15:00	1.3	135	16/02/2021	15:00	0.9	90
13/02/2021	16:00	0.9	90	14/02/2021	16:00	0	112.5	15/02/2021	16:00	0.4	45	16/02/2021	16:00	0.4	90
13/02/2021	17:00	0.4	337.5	14/02/2021	17:00	0	112.5	15/02/2021	17:00	0.9	112.5	16/02/2021	17:00	0.9	135
13/02/2021	18:00	0.4	67.5	14/02/2021	18:00	0.4	112.5	15/02/2021	18:00	0.4	337.5	16/02/2021	18:00	0.9	112.5
13/02/2021	19:00	0.4	22.5	14/02/2021	19:00	0.9	112.5	15/02/2021	19:00	0.9	315	16/02/2021	19:00	0.9	90
13/02/2021	20:00	0.4	45	14/02/2021	20:00	0.4	112.5	15/02/2021	20:00	0.9	67.5	16/02/2021	20:00	0.9	112.5
13/02/2021	21:00	0.9	90	14/02/2021	21:00	0.4	112.5	15/02/2021	21:00	0.9	112.5	16/02/2021	21:00	0.9	90
13/02/2021	22:00	0.4	90	14/02/2021	22:00	0.4	112.5	15/02/2021	22:00	0.4	337.5	16/02/2021	22:00	0.9	90
13/02/2021	23:00	0.9	90	14/02/2021	23:00	0.4	135	15/02/2021	23:00	0.4	112.5	16/02/2021	23:00	1.3	90

Mean Wind Speed and Wind Direction recorded by the weather station setup at the rooftop of Hong Kong Children's Hospital

Date	Time	Wind Speed (m/s)	Wind Direction	Date	Time	Wind Speed (m/s)	Wind Direction	Date	Time	Wind Speed (m/s)	Wind Direction	Date	Time	Wind Speed (m/s)	Wind Direction
17/02/2021	0:00	0.4	135	18/02/2021	0:00	0.4	112.5	19/02/2021	0:00	0.4	112.5	20/02/2021	0:00	0.9	135
17/02/2021	1:00	0.4	135	18/02/2021	1:00	0.4	112.5	19/02/2021	1:00	0.4	112.5	20/02/2021	1:00	0.4	112.5
17/02/2021	2:00	0.4	135	18/02/2021	2:00	0.4	135	19/02/2021	2:00	0.4	112.5	20/02/2021	2:00	0.4	90
17/02/2021	3:00	0.9	135	18/02/2021	3:00	0.9	135	19/02/2021	3:00	0.4	135	20/02/2021	3:00	0.4	112.5
17/02/2021	4:00	0.4	135	18/02/2021	4:00	0.9	112.5	19/02/2021	4:00	0.4	135	20/02/2021	4:00	1.3	90
17/02/2021	5:00	0.4	135	18/02/2021	5:00	1.3	112.5	19/02/2021	5:00	0.4	112.5	20/02/2021	5:00	1.3	112.5
17/02/2021	6:00	0.4	247.5	18/02/2021	6:00	1.8	112.5	19/02/2021	6:00	0.4	112.5	20/02/2021	6:00	1.3	135
17/02/2021	7:00	1.3	135	18/02/2021	7:00	1.3	112.5	19/02/2021	7:00	0.4	112.5	20/02/2021	7:00	1.3	112.5
17/02/2021	8:00	1.3	112.5	18/02/2021	8:00	1.8	112.5	19/02/2021	8:00	0.4	112.5	20/02/2021	8:00	1.3	90
17/02/2021	9:00	1.3	112.5	18/02/2021	9:00	1.3	112.5	19/02/2021	9:00	0.9	112.5	20/02/2021	9:00	1.3	90
17/02/2021	10:00	1.3	112.5	18/02/2021	10:00	1.3	112.5	19/02/2021	10:00	0.4	112.5	20/02/2021	10:00	1.3	135
17/02/2021	11:00	1.3	112.5	18/02/2021	11:00	1.3	112.5	19/02/2021	11:00	1.3	112.5	20/02/2021	11:00	1.3	135
17/02/2021	12:00	1.3	135	18/02/2021	12:00	1.3	112.5	19/02/2021	12:00	1.3	90	20/02/2021	12:00	0.9	112.5
17/02/2021	13:00	1.3	135	18/02/2021	13:00	1.3	90	19/02/2021	13:00	0.9	112.5	20/02/2021	13:00	1.3	112.5
17/02/2021	14:00	1.3	135	18/02/2021	14:00	1.3	112.5	19/02/2021	14:00	1.3	135	20/02/2021	14:00	1.3	112.5
17/02/2021	15:00	0.9	112.5	18/02/2021	15:00	1.3	112.5	19/02/2021	15:00	1.3	112.5	20/02/2021	15:00	1.3	90
17/02/2021	16:00	1.3	90	18/02/2021	16:00	1.8	112.5	19/02/2021	16:00	1.3	112.5	20/02/2021	16:00	0.9	112.5
17/02/2021	17:00	1.3	112.5	18/02/2021	17:00	1.8	112.5	19/02/2021	17:00	1.3	112.5	20/02/2021	17:00	0.9	112.5
17/02/2021	18:00	1.3	112.5	18/02/2021	18:00	0.9	112.5	19/02/2021	18:00	0.9	135	20/02/2021	18:00	0.4	112.5
17/02/2021	19:00	0.4	112.5	18/02/2021	19:00	0.9	112.5	19/02/2021	19:00	0.9	112.5	20/02/2021	19:00	0.4	112.5
17/02/2021	20:00	0.9	112.5	18/02/2021	20:00	0.9	135	19/02/2021	20:00	0.9	112.5	20/02/2021	20:00	0.9	135
17/02/2021	21:00	0.4	112.5	18/02/2021	21:00	0.9	135	19/02/2021	21:00	0.4	112.5	20/02/2021	21:00	0.9	112.5
17/02/2021	22:00	0.9	112.5	18/02/2021	22:00	1.3	135	19/02/2021	22:00	0.4	135	20/02/2021	22:00	0.9	112.5
17/02/2021	23:00	0.9	112.5	18/02/2021	23:00	1.3	135	19/02/2021	23:00	0.9	135	20/02/2021	23:00	0.9	67.5

Mean Wind Speed and Wind Direction recorded by the weather station setup at the rooftop of Hong Kong Children's Hospital

Date	Time	Wind Speed (m/s)	Wind Direction	Date	Time	Wind Speed (m/s)	Wind Direction	Date	Time	Wind Speed (m/s)	Wind Direction	Date	Time	Wind Speed (m/s)	Wind Direction
21/02/2021	0:00	1.3	112.5	22/02/2021	0:00	1.3	90	23/02/2021	0:00	1.3	112.5	24/02/2021	0:00	0.9	135
21/02/2021	1:00	1.8	112.5	22/02/2021	1:00	1.8	45	23/02/2021	1:00	0.9	90	24/02/2021	1:00	0.9	135
21/02/2021	2:00	1.3	112.5	22/02/2021	2:00	2.2	67.5	23/02/2021	2:00	0.9	90	24/02/2021	2:00	1.3	135
21/02/2021	3:00	1.8	112.5	22/02/2021	3:00	1.3	67.5	23/02/2021	3:00	1.3	112.5	24/02/2021	3:00	1.3	135
21/02/2021	4:00	1.8	90	22/02/2021	4:00	1.8	67.5	23/02/2021	4:00	1.8	112.5	24/02/2021	4:00	0.9	135
21/02/2021	5:00	1.8	90	22/02/2021	5:00	1.3	45	23/02/2021	5:00	1.3	112.5	24/02/2021	5:00	0.9	135
21/02/2021	6:00	1.8	112.5	22/02/2021	6:00	1.8	67.5	23/02/2021	6:00	1.3	112.5	24/02/2021	6:00	0.9	135
21/02/2021	7:00	1.3	90	22/02/2021	7:00	2.2	0	23/02/2021	7:00	0.9	112.5	24/02/2021	7:00	0.9	112.5
21/02/2021	8:00	0.4	90	22/02/2021	8:00	1.8	67.5	23/02/2021	8:00	0.9	112.5	24/02/2021	8:00	0.9	112.5
21/02/2021	9:00	0.9	112.5	22/02/2021	9:00	1.3	90	23/02/2021	9:00	1.3	112.5	24/02/2021	9:00	0.9	90
21/02/2021	10:00	0.4	112.5	22/02/2021	10:00	1.3	337.5	23/02/2021	10:00	1.3	112.5	24/02/2021	10:00	0.9	112.5
21/02/2021	11:00	0.4	112.5	22/02/2021	11:00	1.3	45	23/02/2021	11:00	1.8	90	24/02/2021	11:00	0.9	112.5
21/02/2021	12:00	0.9	112.5	22/02/2021	12:00	1.3	90	23/02/2021	12:00	0.9	112.5	24/02/2021	12:00	1.3	135
21/02/2021	13:00	0.4	112.5	22/02/2021	13:00	0.9	67.5	23/02/2021	13:00	1.3	112.5	24/02/2021	13:00	0.9	112.5
21/02/2021	14:00	0.4	112.5	22/02/2021	14:00	1.8	90	23/02/2021	14:00	0.9	112.5	24/02/2021	14:00	0.9	135
21/02/2021	15:00	0.9	90	22/02/2021	15:00	0.9	112.5	23/02/2021	15:00	1.3	90	24/02/2021	15:00	1.8	112.5
21/02/2021	16:00	1.8	135	22/02/2021	16:00	0.9	90	23/02/2021	16:00	1.3	135	24/02/2021	16:00	1.3	157.5
21/02/2021	17:00	2.2	135	22/02/2021	17:00	0.9	112.5	23/02/2021	17:00	1.3	135	24/02/2021	17:00	1.3	157.5
21/02/2021	18:00	1.8	135	22/02/2021	18:00	0.9	112.5	23/02/2021	18:00	0.9	112.5	24/02/2021	18:00	0.9	247.5
21/02/2021	19:00	2.2	22.5	22/02/2021	19:00	1.3	247.5	23/02/2021	19:00	0.9	112.5	24/02/2021	19:00	1.3	270
21/02/2021	20:00	2.2	292.5	22/02/2021	20:00	1.8	315	23/02/2021	20:00	0.9	112.5	24/02/2021	20:00	0.9	270
21/02/2021	21:00	3.1	225	22/02/2021	21:00	1.3	247.5	23/02/2021	21:00	0.9	112.5	24/02/2021	21:00	0.9	270
21/02/2021	22:00	2.7	112.5	22/02/2021	22:00	0.9	247.5	23/02/2021	22:00	0.9	112.5	24/02/2021	22:00	0.4	270
21/02/2021	23:00	1.8	90	22/02/2021	23:00	0.9	247.5	23/02/2021	23:00	0.9	112.5	24/02/2021	23:00	0.4	270

Mean Wind Speed and Wind Direction recorded by the weather station setup at the rooftop of Hong Kong Children's Hospital

Date	Time	Wind Speed (m/s)	Wind Direction	Date	Time	Wind Speed (m/s)	Wind Direction	Date	Time	Wind Speed (m/s)	Wind Direction	Date	Time	Wind Speed (m/s)	Wind Direction
25/02/2021	0:00	0	270	26/02/2021	0:00	1.3	45	27/02/2021	0:00	2.7	90	28/02/2021	0:00	0.9	112.5
25/02/2021	1:00	0	270	26/02/2021	1:00	1.3	67.5	27/02/2021	1:00	2.2	90	28/02/2021	1:00	0.4	67.5
25/02/2021	2:00	0.4	292.5	26/02/2021	2:00	1.3	337.5	27/02/2021	2:00	1.8	112.5	28/02/2021	2:00	0.4	112.5
25/02/2021	3:00	0.4	292.5	26/02/2021	3:00	1.3	45	27/02/2021	3:00	1.8	90	28/02/2021	3:00	0.9	337.5
25/02/2021	4:00	0.4	337.5	26/02/2021	4:00	1.3	67.5	27/02/2021	4:00	1.8	67.5	28/02/2021	4:00	0.9	135
25/02/2021	5:00	0.9	337.5	26/02/2021	5:00	1.3	337.5	27/02/2021	5:00	1.3	112.5	28/02/2021	5:00	0.4	135
25/02/2021	6:00	0.4	337.5	26/02/2021	6:00	1.3	112.5	27/02/2021	6:00	1.8	45	28/02/2021	6:00	0.9	135
25/02/2021	7:00	0.4	337.5	26/02/2021	7:00	1.3	45	27/02/2021	7:00	1.8	90	28/02/2021	7:00	0.9	135
25/02/2021	8:00	0.4	337.5	26/02/2021	8:00	0.9	112.5	27/02/2021	8:00	1.3	45	28/02/2021	8:00	1.3	45
25/02/2021	9:00	0.4	135	26/02/2021	9:00	0.4	67.5	27/02/2021	9:00	1.3	67.5	28/02/2021	9:00	1.3	112.5
25/02/2021	10:00	0.4	135	26/02/2021	10:00	0.4	112.5	27/02/2021	10:00	1.8	45	28/02/2021	10:00	0.9	90
25/02/2021	11:00	1.3	112.5	26/02/2021	11:00	0.4	67.5	27/02/2021	11:00	1.3	67.5	28/02/2021	11:00	1.3	112.5
25/02/2021	12:00	1.3	112.5	26/02/2021	12:00	0.4	292.5	27/02/2021	12:00	1.8	90	28/02/2021	12:00	1.8	90
25/02/2021	13:00	1.3	112.5	26/02/2021	13:00	0.9	202.5	27/02/2021	13:00	1.3	22.5	28/02/2021	13:00	1.3	112.5
25/02/2021	14:00	0.4	90	26/02/2021	14:00	1.3	90	27/02/2021	14:00	0.9	22.5	28/02/2021	14:00	0.9	90
25/02/2021	15:00	0.4	90	26/02/2021	15:00	1.3	135	27/02/2021	15:00	1.3	157.5	28/02/2021	15:00	0.9	112.5
25/02/2021	16:00	0.4	112.5	26/02/2021	16:00	1.8	157.5	27/02/2021	16:00	0.9	180	28/02/2021	16:00	0.9	112.5
25/02/2021	17:00	0.4	112.5	26/02/2021	17:00	1.3	67.5	27/02/2021	17:00	0.4	112.5	28/02/2021	17:00	0.4	112.5
25/02/2021	18:00	0.9	135	26/02/2021	18:00	1.3	90	27/02/2021	18:00	0.4	90	28/02/2021	18:00	0.9	112.5
25/02/2021	19:00	0.9	112.5	26/02/2021	19:00	1.8	337.5	27/02/2021	19:00	0.4	90	28/02/2021	19:00	1.3	112.5
25/02/2021	20:00	0.4	90	26/02/2021	20:00	1.8	67.5	27/02/2021	20:00	0.9	112.5	28/02/2021	20:00	0.9	112.5
25/02/2021	21:00	1.8	247.5	26/02/2021	21:00	2.2	90	27/02/2021	21:00	1.3	112.5	28/02/2021	21:00	0.9	90
25/02/2021	22:00	0.9	90	26/02/2021	22:00	2.2	112.5	27/02/2021	22:00	1.3	112.5	28/02/2021	22:00	1.3	112.5
25/02/2021	23:00	1.8	22.5	26/02/2021	23:00	1.3	112.5	27/02/2021	23:00	0.9	112.5	28/02/2021	23:00	1.3	112.5

Appendix G – 24-hr TSP monitoring results and graphical presentation

Location: AM3 – Sky Tower

Start Date	Weather	Air Temp. (°C)	Atmospheric Pressure (hPa)	Filter weight (g)		Particulate weight (g)	Elapse Time		Sampling Time (min)	Flow Rate (cfm)		Av. Flow (m ³ /min)	Total vol. (m ³)	Conc. (µg/m ³)
				Initial	Final		Initial	Final		Initial	Final			
02/02/2021	Sunny	25.6	1019.7	15.5210	15.7079	0.1869	2470.77	2494.81	1442	52	52	1.48	2140	87
08/02/2021	Sunny	21.5	1018.9	18.4350	18.7086	0.2736	2496.25	2520.29	1442	52	52	1.49	2154	127
11/02/2021	Cloudy	20	1014.7	15.4901	15.5600	0.0699	2522.36	2546.39	1442	48	48	1.39	2004	35
17/02/2021	Sunny	19	1019.5	15.8123	15.9330	0.1207	2546.47	2570.52	1443	50	50	1.46	2100	57
23/02/2021	Sunny	23.6	1013.3	15.8419	16.0428	0.2009	2571.37	2595.39	1441	50	50	1.44	2074	97
													Maximum	127
													Minimum	35
													Average	81
													Action Level	182
													Limit Level	260

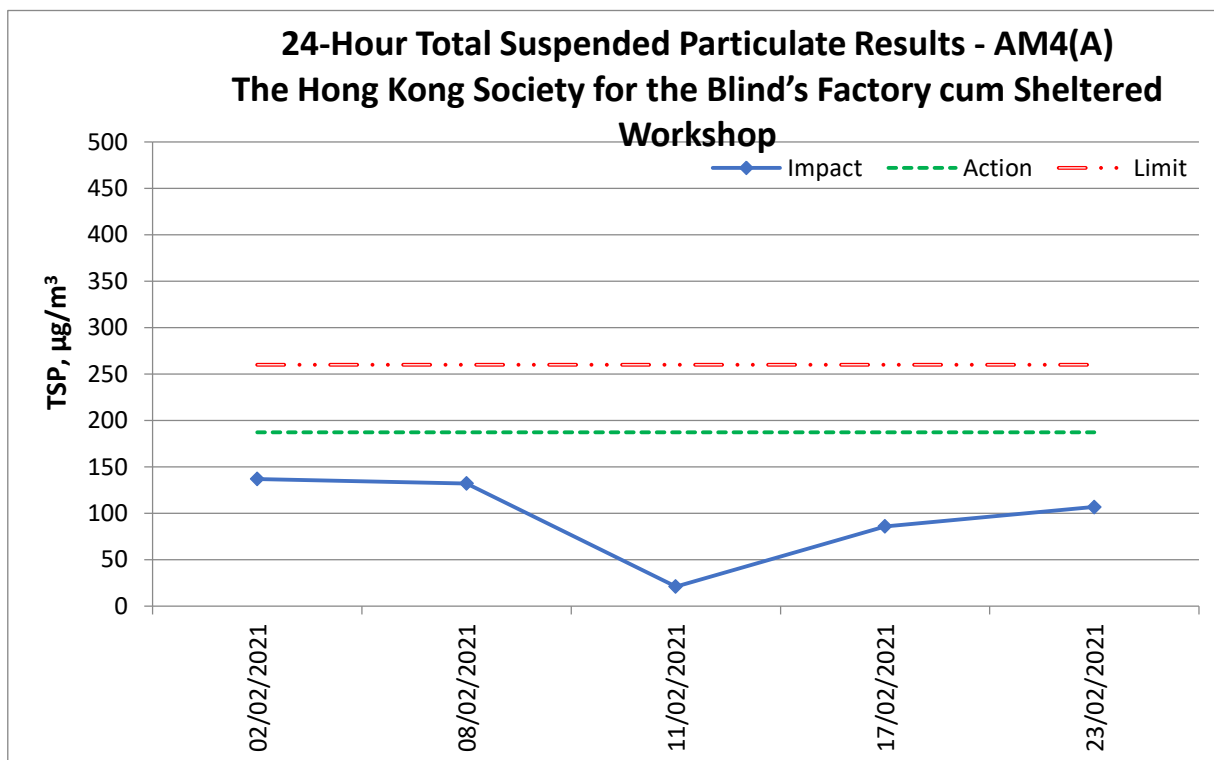
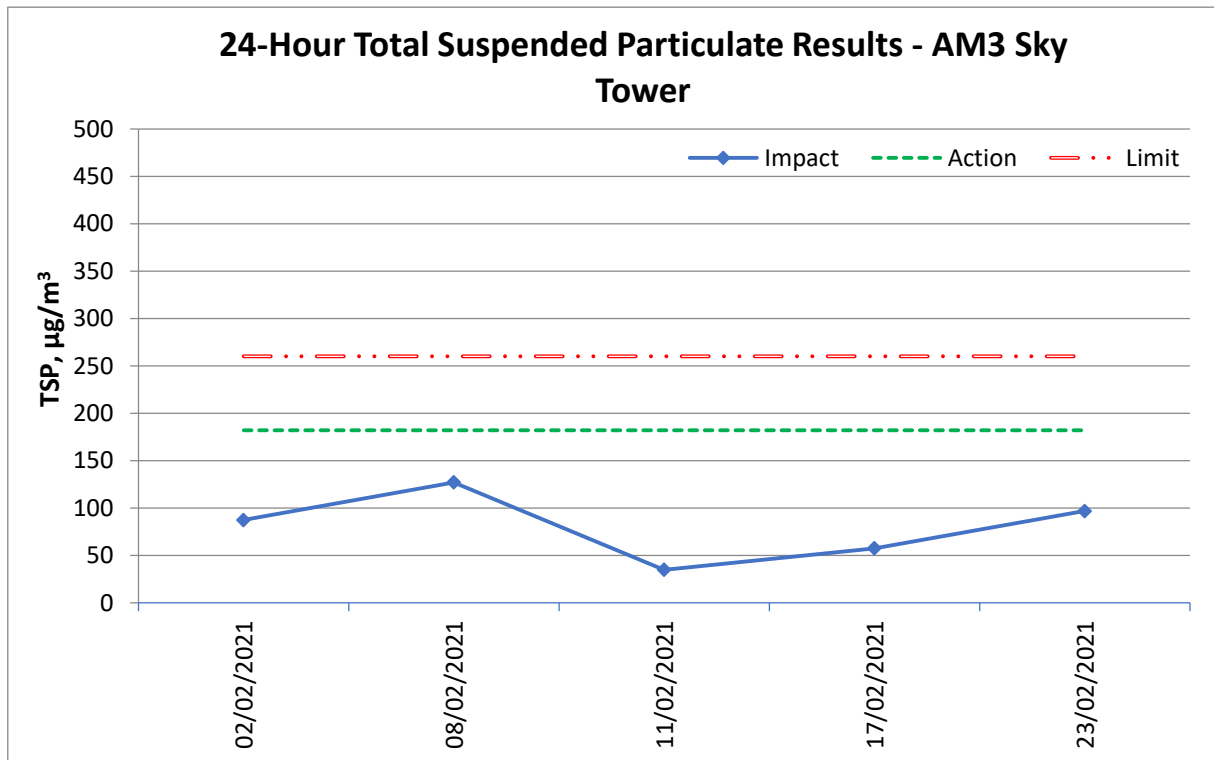
Location: AM4(A) – The Hong Kong Society for the Blind's Factory cum Sheltered Workshop

Start Date	Weather	Air Temp. (°C)	Atmospheric Pressure (hPa)	Filter weight (g)		Particulate weight (g)	Elapse Time		Sampling Time (min)	Flow Rate (cfm)		Av. Flow (m ³ /min)	Total vol. (m ³)	Conc. (µg/m ³)
				Initial	Final		Initial	Final		Initial	Final			
02/02/2021	Sunny	25.6	1019.7	18.4130	18.7133	0.3003	2120.24	2144.29	1443	54	54	1.52	2195	137
08/02/2021	Sunny	21.5	1018.9	15.5319	15.8126	0.2807	2145.54	2169.58	1442	52	52	1.47	2125	132
11/02/2021	Cloudy	20	1014.7	18.6403	18.6854	0.0451	2169.7	2193.73	1442	52	52	1.49	2153	21
17/02/2021	Sunny	19	1019.5	18.3875	18.5807	0.1932	2193.91	2217.95	1442	54	54	1.56	2252	86
23/02/2021	Sunny	23.6	1013.3	18.5428	18.7614	0.2186	2221.68	2245.7	1441	50	50	1.42	2050	107
													Maximum	137
													Minimum	21
													Average	97
													Action Level	187
													Limit Level	260

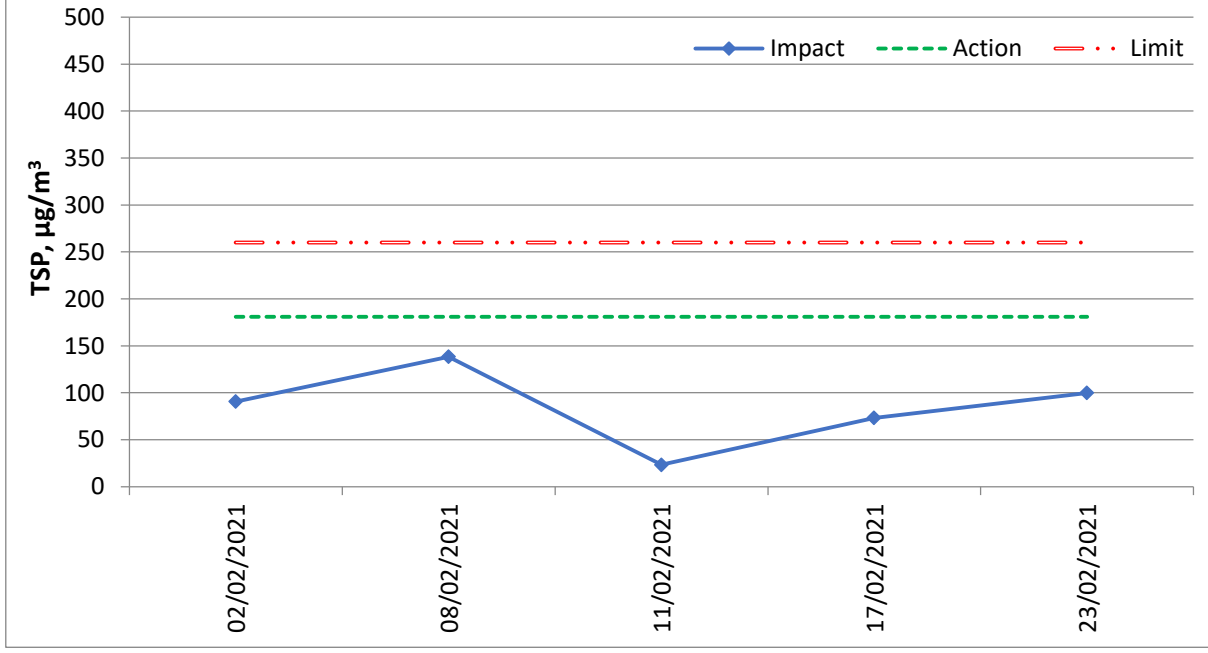
Location: AM7 – Hong Kong Children’s Hospital

Start Date	Weather	Air Temp. (°C)	Atmospheric Pressure (hPa)	Filter weight (g)		Particulate weight (g)	Elapse Time		Sampling Time (min)	Flow Rate (cfm)		Av. Flow (m ³ /min)	Total vol. (m ³)	Conc. (µg/m ³)
				Initial	Final		Initial	Final		Initial	Final			
02/02/2021	Sunny	25.6	1019.7	15.7385	15.9237	0.1852	7005.24	7029.29	1443	52	52	1.42	2042	91
08/02/2021	Sunny	21.5	1018.9	15.7148	15.9881	0.2733	7029.36	7053.4	1442	50	50	1.37	1975	138
11/02/2021	Cloudy	20	1014.7	17.9791	18.0263	0.0472	7053.49	7077.53	1442	50	50	1.41	2027	23
17/02/2021	Sunny	19	1019.5	18.0458	18.2076	0.1618	7077.68	7101.71	1442	54	54	1.53	2205	73
23/02/2021	Sunny	23.6	1013.3	18.3590	18.5598	0.2008	7103.31	7127.34	1442	50	50	1.40	2011	100
												Maximum	138	
												Minimum	23	
												Average	85	
												Action Level	181	
												Limit Level	260	

24-hour average TSP



24-Hour Total Suspended Particulate Results - AM7 Hong Kong Children's Hospital



Appendix H – 1-hr TSP monitoring results and graphical presentation

Location:
**AM3 -
 Sky Tower**

Date	Measurement Period			1-hr TSP concentration, $\mu\text{g}/\text{m}^3$	Weather
02/02/2021	9:00	-	10:00	68	Sunny
	10:00	-	11:00	73	
	11:00	-	12:00	79	
08/02/2021	13:00	-	14:00	74	Sunny
	14:00	-	15:00	88	
	15:00	-	16:00	91	
11/02/2021	9:00	-	10:00	28	Cloudy
	10:00	-	11:00	28	
	11:00	-	12:00	32	
17/02/2021	9:00	-	10:00	33	Sunny
	10:00	-	11:00	34	
	11:00	-	12:00	37	
23/02/2021	13:00	-	14:00	35	Sunny
	14:00	-	15:00	38	
	15:00	-	16:00	42	
Maximum				91	
Minimum				28	
Average				52	
Action Level				297	
Limit Level				500	

Location:
**AM4(A) -
The Hong Kong
Society for the
Blind's Factory
cum Sheltered
Workshop**

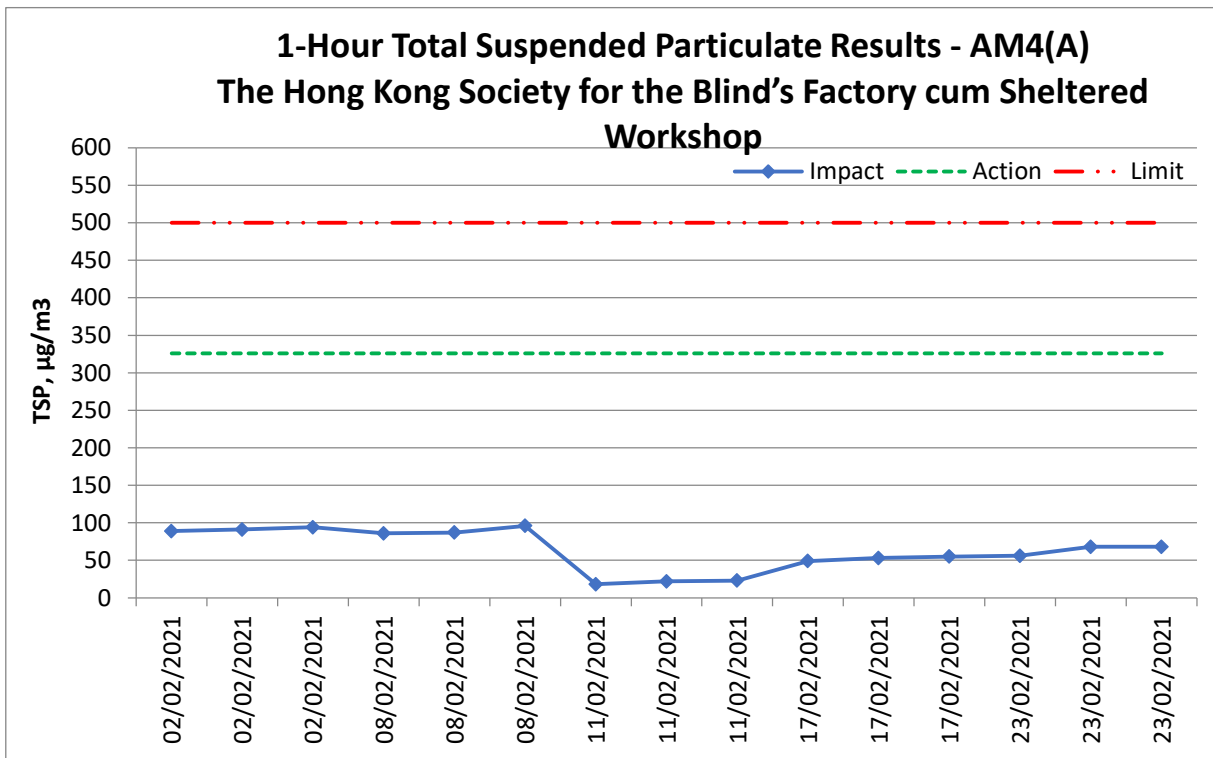
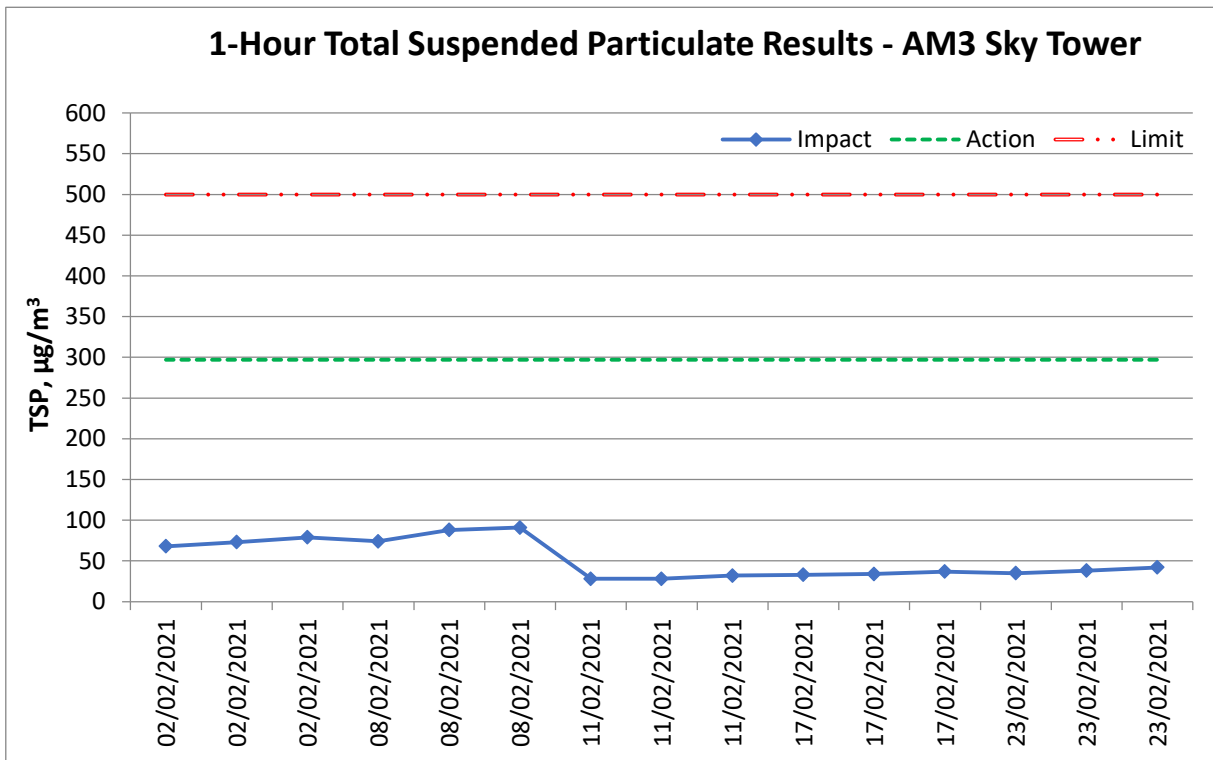
Date	Measurement Period			1-hr TSP concentration, $\mu\text{g}/\text{m}^3$	Weather
02/02/2021	13:00	-	14:00	89	Sunny
	14:00	-	15:00	91	
	15:00	-	16:00	94	
08/02/2021	14:00	-	15:00	86	Sunny
	15:00	-	16:00	87	
	16:00	-	17:00	96	
11/02/2021	13:00	-	14:00	18	Cloudy
	14:00	-	15:00	22	
	15:00	-	16:00	23	
17/02/2021	9:00	-	10:00	49	Sunny
	10:00	-	11:00	53	
	11:00	-	12:00	55	
23/02/2021	9:00	-	10:00	56	Sunny
	10:00	-	11:00	68	
	11:00	-	12:00	68	
Maximum				96	
Minimum				18	
Average				64	
Action Level				326	
Limit Level				500	

Location:
**AM7 -
 Hong
 Children's
 Hospital**

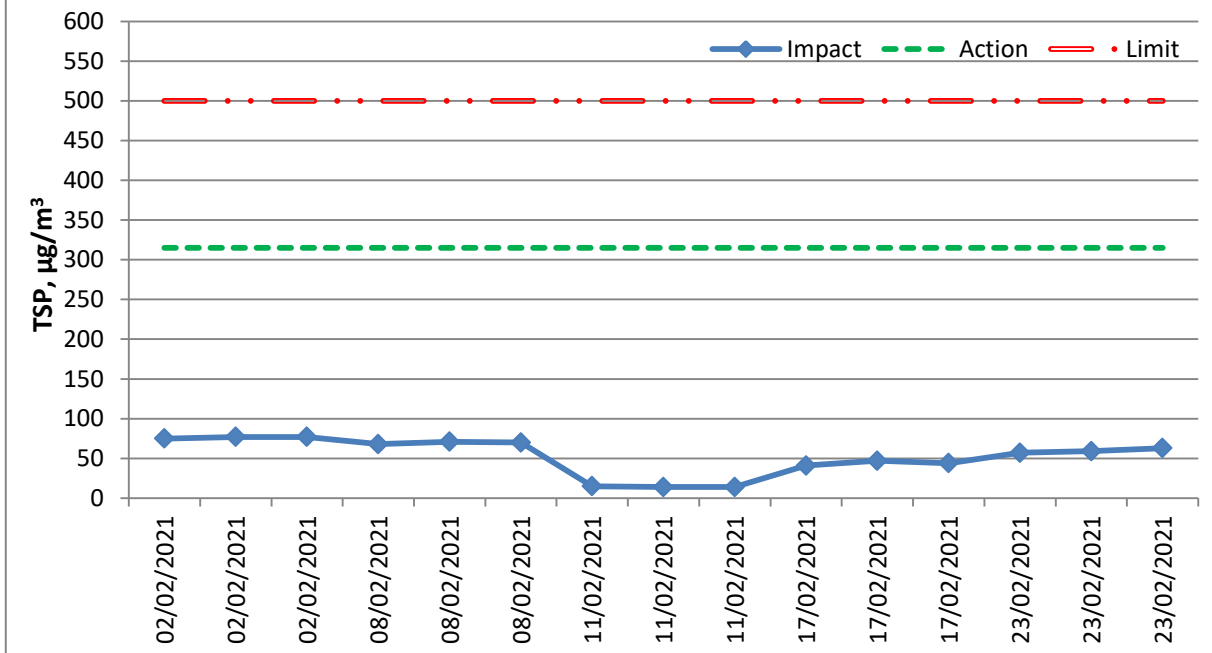
Kong

Date	Measurement Period			1-hr TSP concentration, μg/m ³	Weather
		-			
02/02/2021	13:00	-	14:00	75	Sunny
	14:00	-	15:00	77	
	15:00	-	16:00	77	
08/02/2021	9:00	-	10:00	68	Sunny
	10:00	-	11:00	71	
	11:00	-	12:00	70	
11/02/2021	9:00	-	10:00	15	Cloudy
	10:00	-	11:00	14	
	11:00	-	12:00	14	
17/02/2021	13:00	-	14:00	41	Sunny
	14:00	-	15:00	47	
	15:00	-	16:00	44	
23/02/2021	13:15	-	14:15	57	Sunny
	14:15	-	15:15	59	
	15:15	-	16:15	63	
Maximum				77	
Minimum				14	
Average				53	
Action Level				315	
Limit Level				500	

1-hour average TSP



1-Hour Total Suspended Particulate Results - AM7 Hong Kong Children's Hospital



Appendix I – Event and Action Plan for air quality

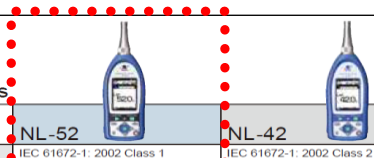
Event	Action			
	ET	IEC	Supervisor / ER	Contractor
Action Level being exceeded by one sampling	<ol style="list-style-type: none"> 1. Identify source and investigate the causes of exceedance; 2. Inform Contractor, IEC and Supervisor /ER; 3. Repeat measurement to confirm finding. 	<ol style="list-style-type: none"> 1. Check monitoring data submitted by ET; 2. Check Contractor's working method. 	<ol style="list-style-type: none"> 1. Notify Contractor. 	<ol style="list-style-type: none"> 1. Rectify any unacceptable practice; 2. Amend working methods if appropriate.
Action Level being exceeded by two or more consecutive sampling	<ol style="list-style-type: none"> 1. Identify source and investigate the causes of exceedance; 2. Inform Contractor, IEC and Supervisor /ER; 3. Increase monitoring frequency to daily; 4. Discuss with IEC and Contractor on remedial actions required; 5. Assess the effectiveness of Contractor's remedial actions; 6. If exceedance continues, arrange meeting with IEC and Supervisor /ER; 7. If exceedance stops, cease additional monitoring. 	<ol style="list-style-type: none"> 1. Check monitoring data submitted by ET; 2. Check Contractor's working method; 3. Discuss with ET and Contractor on possible remedial measures; 4. Advise the Supervisor /ER on the effectiveness of the proposed remedial measures. 	<ol style="list-style-type: none"> 1. Confirm receipt of notification of exceedance in writing; 2. Notify Contractor; 3. In consolidation with the IEC, agree with the Contractor on the remedial measures to be implemented; 4. Supervise implementation of remedial measures; 5. Conduct meeting with ET and IEC if exceedance continues. 	<ol style="list-style-type: none"> 1. Discuss with ET and IEC on proper remedial actions; 2. Submit proposals for remedial actions to Supervisor /ER and IEC within three working day of notification; 3. Implement the agreed proposals; 4. Amend proposal if appropriate.
Limit Level being exceeded by one sampling	<ol style="list-style-type: none"> 1. Identify source and investigate the causes of exceedance; 2. Inform Contractor, IEC, Supervisor /ER, and EPD; 3. Repeat measurement to confirm finding; 4. Assess effectiveness of 	<ol style="list-style-type: none"> 1. Check monitoring data submitted by ET; 2. Check Contractor's working method; 3. Discuss possible remedial measures with ET and Contractor; 4. Advise the Supervisor /ER 	<ol style="list-style-type: none"> 1. Confirm receipt of notification of exceedance in writing; 2. Notify Contractor; 3. In consolidation with the IEC, agree with the Contractor on the remedial measures to be 	<ol style="list-style-type: none"> 1. Take immediate action to avoid further exceedance; 2. Discuss with ET and IEC on proper remedial actions; 3. Submit proposal for remedial actions to Supervisor /ER and IEC

Event	Action			
	ET	IEC	Supervisor / ER	Contractor
	Contractor's remedial actions and keep EPD, IEC and Supervisor /ER informed of the results.	on the effectiveness of the proposed remedial measures.	4. Supervise implementation of remedial measures; 5. Conduct meeting with ET and IEC if exceedance continues.	within three working days of notification; 4. Implement the agreed proposals.
Limit Level being exceeded by two or more consecutive sampling	<ol style="list-style-type: none"> 1. Notify IEC, Supervisor /ER, Contractor and EPD; 2. Repeat measurement to confirm findings; 3. Carry out analysis of Contractor's working procedures to identify source and investigate the causes of exceedance; 4. Increase monitoring frequency to daily; 5. Arrange meeting with IEC, Supervisor /ER and Contractor to discuss the remedial action to be taken; 6. Assess effectiveness of Contractor's remedial actions and keep EPD, IEC and Supervisor /ER informed of the results; 7. If exceedance stop, cease additional monitoring. 	<ol style="list-style-type: none"> 1. Check monitoring data submitted by ET; 2. Check Contractor's working method; 3. Discuss with Supervisor /ER, ET, and Contractor on the potential remedial actions; 4. Review Contractor's remedial actions whenever necessary to assure their effectiveness and advise the Supervisor /ER accordingly. 	<ol style="list-style-type: none"> 1. Confirm receipt of notification of exceedance in writing; 2. Notify Contractor; 3. In consolidation with the IEC, agree with the Contractor on the remedial measures to be implemented; 4. Supervise 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. 	<ol style="list-style-type: none"> 1. Take immediate action to avoid further exceedance; 2. Discuss with ET and IEC on proper remedial actions; 3. Submit proposal for remedial actions to Supervisor /ER and IEC within three working days of notification; 4. Implement the agreed proposals; 5. Submit further remedial actions if problem still not under control; 6. Stop the relevant portion of works as instructed by the Supervisor /ER until the exceedance is abated.

Appendix J – Calibration certificates, catalogue of noise monitoring equipment

Catalogue of Sound Level Meter

Specifications



		NL-52	NL-42
Applicable standards		IEC 61672-1: 2002 Class 1 ANSI S1.4-1983 Type 1 ANSI S1.4A-1985 Type 1 ANSI S1.43-1997 Type 1 JIS C 1509-1: 2005 Class 1	IEC 61672-1: 2002 Class 2 ANSI S1.4-1983 Type 2 ANSI S1.4A-1985 Type 2 ANSI S1.43-1997 Type 2 JIS C 1509-1: 2005 Class 2
Measurement functions		Simultaneous measurement of the following items, with selected time weighting and frequency weighting WEEE Directives, Chinese RoHS (export model for China only)	
Processing (main ch)	Instantaneous sound pressure level: L_p		
	Equivalent continuous sound pressure level: L_{eq}		
Additional processing	Sound exposure level: L_T		
	Maximum sound pressure level: L_{max}		
	Minimum sound pressure level: L_{min}		
	Percentile sound levels: L_N (0.1 to 99.9 %, 0.1-increment steps, max. 5 values)		
Processing (sub ch)	Instantaneous sound pressure level: L_p		
Additional processing	In addition to main processing items, one of the following can be selected for simultaneous processing:		
	C-weighted equivalent continuous sound level: L_{Ceq}		
	C-weighted peak sound level: L_{Cpeak}		
	Z-weighted peak sound level: L_{Zpeak}		
	1-time-weighted equivalent continuous sound level: L_{A1eq}^{*2}		
Maximum 1-time-weighted equivalent continuous sound level: L_{A1max}^{*2}			
The power average of the maximum level of each 5 second interval: L_{A1s}			
The frequency weighting for the additional processing synchronizes with the frequency weighting of the sub-channel, so when the sub-channel has A-weighting, L_{A1s} can be selected.			
When C-weighting (Z-weighting) is selected, the additional processing L_{Ceq} and L_{Cpeak} (L_{Zpeak}) are selectable.			
Measuring time		10 s, 1, 5, 10, 15, 30 m, 1, 8, 24 h, and manual (maximum 24 h)	
Microphone	Type	UC-59	UC-52
	Sensitivity level	-27 dB	-33 dB
Measurement range	A-weighting: 25 dB to 138 dB		
	C-weighting: 33 dB to 138 dB		
	Z-weighting: 38 dB to 138 dB		
	C-weighting peak sound level: 55 dB to 141 dB		
Inherent noise	A-weighting	17 dB or less	19 dB or less
	C-weighting	25 dB or less	27 dB or less
	Z-weighting	30 dB or less	32 dB or less
Frequency range		20 Hz to 20 kHz	20 Hz to 8 kHz
Frequency weighting		A, C, and Z	
Time weighting		F (Fast) and S (Slow)	
Level range	Single range (Linearity range: 113 dB)		
	Bar graph display range max	Max. 110 dB (20 to 130 dB)	
Switching of bar graph display	Set the upper/lower limit in 10 dB increments.		
RMS detection circuit	Digital processing method		
Sampling cycle	20.8 μ s (L_p , L_{eq} , L_E , L_{max} , L_{min} , L_{peak} : sampling frequency: 48 kHz) 100 ms (L_N)		
Calibration	Measurement Law: electrical calibration performed according to IEC and JIS standards, using internally generated signals; acoustic calibration performed with the NC-74.		
Correction functions	Windscreen correction:	Compliant with IEC 61672-1 and JIS C 1509-1 standards when the windscreen is installed.	
	Diffuse sound field correction:	Correction of frequency characteristics in order to comply with standards (ANSI S1.4) in diffuse sound field.	
	Correction of frequency characteristics in order to comply with standards (ANSI S1.4) in diffuse sound field.		
Delay time	The meter can be set to start measuring a specified time (OFF, 1, 3, 5 or 10 s) after the start button has been pressed or when a user-set trigger is exceeded.		
Back erase function	When the PAUSE key is pressed to pause measurement, the preceding (user selectable) 0, 1, 3 or 5 s data are excluded from processing.		
Display	Backlit semitransparent color TFT LCD display WQVGA (400 x 240 dots) * LCD with touch panel (Capacitive Touch Panel)		
	Numerical display update frequency: 1 s; Bar graph update frequency: 100 ms		
Store	Manual	Data for measurement results are stored manually in single address increments.	
	Auto+2	Internal memory: max. 1000 sets SD Card: depends on the capacity of the SD Card *1	
Auto+2	Instantaneous values (L_p mode) and processed values (L_{eq} mode) are stored continuously and automatically at preset intervals.		
	L_p sampling cycle	100 ms, 200 ms, 1 s, L_{eq} 1 s	
	L_{eq} sampling cycle	10 s, 1, 5, 10, 15, 30 ms, 1, 8, 24 h	
Measurement Time	Max. 1000 h (depends on the capacity of the SD Card) *1		

* Windows is a trademark of Microsoft Corporation.
* Specifications subject to change without notice.

Distributed by:

This product is environment-friendly. It does not include toxic chemicals on our policy.
This product is certified as an International Protection rating of IP54 (dust protected and resistant to splashing water).
This leaflet is printed with environmentally friendly vegetable-based ink on recycled paper.

1011-4 212 P.D

Data recall	Allows viewing of stored data	
Setup memory	Up to five setup configurations can be saved in internal memory, for later recall Start up via file settings previously stored on SD card possible	
Waveform recording *3		
File format	Uncompressed waveform WAVE file	
Sampling frequency	Select 48 kHz, 24 kHz or 12 kHz	
Data length	Select 24 bit or 16 bit	
Outputs	DC output	Output DC signals using a frequency weighting characteristic selected by processing
	Output voltage	2.5 V, 25 mV / dB at bar graph display full scale
	AC output	Output AC signals using a frequency weighting characteristic selected by processing or by A, C, Z-weighting.
	Output voltage	1 V (rms values) at bar graph display full scale
Comparator output *2	Turns on when the open-collector output exceeds the set value (max. applied voltage 24 V, max. current 60 mA, allowable dissipation 300 mW).	
USB *2	Allows USB to be connected to a computer and recognized as a removable disk Allows USB to be controlled via communication commands	
RS-232C communication	Allows for RS-232C communication via use of a dedicated cable	
Data continuous output *2		
Type of data	Instantaneous value: L_p Processed value: L_{eq} , L_{max} , L_{min} , L_{peak}	
Output interval	100 ms	
Print out	Printing of measurement results on dedicated printer DPU-414	
Power requirements	Four IEC R6 (size AA) batteries (alkaline or rechargeable batteries) or external power supply	
Battery life (23 °C)	Alkaline battery LR6 (AA): 26 h (NI-MH secondary battery: 25 h) At the maximum: * Depends on the setting	
AC adapter	NC-98C (NC-34 for previous models cannot be used)	
External power voltage	5 to 7 V (rated voltage: 6 V)	
Current consumption	Approximately 90 mA (normal operation, rated voltage)	
Ambient conditions	Temperature: -10 to +50 °C Humidity: 10 to 90 % RH (non-condensing)	
Dustproof / water-resistant performance *4	IP code: IP54 (except for microphone) See precautions regarding waterproofing	
Dimensions, weight	Approx. 250 (H) x 76 (W) x 33 mm (D), approx. 400 g (with batteries)	
Supplied accessories	Storage case x 1, Windscreen WS-10 x 1, Windscreen fall prevention rubber x 1, Hand strap x 1, LR6 (AA) alkaline batteries x 4, SD card 512 MB x 1 (NX-42EX preinstalled model only)	

Options

Product name	Product number
Extended function program (Inst. on 512 MB SD card)	NX-42EX
Waveform recording program *2 (Inst. on 2 GB SD card)	NX-42WR
Octave, 1/3 octave real-time analysis program *2 (Inst. on 512 MB SD card)	NX-42RT
FFT analysis program *2 (Inst. on 512 MB SD card)	NX-42FT
Data management software for environmental measurement	AS-60
Data management software for environmental measurement (Includes the octave and 1/3 octave data management software)	AS-60RT
Data management software for environmental measurement (Includes the vibration level data management software)	AS-60VM
Waveform analysis software	CAT-WAVE
SD Card 512 MB	SD-512M
SD Card 2 GB	SD-2G
AC adapter (100 V to 240 V)	NC-98C
Battery pack	BP-21
Microphone extension cables	EC-04 (from 2 m)
BNC-Pin output code	CC-24
Comparator output cable	CC-42C
Printer	DPU-414
Printer cable	CC-42P
RS 232C serial I/O cable	CC-42R
USB cable	—
Sound calibrator	NC-74
All-weather windscreen	WS-15
Windscreen mounting adapter	WS-15006
Rain-protection windscreen	WS-16
Sound level meter tripod	ST-80
All-weather windscreen tripod	ST-81

*1 Use Rion fully guaranteed products. *2 NX-42EX required (sold separately). *3 NX-42WR required (sold separately).
*4 Protection against harmful dust and water splashing from any direction.

Precautions regarding waterproofing

Before use, verify that the rubber bottom cover and the battery compartment lid are firmly closed.
To maintain the water and dust proof rating, internal packing replacement is required every two years (at cost).



RION CO., LTD.
http://www.rion.co.jp/english/

3-20-41, Higashimotomachi, Kokubunji, Tokyo 185-8533, Japan
Tel: +81-42-359-7888 Fax: +81-42-359-7442

Calibration Certificate of Sound Level Meter



中国赛宝实验室计量检测中心
(工业和信息化部电子第五研究所计量检测中心)
CHINA CEPREI LABORATORY CALIBRATION & TESTING CENTRE

校准证书 CALIBRATION CERTIFICATE

证书编号: 2HB20001172-0003
Certificate No.



委托单位: Client	Castco Testing Centre Limited		
仪器名称: Description	Sound Level Meter		
型号规格: Model/Type	NL-52		
制造商: Manufacturer	RION		
机身号: Serial No.	00976203		
管理号: Asset No.	AAST-SLM-10		
接收日期: Rec. Date	2020-07-15	校准日期: Cal. Date	2020-07-20
签发日期: App. Date	2020-07-20	建议校准周期: Reference Cal. Period	12个月(12 Months)
结论: Conclusion	所校准项目合格(Passed at Calibration Items)		

校准:
Calibrated by

签发:
Approved by

核验:
Inspected by

印章:
Stamp

赛宝计量检测中心
广州总部地址: 广州天河区东苑庄路110号
客服电话: 020-87237633 传真: 020-87236189
投诉电话: 020-87236896
邮件: cal@ceprei.com
网址: www.ceprei-cal.com

CEPREI Calibration and Testing Centre
H.Q. Addr: No.110,Dongyuanzhuang Road,Tianhe District,Guangzhou
Service Tel: 020-87237633 Fax: 020-87236189
Complaint Tel: 020-87236896
Email: cal@ceprei.com
Website: www.ceprei-cal.com

证书编号(Certificate No.): 2HB20001172-0003

说明 DIRECTIONS

1. 本机构质量管理体系符合ISO/IEC 17025的要求, 获得中国合格评定国家认可委员会(CNAS)认可, 认可证书号为: CNAS L13344。
This laboratory quality management system meets the ISO/IEC 17025 and is accredited by the China National Accreditation Service for Conformity Assessment, No. CNAS L13344.

2. 本次校准的技术依据及CNAS认可范围(Reference documents and CNAS accredited scopes):
* JJG 188-2017 声级计检定规程: Sound pressure level: (20~130)dB; Frequency Weighting: (20~130)dB@(10 Hz~20kHz).
* 详细内容请查看CNAS网站中注册编号为L13344的证书附件, 超出范围的内容未被认可。(Please see the attachment of certificate No. L13344 at CNAS website for details, beyond which is not accredited).

3. 本次校准所使用的主要测量标准(The main measurement standards used during the calibration):

名称 (Description)	证书号/有效期/溯源单位 (Certificate No./Due Date/Traceability to)	技术指标 (Specification)
数字多用表	4GC19040017-0001/2020-11-03/赛宝	DCV: ±0.0035%; ACV: ±0.06%; DCI: ±0.05%; ; ACI: ±0.1%; R: ±0.01%; f: ±0.01%
步进衰减器	4GC20000158-0012/2021-04-29/赛宝	±3dB
标准传声器	GFJGJL1001200310164/2021-02-26/航空304所	U=(0.05-0.12)dB (k=2)
声校准器	4GC19040146-0209/2020-12-29/赛宝	1级
正弦信号发生器	4GC19040057-0001/2020-11-05/赛宝	f: ±1mHz; 失真度: <-70dB
PULSE分析系统	4GC20000009-0001/2021-01-08/赛宝	频率: U _{rel} =0.001%, k=2; 电压: U _{rel} =0.04%, k=2
前置放大器	GFJGJL1001200310165/2021-02-26/航空304所	U=0.3dB (k=2)

4. 校准地点(The calibration place):
广州市天河区东莞庄路110号401楼振动声学室

5. 环境条件(Environmental conditions):
温度(Temperature): 24°C 相对湿度(Relative Humidity): 60%

6. 本证书中给出的扩展不确定度依据JJF1059.1-2012《测量不确定度的评定与表示》评定, 由合成标准不确定度乘以包含概率约为95%时对应的包含因子k得到。
The extended uncertainty given in this certificate is evaluated according to JJF1059.1-2012 "Evaluation and Expression of Uncertainty in Measurement", and is calculated by multiplying the combined standard uncertainty by the coverage factor k which corresponding to the coverage probability about 95%.

7. 证书中"P"、"合格"代表"测量结果在允许范围内", "F"、"不合格"代表"测量结果不在允许范围内", "N/A"代表"不适用"。本证书报告的判定规则和结论仅供参考, 使用人员应结合实际测量的要求合理使用, 如考虑测量结果测量不确定度的影响等。
"P" and "Pass" in this certificate stand for "Low Limit: the measured value ≤ High Limit", "F" and "Fail" stand for "the measured value < Low Limit or the measured value > High Limit", "N/A" stands for "Not Applicable". The judgment rules and conclusions of this certificate are for reference only. Users should use them reasonably according to the actual measurement requirements, such as considering the impact of measurement uncertainty, etc.

8. 建议校准周期是本实验室依据本证书报告的技术依据和仪器设备常规使用条件给出的建议, 供委托方参考。委托方可以根据实际使用情况自行决定样品的建议校准周期。
The reference calibration period is based on the reference documents and normal operating conditions of the calibrated instrument. It is only for reference. The client may decide the calibration period of the instrument according to the actual use.

注: 1. 本证书未经本机构书面授权, 不得部分复制。(The certificate shall not be partly reproduced without written approval of the laboratory.)

2. 本次校准结果仅与被校物有关。(The results are only related to the items calibrated.)

Calibration Certificate of Sound Level Meter



证书编号(Certificate No.): 2HB20001172-0003

1 外观与工作正常性检查 (Appearance and Function Check)

无影响证书中校准结果准确度的因素和缺陷。

There are no factor and defect that affect the calibration result accuracy of the certificate.

2 指示声级调整 (Indication SPL Calibration)

频率(Frequency)=1000Hz

传声器型号 (Microphone Type)	传声器编号 (Microphone SN.)	放大器型号 (Preamplifier Type)	放大器编号 (Preamplifier SN.)
UC-59	12132	NH-25	76320

声校准器型号 (Calibrator Type)	标准声压级 (Reference SPL) (dB)	校准前示值 (Before Calibration) (dB)	校准后示值 (After Calibration) (dB)	U (k=2) (dB)
4231	94.0	94.0	94.0	0.2

3 级线性 (Level Linearity)

3.1 参考级量程 (Reference Range)

频率(Frequency): 8000Hz

起始点指示声级(Sound Level Indication of Start Point):	90.0 dB
起始点以上间隔10dB点的最大误差(Maximum Error for each 10dB above Start Point):	-0.2 dB
U (k=2)	0.6 dB
上限以下5dB间隔1dB点的最大误差(Maximum Error for each 1dB below Upper Limit 5dB):	-0.2 dB
U (k=2)	0.6 dB
起始点以下间隔10dB点的最大误差(Maximum Error for each 10dB below Start Point):	-0.2 dB
U (k=2)	0.6 dB
下限以上5dB间隔1dB点的最大误差(Maximum Error for each 1dB above Lower Limit 5dB):	-0.2 dB
U (k=2)	0.6 dB

3.2 其它级量程 (Other Range)

频率(Frequency): 1000Hz

起始点指示声级(Sound Level Indication of Start Point):	90.0 dB
起始点以上间隔10dB点的最大误差(Maximum Error for each 10dB above Start Point):	-0.2 dB
U (k=2)	0.4 dB
上限以下5dB间隔1dB点的最大误差(Maximum Error for each 1dB below Upper Limit 5dB):	-0.2 dB
U (k=2)	0.4 dB
起始点以下间隔10dB点的最大误差(Maximum Error for each 10dB below Start Point):	-0.2 dB
U (k=2)	0.4 dB
下限以上5dB间隔1dB点的最大误差(Maximum Error for each 1dB above Lower Limit 5dB):	-0.1 dB
U (k=2)	0.4 dB



证书编号(Certificate No.): 2HB20001172-0003

4 A计权特性(A-Weighting Characteristic)

频率 (Frequency) (Hz)	实测值 (Actual) (dB)	理论值 (Theoretical value) (dB)	误差 (Error) (dB)	允许误差 (Limit) (dB)	结论 (Pass/Fail) (P/F)	U (k=2) (dB)
20	-50.7	-50.5	-0.2	±2.0	P	0.5
25	-45.0	-44.7	-0.3	+2.0 ~ -1.5	P	0.5
31.5	-39.5	-39.4	-0.1	±1.5	P	0.5
40	-34.5	-34.6	0.1	±1.0	P	0.5
50	-30.2	-30.2	0.0	±1.0	P	0.5
63	-26.1	-26.2	0.1	±1.0	P	0.5
80	-22.4	-22.5	0.1	±1.0	P	0.5
100	-19.1	-19.1	0.0	±1.0	P	0.5
125	-16.1	-16.1	0.0	±1.0	P	0.5
160	-13.2	-13.4	0.2	±1.0	P	0.5
200	-10.8	-10.9	0.1	±1.0	P	0.5
250	-8.6	-8.6	0.0	±1.0	P	0.5
315	-6.6	-6.6	0.0	±1.0	P	0.4
400	-4.7	-4.8	0.1	±1.0	P	0.4
500	-3.2	-3.2	0.0	±1.0	P	0.4
630	-1.8	-1.9	0.1	±1.0	P	0.4
800	-0.8	-0.8	0.0	±1.0	P	0.4
1000(Ref)	0.0	0.0	0.0	±0.7	P	0.4
1250	0.6	0.6	0.0	±1.0	P	0.6
1600	0.9	1.0	-0.1	±1.0	P	0.6
2000	1.1	1.2	-0.1	±1.0	P	0.6
2500	1.1	1.3	-0.2	±1.0	P	0.6
3150	1.0	1.2	-0.2	±1.0	P	0.6
4000	0.7	1.0	-0.3	±1.0	P	0.6
5000	0.3	0.5	-0.2	±1.5	P	0.6
6300	-0.2	-0.1	-0.1	+1.5 ~ -2.0	P	0.6
8000	-1.1	-1.1	0.0	+1.5 ~ -2.5	P	0.6
10000	-2.3	-2.5	0.2	+2.0 ~ -3.0	P	0.6
12500	-4.3	-4.3	0.0	+2.0 ~ -5.0	P	1.0
16000	-8.5	-6.6	-1.9	+2.5 ~ -16.0	P	1.0
20000	-18.4	-9.3	-9.1	+3.0 ~ -∞	P	1.0

Calibration Certificate of Sound Level Meter



证书编号(Certificate No.): 2HB20001172-0003

5 C计权特性(C-Weighting Characteristic)

频率 (Frequency) (Hz)	实测值 (Actual) (dB)	理论值 (Theoretical value) (dB)	误差 (Error) (dB)	允许误差 (Limit) (dB)	结论 (Pass/Fail) (P/F)	U (k=2) (dB)
20	-6.6	-6.2	-0.4	±2.0	P	0.5
25	-4.6	-4.4	-0.2	+2.0 ~ -1.5	P	0.5
31.5	-3.1	-3.0	-0.1	±1.5	P	0.5
40	-1.9	-2.0	0.1	±1.0	P	0.5
50	-1.3	-1.3	0.0	±1.0	P	0.5
63	-0.8	-0.8	0.0	±1.0	P	0.5
80	-0.4	-0.5	0.1	±1.0	P	0.5
100	-0.2	-0.3	0.1	±1.0	P	0.5
125	-0.1	-0.2	0.1	±1.0	P	0.5
160	0.0	-0.1	0.1	±1.0	P	0.5
200	0.0	0.0	0.0	±1.0	P	0.5
250	0.1	0.0	0.1	±1.0	P	0.5
315	0.1	0.0	0.1	±1.0	P	0.4
400	0.1	0.0	0.1	±1.0	P	0.4
500	0.1	0.0	0.1	±1.0	P	0.4
630	0.1	0.0	0.1	±1.0	P	0.4
800	0.1	0.0	0.1	±1.0	P	0.4
1000(Ref.)	0.0	0.0	0.0	±0.7	P	0.4
1250	-0.1	0.0	-0.1	±1.0	P	0.6
1600	-0.2	-0.1	-0.1	±1.0	P	0.6
2000	-0.3	-0.2	-0.1	±1.0	P	0.6
2500	-0.5	-0.3	-0.2	±1.0	P	0.6
3150	-0.7	-0.5	-0.2	±1.0	P	0.6
4000	-1.1	-0.8	-0.3	±1.0	P	0.6
5000	-1.5	-1.3	-0.2	±1.5	P	0.6
6300	-2.1	-2.0	-0.1	+1.5 ~ -2.0	P	0.6
8000	-3.0	-3.0	0.0	+1.5 ~ -2.5	P	0.6
10000	-4.2	-4.4	0.2	+2.0 ~ -3.0	P	0.6
12500	-6.2	-6.2	0.0	+2.0 ~ -5.0	P	1.0
16000	-10.4	-8.5	-1.9	+2.5 ~ -16.0	P	1.0
20000	-20.4	-11.2	-9.2	+3.0 ~ ∞	P	1.0

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证书编号(Certificate No.): 2HB20001172-0003

6 自生噪声 (Autogenous noise)

计权 (Weighting)	实测值 (Actual) (dB)
A	24.0

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Calibration Certificate of Sound Level Meter



中国赛宝实验室计量检测中心
(工业和信息化部电子第五研究所计量检测中心)
CHINA CEPREI LABORATORY CALIBRATION & TESTING CENTRE

校准证书 CALIBRATION CERTIFICATE

证书编号: 2HB20001172-0004
Certificate No.



委托单位: Client	Castco Testing Centre Limited	
仪器名称: Description	Sound Level Meter	
型号规格: Model/Type	NL-52	
制造商: Manufacturer	RION	
机身号: Serial No.	00976204	
管理号: Asset No.	AAST-SLM-11	
接收日期: Rec. Date	2020-07-15	校准日期: Cal. Date 2020-07-20
签发日期: App. Date	2020-07-20	建议校准周期: Reference Cal. Period 12个月(12 Months)
结论: Conclusion	所校准项目合格(Passed at Calibration Items)	

校准:
Calibrated by

签发:
Approved by

核验:
Inspected by

印章:
Stamp

赛宝计量检测中心
广州总部地址: 广州天河区东莞庄路110号
客服电话: 020-87237633 传真: 020-87236189
投诉电话: 020-87236896
邮件: cal@ceprei.com
网址: www.ceprei-cal.com

CEPREI Calibration and Testing Centre
H.Q. Addr: No.110,Dongguanhuang Road,Tianhe District,Guangzhou
Service Tel: 020-87237633 Fax: 020-87236189
Complaint Tel: 020-87236896
Email: cal@ceprei.com
Website: www.ceprei-cal.com

证书编号(Certificate No.): 2HB20001172-0004

说明 DIRECTIONS

1. 本机构质量管理体系符合ISO/IEC 17025的要求, 获得中国合格评定国家认可委员会(CNAS)认可, 认可证书号为: CNAS L13344。
This laboratory quality management system meets the ISO/IEC 17025 and is accredited by the China National Accreditation Service for Conformity Assessment, No. CNAS L13344.
2. 本次校准的技术依据及CNAS认可范围(Reference documents and CNAS accredited scopes):
* JJG 188-2017 声级计检定规程: Sound pressure level: (20~130)dB; Frequency Weighting: (20~130)dB@(10 Hz~20kHz).
* 详细内容请查看CNAS网站中注册编号为L13344的证书附件, 超出范围的内容未被认可。(Please see the attachment of certificate No. L13344 at CNAS website for details, beyond which is not accredited).

3. 本次校准所使用的主要测量标准(The main measurement standards used during the calibration):

名称 (Description)	证书号/有效期/溯源单位 (Certificate No./Due Date/Traceability to)	技术指标 (Specification)
数字多用表	4GC19040017-0001/2020-11-03/赛宝	DCV: ±0.0035%; ACV: ±0.06%; DCI: ±0.05%; ACI: ±0.1%; R: ±0.01%; f: ±0.01%
步进衰减器	4GC20000158-0012/2021-04-29/赛宝	±3dB
标准传声器	GFJGJL1001200310164/2021-02-26/航空304所	U=(0.05-0.12)dB (k=2)
声校准器	4GC19040146-0209/2020-12-29/赛宝	1级
正弦信号发生器	4GC19040057-0001/2020-11-05/赛宝	f: ±1mHz; 失真度: <-70dB
PULSE分析系统	4GC2000009-0001/2021-01-08/赛宝	频率: U _{ref} =0.001%, k=2; 电压: U _{ref} =0.04%, k=2
前置放大器	GFJGJL1001200310165/2021-02-26/航空304所	U=0.3dB (k=2)

4. 校准地点(The calibration place):
广州市天河区东莞庄路110号401楼振动声学室
5. 环境条件(Environmental conditions):
温度(Temperature): 24°C 相对湿度(Relative Humidity): 60%
6. 本证书中给出的扩展不确定度依据JJF1059.1-2012《测量不确定度的评定与表示》评定, 由合成标准不确定度乘以包含概率约为95%时对应的包含因子k得到。
The extended uncertainty given in this certificate is evaluated according to JJF1059.1-2012 "Evaluation and Expression of Uncertainty in Measurement", and is calculated by multiplying the combined standard uncertainty by the coverage factor k which corresponding to the coverage probability about 95%.
7. 证书中"P"、"合格"代表"测量结果在允许范围内", "F"、"不合格"代表"测量结果不在允许范围内", "N/A"代表"不适用"。本证书报告的判定规则和结论仅供参考, 使用人员应结合实际测量的要求合理使用, 如考虑测量结果测量不确定度的影响等。
"P" and "Pass" in this certificate stand for "Low Limit≤the measured value ≤High Limit", "F" and "Fail" stand for "the measured value < Low Limit or the measured value > High Limit", "N/A" stands for "Not Applicable". The judgment rules and conclusions of this certificate are for reference only. Users should use them reasonably according to the actual measurement requirements, such as considering the impact of measurement uncertainty, etc.
8. 建议校准周期是本实验室依据本证书报告的技术依据和仪器设备常规使用条件给出的建议, 供委托方参考。委托方可以根据实际使用情况自行决定样品的建议校准周期。
The reference calibration period is based on the reference documents and normal operating conditions of the calibrated instrument. It is only for reference. The client may decide the calibration period of the instrument according to the actual use.

注: 1. 本证书未经本机构书面授权, 不得部分复制。(The certificate shall not be partly reproduced without written approval of the laboratory.)
2. 本次校准结果仅与被校物有关。(The results are only related to the items calibrated.)

Calibration Certificate of Sound Level Meter



证书编号(Certificate No.): 2HB20001172-0004

1 外观与工作正常性检查 (Appearance and Function Check)

无影响证书中校准结果准确度的因素和缺陷。

There are no factor and defect that affect the calibration result accuracy of the certificate.

2 指示声级调整 (Indication SPL Calibration)

频率(Frequency)=1000Hz

传声器型号 (Microphone Type)	传声器编号 (Microphone SN.)	放大器型号 (Preamplifier Type)	放大器编号 (Preamplifier SN.)
UC-59	12133	NH-25	76321

声校准器型号 (Calibrator Type)	标准声压级 (Reference SPL) (dB)	校准前示值 (Before Calibration) (dB)	校准后示值 (After Calibration) (dB)	U (k=2) (dB)
4231	94.0	93.9	94.0	0.2

3 级线性 (Level Linearity)

3.1 参考级量程 (Reference Range)

频率(Frequency): 8000Hz

起始点指示声级(Sound Level Indication of Start Point):	90.0 dB
起始点以上间隔10dB点的最大误差(Maximum Error for each 10dB above Start Point):	-0.1 dB
U (k=2)	0.6 dB
上限以下5dB间隔1dB点的最大误差(Maximum Error for each 1dB below Upper Limit 5dB):	-0.1 dB
U (k=2)	0.6 dB
起始点以下间隔10dB点的最大误差(Maximum Error for each 10dB below Start Point):	-0.1 dB
U (k=2)	0.6 dB
下限以上5dB间隔1dB点的最大误差(Maximum Error for each 1dB above Lower Limit 5dB):	-0.1 dB
U (k=2)	0.6 dB

3.2 其它级量程 (Other Range)

频率(Frequency): 1000Hz

起始点指示声级(Sound Level Indication of Start Point):	90.0 dB
起始点以上间隔10dB点的最大误差(Maximum Error for each 10dB above Start Point):	-0.2 dB
U (k=2)	0.4 dB
上限以下5dB间隔1dB点的最大误差(Maximum Error for each 1dB below Upper Limit 5dB):	-0.2 dB
U (k=2)	0.4 dB
起始点以下间隔10dB点的最大误差(Maximum Error for each 10dB below Start Point):	-0.1 dB
U (k=2)	0.4 dB
下限以上5dB间隔1dB点的最大误差(Maximum Error for each 1dB above Lower Limit 5dB):	-0.1 dB
U (k=2)	0.4 dB

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证书编号(Certificate No.): 2HB20001172-0004

4 A计权特性(A-Weighting Characteristic)

频率 (Frequency) (Hz)	实测值 (Actual) (dB)	理论值 (Theoretical value) (dB)	误差 (Error) (dB)	允许误差 (Limit) (dB)	结论 (Pass/Fail) (P/F)	U (k=2) (dB)
20	-50.6	-50.5	-0.1	±2.0	P	0.5
25	-44.9	-44.7	-0.2	+2.0 ~ -1.5	P	0.5
31.5	-39.8	-39.4	-0.4	±1.5	P	0.5
40	-34.6	-34.6	0.0	±1.0	P	0.5
50	-30.4	-30.2	-0.2	±1.0	P	0.5
63	-26.3	-26.2	-0.1	±1.0	P	0.5
80	-22.4	-22.5	0.1	±1.0	P	0.5
100	-19.1	-19.1	0.0	±1.0	P	0.5
125	-16.2	-16.1	-0.1	±1.0	P	0.5
160	-13.2	-13.4	0.2	±1.0	P	0.5
200	-10.8	-10.9	0.1	±1.0	P	0.5
250	-8.7	-8.6	-0.1	±1.0	P	0.5
315	-6.7	-6.6	-0.1	±1.0	P	0.4
400	-4.8	-4.8	0.0	±1.0	P	0.4
500	-3.2	-3.2	0.0	±1.0	P	0.4
630	-1.9	-1.9	0.0	±1.0	P	0.4
800	-0.8	-0.8	0.0	±1.0	P	0.4
1000(Ref)	0.0	0.0	0.0	±0.7	P	0.4
1250	0.6	0.6	0.0	±1.0	P	0.6
1600	1.0	1.0	0.0	±1.0	P	0.6
2000	1.2	1.2	0.0	±1.0	P	0.6
2500	1.3	1.3	0.0	±1.0	P	0.6
3150	1.2	1.2	0.0	±1.0	P	0.6
4000	1.0	1.0	0.0	±1.0	P	0.6
5000	0.6	0.5	0.1	±1.5	P	0.6
6300	0.0	-0.1	0.1	+1.5 ~ -2.0	P	0.6
8000	-1.0	-1.1	0.1	+1.5 ~ -2.5	P	0.6
10000	-2.4	-2.5	0.1	+2.0 ~ -3.0	P	0.6
12500	-4.4	-4.3	-0.1	+2.0 ~ -5.0	P	1.0
16000	-7.9	-6.6	-1.3	+2.5 ~ -16.0	P	1.0
20000	-14.2	-9.3	-4.9	+3.0 ~ -∞	P	1.0

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Calibration Certificate of Sound Level Meter



证书编号(Certificate No.): 2HB20001172-0004

5 C计权特性(C-Weighting Characteristic)

频率 (Frequency) (Hz)	实测值 (Actual) (dB)	理论值 (Theoretical value) (dB)	误差 (Error) (dB)	允许误差 (Limit) (dB)	结论 (Pass/Fail) (P/F)	U (k=2) (dB)
20	-6.4	-6.2	-0.2	±2.0	P	0.5
25	-4.5	-4.4	-0.1	+2.0 ~ -1.5	P	0.5
31.5	-3.1	-3.0	-0.1	±1.5	P	0.5
40	-2.1	-2.0	-0.1	±1.0	P	0.5
50	-1.3	-1.3	0.0	±1.0	P	0.5
63	-0.9	-0.8	-0.1	±1.0	P	0.5
80	-0.5	-0.5	0.0	±1.0	P	0.5
100	-0.3	-0.3	0.0	±1.0	P	0.5
125	-0.1	-0.2	0.1	±1.0	P	0.5
160	-0.1	-0.1	0.0	±1.0	P	0.5
200	0.0	0.0	0.0	±1.0	P	0.5
250	0.0	0.0	0.0	±1.0	P	0.5
315	0.0	0.0	0.0	±1.0	P	0.4
400	0.0	0.0	0.0	±1.0	P	0.4
500	0.0	0.0	0.0	±1.0	P	0.4
630	0.0	0.0	0.0	±1.0	P	0.4
800	0.0	0.0	0.0	±1.0	P	0.4
1000(Ref.)	0.0	0.0	0.0	±0.7	P	0.4
1250	0.0	0.0	0.0	±1.0	P	0.6
1600	-0.1	-0.1	0.0	±1.0	P	0.6
2000	-0.1	-0.2	0.1	±1.0	P	0.6
2500	-0.3	-0.3	0.0	±1.0	P	0.6
3150	-0.5	-0.5	0.0	±1.0	P	0.6
4000	-0.8	-0.8	0.0	±1.0	P	0.6
5000	-1.2	-1.3	0.1	±1.5	P	0.6
6300	-1.9	-2.0	0.1	+1.5 ~ -2.0	P	0.6
8000	-2.9	-3.0	0.1	+1.5 ~ -2.5	P	0.6
10000	-4.3	-4.4	0.1	+2.0 ~ -3.0	P	0.6
12500	-6.4	-6.2	-0.2	+2.0 ~ -5.0	P	1.0
16000	-9.9	-8.5	-1.4	+2.5 ~ -16.0	P	1.0
20000	-16.2	-11.2	-5.0	+3.0 ~ ∞	P	1.0

数据页(Data sheet) ID: U071288

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证书编号(Certificate No.): 2HB20001172-0004

6 自生噪声 (Autogenous noise)

计权 (Weighting)	实测值 (Actual) (dB)
A	23.8

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数据页(Data sheet) ID: U071288

Catalogue of Sound Calibrator

For microphone calibration **NC-74**

How to use

Carefully insert the microphone all the way into the coupler of the NC-74. Then simply turn the power on to apply a constant sound pressure level to the diaphragm of the microphone.

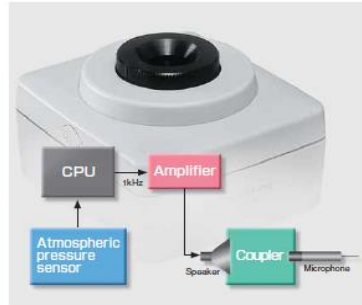


Usage example (NL series)

The performance of the NC-74 is suitable for calibration of high-precision sound level meters. The unit is compact, lightweight, and easy to use. Two IEC LR6 (size AA) alkaline batteries will power the unit for more than 30 hours of continuous use at room temperature.

Atmospheric pressure compensation principle

The NC-74 incorporates a sensor that detects atmospheric pressure. Based on the information provided by the sensor, the CPU controls the signal amplitude. This allows the unit to always provide the correct output for achieving constant sound pressure level, regardless of fluctuations in atmospheric pressure.



Using the 1/2-inch adapter

To allow calibration of sound level meter microphones with 1 inch diameter, the 1/2-inch microphone adapter can be removed. 1/2-inch microphones are calibrated with the adapter in place.



Specifications

Applicable standards	IEC 6042:2003 Class 1 JIS C 1616:2004 Class 1	
Suitable microphones	1-inch microphones	IEC 61084-1 Type L81P UC-27 UC-28 UC-34
	1/2-inch microphones	IEC 61084-1 Type L82aP UC-69 UC-67 UC-62A UC-62 UC-26 UC-30 UC-31 UC-33P
Nominal sound pressure level	94 dB	
Sound pressure level tolerance	±1.3 dB	
Nominal frequency	1 kHz	
Frequency tolerance	±1.0 % or less	
Power requirements	IEC LR6 (size AA) alkaline battery × 2	
Dimensions, mass	Approx. 49 (H) × 80 (W) × 74 (D) mm Approx. 200 g (including batteries)	
Supplied accessories	Case × 1 IEC LR6 (size AA) alkaline battery × 2 1/2-inch microphone adapter NC-74-002 × 1	



ISO 14001 RION CO., LTD.
ISO 9001 RION CO., LTD.

* Specification subject to change without notice.

RION CO., LTD.

3-20-41, Higashimotomachi, Kokubunji, Tokyo 185-8533, Japan
Tel: +81-42-359-7888 Fax: +81-42-359-7442
<http://www.rion.co.jp/english/>

Distributed by:



Printed in Japan: 0510-1 0807-P-MP

Calibration Certificate of Sound Calibrator



中国赛宝实验室计量检测中心
(工业和信息化部电子第五研究所计量检测中心)
CHINA CEPREI LABORATORY CALIBRATION & TESTING CENTRE

校准证书 CALIBRATION CERTIFICATE

证书编号: ZHB20001561-0002

Certificate No.



中国合格评定
国家认可委员会
CALIBRATION
CNAS L15304

委托单位: Custoo Testing Centre Limited
Client
仪器名称: Sound Level Calibrator
Description
型号规格: NC-74
Model/Type
制造商: RION
Manufacturer
机身号: 34678556
Serial No.
管理号: AAST-SLC-06
Asset No.
接收日期: 2020-09-08 校准日期: 2020-09-12
Rec. Date Cal. Date
签发日期: 2020-09-12 建议校准周期: 12个月(12 months)
App. Date Reference Cal. Period
结论: 所校准项目合格(Passed at Calibration Items)
Conclusion

CEPREI

校准: 陈卓辉
Calibrated by
签发: 郑木力
Approved by

核验: 钟灏
Inspected by
印章:
Stamp

赛宝计量检测中心
广州总部地址: 广州天河区东圃路119号
客服电话: 020-87237633 传真: 020-87236189
投诉电话: 020-87238896
邮件: cal@ceppei.com
网站: www.ceppei-cal.com

CEPREI Calibration and Testing Centre
HQ. Add: No.119,Dongganshuang Road, Tianhe District, Guangzhou
Service Tel: 020-87237633 Fax: 020-87236189
Complain Tel: 020-87238896
Email: cal@ceppei.com
Website: www.ceppei-cal.com

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Calibration Certificate of Sound Calibrator

证书编号(Certificate No.): 2019120011561-0002

说明 DIRECTIONS

1. 本机构质量管理体系符合ISO/IEC 17025:2017标准的要求，获得中国合格评定国家认可委员会（CNAS）认可，认可证书号为：CNAS L13344。
This laboratory quality management system meets the ISO/IEC 17025:2017 and is accredited by the China National Accreditation Service for Conformity Assessment, No. CNAS L13344.

2. 本次校准的技术依据及CNAS认可范围(Reference documents and CNAS accredited scopes):
* JJG 176-2005 声校准器检定规程; Sound Pressure Level: 94dB, 104dB, 114dB, 124dB(63Hz~8kHz); 94dB, 104dB, 114dB,(31.5Hz~16kHz); Frequency: 31.5Hz~16kHz; Harmonic Distortion: 0~10%, (20Hz~20 kHz).

3. 请仔细阅读本CNAS网站中证书编号为L13344的证书附件，超出范围的内容未被认可。(Please see the attachment of certificate No. L13344 at CNAS website for details, beyond which is not accredited.)

3. 本次校准所使用的主要测量标准(The main measurement standards used during the calibration):

名称 (Description)	证书号/有效期至/溯源单位 (Certificate No./Due Date/Traceability to)	技术指标 (Specification)	测量范围 (Measuring Range)
PULSE分析系统	LSys2020-02491/2021-04-26/中国计量院	频率: $f_{\text{up}}=0.001\%$, $f_{\text{d}}=2$; 电压: $U_{\text{up}}=0.04\%$, $U_{\text{d}}=2$	频率: 0.001Hz~51.2kHz
标准扬声器	GFJGIL1001200310164/2021-02-26/航空304所	$U=0.05-0.12\text{dB}$ (k=2)	20Hz~20kHz
前置放大器	GFJGIL1001200310165/2021-02-26/航空304所	$U=0.3\text{dB}$ (k=2)	10~20000 Hz

4. 校准地点(The calibration place):
广州市天河区东莞庄路110号401楼声学实验室

5. 环境条件(Environmental conditions):
温度(Temperature): 24°C 相对湿度(Relative Humidity): 60%

6. 本证书中给出的扩展不确定度依据JJF 1059.1-2012《测量不确定度的评定与表示》评定，由合成标准不确定度乘以包含概率约为95%时对应的包含因子k得到。
The extended uncertainty given in this certificate is evaluated according to JJF 1059.1-2012 "Evaluation and Expression of Uncertainty in Measurement", and is calculated by multiplying the combined standard uncertainty by the coverage factor k which corresponding to the coverage probability about 95%.

7. 证书中“P”、“合格”代表“测量结果在允许范围内”，“F”、“不合格”代表“测量结果不在允许范围内”，“NA”代表“不适用”。本证书报告的判定规则和结论仅供参考，使用人员应结合实际测量的要求合理使用，如考虑测量结果测量不确定度的影响等。
“P” and “Pass” in this certificate stand for “Low Limit: the measured value < High Limit”, “F” and “Fail” stand for “the measured value > Low Limit or the measured value > High Limit”, “NA” stands for “Not Applicable”. The judgment rules and conclusions of this certificate are for reference only. Users should use them reasonably according to the actual measurement requirements, such as considering the aspect of measurement uncertainty, etc.

8. 建议校准周期是本实验室依据本证书报告的技术依据和仪器设备常规使用条件给出的建议，供委托方参考。委托方可以根据实际使用情况自行决定样品的建议校准周期。
The reference calibration period is based on the reference documents and normal operating conditions of the calibrated instrument. It is only for reference. The client may decide the calibration period of the instrument according to the actual use.

注: 1. 本证书未经本机构书面授权，不得部分复制。(The certificate shall not be partly reproduced without written approval of the laboratory.)

2. 本次校准结果仅与被校物有关。(The results are only related to the items calibrated.)

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Page of



证书编号(Certificate No.): 2019120011561-0002

1. 外观与工作正常性检查 (Appearance and Function Check)

无影响证书中校准结果准确性的因素和缺陷。

There are no factor and defect that affect the calibration result accuracy of the certificate.

2. 声压级 (Sound Pressure Level)

规定声压级 (Prescribed SPL)	测量声压级 (Measured SPL)	声压级差的绝对值 (Absolute value of SPL)	允许范围 (Limit)	结论 (Pass/Fail)	U (dB)
94	94.05	0.05	≤0.40	P	0.10

3. 频率 (Frequency)

规定频率 (Prescribed Fre.)	测量频率 (Measured Fre.)	频率误差的绝对值 (Absolute value of Fre.)	允许范围 (Limit)	结论 (Pass/Fail)	U (%)
1000	1003.7	0.37	≤1.00	P	0.10

4. 总失真 (Distortion)

规定声压级 (Prescribed SPL)	规定频率 (Measured Fre.)	总失真 (Distortion)	允许范围 (Limit)	结论 (Pass/Fail)	U (%)
94	1000	0.96	≤3.00	P	5.0

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Calibration Certificate of Sound Calibrator



中国赛宝实验室计量检测中心
(工业和信息化部电子第五研究所计量检测中心)
CHINA CEPREI LABORATORY CALIBRATION & TESTING CENTRE

校准证书 CALIBRATION CERTIFICATE

证书编号: 2HB20001172-0006
Certificate No.



委托单位: Client	Castco Testing Centre Limited		
仪器名称: Description	Sound Level Calibrator		
型号规格: Model/Type	NC-74		
制造商: Manufacturer	RION		
机身号: Serial No.	34178129		
管理号: Asset No.	AAST-SLC-05		
接收日期: Rec. Date	2020-07-15	校准日期: Cal. Date	2020-07-20
签发日期: App. Date	2020-07-21	建议校准周期: Reference Cal. Period	12个月(12 Months)
结论: Conclusion	所校准项目合格(Passed at Calibration Items)		

校准:
Calibrated by

签发:
Approved by

核验:
Inspected by

印章:
Stamp

赛宝计量检测中心
广州总部地址: 广州天河区东莞庄路110号
客服电话: 020-87237633 传真: 020-87236189
投诉电话: 020-87236896
邮箱: cal@ceprei.com
网址: www.ceprei-cal.com

CEPREI Calibration and Testing Centre
H.Q. Addr: No.110,Dongguan Zhuang Road,Tianhe District,Guangzhou
Service Tel: 020-87237633 Fax: 020-87236189
Complaint Tel: 020-87236896
Email: cal@ceprei.com
Website: www.ceprei-cal.com

证书编号(Certificate No.): 2HB20001172-0006

说明 DIRECTIONS

1. 本机构质量管理体系符合ISO/IEC 17025的要求, 获得中国合格评定国家认可委员会(CNAS)认可, 认可证书号为: CNAS L13344。
This laboratory quality management system meets the ISO/IEC 17025 and is accredited by the China National Accreditation Service for Conformity Assessment, No. CNAS L13344.

2. 本次校准的技术依据及CNAS认可范围(Reference documents and CNAS accredited scopes):
* JJG 176-2005 声校准器检定规程: Sound Pressure Level: 94dB, 104dB, 114dB, 124dB(63Hz~8kHz); 94dB、104dB、114dB(31.5Hz~16kHz); Frequency: 31.5Hz~16kHz; Harmonic Distortion: 0~10%, (20Hz~20 kHz).
* 详细内容请查看CNAS网站中注册编号为L13344的证书附件, 超出范围的内容未被认可。(Please see the attachment of certificate No. L13344 at CNAS website for details, beyond which is not accredited).

3. 本次校准所使用的主要测量标准(The main measurement standards used during the calibration):

名称 (Description)	证书号/有效期/溯源单位 (Certificate No./Due Date/Traceability to)	技术指标 (Specification)
标准传声器 304所	GFJGJL1001200310164/2021-02-26/航空	$U=(0.05-0.12)dB (k=2)$
前置放大器 304所	GFJGJL1001200310165/2021-02-26/航空	$U=0.3dB (k=2)$
PULSE分析系统	4GC20000024-0064/2021-02-12/赛宝	频率: $U_{up}=0.001\%,k=2$;电压: $U_{up}=0.04\%,k=2$

4. 校准地点(The calibration place):
广州市天河区东莞庄路110号401楼振动声学室

5. 环境条件(Environmental conditions):
温度(Temperature): 24°C 相对湿度(Relative Humidity): 60%

6. 本证书中给出的扩展不确定度依据JJF1059.1-2012《测量不确定度的评定与表示》评定, 由合成标准不确定度乘以包含概率约为95%时对应的包含因子 k 得到。
The extended uncertainty given in this certificate is evaluated according to JJF1059.1-2012 "Evaluation and Expression of Uncertainty in Measurement", and is calculated by multiplying the combined standard uncertainty by the coverage factor k which corresponding to the coverage probability about 95%.

7. 证书中"P"、"合格"代表"测量结果在允许范围内", "F"、"不合格"代表"测量结果不在允许范围内", "N/A"代表"不适用"。本证书报告的判定规则和结论仅供参考, 使用人员应结合实际测量的要求合理使用, 如考虑测量结果测量不确定度的影响等。
"P" and "Pass" in this certificate stand for "Low Limit: the measured value \leq High Limit", "F" and "Fail" stand for "the measured value $<$ Low Limit or the measured value $>$ High Limit", "N/A" stands for "Not Applicable". The judgment rules and conclusions of this certificate are for reference only. Users should use them reasonably according to the actual measurement requirements, such as considering the impact of measurement uncertainty, etc.

8. 建议校准周期是本实验室依据本证书报告的技术依据和仪器设备常规使用条件给出的建议, 供委托方参考。委托方可以根据实际使用情况自行决定样品的建议校准周期。
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2. 本次校准结果仅与被校物有关。(The results are only related to the items calibrated.)

Calibration Certificate of Sound Calibrator



证书编号(Certificate No.): 2HB20001172-0006

1 外观与工作正常性检查 (Appearance and Function Check)

无影响证书中校准结果准确度的因素和缺陷。

There are no factor and defect that affect the calibration result accuracy of the certificate.

2 声压级 (Sound Pressure Level)

规定声压级 (Prescribed SPL)	测量声压级 (Measured SPL)	声压级差的绝对值 (Absolute value of SPL)	允许范围 (Limit)	结论 (Pass/Fail)	U (k=2)
(dB)	(dB)	(dB)	(dB)		(dB)
94	94.38	0.38	≤0.40	P	0.10

3 频率 (Frequency)

规定频率 (Prescribed Fre.)	测量频率 (Measured Fre.)	频率误差的绝对值 (Absolute value of Fre.)	允许范围 (Limit)	结论 (Pass/Fail)	U_{rel} (k=2)
(Hz)	(Hz)	(%)	(%)	(%)	(%)
1000	1002.0	0.20	≤1.00	P	0.10

4 总失真 (Distortion)

规定声压级 (Prescribed SPL)	规定频率 (Measured Fre.)	总失真 (Distortion)	允许范围 (Limit)	结论 (Pass/Fail)	U_{rel} (k=2)
(dB)	(Hz)	(%)	(%)	(%)	(%)
94	1000	2.48	≤3.00	P	5.0

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数据页(Data sheet) ID: U013393

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Catalogue of Air Flow Meter (TSI TA440)

SPECIFICATIONS

THERMAL ANEMOMETERS MODELS TA410, TA430 AND TA440

Velocity

Range (TA410)	0 to 20 m/s (0 to 4,000 ft/min)
Range (TA430, TA440)	0 to 30 m/s (0 to 6,000 ft/min)
Accuracy (TA410) ^{1,2}	±5% of reading or ±0.025 m/s (±5 ft/min), whichever is greater
Accuracy (TA430, TA440) ^{1,2}	±3% of reading or ±0.015 m/s (±3 ft/min), whichever is greater
Resolution	0.01 m/s (1 ft/min)

Duct Size (TA430, TA440)

Dimensions	1 to 635 cm in increments of 0.1 cm (1 to 250 inches in increments of 0.1 in.)
------------	--

Volumetric Flow Rate (TA430, TA440)

Range	Actual range is a function of velocity, and duct size
-------	---

Temperature

Range (TA410, TA430)	-18 to 93°C (0 to 200°F)
Range (TA440)	-10 to 60°C (14 to 140°F)
Accuracy ³	±0.3°C (±0.5°F)
Resolution	0.1°C (0.1°F)

Relative Humidity (TA440 only)

Range	5 to 95% RH
Accuracy ⁴	±3% RH
Resolution	0.1% RH

Wet Bulb Temperature (TA440 only)

Range	5 to 60°C (40 to 140°F)
Resolution	0.1°C (0.1°F)

Dew Point (TA440 only)

Range	-15 to 49°C (5 to 120°F)
Resolution	0.1°C (0.1°F)

Instrument Temperature Range

Operating (Electronics)	5 to 45°C (40 to 113°F)
Model TA410, TA430 Operating (Probe)	-18 to 93°C (0 to 200°F)
Model TA440 Operating (Probe)	-10 to 60°C (14 to 140°F)
Storage	-20 to 60°C (-4 to 140°F)

Data Storage Capabilities (TA430, TA440)

Range	12,700+ samples and 100 test IDs
-------	----------------------------------

Logging Interval (TA430, TA440)

Range	1 second to 1 hour
-------	--------------------

Specifications subject to change without notice.

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Airflow Instruments, TSI Instruments Ltd.
Visit our website at www.airflowinstruments.co.uk for more information.

UK Tel: +44 149 4 459200 Germany Tel: +49 241 523030
France Tel: +33 491 11 87 64

P/N 2980548 Rev D (A4) ©2014 TSI Incorporated

Time Constant (TA430, TA440)

User selectable

External Meter Dimensions

8.4 cm x 17.8 cm x 4.4 cm (3.3 in. x 7.0 in. x 1.8 in.)

Meter Weight with Batteries

0.27 kg (0.6 lbs.)

Meter Probe Dimensions

Probe Length	101.6 cm (40 in.)
Probe Diameter of Tip	7.0 mm (0.28 in.)
Probe Diameter of Base	13.0 mm (0.51 in.)

Articulating Probe Dimensions

Articulating Section Length	19.7 cm (7.8 in.)
Diameter of Articulating Knuckle	9.5 mm (0.38 in.)

Power Requirements

Four AA-size batteries or AC adapter

	TA410	TA430 TA430-A	TA440 TA440-A
Velocity range 0 to 20.00 m/s (0 to 4000 ft/min)	+		
Velocity range 0 to 30.00 m/s (0 to 6000 ft/min)		+	+
Temperature	+	+	+
Flow		+	+
Humidity, wet bulb, dew point			+
Probe	Straight	Straight or -A articulated	Straight or -A articulated
Variable time constant		+	+
Manual data logging		+	+
Auto save data logging		+	+
Statistics		+	+
Review data		+	+
LogDat2 downloading software		+	+
Free Certificate of Calibration	+	+	+


¹ Temperature compensated over an air temperature range of 5 to 65°C (40 to 150°F).

² The accuracy statement begins at 30 ft/min through 4000 ft/min (0.15 m/s through 20 m/s) for the Models TA410, and 30 ft/min through 6000 ft/min (0.15 m/s through 30 m/s) for Models TA430 and TA440.


³ Accuracy with instrument case at 25°C (77°F), add uncertainty of 0.03°C/C (0.05°F/°F) for change in instrument temperature.

⁴ Accuracy with probe at 25°C (77°F). Add uncertainty of 0.2% RH/°C (0.1% RH/°F) for change in probe temperature. Includes 1% hysteresis.

Calibration Certificate of Air Flow Meter




深圳市计量质量检测研究院
Shenzhen Academy of Metrology & Quality Inspection
国家高新技术计量站
National Hi-Tech Metrology Station



中国认可
国际互认
校准
CALIBRATION
CNAS L6678

校准报告

CALIBRATION REPORT



报告编号: 204202268

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Page 1 of 3 Pages

客户名称: Castco Testing Centre Limited
Name of Customer

客户地址: 33, On Kui Street, Fanling, N.T.
Address of Customer

计量器具名称: 风速仪
Name of Instrument

器具用途: 环境监测
Use of Instrument

型号/规格: TA440
Type/Specification

出厂编号: TA4401232005
Serial No.

资产编号: AAST-FLOW-02
Asset No.

制造单位: TSI
Manufacturer

校准依据: 参照JJG (建设) 0001-1992《热球式风速仪》检定规程校准
Calibrated in Accordance to

(校准专用章)
Name

校准日期: 2020 年 03 月 10 日
Operation Date

建议复校日期: 2021 年 03 月 15 日
Suggested Recal Date

签发日期: 2020 年 03 月 16 日
Issue Date

批准人: 张正海
Authorized by

签名: 张正海
Signature

核验员: 于飞
Checked by

校准员: 张嘉琪
Calibrated by

校准机构备案号: [2012]粤量校F002号
地址: 广东省深圳市南山区龙珠大道9号
电话: 0669-755-2694/0669-0669-755-2694/1546
传真: 0669-755-2694/0669-0669-755-2694/1547
邮编: 518055 网址: www.smg.com.cn
电子邮箱: kfx@smg.com.cn

Register No.: [2012]粤量校F002号
450 No.93, Longzhu Avenue, Nanshan District, Shenzhen, Guangdong, China
Mandarin: 0669-755-2694/0669-0669-755-2694/1546
Tel: 0669-755-2694/0669-0669-755-2694/1546
Fax: 0669-755-2694/0669-0669-755-2694/1547
Post Code: 518055 http://www.smg.com.cn
E-mail: kfx@smg.com.cn



深圳市计量质量检测研究院
Shenzhen Academy of Metrology & Quality Inspection
国家高新技术计量站
National Hi-Tech Metrology Station

校准报告

CALIBRATION REPORT

报告编号: 204202268
Report No.

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校准用主要计量标准装置信息

Main Standard Devices Used

名称 Equipment Name	测量范围 Measuring Range	不确定度/准确度等级/ 最大允许误差 Uncertainty/Accuracy Class/ Maximum Permissible Error	计量标准考核证书号 Certificate No.	有效期至 Due Date

校准用主要标准器信息

Main Standards of Measurement Used

名称 Equipment Name	测量范围 Measuring Range	不确定度/准确度等级/ 最大允许误差 Uncertainty/Accuracy Class/ Maximum Permissible Error	设备编号 Equipment No.	证书号/溯源单位 Certificate No./ Traceability to	有效期至 Due Date
皮托静压管	—	$\pm 1.002 \ k=1.001$	SB4562/01	GGJ (V) LT2015-0028号/中国计量院	2020-05-05
风洞			SB4562	NSS201901168/广东省计量院	2024-06-26
数字压力计			SB10930	RGov2019-2205/中国计量院	2020-09-26

附加说明

Appended Directions


委托日期: 2020 年 03 月 10 日
Application Date

校准地点: 本院104室
Operation Location

环境条件: 温度 21.3 °C 相对湿度 60 %
Operation Environment

符合性及限制使用说明: 参照校准结果使用
Statement of Compliance and Limitation

Calibration Certificate of Air Flow Meter



深圳市计量质量检测研究院
Shenzhen Academy of Metrology & Quality Inspection
国家高新技术计量站
National Hi-tech Metrology Station

校准报告

CALIBRATION REPORT

报告编号: 204202268
Report No.

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校准结果
Results of Calibration

零位: 0.00m/s 满度: —


风速示值:


序号	标准风速 (m/s)	仪器指示读数 (m/s)	修正值 (m/s)
1	0.40	0.38	+0.02
2	1.00	0.95	+0.05
3	2.00	1.70	+0.30
4	5.00	4.30	+0.70
5	10.00	9.70	+0.30
6	15.00	14.89	+0.11
7	20.00	20.23	-0.23

附加说明:


- 大气压力: 1018.0hPa
- 依据JJF1059.1-2012测量不确定度评定与表示, 测量结果的扩展不确定度: $U_{95}=3.0\%$, $k=2$

以 下 空 白






深圳市计量质量检测研究院
Shenzhen Academy of Metrology & Quality Inspection
国家高新技术计量站
National Hi-tech Metrology Station



校准报告

CALIBRATION REPORT



报告编号: 204202267

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客户名称 : Castco Testing Centre Limited
Name of Customer

客户地址 : 33, On Kui Street, Fanling, N.T.
Address of Customer

计量器具名称: 风速仪
Name of Instrument

器具用途 : 环境监测
Use of Instrument

型号/规格 : TA440
Type/Specification

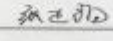
出厂编号 : TA4401706003
Serial No.

资产编号 : AAST-FLOW-03
Asset No.

制造单位 : TSI
Manufacturer

校准依据 : 参照JJG (建设) 0001-1992《热球式风速仪》检定规程校准
Calibrated in Accordance to


批准人 : 张正海
Authorized by

签名 : 
Signature

核验员 : 于飞
Checked by

校准员 : 张嘉琪
Calibrator by

(校准专用章)
Stamp



校准日期 : 2020年03月16日
Operation Date

建议复校日期: 2021年03月16日
Suggested Recal Date

签发日期 : 2020年03月16日
Issue Date

校准机构备案号: [2012]粤量校F002号
地址: 广东省深圳市福田区龙岭北路42号
电话: 0086-755-29941696 9096-724-20841530
传真: 0086-755-29941618 9096-724-20941247
邮编: 518051 网址: www.smg.com.cn
电子邮箱: sjz@smg.com.cn

Register No.: [2012]粤量校F002号
Add: No. 42, Longling Avenue, Nanshan District, Shenzhen, Guangdong, China
Tel: 0086-755-29941696 9096-724-20841530
Fax: 0086-755-29941618 9096-724-20941547
Post Code: 518051 Http://www.smg.com.cn
E-mail: sjz@smg.com.cn

Calibration Certificate of Air Flow Meter



深圳市计量质量检测研究院
Shenzhen Academy of Metrology & Quality Inspection
国家高新技术计量站
National Hi-tech Metrology Station

校准报告 CALIBRATION REPORT

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校准用主要计量标准装置信息 Main Standard Devices Used

名称 Equipment Name	测量范围 Measuring Range	不确定度/准确度等级/ 最大允许误差 Uncertainty/Accuracy Class/ Maximum Permissible Error	计量标准考核证书号 Certificate No.	有效期至 Due Date

校准用主要标准器信息 Main Standards of Measurement Used

名称 Equipment Name	测量范围 Measuring Range	不确定度/准确度等级/ 最大允许误差 Uncertainty/Accuracy Class/ Maximum Permissible Error	设备编号 Equipment No.	证书号/溯源单位 Certificate No./Traceability to	有效期至 Due Date
皮托管压管	—	± 1.002 % ± 1.001	SB4562/01	QJ (V) LT2015-0028号/中国计量院	2020-05-05
风洞			SB4362	MSS201501168/广东省计量院	2024-06-26
数字压力计			SB1050	390s2010-2205/中国计量院	2020-09-26

附加说明 Appended Directions

委托日期: 2020年03月10日
Application Date: 2020年03月10日
校准地点: 本院104室
Operation Location: 本院104室
环境条件: 温度 21.3℃ 相对湿度 60 %
Operation Environment: 温度 21.3℃ 相对湿度 60 %
符合性及限制使用说明: 参阅校准结果使用
Statement of Compliance and Limitation: 参阅校准结果使用



深圳市计量质量检测研究院
Shenzhen Academy of Metrology & Quality Inspection
国家高新技术计量站
National Hi-tech Metrology Station

校准报告 CALIBRATION REPORT

报告编号: 204202267
Report No.

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Page 3 of 3 Pages

校准结果 Results of Calibration

零位: 0.00m/s 满度: —

风速示值:

序号	标准风速 (m/s)	仪器指示读数 (m/s)	修正值 (m/s)
1	0.40	0.38	+0.02
2	1.00	0.93	+0.07
3	2.00	1.90	+0.10
4	5.00	4.75	+0.25
5	10.00	9.90	+0.10
6	15.00	15.06	-0.06
7	20.00	20.18	-0.18

附加说明:

1. 大气压力: 1018.0hPa
2. 依据JJF1059.1-2012测量不确定度评定与表示, 测量结果的扩展不确定度: U_{95} =3.0%, $k=2$

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Appendix K – Noise monitoring results and graphical presentation

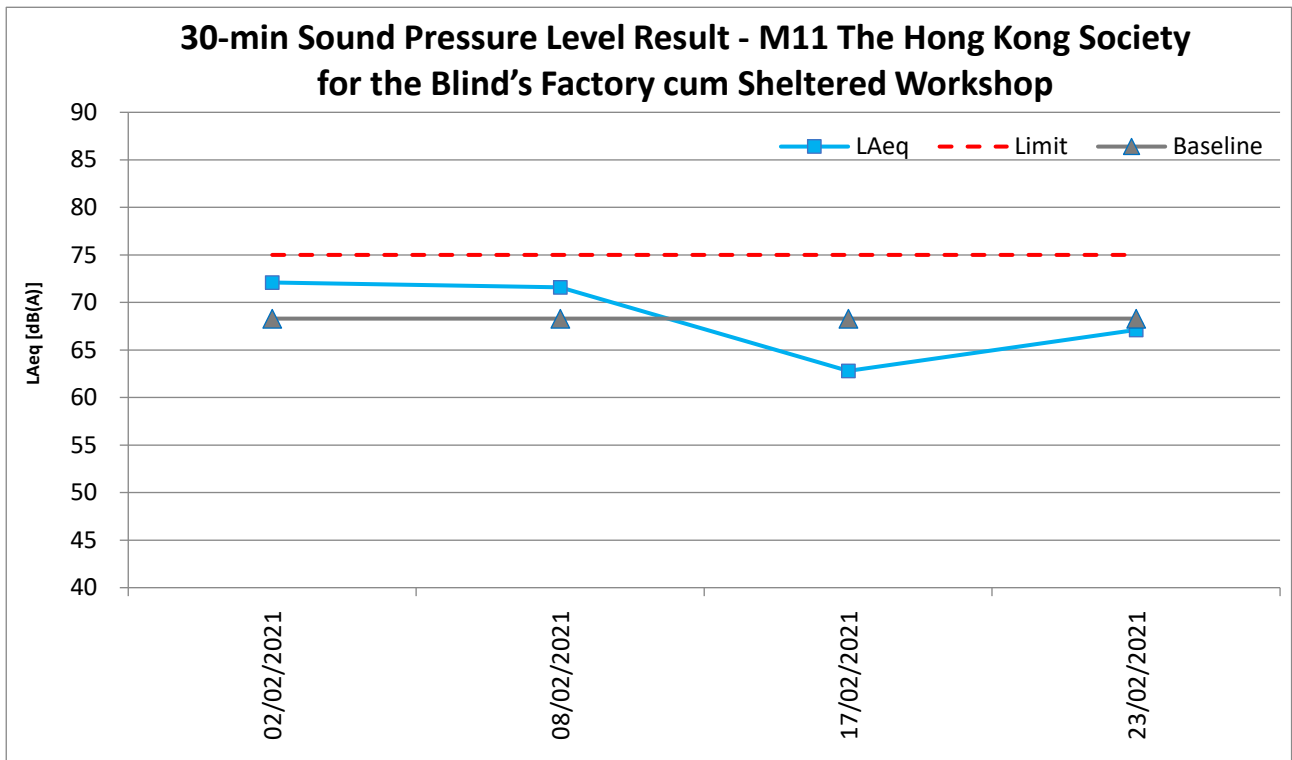
M11 - The Hong Kong Society for the Blind's Factory cum Sheltered Workshop

Date	Temp (°C)	Weather	Measured Noise Level at M11, dB(A)							Limit
			Time		Baseline	L _{Aeq}	L _{A10}	L _{A90}		
02/02/2021	25.6	Sunny	13:58	-	14:28	68.3	72.1	74.1	68.1	75
08/02/2021	21.5	Sunny	15:00	-	15:30	68.3	71.6	74.1	67.4	75
17/02/2021	19.0	Sunny	9:49	-	10:19	68.3	62.8	63.6	60.9	75
23/02/2021	23.6	Sunny	13:49	-	14:19	68.3	67.1	67.8	66.3	75
Maximum							72.1			
Minimum							62.8			
Average							69.7			

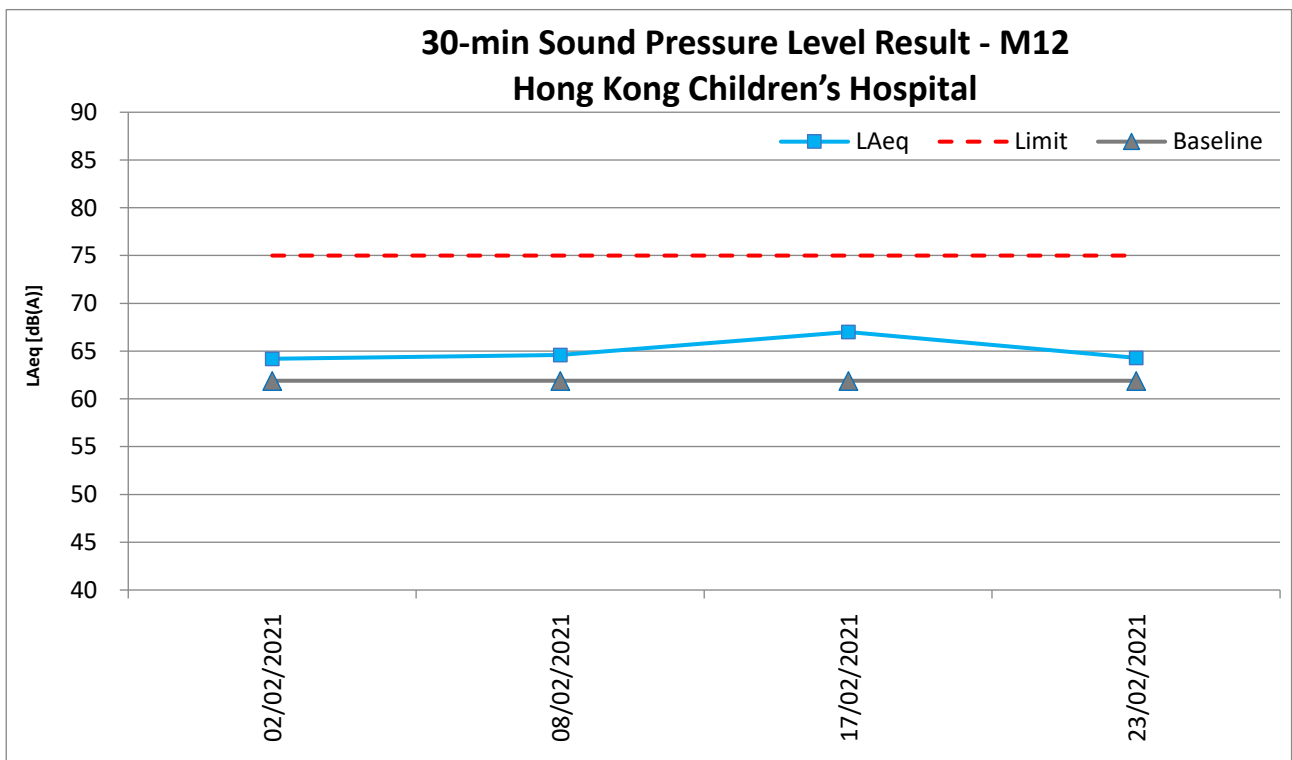
M12 - Hong Kong Children's Hospital

Date	Temp (°C)	Weather	Measured Noise Level at M12, dB(A)							Limit
			Time		Baseline	L _{Aeq}	L _{A10}	L _{A90}		
02/02/2021	25.6	Sunny	13:42	-	14:12	61.9	64.2	65.9	61.8	75
08/02/2021	21.5	Sunny	10:48	-	11:18	61.9	64.6	66.0	61.6	75
17/02/2021	19.0	Sunny	13:05	-	13:35	61.9	67.0	71.1	63.9	75
23/02/2021	23.6	Sunny	14:51	-	15:21	61.9	64.3	65.9	61.9	75
Maximum							67.0			
Minimum							64.2			
Average							65.2			

L_{Aeq}, 30-min graphical results of M11 - The Hong Kong Society for the Blind's Factory cum Sheltered Workshop



L_{Aeq}, 30-min graphical results of M12 - Hong Kong Children's Hospital



Appendix L – Event and Action Plan for noise

Event	Action			
	ET	IEC	Supervisor / ER	Contractor
Action Level being exceeded	<ol style="list-style-type: none"> 1. Notify Supervisor / ER, IEC and Contractor; 2. Carry out investigation; 3. Report the results of investigation to the IEC, Supervisor / ER and Contractor; 4. Discuss with the IEC and Contractor on remedial measures required; 5. Increase monitoring frequency to check mitigation effectiveness. <p>(The above actions should be taken within 2 working days after the exceedance is identified.)</p>	<ol style="list-style-type: none"> 1. Review the investigation results submitted by the ET; 2. Review the proposed remedial measures submitted by the Contractor and advise the ER accordingly; 3. Advise the Supervisor / ER on the proposed remedial measures. <p>(The above actions should be taken within 2 working days after the exceedance is identified.)</p>	<ol style="list-style-type: none"> 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. <p>(The above actions should be taken within 2 working days after the exceedance is identified.)</p>	<ol style="list-style-type: none"> 1. Submit noise mitigation proposal to IEC and Supervisor / ER; 2. Implement noise mitigation proposals. <p>(The above actions should be taken within 2 working days after the exceedance is identified.)</p>
Limit Level being exceeded	<ol style="list-style-type: none"> 1. Inform IEC, Supervisor /ER, Contractor and EPD; 2. Repeat measurement to confirm findings; 3. Increase monitoring frequency; 4. Identify source and investigate the cause of exceedance; 5. Carry out analysis of Contract's working procedure; 6. Discuss remedial measures required with the IEC, Contractor and Supervisor /ER; 7. Assess effectiveness of 	<ol style="list-style-type: none"> 1. Discuss the potential remedial actions with Supervisor /ER, ET and Contractor; 2. Review Contractor's remedial actions whenever necessary to assure their effectiveness and advise the Supervisor /ER accordingly. <p>(The above actions should be taken within 2 working days after the exceedance is identified.)</p>	<ol style="list-style-type: none"> 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 	<ol style="list-style-type: none"> 1. Take immediate action to avoid further exceedance; 2. Submit proposals for remedial actions to IEC and Supervisor /ER within 3 working days of notification; 3. Implement the agreed proposal; 4. Submit further proposal if problem still not under control; 5. Stop the relevant portion of works as instructed by the Supervisor /ER until the exceedance is abated. <p>(The above actions should be</p>

Event	Action			
	ET	IEC	Supervisor / ER	Contractor
	<p>Contractor's remedial actions and keep IEC, EPD, and Supervisor /ER informed of the results;</p> <p>8. If exceedance stops, cease additional monitoring. (The above actions should be taken within 2 working days after the exceedance is identified.)</p>		<p>exceedance until the exceedance is abated. (The above actions should be taken within 2 working days after the exceedance is identified.)</p>	<p>taken within 2 working days after the exceedance is identified.)</p>

Appendix M – Event and Action Plan for Landscape and Visual Impact

Event	Action			
	ET	IEC	Supervisor / ER	Contractor
Design Check	<ol style="list-style-type: none"> 1. Check final design conforms to the requirements of EP and prepare report. 	<ol style="list-style-type: none"> 1. Check report. 2. Recommend remedial design if necessary. 	<ol style="list-style-type: none"> 1. Undertake remedial design if necessary. 	
Non-conformity on one occasion	<ol style="list-style-type: none"> 1. Identify Source. 2. Inform IEC and Supervisor /ER. 3. Discuss remedial actions with IEC, Supervisor /ER and Contractor. 4. Monitor remedial actions until rectification has been completed. 	<ol style="list-style-type: none"> 1. Check report. 2. Check Contractor's working method. 3. Discuss with ET and Contractor on possible remedial measures. 4. Advise Supervisor /ER on effectiveness of proposed remedial measures. 5. Check implementation of remedial measures. 	<ol style="list-style-type: none"> 1. Notify Contractor. 2. Ensure remedial measures are properly implemented. 	<ol style="list-style-type: none"> 1. Amend working methods. 2. Rectify damage and undertake any necessary replacement.
Repeated Non-conformity	<ol style="list-style-type: none"> 1. Identify Source. 2. Inform IEC and Supervisor /ER. 3. Increase monitoring frequency. 4. Discuss remedial actions with IEC, Supervisor /ER and Contractor. 5. Monitor remedial actions until rectification has been completed. 6. If non-conformity stops, cease additional monitoring. 	<ol style="list-style-type: none"> 1. Check monitoring report. 2. Check Contractor's working method. 3. Discuss with ET and Contractor on possible remedial measures. 4. Advise Supervisor /ER on effectiveness of proposed remedial measures. 5. Supervise implementation of remedial measures. 	<ol style="list-style-type: none"> 1. Notify Contractor. 2. Ensure remedial measures are properly implemented. 	<ol style="list-style-type: none"> 1. Amend working methods. 2. Rectify damage and undertake any necessary replacement.

Appendix N – Waste Flow Table

Appendix F - Monthly Summary Waste Flow Table

Name of Department : CEDD

Contract No.: ED/2018/01

Monthly Summary Waste Flow Table for February 2021

Month	Actual Quantities of Inert C&D Materials Generated Monthly						Actual Quantities of C&D Wastes Generated Monthly				
	Total Quantity Generated	Hard Rock and Large Broken Concrete	Reused in the Contract	Reused in other Projects	Disposed as Public Fill	Imported Fill	Metals	Paper / cardboard packaging	Plastics (see Note 3)	Chemical Waste	Others, e.g. general refuse
	(in '000m ³)	(in '000m ³)	(in '000m ³)	(in '000m ³)	(in '000m ³)	(in '000m ³)	(in '000 kg)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000m ³)
Jan	8.930	0.177	--	7.885	1.045	--	--	--	--	--	0.091
Feb	5.511	0.127	1.660	2.261	1.589	--	--	--	--	--	0.106
Mar	--	--	--	--	--	--	--	--	--	--	--
Apr	--	--	--	--	--	--	--	--	--	--	--
May	--	--	--	--	--	--	--	--	--	--	--
Jun	--	--	--	--	--	--	--	--	--	--	--
Sub-total	14.441	0.304	1.660	10.146	2.634	--	--	--	--	--	0.197
July	--	--	--	--	--	--	--	--	--	--	--
Aug	--	--	--	--	--	--	--	--	--	--	--
Sep	--	--	--	--	--	--	--	--	--	--	--
Oct	--	--	--	--	--	--	--	--	--	--	--
Nov	--	--	--	--	--	--	--	--	--	--	--
Dec	--	--	--	--	--	--	--	--	--	--	--
Total	14.441	0.304	1.660	10.146	2.634	--	--	--	--	--	0.197

Forecast of Total Quantities of C&D Materials to be Generated from the Contract*										
Total Quantity Generated	Hard Rock and Large Broken Concrete	Reused in the Contract	Reused in other Projects	Disposed as Public Fill	Imported Fill	Metals	Paper / cardboard packaging	Plastics (see Note 3)	Chemical Waste	Others, e.g. general refuse
(in '000m ³)	(in '000m ³)	(in '000m ³)	(in '000m ³)	(in '000m ³)	(in '000m ³)	(in '000 kg)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000m ³)
195.01	2.103	10.2	140	19.81	25	200	0.8	--	--	3.4

- Notes: (1) The performance targets are given in ER Appendix 8I Clause 14 and the EM&A Manual
(2) The waste flow table shall also include C&D materials to be imported for use at the Site
(3) Plastics refer to plastic bottles/containers, plastic sheets/foam from packaging material
(4) The Contractor shall also submit the latest forecast of the total amount of C&D materials expected to be generated from the works, together with a breakdown of the nature where the total amount of C&D materials expected to be generated from the Works is equal to or exceeding 50,000m³ (ER Part 8 Clause 8.7.5(d)(ii) refers)
(5) Assume inert C&D materials density and non-inert C&D materials are 1.9 m³/ton and 1.5 m³/ton

**Appendix Q – Summaries of Environmental Complaint, Warning,
Summon and Notification of Successful Prosecution**

Reporting Month: February 2021

Contract No.	Record of Complaint (Yes/No)	Record of Warning (Yes/No)	Notification of Summons and Successful Prosecutions (Yes/No)
ED/2018/01	No	No	No

Cumulative Statistics on Complaints, Notification of Summons and Successful Prosecutions upto reporting month

Contract No.	Record of Complaint	Record of Warning	Notification of Summons and Successful Prosecutions
ED/2018/01	1	0	0

Complaint Log for ED/2018/01				
Complaint Ref. No.	Date of Complaint	Description of Complaint	Investigation / Recommendations / Actions	Close-Out Date / Status
C0001	A dust complaint was referred from the Contractor on 21 October 2020 regarding a public complaint via 1823 hotline (Case no. 3-6518939602) on 20 October 2020.	<ol style="list-style-type: none"> 1. The water spraying system was not operated in proper time. 2. Stockpile was not covered properly. 3. Haul road was not wetted. 4. Materials transported on trucks were not provided with mechanical covers. 	<p><u>Investigation</u></p> <ol style="list-style-type: none"> 1. Based on the information provided by the Contractor on 22 October 2020, the water sprinklers system was sprayed every 15 minutes with 70 seconds interval automatically. For the area that water sprinklers system was not covered, manual water spraying was provided. Dump trucks were covered with mechanical cover after loading the materials. The stockpile area was covered by the tarpaulin during night time. 2. Based on the monitoring results on 16 October 2020, the 1-hour and 24-hour TSP results were below the Action Levels and Limit Levels. 3. Regular site inspection was conducted by ET on 22 October 2020, no adverse observation against the dust impact was recorded. <p><u>Recommendations</u></p> <p>To minimize the impact for air quality, mitigation measures should be enhanced specially in dry seasons are recommended:</p> <ol style="list-style-type: none"> 1. Increase the frequency and duration for automatic water spraying system. 2. Main haul road and the area that water sprinklers system was not covered in the construction site should be wetted by water trucks or manually in regular basis. 3. Ensure stockpiling sites should be lined with impermeable sheeting and bunded. Stockpiles should be fully covered by impermeable sheeting at all time except during working process. 	<ul style="list-style-type: none"> - Closed-out on 5 Nov 2020 - No further complaint was received.

Complaint Log for ED/2018/01				
Complaint Ref. No.	Date of Complaint	Description of Complaint	Investigation / Recommendations / Actions	Close-Out Date / Status
			<u>Action taken</u> 1. As per the Contractor, the water sprinkler are now adjusted to start at 8:00am and end at 6:00pm for Monday to Saturday while from 8:00am to 5:00pm on Sunday. Water spraying are set with 5-minute time interval with duration 30-60 seconds.	

Appendix O – Environmental Licenses and Notification

本署編號
Our Ref: 445956
來函檔號
Your Ref:
電話
Tel. No.: 2755 5518
圖文傳真
Fax No.: 2756 8588
電子郵件
E-Mail:
網址
Homepage: <http://www.epd.gov.hk/>

Environmental Protection Department
Environmental Compliance Division
Regional Office (East)
5th Floor, Nan Fung Commercial Centre,
19 Lam Lok Street, Kowloon Bay,
Kowloon, Hong Kong.



0049
環境保護署
環保法規管理科
區域辦事處(東)
香港九龍九龍灣臨樂街
十九號南豐商業中心五樓

06/06/2019

Penta-Ocean Construction Co. Ltd
Flat 601, K. Wah Centre, 191 Java Road,
North Point, Hong Kong

Dear Sirs,

Site/Premises:
Kai Tak Development - Stage 4 Infrastructure
at the former runway and south apron

This is to acknowledge receipt of the following submission(s) on 06/06/2019

Notification Pursuant to Section 3(1) of The Air Pollution Control (Construction Dust)
Regulation
Ref. Number: 445956

Meanwhile, if you have any further questions, please contact the undersigned.

Yours faithfully,

(Customer Service Counter (RE))
for Director of Environmental Protection

(內文中文譯本)

執事先生:

工地/處所 (見英文版本)

我們已於 2019 年 6 月 6 日收到你提交的文件, 詳列如下:

- 進行指明工序所需的牌照申請
- 申請批准裝置或改裝火爐、烘爐及煙囪
- 申請露天焚物許可證 —
- 石棉調查報告、石棉消滅計劃, 石棉管理計劃, 及/或開始進行石棉消滅工程通知書
- 空氣污染管制(建造工程塵埃)規例的建造工程通知書
- 一般工程/訂明建造工程的建築噪音許可證申請
- 撞擊式打樁工程的建築噪音許可證申請
- 申請空氣壓縮機的噪音標籤
- 申請手提撞擊式破碎機的噪音標籤
- 水污染管制條例的排污牌照申請
- 申請化學廢物產生者的登記
- 化學廢物處置牌照申請
- 化學廢物收集牌照申請
- 根據條例第 17 條的規定呈報指定(甲類)化學廢物通知書
- 申請批准使用容量超過 450 公升的化學廢物容器
- 廢物進出口許可證申請
- 申請批准使用油污分散劑及類似物質
- 傾物入海許可證申請

如有疑問, 請與代行人查詢

環境保護署署長
(代 行)

年 月 日

本署檔號
Our Ref: EP682/286/0141/I
來函檔號
Your Ref:
電話
Tel. No.: 2117 7539
圖文傳真
Fax No.: 2756 8588
電子郵件
E-Mail:
網址
Homepage: <http://www.epd.gov.hk/>

Environmental Protection Department
Environmental Compliance Division
Regional Office (East)
5th Floor, Nan Fung Commercial Centre,
19 Lam Lok Street, Kowloon Bay,
Kowloon, Hong Kong.



1316
環境保護署
環保法規管理科
區域辦事處(東)
香港九龍九龍灣臨樂街
十九號南豐商業中心五樓

BY REGISTERED POST

25 FEB 2020

Penta-Ocean Construction Co., Ltd.
Room 601, K. Wah Centre,
191 Java Road,
North Point, Hong Kong



Dear Sir/Madam,

Water Pollution Control Ordinance (WPCO) (Cap 358)
(Licence No: WT00034610-2019)
Variation of Licence Pursuant to Section 28 of WPCO

I refer to your application dated 19/11/2019 made under Section 28 of the WPCO for the variation of your captioned licence granted on 26/09/2019. The Authority, pursuant to Section 28(4) & (7), hereby grants the application with the following variations.

- Sampling Points and Wastewater Treatment Facilities
- The limitations on discharge in Part B shall be varied from the existing limits to the new limits
- Self-monitoring and Reporting

Part A, B, Annex II, III & IV of your captioned licence shall be replaced by the corresponding Part shown in the Appendix of this letter with immediate effect.

This letter plus the remaining valid parts of your captioned licence shall form the varied licence. Please therefore attach this letter to your captioned licence. Please also note that the expiry date remains unchanged and the varied licence is valid up to 30/09/2024.

The granting of the application does not imply that the discharge/deposit from your premises is in compliance with the required standards and limits as stipulated in the varied licence. It is your responsibility to ensure that the terms and conditions of the varied licence are fully complied with.

Should you have any enquiry, please feel free to contact TONG Tsz-shan, Viviana at 2117 7527.

Yours faithfully,

(CHAN Wai-lun)
Environmental Protection Officer
for Director of Environmental Protection

Encl.: Appendix



掛號郵件

先生/女士:

《水污染管制條例》(第358章)
牌照編號: WT00034610-2019
根據《水污染管制條例》第28條更改牌照

你在二零一九年十一月十九日根據《水污染管制條例》第28條遞交了更改在二零一九年九月廿六日發出的上述牌照的申請。監督根據《水污染管制條例》第28(4)及(7)條批准有關申請，並作出以下更改：

- 取樣點及廢水處理設施
- 乙部的排放限制將由現時的上限更改至新上限
- 自行監測及報告

上述牌照的 甲、乙、附件 II、III 及 IV 部分將由本函附錄所示的相應部分取代，即時生效。

本函連同上述牌照的餘下有效部分將構成修訂牌照，因此請將本函附於上述牌照。請注意，牌照屆滿日期維持不變，而修訂牌照的有效期至二零二四年九月三十日。

申請獲得批准並不代表你處所的排放／沉積物符合修訂牌照的訂明標準及上限。你必須確保完全遵守修訂牌照的條款及條件。

如有查詢，請致電 2117 7527 與本署 唐紫珊 聯絡。

環境保護署署長
(環境保護主任)
(陳偉麟代行)

連附錄



Appendix 附錄

Licence No.: WT00034610-2019
牌照編號: WT00034610-2019

This Licence is Valid to: 30/09/2024
本牌照有效期至: 二零二四年九月三十日

ENVIRONMENTAL PROTECTION DEPARTMENT
環境保護署

WATER POLLUTION CONTROL ORDINANCE (CAP. 358)
水污染管制條例(第358章)

LICENCE PURSUANT TO SECTION 15/20/23A*
按第15 / 20/ 23A*條簽發的牌照

The Director of Environmental Protection ("the Authority") grants this licence under the Water Pollution Control Ordinance ("the Ordinance") on the terms and conditions stated below.

環境保護署署長(「監督」)按下列的條款及條件,根據水污染管制條例(「本條例」)批給此牌照。

21 February 2020

Date
日期


(CHAN Wai-lun)
For the Authority
監督(陳偉麟) (代行)

PART A 甲部 : GENERAL TERMS 一般條款

Name of Licensee ("the Licensee") 持牌人名稱(「持牌人」)	Penta-Ocean Construction Co., Ltd.
Discharge Premises ("the premises") 排放處所(「處所」)	Construction Site of Kai Tak Development – Stage 4 Infrastructure at the Former Runway and South Apron, Kowloon City, Kowloon (CEDD Contract No. ED/2018/01) (See Annex I) 九龍九龍城啟德發展-前跑道和南停機坪的第4階段基礎設施之建築地盤(土木工程拓展署合約編號 ED/2018/01) (參見附件 I)
Water Control Zone 水質管制區	Victoria Harbour (Phase Two) Water Control Zone 維多利亞港(第二期)水質管制區
Discharge Category 排放種類	Discharge of industrial trade effluent 工業污水排放
Nature of Discharge and Wastewater Treatment Facilities 排放性質及廢水處理設施	Effluent, Surface Run-off, and all other wastewater discharges from the premises 上址排放的污水、地面徑流水及其他的廢水 Screen, Chemical Precipitation, pH adjustment and Sedimentation Tank 隔濾設施、化學沉降、酸鹼值調節及沉澱池
Discharge Point(s) 排放點	Discharge into communal storm water drain 排放入公用雨水渠
Sampling Point(s) 取樣點	Discharge outlet(s) of Wastewater Treatment Facility marked S.P. 1, S.P. 2 & S.P. 3 on Annex II, III & IV 參見附件 II、III 及 IV 中標指 S.P. 1、S.P. 2 及 S.P. 3 的廢水處理設施的出水口

*Delete as appropriate
將不適用者刪去

Reference No. 參考編號 EP682/286/0141/1

- 1 -

Printed on Recycled Paper

EPD156

PART B 乙部 : SPECIFIC CONDITIONS 特別條件

B1. Limitations on Discharge 排放限制

The quantity and composition of any discharge from the premises shall not exceed the limits stated in the table below^(Note a). All figures are upper limits unless otherwise indicated. All units are expressed as concentration in milligramme per litre unless otherwise stated.

任何源自處所之排放的量和成份不得超過下表所列的限度^(附註 a)。除另予表明外,所有數字均為上限。除另予說明外,所有單位均以毫克/升的濃度表示。

Determinand 測量物	Limit 限度
Flow Rate (m ³ / day) 流量(立方米/日)	195
pH (pH units) 酸鹼值 (pH 單位)	6-9 [#]
Suspended Solids 懸浮固體	30
Chemical Oxygen Demand 化學需氧量	80

Range 上下限

B2. Self-monitoring and Reporting 自行監測及報告

The Licensee shall perform self-monitoring as and when required by the Authority.

持牌人須在監督要求時進行自行監測。

The Licensee shall sample the discharge at the Sampling Point(s) and, at his own expense carry out analyses in accordance with the sample type and measurement frequency specified for each determinand named below:-

持牌人須在取樣點為排放抽取樣本,並依照下列指定的測量物、取樣形式及頻率,自資予以分析。

Determinand 測量物	Unit 單位	Sample Type 取樣形式	Frequency 頻率
Suspended Solids 懸浮固體	mg/L 毫克/升	Grab 隨意取集	Bimonthly 每兩個月一次

Results of these monitoring shall be summarized in a report on a Monthly/Bi-monthly/Quarterly/Yearly* basis and shall be submitted to the Authority.

所有監測結果須以摘要形式,每一個月/兩個月/三個月/年*作出報告,並須呈交監督審閱。

*Delete as appropriate
將不適用者刪去

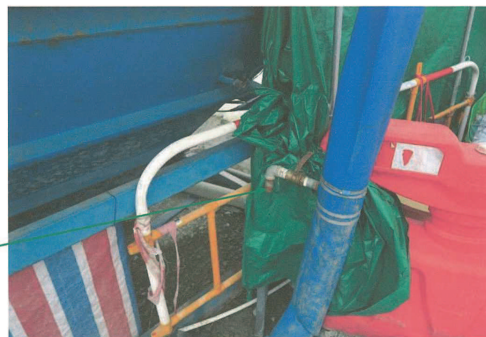
- 2 -

EPD156

Annex II
附件 II



Wastewater Treatment Facility (1)
廢水處理設施(1)



Sampling Point (S.P. 1) at sampling valve of the discharge outlet of Wastewater Treatment Facility (1)

取樣點(S.P. 1)位於廢水處理設施(1)出水口的取樣閥

Title: Wastewater Treatment Facility (1) and Sampling Point (S.P. 1)
標題: 廢水處理設施(1)及取樣點(S.P. 1)

Annex to licence No.: WT00034610-2019

牌照編號 WT00034610-2019 的附件

Construction Site of Kai Tak Development – Stage 4 Infrastructure at the Former Runway and South Apron, Kowloon City, Kowloon (CEDD Contract No. ED/2018/01)
九龍九龍城政德發展-前跑道和南停機坪的第4階段基礎設施之建築地盤(土木工程拓展署合約編號ED/2018/01)

Scale: NTS
比例: 不按比例

ENVIRONMENTAL PROTECTION DEPARTMENT,
HONG KONG
REGIONAL OFFICE (EAST)

香港環境保護署
區域辦事處(東)



Annex III
附件 III



Wastewater Treatment Facility (2)
廢水處理設施(2)



Sampling Point (S.P. 2) at sampling valve of the discharge outlet of Wastewater Treatment Facility (2)

取樣點(S.P. 2)位於廢水處理設施(2)出水口的取樣閥

Title: Wastewater Treatment Facility (2) and Sampling Point (S.P. 2)
標題: 廢水處理設施(2)及取樣點(S.P. 2)

Annex to licence No.: WT00034610-2019

牌照編號 WT00034610-2019 的附件

Construction Site of Kai Tak Development – Stage 4 Infrastructure at the Former Runway and South Apron, Kowloon City, Kowloon (CEDD Contract No. ED/2018/01)
九龍九龍城政德發展-前跑道和南停機坪的第4階段基礎設施之建築地盤(土木工程拓展署合約編號ED/2018/01)

Scale: NTS
比例: 不按比例

ENVIRONMENTAL PROTECTION DEPARTMENT,
HONG KONG
REGIONAL OFFICE (EAST)

香港環境保護署
區域辦事處(東)



Annex IV

附件 IV



Wastewater Treatment Facility (3)
廢水處理設施(3)



Sampling Point (S.P. 3) at sampling valve of the discharge outlet of Wastewater Treatment Facility (3)

取樣點(S.P. 3)位於廢水處理設施(3)出水口的取樣閥

Title: Wastewater Treatment Facility (3) and Sampling Point (S.P. 3)
標題: 廢水處理設施(3)及取樣點(S.P. 3)

Construction Site of Kai Tak Development – Stage 4 Infrastructure at the Former Runway and South Apron, Kowloon City, Kowloon (CEDD Contract No. ED/2018/01)
九龍九龍城啟德發展-前跑道和南停機坪的第4階段基礎設施之建築地盤(土木工程拓展署合約編號ED/2018/01)

Annex to licence No.: WT00034610-2019

牌照編號 WT00034610-2019 的附件

Scale: NTS
比例: 不按比例

ENVIRONMENTAL PROTECTION DEPARTMENT,
HONG KONG
REGIONAL OFFICE (EAST)

香港環境保護署
區域辦事處(東)



本署檔號
OUR REF.: RE04380
來函檔號
YOUR REF.:
電話
TEL. NO.: 2872 1769
圖文傳真
FAX NO.: 2591 0361
網址
HOMEPAGE: <http://www.epd.gov.hk>

Environmental Protection Department
Environmental Infrastructure Division

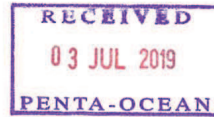
88 Victoria Road,
Kennedy Town,
Hong Kong.



環境保護署
環境基建科
香港西環
堅尼地城
域多利道88號

PENTA-OCEAN CONSTRUCTION CO., LTD.
FLAT/ROOM 601, K. WAH CENTRE,
191 JAVA ROAD, NORTH POINT,
HONG KONG
Attn.: CHOI CHONG KEI

Friday, 28 June, 2019



Dear Sir/Madam,

Waste Disposal (Charges for Disposal of Construction Waste) Regulation
Approval of Application for Billing Account
(Construction work contract with value of \$1 million or above)
Application No.: RE04380

I am pleased to inform you that your application for billing account for disposal of construction waste under the following construction work contract has been approved under Section 6 and 9 of the Waste Disposal (Charges for Disposal of Construction Waste) Regulation:

Contract No.: ED/2018/01

Contract Name: KAI TAK DEVELOPMENT - STAGE 4 INFRASTRUCTURE AT THE FORMER RUNWAY AND SOUTH APRON

Construction Waste Generated Site: KAI TAK THE FORMER RUNWAY AND SOUTH APRON

The account number is 7034450. Please quote this account number for enquiries in relation to the billing account.

You are bound by the "Basic Conditions" and "Conditions of Use" accompanied with this account for disposal of construction waste at the prescribed facilities. You shall ensure that (a) the billing account established solely for the contract as stated above is used for paying any prescribed charge payable in respect of construction waste generated from construction work undertaken under the above contract; and (b) that billing account is not used for paying any prescribed charge payable in respect of any other construction waste not generated from construction work undertaken under the contract as stated above.

Regarding your application for issuance of chits, a demand note for the deposit required will be sent to you accordingly. Request for additional chits can be made using "Form 4". Please note that one chit is required for each load of construction waste to be disposed of at prescribed facility.

Should you have any queries, please contact us at 2872 1769.

Yours faithfully,

(K O Yeung)

Principal Environmental Protection Officer
for Director of Environmental Protection



ISO 14001:2015
Certificate No:E103

本署檔號 447046
Our Ref:
來函檔號
Your Ref: 2117 7539
電話
Tel. No.: 2756 8588
圖文傳真
Fax No.:
電子郵件
E-Mail:
網址
Homepage: <http://www.epd.gov.hk/>

Environmental Protection Department
Environmental Compliance Division
Regional Office (East)
5th Floor, Nan Fung Commercial Centre,
19 Lam Lok Street, Kowloon Bay,
Kowloon, Hong Kong.



環境保護署
環保法規管理科
區域辦事處(東)
香港九龍九龍灣臨樂街
十九號南豐商業中心五樓

31 JUL 2019

By Registered Post

PENTA-OCEAN CONSTRUCTION CO., LTD.
FLAT 601, K. WAH CENTRE,
191 JAVA ROAD,
NORTH POINT, HONG KONG



Dear Sir/Madam,

Waste Disposal Ordinance (Cap. 354)
Waste Disposal (Chemical Waste) (General) Regulation
Registration as a Chemical Waste Producer
Completion of Registration

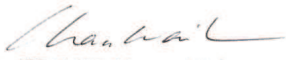
I am pleased to inform you that your registration with this department as a chemical waste producer has been completed.

The assigned Waste Producer Number (WPN) and the particulars of your establishment are printed in the enclosed form (EPD 130). If you consider there are any discrepancies about the particulars, please notify me immediately, quoting the assigned WPN.

The "EPD 130" is an important document, please archive appropriately. This registration is not transferable and will be valid only in respect of the applicant and the premises registered. In future when there is change in the registration particulars, you should inform this department as soon as possible so that our record can be amended accordingly. Under section 7 of the above regulation, failure to notify this department of relevant changes is an offence and liable to a maximum fine of HK\$10,000.

For enquiries, please contact us at Tel 2117 7546.

Yours faithfully,


(CHAN Wai-lun, William)
Environmental Protection Officer
for Director of Environmental Protection

Encl.



掛號函件

先生/女士:

香港法例第三五四章廢物處置條例
廢物處置(化學廢物)(一般)規例
化學廢物產生者
完成登記程序

本署已完成辦理 貴機構申請登記為「化學廢物產生者」。現隨信附上EPD 130表格,載有 貴機構的各項資料及你的「化學廢物產生者」編號。請即核對表格內的各項資料,如有錯漏,請即聯絡本署職員以便更正。通訊時請註明你的化學廢物產生者編號。

EPD 130 表格是一份重要文件,請妥善存檔。同時,是項登記,不得轉讓,並只適用於已登記的申請人/機構及有關地址。日後如果已申報的資料有變更,你應馬上通知本署,以便修正紀錄。按照上述規例第七條規定,任何人倘未有將變更資料及時呈報,乃屬違例行為,一經定罪,可被判罰款最高港幣一萬元正。

若有任何疑問,請致電 2117 7546 與本署職員聯絡。

環境保護署署長
(環境保護主任 陳偉麟 代行)

附件

Environmental Protection Department
環境保護署
Waste Disposal Ordinance (Chapter 354)
香港法例第354章廢物處置條例
Waste Disposal (Chemical Waste) (General) Regulation
廢物處置(化學廢物)(一般)規例
Registration of Waste Producer
廢物產生者登記證

To: 致 化學廢物產生者	Chemical Waste Producer	Full Name (English) 全 名 (英文) PENTA-OCEAN CONSTRUCTION CO., LTD.
		(Chinese) (中 文) --- I.D. Card No. (if any) 身份證號碼:(如有者) ---
		Business Reg. Cert. No. (if any) 商業登記證號碼:(如有者) 07818486-000-05-18-7
		Address for Correspondence 通訊地址: FLAT 601, K. WAH CENTRE, 191 JAVA ROAD, NORTH POINT, HONG KONG
	Tel. No. 電話: 94332628	Fax No. 圖文傳真: 25724080

With reference to your application dated 09 / 07 / 2019 for registration as a Waste Producer under the Waste Disposal (Chemical Waste) (General) Regulation, the Waste Producer Number, WPN 5|2|1|8-2|8|6-P|3|1|8|2-0|3 is assigned to you in respect of the location or premises listed below:

前於 2019 年 07 月 09 日 根據廢物處置(化學廢物)(一般)規例而來信,申請登記為廢物產生者,茲特配予廢物產生者編號第 5|2|1|8-2|8|6-P|3|1|8|2-0|3 號,予下開地點或處所: —

Location or Premises where the waste is produced 產生廢物的地點或處所	Name of Establishment 機 構 名 稱 : PENTA-OCEAN CONSTRUCTION CO., LTD.
	Business Reg. Cert. No. (if any) 商 業 登 記 證 號 碼:(如有者) 07818486-000-05-18-7
	Nature of Business 業 務 性 質 : CONSTRUCTION
	Major chemical waste types 主 要 化 學 廢 物 種 類 : SPENT LUBRICATING OIL, SPENT MINERAL OIL, SURPLUS PAINT, SPENT BATTERY CELL CONTAINING HEAVY METALS, SPENT MIXING RESIDUE CONTAINING ACID AND ASBESTOS WASTE
	Address 地 址 : CONSTRUCTION SITE OF KAI TAK DEVELOPMENT - STAGE 4 INFRASTRUCTURE AT THE FORMER RUNWAY AND SOUTH APRON, KOWLOON CITY, KOWLOON (CEDD CONTRACT NO. ED/2018/01)



Chan Wai-lun
(CHAN Wai-lun, William)
for Director of Environmental Protection
環境保護署署長 (陳偉麟 代行)

Date 18 / 07 / 2019
日期

WARNING : Any registered waste producer who fails to inform the Director of Environmental Protection of any change in his registration particulars commits an offence and is liable on conviction to a fine of \$10,000.

警 告 : 任何已登記的廢物產生者,若其登記資料有任何改變而不知會環境保護署署長,即屬違法,被定罪者最高罰款港幣10,000元。

FORM 3
NOISE CONTROL ORDINANCE
(Chapter 400)
SECTION 8(9)

[reg.5(a)]

**CONSTRUCTION NOISE PERMIT FOR THE USE OF POWERED
MECHANICAL EQUIPMENT FOR THE PURPOSE OF CARRYING OUT
CONSTRUCTION WORK OTHER THAN PERCUSSIVE PILING AND/OR
THE CARRYING OUT OF PRESCRIBED CONSTRUCTION WORK**

CONSTRUCTION NOISE PERMIT NO. GW-RE0735-20

To : PENTA – OCEAN CONSTRUCTION CO., LTD.

This construction noise permit is issued in accordance with section 8 of the Noise Control Ordinance. Permission is granted for the use of powered mechanical equipment for the purpose of carrying out construction work other than percussive piling and/or the carrying out of prescribed construction work, subject to the conditions set out below. The carrying out of construction work otherwise than in accordance with the conditions may result in the permit being cancelled and in a prosecution for an offence.

CONDITIONS

1. Construction site where the powered mechanical equipment and/or prescribed construction work may be employed:
Full address : Kai Tak Development – Stage 4 infrastructure at the former runway and south apron (Works Area WA1), Kai Tak, Kowloon (CEDD Contract No. ED/2018/01). Lot No.: ---

The site boundary, that is, the boundary of the area within which the powered mechanical equipment may be used and the prescribed construction work may be carried out is delineated on the attached plan which forms part of this construction noise permit.

2. * PART/WHOLE of the site falls * WITHIN/OUTSIDE a designated area.
3. Powered Mechanical Equipment

- a. Items of powered mechanical equipment which may be used inside the site boundary :

<i>Identification code of item of powered mechanical equipment (if applicable)</i>	<i>Description of item of powered mechanical equipment</i>	<i>No. of units</i>
<u>Group A</u> ---	Generator, with Quality Powered Mechanical Equipment Label showing a Sound Power Level ≤ 93 dB(A)	One
---	Lorry, with crane, 5.5 tonne < gross vehicle weight ≤ 38 tonne	One
CNP 021	Bar bender and cutter (electric)	One
<u>Group B</u> ---	Generator, with Quality Powered Mechanical Equipment Label showing a Sound Power Level ≤ 93 dB(A)	One
---	Welding machine (electric)	Three

- b. Validity of the construction noise permit for the use of the powered mechanical equipment:
Date and time of commencement : 09 September 2020 at 1900 hours
Days and hours : 0000-2400 hours on general holiday (including Sunday), 0000-0700 hours and 1900-2400 hours on any day not being a general holiday [but note condition 3.d.1. below for the operating hours within which the use of the above listed powered mechanical equipment is allowed].
This part of the permit expires on : 06 March 2021 at 2300 hours
- c. One photograph, endorsed by the Authority, of each item of powered mechanical equipment described in this construction noise permit is required to be kept on the construction site and made available for inspection by the Authority.
- d. Other conditions imposed on the use of the powered mechanical equipment :
Refer to attached sheet.

4. Prescribed Construction Work

- a. Type of prescribed construction work which may be carried out inside the site boundary :

<i>Identification code of type of prescribed construction work</i>	<i>Description of type of prescribed construction work</i>
Not applicable	

- b. Validity of the construction noise permit for the carrying out of the prescribed construction work:

Date and time of commencement: Not applicable at Not applicable


Days and hours: Not applicable.

This part of the permit expires on : Not applicable at Not applicable

- c. ~~Site layout plan(s), endorsed by the Authority, may be attached with the permit to indicate the locations permitted for the carrying out of prescribed construction work described in this permit. The layout plan(s) is(are) required to be kept on the construction site and made available for inspection by the Authority.~~
- d. Other conditions imposed on the carrying out of the prescribed construction work:

5. This construction noise permit or a copy thereof must be displayed on the construction site at all vehicular entrances for public information.

Dated this 03rd day of September 20 20

Signed : 
(TANG Wai-man, Lisa)
for Authority

* Delete as necessary

表格 3
噪音管制條例
(第400章)
第8(9)條

[第5(a)條]

建築噪音許可證
為進行建築工程(撞擊式打樁除外)
而使用機動設備及/或進行訂明建築工程

建築噪音許可證編號: GW-RE0735-20

致: PENTA - OCEAN CONSTRUCTION CO., LTD.

本建築噪音許可證是按照《噪音管制條例》第8條的規定而發出的。現准予使用機動設備以進行撞擊式打樁工程以外的建築工程及/或進行訂明建築工程,但須受以下條件規限。若不按照該等條件進行建築工程,許可證可遭撤銷,而且會受到檢控。

條件

1. 可使用機動設備及/或進行訂明建築工程的建築地盤:

詳細地址: 九龍啟德啟德發展計劃-前跑道及南面停機坪第四期基礎設施(工作地區WA1) (土木工程拓展署合約編號ED/2018/01)。地段編號: ---

地盤範圍(即可使用機動設備及進行訂明建築工程的地方範圍)已描劃於夾附的圖則上,而該圖則是本建築噪音許可證的一部分。

2. 該地盤部分/全部*位於指定範圍之內/外*。

3. 機動設備

a. 在地盤範圍內可使用的各項機動設備:

各項機動設備的識辨代碼 (如適用的話)	各項機動設備的說明	數目
A組 ---	發電機, 備有優質機動設備標籤顯示聲功率級≤93分貝(A)	壹
---	吊臂貨車, 5.5噸<總重量≤38噸	壹
CNP 021	鋼筋彎曲機及切割機 (電動)	壹
B組 ---	發電機, 備有優質機動設備標籤顯示聲功率級≤93分貝(A)	壹
---	焊接機(電動)	叁

b. 可使用機動設備的建築噪音許可證有效期:

生效日期及時間: 二零二零年九月九日 下午七時
日期及時間: 公眾假日(包括星期日)的凌晨零時至晚上十二時, 公眾假日以外的任何一日凌晨零時至上午七時及下午七時至晚上十二時【但須注意條件3.d.1.有關可以使用上列機動設備的時間】。

此部分許可證屆滿日期及時間: 二零二一年三月六日 晚上十一時
日期 時間

c. 建築地盤須備有本建築噪音許可證所述每件機動設備的照片各一幀, 供監督隨時查看; 該等照片須經監督認可。

d. 規限使用機動設備的其他條件:

參見附頁。

4. 訂明建築工程

a. 在地盤範圍內可進行的訂明建築工程:

訂明建築工程的識辨代碼	訂明建築工程的類別的說明
	不適用

b. 可進行訂明建築工程的建築噪音許可證有效期:

生效日期及時間: 不適用

日期及時間: 不適用。

此部分許可證屆滿日期及時間: 不適用

日期 時間

c. 本許可證可夾附經監督認可的地盤圖則, 以顯示本許可證准予進行訂明建築工程的地點。該地盤圖則須存放於建築地盤供監督隨時查看。

d. 規限進行訂明建築工程的其他條件:

5. 本建築噪音許可證或其副本必須展示於建築地盤的所有車輛入口處, 給予公眾人士參閱。

日期: 20 年 09 月 03 日



簽署: _____

監督
(鄧慧敏 代行)

* 刪去不適用者

Sheet Attached to Construction Noise Permit

No. GW-RE0735-20**3.d. Other conditions imposed on the use of the powered mechanical equipment:**

1. The powered mechanical equipment listed in condition 3.a. shall only be operated during the hours shown below:

General holiday including Sunday	0700 – 1900 hours
Any day not being a general holiday	1900 – 2300 hours

2. Only one group of the powered mechanical equipment listed in condition 3.a. shall be allowed to operate at any time.

Signed : _____

(TANG Wai-man, Lisa)
for Authority

建築噪音許可證
編號 GW-RE0735-20 的附頁

3. d. 規限使用機動設備的其他條件：

1. 祇可於以下時間內使用列在條件 3.a. 內的機動設備：

公眾假日包括星期日	上午七時至下午七時
公眾假日以外的任何一日	下午七時至晚上十一時

2. 在任何時間內，祇可使用列在條件 3.a. 內其中一組機動設備。

簽署：_____

監督
(鄧慧敏 代行)

Photograph(s) attached to Construction Noise Permit No. GW-RE0735-20
建築噪音許可證編號：GW-RE0735-20 的照片



Generator, with Quality Powered Mechanical Equipment Label showing
a Sound Power Level ≤ 93 dB(A)

發電機，備有優質機動設備標籤顯示聲功率級 ≤ 93 分貝(A)



Lorry, with crane, 5.5 tonne < gross vehicle weight ≤ 38 tonne
吊臂貨車，5.5 噸 < 總重量 ≤ 38 噸



Photograph(s) attached to Construction Noise Permit No. GW-RE0735-20
建築噪音許可證編號：GW-RE0735-20 的照片

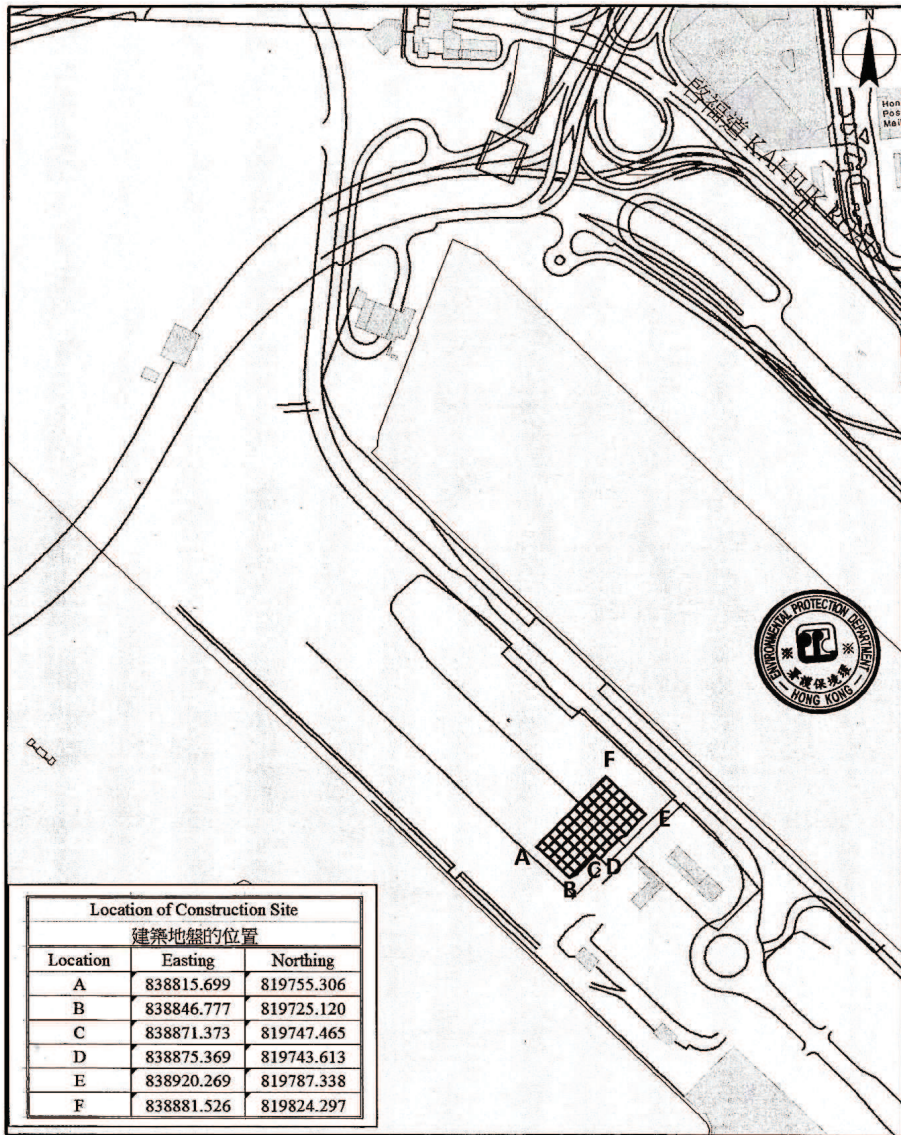


CNP 021 Bar bender and cutter (electric)
鋼筋彎曲機及切割機 (電動)



Welding machine (electric)
焊接機 (電動)





Location of Construction Site		
建築地盤的位置		
Location	Easting	Northing
A	838815.699	819755.306
B	838846.777	819725.120
C	838871.373	819747.465
D	838875.369	819743.613
E	838920.269	819787.338
F	838881.526	819824.297


環境保護署 噪音管制監督

Environmental Protection Department Noise Control Authority

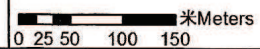
建築噪音許可證編號 GW-RE0735-20 的附圖

Plan attached to Construction Noise Permit No. GW-RE0735-20

圖例 Legend

 建築地盤 Construction Site

比例 Scale 1:5,000



FORM 3
NOISE CONTROL ORDINANCE
(Chapter 400)
SECTION 8(9)

[reg.5(a)]

**CONSTRUCTION NOISE PERMIT FOR THE USE OF POWERED
MECHANICAL EQUIPMENT FOR THE PURPOSE OF CARRYING OUT
CONSTRUCTION WORK OTHER THAN PERCUSSIVE PILING AND/OR
THE CARRYING OUT OF PRESCRIBED CONSTRUCTION WORK**

CONSTRUCTION NOISE PERMIT NO. GW-RE0991-20

To: PENTA – OCEAN CONSTRUCTION CO., LTD.

This construction noise permit is issued in accordance with section 8 of the Noise Control Ordinance. Permission is granted for the use of powered mechanical equipment for the purpose of carrying out construction work other than percussive piling and/or the carrying out of prescribed construction work, subject to the conditions set out below. The carrying out of construction work otherwise than in accordance with the conditions may result in the permit being cancelled and in a prosecution for an offence.

CONDITIONS

1. Construction site where the powered mechanical equipment and/or prescribed construction work may be employed :
Full address : Kai Tak Development – Stage 4 infrastructure at the former runway and south apron (Works Area Part 2A), Kai Tak, Kowloon (CEDD Contract No. ED/2018/01). Lot No.: ---

The site boundary, that is, the boundary of the area within which the powered mechanical equipment may be used and the prescribed construction work may be carried out is delineated on the attached plan which forms part of this construction noise permit.

2. * PART/WHOLE of the site falls * WITHIN/OUTSIDE a designated area.
3. Powered Mechanical Equipment

- a. Items of powered mechanical equipment which may be used inside the site boundary :

Identification code of item of powered mechanical equipment (if applicable)	Description of item of powered mechanical equipment	No. of units
	Refer to attached sheet.	

- b. Validity of the construction noise permit for the use of the powered mechanical equipment:

Date and time of commencement : 26 November 2020 at 2300 hours

Days and hours : 0000-2400 hours on general holiday (including Sunday), 0000-0700 hours and 1900-2400 hours on any day not being a general holiday [but note Condition 3.d.1. below for the operating hours within which the use of the above listed powered mechanical equipment is allowed].

This part of the permit expires on : 25 May 2021 at 0700 hours

- c. One photograph, endorsed by the Authority, of each item of powered mechanical equipment described in this construction noise permit is required to be kept on the construction site and made available for inspection by the Authority.
d. Other conditions imposed on the use of the powered mechanical equipment :

Refer to attached sheet.

4. Prescribed Construction Work

- a. Type of prescribed construction work which may be carried out inside the site boundary:

Identification code of type of prescribed construction work	Description of type of prescribed construction work
	Not applicable

- b. Validity of the construction noise permit for the carrying out of the prescribed construction work:

Date and time of commencement: Not applicable at Not applicable

Days and hours: Not applicable.

This part of the permit expires on : Not applicable at Not applicable

- c. ~~Site layout plan(s), endorsed by the Authority, may be attached with the permit to indicate the locations permitted for the carrying out of prescribed construction work described in this permit. The layout plan(s) is(are) required to be kept on the construction site and made available for inspection by the Authority.~~

- d. Other conditions imposed on the carrying out of the prescribed construction work:

5. This construction noise permit or a copy thereof must be displayed on the construction site at all vehicular entrances for public information.

Dated this 23rd day of November 2020

Signed : _____
(TANG Wai-man, Lisa)
for Authority

* Delete as necessary

表格 3
 噪音管制條例
 (第400章)
 第8(9)條

[第5(a)條]

建築噪音許可證
 為進行建築工程(撞擊式打樁除外)
 而使用機動設備及/或進行訂明建築工程

建築噪音許可證編號: GW-RE0991-20

致: PENTA - OCEAN CONSTRUCTION CO., LTD.

本建築噪音許可證是按照《噪音管制條例》第8條的規定而發出的。現准予使用機動設備以進行撞擊式打樁工程以外的建築工程及/或進行訂明建築工程,但須受以下條件規限。若不按照該等條件進行建築工程,許可證可遭撤銷,而且會受到檢控。

條件

1. 可使用機動設備及/或進行訂明建築工程的建築地盤:

詳細地址: 九龍啟德啟德發展計劃-前跑道及南面停機坪第四期基礎設施(工作地區第2A部分)(土木工程拓展署合約編號ED/2018/01)。地段編號: ---

地盤範圍(即可使用機動設備及進行訂明建築工程的地方範圍)已描劃於夾附的圖則上,而該圖則是本建築噪音許可證的一部分。

2. 該地盤部分/全部*位於指定範圍之內/外*。

3. 機動設備

a. 在地盤範圍內可使用的各項機動設備:

各項機動設備的識辨代碼 (如適用的話)	各項機動設備的說明	數目
	參見附頁。	

b. 可使用機動設備的建築噪音許可證有效期:

生效日期及時間: 二零二零年十一月二十六日 晚上十一時
 日期及時間: 公眾假日(包括星期日)的凌晨零時至晚上十二時,公眾假日以外的任何一日凌晨零時至上午七時及下午七時至晚上十二時【但須注意條件3.d.1.有關可以使用上列機動設備的時間】。

此部分許可證屆滿日期及時間: 二零二一年五月二十五日 上午七時
 日期 時間

c. 建築地盤須備有本建築噪音許可證所述每件機動設備的照片各一幀,供監督隨時查看;該等照片須經監督認可。

d. 規限使用機動設備的其他條件:

參見附頁。

4. 訂明建築工程

a. 在地盤範圍內可進行的訂明建築工程:

訂明建築工程的識辨代碼	訂明建築工程的類別的說明
	不適用

b. 可進行訂明建築工程的建築噪音許可證有效期:

生效日期及時間: 不適用

日期及時間: 不適用。

此部分許可證屆滿日期及時間: 不適用
 日期 時間

c. 本許可證可夾附經監督認可的地盤圖則,以顯示本許可證准予進行訂明建築工程的地點。該地盤圖則須存放於建築地盤供監督隨時查看。

d. 規限進行訂明建築工程的其他條件:

5. 本建築噪音許可證或其副本必須展示於建築地盤的所有車輛入口處,給予公眾人士參閱。

日期: 2020 年 11 月 23 日



簽署: _____

監督
 (鄧慧敏 代行)

* 刪去不適用者

Sheet Attached to Construction Noise Permit
No. GW-RE0991-20

3.a. Items of powered mechanical equipment which may be used inside the site boundary :


Identification code of item of powered mechanical equipment (if applicable)	Description of item of powered mechanical equipment	No. of units
Group A ---	Lorry, with aerial platform, 5.5 tonne<gross vehicle weight ≤ 38 tonne	One
	Lorry, with crane, 5.5 tonne<gross vehicle weight ≤ 38 tonne	One
	Generator, with Quality Powered Mechanical Equipment Label showing a Sound Power Level of ≤ 94 dB(A)	One
	Welding machine (electric)	Two
	Drill, hand-held (battery)	One
Group B ---	Lorry, with aerial platform, 5.5 tonne<gross vehicle weight ≤ 38 tonne	Two

Signed : 
(TANG Wai-man, Lisa)
for Authority

建築噪音許可證
編號 GW-RE0991-20 的附頁

3.a. 在地盤範圍內可使用的各項機動設備：

各項機動設備的識辨代碼 (如適用的話)	各項機動設備的說明	數目
A組 ---	升降台貨車, 5.5 噸<總重量≤38 噸	壹
	吊臂貨車, 5.5 噸<總重量≤38 噸或	壹
	發電機, 備有優質機動設備標籤顯示聲功率級≤94 分貝(A)	壹
	焊接機 (電動)	貳
	鑽, 手提型 (乾電池)	壹
B組 ---	升降台貨車, 5.5 噸<總重量≤38 噸	貳

簽署 : 
監督
(鄧慧敏 代行)


Sheet Attached to Construction Noise Permit
No. GW-RE0991-20

3.d. Other conditions imposed on the use of the powered mechanical equipment:

1. The powered mechanical equipment listed in condition 3.a shall only be operated during the hours shown below:

Any day	2300 – 0700 hours on next day
---------	-------------------------------

2. Only one group of the powered mechanical equipment listed in condition 3.a shall be allowed to operate at any time.
3. The powered mechanical equipment covered by this permit shall not be operated when any powered mechanical equipment covered by Construction Noise Permit No. GW-RE0639-20 (CEC - CCC JOINT VENTURE) is being operated.

Signed : 
(TANG Wai-man, Lisa)
for Authority


建築噪音許可證
編號 GW-RE0991-20 的附頁

3. d. 規限使用機動設備的其他條件：

1. 祇可於以下時間內使用列在條件 3. a 內的機動設備：

任何一日	晚上十一時 至 翌日上午七時
------	----------------

2. 在任何時間內，祇可使用列在條件 3. a. 內其中一組機動設備。
3. 當建築噪音許可證編號 GW-RE0639-20 (大陸工程 - 捷章建築聯營) 所載列的機動設備在使用時，不可使用本許可證內所載列的機動設備。

簽署 : 
監督
(鄧慧敏 代行)

Photograph(s) attached to Construction Noise Permit No. GW-RE0991-20
建築噪音許可證編號 GW-RE0991-20 的照片



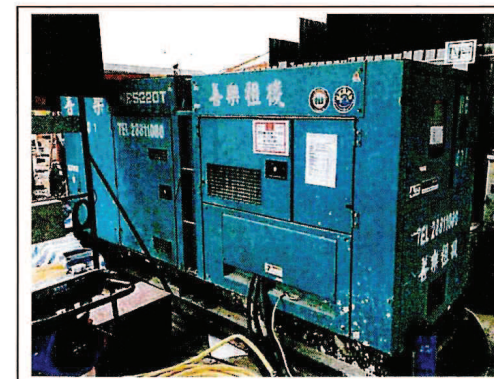
Lorry, with aerial platform, 5.5 tonne < gross vehicle weight \leq 38 tonne
升降台貨車，5.5噸 < 總重量 \leq 38噸



Lorry, with crane, 5.5 tonne < gross vehicle weight \leq 38 tonne
吊臂貨車，5.5噸 < 總重量 \leq 38噸



Photograph(s) attached to Construction Noise Permit No. GW-RE0991-20
建築噪音許可證編號 GW-RE0991-20 的照片



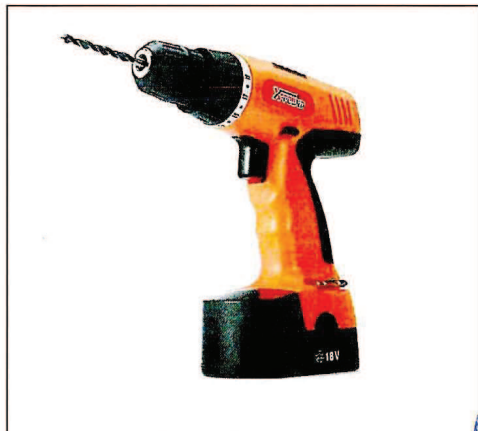
Generator, with Quality Powered Mechanical Equipment Label
showing a Sound Power Level of \leq 94 dB(A)
發電機，備有優質機動設備標籤顯示聲功率級 \leq 94分貝(A)



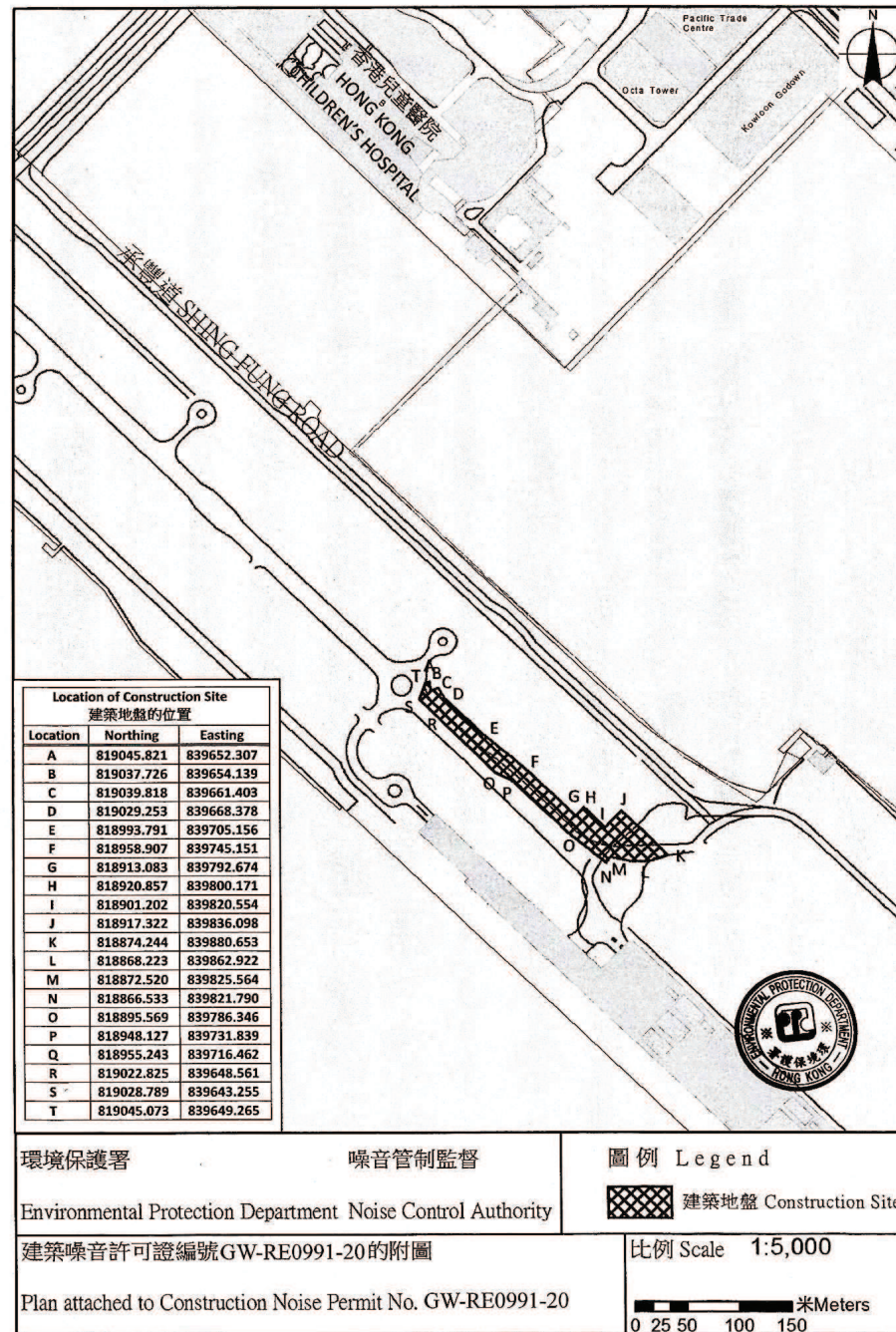
Welding machine (electric)
焊接機 (電動)



Photograph(s) attached to Construction Noise Permit No. GW-RE0991-20
 建築噪音許可證編號 GW-RE0991-20 的照片



Drill, hand-held (battery)
 鑽，手提型 (乾電池)



FORM 3
NOISE CONTROL ORDINANCE
(Chapter 400)
SECTION 8(9)

[reg.5(a)]

**CONSTRUCTION NOISE PERMIT FOR THE USE OF POWERED
MECHANICAL EQUIPMENT FOR THE PURPOSE OF CARRYING OUT
CONSTRUCTION WORK OTHER THAN PERCUSSIVE PILING AND/OR
THE CARRYING OUT OF PRESCRIBED CONSTRUCTION WORK**

CONSTRUCTION NOISE PERMIT NO. GW-RE1044-20

To : .. PENTA-OCEAN CONSTRUCTION CO., LTD.

This construction noise permit is issued in accordance with section 8 of the Noise Control Ordinance. Permission is granted for the use of powered mechanical equipment for the purpose of carrying out construction work other than percussive piling and/or the carrying out of prescribed construction work, subject to the conditions set out below. The carrying out of construction work otherwise than in accordance with the conditions may result in the permit being cancelled and in a prosecution for an offence.

CONDITIONS

1. Construction site where the powered mechanical equipment and/or prescribed construction work may be employed:

Full address: Kai Tak Development Stage 4 infrastructure at the former runway and south apron (Works Area Part 1), Kai Tak, Kowloon (CEDD Contract No. ED/2018/01) Lot No.:

The site boundary, that is, the boundary of the area within which the powered mechanical equipment may be used and the prescribed construction work may be carried out is delineated on the attached plan which forms part of this construction noise permit.

2. *PART/WHOLE of the site falls * WITHIN/OUTSIDE a designated area.

3. Powered Mechanical Equipment

a. Items of powered mechanical equipment which may be used inside the site boundary :

Identification code of item of powered mechanical equipment (if applicable)	Description of item of powered mechanical equipment	No. of units
Refer to attached sheet		

b. Validity of the construction noise permit for the use of the powered mechanical equipment:

Date and time of commencement : 10 December 2020 at 1900 hours

Days and hours : 0000-2400 hours on general holidays (including Sundays), 0000-0700 hours and 1900-2400 hours on any day not being a general holiday [but note condition 3.d.1. below for the operating hours within which the use of the above listed powered mechanical equipment is allowed]

This part of the permit expires on : 1 June 2021 at 2400 hours

c. One photograph, endorsed by the Authority, of each item of powered mechanical equipment described in this construction noise permit is required to be kept on the construction site and made available for inspection by the Authority.

d. Other conditions imposed on the use of the powered mechanical equipment:

Refer to attached sheet.

4. Prescribed Construction Work

a. Type of prescribed construction work which may be carried out inside the site boundary:

Identification code of type of prescribed construction work	Description of type of prescribed construction work
Not applicable	

b. Validity of the construction noise permit for the carrying out of the prescribed construction work:

Date and time of commencement : Not applicable at Not applicable

Date and hours : Not applicable

This part of the permit expires on : Not applicable at Not applicable


c. Site layout plan(s), endorsed by the Authority, may be attached with the permit to indicate the locations permitted for the carrying out of prescribed construction work described in this permit. The layout plan(s) is(are) required to be kept on the construction site and made available for inspection by the Authority.

d. Other conditions imposed on the carrying out of the prescribed construction work:

.....

5. This construction noise permit or a copy thereof must be displayed on the construction site at all vehicular entrances for public information.

Dated this 3rd day of December 2020

Signed : 
.....
(TANG Wai-man, Lisa)
for Authority

* Delete as necessary

表格 3
噪音管制條例
(第 400 章)
第 8(9) 條

[第 5(a) 條]

建築噪音許可證
為進行建築工程 (撞擊式打樁除外)
而使用機動設備及 / 或進行訂明建築工程

建築噪音許可證編號: GW-RE1044-20

致: PENTA-OCEAN CONSTRUCTION CO., LTD.

本建築噪音許可證是按照《噪音管制條例》第 8 條的規定而發出的。現准予使用機動設備以進行撞擊式打樁工程以外的建築工程及 / 或進行訂明建築工程, 但須受以下條件規限。若不按照該等條件進行建築工程, 許可證可遭撤銷, 而且會受到檢控。

條 件

1. 可使用機動設備及 / 或進行訂明建築工程的建築地盤:

詳細地址: 九龍啟德啟德發展計劃-前跑道及南面停機坪第四期基礎設施(工作地區第一部分)
(土木工程拓展署合約編號ED/2018/01)。地段編號: ---

地盤範圍(即可使用機動設備及進行訂明建築工程的地方範圍)已描劃於夾附的圖則上, 而該圖則是本建築噪音許可證的一部分。

2. 該地盤部分 / 全部 * 位於指定範圍之內 / 外 *。

3. 機動設備

a. 在地盤範圍內可使用的各項機動設備:

各項機動設備的識辨代碼 (如適用的話)	各項機動設備的說明	數目
	參見附頁	

b. 可使用機動設備的建築噪音許可證有效期:

生效日期及時間: 二零二零年十二月十日下午七時

日期及時間: 公眾假日(包括星期日)的凌晨零時至晚上十二時, 公眾假日以外的任何一日凌晨零時至上午七時及下午七時至晚上十二時【但須注意條件3.d.1.有關可以使用上列機動設備的時間】。

此部分許可證屆滿日期及時間: 二零二一年六月一日晚上十二時

c. 建築地盤須備有本建築噪音許可證所述每件機動設備的照片各一幀, 供監督隨時查看; 該等照片須經監督認可。

d. 規限使用機動設備的其他條件:

參見附頁。

4. 訂明建築工程

a. 在地盤範圍內可進行的訂明建築工程:

訂明建築工程的識辨代碼	訂明建築工程的類別的說明
	不適用

b. 可進行訂明建築工程的建築噪音許可證有效期:

生效日期及時間: 不適用

日期及時間: 不適用。


此部分許可證屆滿日期及時間: 不適用

c. 本許可證可夾附經監督認可的地盤圖則, 以顯示本許可證准予進行訂明建築工程的點。該地盤圖則須存放於建築地盤供監督隨時查看。

d. 規限進行訂明建築工程的其他條件:

5. 本建築噪音許可證或其副本必須展示於建築地盤的所有車輛入口處, 給予公眾人士參閱。

日期: 2020 年 12 月 3 日

簽署: 
監督
(鄧慧敏 代行)

* 刪去不適用者

Sheet Attached to Construction Noise Permit
No. GW-RE1044-20


建築噪音許可證
編號 GW-RE1044-20 的附頁

3.a. Items of powered mechanical equipment which may be used inside the site boundary :

Identification code of item of powered mechanical equipment (if applicable)	Description of item of powered mechanical equipment	No. of units
Group A	Generator, with Quality Powered Mechanical Equipment Label showing a Sound Power Level ≤ 93 dB(A)	One
---	Piling, vibrating hammer	One
CNP 048	Crane, mobile (diesel)	One
---	Welding machine (electric)	Ten
---	Air blower (electric)	One
CNP 283	Water pump, submersible (electric)	Eight
---	Wastewater treatment plant	Two
CNP 021	Bar bender and cutter (electric)	One
Group B	Generator, with Quality Powered Mechanical Equipment Label showing a Sound Power Level ≤ 93 dB(A)	One
CNP 081	Excavator, tracked	One
CNP 283	Water pump, submersible (electric)	Eight
---	Wastewater treatment plant	Two
---	Welding machine (electric)	Ten
CNP 048	Crane, mobile (diesel)	One
Group C	CNP 283 Water pump, submersible (electric)	Twelve
---	Wastewater treatment plant	Two
---	Generator, with Quality Powered Mechanical Equipment Label showing a Sound Power Level ≤ 93 dB(A)	Three
Group D	CNP 044 Concrete lorry mixer	Two
---	Poker, vibratory, hand-held (electric)	One
CNP 047	Concrete pump, stationary	One
CNP 283	Water pump, submersible (electric)	Six
---	Generator, with Quality Powered Mechanical Equipment Label showing a Sound Power Level ≤ 93 dB(A)	One
---	Wastewater treatment plant	Two
Group E	---	Ten
CNP 048	Crane, mobile (diesel)	One
---	Lorry, with aerial platform, 5.5 tonne < gross vehicle weight ≤ 38 tonne	One
---	Wastewater treatment plant	Two
CNP 283	Water pump, submersible (electric)	Eight

3.a. 在地盤範圍內可使用的各項機動設備：

各項機動設備的識辨代碼 (如適用的話)	各項機動設備的說明	數目
A 組	---	壹
---	發電機，備有優質機動設備標籤顯示聲功率級 ≤ 93 分貝(A)	壹
---	打樁機，震動鏈	壹
CNP 048	起重機，流動(油渣)	壹
---	焊接機(電動)	拾
---	吹風機(電動)	壹
CNP 283	潛水泵(電動)	捌
---	污水處理器	貳
CNP 021	鋼筋彎曲機及切割機(電動)	壹
B 組	---	壹
CNP 081	發電機，備有優質機動設備標籤顯示聲功率級 ≤ 93 分貝(A)	壹
CNP 283	挖土機，履帶式	捌
---	潛水泵(電動)	貳
---	污水處理器	壹
---	焊接機(電動)	拾
CNP 048	起重機，流動(油渣)	壹
C 組	CNP 283 潛水泵(電動)	拾貳
---	污水處理器	貳
---	發電機，備有優質機動設備標籤顯示聲功率級 ≤ 93 分貝(A)	叁
D 組	CNP 044 混凝土攪拌車	貳
---	混凝土震動機，手提型(電動)	壹
CNP 047	混凝土泵，固定	壹
CNP 283	潛水泵(電動)	陸
---	發電機，備有優質機動設備標籤顯示聲功率級 ≤ 93 分貝(A)	壹
---	污水處理器	貳
E 組	---	拾
CNP 048	焊接機(電動)	壹
---	起重機，流動(油渣)	壹
---	升降台貨車，5.5 噸 < 總重量 ≤ 38 噸	壹
---	污水處理器	貳
CNP 283	潛水泵(電動)	捌

Signed: 
(TANG Wai-man, Lisa)
for Authority

簽署：



監督
(鄧慧敏 代行)

Sheet Attached to Construction Noise Permit
No. GW-RE1044-20


3.d. Other conditions imposed on the use of the powered mechanical equipment:

1. The powered mechanical equipment listed in condition 3.a. shall only be operated during the hours shown below:

<u>Groups A, B, D and E</u>	General holiday including Sunday	0700 – 1900 hours
	Any day not being a general holiday	1900 – 2300 hours
<u>Group C</u>	General holiday including Sunday	0000 – 2400 hours
	Any day not being a general holiday	0000 – 0700 hours AND 1900 – 2400 hours

2. Only one group of the powered mechanical equipment listed in condition 3.a. shall be allowed to operate at any time.

Signed : _____


(TANG Wai-man, Lisa)
for Authority

建築噪音許可證
編號 GW-RE1044-20 的附頁


3. d. 規限使用機動設備的其他條件：

1. 祇可於以下時間內使用列在條件 3. a. 內的機動設備：

<u>A 組、B 組、D 組及 E 組</u>	公眾假日包括星期日	上午七時 至下午七時
	公眾假日以外的任何一日	下午七時 至 晚上十一時
<u>C 組</u>	公眾假日包括星期日	凌晨零時至晚上十二時
	公眾假日以外的任何一日	凌晨零時至上午七時 及 下午七時至晚上十二時

2. 在任何時間內，祇可使用列在條件 3. a. 內其中一組機動設備。

簽署： _____


監督
(鄧慧敏 代行)

Photograph(s) attached to Construction Noise Permit No. GW-RE1044-20
建築噪音許可證編號：GW-RE1044-20 的照片



Generator, with Quality Powered Mechanical Equipment Label showing a Sound Power Level ≤ 93 dB(A)
發電機，備有優質機動設備標籤顯示聲功率級 ≤ 93 分貝(A)



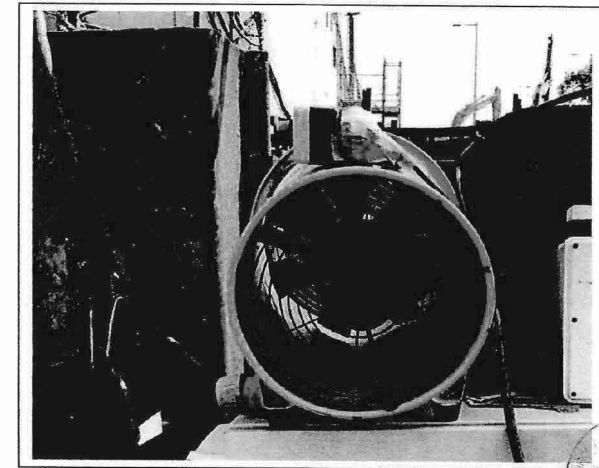
CNP 283 Water pump, submersible (electric)
潛水泵 (電動)



Photograph(s) attached to Construction Noise Permit No. GW-RE1044-20
建築噪音許可證編號：GW-RE1044-20 的照片



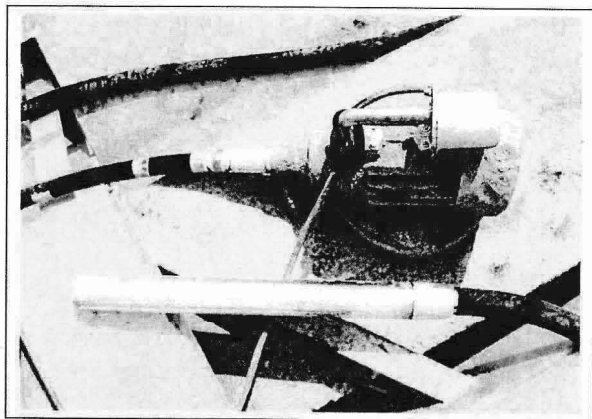
Wastewater treatment plant
污水處理器



Air blower (electric)
吹風機 (電動)



Photograph(s) attached to Construction Noise Permit No. GW-RE1044-20
建築噪音許可證編號：GW-RE1044-20 的照片



Poker, vibratory, hand-held (electric)
混凝土震動機，手提型(電動)



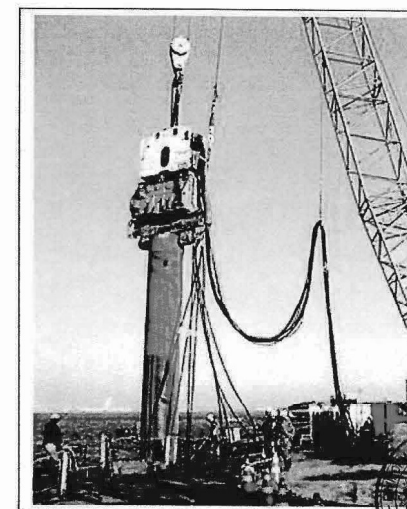
CNP 081 Excavator, tracked
挖土機，履帶式



Photograph(s) attached to Construction Noise Permit No. GW-RE1044-20
建築噪音許可證編號：GW-RE1044-20 的照片



CNP 044 Concrete lorry mixer
混凝土攪拌車



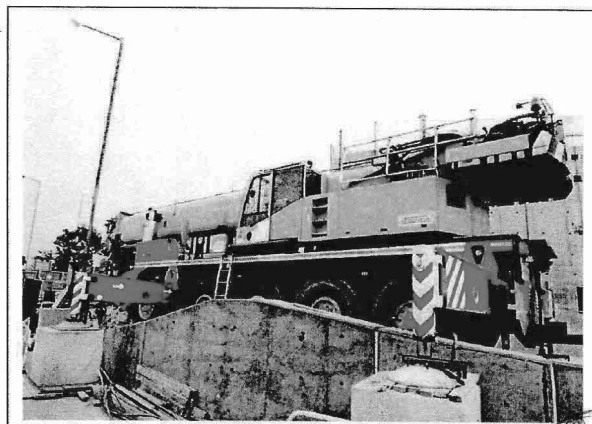
Piling, vibrating hammer
打樁機，震動鎚



Photograph(s) attached to Construction Noise Permit No. GW-RE1044-20
建築噪音許可證編號：GW-RE1044-20 的照片



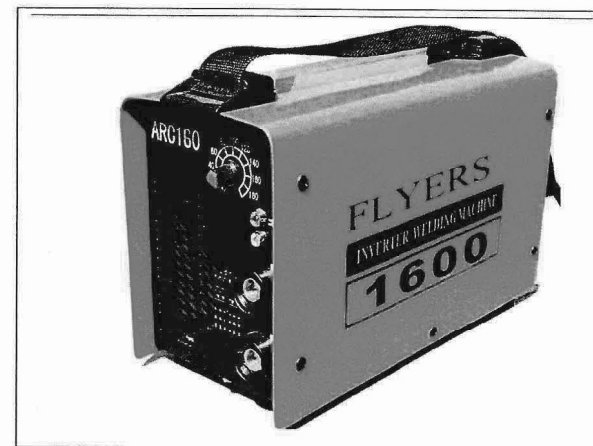
CNP 048 Crane, mobile (diesel) (1)
起重機，流動(油渣)(1)



CNP 048 Crane, mobile (diesel) (2)
起重機，流動(油渣)(2)



Photograph(s) attached to Construction Noise Permit No. GW-RE1044-20
建築噪音許可證編號：GW-RE1044-20 的照片



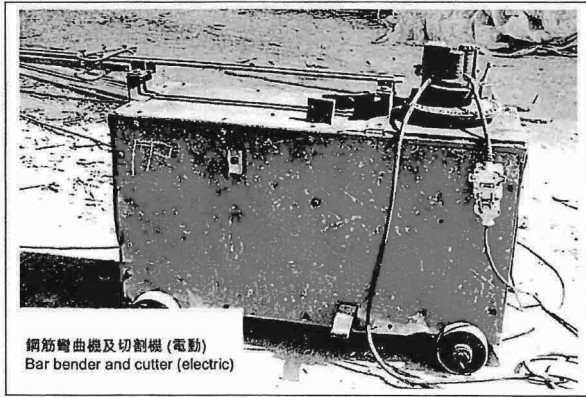
Welding machine (electric)
焊接機(電動)



CNP 047 Concrete pump, stationary
混凝土泵，固定



Photograph(s) attached to Construction Noise Permit No. GW-RE1044-20
 建築噪音許可證編號：GW-RE1044-20 的照片

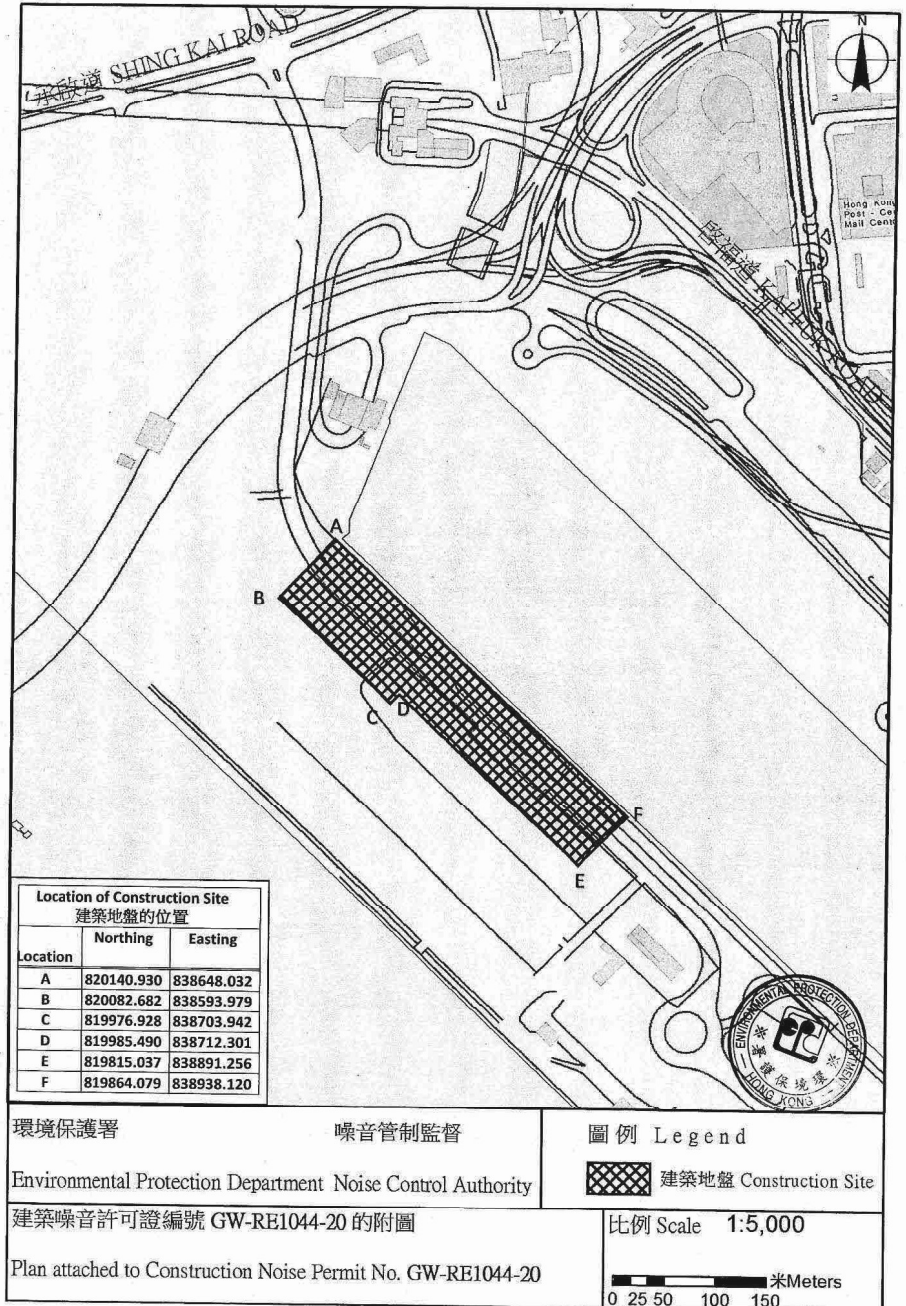


鋼筋彎曲機及切割機 (電動)
 Bar bender and cutter (electric)

CNP 021 Bar bender and cutter (electric)
 鋼筋彎曲機及切割機 (電動)



Lorry with aerial platform, 5.5 tonne < gross vehicle weight ≤ 38 tonne
 升降台貨車, 5.5 噸 < 總重量 ≤ 38 噸



FORM 3
NOISE CONTROL ORDINANCE
(Chapter 400)
SECTION 8(9)

[reg.5(a)]

CONSTRUCTION NOISE PERMIT FOR THE USE OF POWERED
MECHANICAL EQUIPMENT FOR THE PURPOSE OF CARRYING OUT
CONSTRUCTION WORK OTHER THAN PERCUSSIVE PILING AND/OR
THE CARRYING OUT OF PRESCRIBED CONSTRUCTION WORK

CONSTRUCTION NOISE PERMIT NO. GW-RE1074-20

To : PENTA – OCEAN CONSTRUCTION CO., LTD.

This construction noise permit is issued in accordance with section 8 of the Noise Control Ordinance. Permission is granted for the use of powered mechanical equipment for the purpose of carrying out construction work other than percussive piling and/or the carrying out of prescribed construction work, subject to the conditions set out below. The carrying out of construction work otherwise than in accordance with the conditions may result in the permit being cancelled and in a prosecution for an offence.

CONDITIONS

1. Construction site where the powered mechanical equipment and/or prescribed construction work may be employed:
Full address : Kai Tak Development – Stage 4 infrastructure at the former runway and south apron (Work Area Part 2A), Kai Tak, Kowloon (CEDD Contract No. ED/2018/01). Lot No.: ---

The site boundary, that is, the boundary of the area within which the powered mechanical equipment may be used and the prescribed construction work may be carried out is delineated on the attached plan which forms part of this construction noise permit.

2. * PART/WHOLE of the site falls * WITHIN/OUTSIDE a designated area.

3. Powered Mechanical Equipment

- a. Items of powered mechanical equipment which may be used inside the site boundary :

Identification code of item of powered mechanical equipment (if applicable)	Description of item of powered mechanical equipment	No. of units
	Refer to attached sheet.	

- b. Validity of the construction noise permit for the use of the powered mechanical equipment:

Date and time of commencement : 18 December 2020 at 1900 hours
Days and hours : 0000-2400 hours on general holiday (including Sunday), 0000-0700 hours and 1900-2400 hours on any day not being a general holiday [but note condition 3.d.1. below for the operating hours within which the use of the above listed powered mechanical equipment is allowed].
This part of the permit expires on : 17 June 2021 at 0700 hours

- c. One photograph, endorsed by the Authority, of each item of powered mechanical equipment described in this construction noise permit is required to be kept on the construction site and made available for inspection by the Authority.
d. Other conditions imposed on the use of the powered mechanical equipment :
Refer to attached sheet.

4. Prescribed Construction Work

- a. Type of prescribed construction work which may be carried out inside the site boundary :

Identification code of type of prescribed construction work	Description of type of prescribed construction work
	Not applicable

- b. Validity of the construction noise permit for the carrying out of the prescribed construction work:

Date and time of commencement: Not applicable at Not applicable

Days and hours: Not applicable.

This part of the permit expires on : Not applicable at Not applicable

- c. ~~Site layout plan(s), endorsed by the Authority, may be attached with the permit to indicate the locations permitted for the carrying out of prescribed construction work described in this permit. The layout plan(s) is(are) required to be kept on the construction site and made available for inspection by the Authority.~~

- d. Other conditions imposed on the carrying out of the prescribed construction work:

5. This construction noise permit or a copy thereof must be displayed on the construction site at all vehicular entrances for public information.

Dated this 11th day of December 20 20

Signed : 
(TANG Wai-man, Lisa)
for Authority

- * Delete as necessary

表格 3
 噪音管制條例
 (第400章)
 第8(9)條

[第5(a)條]

建築噪音許可證
 為進行建築工程(撞擊式打樁除外)
 而使用機動設備及/或進行訂明建築工程

建築噪音許可證編號: GW-RE1074-20

致: PENTA - OCEAN CONSTRUCTION CO., LTD.

本建築噪音許可證是按照《噪音管制條例》第8條的規定而發出的。現准予使用機動設備以進行撞擊式打樁工程以外的建築工程及/或進行訂明建築工程,但須受以下條件規限。若不按照該等條件進行建築工程,許可證可遭撤銷,而且會受到檢控。

條件

1. 可使用機動設備及/或進行訂明建築工程的建築地盤:

詳細地址: 九龍啟德啟德發展計劃-前跑道及南面停機坪第四期基礎設施(工作地區第2A部分)(土木工程拓展署合約編號ED/2018/01)。地段編號: ---

地盤範圍(即可使用機動設備及進行訂明建築工程的地方範圍)已描劃於夾附的圖則上,而該圖則是本建築噪音許可證的一部分。

2. 該地盤部分/全部*位於指定範圍之內/外*。

3. 機動設備

a. 在地盤範圍內可使用的各項機動設備:

各項機動設備的識別代碼 (如適用的話)	各項機動設備的說明	數目
	參見附頁。	

b. 可使用機動設備的建築噪音許可證有效期:

生效日期及時間: 二零二零年十二月十八日 下午七時

日期及時間: 公眾假日(包括星期日)的凌晨零時至晚上十二時,公眾假日以外的任何一日凌晨零時至上午七時及下午七時至晚上十二時【但須注意條件3.d.1.有關可以使用上列機動設備的時間】。

此部分許可證屆滿日期及時間: 二零二一年六月十七日 上午七時

c. 建築地盤須備有本建築噪音許可證所述每件機動設備的照片各一幀,供監督隨時查看;該等照片須經監督認可。

d. 規限使用機動設備的其他條件:

參見附頁。

4. 訂明建築工程

a. 在地盤範圍內可進行的訂明建築工程:

訂明建築工程的識別代碼	訂明建築工程的類別的說明
	不適用

b. 可進行訂明建築工程的建築噪音許可證有效期:

生效日期及時間: 不適用

日期及時間: 不適用。

此部分許可證屆滿日期及時間: 不適用

日期 時間

c. 本許可證可夾附經監督認可的地盤圖則,以顯示本許可證准予進行訂明建築工程的地點。該地盤圖則須存放於建築地盤供監督隨時查看。

d. 規限進行訂明建築工程的其他條件:

5. 本建築噪音許可證或其副本必須展示於建築地盤的所有車輛入口處,給予公眾人士參閱。

日期: 20 20 年 12 月 11 日



簽署:

監督
 (鄧慧敏 代行)


* 刪去不適用者

Sheet Attached to Construction Noise Permit

No. GW-RE1074-20

3.a. Items of powered mechanical equipment which may be used inside the site boundary :

Identification code of item of powered mechanical equipment (if applicable)	Description of item of powered mechanical equipment	No. of units
Group A ---	Generator, with Quality Powered Mechanical Equipment Label showing a Sound Power Level ≤ 95 dB(A)	One
CNP 166	Piling, large diameter bored, reverse circulation drill	Two
---	Air compressor, with Noise Emission Label showing a Sound Power Level of ≤ 104 dB(A)	Two
---	Power pack (diesel)	One
---	Wastewater treatment plant	One
CNP 283	Water pump, submersible (electric)	Ten
---	Welding machine (electric)	Two
Group B ---	Generator, with Quality Powered Mechanical Equipment Label showing a Sound Power Level ≤ 95 dB(A)	One
---	Welding machine (electric)	Five
CNP 048	Crane, mobile (diesel)	One
---	Elevated working platform, lorry mounted	One
---	Wastewater treatment plant	One
CNP 283	Water pump, submersible (electric)	Ten
Group C ---	Generator, with Quality Powered Mechanical Equipment Label showing a Sound Power Level ≤ 95 dB(A)	One
CNP 048	Crane, mobile (diesel)	One
CNP 044	Concrete lorry mixer	One
---	Wastewater treatment plant	One
CNP 283	Water pump, submersible (electric)	Ten

Signed : 
(TANG Wai-man, Lisa)
for Authority

建築噪音許可證
編號 GW-RE1074-20 的附頁

3.a. 在地盤範圍內可使用的各項機動設備：

各項機動設備的識辨代碼 (如適用的話)	各項機動設備的說明	數目
A 組 ---	發電機，備有優質機動設備標籤顯示聲功率級 ≤ 95 分貝(A)	壹
CNP 166	大直徑鑽孔樁，循環式鑽機	貳
---	空氣壓縮機，備有噪音標籤顯示聲功率級 ≤ 104 分貝(A)	貳
---	油渣動力供應器	壹
---	污水處理器	壹
CNP 283	潛水泵 (電動)	拾
---	焊接機 (電動)	貳
B 組 ---	發電機，備有優質機動設備標籤顯示聲功率級 ≤ 95 分貝(A)	壹
---	焊接機 (電動)	伍
CNP 048	起重機，流動 (油渣)	壹
---	升降工作台，裝在貨車上	壹
---	污水處理器	壹
CNP 283	潛水泵 (電動)	拾
C 組 ---	發電機，備有優質機動設備標籤顯示聲功率級 ≤ 95 分貝(A)	壹
CNP 048	起重機，流動 (油渣)	壹
CNP 044	混凝土攪拌車	壹
---	污水處理器	壹
CNP 283	潛水泵 (電動)	拾

簽署：




監督
(鄧慧敏 代行)

Sheet Attached to Construction Noise Permit
No. GW-RE1074-20

3.a. Items of powered mechanical equipment which may be used inside the site boundary :

Identification code of item of powered mechanical equipment (if applicable)	Description of item of powered mechanical equipment	No. of units
Group D		
CNP 165	Piling, large diameter bored, oscillator	One
---	Power pack (diesel)	One
---	Wastewater treatment plant	One
CNP 283	Water pump, submersible (electric)	Ten
Group E		
---	Generator, with Quality Powered Mechanical Equipment Label showing a Sound Power Level ≤ 93 dB(A)	One
CNP 081	Excavator, tracked	One
CNP 048	Crane, mobile (diesel)	One
---	Welding machine (electric)	Ten
---	Air blower (electric)	Two
CNP 283	Water pump, submersible (electric)	Ten
---	Wastewater treatment plant	One
Group F		
CNP 283	Water pump, submersible (electric)	Ten
---	Generator, with Quality Powered Mechanical Equipment Label showing a Sound Power Level ≤ 95 dB(A)	Two
---	Wastewater treatment plant	One

Signed: 
(TANG Wai-man, Lisa)
for Authority

建築噪音許可證
編號 GW-RE1074-20 的附頁

3.a. 在地盤範圍內可使用的各項機動設備：

各項機動設備的識辨代碼 (如適用的話)	各項機動設備的說明	數目
D組		
CNP 165	大直徑鑽孔樁，擺動機	壹
---	油渣動力供應器	壹
---	污水處理器	壹
CNP 283	潛水泵 (電動)	拾
E組		
---	發電機，備有優質機動設備標籤顯示聲功率級 ≤ 93 分貝 (A)	壹
CNP 081	挖土機，履帶式	壹
CNP 048	起重機，流動 (油渣)	壹
---	焊接機 (電動)	拾
---	吹風機 (電動)	貳
CNP 283	潛水泵 (電動)	拾
---	污水處理器	壹
F組		
CNP 283	潛水泵 (電動)	拾
---	發電機，備有優質機動設備標籤顯示聲功率級 ≤ 95 分貝 (A)	貳
---	污水處理器	壹

簽署: 

監督
(鄧慧敏 代行)


Sheet Attached to Construction Noise Permit
No. GW-RE1074-20

3.d. Other conditions imposed on the use of the powered mechanical equipment:

1. The powered mechanical equipment listed in condition 3.a shall only be operated during the hours shown below:

Groups A to E	General holiday including Sunday	0900 – 2300 hours
	Any day not being a general holiday	1900 – 2300 hours
Group F	General holiday including Sunday	0000 – 2400 hours
	Any day not being a general holiday	0000 – 0700 hours AND 1900 – 2400 hours

2. Only one group of the powered mechanical equipment listed in condition 3.a shall be allowed to operate at any time.

Signed : 
(TANG Wai-man, Lisa)
for Authority

建築噪音許可證
編號 GW-RE1074-20 的附頁

3. d. 規限使用機動設備的其他條件：

1. 祇可於以下時間內使用列在條件 3. a 內的機動設備：

A 組至 E 組	公眾假日包括星期日	上午九時至晚上十一時
	公眾假日以外的任何一日	下午七時至晚上十一時
F 組	公眾假日包括星期日	凌晨零時至晚上十二時
	公眾假日以外的任何一日	凌晨零時至上午七時 及 下午七時至晚上十二時

2. 在任何時間內，祇可使用列在條件 3. a. 內其中一組機動設備。

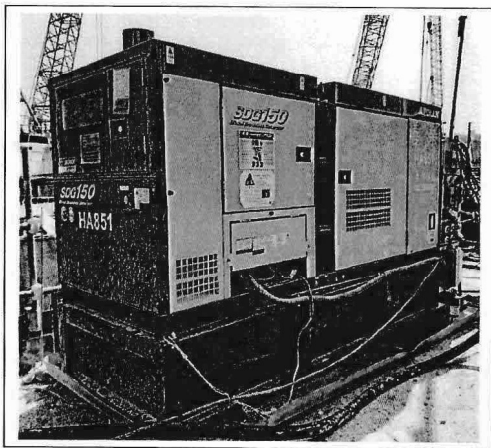
簽署：



監督
(鄧慧敏 代行)

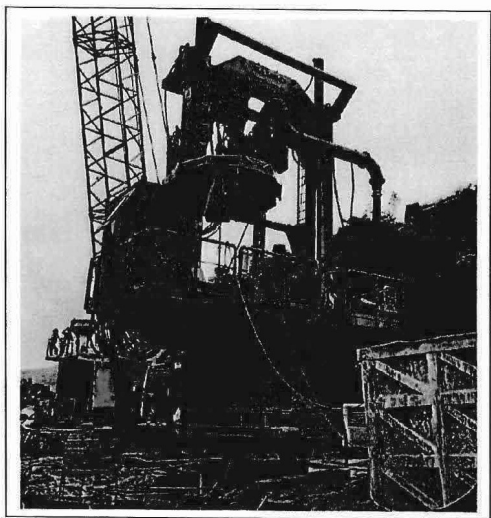
Photograph(s) attached to Construction Noise Permit No. GW-RE1074-20

建築噪音許可證編號：GW-RE1074-20 的照片



Generator, with Quality Powered Mechanical Equipment Label showing a Sound Power Level ≤ 95 dB(A)

發電機，備有優質機動設備標籤顯示聲功率級 ≤ 95 分貝(A)



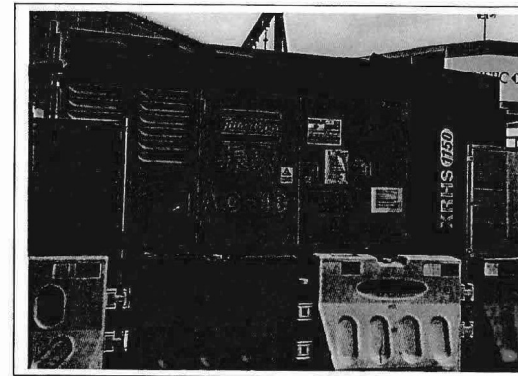
CNP 166 Piling, large diameter bored, reverse circulation drill

大直徑鑽孔樁，循環式鑽機



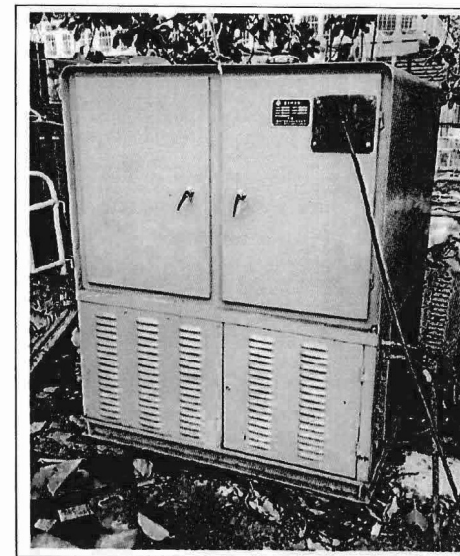
Photograph(s) attached to Construction Noise Permit No. GW-RE1074-20

建築噪音許可證編號：GW-RE1074-20 的照片



Air compressor, with Noise Emission Label showing a Sound Power Level of ≤ 104 dB(A)

空氣壓縮機，備有噪音標籤顯示聲功率級 ≤ 104 分貝(A)

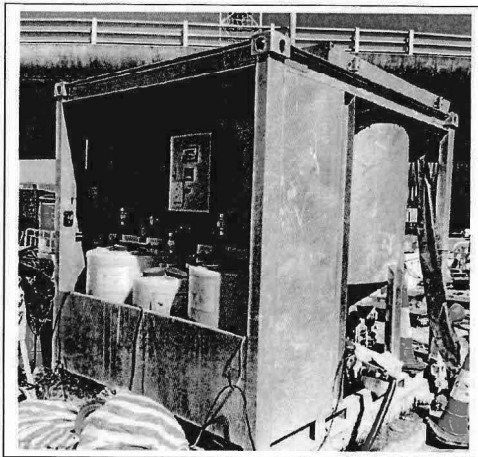


Power pack (diesel)

油渣動力供應器



Photograph(s) attached to Construction Noise Permit No. GW-RE1074-20
建築噪音許可證編號：GW-RE1074-20 的照片



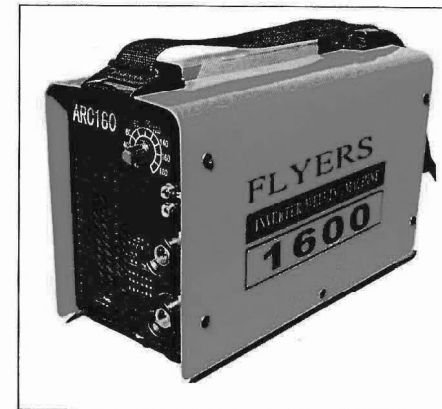
Wastewater treatment plant
污水處理器



CNP 283 Water pump, submersible (electric)
潛水泵 (電動)



Photograph(s) attached to Construction Noise Permit No. GW-RE1074-20
建築噪音許可證編號：GW-RE1074-20 的照片



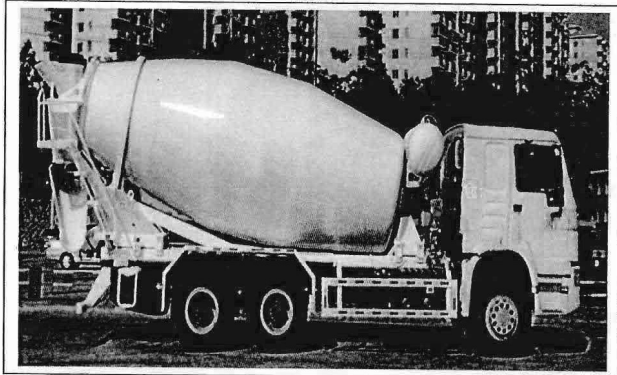
Welding machine (electric)
焊接機 (電動)



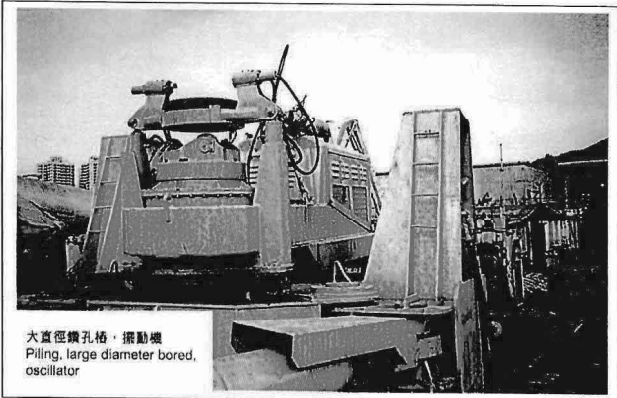
CNP 048 Crane, mobile (diesel)
起重機, 流動 (油渣)



Photograph(s) attached to Construction Noise Permit No. GW-RE1074-20
 建築噪音許可證編號：GW-RE1074-20 的照片



CNP 044 Concrete lorry mixer
 混凝土攪拌車



大直徑鑽孔樁，擺動機
 Piling, large diameter bored,
 oscillator

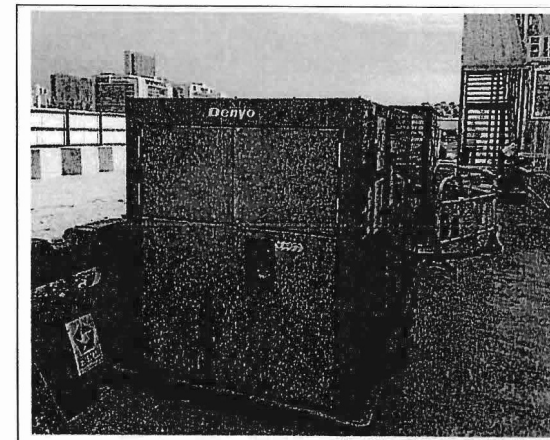
CNP 165 Piling, large diameter bored, oscillator
 大直徑鑽孔樁，擺動機



Photograph(s) attached to Construction Noise Permit No. GW-RE1074-20
 建築噪音許可證編號：GW-RE1074-20 的照片



Elevated working platform, lorry mounted
 升降工作台，裝在貨車上

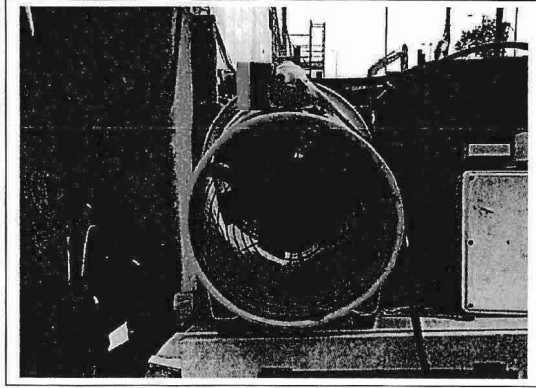


Generator, with Quality Powered Mechanical Equipment Label showing
 a Sound Power Level ≤ 93 dB(A)
 發電機，備有優質機動設備標籤顯示聲功率級 ≤ 93 分貝(A)



Photograph(s) attached to Construction Noise Permit No. GW-RE1074-20

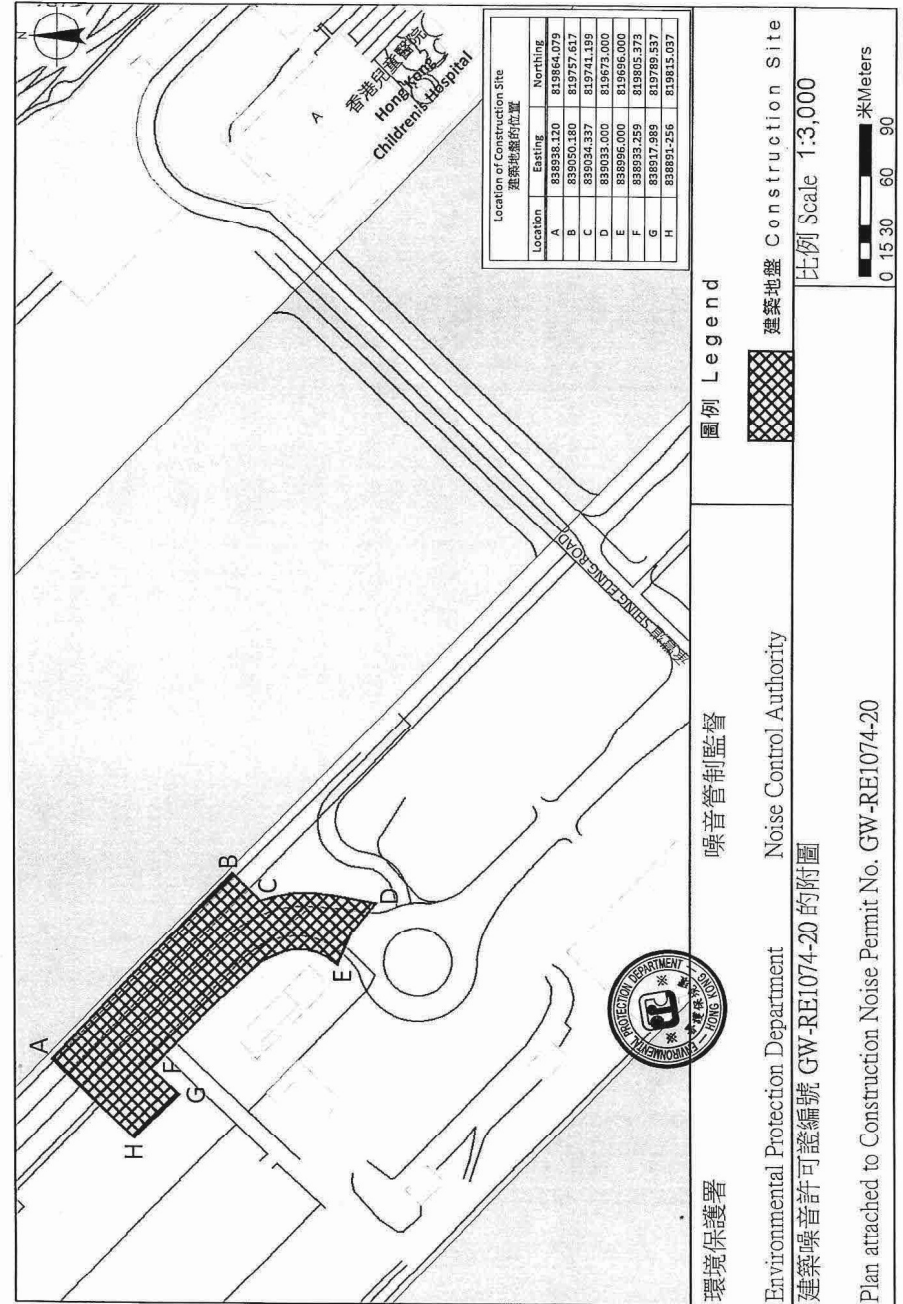
建築噪音許可證編號：GW-RE1074-20 的照片



Air blower (electric)
吹風機 (電動)



CNP 081 Excavator, tracked
挖土機, 履帶式



FORM 3
NOISE CONTROL ORDINANCE
(Chapter 400)
SECTION 8(9)

[reg.5(a)]

CONSTRUCTION NOISE PERMIT FOR THE USE OF POWERED MECHANICAL EQUIPMENT FOR THE PURPOSE OF CARRYING OUT CONSTRUCTION WORK OTHER THAN PERCUSSIVE PILING AND/OR THE CARRYING OUT OF PRESCRIBED CONSTRUCTION WORK

CONSTRUCTION NOISE PERMIT NO. GW-RE0020-21

To: PENTA-OCEAN CONSTRUCTION CO., LTD.

This construction noise permit is issued in accordance with section 8 of the Noise Control Ordinance. Permission is granted for the use of powered mechanical equipment for the purpose of carrying out construction work other than percussive piling and/or the carrying out of prescribed construction work, subject to the conditions set out below. The carrying out of construction work otherwise than in accordance with the conditions may result in the permit being cancelled and in a prosecution for an offence.

CONDITIONS

- Construction site where the powered mechanical equipment and/or prescribed construction work may be employed:
Full address: Kai Tak Development, Stage 4 infrastructure at the former runway and south apron (Work Area Part 3), Kai Tak, Kowloon (CEDD Contract No. ED/2018/01). Lot No: ---
The site boundary, that is, the boundary of the area within which the powered mechanical equipment may be used and the prescribed construction work may be carried out is delineated on the attached plan which forms part of this construction noise permit.
- *PART/WHOLE of the site falls * WITHIN/OUTSIDE a designated area.
- Powered Mechanical Equipment

a. Items of powered mechanical equipment which may be used inside the site boundary:

Identification code of item of powered mechanical equipment (if applicable)	Description of item of powered mechanical equipment	No. of units
	Refer to attached sheet	

b. Validity of the construction noise permit for the use of the powered mechanical equipment:

Date and time of commencement: 15 January 2021 at 1900 hours
Days and hours: 0000-2400 hours on general holidays (including Sundays), 0000-0700 hours and 1900-2400 hours on any day not being a general holiday (but note condition 3.d.1. below for the operating hours within which the use of the above listed powered mechanical equipment is allowed).
This part of the permit expires on: 11 June 2021 at 2300 hours.

- One photograph, endorsed by the Authority, of each item of powered mechanical equipment described in this construction noise permit is required to be kept on the construction site and made available for inspection by the Authority.
- Other conditions imposed on the use of the powered mechanical equipment:

1. The powered mechanical equipment listed in condition 3.a. shall only be operated during the hours shown below:

General holiday (including Sunday)	0700 – 1900 hours
Any day not being a general holiday	1900 – 2300 hours

2. Only one group of the powered mechanical equipment listed in condition 3.a. shall be allowed to operate at any time.

EPD76(A)s

-1-

4. Prescribed Construction Work

a. Type of prescribed construction work which may be carried out inside the site boundary:

Identification code of type of prescribed construction work	Description of type of prescribed construction work
	Not applicable

b. Validity of the construction noise permit for the carrying out of the prescribed construction work:

Date and time of commencement: Not applicable at Not applicable

Date and hours: Not applicable.


This part of the permit expires on: Not applicable at Not applicable.

c. Site layout plan(s), endorsed by the Authority, may be attached with the permit to indicate the locations permitted for the carrying out of prescribed construction work described in this permit. The layout plan(s) is/are required to be kept on the construction site and made available for inspection by the Authority.

d. Other conditions imposed on the carrying out of the prescribed construction work:

5. This construction noise permit or a copy thereof must be displayed on the construction site at all vehicular entrances for public information.

Dated this 8th day of January, 2021

Signed: 
(TANG Wai-man, Lisa)
for Authority

* Delete as necessary

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表格 3
噪音管制條例
(第 400 章)
第 8(9) 條

建築噪音許可證
為進行建築工程 (撞擊式打樁除外)
而使用機動設備及/或進行訂明建築工程

建築噪音許可證編號: GW-RE0020-21

致: PENTA-OCEAN CONSTRUCTION CO., LTD.

本建築噪音許可證是按照《噪音管制條例》第 8 條的規定而發出的。現准予使用機動設備以進行撞擊式打樁工程以外的建築工程及/或進行訂明建築工程,但須受以下條件規限。若不按照該等條件進行建築工程,許可證可遭廢銷,而且會受到檢控。

條件

- 可使用機動設備及/或進行訂明建築工程的建築地盤:
詳細地址:九龍啟德發展計劃-前跑道及南面機坪第四期基礎設施(工作地區第 3 部分) (土木工程拓展署合約編號 ED/2018/01)。地段編號: ---
地盤範圍(即可使用機動設備及進行訂明建築工程的地方範圍)已描劃於夾附的圖則上,而該圖則是本建築噪音許可證的一部分。
- 該地盤部分/全部*位於指定範圍之內/外*。
- 機動設備

各項機動設備的識別代碼 (如適用的話)	各項機動設備的說明	數目
	參見附頁	

b. 可使用機動設備的建築噪音許可證有效期:

生效日期及時間: 二零二一年一月十五日下午七時
日期及時間: 公眾假日(包括星期日)的凌晨零時至晚上十二時,公眾假日以外的任何二日凌晨零時至上午七時及下午七時至晚上十二時【但須注意條件 3.d.1.有關可以使用上列機動設備的時間】。
此部分許可證屆滿日期及時間: 二零二一年六月十一日晚上十一時

c. 建築地盤須備有本建築噪音許可證所述每件機動設備的照片各一幀,供監督隨時查看;該等照片須經監督認可。

d. 規限使用機動設備的其他條件:

1. 祇可於以下時間內使用列在條件 3.a. 內的機動設備:

公眾假日(包括星期日)	上午七時至下午七時
公眾假日以外的任何一日	下午七時至晚上十一時

2. 在任何時間內,祇可使用列在條件 3.a. 內的其中一組機動設備。

EPD76(B)s

-1-

4. 訂明建築工程

a. 在地盤範圍內可進行的訂明建築工程:

訂明建築工程的識別代碼	訂明建築工程的類別的說明
	不適用

b. 可進行訂明建築工程的建築噪音許可證有效期:

生效日期及時間: 不適用

日期及時間: 不適用。


此部分許可證屆滿日期及時間: 不適用

c. 本許可證可夾附經監督認可的地盤圖則,以顯示本許可證准予進行訂明建築工程的點。該地盤圖則須存放於建築地盤供監督隨時查看。

d. 規限進行訂明建築工程的其他條件:

5. 本建築噪音許可證或其副本必須展示於建築地盤的所有車輛入口處,給予公眾人士參閱。

日期: 2021 年 1 月 8 日


簽署: 
(鄧慧敏 代行)

* 刪去不適用者

-2-


3.a. Items of powered mechanical equipment which may be used inside the site boundary :

Identification code of item of powered mechanical equipment (if applicable)	Description of item of powered mechanical equipment	No. of units
Group A CNP 021	Bar bender and cutter (electric)	Two
---	Welding machine (electric)	Three
---	Generator, with Quality Powered Mechanical Equipment Label showing a Sound Power Level of ≤ 93 dB(A)	One
CNP 048	Crane, mobile (diesel)	One
---	Dump truck, with grab, 5.5 tonne<gross vehicle weight ≤ 38 tonne	One
---	Air blower (electric)	Six
CNP 283	Water pump, submersible (electric)	Six
---	Wastewater treatment plant	Two
Group B ---	Poker, vibratory, hand-held (electric)	One
CNP 047	Concrete pump, stationary	One
CNP 283	Water pump, submersible (electric)	Six
---	Wastewater treatment plant	Two
---	Generator, with Quality Powered Mechanical Equipment Label showing a Sound Power Level of ≤ 93 dB(A)	One
CNP 044	Concrete lorry mixer	One
Group C ---	Generator, with Quality Powered Mechanical Equipment Label showing a Sound Power Level of ≤ 93 dB(A)	Two
CNP 201	Saw, circular, wood	One
---	Air blower (electric)	Six
---	Jig-saw, hand-held, wood (electric)	One

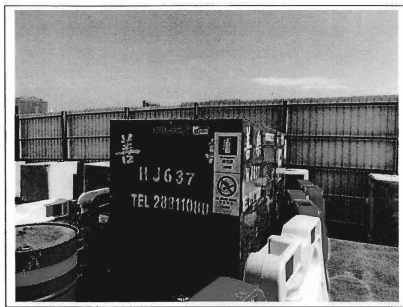
Signed: 
(TANG Wai-man, Lisa)
for Authority

3.a. 在地盤範圍內可使用的各項機動設備：

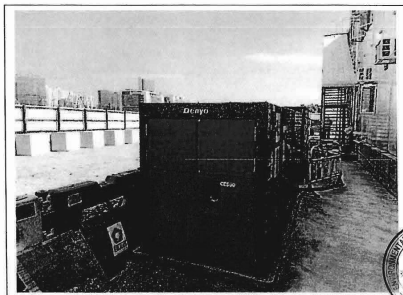
各項機動設備的識別代碼 (如適用的話)	各項機動設備的說明	數目
A組 CNP 021	鋼筋彎曲機及切割機 (電動)	貳
---	焊接機 (電動)	參
---	發電機，備有優質機動設備標籤顯示聲功率級 ≤ 93 分貝(A)	壹
CNP 048	起重機，流動 (油渣)	壹
---	抓斗卸土車，5.5 噸< 總重量 ≤ 38 噸	陸
---	吹風機 (電動)	陸
CNP 283	潛水泵 (電動)	貳
---	污水處理器	貳
B組 ---	混凝土震動機，手提 (電動)	壹
CNP 047	混凝土泵，固定	壹
CNP 283	潛水泵 (電動)	陸
---	污水處理器	貳
---	發電機，備有優質機動設備標籤顯示聲功率級 ≤ 93 分貝(A)	壹
CNP 044	混凝土攪拌車	壹
C組 ---	發電機，備有優質機動設備標籤顯示聲功率級 ≤ 93 分貝(A)	貳
CNP 201	圓型木鋸	壹
---	吹風機 (電動)	陸
---	豎線鋸，手提型，木 (電動)	壹

簽署: 
監督
(鄧慧敏 代行)

Photograph(s) attached to Construction Noise Permit No. GW-RE0020-21
建築噪音許可證編號: GW-RE0020-21 的照片

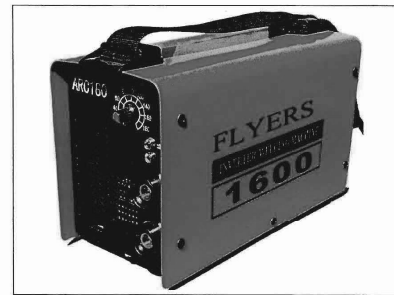


Generator, with Quality Powered Mechanical Equipment Label showing a Sound Power Level ≤ 93 dB(A) (1)
發電機，備有優質機動設備標籤顯示聲功率級 ≤ 93 分貝(A) (一)

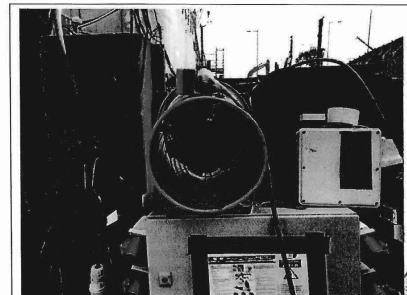


Generator, with Quality Powered Mechanical Equipment Label showing a Sound Power Level ≤ 93 dB(A) (2)
發電機，備有優質機動設備標籤顯示聲功率級 ≤ 93 分貝(A) (二)

Photograph(s) attached to Construction Noise Permit No. GW-RE0020-21
建築噪音許可證編號: GW-RE0020-21 的照片



Welding machine (electric)
焊接機 (電動)

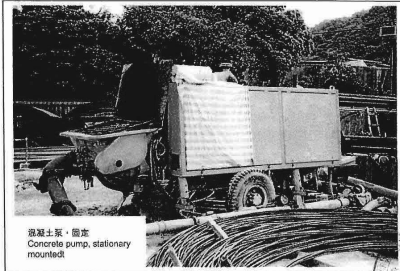


Air blower (electric)
吹風機 (電動)

Photograph(s) attached to Construction Noise Permit No. GW-RE0020-21
 建築噪音許可證編號：GW-RE0020-21 的照片



Wastewater treatment plant
 污水處理器

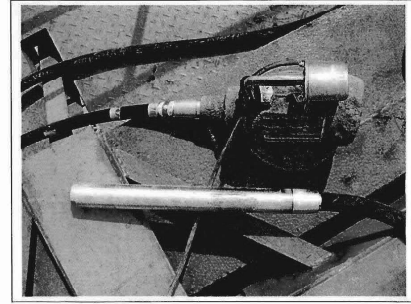


Concrete pump, stationary
 混凝土泵，固定

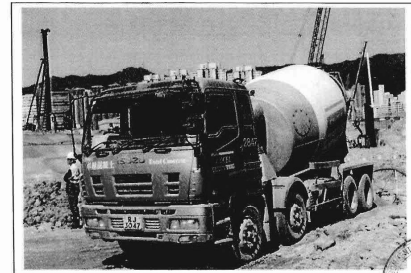
CNP 047



Photograph(s) attached to Construction Noise Permit No. GW-RE0020-21
 建築噪音許可證編號：GW-RE0020-21 的照片



Poker, vibratory, hand-held (electric)
 混凝土震動機，手提(電動)



Concrete lorry mixer
 混凝土攪拌車

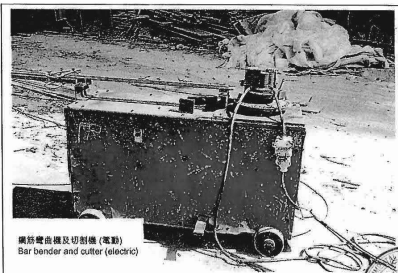
CNP 044



Photograph(s) attached to Construction Noise Permit No. GW-RE0020-21
 建築噪音許可證編號：GW-RE0020-21 的照片



Dump truck, with grab, 5.5 tonne<gross vehicle weight≤38 tonne
 抓斗卸土車，5.5噸<總重量 ≤38噸



Bar bender and cutter (electric)
 鋼筋彎曲機及切割機(電動)

CNP 021

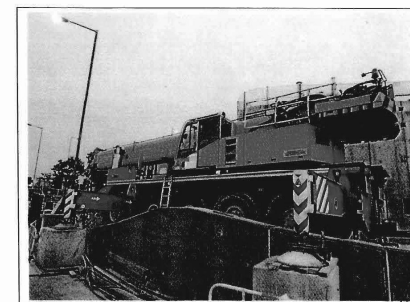


Photograph(s) attached to Construction Noise Permit No. GW-RE0020-21
 建築噪音許可證編號：GW-RE0020-21 的照片



Water pump, submersible (electric)
 潛水泵(電動)

CNP 283

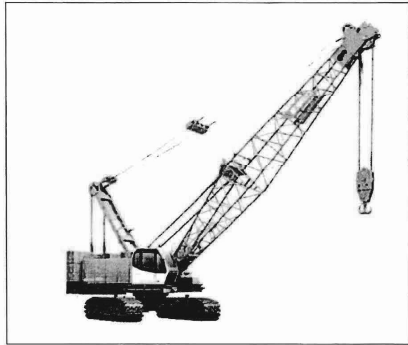


Crane, mobile (diesel) (1)
 起重機，流動(油渣)(一)

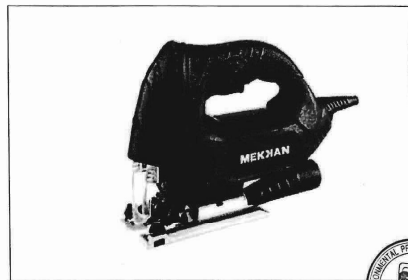
CNP 048



Photograph(s) attached to Construction Noise Permit No. **GW-RE0020-21**
 建築噪音許可證編號：**GW-RE0020-21** 的照片



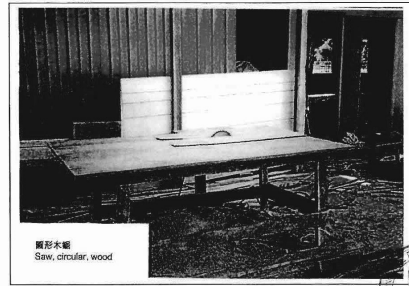
CNP 048 Crane, mobile (diesel) (2)
 起重機，流動(油渣)(二)



Jig-saw, hand-held, wood (electric)
 豎線鋸，手提型，木(電動)

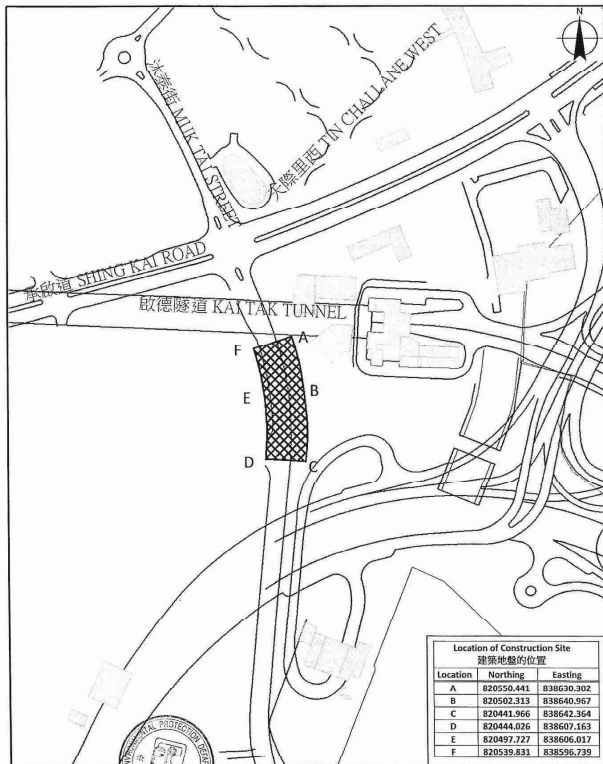


Photograph(s) attached to Construction Noise Permit No. **GW-RE0020-21**
 建築噪音許可證編號：**GW-RE0020-21** 的照片



圓形木鋸
 Saw, circular, wood

CNP 201 Saw, circular, wood
 圓形木鋸



環境保護署
 Environmental Protection Department
 建築噪音許可證編號 GW-RE0020-21 的附圖

噪音管制監督

圖例 Legend

建築地盤 Construction Site

比例 Scale 1:3,000

Plan attached to Construction Noise Permit No. GW-RE0020-21

0 15 30 60 90
 米 Meters

CONSTRUCTION NOISE PERMIT FOR THE USE OF POWERED MECHANICAL EQUIPMENT FOR THE PURPOSE OF CARRYING OUT CONSTRUCTION WORK OTHER THAN PERCUSSIVE PILING AND/OR THE CARRYING OUT OF PRESCRIBED CONSTRUCTION WORK

CONSTRUCTION NOISE PERMIT NO.: GW-RE0021-21

To: PENTA-OCEAN CONSTRUCTION CO., LTD.

This construction noise permit is issued in accordance with section 8 of the Noise Control Ordinance. Permission is granted for the use of powered mechanical equipment for the purpose of carrying out construction work other than percussive piling and/or the carrying out of prescribed construction work, subject to the conditions set out below. The carrying out of construction work otherwise than in accordance with the conditions may result in the permit being cancelled and in a prosecution for an offence.

CONDITIONS

1. Construction site where the powered mechanical equipment and/or prescribed construction work may be employed:
Full address: Kai Tak Development - Stage 4 infrastructure at the former runway and south apron (Works Area Part 3C), Kai Tak, Kowloon (CEDD Contract No. ED/2018/01). Lot No.:
The site boundary, that is, the boundary of the area within which the powered mechanical equipment may be used and the prescribed construction work may be carried out is delineated on the attached plan which forms part of this construction noise permit.

2. *PART/WHOLE of the site falls *WITHIN/OUTSIDE a designated area.

3. Powered Mechanical Equipment

a. Items of powered mechanical equipment which may be used inside the site boundary:

Identification code of item of powered mechanical equipment (if applicable)	Description of item of powered mechanical equipment	No. of units
	Refer to attached sheet	

b. Validity of the construction noise permit for the use of the powered mechanical equipment:

Date and time of commencement: 15 January 2021 at 1900 hours
Days and hours: 0000-2400 hours on general holidays (including Sundays), 0000-0700 hours and 1900-2400 hours on any day not being a general holiday [but note condition 3.d.1. below for the operating hours within which the use of the above listed powered mechanical equipment is allowed].
This part of the permit expires on: 11 June 2021 at 2400 hours.

c. One photograph, endorsed by the Authority, of each item of powered mechanical equipment described in this construction noise permit is required to be kept on the construction site and made available for inspection by the Authority.

d. Other conditions imposed on the use of the powered mechanical equipment:

1. The powered mechanical equipment listed in condition 3.a. shall only be operated during the hours shown below:

Group A - C	General holiday (including Sunday)	
	0700 - 1900 hours	1900 - 2300 hours
Group D	General holiday (including Sunday)	
	0000 - 2400 hours	0000 - 0700 hours and 1900 - 2400 hours

2. Only one group of the powered mechanical equipment listed in condition 3.a. shall be allowed to operate at any time.

EPD76(A)

- 1 -

4. Prescribed Construction Work

a. Type of prescribed construction work which may be carried out inside the site boundary:

Identification code of type of prescribed construction work	Description of type of prescribed construction work
	Not applicable

b. Validity of the construction noise permit for the carrying out of the prescribed construction work:

Date and time of commencement: Not applicable at Not applicable

Date and hours: Not applicable.

This part of the permit expires on: Not applicable at Not applicable

c. Site layout plan(s), endorsed by the Authority, may be attached with the permit to indicate the locations permitted for the carrying out of prescribed construction work described in this permit. The layout plan(s) is/are required to be kept on the construction site and made available for inspection by the Authority.

d. Other conditions imposed on the carrying out of the prescribed construction work:

5. This construction noise permit or a copy thereof must be displayed on the construction site at all vehicular entrances for public information.

Dated this 8th day of January, 2021

Signed:

(TANG Wai-man, Lisa)
for Authority

* Delete as necessary

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表格 3 [第 5(a) 條]
噪音管制條例
(第 400 章)
第 8(9) 條

建築噪音許可證
為進行建築工程 (撞擊式打樁除外)
而使用機動設備及/或進行訂明建築工程

建築噪音許可證編號: GW-RE0021-21

致: PENTA-OCEAN CONSTRUCTION CO., LTD.

本建築噪音許可證是按照《噪音管制條例》第 8 條的規定而發出的。現准予使用機動設備以進行撞擊式打樁工程以外的建築工程及/或進行訂明建築工程，但須受以下條件規限。若不按照該等條件進行建築工程，許可證可遭撤銷，而且會受到檢控。

條件

1. 可使用機動設備及/或進行訂明建築工程的建築地盤:

詳細地址: 九龍啟德啟德發展計劃-前跑道及南面停機坪第四期基礎設施(工作地區第 3C 部分)
(土木工程拓展署合約編號 ED/2018/01)。地段編號:

地盤範圍 (即可使用機動設備及進行訂明建築工程的地方範圍) 已描劃於夾附的圖則上，而該圖則是本建築噪音許可證的一部分。

2. 該地盤部分/全部 *位於指定範圍之內/外*。

3. 機動設備

a. 在地盤範圍內可使用的各項機動設備:

各項機動設備的識別代碼 (如適用的話)	各項機動設備的說明	數目
	參見附頁	

b. 可使用機動設備的建築噪音許可證有效期:

生效日期及時間: 二零二一年一月十五日下午七時

日期及時間: 公眾假日 (包括星期日) 的凌晨零時至晚上十二時, 公眾假日以外的任何二日凌晨零時至上午七時及下午七時至晚上十二時。【但須注意條件 3.d.1. 有關可以使用上列機動設備的時間】。

此部分許可證屆滿日期及時間: 二零二一年六月十一日晚上十二時

日期 時間
c. 建築地盤須備有本建築噪音許可證所述每件機動設備的照片各一張, 供監督隨時查看; 該等照片須經監督認可。

d. 規限使用機動設備的其他條件:

1. 祇可於以下時間內使用列在條件 3.a. 內的機動設備:

A - C 組	公眾假日包括星期日	
	上午七時至下午七時	下午七時至晚上十一時
D 組	公眾假日包括星期日	
	凌晨零時至晚上十二時	凌晨零時至上午七時及下午七時至晚上十二時

2. 在任何時間內, 祇可使用列在條件 3.a. 內其中一組機動設備。

EPD76(B)

- 1 -

4. 訂明建築工程

a. 在地盤範圍內可進行的訂明建築工程:

訂明建築工程的識別代碼	訂明建築工程的類別的說明
	不適用

b. 可進行訂明建築工程的建築噪音許可證有效期:

生效日期及時間: 不適用

日期及時間: 不適用。

此部分許可證屆滿日期及時間: 不適用

c. 本許可證可夾附經監督認可的地盤圖則, 以顯示本許可證准予進行訂明建築工程的點。該地盤圖則須存放於建築地盤供監督隨時查看。

d. 規限進行訂明建築工程的其他條件:

5. 本建築噪音許可證或其副本必須展示於建築地盤的所有車輛入口處, 給予公眾人士參閱。

日期: 2021 年 1 月 8 日

簽署:

(鄧慧敏 代行)

* 刪去不適用者

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Sheet Attached to Construction Noise Permit
No. GW-RE0021-21


建築噪音許可證
編號 GW-RE0021-21 的附頁

3.a. Items of powered mechanical equipment which may be used inside the site boundary :

Identification code of item of powered mechanical equipment (if applicable)	Description of item of powered mechanical equipment	No. of units
Group A --- CNP 081	Generator, with Quality Powered Mechanical Equipment Label showing a Sound Power Level ≤ 94 dB(A)	One
	Excavator, tracked	One
Group B --- CNP 048 CNP 021 CNP 201	Generator, with Quality Powered Mechanical Equipment Label showing a Sound Power Level ≤ 94 dB(A)	One
	Welding machine (electric)	Five
	Crane, mobile (diesel)	One
	Bar bender and cutter (electric)	One
Group C --- CNP 047 CNP 283 --- --- CNP 044	Saw, circular, wood	One
	Poker, vibratory, hand-held (electric)	One
	Concrete pump, stationary	One
	Water pump, submersible (electric)	Six
	Wastewater treatment plant	Two
Group D --- CNP 283	Generator, with Quality Powered Mechanical Equipment Label showing a Sound Power Level ≤ 94 dB(A)	One
	Concrete lorry mixer	One
	Wastewater treatment plant	One
	Water pump, submersible (electric)	Four

3.a. 在地盤範圍內可使用的各項機動設備：

各項機動設備的識別代碼 (如適用的話)	各項機動設備的說明	數目
A 組 --- CNP 081	發電機，備有優質機動設備標籤顯示聲功率級 ≤ 94 分貝 (A)	壹
	挖土機，履帶式	壹
B 組 --- --- CNP 048 CNP 021 CNP 201	發電機，備有優質機動設備標籤顯示聲功率級 ≤ 94 分貝 (A)	壹
	焊接機 (電動)	伍
	起重機，流動 (油渣)	壹
	鋼筋彎曲機及切割機 (電動)	壹
C 組 --- --- CNP 047 CNP 283 --- --- CNP 044	圓型木鋸	壹
	混凝土震動機，手提 (電動)	壹
	混凝土泵，固定	壹
	潛水泵 (電動)	陸
	污水處理器	貳
D 組 --- CNP 283	發電機，備有優質機動設備標籤顯示聲功率級 ≤ 94 分貝 (A)	壹
	混凝土攪拌車	壹
	污水處理器	壹
	潛水泵 (電動)	肆

Signed: 
(TANG Wai-man, Lisa)
for Authority

簽署: 
監修
(鄧慧敏 代行)

Photograph(s) attached to Construction Noise Permit No. GW-RE0021-21
建築噪音許可證編號: GW-RE0021-21 的照片

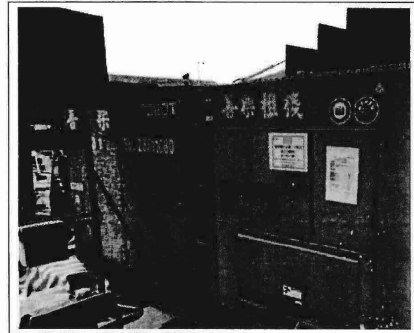


CNP 283 Water pump, submersible (electric)
潛水泵 (電動)

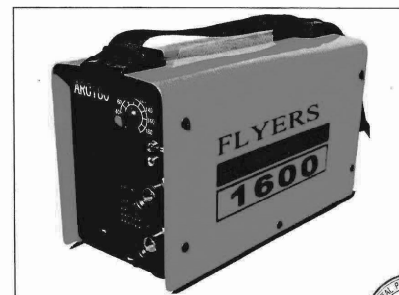


CNP 081 Excavator, tracked
挖土機，履帶式

Photograph(s) attached to Construction Noise Permit No. GW-RE0021-21
建築噪音許可證編號: GW-RE0021-21 的照片

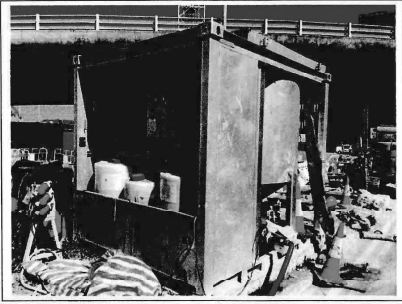


Generator, with Quality Powered Mechanical Equipment Label showing a Sound Power Level ≤ 94 dB(A)
發電機，備有優質機動設備標籤顯示聲功率級 ≤ 94 分貝 (A)

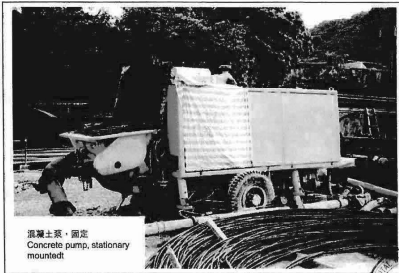


Welding machine (electric)
焊接機 (電動)

Photograph(s) attached to Construction Noise Permit No. GW-RE0021-21
 建築噪音許可證編號：GW-RE0021-21 的照片



Wastewater treatment plant
 污水處理器



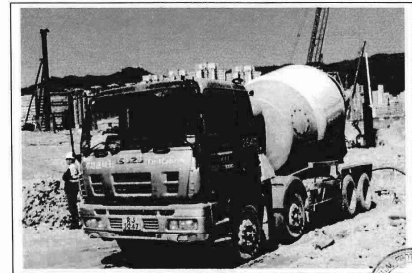
CNP 047 Concrete pump, stationary
 混凝土泵，固定



Photograph(s) attached to Construction Noise Permit No. GW-RE0021-21
 建築噪音許可證編號：GW-RE0021-21 的照片



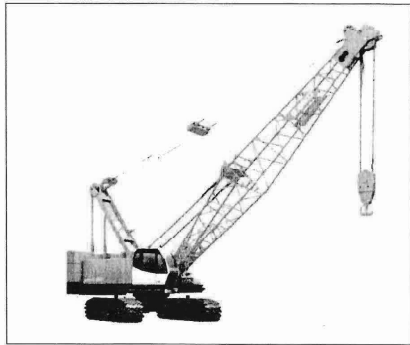
Poker, vibratory, hand-held (electric)
 混凝土震動機，手提(電動)



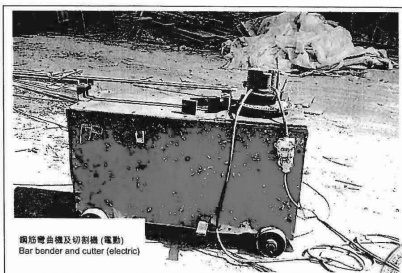
CNP 044 Concrete lorry mixer
 混凝土攪拌車



Photograph(s) attached to Construction Noise Permit No. GW-RE0021-21
 建築噪音許可證編號：GW-RE0021-21 的照片



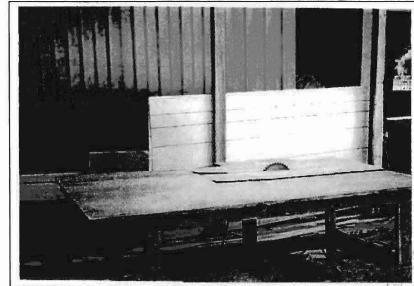
CNP 048 Crane, mobile (diesel)
 起重機，流動(柴油)



CNP 021 Bar bender and cutter (electric)
 鋼筋彎曲機及切割機(電動)

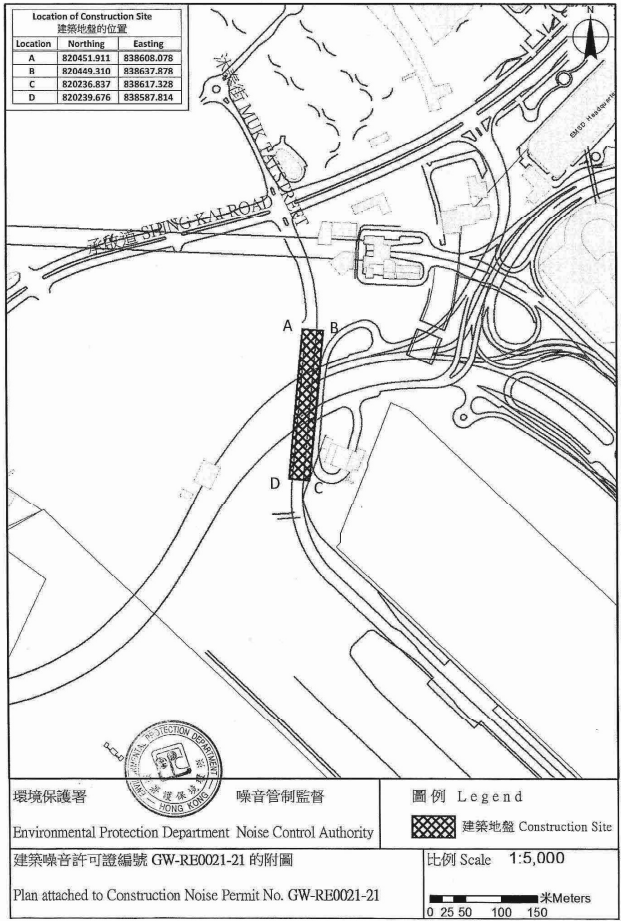


Photograph(s) attached to Construction Noise Permit No. GW-RE0021-21
 建築噪音許可證編號：GW-RE0021-21 的照片



CNP 201 Saw, circular, wood
 圓型木鋸





**Appendix P – Environmental Mitigation Implementation Schedule
(EMIS)**

Implementation Schedule for Air Quality Measures			
EIA for KTD Development Ref.	EIA for KTD – Roads D3A & D4A Ref.	Environmental Protection Measures / Mitigation Measures	Status
S3.2		8 times daily watering of the work site with active dust emitting activities.	^
S3.2	S4.8	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 minimize cumulative dust impacts.	^
		- Stockpiling site(s) should be lined with impermeable sheeting and bunded. Stockpiles should be fully covered by impermeable sheeting to reduce dust emission.	^*
		- Misting for the dusty material should be carried out before being loaded into the vehicle.	^
		- Any vehicle with an open load carrying area should have properly fitted side and tail boards.	^
		- Material having the potential to create dust should not be loaded from a level higher than the side and tail boards and should be dampened and covered by a clean tarpaulin.	^
		- The tarpaulin should be properly secured and should extend at least 300 mm over the edges of the sides and tailboards. The material should also be dampened if necessary, before transportation.	^
		- The vehicles should be restricted to maximum speed of 10 km per hour and confined haulage and delivery vehicle to designated roadways inside the site. On-site unpaved roads should be compacted and kept free of loose materials.	^
		- Vehicle washing facilities should be provided at every vehicle exit point.	^
		- The area where vehicle washing takes place and the section of the road between the washing facilities and the exit point should be paved with concrete, bituminous materials or hardcore.	^
		- Every main haul road should be sealed with concrete and kept clear of dusty materials or sprayed with water so as to maintain the entire road surface wet.	^
		- Every stock of more than 20 bags of cement should be covered entirely by impervious sheeting placed in an area sheltered on the top and the three sides.	^
		- Every vehicle should be washed to remove any dusty materials from its body and wheels before leaving the construction sites.	^

Implementation Schedule for Noise Measures			
EIA for KTD Development Ref.	EIA for KTD – Roads D3A & D4A Ref.	Environmental Protection Measures / Mitigation Measures	Status
S3.3		Use of quiet PME, movable barriers for Asphalt Paver, Breaker, Excavator and Hand-held breaker and full enclosure for Air Compressor, Bar Bender, Concrete Pump, Generator and Water Pump.	^
S3.3		Good Site Practice:	
S3.3		- Only well-maintained plant should be operated on-site and plant should be serviced regularly during the construction program.	^
		- Silencers or mufflers on construction equipment should be utilized and should be properly maintained during the construction program.	^
		- Mobile plant, if any, should be sited as far away from NSRs as possible.	^
		- Machines and plant (such as trucks) that may be in intermittent use should be shut down between works periods or should be throttled down to a minimum.	^
		- Plant known to emit noise strongly in one direction should, wherever possible, be orientated so that the noise is directed away from the nearby NSRs.	^
		- Material stockpiles and other structures should be effectively utilized, wherever practicable, in screening noise from on-site construction activities.	^
		- Scheduling of Construction Works during School Examination Period	N/A

Implementation Schedule for Water Quality Measures			
EIA for KTD Development Ref.	EIA for KTD – Roads D3A & D4A Ref.	Environmental Protection Measures / Mitigation Measures	Status
S3.4		<u>Construction Runoff</u> Exposed soil areas should be minimised to reduce the potential for increased siltation, contamination of runoff, and erosion. Construction runoff related impacts associated with the above ground construction activities can be readily controlled through the use of appropriate mitigation measures which include:	
S3.4		- use of sediment traps.	^
S3.4		- adequate maintenance of drainage systems to prevent flooding and overflow.	^

Implementation Schedule for Water Quality Measures			
EIA for KTD Development Ref.	EIA for KTD – Roads D3A & D4A Ref.	Environmental Protection Measures / Mitigation Measures	Status
	S5.8	- Surface run-off from construction sites should be discharged into storm drains via adequately designed sand/silt removal facilities such as sand traps, silt traps and sedimentation basins.	^
	S5.8	- Channels or earth bunds or sand bag barriers should be provided on site to properly direct stormwater to such silt removal facilities. Perimeter channels should be provided on site boundaries where necessary to intercept storm run-off from outside the site so that it will not wash across the site. Catchpits and perimeter channels should be constructed in advance of site formation works and earthworks.	^
	S5.8	- Silt removal facilities, channels and manholes should be maintained and the deposited silt and grit should be removed regularly, at the onset of and after each rainstorm to prevent local flooding. Any practical options for the diversion and re-alignment of drainage should comply with both engineering and environmental requirements in order to provide adequate hydraulic capacity of all drains. Minimum distance of 100 m should be maintained between the discharge points of construction site run-off and the existing saltwater intakes.	^
	S5.8	- Earthworks final surfaces should be well compacted and the subsequent permanent work or surface protection should be carried out immediately after the final surfaces are formed to prevent erosion caused by rainstorms. Appropriate drainage like intercepting channels should be provided where necessary.	^
	S5.8	- Measures should be taken to minimize the ingress of rainwater into trenches. If excavation of trenches in wet seasons is necessary, they should be dug and backfilled in short sections. Rainwater pumped out from trenches or foundation excavations should be discharged into storm drains via silt removal facilities.	^
	S5.8	- Open stockpiles of construction materials (e.g. aggregates, sand and fill material) on sites should be covered with tarpaulin or similar fabric during rainstorms.	^
	S5.8	- Manholes (including newly constructed ones) should always be adequately covered and temporarily sealed so as to prevent silt, construction materials or debris from getting into the drainage system, and to prevent storm run-off from getting into foul sewers. Discharge of surface run-off into foul sewers must always be prevented in order not to unduly overload the foul	^

Implementation Schedule for Water Quality Measures			
EIA for KTD Development Ref.	EIA for KTD – Roads D3A & D4A Ref.	Environmental Protection Measures / Mitigation Measures	Status
		sewerage system.	
	S5.8	- Good site practices should be adopted to remove rubbish and litter from construction sites so as to prevent the rubbish and litter from spreading from the site area. It is recommended to clean the construction sites on a regular basis.	^
S3.4		Construction site should be provided with adequately designed perimeter channel and pre-treatment facilities and proper maintenance. The boundaries of critical areas of earthworks should be marked and surrounded by dykes or embankments for flood protection. Temporary ditches should be provided to facilitate runoff discharge into the appropriate watercourses, via a silt retention pond. Permanent drainage channels should incorporate sediment basins or traps and baffles to enhance deposition rates. The design of efficient silt removal facilities should be based on the guidelines in Appendix A1 of ProPECC PN 1/94.	^
S3.4	S5.8	Ideally, construction works should be programmed to minimise surface excavation works during the rainy season (April to September). All exposed earth areas should be completed as soon as possible after earthworks have been completed, or alternatively, within 14 days of the cessation of earthworks where practicable. If excavation of soil cannot be avoided during the rainy season, or at any time of year when rainstorms are likely, exposed slope surfaces should be covered by tarpaulin or other means. If excavation in soil cannot be avoided in these months or at any time of year when rainstorms are likely, for the purpose of preventing soil erosion, temporary exposed slope surfaces should be covered e.g. by tarpaulin, and temporary access roads should be protected by crushed stone or gravel, as excavation proceeds. Intercepting channels should be provided (e.g. along the crest / edge of excavation) to prevent storm runoff from washing across exposed soil surfaces. Arrangements should always be in place in such a way that adequate surface protection measures can be safely carried out well before the arrival of a rainstorm.	^
S3.4		Sediment tanks of sufficient capacity, constructed from pre-formed individual cells of approximately 6 to 8 m ³ capacity, are recommended as a general mitigation measure which can be used for settling surface runoff prior to disposal. The system capacity is flexible and able to handle multiple inputs from a variety of sources	^

Implementation Schedule for Water Quality Measures			
EIA for KTD Development Ref.	EIA for KTD – Roads D3A & D4A Ref.	Environmental Protection Measures / Mitigation Measures	Status
		and particularly suited to applications where the influent is pumped.	
S3.4		Open stockpiles of construction materials (for examples, aggregates, sand and fill material) of more than 50 m ³ should be covered with tarpaulin or similar fabric during rainstorms. Measures should be taken to prevent the washing away of construction materials, soil, silt or debris into any drainage system.	^
S3.4		Manholes (including newly constructed ones) should always be adequately covered and temporarily sealed so as to prevent silt, construction materials or debris being washed into the drainage system and storm runoff being directed into foul sewers.	^
S3.4		Precautions to be taken at any time of year when rainstorms are likely, actions to be taken when a rainstorm is imminent or forecast, and actions to be taken during or after rainstorms are summarised in Appendix A2 of ProPECC PN 1/94. Particular attention should be paid to the control of silty surface runoff during storm events.	^
S3.4		Oil interceptors should be provided in the drainage system and regularly cleaned to prevent the release of oils and grease into the storm water drainage system after accidental spillages. The interceptor should have a bypass to prevent flushing during periods of heavy rain.	NA
S3.4	S5.8	<u>Wheel Washing Water</u> All vehicles and plant should be cleaned before leaving a construction site to ensure no earth, mud, debris and the like is deposited by them on roads. An adequately designed and located wheel washing bay should be provided at every site exit, and wash-water should have sand and silt settled out and removed at least on a weekly basis to ensure the continued efficiency of the process. The section of access road leading to, and exiting from, the wheel-wash bay to the public road should be paved with sufficient backfall toward the wheel-wash bay to prevent vehicle tracking of soil and silty water to public roads and drains.	^
S3.4		<u>Drainage</u> It is recommended that on-site drainage system should be installed prior to the commencement of other construction activities. Sediment traps should be installed in order to minimise the sediment loading of the effluent prior to discharge into foul sewers. There should be no direct discharge of effluent from the site into the sea.	^
S3.4		All temporary and permanent drainage pipes and culverts provided	^

Implementation Schedule for Water Quality Measures			
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		to facilitate runoff discharge should be adequately designed for the controlled release of storm flows. All sediment control measures should be regularly inspected and maintained to ensure proper and efficient operation at all times and particularly following rain storms. The temporarily diverted drainage should be reinstated to its original condition when the construction work has finished or the temporary diversion is no longer required.	
S3.4		All fuel tanks and storage areas should be provided with locks and be located on sealed areas, within bunds of a capacity equal to 110% of the storage capacity of the largest tank, to prevent spilled fuel oils from reaching the coastal waters of the Victoria Harbour WCZ.	^
S3.4	S5.8	<p><u>Sewage Effluent</u></p> <p>Construction work force sewage discharges on site are expected to be connected to the existing trunk sewer or sewage treatment facilities. The construction sewage may need to be handled by portable chemical toilets prior to the commission of the on-site sewer system. Appropriate numbers of portable toilets should be provided by a licensed contractor to serve the large number of construction workers over the construction site. The Contractor should also be responsible for waste disposal and maintenance practices.</p> <p>Notices should be posted at conspicuous locations to remind the workers not to discharge any sewage or wastewater into the surrounding environment. Regular environmental audit of the construction site will provide an effective control of any malpractices and can encourage continual improvement of environmental performance on site. It is anticipated that sewage generation during the construction phase of the project would not cause water pollution problem after undertaking all required measures.</p>	^
S3.4		<p><u>Stormwater Discharges</u></p> <p>Minimum distances of 100 m should be maintained between the existing or planned stormwater discharges and the existing or planned seawater intakes</p>	^
S3.4		<p><u>Debris and Litter</u></p> <p>In order to maintain water quality in acceptable conditions with regard to aesthetic quality, contractors should be required, under conditions of contract, to ensure that site management is optimised</p>	^

Implementation Schedule for Water Quality Measures			
EIA for KTD Development Ref.	EIA for KTD – Roads D3A & D4A Ref.	Environmental Protection Measures / Mitigation Measures	Status
		and that disposal of any solid materials, litter or wastes to marine waters does not occur.	
	S5.8	<u>Boring and Drilling Water</u> Water used in ground boring and drilling for site investigation or rock / soil anchoring should as far as practicable be re-circulated after sedimentation. When there is a need for final disposal, the wastewater should be discharged into storm drains via silt removal facilities.	^
	S5.8	<u>Acid Cleaning, Etching and Pickling Wastewater</u> Acidic wastewater generated from acid cleaning, etching, pickling and similar activities should be neutralized to within the pH range of 6 to 10 before discharging into foul sewers.	NA
	S5.8	<u>Effluent Discharge</u> There is a need to apply to EPD for a discharge licence for discharge of effluent from the construction site under the WPCO. The discharge quality must meet the requirements specified in the discharge licence. All the runoff and wastewater generated from the works areas should be treated so that it satisfies all the standards listed in the TM-DSS. Minimum distance of 100 m should be maintained between the discharge points of construction site effluent and the existing seawater intakes and the planned WSR mentioned in S5.3.1 as appropriate. The beneficial uses of the treated effluent for other on-site activities such as dust suppression, wheel washing and general cleaning etc., can minimise water consumption and reduce the effluent discharge volume. If monitoring of the treated effluent quality from the works areas is required during the construction phase of the Project, the monitoring should be carried out in accordance with the relevant WPCO licence which is under the ambit of regional office (RO) of EPD.	^
	S5.8	<u>Accidental Spillage</u> Contractor must register as a chemical waste producer if chemical wastes would be produced from the construction activities. The Waste Disposal Ordinance (Cap 354) and its subsidiary regulations in particular the Waste Disposal (Chemical Waste) (General) Regulation, should be observed and complied with for control of chemical wastes. Any service shop and maintenance facilities should be located on	^

Implementation Schedule for Water Quality Measures			
EIA for KTD Development Ref.	EIA for KTD – Roads D3A & D4A Ref.	Environmental Protection Measures / Mitigation Measures	Status
		hard standings within a bunded area, and sumps and oil interceptors should be provided. Maintenance of vehicles and equipment involving activities with potential for leakage and spillage should only be undertaken within the areas appropriately equipped to control these discharges.	
	S5.8	Disposal of chemical wastes should be carried out in compliance with the Waste Disposal Ordinance. The Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes published under the Waste Disposal Ordinance details the requirements to deal with chemical wastes. General requirements are given as follows: - Suitable containers should be used to hold the chemical wastes to avoid leakage or spillage during storage, handling and transport.	^
	S5.8	- Chemical waste containers should be suitably labelled, to notify and warn the personnel who are handling the wastes, to avoid accidents.	^
	S5.8	- Storage area should be selected at a safe location on site and adequate space should be allocated to the storage area.	^

Implementation Schedule for Waste Management Measures			
EIA for KTD Development Ref.	EIA for KTD – Roads D3A & D4A Ref.	Environmental Protection Measures / Mitigation Measures	Status
S3.5		<u>Good Site Practices</u> It is not anticipated that adverse waste management related impacts would arise, provided that good site practices are adhered to. Recommendations for good site practices during construction activities include:	
S3.5		- 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.	^
	S6.7	- Prepare a Waste Management Plan, which becomes a part of the Environmental Management Plan, in accordance with the requirements stipulated in ETWB TC(W) No. 19/2005, approved by the Engineer/Supervising Officer of the Project based on current practices on construction sites.	^
S3.5	S6.7	- Training of site personnel in proper waste management and chemical waste handling procedures.	^

Implementation Schedule for Waste Management Measures			
EIA for KTD Development Ref.	EIA for KTD – Roads D3A & D4A Ref.	Environmental Protection Measures / Mitigation Measures	Status
S3.5	S6.7	- Provision of sufficient waste disposal points and regular collection for disposal.	^
S3.5	S6.7	- Appropriate measures to minimise windblown litter and dust during transportation of waste by either covering trucks or by transporting wastes in enclosed containers.	^
S3.5		- A recording system for the amount of wastes generated, recycled and disposed of (including the disposal sites).	^
	S6.7	- Regular cleaning and maintenance programme for drainage systems, sumps and oil interceptors.	^
	S6.7	- Training should be provided to workers about the concepts of site cleanliness and appropriate waste management procedures, including waste reduction, reuse and recycle.	^
S3.5		<u>Waste Reduction Measures</u> Good management and control can prevent the generation of a significant amount of waste. Waste reduction is best achieved at the planning and design stage, as well as by ensuring the implementation of good site practices. Recommendations to achieve waste reduction include:	^
S3.5	S6.7	- Sort C&D waste from demolition of the remaining structures to recover recyclable portions such as metals.	NA
S3.5	S6.7	- 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.	^
S3.5	S6.7	- 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.	^
S3.5		- Any unused chemicals or those with remaining functional capacity should be recycled.	^
S3.5	S6.7	- Proper storage and site practices to minimise the potential for damage or contamination of construction materials.	^
S3.5		<u>Construction and Demolition Materials</u> Mitigation measures and good site practices should be incorporated in the contract document to control potential environmental impact from handling and transportation of C&D material. The mitigation measures include:	
S3.5		- Where it is unavoidable to have transient stockpiles of C&D material within the Project work site pending collection for	^

Implementation Schedule for Waste Management Measures			
EIA for KTD Development Ref.	EIA for KTD – Roads D3A & D4A Ref.	Environmental Protection Measures / Mitigation Measures	Status
		disposal, the transient stockpiles shall be located away from waterfront or storm drains as far as possible.	
S3.5		- Open stockpiles of construction materials or construction wastes on-site should be covered with tarpaulin or similar fabric.	^
S3.5		- Skip hoist for material transport should be totally enclosed by impervious sheeting.	^
S3.5		- Every vehicle should be washed to remove any dusty materials from its body and wheels before leaving a construction site.	^
S3.5		- The area where vehicle washing takes place and the section of the road between the washing facilities and the exit point should be paved with concrete, bituminous materials or hardcores.	^
S3.5		- The load of dusty materials carried by vehicle leaving a construction site should be covered entirely by clean impervious sheeting to ensure dust materials do not leak from the vehicle.	^
S3.5		- All dusty materials should be sprayed with water prior to any loading, unloading or transfer operation so as to maintain the dusty materials wet.	^
S3.5		- The height from which excavated materials are dropped should be controlled to a minimum practical height to limit fugitive dust generation from unloading.	^
S3.5		- When delivering inert C&D material to public fill reception facilities, the material should consist entirely of inert construction waste and of size less than 250mm or other sizes as agreed with the Secretary of the Public Fill Committee. In order to monitor the disposal of the surplus C&D material at the designed public fill reception facility and to control fly tipping, a trip-ticket system as stipulated in the ETWB TCW No. 31/2004 “Trip Ticket System for Disposal of Construction and Demolition Materials” should be included as one of the contractual requirements and implemented by an Environmental Team undertaking the Environmental Monitoring and Audit work. An Independent Environmental Checker should be responsible for auditing the results of the system.	^
	S6.7	- Plan and stock construction materials carefully to minimize amount of waste generated and avoid unnecessary generation	^

Implementation Schedule for Waste Management Measures			
EIA for KTD Development Ref.	EIA for KTD – Roads D3A & D4A Ref.	Environmental Protection Measures / Mitigation Measures	Status
		of waste.	
S3.5		<u>Chemical Waste</u> After use, chemical wastes (for example, cleaning fluids, solvents, lubrication oil and fuel) should be handled according to the Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes. Spent chemicals should 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.	^
	S6.7	Separation of chemical wastes for special handling and appropriate treatment.	^*
S3.5		<u>General Refuse</u> General refuse should be stored in enclosed bins or compaction units separate from C&D material. A licensed waste collector should be employed by the contractor to remove general refuse from the site, separately from C&D material. Effective collection and storage methods (including enclosed and covered area) of site wastes would be required to prevent waste materials from being blown around by wind, wastewater discharge by flushing or leaching into the marine environment, or creating odour nuisance or pest and vermin problem.	^

Implementation Schedule for Landscape and Visual Measures			
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S3.8.12		All existing trees should be carefully protected during construction.	^
S3.8.12		Trees unavoidably affected by the works should be transplanted where practical. Detailed transplanting proposal will be submitted to relevant government departments for approval in accordance with ETWBC 2/2004 and 3/2006. Final locations of transplanted trees should be agreed prior to commencement of the work.	NA
S3.8.12		Control of night-time lighting.	^
S3.8.12		Erection of decorative screen hoarding.	^
	S7.9	<u>Construction Site Control</u> - CM1 - Minimized construction area and contractor's temporary works areas.	^
		- CM2- Control of night-time lighting and glare by hooding all lights.	^
		- CM3 - Erection of decorative mesh screens or construction	^

Implementation Schedule for Landscape and Visual Measures			
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		hoardings around works areas in visually unobtrusive colours.	
		- CM4 - Reduction of construction period to practical minimum.	^
		- CM5 - Limitation of / Ensuring no run-off into surrounding landscape and adjacent seawater areas.	^
		- CM6 - Temporary or advance landscape should be provided along the temporary access roads to the Cruise Terminal until such time as road D3 is open.	NA

Remarks:			
^	Compliance of mitigation measure.	X	Non-compliance of mitigation measure.
N/A	Not Applicable at this stage.	●	Non-compliance but rectified by the contractor.
N/A (1)	Not observed.		
*	Recommendation was made during site audit but improved/rectified by the contractor.	#	Recommendation was made during audit and to be improved/ rectified by the contractor.

Mitigation Measures undertaken by the Contractor for site inspections

			
Date:	09 February 2021	Date:	09 February 2021
Mitigation Measures:	Vehicle washing basin was provided.	Mitigation Measures:	Using drip tray to dispatch the diesel container.
			
Date:	18 February 2021	Date:	25 February 2021
Mitigation Measures:	Quiet PME was used.	Mitigation Measures:	The open stockpiles of construction materials on sites were covered.