Our ref: 12-5-2022

12-5-2022 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 2/2020
Environmental Monitoring Works for Contract No. ED/2018/05 – Kai Tak Development – Stage 5B Infrastructure Works at the Former North Apron Area
Submission of Monthly EM&A Report for April 2022 (Version 1.1)

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 April 2022 (Version 1.1), which has been 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 for April 2022 (Version 1.1)

ACUITY
SUSTAINABILITY
CONSULTING LIMITED

Website: www.acityhk.com
Unit E, 12/F., Ford Glory Plaza,
Nos. 37-39 Wing Hong Street,
Cheung Sha Wan, Kowloon
Tel. : (852) 2698 6833
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Date: 12 May 2022
Your ref:
Our ref: PL-202205012

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

Attn.: Mr. Vincent Lee, SRE

Dear Mr. Lee,

Re: Agreement No. EDO 6/2019
Independent Environmental Checker for Contract No. ED/2018/05 Kai Tak Development – Stage 5B Infrastructure Works at the Former North Apron Area
Verification of Monthly EM&A Report (April 2022)

Reference is made to the Monthly EM&A Report (April 2022) (Version 1.1) issued by the Environmental Team on 12 May 2022.

Please be informed that we have no adverse comment on the captioned submission. We hereby verify the Monthly EM&A Report (April 2022) in accordance with Condition 3.3 of Environmental Permit No. EP-337/2009.

Thank you for your attention.

Yours sincerely,
For and on behalf of
Acuity Sustainability Consulting Limited

Kevin Li
Independent Environmental Checker

c.c.	CEDD	Attn.: Mr. Albert Tse	By email
	Ka Shing	Attn.: Mr. Chan Pang (ETL)	By email

Environmental Monitoring and Audit Report

for

Contract No. ED/2018/05 –

Kai Tak Development – Stage 5B infrastructure works at the former north apron area

Contract No.: EDO 2/2020

April 2022

(Version 1.1)

Certified By: 

(Environmental Team Leader)

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EXECUTIVE SUMMARY

1. This is the 15th Monthly Environmental Monitoring & Audit (EM&A) report which summarises the findings of the EM&A Programme during the reporting period from 1 to 30 April 2022.

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

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 taken	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 undertake during the reporting month included:
   - ELS and excavation at Pier 9 for Elevated Walkway LW-02
   - Pile cap construction for PC9 and PC10 for Elevated Walkway LW-02
   - Erection of temporary decking across existing Kai Tak River
   - Underground utility diversion works at Sa Po Road
   - ELS and excavation at launching shaft for subway SB-01

- Construction works for Pedestrian Street No. 1, No. 2, No. 3 & No. 4
- Construction of Crowd Dispersal Route
- Construction works for Road L16
- Construction of DCS
- Post-pilling tests for H-piles at Subway KS10
- ELS and excavation for Subway KS10 Lift and Staircase
- Demolition works to existing subway KS10 staircase and ramp
- Renovation works for existing subways KS9 and KS32

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
Pile cap and column construction for Pier 9 and Pier 10 at Elevated Walkway LW-02	Noise and Air Quality
Erection of temporary deck across existing Kai Tak River	Noise and Air Quality
Construction of Crowd Dispersal Route	Noise and Air Quality
Construction of Road L16	Noise and Air Quality
Construction of DCS	Noise and Air Quality
Construction of Pedestrian Street No. 1, No. 2, No.3 & No.4	Noise and Air Quality
Underground utility diversion works at Sa Po Road	Noise and Air Quality
ELS and excavation for launching shaft for subway SB-01	Noise and Air Quality
Renovation works for existing subway KS9 and KS32	Noise and Air Quality
Twin rising main connection works	Noise and Air Quality

1. INTRODUCTION

Project Background

1.1 The Kai Tak Development (KTD) is located in the southern 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/2018/05 - Kai Tak Development – stage 5B infrastructure works at the former north apron area (The Project), comprises mainly the design and construction of a section of dual two-lane Road D1; single two-lane Road L9 and Road L16; a single-lane slip road S14; a pedestrian subway SB-01; an elevated walkway LW-02; renovation of the existing pedestrian subways KS9, KS10 and KS32, as well as modification of the southern end of the existing pedestrian subway KS10; associated footpaths, street lighting, traffic aids, drainage, sewerage, water mains, landscaping, electrical and mechanical works, and ancillary works. The proposed works are shown in Figure 1 and Figure 2. The proposed works and site boundary are shown in Figure 3 and Figure 4. Civil Engineering and Development Department (CEDD) had completed an Environmental Impact Assessment (EIA) and is the Permit Holder.

1.3 In accordance with the approved EIA Reports, Environmental Monitoring and Audit (EM&A) programmes are recommended to ensure compliance with the EIA study recommendations. The project proponent was the Civil Engineering and Development Department (CEDD). AECOM Asia Co. Ltd. (AECOM) was commissioned by CEDD as Supervisor (act as Engineers' Representative (ER) listed in EM&A Manual). Acuity Sustainability Consulting Limited (Acuity) was commissioned as the Independent Environmental Checker (IEC). Build King – STEC Joint Venture (Build King) was appointed as the main Contractor for the construction works of Contract No. ED/2018/05. Ka Shing was commissioned by CEDD to undertake the role of the Environmental Team (ET) to implement the EM&A programme for The Project.

1.4 The construction work under ED/2018/05 comprises the EM&A Manual (EIA Register No. AEIAR-130/2009 for Kai Tak Development) and Environmental Permit No. EP- 337/2009.

1.5 Air quality and noise monitoring has been proposed in the EM&A Manual with EIA Register No. AEIAR-130/2009 for Kai Tak Development.

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. George Ng	Senior Engineer	3842 7107	2739 0076
		Mr. Albert Tse	Engineer	3842 7137	2739 0076
		Mr. Perry Lo	Engineer	3842 7143	2739 0076
AECOM Asia Co. Ltd. (AECOM)	Supervisor (act as Engineers' Representative (ER) listed in EM&A Manual)	Ms. Mavis Law	SRE	2798 0771	2798 0783
Acuity Sustainability Consulting Limited (Acuity)	Independent Environmental Checker (IEC)	Mr. Kevin Li	IEC	2698 6833	2698 9383
Ka Shing Management Consultant Limited (Ka Shing)	Environmental Team (ET)	Ir. Chan Pang	ET Leader	2618 2166	2120 7752
Build King – STEC Joint Venture (BK-STEC)	Contractor	Mr. Raymond Lam	Environmental Officer	9713 6817	3850 8508

Works Area and Construction Programme

1.7 The construction works commenced on 16 February 2021.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

ELS and excavation at Pier 9 for Elevated Walkway LW-02	Construction of Crowd Dispersal Route
Pile cap construction for PC9 and PC10 for Elevated Walkway LW-02	Construction works for Road L16
Erection of temporary decking across existing Kai Tak River	Construction of DCS
Underground utility diversion works at Sa Po Road	Post-pilling tests for H-piles at Subway KS10
ELS and excavation at launching shaft for subway SB-01	ELS and excavation for Subway KS10 Lift and Staircase
Construction works for Pedestrian Street No. 1, No. 2, No. 3 & No. 4	Demolition works to existing subway KS10 staircase and ramp
Renovation works for existing subways KS9 and KS32	

Submission Status under the Environmental Permits

1.9 The status of required submission under Environmental Permit (EP) conditions under EP-337/2009 are summarized in Table 1.3.

Table 1.3 Summary of Status of Required Submission of EPs

EP Condition EP-337/2009	Submission	Submission Date
Condition 1.11	Notification of Commencement Date of Construction of the Project	12 Jan 2021
Condition 2.3	Management Organization of Main Construction Companies	21 Sep 2020
Condition 2.4	Design Drawings	12 Jan 2021
Condition 2.11	Landscape Mitigation Plans	17 Dec 2020
Condition 3.2	Baseline Monitoring Report	12 Jan 2021
Condition 3.3	Monthly EM&A Report (March 2022)	19 April 2022

2. AIR QUALITY MONITORING

Monitoring Requirements

2.1 In accordance with EM&A Manual (EIA Register No. 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 Two designated monitoring stations were selected for air quality monitoring programme. Impact air quality monitoring was conducted at two 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
AM2(A) – Ng Wah Catholic Secondary School	Rooftop
AM3 – Sky Tower	Podium floor near T7

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
AM2(A) – Ng Wah Catholic Secondary School	Rooftop	- 24-hour average TSP	- 24 hours	- Once every 6 days
AM3 – Sky Tower	Podium Floor near Tower 7	- 1-hour average TSP	- 1 hour	- Three times every 6 days

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	Calibration Interval
HVS Sampler	TE-5170 X c/w of TSP sampling inlet	2	2 months
HVS Calibrator	TISCH TE-5025A	1	1 year
1-hour TSP Dust Meter	TSI Model AM510 SidePak Personal Aerosol Monitor	2	1 year
Weather Station	Davis Vantage Pro2 Weather Station	1	6 months

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.
- 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 m^3/min. and 1.7 m^3/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" having 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 and then placed 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 HOKLAS accredited or other internationally accredited laboratory for weighting.

Maintenance/Calibration

2.18 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

2.19 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, spot check reading at each sampling location for data processing.
- Recorded any activities that may generate dust during measurement period.

Maintenance/Calibration

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

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

Wind Data Monitoring

2.21 Wind Anemometer was installed at the roof-top of AM2(A) – Ng Wah Catholic Secondary School with 10m above ground and clear of constructions or turbulence caused by the buildings.

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

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

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

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

Action and Limit Levels

2.26 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, $\mu g/m^3$	Limit Level, $\mu g/m^3$
24-hour average TSP	AM2(A)	175	260
	AM3	172	260

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

Parameter	Air Monitoring Station	Action Level, $\mu g/m^3$	Limit Level, $\mu g/m^3$
1-hour average TSP	AM2(A)	302	500
	AM3	301	500

Impact Air Quality Monitoring results

2.27 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, $\mu g/m^3$	Range, $\mu g/m^3$	Action Level, $\mu g/m^3$	Limit Level, $\mu g/m^3$
AM2(A)	73	42-127	175	260
AM3	69	27-102	172	260

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

Air Monitoring Station	Average TSP Concentration, $\mu g/m^3$	Range, $\mu g/m^3$	Action Level, $\mu g/m^3$	Limit Level, $\mu g/m^3$
AM2(A)	60	38-100	302	500
AM3	60	32-93	301	500

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

2.29 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.

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

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

2.32 Weather conditions during the monitoring periods were generally fine and did not affect the monitoring results.

3. NOISE MONITORING

Monitoring Requirements

3.1 In accordance with EM&A Manual (EIA Register No. 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 hrs on normal weekdays.

3.3 If construction works are extended to include works during 1900 – 0700 hrs 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
M4(A) – Le Billionnaire	Podium (Façade)
M5(A) – Prince Ritz	Podium (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
M4(A) – Le Billionnaire	Podium (Façade)	L_{Aeq}, L_{A10} and L_{A90}	30-minute measurement at each monitoring station between 0700 – 1900 hrs on normal weekdays (Monday to Saturday) at frequency of once per week.
M5(A) – Prince Ritz	Podium (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 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	Calibration Interval
Sound Level Meter	RION NL52	1	1 year
Sound Level Calibrator	RION NC 75	1	1 year
Air Flowmeter	TSI TA440 Air Velocity	1	1 year

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 of the sound level meter and calibrator were 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 hrs on normal weekdays	M4(A)	69.5	When one documented complaint is received.	75 dB(A)
	M5(A)	72.5		

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 designated 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 $L_{Aeq, 30\text{-}min}$, Average, dB(A)	Measured $L_{Aeq, 30\text{-}min}$, Range, dB(A)	Action Level	Limit Level ^
M4(A)	70.4	69.3 – 71.9	When one documented complaint is received	75 dB(A)
M5(A)	72.9	72.2 – 73.8		

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 was no Action and Limit Level exceedance of $L_{Aeq, 30\text{-}min}$ 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.

3.25 Weather conditions during the monitoring periods were generally fine and did not 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 No. 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 (April 2022) $\mu g/m^3$
		Scenario 1 (Mid 2009 to Mid 2013), $\mu g/m^3$	Scenario 2 (Mid 2013 to Late 2016), $\mu g/m^3$	
AM2(A) - Ng Wah Catholic Secondary School	NA	NA	NA	42 – 127
AM3 - Sky Tower	A40^	106^	138^	27 – 102

Note:
^ Prediction results are given in the Table 3.13 of the EIA report EIA Register No. 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 (April 2022) $\mu g/m^3$
		Scenario 1 (Mid 2009 to Mid 2013), $\mu g/m^3$	Scenario 2 (Mid 2013 to Late 2016), $\mu g/m^3$	
AM2(A) - Ng Wah Catholic Secondary School	NA	NA	NA	38 – 100
AM3 - Sky Tower	A40^	217^	247^	32 – 93

Note:
^ Prediction results are given in the Table 3.13 of the EIA report EIA Register No. 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 (April 2022) $L_{Aeq, 30min}$, dB(A)
M4(A) – Le Billionnaire	NA	NA	69.3 – 71.9
M5(A) – Prince Ritz	NA	NA	72.2 – 73.8

4.2 No prediction in the EIA Report for 24-hour TSP monitoring results at AM2(A).

4.3 24-hour TSP monitoring results at AM3 was recorded lower than the prediction in the EIA Report.

4.4 No prediction in the EIA Report for 1-hour TSP monitoring results at AM2(A).

4.5 1-hour TSP monitoring results at AM3 was recorded lower than the prediction in the EIA Report.

4.6 No prediction in the EIA Report for noise monitoring results at M4(A) and M5(A).

5. LANDSCAPE AND VISUAL MONITORING

5.1 In accordance with EM&A Manual (EIA Register No. AEIAR-130/2009), 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 7, 14, 21 and 28 April 2022 in the reporting month.

5.4 The summary of site audits is 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
7 April 2022	No	NA	NA
14 April 2022	No	NA	NA
21 April 2022	No	NA	NA
28 April 2022	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

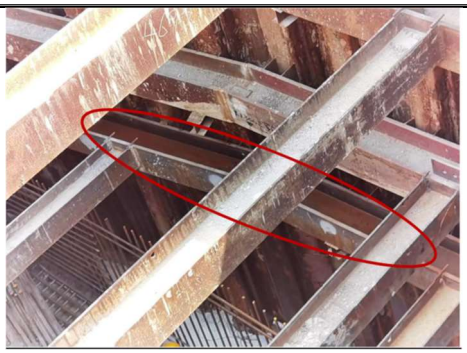
Site Inspection

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 7, 14, 21 and 28 April 2022 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
7 April 2022	 Observation: Stagnant water was observed on the I-beam in LW02.	 Action Taken: Stagnant water was removed.	Closed out on 14 April 2022
14 April 2022	 Observation: The NRMM label for the excavator was missed, please ensure the label should be properly placed.	 Action Taken: The NRMM label has been shown on the excavator.	Closed out on 21 April 2022

Inspection Date	Key Observations	Recommendations / Actions	Close-out Date / Status
21 April 2022	 Observation: Stockpiles should be fully covered by impermeable sheeting to reduce dust emission in SB01	 Action taken: Stockpiles has been removed.	Closed out on 28 April 2022
	 Observation: Secondary container shall be provided for the diesel drum to prevent soil contamination in LW02.	 Action Taken: Secondary container has been provided for the diesel drum.	
	 Observation: Water overflow observed in sedimentation tank.	 Action Taken: Normal condition observed in sedimentation tank.	

Inspection Date	Key Observations	Recommendations / Actions	Close-out Date / Status
28 April 2022	 Observation: The QPME label for the generator was missed. Please ensure the label should be properly placed.	 Action Taken: The QPME label has been shown on the excavator.	5 May 2022

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.

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
Construction Dust Notification under APCO	HA/1826/1	29 Dec 2020	N/A
Waste Disposal Billing Account	7038086	21 Aug 2020	N/A
Registration as a Chemical Waste	5111-286-B2596-01	15 Sep 2020	N/A

Environmental Licenses, Notifications and Permits	Ref. No.	Valid Form	Valid Till
Producer			
Wastewater Discharge License under WPCO	WT00037618-2021	29 Mar 2021	31 Mar 2026
	WT00037370-2021		
	WT00038562-2021	15 July 2021	31 July 2026
Construction Noise Permit	GW-RE1261-21	22 Dec 2021	19 June 2022
	GW-RE1275-21	30 Dec 2021	19 June 2022
	GW-RE0291-22	6 Apr 2022	20 Jun 2022

Implementation Status of Environmental Mitigation Measures

6.7 The Contractor has implemented environmental mitigation measures and requires as stated in the EIA report, the EP and the EM&A Manual. The implementation status of the mitigation measures is summarized in Appendix O.

Environmental Complaint and Non-compliance

6.8 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 compliant	Description of complaint	Recommendations / Action taken	Close-out date / Status
No complaint was received in the reporting month.	NA	NA	NA	NA

6.9 Complaint log is shown in Appendix P.

Notifications of summons and successful prosecutions

6.10 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 taken	Close-out date / Status
No notification of summons and successful prosecutions were received in the reporting month.	NA	NA	NA	NA

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

7. FUTURE KEY ISSUES

Construction Programme in the coming month

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

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

Future key issues in the coming month	Potential impact
Pile cap and column construction for Pier 9 and Pier 10 at Elevated Walkway LW-02	Noise and Air Quality
Erection of temporary deck across existing Kai Tak River	Noise and Air Quality
Construction of Crowd Dispersal Route	Noise and Air Quality
Construction of Road L16	Noise and Air Quality
Construction of DCS	Noise and Air Quality
Construction of Pedestrian Street No. 1, No. 2, No.3 & No.4	Noise and Air Quality
Underground utility diversion works at Sa Po Road	Noise and Air Quality
ELS and excavation for launching shaft for subway SB-01	Noise and Air Quality
Renovation works for existing subway KS9 and KS32	Noise and Air Quality
Twin rising main connection 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.

7.3 The recommended environmental measures proposed in the EM&A Manual (EIA Register No. AEIAR-130/2009) shall be effectively implemented to minimize the potential environmental impacts. The Contractor is reminded to implement the mitigation measures properly.

Environmental Site Inspection and Monitoring Schedule for next month

7.4 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.

8.7 Based on the site inspection and audits, impact air quality and noise monitoring results, it was considered that the mitigation measures were effective to control the potential environmental impacts from the Project during the reporting period.

Figure

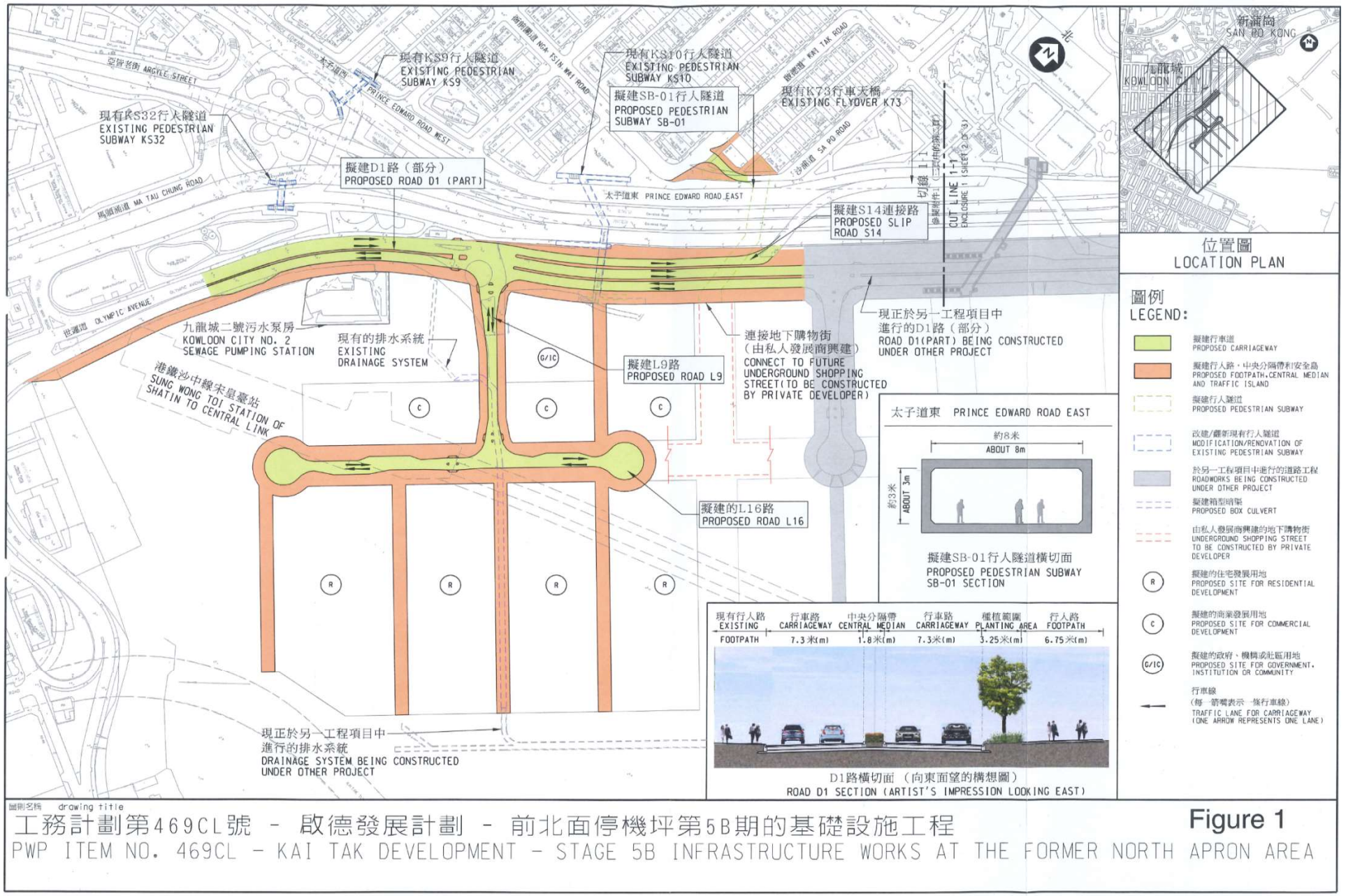


Figure 1 – Proposed works of Contract No. ED/2018/05

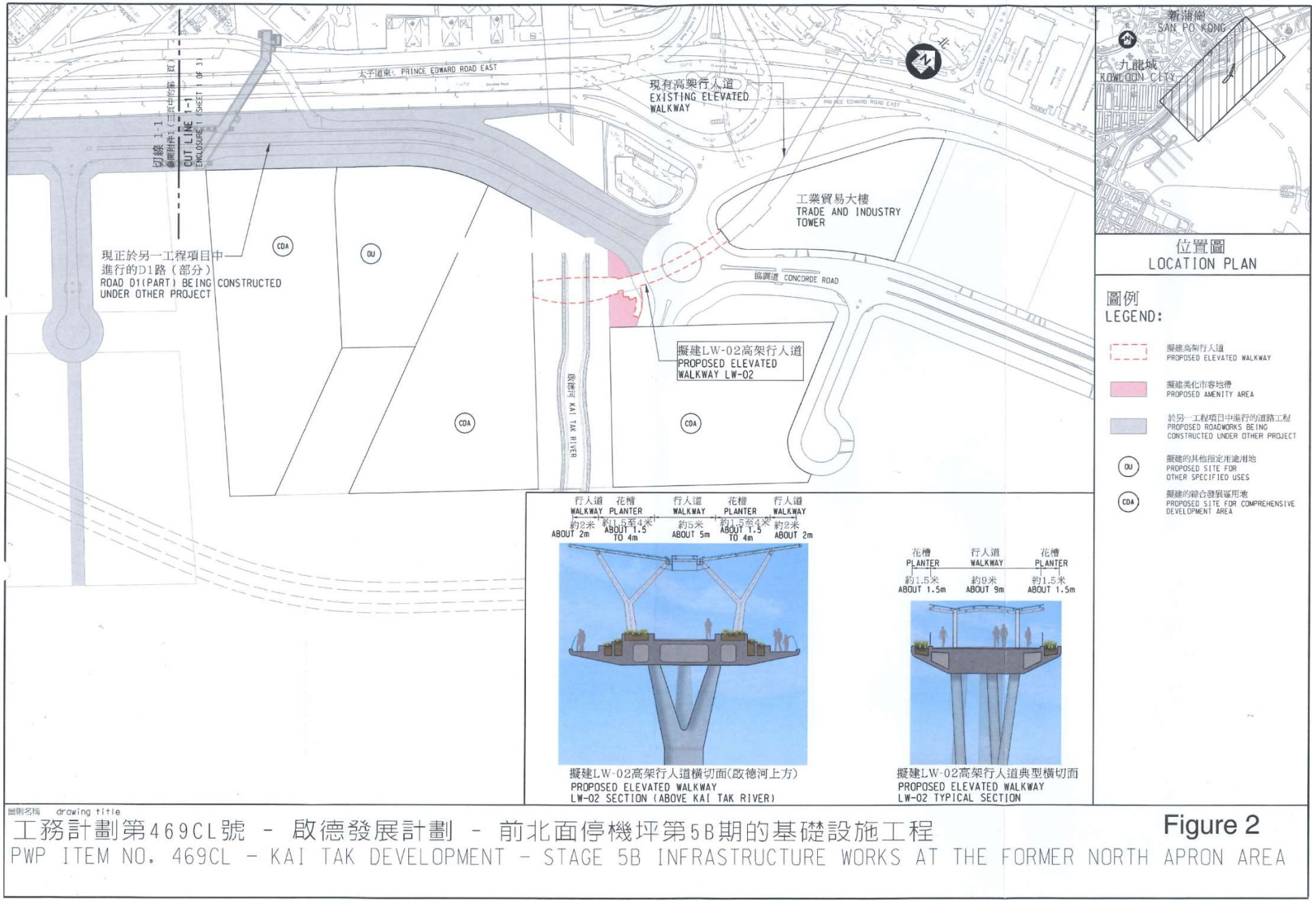


Figure 2 – Proposed works of Contract No. ED/2018/05

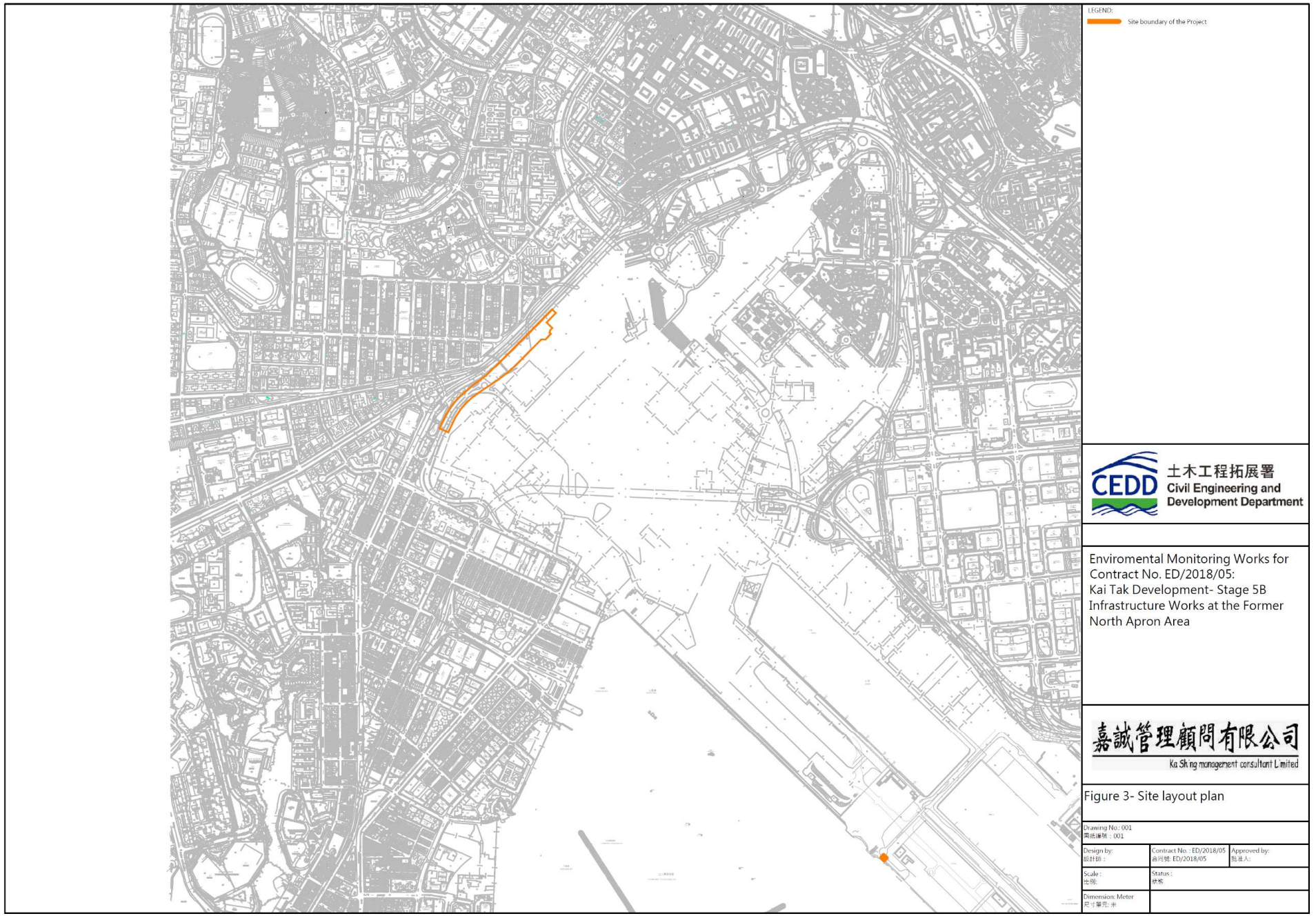


Figure 3 – D1 Road Site Layout Plan

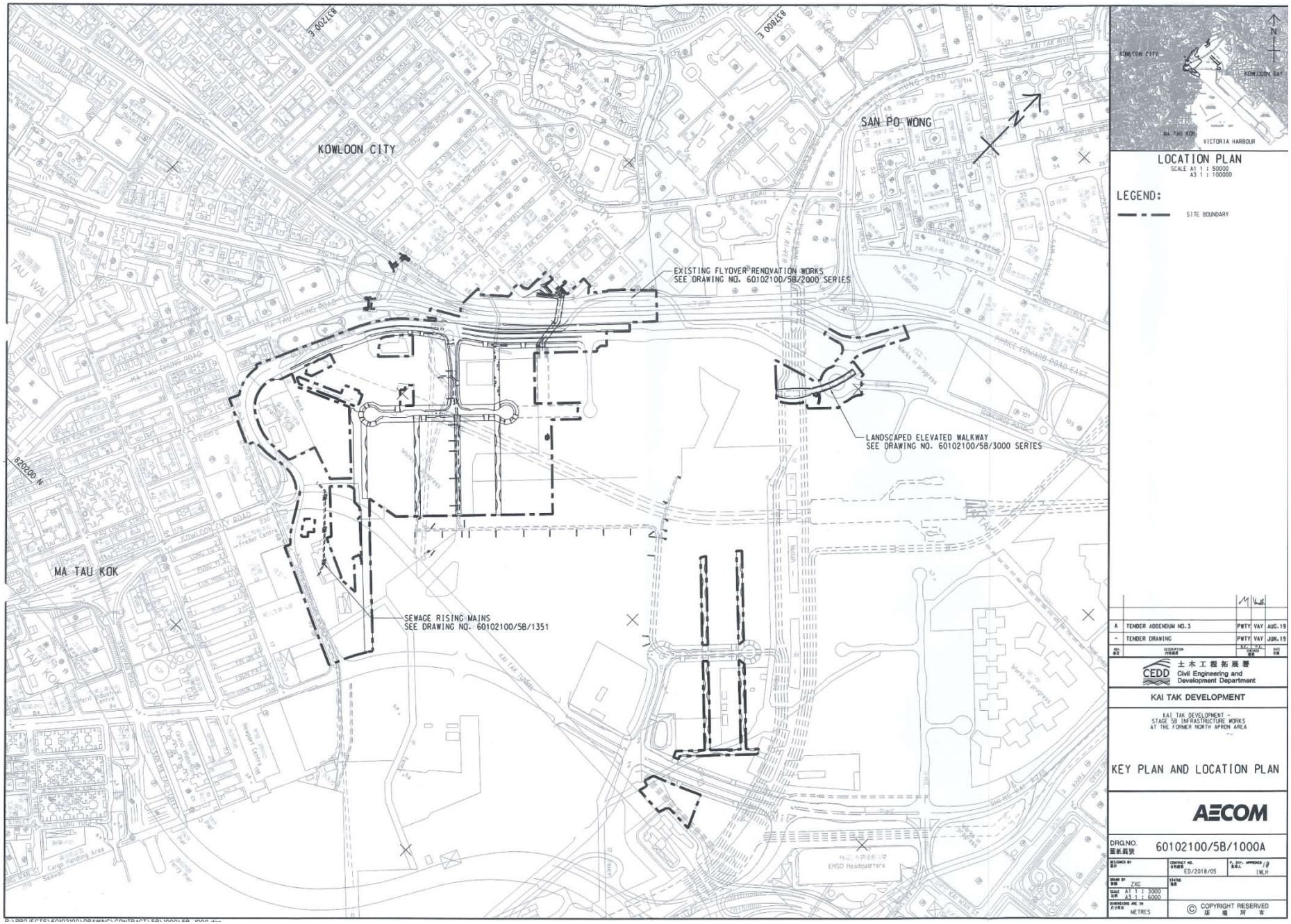


Figure 4 – Site Layout Plan

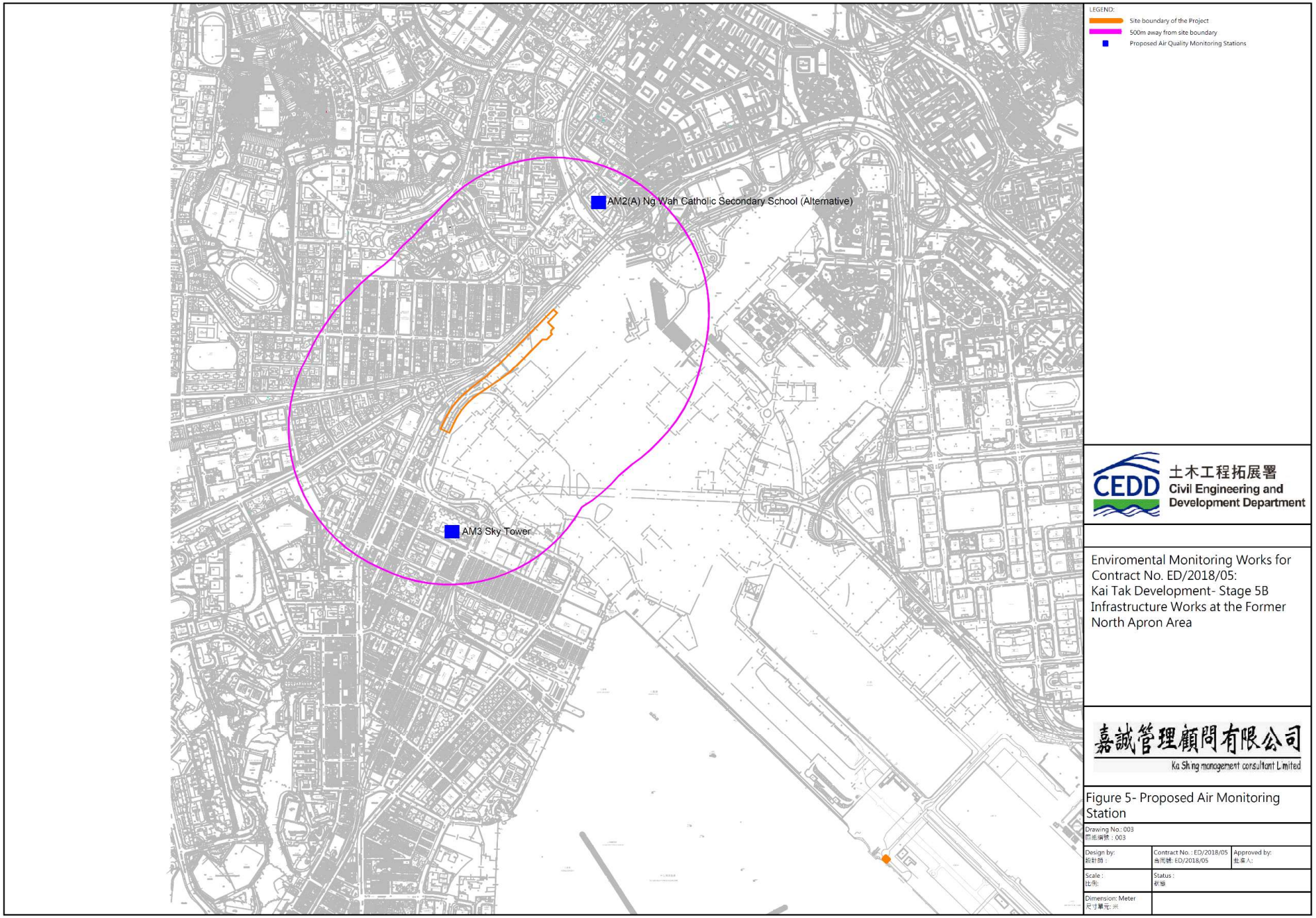


Figure 5 – Air Quality Monitoring Stations

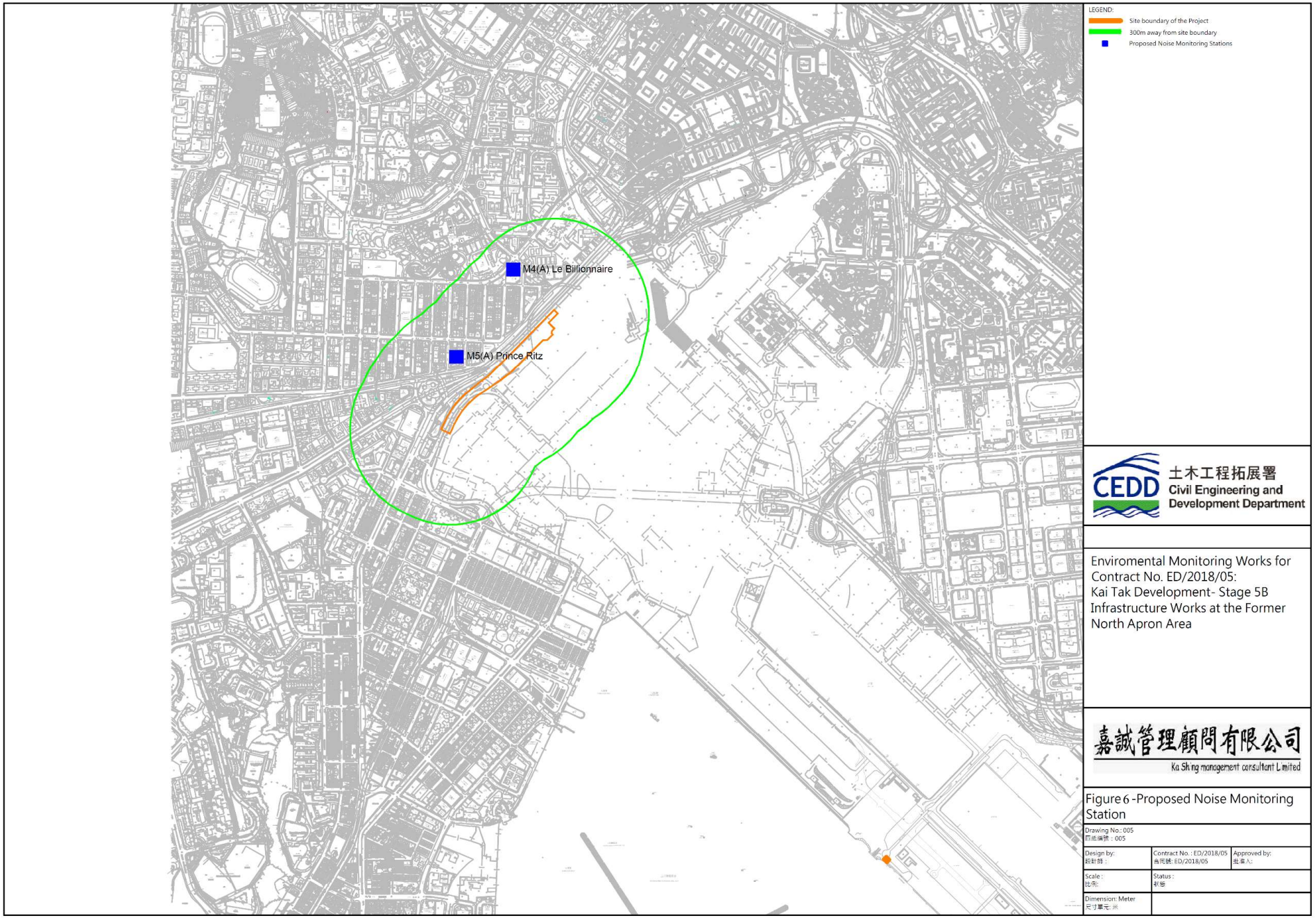
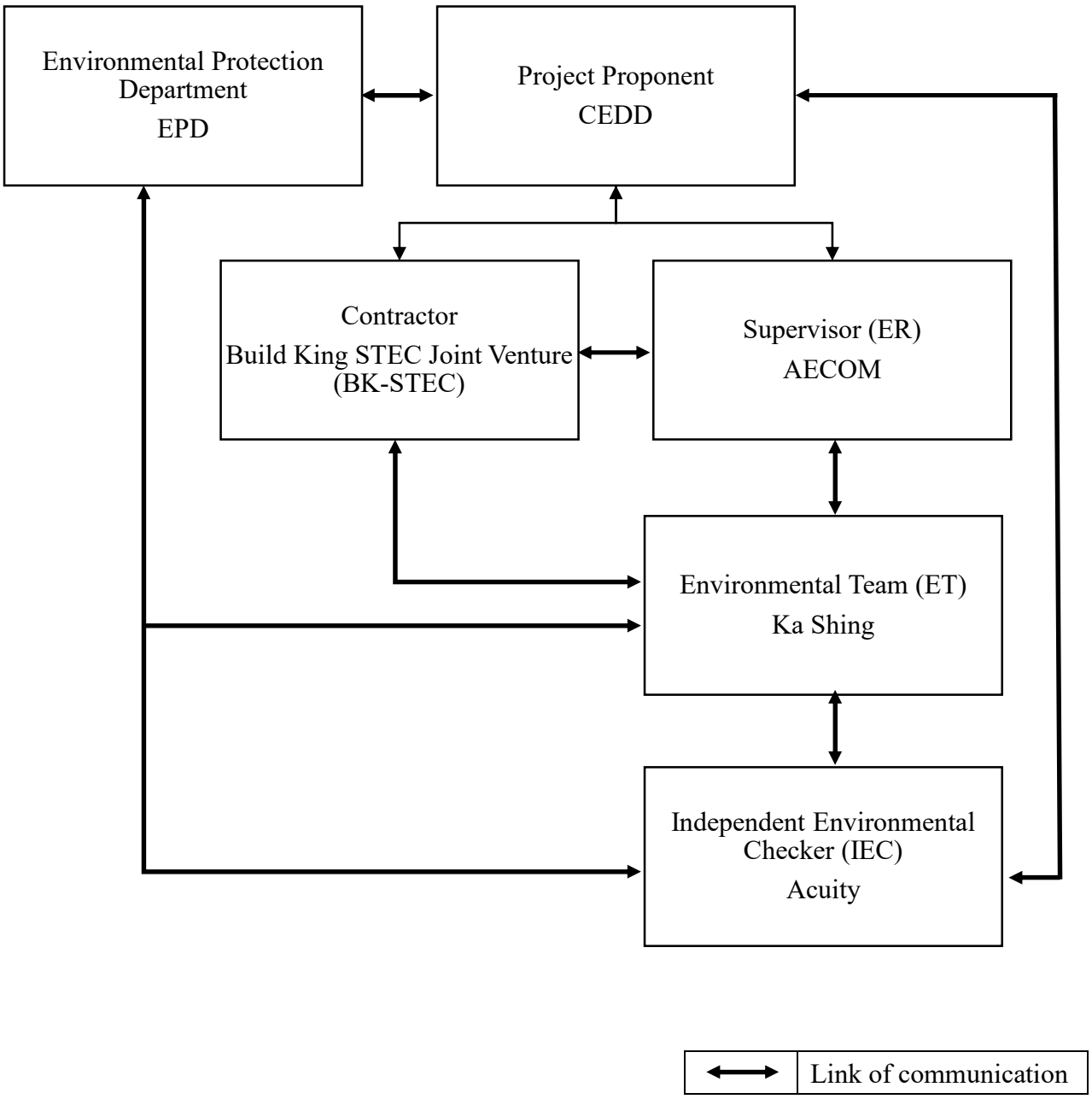


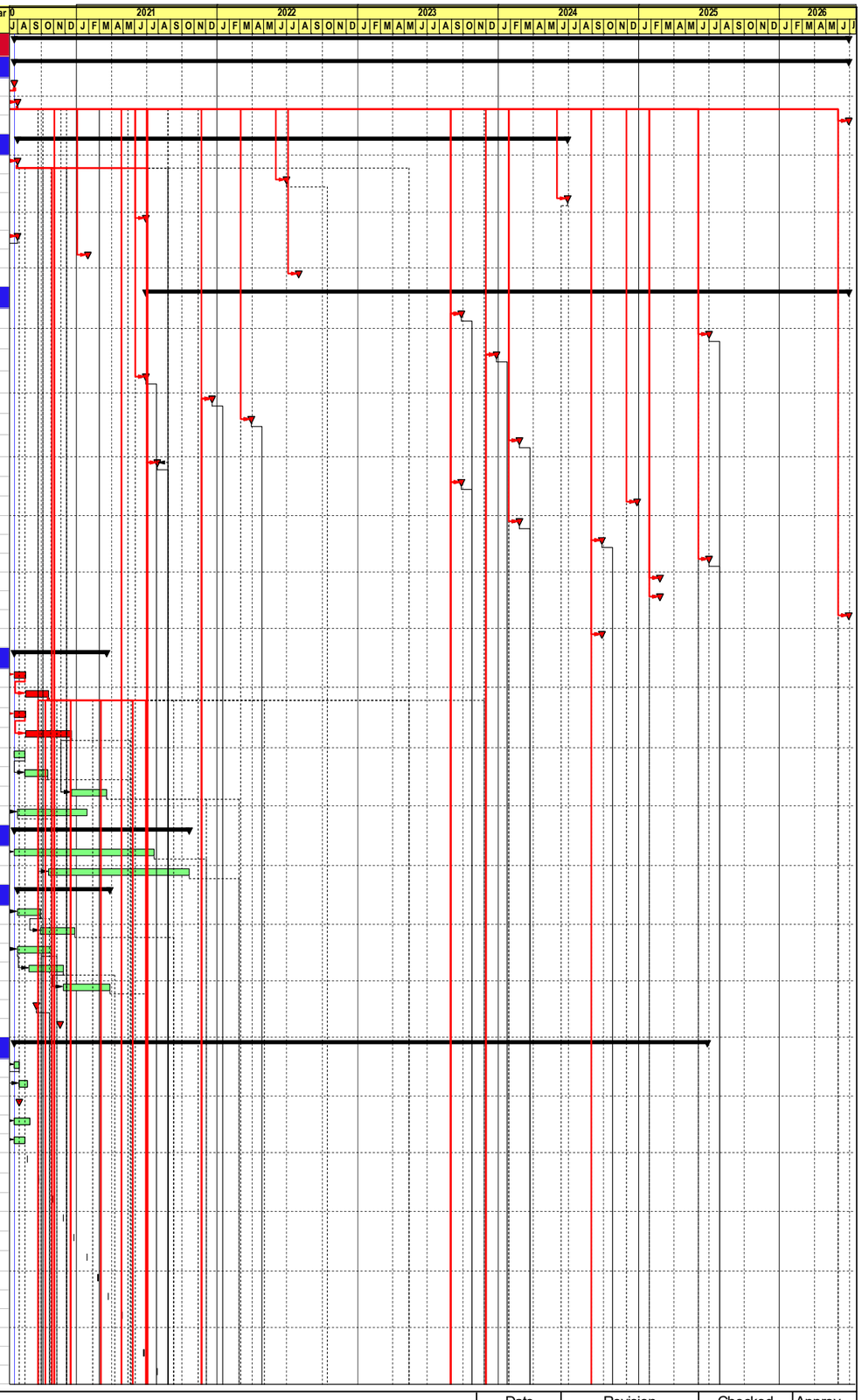
Figure 6 – Noise Monitoring Stations

Appendix A – Organization Chart of EM&A Team


Environmental Protection Department
EPD
Project Proponent
CEDD
Contractor
Build King STEC Joint Venture (BK-STEC)
Supervisor (ER)
AECOM
Environmental Team (ET)
Ka Shing
Independent Environmental Checker (IEC)
Acuity
Link of communication

Appendix B – Construction Programme

Activity ID	Activity Name	Dur (d)	Ori. Dur (d)	TRA (d)	Early Start	Early Finish	Late Start	Late Finish	Total Float	Calendar
KAI TAK DEVELOPMENT - STAGE 5B INFRASTRUCTURE WORKS AT THE FORMER NORTH APRON AREA		2170			22-Jul-20	30-Jun-26	22-Jul-20	30-Jun-26	0	
KEY DATES		2170			22-Jul-20	30-Jun-26	22-Jul-20	30-Jun-26	0	2
KTD.KD.1000	Contract date	0	0d	0d	22-Jul-20		22-Jul-20		0	2
KTD.KD.1010	Contract starting date	0	0d	0d	31-Jul-20		31-Jul-20		0	2
KTD.KD.1020	Contract completion date	0	0d	0d		30-Jun-26		30-Jun-26	0	2
ACCESS DATES		1429			31-Jul-20	29-Jun-24	31-Jul-20	29-Jun-24	0	2
KTD.KD.1030	Parts 1, 1A, 1B, 2, 3, 4, 7, 8 and 9	0	0d	0d	31-Jul-20		31-Jul-20		0	2
KTD.KD.1040	Part 5	0	0d	0d	30-Jun-22		30-Jun-22		0	2
KTD.KD.1050	Part 6	0	0d	0d	29-Jun-24		29-Jun-24		0	2
KTD.KD.1060	Part 6A	0	0d	0d	30-Jun-21		30-Jun-21		0	2
KTD.KD.1070	Works Areas WA1, WA2, WA3, WA4, WA5, WA6 and WA7	0	0d	0d	31-Jul-20		31-Jul-20		0	2
KTD.KD.1080	Part 10 and Works Area WA4A	0	0d	0d	29-Jan-21		29-Jan-21		0	2
KTD.KD.1090	Works Area WA8	0	0d	0d	31-Jul-22		31-Jul-22		0	2
CONTRACT SECTIONAL COMPLETION DATES		1826			30-Jun-21	30-Jun-26	30-Jun-21	30-Jun-26	0	2
KTD.KD.1100	Section 1:Compl of all works within Parts 1 and 8 and Elevated Landscaped Walkway LW-02	0	0d	0d		26-Sep-23		26-Sep-23	0	2
KTD.KD.1110	Section 2:Compl of all works within Parts 1B, 6A and 7 and remaining works of all Parts	0	0d	0d		30-Jun-25		30-Jun-25	0	2
KTD.KD.1120	Section 3:Compl of all works within Parts 1A and 5 and drainage and sewage works within Part 6	0	0d	0d		27-Dec-23		27-Dec-23	0	2
KTD.KD.1130	Section 4:Compl of all UU and services within Part 4	0	0d	0d		30-Jun-21		30-Jun-21	0	2
KTD.KD.1140	Section 5:Compl of all UU and services within Part 3, rising mains diversion & demolition of ext. structures	0	0d	0d		17-Dec-21		17-Dec-21	0	2
KTD.KD.1150	Section 6:Compl of all works within Part 2 and Part 10	0	0d	0d		29-Mar-22		29-Mar-22	0	2
KTD.KD.1160	Section 7:Compl of all works within Part 3 (Subj to excision within 416days from starting date)	0	0d	0d		25-Feb-24		25-Feb-24	0	2
KTD.KD.1170	Section 8:Compl of all Box Culvert B1 within Parts 1 and 3 and diversion and abandon works	0	0d	0d		29-Jul-21		29-Jul-21	0	2
KTD.KD.1180	Section 9:Compl of DCS works within Parts 1 and 1A (Subj to excision within 239days from starting date)	0	0d	0d		26-Sep-23		26-Sep-23	0	2
KTD.KD.1190	Section 10:Compl of establ work for all landscape works(except Sections 14, 15 and 16)	0	0d	0d		26-Dec-24		26-Dec-24	0	2
KTD.KD.1200	Section 11:Compl of all works within Part 4 (Subj to excision within 244days from starting date)	0	0d	0d		25-Feb-24		25-Feb-24	0	2
KTD.KD.1210	Section 12:Compl of all SB-01 within Part 1A	0	0d	0d		25-Sep-24		25-Sep-24	0	2
KTD.KD.1220	Section 13:Compl of all works within Part 6	0	0d	0d		30-Jun-25		30-Jun-25	0	2
KTD.KD.1230	Section 14:Compl of estab work for landscape works within Part 3 (Subj to excision within 416days from starting date)	0	0d	0d		24-Feb-25		24-Feb-25	0	2
KTD.KD.1240	Section 15:Compl of estab work for landscape works within Part 4 (Subj to excision within 244days from starting date)	0	0d	0d		24-Feb-25		24-Feb-25	0	2
KTD.KD.1250	Section 16:Compl of establ work for landscape works within Part 6	0	0d	0d		30-Jun-26		30-Jun-26	0	2
KTD.KD.1260	Section 17:Compl of establ work for landscape works under Section 1	0	0d	0d		25-Sep-24		25-Sep-24	0	2
DESIGN, SUBMISSIONS, PERMIT APPLICATION & APPROVAL		240			22-Jul-20	18-Mar-21	22-Jul-20	24-Feb-22	343	2
KTD.KD.1270	Prepare/submission of temporary works design	30	30d	0d	22-Jul-20	20-Aug-20	22-Jul-20	20-Aug-20	0	2
KTD.KD.1280	Consultation/approval of temporary works design	60	60d	0d	21-Aug-20	19-Oct-20	21-Aug-20	19-Oct-20	0	2
KTD.KD.1290	Prepare/submit Temp Geotechnical&Structural Works to HyD/TD/CEDD/GEO and others (incl SB-01 by RTBM, etc.)	30	30d	0d	22-Jul-20	20-Aug-20	22-Jul-20	20-Aug-20	0	2
KTD.KD.1300	Consult/approve Temp Geotechnical&Structural Works by HyD/TD/CEDD/GEO and others (incl SB-01 by RTBM, etc.)	120	120d	0d	21-Aug-20	18-Dec-20	21-Aug-20	18-Dec-20	0	2
KTD.KD.1310	Prepare/submission of Temporary Drainage and Sewerage Management Plan to DSD/CEDD and others	29	29d	0d	22-Jul-20	19-Aug-20	23-Jul-20	20-Aug-20	1	2
KTD.KD.1320	Consultation/approval of Temporary Drainage and Sewerage Management Plan by DSD/CEDD and others	60	60d	0d	20-Aug-20	18-Oct-20	21-Aug-20	19-Oct-20	1	2
KTD.KD.1330	Application/approval of CNP for night works by relevant authorities and liaison with projects nearby	90	90d	0d	19-Dec-20	18-Mar-21	27-Nov-21	24-Feb-22	343	2
KTD.KD.1340	Application/approval of permits or other statutory submissions by relevant authorities (i.e. CEDD,HyD,WSD,XPMS & EPD)	180	180d	0d	31-Jul-20	26-Jan-21	03-Sep-20	01-Mar-21	34	2
PROCUREMENT, FABRICATION AND DELIVERY		455			22-Jul-20	19-Oct-21	31-Dec-20	26-Mar-22	158	2
KTD.KD.1350	Design, procurement, fabrication and delivery of RTBM	365	365d	0d	22-Jul-20	21-Jul-21	31-Dec-20	30-Dec-21	162	2
KTD.KD.1360	Procurement, fabrication, delivery of temporary steel lining casting and pre-assembly	365	365d	0d	20-Oct-20	19-Oct-21	27-Mar-21	26-Mar-22	158	2
TEMPORARY TRAFFIC MANGEMENT		240			31-Jul-20	27-Mar-21	12-Sep-20	29-Mar-22	367	2
KTD.KD.1370	Prepare/Submit/Consult/Approval of TTA for loading/unloading at Sa Po Road and Concorde Road roundabout	60	46d	14d	31-Jul-20	28-Sep-20	21-Mar-21	19-May-21	233	2
KTD.KD.1380	Prepare/Submit/Consult/Approval of TTA for working platform erection crossing Concorde Road roundabout	90	76d	14d	29-Sep-20	27-Dec-20	30-Dec-21	29-Mar-22	457	2
KTD.KD.1390	Prepare/Submit/Consult/Approval of TTA for GI/diversion/preliminary works at PERE and Sa Po Road	90	76d	14d	31-Jul-20	28-Oct-20	12-Sep-20	10-Dec-20	43	2
KTD.KD.1400	Prepare/Submit/Consult/Approval of TTA for 2-staged Sa Po Road and PERE W/B diversion	90	76d	14d	30-Aug-20	27-Nov-20	07-Feb-21	07-May-21	161	2
KTD.KD.1410	Prepare/Submit/Consult/Approval of TTA for road and drainage works along Olympic Avenue	120	106d	14d	28-Nov-20	27-Mar-21	02-Nov-21	01-Mar-22	339	2
KTD.KD.2180	1st TMLG Meeting	0				18-Sep-20		18-Sep-20	0	2
KTD.KD.2220	2nd TMLG Meeting	0				19-Nov-20		19-Nov-20	0	2
CONSTRUCTION HEALTH AND SAFETY MANAGEMENT		1801			22-Jul-20	26-Jun-25	23-Jul-20	26-Jun-25	0	2
KTD.KD.1420	Prepare/submit of Draft Safety Plan	13	13d	0d	22-Jul-20	03-Aug-20	23-Jul-20	04-Aug-20	1	2
KTD.KD.1430	Prepare/submit Safety Plan	21	21d	0d	04-Aug-20	24-Aug-20	05-Aug-20	25-Aug-20	1	2
KTD.KD.1440	Conduct meeting to discuss Draft Safety Plan	0	0d	0d		03-Aug-20		03-Aug-20	0	2
KTD.KD.1450	Prepare/submit Site Traffic Safety Management Plan	41	41d	0d	22-Jul-20	31-Aug-20	23-Jul-20	01-Sep-20	1	2
KTD.KD.1460	Prepare/submit Construction Health and Safety Plan	29	29d	0d	22-Jul-20	19-Aug-20	23-Jul-20	20-Aug-20	1	2
KTD.KD.1470	1st SSMC Meeting	1	1d	0d	26-Aug-20	26-Aug-20	26-Aug-20	26-Aug-20	0	2
KTD.KD.1480	2nd SSMC Meeting	1	1d	0d	23-Sep-20	23-Sep-20	23-Sep-20	23-Sep-20	0	2
KTD.KD.1490	3rd SSMC Meeting	1	1d	0d	29-Oct-20	29-Oct-20	29-Oct-20	29-Oct-20	0	2
KTD.KD.1500	4th SSMC Meeting	1	1d	0d	26-Nov-20	26-Nov-20	26-Nov-20	26-Nov-20	0	2
KTD.KD.1510	5th SSMC Meeting	1	1d	0d	24-Dec-20	24-Dec-20	24-Dec-20	24-Dec-20	0	2
KTD.KD.1520	6th SSMC Meeting	1	1d	0d	28-Jan-21	28-Jan-21	28-Jan-21	28-Jan-21	0	2
KTD.KD.1530	7th SSMC Meeting	1	1d	0d	25-Feb-21	25-Feb-21	25-Feb-21	25-Feb-21	0	2
KTD.KD.1540	8th SSMC Meeting	1	1d	0d	24-Mar-21	24-Mar-21	24-Mar-21	24-Mar-21	0	2
KTD.KD.1550	9th SSMC Meeting	1	1d	0d	29-Apr-21	29-Apr-21	29-Apr-21	29-Apr-21	0	2
KTD.KD.1560	10th SSMC Meeting	1	1d	0d	27-May-21	27-May-21	27-May-21	27-May-21	0	2
KTD.KD.1570	11th SSMC Meeting	1	1d	0d	24-Jun-21	24-Jun-21	24-Jun-21	24-Jun-21	0	2
KTD.KD.1580	12th SSMC Meeting	1	1d	0d	29-Jul-21	29-Jul-21	29-Jul-21	29-Jul-21	0	2



▽ Milestone
▼ Critical Milestone
Critical Work
Planned W...
Summary

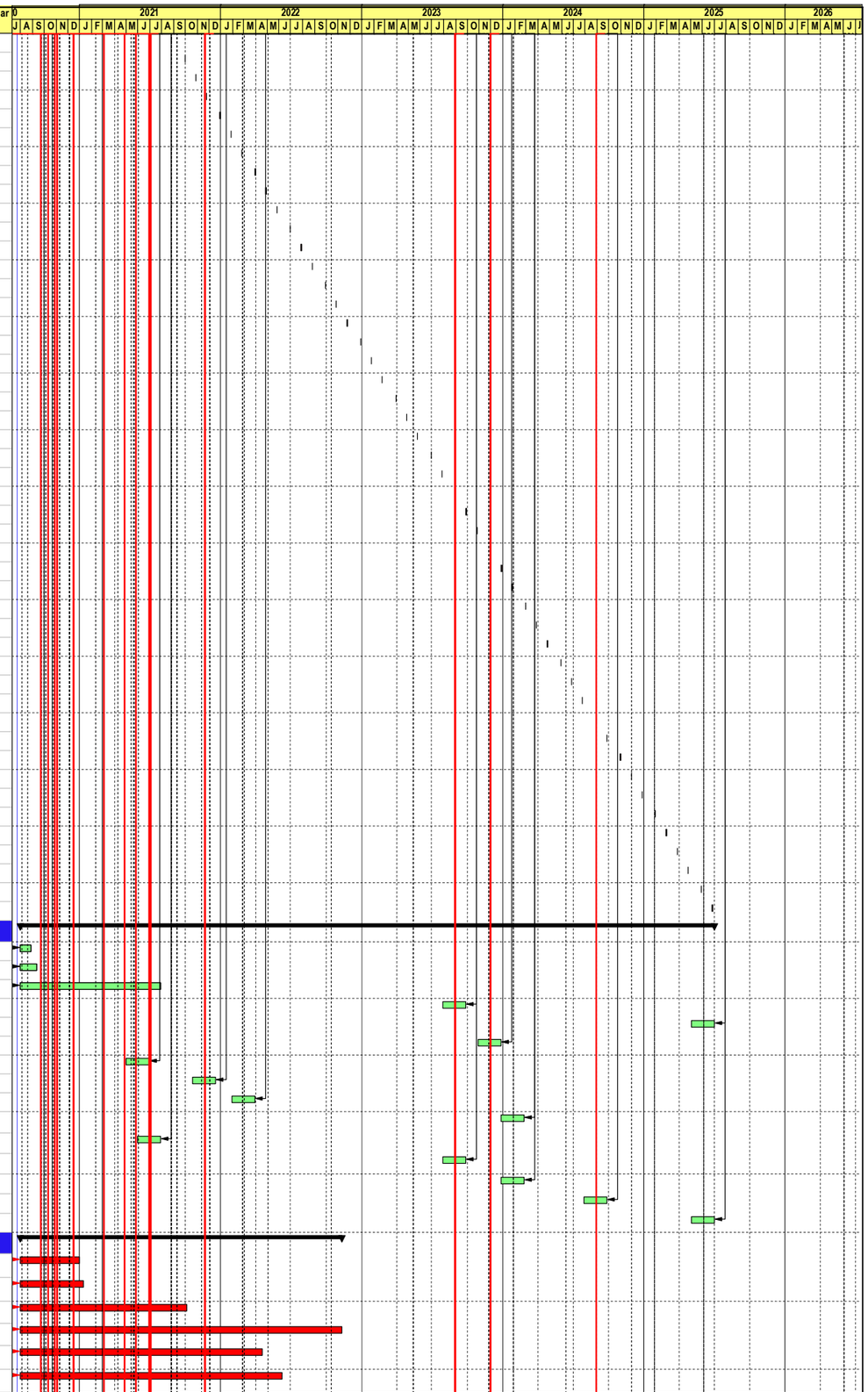
Build King – STEC Joint Venture

ED/2018/05 Kai Tak Development - Stage 5B Infrastructure Works at the Former North Apron Area

WORKS PROGRAMME

Date	Revision	Checked	Approv...
21-Aug-20	Revision 1	LC	GC
10-Oct-20	Revision 2	LC	GC
18-Nov-20	Revision 3	LC	GC

Activity ID	Activity Name	Dur (d)	Ori. Dur (d)	TRA (d)	Early Start	Early Finish	Late Start	Late Finish	Total Float	Calendar
KTD.KD.1590	13th SSMC Meeting	1	1d	0d	26-Aug-21	26-Aug-21	26-Aug-21	26-Aug-21	0	2
KTD.KD.1600	14th SSMC Meeting	1	1d	0d	30-Sep-21	30-Sep-21	30-Sep-21	30-Sep-21	0	2
KTD.KD.1610	15th SSMC Meeting	1	1d	0d	28-Oct-21	28-Oct-21	28-Oct-21	28-Oct-21	0	2
KTD.KD.1620	16th SSMC Meeting	1	1d	0d	25-Nov-21	25-Nov-21	25-Nov-21	25-Nov-21	0	2
KTD.KD.1630	17th SSMC Meeting	1	1d	0d	30-Dec-21	30-Dec-21	30-Dec-21	30-Dec-21	0	2
KTD.KD.1640	18th SSMC Meeting	1	1d	0d	27-Jan-22	27-Jan-22	27-Jan-22	27-Jan-22	0	2
KTD.KD.1650	19th SSMC Meeting	1	1d	0d	24-Feb-22	24-Feb-22	24-Feb-22	24-Feb-22	0	2
KTD.KD.1660	20th SSMC Meeting	1	1d	0d	31-Mar-22	31-Mar-22	31-Mar-22	31-Mar-22	0	2
KTD.KD.1670	21st SSMC Meeting	1	1d	0d	28-Apr-22	28-Apr-22	28-Apr-22	28-Apr-22	0	2
KTD.KD.1680	22nd SSMC Meeting	1	1d	0d	26-May-22	26-May-22	26-May-22	26-May-22	0	2
KTD.KD.1690	23rd SSMC Meeting	1	1d	0d	30-Jun-22	30-Jun-22	30-Jun-22	30-Jun-22	0	2
KTD.KD.1700	24th SSMC Meeting	1	1d	0d	28-Jul-22	28-Jul-22	28-Jul-22	28-Jul-22	0	2
KTD.KD.1710	25th SSMC Meeting	1	1d	0d	25-Aug-22	25-Aug-22	25-Aug-22	25-Aug-22	0	2
KTD.KD.1720	26th SSMC Meeting	1	1d	0d	29-Sep-22	29-Sep-22	29-Sep-22	29-Sep-22	0	2
KTD.KD.1730	27th SSMC Meeting	1	1d	0d	27-Oct-22	27-Oct-22	27-Oct-22	27-Oct-22	0	2
KTD.KD.1740	28th SSMC Meeting	1	1d	0d	24-Nov-22	24-Nov-22	24-Nov-22	24-Nov-22	0	2
KTD.KD.1750	29th SSMC Meeting	1	1d	0d	29-Dec-22	29-Dec-22	29-Dec-22	29-Dec-22	0	2
KTD.KD.1760	30th SSMC Meeting	1	1d	0d	26-Jan-23	26-Jan-23	26-Jan-23	26-Jan-23	0	2
KTD.KD.1770	31st SSMC Meeting	1	1d	0d	23-Feb-23	23-Feb-23	23-Feb-23	23-Feb-23	0	2
KTD.KD.1780	32nd SSMC Meeting	1	1d	0d	30-Mar-23	30-Mar-23	30-Mar-23	30-Mar-23	0	2
KTD.KD.1790	33rd SSMC Meeting	1	1d	0d	27-Apr-23	27-Apr-23	27-Apr-23	27-Apr-23	0	2
KTD.KD.1800	34th SSMC Meeting	1	1d	0d	25-May-23	25-May-23	25-May-23	25-May-23	0	2
KTD.KD.1810	35th SSMC Meeting	1	1d	0d	29-Jun-23	29-Jun-23	29-Jun-23	29-Jun-23	0	2
KTD.KD.1820	36th SSMC Meeting	1	1d	0d	27-Jul-23	27-Jul-23	27-Jul-23	27-Jul-23	0	2
KTD.KD.1830	37th SSMC Meeting	1	1d	0d	31-Aug-23	31-Aug-23	31-Aug-23	31-Aug-23	0	2
KTD.KD.1840	38th SSMC Meeting	1	1d	0d	28-Sep-23	28-Sep-23	28-Sep-23	28-Sep-23	0	2
KTD.KD.1850	39th SSMC Meeting	1	1d	0d	26-Oct-23	26-Oct-23	26-Oct-23	26-Oct-23	0	2
KTD.KD.1860	40th SSMC Meeting	1	1d	0d	30-Nov-23	30-Nov-23	30-Nov-23	30-Nov-23	0	2
KTD.KD.1870	41st SSMC Meeting	1	1d	0d	28-Dec-23	28-Dec-23	28-Dec-23	28-Dec-23	0	2
KTD.KD.1880	42nd SSMC Meeting	1	1d	0d	25-Jan-24	25-Jan-24	25-Jan-24	25-Jan-24	0	2
KTD.KD.1890	43rd SSMC Meeting	1	1d	0d	29-Feb-24	29-Feb-24	29-Feb-24	29-Feb-24	0	2
KTD.KD.1900	44th SSMC Meeting	1	1d	0d	28-Mar-24	28-Mar-24	28-Mar-24	28-Mar-24	0	2
KTD.KD.1910	45th SSMC Meeting	1	1d	0d	25-Apr-24	25-Apr-24	25-Apr-24	25-Apr-24	0	2
KTD.KD.1920	46th SSMC Meeting	1	1d	0d	30-May-24	30-May-24	30-May-24	30-May-24	0	2
KTD.KD.1930	47th SSMC Meeting	1	1d	0d	27-Jun-24	27-Jun-24	27-Jun-24	27-Jun-24	0	2
KTD.KD.1940	48th SSMC Meeting	1	1d	0d	25-Jul-24	25-Jul-24	25-Jul-24	25-Jul-24	0	2
KTD.KD.1950	49th SSMC Meeting	1	1d	0d	29-Aug-24	29-Aug-24	29-Aug-24	29-Aug-24	0	2
KTD.KD.1960	50th SSMC Meeting	1	1d	0d	26-Sep-24	26-Sep-24	26-Sep-24	26-Sep-24	0	2
KTD.KD.1970	51st SSMC Meeting	1	1d	0d	31-Oct-24	31-Oct-24	31-Oct-24	31-Oct-24	0	2
KTD.KD.1980	52nd SSMC Meeting	1	1d	0d	28-Nov-24	28-Nov-24	28-Nov-24	28-Nov-24	0	2
KTD.KD.1990	53rd SSMC Meeting	1	1d	0d	26-Dec-24	26-Dec-24	26-Dec-24	26-Dec-24	0	2
KTD.KD.2000	54th SSMC Meeting	1	1d	0d	30-Jan-25	30-Jan-25	30-Jan-25	30-Jan-25	0	2
KTD.KD.2010	55th SSMC Meeting	1	1d	0d	27-Feb-25	27-Feb-25	27-Feb-25	27-Feb-25	0	2
KTD.KD.2020	56th SSMC Meeting	1	1d	0d	27-Mar-25	27-Mar-25	27-Mar-25	27-Mar-25	0	2
KTD.KD.2030	57th SSMC Meeting	1	1d	0d	24-Apr-25	24-Apr-25	24-Apr-25	24-Apr-25	0	2
KTD.KD.2040	58th SSMC Meeting	1	1d	0d	29-May-25	29-May-25	29-May-25	29-May-25	0	2
KTD.KD.2050	59th SSMC Meeting	1	1d	0d	26-Jun-25	26-Jun-25	26-Jun-25	26-Jun-25	0	2
BIM RELATED DELIVERABLES		1796			31-Jul-20	30-Jun-25	01-Aug-20	30-Jun-26	365	2
KTD.KD.2060	Prepare/submit BIM Execution Plan	29	29d	0d	31-Jul-20	28-Aug-20	01-Aug-20	29-Aug-20	1	2
KTD.KD.2070	Prepare/submit Combined Services Drawings and CBWD generated from BIM	44	44d	0d	31-Jul-20	12-Sep-20	01-Aug-20	13-Sep-20	1	2
KTD.KD.2080	Prepare/submit proposal of asset information requirement	364	364d	0d	31-Jul-20	29-Jul-21	01-Aug-20	30-Jul-21	1	2
KTD.KD.2090	Prepare/submit Asset Data Deliverables for Section 1	60	60d	0d	29-Jul-23	26-Sep-23	02-May-26	30-Jun-26	1008	2
KTD.KD.2100	Prepare/submit Asset Date Deliverables for Section 2	60	60d	0d	02-May-25	30-Jun-25	02-May-26	30-Jun-26	365	2
KTD.KD.2110	Prepare/submit Asset Date Deliverables for Section 3	60	60d	0d	29-Oct-23	27-Dec-23	02-May-26	30-Jun-26	916	2
KTD.KD.2120	Prepare/submit Asset Date Deliverables for Section 4	60	60d	0d	02-May-21	30-Jun-21	02-May-26	30-Jun-26	1826	2
KTD.KD.2130	Prepare/submit Asset Date Deliverables for Section 5	60	60d	0d	19-Oct-21	17-Dec-21	02-May-26	30-Jun-26	1656	2
KTD.KD.2140	Prepare/submit Asset Date Deliverables for Section 6	60	60d	0d	29-Jan-22	29-Mar-22	02-May-26	30-Jun-26	1554	2
KTD.KD.2150	Prepare/submit Asset Date Deliverables for Section 7	60	60d	0d	28-Dec-23	25-Feb-24	02-May-26	30-Jun-26	856	2
KTD.KD.2160	Prepare/submit Asset Date Deliverables for Section 8	60	60d	0d	31-May-21	29-Jul-21	02-May-26	30-Jun-26	1797	2
KTD.KD.2170	Prepare/submit Asset Date Deliverables for Section 9	60	60d	0d	29-Jul-23	26-Sep-23	02-May-26	30-Jun-26	1008	2
KTD.KD.2190	Prepare/submit Asset Date Deliverables for Section 11	60	60d	0d	28-Dec-23	25-Feb-24	02-May-26	30-Jun-26	856	2
KTD.KD.2200	Prepare/submit Asset Date Deliverables for Section 12	60	60d	0d	28-Jul-24	25-Sep-24	02-May-26	30-Jun-26	643	2
KTD.KD.2210	Prepare/submit Asset Date Deliverables for Section 13	60	60d	0d	02-May-25	30-Jun-25	02-May-26	30-Jun-26	365	2
VALUE-ENGINEERING SHCEME DROP-OFF SCHEDULE		833			31-Jul-20	10-Nov-22	31-Jul-20	10-Nov-22	0	2
KTD.VE.1000	Review/prepare/submit VE scheme for permanent concrete segment for Pedestrian Subway SB-01	153	96d	0d	31-Jul-20	30-Dec-20	31-Jul-20	30-Dec-20	0	2
KTD.VE.1010	Review/prepare/submit VE scheme for alternative alignment for Pedestrian Subway SB-01	165	133d	0d	31-Jul-20	11-Jan-21	31-Jul-20	11-Jan-21	0	2
KTD.VE.1020	Review/prepare/submit VE scheme for piling arrangement for new pier of existing Bridge K73	431	426d	0d	01-Aug-20	05-Oct-21	01-Aug-20	05-Oct-21	0	2
KTD.VE.1030	Review/prepare/submit VE scheme for piling arrangement for abutment of Slip Road S14	832	752d	0d	01-Aug-20	10-Nov-22	01-Aug-20	10-Nov-22	0	2
KTD.VE.1040	Review/prepare/submit VE scheme for piling arrangement for lift shaft of KS10	627	766d	0d	01-Aug-20	19-Apr-22	01-Aug-20	19-Apr-22	0	2
KTD.VE.1050	Review/prepare/submit VE scheme for piling arrangement for lift shaft and staircase of LW-02	677	288d	0d	31-Jul-20	07-Jun-22	31-Jul-20	07-Jun-22	0	2



Milestone
Critical Milestone
Critical Work
Planned W...
Summary

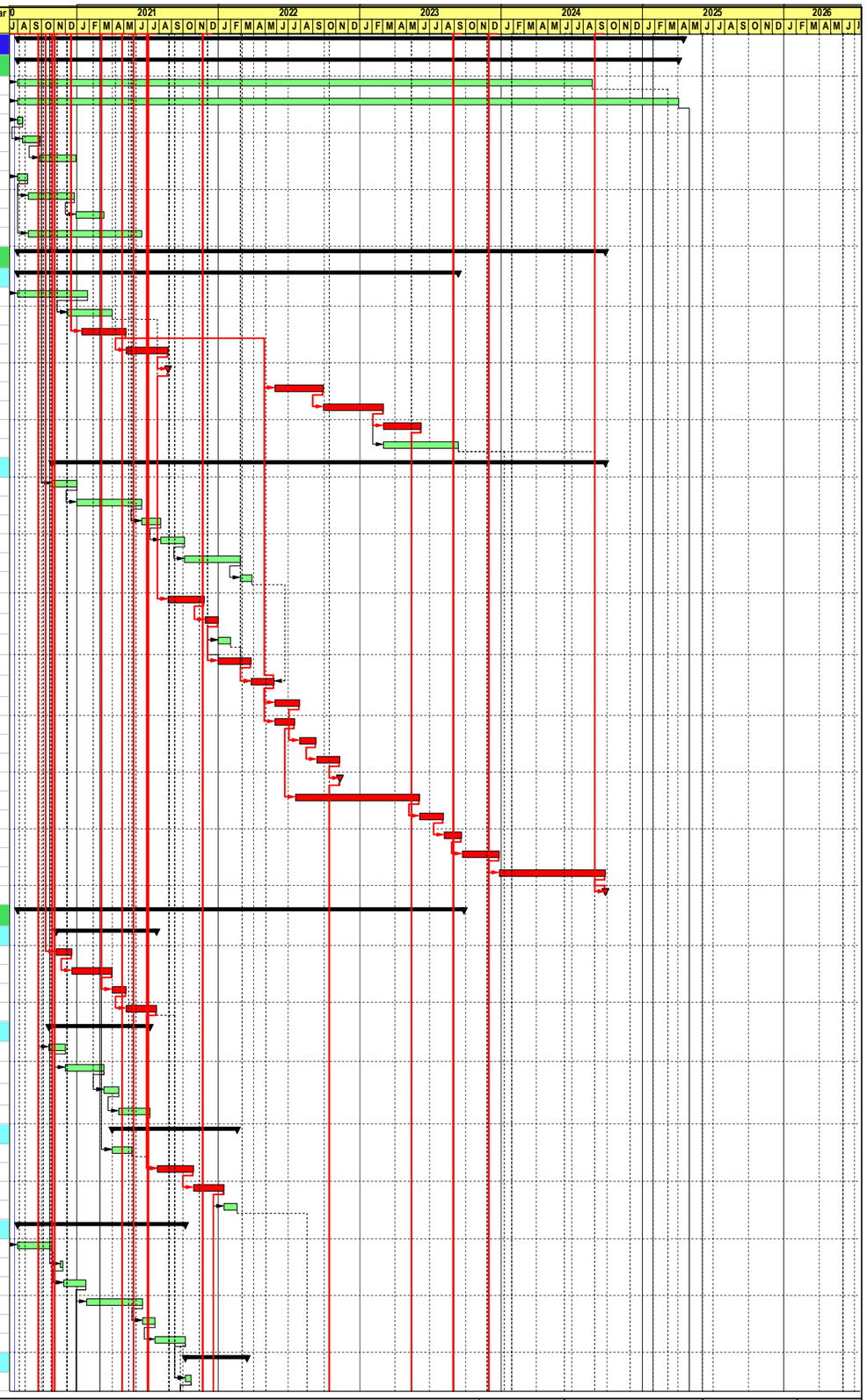
Build King – STEC Joint Venture

ED/2018/05 Kai Tak Development - Stage 5B Infrastructure Works at the Former North Apron Area

WORKS PROGRAMME

Date	Revision	Checked	Approv...
21-Aug-20	Revision 1	LC	GC
10-Oct-20	Revision 2	LC	GC
18-Nov-20	Revision 3	LC	GC

Activity ID	Activity Name	Dur (d)	Ori. Dur (d)	TRA (d)	Early Start	Early Finish	Late Start	Late Finish	Total Float	Calendar
CIVIL AND STRUCTURAL WORKS		1720			31-Jul-20	15-Apr-25	31-Jul-20	30-Jun-26	441	
GENERAL AND PRELIMINARY WORKS		1708			31-Jul-20	03-Apr-25	01-Aug-20	30-Jun-26	453	
KTD.GW.1000	General and preliminary works (inclu site formation, site set-up, access, temp drain. sys, ground investigation and etc)	1200	1200d	0d	31-Jul-20	22-Aug-24	07-Jun-21	30-Jun-25	248	1
KTD.GW.1010	Construction, maintenance and removal of ICA, EVA, Crowd Dispersal Route and other temporary access	1383	1383d	0d	31-Jul-20	03-Apr-25	17-Oct-20	30-Jun-25	65	1
KTD.GW.1020	Prepare/submit site arrangement plan (inclu hoarding, project sign board and security arrangement)	13	13d	0d	31-Jul-20	12-Aug-20	01-Aug-20	13-Aug-20	1	2
KTD.GW.1030	Design/submit/approval site layout plan and Contractor's site accommodation using MiC method	44	30d	14d	13-Aug-20	25-Sep-20	14-Aug-20	26-Sep-20	1	2
KTD.GW.1040	Construct foundation and erect Contractor's site accommodation	76	62d	14d	26-Sep-20	29-Dec-20	03-Apr-26	30-Jun-26	1630	1
KTD.GW.1050	Tree Survey	27	27d	0d	31-Jul-20	26-Aug-20	01-Aug-20	27-Aug-20	1	2
KTD.GW.1055	Initial tree survey report and tree felling application	120	120d	0d	27-Aug-20	24-Dec-20	23-Dec-25	21-Apr-26	1944	2
KTD.GW.1060	Tree felling works	60	53d	7d	28-Dec-20	11-Mar-21	22-Apr-26	30-Jun-26	1572	1
KTD.GW.1070	Protection to retained trees and tree transplating works	234	208d	26d	27-Aug-20	17-Jun-21	25-Sep-25	30-Jun-26	1498	1
CONSTRUCTION OF PEDESTRIAN SUBWAY SB-01		1518			31-Jul-20	25-Sep-24	11-Dec-20	25-Sep-24	0	
PEDESTRIAN SUBWAY SB-01 UNDER PERE AND PROPOSED ROAD D1 USING CUT AND COVER METHOD		1138			31-Jul-20	11-Sep-23	29-Dec-20	27-Dec-23	107	
KTD.SB.1000	Liaison/coordinate with utility and service undertakings on diversion works (including CLP, DCS work and etc.)	180	180d	0d	31-Jul-20	26-Jan-21	29-Dec-20	26-Jun-21	151	2
KTD.SB.1010	Expose and install protect/support system for existing underground utilities and services (incl 132kV and 400kV cables)	91	84d	7d	07-Dec-20	01-Apr-21	06-May-21	23-Aug-21	115	1
KTD.SB.1020	Installation of sheet piles for South Shaft and construction of traffic deck at Proposed Road D1	89	75d	14d	12-Jan-21	07-May-21	12-Jan-21	07-May-21	0	1
KTD.SB.1030	Construction of road diversion for PERE westbound diversion (TTA Scheme B1)	89	75d	14d	08-May-21	23-Aug-21	08-May-21	23-Aug-21	0	1
KTD.SB.1040	Implementation of traffic diversion for PERE westbound	0	0d	0d		23-Aug-21		23-Aug-21	0	1
KTD.SB.1050	Installation of ELS and excavation for South Shaft at Proposed Road D1	104	132d	12d	26-May-22	28-Sep-22	26-May-22	28-Sep-22	0	1
KTD.SB.1060	Construction of RC structure from CH114.648 to CH67	126	114d	12d	29-Sep-22	03-Mar-23	29-Sep-22	03-Mar-23	0	1
KTD.SB.1070	Backfilling for South Shaft at Proposed Road D1	78	64d	14d	04-Mar-23	09-Jun-23	04-Mar-23	09-Jun-23	0	1
KTD.SB.1080	Installation of steelworks, ABWF, other facilities, lift and other E&M installation	156	130d	26d	04-Mar-23	11-Sep-23	21-Jun-23	27-Dec-23	87	1
PEDESTRIAN SUBWAY SB-01 UNDER PERE AND SA PO ROAD USING TRENCHLESS METHOD		1428			29-Oct-20	25-Sep-24	11-Dec-20	25-Sep-24	0	
KTD.SB.1090	Construction of road diversion of Sa Po Road (TTA Scheme A1, incl. carriageway and footpath)	52	46d	6d	29-Oct-20	30-Dec-20	11-Dec-20	16-Feb-21	37	1
KTD.SB.1100	Diversion of existing underground utilities and services (incl. DN1800 drain pipe, 11kV cables and etc.)	130	118d	12d	31-Dec-20	16-Jun-21	17-Feb-21	30-Jul-21	37	1
KTD.SB.1110	Installation of partial pipe pile and sheet pile of North Shaft and traffic deck at Sa Po Road	40	37d	3d	17-Jun-21	03-Aug-21	31-Jul-21	15-Sep-21	37	1
KTD.SB.1120	Construction of road diversion of Sa Po Road (TTA Scheme A2, inclu. carriageway and footpath)	52	46d	6d	04-Aug-21	05-Oct-21	16-Sep-21	18-Nov-21	37	1
KTD.SB.1130	Installation of Remaining ELS and excavation of North Shaft at Sa Po Road	116	104d	12d	06-Oct-21	25-Feb-22	19-Nov-21	11-Apr-22	37	1
KTD.SB.1140	Ground improvement works at North Shaft at Sa Po Road for RTBM drive-in	26	24d	2d	26-Feb-22	28-Mar-22	12-Apr-22	17-May-22	37	1
KTD.SB.1150	Installation of ELS and excavation for Intermediate Shaft at PERE westbound and tunneling setup	78	72d	6d	24-Aug-21	25-Nov-21	24-Aug-21	25-Nov-21	0	1
KTD.SB.1160	Ground improvement works at Intermediate Shaft at PERE westbound for break-in	27	24d	3d	27-Nov-21	30-Dec-21	27-Nov-21	30-Dec-21	0	1
KTD.SB.1170	Conduct seismic geophysical survey for PERE and other site investigation works	26	24d	2d	31-Dec-21	31-Jan-22	25-Feb-22	26-Mar-22	44	1
KTD.SB.1180	Mobilization, assembly and SAT of RTBM at Intermediate Shaft at PERE westbound	70	64d	6d	31-Dec-21	26-Mar-22	31-Dec-21	26-Mar-22	0	1
KTD.SB.1190	Launching of RTBM towards North Shaft at Sa Po Road from CH57 to CH17 (38m, 1.5m/day)	60	48d	12d	27-Mar-22	25-May-22	27-Mar-22	25-May-22	0	2
KTD.SB.1200	Dismantling of RTBM and removal from Intermediate Shaft at PERE westbound	54	52d	2d	26-May-22	29-Jul-22	26-May-22	29-Jul-22	0	1
KTD.SB.1210	Installation of horizontal pipe pile and excavation from CH14 to CH17 (74nos HPP, 270m3 exca)	43	37d	6d	26-May-22	16-Jul-22	26-May-22	16-Jul-22	0	1
KTD.SB.1220	Construction of RC structure at Intermediate Shaft at PERE westbound from CH57 to CH67	36	30d	6d	30-Jul-22	09-Sep-22	30-Jul-22	09-Sep-22	0	1
KTD.SB.1230	Backfilling for Intermediate Shaft at PERE westbound and reinstatement of existing road at PERE westbound	48	42d	6d	13-Sep-22	09-Nov-22	13-Sep-22	09-Nov-22	0	1
KTD.SB.1240	Remove TTA and resume traffic at PERE westbound	0	0d	0d		09-Nov-22		09-Nov-22	0	1
KTD.SB.1250	Construction of RC structure at North Shaft at Sa Po Road and from CH15 to CH57	260	236d	24d	18-Jul-22	03-Jun-23	18-Jul-22	03-Jun-23	0	1
KTD.SB.1260	Backfilling for North Shaft at Sa Po Road	52	46d	6d	05-Jun-23	05-Aug-23	05-Jun-23	05-Aug-23	0	1
KTD.SB.1270	Installation of ELS and excavation for remaining staircase and escalator trough structure	40	33d	6d	07-Aug-23	21-Sep-23	07-Aug-23	21-Sep-23	0	1
KTD.SB.1280	Construction of remaining staircase and escalator trough structure and backfilling	78	64d	14d	22-Sep-23	27-Dec-23	22-Sep-23	27-Dec-23	0	1
KTD.SB.1290	Installation of steelworks, ABWF, other facilities, lift, escalator and other E&M installation	221	200d	21d	28-Dec-23	25-Sep-24	28-Dec-23	25-Sep-24	0	1
KTD.SB.1300	Planned Completion of Pedestrian Subway SB-01 (Related to Section 12)	0	0d	0d		25-Sep-24		25-Sep-24	0	1
CONSTRUCTION OF ELEVATED WALKWAY LW-02		1153			31-Jul-20	26-Sep-23	07-Nov-20	26-Sep-23	0	
PIER 10		206			07-Nov-20	24-Jul-21	07-Nov-20	24-Jul-21	0	1
KTD.LW.1080	Pre-drilling works (2 nos, 1 rig)	35	33d	2d	07-Nov-20	17-Dec-20	07-Nov-20	17-Dec-20	0	1
KTD.LW.1090	Piling works for bored piles (2nos, 2200dia x 67m, 1 rig)	80	75d	5d	18-Dec-20	31-Mar-21	18-Dec-20	31-Mar-21	0	1
KTD.LW.1100	Installation of ELS and excavation for pile cap construction (273.5m3 exca, 1 team)	26	22d	4d	01-Apr-21	06-May-21	01-Apr-21	06-May-21	0	1
KTD.LW.1110	Construction of RC structure (pile cap & pier column) (149m3, 1 team)	65	53d	12d	07-May-21	24-Jul-21	07-May-21	24-Jul-21	0	1
PIER 9		206			20-Oct-20	07-Jul-21	07-Nov-20	24-Jul-21	15	1
KTD.LW.1000	Pre-drilling works (2 nos, 1 rig)	35	33d	2d	20-Oct-20	30-Nov-20	07-Nov-20	17-Dec-20	15	1
KTD.LW.1010	Piling works for bored piles (2nos, 2200dia x 67m, 1 rig)	80	75d	5d	01-Dec-20	10-Mar-21	18-Dec-20	31-Mar-21	15	1
KTD.LW.1020	Installation of ELS and excavation for pile cap construction (520.5m3 exca, 1 team)	26	22d	4d	11-Mar-21	17-Apr-21	01-Apr-21	06-May-21	15	1
KTD.LW.1030	Construction of RC structure (pile cap & pier column) (184m3, 1 team)	65	53d	12d	19-Apr-21	07-Jul-21	07-May-21	24-Jul-21	15	1
FOOTBRIDGE (PIER 9 TO PIER 10)		323			01-Apr-21	17-Feb-22	04-Jun-21	13-Sep-22	208	
KTD.LW.1040	Piling works for temp. pre-bored H-piles (12 nos, 610dia x 69m, 2 rigs)	52	42d	10d	01-Apr-21	22-May-21	04-Jun-21	25-Jul-21	64	2
KTD.LW.1050	Installation and erecting temp. working platform	78	52d	26d	26-Jul-21	27-Oct-21	26-Jul-21	27-Oct-21	0	1
KTD.LW.1060	Construction of RC bridge structure (1079m3, 4 teams)	65	50d	15d	28-Oct-21	14-Jan-22	28-Oct-21	14-Jan-22	0	1
KTD.LW.1070	Prestressing works	26	26d	0d	15-Jan-22	17-Feb-22	12-Aug-22	13-Sep-22	168	1
PIER 11		433			31-Jul-20	06-Oct-21	27-Feb-21	29-Mar-22	174	
KTD.LW.1120	Liaison/coordinate with adjacent project for TTA arrangement	90	90d	0d	31-Jul-20	28-Oct-20	27-Feb-21	27-May-21	211	2
KTD.LW.1130	Implementation of TTA	7	7d	0d	18-Nov-20	25-Nov-20	20-May-21	27-May-21	142	1
KTD.LW.1140	Pre-drilling works (4 nos, 1 rig)	48	46d	2d	26-Nov-20	23-Jan-21	28-May-21	24-Jul-21	142	1
KTD.LW.1150	Piling works for bored piles (4nos, 1800dia x 78m, 1 rig)	112	100d	12d	25-Jan-21	18-Jun-21	26-Jul-21	06-Dec-21	142	1
KTD.LW.1160	Installation of ELS and excavation for pile cap construction (319.9m3 exca, 1 team)	26	22d	4d	19-Jun-21	20-Jul-21	07-Dec-21	08-Jan-22	142	1
KTD.LW.1170	Construction of RC structure (pile cap & pier column) (138m3, 1 team)	65	53d	12d	21-Jul-21	06-Oct-21	10-Jan-22	29-Mar-22	142	1
FOOTBRIDGE (PIER 10 TO PIER 11)		129			07-Oct-21	14-Mar-22	30-Mar-22	13-Sep-22	147	1
KTD.LW.1180	Implementation of TTA for Concorde Road roundabout and erecting temp. working platform across carriageway	12	12d	0d	07-Oct-21	21-Oct-21	30-Mar-22	13-Apr-22	142	1



Milestone | Critical Milestone | Critical Work | Planned W... | Summary

Build King – STEC Joint Venture

ED/2018/05 Kai Tak Development - Stage 5B Infrastructure Works at the Former North Apron Area

WORKS PROGRAMME

Date	Revision	Checked	Approv...
21-Aug-20	Revision 1	LC	GC
10-Oct-20	Revision 2	LC	GC
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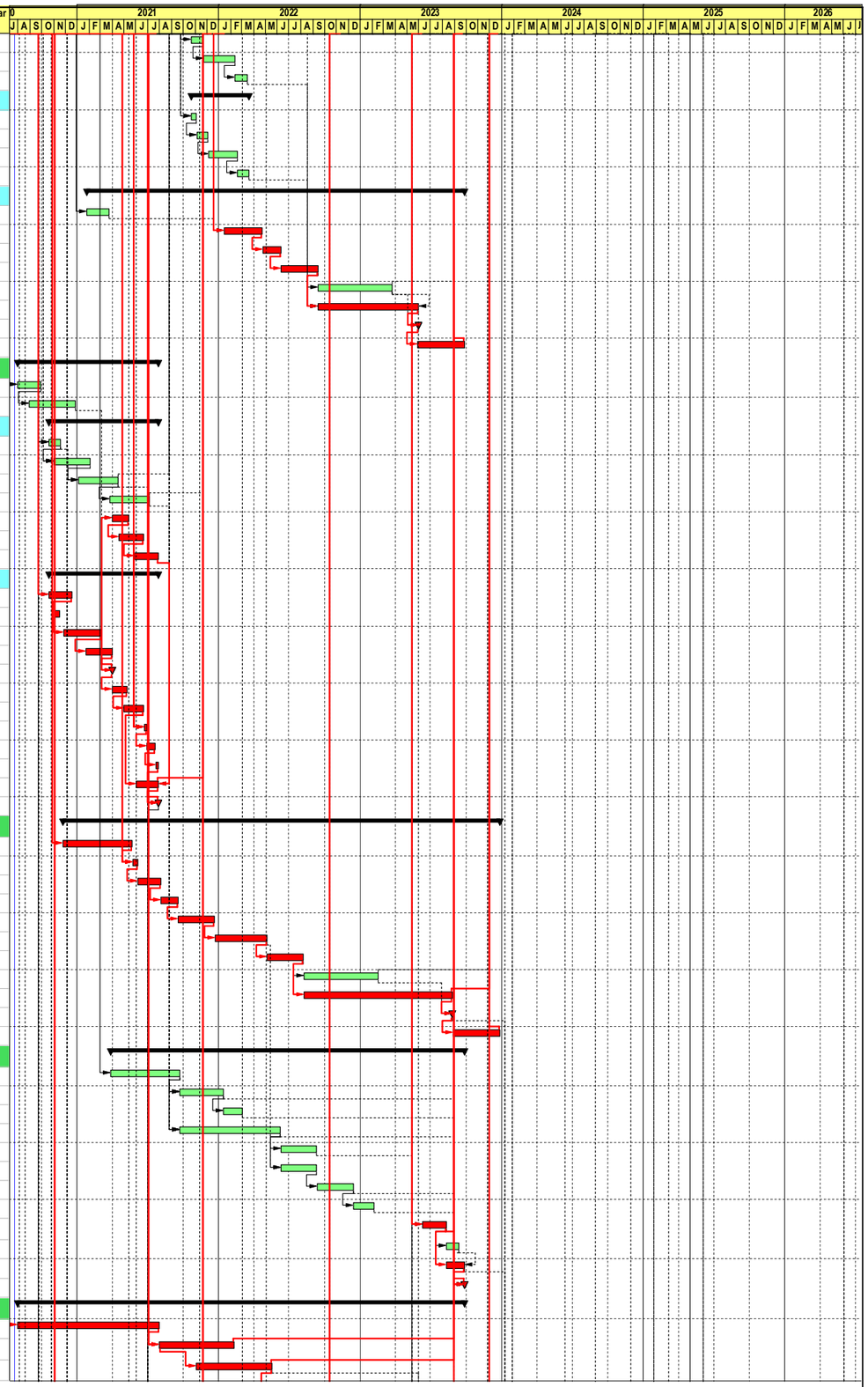
Activity ID	Activity Name	Dur (d)	Ori. Dur (d)	TRA (d)	Early Start	Early Finish	Late Start	Late Finish	Total Float	Calendar
KTD.LW.1190	Erecting temp. working platform at roadside	26	24d	2d	22-Oct-21	20-Nov-21	23-Apr-22	25-May-22	147	1
KTD.LW.1200	Construction of RC bridge structure (434m3, 2 teams)	65	65d	0d	22-Nov-21	11-Feb-22	26-May-22	11-Aug-22	147	1
KTD.LW.1210	Prestressing works	26	26d	0d	12-Feb-22	14-Mar-22	12-Aug-22	13-Sep-22	147	1
FOOTBRIDGE (PIER 11 TO PIER 12)		122			22-Oct-21	19-Mar-22	14-Apr-22	13-Sep-22	142	1
KTD.LW.1220	Implementation of TTA for Concorde Road roundabout and erecting temp. working platform across carriageway	12	12d	0d	22-Oct-21	04-Nov-21	14-Apr-22	30-Apr-22	142	1
KTD.LW.1230	Erecting temp. working platform at roadside	26	24d	2d	05-Nov-21	04-Dec-21	03-May-22	02-Jun-22	142	1
KTD.LW.1240	Construction of RC bridge structure (311m3, 2 teams)	58	58d	0d	06-Dec-21	17-Feb-22	04-Jun-22	11-Aug-22	142	1
KTD.LW.1250	Prestressing works and bearing installation works	26	26d	0d	18-Feb-22	19-Mar-22	12-Aug-22	13-Sep-22	142	1
LIFT TOWER, STAIRCASE, SOFT LANDSCAPING & OTHER WORKS		787			25-Jan-21	26-Sep-23	17-Nov-21	26-Sep-23	0	1
KTD.LW.1260	Pre-drilling works (6 nos, 2 rig)	48	46d	2d	25-Jan-21	24-Mar-21	17-Nov-21	14-Jan-22	237	1
KTD.LW.1270	Piling works for pre-bored H-piles for PC1, PC2, PC3 and PC4 (19 nos, 610dia x 70m, 2 rigs)	78	72d	6d	15-Jan-22	23-Apr-22	15-Jan-22	23-Apr-22	0	1
KTD.LW.1280	Installation of ELS and excavation for pile caps construction (PC1, PC2, PC3 and PC4, 379.1m3 exca, 1 team)	38	34d	4d	25-Apr-22	10-Jun-22	25-Apr-22	10-Jun-22	0	1
KTD.LW.1290	Construction of RC structures (inclu. pile caps, pier column, lift shaft, staircase, etc.)	78	64d	14d	11-Jun-22	13-Sep-22	11-Jun-22	13-Sep-22	0	1
KTD.LW.1300	Lift and other E&M installation, testing and commissioning	156	144d	12d	14-Sep-22	23-Mar-23	16-Nov-22	30-May-23	52	1
KTD.LW.1310	Construction of roof, planter, landscape softworks, other facilities and ABWF works for whole walkway	208	182d	26d	14-Sep-22	30-May-23	14-Sep-22	30-May-23	0	1
KTD.LW.1320	Planned Completion of Landscaped Elevated Walkway LW-02 (Related to Section 1)	0	0d	0d		30-May-23		30-May-23	0	1
KTD.LW.1330	Advance Completion of Landscaped Elevated Walkway LW-02 to Specific Contract Completion Date (Section 1)	101	101d	0d	30-May-23	26-Sep-23	30-May-23	26-Sep-23	0	1
CONSTRUCTION OF BOX CULVERT B1		364			31-Jul-20	29-Jul-21	20-Oct-20	29-Jul-21	0	
KTD.BC.1000	Prepare/submission of temporary EVA diversion scheme with SCL	60	60d	0d	31-Jul-20	28-Sep-20	02-Nov-20	31-Dec-20	94	2
KTD.BC.1010	Consult/liaison/vetting/approval of temporary EVA diversion scheme with SCL	120	120d	0d	30-Aug-20	27-Dec-20	02-Dec-20	31-Mar-21	94	2
BOX CULVERT B1 (CHB1 364.584 TO CHB1 168.00)		225			20-Oct-20	29-Jul-21	13-Nov-20	29-Jul-21	0	
KTD.BC.1020	Installation of ELS and excavation for CHB1 364.584 to CHB1 348.00 (24m ELS, 523.8m3 exca, 2 team)	26	24d	2d	20-Oct-20	19-Nov-20	13-Nov-20	12-Dec-20	20	1
KTD.BC.1030	Installation of ELS and excavation for CHB1 348.00 to CHB1 216.00 (12718m3, 2 teams)	78	72d	6d	02-Nov-20	03-Feb-21	25-Nov-20	02-Mar-21	20	1
KTD.BC.1040	Construction of RC box culvert structure (1435m3, 4 teams)	78	74d	2d	05-Jan-21	16-Apr-21	28-Jan-21	11-May-21	20	1
KTD.BC.1050	Backfilling from CHB1 364.584 to CHB1 216.00 (10043m3, 4 teams)	78	74d	2d	25-Mar-21	06-Jul-21	26-Apr-21	29-Jul-21	20	1
KTD.BC.1060	Excavation for CHB1 216.00 to CHB1 168.00 by ELS/open-cut/other accepted method (4600m3, 2 teams)	32	32d	7d	01-Apr-21	13-May-21	01-Apr-21	13-May-21	0	1
KTD.BC.1070	Construction of RC box culvert structure from CHB1 216.00 to CHB1 168.00 (370m3, 3 teams)	52	48d	4d	19-Apr-21	21-Jun-21	19-Apr-21	21-Jun-21	0	1
KTD.BC.1080	Backfilling from CHB1 216.00 to CHB1 168.00 (3800m3, 4 teams)	52	48d	4d	28-May-21	29-Jul-21	28-May-21	29-Jul-21	0	1
BOX CULVERT B1 (CHB1 168.00 TO CH. 89.123)		225			20-Oct-20	29-Jul-21	20-Oct-20	29-Jul-21	0	1
KTD.BC.1090	Installation of ELS and excavation for CHB1 115.392 to CHB1 168.00 (114m ELS, 3400m3 exca, 2 teams)	51	33d	6d	20-Oct-20	18-Dec-20	20-Oct-20	18-Dec-20	0	1
KTD.BC.1095	Encounter CLP cables at CHB1 143.3 to CHB1 131.125 and removal by CLP	12	12d	0d	03-Nov-20	16-Nov-20	03-Nov-20	16-Nov-20	0	1
KTD.BC.1100	Construction of RC box culvert structure for CHB1 115.392 to CHB1 168.00 (434m3, 2 teams)	78	78d	0d	28-Nov-20	05-Mar-21	28-Nov-20	05-Mar-21	0	1
KTD.BC.1110	Backfilling from CHB1 168.00 to CHB1 115.392 and construct temporary diversion EVA with facilities (2374m3, 2 teams)	52	46d	6d	23-Jan-21	31-Mar-21	23-Jan-21	31-Mar-21	0	1
KTD.BC.1120	Traffic diversion for MTRC EVA of SCL Station and SUA	0	0d	0d		31-Mar-21		31-Mar-21	0	1
KTD.BC.1130	Installation of ELS and excavation for CHB1 115.392 to CHB1 89.123 (90m ELS, 1860m3 exca, 2 teams)	29	26d	3d	01-Apr-21	10-May-21	01-Apr-21	10-May-21	0	1
KTD.BC.1140	Construction of RC box culbert structure for CBB1 115.392 to CHB1 89.123 (236m3, 2 teams)	42	39d	3d	30-Apr-21	21-Jun-21	30-Apr-21	21-Jun-21	0	1
KTD.BC.1150	Temporary drain. diversion (inclu temporary connection works and breakthrough at upstream)	7	6d	1d	22-Jun-21	29-Jun-21	22-Jun-21	29-Jun-21	0	1
KTD.BC.1160	Construct the remaining RC structure within existing box culvert and abandon the existing box culvert	18	18d	0d	30-Jun-21	21-Jul-21	30-Jun-21	21-Jul-21	0	1
KTD.BC.1170	Permanent drain. diversion (inclu connection works at upstream)	7	6d	1d	22-Jul-21	29-Jul-21	22-Jul-21	29-Jul-21	0	1
KTD.BC.1180	Backfilling from CHB1 115.392 to CHB1 89.123 (1050m3, 2 teams)	49	48d	4d	01-Jun-21	29-Jul-21	01-Jun-21	29-Jul-21	0	1
KTD.BC.1190	Planned Completion of Box Culvert B1 (Related to Section 8)	0	0d	0d		29-Jul-21		29-Jul-21	0	1
MODIFICATION OF EXISTING SUBWAY KS10		1129			24-Nov-20	27-Dec-23	24-Nov-20	27-Dec-23	0	
KTD.MS.0000	Liaison/coordinate with HyD structure/HyD lighting/EMSD and other utility and service undertakings	180	180d	0d	24-Nov-20	22-May-21	24-Nov-20	22-May-21	0	2
KTD.MS.1010	Pre-drilling works (1 no, 1 rig)	12	10d	2d	24-May-21	05-Jun-21	24-May-21	05-Jun-21	0	1
KTD.MS.1020	Piling works for pre-bored H-piles (4 nos, 610dia x 75m, 1 rig)	48	42d	6d	07-Jun-21	03-Aug-21	07-Jun-21	03-Aug-21	0	1
KTD.MS.1030	Installation of ELS for demolition of existing str. & construction of entrance at Road D1 (77m ELS, 900m3 exca, 1 teams)	39	33d	6d	04-Aug-21	17-Sep-21	04-Aug-21	17-Sep-21	0	1
KTD.MS.1035	Demolition of existing subway structures (inclu. ramp and staircase)	78	64d	14d	18-Sep-21	21-Dec-21	18-Sep-21	21-Dec-21	0	1
KTD.MS.1040	Construction of RC structures (inclu. lift shaft, staircase, pump house and etc.) (365m3, 1 team)	104	92d	12d	22-Dec-21	04-May-22	22-Dec-21	04-May-22	0	1
KTD.MS.1045	Backfilling of ELS to ground level	78	64	14d	05-May-22	06-Aug-22	05-May-22	06-Aug-22	0	1
KTD.MS.1050	Lift and other E&M installation, testing and commissioning	156	156d	0d	08-Aug-22	16-Feb-23	17-Feb-23	26-Aug-23	156	1
KTD.MS.1060	Construction of roof, steelworks, other facilities and ABWF works	312	300d	12d	08-Aug-22	26-Aug-23	08-Aug-22	26-Aug-23	0	1
KTD.MS.1070	Planned Completion of modification of existing Subway KS10 (Related to Section 3)	0	0d	0d		26-Aug-23		26-Aug-23	0	1
KTD.MS.1080	Advance Completion of modification of existing Subway KS10 to Specific Contract Completion Date (Section 3)	100	178d	0d	28-Aug-23	27-Dec-23	28-Aug-23	27-Dec-23	0	1
CONSTRUCTION OF DISTRICT COOLING SYSTEM WORKS (SUBJECTED TO EXCISION)		914			27-Mar-21	26-Sep-23	22-Nov-21	26-Sep-23	0	
KTD.DCS.1000	Liaison/coordinate with utility and service undertakings on connection works of DCS works	180	180d	0d	27-Mar-21	22-Sep-21	22-Nov-21	20-May-22	240	2
KTD.DCS.1010	Installation of ELS and excavation and construction of DCS pipes from CH80 to CH145 (2 teams)	91	79d	12d	23-Sep-21	12-Jan-22	24-Apr-23	11-Aug-23	465	1
KTD.DCS.1020	Backfilling for CH80 to CH145 (780m3, 2 teams)	39	33d	6d	13-Jan-22	02-Mar-22	12-Aug-23	26-Sep-23	465	1
KTD.DCS.1030	Installation of ELS and excavation and construction of DCS pipes from CH170 to CH334 (2 teams)	208	194d	14d	23-Sep-21	09-Jun-22	21-May-22	01-Feb-23	192	1
KTD.DCS.1040	Backfilling for CH170 to CH334 (1900m3, 2 teams)	78	72d	6d	10-Jun-22	09-Sep-22	04-Mar-23	09-Jun-23	218	1
KTD.DCS.1050	Installation of ELS and excavation of temporary pits for construction of DCS works from CH145 to CH170 (1 team)	78	66d	12d	10-Jun-22	09-Sep-22	02-Feb-23	09-May-23	192	1
KTD.DCS.1060	Construction of chilled water pipes from CH145 to CH170 by trenchless method (inclu DAV and washout pit, 1 team)	78	64d	14d	13-Sep-22	14-Dec-22	10-May-23	11-Aug-23	192	1
KTD.DCS.1070	Backfilling for temporary pits (900m3, 2 teams)	39	33d	6d	15-Dec-22	04-Feb-23	12-Aug-23	26-Sep-23	192	1
KTD.DCS.1080	Installation of ELS and excavation and construction of DCS works from CH0 to CH80 (2 teams)	52	40d	12d	10-Jun-23	11-Aug-23	10-Jun-23	11-Aug-23	0	1
KTD.DCS.1090	T&C of the installed DCS pipes before connection to existing DCS system	26	26d	0d	12-Aug-23	11-Sep-23	28-Aug-23	26-Sep-23	13	1
KTD.DCS.1100	Backfilling for CH0 to CH80 (960m3, 2 teams)	39	33d	6d	12-Aug-23	26-Sep-23	12-Aug-23	26-Sep-23	0	1
KTD.DCS.1110	Planned Completion of DCS works within Parts 1 and 1A (Related to Section 9)	0	0d	0d		26-Sep-23		26-Sep-23	0	1
RENOVATION OF EXISTING SUBWAYS KS9 AND KS32		1153			31-Jul-20	26-Sep-23	31-Jul-20	26-Sep-23	0	
KTD.RS.1000	Liasion with UAP project and relevant departments for possession approval/consent	365	365d	0d	31-Jul-20	30-Jul-21	31-Jul-20	30-Jul-21	0	2
KTD.RS.1010	Construction of shelter for subways KS9 and KS32	156	130d	26d	31-Jul-21	08-Feb-22	31-Jul-21	08-Feb-22	0	1
KTD.RS.1020	Construction of steelworks, other facilities, E&M installation and ABWF works for KS9 and KS32	156	142d	124d	03-Nov-21	17-May-22	03-Nov-21	17-May-22	0	1



Milestone
Critical Milestone
Critical Work
Planned W...
Summary

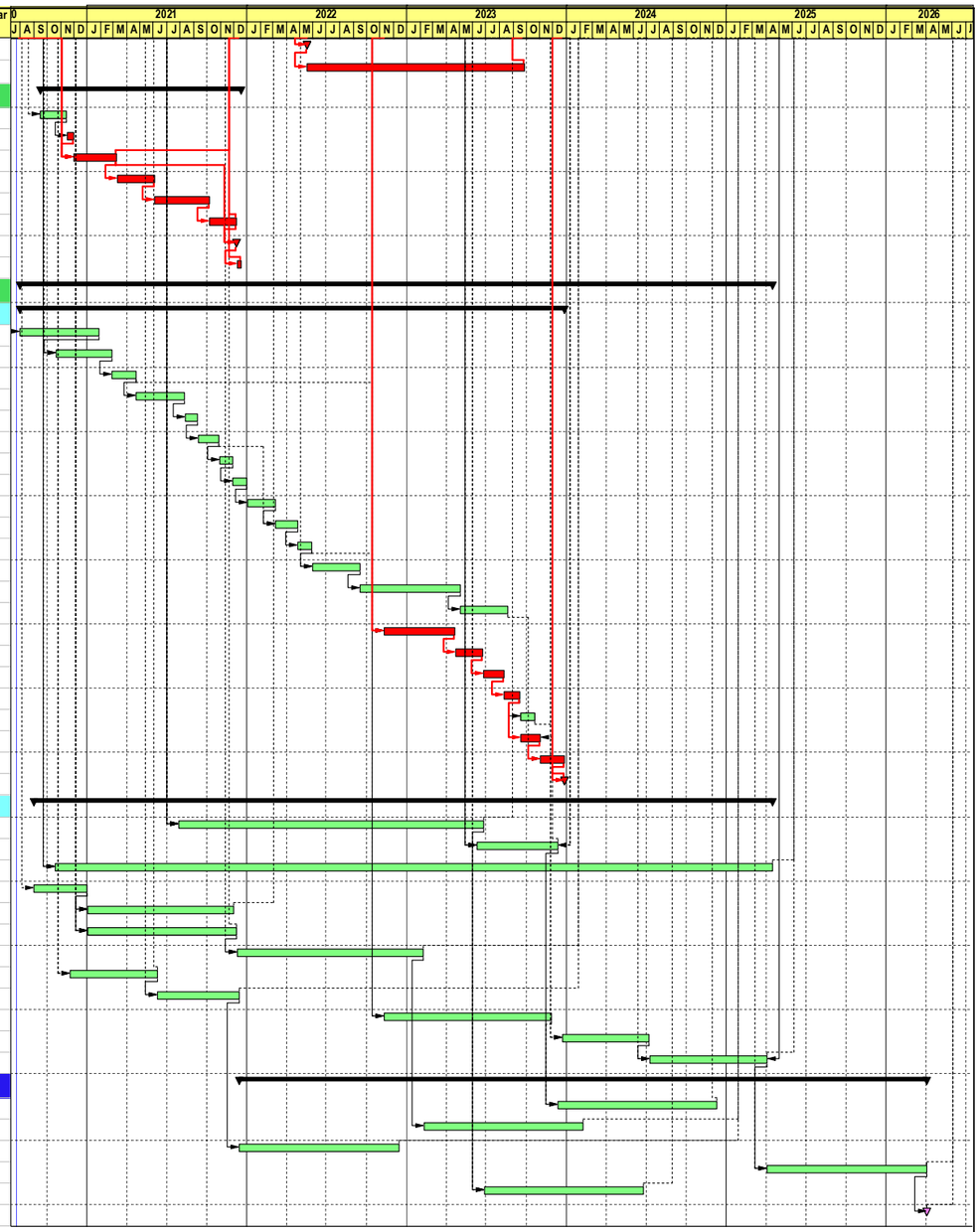
Build King – STEC Joint Venture

ED/2018/05 Kai Tak Development - Stage 5B Infrastructure Works at the Former North Apron Area

WORKS PROGRAMME

Date	Revision	Checked	Approv...
21-Aug-20	Revision 1	LC	GC
10-Oct-20	Revision 2	LC	GC
18-Nov-20	Revision 3	LC	GC

Activity ID	Activity Name	Dur (d)	Ori. Dur (d)	TRA (d)	Early Start	Early Finish	Late Start	Late Finish	Total Float	Calendar
KTD.RS.1030	Planned Completion of renovation of existing Subways KS9 and KS32 (Related to Section 1)	0	0d	0d		17-May-22		17-May-22	0	1
KTD.RS.1040	Advance Completion of renovation of existing Subways KS9 and KS32 to Specific Contract Completion Date (Section 1)	406	406d	0d	18-May-22	26-Sep-23	18-May-22	26-Sep-23	0	1
DIVERSION OF EXISTING RISING MAIN AND DEMOLITION OF EXISTING STRUCTURES AT SITE 2C2 & 2C3		458			16-Sep-20	17-Dec-21	17-Sep-20	17-Dec-21	0	
KTD.RM.1000	Liasion with relevant departments for removal of abandoned motorcycles under existing structures at Site 2C2 and 2C3	60	60d	0d	16-Sep-20	14-Nov-20	17-Sep-20	15-Nov-20	1	2
KTD.RM.1001	Removal of abandoned motorcycles and clearance for demolition works	14	14d	2d	16-Nov-20	01-Dec-20	16-Nov-20	01-Dec-20	0	1
KTD.RM.1005	Demolition of existing structures at Site 2C2 and 2C3	78	66d	12d	02-Dec-20	09-Mar-21	02-Dec-20	09-Mar-21	0	1
KTD.RM.1010	Installation of ELS and excavate for construction of twin rising main from CH0 to CH184 (400m ELS, 4059m3 exca, 2 teams)	65	53d	12d	10-Mar-21	03-Jun-21	10-Mar-21	03-Jun-21	0	1
KTD.RM.1020	Construction of twin rising main from CH0 to CH184 and connect to existing sewage rising main	104	98d	6d	04-Jun-21	07-Oct-21	04-Jun-21	07-Oct-21	0	1
KTD.RM.1030	Backfilling works and abandon the existing sewage rising main	52	46d	6d	08-Oct-21	08-Dec-21	08-Oct-21	08-Dec-21	0	1
KTD.RM.1040	Planned Completion of diversion and demolition of existing structures at Site 2C2 and 2C3 (Related to Section 5)	0	0d	0d		08-Dec-21		08-Dec-21	0	1
KTD.RM.1050	Advance Completion of diversion and demolition works to Specific Contract Completion Date (Section 5)	8	8d	0d	09-Dec-21	17-Dec-21	09-Dec-21	17-Dec-21	0	1
CONSTRUCTION OF ROAD WORKS		1720			31-Jul-20	15-Apr-25	12-Sep-20	30-Jun-25	76	
CONSTRUCTION OF SLIP ROAD S14		1245			31-Jul-20	27-Dec-23	14-Oct-20	27-Dec-23	0	
KTD.RW.0000	Liaison/coordinate with utility and service undertakings on diversion works (including CLP, DCS work and etc.)	180	180d	0d	31-Jul-20	26-Jan-21	14-Oct-20	11-Apr-21	75	2
KTD.RW.1000	Expose and install protect/support system for existing underground utilities and services (incl 132kV and 400kV cables)	104	98d	6d	21-Oct-20	26-Feb-21	04-Jan-21	17-May-21	60	1
KTD.RW.1010	Pre-drilling works for all pile caps PC1 to PC7 (9 nos, 1 rig)	40	30d	10d	27-Feb-21	22-Apr-21	18-May-21	06-Jul-21	60	1
KTD.RW.1020	Piling works of pre-bored H-piles (14 nos, 610dia x 70m, 1 rig)	91	85d	6d	23-Apr-21	11-Aug-21	07-Jul-21	23-Oct-21	60	1
KTD.RW.1030	Installation of ELS and excavation and construction for pile cap PC1 (60m3 exca, 30m3 conc, 1 team)	26	24d	2d	12-Aug-21	10-Sep-21	25-Oct-21	23-Nov-21	60	1
KTD.RW.1040	Construction of temporary supporting system for existing bridge K73	39	34d	5d	11-Sep-21	29-Oct-21	24-Nov-21	11-Jan-22	60	1
KTD.RW.1050	Demolition of existing bearing wall	26	24d	2d	30-Oct-21	29-Nov-21	12-Jan-22	14-Feb-22	60	1
KTD.RW.1060	Installation of ELS and excavation and construction for pile cap PC2 (60m3 exca, 30m3 conc, 1 team)	26	24d	2d	30-Nov-21	31-Dec-21	15-Feb-22	16-Mar-22	60	1
KTD.RW.1070	Construction of remaining foundation and pier structures (incl. columns, portal beams and etc.) (169m3, 1 team)	52	48d	4d	03-Jan-22	07-Mar-22	17-Mar-22	23-May-22	60	1
KTD.RW.1080	Construction of cantilever slab extended from ext. bridge K73 (150m3, 1 team)	39	34d	5d	08-Mar-22	26-Apr-22	24-May-22	09-Jul-22	60	1
KTD.RW.1090	Backfilling for pile caps (PC1 and PC2)	26	24d	2d	27-Apr-22	28-May-22	11-Jul-22	09-Aug-22	60	1
KTD.RW.1100	Installation of ELS and excavation for Retaining Wall S14 (Bay5-12, 3600m3 exca, 2 team)	90	78d	12d	30-May-22	15-Sep-22	10-Aug-22	26-Nov-22	60	1
KTD.RW.1110	Construction of Retaining Wall S14 (Bay5-12, 800m3, 2 teams)	184	172d	12d	16-Sep-22	03-May-23	28-Nov-22	15-Jul-23	60	1
KTD.RW.1120	Backfilling for Retaining Wall S14 (Bay8-12, 1100m3, 2 teams)	90	78d	12d	04-May-23	19-Aug-23	17-Jul-23	01-Nov-23	60	1
KTD.RW.1130	Piling works for bored piles (20 nos, 1200dia x 70m, 2 rigs)	130	116d	14d	10-Nov-22	21-Apr-23	10-Nov-22	21-Apr-23	0	1
KTD.RW.1140	Installation of ELS and excavation and construction for pile caps (P3-P7,1110m3 exca, 800m3 conc, 2 teams)	52	48d	4d	22-Apr-23	24-Jun-23	22-Apr-23	24-Jun-23	0	1
KTD.RW.1150	Construction of Retaining Wall S14 (Bay1-4, 460m3, 2 teams)	39	21d	2d	26-Jun-23	10-Aug-23	26-Jun-23	10-Aug-23	0	1
KTD.RW.1160	Construction of bridge S14 decking structures (320m3, 1 teams)	32	26d	6d	11-Aug-23	16-Sep-23	11-Aug-23	16-Sep-23	0	1
KTD.RW.1170	Prestressing works and bearing installation works	26	24d	2d	18-Sep-23	19-Oct-23	29-Sep-23	01-Nov-23	10	1
KTD.RW.1180	Backfilling for Retaining Wall S14 (Bay 1-7, 1800m3, 2 teams)	36	32d	4d	18-Sep-23	01-Nov-23	18-Sep-23	01-Nov-23	0	1
KTD.RW.1190	Construction of road pavement, road marking, street and other facilities	46	39d	7d	02-Nov-23	27-Dec-23	02-Nov-23	27-Dec-23	0	1
KTD.RW.1200	Planned Completion of Slip Road S14 (Related to Section 3)	0	0d	0d		27-Dec-23		27-Dec-23	0	1
CONSTRUCTION OF ROADS D1, L9, L16, PEDESTRIAN STREETS AND OPEN SPACES		1688			01-Sep-20	15-Apr-25	12-Sep-20	30-Jun-25	76	
KTD.RW.1220	Construct roadwork, UUs/services & landscape softworks within Part 1 (incl Road L9 and part of Road L16)	563	542d	21d	30-Jul-21	26-Jun-23	02-Nov-21	26-Sep-23	78	1
KTD.RW.1230	Construct roadwork, UUs/services & landscape softworks within Part 1A (incl Sa Po Road, pedestrian street and Road D1)	153	132d	21d	10-Jun-23	11-Dec-23	26-Jun-23	27-Dec-23	12	1
KTD.RW.1240	Construct underground utilities/services within Parts 1B, 6A and 7 and remaining works of all Parts	1321	1300d	21d	20-Oct-20	15-Apr-25	02-Jan-21	30-Jun-25	60	1
KTD.RW.1245	Liasion/coordinate with CLP for new 132kV and 11kV cable laying at Road L16, Part 3 and Crowd Dispersal Route	122	122d	0d	01-Sep-20	31-Dec-20	12-Sep-20	11-Jan-21	11	2
KTD.RW.1250	Construct roadwork and UUs/services within Parts 2 and 10 (incl Crowd Dispersal Route)	270	249d	21d	02-Jan-21	02-Dec-21	05-May-21	29-Mar-22	94	1
KTD.RW.1260	Construct underground utilities/services within Part 3	275	254d	21d	02-Jan-21	08-Dec-21	12-Jan-21	17-Dec-21	8	1
KTD.RW.1270	Construct roadwork and landscape softworks within Part 3 (incl pedestrian streets)	342	321d	21d	09-Dec-21	08-Feb-23	29-Dec-22	24-Feb-24	310	1
KTD.RW.1280	Construct underground utilities/services within Part 4	156	135d	21d	23-Nov-20	09-Jun-21	12-Dec-20	30-Jun-21	17	1
KTD.RW.1290	Construct roadwork and landscape softworks within Part 4 (incl pedestrian street)	156	135d	21d	10-Jun-21	14-Dec-21	17-Aug-23	24-Feb-24	647	1
KTD.RW.1300	Construct roadwork, underground utilities/services within Part 5	312	291d	21d	10-Nov-22	28-Nov-23	07-Dec-22	27-Dec-23	23	1
KTD.RW.1310	Liasion with developer of the sites 2A4, 2A5(B) and 2A10 and construction of drainage and sewage works within Part 6	156	135d	21d	23-Dec-23	08-Jul-24	15-Mar-24	23-Sep-24	65	1
KTD.RW.1320	Construct roadwork, remaining UUs/services and landscape softworks within Part 6 (incl remaining Road L16)	222	201d	21d	09-Jul-24	03-Apr-25	24-Sep-24	30-Jun-25	65	1
PROJECT ESTABLISHMENT WORKS		1571			15-Dec-21	03-Apr-26	27-Sep-23	30-Jun-26	88	2
KTD.EW.1000	Establishment works for all landscape softworks (except Parts 3, 4 and 6)	365	365d	0d	12-Dec-23	10-Dec-24	28-Dec-23	26-Dec-24	16	2
KTD.EW.1010	Establishment works for landscape softworks within Part 3 (Subj to excision within 416 days)	365	365d	0d	09-Feb-23	08-Feb-24	26-Feb-24	24-Feb-25	382	2
KTD.EW.1020	Establishment works for landscape softworks within Part 4 (Subj to excision within 244 days)	365	365d	0d	15-Dec-21	14-Dec-22	26-Feb-24	24-Feb-25	803	2
KTD.EW.1030	Establishment works for landscape softworks within Part 6	365	365d	0d	04-Apr-25	03-Apr-26	01-Jul-25	30-Jun-26	88	2
KTD.EW.1040	Establishment works for landscape softworks under Section 1	365	365d	0d	27-Jun-23	25-Jun-24	27-Sep-23	25-Sep-24	92	2
KTD.EW.1050	Planned Contract Completion Date	0	0d	0d		03-Apr-26		30-Jun-26	88	2



Milestone
Critical Milestone
Critical Work
Planned W...
Summary

Build King – STEC Joint Venture

ED/2018/05 Kai Tak Development - Stage 5B Infrastructure Works at the Former North Apron Area

WORKS PROGRAMME

Date	Revision	Checked	Approv...
21-Aug-20	Revision 1	LC	GC
10-Oct-20	Revision 2	LC	GC
18-Nov-20	Revision 3	LC	GC

Appendix C – Environmental monitoring schedules

Contract No. EDO 2/2020 Environmental Monitoring at Kai Tak Development – Stage 5B infrastructure works at the former north apron area

Environmental Monitoring and Weekly Site Inspection Schedule for April 2022

April 2022

Sun	Mon	Tue	Wed	Thu	Fri	Sat
					1	2
3	4 24-hr TSP and 1-hrX3 TSP: AM2(A), AM3 30-min Noise: M4(A), M5(A)	5	6	7 Weekly Site Inspection	8	9 24-hr TSP and 1-hrX3 TSP: AM2(A), AM3
10	11	12	13	14 Weekly Site Inspection 24-hr TSP and 1-hrX3 TSP: AM2(A), AM3 30-min Noise: M4(A), M5(A)	15	16
17	18	19	20 24-hr TSP and 1-hrX3 TSP: AM2(A), AM3 30-min Noise: M4(A), M5(A)	21 Weekly Site Inspection	22	23
24	25 24-hr TSP and 1-hrX3 TSP: AM2(A), AM3 30-min Noise: M4(A), M5(A)	26	27	28 Weekly Site Inspection + SSMC meeting	29	30 24-hr TSP and 1-hrX3 TSP: AM2(A), AM3

Air Quality Monitoring Station
AM2(A) Ng Wah Catholic Secondary School
AM3 - Sky Tower

Noise Quality Monitoring Station
M4(A) - Le Billionnaire
M5(A) - Prince Ritz

Contract No. EDO 2/2020 Environmental Monitoring at Kai Tak Development – Stage 5B infrastructure works at the former north apron area

Tentative Environmental Monitoring and Weekly Site Inspection Schedule for May 2022

May 2022

Sun	Mon	Tue	Wed	Thu	Fri	Sat
1	2	3	4	5 Weekly Site Inspection	6 24-hr TSP and 1-hrX3 TSP: AM2(A), AM3 30-min Noise: M4(A), M5(A)	7
8	9	10	11	12 Weekly Site Inspection 24-hr TSP and 1-hrX3 TSP: AM2(A), AM3 30-min Noise: M4(A), M5(A)	13	14
15	16	17	18 24-hr TSP and 1-hrX3 TSP: AM2(A), AM3 30-min Noise: M4(A), M5(A)	19 Weekly Site Inspection	20	21
22	23	24 24-hr TSP and 1-hrX3 TSP: AM2(A), AM3 30-min Noise: M4(A), M5(A)	25	26 Weekly Site Inspection + SSMC meeting	27	28
29	30 24-hr TSP and 1-hrX3 TSP: AM2(A), AM3 30-min Noise: M4(A), M5(A)	31				

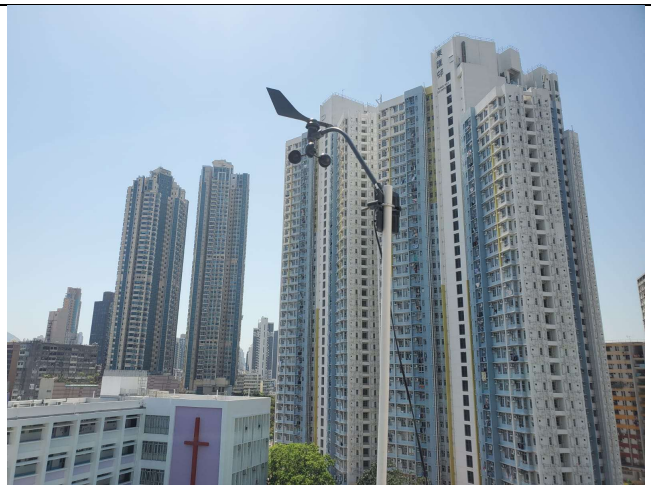
Air Quality Monitoring Station
AM2(A) Ng Wah Catholic Secondary School
AM3 - Sky Tower

Noise Quality Monitoring Station
M4(A) - Le Billionnaire
M5(A) - Prince Ritz

Appendix D – Photographic records

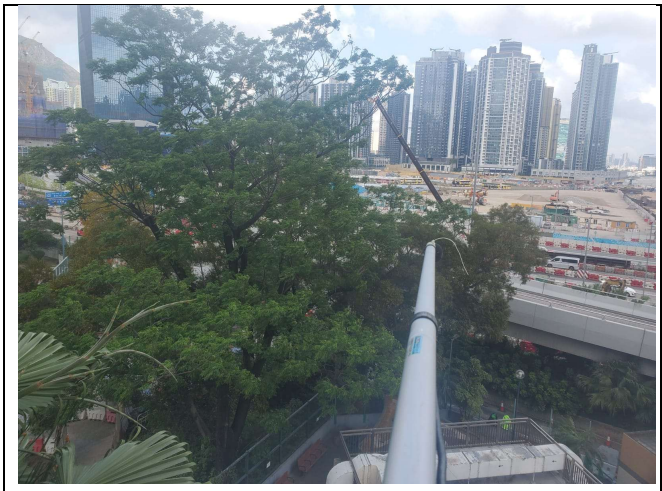
Measurement setup at AM2(A)

Measurement setup at AM3



Weather Station at the rooftop of Ng Wah Catholic Secondary School

Impact Noise Monitoring

	
Measurement setup at M4(A)	Measurement setup at M5(A)

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

TISCH Environmental

TSP MFC

Total Suspended Particulate, Mass Flow Controlled

MFC **TSP**

Ambient Air Sampler

- **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**

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.

TISCH Environmental

www.tisch-env.com

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

TISCH Environmental

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, 1.09M^3M-1.68M^3M
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

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

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"

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

www.tisch-env.com

TISCH Environmental

Calibration Certificate of HVS

Air Sampler Calibration Curve Plotting & Calculation

(Dickson recorder)

Calibration curve ref. No. : ATSPC-01-2022030801 Date of calibration : 08/03/2022

Location : Sky Tower Sampler : TE-5170X

Calibration Data Serial Number : 4687

Ambient barometric pressure, Pa = 762.1 (mmHg) Ambient temperature, Ta = 293.65 (deg K)

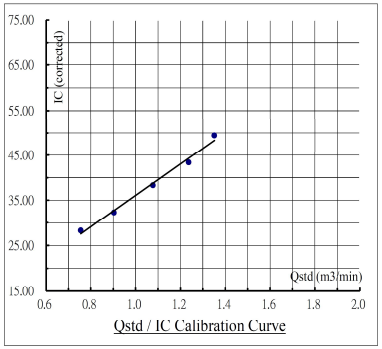
Qstd Slope, m = 2.03518 Qstd Intercept, b = -0.005890

Calibration Curve

Plate No.	H_2O (in)	Qstd (m^3 / min)	I (chart)	IC (corrected)
18	7.40	1.351	49.0	49.43
13	6.20	1.237	43.0	43.38
10	4.70	1.077	38.0	38.33
7	3.30	0.903	32.0	32.28
5	2.30	0.755	28.0	28.25

Subsequent calculation of sampler flow

Method	Calibration equation	Slope, m	Intercept, b	Corr. coeff., r
Dickson recorder	Qstd = 1 / m1 [(I) (Sqrt ((Pav / 760) (298 / Tav))) - b1]	34.841	1.2425	0.9947



Qstd / IC Calibration Curve

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 [Sqrt (H_2O (Pa / 760) (298 / Ta)) - b].

IC (corrected) = I [Sqrt ((Pa / 760) (298 / Ta))].

FLOW (corrected) = Sqrt (FLOW (mano) (Pa / 760) (298 / Ta)).

Calibrated by : 08/03/2022 Checked by : 08/03/2022

Name : (Ben Poon) Name : (Tommy Wong)

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

Air Sampler Calibration Curve Plotting & Calculation

(Dickson recorder)

Calibration curve ref. No. : ATSPC-01-2022030804 Date of calibration : 08/03/2022

Location : Ng Wah Catholic Secondary School Sampler : TE-5170X

Calibration Data Serial Number : 4360

Ambient barometric pressure, Pa = 762.1 (mmHg) Ambient temperature, Ta = 293.65 (deg K)

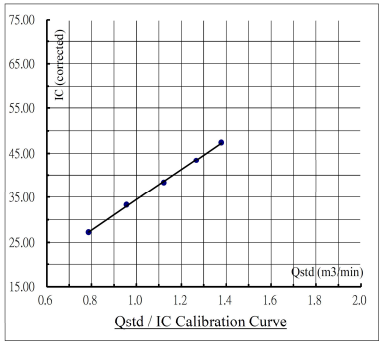
Qstd Slope, m = 2.03518 Qstd Intercept, b = -0.005890

Calibration Curve

Plate No.	H_2O (in)	Qstd (m^3 / min)	I (chart)	IC (corrected)
18	7.70	1.378	47.0	47.41
13	6.50	1.267	43.0	43.38
10	5.10	1.122	38.0	38.33
7	3.70	0.956	33.0	33.29
5	2.50	0.787	27.0	27.24

Subsequent calculation of sampler flow

Method	Calibration equation	Slope, m	Intercept, b	Corr. coeff., r
Dickson recorder	Qstd = 1 / m1 [(I) (Sqrt ((Pav / 760) (298 / Tav))) - b1]	33.737	0.7523	0.9996



Qstd / IC Calibration Curve

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 [Sqrt (H_2O (Pa / 760) (298 / Ta)) - b].

IC (corrected) = I [Sqrt ((Pa / 760) (298 / Ta))].

FLOW (corrected) = Sqrt (FLOW (mano) (Pa / 760) (298 / Ta)).

Calibrated by : 08/03/2022 Checked by : 08/03/2022

Name : (Ben Poon) Name : (Tommy Wong)

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

TISCH Environmental

RECALIBRATION DUE DATE:
June 1, 2022

Certificate of Calibration

Calibration Certification Information					
Cal. Date:	June 1, 2021	**Rootsmeter S/N:** 438320	**Ta:** 292	°K	
Operator:	Jim Tisch		**Pa:** 754.9	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	1.4370	3.2	2.00
2	3	4	1	1.0130	6.4	4.00
3	5	6	1	0.9060	8.0	5.00
4	7	8	1	0.8590	8.9	5.50
5	9	10	1	0.7110	12.9	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)	$\sqrt{\Delta H(Ta/Pa)}$ (y-axis)
1.0094	0.7024	1.4239	0.9958	0.6929	0.8796
1.0051	0.9922	2.0136	0.9915	0.9788	1.2439
1.0029	1.1070	2.2513	0.9894	1.0921	1.3907
1.0017	1.1662	2.3612	0.9882	1.1504	1.4586
0.9964	1.4014	2.8477	0.9829	1.3824	1.7591
QSTD	**m=**	**2.03518**	**QA**	**m=**	**1.27440**
	b=	**-0.00589**		**b=**	**-0.00364**
	r=	**0.99997**		**r=**	**0.99997**

Calculations

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

For subsequent flow rate calculations:

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

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

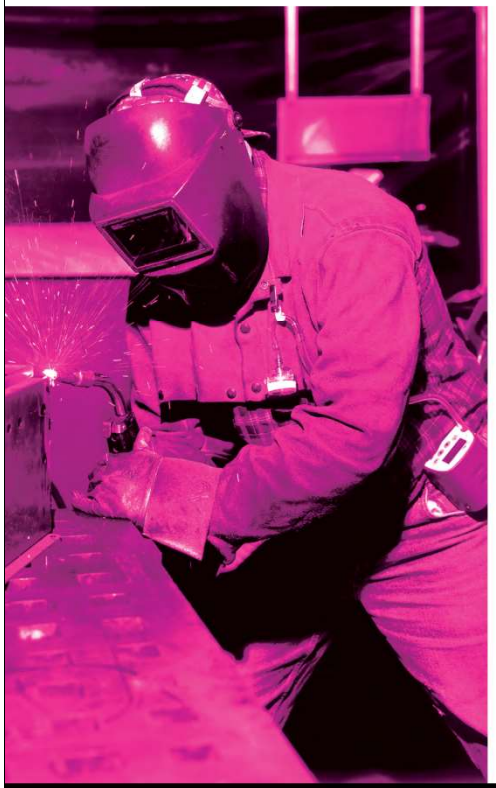
RECALIBRATION

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

sch Environmental, Inc.
l5 South Miami Avenue
llage of Cleves, OH 45002

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

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 AM510 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 AM510
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)

TSI P/N 2300157

CERTIFICATE OF CALIBRATION AND TESTING

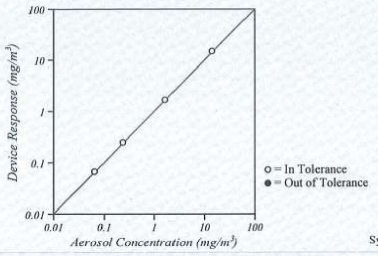
TSI Incorporated, 500 Cardigan Road, Shoreview, MN 55126 USA
Tel: 1-800-874-2811 1-651-490-2811 Fax: 1-651-490-3824 http://www.tsi.com

Environment Conditions		
Temperature	75.69 (24.3)	°F (°C)
Relative Humidity	49.8	%RH
Barometric Pressure	28.78 (974.6)	inHg (hPa)

Model	AM510
Serial Number	11208032

☒ As Left ☐ As Found
☒ In Tolerance ☐ Out of Tolerance

Concentration Linearity Plot



System ID: DTII01-02

CONCENTRATION — Unit: mg/m3

#	Standard	Measured	Allowable Range	#	Standard	Measured	Allowable Range
1	1.625	1.584	1.462~1.788	3	0.064	0.063	0.045~0.083
2	0.234	0.235	0.199~0.269	4	13.990	13.985	12.591~15.389

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, A1 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	01-11-21	01-31-22	Photometer	E003319	02-15-21	08-31-21
Microbalance	M001324	01-29-21	01-31-23	Pressure	E003511	10-26-20	10-31-21
Flowmeter	E005626	03-09-21	03-31-22	DC Voltage	E003315	01-11-21	01-31-22

August 11, 2021

Calibrated — Date

Personal Aerosol Monitor Performance check with High Volume Sampler

Preformance Check ref. No: AS0210818-4 Report Issue Date: 18/08/2021
Date of performance check: 16/08/2021

Objective:

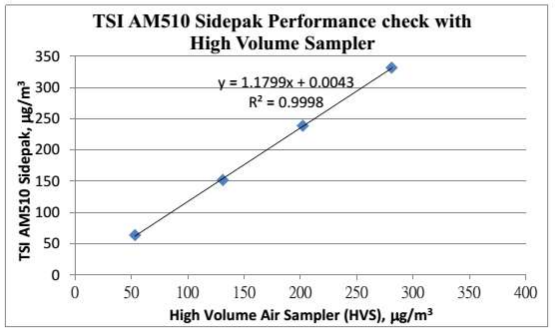
A dust meter and a Total Suspended Particulate High Volume Air Sampler (HVS) were placed together to measure the Total Suspended Particulate (TSP) concentrations simultaneously to check the performance.

Equipment Used:

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

Resuslt:

Equipment	Measurement Result, μg/m³			
TSI AM510 Sidepak	64	152	239	332
High Volume Air Sampler (HVS)	53	131	202	281



Tested by : 18/08/2021 Checked by : 18/08/2021
Name : (Ben Poon) Name : (Tommy Wong)

Form No. ENV CAL SAMPLER CC1 dd12/12/2003

Calibration Certificate of Dust Meter (TSI Sidepak AM510)

TSI P/N 2300157

CERTIFICATE OF CALIBRATION AND TESTING

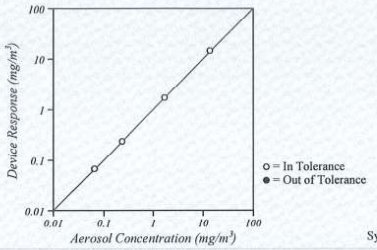
TSI Incorporated, 500 Cardigan Road, Shoreview, MN 55126 USA
Tel: 1-800-874-2811 1-651-490-2811 Fax: 1-651-490-3824 http://www.tsi.com

Environment Conditions		
Temperature	75.43 (24.1)	°F (°C)
Relative Humidity	49.2	%RH
Barometric Pressure	28.78 (974.6)	inHg (hPa)

Model	AM510
Serial Number	11411017

☒ As Left ☐ As Found ☒ In Tolerance ☐ Out of Tolerance

Concentration Linearity Plot



System ID: DTII01-02

CONCENTRATION *Unit: mg/m3*

#	STANDARD	MEASURED	ALLOWABLE RANGE	#	STANDARD	MEASURED	ALLOWABLE RANGE
1	1.665	1.601	1.498~1.832	3	0.064	0.063	0.045~0.083
2	0.231	0.224	0.196~0.266	4	13.577	13.629	12.219~14.935

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, A1 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	01-11-21	01-31-22	Photometer	E003319	02-15-21	08-31-21
Microbalance	M001324	01-29-21	01-31-23	Pressure	E003511	10-26-20	10-31-21
Flowmeter	E005626	03-09-21	03-31-22	DC Voltage	E003315	01-11-21	01-31-22

August 11, 2021

Calibrated — Date

Personal Aerosol Monitor Performance check with High Volume Sampler

Preformance Check ref. No: AS0210818-1 Report Issue Date: 18/08/2021
Date of performance check: 16/08/2021

Objective:

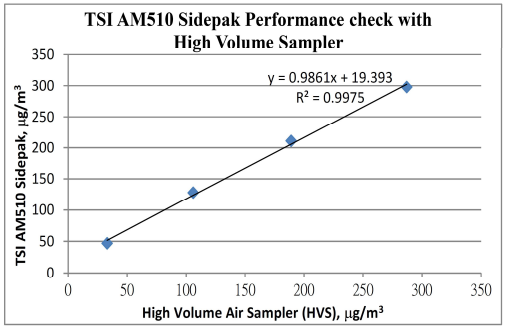
A dust meter and a Total Suspended Particulate High Volume Air Sampler (HVS) were placed together to measure the Total Suspended Particulate (TSP) concentrations simultaneously to check the performance.

Equipment Used:

Equipment	Manufacturer and Model	Serial Number
Personal Aerosol Monitor	TSI AM510 Sidepak	11411017
Total Suspended Particulate High Volume Air Sampler	GS2310	10346

Resuslt:

Equipment	Measurement Result, μg/m³			
TSI AM510 Sidepak	47	128	211	298
High Volume Air Sampler (HVS)	33	106	189	287



Tested by : 18/08/2021 Checked by : 18/08/2021
Name : (Ben Poon) Name : (Tommy Wong)

Form No. ENV CAL SAMPLER CC1 dd12/12/2003

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-Asprated 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

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

AAST-WS-04, Cal: 15 Feb 2022

Cal Lab Limited 校正實驗室有限公司
Room 2103, Technology Plaza, 29-35 Sha Tsui Road,
Tsuen Wan, NT, Hong Kong
Tel: +852 25680106 Email: info@callab.com.hk
Fax: +852 30116194 Website: www.callab.com.hk

Calibration Certificate No.: CC0012202

Customer Information

Customer: Castco Testing Centre Limited
Address: 33, On Kui Street, Fanling, N.T.

Equipment Identification

Equipment Description	Manufacturer	Model No.	Serial No.	Assigned equipment No.:
Weather Station	Davis Vantage PRO 2	6152CUK	BD181101023	N/A

Certificate Information

Date of Receipt:	10 February 2022	Calibration Condition:	23.6°C, 53%RH, 1008hPa
Date of Calibration:	15 February 2022	Adjustment:	N/A
Due Date of Calibration:	N/A	Appearance:	Good
Calibration Procedure:	JJF 1183-2007, JJF 1076-2001, SOP-116	Remark:	N/A

Reference Equipment Identification

Equipment Description	Model	Serial No.	Expiration Date
Platinum resistance thermometer	KPPRHT-A-1	KCI I-1095, KCI P-1095	28 June 2023
Humidity sensor	KPPRHT-A-1	KCI I-1095, KCI P-1095	4 March 2022
Hot Wire Anemometer	9535	T95351316004	11 July 2022

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 shows in this calibration certificate relate only to the item calibrated, and the result only applies to the calibration item as received.

Approved By:

Wing Cheng

Company Chop:

Certificate Issue Date: 16 February 2022

CT-BEG-03

Cal Lab Limited 校正實驗室有限公司
Room 2103, Technology Plaza, 29-35 Sha Tsui Road,
Tsuen Wan, NT, Hong Kong
Tel: +852 25680106 Email: info@callab.com.hk
Fax: +852 30116194 Website: www.callab.com.hk

Result of Calibration

Temperature

Reference reading (°C)	Reading (°C)	Error (°C)	Uncertainty (°C)
15.0	15	0.0	0.3
20.0	20	0.0	0.3
25.0	25	0.0	0.3
30.0	30	0.0	0.3

Relative Humidity

Reference reading (%RH)	Reading (%RH)	Error (%RH)	Uncertainty (%RH)
40.0	43	3.0	1.9
50.0	53	3.0	1.9
70.0	72	2.0	1.9

Wind Speed

Reference reading (m/s)	Measured reading (m/s)	Error (%)	Uncertainty (%)
0.0	0.0	N/A	3.6
2.0	2.1	5.0	3.6
5.0	5.3	6.0	3.6
8.0	8.2	2.5	3.6

Wind Direction

Reference reading	Measured reading	Error	Uncertainty
0°	0°	0°	5°
45°	45°	0°	5°
90°	90°	0°	5°
135°	135°	0°	5°
180°	180°	0°	5°
225°	225°	0°	5°
270°	270°	0°	5°
315°	315°	0°	5°

*** End of Certificate ***

1. The certificate shall not be reproduced except in full, without written approval of Cal Lab Calibration
2. The certificate is issued subject to the latest Terms and Conditions, available at our web site

Appendix F – Weather information

General Information

Date	Absolute Daily Min Temperature (°C)	Absolute Daily Max Temperature (°C)	Total Rainfall (mm)	Mean Relative Humidity (%)
01/04/2022	15.7	22.0	0.5	83
02/04/2022	13.7	16.1	1.3	76
03/04/2022	15.2	23.9	0	54
04/04/2022	16.8	25.6	0	53
05/04/2022	18.1	26.9	0	64
06/04/2022	19.4	26.2	0	70
07/04/2022	20.0	26.7	0	68
08/04/2022	20.5	29.1	0	50
09/04/2022	20.3	27.6	0	65
10/04/2022	20.5	28.5	0	67
11/04/2022	22.6	30.3	0	74
12/04/2022	23.0	30.2	0	77
13/04/2022	23.9	28.1	Trace	81
14/04/2022	23.0	27.8	0	69
15/04/2022	22.8	27.6	Trace	69
16/04/2022	21.2	22.9	Trace	73
17/04/2022	19.2	24.9	0.4	72
18/04/2022	20.9	23.2	Trace	76
19/04/2022	19.1	21.1	0.8	83
20/04/2022	19.8	25.6	0	75
21/04/2022	21.4	28.4	0	78
22/04/2022	23.4	27.2	0	84
23/04/2022	24.1	30.3	Trace	81
24/04/2022	24.9	30.9	0	79
25/04/2022	26.3	31.4	0	79
26/04/2022	26.2	29.8	0	80
27/04/2022	26.1	31.6	0	78
28/04/2022	26.8	31.6	0	79
29/04/2022	26.2	32.0	0	79
30/04/2022	24.3	26.8	0.5	85

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=2022&m=04

Kai Tak Runway Park Information

Date	Absolute Daily Min Temperature (°C)	Absolute Daily Max Temperature (°C)
01/04/2022	24.7	30.0
02/04/2022	24.0	30.3
03/04/2022	23.0	32.1
04/04/2022	22.1	26.1
05/04/2022	21.3	22.5
06/04/2022	22.1	24.7
07/04/2022	21.6	23.7
08/04/2022	22.0	24.3
09/04/2022	19.5	22.2
10/04/2022	20.3	23.5
11/04/2022	20.7	24.5
12/04/2022	21.7	25.7
13/04/2022	22.0	27.9
14/04/2022	22.9	25.4
15/04/2022	21.4	22.9
16/04/2022	21.5	23.7
17/04/2022	22.0	23.4
18/04/2022	22.2	24.3
19/04/2022	21.1	23.4
20/04/2022	21.3	24.9
21/04/2022	21.9	25.8
22/04/2022	22.3	28.6
23/04/2022	23.5	32.9
24/04/2022	23.6	25.3
25/04/2022	21.9	25.5
26/04/2022	21.5	24.0
27/04/2022	22.3	23.7
28/04/2022	22.8	26.5
29/04/2022	21.9	27.6
30/04/2022	22.4	28.2

NOTE1: The above weather information was obtained from manned weather station of Kai Tak Runway Park.

https://i-lens.hk/hkweather/history_chart.php?date=2022-04-01&chart_type=DG_TEMP

Mean Wind Speed and Wind Direction recorded by the weather station setup at the rooftop of Ng Wah Catholic Secondary School

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
01/04/2022	0:00	0.9	112.5	02/04/2022	0:00	0.9	90	03/04/2022	0:00	0.9	90	04/04/2022	0:00	0.9	90
01/04/2022	1:00	1.3	112.5	02/04/2022	1:00	0.9	90	03/04/2022	1:00	0.9	90	04/04/2022	1:00	1.3	67.5
01/04/2022	2:00	1.3	112.5	02/04/2022	2:00	0.9	112.5	03/04/2022	2:00	0.9	45	04/04/2022	2:00	1.3	90
01/04/2022	3:00	0.9	112.5	02/04/2022	3:00	1.8	90	03/04/2022	3:00	0.9	112.5	04/04/2022	3:00	1.3	337.5
01/04/2022	4:00	1.3	90	02/04/2022	4:00	1.3	67.5	03/04/2022	4:00	0.9	90	04/04/2022	4:00	0.9	337.5
01/04/2022	5:00	1.3	112.5	02/04/2022	5:00	1.3	90	03/04/2022	5:00	0.4	90	04/04/2022	5:00	1.3	67.5
01/04/2022	6:00	1.8	135	02/04/2022	6:00	0.9	135	03/04/2022	6:00	0.9	90	04/04/2022	6:00	1.3	45
01/04/2022	7:00	1.3	112.5	02/04/2022	7:00	0.4	112.5	03/04/2022	7:00	1.3	135	04/04/2022	7:00	1.8	90
01/04/2022	8:00	1.8	90	02/04/2022	8:00	0.9	90	03/04/2022	8:00	1.8	135	04/04/2022	8:00	0.9	112.5
01/04/2022	9:00	1.8	135	02/04/2022	9:00	0.9	90	03/04/2022	9:00	1.3	112.5	04/04/2022	9:00	0.9	337.5
01/04/2022	10:00	0.4	112.5	02/04/2022	10:00	0.4	247.5	03/04/2022	10:00	1.3	90	04/04/2022	10:00	1.3	22.5
01/04/2022	11:00	0.9	90	02/04/2022	11:00	0.4	202.5	03/04/2022	11:00	1.3	90	04/04/2022	11:00	0.9	90
01/04/2022	12:00	0.9	135	02/04/2022	12:00	0.9	90	03/04/2022	12:00	0.9	112.5	04/04/2022	12:00	1.3	67.5
01/04/2022	13:00	0.9	90	02/04/2022	13:00	0.9	112.5	03/04/2022	13:00	0.9	225	04/04/2022	13:00	1.3	90
01/04/2022	14:00	0.9	135	02/04/2022	14:00	0.4	112.5	03/04/2022	14:00	0.4	180	04/04/2022	14:00	1.3	22.5
01/04/2022	15:00	0.4	135	02/04/2022	15:00	0.9	135	03/04/2022	15:00	0.9	180	04/04/2022	15:00	1.3	180
01/04/2022	16:00	1.8	247.5	02/04/2022	16:00	0.4	112.5	03/04/2022	16:00	0.4	112.5	04/04/2022	16:00	1.3	112.5
01/04/2022	17:00	1.8	247.5	02/04/2022	17:00	0.9	112.5	03/04/2022	17:00	0.4	135	04/04/2022	17:00	1.3	135
01/04/2022	18:00	1.8	112.5	02/04/2022	18:00	0.9	112.5	03/04/2022	18:00	0.4	112.5	04/04/2022	18:00	0.4	112.5
01/04/2022	19:00	1.3	157.5	02/04/2022	19:00	1.3	112.5	03/04/2022	19:00	0.4	135	04/04/2022	19:00	0.9	90
01/04/2022	20:00	0.9	112.5	02/04/2022	20:00	0.4	90	03/04/2022	20:00	0.4	112.5	04/04/2022	20:00	1.3	112.5
01/04/2022	21:00	0.4	90	02/04/2022	21:00	0.9	90	03/04/2022	21:00	0.4	112.5	04/04/2022	21:00	1.3	90
01/04/2022	22:00	0.4	337.5	02/04/2022	22:00	0.9	112.5	03/04/2022	22:00	0.9	112.5	04/04/2022	22:00	1.3	112.5
01/04/2022	23:00	0.9	270	02/04/2022	23:00	0.4	112.5	03/04/2022	23:00	0.9	225	04/04/2022	23:00	0.9	112.5

Mean Wind Speed and Wind Direction recorded by the weather station setup at the rooftop of Ng Wah Catholic Secondary School

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
05/04/2022	0:00	0.4	45	06/04/2022	0:00	0.9	45	07/04/2022	0:00	1.3	337.5	08/04/2022	0:00	0.4	112.5
05/04/2022	1:00	0.9	225	06/04/2022	1:00	0.9	180	07/04/2022	1:00	0.9	45	08/04/2022	1:00	0.4	112.5
05/04/2022	2:00	0.9	180	06/04/2022	2:00	1.3	90	07/04/2022	2:00	0.9	45	08/04/2022	2:00	0.4	112.5
05/04/2022	3:00	0.4	22.5	06/04/2022	3:00	1.3	45	07/04/2022	3:00	1.3	45	08/04/2022	3:00	0	112.5
05/04/2022	4:00	0.4	270	06/04/2022	4:00	0.9	45	07/04/2022	4:00	0.4	45	08/04/2022	4:00	0	112.5
05/04/2022	5:00	0.9	22.5	06/04/2022	5:00	0.9	270	07/04/2022	5:00	0.9	247.5	08/04/2022	5:00	0	112.5
05/04/2022	6:00	1.3	270	06/04/2022	6:00	0.9	337.5	07/04/2022	6:00	0.9	22.5	08/04/2022	6:00	0.4	112.5
05/04/2022	7:00	0.9	90	06/04/2022	7:00	0.4	45	07/04/2022	7:00	1.3	22.5	08/04/2022	7:00	0.4	112.5
05/04/2022	8:00	0.4	90	06/04/2022	8:00	0.9	247.5	07/04/2022	8:00	1.3	45	08/04/2022	8:00	1.3	112.5
05/04/2022	9:00	0.9	247.5	06/04/2022	9:00	0.4	270	07/04/2022	9:00	0.4	67.5	08/04/2022	9:00	1.3	112.5
05/04/2022	10:00	0.4	202.5	06/04/2022	10:00	0.9	22.5	07/04/2022	10:00	0.4	135	08/04/2022	10:00	1.3	112.5
05/04/2022	11:00	0.4	180	06/04/2022	11:00	0.9	22.5	07/04/2022	11:00	0.4	202.5	08/04/2022	11:00	1.3	135
05/04/2022	12:00	0.4	45	06/04/2022	12:00	0.4	337.5	07/04/2022	12:00	0.4	45	08/04/2022	12:00	1.3	90
05/04/2022	13:00	0.4	315	06/04/2022	13:00	0.9	225	07/04/2022	13:00	0.4	315	08/04/2022	13:00	0.4	112.5
05/04/2022	14:00	0.4	292.5	06/04/2022	14:00	0.4	157.5	07/04/2022	14:00	0.9	22.5	08/04/2022	14:00	0.4	112.5
05/04/2022	15:00	0.4	22.5	06/04/2022	15:00	0.9	90	07/04/2022	15:00	0.4	135	08/04/2022	15:00	0.9	45
05/04/2022	16:00	0.4	270	06/04/2022	16:00	0.9	90	07/04/2022	16:00	0.9	135	08/04/2022	16:00	0.4	45
05/04/2022	17:00	0.9	22.5	06/04/2022	17:00	1.3	112.5	07/04/2022	17:00	0.9	90	08/04/2022	17:00	0.4	112.5
05/04/2022	18:00	0.9	90	06/04/2022	18:00	0.9	90	07/04/2022	18:00	0.9	270	08/04/2022	18:00	0.9	112.5
05/04/2022	19:00	0.4	45	06/04/2022	19:00	0.9	112.5	07/04/2022	19:00	0.4	247.5	08/04/2022	19:00	0.4	315
05/04/2022	20:00	0.9	247.5	06/04/2022	20:00	0.4	90	07/04/2022	20:00	0.4	112.5	08/04/2022	20:00	0.4	112.5
05/04/2022	21:00	0.9	45	06/04/2022	21:00	0.4	90	07/04/2022	21:00	1.3	45	08/04/2022	21:00	0.9	45
05/04/2022	22:00	0.9	225	06/04/2022	22:00	0.9	90	07/04/2022	22:00	1.3	112.5	08/04/2022	22:00	0.4	45
05/04/2022	23:00	0.4	315	06/04/2022	23:00	0.4	90	07/04/2022	23:00	1.3	90	08/04/2022	23:00	0.4	112.5

Mean Wind Speed and Wind Direction recorded by the weather station setup at the rooftop of Ng Wah Catholic Secondary School

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
09/04/2022	0:00	0.9	67.5	10/04/2022	0:00	0.4	112.5	11/04/2022	0:00	0.4	112.5	12/04/2022	0:00	0.9	225
09/04/2022	1:00	0.4	22.5	10/04/2022	1:00	0.9	112.5	11/04/2022	1:00	0.4	135	12/04/2022	1:00	0.9	247.5
09/04/2022	2:00	0.9	67.5	10/04/2022	2:00	1.3	112.5	11/04/2022	2:00	0.4	112.5	12/04/2022	2:00	0.9	247.5
09/04/2022	3:00	0.9	67.5	10/04/2022	3:00	0.9	45	11/04/2022	3:00	0.4	112.5	12/04/2022	3:00	0.4	225
09/04/2022	4:00	0.9	45	10/04/2022	4:00	0.9	112.5	11/04/2022	4:00	0.4	67.5	12/04/2022	4:00	0.4	247.5
09/04/2022	5:00	1.3	67.5	10/04/2022	5:00	0.4	112.5	11/04/2022	5:00	1.8	157.5	12/04/2022	5:00	0.4	292.5
09/04/2022	6:00	0.4	45	10/04/2022	6:00	0.9	112.5	11/04/2022	6:00	1.8	112.5	12/04/2022	6:00	0.9	225
09/04/2022	7:00	0.9	135	10/04/2022	7:00	0.4	90	11/04/2022	7:00	2.7	180	12/04/2022	7:00	0.9	247.5
09/04/2022	8:00	0.9	135	10/04/2022	8:00	0.9	90	11/04/2022	8:00	1.3	112.5	12/04/2022	8:00	0.4	247.5
09/04/2022	9:00	0.4	22.5	10/04/2022	9:00	0.4	90	11/04/2022	9:00	1.3	90	12/04/2022	9:00	0.4	157.5
09/04/2022	10:00	1.3	45	10/04/2022	10:00	0.4	112.5	11/04/2022	10:00	1.3	135	12/04/2022	10:00	0.9	112.5
09/04/2022	11:00	1.3	45	10/04/2022	11:00	0.9	45	11/04/2022	11:00	1.3	112.5	12/04/2022	11:00	0.9	157.5
09/04/2022	12:00	1.3	45	10/04/2022	12:00	0.4	112.5	11/04/2022	12:00	1.8	135	12/04/2022	12:00	0.4	157.5
09/04/2022	13:00	1.3	90	10/04/2022	13:00	0.9	112.5	11/04/2022	13:00	1.3	135	12/04/2022	13:00	0.9	247.5
09/04/2022	14:00	1.3	45	10/04/2022	14:00	1.3	112.5	11/04/2022	14:00	1.3	270	12/04/2022	14:00	0.9	112.5
09/04/2022	15:00	0.4	135	10/04/2022	15:00	1.8	45	11/04/2022	15:00	1.3	247.5	12/04/2022	15:00	0.9	67.5
09/04/2022	16:00	0.4	67.5	10/04/2022	16:00	1.3	67.5	11/04/2022	16:00	1.3	270	12/04/2022	16:00	1.3	225
09/04/2022	17:00	0.9	90	10/04/2022	17:00	0.9	112.5	11/04/2022	17:00	1.3	247.5	12/04/2022	17:00	1.8	247.5
09/04/2022	18:00	1.3	90	10/04/2022	18:00	0.9	112.5	11/04/2022	18:00	1.3	270	12/04/2022	18:00	1.3	247.5
09/04/2022	19:00	1.3	90	10/04/2022	19:00	1.3	112.5	11/04/2022	19:00	0.9	247.5	12/04/2022	19:00	1.3	90
09/04/2022	20:00	1.3	112.5	10/04/2022	20:00	1.3	112.5	11/04/2022	20:00	0.9	247.5	12/04/2022	20:00	1.3	45
09/04/2022	21:00	1.3	135	10/04/2022	21:00	0.4	112.5	11/04/2022	21:00	0.9	45	12/04/2022	21:00	1.3	247.5
09/04/2022	22:00	0.9	90	10/04/2022	22:00	0.9	112.5	11/04/2022	22:00	0.9	45	12/04/2022	22:00	1.3	112.5
09/04/2022	23:00	0.9	112.5	10/04/2022	23:00	0.4	112.5	11/04/2022	23:00	0.9	22.5	12/04/2022	23:00	1.3	112.5

Mean Wind Speed and Wind Direction recorded by the weather station setup at the rooftop of Ng Wah Catholic Secondary School

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
13/04/2022	0:00	0.4	135	14/04/2022	0:00	1.3	112.5	15/04/2022	0:00	0.4	67.5	16/04/2022	0:00	0.4	112.5
13/04/2022	1:00	0.4	90	14/04/2022	1:00	1.3	112.5	15/04/2022	1:00	0.4	67.5	16/04/2022	1:00	0.9	112.5
13/04/2022	2:00	0.4	22.5	14/04/2022	2:00	0.9	135	15/04/2022	2:00	1.3	0	16/04/2022	2:00	0.4	45
13/04/2022	3:00	1.3	90	14/04/2022	3:00	1.3	90	15/04/2022	3:00	0	67.5	16/04/2022	3:00	0.4	112.5
13/04/2022	4:00	0.9	112.5	14/04/2022	4:00	0.9	112.5	15/04/2022	4:00	0.4	90	16/04/2022	4:00	1.3	90
13/04/2022	5:00	0.9	112.5	14/04/2022	5:00	0.9	112.5	15/04/2022	5:00	0.4	90	16/04/2022	5:00	0.4	112.5
13/04/2022	6:00	0.9	135	14/04/2022	6:00	1.8	112.5	15/04/2022	6:00	0.4	67.5	16/04/2022	6:00	0.4	67.5
13/04/2022	7:00	0.9	90	14/04/2022	7:00	0.4	90	15/04/2022	7:00	0.9	90	16/04/2022	7:00	1.3	135
13/04/2022	8:00	0.9	112.5	14/04/2022	8:00	1.3	45	15/04/2022	8:00	1.3	135	16/04/2022	8:00	1.3	112.5
13/04/2022	9:00	1.8	112.5	14/04/2022	9:00	0.4	45	15/04/2022	9:00	0.9	67.5	16/04/2022	9:00	0.9	135
13/04/2022	10:00	1.3	112.5	14/04/2022	10:00	1.3	112.5	15/04/2022	10:00	1.3	90	16/04/2022	10:00	1.3	90
13/04/2022	11:00	0.9	90	14/04/2022	11:00	1.3	112.5	15/04/2022	11:00	1.3	90	16/04/2022	11:00	0.9	112.5
13/04/2022	12:00	1.8	90	14/04/2022	12:00	0.9	135	15/04/2022	12:00	0.9	90	16/04/2022	12:00	1.3	90
13/04/2022	13:00	0.9	112.5	14/04/2022	13:00	1.3	112.4	15/04/2022	13:00	0.4	90	16/04/2022	13:00	0.4	112.5
13/04/2022	14:00	0.9	135	14/04/2022	14:00	0.9	90	15/04/2022	14:00	0.9	45	16/04/2022	14:00	0.4	112.5
13/04/2022	15:00	0.9	90	14/04/2022	15:00	0.9	90	15/04/2022	15:00	0.4	135	16/04/2022	15:00	0.4	90
13/04/2022	16:00	0.9	112.5	14/04/2022	16:00	1.3	112.5	15/04/2022	16:00	0.4	135	16/04/2022	16:00	0.4	90
13/04/2022	17:00	1.8	112.5	14/04/2022	17:00	1.8	90	15/04/2022	17:00	0.4	112.5	16/04/2022	17:00	0.4	67.5
13/04/2022	18:00	1.3	112.5	14/04/2022	18:00	0.9	90	15/04/2022	18:00	0.9	22.5	16/04/2022	18:00	0.9	112.5
13/04/2022	19:00	0.9	90	14/04/2022	19:00	0.9	202.5	15/04/2022	19:00	0.9	90	16/04/2022	19:00	1.3	135
13/04/2022	20:00	1.8	90	14/04/2022	20:00	0.9	112.5	15/04/2022	20:00	0.4	135	16/04/2022	20:00	1.3	90
13/04/2022	21:00	1.3	90	14/04/2022	21:00	0.9	0	15/04/2022	21:00	0.4	225	16/04/2022	21:00	1.8	0
13/04/2022	22:00	1.8	67.5	14/04/2022	22:00	1.3	90	15/04/2022	22:00	0.4	157.5	16/04/2022	22:00	1.3	112.5
13/04/2022	23:00	0.9	112.5	14/04/2022	23:00	1.3	90	15/04/2022	23:00	1.3	90	16/04/2022	23:00	0.9	112.5

Mean Wind Speed and Wind Direction recorded by the weather station setup at the rooftop of Ng Wah Catholic Secondary School

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
17/04/2022	0:00	1.3	135	18/04/2022	0:00	0.9	0	19/04/2022	0:00	0.9	292.5	20/04/2022	0:00	1.3	112.5
17/04/2022	1:00	1.3	22.5	18/04/2022	1:00	0.4	45	19/04/2022	1:00	0.9	22.5	20/04/2022	1:00	1.3	90
17/04/2022	2:00	1.3	90	18/04/2022	2:00	0.9	0	19/04/2022	2:00	0.9	0	20/04/2022	2:00	1.8	112.5
17/04/2022	3:00	1.8	67.5	18/04/2022	3:00	0.9	0	19/04/2022	3:00	0.9	112.5	20/04/2022	3:00	0.9	67.5
17/04/2022	4:00	1.8	67.5	18/04/2022	4:00	0.9	337.5	19/04/2022	4:00	0.9	67.5	20/04/2022	4:00	0.9	112.5
17/04/2022	5:00	0.9	90	18/04/2022	5:00	1.3	112.5	19/04/2022	5:00	0.9	157.5	20/04/2022	5:00	0.9	112.5
17/04/2022	6:00	0.9	90	18/04/2022	6:00	1.3	112.5	19/04/2022	6:00	0.9	337.5	20/04/2022	6:00	0.4	90
17/04/2022	7:00	1.8	67.5	18/04/2022	7:00	1.3	90	19/04/2022	7:00	0.9	22.5	20/04/2022	7:00	0.9	90
17/04/2022	8:00	1.3	45	18/04/2022	8:00	1.8	90	19/04/2022	8:00	0.9	292.5	20/04/2022	8:00	0.9	112.5
17/04/2022	9:00	1.3	45	18/04/2022	9:00	1.3	112.5	19/04/2022	9:00	0.4	315	20/04/2022	9:00	0.9	225
17/04/2022	10:00	0.4	45	18/04/2022	10:00	0.4	135	19/04/2022	10:00	0.4	225	20/04/2022	10:00	1.8	112.5
17/04/2022	11:00	0.4	67.5	18/04/2022	11:00	0.9	90	19/04/2022	11:00	0.9	202.5	20/04/2022	11:00	1.3	45
17/04/2022	12:00	0.4	45	18/04/2022	12:00	0.9	112.5	19/04/2022	12:00	0.4	135	20/04/2022	12:00	1.3	112.5
17/04/2022	13:00	0.4	90	18/04/2022	13:00	0.9	135	19/04/2022	13:00	0.4	112.5	20/04/2022	13:00	1.3	135
17/04/2022	14:00	1.3	135	18/04/2022	14:00	1.3	112.5	19/04/2022	14:00	0.4	112.5	20/04/2022	14:00	0.9	112.5
17/04/2022	15:00	1.8	292.5	18/04/2022	15:00	0.9	90	19/04/2022	15:00	0.4	135	20/04/2022	15:00	0.9	135
17/04/2022	16:00	1.8	67.5	18/04/2022	16:00	0.9	135	19/04/2022	16:00	1.3	112.5	20/04/2022	16:00	1.3	112.5
17/04/2022	17:00	2.2	67.5	18/04/2022	17:00	0.9	112.5	19/04/2022	17:00	0.4	112.5	20/04/2022	17:00	0.4	135
17/04/2022	18:00	1.8	67.5	18/04/2022	18:00	1.3	112.5	19/04/2022	18:00	1.8	112.5	20/04/2022	18:00	0.4	135
17/04/2022	19:00	1.3	112.5	18/04/2022	19:00	2.2	112.5	19/04/2022	19:00	1.3	0	20/04/2022	19:00	1.3	135
17/04/2022	20:00	1.8	67.5	18/04/2022	20:00	2.2	90	19/04/2022	20:00	0.9	112.5	20/04/2022	20:00	0.9	135
17/04/2022	21:00	1.3	112.5	18/04/2022	21:00	1.8	90	19/04/2022	21:00	1.3	0	20/04/2022	21:00	0.9	247.5
17/04/2022	22:00	0.9	112.5	18/04/2022	22:00	2.2	112.5	19/04/2022	22:00	0.9	90	20/04/2022	22:00	1.3	247.5
17/04/2022	23:00	1.8	90	18/04/2022	23:00	1.3	112.5	19/04/2022	23:00	1.8	45	20/04/2022	23:00	1.3	247.5

Mean Wind Speed and Wind Direction recorded by the weather station setup at the rooftop of Ng Wah Catholic Secondary School

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
21/04/2022	0:00	0.9	112.5	22/04/2022	0:00	0.4	225	23/04/2022	0:00	0.9	112.5	24/04/2022	0:00	0.4	112.5
21/04/2022	1:00	1.3	90	22/04/2022	1:00	0.4	292.5	23/04/2022	1:00	1.3	112.5	24/04/2022	1:00	0.4	90
21/04/2022	2:00	1.8	112.5	22/04/2022	2:00	0.4	225	23/04/2022	2:00	1.3	112.5	24/04/2022	2:00	0.4	67.5
21/04/2022	3:00	1.3	112.5	22/04/2022	3:00	0.4	67.5	23/04/2022	3:00	1.8	112.5	24/04/2022	3:00	0.4	90
21/04/2022	4:00	1.8	112.5	22/04/2022	4:00	0.4	135	23/04/2022	4:00	1.3	90	24/04/2022	4:00	0.4	135
21/04/2022	5:00	1.3	90	22/04/2022	5:00	1.3	112.5	23/04/2022	5:00	1.3	90	24/04/2022	5:00	0.9	112.5
21/04/2022	6:00	1.3	90	22/04/2022	6:00	0.4	202.5	23/04/2022	6:00	0.9	112.5	24/04/2022	6:00	0.9	135
21/04/2022	7:00	0.9	112.5	22/04/2022	7:00	0.9	67.5	23/04/2022	7:00	1.3	90	24/04/2022	7:00	0.9	112.5
21/04/2022	8:00	1.8	112.5	22/04/2022	8:00	0.9	247.5	23/04/2022	8:00	1.3	112.5	24/04/2022	8:00	0.9	90
21/04/2022	9:00	1.8	67.5	22/04/2022	9:00	1.8	202.5	23/04/2022	9:00	0.9	112.5	24/04/2022	9:00	0.9	112.5
21/04/2022	10:00	1.3	112.5	22/04/2022	10:00	0.4	225	23/04/2022	10:00	1.3	112.5	24/04/2022	10:00	0.9	90
21/04/2022	11:00	1.8	67.5	22/04/2022	11:00	0.4	292.5	23/04/2022	11:00	1.8	112.5	24/04/2022	11:00	0.9	112.5
21/04/2022	12:00	0.9	112.5	22/04/2022	12:00	0.9	67.5	23/04/2022	12:00	1.3	112.5	24/04/2022	12:00	0.4	112.5
21/04/2022	13:00	0.9	112.5	22/04/2022	13:00	0.9	112.5	23/04/2022	13:00	1.3	112.5	24/04/2022	13:00	1.3	45
21/04/2022	14:00	1.3	90	22/04/2022	14:00	0.9	112.5	23/04/2022	14:00	1.3	135	24/04/2022	14:00	0.4	45
21/04/2022	15:00	1.3	112.5	22/04/2022	15:00	0.4	90	23/04/2022	15:00	0.9	135	24/04/2022	15:00	0.9	67.5
21/04/2022	16:00	1.3	112.5	22/04/2022	16:00	0.9	90	23/04/2022	16:00	1.3	90	24/04/2022	16:00	0.9	112.5
21/04/2022	17:00	0.9	112.5	22/04/2022	17:00	0.9	112.5	23/04/2022	17:00	1.3	90	24/04/2022	17:00	1.3	90
21/04/2022	18:00	1.3	112.5	22/04/2022	18:00	0.9	225	23/04/2022	18:00	0.4	22.5	24/04/2022	18:00	0.9	22.5
21/04/2022	19:00	1.8	112.5	22/04/2022	19:00	1.8	112.5	23/04/2022	19:00	0.9	90	24/04/2022	19:00	0.4	67.5
21/04/2022	20:00	1.8	135	22/04/2022	20:00	1.3	45	23/04/2022	20:00	1.3	157.5	24/04/2022	20:00	0.4	67.5
21/04/2022	21:00	1.8	90	22/04/2022	21:00	1.3	112.5	23/04/2022	21:00	1.8	112.5	24/04/2022	21:00	0.9	90
21/04/2022	22:00	0.9	112.5	22/04/2022	22:00	1.3	135	23/04/2022	22:00	1.3	112.5	24/04/2022	22:00	0.9	202.5
21/04/2022	23:00	1.3	135	22/04/2022	23:00	0.9	67.5	23/04/2022	23:00	1.8	157.5	24/04/2022	23:00	0.4	225

Mean Wind Speed and Wind Direction recorded by the weather station setup at the rooftop of Ng Wah Catholic Secondary School

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
25/04/2022	0:00	1.3	90	26/04/2022	0:00	0.4	135	27/04/2022	0:00	0.9	225	28/04/2022	0:00	1.8	90
25/04/2022	1:00	0.9	22.5	26/04/2022	1:00	0.9	247.5	27/04/2022	1:00	0.9	225	28/04/2022	1:00	1.3	112.5
25/04/2022	2:00	0.9	67.5	26/04/2022	2:00	0.9	202.5	27/04/2022	2:00	0.9	112.5	28/04/2022	2:00	1.8	225
25/04/2022	3:00	0.4	112.5	26/04/2022	3:00	0.9	45	27/04/2022	3:00	0.9	112.5	28/04/2022	3:00	1.3	135
25/04/2022	4:00	0.9	45	26/04/2022	4:00	0.4	90	27/04/2022	4:00	0.4	112.5	28/04/2022	4:00	1.8	90
25/04/2022	5:00	0.9	112.5	26/04/2022	5:00	0.4	112.5	27/04/2022	5:00	0.4	112.5	28/04/2022	5:00	1.3	270
25/04/2022	6:00	0.4	292.5	26/04/2022	6:00	0.9	112.5	27/04/2022	6:00	0.9	135	28/04/2022	6:00	1.3	90
25/04/2022	7:00	0.9	112.5	26/04/2022	7:00	0.9	112.5	27/04/2022	7:00	0.4	135	28/04/2022	7:00	1.3	45
25/04/2022	8:00	1.3	90	26/04/2022	8:00	0.9	112.5	27/04/2022	8:00	0.4	247.5	28/04/2022	8:00	1.3	45
25/04/2022	9:00	1.8	90	26/04/2022	9:00	0.9	157.5	27/04/2022	9:00	0.9	315	28/04/2022	9:00	1.8	45
25/04/2022	10:00	1.8	45	26/04/2022	10:00	0.9	157.5	27/04/2022	10:00	0	22.5	28/04/2022	10:00	1.8	45
25/04/2022	11:00	2.2	67.5	26/04/2022	11:00	0.9	180	27/04/2022	11:00	1.3	112.5	28/04/2022	11:00	1.8	90
25/04/2022	12:00	2.2	90	26/04/2022	12:00	0.4	180	27/04/2022	12:00	0.9	225	28/04/2022	12:00	1.3	112.5
25/04/2022	13:00	1.3	90	26/04/2022	13:00	0.4	135	27/04/2022	13:00	0.9	112.5	28/04/2022	13:00	1.8	225
25/04/2022	14:00	1.8	225	26/04/2022	14:00	0.9	247.5	27/04/2022	14:00	1.8	337.5	28/04/2022	14:00	1.8	67.5
25/04/2022	15:00	1.3	135	26/04/2022	15:00	0.4	135	27/04/2022	15:00	1.8	45	28/04/2022	15:00	0.9	45
25/04/2022	16:00	1.8	90	26/04/2022	16:00	0.9	247.5	27/04/2022	16:00	1.8	45	28/04/2022	16:00	0.9	45
25/04/2022	17:00	1.3	270	26/04/2022	17:00	0.9	202.5	27/04/2022	17:00	1.8	45	28/04/2022	17:00	1.8	90
25/04/2022	18:00	1.3	90	26/04/2022	18:00	0.9	45	27/04/2022	18:00	2.2	67.5	28/04/2022	18:00	1.8	67.5
25/04/2022	19:00	1.3	45	26/04/2022	19:00	0.4	90	27/04/2022	19:00	0.9	270	28/04/2022	19:00	1.3	67.5
25/04/2022	20:00	1.3	45	26/04/2022	20:00	0.4	112.5	27/04/2022	20:00	0.9	45	28/04/2022	20:00	1.3	90
25/04/2022	21:00	1.8	45	26/04/2022	21:00	0.9	112.5	27/04/2022	21:00	0.9	90	28/04/2022	21:00	0.9	67.5
25/04/2022	22:00	1.8	45	26/04/2022	22:00	0.9	112.5	27/04/2022	22:00	1.3	67.5	28/04/2022	22:00	0.9	67.5
25/04/2022	23:00	1.3	270	26/04/2022	23:00	0.9	112.5	27/04/2022	23:00	0.9	45	28/04/2022	23:00	1.8	67.5

Mean Wind Speed and Wind Direction recorded by the weather station setup at the rooftop of Ng Wah Catholic Secondary School

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
29/04/2022	0:00	0.9	112.5	30/04/2022	0:00	0.4	112.5								
29/04/2022	1:00	0.9	112.5	30/04/2022	1:00	0.4	112.5								
29/04/2022	2:00	1.3	67.5	30/04/2022	2:00	1.3	112.5								
29/04/2022	3:00	0.9	45	30/04/2022	3:00	1.3	112.5								
29/04/2022	4:00	0.9	90	30/04/2022	4:00	2.2	90								
29/04/2022	5:00	1.3	90	30/04/2022	5:00	1.3	90								
29/04/2022	6:00	0.4	90	30/04/2022	6:00	1.3	90								
29/04/2022	7:00	0	112.5	30/04/2022	7:00	1.3	90								
29/04/2022	8:00	0.9	112.5	30/04/2022	8:00	1.3	112.5								
29/04/2022	9:00	0.4	67.5	30/04/2022	9:00	0.9	112.5								
29/04/2022	10:00	0.4	22.5	30/04/2022	10:00	0.4	225								
29/04/2022	11:00	1.3	337.5	30/04/2022	11:00	1.3	67.5								
29/04/2022	12:00	0.9	112.5	30/04/2022	12:00	0.9	225								
29/04/2022	13:00	0.9	112.5	30/04/2022	13:00	0.9	112.4								
29/04/2022	14:00	1.8	112.5	30/04/2022	14:00	1.3	112.5								
29/04/2022	15:00	1.3	90	30/04/2022	15:00	0.4	90								
29/04/2022	16:00	0.9	112.5	30/04/2022	16:00	0.9	45								
29/04/2022	17:00	0.9	112.5	30/04/2022	17:00	0.9	90								
29/04/2022	18:00	1.3	90	30/04/2022	18:00	0.9	90								
29/04/2022	19:00	0.9	112.5	30/04/2022	19:00	1.8	45								
29/04/2022	20:00	1.3	112.5	30/04/2022	20:00	1.3	0								
29/04/2022	21:00	0.9	112.5	30/04/2022	21:00	0.9	112.5								
29/04/2022	22:00	1.3	135	30/04/2022	22:00	0.9	90								
29/04/2022	23:00	1.3	67.5	30/04/2022	23:00	0.4	90								

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

Location: AM2(A) – Ng Wah Catholic Secondary School

Start Date	Weather	Air Temp. (℃)	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			
04/04/2022	Sunny	25.6	1022.2	15.2224	15.4319	0.2095	6888.62	6912.63	1441	50	50	1.46	2110	99
09/04/2022	Sunny	28.5	1013.8	18.1533	18.2679	0.1146	6913.64	6937.65	1441	50	50	1.45	2091	55
14/04/2022	Sunny	31.5	1008.4	18.1987	18.4628	0.2641	6938.31	6962.31	1440	50	50	1.44	2074	127
20/04/2022	Sunny	25.5	1013.4	15.4437	15.5690	0.1253	6963.43	6987.44	1441	49	49	1.43	2059	61
25/04/2022	Sunny	31.6	1008.6	15.1253	15.2312	0.1059	6989.21	7013.21	1440	50	50	1.44	2074	51
30/04/2022	Sunny	26.2	1012.3	15.1384	15.2265	0.0881	7013.88	7037.89	1441	50	50	1.46	2098	42

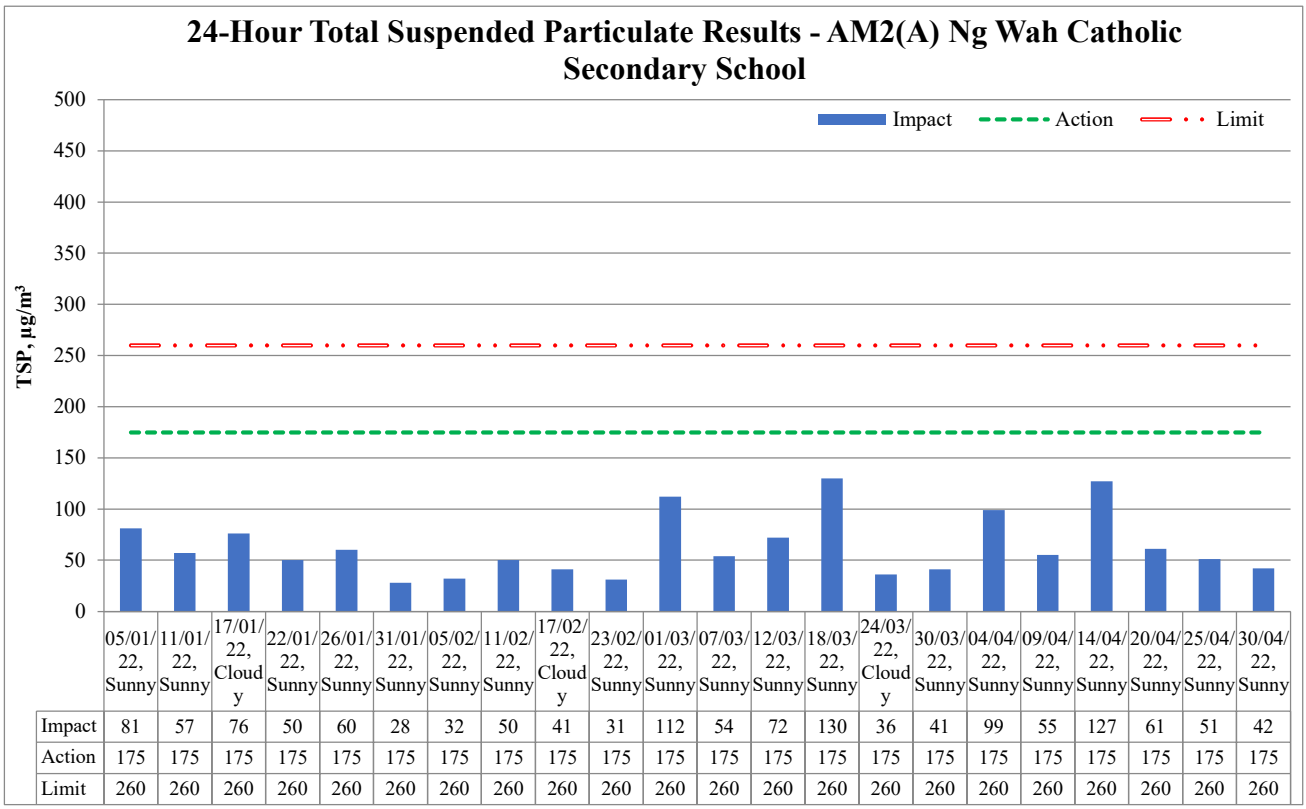
Maximum	127
Minimum	42
Average	73
Action Level	175
Limit Level	260

Location: AM3 – Sky Tower

Start Date	Weather	Air Temp. (℃)	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			
04/04/2022	Sunny	25.6	1022.2	15.2487	15.4272	0.1785	4363.12	4387.14	1441	50	50	1.40	2024	88
09/04/2022	Sunny	28.5	1013.8	18.2879	18.4529	0.1650	4388.33	4412.35	1441	52	52	1.45	2088	79
14/04/2022	Sunny	31.5	1008.4	15.2878	15.4994	0.2116	4413.37	4437.39	1441	52	52	1.44	2071	102
20/04/2022	Sunny	25.5	1013.4	18.2423	18.4275	0.1852	4438.87	4462.89	1441	54	54	1.51	2181	85
25/04/2022	Sunny	31.6	1008.6	15.2001	15.2561	0.0560	4463.24	4487.25	1441	52	52	1.44	2070	27
30/04/2022	Sunny	26.2	1012.3	15.0384	15.0982	0.0598	4487.55	4511.57	1441	50	50	1.40	2012	30

Maximum	102
Minimum	27
Average	69
Action Level	172
Limit Level	260

24-hour average TSP



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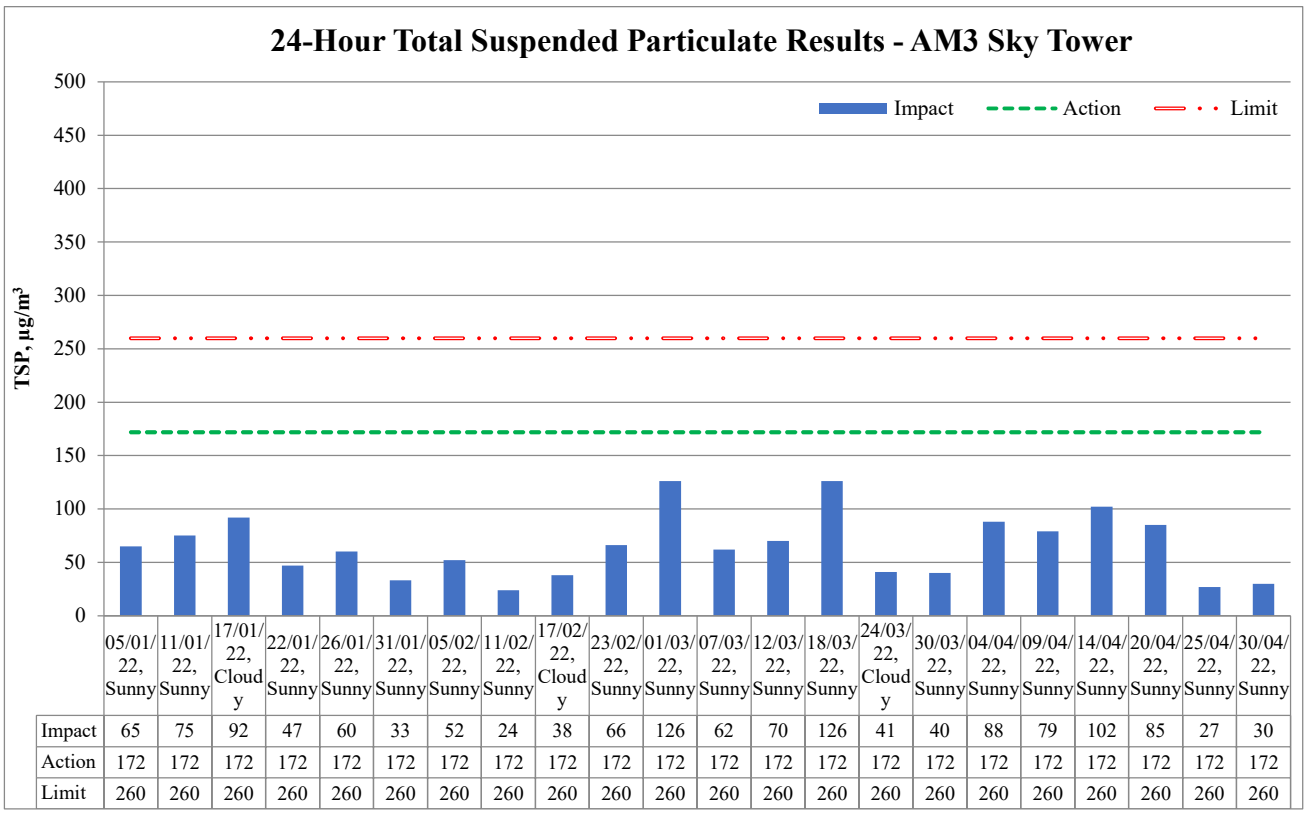
Impact	81	57	76	50	60	28	32	50	41	31	112	54	72	130	36	41	99	55	127	61	51	42
Action	175	175	175	175	175	175	175	175	175	175	175	175	175	175	175	175	175	175	175	175	175	175
Limit	260	260	260	260	260	260	260	260	260	260	260	260	260	260	260	260	260	260	260	260	260	260



	05/01/22, Sunny	11/01/22, Sunny	17/01/22, Cloudy	22/01/22, Sunny	26/01/22, Sunny	31/01/22, Sunny	05/02/22, Sunny	11/02/22, Sunny	17/02/22, Cloudy	23/02/22, Sunny	01/03/22, Sunny	07/03/22, Sunny	12/03/22, Sunny	18/03/22, Sunny	24/03/22, Cloudy	30/03/22, Sunny	04/04/22, Sunny	09/04/22, Sunny	14/04/22, Sunny	20/04/22, Sunny	25/04/22, Sunny	30/04/22, Sunny
Impact	65	75	92	47	60	33	52	24	38	66	126	62	70	126	41	40	88	79	102	85	27	30
Action	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172
Limit	260	260	260	260	260	260	260	260	260	260	260	260	260	260	260	260	260	260	260	260	260	260

Major Construction Activities	Reporting Period			
	Jan 2022	Feb 2022	March 2022	April 2022
Bored pile works for landscape elevated walkway	✓	✓		
Instrumentation installation at SB-01	✓			
Pre-drilling work for S14	✓			
Removal existing piles at Road D1	✓			
Rising main construction	✓			
Trial pit excavation	✓			
Advance works for traffic diversion at Sa Po Road	✓			
Drainage works for Pedestrian Street No.1, No,2 & No.3	✓			
Construction of Crowd Dispersal Route	✓	✓	✓	✓
ELS and excavation at Pier 9 and Pier 10 for Elevated Walkway LW-02		✓		
ELS and excavation at Pier 9 for Elevated Walkway LW-02				✓
Underground utility diversion works at Sa Po Road		✓	✓	✓
ELS and excavation at launching shaft for subway SB-01		✓	✓	✓
Drainage works for Pedestrian Street No.1, No,2 No.3 & No.4		✓		
Construction of DCS		✓	✓	✓
Construction works for Road L16		✓	✓	✓
Pre-bored socket H-piles construction for Subway KS10		✓	✓	
Twin rising mains diversion works		✓		
Renovation works for existing subways KS9 and KS32		✓	✓	✓
Post-pilling tests for PC11 for Elevated Walkway LW-02			✓	
ELS and excavation at Pier 9 for Elevated Walkway LW-02			✓	
Pile cap construction for PC9 and PC10 for Elevated Walkway LW-02			✓	✓
Construction works for Pedestrian Street No. 1, No. 2, No. 3 & No. 4			✓	✓
Post-pilling tests for H-piles at Subway KS10			✓	✓
Erection of temporary decking across existing Kai Tak River				✓
ELS and excavation for Subway KS10 Lift and Staircase				✓
Demolition works to existing subway KS10 staircase and ramp				✓

Factors might affect the monitoring results	Reporting Period			
	Jan 2022	Feb 2022	March 2022	April 2022
Non-project related construction activities in the adjacent construction sites were observed.	✓	✓	✓	✓

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

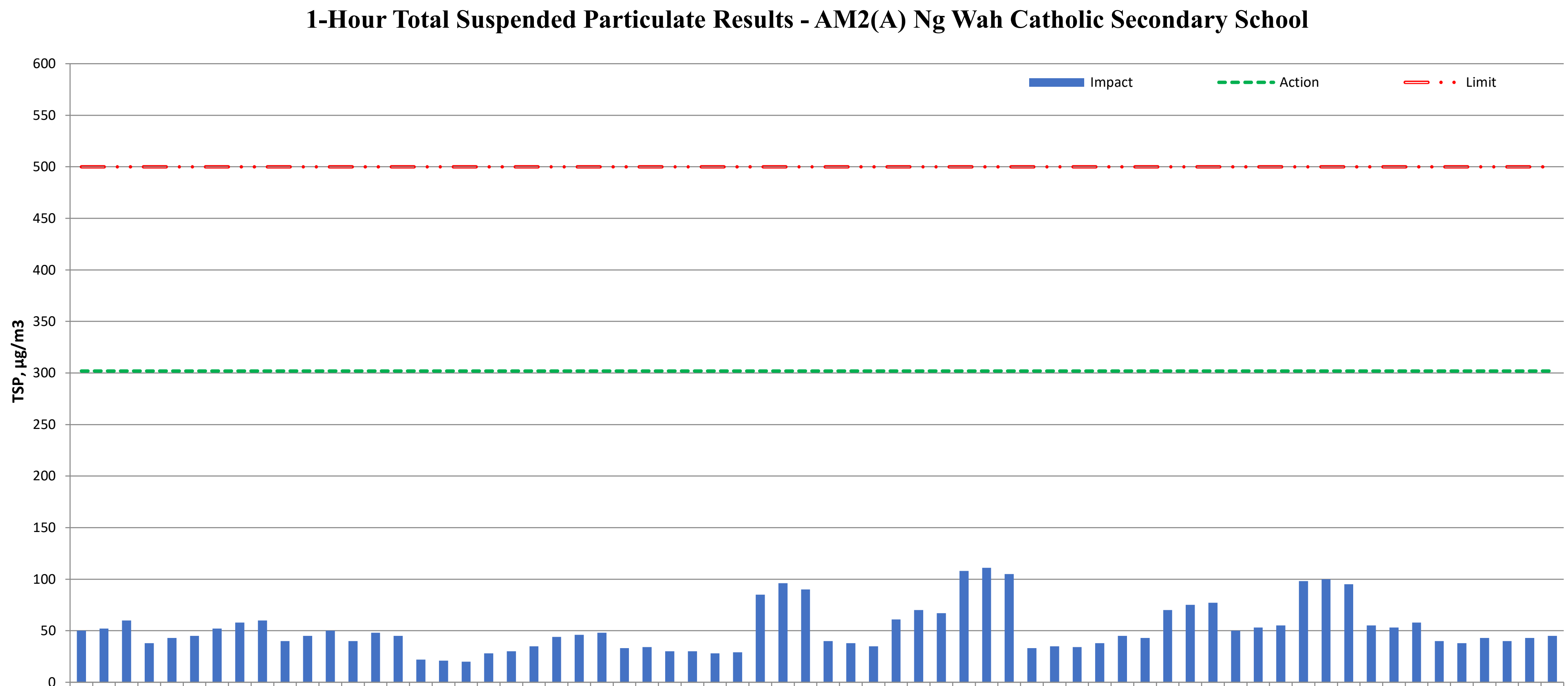
Location:
AM2(A) – Ng Wah Catholic Secondary School

Date	Measurement Period			1-hr TSP concentration, $\mu g/m^3$	Weather
04/04/2022	13:00	-	14:00	70	Sunny
	14:00	-	15:00	75	
	15:00	-	16:00	77	
09/04/2022	9:00	-	10:00	50	Sunny
	10:00	-	11:00	53	
	11:00	-	12:00	55	
14/04/2022	13:00	-	14:00	98	Sunny
	14:00	-	15:00	100	
	15:00	-	16:00	95	
20/04/2022	9:00	-	10:00	55	Sunny
	10:00	-	11:00	53	
	11:00	-	12:00	58	
25/04/2022	9:00	-	10:00	40	Sunny
	10:00	-	11:00	38	
	11:00	-	12:00	43	
30/04/2022	13:00	-	14:00	40	Sunny
	14:00	-	15:00	43	
	15:00	-	16:00	45	
Maximum				100	
Minimum				38	
Average				60	
Action Level				302	
Limit Level				500	

Location:
AM3 -
Sky Tower

Date	Measurement Period			1-hr TSP concentration, $\mu g/m^3$	Weather
04/04/2022	9:00	-	10:00	65	Sunny
	10:00	-	11:00	72	
	11:00	-	12:00	73	
09/04/2022	13:00	-	14:00	59	Sunny
	14:00	-	15:00	64	
	15:00	-	16:00	64	
14/04/2022	9:00	-	10:00	88	Sunny
	10:00	-	11:00	88	
	11:00	-	12:00	93	
20/04/2022	9:00	-	10:00	62	Sunny
	10:00	-	11:00	63	
	11:00	-	12:00	70	
25/04/2022	13:00	-	14:00	32	Sunny
	14:00	-	15:00	35	
	15:00	-	16:00	35	
30/04/2022	13:00	-	14:00	38	Sunny
	14:00	-	15:00	41	
	15:00	-	16:00	40	
Maximum				93	
Minimum				32	
Average				60	
Action Level				301	
Limit Level				500	

1-hour average TSP

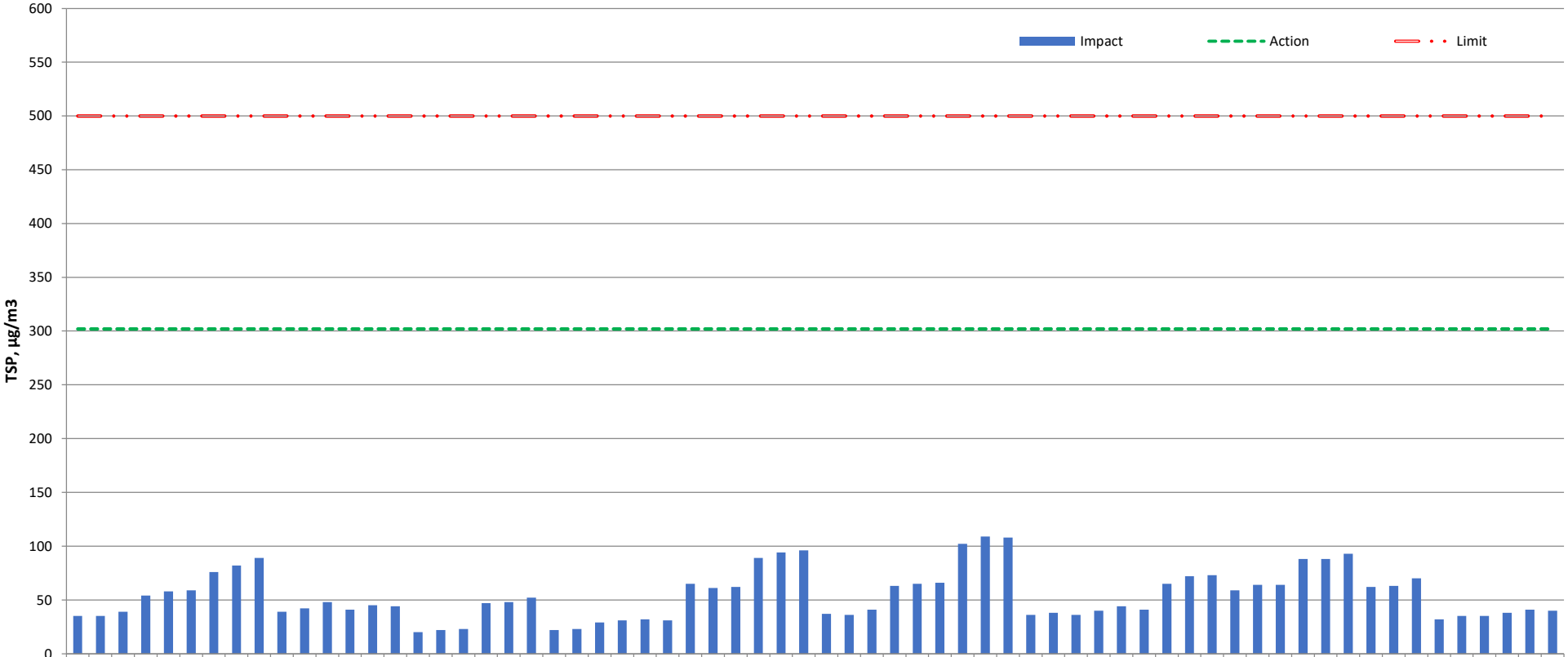


	05/01/22, Sunny	05/01/22, Sunny	05/01/22, Sunny	11/01/22, Sunny	11/01/22, Sunny	11/01/22, Sunny	17/01/22, Cloudy	17/01/22, Cloudy	17/01/22, Cloudy	22/01/22, Sunny	22/01/22, Sunny	22/01/22, Sunny	26/01/22, Sunny	26/01/22, Sunny	26/01/22, Sunny	31/01/22, Sunny	31/01/22, Sunny	31/01/22, Sunny	05/02/22, Sunny	05/02/22, Sunny	05/02/22, Sunny	11/02/22, Sunny
Impact	50	52	60	38	43	45	52	58	60	40	45	50	40	48	45	22	21	20	28	30	35	44
Action	302	302	302	302	302	302	302	302	302	302	302	302	302	302	302	302	302	302	302	302	302	302
Limit	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500

	11/02/22, Sunny	11/02/22, Sunny	17/02/22, Cloudy	17/02/22, Cloudy	17/02/22, Cloudy	23/02/22, Sunny	23/02/22, Sunny	23/02/22, Sunny	01/03/22, Sunny	01/03/22, Sunny	01/03/22, Sunny	07/03/22, Sunny	07/03/22, Sunny	07/03/22, Sunny	12/03/22, Sunny	12/03/22, Sunny	12/03/22, Sunny	18/03/22, Sunny	18/03/22, Sunny	18/03/22, Sunny	24/03/22, Cloudy	24/03/22, Cloudy
Impact	46	48	33	34	30	30	28	29	85	96	90	40	38	35	61	70	67	108	111	105	33	35
Action	302	302	302	302	302	302	302	302	302	302	302	302	302	302	302	302	302	302	302	302	302	302
Limit	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500

	24/03/22, Cloudy	30/03/22, Sunny	30/03/22, Sunny	30/03/22, Sunny	04/04/22, Sunny	04/04/22, Sunny	04/04/22, Sunny	09/04/22, Sunny	09/04/22, Sunny	09/04/22, Sunny	14/04/22, Sunny	14/04/22, Sunny	14/04/22, Sunny	20/04/22, Sunny	20/04/22, Sunny	20/04/22, Sunny	25/04/22, Sunny	25/04/22, Sunny	25/04/22, Sunny	30/04/22, Sunny	30/04/22, Sunny	30/04/22, Sunny
Impact	34	38	45	43	70	75	77	50	53	55	98	100	95	55	53	58	40	38	43	40	43	45
Action	302	302	302	302	302	302	302	302	302	302	302	302	302	302	302	302	302	302	302	302	302	302
Limit	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500

1-Hour Total Suspended Particulate Results - AM3 Sky Tower



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Impact	35	35	39	54	58	59	76	82	89	39	42	48	41	45	44	20	22	23	47	48	52	22	23	29	31	32	31	65	61	62	89	94	96	37	36	41	63	65	66	102	109	108	36	38	36	40	44	41	65	72	73	59	64	64	88	88	93	62	63	70	32	35	35	38	41	40
Action	302	302	302	302	302	302	302	302	302	302	302	302	302	302	302	302	302	302	302	302	302	302	302	302	302	302	302	302	302	302	302	302	302	302	302	302	302	302	302	302	302	302	302	302	302	302	302	302	302	302	302	302	302	302	302	302	302	302	302	302	302	302	302	302	302	302
Limit	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500

Major Construction Activities	Reporting Period			
	Jan 2022	Feb 2022	March 2022	April 2022
Bored pile works for landscape elevated walkway	✓	✓		
Instrumentation installation at SB-01	✓			
Pre-drilling work for S14	✓			
Removal existing piles at Road D1	✓			
Rising main construction	✓			
Trial pit excavation	✓			
Advance works for traffic diversion at Sa Po Road	✓			
Drainage works for Pedestrian Street No.1, No,2 & No.3	✓			
Construction of Crowd Dispersal Route	✓	✓	✓	✓
ELS and excavation at Pier 9 and Pier 10 for Elevated Walkway LW-02		✓		
ELS and excavation at Pier 9 for Elevated Walkway LW-02				✓
Underground utility diversion works at Sa Po Road		✓	✓	✓
ELS and excavation at launching shaft for subway SB-01		✓	✓	✓
Drainage works for Pedestrian Street No.1, No,2 No.3 & No.4		✓		
Construction of DCS		✓	✓	✓
Construction works for Road L16		✓	✓	✓
Pre-bored socket H-piles construction for Subway KS10		✓	✓	
Twin rising mains diversion works		✓		
Renovation works for existing subways KS9 and KS32		✓	✓	✓
Post-pilling tests for PC11 for Elevated Walkway LW-02			✓	
ELS and excavation at Pier 9 for Elevated Walkway LW-02			✓	
Pile cap construction for PC9 and PC10 for Elevated Walkway LW-02			✓	✓
Construction works for Pedestrian Street No. 1, No. 2, No. 3 & No. 4			✓	✓
Post-pilling tests for H-piles at Subway KS10			✓	✓
Erection of temporary decking across existing Kai Tak River				✓
ELS and excavation for Subway KS10 Lift and Staircase				✓
Demolition works to existing subway KS10 staircase and ramp				✓

Factors might affect the monitoring results	Reporting Period			
	Jan 2022	Feb 2022	March 2022	April 2022
Non-project related construction activities in the adjacent construction sites were observed.	✓	✓	✓	✓

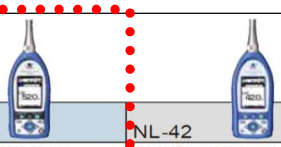
Appendix I – Event and Action Plan for air quality

Event	Action			
	ET	IEC	Supervisor / ER	Contractor
Action Level being exceeded by one sampling	1. Identify source and investigate the causes of exceedance; 2. Inform Contractor, IEC and Supervisor /ER; 3. Repeat measurement to confirm finding.	1. Check monitoring data submitted by ET; 2. Check Contractor's working method.	1. Notify Contractor.	1. Rectify any unacceptable practice; 2. Amend working methods if appropriate.
Action Level being exceeded by two or more consecutive sampling	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.	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.	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.	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	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	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	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	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.	implemented; 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	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.	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.	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.	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

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
	CE Marking (EMC Directive 2004/108/EC, Low Voltage Directive 2006/95/EC), WEEE Directives, Chinese RoHS (export model for China only)	
Measurement functions	Simultaneous measurement of the following items, with selected time weighting and frequency weighting	
Processing (main ch)	Instantaneous sound pressure level: L_p Equivalent continuous sound pressure level: L_{eq} Sound exposure level: L_E 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} L_{Aeq}-time-weighted equivalent continuous sound level: L_{Aeq} *2 Maximum L_{Aeq}-time-weighted equivalent continuous sound level: L_{Amax} *2 The power average of the maximum level of each 5 second interval: L_{Atm5} 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_{Atm5} 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
Microphone 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 Z-weighting peak sound level: 60 dB to 141 dB	
Inherent noise A-weighting	17 dB or less	19 dB or less
Inherent noise C-weighting	25 dB or less	27 dB or less
Inherent noise 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 µs (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.	
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.	
Number of data	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} 1s	
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	

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	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	
Type of data 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	
Ambient conditions 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×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).

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

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

Distributed by:

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

This product is environment-friendly. It does not include toxic chemicals on our policy.
This product is certified to 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 1212.P.D

AAST-SLM-10
Cal Cert 2021/7/19

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: 2HB21001383-0001
Certificate No.

CNAS 中国认可 国际互认 校准 CALIBRATION CNAS L13344

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	2021-07-08	校准日期: Cal. Date	2021-07-19
签发日期: App. Date	2021-07-19	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 陈卓辉
核验: Inspected by 张毅
签发: Approved by 郭木为
印章: Stamp

赛宝计量检测中心
广州总部地址：广州市增城区朱村街朱大道西78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
HQ Addr: No.78,Zhucun Avenue West,Zengcheng District,Guangzhou,China
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.): 2HB21001383-0001

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 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，其结果/结论所依据的合格评定活动不在认可范围内。(Please see the attachment of certificate No. L13344 at CNAS website for details, beyond which is not accredited, the conformity assessment activities on which the results/conclusions are based are outside the scope of accreditation.)

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)	测量范围 (Measuring Range)
正弦信号发生器	4GC20000427-0010/2021-11-04/赛宝(广州)	f_0 ±1mHz；失真度 Distortion：<-70dB	f_0 0.001Hz～200kHz；U ：100μV～5Vrms
数字多用表	4GC20000358-0060/2021-09-09/赛宝(广州)	DCV：±0.0035%；ACV：±0.06%；DCI：±0.05%；ACI：±0.1%；R：±0.01%；f_0 ±0.001%	DCV:(0～1000)V；ACV:(0.001～750)V@(3Hz～300kHz)；DCI:(0～3)A；ACI:(0～3)A@(3Hz～5kHz)；R:(0～100)MΩ；f:3Hz～300kHz
步进衰减器	4GC21000155-0024/2022-04-29/赛宝(广州)	±3dB	（0～110）dB/10dB step @(DC～1GHz)
PULSE分析系统	GFJGJL1001210202725/2022-03-03/航空304所	频率:U_{rel}=0.001%,k=2;电压:U_{rel}=0.04%,k=2	频率:0.001Hz~51.2kHz,电压:(1×10^{-5}～30)V
标准传声器	LSsx2021-13180/2022-04-24/中国计量院	U=(0.05～0.20)dB（k=2）	20Hz～20kHz
前置放大器	LSsx2021-11346/2022-03-07/中国计量院	U=0.3dB（k=2）	（10～20000）Hz
功率放大器	4GC20000457-0065/2021-11-17/赛宝(广州)	频率响应：±1dB，失真度：≤0.2%	20Hz～20kHz
多功能声学校准器	4EC20000091-0005/2021-11-05/赛宝(广州)	1级	31.5Hz～16kHz

4. 校准地点(The calibration place)：
广州市增城区朱村街朱村大道西78号9栋110室

5. 环境条件(Environmental conditions)：
温度(Temperature)：23.4℃ 相对湿度(Relative Humidity)：55.8%

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"不适用或技术指标暂时无法确认等"。本证书报告的结论仅供参考，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 or The technical specification has not been confirmed etc".The 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校准周期。

Calibration Certificate of Sound Level Meter

CEPREI

证书编号(Certificate No.): 2HB21001383-0001

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

无影响证书中测量结果准确度的因素和缺陷。

There are no factor and defect that affect the measurement 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	15764	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)
4226	94.0	94.1	94.1	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):	-0.1	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):	-0.1	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

CEPREI

证书编号(Certificate No.): 2HB21001383-0001

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	-49.2	-50.5	1.3	±2.0	P	0.5
25	-44.2	-44.7	0.5	+2.0 ~ -1.5	P	0.5
31.5	-39.4	-39.4	0.0	±1.5	P	0.5
40	-34.4	-34.6	0.2	±1.0	P	0.5
50	-30.3	-30.2	-0.1	±1.0	P	0.5
63	-26.0	-26.2	0.2	±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	-16.0	-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	-8.6	-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	-3.3	-3.2	-0.1	±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	0.5	0.6	-0.1	±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	1.0	1.3	-0.3	±1.0	P	0.6
3150	0.9	1.2	-0.3	±1.0	P	0.6
4000	1.2	1.0	0.2	±1.0	P	0.6
5000	0.3	0.5	-0.2	±1.5	P	0.6
6300	-0.3	-0.1	-0.2	+1.5 ~ -2.0	P	0.6
8000	-0.6	-1.1	0.5	+1.5 ~ -2.5	P	0.6
10000	-2.4	-2.5	0.1	+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	-18.5	-9.3	-9.2	+3.0 ~ -∞	P	1.0

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	-4.5	-4.4	-0.1	+2.0 ~ -1.5	P	0.5
31.5	-2.9	-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	-0.7	-0.8	0.1	±1.0	P	0.5
80	-0.5	-0.5	0.0	±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	-0.1	-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	0.1	0.0	0.1	±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	-0.1	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	-0.6	-0.3	-0.3	±1.0	P	0.6
3150	-0.8	-0.5	-0.3	±1.0	P	0.6
4000	-0.6	-0.8	0.2	±1.0	P	0.6
5000	-1.6	-1.3	-0.3	±1.5	P	0.6
6300	-2.1	-2.0	-0.1	+1.5 ~ -2.0	P	0.6
8000	-2.5	-3.0	0.5	+1.5 ~ -2.5	P	0.6
10000	-4.3	-4.4	0.1	+2.0 ~ -3.0	P	0.6
12500	-6.3	-6.2	-0.1	+2.0 ~ -5.0	P	1.0
16000	-10.5	-8.5	-2.0	+2.5 ~ -16.0	P	1.0
20000	-20.4	-11.2	-9.2	+3.0 ~ -∞	P	1.0

6 自生噪声 (Autogenous noise)

计权 (Weighting)	实测值 (Actual) (dB)
A	15.3

以下空白/No data hereafter

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 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，其结果/结论所依据的合格评定活动不在认可范围内。(Please see the attachment of certificate No. L13344 at CNAS website for details, beyond which is not accredited, the conformity assessment activities on which the results/conclusions are based are outside the scope of accreditation.)。

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)	测量范围 (Measuring Range)
数字多用表	4GC20000467-0001/2021-11-26/赛宝(广州)	DCV：±0.0035%；ACV：±0.06%；DCI：±0.05%；ACI：±0.1%；R：±0.01%；f_t ±0.001%	DCV:(0～1000)V；ACV:(0.001～750)V@(3Hz～300kHz)；DCI:(0～3)A；ACI:(0～3)A@(3Hz～5kHz)；R:(0～100)MΩ；f:3Hz～300kHz
正弦信号发生器	4GC20000427-0010/2021-11-04/赛宝(广州)	f_t ±1mHz；失真度 Distortion：＜-70dB	f_t 0.001Hz～200kHz；U：100μV～5Vrms
标准传声器	LSsx2021-13180/2022-04-24/中国计量院	U=(0.05~0.20)dB（k=2）	20Hz～20kHz
前置放大器	LSsx2021-13000/2022-04-19/中国计量院	U=0.3dB（k=2）	（10～50000）Hz
PULSE分析系统	4GC21000026-0375/2022-01-21/赛宝(广州)	频率:U_{rel}=0.001%,k=2;电压:U_{rel}=0.04%,k=2	频率:0.001Hz~51.2kHz,电压:(1×10^{-5}～30)V
声级校准器	LSsx2021-11345/2022-03-07/中国计量院	1级	94dB,114dB@（1000Hz）
功率放大器	4GC20000457-0065A/2021-11-17/赛宝(广州)	频率响应：±1dB，失真度：≤0.2%	20Hz～20kHz
步进衰减器	4GC21000155-0024/2022-04-29/赛宝(广州)	±3dB	（0～110）dB/10dB step @(DC～1GHz)
声校准器	4GC20000502-0050/2021-12-21/赛宝(广州)	1级 First Level	31.5Hz～16kHz

4. **校准地点**(The calibration place)：
广州市增城区朱村街朱村大道西78号9栋110室

5. **环境条件**(Environmental conditions)：
温度(Temperature)：23.9°C　　相对湿度(Relative Humidity)：55.8%

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"不适用或技术指标暂时无法确认等"。本证书报告的结论仅供参考，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 or The technical specification has not been confirmed etc".The 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.

Sound Calibrator NC-75

GREEN

RION

Compact and lightweight sound calibrator
allows highly reliable and
accurate measurement anywhere

Sound Calibrator
NC-75

Patent pending

- Integrated newly developed reference microphone enables feedback control that completely eliminates the need for atmospheric pressure and coupler volume correction, resulting in highly accurate and reliable calibration.
- Effective coupler sound insulation (30 dB or higher*) permits calibration also in relatively noisy environments.
  *A-weighed sound level insulation performance measured with pink noise
- Each product comes standard with a JCSS Calibration Certificate, demonstrating high quality.

- Conforming with IEC 60942: 2017 class 1 and JIS C 1515: 2020
- Supports calibration of RION sound level meters compliant with IEC 61672-1: 2013, JIS C 1509-1: 2017 and JIS C 1516: 2014.
- Supports calibration of RION microphones and microphones of other manufacturers meeting the size specifications of IEC 61094-4.
- Supports 1-inch, 1/2-inch, and 1/4-inch microphones (1/4 inch with optional adapter)

JCSS Calibration Certificate

JCSS Calibration Results

Usage example

How to use the adapter

1-inch microphones

To use the sound calibrator with 1-inch diameter microphones, remove the 1/2-inch microphone adapter.

1/2-inch microphones

To use the sound calibrator with 1/2-inch diameter microphones, the supplied 1/2-inch microphone adapter must be in place.

Make sure the 1/2-inch adapter is locked.

1/4-inch microphones

To use the sound calibrator with 1/4-inch diameter microphones, use the supplied 1/2-inch microphone adapter together with the optional 1/4-inch adapter.

Specifications (under standard ambient conditions*)

Applicable standards	IEC 60942: 2017 class1, ANSI/ASA S1.40-2006 class1, JIS C 1515: 2020 class 1, CE marking, WEEE directive, Chinese RoHS
Supported microphones	Microphones made by RION and microphones made by other manufacturers that meet the IEC 61094-4 size specifications 1-inch microphones 1/2-inch microphones (with supplied adapter) 1/4-inch microphones (with optional adapter)
Nominal sound pressure level	94 dB
Sound pressure level tolerance	Max. ±0.20 dB
Nominal frequency	1 000 Hz
Frequency tolerance	Max. ±0.1%
THD + noise	Max. 1.0 % (22.4 Hz to 22.4 kHz)
Dimensions and weight	Approx. 42 mm (H) x 77 mm (W) x 70 mm (D), approx. 200 g
Power supply	IEC LR6 (size AA) alkaline battery x 2 IEC LR6 (size AA) nickel-hydride rechargeable battery ("eneloop pro" supported) x 2
Battery life	50 hours or more (using two alkaline batteries, continuous use) 50 hours or more (using two nickel-hydride rechargeable batteries [eneloop pro], continuous use)
Supplied accessories	Soft case x 1, 1/2-inch microphone adapter x 1, IEC LR6 (size AA) alkaline battery x 2, hand strap x 1, JCSS Calibration Certificate x 1

*RION standard ambient conditions: static pressure 101.325 kPa, ambient temperature 23 °C, relative humidity 50 %

Optional accessories	1/4-inch microphone adapter NC-75-S11

Strap

Securely carry the unit with the supplied hand strap

Soft case

Calibration can be performed with the calibrator inserted in the soft case

PISTONPHONE NC-72A

Specifications (under standard ambient conditions*)

Applicable standards	IEC 60942: 2017 class LS/M, class 1/M, JIS C 1515: 2020 class LS/M, class 1/M
Nominal sound pressure level	114 dB, Sound pressure level tolerance ±0.10 dB

RION CO., LTD. is recognized by the JCSS which uses ISO/IEC 17025 as an accreditation standard and bases its accreditation scheme on ISO/IEC 17011. JCSS is operated by the accreditation body (IA Japan) which is a signatory to the Asia Pacific Accreditation Cooperation (APAC) as well as the International Laboratory Accreditation Cooperation (ILAC). The Quality Assurance Section of RION CO., LTD. is an international MRA compliant JCSS operator with the accreditation number JCSS 0197.

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

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

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This leaflet is printed with environmentally friendly UV ink.

1709-6 2003.P.D

RION CO., LTD.
https://rion-sv.com/
3-20-41, Higashimotomachi, Kokubunji, Tokyo 185-8533, Japan
Tel: +81-42-359-7888 Fax: +81-42-359-7442

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：2HB21001749-0002
Certificate No.

中国认可 国际互认 校准 CALIBRATION CNAS L13344

委托单位：Client	Castco Testing Centre Limited
仪器名称：Description	Sound Level Calibrator
型号规格：Model/Type	NC-75
制造商：Manufacturer	RION
机身号：Serial No.	34280310
管理号：Asset No.	AAST-SLC-07
接收日期：Rec. Date	2021-08-05
校准日期：Cal. Date	2021-08-17
签发日期：App. Date	2021-08-18
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 赵文红　　核验：Inspected by 张毅

签发：Approved by 郑木为　　印章：Stamp

赛宝计量检测中心
广州总部地址：广州市增城区朱村街朱村大道西78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
HQ Addr: No.78,Zhucun Avenue West,Zengcheng District,Guangzhou,China
Service Tel: 020-87237633 Fax: 020-87236189
Complaint Tel: 020-87236896
Email: cal@ceprei.com
Website: www.ceprei-cal.com

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～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，其结果/结论所依据的合格评定活动不在认可范围内。(Please see the attachment of certificate No. L13344 at CNAS website for details, beyond which is not accredited, the conformity assessment activities on which the results/conclusions are based are outside the scope of accreditation.)。

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)	测量范围 (Measuring Range)
标准传声器	LSsx2021-13180/2022-04-24/中国计量院	U=(0.05~0.20)dB（k=2）	10Hz～20kHz
PULSE分析系统	4GC21000026-0375/2022-01-21/赛宝(广州)	频率:U_{rel}=0.001%,k=2;电压:U_{rel}=0.04%,k=2	频率:0.001Hz~51.2kHz,电压:(1×10^{-5}~30)V
前置放大器	LSsx2021-13000/2022-04-19/中国计量院	U=0.3dB（k=2）	（10～50000）Hz

4. 校准地点(The calibration place)：
广州市增城区朱村街朱村大道西78号9栋110室

5. 环境条件(Environmental conditions)：
温度(Temperature)：22.9℃　　相对湿度(Relative Humidity)：59.5%

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"不适用或技术指标暂时无法确认等"。本证书报告的结论仅供参考，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 or The technical specification has not been confirmed etc".The 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.

CEPREI

证书编号(Certificate No.)：2HB21001749-0002

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.) (dB)	测量声压级 (Measured SPL.) (dB)	声压级差的绝对值 (Absolute value of SPL.) (dB)	允许范围 (Limit) (dB)	结论 (Pass/Fail)	U (k=2) (dB)
94	94.12	0.12	≤0.40	P	0.10

3 频率 (Frequency)

规定频率 (Prescribed Fre.) (Hz)	测量频率 (Measured Fre.) (Hz)	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) (%)
1000	1000.0	0.00	≤1.00	P	0.10

4 总失真 (Distortion)

规定声压级 (Prescribed SPL) (dB)	规定频率 (Measured Fre.) (Hz)	总失真 (Distortion) (%)	允许范围 (Limit) (%)	结论 (Pass/Fail)	U_{rel} (k=2) (%)
94	1000	0.15	≤3.00	P	5.0

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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)
1 second to 1 hour

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 Model TA410, and 30 ft/min through 6,000 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.

Specifications subject to change without notice.

AIRFLOW INSTRUMENTS

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)

Calibration Certificate of Air Flow Meter

AAST-FLOW-03, Cal: 25 Jan 2022

CALIBRATION

Cal Lab Limited 校正實驗室有限公司
Room 2103, Technology Plaza, 29-35 Sha Tsui Road,
Tsuen Wan, NT, Hong Kong
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ILAC-MRA HKLA ACCREDITED Certificate #3815.01

Calibration Certificate No.: CC0332201

Customer Information

Customer:	Castco Testing Centre Limited
Address:	33 On Kui Street, Fanling, N.T., Hong Kong

Equipment Identification

Equipment Description	Manufacturer	Model No.	Serial No.	Assigned equipment No.:
Air Velocity Meter	TSI	TA440	TA4401706003	AAST-FLOW-03

Certificate Information

Date of Receipt:	21 January 2022	Calibration Condition:	24.3°C, 53%RH, 1008hPa
Date of Calibration:	25 January 2022	Adjustment:	N/A
Due Date of Calibration:	N/A	Appearance:	Good
Calibration Procedure:	SOP-116	Remark:	N/A

Reference Equipment Identification

Equipment Description	Model	Serial No.	Expiration Date
Hot Wire Anemometer	9535	T95351316004	11 July 2022

Result of Calibration

Air Flow Rate

Reference Reading (m/s)	Measured Reading (m/s)	Error (%)	Uncertainty (%FS)	Technical Requirement	Technical Reference Doc.
0.00	0.00	N/A	3.6	± 3%	Mfr's Spec.
0.51	0.50	-2.0	3.6	± 3%	Mfr's Spec.
5.02	4.89	-2.6	3.6	± 3%	Mfr's Spec.
10.03	10.05	2.0	3.6	± 3%	Mfr's Spec.

CT-AFR-01

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 shows in this calibration certificate relate only to the item calibrated, and the result only applies to the calibration item as received.

Calibrated By: Rex Tse

Checked and Approved By: Warren Yeung

Company Chop: Cal Lab Limited 校正實驗室有限公司

Certificate Issue Date: 25 January 2022

CT-BEG-03

*** End of Certificate ***

1. The certificate shall not be reproduced except in full, without written approval of Cal Lab Calibration
2. The certificate is issued subject to the latest Terms and Conditions, available at our web site

Appendix K – Noise monitoring results and graphical presentation

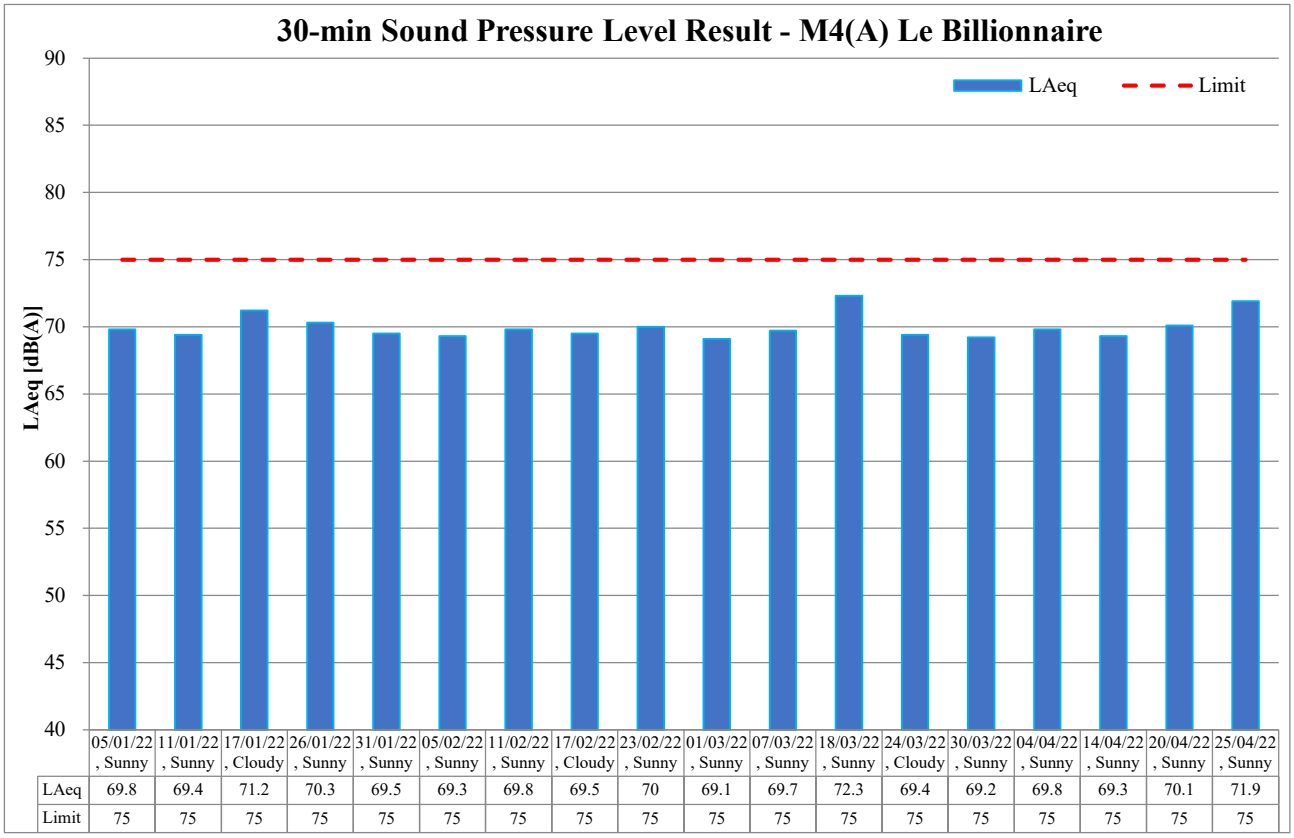
M4(A) – Le Billionnaire

Date	Temp (°C)	Weather	Measured Noise Level at M4(A), dB(A)							Limit
			Time			Baseline	L_{Aeq}	L_{A10}	L_{A90}	
04/04/2022	25.6	Sunny	13:15	-	13:45	69.5	69.8	71.4	68.2	75
14/04/2022	31.5	Sunny	9:05	-	9:35	69.5	69.3	71.0	67.5	75
20/04/2022	25.5	Sunny	9:15	-	9:45	69.5	70.1	72.2	68.6	75
25/04/2022	31.6	Sunny	15:26	-	15:56	69.5	71.9	74.7	68.7	75
			Maximum				71.9			
			Minimum				69.3			
			Average				70.4			

M5(A) – Prince Ritz

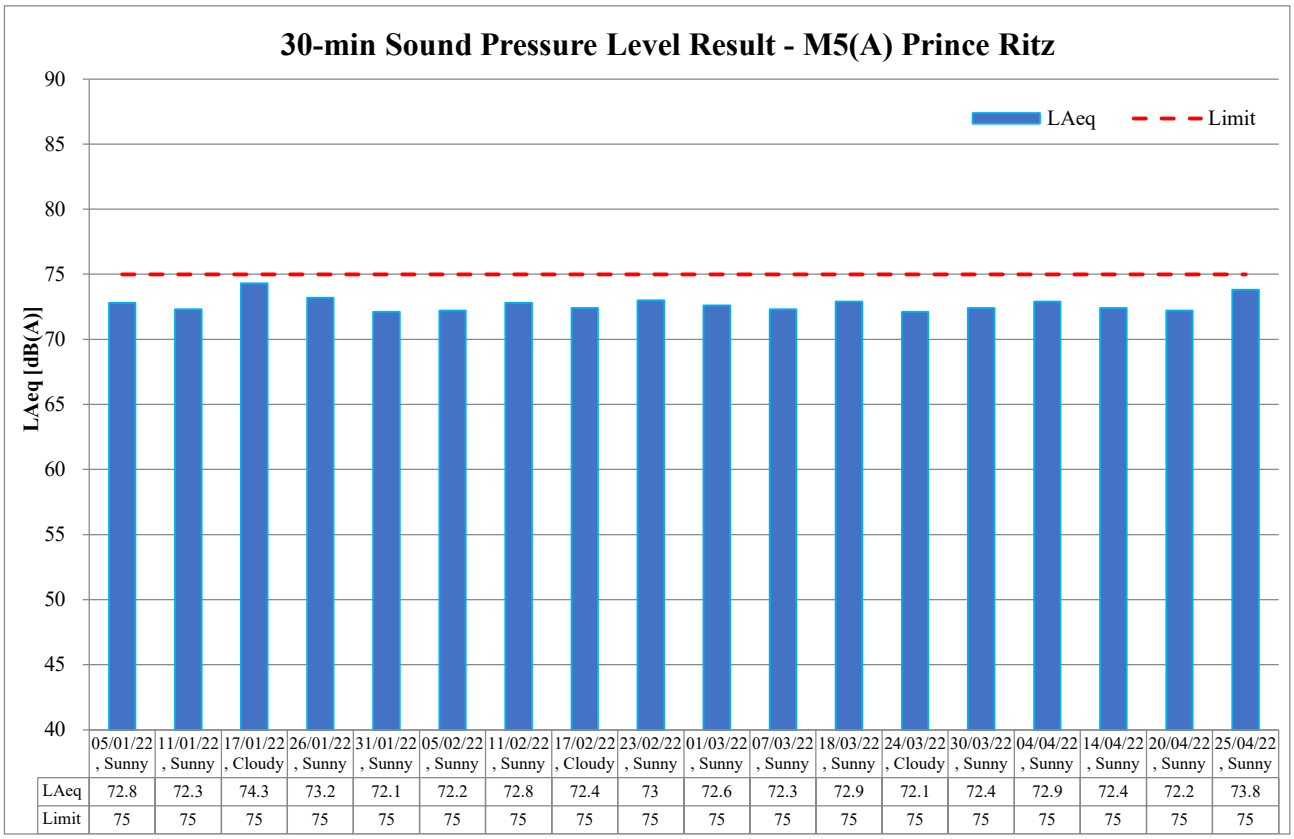
Date	Temp (°C)	Weather	Measured Noise Level at M5(A), dB(A)							Limit
			Time			Baseline	L_{Aeq}	L_{A10}	L_{A90}	
04/04/2022	25.6	Sunny	14:30	-	15:00	72.5	72.9	74.3	70.2	75
14/04/2022	31.5	Sunny	10:20	-	10:50	72.5	72.4	73.9	69.6	75
20/04/2022	25.5	Sunny	10:25	-	10:55	72.5	72.2	73.6	69.4	75
25/04/2022	31.6	Sunny	14:17	-	14:47	72.5	73.8	75.3	71.9	75
			Maximum				73.8			
			Minimum				72.2			
			Average				72.9			

$L_{Aeq, 30\text{-}min}$ graphical results of M4(A) – Le Billionnaire



	05/01/22, Sunny	11/01/22, Sunny	17/01/22, Cloudy	26/01/22, Sunny	31/01/22, Sunny	05/02/22, Sunny	11/02/22, Sunny	17/02/22, Cloudy	23/02/22, Sunny	01/03/22, Sunny	07/03/22, Sunny	18/03/22, Sunny	24/03/22, Cloudy	30/03/22, Sunny	04/04/22, Sunny	14/04/22, Sunny	20/04/22, Sunny	25/04/22, Sunny
LAeq	69.8	69.4	71.2	70.3	69.5	69.3	69.8	69.5	70	69.1	69.7	72.3	69.4	69.2	69.8	69.3	70.1	71.9
Limit	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75

$L_{Aeq, 30\text{-}min}$ graphical results of M5(A) – Prince Ritz



	05/01/22, Sunny	11/01/22, Sunny	17/01/22, Cloudy	26/01/22, Sunny	31/01/22, Sunny	05/02/22, Sunny	11/02/22, Sunny	17/02/22, Cloudy	23/02/22, Sunny	01/03/22, Sunny	07/03/22, Sunny	18/03/22, Sunny	24/03/22, Cloudy	30/03/22, Sunny	04/04/22, Sunny	14/04/22, Sunny	20/04/22, Sunny	25/04/22, Sunny
LAeq	72.8	72.3	74.3	73.2	72.1	72.2	72.8	72.4	73	72.6	72.3	72.9	72.1	72.4	72.9	72.4	72.2	73.8
Limit	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75

Major Construction Activities	Reporting Period			
	Jan 2022	Feb 2022	March 2022	April 2022
Bored pile works for landscape elevated walkway	✓	✓		
Instrumentation installation at SB-01	✓			
Pre-drilling work for S14	✓			
Removal existing piles at Road D1	✓			
Rising main construction	✓			
Trial pit excavation	✓			
Advance works for traffic diversion at Sa Po Road	✓			
Drainage works for Pedestrian Street No.1, No,2 & No.3	✓			
Construction of Crowd Dispersal Route	✓	✓	✓	✓
ELS and excavation at Pier 9 and Pier 10 for Elevated Walkway LW-02		✓		
ELS and excavation at Pier 9 for Elevated Walkway LW-02				✓
Underground utility diversion works at Sa Po Road		✓	✓	✓
ELS and excavation at launching shaft for subway SB-01		✓	✓	✓
Drainage works for Pedestrian Street No.1, No,2 No.3 & No.4		✓		
Construction of DCS		✓	✓	✓
Construction works for Road L16		✓	✓	✓
Pre-bored socket H-piles construction for Subway KS10		✓	✓	
Twin rising mains diversion works		✓		
Renovation works for existing subways KS9 and KS32		✓	✓	✓
Post-pilling tests for PC11 for Elevated Walkway LW-02			✓	
ELS and excavation at Pier 9 for Elevated Walkway LW-02			✓	
Pile cap construction for PC9 and PC10 for Elevated Walkway LW-02			✓	✓
Construction works for Pedestrian Street No. 1, No. 2, No. 3 & No. 4			✓	✓
Post-pilling tests for H-piles at Subway KS10			✓	✓
Erection of temporary decking across existing Kai Tak River				✓
ELS and excavation for Subway KS10 Lift and Staircase				✓
Demolition works to existing subway KS10 staircase and ramp				✓

Factors might affect the monitoring results	Reporting Period			
	Jan 2022	Feb 2022	March 2022	April 2022
Non-project related construction activities in the adjacent construction sites were observed.	✓	✓	✓	✓

Appendix L – Event and Action Plan for noise

Event	Action			
	ET	**IEC**	**Supervisor / ER**	**Contractor**
Action Level being exceeded	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. (The above actions should be taken within 2 working days after the exceedance is identified.)	1. Review the investigation results submitted by the ET; 2. Review the proposed remedial measures submitted by the Contractor and advise the ER accordingly; 3. Advise the Supervisor / ER on the proposed remedial measures. (The above actions should be taken within 2 working days after the exceedance is identified.)	1. Confirm receipt of notification of failure in writing; 2. Notify Contractor; 3. In consolidation with the IEC, agree with the Contractor on the remedial measures to be implemented; 4. Supervise the implementation of remedial measures. (The above actions should be taken within 2 working days after the exceedance is identified.)	1. Submit noise mitigation proposal to IEC and Supervisor / ER; 2. Implement noise mitigation proposals. (The above actions should be taken within 2 working days after the exceedance is identified.)
Limit Level being exceeded	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	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. (The above actions should be taken within 2 working days after the exceedance is identified.)	1. Confirm receipt of notification of failure in writing; 2. Notify Contractor; 3. In consolidation with the IEC, agree with the Contractor on the remedial measures to be implemented; 4. Supervise the implementation of remedial measures; 5. If exceedance continues, consider stopping the Contractor to continue working on that portion of work which causes the	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. (The above actions should be

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

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

Event	Action			
	ET	**IEC**	**Supervisor / ER**	**Contractor**
Design Check	1. Check final design conforms to the requirements of EP and prepare report.	1. Check report. 2. Recommend remedial design if necessary.	1. Undertake remedial design if necessary.	
Non-conformity on one occasion	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.	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.	1. Notify Contractor. 2. Ensure remedial measures are properly implemented.	1. Amend working methods. 2. Rectify damage and undertake any necessary replacement.
Repeated Non-conformity	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.	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.	1. Notify Contractor. 2. Ensure remedial measures are properly implemented.	1. Amend working methods. 2. Rectify damage and undertake any necessary replacement.

Appendix N – Waste Flow Table

MONTHLY SUMMARY WASTE FLOW TABLE FOR 2022 (YEAR)

Month	Actual Quantities of Inert C&D Materials Generated Monthly						Actual Quantities of C&D Wastes Generated Monthly				
	Total Quantity Generated	Borken Concrete (4)	Reused in the Contract	Reused in other Projects	Disposal as Public Fill	Import Fill	Metals	Paper / Cardboard Packaging	Plastics (3)	Chemical Waste	Other, e.g. general refuse
	[in '000m^3]	[in '000m^3]	[in '000m^3]	[in '000m^3]	[in '000m^3]	[in '000m^3]	[in '000kg]	[in '000kg]	[in '000kg]	[in '000kg]	[in '000m^3]
JAN	0.84	0.13	0.00	0.00	0.71	0.00	0.00	0.00	0.00	0.00	0.01
FEB	0.36	0.05	0.00	0.00	0.30	0.00	0.00	0.00	0.00	0.00	0.00
MAR	0.85	0.13	0.00	0.00	0.72	0.00	0.00	0.00	0.00	0.00	0.01
APR	0.80	0.13	0.00	0.00	0.67	0.00	0.00	0.00	0.00	0.00	0.01
MAY											.
JUNE											
SUB-TOTAL	2.85	0.44	0.00	0.00	2.40	0.00	0.00	0.00	0.00	0.00	0.03
JULY											
AUG											
SEPT											
OCT											
NOV											
DEC											
TOTAL	2.85	0.44	0.00	0.00	2.40	0.00	0.00	0.00	0.00	0.00	0.03

Appendix O – Environmental Mitigation Implementation Schedule (EMIS)

EIA Ref	Recommended Mitigation Measures	Implementation			
Part B Water Quality		Not Observed	Yes	No	Remark
S8.8	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 use of sediment traps and adequate maintenance of drainage systems to prevent flooding and overflow~~	☑	☐	☐	
S8.8	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.~~	☑	☐	☐	
S8.8	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.	☑	☐	☐	
S8.8	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 and particularly suited to applications where the influent is pumped.~~	☑	☐	☐	
S8.8	Open stockpiles of construction materials (for examples, aggregates, sand and fill material) of more than 50 m3 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.	☑	☐	☐	
S8.8	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.	☑	☐	☐	
S8.8	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. Particular attention should be paid to the control of silty surface runoff during storm events.	☑	☐	☐	
S8.8	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.	☑	☐	☐	
S8.8	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.~~	☐	☑	☐	
S8.8	*Drainage* 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.	☑	☐	☐	
S8.8	All temporary and permanent drainage pipes and culverts provided 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.	☑	☐	☐	
S8.8	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	☑	☐	☐	
S8.8	*Sewage Effluent* 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.	☑	☐	☐	
S8.8	Stormwater Discharges Minimum distances of 100 m should be maintained between the existing or planned stormwater discharges and the existing or planned seawater intakes	☑	☐	☐	
S8.8	Debris and Litter 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	☑	☐	☐	

EIA Ref	Recommended Mitigation Measures	Implementation			
	is optimised and that disposal of any solid materials, litter or wastes to marine waters does not occur				
S8.8	Construction Works at or in Close Proximity of Storm Culvert or Seafront The proposed works should preferably be carried out within the dry season where the flow in the drainage channel /storm culvert/ nullah is low.	☑	☐	☐	
S8.8	The use of less or smaller construction plants may be specified to reduce the disturbance to the bottom sediment at the drainage channel /storm culvert / nullah.	☑	☐	☐	
S8.8	Temporary storage of materials (e.g. equipment, filling materials, chemicals and fuel) and temporary stockpile of construction materials should be located well away from any water courses during carrying out of the construction works.	☑	☐	☐	
S8.8	Stockpiling of construction materials and dusty materials should be covered and located away from any water courses.	☐	☑	☐	
S8.8	Construction debris and spoil should be covered up and/~~or disposed~~ of as soon as possible to avoid being washed into the nearby water receivers	☐	☑	☐	
S8.8	Construction activities, which generate large amount of wastewater, should be carried out in a distance away from the waterfront, where practicable.	☑	☐	☐	
S8.8	Mitigation measures to control site runoff from entering the nearby water environment should be implemented to minimize water quality impacts. Surface channels should be provided along the edge of the waterfront within the work sites to intercept the runoff.	☑	☐	☐	
S8.8	Construction effluent, site run-off and sewage should be properly collected and/or treated.	☑	☐	☐	
S8.8	Any works site inside the storm water courses should be temporarily isolated, such as by placing of sandbags or silt curtains with lead edge at bottom and properly supported props to prevent adverse impact on the storm water quality.	☑	☐	☐	
S8.8	Silt curtain may be installed around the construction activities at the seafront to minimize the potential impacts due to accidental spillage of construction materials.	☑	☐	☐	
S8.8	Proper shoring may need to be erected in order to prevent soil/mud from slipping into the storm culvert/drainage channel/sea.	☑	☐	☐	
S8.8	Supervisory staff should be assigned to station on site to closely supervise and monitor the works	☐	☑	☐	
Part C Construction Noise Impact		Not Observed	Yes	No	Remark
S7.8	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	☐	☑	☐	
S7.9	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.	☑	☐	☐	
Part D Waste / Chemical Management		Not Observed	Yes	No	Remark
S5.2	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	☐	☑	☐	
	Training of site personnel in site cleanliness, proper waste management and chemical waste handling procedures	☐	☑	☐	
	Provision of sufficient waste disposal points and regular collection for waste. Appropriate measures to minimise windblown litter and dust during transportation of waste by either covering trucks or by transporting wastes in enclosed containers	☑	☐	☐	
	Regular cleaning and maintenance programme for drainage systems, sumps and oil interceptors. Separation of chemical wastes for special handling and appropriate treatment	☑	☐	☐	
S9.5	1)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 ~~2)Training of site personnel in proper waste management and chemical waste handling procedures~~ ~~3)Provision of sufficient waste disposal points and regular collection for disposal~~ ~~4)Appropriate measures to minimise windblown litter and dust during transportation of waste by either covering trucks or by transporting wastes in enclosed containers~~ ~~5)A recording system for the amount of wastes generated, recycled and disposed of (including the disposal sites)~~	☐	☑	☐	

EIA Ref	Recommended Mitigation Measures	Implementation			
S9.5	Waste Reduction Measures 1) Sort C&D waste from demolition of the remaining structures to recover recyclable portions such as metals 2) 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 3) Encourage collection of aluminum 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 4) Any unused chemicals or those with remaining functional capacity should be recycled 5) Proper storage and site practices to minimize the potential for damage or contamination of construction materials	☑	☐	☐	
S9.5	Construction and Demolition Material Mitigation measures and good site practices should be incorporated into contract document to control potential environmental impact from handling and transportation of C&D material. The mitigation measures include: 1) ~~Where it is unavoidable to have transient stockpiles of C&D material within the Project work site pending collection for disposal, the transient stockpiles should be located away from waterfront or storm drains as far as possible~~ 2) ~~Open stockpiles of construction materials or construction wastes on-site should be covered with tarpaulin or similar fabric~~ 3) ~~Skip hoist for material transport should be totally enclosed by impervious sheeting~~ 4) Every vehicle should be washed to remove any dusty materials from its body and wheels before leaving a construction site 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 6) ~~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~~ 7) ~~All dusty materials should be sprayed with water prior to any loading, unloading or transfer operation so as to maintain the dusty materials wet~~	☐	☑	☐	
S9.5	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	☑	☐	☐	
S9.5	Chemical Waste 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*	☑	☐	☐	
Part E Landscape & Visual		Not Observed	Yes	No	Remark
S13.9	CM1 - All existing trees should be carefully protected during construction. ~~CM2 - 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.~~ ~~CM3 - Control of night-time lighting.~~ CM4 - Erection of decorative screen hoarding.	☐	☑	☐	
Part F Air Quality		Not Observed	Yes	No	Remark
S6.8	~~Stockpiling site(s) should be lined with impermeable sheeting and bunded.~~ Stockpiles should be fully covered by impermeable sheeting to reduce dust emission.	☐	☑	☐	
S6.8	Misting for the dusty material should be carried out before being loaded into the vehicle.	☑	☐	☐	
S6.8	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.	☑	☐	☐	
S6.8	The tarpaulin should be properly secured and should extent at least 300 mm over the edges of the sides and tailboards. The material should also be dampened if necessary before transportation	☑	☐	☐	
S6.8	The vehicles should be restricted to maximum speed of 10 km per hour and confined haulage and delivery vehicle to designated roadways insider the site. On-site unpaved roads should be compacted and kept free of lose materials	☐	☑	☐	
S6.8	Vehicle washing facilities should be provided at every vehicle exit point	☐	☑	☐	
S6.8	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.	☐	☑	☐	
S6.8	Every main haul road should be ~~scaled with concrete and~~ kept clear of dusty materials or sprayed with water so as to maintain the entire road surface wet.	☐	☑	☐	

EIA Ref	Recommended Mitigation Measures	Implementation			
S6.8	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.	☑	☐	☐	
S6.8	Every vehicle should be washed to remove any dusty materials from its body and wheels before leaving the construction sites.	☐	☑	☐	
S6.5	8 times daily watering of the work site with active dust emitting activities.	☐	☑	☐	

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

Reporting Month: April 2022

Contract No.	Record of Complaint (Yes/No)	Record of Warning (Yes/No)	Notification of Summons and Successful Prosecutions (Yes/No)
ED/2018/05	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/2018/05	1	0	0