Environmental Monitoring and Audit Report

for

Contract No. ED/2018/01 –

Kai Tak Development – Stage 4 infrastructure at the former runway and south apron

Contract No.: EDO 15/2018

December 2020

(Version 1.1)

Certified By: 

(Environmental Team Leader)

Ref.: CEDKTDS4EM00_0_0121L.21

11 January 2021

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

By Post and E-mail

Attention: Mr. Clive Cheng

Dear Sir,

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

Monthly EM&A Report for December 2020

Reference is made to the Environmental Team's submission of the Monthly EM&A Report for December 2020 (Version 1.1) certified by the ET Leader and provided to us via email on 11 January 2021. Please be informed that we have no further comments on the captioned submission. We hereby verify the captioned submission in accordance with Condition 3.3 of EP-337/2009 and Condition 3.2 of EP-445/2013/A.

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

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

Yours faithfully,

For and on behalf of

Ramboll Hong Kong Limited

Manson Yeung

Independent Environmental Checker

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

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EXECUTIVE SUMMARY

1. This is the 12th Monthly Environmental Monitoring & Audit (EM&A) report which summaries the findings of the EM&A Programme during the reporting period from 1 to 31 December 2020.

Breaches of Action and Limit Levels

2. 1-hour TSP monitoring was conducted as scheduled in the reporting month. No Action/Limit Level exceedance was recorded.

3. 24-hour TSP monitoring was conducted as scheduled in the reporting month. No Action/Limit Level exceedance was recorded.

4. Construction noise monitoring was conducted as scheduled in the reporting month. No Action/Limit Level exceedance was recorded.

5. Summary of the non-compliance in the reporting month for the Project is tabulated in Table I.

Table I Non-compliance Record in the Reporting Month

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

Complaint log

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

Table II Summary of complaints in the Reporting Month

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

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

Notifications of summons and successful prosecutions

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

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

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

Report changes

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

Key construction works in the reporting month

9. Major construction activities undertake during the reporting month included:
   - Ground investigation works
   - Noise barrier – Trial pit and utilities diversion
   - Elevated landscape deck –Bored pile
   - Excavation for North Approach Ramp
   - Permanent Structure Construction for North Depressed Road
   - Construction of Permanent Structure for Pile Cap
   - Construction of base slab and wall for North Approach Ramp
   - ELS works for Noise Barrier Foundation
   - Excavation and ELS for Underpass and South Depressed Road
   - Metal Scaffolding and Falsework Erection & Dismantling at North Approach Ramp

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
Excavation for North Approach Ramp	Noise and Air Quality
Excavation and ELS for Underpass and South Depressed Road	Noise and Air Quality
Construction of base slab and wall for North Approach Ramp	Noise and Air Quality
Noise barrier – Trial pit and utilities diversion	Noise and Air Quality
Bored Pile Construction for Landscape Deck	Noise and Air Quality
Permanent Structure Construction for North Depressed Road	Noise and Air Quality
Fabrication of Precast Yard and Precast Units of DCS Intake Box Culvert	Noise and Air Quality
ELS works for Noise Barrier Foundation	Noise and Air Quality

1. INTRODUCTION

Project Background

1.1 The Kai Tak Development (KTD) is located in the south-eastern part of Kowloon Peninsula of the HKSAR, comprising the apron and runway areas of the former Kai Tak Airport and existing waterfront areas at To Kwa Wan, Ma Tau Kok, Kowloon Bay, Kwun Tong and Cha Kwo Ling.

1.2 Contract No. ED/2018/01 - Kai Tak Development – stage 4 infrastructure at the former runway and south apron (The Project), comprises mainly the design and construction of a dual two- lane Road D3 (Metro Park Section), a single 2-lane Road L12d, a salt water pumping station, a sewage pumping station, landscaped deck and promenade above and adjoining Road D3 (Metro Park Section) respectively, some remaining road works at Road L14, noise barrier at Road D3A, and other associated works at the former runway and south apron. The proposed works are shown in Figure 1 and Figure 2. During the course of the Contract No. ED/2018/01, there may be modification of noise barriers in association with the construction of footbridges connecting to the landscaped deck of Road D3A by developers of adjacent lands (Figure 3). The proposed works and site boundary are shown in Figure 4.

1.3 Civil Engineering and Development Department (CEDD) had completed an Environmental Impact Assessment (EIA) and is the Permit Holder.

1.4 The construction work under ED/2018/01 comprises the EM&A Manuals (EIA Register Nos. AEIAR-130/2009 for Kai Tak Development and EIA Register Nos. AEIAR-170/2013 for Roads D3A and D4A) and Environmental Permit (EP) Nos. EP-337/2009, EP-445/2013 and Variation to the EP (VEP) No. EP-445/2013/A.

1.5 Air quality and noise monitoring has been proposed in the EM&A Manual with EIA Register Nos. AEIAR-130/2009 for Kai Tak Development while no air quality and noise monitoring are proposed in EM&A Manual with EIA Register Nos. AEIAR-170/2013 for Roads D3A and D4A.

Project Organization

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

Table 1.1 Contact Information of Key Personnel

Party	Role	Contact Person	Position	Phone No.	Fax No.
Civil Engineering and Development Department (CEDD)	Project Proponent	Mr. Ronald Siu	Senior Engineer	3579 2452	2739 0076
		Mr. Edwin Chan	Engineer	3579 2458	2739 0076
AECOM Asia Co. Ltd. (AECOM)	Supervisor (act as Engineers' Representative (ER) listed in EM&A Manual)	Mr. Clive Cheng	CRE	3911 4201	3911 4288
Ramboll Hong Kong Limited (Ramboll)	Independent Environmental Checker (IEC)	Mr. Manson Yeung	IEC	9700 6767	3465 2899
Ka Shing Management Consultant Limited (Ka Shing)	Environmental Team (ET)	Mr. Chan Pang	ET Leader	6082 2973	2120 7752
Penta-Ocean Construction Co., Ltd. (Penta-Ocean)	Contractor	Ms. Juliet Ting	Environmental Officer	9555 8820	3465 8898

Works Area and Construction Programme

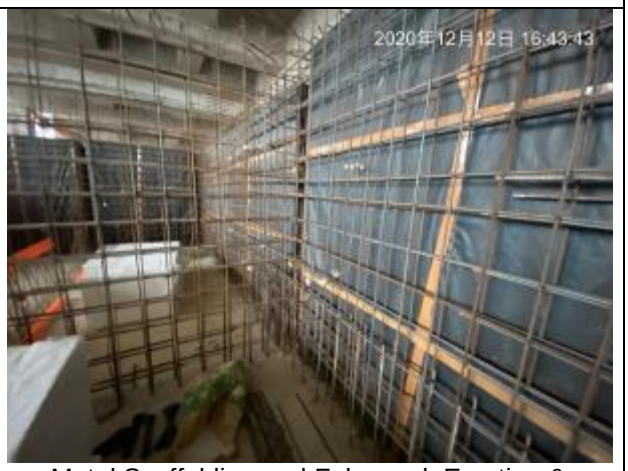
1.7 The construction works commenced on 20 January 2020.The construction programme of the Project is given in Appendix B.

Construction works undertaken during reporting month

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

Table 1.2 Major activities of the Project during reporting month

 Ground investigation works	 Noise barrier – Trial pit and utilities diversion
 Excavation for North Approach Ramp	 Permanent Structure Construction for North Depressed Road

 Construction of base slab and wall for North Approach Ramp	 ELS works for Noise Barrier Foundation
 Excavation and ELS for Underpass and South Depressed Road	 Metal Scaffolding and Falsework Erection & Dismantling at North Approach Ramp
 Construction of Permanent Structure for Pile Cap	 Elevated landscape deck – Bored Pile

Submission Status under the Environmental Permits

1.9 The status of required submission under Environmental Permit (EP) conditions under

EP-337/2009, EP-445/2013 and Variation to the EP (VEP) No. EP-445/2013/A are summarized in Table 1.3.

Table 1.3 Summary of Status of Required Submission of EPs

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

2. AIR QUALITY MONITORING

Monitoring Requirements

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

Monitoring Locations

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

Table 2.1 Locations of Air Quality Monitoring Stations

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

Monitoring Parameters, Frequency and Duration

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

Table 2.2 Air Quality Monitoring Parameters, Frequency and Duration

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

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

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

Monitoring Equipment

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

Table 2.3 Air Quality Monitoring Equipment

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

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

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

Monitoring Methodology and QA/QC Procedure

24-hour TSP Monitoring

Operating/Analytical Procedures

2.9 Setup criteria of HVS are shown as follows:

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

2.10 Prior to the commencement of the dust sampling, the flow rate of the HVS was properly set (between 1.1 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" have a collection efficiency of > 99 % for particles of 0.3 μm diameter were used.

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

2.13 The filter holding frame was removed by loosening the four nuts and a weighted and conditioned filter was carefully centered with the stamped number upwards, on a supporting screen.

2.14 The filter was aligned on the screen so that the gasket formed an airtight seal on the outer edges of the filter. Then the filter holding frame was tightened to the filter holder with swing bolts. The applied pressure was sufficient to avoid air leakage at the edges.

2.15 The shelter lid was closed and secured with the aluminium strip.

2.16 The timer was programmed. Information was recorded on the record sheet, which included the starting time, the weather condition and the filter number (the initial weight of the filter paper can be found out by using the filter number).

2.17 After sampling, the filter was removed from the HVS and put into a clean and labeled seal plastic bag to avoid cross contamination. The elapsed time was also be recorded. The sampled filters were sent to the Castco Testing Centre Limited for weighting.

2.18 Before weighing, all filters were equilibrated in a conditioning environment for 24 hours. The conditioning environment temperature was between 25℃ and 30℃ and not vary by more than ±3℃; the relative humidity (RH) was less than 50% and not vary by more than ±5%. A convenient working RH is 40%.

Maintenance/Calibration

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

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

1-hour TSP Monitoring

Measurement Procedures

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

Manufacturer's Instruction Manual as follows:

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

Maintenance/Calibration

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

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

Wind Data Monitoring

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

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

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

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

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

Action and Limit Levels

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

in Table 2.4 and Table 2.5 respectively.

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

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

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

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

Impact Air Quality Monitoring results

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

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

Air Monitoring Station	Average TSP Concentration, $\mu g/m^3$	Range, $\mu g/m^3$	Action Level, $\mu g/m^3$	Limit Level, $\mu g/m^3$
AM3	88	58 – 119	182	260
AM4(A)	119	65 – 146	187	260
AM7	92	56 – 140	181	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, $\mu g/m^3$
AM3	97	67 – 123	297	500
AM4(A)	117	82 – 139	326	500
AM7	108	77 – 146	315	500

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

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

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

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

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

3. NOISE MONITORING

Monitoring Requirements

3.1 In accordance with EM&A Manuals (EIA Register Nos. AEIAR-130/2009), impact noise monitoring shall be carried out during the construction phase of the Project.

3.2 Regular monitoring, $L_{Aeq, 30\text{-minute}}$, for each station will be on a weekly basis and conduct one set of measurements between 0700 – 1900 on normal weekdays.

3.3 If construction works are extended to include works during 1900 – 0700 as well as public holidays and Sundays, additional weekly impact monitoring will be carried out during the respective restricted hours periods.

Monitoring Locations

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

Table 3.1 Locations of Noise Monitoring Stations

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

Monitoring Parameters, Frequency and Duration

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

Table 3.2 Noise Monitoring Parameters, Frequency and Duration

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

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

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

Monitoring Equipment

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

Table 3.3 Noise Monitoring Equipment

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

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

Monitoring Methodology and QA/QC Procedure

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

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

meter.

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

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

3.14 Noise level was recorded.

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

Maintenance and Calibration

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

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

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

Action and Limit Levels

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

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

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

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

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

Impact Noise Monitoring results

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

Table 3.5 Summary of Noise Monitoring Data during the reporting month

Noise Monitoring Station	Measured $L_{Aeq, 30\text{-}min}$, Average, dB(A)	Measured $L_{Aeq, 30\text{-}min}$, Range, dB(A)	Action Level	Limit Level ^
M11	71.7	69.6 – 73.7	When one documented complaint is received	75 dB(A)
M12	66.5	64.9 – 67.6		

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

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

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

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

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

4. COMPARISON OF EM&A RESULTS WITH EIA PREDICTIONS

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

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

Air Monitoring Station	ASR No. in EIA report	Predicted Cumulative Maximum 24-hour average TSP concentration		Measured 24-hr average TSP in Reporting Month (December 2020) $\mu g/m^3$
		Scenario 1 (Mid 2009 to Mid 2013), $\mu g/m^3$	Scenario 2 (Mid 2013 to Late 2016), $\mu g/m^3$	
AM3 - Sky Tower	A40^	106	138	58 – 119
AM4(A) - The Hong Kong Society for the Blind's Factory cum Sheltered Workshop	A43^	123	195	65 – 146
AM7 – Hong Kong Children's Hospital	PA60	NA	NA	56 – 140

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

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

Air Monitoring Station	ASR No. in EIA report	Predicted Cumulative Maximum 1-hour average TSP concentration		Measured 1-hr average TSP in Reporting Month (December 2020) $\mu g/m^3$
		Scenario 1 (Mid 2009 to Mid 2013), $\mu g/m^3$	Scenario 2 (Mid 2013 to Late 2016), $\mu g/m^3$	
AM3 - Sky Tower	A40	217^	247^	67 – 123
AM4(A) - The Hong Kong Society for the Blind's Factory cum Sheltered Workshop	A43	283^	409^	82 – 139
AM7 – Hong Kong Children's Hospital	PA60	NA	NA	77 – 146

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

Table 4.3 Comparison of Noise Monitoring Data with EIA predictions

Noise Monitoring Station	NSR No. in EIA report	Predicted Mitigated Construction Noise Levels during Normal Daytime Working Hour $L_{Aeq, 30min}$, dB(A)	Measured Noise Level in Reporting Month (December 2020) $L_{Aeq, 30min}$, dB(A)
M11 - The Hong Kong Society for the Blind's Factory cum Sheltered Workshop	N18	50 – 76*	69.6 – 73.7
M12 - Hong Kong Children's Hospital	PN83, PN84, PN84A	NA	64.9 – 67.6

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

4.2 24-hour TSP monitoring results at AM3 and AM4(A) were recorded higher than the Scenario 1 (Mid 2009 to Mid 2013) prediction but lower than the Scenario 2 (Mid 2013 to Late 2016) in the EIA Report. Non-project related construction activities in the adjacent construction sites were observed during the reporting period and may affect the monitoring results.

4.3 No prediction in the EIA Report for 24-hour TSP monitoring results at AM7.

4.4 1-hour TSP monitoring results at AM3, AM4(A) were recorded lower than the prediction in the EIA Report.

4.5 No prediction in the EIA Report for 1-hour TSP monitoring results at AM7.

4.6 Noise monitoring results at M11 was recorded lower than the prediction in the EIA Report.

4.7 No prediction in the EIA Report for noise monitoring results at M12.

5. LANDSCAPE AND VISUAL MONITORING

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

Results and Observations

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

5.3 Site inspections were conducted on 3, 10, 17, 24 and 31 December 2020 in the reporting month.

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

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

Inspection Date	Key Observations	Recommendations / Actions	Close-out Date / Status
3 December 2020	No	NA	NA
10 December 2020	No	NA	NA
17 December 2020	No	NA	NA
24 December 2020	No	NA	NA
31 December 2020	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

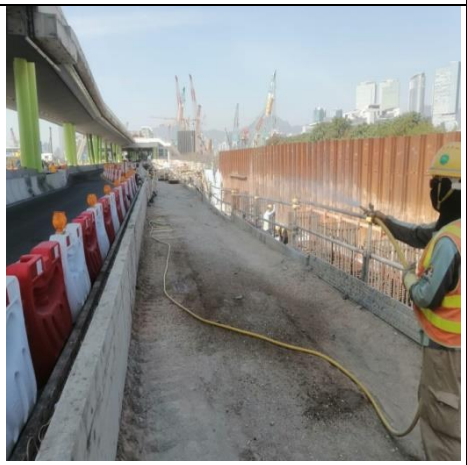
Site Inspection

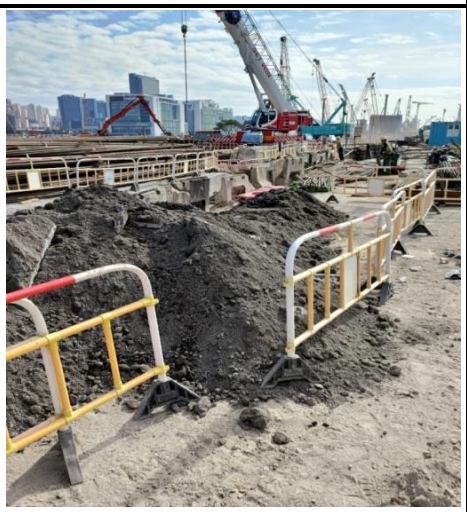
6.1 Site inspections were carried out on a weekly basis to monitor the timely implementation of proper environmental management practices and mitigation measures in the Project site.

6.2 Site inspections were conducted on 3, 10, 17, 24 and 31 December 2020 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
3 December 2020	No	NA	NA
10 December 2020	 Observation: Water spraying was not applied on the dusty walkways regularly at noise barrier working areas.	 Action Taken: Dust suppression measures were implemented at noise barrier working areas.	Closed-out 17 December 2020

Inspection Date	Key Observations	Recommendations / Actions	Close-out Date / Status
17 December 2020	 Observation: Accumulated waste should be removed.	 Action Taken: Waste was cleared.	Closed-out 24 December 2020
24 December 2020	No	NA	NA
31 December 2020	No	NA	NA

Status of Waste Management

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

6.5 The Contractor was registered as a chemical waste producer for the Project. The Contractor was reminded that chemical waste containers should be properly treated and stored temporarily in designated chemical waste storage area on site in accordance with the Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes.

Status of Environmental Licenses, Notification and Permits

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

Table 6.2 Summary of Environmental Licenses, Notifications and Permits

Environmental Licenses, Notifications and Permits	Ref. No.	Valid Form	Valid Till
Environmental Permit under EIAO	EP-337/2009	23 Apr 2009	N/A
	EP-445/2013	3 May 2013	N/A
	EP-445/2013/A	13 Aug 2014	N/A
Construction Dust Notification under APCO	445956	6 Jun 2019	N/A
Wastewater Discharge License under WPCO	WT00034610-2019	26 Sep 2019	30 Sep 2024
Waste Disposal Billing Account	7034450	28 Jun 2019	N/A
Registration as a Chemical Waste Producer	5218-286-P3182-03	18 Jul 2019	N/A
Construction Noise Permit	GW-RE0705-20	28 Aug 2020	23 Feb 2021
	GW-RE0735-20	9 Sep 2020	6 Mar 2021
	GW-RE0869-20	20 Oct 2020	8 Apr 2021
	GW-RE0991-20	26 Nov 2020	25 May 2021
	GW-RE1012-20	27 Nov 2020	25 May 2021
	GW-RE1044-20	10 Dec 2020	01 June 2021
	GW-RE1074-20	18 Dec 2020	17 June 2021

Implementation Status of Environmental Mitigation Measures

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

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

Environmental Complaint and Non-compliance

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

Table 6.3 Summary of complaints in the Reporting Month

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

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

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

Notifications of summons and successful prosecutions

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

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

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

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

7. FUTURE KEY ISSUES

Construction Programme in the coming month

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

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

Future key issues in the coming month	Potential impact
Excavation for North Approach Ramp	Noise and Air Quality
Excavation and ELS for Underpass and South Depressed Road	Noise and Air Quality
Construction of base slab and wall for North Approach Ramp	Noise and Air Quality
Noise barrier – Trial pit and utilities diversion	Noise and Air Quality
Bored Pile Construction for Landscape Deck	Noise and Air Quality
Permanent Structure Construction for North Depressed Road	Noise and Air Quality
Fabrication of Precast Yard and Precast Units of DCS Intake Box Culvert	Noise and Air Quality
ELS works for Noise Barrier Foundation	Noise and Air Quality

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

- Sufficient watering of the works site with the active dust emitting activities,
- Limitation of the speed for vehicles on unpaved site roads,
- Properly cover the stockpiles,
- Good maintenance to the plant and equipment,
- Use of quieter plant and Quality Powered Mechanical Equipment (QPME),
- Provide movable noise barriers,
- Appropriate desilting/ sedimentation devices provided on site for treatment before discharge,
- Well maintain the drainage system to prevent the spillage of wastewater during heavy rainfall,
- Onsite waste sorting and implementation of trip ticket system,
- Good management and control on construction waste reduction,
- Erection of decorative screen hoarding,
- Strictly following the Environmental Permits and Licenses, and
- Provide sufficient mitigation measures as recommended in Approved EIA Reports.

Environmental Site Inspection and Monitoring Schedule for next month

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

8. CONCLUSIONS

8.1 Environmental monitoring works were performed in the reporting month and all monitoring results were checked and reviewed.

8.2 1-hour TSP monitoring was conducted as scheduled in the reporting month. No Action/Limit Level exceedance was recorded.

8.3 24-hour TSP monitoring was conducted as scheduled in the reporting month. No Action/Limit Level exceedance was recorded.

8.4 Construction noise monitoring was conducted as scheduled in the reporting month. No Action/Limit Level exceedance was recorded.

8.5 No complaint was received in the reporting month.

8.6 No notification of summons and successful prosecutions was received in the reporting month.

Figure

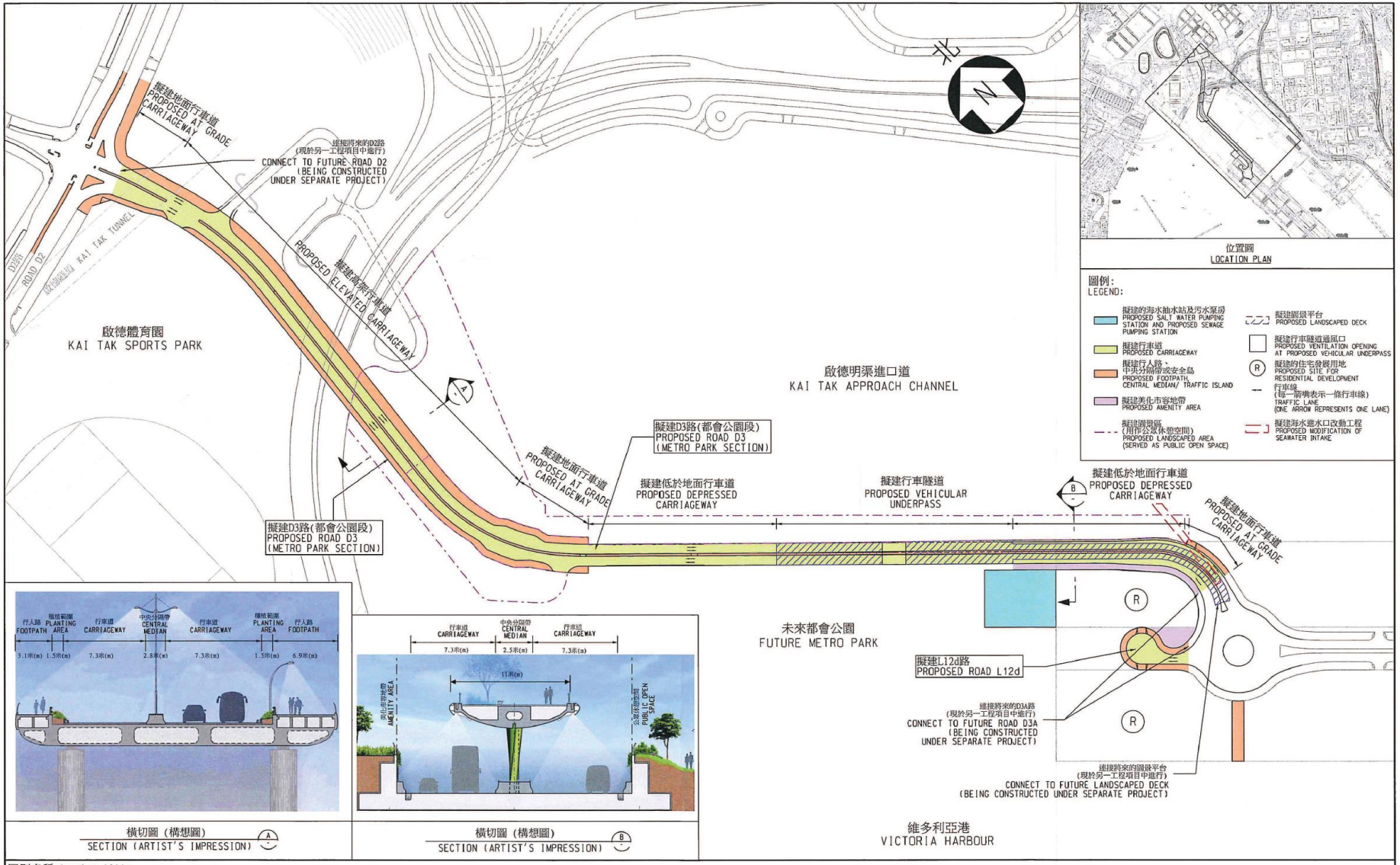


Figure 1 – Proposed works of Contract No. ED/2018/01

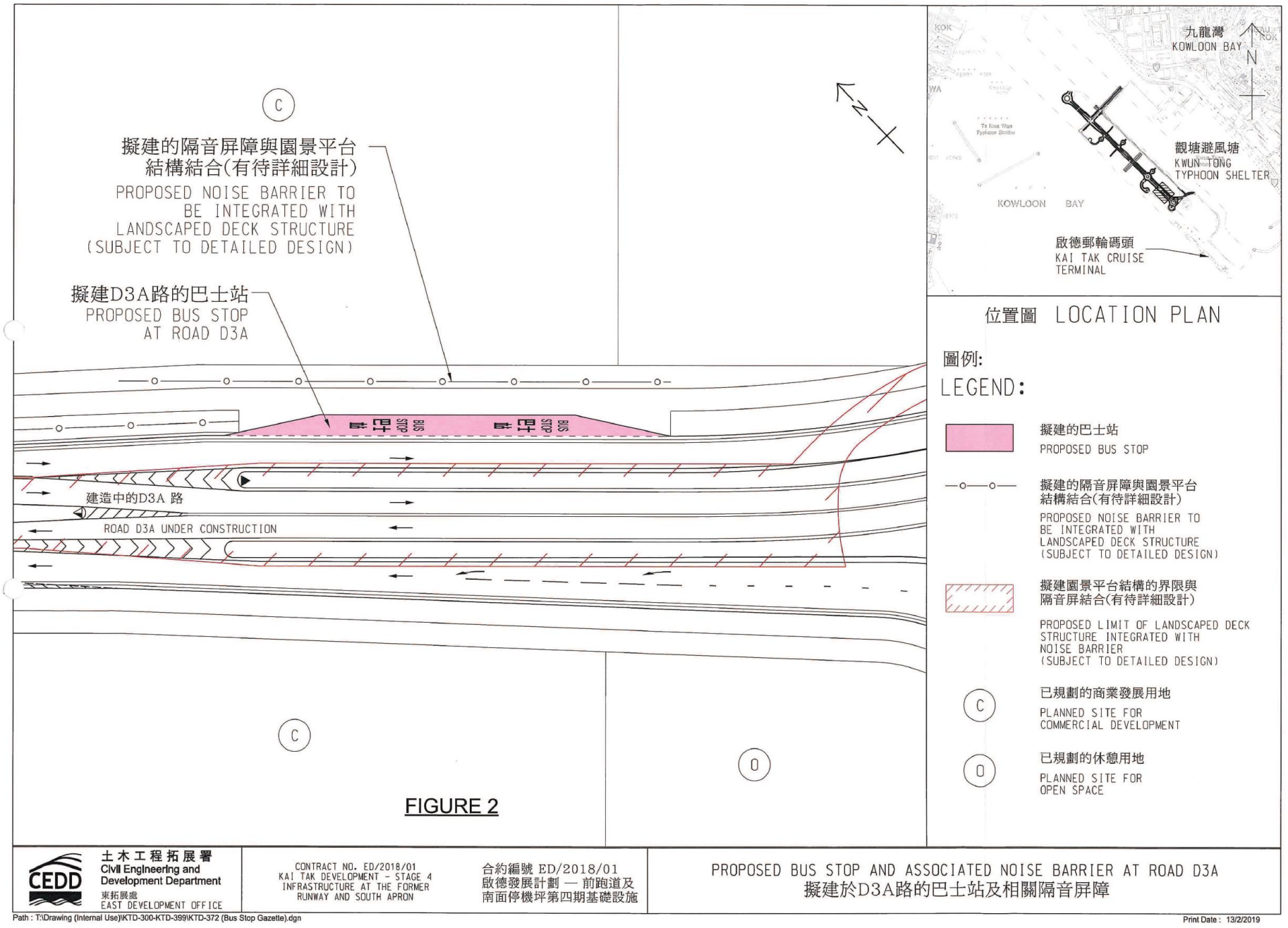


Figure 2 – Proposed Bus Stop And Associated Noise Barrier At Road D3A

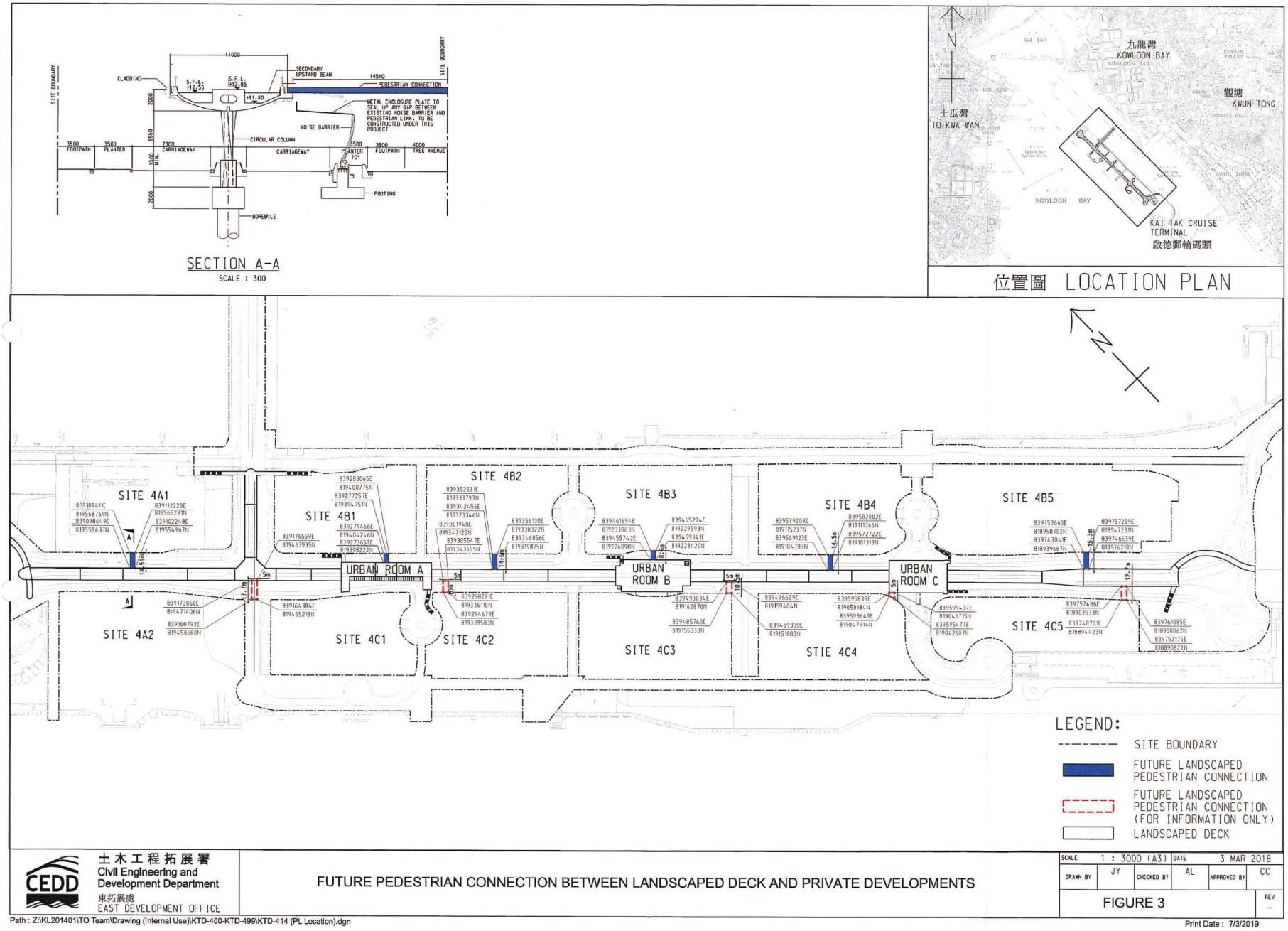


Figure 3 – Future Pedestrian Connection Between Landscaped Deck And Private Developments

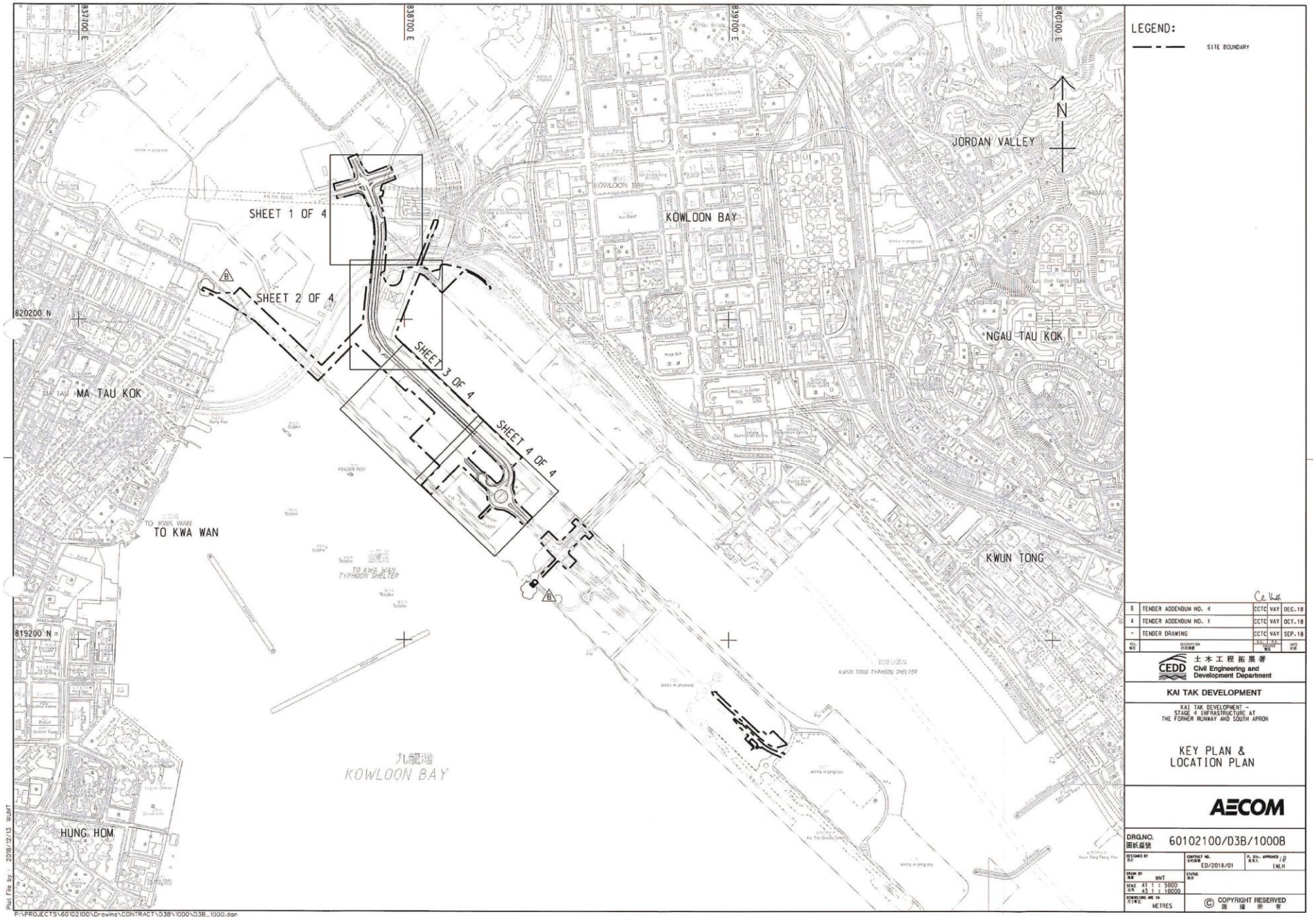


Figure 4 – Site Layout Plan

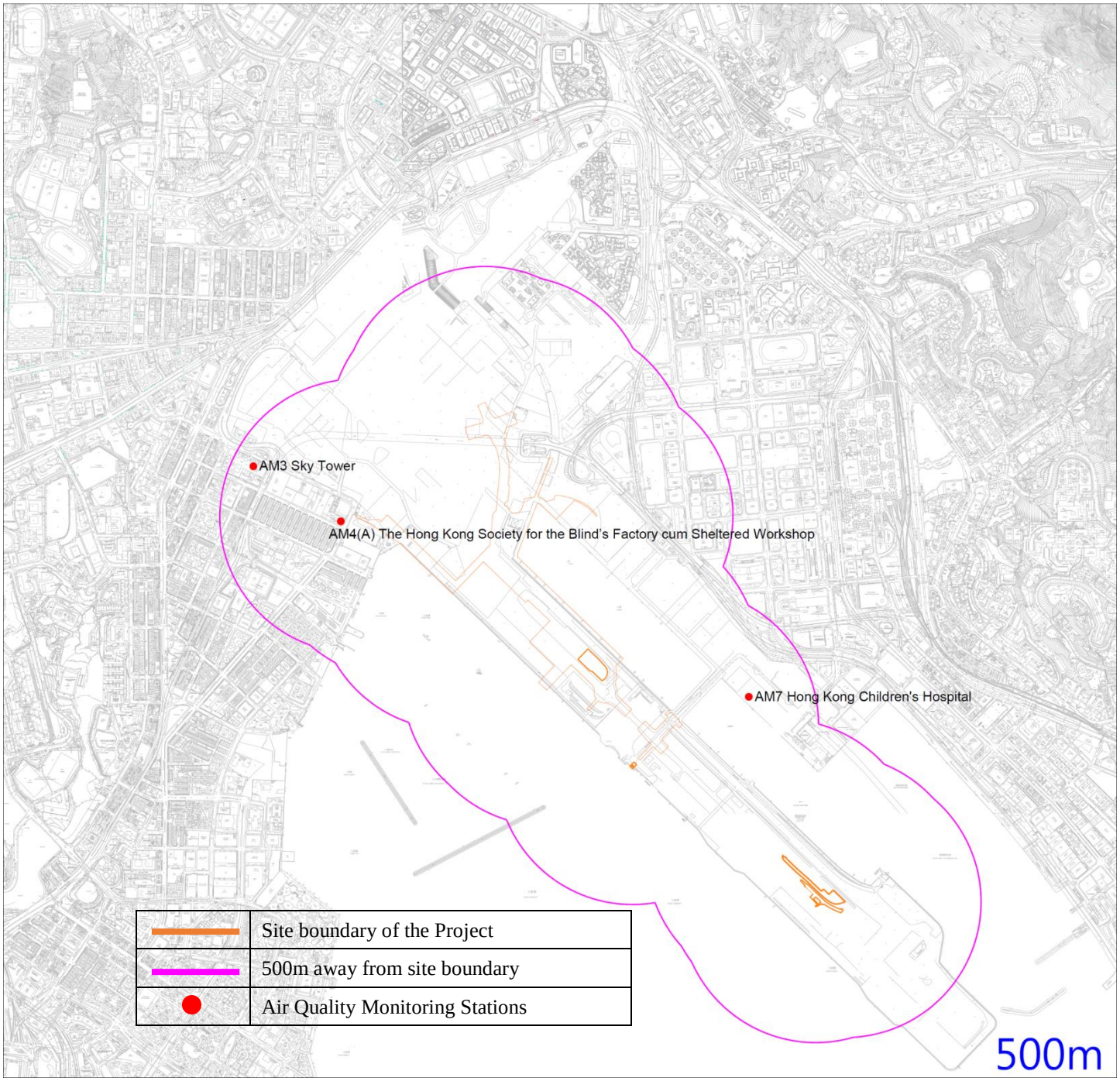


Figure 5 – Air Quality Monitoring Stations

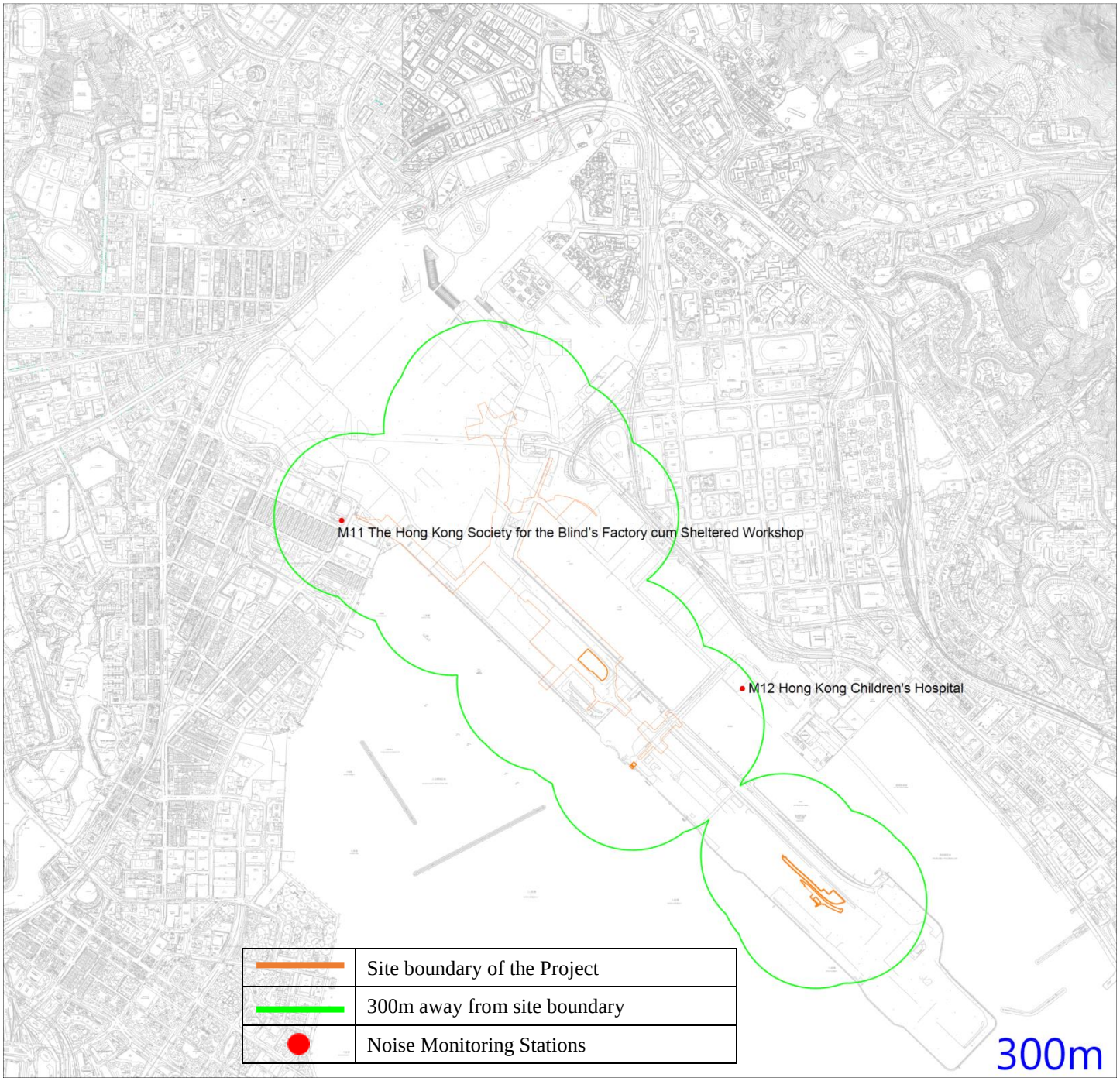
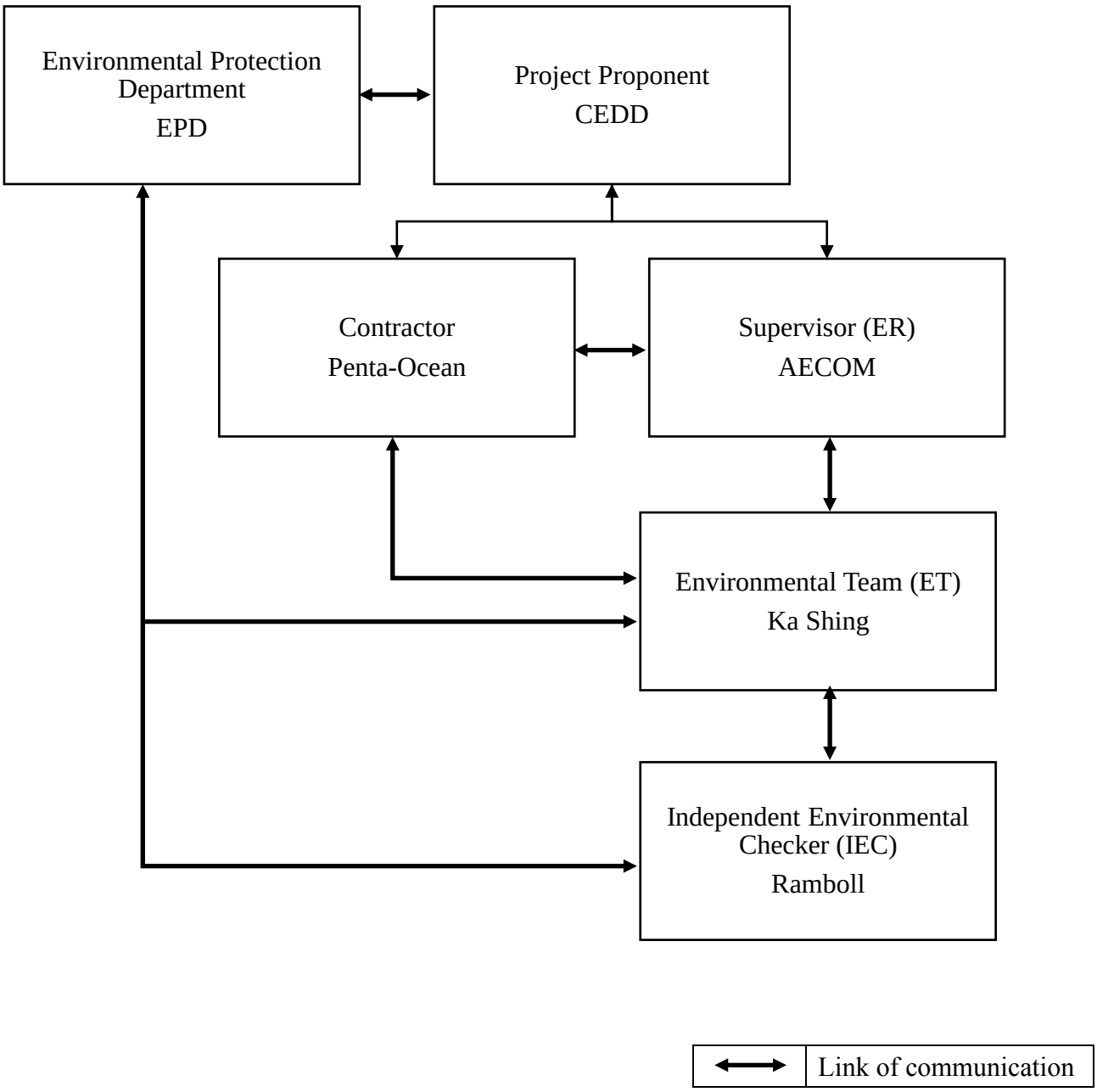


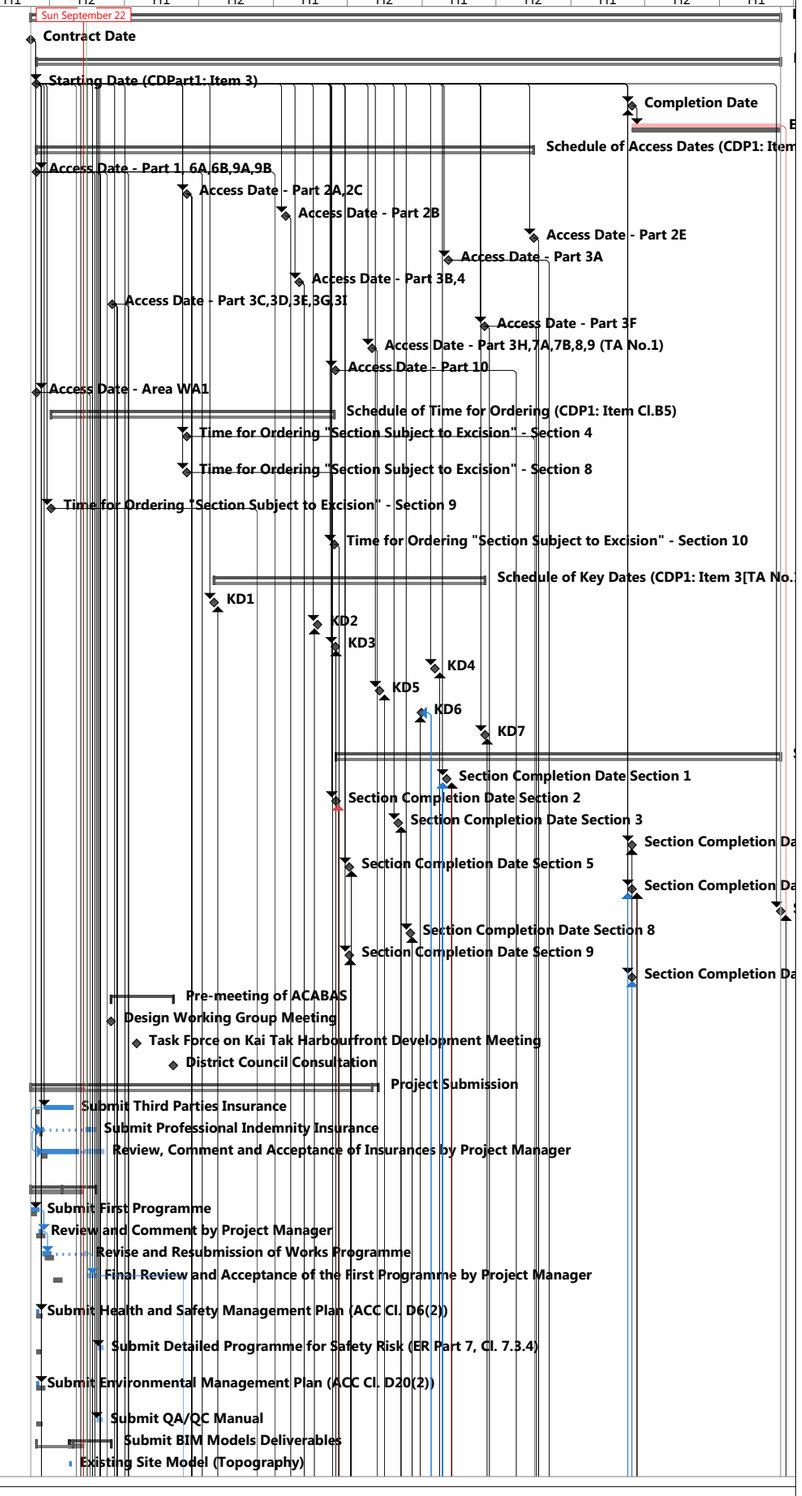
Figure 6 – Noise Monitoring Stations

Appendix A – Organization Chart of EM&A Team


Environmental Protection Department
EPD
Project Proponent
CEDD
Contractor
Penta-Ocean
Supervisor (ER)
AECOM
Environmental Team (ET)
Ka Shing
Independent Environmental Checker (IEC)
Ramboll
Link of communication

Appendix B – Construction Programme

ID	Task Name	Duration	Remaining Duration	Actual Start	Actual Finish	Plan Start	Plan Finish	Late Start	Late Finish	Physical % Complete	Free Slack	Time Risk Allowances (TRA)	Total Slack
1	**Project Dates**	**1841 days**	**1841 days**	**May 16, 2019**	**NA**	**May 16, 2019**	**May 29, 2024**	**May 16, 2019**	**May 29, 2024**	**0%**	**0 days**	**0 days**	**0 days**
2	Contract Date	0 days	0 days	May 16, 2019	May 16, 2019	May 16, 2019	May 16, 2019	May 16, 2019	May 16, 2019	0%	0 days	0 days	0 days
3	**Date of Commencement & Completion (CDP1: Item 3)**	**1827 days**	**1827 days**	**May 30, 2019**	**NA**	**May 30, 2019**	**May 29, 2024**	**May 30, 2019**	**May 29, 2024**	**0%**	**0 days**	**0 days**	**0 days**
4	Starting Date (CDPart1: Item 3)	0 days	0 days	May 30, 2019	May 30, 2019	May 30, 2019	May 30, 2019	May 30, 2019	May 30, 2019	100%	0 days	0 days	0 days
5	Completion Date	0 days	0 days	NA	NA	May 30, 2023	May 30, 2023	May 30, 2023	May 30, 2023	0%	0 days	0 days	0 days
6	Establishment Work	365 days	365 days	NA	NA	May 31, 2023	May 29, 2024	May 31, 2023	May 29, 2024	0%	0 days	0 days	0 days
7	**Schedule of Access Dates (CDP1: Item 3[TA No.1)**	**1221 days**	**1221 days**	**May 30, 2019**	**NA**	**May 30, 2019**	**October 2, 2022**	**May 30, 2019**	**October 2, 2022**	**0%**	**0 days**	**0 days**	**0 days**
8	Access Date - Part 1, 6A,6B,9A,9B	0 days	0 days	May 30, 2019	May 30, 2019	May 30, 2019	May 30, 2019	May 30, 2019	May 30, 2019	100%	0 days	0 days	0 days
9	Access Date - Part 2A,2C	0 days	0 days	NA	NA	June 2, 2020	June 2, 2020	June 2, 2020	June 2, 2020	0%	0 days	0 days	0 days
10	Access Date - Part 2B	0 days	0 days	NA	NA	January 31, 2021	January 31, 2021	January 31, 2021	January 31, 2021	0%	0 days	0 days	0 days
11	Access Date - Part 2E	0 days	0 days	NA	NA	October 2, 2022	October 2, 2022	October 2, 2022	October 2, 2022	0%	0 days	0 days	0 days
12	Access Date - Part 3A	0 days	0 days	NA	NA	March 6, 2022	March 6, 2022	March 6, 2022	March 6, 2022	0%	0 days	0 days	0 days
13	Access Date - Part 3B,4	0 days	0 days	NA	NA	March 5, 2021	March 5, 2021	March 5, 2021	March 5, 2021	0%	0 days	0 days	0 days
14	Access Date - Part 3C,3D,3E,3G,3I	0 days	0 days	NA	NA	December 2, 2019	December 2, 2019	December 2, 2019	December 2, 2019	0%	0 days	0 days	0 days
15	Access Date - Part 3F	0 days	0 days	NA	NA	June 3, 2022	June 3, 2022	June 3, 2022	June 3, 2022	0%	0 days	0 days	0 days
16	Access Date - Part 3H,7A,7B,8,9 (TA No.1)	0 days	0 days	NA	NA	August 31, 2021	August 31, 2021	August 31, 2021	August 31, 2021	0%	0 days	0 days	0 days
17	Access Date - Part 10	0 days	0 days	NA	NA	June 2, 2021	June 2, 2021	June 2, 2021	June 2, 2021	0%	0 days	0 days	0 days
18	Access Date - Area WA1	0 days	0 days	May 30, 2019	May 30, 2019	May 30, 2019	May 30, 2019	May 30, 2019	May 30, 2019	100%	0 days	0 days	0 days
19	**Schedule of Time for Ordering (CDP1: Item Cl.B5)**	**695 days**	**695 days**	**July 5, 2019**	**NA**	**July 5, 2019**	**May 30, 2021**	**July 5, 2019**	**May 30, 2021**	**0%**	**0 days**	**0 days**	**0 days**
20	Time for Ordering "Section Subject to Excision" - Section 4	0 days	0 days	NA	NA	June 2, 2020	June 2, 2020	June 2, 2020	June 2, 2020	0%	0 days	0 days	0 days
21	Time for Ordering "Section Subject to Excision" - Section 8	0 days	0 days	NA	NA	June 2, 2020	June 2, 2020	June 2, 2020	June 2, 2020	0%	0 days	0 days	0 days
22	Time for Ordering "Section Subject to Excision" - Section 9	0 days	0 days	July 5, 2019	July 5, 2019	July 5, 2019	July 5, 2019	July 5, 2019	July 5, 2019	100%	0 days	0 days	0 days
23	Time for Ordering "Section Subject to Excision" - Section 10	0 days	0 days	NA	NA	May 30, 2021	May 30, 2021	May 30, 2021	May 30, 2021	0%	0 days	0 days	0 days
24	**Schedule of Key Dates (CDP1: Item 3[TA No.1])**	**665 days**	**665 days**	**NA**	**NA**	**August 7, 2020**	**June 3, 2022**	**August 7, 2020**	**June 3, 2022**	**0%**	**0 days**	**0 days**	**0 days**
25	KD1	0 days	0 days	NA	NA	August 7, 2020	August 7, 2020	August 7, 2020	August 7, 2020	0%	0 days	0 days	0 days
26	KD2	0 days	0 days	NA	NA	April 18, 2021	April 18, 2021	April 18, 2021	April 18, 2021	0%	0 days	0 days	0 days
27	KD3	0 days	0 days	NA	NA	June 1, 2021	June 1, 2021	June 1, 2021	June 1, 2021	0%	0 days	0 days	0 days
28	KD4	0 days	0 days	NA	NA	January 31, 2022	January 31, 2022	January 31, 2022	January 31, 2022	0%	0 days	0 days	0 days
29	KD5	0 days	0 days	NA	NA	September 17, 2021	September 17, 2021	September 17, 2021	September 17, 2021	0%	0 days	0 days	0 days
30	KD6	0 days	0 days	NA	NA	December 29, 2021	December 29, 2021	December 29, 2021	December 29, 2021	0%	0 days	0 days	0 days
31	KD7	0 days	0 days	NA	NA	June 3, 2022	June 3, 2022	June 3, 2022	June 3, 2022	0%	0 days	0 days	0 days
32	**Schedule of Section Completion (CDP1 Cl. X5)**	**1092 days**	**1092 days**	**NA**	**NA**	**June 2, 2021**	**May 29, 2024**	**June 2, 2021**	**May 29, 2024**	**0%**	**0 days**	**0 days**	**0 days**
33	Section Completion Date Section 1	0 days	0 days	NA	NA	March 1, 2022	March 1, 2022	March 1, 2022	March 1, 2022	0%	0 days	0 days	0 days
34	Section Completion Date Section 2	0 days	0 days	NA	NA	June 2, 2021	June 2, 2021	June 2, 2021	June 2, 2021	0%	0 days	0 days	0 days
35	Section Completion Date Section 3	0 days	0 days	NA	NA	November 2, 2021	November 2, 2021	November 2, 2021	November 2, 2021	0%	0 days	0 days	0 days
36	Section Completion Date Section 4	0 days	0 days	NA	NA	May 30, 2023	May 30, 2023	May 30, 2023	May 30, 2023	0%	0 days	0 days	0 days
37	Section Completion Date Section 5	0 days	0 days	NA	NA	July 5, 2021	July 5, 2021	July 5, 2021	July 5, 2021	0%	0 days	0 days	0 days
38	Section Completion Date Section 6	0 days	0 days	NA	NA	May 30, 2023	May 30, 2023	May 30, 2023	May 30, 2023	0%	0 days	0 days	0 days
39	Section Completion Date Section 7	0 days	0 days	NA	NA	May 29, 2024	May 29, 2024	May 29, 2024	May 29, 2024	0%	0 days	0 days	0 days
40	Section Completion Date Section 8	0 days	0 days	NA	NA	December 2, 2021	December 2, 2021	December 2, 2021	December 2, 2021	0%	0 days	0 days	0 days
41	Section Completion Date Section 9	0 days	0 days	NA	NA	July 5, 2021	July 5, 2021	July 5, 2021	July 5, 2021	0%	0 days	0 days	0 days
42	Section Completion Date Section 10	0 days	0 days	NA	NA	May 30, 2023	May 30, 2023	May 30, 2023	May 30, 2023	0%	0 days	0 days	0 days
43	**Pre-meeting of ACABAS**	**153 days**	**153 days**	**NA**	**NA**	**November 29, 2019**	**April 30, 2020**	**May 29, 2024**	**May 29, 2024**	**0%**	**1491 d...**		**1491 d...**
44	Design Working Group Meeting	0 days	0 days	NA	NA	November 29, 2019	November 29, 2019	May 29, 2024	May 29, 2024	0%	1644 d...		1644 d...
45	Task Force on Kai Tak Harbourfront Development Meeting	0 days	0 days	NA	NA	January 31, 2020	January 31, 2020	May 29, 2024	May 29, 2024	0%	1581 d...		1581 d...
46	District Council Consultation	0 days	0 days	NA	NA	April 30, 2020	April 30, 2020	May 29, 2024	May 29, 2024	0%	1491 d...		1491 d...
47	**Project Submission**	**853 days**	**679.02 days**	**May 16, 2019**	**NA**	**May 16, 2019**	**September 14, 20...**	**May 16, 2019**	**May 29, 2024**	**0%**	**988 days**	**0 days**	**988 days**
48	Submit Third Parties Insurance	71 days	0 days	June 18, 2019	August 27, 2019	June 18, 2019	August 27, 2019	June 18, 2019	August 27, 2019	100%	0 days	0 days	0 days
49	Submit Professional Indemnity Insurance	29.39 days	14 days	June 11, 2019	NA	June 11, 2019	October 22, 2019	June 11, 2019	May 29, 2024	52%	2 days	0 days	1681.1...
50	Review, Comment and Acceptance of Insurances by Project Manager	139.1 days	50 days	June 13, 2019	NA	June 13, 2019	November 11, 2019	June 13, 2019	May 29, 2024	64%	1661 days	0 days	1661 days
51	**Works Programme**	**160 days**	**60.42 days**	**May 16, 2019**	**NA**	**May 16, 2019**	**October 22, 2019**	**May 16, 2019**	**June 1, 2020**	**0%**	**223 days**		**223 days**
52	Submit First Programme	20 days	0 days	May 16, 2019	June 4, 2019	May 16, 2019	June 4, 2019	May 16, 2019	June 4, 2019	100%	0 days	0 days	0 days
53	Review and Comment by Project Manager	9 days	0 days	June 5, 2019	June 13, 2019	June 5, 2019	June 13, 2019	June 5, 2019	June 13, 2019	100%	0 days	0 days	0 days
54	Revise and Resubmission of Works Programme	30 days	9.21 days	June 14, 2019	NA	June 14, 2019	October 2, 2019	June 14, 2019	May 11, 2020	69%	0 days	0 days	222.79 ...
55	Final Review and Acceptance of the First Programme by Project Manager	21 days	21 days	NA	NA	October 2, 2019	October 23, 2019	May 12, 2020	June 1, 2020	0%	218.79 days	0 days	222.79 days
56	Submit Health and Safety Management Plan (ACC Cl. D6(2))	6 days	0 days	May 30, 2019	June 4, 2019	May 30, 2019	June 4, 2019	May 30, 2019	June 4, 2019	100%	0 days	0 days	0 days
57	Submit Detailed Programme for Safety Risk (ER Part 7, Cl. 7.3.4)	12 days	12 days	NA	NA	October 29, 2019	November 9, 2019	May 18, 2024	May 29, 2024	0%	1663 days	0 days	1663 days
58	Submit Environmental Management Plan (ACC Cl. D20(2))	6 days	0 days	May 30, 2019	June 4, 2019	May 30, 2019	June 4, 2019	May 30, 2019	June 4, 2019	100%	0 days	0 days	0 days
59	Submit QA/QC Manual	14 days	14 days	NA	NA	October 25, 2019	November 7, 2019	May 16, 2024	May 29, 2024	0%	1665 d...	0 days	1665 d...
60	**Submit BIM Models Deliverables**	**103 days**	**41.33 days**	**August 19, 2019**	**NA**	**August 19, 2019**	**November 30, 2019**	**August 19, 2019**	**May 29, 2024**	**0%**	**1643 d...**		**1643 d...**
61	Existing Site Model (Topography)	5 days	0 days	August 19, 2019	August 23, 2019	August 19, 2019	August 23, 2019	August 19, 2019	August 23, 2019	100%	0 days		0 days



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Critical	Task	Manual Task	Duration-only	Baseline Milestone	Summary	External Tasks	Inactive Milestone	Baseline Summary
Critical Split	Split	Start-only	Baseline	Milestone	Manual Summary	External Milestone	Inactive Summary	
Critical Progress	Task Progress	Finish-only	Baseline Split	Summary Progress	Project Summary	Inactive Task	Deadline	

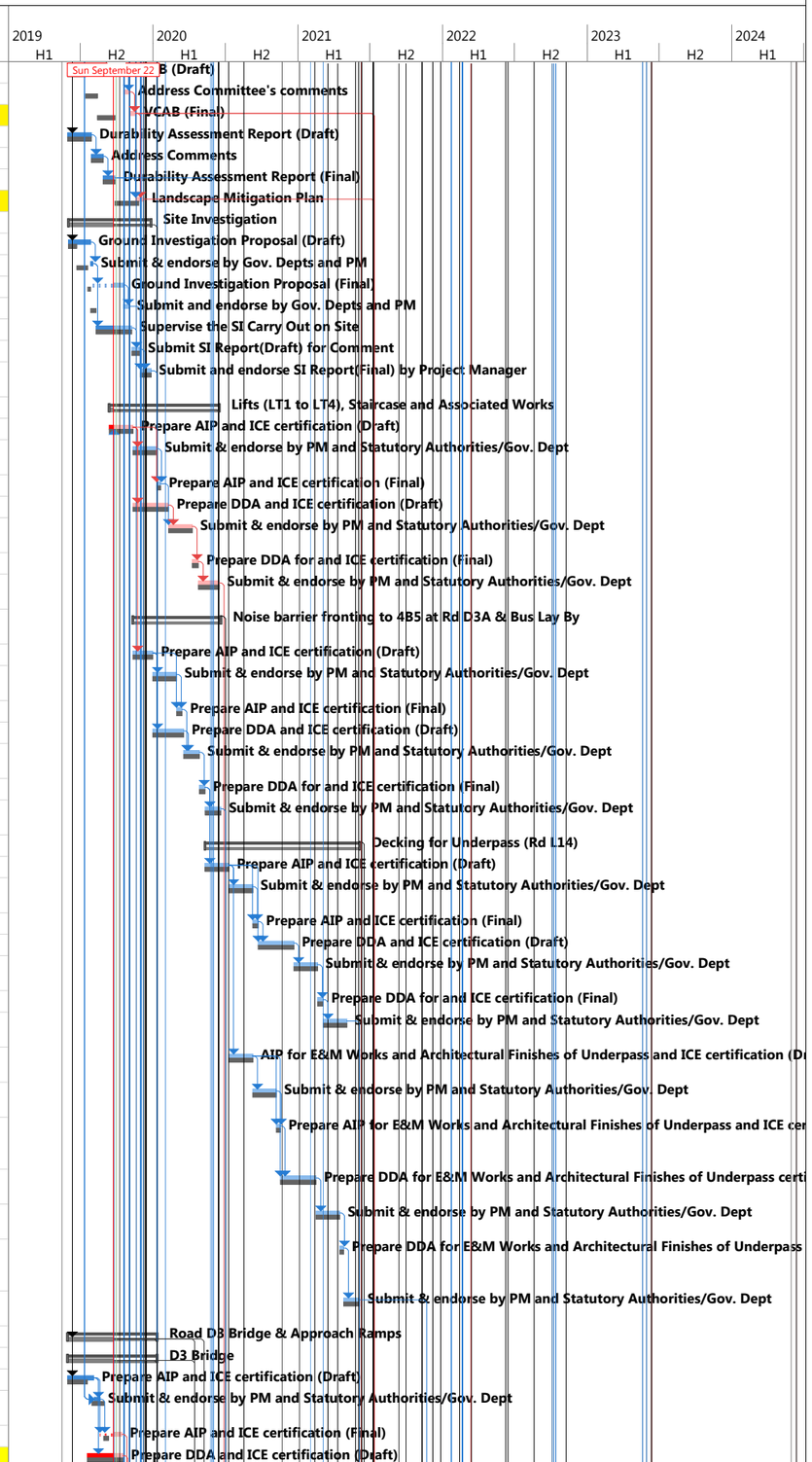
ID	Task Name	Duration	Remaining Duration	Actual Start	Actual Finish	Plan Start	Plan Finish	Late Start	Late Finish	Physical % Complete	Free Slack	Time Risk Allowances (TRA)	Total Slack
62	Existing Underground Utilities (UU) Model	5 days	0 days	August 26, 2019	August 30, 2019	August 26, 2019	August 30, 2019	August 26, 2019	August 30, 2019	100%	0 days		0 days
63	3D Digital Survey For Existing Conditions	28 days	4.8 days	September 2, 2019	NA	September 2, 2019	September 30, 2019	September 2, 2019	May 29, 2024	83%	1703 d...		1703 d...
64	3D Photogrametry Model	46 days	40.02 days	September 16, 2019	NA	September 16, 2019	November 2, 2019	September 16, 2019	May 29, 2024	13%	1670.9...		1670.9...
65	AIP Model	18 days	1.08 days	September 6, 2019	NA	September 6, 2019	September 24, 2019	September 6, 2019	May 29, 2024	94%	1709.9...		1709.9...
66	Interfacing Contract Model	15 days	1.05 days	September 9, 2019	NA	September 9, 2019	September 24, 2019	September 9, 2019	May 29, 2024	93%	1709.9...		1709.9...
67	Monthly Updated BIM Model	0 days	0 days	NA	NA	October 31, 2019	October 31, 2019	October 31, 2019	October 31, 2019	0%	0 days		0 days
68	4D Model Linked Up with Programme	0 days	0 days	NA	NA	October 31, 2019	October 31, 2019	October 31, 2019	October 31, 2019	0%	0 days		0 days
69	Construction Method Simulation (CMS) in 3D Model	0 days	0 days	NA	NA	November 30, 2019	November 30, 2019	November 30, 2019	November 30, 2019	0%	0 days		0 days
70	**BIM Deliverables Schedule**	**77 days**	**77 days**	**August 16, 2019**	**NA**	**August 16, 2019**	**October 31, 2019**	**August 16, 2019**	**October 31, 2019**	**0%**	**0 days**		**0 days**
71	Establish BIM Team	0 days	0 days	August 16, 2019	August 16, 2019	August 16, 2019	August 16, 2019	August 16, 2019	August 16, 2019	100%	0 days		0 days
72	BIM Execution Plan	0 days	0 days	August 16, 2019	August 16, 2019	August 16, 2019	August 16, 2019	August 16, 2019	August 16, 2019	100%	0 days		0 days
73	BIM Submission Schedule	0 days	0 days	August 16, 2019	August 16, 2019	August 16, 2019	August 16, 2019	August 16, 2019	August 16, 2019	100%	0 days		0 days
74	BIM 360 License	0 days	0 days	August 31, 2019	August 31, 2019	August 31, 2019	August 31, 2019	August 31, 2019	August 31, 2019	100%	0 days		0 days
75	BIM/Drawing Management Software System	0 days	0 days	August 31, 2019	August 31, 2019	August 31, 2019	August 31, 2019	August 31, 2019	August 31, 2019	100%	0 days		0 days
76	CDE Setup	0 days	0 days	September 9, 2019	September 9, 2019	September 9, 2019	September 9, 2019	September 9, 2019	September 9, 2019	100%	0 days		0 days
77	Clash Report Format	0 days	0 days	September 9, 2019	September 9, 2019	September 9, 2019	September 9, 2019	September 9, 2019	September 9, 2019	100%	0 days		0 days
78	Monthly Report Format	0 days	0 days	September 9, 2019	September 9, 2019	September 9, 2019	September 9, 2019	September 9, 2019	September 9, 2019	100%	0 days		0 days
79	Quality Assurance Plan for BIM	0 days	0 days	September 30, 2019	September 30, 2019	September 30, 2019	September 30, 2019	September 30, 2019	September 30, 2019	100%	0 days		0 days
80	BIM Training Plan	0 days	0 days	September 30, 2019	September 30, 2019	September 30, 2019	September 30, 2019	September 30, 2019	September 30, 2019	100%	0 days		0 days
81	BIM Training Schedule for CIC Training	0 days	0 days	September 30, 2019	September 30, 2019	September 30, 2019	September 30, 2019	September 30, 2019	September 30, 2019	100%	0 days		0 days
82	4 Sets of BIM Software, Hardware and Server	0 days	0 days	NA	NA	October 31, 2019	October 31, 2019	October 31, 2019	October 31, 2019	0%	0 days		0 days
83	Monthly BIM Progress Report	0 days	0 days	NA	NA	October 31, 2019	October 31, 2019	October 31, 2019	October 31, 2019	0%	0 days		0 days
84	Monthly Clash Report	0 days	0 days	NA	NA	October 31, 2019	October 31, 2019	October 31, 2019	October 31, 2019	0%	0 days		0 days
85	BIM Object Libraries	0 days	0 days	NA	NA	October 31, 2019	October 31, 2019	October 31, 2019	October 31, 2019	0%	0 days		0 days
86	**Temporary Traffic Management**	**839 days**	**682.35 days**	**May 30, 2019**	**NA**	**May 30, 2019**	**September 14, 20...**	**May 30, 2019**	**May 29, 2024**	**0%**	**988 days**		**988 days**
87	Submit Traffic Engineering Consultant and TTM Team Leader (PS1.16(3))	14 days	0 days	May 30, 2019	June 12, 2019	May 30, 2019	June 12, 2019	May 30, 2019	June 12, 2019	100%	0 days	0 days	0 days
88	Submit Road Closure Implementation Plan (PS1.14A(2)) within 14d after acceptance of Works Programme	14 days	14 days	NA	NA	November 1, 2019	November 14, 2019	May 16, 2024	May 29, 2024	0%	1658 days	0 days	1658 days
89	Submit EP Mgt System Co-ordinator (PS Cl. 1.18N(2))	7 days	0 days	May 30, 2019	June 5, 2019	May 30, 2019	June 5, 2019	May 30, 2019	June 5, 2019	100%	0 days	0 days	0 days
90	Approve of EP Co-ordinator by Project Manager (PS Cl. 1.18N(2))	14 days	0 days	June 6, 2019	June 19, 2019	June 6, 2019	June 19, 2019	June 6, 2019	June 19, 2019	100%	0 days	0 days	0 days
91	Submit UU detection equipment for Supervisor approval (PS Cl. 1.25A(1))	7 days	0 days	May 30, 2019	June 5, 2019	May 30, 2019	June 5, 2019	May 30, 2019	June 5, 2019	100%	0 days	0 days	0 days
92	Submit & obtain approval: site office's location and layout plan (PS Cl. 1.45(11)) (7d submission + 14d approval)	31 days	10 days	May 30, 2019	NA	May 30, 2019	October 2, 2019	May 30, 2019	May 29, 2024	100%	1701 days	0 days	1701 days
93	Submit Site survey record (PS Cl.1.47(7))	34 days	0 days	May 30, 2019	July 2, 2019	May 30, 2019	July 2, 2019	May 30, 2019	July 2, 2019	100%	0 days	0 days	0 days
94	Submit & obtain approval: fencing & hoarding plan (PS Cl. 1.48(10)	5 days	5 days	NA	NA	October 2, 2019	October 6, 2019	November 4, 2019	November 8, 2019	0%	1 day	0.5 days	33 days
95	Submit site facilities (PS Cl. 1.50S)	65 days	0 days	May 30, 2019	August 2, 2019	May 30, 2019	August 2, 2019	May 30, 2019	August 2, 2019	100%	0 days	0 days	0 days
96	Submit security system (PS Cl. 1.53A(5))	36 days	0 days	May 30, 2019	July 4, 2019	May 30, 2019	July 4, 2019	May 30, 2019	July 4, 2019	100%	0 days	0 days	0 days
97	Submit Weather Protection Scheme (PS Cl. 1.87 (1))	12 days	0 days	October 15, 2019	October 26, 2019	October 15, 2019	October 26, 2019	October 15, 2019	October 26, 2019	100%	0 days	0 days	0 days
98	Submit Interface Management Plan (PS Cl. 1.89(2))	47 days	0 days	May 30, 2019	July 15, 2019	May 30, 2019	July 15, 2019	May 30, 2019	July 15, 2019	100%	0 days	0 days	0 days
99	Submit Subcontractor Management Plan (ACC Cl. C5(1))	13 days	0 days	May 30, 2019	June 11, 2019	May 30, 2019	June 11, 2019	May 30, 2019	June 11, 2019	100%	0 days	0 days	0 days
100	Submit Temporary Drainage and Sewerage Management Plan (PS Cl. 1.24A(1))	45 days	33.12 days	May 30, 2019	NA	May 30, 2019	October 26, 2019	May 30, 2019	August 7, 2020	32%	33.88 days	0 days	286.88 days
101	Submit Piling Programme (PS Cl. 8.35D)	12 days	12 days	NA	NA	January 2, 2020	January 13, 2020	February 1, 2020	February 12, 2020	0%	18 days	0 days	30 days
102	Submit EM&A Manual (ER Part 8, Cl. 8.2)	6 days	0 days	May 30, 2019	June 4, 2019	May 30, 2019	June 4, 2019	May 30, 2019	June 4, 2019	100%	0 days	0 days	0 days
103	Submit Proposal of selection of suppliers of Plant and Materials (ACC Cl. C11(1)	80 days	0 days	May 30, 2019	August 17, 2019	May 30, 2019	August 17, 2019	May 30, 2019	August 17, 2019	100%	0 days	0 days	0 days
104	Submit Contractor's Management Team (ACC Cl. D1(3))	50 days	0 days	May 30, 2019	July 18, 2019	May 30, 2019	July 18, 2019	May 30, 2019	July 18, 2019	100%	0 days	0 days	0 days
105	**Permanent Works Design Submission**	**839 days**	**705.7 days**	**May 30, 2019**	**NA**	**May 30, 2019**	**September 14, 20...**	**May 30, 2019**	**November 15, 2022**	**0%**	**427 days**		**427 days**
106	**General Design Submission**	**192 days**	**43.98 days**	**May 30, 2019**	**NA**	**May 30, 2019**	**December 7, 2019**	**May 30, 2019**	**December 10, 2019**	**0%**	**3 days**		**3 days**
107	Project Design Plan (Draft)	16 days	0 days	May 30, 2019	June 14, 2019	May 30, 2019	June 14, 2019	May 30, 2019	June 14, 2019	100%	0 days	0 days	0 days
108	Project Design Plan (Draft) Comment by PM	14 days	0 days	June 15, 2019	June 28, 2019	June 15, 2019	June 28, 2019	June 15, 2019	June 28, 2019	100%	0 days		0 days
109	Address Comments	66 days	0 days	July 2, 2019	September 5, 2019	July 2, 2019	September 5, 2019	July 2, 2019	September 5, 2019	100%	0 days	1 days	0 days
110	Project Design Plan (Final)	19 days	15.2 days	September 5, 2019	NA	September 5, 2019	October 8, 2019	September 5, 2019	December 10, 2019	20%	63.8 days	0 days	63.8 days
111	Design Memorandum (Draft)	26 days	0 days	June 4, 2019	June 29, 2019	June 4, 2019	June 29, 2019	June 4, 2019	June 29, 2019	100%	0 days	0 days	0 days
112	Address Comments	15 days	0 days	August 1, 2019	August 15, 2019	August 1, 2019	August 15, 2019	August 1, 2019	August 15, 2019	100%	0 days	1 days	0 days
113	Design Memorandum (Final)	5 days	5 days	July 23, 2019	NA	July 23, 2019	September 27, 2019	July 23, 2019	December 10, 2019	0%	74 days	0 days	74 days
114	Traffic Impact Assessment(Draft)	25 days	4 days	September 16, 2019	NA	September 16, 2019	October 10, 2019	September 16, 2019	October 18, 2019	84%	0 days	1 day	8 days
115	Address Comments	28 days	28 days	NA	NA	October 11, 2019	November 7, 2019	October 19, 2019	November 15, 2019	0%	0 days	0.5 days	8 days
116	Traffic Impact Assessment(Final)	25 days	25 days	NA	NA	November 8, 2019	December 2, 2019	November 16, 2019	December 10, 2019	0%	8 days	0.5 days	8 days
117	ACABAS (Draft)	69 days	0 days	May 30, 2019	August 6, 2019	May 30, 2019	August 6, 2019	May 30, 2019	August 6, 2019	100%	0 days	2 days	0 days
118	Address Committee's comments	51 days	6 days	August 7, 2019	NA	August 7, 2019	September 28, 2019	August 7, 2019	December 10, 2019	88%	73 days	2 days	73 days
119	ACABAS (Final)	25 days	0 days	August 28, 2019	September 21, 2019	August 28, 2019	September 21, 2019	August 28, 2019	September 21, 2019	100%	0 days	1 days	0 days



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Critical, Critical Split, Critical Progress, Task, Split, Task Progress, Manual Task, Start-only, Finish-only, Duration-only, Baseline, Baseline Split, Baseline Milestone, Milestone, Summary Progress, Summary, Manual Summary, Project Summary, External Tasks, External Milestone, Inactive Task, Inactive Milestone, Inactive Summary, Deadline, Baseline Summary

ID	Task Name	Duration	Remaining Duration	Actual Start	Actual Finish	Plan Start	Plan Finish	Late Start	Late Finish	Physical % Complete	Free Slack	Time Risk Allowances (TRA)	Total Slack
120	VCAB (Draft)	45 days	0 days	September 4, 2019	October 18, 2019	September 4, 2019	October 18, 2019	September 4, 2019	October 18, 2019	100%	0 days	2 days	0 days
121	Address Committee's comments	15 days	15 days	NA	NA	October 19, 2019	November 2, 2019	October 22, 2019	November 5, 2019	0%	0 days	2 days	3 days
122	VCAB (Final)	15 days	15 days	NA	NA	November 3, 2019	November 17, 2019	November 6, 2019	November 20, 2019	0%	0 days	2 days	3 days
123	Durability Assessment Report (Draft)	60 days	0 days	May 30, 2019	July 28, 2019	May 30, 2019	July 28, 2019	May 30, 2019	July 28, 2019	0%	0 days	3 days	0 days
124	Address Comments	30 days	0 days	July 29, 2019	August 27, 2019	July 29, 2019	August 27, 2019	July 29, 2019	August 27, 2019	0%	0 days	2 days	0 days
125	Durability Assessment Report (Final)	30 days	4 days	August 28, 2019	NA	August 28, 2019	September 26, 2019	August 28, 2019	November 20, 2019	0%	52 days	2 days	55 days
126	Landscape Mitigation Plan	20 days	20 days	NA	NA	November 18, 2019	December 7, 2019	November 21, 2019	December 10, 2019	0%	3 days	3 days	3 days
127	**Site Investigation**	**209 days**	**116.69 days**	**June 1, 2019**	**NA**	**June 1, 2019**	**December 26, 2019**	**June 1, 2019**	**January 10, 2020**	**0%**	**15 days**		**15 days**
128	Ground Investigation Proposal (Draft)	56 days	0 days	June 1, 2019	July 26, 2019	June 1, 2019	July 26, 2019	June 1, 2019	July 26, 2019	100%	0 days	1 days	0 days
129	Submit & endorse by Gov. Depts and PM	6 days	0 days	July 27, 2019	August 1, 2019	July 27, 2019	August 1, 2019	July 27, 2019	August 1, 2019	100%	0 days	1 days	0 days
130	Ground Investigation Proposal (Final)	25 days	25 days	August 2, 2019	NA	August 2, 2019	October 17, 2019	August 2, 2019	November 29, 2019	0%	0 days	1 days	43 days
131	Submit and endorse by Gov. Depts and PM	14 days	14 days	NA	NA	October 18, 2019	October 31, 2019	November 30, 2019	December 13, 2019	0%	28 days	1 days	43 days
132	Supervise the SI Carry Out on Site	90 days	46 days	August 10, 2019	NA	August 10, 2019	November 7, 2019	August 10, 2019	November 22, 2019	49%	0 days	4 days	15 days
133	Submit SI Report(Draft) for Comment	21 days	21 days	NA	NA	November 8, 2019	November 28, 2019	November 23, 2019	December 13, 2019	0%	0 days	1 days	15 days
134	Submit and endorse SI Report(Final) by Project Manager	28 days	28 days	NA	NA	November 29, 2019	December 26, 2019	December 14, 2019	January 10, 2020	0%	15 days	1 days	15 days
135	**Lifts (LT1 to LT4), Staircase and Associated Works**	**278 days**	**269.21 days**	**September 12, 20...**	**NA**	**September 12, 20...**	**June 15, 2020**	**September 12, 2019**	**June 19, 2020**	**0%**	**0 days**		**4 days**
136	Prepare AIP and ICE certification (Draft)	60 days	49 days	September 12, 2019	NA	September 12, 2019	November 10, 2019	September 12, 2019	November 14, 2019	18%	0 days	3 days	4 days
137	Submit & endorse by PM and Statutory Authorities/Gov. Dept	60 days	60 days	NA	NA	November 11, 2019	January 9, 2020	December 5, 2019	February 2, 2020	0%	0 days	0.5 days	24 days
138	Prepare AIP and ICE certification (Final)	10 days	10 days	NA	NA	January 10, 2020	January 19, 2020	February 3, 2020	February 12, 2020	0%	20 days	0 days	24 days
139	Prepare DDA and ICE certification (Draft)	90 days	90 days	NA	NA	November 11, 2019	February 8, 2020	November 15, 2019	February 12, 2020	0%	0 days	4 days	4 days
140	Submit & endorse by PM and Statutory Authorities/Gov. Dept	60 days	60 days	NA	NA	February 9, 2020	April 8, 2020	February 13, 2020	April 12, 2020	0%	0 days	3 days	4 days
141	Prepare DDA for and ICE certification (Final)	15 days	15 days	NA	NA	April 9, 2020	April 23, 2020	April 13, 2020	April 27, 2020	0%	0 days	1 days	4 days
142	Submit & endorse by PM and Statutory Authorities/Gov. Dept	53 days	53 days	NA	NA	April 24, 2020	June 15, 2020	April 28, 2020	June 19, 2020	0%	0 days	3 days	4 days
143	**Noise barrier fronting to 4B5 at Rd D3A & Bus Lay By**	**222 days**	**222 days**	**NA**	**NA**	**November 11, 2019**	**June 19, 2020**	**November 18, 2019**	**June 26, 2020**	**0%**	**0 days**		**7 days**
144	Prepare AIP and ICE certification (Draft)	50 days	50 days	NA	NA	November 11, 2019	December 30, 2019	November 18, 2019	January 6, 2020	0%	0 days	2 days	7 days
145	Submit & endorse by PM and Statutory Authorities/Gov. Dept	60 days	60 days	NA	NA	December 31, 2019	February 28, 2020	January 11, 2020	March 10, 2020	0%	0 days	0.5 days	11 days
146	Prepare AIP and ICE certification (Final)	14 days	14 days	NA	NA	February 29, 2020	March 13, 2020	March 11, 2020	March 24, 2020	0%	4 days	0 days	11 days
147	Prepare DDA and ICE certification (Draft)	78 days	78 days	NA	NA	December 31, 2019	March 17, 2020	January 7, 2020	March 24, 2020	0%	0 days	4 days	7 days
148	Submit & endorse by PM and Statutory Authorities/Gov. Dept	40 days	40 days	NA	NA	March 18, 2020	April 26, 2020	March 25, 2020	May 3, 2020	0%	0 days	2 days	7 days
149	Prepare DDA for and ICE certification (Final)	14 days	14 days	NA	NA	April 27, 2020	May 10, 2020	May 4, 2020	May 17, 2020	0%	0 days	1 days	7 days
150	Submit & endorse by PM and Statutory Authorities/Gov. Dept	40 days	40 days	NA	NA	May 11, 2020	June 19, 2020	May 18, 2020	June 26, 2020	0%	0 days	1 days	7 days
151	**Decking for Underpass (Rd L14)**	**390 days**	**390 days**	**NA**	**NA**	**May 11, 2020**	**June 4, 2021**	**May 23, 2020**	**June 16, 2021**	**0%**	**0 days**		**12 days**
152	Prepare AIP and ICE certification (Draft)	60 days	60 days	NA	NA	May 11, 2020	July 9, 2020	May 23, 2020	July 21, 2020	0%	0 days	3 days	12 days
153	Submit & endorse by PM and Statutory Authorities/Gov. Dept	60 days	60 days	NA	NA	July 10, 2020	September 7, 2020	August 23, 2020	October 21, 2020	0%	0 days	0.5 days	44 days
154	Prepare AIP and ICE certification (Final)	14 days	14 days	NA	NA	September 8, 2020	September 21, 2020	October 22, 2020	November 4, 2020	0%	0 days	0 days	44 days
155	Prepare DDA and ICE certification (Draft)	90 days	90 days	NA	NA	September 22, 2020	December 20, 2020	November 5, 2020	February 2, 2021	0%	0 days	1 day	44 days
156	Submit & endorse by PM and Statutory Authorities/Gov. Dept	60 days	60 days	NA	NA	December 21, 2020	February 18, 2021	February 3, 2021	April 3, 2021	0%	0 days	0.5 days	44 days
157	Prepare DDA for and ICE certification (Final)	14 days	14 days	NA	NA	February 19, 2021	March 4, 2021	April 4, 2021	April 17, 2021	0%	0 days	0 days	44 days
158	Submit & endorse by PM and Statutory Authorities/Gov. Dept	60 days	60 days	NA	NA	March 5, 2021	May 3, 2021	April 18, 2021	June 16, 2021	0%	32 days	0 days	44 days
159	AIP for E&M Works and Architectural Finishes of Underpass and ICE certification (Draft)	60 days	60 days	NA	NA	July 10, 2020	September 7, 2020	July 22, 2020	September 19, 2020	0%	0 days	3 day	12 days
160	Submit & endorse by PM and Statutory Authorities/Gov. Dept	60 days	60 days	NA	NA	September 8, 2020	November 6, 2020	September 20, 2020	November 18, 2020	0%	0 days	3 days	12 days
161	Prepare AIP for E&M Works and Architectural Finishes of Underpass and ICE certification (Final)	10 days	10 days	NA	NA	November 7, 2020	November 16, 2020	November 19, 2020	November 28, 2020	0%	0 days	0 days	12 days
162	Prepare DDA for E&M Works and Architectural Finishes of Underpass certification (Draft)	90 days	90 days	NA	NA	November 17, 2020	February 14, 2021	November 29, 2020	February 26, 2021	0%	0 days	3 days	12 days
163	Submit & endorse by PM and Statutory Authorities/Gov. Dept	60 days	60 days	NA	NA	February 15, 2021	April 15, 2021	February 27, 2021	April 27, 2021	0%	0 days	3 days	12 days
164	Prepare DDA for E&M Works and Architectural Finishes of Underpass and ICE certification (Final)	10 days	10 days	NA	NA	April 16, 2021	April 25, 2021	April 28, 2021	May 7, 2021	0%	0 days	0 days	12 days
165	Submit & endorse by PM and Statutory Authorities/Gov. Dept	40 days	40 days	NA	NA	April 26, 2021	June 4, 2021	May 8, 2021	June 16, 2021	0%	12 days	2 days	12 days
166	**Road D3 Bridge & Approach Ramps**	**226 days**	**98.71 days**	**May 30, 2019**	**NA**	**May 30, 2019**	**January 10, 2020**	**May 30, 2019**	**January 10, 2020**	**0%**	**0 days**		**0 days**
167	**D3 Bridge**	**226 days**	**106.5 days**	**May 30, 2019**	**NA**	**May 30, 2019**	**January 10, 2020**	**May 30, 2019**	**January 10, 2020**	**0%**	**0 days**		**0 days**
168	Prepare AIP and ICE certification (Draft)	66 days	0 days	May 30, 2019	August 3, 2019	May 30, 2019	August 3, 2019	May 30, 2019	August 3, 2019	100%	0 days	3 days	0 days
169	Submit & endorse by PM and Statutory Authorities/Gov. Dept	15 days	0 days	August 5, 2019	August 19, 2019	August 5, 2019	August 19, 2019	August 5, 2019	August 19, 2019	100%	0 days	1 days	0 days
170	Prepare AIP and ICE certification (Final)	21 days	21 days	August 20, 2019	NA	August 20, 2019	October 13, 2019	August 20, 2019	October 16, 2019	0%	3 days	0 days	3 days
171	Prepare DDA and ICE certification (Draft)	90 days	24 days	July 19, 2019	NA	July 19, 2019	October 16, 2019	July 19, 2019	October 16, 2019	73%	0 days	5 days	0 days



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Critical, Critical Split, Critical Progress, Task, Split, Task Progress, Manual Task, Start-only, Finish-only, Duration-only, Baseline, Baseline Split, Baseline Milestone, Milestone, Summary Progress, Summary, Manual Summary, Project Summary, External Tasks, External Milestone, Inactive Task, Inactive Milestone, Inactive Summary, Deadline, Baseline Summary

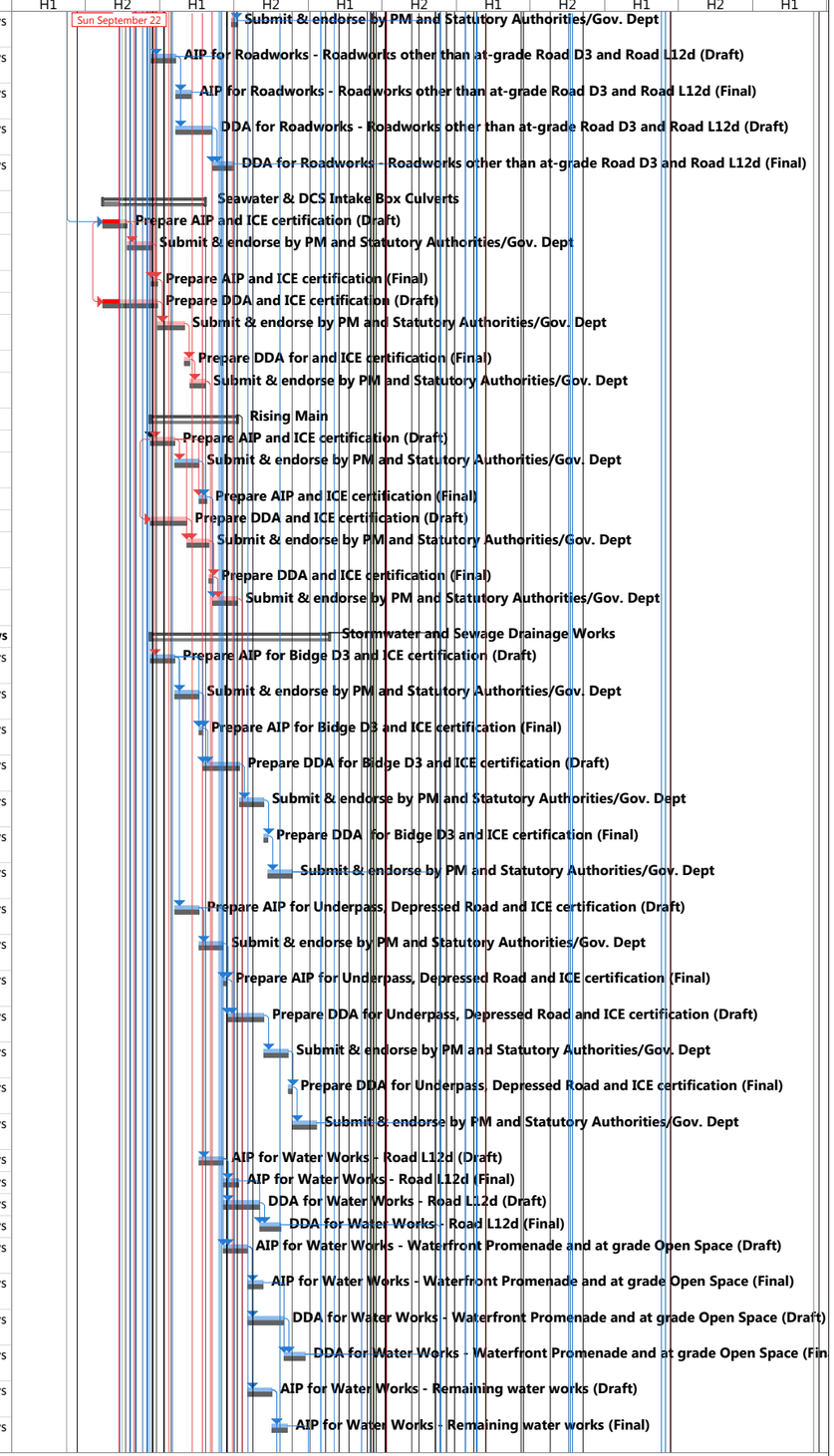
ID	Task Name	Duration	Remaining Duration	Actual Start	Actual Finish	Plan Start	Plan Finish	Late Start	Late Finish	Physical % Complete	Free Slack	Time Risk Allowances (TRA)	Total Slack
172	Submit & endorse by PM and Statutory Authorities/Gov. Dept	40 days	40 days	NA	NA	October 17, 2019	November 25, 2019	October 17, 2019	November 25, 2019	0%	0 days	3 days	0 days
173	Prepare DDA for and ICE certification (Final)	15 days	15 days	NA	NA	November 26, 2019	December 10, 2019	November 26, 2019	December 10, 2019	0%	0 days	1 days	0 days
174	Submit & endorse by PM and Statutory Authorities/Gov. Dept	31 days	31 days	NA	NA	December 11, 2019	January 10, 2020	December 11, 2019	January 10, 2020	0%	0 days	1 days	0 days
175	**D3 North Approach Ramp**	**226 days**	**103.48 days**	**May 30, 2019**	**NA**	**May 30, 2019**	**January 10, 2020**	**May 30, 2019**	**January 10, 2020**	**0%**	**0 days**		**0 days**
176	Prepare AIP and ICE certification (Draft)	56 days	0 days	May 30, 2019	July 24, 2019	May 30, 2019	July 24, 2019	May 30, 2019	July 24, 2019	100%	0 days	3 days	0 days
177	Submit & endorse by PM and Statutory Authorities/Gov. Dept	12 days	0 days	July 25, 2019	August 5, 2019	July 25, 2019	August 5, 2019	July 25, 2019	August 5, 2019	100%	0 days	1 days	0 days
178	Prepare AIP and ICE certification (Final)	29 days	15 days	August 6, 2019	NA	August 6, 2019	October 7, 2019	August 6, 2019	October 16, 2019	48%	9 days	0 days	9 days
179	Prepare DDA and ICE certification (Draft)	90 days	24 days	July 19, 2019	NA	July 19, 2019	October 16, 2019	July 19, 2019	October 16, 2019	73%	0 days	5 days	0 days
180	Submit & endorse by PM and Statutory Authorities/Gov. Dept	40 days	40 days	NA	NA	October 17, 2019	November 25, 2019	October 17, 2019	November 25, 2019	0%	0 days	3 days	0 days
181	Prepare DDA for and ICE certification (Final)	15 days	15 days	NA	NA	November 26, 2019	December 10, 2019	November 26, 2019	December 10, 2019	0%	0 days	1 days	0 days
182	Submit & endorse by PM and Statutory Authorities/Gov. Dept	31 days	31 days	NA	NA	December 11, 2019	January 10, 2020	December 11, 2019	January 10, 2020	0%	0 days	1 days	0 days
183	**D3 South Approach Ramp**	**226 days**	**86.62 days**	**May 30, 2019**	**NA**	**May 30, 2019**	**January 10, 2020**	**May 30, 2019**	**January 10, 2020**	**0%**	**0 days**		**0 days**
184	Prepare AIP and ICE certification (Draft)	50 days	0 days	May 30, 2019	July 18, 2019	May 30, 2019	July 18, 2019	May 30, 2019	July 18, 2019	100%	0 days	3 days	0 days
185	Submit & endorse by PM and Statutory Authorities/Gov. Dept	46 days	0 days	July 19, 2019	September 2, 2019	July 19, 2019	September 2, 2019	July 19, 2019	September 2, 2019	100%	0 days	1 days	0 days
186	Prepare AIP and ICE certification (Final)	15 days	0 days	August 18, 2019	September 1, 2019	August 18, 2019	September 1, 2019	August 18, 2019	September 1, 2019	100%	0 days	0 days	0 days
187	Prepare DDA and ICE certification (Draft)	90 days	24 days	July 19, 2019	NA	July 19, 2019	October 16, 2019	July 19, 2019	October 16, 2019	73%	0 days	5 days	0 days
188	Submit & endorse by PM and Statutory Authorities/Gov. Dept	40 days	40 days	NA	NA	October 17, 2019	November 25, 2019	October 17, 2019	November 25, 2019	0%	0 days	3 days	0 days
189	Prepare DDA for and ICE certification (Final)	15 days	15 days	NA	NA	November 26, 2019	December 10, 2019	November 26, 2019	December 10, 2019	0%	0 days	1 days	0 days
190	Submit & endorse by PM and Statutory Authorities/Gov. Dept	31 days	31 days	NA	NA	December 11, 2019	January 10, 2020	December 11, 2019	January 10, 2020	0%	0 days	1 days	0 days
191	**Road D3 Underpass and Depressed Road**	**412 days**	**213.27 days**	**May 30, 2019**	**NA**	**May 30, 2019**	**July 14, 2020**	**May 30, 2019**	**December 1, 2020**	**0%**	**140 days**		**140 days**
192	**Underpass**	**412 days**	**296 days**	**May 30, 2019**	**NA**	**May 30, 2019**	**July 14, 2020**	**May 30, 2019**	**December 1, 2020**	**0%**	**100 days**		**140 days**
193	Prepare AIP and ICE certification (Draft)	50 days	0 days	May 30, 2019	July 18, 2019	May 30, 2019	July 18, 2019	May 30, 2019	July 18, 2019	100%	0 days	3 days	0 days
194	Submit & endorse by PM and Statutory Authorities/Gov. Dept	40 days	0 days	July 19, 2019	August 27, 2019	July 19, 2019	August 27, 2019	July 19, 2019	August 27, 2019	100%	0 days	1 days	0 days
195	Prepare AIP and ICE certification (Final)	38 days	12 days	August 28, 2019	NA	August 28, 2019	October 4, 2019	August 28, 2019	October 4, 2019	68%	0 days	2 days	0 days
196	Prepare DDA and ICE certification (Draft)	64 days	64 days	NA	NA	October 5, 2019	December 7, 2019	October 5, 2019	December 7, 2019	0%	0 days	3 days	0 days
197	Submit & endorse by PM and Statutory Authorities/Gov. Dept	90 days	90 days	NA	NA	December 8, 2019	March 6, 2020	April 26, 2020	July 24, 2020	0%	0 days	0.5 days	140 days
198	Prepare DDA for and ICE certification (Final)	40 days	40 days	NA	NA	March 7, 2020	April 15, 2020	July 25, 2020	September 2, 2020	0%	0 days	0 days	140 days
199	Submit & endorse by PM and Statutory Authorities/Gov. Dept	90 days	90 days	NA	NA	April 16, 2020	July 14, 2020	September 3, 2020	December 1, 2020	0%	100 days	0 days	140 days
200	**Depressed Road (North and South)**	**162 days**	**33.85 days**	**May 30, 2019**	**NA**	**May 30, 2019**	**November 7, 2019**	**May 30, 2019**	**April 15, 2020**	**0%**	**46 days**		**160 days**
201	Prepare AIP and ICE certification (Draft)	66 days	0 days	May 30, 2019	August 3, 2019	May 30, 2019	August 3, 2019	May 30, 2019	August 3, 2019	100%	0 days	1 days	0 days
202	Submit & endorse by PM and Statutory Authorities/Gov. Dept	30 days	0 days	August 6, 2019	September 4, 2019	August 6, 2019	September 4, 2019	August 6, 2019	September 4, 2019	100%	0 days	2 days	0 days
203	Prepare AIP and ICE certification (Final)	10 days	10 days	NA	NA	September 23, 2019	October 2, 2019	April 6, 2020	April 15, 2020	0%	196 days	0 days	196 days
204	Prepare DDA and ICE certification (Draft)	71 days	0 days	May 30, 2019	August 8, 2019	May 30, 2019	August 8, 2019	May 30, 2019	August 8, 2019	100%	0 days	5 days	0 days
205	Submit & endorse by PM and Statutory Authorities/Gov. Dept	40 days	0 days	August 9, 2019	September 17, 2019	August 9, 2019	September 17, 2019	August 9, 2019	September 17, 2019	100%	0 days	1 days	0 days
206	Prepare DDA for and ICE certification (Final)	11 days	6 days	September 18, 2019	NA	September 18, 2019	September 28, 2019	September 18, 2019	March 6, 2020	45%	0 days	1 days	160 days
207	Submit & endorse by PM and Statutory Authorities/Gov. Dept	40 days	40 days	NA	NA	September 29, 2019	November 7, 2019	March 7, 2020	April 15, 2020	0%	160 days	1 days	160 days
208	**Remaining Road Works**	**332 days**	**316.32 days**	**August 13, 2019**	**NA**	**August 13, 2019**	**July 9, 2020**	**August 13, 2019**	**November 21, 2021**	**0%**	**500 days**		**500 days**
209	Prepare AIP for At-grade Road D3 and ICE certification (Draft)	60 days	19 days	August 13, 2019	NA	August 13, 2019	October 11, 2019	August 13, 2019	May 16, 2020	68%	0 days	1 day	218 days
210	Submit & endorse by PM and Statutory Authorities/Gov. Dept	28 days	28 days	NA	NA	October 12, 2019	November 8, 2019	April 30, 2021	May 27, 2021	0%	0 days	0.5 days	566 days
211	Prepare AIP for At-grade Road D3 and ICE certification (Final)	14 days	14 days	NA	NA	November 9, 2019	November 22, 2019	May 28, 2021	June 10, 2021	0%	48 days	0 days	566 days
212	Prepare DDA for At-grade Road D3 and ICE certification (Draft)	90 days	90 days	NA	NA	October 12, 2019	January 9, 2020	March 13, 2021	June 10, 2021	0%	0 days	1 day	518 days
213	Submit & endorse by PM and Statutory Authorities/Gov. Dept	60 days	60 days	NA	NA	January 10, 2020	March 9, 2020	June 11, 2021	August 9, 2021	0%	0 days	0.5 days	518 days
214	Prepare DDA for At-grade Road D3 and ICE certification (Final)	14 days	14 days	NA	NA	March 10, 2020	March 23, 2020	August 10, 2021	August 23, 2021	0%	0 days	0 days	518 days
215	Submit & endorse by PM and Statutory Authorities/Gov. Dept	90 days	90 days	NA	NA	March 24, 2020	June 21, 2020	August 24, 2021	November 21, 2021	0%	518 days	0 days	518 days
216	Prepare AIP for Road L12d and ICE certification (Draft)	60 days	60 days	NA	NA	October 12, 2019	December 10, 2019	May 17, 2020	July 15, 2020	0%	0 days	1 day	218 days
217	Submit & endorse by PM and Statutory Authorities/Gov. Dept	28 days	28 days	NA	NA	December 11, 2019	January 7, 2020	April 24, 2021	May 21, 2021	0%	0 days	0.5 days	500 days
218	Prepare AIP for Road L12d and ICE certification (Final)	10 days	10 days	NA	NA	January 8, 2020	January 17, 2020	May 22, 2021	May 31, 2021	0%	0 days	0 days	500 days
219	Prepare DDA for Road L12d and ICE certification (Draft)	90 days	90 days	NA	NA	January 18, 2020	April 16, 2020	June 1, 2021	August 29, 2021	0%	0 days	1 day	500 days
220	Submit & endorse by PM and Statutory Authorities/Gov. Dept	60 days	60 days	NA	NA	April 17, 2020	June 15, 2020	August 30, 2021	October 28, 2021	0%	0 days	0.5 days	500 days
221	Prepare DDA for Road L12d and ICE certification (Final)	10 days	10 days	NA	NA	June 16, 2020	June 25, 2020	October 29, 2021	November 7, 2021	0%	0 days	0 days	500 days



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Critical, Critical Split, Critical Progress, Task, Split, Task Progress, Manual Task, Start-only, Finish-only, Duration-only, Baseline, Baseline Split, Baseline Milestone, Milestone, Summary Progress, Summary, Manual Summary, Project Summary, External Tasks, External Milestone, Inactive Task, Inactive Milestone, Inactive Summary, Deadline, Baseline Summary

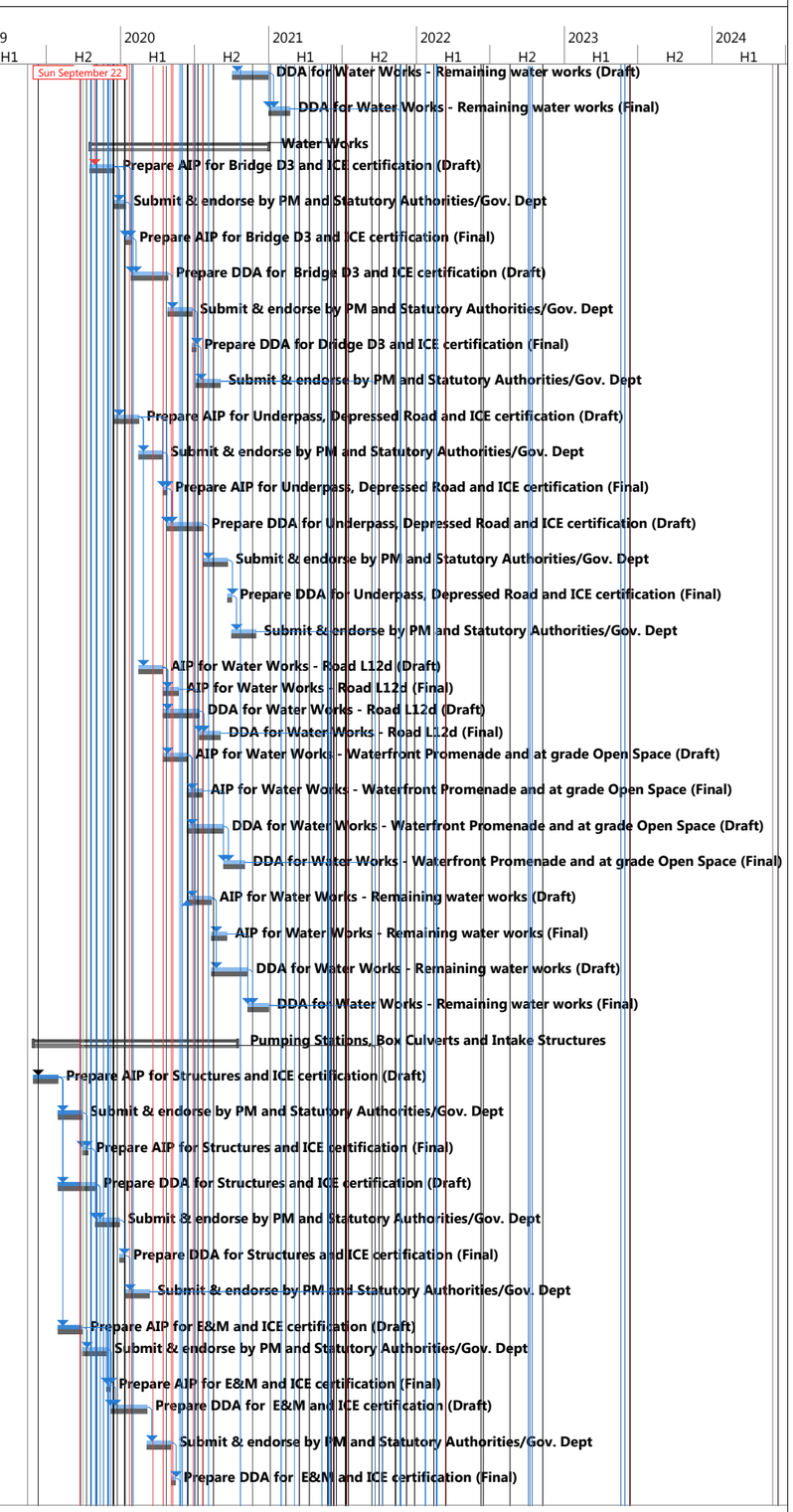
ID	Task Name	Duration	Remaining Duration	Actual Start	Actual Finish	Plan Start	Plan Finish	Late Start	Late Finish	Physical % Complete	Free Slack	Time Risk Allowances (TRA)	Total Slack
222	Submit & endorse by PM and Statutory Authorities/Gov. Dept	14 days	14 days	NA	NA	June 26, 2020	July 9, 2020	November 8, 2021	November 21, 2021	0%	500 days	0 days	500 days
223	AIP for Roadworks - Roadworks other than at-grade Road D3 and Road L12d (Draft)	60 days	60 days	NA	NA	December 11, 2019	February 8, 2020	July 16, 2020	September 13, 2020	0%	0 days	1 day	218 days
224	AIP for Roadworks - Roadworks other than at-grade Road D3 and Road L12d (Final)	38 days	38 days	NA	NA	February 9, 2020	March 17, 2020	August 24, 2021	September 30, 2021	0%	52 days	0.5 days	562 days
225	DDA for Roadworks - Roadworks other than at-grade Road D3 and Road L12d (Draft)	90 days	90 days	NA	NA	February 9, 2020	May 8, 2020	July 3, 2021	September 30, 2021	0%	0 days	1 day	510 days
226	DDA for Roadworks - Roadworks other than at-grade Road D3 and Road L12d (Final)	52 days	52 days	NA	NA	May 9, 2020	June 29, 2020	October 1, 2021	November 21, 2021	0%	510 days	0.5 days	510 days
227	**Seawater & DCS Intake Box Culverts**	**253 days**	**199.53 days**	**August 13, 2019**	**NA**	**August 13, 2019**	**April 21, 2020**	**August 13, 2019**	**April 21, 2020**	**0%**	**0 days**		**0 days**
228	Prepare AIP and ICE certification (Draft)	60 days	19 days	August 13, 2019	NA	August 13, 2019	October 11, 2019	August 13, 2019	October 11, 2019	68%	0 days	3 days	0 days
229	Submit & endorse by PM and Statutory Authorities/Gov. Dept	60 days	60 days	NA	NA	October 12, 2019	December 10, 2019	October 12, 2019	December 10, 2019	0%	0 days	3 days	0 days
230	Prepare AIP and ICE certification (Final)	15 days	15 days	NA	NA	December 11, 2019	December 25, 2019	December 11, 2019	December 25, 2019	0%	0 days	1 days	0 days
231	Prepare DDA and ICE certification (Draft)	135 days	94 days	August 13, 2019	NA	August 13, 2019	December 25, 2019	August 13, 2019	December 25, 2019	30%	0 days	1 days	0 days
232	Submit & endorse by PM and Statutory Authorities/Gov. Dept	66 days	66 days	NA	NA	December 26, 2019	February 29, 2020	December 26, 2019	February 29, 2020	0%	0 days	3 days	0 days
233	Prepare DDA for and ICE certification (Final)	14 days	14 days	NA	NA	March 1, 2020	March 14, 2020	March 1, 2020	March 14, 2020	0%	0 days	0 days	0 days
234	Submit & endorse by PM and Statutory Authorities/Gov. Dept	38 days	38 days	NA	NA	March 15, 2020	April 21, 2020	March 15, 2020	April 21, 2020	0%	0 days	2 days	0 days
235	**Rising Main**	**215 days**	**215 days**	**NA**	**NA**	**December 8, 2019**	**July 9, 2020**	**December 8, 2019**	**July 9, 2020**	**0%**	**0 days**		**0 days**
236	Prepare AIP and ICE certification (Draft)	60 days	60 days	NA	NA	December 8, 2019	February 5, 2020	December 8, 2019	February 5, 2020	0%	0 days	3 days	0 days
237	Submit & endorse by PM and Statutory Authorities/Gov. Dept	60 days	60 days	NA	NA	February 6, 2020	April 5, 2020	February 21, 2020	April 20, 2020	0%	0 days	0.5 days	15 days
238	Prepare AIP and ICE certification (Final)	20 days	20 days	NA	NA	April 6, 2020	April 25, 2020	April 21, 2020	May 10, 2020	0%	15 days	0 days	15 days
239	Prepare DDA and ICE certification (Draft)	90 days	90 days	NA	NA	December 8, 2019	March 6, 2020	December 8, 2019	March 6, 2020	0%	0 days	4 days	0 days
240	Submit & endorse by PM and Statutory Authorities/Gov. Dept	55 days	55 days	NA	NA	March 7, 2020	April 30, 2020	March 7, 2020	April 30, 2020	0%	0 days	3 days	0 days
241	Prepare DDA and ICE certification (Final)	10 days	10 days	NA	NA	May 1, 2020	May 10, 2020	May 1, 2020	May 10, 2020	0%	0 days	0 days	0 days
242	Submit & endorse by PM and Statutory Authorities/Gov. Dept	60 days	60 days	NA	NA	May 11, 2020	July 9, 2020	May 11, 2020	July 9, 2020	0%	0 days	3 days	0 days
243	**Stormwater and Sewage Drainage Works**	**442 days**	**442 days**	**NA**	**NA**	**December 8, 2019**	**February 21, 2021**	**March 18, 2020**	**June 2, 2021**	**0%**	**84 days**		**101 days**
244	Prepare AIP for Bidge D3 and ICE certification (Draft)	60 days	60 days	NA	NA	December 8, 2019	February 5, 2020	March 18, 2020	May 16, 2020	0%	0 days	1 day	101 days
245	Submit & endorse by PM and Statutory Authorities/Gov. Dept	60 days	60 days	NA	NA	February 6, 2020	April 5, 2020	August 17, 2020	October 15, 2020	0%	0 days	0.5 days	193 days
246	Prepare AIP for Bidge D3 and ICE certification (Final)	10 days	10 days	NA	NA	April 6, 2020	April 15, 2020	October 16, 2020	October 25, 2020	0%	0 days	0 days	193 days
247	Prepare DDA for Bidge D3 and ICE certification (Draft)	90 days	90 days	NA	NA	April 16, 2020	July 14, 2020	October 26, 2020	January 23, 2021	0%	0 days	1 day	193 days
248	Submit & endorse by PM and Statutory Authorities/Gov. Dept	60 days	60 days	NA	NA	July 15, 2020	September 12, 2020	January 24, 2021	March 24, 2021	0%	0 days	0.5 days	193 days
249	Prepare DDA for Bidge D3 and ICE certification (Final)	10 days	10 days	NA	NA	September 13, 2020	September 22, 2020	March 25, 2021	April 3, 2021	0%	0 days	0 days	193 days
250	Submit & endorse by PM and Statutory Authorities/Gov. Dept	60 days	60 days	NA	NA	September 23, 2020	November 21, 2020	April 4, 2021	June 2, 2021	0%	176 days	0 days	193 days
251	Prepare AIP for Underpass, Depressed Road and ICE certification (Draft)	60 days	60 days	NA	NA	February 6, 2020	April 5, 2020	May 17, 2020	July 15, 2020	0%	0 days	1 day	101 days
252	Submit & endorse by PM and Statutory Authorities/Gov. Dept	60 days	60 days	NA	NA	April 6, 2020	June 4, 2020	August 17, 2020	October 15, 2020	0%	0 days	0.5 days	133 days
253	Prepare AIP for Underpass, Depressed Road and ICE certification (Final)	10 days	10 days	NA	NA	June 5, 2020	June 14, 2020	October 16, 2020	October 25, 2020	0%	0 days	0 days	133 days
254	Prepare DDA for Underpass, Depressed Road and ICE certification (Draft)	90 days	90 days	NA	NA	June 15, 2020	September 12, 2020	October 26, 2020	January 23, 2021	0%	0 days	1 day	133 days
255	Submit & endorse by PM and Statutory Authorities/Gov. Dept	60 days	60 days	NA	NA	September 13, 2020	November 11, 2020	January 24, 2021	March 24, 2021	0%	0 days	0.5 days	133 days
256	Prepare DDA for Underpass, Depressed Road and ICE certification (Final)	10 days	10 days	NA	NA	November 12, 2020	November 21, 2020	March 25, 2021	April 3, 2021	0%	0 days	0 days	133 days
257	Submit & endorse by PM and Statutory Authorities/Gov. Dept	60 days	60 days	NA	NA	November 22, 2020	January 20, 2021	April 4, 2021	June 2, 2021	0%	116 days	0 days	133 days
258	AIP for Water Works - Road L12d (Draft)	60 days	60 days	NA	NA	April 6, 2020	June 4, 2020	July 16, 2020	September 13, 2020	0%	0 days	1 day	101 days
259	AIP for Water Works - Road L12d (Final)	38 days	38 days	NA	NA	June 5, 2020	July 12, 2020	March 5, 2021	April 11, 2021	0%	52 days	0.5 days	273 days
260	DDA for Water Works - Road L12d (Draft)	90 days	90 days	NA	NA	June 5, 2020	September 2, 2020	January 12, 2021	April 11, 2021	0%	0 days	1 day	221 days
261	DDA for Water Works - Road L12d (Final)	52 days	52 days	NA	NA	September 3, 2020	October 24, 2020	April 12, 2021	June 2, 2021	0%	204 days	1 day	221 days
262	AIP for Water Works - Waterfront Promenade and at grade Open Space (Draft)	60 days	60 days	NA	NA	June 5, 2020	August 3, 2020	September 14, 2020	November 12, 2020	0%	0 days	1 day	101 days
263	AIP for Water Works - Waterfront Promenade and at grade Open Space (Final)	38 days	38 days	NA	NA	August 4, 2020	September 10, 2020	March 5, 2021	April 11, 2021	0%	52 days	0.5 days	213 days
264	DDA for Water Works - Waterfront Promenade and at grade Open Space (Draft)	90 days	90 days	NA	NA	August 4, 2020	November 1, 2020	January 12, 2021	April 11, 2021	0%	0 days	1 day	161 days
265	DDA for Water Works - Waterfront Promenade and at grade Open Space (Final)	52 days	52 days	NA	NA	November 2, 2020	December 23, 2020	April 12, 2021	June 2, 2021	0%	144 days	1 day	161 days
266	AIP for Water Works - Remaining water works (Draft)	60 days	60 days	NA	NA	August 4, 2020	October 2, 2020	November 13, 2020	January 11, 2021	0%	0 days	1 day	101 days
267	AIP for Water Works - Remaining water works (Final)	38 days	38 days	NA	NA	October 3, 2020	November 9, 2020	March 5, 2021	April 11, 2021	0%	52 days	0.5 days	153 days



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Critical, Critical Split, Critical Progress, Task, Split, Task Progress, Manual Task, Start-only, Finish-only, Duration-only, Baseline, Baseline Split, Baseline Milestone, Milestone, Summary Progress, Summary, Manual Summary, Project Summary, External Tasks, External Milestone, Inactive Task, Inactive Milestone, Inactive Summary, Deadline, Baseline Summary

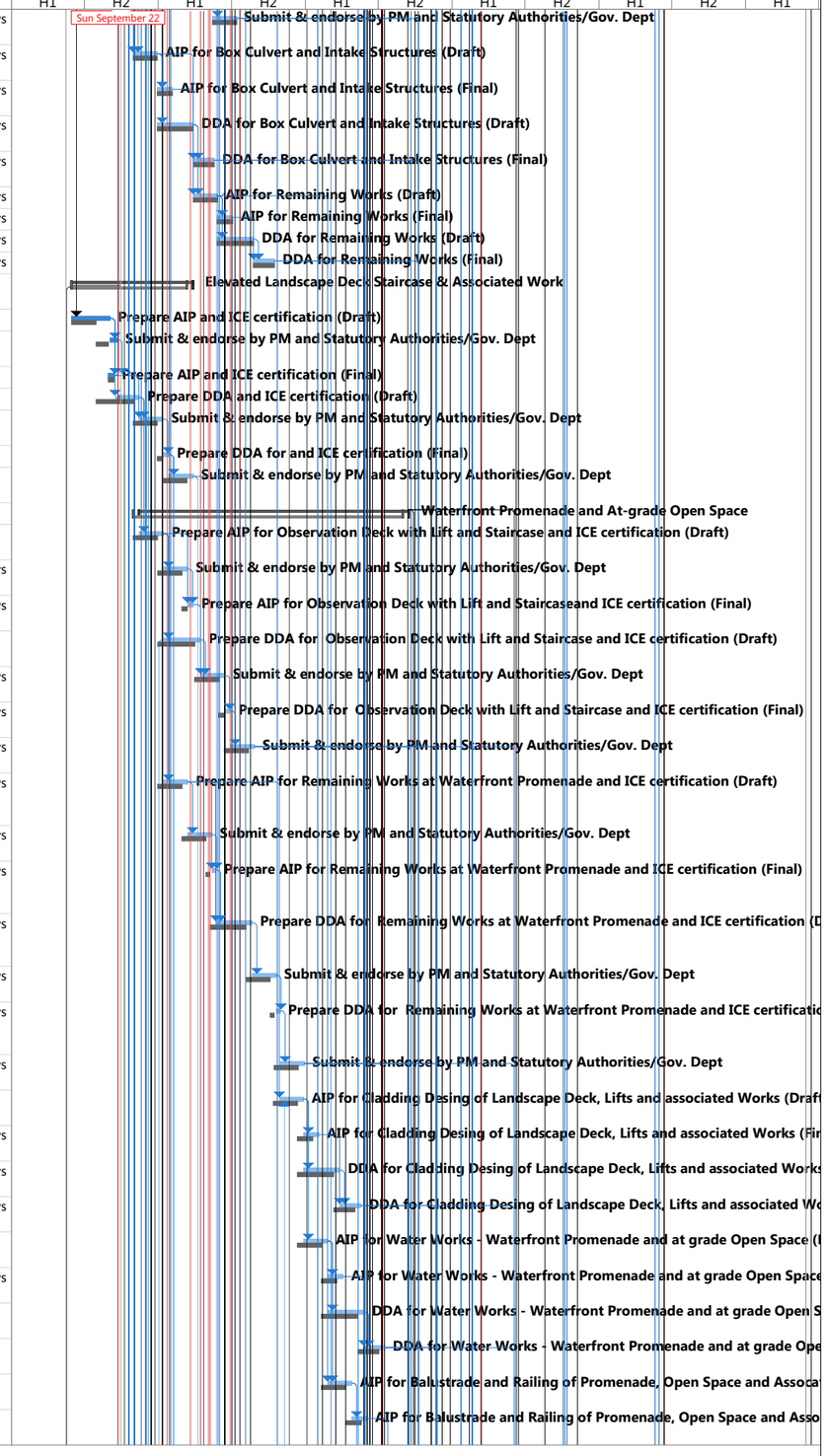
ID	Task Name	Duration	Remaining Duration	Actual Start	Actual Finish	Plan Start	Plan Finish	Late Start	Late Finish	Physical % Complete	Free Slack	Time Risk Allowances (TRA)	Total Slack
268	DDA for Water Works - Remaining water works (Draft)	90 days	90 days	NA	NA	October 3, 2020	December 31, 2020	January 12, 2021	April 11, 2021	0%	0 days	1 day	101 days
269	DDA for Water Works - Remaining water works (Final)	52 days	52 days	NA	NA	January 1, 2021	February 21, 2021	April 12, 2021	June 2, 2021	0%	84 days	1 day	101 days
270	**Water Works**	**442 days**	**442 days**	**NA**	**NA**	**October 17, 2019**	**December 31, 2020**	**May 1, 2020**	**July 16, 2021**	**0%**	**197 days**		**197 days**
271	Prepare AIP for Bridge D3 and ICE certification (Draft)	60 days	60 days	NA	NA	October 17, 2019	December 15, 2019	May 1, 2020	June 29, 2020	0%	0 days	1 day	197 days
272	Submit & endorse by PM and Statutory Authorities/Gov. Dept	28 days	28 days	NA	NA	December 16, 2019	January 12, 2020	October 28, 2020	November 24, 2020	0%	0 days	0.5 days	317 days
273	Prepare AIP for Bridge D3 and ICE certification (Final)	14 days	14 days	NA	NA	January 13, 2020	January 26, 2020	November 25, 2020	December 8, 2020	0%	0 days	0 days	317 days
274	Prepare DDA for Bridge D3 and ICE certification (Draft)	90 days	90 days	NA	NA	January 27, 2020	April 25, 2020	December 9, 2020	March 8, 2021	0%	0 days	1 day	317 days
275	Submit & endorse by PM and Statutory Authorities/Gov. Dept	60 days	60 days	NA	NA	April 26, 2020	June 24, 2020	March 9, 2021	May 7, 2021	0%	0 days	0.5 days	317 days
276	Prepare DDA for Dridge D3 and ICE certification (Final)	10 days	10 days	NA	NA	June 25, 2020	July 4, 2020	May 8, 2021	May 17, 2021	0%	0 days	0 days	317 days
277	Submit & endorse by PM and Statutory Authorities/Gov. Dept	60 days	60 days	NA	NA	July 5, 2020	September 2, 2020	May 18, 2021	July 16, 2021	0%	268 days	0 days	317 days
278	Prepare AIP for Underpass, Depressed Road and ICE certification (Draft)	60 days	60 days	NA	NA	December 16, 2019	February 13, 2020	June 30, 2020	August 28, 2020	0%	0 days	1 day	197 days
279	Submit & endorse by PM and Statutory Authorities/Gov. Dept	60 days	60 days	NA	NA	February 14, 2020	April 13, 2020	September 30, 2020	November 28, 2020	0%	0 days	0.5 days	229 days
280	Prepare AIP for Underpass, Depressed Road and ICE certification (Final)	10 days	10 days	NA	NA	April 14, 2020	April 23, 2020	November 29, 2020	December 8, 2020	0%	0 days	0	229 days
281	Prepare DDA for Underpass, Depressed Road and ICE certification (Draft)	90 days	90 days	NA	NA	April 24, 2020	July 22, 2020	December 9, 2020	March 8, 2021	0%	0 days	1 day	229 days
282	Submit & endorse by PM and Statutory Authorities/Gov. Dept	60 days	60 days	NA	NA	July 23, 2020	September 20, 2020	March 9, 2021	May 7, 2021	0%	0 days	0.5 days	229 days
283	Prepare DDA for Underpass, Depressed Road and ICE certification (Final)	10 days	10 days	NA	NA	September 21, 2020	September 30, 2020	May 8, 2021	May 17, 2021	0%	0 days	0 days	229 days
284	Submit & endorse by PM and Statutory Authorities/Gov. Dept	60 days	60 days	NA	NA	October 1, 2020	November 29, 2020	May 18, 2021	July 16, 2021	0%	180 days	0 days	229 days
285	AIP for Water Works - Road L12d (Draft)	60 days	60 days	NA	NA	February 14, 2020	April 13, 2020	August 29, 2020	October 27, 2020	0%	0 days	1 day	197 days
286	AIP for Water Works - Road L12d (Final)	38 days	38 days	NA	NA	April 14, 2020	May 21, 2020	April 18, 2021	May 25, 2021	0%	52 days	0.5 days	369 days
287	DDA for Water Works - Road L12d (Draft)	90 days	90 days	NA	NA	April 14, 2020	July 12, 2020	February 25, 2021	May 25, 2021	0%	0 days	1 day	317 days
288	DDA for Water Works - Road L12d (Final)	52 days	52 days	NA	NA	July 13, 2020	September 2, 2020	May 26, 2021	July 16, 2021	0%	268 days	1 day	317 days
289	AIP for Water Works - Waterfront Promenade and at grade Open Space (Draft)	60 days	60 days	NA	NA	April 14, 2020	June 12, 2020	October 28, 2020	December 26, 2020	0%	0 days	1 day	197 days
290	AIP for Water Works - Waterfront Promenade and at grade Open Space (Final)	38 days	38 days	NA	NA	June 13, 2020	July 20, 2020	April 18, 2021	May 25, 2021	0%	52 days	0.5 days	309 days
291	DDA for Water Works - Waterfront Promenade and at grade Open Space (Draft)	90 days	90 days	NA	NA	June 13, 2020	September 10, 2020	February 25, 2021	May 25, 2021	0%	0 days	1 day	257 days
292	DDA for Water Works - Waterfront Promenade and at grade Open Space (Final)	52 days	52 days	NA	NA	September 11, 2020	November 1, 2020	May 26, 2021	July 16, 2021	0%	208 days	1 day	257 days
293	AIP for Water Works - Remaining water works (Draft)	60 days	60 days	NA	NA	June 13, 2020	August 11, 2020	December 27, 2020	February 24, 2021	0%	0 days	1 day	197 days
294	AIP for Water Works - Remaining water works (Final)	38 days	38 days	NA	NA	August 12, 2020	September 18, 2020	April 18, 2021	May 25, 2021	0%	52 days	0.5 days	249 days
295	DDA for Water Works - Remaining water works (Draft)	90 days	90 days	NA	NA	August 12, 2020	November 9, 2020	February 25, 2021	May 25, 2021	0%	0 days	1 day	197 days
296	DDA for Water Works - Remaining water works (Final)	52 days	52 days	NA	NA	November 10, 2020	December 31, 2020	May 26, 2021	July 16, 2021	0%	148 days	1 day	197 days
297	**Pumping Stations, Box Culverts and Intake Structures**	**505 days**	**409.17 days**	**May 30, 2019**	**NA**	**May 30, 2019**	**October 15, 2020**	**May 30, 2019**	**February 10, 2022**	**0%**	**340 days**		**483 days**
298	Prepare AIP for Structures and ICE certification (Draft)	61 days	0 days	May 30, 2019	July 29, 2019	May 30, 2019	July 29, 2019	May 30, 2019	July 29, 2019	100%	0 days	1 day	0 days
299	Submit & endorse by PM and Statutory Authorities/Gov. Dept	60 days	5 days	July 30, 2019	NA	July 30, 2019	September 27, 2019	July 30, 2019	September 15, 2021	92%	0 days	0.5 days	719 days
300	Prepare AIP for Structures and ICE certification (Final)	14 days	14 days	NA	NA	September 28, 2019	October 11, 2019	September 16, 2021	September 29, 2021	0%	18 days	0 days	719 days
301	Prepare DDA for Structures and ICE certification (Draft)	92 days	37 days	July 30, 2019	NA	July 30, 2019	October 29, 2019	July 30, 2019	May 30, 2020	0%	0 days	1 day	214 days
302	Submit & endorse by PM and Statutory Authorities/Gov. Dept	60 days	60 days	NA	NA	October 30, 2019	December 28, 2019	September 30, 2021	November 28, 2021	0%	0 days	0.5 days	701 days
303	Prepare DDA for Structures and ICE certification (Final)	14 days	14 days	NA	NA	December 29, 2019	January 11, 2020	November 29, 2021	December 12, 2021	0%	0 days	0 days	701 days
304	Submit & endorse by PM and Statutory Authorities/Gov. Dept	60 days	60 days	NA	NA	January 12, 2020	March 11, 2020	December 13, 2021	February 10, 2022	0%	558 days	0 days	701 days
305	Prepare AIP for E&M and ICE certification (Draft)	60 days	5 days	July 30, 2019	NA	July 30, 2019	September 27, 2019	July 30, 2019	May 30, 2020	0%	0 days	1 day	246 days
306	Submit & endorse by PM and Statutory Authorities/Gov. Dept	60 days	60 days	NA	NA	September 28, 2019	November 26, 2019	April 27, 2021	June 25, 2021	0%	0 days	0.5 days	577 days
307	Prepare AIP for E&M and ICE certification (Final)	10 days	10 days	NA	NA	November 27, 2019	December 6, 2019	June 26, 2021	July 5, 2021	0%	0 days	0 days	577 days
308	Prepare DDA for E&M and ICE certification (Draft)	90 days	90 days	NA	NA	December 7, 2019	March 5, 2020	July 6, 2021	October 3, 2021	0%	0 days	1 day	577 days
309	Submit & endorse by PM and Statutory Authorities/Gov. Dept	60 days	60 days	NA	NA	March 6, 2020	May 4, 2020	October 4, 2021	December 2, 2021	0%	0 days	0.5 days	577 days
310	Prepare DDA for E&M and ICE certification (Final)	10 days	10 days	NA	NA	May 5, 2020	May 14, 2020	December 3, 2021	December 12, 2021	0%	0 days	0 days	577 days



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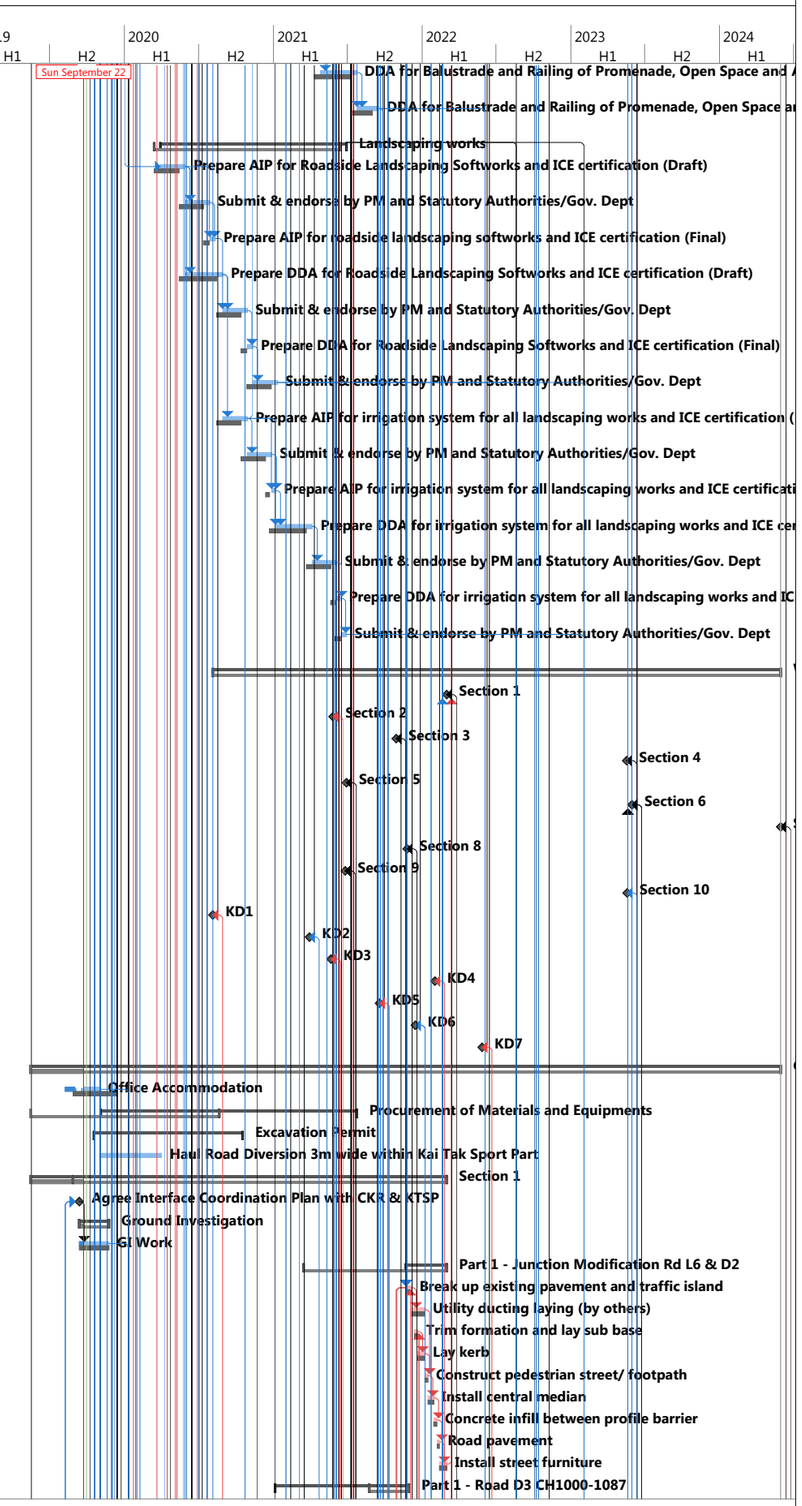
ID	Task Name	Duration	Remaining Duration	Actual Start	Actual Finish	Plan Start	Plan Finish	Late Start	Late Finish	Physical % Complete	Free Slack	Time Risk Allowances (TRA)	Total Slack
311	Submit & endorse by PM and Statutory Authorities/Gov. Dept	60 days	60 days	NA	NA	May 15, 2020	July 13, 2020	December 13, 2021	February 10, 2022	0%	434 days	0 days	577 days
312	AIP for Box Culvert and Intake Structures (Draft)	60 days	60 days	NA	NA	October 30, 2019	December 28, 2019	May 31, 2020	July 29, 2020	0%	0 days	1 day	214 days
313	AIP for Box Culvert and Intake Structures (Final)	38 days	38 days	NA	NA	December 29, 2019	February 4, 2020	November 13, 2021	December 20, 2021	0%	52 days	0.5 days	685 days
314	DDA for Box Culvert and Intake Structures (Draft)	90 days	90 days	NA	NA	December 29, 2019	March 27, 2020	July 30, 2020	October 27, 2020	0%	0 days	1 day	214 days
315	DDA for Box Culvert and Intake Structures (Final)	52 days	52 days	NA	NA	March 28, 2020	May 18, 2020	December 21, 2021	February 10, 2022	0%	490 days	1 day	633 days
316	AIP for Remaining Works (Draft)	60 days	60 days	NA	NA	March 28, 2020	May 26, 2020	October 28, 2020	December 26, 2020	0%	0 days	1 day	214 days
317	AIP for Remaining Works (Final)	38 days	38 days	NA	NA	May 27, 2020	July 3, 2020	November 13, 2021	December 20, 2021	0%	52 days	0.5 days	535 days
318	DDA for Remaining Works (Draft)	90 days	90 days	NA	NA	May 27, 2020	August 24, 2020	September 22, 2021	December 20, 2021	0%	0 days	1 day	483 days
319	DDA for Remaining Works (Final)	52 days	52 days	NA	NA	August 25, 2020	October 15, 2020	December 21, 2021	February 10, 2022	0%	340 days	1 day	483 days
320	**Elevated Landscape Deck Staircase & Associated Work**	**302 days**	**173.99 days**	**May 30, 2019**	**NA**	**May 30, 2019**	**March 26, 2020**	**May 30, 2019**	**May 5, 2020**	**0%**	**40 days**		**40 days**
321	Prepare AIP and ICE certification (Draft)	96 days	0 days	May 30, 2019	September 2, 2019	May 30, 2019	September 2, 2019	May 30, 2019	September 2, 2019	100%	0 days	3 days	0 days
322	Submit & endorse by PM and Statutory Authorities/Gov. Dept	18 days	0 days	September 3, 2019	September 20, 2019	September 3, 2019	September 20, 2019	September 3, 2019	September 20, 2019	100%	0 days	1 days	0 days
323	Prepare AIP and ICE certification (Final)	14 days	0 days	August 29, 2019	September 11, 2019	August 29, 2019	September 11, 2019	August 29, 2019	September 11, 2019	100%	0 days	0 days	0 days
324	Prepare DDA and ICE certification (Draft)	52 days	46.9 days	September 14, 2019	NA	September 14, 2019	November 13, 2019	September 14, 2019	December 9, 2019	10%	0 days	1 day	26 days
325	Submit & endorse by PM and Statutory Authorities/Gov. Dept	60 days	60 days	NA	NA	November 14, 2019	January 12, 2020	December 24, 2019	February 21, 2020	0%	0 days	0.5 days	40 days
326	Prepare DDA for and ICE certification (Final)	14 days	14 days	NA	NA	January 13, 2020	January 26, 2020	February 22, 2020	March 6, 2020	0%	0 days	0 days	40 days
327	Submit & endorse by PM and Statutory Authorities/Gov. Dept	60 days	60 days	NA	NA	January 27, 2020	March 26, 2020	March 7, 2020	May 5, 2020	0%	0 days	0 days	40 days
328	**Waterfront Promenade and At-grade Open Space**	**671 days**	**671 days**	**NA**	**NA**	**November 14, 2019**	**September 14, 20...**	**December 10, 2019**	**October 10, 2021**	**0%**	**0 days**		**26 days**
329	Prepare AIP for Observation Deck with Lift and Staircase and ICE certification (Draft)	61 days	61 days	NA	NA	November 14, 2019	January 13, 2020	December 10, 2019	February 8, 2020	0%	0 days	1 day	26 days
330	Submit & endorse by PM and Statutory Authorities/Gov. Dept	60 days	60 days	NA	NA	January 14, 2020	March 13, 2020	March 17, 2021	May 15, 2021	0%	0 days	0.5 days	428 days
331	Prepare AIP for Observation Deck with Lift and Staircaseand ICE certification (Final)	14 days	14 days	NA	NA	March 14, 2020	March 27, 2020	May 16, 2021	May 29, 2021	0%	18 days	0 days	428 days
332	Prepare DDA for Observation Deck with Lift and Staircase and ICE certification (Draft)	92 days	92 days	NA	NA	January 14, 2020	April 14, 2020	February 9, 2020	May 10, 2020	0%	0 days	1 day	26 days
333	Submit & endorse by PM and Statutory Authorities/Gov. Dept	60 days	60 days	NA	NA	April 15, 2020	June 13, 2020	May 30, 2021	July 28, 2021	0%	0 days	0.5 days	410 days
334	Prepare DDA for Observation Deck with Lift and Staircase and ICE certification (Final)	14 days	14 days	NA	NA	June 14, 2020	June 27, 2020	July 29, 2021	August 11, 2021	0%	0 days	0 days	410 days
335	Submit & endorse by PM and Statutory Authorities/Gov. Dept	60 days	60 days	NA	NA	June 28, 2020	August 26, 2020	August 12, 2021	October 10, 2021	0%	384 days	0 days	410 days
336	Prepare AIP for Remaining Works at Waterfront Promenade and ICE certification (Draft)	60 days	60 days	NA	NA	January 14, 2020	March 13, 2020	September 24, 2020	November 22, 2020	0%	0 days	1 day	254 days
337	Submit & endorse by PM and Statutory Authorities/Gov. Dept	60 days	60 days	NA	NA	March 14, 2020	May 12, 2020	December 25, 2020	February 22, 2021	0%	0 days	0.5 days	286 days
338	Prepare AIP for Remaining Works at Waterfront Promenade and ICE certification (Final)	10 days	10 days	NA	NA	May 13, 2020	May 22, 2020	February 23, 2021	March 4, 2021	0%	0 days	0 days	286 days
339	Prepare DDA for Remaining Works at Waterfront Promenade and ICE certification (Draft)	90 days	90 days	NA	NA	May 23, 2020	August 20, 2020	March 5, 2021	June 2, 2021	0%	0 days	1 day	286 days
340	Submit & endorse by PM and Statutory Authorities/Gov. Dept	60 days	60 days	NA	NA	August 21, 2020	October 19, 2020	June 3, 2021	August 1, 2021	0%	0 days	0.5 days	286 days
341	Prepare DDA for Remaining Works at Waterfront Promenade and ICE certification (Final)	10 days	10 days	NA	NA	October 20, 2020	October 29, 2020	August 2, 2021	August 11, 2021	0%	0 days	0 days	286 days
342	Submit & endorse by PM and Statutory Authorities/Gov. Dept	60 days	60 days	NA	NA	October 30, 2020	December 28, 2020	August 12, 2021	October 10, 2021	0%	260 days	0 days	286 days
343	AIP for Cladding Desing of Landscape Deck, Lifts and associated Works (Draft)	60 days	60 days	NA	NA	October 28, 2020	December 26, 2020	November 23, 2020	January 21, 2021	0%	0 days	1 day	26 days
344	AIP for Cladding Desing of Landscape Deck, Lifts and associated Works (Final)	38 days	38 days	NA	NA	December 27, 2020	February 2, 2021	July 13, 2021	August 19, 2021	0%	52 days	0.5 days	198 days
345	DDA for Cladding Desing of Landscape Deck, Lifts and associated Works (Draft)	90 days	90 days	NA	NA	December 27, 2020	March 26, 2021	May 22, 2021	August 19, 2021	0%	0 days	1 day	146 days
346	DDA for Cladding Desing of Landscape Deck, Lifts and associated Works (Final)	52 days	52 days	NA	NA	March 27, 2021	May 17, 2021	August 20, 2021	October 10, 2021	0%	120 days	1 day	146 days
347	AIP for Water Works - Waterfront Promenade and at grade Open Space (Draft)	60 days	60 days	NA	NA	December 27, 2020	February 24, 2021	January 22, 2021	March 22, 2021	0%	0 days	1 day	26 days
348	AIP for Water Works - Waterfront Promenade and at grade Open Space (Final)	38 days	38 days	NA	NA	February 25, 2021	April 3, 2021	July 13, 2021	August 19, 2021	0%	52 days	0.5 days	138 days
349	DDA for Water Works - Waterfront Promenade and at grade Open Space (Draft)	90 days	90 days	NA	NA	February 25, 2021	May 25, 2021	May 22, 2021	August 19, 2021	0%	0 days	1 day	86 days
350	DDA for Water Works - Waterfront Promenade and at grade Open Space (Final)	52 days	52 days	NA	NA	May 26, 2021	July 16, 2021	August 20, 2021	October 10, 2021	0%	60 days	1 day	86 days
351	AIP for Balustrade and Railing of Promenade, Open Space and Assocated Works (Draft)	60 days	60 days	NA	NA	February 25, 2021	April 25, 2021	March 23, 2021	May 21, 2021	0%	0 days	1 day	26 days
352	AIP for Balustrade and Railing of Promenade, Open Space and Assocated Works (Final)	38 days	38 days	NA	NA	April 26, 2021	June 2, 2021	July 13, 2021	August 19, 2021	0%	52 days	0.5 days	78 days



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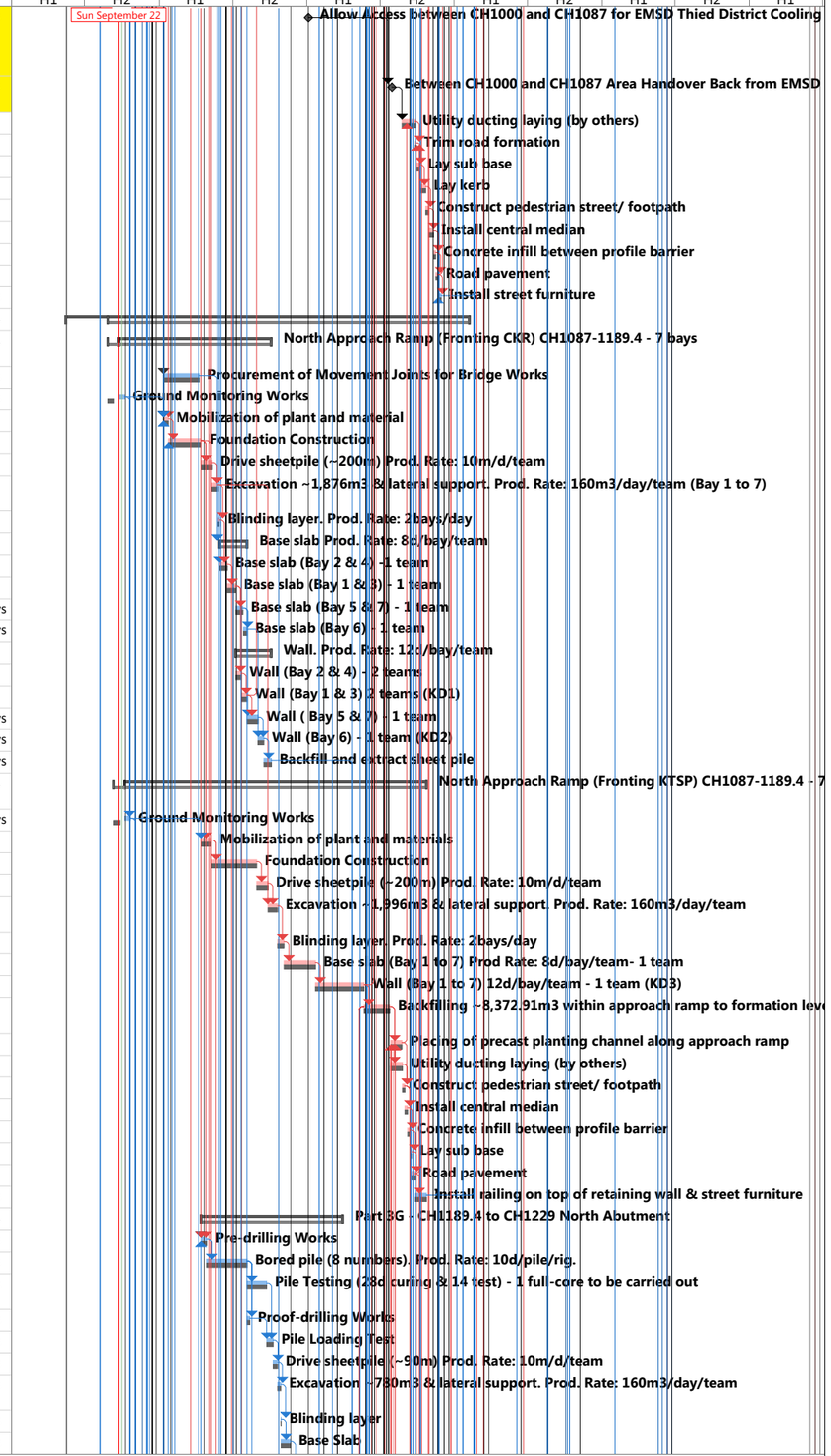
ID	Task Name	Duration	Remaining Duration	Actual Start	Actual Finish	Plan Start	Plan Finish	Late Start	Late Finish	Physical % Complete	Free Slack	Time Risk Allowances (TRA)	Total Slack
353	DDA for Balustrade and Railing of Promenade, Open Space and Assocated Works (Draft)	90 days	90 days	NA	NA	April 26, 2021	July 24, 2021	May 22, 2021	August 19, 2021	0%	0 days	1 day	26 days
354	DDA for Balustrade and Railing of Promenade, Open Space and Assocated Works (Final)	52 days	52 days	NA	NA	July 25, 2021	September 14, 2021	August 20, 2021	October 10, 2021	0%	0 days	1 day	26 days
355	**Landscaping works**	**457 days**	**457 days**	**NA**	**NA**	**March 29, 2020**	**June 28, 2021**	**April 24, 2020**	**November 15, 2022**	**0%**	**26 days**		**26 days**
356	Prepare AIP for Roadside Landscaping Softworks and ICE certification (Draft)	61 days	61 days	NA	NA	March 29, 2020	May 28, 2020	April 24, 2020	June 23, 2020	0%	0 days	1 day	26 days
357	Submit & endorse by PM and Statutory Authorities/Gov. Dept	60 days	60 days	NA	NA	May 29, 2020	July 27, 2020	April 22, 2022	June 20, 2022	0%	0 days	0.5 days	693 days
358	Prepare AIP for roadside landscaping softworks and ICE certification (Final)	14 days	14 days	NA	NA	July 28, 2020	August 10, 2020	June 21, 2022	July 4, 2022	0%	18 days	0 days	693 days
359	Prepare DDA for Roadside Landscaping Softworks and ICE certification (Draft)	92 days	92 days	NA	NA	May 29, 2020	August 28, 2020	June 24, 2020	September 23, 2020	0%	0 days	1 day	26 days
360	Submit & endorse by PM and Statutory Authorities/Gov. Dept	60 days	60 days	NA	NA	August 29, 2020	October 27, 2020	July 5, 2022	September 2, 2022	0%	0 days	0.5 days	675 days
361	Prepare DDA for Roadside Landscaping Softworks and ICE certification (Final)	14 days	14 days	NA	NA	October 28, 2020	November 10, 2020	September 3, 2022	September 16, 2022	0%	0 days	0 days	675 days
362	Submit & endorse by PM and Statutory Authorities/Gov. Dept	60 days	60 days	NA	NA	November 11, 2020	January 9, 2021	September 17, 2022	November 15, 2022	0%	587 days	0 days	675 days
363	Prepare AIP for irrigation system for all landscaping works and ICE certification (Draft)	60 days	60 days	NA	NA	August 29, 2020	October 27, 2020	September 24, 2020	November 22, 2020	0%	0 days	1 day	26 days
364	Submit & endorse by PM and Statutory Authorities/Gov. Dept	60 days	60 days	NA	NA	October 28, 2020	December 26, 2020	March 17, 2022	May 15, 2022	0%	0 days	0.5 days	505 days
365	Prepare AIP for irrigation system for all landscaping works and ICE certification (Final)	10 days	10 days	NA	NA	December 27, 2020	January 5, 2021	May 16, 2022	May 25, 2022	0%	0 days	0 days	505 days
366	Prepare DDA for irrigation system for all landscaping works and ICE certification (Draft)	90 days	90 days	NA	NA	January 6, 2021	April 5, 2021	May 26, 2022	August 23, 2022	0%	0 days	1 day	505 days
367	Submit & endorse by PM and Statutory Authorities/Gov. Dept	60 days	60 days	NA	NA	April 6, 2021	June 4, 2021	August 24, 2022	October 22, 2022	0%	0 days	0.5 days	505 days
368	Prepare DDA for irrigation system for all landscaping works and ICE certification (Final)	10 days	10 days	NA	NA	June 5, 2021	June 14, 2021	October 23, 2022	November 1, 2022	0%	0 days	0 days	505 days
369	Submit & endorse by PM and Statutory Authorities/Gov. Dept	14 days	14 days	NA	NA	June 15, 2021	June 28, 2021	November 2, 2022	November 15, 2022	0%	417 days	0 days	505 days
370	**Work Stage/ Phase - Planned Completion**	**1394 days**	**1394 days**	**NA**	**NA**	**August 4, 2020**	**May 29, 2024**	**August 7, 2020**	**May 29, 2024**	**0%**	**0 days**		**0 days**
371	Section 1	0 days	0 days	NA	NA	March 1, 2022	March 1, 2022	March 1, 2022	March 1, 2022	0%	0 days	0 days	0 days
372	Section 2	0 days	0 days	NA	NA	May 26, 2021	May 26, 2021	June 2, 2021	June 2, 2021	0%	6 days	0 days	6 days
373	Section 3	0 days	0 days	NA	NA	October 28, 2021	October 28, 2021	November 2, 2021	November 2, 2021	0%	4 days	0 days	4 days
374	Section 4	0 days	0 days	NA	NA	May 17, 2023	May 17, 2023	May 30, 2023	May 30, 2023	0%	10 days	0 days	10 days
375	Section 5	0 days	0 days	NA	NA	June 28, 2021	June 28, 2021	July 5, 2021	July 5, 2021	0%	5 days	0 days	5 days
376	Section 6	0 days	0 days	NA	NA	May 30, 2023	May 30, 2023	May 30, 2023	May 30, 2023	0%	0 days	0 days	0 days
377	Section 7	0 days	0 days	NA	NA	May 29, 2024	May 29, 2024	May 29, 2024	May 29, 2024	0%	0 days	0 days	0 days
378	Section 8	0 days	0 days	NA	NA	November 24, 2021	November 24, 2021	December 2, 2021	December 2, 2021	0%	7 days	0 days	7 days
379	Section 9	0 days	0 days	NA	NA	June 25, 2021	June 25, 2021	July 5, 2021	July 5, 2021	0%	7 days	0 days	7 days
380	Section 10	0 days	0 days	NA	NA	May 18, 2023	May 18, 2023	May 30, 2023	May 30, 2023	0%	9 days	0 days	9 days
381	KD1	0 days	0 days	NA	NA	August 4, 2020	August 4, 2020	August 7, 2020	August 7, 2020	0%	3 days	0 days	3 days
382	KD2	0 days	0 days	NA	NA	March 29, 2021	March 29, 2021	April 18, 2021	April 18, 2021	0%	14 days	0 days	14 days
383	KD3	0 days	0 days	NA	NA	May 21, 2021	May 21, 2021	June 1, 2021	June 1, 2021	0%	9 days	0 days	9 days
384	KD4	0 days	0 days	NA	NA	January 31, 2022	January 31, 2022	January 31, 2022	January 31, 2022	0%	0 days	0 days	0 days
385	KD5	0 days	0 days	NA	NA	September 17, 2021	September 17, 2021	September 17, 2021	September 17, 2021	0%	0 days	0 days	0 days
386	KD6	0 days	0 days	NA	NA	December 14, 2021	December 14, 2021	December 29, 2021	December 29, 2021	0%	11 days	0 days	11 days
387	KD7	0 days	0 days	NA	NA	May 27, 2022	May 27, 2022	June 3, 2022	June 3, 2022	0%	5 days	0 days	5 days
388	**Construction Works**	**1499 days**	**1491.94 days**	**May 16, 2019**	**NA**	**May 16, 2019**	**May 29, 2024**	**May 16, 2019**	**May 29, 2024**	**0%**	**0 days**		**0 days**
389	Office Accommodation	53 days	32 days	August 8, 2019	NA	August 8, 2019	October 31, 2019	August 8, 2019	January 10, 2020	40%	58 days	1 day	58 days
390	**Procurement of Materials and Equipments**	**509 days**	**509 days**	**NA**	**NA**	**November 4, 2019**	**July 23, 2021**	**November 26, 2019**	**July 27, 2022**	**0%**	**19 days**		**19 days**
398	**Excavation Permit**	**297 days**	**297 days**	**NA**	**NA**	**October 18, 2019**	**October 16, 2020**	**November 22, 2020**	**November 21, 2021**	**0%**	**326 days**		**326 days**
400	Haul Road Diversion 3m wide within Kai Tak Sport Part	152 days	152 days	NA	NA	November 1, 2019	March 31, 2020	December 30, 2023	May 29, 2024	0%	1520 d...		1520 d...
401	**Section 1**	**831 days**	**825.54 days**	**May 16, 2019**	**NA**	**May 16, 2019**	**March 1, 2022**	**May 16, 2019**	**May 29, 2024**	**0%**	**668 days**		**668 days**
402	Agree Interface Coordination Plan with CKR & KTSP	14 days	0 days	August 27, 2019	September 11, 2019	August 27, 2019	September 11, 2019	August 27, 2019	September 11, 2019	100%	0 days	0 days	0 days
403	**Ground Investigation**	**60 days**	**52 days**	September 12, 2019	**NA**	**September 12, 20...**	**November 23, 2019**	**September 12, 2019**	**January 10, 2020**	**0%**	**38 days**		**38 days**
404	GI Work	60 days	52 days	September 12, 2019	NA	September 12, 2019	November 23, 2019	September 12, 2019	January 10, 2020	13%	38 days	0.5 days	38 days
405	**Part 1 - Junction Modification Rd L6 & D2**	**80 days**	**80 days**	**NA**	**NA**	**November 22, 2021**	**March 1, 2022**	**November 22, 2021**	**March 1, 2022**	**0%**	**0 days**		**0 days**
406	Break up existing pavement and traffic island	12 days	12 days	NA	NA	November 22, 2021	December 4, 2021	November 22, 2021	December 4, 2021	0%	0 days	0 days	0 days
407	Utility ducting laying (by others)	25 days	25 days	NA	NA	December 6, 2021	January 6, 2022	December 6, 2021	January 6, 2022	0%	0 days	1 days	0 days
408	Trim formation and lay sub base	7 days	7 days	NA	NA	December 13, 2021	December 20, 2021	December 13, 2021	December 20, 2021	0%	0 days	0 days	0 days
409	Lay kerb	12 days	12 days	NA	NA	December 21, 2021	January 6, 2022	December 21, 2021	January 6, 2022	0%	0 days	0 days	0 days
410	Construct pedestrian street/ footpath	7 days	7 days	NA	NA	January 7, 2022	January 14, 2022	January 7, 2022	January 14, 2022	0%	0 days	0 days	0 days
411	Install central median	12 days	12 days	NA	NA	January 15, 2022	January 28, 2022	January 15, 2022	January 28, 2022	0%	0 days	0 days	0 days
412	Concrete infill between profile barrier	4 days	4 days	NA	NA	January 29, 2022	February 5, 2022	January 29, 2022	February 5, 2022	0%	0 days	0 days	0 days
413	Road pavement	5 days	5 days	NA	NA	February 7, 2022	February 11, 2022	February 7, 2022	February 11, 2022	0%	0 days	0 days	0 days
414	Install street furniture	15 days	15 days	NA	NA	February 12, 2022	March 1, 2022	February 12, 2022	March 1, 2022	0%	0 days	1 days	0 days
415	**Part 1 - Road D3 CH1000-1087**	**269 days**	**269 days**	**NA**	**NA**	**January 5, 2021**	**November 29, 2021**	**February 25, 2021**	**March 1, 2022**	**0%**	**41 days**		**41 days**



Title: Revised Programme-ED/2018/01 with Progress Update as of 22-Sep-19

Critical, Critical Split, Critical Progress, Task, Split, Task Progress, Manual Task, Start-only, Finish-only, Duration-only, Baseline, Baseline Split, Baseline Milestone, Milestone, Summary Progress, Summary, Manual Summary, Project Summary, External Tasks, External Milestone, Inactive Task, Inactive Milestone, Inactive Summary, Deadline, Baseline Summary

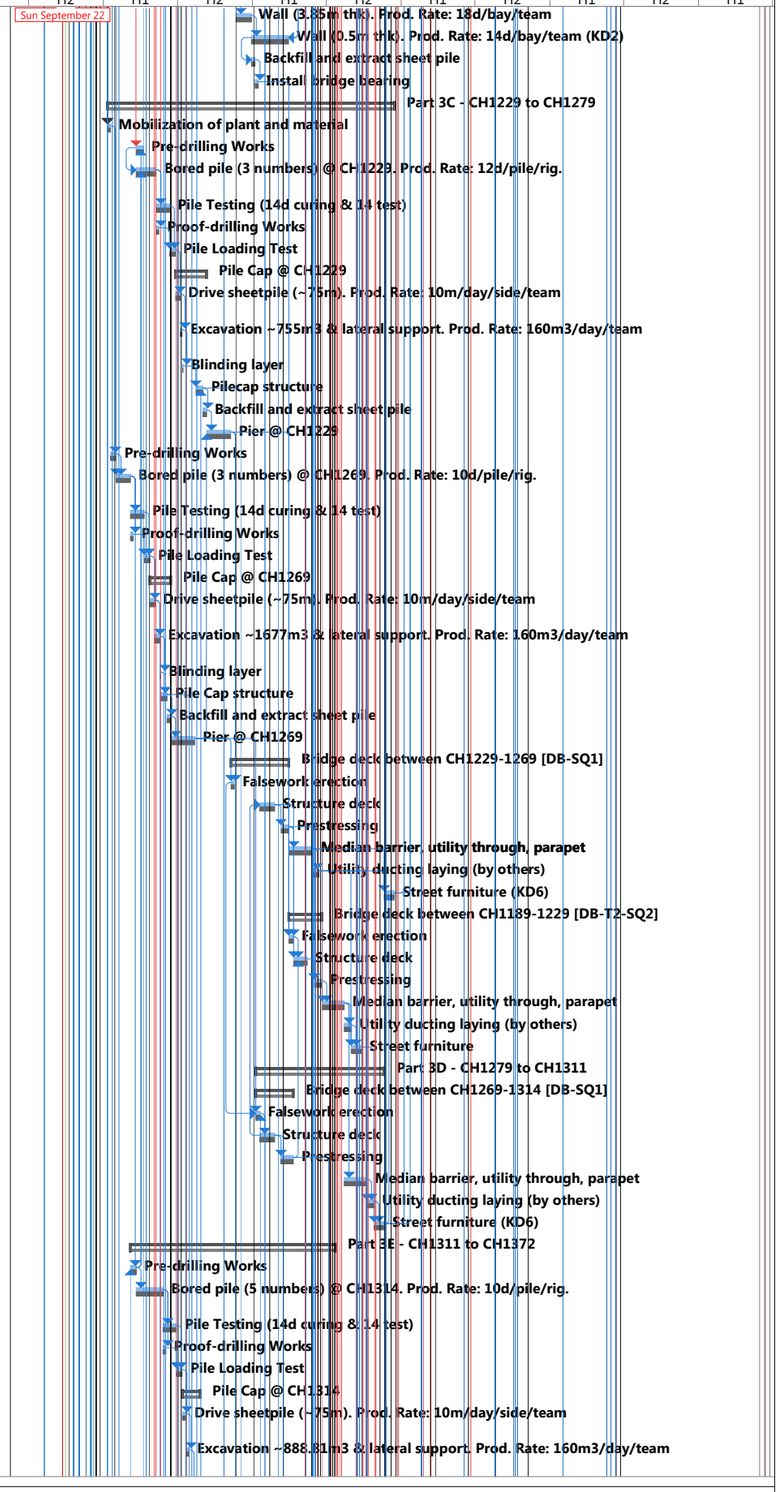
ID	Task Name	Duration	Remaining Duration	Actual Start	Actual Finish	Plan Start	Plan Finish	Late Start	Late Finish	Physical % Complete	Free Slack	Time Risk Allowances (TRA)	Total Slack
416	Allow Access between CH1000 and CH1087 for EMSD Thied District Cooling System for Associated Pipeline Laying (Assume the DCS Pipeline Lay within CH1010 and Ch1087 Area)	0 days	0 days	NA	NA	January 5, 2021	January 5, 2021	February 25, 2021	February 25, 2021	0%	26 days		51 days
417	Between CH1000 and CH1087 Area Handover Back from EMSD third District Cooling System Contractor	0 days	0 days	NA	NA	July 30, 2021	July 30, 2021	August 24, 2021	August 24, 2021	0%	25 days		25 days
418	Utility ducting laying (by others)	26 days	26 days	NA	NA	August 24, 2021	September 23, 2021	August 24, 2021	September 23, 2021	0%	0 days	2 days	0 days
419	Trim road formation	3 days	3 days	NA	NA	September 24, 2021	September 27, 2021	September 24, 2021	September 27, 2021	0%	0 days	0 days	0 days
420	Lay sub base	7 days	7 days	NA	NA	September 28, 2021	October 6, 2021	September 28, 2021	October 6, 2021	0%	0 days	0 days	0 days
421	Lay kerb	12 days	12 days	NA	NA	October 7, 2021	October 21, 2021	October 7, 2021	October 21, 2021	0%	0 days	0 days	0 days
422	Construct pedestrian street/ footpath	7 days	7 days	NA	NA	October 22, 2021	October 29, 2021	October 22, 2021	October 29, 2021	0%	0 days	0 days	0 days
423	Install central median	10 days	10 days	NA	NA	October 30, 2021	November 10, 2021	October 30, 2021	November 10, 2021	0%	0 days	0 days	0 days
424	Concrete infill between profile barrier	4 days	4 days	NA	NA	November 11, 2021	November 15, 2021	November 11, 2021	November 15, 2021	0%	0 days	0 days	0 days
425	Road pavement	5 days	5 days	NA	NA	November 16, 2021	November 20, 2021	November 16, 2021	November 20, 2021	0%	0 days	0 days	0 days
426	Install street furniture	7 days	7 days	NA	NA	November 22, 2021	November 29, 2021	February 22, 2022	March 1, 2022	0%	73 days	0 days	73 days
427	**Bridge D3 (Approach Ramp and Bridge) CH1087-1444.7**	**812 days**	**812 days**	**NA**	**NA**	**May 16, 2019**	**February 7, 2022**	**December 28, 2019**	**March 1, 2022**	**0%**	**19 days**		**19 days**
428	**North Approach Ramp (Fronting CKR) CH1087-1189.4 - 7 bays**	**306 days**	**306 days**	**NA**	**NA**	**September 23, 2019**	**October 3, 2020**	**December 28, 2019**	**April 17, 2021**	**0%**	**79 days**		**79 days**
429	Procurement of Movement Joints for Bridge Works	90 days	90 days	NA	NA	January 11, 2020	April 9, 2020	March 4, 2020	June 1, 2020	0%	49 days		53 days
430	Ground Monitoring Works	14 days	14 days	NA	NA	September 23, 2019	October 6, 2019	December 28, 2019	January 10, 2020	0%	0 days	0 days	96 days
431	Mobilization of plant and material	10 days	10 days	NA	NA	January 11, 2020	January 22, 2020	January 11, 2020	January 22, 2020	0%	0 days	0 days	0 days
432	Foundation Construction	64 days	64 days	NA	NA	January 23, 2020	April 14, 2020	January 23, 2020	April 14, 2020	0%	0 days	3 days	0 days
433	Drive sheetpile (~200m) Prod. Rate: 10m/d/team	20 days	20 days	NA	NA	April 15, 2020	May 10, 2020	April 18, 2020	May 13, 2020	0%	0 days	1 days	3 days
434	Excavation ~1,876m3 & lateral support. Prod. Rate: 160m3/day/team (Bay 1 to 7)	12 days	12 days	NA	NA	May 11, 2020	May 24, 2020	May 14, 2020	May 27, 2020	0%	0 days	1 days	3 days
435	Blinding layer. Prod. Rate: 2bays/day	4 days	4 days	NA	NA	May 25, 2020	May 28, 2020	May 28, 2020	June 1, 2020	0%	0 days	0 days	3 days
436	**Base slab Prod. Rate: 8d/bay/team**	**56 days**	**56 days**	**NA**	**NA**	**May 29, 2020**	**August 4, 2020**	**June 2, 2020**	**March 15, 2021**	**0%**	**3 days**	**3 days**	**3 days**
437	Base slab (Bay 2 & 4) -1 team	16 days	16 days	NA	NA	May 29, 2020	June 16, 2020	June 2, 2020	June 19, 2020	0%	0 days	1 days	3 days
438	Base slab (Bay 1 & 3) - 1 team	16 days	16 days	NA	NA	June 17, 2020	July 7, 2020	June 20, 2020	July 10, 2020	0%	0 days	1 days	3 days
439	Base slab (Bay 5 & 7) - 1 team	16 days	16 days	NA	NA	July 8, 2020	July 25, 2020	January 25, 2021	February 11, 2021	0%	0 days	0 days	166 days
440	Base slab (Bay 6) - 1 team	8 days	8 days	NA	NA	July 27, 2020	August 4, 2020	March 6, 2021	March 15, 2021	0%	24 days	0 days	182 days
441	**Wall. Prod. Rate: 12d/bay/team**	**74 days**	**74 days**	**NA**	**NA**	**July 8, 2020**	**October 3, 2020**	**July 11, 2020**	**April 17, 2021**	**0%**	**3 days**	**3 days**	**3 days**
442	Wall (Bay 2 & 4) - 2 teams	12 days	12 days	NA	NA	July 8, 2020	July 21, 2020	July 11, 2020	July 24, 2020	0%	0 days	1 days	3 days
443	Wall (Bay 1 & 3) 2 teams (KD1)	12 days	12 days	NA	NA	July 22, 2020	August 4, 2020	July 25, 2020	August 7, 2020	0%	0 days	1 days	3 days
444	Wall (Bay 5 & 7) - 1 team	24 days	24 days	NA	NA	August 5, 2020	September 1, 2020	February 16, 2021	March 15, 2021	0%	0 days	0.5 days	158 days
445	Wall (Bay 6) - 1 team (KD2)	12 days	12 days	NA	NA	September 2, 2020	September 15, 2020	March 16, 2021	March 29, 2021	0%	0 days	0 days	158 days
446	Backfill and extract sheet pile	14 days	14 days	NA	NA	September 16, 2020	October 3, 2020	March 30, 2021	April 17, 2021	0%	144 days	0 days	158 days
447	**North Approach Ramp (Fronting KTSP) CH1087-1189.4 - 7 bays**	**608 days**	**608 days**	**NA**	**NA**	**October 7, 2019**	**October 23, 2021**	**April 1, 2020**	**February 21, 2022**	**0%**	**97 days**		**97 days**
448	Ground Monitoring Works	14 days	14 days	NA	NA	October 7, 2019	October 20, 2019	April 1, 2020	April 14, 2020	0%	0 days	0 days	177 days
449	Mobilization of plant and materials	19 days	19 days	NA	NA	April 15, 2020	May 8, 2020	April 15, 2020	May 8, 2020	0%	0 days	1 days	0 days
450	Foundation Construction	94 days	94 days	NA	NA	May 9, 2020	August 28, 2020	May 9, 2020	August 28, 2020	0%	0 days	4 days	0 days
451	Drive sheetpile (~200m) Prod. Rate: 10m/d/team	24 days	24 days	NA	NA	August 29, 2020	September 25, 2020	August 29, 2020	September 25, 2020	0%	0 days	1 days	0 days
452	Excavation ~1,996m3 & lateral support. Prod. Rate: 160m3/day/team	18 days	18 days	NA	NA	September 26, 2020	October 19, 2020	September 26, 2020	October 19, 2020	0%	0 days	1 days	0 days
453	Blinding layer. Prod. Rate: 2bays/day	13 days	13 days	NA	NA	October 20, 2020	November 4, 2020	October 20, 2020	November 4, 2020	0%	0 days	0 days	0 days
454	Base slab (Bay 1 to 7) Prod Rate: 8d/bay/team- 1 team	64 days	64 days	NA	NA	November 5, 2020	January 21, 2021	November 5, 2020	January 21, 2021	0%	0 days	3 days	0 days
455	Wall (Bay 1 to 7) 12d/bay/team - 1 team (KD3)	95 days	95 days	NA	NA	January 22, 2021	May 21, 2021	January 22, 2021	May 21, 2021	0%	0 days	4 days	0 days
456	Backfilling ~8,372.91m3 within approach ramp to formation level (160m3/day) considered time for SRT	53 days	53 days	NA	NA	May 22, 2021	July 24, 2021	May 22, 2021	July 24, 2021	0%	0 days	1 days	0 days
457	Placing of precast planting channel along approach ramp	24 days	24 days	NA	NA	July 27, 2021	August 23, 2021	July 27, 2021	August 23, 2021	0%	0 days	1 days	0 days
458	Utility ducting laying (by others)	26 days	26 days	NA	NA	July 26, 2021	August 24, 2021	July 26, 2021	August 24, 2021	0%	0 days	1 days	0 days
459	Construct pedestrian street/ footpath	5 days	5 days	NA	NA	August 25, 2021	August 30, 2021	August 25, 2021	August 30, 2021	0%	0 days	0 days	0 days
460	Install central median	6 days	6 days	NA	NA	August 31, 2021	September 6, 2021	August 31, 2021	September 6, 2021	0%	0 days	0 days	0 days
461	Concrete infill between profile barrier	5 days	5 days	NA	NA	September 7, 2021	September 11, 2021	September 7, 2021	September 11, 2021	0%	0 days	0 days	0 days
462	Lay sub base	4 days	4 days	NA	NA	September 13, 2021	September 16, 2021	September 13, 2021	September 16, 2021	0%	0 days	0 days	0 days
463	Road pavement	5 days	5 days	NA	NA	September 17, 2021	September 23, 2021	September 17, 2021	September 23, 2021	0%	0 days	0 days	0 days
464	Install railing on top of retaining wall & street furniture	24 days	24 days	NA	NA	September 24, 2021	October 23, 2021	January 21, 2022	February 21, 2022	0%	24 days	0.5 days	97 days
465	**Part 3G - CH1189.4 to CH1229 North Abutment**	**286 days**	**286 days**	**NA**	**NA**	**April 15, 2020**	**March 29, 2021**	**May 4, 2020**	**April 17, 2021**	**0%**	**14 days**		**14 days**
466	Pre-drilling Works	14 days	14 days	NA	NA	April 15, 2020	April 28, 2020	May 4, 2020	May 17, 2020	0%	0 days	1 days	19 days
467	Bored pile (8 numbers). Prod. Rate: 10d/pile/rig.	80 days	80 days	NA	NA	April 29, 2020	August 4, 2020	May 18, 2020	August 20, 2020	0%	0 days	2 days	14 days
468	Pile Testing (28d curing & 14 test) - 1 full-core to be carried out	42 days	42 days	NA	NA	August 5, 2020	September 22, 2020	August 21, 2020	October 10, 2020	0%	0 days	2 days	14 days
469	Proof-drilling Works	7 days	7 days	NA	NA	August 5, 2020	August 11, 2020	October 4, 2020	October 10, 2020	0%	42 days	0 days	60 days
470	Pile Loading Test	16 days	16 days	NA	NA	September 23, 2020	October 8, 2020	October 11, 2020	October 26, 2020	0%	0 days	1 days	18 days
471	Drive sheetpile (~90m) Prod. Rate: 10m/d/team	9 days	9 days	NA	NA	October 9, 2020	October 19, 2020	October 27, 2020	November 5, 2020	0%	0 days	0 days	14 days
472	Excavation ~780m3 & lateral support. Prod. Rate: 160m3/day/team	6 days	6 days	NA	NA	October 20, 2020	October 27, 2020	November 6, 2020	November 12, 2020	0%	0 days	0 days	14 days
473	Blinding layer	1 day	1 day	NA	NA	October 28, 2020	October 28, 2020	November 13, 2020	November 13, 2020	0%	0 days	0 days	14 days
474	Base Slab	20 days	20 days	NA	NA	October 29, 2020	November 20, 2020	November 14, 2020	December 7, 2020	0%	0 days	1 days	14 days



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Critical | Critical Split | Critical Progress | Task | Split | Task Progress | Manual Task | Start-only | Finish-only | Duration-only | Baseline | Baseline Split | Baseline Milestone | Milestone | Summary Progress | Summary | Manual Summary | Project Summary | External Tasks | External Milestone | Inactive Task | Inactive Milestone | Inactive Summary | Deadline | Baseline Summary

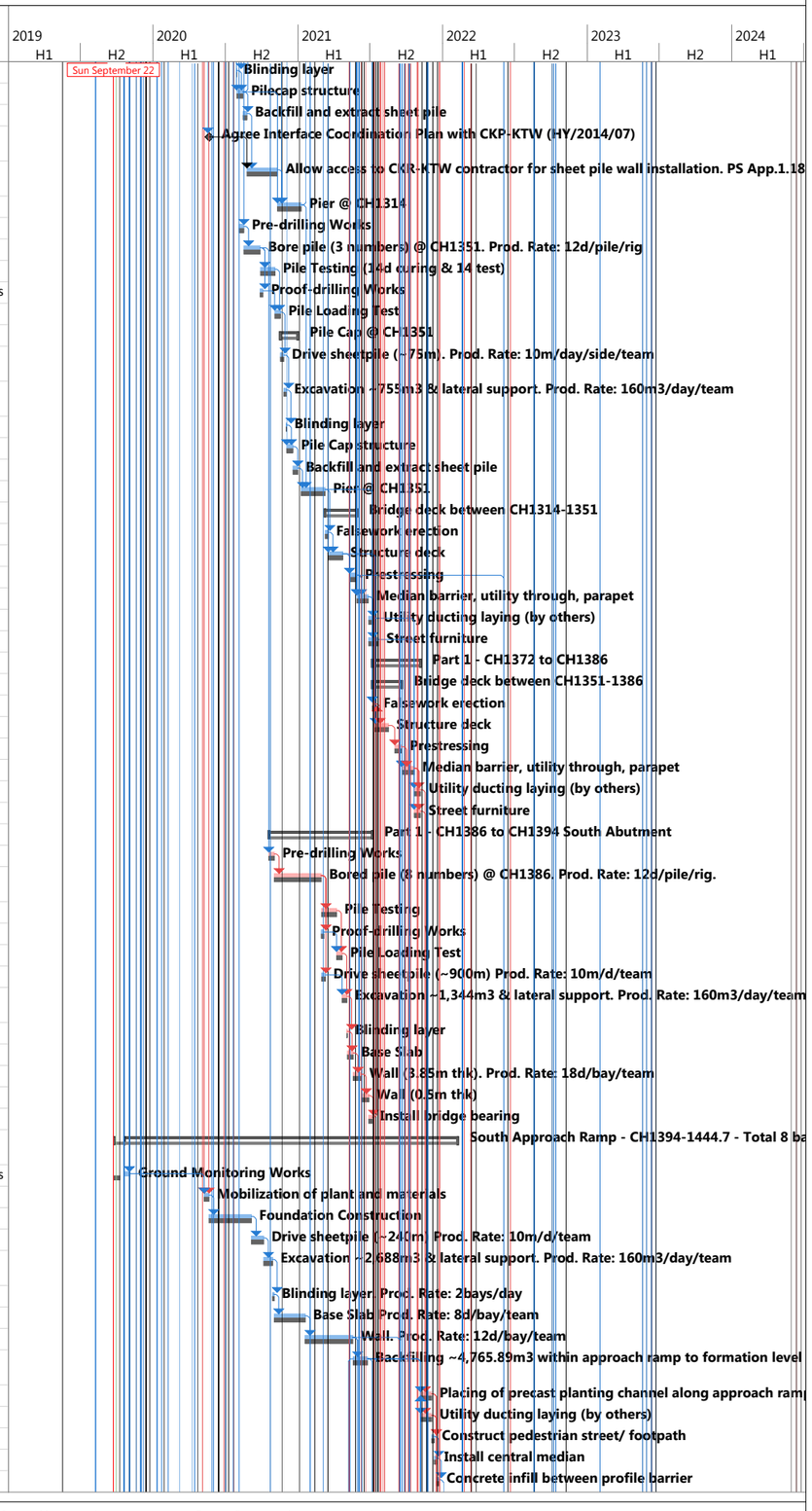
ID	Task Name	Duration	Remaining Duration	Actual Start	Actual Finish	Plan Start	Plan Finish	Late Start	Late Finish	Physical % Complete	Free Slack	Time Risk Allowances (TRA)	Total Slack
475	Wall (3.85m thk). Prod. Rate: 18d/bay/team	30 days	30 days	NA	NA	November 21, 2020	December 28, 2020	December 8, 2020	January 14, 2021	0%	0 days	1 days	14 days
476	Wall (0.5m thk). Prod. Rate: 14d/bay/team (KD2)	74 days	74 days	NA	NA	December 29, 2020	March 29, 2021	January 15, 2021	April 17, 2021	0%	0 days	0 days	14 days
477	Backfill and extract sheet pile	7 days	7 days	NA	NA	December 29, 2020	January 6, 2021	March 27, 2021	April 7, 2021	0%	0 days	0 days	72 days
478	Install bridge bearing	7 days	7 days	NA	NA	January 7, 2021	January 14, 2021	April 8, 2021	April 15, 2021	0%	61 days	0 days	72 days
479	**Part 3C - CH1229 to CH1279**	**573 days**	**573 days**	**NA**	**NA**	**January 11, 2020**	**December 14, 2021**	**January 20, 2020**	**December 29, 2021**	**0%**	**7 days**		**7 days**
480	Mobilization of plant and material	6 days	6 days	NA	NA	January 11, 2020	January 17, 2020	January 20, 2020	January 29, 2020	0%	0 days	1 days	7 days
481	Pre-drilling Works	14 days	14 days	NA	NA	March 21, 2020	April 7, 2020	May 14, 2020	May 29, 2020	0%	0 days	0 days	40 days
482	Bored pile (3 numbers) @ CH1229. Prod. Rate: 12d/pile/rig.	36 days	36 days	NA	NA	March 21, 2020	May 8, 2020	May 14, 2020	June 24, 2020	0%	0 days	0.5 days	40 days
483	Pile Testing (14d curing & 14 test)	28 days	28 days	NA	NA	May 9, 2020	June 10, 2020	June 26, 2020	July 29, 2020	0%	0 days	0.5 days	40 days
484	Proof-drilling Works	7 days	7 days	NA	NA	May 9, 2020	May 15, 2020	July 23, 2020	July 29, 2020	0%	26 days	0 days	75 days
485	Pile Loading Test	14 days	14 days	NA	NA	June 11, 2020	June 24, 2020	July 30, 2020	August 12, 2020	0%	1 day	0 days	49 days
486	**Pile Cap @ CH1229**	**64 days**	**64 days**	**NA**	**NA**	**June 26, 2020**	**September 9, 2020**	**August 13, 2020**	**September 23, 20...**	**0%**	**12 days**		**12 days**
487	Drive sheetpile (~75m). Prod. Rate: 10m/day/side/team	8 days	8 days	NA	NA	June 26, 2020	July 6, 2020	August 13, 2020	August 21, 2020	0%	0 days	0 days	40 days
488	Excavation ~755m3 & lateral support. Prod. Rate: 160m3/day/team	5 days	5 days	NA	NA	July 7, 2020	July 11, 2020	August 22, 2020	August 27, 2020	0%	0 days	0 days	40 days
489	Blinding layer	1 day	1 day	NA	NA	July 13, 2020	July 13, 2020	August 28, 2020	August 28, 2020	0%	28 days	0 days	40 days
490	Pilecap structure	14 days	14 days	NA	NA	August 15, 2020	August 31, 2020	August 29, 2020	September 14, 2020	0%	0 days	1 days	12 days
491	Backfill and extract sheet pile	8 days	8 days	NA	NA	September 1, 2020	September 9, 2020	September 15, 2020	September 23, 2020	0%	0 days	0 days	12 days
492	Pier @ CH1229	48 days	48 days	NA	NA	September 10, 2020	November 7, 2020	September 24, 2020	November 21, 2020	0%	0 days	2 days	12 days
493	Pre-drilling Works	14 days	14 days	NA	NA	January 18, 2020	January 31, 2020	January 30, 2020	February 12, 2020	0%	0 days	1 days	12 days
494	Bored pile (3 numbers) @ CH1269. Prod. Rate: 10d/pile/rig.	30 days	30 days	NA	NA	February 1, 2020	March 6, 2020	February 13, 2020	March 18, 2020	0%	0 days	0 days	10 days
495	Pile Testing (14d curing & 14 test)	28 days	28 days	NA	NA	March 7, 2020	April 9, 2020	April 21, 2020	May 25, 2020	0%	0 days	0.5 days	34 days
496	Proof-drilling Works	7 days	7 days	NA	NA	March 7, 2020	March 13, 2020	May 19, 2020	May 25, 2020	0%	27 days	0 days	73 days
497	Pile Loading Test	14 days	14 days	NA	NA	April 10, 2020	April 23, 2020	May 26, 2020	June 8, 2020	0%	0 days	0 days	46 days
498	**Pile Cap @ CH1269**	**42 days**	**42 days**	**NA**	**NA**	**April 24, 2020**	**June 13, 2020**	**June 9, 2020**	**July 29, 2020**	**0%**	**37 days**		**37 days**
499	Drive sheetpile (~75m). Prod. Rate: 10m/day/side/team	8 days	8 days	NA	NA	April 24, 2020	May 5, 2020	June 9, 2020	June 17, 2020	0%	0 days	0 days	37 days
500	Excavation ~1677m3 & lateral support. Prod. Rate: 160m3/day/team	11 days	11 days	NA	NA	May 6, 2020	May 18, 2020	June 18, 2020	July 2, 2020	0%	0 days	0 days	37 days
501	Blinding layer	1 day	1 day	NA	NA	May 19, 2020	May 19, 2020	July 3, 2020	July 3, 2020	0%	0 days	0 days	37 days
502	Pile Cap structure	14 days	14 days	NA	NA	May 20, 2020	June 4, 2020	July 4, 2020	July 20, 2020	0%	0 days	0 days	37 days
503	Backfill and extract sheet pile	8 days	8 days	NA	NA	June 5, 2020	June 13, 2020	July 21, 2020	July 29, 2020	0%	0 days	0 days	37 days
504	Pier @ CH1269	48 days	48 days	NA	NA	June 15, 2020	August 11, 2020	July 30, 2020	September 23, 2020	0%	25 days	0 days	37 days
505	**Bridge deck between CH1229-1269 [DB-SQ1]**	**116 days**	**116 days**	**NA**	**NA**	**November 9, 2020**	**March 30, 2021**	**January 22, 2021**	**April 15, 2021**	**0%**	**11 days**		**11 days**
506	Falsework erection	7 days	7 days	NA	NA	November 9, 2020	November 16, 2020	January 22, 2021	January 29, 2021	0%	50 days	0 days	61 days
507	Structure deck	28 days	28 days	NA	NA	January 19, 2021	February 23, 2021	February 1, 2021	March 8, 2021	0%	0 days	1 days	11 days
508	Prestressing	16 days	16 days	NA	NA	March 12, 2021	March 30, 2021	March 25, 2021	April 15, 2021	0%	0 days	1 days	11 days
509	Median barrier, utility through, parapet	45 days	45 days	NA	NA	March 31, 2021	May 27, 2021	May 10, 2021	July 3, 2021	0%	0 days	0.5 days	30 days
510	Utility ducting laying (by others)	14 days	14 days	NA	NA	May 28, 2021	June 12, 2021	September 25, 2021	October 12, 2021	0%	65 days	0 days	100 days
511	Street furniture (KD6)	21 days	21 days	NA	NA	November 20, 2021	December 14, 2021	December 3, 2021	December 29, 2021	0%	0 days	2 days	11 days
512	**Bridge deck between CH1189-1229 [DB-T2-SQ2]**	**64 days**	**64 days**	**NA**	**NA**	**March 31, 2021**	**June 19, 2021**	**April 16, 2021**	**July 3, 2021**	**0%**	**11 days**		**11 days**
513	Falsework erection	7 days	7 days	NA	NA	March 31, 2021	April 10, 2021	April 16, 2021	April 23, 2021	0%	0 days	0 days	11 days
514	Structure deck	28 days	28 days	NA	NA	April 12, 2021	May 14, 2021	April 24, 2021	May 28, 2021	0%	0 days	1 days	11 days
515	Prestressing	15 days	15 days	NA	NA	June 2, 2021	June 19, 2021	June 16, 2021	July 3, 2021	0%	0 days	1 days	11 days
516	Median barrier, utility through, parapet	46 days	46 days	NA	NA	June 21, 2021	August 13, 2021	July 5, 2021	August 26, 2021	0%	0 days	2 days	11 days
517	Utility ducting laying (by others)	14 days	14 days	NA	NA	August 14, 2021	August 30, 2021	September 25, 2021	October 12, 2021	0%	0 days	0 days	35 days
518	Street furniture	21 days	21 days	NA	NA	August 31, 2021	September 24, 2021	October 13, 2021	November 6, 2021	0%	24 days	0 days	35 days
519	**Part 3D - CH1279 to CH1311**	**257 days**	**257 days**	**NA**	**NA**	**January 9, 2021**	**November 19, 2021**	**January 22, 2021**	**December 2, 2021**	**0%**	**11 days**		**11 days**
520	**Bridge deck between CH1269-1314 [DB-SQ1]**	**73 days**	**73 days**	**NA**	**NA**	**January 9, 2021**	**April 10, 2021**	**January 22, 2021**	**April 23, 2021**	**0%**	**11 days**		**11 days**
521	Falsework erection	8 days	8 days	NA	NA	January 9, 2021	January 18, 2021	January 22, 2021	January 30, 2021	0%	0 days	0 days	11 days
522	Structure deck	28 days	28 days	NA	NA	January 19, 2021	February 23, 2021	February 1, 2021	March 8, 2021	0%	0 days	1 days	11 days
523	Prestressing	23 days	23 days	NA	NA	March 12, 2021	April 10, 2021	March 25, 2021	April 23, 2021	0%	0 days	0 days	11 days
524	Median barrier, utility through, parapet	45 days	45 days	NA	NA	August 14, 2021	October 7, 2021	August 27, 2021	October 21, 2021	0%	0 days	2 days	11 days
525	Utility ducting laying (by others)	14 days	14 days	NA	NA	October 8, 2021	October 25, 2021	October 22, 2021	November 6, 2021	0%	0 days	1 days	11 days
526	Street furniture (KD6)	22 days	22 days	NA	NA	October 26, 2021	November 19, 2021	November 8, 2021	December 2, 2021	0%	0 days	0 days	11 days
527	**Part 3E - CH1311 to CH1372**	**407 days**	**407 days**	**NA**	**NA**	**March 7, 2020**	**July 22, 2021**	**March 19, 2020**	**October 23, 2021**	**0%**	**10 days**		**10 days**
528	Pre-drilling Works	14 days	14 days	NA	NA	March 7, 2020	March 20, 2020	March 19, 2020	April 1, 2020	0%	0 days	0	12 days
529	Bored pile (5 numbers) @ CH1314. Prod. Rate: 10d/pile/rig.	50 days	50 days	NA	NA	March 21, 2020	May 25, 2020	April 2, 2020	June 5, 2020	0%	0 days	1 days	10 days
530	Pile Testing (14d curing & 14 test)	28 days	28 days	NA	NA	May 26, 2020	June 27, 2020	June 6, 2020	July 10, 2020	0%	0 days	1 days	10 days
531	Proof-drilling Works	7 days	7 days	NA	NA	May 26, 2020	June 1, 2020	July 4, 2020	July 10, 2020	0%	26 days	0 days	39 days
532	Pile Loading Test	14 days	14 days	NA	NA	June 28, 2020	July 11, 2020	July 11, 2020	July 24, 2020	0%	1 day	1 days	13 days
533	**Pile Cap @ CH1314**	**37 days**	**37 days**	**NA**	**NA**	**July 13, 2020**	**August 24, 2020**	**July 25, 2020**	**September 5, 2020**	**0%**	**11 days**		**11 days**
534	Drive sheetpile (~75m). Prod. Rate: 10m/day/side/team	8 days	8 days	NA	NA	July 13, 2020	July 21, 2020	July 25, 2020	August 3, 2020	0%	0 days	0 days	11 days
535	Excavation ~888.81m3 & lateral support. Prod. Rate: 160m3/day/team	6 days	6 days	NA	NA	July 22, 2020	July 28, 2020	August 4, 2020	August 10, 2020	0%	0 days	0 days	11 days



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Critical
Critical Split
Critical Progress
Task
Split
Task Progress
Manual Task
Start-only
Finish-only
Duration-only
Baseline
Baseline Split
Baseline Milestone
Milestone
Summary Progress
Summary
Manual Summary
Project Summary
External Tasks
External Milestone
Inactive Task
Inactive Milestone
Inactive Summary
Deadline
Baseline Summary

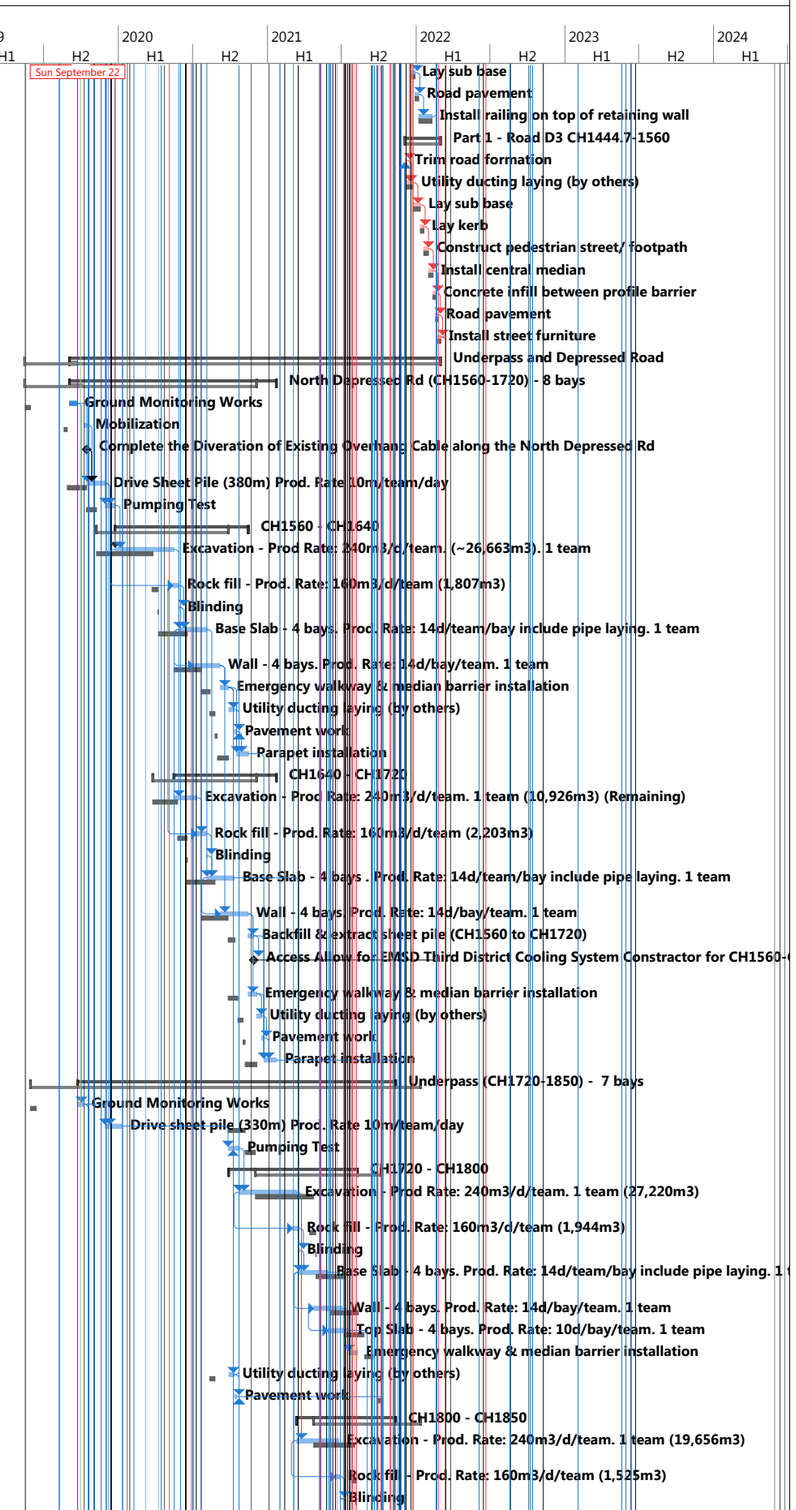
ID	Task Name	Duration	Remaining Duration	Actual Start	Actual Finish	Plan Start	Plan Finish	Late Start	Late Finish	Physical % Complete	Free Slack	Time Risk Allowances (TRA)	Total Slack
536	Blinding layer	1 day	1 day	NA	NA	July 29, 2020	July 29, 2020	August 11, 2020	August 11, 2020	0%	0 days	0 days	11 days
537	Pilecap structure	14 days	14 days	NA	NA	July 30, 2020	August 14, 2020	August 12, 2020	August 27, 2020	0%	0 days	1 days	11 days
538	Backfill and extract sheet pile	8 days	8 days	NA	NA	August 15, 2020	August 24, 2020	August 28, 2020	September 5, 2020	0%	0 days	1 days	11 days
539	Agree Interface Coordination Plan with CKP-KTW (HY/2014/07)	14 days	14 days	NA	NA	May 6, 2020	May 21, 2020	August 21, 2020	September 5, 2020	0%	79 days	0 days	90 days
540	Allow access to CKR-KTW contractor for sheet pile wall installation. PS App.1.18 2.7(A)(c)	63 days	63 days	NA	NA	August 25, 2020	November 9, 2020	September 7, 2020	November 21, 2020	0%	0 days	3 days	11 days
541	Pier @ CH1314	49 days	49 days	NA	NA	November 10, 2020	January 8, 2021	November 23, 2020	January 21, 2021	0%	0 days	2 days	11 days
542	Pre-drilling Works	12 days	12 days	NA	NA	August 5, 2020	August 16, 2020	August 23, 2020	September 3, 2020	0%	0 days	1 days	18 days
543	Bore pile (3 numbers) @ CH1351. Prod. Rate: 12d/pile/rig	36 days	36 days	NA	NA	August 17, 2020	September 26, 2020	September 4, 2020	October 17, 2020	0%	0 days	1 days	16 days
544	Pile Testing (14d curing & 14 test)	28 days	28 days	NA	NA	September 28, 2020	November 2, 2020	January 2, 2021	February 3, 2021	0%	0 days	0.5 days	77 days
545	Proof-drilling Works	7 days	7 days	NA	NA	September 27, 2020	October 3, 2020	January 28, 2021	February 3, 2021	0%	30 days	0 days	123 days
546	Pile Loading Test	14 days	14 days	NA	NA	November 3, 2020	November 16, 2020	February 4, 2021	February 17, 2021	0%	0 days	0 days	93 days
547	**Pile Cap @ CH1351**	**36 days**	**36 days**	**NA**	**NA**	**November 17, 2020**	**December 30, 2020**	**February 18, 2021**	**March 31, 2021**	**0%**	**74 days**		**74 days**
548	Drive sheetpile (~75m). Prod. Rate: 10m/day/side/team	8 days	8 days	NA	NA	November 17, 2020	November 25, 2020	February 18, 2021	February 26, 2021	0%	0 days	0 days	74 days
549	Excavation ~755m3 & lateral support. Prod. Rate: 160m3/day/team	5 days	5 days	NA	NA	November 26, 2020	December 1, 2020	February 27, 2021	March 4, 2021	0%	0 days	0 days	74 days
550	Blinding layer	1 day	1 day	NA	NA	December 2, 2020	December 2, 2020	March 5, 2021	March 5, 2021	0%	0 days	0 days	74 days
551	Pile Cap structure	14 days	14 days	NA	NA	December 3, 2020	December 18, 2020	March 6, 2021	March 22, 2021	0%	0 days	0 days	74 days
552	Backfill and extract sheet pile	8 days	8 days	NA	NA	December 19, 2020	December 30, 2020	March 23, 2021	March 31, 2021	0%	7 days	0 days	74 days
553	Pier @ CH1351	48 days	48 days	NA	NA	January 9, 2021	March 9, 2021	April 1, 2021	June 1, 2021	0%	0 days	0.5 days	67 days
554	**Bridge deck between CH1314-1351**	**64 days**	**64 days**	**NA**	**NA**	**March 10, 2021**	**May 28, 2021**	**June 2, 2021**	**August 20, 2021**	**0%**	**67 days**	**1 day**	**67 days**
555	Falsework erection	7 days	7 days	NA	NA	March 10, 2021	March 17, 2021	June 2, 2021	June 9, 2021	0%	0 days	0 days	67 days
556	Structure deck	28 days	28 days	NA	NA	March 18, 2021	April 22, 2021	June 10, 2021	July 14, 2021	0%	0 days	0.5 days	67 days
557	Prestressing	15 days	15 days	NA	NA	May 11, 2021	May 28, 2021	August 4, 2021	August 20, 2021	0%	0 days	0 days	70 days
558	Median barrier, utility through, parapet	24 days	24 days	NA	NA	May 29, 2021	June 26, 2021	August 26, 2021	September 23, 2021	0%	0 days	0.5 days	74 days
559	Utility ducting laying (by others)	14 days	14 days	NA	NA	June 28, 2021	July 14, 2021	October 7, 2021	October 23, 2021	0%	81 days	0 days	84 days
560	Street furniture	21 days	21 days	NA	NA	June 28, 2021	July 22, 2021	September 24, 2021	October 20, 2021	0%	74 days	0 days	74 days
561	**Part 1 - CH1372 to CH1386**	**102 days**	**102 days**	**NA**	**NA**	**July 7, 2021**	**November 5, 2021**	**July 7, 2021**	**November 9, 2021**	**0%**	**0 days**		**0 days**
562	**Bridge deck between CH1351-1386**	**64 days**	**64 days**	**NA**	**NA**	**July 7, 2021**	**September 19, 20...**	**July 7, 2021**	**September 20, 20...**	**0%**	**0 days**		**0 days**
563	Falsework erection	7 days	7 days	NA	NA	July 7, 2021	July 14, 2021	July 7, 2021	July 14, 2021	0%	0 days	0 days	0 days
564	Structure deck	28 days	28 days	NA	NA	July 15, 2021	August 16, 2021	July 15, 2021	August 16, 2021	0%	0 days	1 days	0 days
565	Prestressing	15 days	15 days	NA	NA	September 2, 2021	September 19, 2021	September 2, 2021	September 20, 2021	0%	0 days	1 days	0 days
566	Median barrier, utility through, parapet	24 days	24 days	NA	NA	September 20, 2021	October 20, 2021	September 20, 2021	October 20, 2021	0%	0 days	1 days	0 days
567	Utility ducting laying (by others)	14 days	14 days	NA	NA	October 21, 2021	November 5, 2021	October 25, 2021	November 9, 2021	0%	0 days	1 days	3 days
568	Street furniture	14 days	14 days	NA	NA	October 21, 2021	November 5, 2021	October 21, 2021	November 5, 2021	0%	0 days	1 days	0 days
569	**Part 1 - CH1386 to CH1394 South Abutment**	**210 days**	**210 days**	**NA**	**NA**	**October 19, 2020**	**July 6, 2021**	**October 19, 2020**	**July 6, 2021**	**0%**	**0 days**		**0 days**
570	Pre-drilling Works	14 days	14 days	NA	NA	October 19, 2020	November 1, 2020	October 19, 2020	November 1, 2020	0%	0 days	1 days	0 days
571	Bored pile (8 numbers) @ CH1386. Prod. Rate: 12d/pile/rig.	96 days	96 days	NA	NA	November 2, 2020	February 27, 2021	November 2, 2020	February 27, 2021	0%	0 days	1 days	0 days
572	Pile Testing	30 days	30 days	NA	NA	March 1, 2021	April 7, 2021	March 1, 2021	April 7, 2021	0%	0 days	1 days	0 days
573	Proof-drilling Works	7 days	7 days	NA	NA	February 28, 2021	March 6, 2021	April 1, 2021	April 7, 2021	0%	32 days	0 days	32 days
574	Pile Loading Test	14 days	14 days	NA	NA	April 8, 2021	April 21, 2021	April 8, 2021	April 21, 2021	0%	0 days	1 days	0 days
575	Drive sheetpile (~900m) Prod. Rate: 10m/d/team	9 days	9 days	NA	NA	March 1, 2021	March 10, 2021	April 12, 2021	April 21, 2021	0%	33 days	0 days	33 days
576	Excavation ~1,344m3 & lateral support. Prod. Rate: 160m3/day/team	9 days	9 days	NA	NA	April 22, 2021	May 3, 2021	April 22, 2021	May 3, 2021	0%	0 days	1 days	0 days
577	Blinding layer	1 day	1 day	NA	NA	May 4, 2021	May 4, 2021	May 4, 2021	May 4, 2021	0%	0 days	0 days	0 days
578	Base Slab	12 days	12 days	NA	NA	May 5, 2021	May 19, 2021	May 5, 2021	May 20, 2021	0%	0 days	0 days	0 days
579	Wall (3.85m thk). Prod. Rate: 18d/bay/team	18 days	18 days	NA	NA	May 20, 2021	June 9, 2021	May 20, 2021	June 9, 2021	0%	0 days	1 days	0 days
580	Wall (0.5m thk)	14 days	14 days	NA	NA	June 10, 2021	June 27, 2021	June 10, 2021	June 28, 2021	0%	0 days	1 days	0 days
581	Install bridge bearing	7 days	7 days	NA	NA	June 28, 2021	July 6, 2021	June 28, 2021	July 6, 2021	0%	0 days	0 days	0 days
582	**South Approach Ramp - CH1394-1444.7 - Total 8 bays (4 bay/side)**	**682 days**	**682 days**	**NA**	**NA**	**October 21, 2019**	**February 7, 2022**	**August 11, 2020**	**March 1, 2022**	**0%**	**19 days**		**19 days**
583	Ground Monitoring Works	14 days	14 days	NA	NA	October 21, 2019	November 3, 2019	August 11, 2020	August 24, 2020	0%	187 days	0 days	295 days
584	Mobilization of plant and materials	10 days	10 days	NA	NA	May 9, 2020	May 20, 2020	August 25, 2020	September 4, 2020	0%	0 days	0 days	90 days
585	Foundation Construction	90 days	90 days	NA	NA	May 21, 2020	September 4, 2020	September 5, 2020	December 22, 2020	0%	0 days	1 day	90 days
586	Drive sheetpile (~240m) Prod. Rate: 10m/d/team	24 days	24 days	NA	NA	September 5, 2020	October 5, 2020	December 23, 2020	January 22, 2021	0%	0 days	0.5 days	90 days
587	Excavation ~2,688m3 & lateral support. Prod. Rate: 160m3/day/team	18 days	18 days	NA	NA	October 6, 2020	October 27, 2020	January 23, 2021	February 16, 2021	0%	0 days	0 days	90 days
588	Blinding layer. Prod. Rate: 2bays/day	4 days	4 days	NA	NA	October 28, 2020	October 31, 2020	February 17, 2021	February 20, 2021	0%	0 days	0 days	90 days
589	Base Slab Prod. Rate: 8d/bay/team	64 days	64 days	NA	NA	November 2, 2020	January 18, 2021	February 22, 2021	May 11, 2021	0%	0 days	1 day	90 days
590	Wall. Prod. Rate: 12d/bay/team	96 days	96 days	NA	NA	January 19, 2021	May 18, 2021	May 12, 2021	September 3, 2021	0%	0 days	1 day	90 days
591	Backfilling ~4,765.89m3 within approach ramp to formation level (160m3/day) considered time for SRT	30 days	30 days	NA	NA	May 20, 2021	June 24, 2021	September 4, 2021	October 11, 2021	0%	0 days	0.5 days	90 days
592	Placing of precast planting channel along approach ramp	24 days	24 days	NA	NA	November 6, 2021	December 3, 2021	November 6, 2021	December 3, 2021	0%	0 days	1 days	0 days
593	Utility ducting laying (by others)	24 days	24 days	NA	NA	November 6, 2021	December 3, 2021	November 10, 2021	December 7, 2021	0%	0 days	1 days	3 days
594	Construct pedestrian street/ footpath	5 days	5 days	NA	NA	December 4, 2021	December 9, 2021	December 29, 2021	January 4, 2022	0%	0 days	0 days	19 days
595	Install central median	5 days	5 days	NA	NA	December 10, 2021	December 15, 2021	January 5, 2022	January 10, 2022	0%	0 days	0 days	19 days
596	Concrete infill between profile barrier	5 days	5 days	NA	NA	December 16, 2021	December 21, 2021	January 11, 2022	January 15, 2022	0%	0 days	0 days	19 days



Title: Revised Programme-ED/2018/01 with Progress Update as of 22-Sep-19

Critical
Critical Split
Critical Progress
Task
Split
Task Progress
Manual Task
Start-only
Finish-only
Duration-only
Baseline
Baseline Split
Baseline Milestone
Milestone
Summary Progress
Summary
Manual Summary
Project Summary
External Tasks
External Milestone
Inactive Task
Inactive Milestone
Inactive Summary
Deadline
Baseline Summary

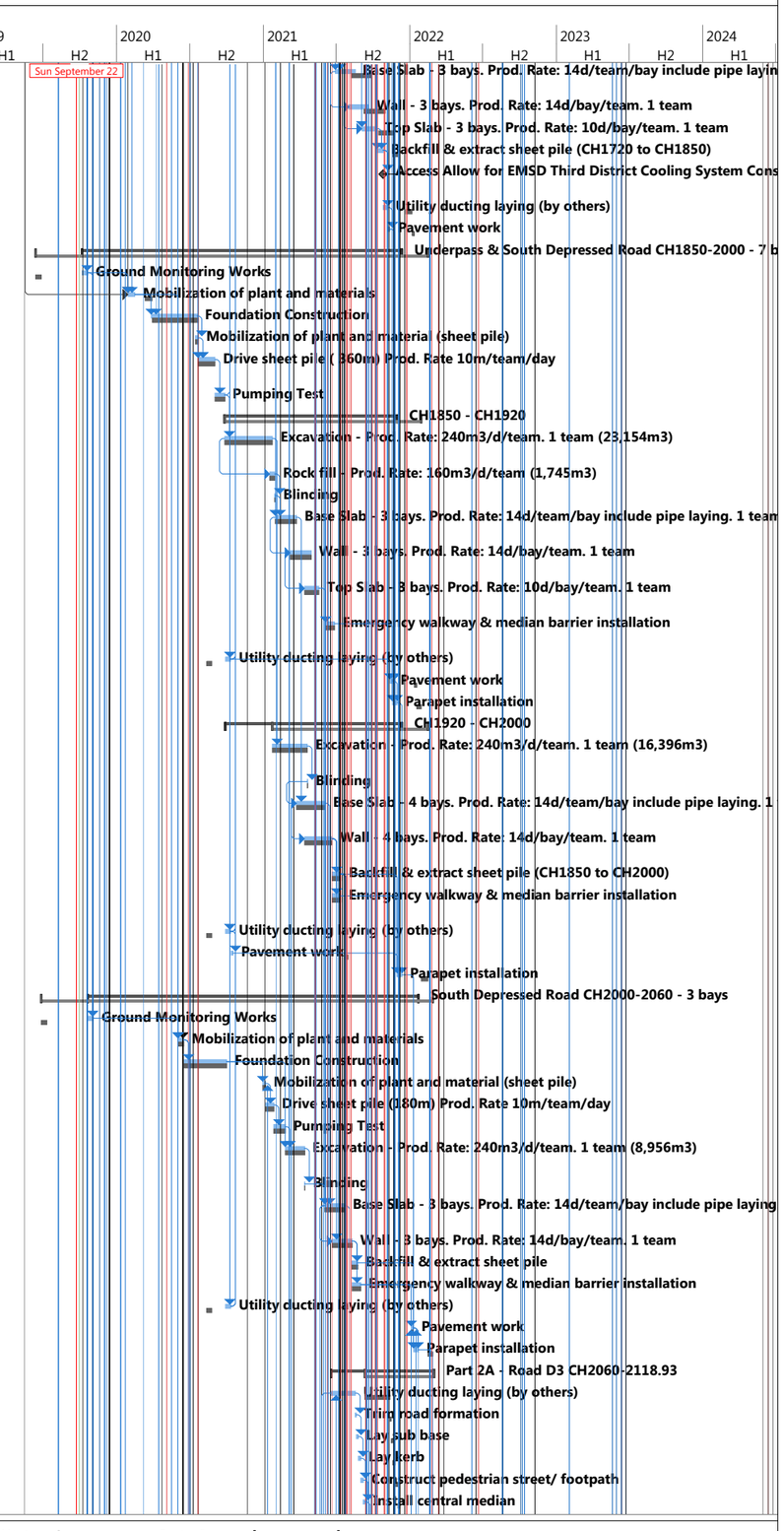
ID	Task Name	Duration	Remaining Duration	Actual Start	Actual Finish	Plan Start	Plan Finish	Late Start	Late Finish	Physical % Complete	Free Slack	Time Risk Allowances (TRA)	Total Slack
597	Lay sub base	4 days	4 days	NA	NA	December 22, 2021	December 28, 2021	January 17, 2022	January 20, 2022	0%	0 days	0 days	19 days
598	Road pavement	7 days	7 days	NA	NA	December 29, 2021	January 6, 2022	January 21, 2022	January 28, 2022	0%	0 days	0 days	19 days
599	Install railing on top of retaining wall	24 days	24 days	NA	NA	January 7, 2022	February 7, 2022	January 29, 2022	March 1, 2022	0%	19 days	0.5 days	19 days
600	**Part 1 - Road D3 CH1444.7-1560**	**69 days**	**69 days**	**NA**	**NA**	**December 4, 2021**	**March 1, 2022**	**December 4, 2021**	**March 1, 2022**	**0%**	**0 days**		**0 days**
601	Trim road formation	3 days	3 days	NA	NA	December 4, 2021	December 7, 2021	December 4, 2021	December 7, 2021	0%	0 days	0 days	0 days
602	Utility ducting laying (by others)	14 days	14 days	NA	NA	December 8, 2021	December 23, 2021	December 8, 2021	December 23, 2021	0%	0 days	1 days	0 days
603	Lay sub base	12 days	12 days	NA	NA	December 24, 2021	January 10, 2022	December 24, 2021	January 10, 2022	0%	0 days	0 days	0 days
604	Lay kerb	7 days	7 days	NA	NA	January 11, 2022	January 18, 2022	January 11, 2022	January 18, 2022	0%	0 days	0 days	0 days
605	Construct pedestrian street/ footpath	10 days	10 days	NA	NA	January 19, 2022	January 30, 2022	January 19, 2022	January 31, 2022	0%	0 days	0 days	0 days
606	Install central median	7 days	7 days	NA	NA	January 31, 2022	February 10, 2022	January 31, 2022	February 10, 2022	0%	0 days	0 days	0 days
607	Concrete infill between profile barrier	5 days	5 days	NA	NA	February 11, 2022	February 16, 2022	February 11, 2022	February 16, 2022	0%	0 days	0 days	0 days
608	Road pavement	5 days	5 days	NA	NA	February 17, 2022	February 22, 2022	February 17, 2022	February 22, 2022	0%	0 days	0 days	0 days
609	Install street furniture	6 days	6 days	NA	NA	February 23, 2022	March 1, 2022	February 23, 2022	March 1, 2022	0%	0 days	0 days	0 days
610	**Underpass and Depressed Road**	**739 days**	**733.65 days**	**September 3, 2019**	**NA**	**September 3, 2019**	**March 1, 2022**	**September 3, 2019**	**May 29, 2024**	**0%**	**668 days**		**668 days**
611	**North Depressed Rd (CH1560-1720) - 8 bays**	**413 days**	**401.77 days**	**September 3, 2019**	**NA**	**September 3, 2019**	**January 22, 2021**	**September 3, 2019**	**March 1, 2022**	**0%**	**326 days**		**326 days**
612	Ground Monitoring Works	17 days	0 days	September 3, 2019	September 19, 2019	September 3, 2019	September 19, 2019	September 3, 2019	September 19, 2019	100%	0 days	2 days	0 days
613	Mobilization	7 days	7 days	NA	NA	October 8, 2019	October 15, 2019	June 15, 2020	June 22, 2020	0%	0 days	0 days	203 days
614	Complete the Diveration of Existing Overhang Cable along the North Depressed Rd	0 days	0 days	NA	NA	October 15, 2019	October 15, 2019	June 23, 2020	June 23, 2020	0%	1 day		252 days
615	Drive Sheet Pile (380m) Prod. Rate 10m/team/day	38 days	38 days	NA		October 16, 2019	November 28, 2019	June 23, 2020	August 7, 2020	0%	0 days	1 days	203 days
616	Pumping Test	21 days	21 days	NA	NA	November 29, 2019	December 23, 2019	August 8, 2020	September 1, 2020	0%	0 days	1 days	203 days
617	**CH1560 - CH1640**	**264 days**	**264 days**	**NA**	**NA**	**December 24, 2019**	**November 14, 2020**	**September 2, 2020**	**December 16, 2021**	**0%**	**203 days**		**203 days**
618	Excavation - Prod Rate: 240m3/d/team. (~26,663m3). 1 team	112 days	112 days	NA	NA	December 24, 2019	May 15, 2020	September 2, 2020	January 16, 2021	0%	0 days	1 days	203 days
619	Rock fill - Prod. Rate: 160m3/d/team (1,807m3)	12 days	12 days	NA	NA	May 14, 2020	May 27, 2020	January 15, 2021	January 28, 2021	0%	0 days	1 days	203 days
620	Blinding	1 day	1 day	NA	NA	May 28, 2020	May 28, 2020	January 29, 2021	January 29, 2021	0%	0 days	0 days	203 days
621	Base Slab - 4 bays. Prod. Rate: 14d/team/bay include pipe laying. 1 team	56 days	56 days	NA	NA	May 29, 2020	August 4, 2020	January 30, 2021	April 12, 2021	0%	0 days	3 days	203 days
622	Wall - 4 bays. Prod. Rate: 14d/bay/team. 1 team	56 days	56 days	NA	NA	July 3, 2020	September 5, 2020	June 26, 2021	August 31, 2021	0%	0 days	3 days	292 days
623	Emergency walkway & median barrier installation	18 days	18 days	NA	NA	September 7, 2020	September 26, 2020	October 11, 2021	November 1, 2021	0%	0 days	0 days	324 days
624	Utility ducting laying (by others)	10 days	10 days	NA	NA	September 28, 2020	October 10, 2020	November 2, 2021	November 12, 2021	0%	0 days	0 days	324 days
625	Pavement work	5 days	5 days	NA	NA	October 12, 2020	October 16, 2020	November 13, 2021	November 18, 2021	0%	0 days	0 days	324 days
626	Parapet installation	24 days	24 days	NA	NA	October 17, 2020	November 14, 2020	November 19, 2021	December 16, 2021	0%	32 days	0.5 days	324 days
627	**CH1640 - CH1720**	**208 days**	**208 days**	**NA**	**NA**	**May 16, 2020**	**January 22, 2021**	**January 18, 2021**	**March 1, 2022**	**0%**	**203 days**		**203 days**
628	Excavation - Prod Rate: 240m3/d/team. 1 team (10,926m3) (Remaining)	46 days	46 days	NA	NA	May 16, 2020	July 10, 2020	January 18, 2021	March 15, 2021	0%	0 days	1 days	203 days
629	Rock fill - Prod. Rate: 160m3/d/team (2,203m3)	20 days	20 days	NA	NA	July 11, 2020	August 3, 2020	March 16, 2021	April 10, 2021	0%	0 days	1 days	203 days
630	Blinding	1 day	1 day	NA	NA	August 4, 2020	August 4, 2020	April 12, 2021	April 12, 2021	0%	0 days	0 days	203 days
631	Base Slab - 4 bays . Prod. Rate: 14d/team/bay include pipe laying. 1 team	56 days	56 days	NA	NA	August 5, 2020	October 10, 2020	April 13, 2021	June 19, 2021	0%	0 days	2 days	203 days
632	Wall - 4 bays. Prod. Rate: 14d/bay/team. 1 team	56 days	56 days	NA	NA	September 7, 2020	November 13, 2020	September 1, 2021	November 8, 2021	0%	0 days	2 days	292 days
633	Backfill & extract sheet pile (CH1560 to CH1720)	12 days	12 days	NA	NA	November 14, 2020	November 27, 2020	December 3, 2021	December 16, 2021	0%	21 days	1 day	313 days
634	Access Allow for EMSD Third District Cooling System Constractor for CH1560-CH1720 Pipe Laying	0 days	0 days	NA	NA	November 27, 2020	November 27, 2020	March 1, 2022	March 1, 2022	0%	459 days		459 days
635	Emergency walkway & median barrier installation	18 days	18 days	NA	NA	November 14, 2020	December 4, 2020	November 9, 2021	November 29, 2021	0%	0 days	0 days	292 days
636	Utility ducting laying (by others)	10 days	10 days	NA	NA	December 5, 2020	December 16, 2020	November 30, 2021	December 10, 2021	0%	0 days	0 days	292 days
637	Pavement work	5 days	5 days	NA	NA	December 17, 2020	December 22, 2020	December 11, 2021	December 16, 2021	0%	0 days	0 days	292 days
638	Parapet installation	24 days	24 days	NA	NA	December 23, 2020	January 22, 2021	December 17, 2021	January 17, 2022	0%	243 days	0.5 days	292 days
639	**Underpass (CH1720-1850) - 7 bays**	**635 days**	**635 days**	**NA**	**NA**	**September 23, 20...**	**November 11, 2021**	**March 19, 2020**	**May 29, 2024**	**0%**	**145 days**		**145 days**
640	Ground Monitoring Works	14 days	14 days	NA	NA	September 23, 2019	October 6, 2019	March 19, 2020	April 1, 2020	0%	0 days	0 days	178 days
641	Drive sheet pile (330m) Prod. Rate 10m/team/day	33 days	33 days	NA	NA	November 29, 2019	January 9, 2020	September 26, 2020	November 6, 2020	0%	212 days	0 days	245 days
642	Pumping Test	21 days	21 days	NA	NA	September 26, 2020	October 22, 2020	November 7, 2020	December 1, 2020	0%	0 days	1 days	33 days
643	**CH1720 - CH1800**	**255 days**	**255 days**	**NA**	**NA**	**September 28, 20...**	**August 9, 2021**	**December 2, 2020**	**May 29, 2024**	**0%**	**53 days**		**53 days**
644	Excavation - Prod Rate: 240m3/d/team. 1 team (27,220m3)	114 days	114 days	NA	NA	October 23, 2020	March 12, 2021	December 2, 2020	April 23, 2021	0%	0 days	5 days	33 days
645	Rock fill - Prod. Rate: 160m3/d/team (1,944m3)	13 days	13 days	NA	NA	March 3, 2021	March 17, 2021	June 3, 2021	June 18, 2021	0%	0 days	0 days	74 days
646	Blinding	1 day	1 day	NA	NA	March 18, 2021	March 18, 2021	June 19, 2021	June 19, 2021	0%	0 days	0 days	74 days
647	Base Slab - 4 bays. Prod. Rate: 14d/team/bay include pipe laying. 1 team	56 days	56 days	NA	NA	March 19, 2021	May 28, 2021	June 21, 2021	August 25, 2021	0%	0 days	1 day	74 days
648	Wall - 4 bays. Prod. Rate: 14d/bay/team. 1 team	56 days	56 days	NA	NA	April 24, 2021	July 2, 2021	August 12, 2021	October 19, 2021	0%	0 days	1 day	90 days
649	Top Slab - 4 bays. Prod. Rate: 10d/bay/team. 1 team	40 days	40 days	NA	NA	May 29, 2021	July 16, 2021	September 14, 2021	November 2, 2021	0%	41 days	0.5 days	90 days
650	Emergency walkway & median barrier installation	18 days	18 days	NA	NA	July 20, 2021	August 9, 2021	May 8, 2024	May 29, 2024	0%	834 days	0 days	834 days
651	Utility ducting laying (by others)	10 days	10 days	NA	NA	September 28, 2020	October 10, 2020	November 2, 2021	November 12, 2021	0%	0 days	0 days	324 days
652	Pavement work	5 days	5 days	NA	NA	October 12, 2020	October 16, 2020	December 2, 2021	December 7, 2021	0%	291 days	0 days	340 days
653	**CH1800 - CH1850**	**199 days**	**199 days**	**NA**	**NA**	**March 13, 2021**	**November 11, 2021**	**April 24, 2021**	**March 1, 2022**	**0%**	**33 days**		**33 days**
654	Excavation - Prod. Rate: 240m3/d/team. 1 team (19,656m3)	82 days	82 days	NA	NA	March 13, 2021	June 23, 2021	April 24, 2021	August 2, 2021	0%	0 days	1 days	33 days
655	Rock fill - Prod. Rate: 160m3/d/team (1,525m3)	10 days	10 days	NA	NA	June 16, 2021	June 26, 2021	July 26, 2021	August 5, 2021	0%	0 days	1 days	33 days
656	Blinding	1 day	1 day	NA	NA	June 28, 2021	June 28, 2021	August 6, 2021	August 6, 2021	0%	0 days	0 days	33 days



Title: Revised Programme-ED/2018/01 with Progress Update as of 22-Sep-19

Critical, Critical Split, Critical Progress, Task, Split, Task Progress, Manual Task, Start-only, Finish-only, Duration-only, Baseline, Baseline Split, Baseline Milestone, Milestone, Summary Progress, Summary, Manual Summary, Project Summary, External Tasks, External Milestone, Inactive Task, Inactive Milestone, Inactive Summary, Deadline, Baseline Summary

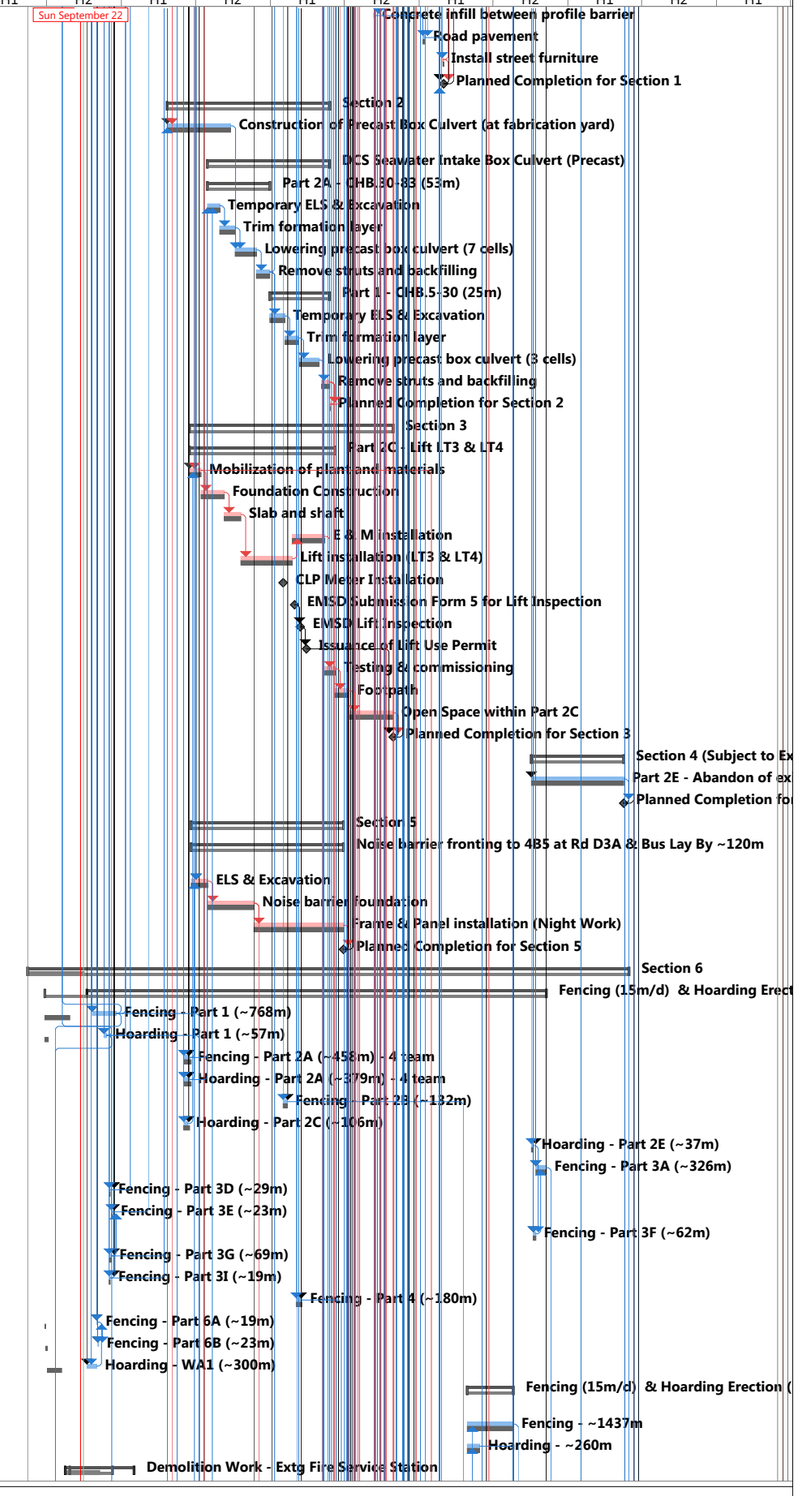
ID	Task Name	Duration	Remaining Duration	Actual Start	Actual Finish	Plan Start	Plan Finish	Late Start	Late Finish	Physical % Complete	Free Slack	Time Risk Allowances (TRA)	Total Slack
657	Base Slab - 3 bays. Prod. Rate: 14d/team/bay include pipe laying. 1 team	42 days	42 days	NA	NA	June 29, 2021	August 17, 2021	August 26, 2021	October 16, 2021	0%	0 days	2 days	49 days
658	Wall - 3 bays. Prod. Rate: 14d/bay/team. 1 team	42 days	42 days	NA	NA	August 2, 2021	September 18, 2021	September 29, 2021	November 18, 2021	0%	0 days	1 days	49 days
659	Top Slab - 3 bays. Prod. Rate: 10d/bay/team. 1 team	30 days	30 days	NA	NA	September 3, 2021	October 9, 2021	November 3, 2021	December 7, 2021	0%	0 days	1 days	49 days
660	Backfill & extract sheet pile (CH1720 to CH1850)	12 days	12 days	NA	NA	October 11, 2021	October 25, 2021	December 8, 2021	December 21, 2021	0%	0 days	0 days	49 days
661	Access Allow for EMSD Third District Cooling System Constractor for CH1720-CH1850 Pipe Laying	0 days	0 days	NA	NA	October 25, 2021	October 25, 2021	March 1, 2022	March 1, 2022	0%	127 days		127 days
662	Utility ducting laying (by others)	10 days	10 days	NA	NA	October 26, 2021	November 5, 2021	December 22, 2021	January 5, 2022	0%	0 days	1 day	49 days
663	Pavement work	5 days	5 days	NA	NA	November 6, 2021	November 11, 2021	January 6, 2022	January 11, 2022	0%	0 days	1 day	49 days
664	**Underpass & South Depressed Road CH1850-2000 - 7 bays**	**650 days**	**650 days**	**NA**	**NA**	**October 7, 2019**	**December 11, 2021**	**April 2, 2020**	**February 14, 2022**	**0%**	**49 days**		**49 days**
665	Ground Monitoring Works	14 days	14 days	NA	NA	October 7, 2019	October 20, 2019	April 2, 2020	April 15, 2020	0%	0 days	0 days	178 days
666	Mobilization of plant and materials	15 days	15 days	NA	NA	January 29, 2020	February 14, 2020	April 16, 2020	May 5, 2020	0%	35 days	0 days	63 days
667	Foundation Construction	90 days	90 days	NA	NA	March 27, 2020	July 18, 2020	May 6, 2020	August 20, 2020	0%	0 days	1 day	28 days
668	Mobilization of plant and material (sheet pile)	6 days	6 days	NA	NA	July 15, 2020	July 21, 2020	August 17, 2020	August 22, 2020	0%	0 days	0 days	28 days
669	Drive sheet pile (360m) Prod. Rate 10m/team/day	36 days	36 days	NA	NA	July 22, 2020	September 1, 2020	August 24, 2020	October 6, 2020	0%	0 days	0.5 days	28 days
670	Pumping Test	21 days	21 days	NA	NA	September 2, 2020	September 25, 2020	October 7, 2020	October 31, 2020	0%	0 days	0 days	28 days
671	**CH1850 - CH1920**	**349 days**	**349 days**	**NA**	**NA**	**September 26, 20...**	**November 29, 2021**	**November 2, 2020**	**January 28, 2022**	**0%**	**28 days**		**28 days**
672	Excavation - Prod. Rate: 240m3/d/team. 1 team (23,154m3)	96 days	96 days	NA	NA	September 26, 2020	January 22, 2021	November 2, 2020	February 27, 2021	0%	0 days	1 day	28 days
673	Rock fill - Prod. Rate: 160m3/d/team (1,745m3)	11 days	11 days	NA	NA	January 16, 2021	January 28, 2021	February 22, 2021	March 5, 2021	0%	0 days	0 days	28 days
674	Blinding	1 day	1 day	NA	NA	January 29, 2021	January 29, 2021	March 6, 2021	March 6, 2021	0%	0 days	0 days	28 days
675	Base Slab - 3 bays. Prod. Rate: 14d/team/bay include pipe laying. 1 team	42 days	42 days	NA	NA	January 30, 2021	March 23, 2021	March 8, 2021	April 28, 2021	0%	0 days	0.5 days	28 days
676	Wall - 3 bays. Prod. Rate: 14d/bay/team. 1 team	42 days	42 days	NA	NA	March 8, 2021	April 28, 2021	September 29, 2021	November 18, 2021	0%	0 days	0.5 days	168 days
677	Top Slab - 3 bays. Prod. Rate: 10d/bay/team. 1 team	30 days	30 days	NA	NA	April 13, 2021	May 18, 2021	November 3, 2021	December 7, 2021	0%	0 days	0.5 days	168 days
678	Emergency walkway & median barrier installation	18 days	18 days	NA	NA	June 5, 2021	June 26, 2021	December 24, 2021	January 17, 2022	0%	119 days	0 days	168 days
679	Utility ducting laying (by others)	10 days	10 days	NA	NA	September 28, 2020	October 10, 2020	November 2, 2021	November 12, 2021	0%	0 days	0 days	324 days
680	Pavement work	5 days	5 days	NA	NA	November 12, 2021	November 17, 2021	January 12, 2022	January 17, 2022	0%	0 days	0 days	49 days
681	Parapet installation	10 days	10 days	NA	NA	November 18, 2021	November 29, 2021	January 18, 2022	January 28, 2022	0%	0 days	0 days	49 days
682	**CH1920 - CH2000**	**359 days**	**359 days**	**NA**	**NA**	**September 28, 20...**	**December 11, 2021**	**April 14, 2021**	**February 14, 2022**	**0%**	**49 days**		**49 days**
683	Excavation - Prod. Rate: 240m3/d/team. 1 team (16,396m3)	68 days	68 days	NA	NA	January 23, 2021	April 19, 2021	April 14, 2021	July 6, 2021	0%	0 days	1 day	63 days
684	Blinding	1 day	1 day	NA	NA	April 20, 2021	April 20, 2021	July 7, 2021	July 7, 2021	0%	0 days	0 days	63 days
685	Base Slab - 4 bays. Prod. Rate: 14d/team/bay include pipe laying. 1 team	56 days	56 days	NA	NA	March 24, 2021	June 2, 2021	April 29, 2021	July 7, 2021	0%	0 days	1 day	28 days
686	Wall - 4 bays. Prod. Rate: 14d/bay/team. 1 team	56 days	56 days	NA	NA	April 13, 2021	June 19, 2021	July 10, 2021	September 13, 2021	0%	0 days	1 day	72 days
687	Backfill & extract sheet pile (CH1850 to CH2000)	18 days	18 days	NA	NA	June 21, 2021	July 12, 2021	September 14, 2021	October 6, 2021	0%	0 days	0 days	72 days
688	Emergency walkway & median barrier installation	18 days	18 days	NA	NA	June 21, 2021	July 12, 2021	January 8, 2022	January 28, 2022	0%	117 days	0 days	166 days
689	Utility ducting laying (by others)	10 days	10 days	NA	NA	September 28, 2020	October 10, 2020	November 2, 2021	November 12, 2021	0%	0 days	0 days	324 days
690	Pavement work	5 days	5 days	NA	NA	October 12, 2020	October 16, 2020	January 24, 2022	January 28, 2022	0%	333 days	0 days	382 days
691	Parapet installation	11 days	11 days	NA	NA	November 30, 2021	December 11, 2021	January 29, 2022	February 14, 2022	0%	21 days	0 days	49 days
692	**South Depressed Road CH2000-2060 - 3 bays**	**671 days**	**671 days**	**NA**	**NA**	**October 21, 2019**	**January 21, 2022**	**May 30, 2020**	**February 26, 2022**	**0%**	**28 days**		**28 days**
693	Ground Monitoring Works	14 days	14 days	NA	NA	October 21, 2019	November 3, 2019	May 30, 2020	June 12, 2020	0%	211 days	0 days	222 days
694	Mobilization of plant and materials	12 days	12 days	NA	NA	June 2, 2020	June 15, 2020	June 13, 2020	June 27, 2020	0%	0 days	0 days	10 days
695	Foundation Construction	90 days	90 days	NA	NA	June 16, 2020	September 30, 2020	December 18, 2020	April 12, 2021	0%	72 days	0.5 days	154 days
696	Mobilization of plant and material (sheet pile)	5 days	5 days	NA	NA	December 30, 2020	January 5, 2021	April 13, 2021	April 17, 2021	0%	0 days	0 days	82 days
697	Drive sheet pile (180m) Prod. Rate 10m/team/day	18 days	18 days	NA	NA	January 6, 2021	January 26, 2021	April 19, 2021	May 10, 2021	0%	0 days	0 days	82 days
698	Pumping Test	21 days	21 days	NA	NA	January 27, 2021	February 23, 2021	May 11, 2021	June 4, 2021	0%	0 days	0 days	82 days
699	Excavation - Prod. Rate: 240m3/d/team. 1 team (8,956m3)	38 days	38 days	NA	NA	February 24, 2021	April 12, 2021	June 5, 2021	July 21, 2021	0%	0 days	0.5 days	82 days
700	Blinding	1 day	1 day	NA	NA	April 13, 2021	April 13, 2021	July 22, 2021	July 22, 2021	0%	41 days	0 days	82 days
701	Base Slab - 3 bays. Prod. Rate: 14d/team/bay include pipe laying. 1 team	40 days	40 days	NA	NA	June 3, 2021	July 21, 2021	July 23, 2021	September 7, 2021	0%	0 days	0.5 days	41 days
702	Wall - 3 bays. Prod. Rate: 14d/bay/team. 1 team	42 days	42 days	NA	NA	June 21, 2021	August 9, 2021	November 24, 2021	January 14, 2022	0%	0 days	0.5 days	130 days
703	Backfill & extract sheet pile	12 days	12 days	NA	NA	August 10, 2021	August 23, 2021	January 28, 2022	February 14, 2022	0%	113 days	0 days	141 days
704	Emergency walkway & median barrier installation	18 days	18 days	NA	NA	August 10, 2021	August 30, 2021	January 15, 2022	February 8, 2022	0%	102 days	0 days	130 days
705	Utility ducting laying (by others)	10 days	10 days	NA	NA	September 28, 2020	October 10, 2020	November 2, 2021	November 12, 2021	0%	0 days	0 days	324 days
706	Pavement work	5 days	5 days	NA	NA	January 4, 2022	January 8, 2022	February 9, 2022	February 14, 2022	0%	0 days	0 days	28 days
707	Parapet installation	11 days	11 days	NA	NA	January 10, 2022	January 21, 2022	February 15, 2022	February 26, 2022	0%	27 days	0 days	28 days
708	**Part 2A - Road D3 CH2060-2118.93**	**208 days**	**208 days**	**NA**	**NA**	**June 19, 2021**	**February 28, 2022**	**November 22, 2021**	**March 1, 2022**	**0%**	**1 day**		**1 day**
709	Utility ducting laying (by others)	50 days	50 days	NA	NA	June 19, 2021	August 17, 2021	November 22, 2021	January 21, 2022	0%	0 days	0 days	129 days
710	Trim road formation	2 days	2 days	NA	NA	August 18, 2021	August 19, 2021	January 22, 2022	January 24, 2022	0%	0 days	0 days	129 days
711	Lay sub base	4 days	4 days	NA	NA	August 20, 2021	August 24, 2021	January 25, 2022	January 28, 2022	0%	0 days	0 days	129 days
712	Lay kerb	5 days	5 days	NA	NA	August 25, 2021	August 30, 2021	January 29, 2022	February 7, 2022	0%	0 days	0 days	129 days
713	Construct pedestrian street/ footpath	6 days	6 days	NA	NA	August 31, 2021	September 6, 2021	February 8, 2022	February 14, 2022	0%	0 days	0 days	129 days
714	Install central median	4 days	4 days	NA	NA	September 7, 2021	September 10, 2021	February 15, 2022	February 18, 2022	0%	0 days	0 days	129 days



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Critical
Critical Split
Critical Progress
Task
Split
Task Progress
Manual Task
Start-only
Finish-only
Duration-only
Baseline
Baseline Split
Baseline Milestone
Milestone
Summary Progress
Summary
Manual Summary
Project Summary
External Tasks
External Milestone
Inactive Task
Inactive Milestone
Inactive Summary
Deadline
Baseline Summary

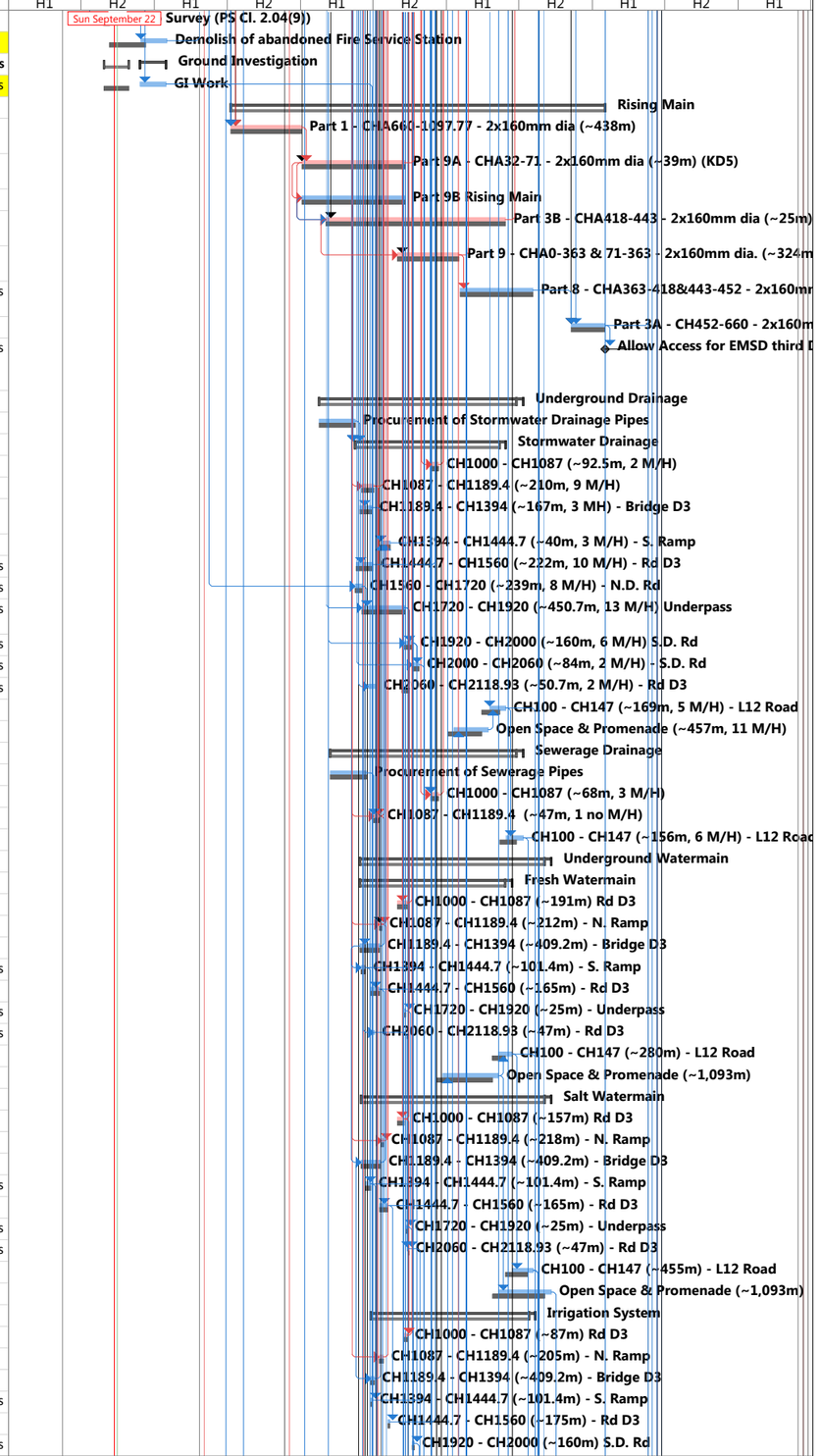
ID	Task Name	Duration	Remaining Duration	Actual Start	Actual Finish	Plan Start	Plan Finish	Late Start	Late Finish	Physical % Complete	Free Slack	Time Risk Allowances (TRA)	Total Slack
715	Concrete infill between profile barrier	2 days	2 days	NA	NA	September 11, 2021	September 13, 2021	February 19, 2022	February 21, 2022	0%	95 days	0 days	129 days
716	Road pavement	5 days	5 days	NA	NA	January 10, 2022	January 14, 2022	February 22, 2022	February 26, 2022	0%	33 days	0 days	34 days
717	Install street furniture	2 days	2 days	NA	NA	February 26, 2022	February 28, 2022	February 28, 2022	March 1, 2022	0%	1 day	0 days	1 day
718	Planned Completion for Section 1	0 days	0 days	NA	NA	March 1, 2022	March 1, 2022	March 1, 2022	March 1, 2022	0%	0 days	0 days	0 days
719	**Section 2**	**325 days**	**325 days**	**NA**	**NA**	**April 22, 2020**	**May 26, 2021**	**May 14, 2020**	**June 2, 2021**	**0%**	**6 days**		**6 days**
720	Construction of Precast Box Culvert (at fabrication yard)	130 days	130 days	NA	NA	April 22, 2020	September 24, 2020	May 14, 2020	October 16, 2020	0%	7 days	1 day	17 days
721	**DCS Seawater Intake Box Culvert (Precast)**	**243 days**	**243 days**	**NA**	**NA**	**July 30, 2020**	**May 25, 2021**	**August 11, 2020**	**June 1, 2021**	**0%**	**6 days**		**6 days**
722	**Part 2A - CHB.30-83 (53m)**	**126 days**	**126 days**	**NA**	**NA**	**July 30, 2020**	**December 29, 2020**	**August 11, 2020**	**January 11, 2021**	**0%**	**10 days**		**10 days**
723	Temporary ELS & Excavation	30 days	30 days	NA	NA	July 30, 2020	August 28, 2020	August 11, 2020	September 9, 2020	0%	0 days	1 days	12 days
724	Trim formation layer	30 days	30 days	NA	NA	August 29, 2020	October 5, 2020	September 10, 2020	October 16, 2020	0%	0 days	1 days	10 days
725	Lowering precast box culvert (7 cells)	44 days	44 days	NA	NA	October 6, 2020	November 26, 2020	October 17, 2020	December 8, 2020	0%	0 days	2 days	10 days
726	Remove struts and backfilling	26 days	26 days	NA	NA	November 27, 2020	December 29, 2020	December 9, 2020	January 11, 2021	0%	0 days	1 days	10 days
727	**Part 1 - CHB.5-30 (25m)**	**117 days**	**117 days**	**NA**	**NA**	**December 30, 2020**	**May 25, 2021**	**January 12, 2021**	**June 1, 2021**	**0%**	**6 days**		**6 days**
728	Temporary ELS & Excavation	31 days	31 days	NA	NA	December 30, 2020	February 4, 2021	January 12, 2021	February 19, 2021	0%	0 days	1 days	10 days
729	Trim formation layer	26 days	26 days	NA	NA	February 5, 2021	March 10, 2021	February 20, 2021	March 22, 2021	0%	0 days	1 days	10 days
730	Lowering precast box culvert (3 cells)	40 days	40 days	NA	NA	March 11, 2021	April 29, 2021	March 23, 2021	May 12, 2021	0%	4 days	2 days	10 days
731	Remove struts and backfilling	16 days	16 days	NA	NA	May 6, 2021	May 25, 2021	May 13, 2021	June 1, 2021	0%	0 days	1 days	6 days
732	Planned Completion for Section 2	1 day	1 day	NA	NA	May 26, 2021	May 26, 2021	June 2, 2021	June 2, 2021	0%	0 days	0 days	6 days
733	**Section 3**	**408 days**	**408 days**	**NA**	**NA**	**June 16, 2020**	**October 28, 2021**	**June 20, 2020**	**May 29, 2024**	**0%**	**4 days**		**4 days**
734	**Part 2C - Lift LT3 & LT4**	**291 days**	**291 days**	**NA**	**NA**	**June 16, 2020**	**June 8, 2021**	**June 20, 2020**	**May 29, 2024**	**0%**	**4 days**		**4 days**
735	Mobilization of plant and materials	22 days	22 days	NA	NA	June 16, 2020	July 13, 2020	June 20, 2020	July 17, 2020	0%	0 days	1 days	4 days
736	Foundation Construction	49 days	49 days	NA	NA	July 14, 2020	September 8, 2020	July 18, 2020	September 12, 2020	0%	0 days	2 days	4 days
737	Slab and shaft	33 days	33 days	NA	NA	September 9, 2020	October 19, 2020	September 14, 2020	October 23, 2020	0%	0 days	1 days	4 days
738	E & M installation	65 days	65 days	NA	NA	February 23, 2021	May 13, 2021	February 27, 2021	May 18, 2021	0%	0 days	3 days	4 days
739	Lift installation (LT3 & LT4)	101 days	101 days	NA	NA	October 20, 2020	February 22, 2021	October 24, 2020	February 26, 2021	0%	0 days	5 days	4 days
740	CLP Meter Installation	0 days	0 days	NA	NA	February 1, 2021	February 1, 2021	May 29, 2024	May 29, 2024	0%	1214 d...		1214 d...
741	EMSD Submission Form 5 for Lift Inspection	0 days	0 days	NA	NA	March 1, 2021	March 1, 2021	October 5, 2021	October 5, 2021	0%	0 days		218 days
742	EMSD Lift Inspection	0 days	0 days	NA	NA	March 14, 2021	March 14, 2021	October 19, 2021	October 19, 2021	0%	0 days		218 days
743	Issuance of Lift Use Permit	0 days	0 days	NA	NA	March 29, 2021	March 29, 2021	November 2, 2021	November 2, 2021	0%	213 days		218 days
744	Testing & commissioning	21 days	21 days	NA	NA	May 14, 2021	June 8, 2021	May 20, 2021	June 12, 2021	0%	0 days	1 days	4 days
745	Footpath	27 days	27 days	NA	NA	June 9, 2021	July 12, 2021	June 15, 2021	July 16, 2021	0%	0 days	1 days	4 days
746	Open Space within Part 2C	90 days	90 days	NA	NA	July 13, 2021	October 28, 2021	July 17, 2021	November 2, 2021	0%	0 days	4 days	4 days
747	Planned Completion for Section 3	0 days	0 days	NA	NA	October 28, 2021	October 28, 2021	November 2, 2021	November 2, 2021	0%	0 days	0 days	4 days
748	**Section 4 (Subject to Excision)**	**185 days**	**185 days**	**NA**	**NA**	**October 3, 2022**	**May 17, 2023**	**October 15, 2022**	**May 30, 2023**	**0%**	**10 days**		**10 days**
749	Part 2E - Abandon of existing DCS	185 days	185 days	NA	NA	October 3, 2022	May 17, 2023	October 15, 2022	May 30, 2023	0%	0 days	9 days	10 days
750	Planned Completion for Section 4	0 days	0 days	NA	NA	May 17, 2023	May 17, 2023	May 30, 2023	May 30, 2023	0%	0 days		10 days
751	**Section 5**	**303 days**	**303 days**	**NA**	**NA**	**June 20, 2020**	**June 28, 2021**	**June 27, 2020**	**July 5, 2021**	**0%**	**5 days**		**5 days**
752	**Noise barrier fronting to 4B5 at Rd D3A & Bus Lay By ~120m**	**303 days**	**303 days**	**NA**	**NA**	**June 20, 2020**	**June 28, 2021**	**June 27, 2020**	**July 5, 2021**	**0%**	**5 days**		**5 days**
753	ELS & Excavation	33 days	33 days	NA	NA	June 20, 2020	July 30, 2020	June 27, 2020	August 5, 2020	0%	0 days	2 days	5 days
754	Noise barrier foundation	94 days	94 days	NA	NA	July 31, 2020	November 20, 2020	August 6, 2020	November 26, 2020	0%	0 days	4 days	5 days
755	Frame & Panel installation (Night Work)	176 days	176 days	NA	NA	November 21, 2020	June 28, 2021	November 27, 2020	July 5, 2021	0%	0 days	8 days	5 days
756	Planned Completion for Section 5	0 days	0 days	NA	NA	June 28, 2021	June 28, 2021	July 5, 2021	July 5, 2021	0%	0 days	0 days	5 days
757	**Section 6**	**1202 days**	**1198.4 days**	**May 16, 2019**	**NA**	**May 16, 2019**	**May 30, 2023**	**May 16, 2019**	**May 29, 2024**	**0%**	**297 days**		**297 days**
758	**Fencing (15m/d) & Hoarding Erection (10m/d)**	**919 days**	**919 days**	**NA**	**NA**	**October 8, 2019**	**November 8, 2022**	**November 9, 2019**	**May 29, 2024**	**0%**	**28 days**		**28 days**
759	Fencing - Part 1 (~768m)	51 days	51 days	NA	NA	October 21, 2019	December 18, 2019	November 9, 2019	January 10, 2020	0%	17 days	1 day	17 days
760	Hoarding - Part 1 (~57m)	6 days	6 days	NA	NA	November 19, 2019	November 25, 2019	January 4, 2020	January 10, 2020	0%	0 days	0 days	37 days
761	Fencing - Part 2A (~458m) - 4 team	12 days	12 days	NA	NA	June 2, 2020	June 15, 2020	June 12, 2020	June 26, 2020	0%	4 days	1 days	9 days
762	Hoarding - Part 2A (~379m) - 4 team	12 days	12 days	NA	NA	June 2, 2020	June 15, 2020	June 12, 2020	June 26, 2020	0%	4 days	1 days	9 days
763	Fencing - Part 2B (~132m)	9 days	9 days	NA	NA	February 1, 2021	February 10, 2021	June 15, 2022	June 24, 2022	0%	347 days	0 days	404 days
764	Hoarding - Part 2C (~106m)	9 days	9 days	NA	NA	June 2, 2020	June 11, 2020	June 10, 2020	June 19, 2020	0%	3 days	1 days	7 days
765	Hoarding - Part 2E (~37m)	4 days	4 days	NA	NA	October 3, 2022	October 7, 2022	January 27, 2023	January 31, 2023	0%	0 days	0 days	95 days
766	Fencing - Part 3A (~326m)	22 days	22 days	NA	NA	October 14, 2022	November 8, 2022	February 7, 2023	March 3, 2023	0%	0 days	0.5 days	95 days
767	Fencing - Part 3D (~29m)	2 days	2 days	NA	NA	December 2, 2019	December 3, 2019	January 21, 2020	January 22, 2020	0%	40 days	0 days	40 days
768	Fencing - Part 3E (~23m)	2 days	2 days	NA	NA	December 7, 2019	December 9, 2019	March 17, 2020	March 18, 2020	0%	70 days	0 days	80 days
769	Fencing - Part 3F (~62m)	5 days	5 days	NA	NA	October 8, 2022	October 13, 2022	February 1, 2023	February 6, 2023	0%	0 days	0 days	95 days
770	Fencing - Part 3G (~69m)	5 days	5 days	NA	NA	December 2, 2019	December 6, 2019	March 11, 2020	March 16, 2020	0%	0 days	0 days	80 days
771	Fencing - Part 3I (~19m)	2 days	2 days	NA	NA	December 2, 2019	December 3, 2019	March 14, 2020	March 16, 2020	0%	3 days	0 days	83 days
772	Fencing - Part 4 (~180m)	12 days	12 days	NA	NA	March 5, 2021	March 18, 2021	June 9, 2021	June 23, 2021	0%	77 days	0 days	77 days
773	Fencing - Part 6A (~19m)	2 days	2 days	NA	NA	November 1, 2019	November 2, 2019	May 25, 2024	May 27, 2024	0%	0 days	0 days	1355 d...
774	Fencing - Part 6B (~23m)	2 days	2 days	NA	NA	November 4, 2019	November 5, 2019	May 28, 2024	May 29, 2024	0%	1355 d...	0 days	1355 d...
775	Hoarding - WA1 (~300m)	21 days	21 days	NA	NA	October 8, 2019	October 31, 2019	April 29, 2024	May 24, 2024	0%	0 days	0.5 days	1355 d...
776	**Fencing (15m/d) & Hoarding Erection (10m/d) - Upon Works Completion**	**95 days**	**95 days**	**NA**	**NA**	**April 29, 2022**	**August 19, 2022**	**July 25, 2022**	**November 15, 2022**	**0%**	**72 days**		**72 days**
777	Fencing - ~1437m	95 days	95 days	NA	NA	April 29, 2022	August 19, 2022	July 25, 2022	November 15, 2022	0%	0 days	1 day	72 days
778	Hoarding - ~260m	26 days	26 days	NA	NA	April 29, 2022	May 28, 2022	October 17, 2022	November 15, 2022	0%	69 days	0.5 days	141 days
779	**Demolition Work - Extg Fire Service Station**	**136 days**	**117.24 days**	**August 16, 2019**	**NA**	**August 16, 2019**	**January 31, 2020**	**August 16, 2019**	**May 13, 2020**	**0%**	**82 days**		**82 days**



Title: Revised Programme-ED/2018/01 with Progress Update as of 22-Sep-19

Critical, Critical Split, Critical Progress, Task, Split, Task Progress, Manual Task, Start-only, Finish-only, Duration-only, Baseline, Baseline Split, Baseline Milestone, Milestone, Summary Progress, Summary, Manual Summary, Project Summary, External Tasks, External Milestone, Inactive Task, Inactive Milestone, Inactive Summary, Deadline, Baseline Summary

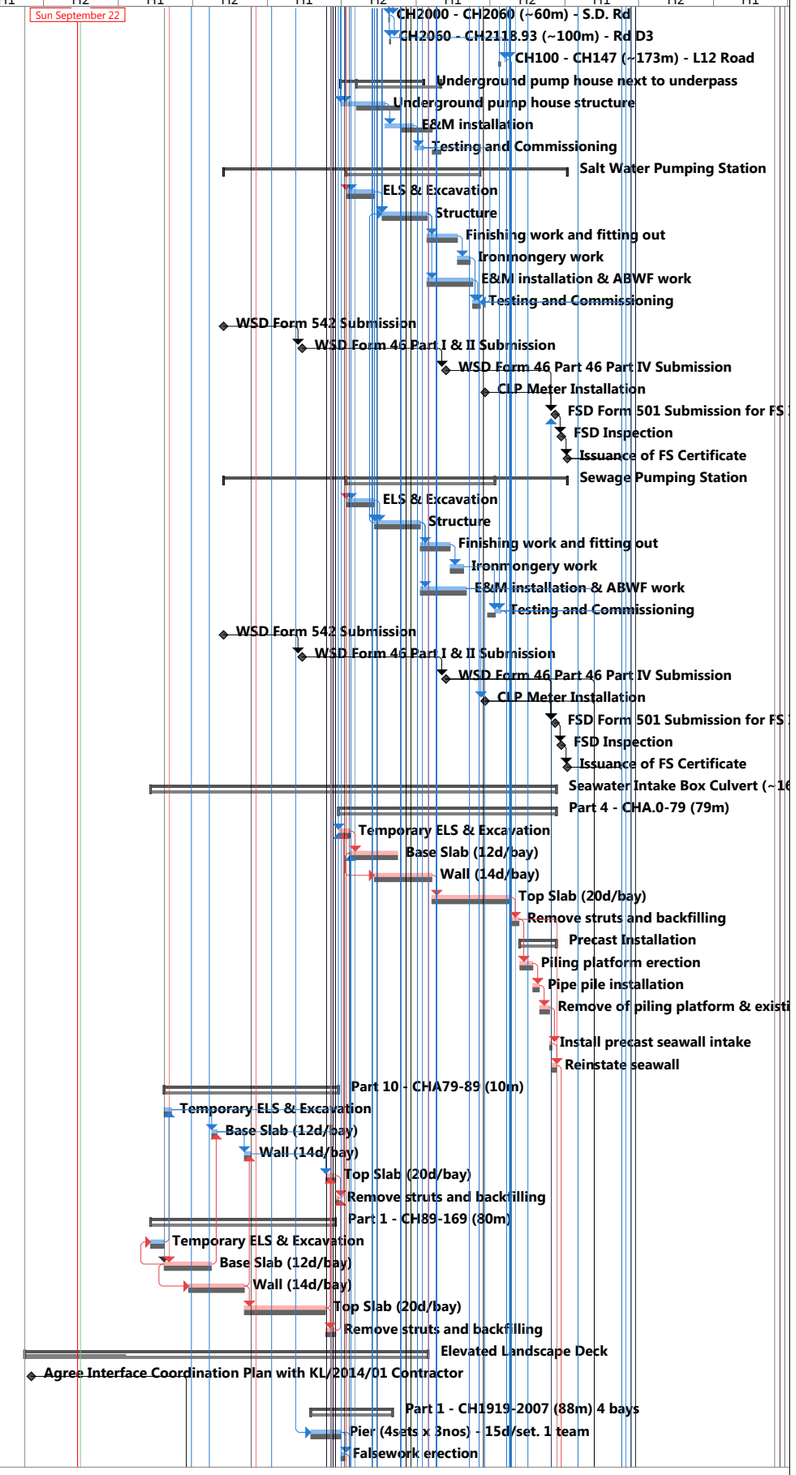
ID	Task Name	Duration	Remaining Duration	Actual Start	Actual Finish	Plan Start	Plan Finish	Late Start	Late Finish	Physical % Complete	Free Slack	Time Risk Allowances (TRA)	Total Slack
780	Asbesto Survey (PS Cl. 2.04(9))	8 days	0 days	August 16, 2019	August 23, 2019	August 16, 2019	August 23, 2019	August 16, 2019	August 23, 2019	100%	0 days	0 days	0 days
781	Demolish of abandoned Fire Service Station	50 days	50 days	NA	NA	November 28, 2019	January 31, 2020	March 10, 2020	May 13, 2020	0%	65 days	1 day	82 days
782	**Ground Investigation**	**50 days**	**50 days**	**NA**	**NA**	**November 26, 2019**	**January 29, 2020**	**May 11, 2020**	**July 9, 2020**	**0%**	**131 days**		**131 days**
783	GI Work	50 days	50 days	NA	NA	November 26, 2019	January 29, 2020	May 11, 2020	July 9, 2020	0%	131 days	0.5 days	131 days
784	**Rising Main**	**765 days**	**765 days**	**NA**	**NA**	**July 10, 2020**	**February 1, 2023**	**July 10, 2020**	**May 30, 2023**	**0%**	**0 days**		**0 days**
785	Part 1 - CHA660-1097.77 - 2x160mm dia (~438m)	146 days	146 days	NA	NA	July 10, 2020	January 2, 2021	July 10, 2020	January 2, 2021	0%	0 days	7 days	0 days
786	Part 9A - CHA32-71 - 2x160mm dia (~39m) (KD5)	211 days	211 days	NA	NA	January 4, 2021	September 17, 2021	January 4, 2021	September 17, 2021	0%	0 days	30 days	0 days
787	Part 9B Rising Main	211 days	211 days	NA	NA	January 4, 2021	September 17, 2021	March 11, 2021	November 23, 2021	0%	49 days	30 days	54 days
788	Part 3B - CHA418-443 - 2x160mm dia (~25m) (KD7)	365 days	365 days	NA	NA	March 5, 2021	May 27, 2022	March 11, 2021	June 2, 2022	0%	0 days	50 days	5 days
789	Part 9 - CHA0-363 & 71-363 - 2x160mm dia. (~324m) (KD4)	126 days	126 days	NA	NA	August 31, 2021	January 31, 2022	August 31, 2021	January 31, 2022	0%	0 days	15 day	0 days
790	Part 8 - CHA363-418&443-452 - 2x160mm dia (~64m)	150 days	150 days	NA	NA	February 4, 2022	August 4, 2022	September 2, 2022	March 3, 2023	0%	79 days	0 days	174 days
791	Part 3A - CH452-660 - 2x160mm dia (~208m)	69 days	69 days	NA	NA	November 9, 2022	February 1, 2023	March 4, 2023	May 30, 2023	0%	0 days	1 day	95 days
792	Allow Access for EMSD third District Cooling System Contractor for DCS Pipeline Laying at Parts 3A, 3B, 8, 9 and 9A	0 days	0 days	NA	NA	February 1, 2023	February 1, 2023	May 30, 2023	May 30, 2023	0%	118 days		118 days
793	**Underground Drainage**	**416 days**	**416 days**	**NA**	**NA**	**February 16, 2021**	**July 11, 2022**	**March 5, 2021**	**September 24, 20...**	**0%**	**15 days**		**15 days**
794	Procurement of Stormwater Drainage Pipes	90 days	90 days	NA	NA	February 16, 2021	May 16, 2021	March 5, 2021	June 2, 2021	0%	0 days		17 days
795	**Stormwater Drainage**	**308 days**	**308 days**	**NA**	**NA**	**May 17, 2021**	**May 28, 2022**	**June 3, 2021**	**September 24, 20...**	**0%**	**14 days**		**14 days**
796	CH1000 - CH1087 (~92.5m, 2 M/H)	16 days	16 days	NA	NA	November 24, 2021	December 11, 2021	November 24, 2021	December 11, 2021	0%	0 days	1 days	0 days
797	CH1087 - CH1189.4 (~210m, 9 M/H)	24 days	24 days	NA	NA	June 3, 2021	July 2, 2021	June 3, 2021	July 2, 2021	0%	0 days	1 days	0 days
798	CH1189.4 - CH1394 (~167m, 3 MH) - Bridge D3	24 days	24 days	NA	NA	May 29, 2021	June 26, 2021	September 11, 2021	October 11, 2021	0%	18 days	0.5 days	88 days
799	CH1394 - CH1444.7 (~40m, 3 M/H) - S. Ramp	21 days	21 days	NA	NA	July 20, 2021	August 12, 2021	October 12, 2021	November 5, 2021	0%	70 days	0 days	70 days
800	CH1444.7 - CH1560 (~222m, 10 M/H) - Rd D3	35 days	35 days	NA	NA	May 20, 2021	June 30, 2021	October 25, 2021	December 3, 2021	0%	130 days	0.5 days	130 days
801	CH1560 - CH1720 (~239m, 8 M/H) - N.D. Rd	14 days	14 days	NA	NA	May 17, 2021	June 2, 2021	April 19, 2022	May 4, 2022	0%	0 days	0 days	273 days
802	CH1720 - CH1920 (~450.7m, 13 M/H) Underpass	90 days	90 days	NA	NA	June 3, 2021	September 17, 2021	May 5, 2022	August 19, 2022	0%	0 days	1 day	273 days
803	CH1920 - CH2000 (~160m, 6 M/H) S.D. Rd	14 days	14 days	NA	NA	September 18, 2021	October 6, 2021	August 20, 2022	September 5, 2022	0%	0 days	0 days	273 days
804	CH2000 - CH2060 (~84m, 2 M/H) - S.D. Rd	14 days	14 days	NA	NA	October 7, 2021	October 23, 2021	September 6, 2022	September 22, 2022	0%	0 days	0 days	273 days
805	CH2060 - CH2118.93 (~50.7m, 2 M/H) - Rd D3	14 days	14 days	NA	NA	June 19, 2021	July 6, 2021	September 8, 2022	September 24, 2022	0%	0 days	0 days	366 days
806	CH100 - CH147 (~169m, 5 M/H) - L12 Road	35 days	35 days	NA	NA	April 19, 2022	May 28, 2022	June 25, 2022	August 5, 2022	0%	0 days	0.5 days	57 days
807	Open Space & Promenade (~457m, 11 M/H)	70 days	70 days	NA	NA	January 19, 2022	April 14, 2022	March 30, 2022	June 24, 2022	0%	0 days	1 day	57 days
808	**Sewerage Drainage**	**392 days**	**392 days**	**NA**	**NA**	**March 16, 2021**	**July 11, 2022**	**April 4, 2021**	**September 16, 20...**	**0%**	**15 days**		**15 days**
809	Procurement of Sewerage Pipes	90 days	90 days	NA	NA	March 16, 2021	June 13, 2021	April 4, 2021	July 2, 2021	0%	19 days		19 days
810	CH1000 - CH1087 (~68m, 3 M/H)	18 days	18 days	NA	NA	November 22, 2021	December 11, 2021	November 22, 2021	December 11, 2021	0%	0 days	1 days	0 days
811	CH1087 - CH1189.4 (~47m, 1 no M/H)	12 days	12 days	NA	NA	July 3, 2021	July 16, 2021	July 3, 2021	July 16, 2021	0%	0 days	1 days	0 days
812	CH100 - CH147 (~156m, 6 M/H) - L12 Road	35 days	35 days	NA	NA	May 30, 2022	July 11, 2022	August 6, 2022	September 16, 2022	0%	0 days	0.5 days	57 days
813	**Underground Watermain**	**392 days**	**392 days**	**NA**	**NA**	**May 29, 2021**	**September 19, 20...**	**July 16, 2021**	**October 14, 2022**	**0%**	**20 days**		**20 days**
814	**Fresh Watermain**	**310 days**	**310 days**	**NA**	**NA**	**May 29, 2021**	**June 13, 2022**	**July 17, 2021**	**September 22, 20...**	**0%**	**40 days**		**40 days**
815	CH1000 - CH1087 (~191m) Rd D3	20 days	20 days	NA	NA	August 31, 2021	September 23, 2021	August 31, 2021	September 23, 2021	0%	0 days	1 days	0 days
816	CH1087 - CH1189.4 (~212m) - N. Ramp	4 days	4 days	NA	NA	July 17, 2021	July 21, 2021	July 17, 2021	July 21, 2021	0%	0 days	0 days	0 days
817	CH1189.4 - CH1394 (~409.2m) - Bridge D3	40 days	40 days	NA	NA	May 29, 2021	July 16, 2021	August 21, 2021	October 8, 2021	0%	0 days	0.5 days	70 days
818	CH1394 - CH1444.7 (~101.4m) - S. Ramp	10 days	10 days	NA	NA	June 1, 2021	June 11, 2021	October 9, 2021	October 21, 2021	0%	0 days	0 days	108 days
819	CH1444.7 - CH1560 (~165m) - Rd D3	18 days	18 days	NA	NA	June 25, 2021	July 16, 2021	October 19, 2021	November 8, 2021	0%	0 days	0 days	95 days
820	CH1720 - CH1920 (~25m) - Underpass	2 days	2 days	NA	NA	September 18, 2021	September 20, 2021	September 19, 2022	September 20, 2022	0%	0 days	0 days	297 days
821	CH2060 - CH2118.93 (~47m) - Rd D3	2 days	2 days	NA	NA	July 2, 2021	July 3, 2021	September 21, 2022	September 22, 2022	0%	69 days	0 days	366 days
822	CH100 - CH147 (~280m) - L12 Road	28 days	28 days	NA	NA	May 11, 2022	June 13, 2022	July 5, 2022	August 5, 2022	0%	0 days	0.5 days	45 days
823	Open Space & Promenade (~1,093m)	110 days	110 days	NA	NA	December 22, 2021	May 10, 2022	January 18, 2022	June 2, 2022	0%	0 days	1 day	20 days
824	**Salt Watermain**	**390 days**	**390 days**	**NA**	**NA**	**June 1, 2021**	**September 19, 20...**	**July 22, 2021**	**October 14, 2022**	**0%**	**20 days**		**20 days**
825	CH1000 - CH1087 (~157m) Rd D3	15 days	15 days	NA	NA	August 31, 2021	September 16, 2021	August 31, 2021	September 16, 2021	0%	0 days	1 days	0 days
826	CH1087 - CH1189.4 (~218m) - N. Ramp	4 days	4 days	NA	NA	July 22, 2021	July 26, 2021	July 22, 2021	July 26, 2021	0%	0 days	0 days	0 days
827	CH1189.4 - CH1394 (~409.2m) - Bridge D3	40 days	40 days	NA	NA	June 1, 2021	July 19, 2021	August 24, 2021	October 11, 2021	0%	0 days	0.5 days	70 days
828	CH1394 - CH1444.7 (~101.4m) - S. Ramp	10 days	10 days	NA	NA	June 12, 2021	June 24, 2021	October 22, 2021	November 2, 2021	0%	0 days	0 days	108 days
829	CH1444.7 - CH1560 (~165m) - Rd D3	18 days	18 days	NA	NA	July 17, 2021	August 6, 2021	November 9, 2021	November 29, 2021	0%	0 days	0 days	95 days
830	CH1720 - CH1920 (~25m) - Underpass	2 days	2 days	NA	NA	September 21, 2021	September 23, 2021	September 21, 2022	September 22, 2022	0%	0 days	0 days	297 days
831	CH2060 - CH2118.93 (~47m) - Rd D3	2 days	2 days	NA	NA	September 24, 2021	September 25, 2021	September 23, 2022	September 24, 2022	0%	24 days	0 days	297 days
832	CH100 - CH147 (~455m) - L12 Road	45 days	45 days	NA	NA	June 14, 2022	August 5, 2022	August 6, 2022	September 28, 2022	0%	0 days	0.5 days	45 days
833	Open Space & Promenade (~1,093m)	110 days	110 days	NA	NA	May 11, 2022	September 19, 2022	June 4, 2022	October 14, 2022	0%	0 days	1 day	20 days
834	**Irrigation System**	**337 days**	**337 days**	**NA**	**NA**	**June 25, 2021**	**August 10, 2022**	**July 16, 2021**	**October 5, 2022**	**0%**	**17 days**		**17 days**
835	CH1000 - CH1087 (~87m) Rd D3	5 days	5 days	NA	NA	September 17, 2021	September 23, 2021	September 17, 2021	September 23, 2021	0%	0 days	0 days	0 days
836	CH1087 - CH1189.4 (~205m) - N. Ramp	9 days	9 days	NA	NA	July 16, 2021	July 26, 2021	July 16, 2021	July 26, 2021	0%	0 days	0 days	0 days
837	CH1189.4 - CH1394 (~409.2m) - Bridge D3	7 days	7 days	NA	NA	June 25, 2021	July 3, 2021	October 4, 2021	October 11, 2021	0%	13 days	0 days	83 days
838	CH1394 - CH1444.7 (~101.4m) - S. Ramp	3 days	3 days	NA	NA	June 25, 2021	June 28, 2021	November 3, 2021	November 5, 2021	0%	108 days	0 days	108 days
839	CH1444.7 - CH1560 (~175m) - Rd D3	4 days	4 days	NA	NA	August 7, 2021	August 11, 2021	November 30, 2021	December 3, 2021	0%	95 days	0 days	95 days
840	CH1920 - CH2000 (~160m) S.D. Rd	4 days	4 days	NA	NA	October 7, 2021	October 11, 2021	September 19, 2022	September 22, 2022	0%	10 days	0 days	283 days



Title: Revised Programme-ED/2018/01 with Progress Update as of 22-Sep-19

Critical
Critical Split
Critical Progress
Task
Split
Task Progress
Manual Task
Start-only
Finish-only
Duration-only
Baseline
Baseline Split
Baseline Milestone
Milestone
Summary Progress
Summary
Manual Summary
Project Summary
External Tasks
External Milestone
Inactive Task
Inactive Milestone
Inactive Summary
Deadline
Baseline Summary

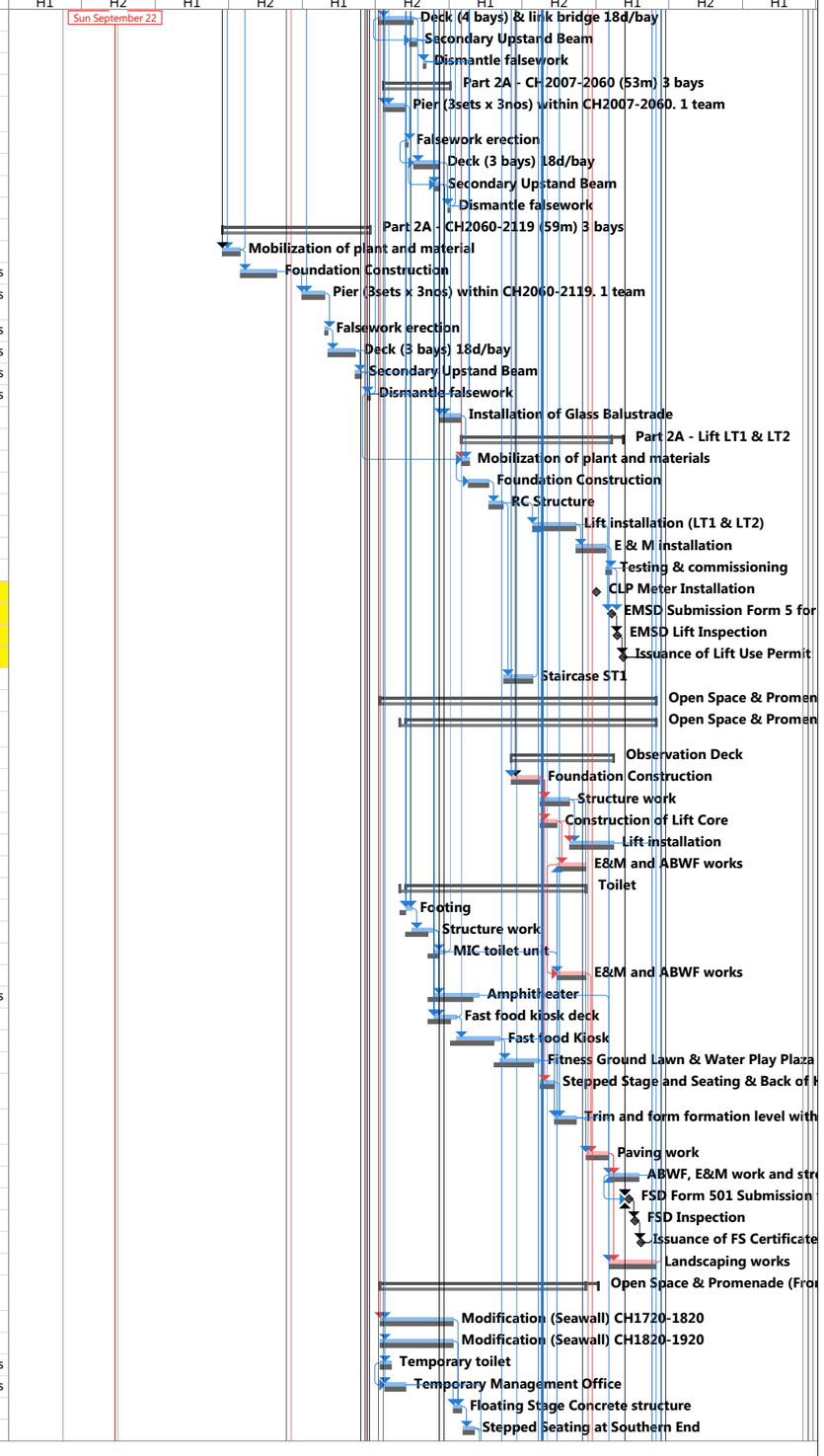
ID	Task Name	Duration	Remaining Duration	Actual Start	Actual Finish	Plan Start	Plan Finish	Late Start	Late Finish	Physical % Complete	Free Slack	Time Risk Allowances (TRA)	Total Slack
841	CH2000 - CH2060 (~60m) - S.D. Rd	2 days	2 days	NA	NA	October 25, 2021	October 26, 2021	September 23, 2022	September 24, 2022	0%	0 days	0 days	273 days
842	CH2060 - CH2118.93 (~100m) - Rd D3	3 days	3 days	NA	NA	October 27, 2021	October 29, 2021	September 26, 2022	September 28, 2022	0%	228 days	0 days	273 days
843	CH100 - CH147 (~173m) - L12 Road	4 days	4 days	NA	NA	August 6, 2022	August 10, 2022	September 29, 2022	October 5, 2022	0%	0 days	0 days	45 days
844	**Underground pump house next to underpass**	**168 days**	**168 days**	**NA**	**NA**	**June 29, 2021**	**January 18, 2022**	**August 7, 2021**	**March 1, 2022**	**0%**	**33 days**		**33 days**
845	Underground pump house structure	90 days	90 days	NA	NA	June 29, 2021	October 15, 2021	August 7, 2021	November 23, 2021	0%	0 days	4 days	33 days
846	E&M installation	60 days	60 days	NA	NA	October 16, 2021	December 24, 2021	November 24, 2021	February 8, 2022	0%	0 days	3 days	33 days
847	Testing and Commissioning	18 days	18 days	NA	NA	December 28, 2021	January 18, 2022	February 9, 2022	March 1, 2022	0%	33 days	1 days	33 days
848	**Salt Water Pumping Station**	**689 days**	**689 days**	**NA**	**NA**	**September 15, 20...**	**January 6, 2023**	**July 23, 2022**	**May 30, 2023**	**0%**	**114 days**		**114 days**
849	ELS & Excavation	60 days	60 days	NA	NA	July 13, 2021	September 20, 2021	July 23, 2022	October 3, 2022	0%	14 days	1 day	307 days
850	Structure	90 days	90 days	NA	NA	October 9, 2021	January 26, 2022	October 5, 2022	January 18, 2023	0%	0 days	1 day	293 days
851	Finishing work and fitting out	60 days	60 days	NA	NA	January 27, 2022	April 11, 2022	January 30, 2023	April 13, 2023	0%	0 days	1 day	299 days
852	Ironmongery work	24 days	24 days	NA	NA	April 12, 2022	May 12, 2022	April 14, 2023	May 12, 2023	0%	6 days	0.5 days	299 days
853	E&M installation & ABWF work	90 days	90 days	NA	NA	January 27, 2022	May 19, 2022	January 19, 2023	May 12, 2023	0%	0 days	1 day	293 days
854	Testing and Commissioning	14 days	14 days	NA	NA	May 20, 2022	June 6, 2022	May 13, 2023	May 30, 2023	0%	293 days	0 days	293 days
855	WSD Form 542 Submission	0 days	0 days	NA	NA	September 15, 2020	September 15, 2020	May 1, 2023	May 1, 2023	0%	193 days		958 days
856	WSD Form 46 Part I & II Submission	0 days	0 days	NA	NA	March 27, 2021	March 27, 2021	May 1, 2023	May 1, 2023	0%	353 days		765 days
857	WSD Form 46 Part 46 Part IV Submission	0 days	0 days	NA	NA	March 15, 2022	March 15, 2022	May 1, 2023	May 1, 2023	0%	268 days		412 days
858	CLP Meter Installation	0 days	0 days	NA	NA	June 19, 2022	June 19, 2022	May 1, 2023	May 1, 2023	0%	172 days		316 days
859	FSD Form 501 Submission for FS Inspection	0 days	0 days	NA	NA	December 8, 2022	December 8, 2022	May 1, 2023	May 1, 2023	0%	0 days		144 days
860	FSD Inspection	0 days	0 days	NA	NA	December 22, 2022	December 22, 2022	May 16, 2023	May 16, 2023	0%	0 days		144 days
861	Issuance of FS Certificate	0 days	0 days	NA	NA	January 6, 2023	January 6, 2023	May 30, 2023	May 30, 2023	0%	144 days		144 days
862	**Sewage Pumping Station**	**689 days**	**689 days**	**NA**	**NA**	**September 15, 20...**	**January 6, 2023**	**November 26, 2021**	**May 30, 2023**	**0%**	**114 days**		**114 days**
863	ELS & Excavation	60 days	60 days	NA	NA	July 13, 2021	September 20, 2021	November 26, 2021	February 10, 2022	0%	0 days	1 day	114 days
864	Structure	90 days	90 days	NA	NA	September 21, 2021	January 10, 2022	February 11, 2022	May 31, 2022	0%	0 days	1 day	114 days
865	Finishing work and fitting out	60 days	60 days	NA	NA	January 11, 2022	March 24, 2022	June 9, 2022	August 18, 2022	0%	0 days	1 day	120 days
866	Ironmongery work	24 days	24 days	NA	NA	March 25, 2022	April 26, 2022	August 19, 2022	September 16, 2022	0%	63 days	0.5 days	120 days
867	E&M installation & ABWF work	90 days	90 days	NA	NA	January 11, 2022	May 3, 2022	June 1, 2022	September 16, 2022	0%	39 days	1 day	114 days
868	Testing and Commissioning	14 days	14 days	NA	NA	July 12, 2022	July 27, 2022	September 17, 2022	October 5, 2022	0%	12 days	0 days	57 days
869	WSD Form 542 Submission	0 days	0 days	NA	NA	September 15, 2020	September 15, 2020	May 1, 2023	May 1, 2023	0%	193 days		958 days
870	WSD Form 46 Part I & II Submission	0 days	0 days	NA	NA	March 27, 2021	March 27, 2021	May 1, 2023	May 1, 2023	0%	353 days		765 days
871	WSD Form 46 Part 46 Part IV Submission	0 days	0 days	NA	NA	March 15, 2022	March 15, 2022	May 1, 2023	May 1, 2023	0%	268 days		412 days
872	CLP Meter Installation	0 days	0 days	NA	NA	June 19, 2022	June 19, 2022	May 1, 2023	May 1, 2023	0%	172 days		316 days
873	FSD Form 501 Submission for FS Inspection	0 days	0 days	NA	NA	December 8, 2022	December 8, 2022	May 1, 2023	May 1, 2023	0%	0 days		144 days
874	FSD Inspection	0 days	0 days	NA	NA	December 22, 2022	December 22, 2022	May 16, 2023	May 16, 2023	0%	0 days		144 days
875	Issuance of FS Certificate	0 days	0 days	NA	NA	January 6, 2023	January 6, 2023	May 30, 2023	May 30, 2023	0%	144 days		144 days
876	**Seawater Intake Box Culvert (~169m)**	**812 days**	**812 days**	**NA**	**NA**	**March 20, 2020**	**December 10, 2022**	**April 22, 2020**	**December 10, 2022**	**0%**	**0 days**		**0 days**
877	**Part 4 - CHA.0-79 (79m)**	**440 days**	**440 days**	**NA**	**NA**	**June 24, 2021**	**December 10, 2022**	**June 24, 2021**	**December 10, 2022**	**0%**	**0 days**		**0 days**
878	Temporary ELS & Excavation	24 days	24 days	NA	NA	June 24, 2021	July 22, 2021	June 24, 2021	July 22, 2021	0%	0 days	1 days	0 days
879	Base Slab (12d/bay)	96 days	96 days	NA	NA	July 23, 2021	November 15, 2021	July 23, 2021	November 15, 2021	0%	0 days	5 days	0 days
880	Wall (14d/bay)	112 days	112 days	NA	NA	September 20, 2021	February 7, 2022	September 20, 2021	February 7, 2022	0%	0 days	5 days	0 days
881	Top Slab (20d/bay)	160 days	160 days	NA	NA	February 8, 2022	August 19, 2022	February 8, 2022	August 19, 2022	0%	0 days	8 days	0 days
882	Remove struts and backfilling	18 days	18 days	NA	NA	August 20, 2022	September 9, 2022	August 20, 2022	September 9, 2022	0%	0 days	1 days	0 days
883	**Precast Installation**	**76 days**	**76 days**	**NA**	**NA**	**September 12, 20...**	**December 10, 2022**	**September 12, 2022**	**December 10, 2022**	**0%**	**0 days**		**0 days**
884	Piling platform erection	26 days	26 days	NA	NA	September 12, 2022	October 13, 2022	September 12, 2022	October 13, 2022	0%	0 days	1 days	0 days
885	Pipe pile installation	14 days	14 days	NA	NA	October 14, 2022	October 29, 2022	October 14, 2022	October 29, 2022	0%	0 days	1 days	0 days
886	Remove of piling platform & existing seawall	21 days	21 days	NA	NA	October 31, 2022	November 23, 2022	October 31, 2022	November 23, 2022	0%	0 days	1 days	0 days
887	Install precast seawall intake	5 days	5 days	NA	NA	November 24, 2022	November 29, 2022	November 24, 2022	November 29, 2022	0%	0 days	0 days	0 days
888	Reinstate seawall	10 days	10 days	NA	NA	November 30, 2022	December 10, 2022	November 30, 2022	December 10, 2022	0%	0 days	0 days	0 days
889	**Part 10 - CHA79-89 (10m)**	**348 days**	**348 days**	**NA**	**NA**	**April 22, 2020**	**June 23, 2021**	**April 1, 2021**	**June 23, 2021**	**0%**	**0 days**		**0 days**
890	Temporary ELS & Excavation	14 days	14 days	NA	NA	April 22, 2020	May 9, 2020	April 1, 2021	April 20, 2021	0%	82 days	0 days	282 days
891	Base Slab (12d/bay)	12 days	12 days	NA	NA	August 17, 2020	August 29, 2020	April 21, 2021	May 5, 2021	0%	54 days	0 days	200 days
892	Wall (14d/bay)	14 days	14 days	NA	NA	November 5, 2020	November 20, 2020	May 6, 2021	May 22, 2021	0%	146 days	0 days	146 days
893	Top Slab (20d/bay)	20 days	20 days	NA	NA	May 24, 2021	June 16, 2021	May 24, 2021	June 16, 2021	0%	0 days	1 days	0 days
894	Remove struts and backfilling	6 days	6 days	NA	NA	June 17, 2021	June 23, 2021	June 17, 2021	June 23, 2021	0%	0 days	0 days	0 days
895	**Part 1 - CH89-169 (80m)**	**366 days**	**366 days**	**NA**	**NA**	**March 20, 2020**	**June 16, 2021**	**April 22, 2020**	**June 16, 2021**	**0%**	**0 days**		**0 days**
896	Temporary ELS & Excavation	24 days	24 days	NA	NA	March 20, 2020	April 21, 2020	March 4, 2021	March 31, 2021	0%	0 days	0.5 days	282 days
897	Base Slab (12d/bay)	96 days	96 days	NA	NA	April 22, 2020	August 15, 2020	April 22, 2020	August 15, 2020	0%	0 days	4 days	0 days
898	Wall (14d/bay)	112 days	112 days	NA	NA	June 22, 2020	November 4, 2020	June 22, 2020	November 4, 2020	0%	0 days	5 days	0 days
899	Top Slab (20d/bay)	160 days	160 days	NA	NA	November 5, 2020	May 22, 2021	November 5, 2020	May 22, 2021	0%	0 days	8 days	0 days
900	Remove struts and backfilling	20 days	20 days	NA	NA	May 24, 2021	June 16, 2021	May 24, 2021	June 16, 2021	0%	0 days	1 days	0 days
901	**Elevated Landscape Deck**	**808 days**	**788.7 days**	**May 16, 2019**	**NA**	**May 16, 2019**	**January 29, 2022**	**May 16, 2019**	**April 23, 2022**	**0%**	**65 days**		**65 days**
902	Agree Interface Coordination Plan with KL/2014/01 Contractor	14 days	0 days	May 16, 2019	May 31, 2019	May 16, 2019	May 31, 2019	May 16, 2019	May 31, 2019	100%	0 days	0 days	0 days
903	**Part 1 - CH1919-2007 (88m) 4 bays**	**165 days**	**165 days**	**NA**	**NA**	**April 17, 2021**	**November 3, 2021**	**May 22, 2021**	**February 8, 2022**	**0%**	**28 days**		**28 days**
904	Pier (4sets x 3nos) - 15d/set. 1 team	60 days	60 days	NA	NA	April 17, 2021	June 29, 2021	May 22, 2021	August 2, 2021	0%	0 days	1 day	28 days
905	Falsework erection	7 days	7 days	NA	NA	June 30, 2021	July 8, 2021	August 3, 2021	August 10, 2021	0%	0 days	0 days	28 days



Title: Revised Programme-ED/2018/01 with Progress Update as of 22-Sep-19

Critical, Critical Split, Critical Progress, Task, Split, Task Progress, Manual Task, Start-only, Finish-only, Duration-only, Baseline, Baseline Split, Baseline Milestone, Milestone, Summary Progress, Summary, Manual Summary, Project Summary, External Tasks, External Milestone, Inactive Task, Inactive Milestone, Inactive Summary, Deadline, Baseline Summary

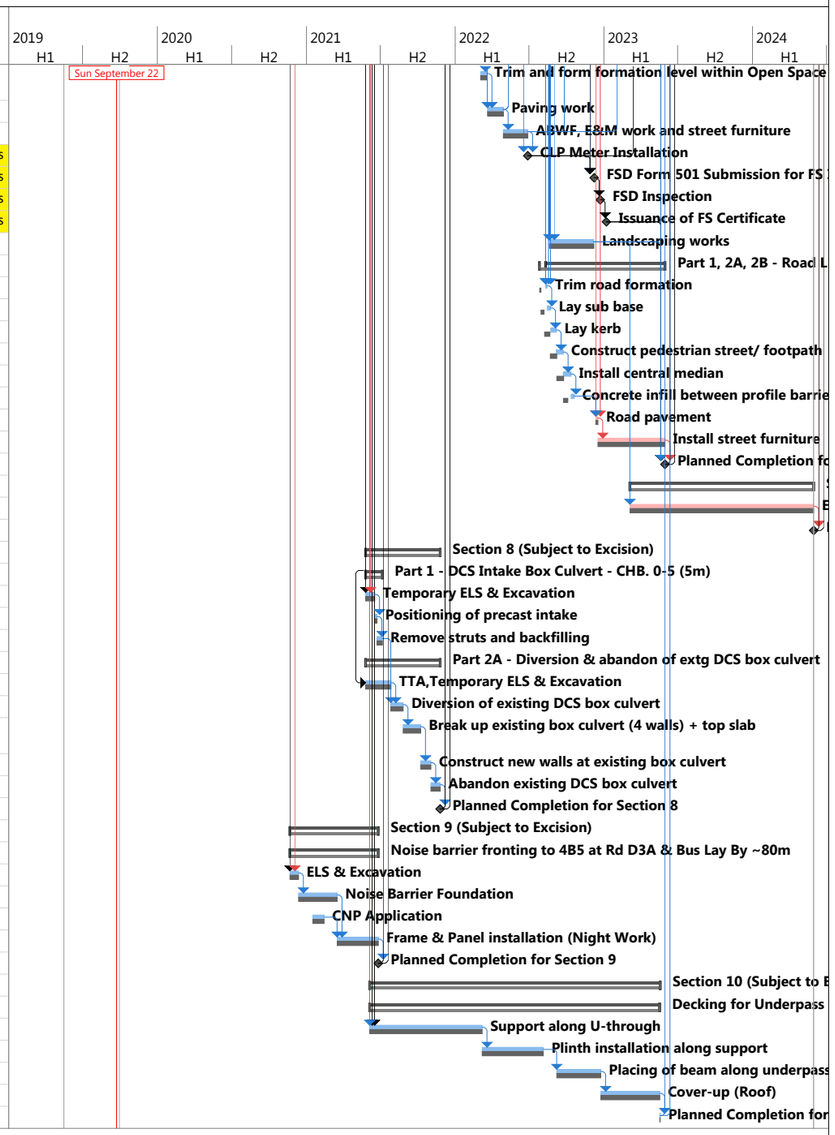
ID	Task Name	Duration	Remaining Duration	Actual Start	Actual Finish	Plan Start	Plan Finish	Late Start	Late Finish	Physical % Complete	Free Slack	Time Risk Allowances (TRA)	Total Slack
906	Deck (4 bays) & link bridge 18d/bay	72 days	72 days	NA	NA	July 9, 2021	October 2, 2021	August 11, 2021	November 5, 2021	0%	0 days	1 day	28 days
907	Secondary Upstand Beam	14 days	14 days	NA	NA	September 24, 2021	October 11, 2021	December 11, 2021	December 29, 2021	0%	0 days	0 days	65 days
908	Dismantle falsework	5 days	5 days	NA	NA	October 29, 2021	November 3, 2021	January 31, 2022	February 8, 2022	0%	49 days	0 days	77 days
909	**Part 2A - CH2007-2060 (53m) 3 bays**	**136 days**	**136 days**	**NA**	**NA**	**July 22, 2021**	**January 3, 2022**	**September 8, 2021**	**February 8, 2022**	**0%**	**28 days**		**28 days**
910	Pier (3sets x 3nos) within CH2007-2060. 1 team	45 days	45 days	NA	NA	July 22, 2021	September 11, 2021	September 8, 2021	November 2, 2021	0%	0 days	0.5 days	41 days
911	Falsework erection	7 days	7 days	NA	NA	September 13, 2021	September 20, 2021	November 3, 2021	November 10, 2021	0%	13 days	0 days	41 days
912	Deck (3 bays) 18d/bay	54 days	54 days	NA	NA	October 4, 2021	December 6, 2021	November 6, 2021	January 11, 2022	0%	0 days	1 day	28 days
913	Secondary Upstand Beam	12 days	12 days	NA	NA	November 25, 2021	December 8, 2021	December 30, 2021	January 13, 2022	0%	0 days	0 days	28 days
914	Dismantle falsework	5 days	5 days	NA	NA	December 28, 2021	January 3, 2022	January 31, 2022	February 8, 2022	0%	0 days	0 days	28 days
915	**Part 2A - CH2060-2119 (59m) 3 bays**	**299 days**	**299 days**	**NA**	**NA**	**June 16, 2020**	**June 18, 2021**	**June 29, 2020**	**November 20, 2021**	**0%**	**10 days**		**10 days**
916	Mobilization of plant and material	36 days	36 days	NA	NA	June 16, 2020	July 29, 2020	June 29, 2020	August 10, 2020	0%	0 days	2 days	10 days
917	Foundation Construction	90 days	90 days	NA	NA	July 30, 2020	October 27, 2020	March 11, 2021	June 8, 2021	0%	63 days	1 day	224 days
918	Pier (3sets x 3nos) within CH2060-2119. 1 team	45 days	45 days	NA	NA	December 30, 2020	February 24, 2021	June 9, 2021	August 2, 2021	0%	0 days	0.5 days	129 days
919	Falsework erection	7 days	7 days	NA	NA	February 25, 2021	March 4, 2021	August 3, 2021	August 10, 2021	0%	0 days	0 days	129 days
920	Deck (3 bays) 18d/bay	54 days	54 days	NA	NA	March 5, 2021	May 11, 2021	August 11, 2021	October 15, 2021	0%	0 days	1 day	129 days
921	Secondary Upstand Beam	12 days	12 days	NA	NA	May 12, 2021	May 26, 2021	October 16, 2021	October 29, 2021	0%	0 days	0 days	129 days
922	Dismantle falsework	5 days	5 days	NA	NA	June 12, 2021	June 18, 2021	November 16, 2021	November 20, 2021	0%	0 days	0 days	129 days
923	Installation of Glass Balustrade	42 days	42 days	NA	NA	December 9, 2021	January 29, 2022	March 2, 2022	April 23, 2022	0%	0 days	0.5 days	65 days
924	**Part 2A - Lift LT1 & LT2**	**330 days**	**330 days**	**NA**	**NA**	**January 31, 2022**	**March 9, 2023**	**April 25, 2022**	**May 30, 2023**	**0%**	**64 days**		**64 days**
925	Mobilization of plant and materials	15 days	15 days	NA	NA	January 31, 2022	February 19, 2022	April 25, 2022	May 11, 2022	0%	0 days	0 days	65 days
926	Foundation Construction	43 days	43 days	NA	NA	February 17, 2022	April 8, 2022	May 9, 2022	June 28, 2022	0%	0 days	0.5 days	65 days
927	RC Structure	28 days	28 days	NA	NA	April 9, 2022	May 14, 2022	June 29, 2022	August 1, 2022	0%	0 days	0.5 days	65 days
928	Lift installation (LT1 & LT2)	90 days	90 days	NA	NA	July 27, 2022	November 11, 2022	October 14, 2022	January 31, 2023	0%	0 days	1 day	65 days
929	E & M installation	60 days	60 days	NA	NA	November 12, 2022	January 25, 2023	February 1, 2023	April 15, 2023	0%	0 days	1 day	65 days
930	Testing & commissioning	12 days	12 days	NA	NA	January 26, 2023	February 8, 2023	April 17, 2023	April 29, 2023	0%	0 days	0 days	65 days
931	CLP Meter Installation	0 days	0 days	NA	NA	January 2, 2023	January 2, 2023	January 2, 2023	January 2, 2023	0%	0 days		0 days
932	EMSD Submission Form 5 for Lift Inspection	0 days	0 days	NA	NA	February 8, 2023	February 8, 2023	May 2, 2023	May 2, 2023	0%	0 days		82 days
933	EMSD Lift Inspection	0 days	0 days	NA	NA	February 22, 2023	February 22, 2023	May 16, 2023	May 16, 2023	0%	0 days		82 days
934	Issuance of Lift Use Permit	0 days	0 days	NA	NA	March 9, 2023	March 9, 2023	May 30, 2023	May 30, 2023	0%	82 days		82 days
935	Staircase ST1	60 days	60 days	NA	NA	May 16, 2022	July 26, 2022	August 2, 2022	October 13, 2022	0%	0 days	1 day	65 days
936	**Open Space & Promenade**	**561 days**	**561 days**	**NA**	**NA**	**July 13, 2021**	**May 30, 2023**	**October 7, 2021**	**May 30, 2023**	**0%**	**0 days**		**0 days**
937	**Open Space & Promenade (From Northern End - CH1720)**	**506 days**	**506 days**	**NA**	**NA**	**September 15, 2021**	**May 30, 2023**	**October 11, 2021**	**May 30, 2023**	**0%**	**0 days**		**0 days**
938	**Observation Deck**	**210 days**	**210 days**	**NA**	**NA**	**June 4, 2022**	**February 13, 2023**	**June 4, 2022**	**May 30, 2023**	**0%**	**0 days**		**0 days**
939	Foundation Construction	60 days	60 days	NA	NA	June 4, 2022	August 13, 2022	June 4, 2022	August 13, 2022	0%	0 days	3 days	0 days
940	Structure work	60 days	60 days	NA	NA	August 15, 2022	October 26, 2022	September 26, 2022	December 6, 2022	0%	0 days	1 day	35 days
941	Construction of Lift Core	35 days	35 days	NA	NA	August 15, 2022	September 25, 2022	August 15, 2022	September 26, 2022	0%	0 days	2 days	0 days
942	Lift installation	90 days	90 days	NA	NA	October 27, 2022	February 13, 2023	February 8, 2023	May 30, 2023	0%	85 days	1 day	85 days
943	E&M and ABWF works	60 days	60 days	NA	NA	September 26, 2022	December 6, 2022	September 26, 2022	December 6, 2022	0%	0 days	3 days	0 days
944	**Toilet**	**366 days**	**366 days**	**NA**	**NA**	**September 15, 20...**	**December 6, 2022**	**October 11, 2021**	**December 6, 2022**	**0%**	**0 days**		**0 days**
945	Footing	12 days	12 days	NA	NA	September 15, 2021	September 29, 2021	October 11, 2021	October 25, 2021	0%	0 days	0 days	20 days
946	Structure work	45 days	45 days	NA	NA	September 30, 2021	November 23, 2021	October 26, 2021	December 16, 2021	0%	0 days	0.5 days	20 days
947	MIC toilet unit	24 days	24 days	NA	NA	November 24, 2021	December 21, 2021	December 17, 2021	January 17, 2022	0%	0 days	0.5 days	20 days
948	E&M and ABWF works	60 days	60 days	NA	NA	September 26, 2022	December 6, 2022	September 26, 2022	December 6, 2022	0%	0 days	3 days	0 days
949	Amphitheater	90 days	90 days	NA	NA	November 24, 2021	March 15, 2022	October 15, 2022	February 1, 2023	0%	264 days	1 day	264 days
950	Fast food kiosk deck	45 days	45 days	NA	NA	November 24, 2021	January 18, 2022	January 26, 2022	March 22, 2022	0%	0 days	0.5 days	51 days
951	Fast food Kiosk	86 days	86 days	NA	NA	January 19, 2022	May 6, 2022	March 23, 2022	July 7, 2022	0%	0 days	1 day	51 days
952	Fitness Ground Lawn & Water Play Plaza	82 days	82 days	NA	NA	May 7, 2022	August 12, 2022	July 8, 2022	October 14, 2022	0%	31 days	1 day	51 days
953	Stepped Stage and Seating & Back of House Facility (under Bridge D3)	30 days	30 days	NA	NA	August 15, 2022	September 19, 2022	September 7, 2022	October 14, 2022	0%	0 days	0.5 days	20 days
954	Trim and form formation level within Open Space & Promenade area	45 days	45 days	NA	NA	September 20, 2022	November 12, 2022	October 15, 2022	December 6, 2022	0%	20 days	0.5 days	20 days
955	Paving work	45 days	45 days	NA	NA	December 7, 2022	February 1, 2023	December 7, 2022	February 1, 2023	0%	0 days	2 days	0 days
956	ABWF, E&M work and street furniture	60 days	60 days	NA	NA	February 2, 2023	April 17, 2023	March 12, 2023	May 27, 2023	0%	0 days	1 day	33 days
957	FSD Form 501 Submission for FS Inspection	0 days	0 days	NA	NA	March 23, 2023	March 23, 2023	May 1, 2023	May 1, 2023	0%	0 days		38 days
958	FSD Inspection	0 days	0 days	NA	NA	April 7, 2023	April 7, 2023	May 16, 2023	May 16, 2023	0%	0 days		38 days
959	Issuance of FS Certificate	0 days	0 days	NA	NA	April 22, 2023	April 22, 2023	May 30, 2023	May 30, 2023	0%	38 days		38 days
960	Landscaping works	95 days	95 days	NA	NA	February 2, 2023	May 30, 2023	February 2, 2023	May 30, 2023	0%	0 days	4 days	0 days
961	**Open Space & Promenade (From CH1720 - South End)**	**447 days**	**447 days**	**NA**	**NA**	**July 13, 2021**	**January 6, 2023**	**October 7, 2021**	**May 30, 2023**	**0%**	**72 days**		**72 days**
962	Modification (Seawall) CH1720-1820	150 days	150 days	NA	NA	July 13, 2021	January 10, 2022	October 7, 2021	April 8, 2022	0%	0 days	1 day	72 days
963	Modification (Seawall) CH1820-1920	150 days	150 days	NA	NA	July 13, 2021	January 10, 2022	October 7, 2021	April 8, 2022	0%	0 days	1 day	72 days
964	Temporary toilet	24 days	24 days	NA	NA	July 13, 2021	August 9, 2021	January 31, 2022	March 2, 2022	0%	0 days	0.5 days	167 days
965	Temporary Management Office	45 days	45 days	NA	NA	July 24, 2021	September 14, 2021	February 15, 2022	April 8, 2022	0%	95 days	0.5 days	167 days
966	Floating Stage Concrete structure	18 days	18 days	NA	NA	January 11, 2022	January 31, 2022	April 9, 2022	May 3, 2022	0%	0 days	0 days	72 days
967	Stepped Seating at Southern End	24 days	24 days	NA	NA	February 4, 2022	March 3, 2022	May 4, 2022	May 31, 2022	0%	0 days	0.5 days	72 days



Title: Revised Programme-ED/2018/01 with Progress Update as of 22-Sep-19

Critical	Task	Manual Task	Duration-only	Baseline Milestone	Summary	External Tasks	Inactive Milestone	Baseline Summary
Critical Split	Split	Start-only	Baseline	Milestone	Manual Summary	External Milestone	Inactive Summary	
Critical Progress	Task Progress	Finish-only	Baseline Split	Summary Progress	Project Summary	Inactive Task	Deadline	

ID	Task Name	Duration	Remaining Duration	Actual Start	Actual Finish	Plan Start	Plan Finish	Late Start	Late Finish	Physical % Complete	Free Slack	Time Risk Allowances (TRA)	Total Slack
968	Trim and form formation level within Open Space & Promenade area	14 days	14 days	NA	NA	March 4, 2022	March 19, 2022	June 1, 2022	June 17, 2022	0%	0 days	0 days	72 days
969	Paving work	30 days	30 days	NA	NA	March 21, 2022	April 28, 2022	June 18, 2022	July 23, 2022	0%	0 days	0.5 days	72 days
970	ABWF, E&M work and street furniture	50 days	50 days	NA	NA	April 29, 2022	June 27, 2022	July 28, 2022	September 24, 2022	0%	0 days	1 day	75 days
971	CLP Meter Installation	0 days	0 days	NA	NA	June 27, 2022	June 27, 2022	May 1, 2023	May 1, 2023	0%	163 days		307 days
972	FSD Form 501 Submission for FS Inspection	0 days	0 days	NA	NA	December 8, 2022	December 8, 2022	May 1, 2023	May 1, 2023	0%	0 days		144 days
973	FSD Inspection	0 days	0 days	NA	NA	December 22, 2022	December 22, 2022	May 16, 2023	May 16, 2023	0%	0 days		144 days
974	Issuance of FS Certificate	0 days	0 days	NA	NA	January 6, 2023	January 6, 2023	May 30, 2023	May 30, 2023	0%	144 days		144 days
975	Landscaping works	90 days	90 days	NA	NA	August 20, 2022	December 6, 2022	November 16, 2022	March 4, 2023	0%	72 days	1 day	72 days
976	**Part 1, 2A, 2B - Road L12**	**238 days**	**238 days**	**NA**	**NA**	**August 11, 2022**	**May 30, 2023**	**October 6, 2022**	**May 30, 2023**	**0%**	**0 days**		**0 days**
977	Trim road formation	3 days	3 days	NA	NA	August 11, 2022	August 13, 2022	October 6, 2022	October 8, 2022	0%	0 days	1 day	45 days
978	Lay sub base	7 days	7 days	NA	NA	August 15, 2022	August 22, 2022	October 10, 2022	October 17, 2022	0%	0 days	1 day	45 days
979	Lay kerb	12 days	12 days	NA	NA	August 23, 2022	September 5, 2022	October 18, 2022	October 31, 2022	0%	0 days	1 day	45 days
980	Construct pedestrian street/ footpath	14 days	14 days	NA	NA	September 6, 2022	September 22, 2022	November 1, 2022	November 16, 2022	0%	0 days	1 day	45 days
981	Install central median	14 days	14 days	NA	NA	September 23, 2022	October 11, 2022	November 17, 2022	December 2, 2022	0%	0 days	1 day	45 days
982	Concrete infill between profile barrier	7 days	7 days	NA	NA	October 12, 2022	October 19, 2022	December 3, 2022	December 10, 2022	0%	45 days	0 days	45 days
983	Road pavement	5 days	5 days	NA	NA	December 12, 2022	December 16, 2022	December 12, 2022	December 16, 2022	0%	0 days	0 days	0 days
984	Install street furniture	131 days	131 days	NA	NA	December 17, 2022	May 30, 2023	December 17, 2022	May 30, 2023	0%	0 days	6 days	0 days
985	Planned Completion for Section 6	0 days	0 days	NA	NA	May 30, 2023	May 30, 2023	May 30, 2023	May 30, 2023	0%	0 days	0 days	0 days
986	**Section 7**	**365 days**	**365 days**	**NA**	**NA**	**March 6, 2023**	**May 29, 2024**	**March 6, 2023**	**May 29, 2024**	**0%**	**0 days**		**0 days**
987	Establishment work for landscape softwork	365 days	365 days	NA	NA	March 6, 2023	May 29, 2024	March 6, 2023	May 29, 2024	0%	0 days	10 days	0 days
988	Planned Completion for Section 7	0 days	0 days	NA	NA	May 29, 2024	May 29, 2024	May 29, 2024	May 29, 2024	0%	0 days		0 days
989	**Section 8 (Subject to Excision)**	**152 days**	**152 days**	**NA**	**NA**	**May 26, 2021**	**November 24, 2021**	**June 3, 2021**	**December 2, 2021**	**0%**	**7 days**		**7 days**
990	**Part 1 - DCS Intake Box Culvert - CHB. 0-5 (5m)**	**33 days**	**33 days**	**NA**	**NA**	**May 26, 2021**	**July 5, 2021**	**June 25, 2021**	**August 3, 2021**	**0%**	**0 days**		**25 days**
991	Temporary ELS & Excavation	18 days	18 days	NA	NA	May 26, 2021	June 16, 2021	June 25, 2021	July 16, 2021	0%	0 days	2 days	25 days
992	Positioning of precast intake	5 days	5 days	NA	NA	June 17, 2021	June 22, 2021	July 17, 2021	July 22, 2021	0%	0 days	1 days	25 days
993	Remove struts and backfilling	10 days	10 days	NA	NA	June 23, 2021	July 5, 2021	July 23, 2021	August 3, 2021	0%	18 days	2 days	25 days
994	**Part 2A - Diversion & abandon of extg DCS box culvert**	**152 days**	**152 days**	**NA**	**NA**	**May 26, 2021**	**November 24, 2021**	**June 3, 2021**	**December 2, 2021**	**0%**	**7 days**		**7 days**
995	TTA,Temporary ELS & Excavation	51 days	51 days	NA	NA	May 26, 2021	July 26, 2021	June 3, 2021	August 3, 2021	0%	0 days	3 days	7 days
996	Diversion of existing DCS box culvert	26 days	26 days	NA	NA	July 27, 2021	August 25, 2021	August 4, 2021	September 2, 2021	0%	0 days	2 days	7 days
997	Break up existing box culvert (4 walls) + top slab	35 days	35 days	NA	NA	August 26, 2021	October 7, 2021	September 3, 2021	October 16, 2021	0%	0 days	2 days	7 days
998	Construct new walls at existing box culvert	20 days	20 days	NA	NA	October 8, 2021	November 1, 2021	October 18, 2021	November 9, 2021	0%	0 days	1 days	7 days
999	Abandon existing DCS box culvert	20 days	20 days	NA	NA	November 2, 2021	November 24, 2021	November 10, 2021	December 2, 2021	0%	0 days	1 days	7 days
1000	Planned Completion for Section 8	0 days	0 days	NA	NA	November 24, 2021	November 24, 2021	December 2, 2021	December 2, 2021	0%	0 days	0 days	7 days
1001	**Section 9 (Subject to Excision)**	**174 days**	**174 days**	**NA**	**NA**	**November 21, 2020**	**June 25, 2021**	**November 30, 2020**	**July 5, 2021**	**0%**	**7 days**		**7 days**
1002	**Noise barrier fronting to 4B5 at Rd D3A & Bus Lay By ~80m**	**174 days**	**174 days**	**NA**	**NA**	**November 21, 2020**	**June 25, 2021**	**November 30, 2020**	**July 5, 2021**	**0%**	**7 days**		**7 days**
1003	ELS & Excavation	18 days	18 days	NA	NA	November 21, 2020	December 11, 2020	November 30, 2020	December 19, 2020	0%	0 days	1 days	7 days
1004	Noise Barrier Foundation	75 days	75 days	NA	NA	December 12, 2020	March 16, 2021	December 21, 2020	March 24, 2021	0%	0 days	4 days	7 days
1005	CNP Application	28 days	28 days	NA	NA	January 16, 2021	February 12, 2021	February 25, 2021	March 24, 2021	0%	32 days		40 days
1006	Frame & Panel installation (Night Work)	81 days	81 days	NA	NA	March 17, 2021	June 25, 2021	March 25, 2021	July 5, 2021	0%	0 days	4 days	7 days
1007	Planned Completion for Section 9	0 days	0 days	NA	NA	June 25, 2021	June 25, 2021	July 5, 2021	July 5, 2021	0%	0 days	0.5 days	10 days
1008	**Section 10 (Subject to Excision)**	**582 days**	**582 days**	**NA**	**NA**	**June 5, 2021**	**May 18, 2023**	**June 17, 2021**	**May 30, 2023**	**0%**	**9 days**		**9 days**
1009	**Decking for Underpass (Rd L14)**	**581 days**	**581 days**	**NA**	**NA**	**June 5, 2021**	**May 17, 2023**	**June 17, 2021**	**May 29, 2023**	**0%**	**9 days**		**9 days**
1010	Support along U-through	225 days	225 days	NA	NA	June 5, 2021	March 7, 2022	June 17, 2021	March 17, 2022	0%	0 days	10 days	9 days
1011	Plinth installation along support	123 days	123 days	NA	NA	March 8, 2022	August 4, 2022	March 18, 2022	August 15, 2022	0%	0 days	6 days	9 days
1012	Placing of beam along underpass	90 days	90 days	NA	NA	September 7, 2022	December 23, 2022	September 19, 2022	January 4, 2023	0%	0 days	4 days	9 days
1013	Cover-up (Roof)	115 days	115 days	NA	NA	December 24, 2022	May 17, 2023	January 5, 2023	May 29, 2023	0%	0 days	5 days	9 days
1014	Planned Completion for Section 10	1 day	1 day	NA	NA	May 18, 2023	May 18, 2023	May 30, 2023	May 30, 2023	0%	0 days	0.5 days	12 days



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Critical, Critical Split, Critical Progress, Task, Split, Task Progress, Manual Task, Start-only, Finish-only, Duration-only, Baseline, Baseline Split, Baseline Milestone, Milestone, Summary Progress, Summary, Manual Summary, Project Summary, External Tasks, External Milestone, Inactive Task, Inactive Milestone, Inactive Summary, Deadline, Baseline Summary

Appendix C – Environmental monitoring schedules

Contract No. EDO 15/2018 Environmental Monitoring at Kai Tak Development Stage 4 Infrastructure at the former runway and south apron

Environmental Monitoring and Weekly Site Inspection Schedule for December 2020

December 2020

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

NOTE:

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

Air Quality Monitoring Station

AM3 - Sky Tower

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

AM7 - Hong Kong Children's Hospital

Noise Quality Monitoring Station

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

M12 - Hong Kong Children's Hospital

Contract No. EDO 15/2018 Environmental Monitoring at Kai Tak Development Stage 4 Infrastructure at the former runway and south apron

Propose Environmental Monitoring and Weekly Site Inspection Schedule for January 2021

January 2021

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

NOTE:

1) Site inspection schedule and Impact monitoring schedule may be changed due to unforeseen circumstance (e.g. adverse weather).
2) Due to the COVID-19 diagnosed case confirmed on 4 Jan 2021 in The Hong Kong Society for the Blind's Factory cum Sheltered Workshop [AM4(A) / M11], the workshop will be closed for cleaning and disinfection work from 5 to 25 Jan 2021. No impact monitoring will be conducted.

Air Quality Monitoring Station

AM3 - Sky Tower

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

AM7 - Hong Kong Children's Hospital

Noise Quality Monitoring Station

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

M12 - Hong Kong Children's Hospital

Appendix D – Photographic records

Impact Air Quality Monitoring




Measurement setup at AM3

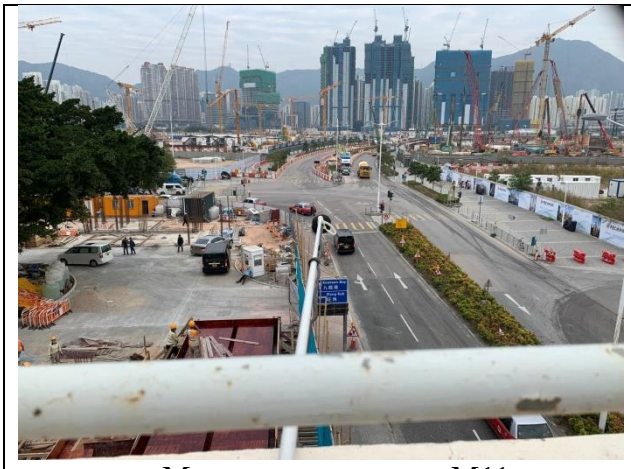



Measurement setup at AM4(A)

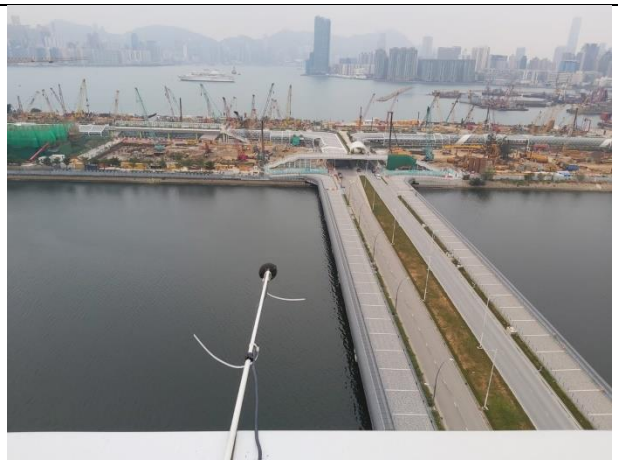



Measurement setup at AM7

Impact Noise Monitoring



Measurement setup at M11



Measurement setup at M12



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

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

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.

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TISCH Environmental

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Tisch Environmental
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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

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TISCH Environmental

Calibration Certificate of HVS

Air Sampler Calibration Curve Plotting & Calculation

(Dickson recorder)

Calibration curve ref. No. : ATSPC-01-2020102702 Date of calibration : 27/10/2020

Location : Sky Tower Sampler : TE-5170X

Calibration Data

Ambient barometric pressure, Pa = 759.1 (mmHg) Ambient temperature, Ta = 300.35 (deg K)

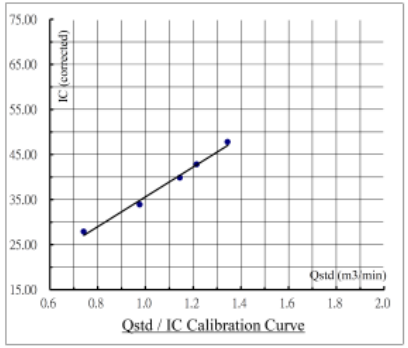
Qstd Slope, m = 2.04882 Qstd Intercept, b = -0.011270

Calibration Curve

Plate No.	H_2O (in)	Qstd (m^3 / min)	I (chart)	IC (corrected)
18	7.60	1.345	48.0	47.78
13	6.20	1.215	43.0	42.81
10	5.50	1.145	40.0	39.82
7	4.00	0.977	34.0	33.85
5	2.30	0.742	28.0	27.87

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]	33.119	2.4984	0.9947



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 : Checked by :

Name : (Poon Tsz Wing) Name : (Wong Yin Tong)

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

Air Sampler Calibration Curve Plotting & Calculation

(Dickson recorder)

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

Location : Sky Tower Sampler : TE-5170X

Calibration Data

Ambient barometric pressure, Pa = 762.9 (mmHg) Ambient temperature, Ta = 292.95 (deg K)

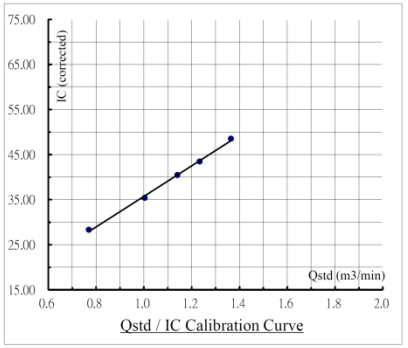
Qstd Slope, m = 2.04882 Qstd Intercept, b = -0.011270

Calibration Curve

Plate No.	H_2O (in)	Qstd (m^3 / min)	I (chart)	IC (corrected)
18	7.60	1.365	48.0	48.50
13	6.20	1.234	43.0	43.45
10	5.30	1.141	40.0	40.42
7	4.10	1.004	35.0	35.37
5	2.40	0.770	28.0	28.29

Subsequent calculation of sampler flow

Method	Calibration equation	Slope, m	Intercept, b	Corr. coeff., r
Dickson recorder	Qstd = 1 / m1 [(I) (Sqrt ((Pav / 760) (298 / Tav))) - b1]	33.913	1.8063	0.9988



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

Remark : Qstd (m^3 / min) = 1/m [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 : Checked by :

Name : (Poon Tsz Wing) Name : (Wong Yin Tong)

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

Calibration Certificate of HVS

Air Sampler Calibration Curve Plotting & Calculation

(Dickson recorder)

Calibration curve ref. No. : ATSPC-01-2020102701 Date of calibration : 27/10/2020

Location : The Hong Kong Society for the Blind's Factory cum Sheltered Workshop Sampler : TE-5170X

Calibration Data

Ambient barometric pressure, Pa = 759.1 (mmHg) Ambient temperature, Ta = 300.35 (deg K)

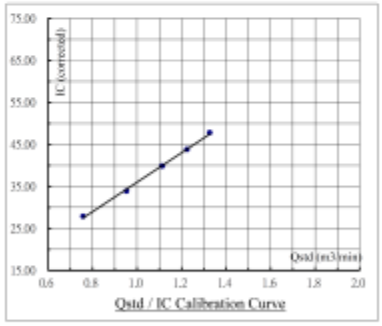
Qstd Slope, m = 2.04882 Qstd Intercept, b = -0.011270

Calibration Curve

Plate No.	H_2O (in)	Qstd (m^3 / min)	I (chart)	IC (corrected)
18	7.40	1.327	48.0	47.78
13	6.30	1.225	44.0	43.80
10	5.20	1.114	40.0	39.82
7	3.80	0.953	34.0	33.85
5	2.40	0.758	28.0	27.87

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]	35.101	0.8769	0.9990



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 : Checked by :

Name : (Poon Tsz Wing) Name : (Wong Yin Tong)

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

Air Sampler Calibration Curve Plotting & Calculation

(Dickson recorder)

Calibration curve ref. No. : ATSPC-01-2020120901 Date of calibration : 09/12/2020

Location : The Hong Kong Society for the Blind's Factory cum Sheltered Workshop Sampler : TE-5170X

Calibration Data

Ambient barometric pressure, Pa = 762.9 (mmHg) Ambient temperature, Ta = 292.95 (deg K)

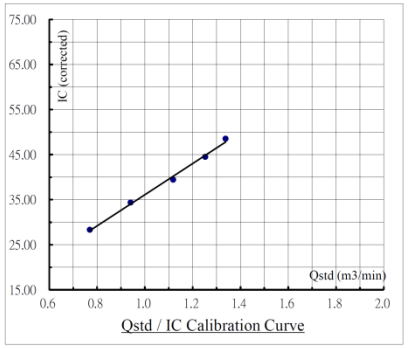
Qstd Slope, m = 2.04882 Qstd Intercept, b = -0.011270

Calibration Curve

Plate No.	H_2O (in)	Qstd (m^3 / min)	I (chart)	IC (corrected)
18	7.30	1.338	48.0	48.50
13	6.40	1.253	44.0	44.46
10	5.10	1.119	39.0	39.41
7	3.60	0.941	34.0	34.36
5	2.40	0.770	28.0	28.29

Subsequent calculation of sampler flow

Method	Calibration equation	Slope, m	Intercept, b	Corr. coeff., r
Dickson recorder	Qstd = 1 / m1 [(I) (Sqrt ((Pav / 760) (298 / Tav))) - b1]	34.575	1.5174	0.9972



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 : Checked by :

Name : (Poon Tsz Wing) Name : (Wong Yin Tong)

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

Calibration Certificate of HVS

Air Sampler Calibration Curve Plotting & Calculation

(Dickson recorder)

Calibration curve ref. No. : ATSPC-01-2020102703 Date of calibration : 27/10/2020

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

Calibration Data

Ambient barometric pressure, Pa = 759.1 (mmHg) Ambient temperature, Ta = 300.35 (deg K)

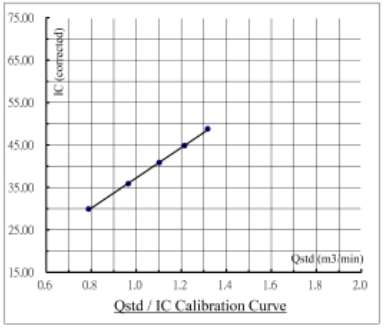
Qstd Slope, m = 2.04882 Qstd Intercept, b = -0.011270

Calibration Curve

Plate No.	H_2O (in)	Qstd (m^3 / min)	I (chart)	IC (corrected)
18	7.30	1.318	49.0	48.78
13	6.20	1.215	45.0	44.80
10	5.10	1.103	41.0	40.82
7	3.90	0.965	36.0	35.84
5	2.60	0.789	30.0	29.87

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]	35.681	1.5579	0.9998



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 : Checked by :

Name : (Poon Tsz Wing) Name : (Wong Yin Tong)

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

Air Sampler Calibration Curve Plotting & Calculation

(Dickson recorder)

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

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

Calibration Data

Ambient barometric pressure, Pa = 762.9 (mmHg) Ambient temperature, Ta = 292.95 (deg K)

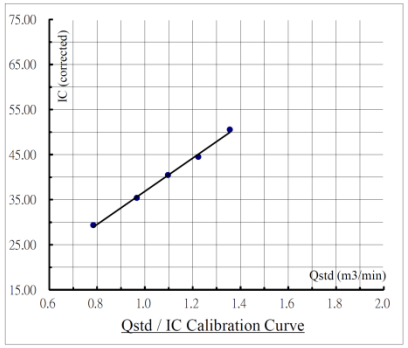
Qstd Slope, m = 2.04882 Qstd Intercept, b = -0.011270

Calibration Curve

Plate No.	H_2O (in)	Qstd (m^3 / min)	I (chart)	IC (corrected)
18	7.50	1.356	50.0	50.52
13	6.10	1.224	44.0	44.46
10	4.90	1.097	40.0	40.42
7	3.80	0.967	35.0	35.37
5	2.50	0.785	29.0	29.30

Subsequent calculation of sampler flow

Method	Calibration equation	Slope, m	Intercept, b	Corr. coeff., r
Dickson recorder	Qstd = 1 / m1 [(I) (Sqrt ((Pav / 760) (298 / Tav))) - b1]	36.744	0.1175	0.9983



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 : Checked by :

Name : (Poon Tsz Wing) Name : (Wong Yin Tong)

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

TISCH Environmental

RECALIBRATION DUE DATE:
July 17, 2021

Certificate of Calibration

Calibration Certification Information

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

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

Data Tabulation

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

Calculations

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

For subsequent flow rate calculations:

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

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

Key

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

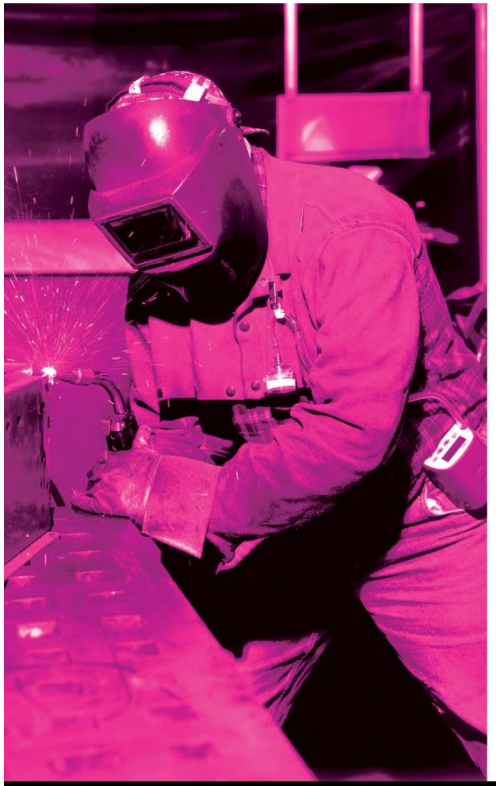
RECALIBRATION

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

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

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

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)

CERTIFICATE OF CALIBRATION AND TESTING

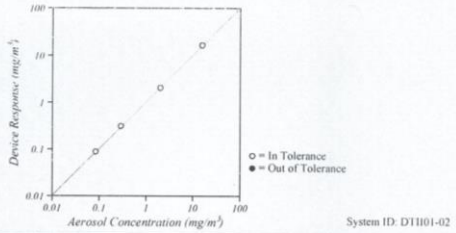
TSI Incorporated, 500 Cardigan Road, Shoreview, MN 55126 USA
Tel: 1-800-874-2811 1-651-490-2811 Fax: 1-651-490-3824 http://www.tsi.com

Environment Conditions		
Temperature	73.79 (23.2)	°F (°C)
Relative Humidity	45.5	%RH
Barometric Pressure	28.97 (981.0)	inHg (hPa)

Model	AM510
Serial Number	11506009

☒ 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	1.966	1.924	1.769–2.163	3	0.083	0.083	0.058–0.108
2	0.285	0.293	0.242–0.328	4	15.404	15.375	13.864–16.944

TSI Incorporated does hereby certify that all materials, components, and workmanship used in the manufacture of this equipment are in strict accordance with the applicable specifications agreed upon by TSI and the customer, and with all published specifications. All performance and acceptance tests required under this contract were successfully conducted in accordance with 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 (fine test dust). Dust calibration ratio is greater than 4:1

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

July 10, 2020

Calibrated — Date

Personal Aerosol Monitor Performance check with High Volume Sampler

Preformance Check ref. No. : AS0200201-1 Report Issue Date: 29/01/2020
Date of performance check : 20/01/2020

Objective:

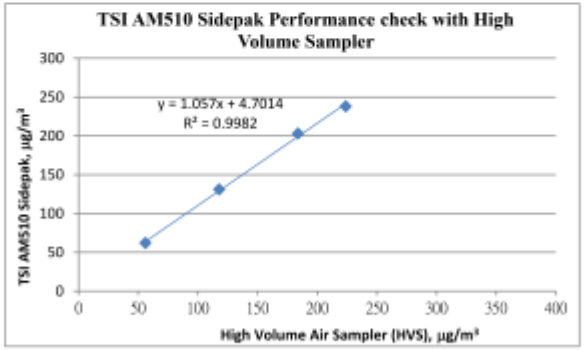
A dust meter, TSI AM510 Sidepak, and a Total Suspended Particulate High Volume Air Sampler (HVS) were placed together to measure the Total Suspended Particulate (TSP) concentrations simultaneously to check the performance.

Equipment Used:

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

Resault:

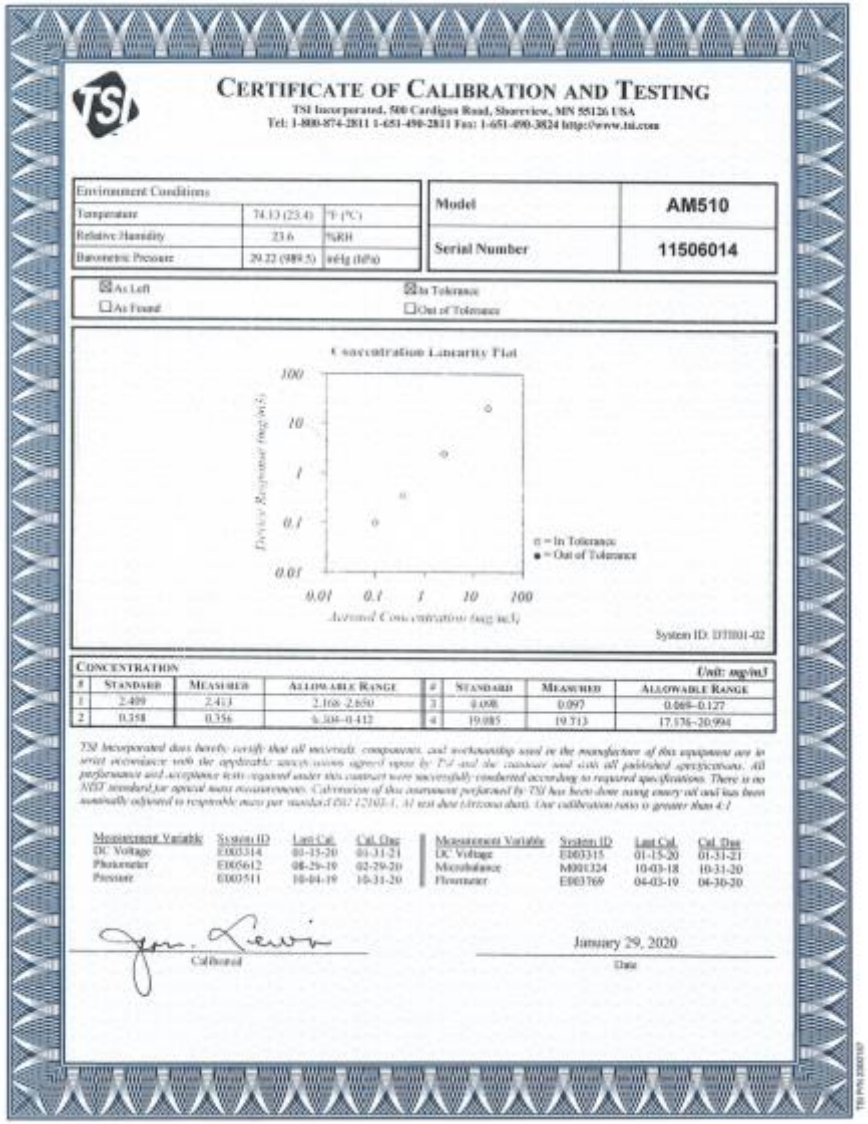
Equipment	Measurement Result, μg/m³			
TSI AM510 Sidepak	62	131	203	238
High Volume Air Sampler (HVS)	56	118	184	224



Tested by : Checked by :
Name : (Chan Kwok Ho) Name : (Wong Yin Tong)

Form No. ENV CAL SAMPLER CC1 dd/12/2005

Calibration Certificate of Dust Meter (TSI Sidepak AM510)



CERTIFICATE OF CALIBRATION AND TESTING

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

Environment Conditions		
Temperature	74.13 (23.4)	°F (°C)
Relative Humidity	23.6	%RH
Barometric Pressure	29.22 (989.5)	inHg (hPa)

Model	AM510
Serial Number	11506014

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

Concentration Linearity Plot

System ID: 1371801-02

CONCENTRATION Unit: mg/m3

#	Standard	Measured	Allowable Range	#	Standard	Measured	Allowable Range
1	2.409	2.413	2.168–2.650	3	0.098	0.097	0.088–0.127
2	0.358	0.356	0.308–0.412	4	19.085	19.713	17.176–20.994

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	01-15-20	01-31-21	DC Voltage	E003315	01-15-20	01-31-21
Photometer	E005612	08-29-19	02-29-20	Microbalance	M001324	10-03-18	10-31-20
Pressure	E003511	10-04-19	10-31-20	Flowmeter	E003769	04-03-19	04-30-20

Calibrated

January 29, 2020
Date

Personal Aerosol Monitor Performance check with High Volume Sampler

Preformance Check ref. No. : AS0200201-2 Report Issue Date: 27/01/2020

Date of performance check : 20/01/2020

Objective:

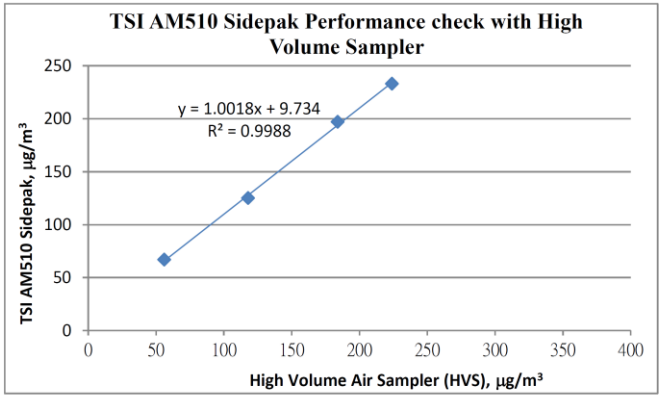
A dust meter, TSI AM510 Sidepak, and a Total Suspended Particulate High Volume Air Sampler (HVS) were placed together to measure the Total Suspended Particulate (TSP) concentrations simultaneously to check the performance.

Equipment Used:

Equipment	Manufacturer and Model	Serial Number
Personal Aerosol Monitor	TSI AM510 Sidepak	11506014
Total Suspended Particulate High Volume Air Sampler (HVS)	GS2310	10346

Resuslt:

Equipment	Measurement Result, μg/m³			
TSI AM510 Sidepak	67	125	197	233
High Volume Air Sampler (HVS)	56	118	184	224



Tested by : Checked by :

Name : (Chan Kwok Ho) Name : (Wong Yin Tong)

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

Certificate No.: CC0022012

1. Description

Calibration item :	a) Temperature b) Relative humidity c) Wind Speed d) Wind Direction
Equipment description :	Weather Station
Manufacturer :	Davis Vantage Pro 2
Type / Model No. :	6312CEU
Serial No. :	AY17O606003
Assigned equipment no. :	N/A
Adjustment :	N/A
Remark :	Received with good condition

2. Customer information

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

3. Date of performance of the calibration

Date of calibration :	11 December 2020

Approved Signatory
Warren Yeung

Company Chop:
Certificate issue date: 15 December 2020

1. The certificate shall not reproduced except in full without the written approval of CAL LAB LTD
2. The certificate is issued subject to the latest Term and Condition, available assessable at our web site

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

4. Result of Calibration

a) Temperature

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

Estimated expanded uncertainty: 1 °C Technical Requirement: N/A

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

b) Relative Humidity Temperature setting of humidity chamber : 23 °C

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

Estimated expanded uncertainty: 2.5 %RH Technical Requirement: N/A

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

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

c) Wind Speed

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

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

a) Wind direction

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

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

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

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

5. Reference method for calibration

Temperature	JIF 1183-2007
Relative humidity	JJG 1076-2001
Wind Speed	SOP-251
Wind Direction	SOP-252

6. Environment condition of calibration

Temperature ; ℃	24.3 ºC
Relative humidity ; %RH	48 %RH

7. Reference equipment used in the calibration

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

Note1: The estimated expanded uncertainties have been calculated in "Evaluation and expression of uncertainty in measurement" and give an interval 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: Date: 11 December 2020

Checked by: Date: 11 December 2020

*** End of Certificate ***

CT-END-02

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2. The certificate is issued subject to the latest Term and Condition, available assessable at our web site

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

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.

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www.tischinternational.com

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

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www.tischinternational.com

www.tisch-env.com

TISCH Environmental

Calibration Certificate of HVS

Air Sampler Calibration Curve Plotting & Calculation

(Dickson recorder)

Calibration curve ref. No. : ATSPC-01-2020102702 Date of calibration : 27/10/2020

Location : Sky Tower Sampler : TE-5170X

Calibration Data

Ambient barometric pressure, Pa = 759.1 (mmHg) Ambient temperature, Ta = 300.35 (deg K)

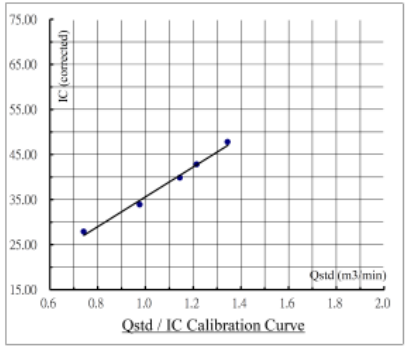
Qstd Slope, m = 2.04882 Qstd Intercept, b = -0.011270

Calibration Curve

Plate No.	H_2O (in)	Qstd (m^3 / min)	I (chart)	IC (corrected)
18	7.60	1.345	48.0	47.78
13	6.20	1.215	43.0	42.81
10	5.50	1.145	40.0	39.82
7	4.00	0.977	34.0	33.85
5	2.30	0.742	28.0	27.87

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]	33.119	2.4984	0.9947



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 : Checked by :

Name : (Poon Tsz Wing) Name : (Wong Yin Tong)

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

Air Sampler Calibration Curve Plotting & Calculation

(Dickson recorder)

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

Location : Sky Tower Sampler : TE-5170X

Calibration Data

Ambient barometric pressure, Pa = 762.9 (mmHg) Ambient temperature, Ta = 292.95 (deg K)

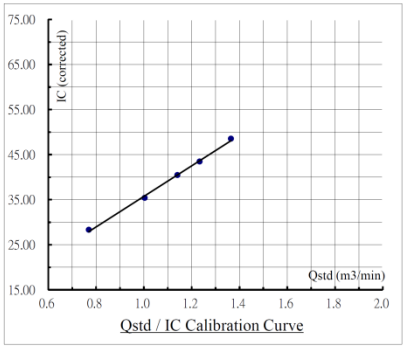
Qstd Slope, m = 2.04882 Qstd Intercept, b = -0.011270

Calibration Curve

Plate No.	H_2O (in)	Qstd (m^3 / min)	I (chart)	IC (corrected)
18	7.60	1.365	48.0	48.50
13	6.20	1.234	43.0	43.45
10	5.30	1.141	40.0	40.42
7	4.10	1.004	35.0	35.37
5	2.40	0.770	28.0	28.29

Subsequent calculation of sampler flow

Method	Calibration equation	Slope, m	Intercept, b	Corr. coeff., r
Dickson recorder	Qstd = 1 / m1 [(I) (Sqrt ((Pav / 760) (298 / Tav))) - b1]	33.913	1.8063	0.9988



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

Remark : Qstd (m^3 / min) = 1/m [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 : Checked by :

Name : (Poon Tsz Wing) Name : (Wong Yin Tong)

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

Calibration Certificate of HVS

Air Sampler Calibration Curve Plotting & Calculation

(Dickson recorder)

Calibration curve ref. No. : ATSPC-01-2020102701 Date of calibration : 27/10/2020

Location : The Hong Kong Society for the Blind's Factory cum Sheltered Workshop Sampler : TE-5170X

Calibration Data

Ambient barometric pressure, Pa = 759.1 (mmHg) Ambient temperature, Ta = 300.35 (deg K)

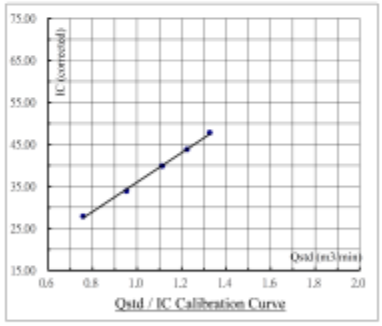
Qstd Slope, m = 2.04882 Qstd Intercept, b = -0.011270

Calibration Curve

Plate No.	H_2O (in)	Qstd (m^3 / min)	I (chart)	IC (corrected)
18	7.40	1.327	48.0	47.78
13	6.30	1.225	44.0	43.80
10	5.20	1.114	40.0	39.82
7	3.80	0.953	34.0	33.85
5	2.40	0.758	28.0	27.87

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]	35.101	0.8769	0.9990



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 : Checked by :

Name : (Poon Tsz Wing) Name : (Wong Yin Tong)

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

Air Sampler Calibration Curve Plotting & Calculation

(Dickson recorder)

Calibration curve ref. No. : ATSPC-01-2020120901 Date of calibration : 09/12/2020

Location : The Hong Kong Society for the Blind's Factory cum Sheltered Workshop Sampler : TE-5170X

Calibration Data

Ambient barometric pressure, Pa = 762.9 (mmHg) Ambient temperature, Ta = 292.95 (deg K)

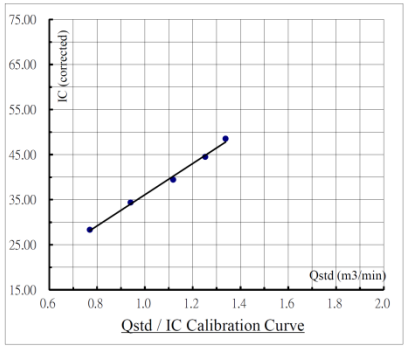
Qstd Slope, m = 2.04882 Qstd Intercept, b = -0.011270

Calibration Curve

Plate No.	H_2O (in)	Qstd (m^3 / min)	I (chart)	IC (corrected)
18	7.30	1.338	48.0	48.50
13	6.40	1.253	44.0	44.46
10	5.10	1.119	39.0	39.41
7	3.60	0.941	34.0	34.36
5	2.40	0.770	28.0	28.29

Subsequent calculation of sampler flow

Method	Calibration equation	Slope, m	Intercept, b	Corr. coeff., r
Dickson recorder	Qstd = 1 / m1 [(I) (Sqrt ((Pav / 760) (298 / Tav))) - b1]	34.575	1.5174	0.9972



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 : Checked by :

Name : (Poon Tsz Wing) Name : (Wong Yin Tong)

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

Calibration Certificate of HVS

Air Sampler Calibration Curve Plotting & Calculation

(Dickson recorder)

Calibration curve ref. No. : ATSPC-01-2020102703 Date of calibration : 27/10/2020

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

Calibration Data

Ambient barometric pressure, Pa = 759.1 (mmHg) Ambient temperature, Ta = 300.35 (deg K)

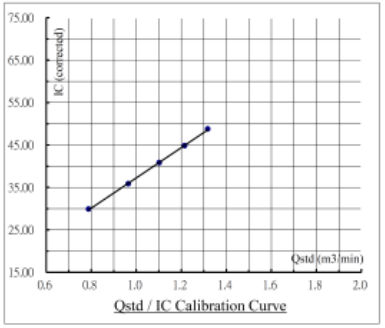
Qstd Slope, m = 2.04882 Qstd Intercept, b = -0.011270

Calibration Curve

Plate No.	H_2O (in)	Qstd (m^3 / min)	I (chart)	IC (corrected)
18	7.30	1.318	49.0	48.78
13	6.20	1.215	45.0	44.80
10	5.10	1.103	41.0	40.82
7	3.90	0.965	36.0	35.84
5	2.60	0.789	30.0	29.87

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]	35.681	1.5579	0.9998



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 : Checked by :

Name : (Poon Tsz Wing) Name : (Wong Yin Tong)

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

Air Sampler Calibration Curve Plotting & Calculation

(Dickson recorder)

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

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

Calibration Data

Ambient barometric pressure, Pa = 762.9 (mmHg) Ambient temperature, Ta = 292.95 (deg K)

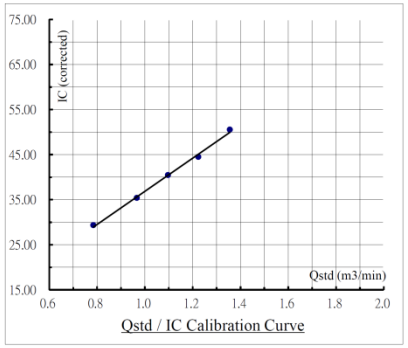
Qstd Slope, m = 2.04882 Qstd Intercept, b = -0.011270

Calibration Curve

Plate No.	H_2O (in)	Qstd (m^3 / min)	I (chart)	IC (corrected)
18	7.50	1.356	50.0	50.52
13	6.10	1.224	44.0	44.46
10	4.90	1.097	40.0	40.42
7	3.80	0.967	35.0	35.37
5	2.50	0.785	29.0	29.30

Subsequent calculation of sampler flow

Method	Calibration equation	Slope, m	Intercept, b	Corr. coeff., r
Dickson recorder	Qstd = 1 / m1 [(I) (Sqrt ((Pav / 760) (298 / Tav))) - b1]	36.744	0.1175	0.9983



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 : Checked by :

Name : (Poon Tsz Wing) Name : (Wong Yin Tong)

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

TISCH Environmental

RECALIBRATION DUE DATE:
July 17, 2021

Certificate of Calibration

Calibration Certification Information

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

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

Data Tabulation

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

Calculations

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

For subsequent flow rate calculations:

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

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

Key

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

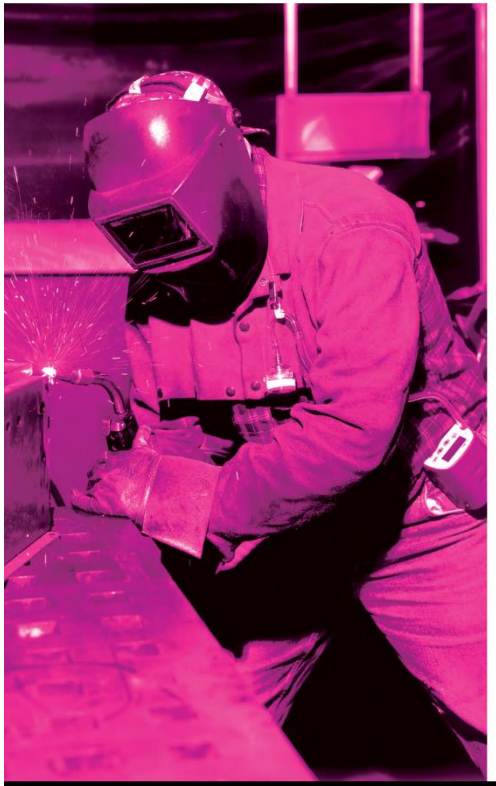
RECALIBRATION

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

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

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

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)

CERTIFICATE OF CALIBRATION AND TESTING

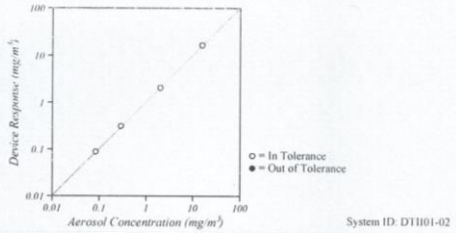
TSI Incorporated, 500 Cardigan Road, Shoreview, MN 55126 USA
Tel: 1-800-874-2811 1-651-490-2811 Fax: 1-651-490-3824 http://www.tsi.com

Environment Conditions		
Temperature	73.79 (23.2)	°F (°C)
Relative Humidity	45.5	%RH
Barometric Pressure	28.97 (981.0)	inHg (hPa)

Model	AM510
Serial Number	11506009

☒ 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	1.966	1.924	1.769–2.163	3	0.083	0.083	0.058–0.108
2	0.285	0.293	0.242–0.328	4	15.404	15.375	13.864–16.944

TSI Incorporated does hereby certify that all materials, components, and workmanship used in the manufacture of this equipment are in strict accordance with the applicable specifications agreed upon by TSI and the customer, and with all published specifications. All performance and acceptance tests required under this contract were successfully conducted in accordance with 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 (fine test dust). Dust calibration ratio is greater than 4:1

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

July 10, 2020

Calibrated — Date

Personal Aerosol Monitor Performance check with High Volume Sampler

Preformance Check ref. No. : AS0200201-1 Report Issue Date: 29/01/2020
Date of performance check : 20/01/2020

Objective:

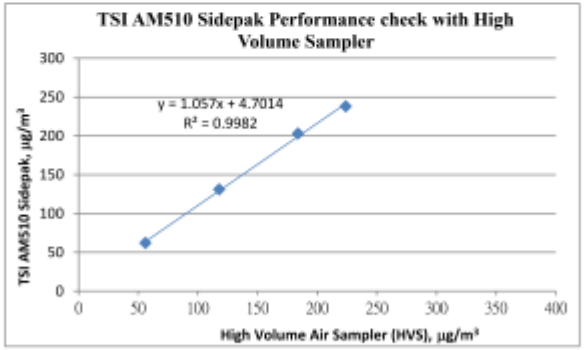
A dust meter, TSI AM510 Sidepak, and a Total Suspended Particulate High Volume Air Sampler (HVS) were placed together to measure the Total Suspended Particulate (TSP) concentrations simultaneously to check the performance.

Equipment Used:

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

Resault:

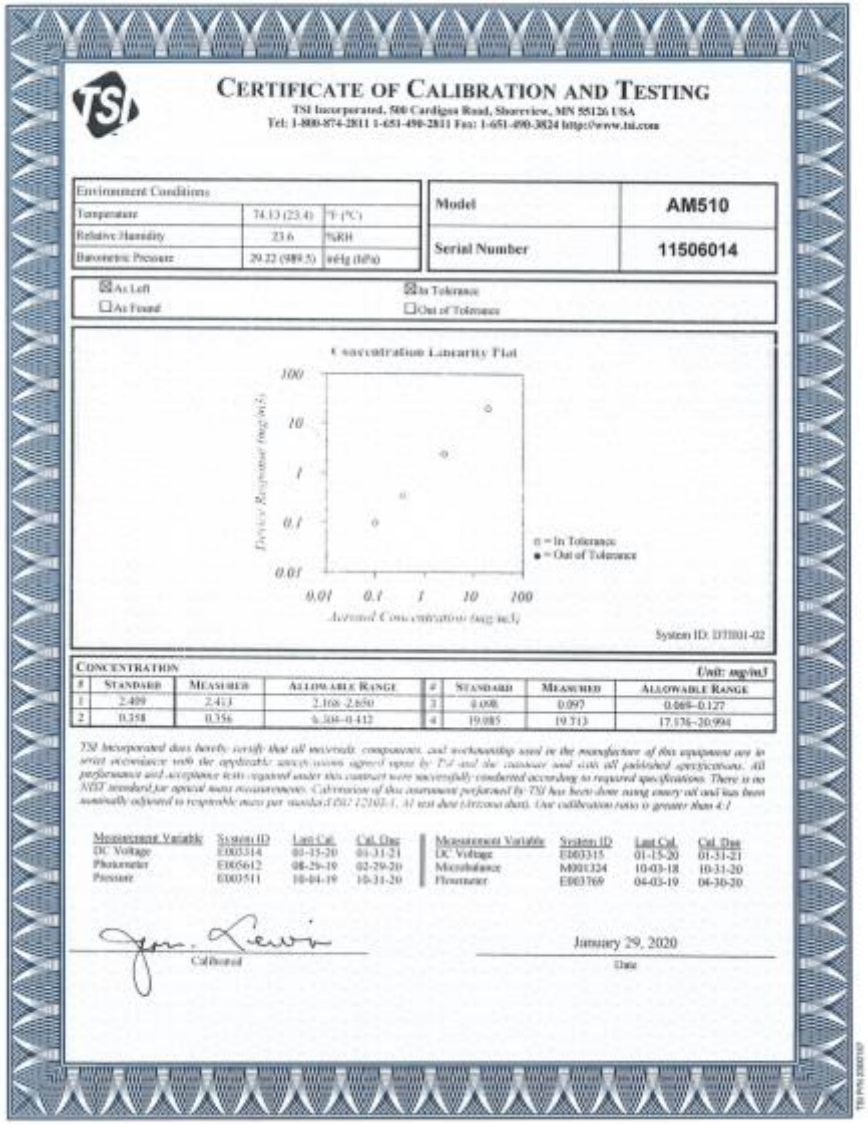
Equipment	Measurement Result, μg/m³			
TSI AM510 Sidepak	62	131	203	238
High Volume Air Sampler (HVS)	56	118	184	224



Tested by : Checked by :
Name : (Chan Kwok Ho) Name : (Wong Yin Tong)

Form No. ENV CAL SAMPLER CC1 dd/12/2005

Calibration Certificate of Dust Meter (TSI Sidepak AM510)



CERTIFICATE OF CALIBRATION AND TESTING

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

Environment Conditions		
Temperature	74.13 (23.4)	°F (°C)
Relative Humidity	23.6	%RH
Barometric Pressure	29.22 (989.5)	inHg (hPa)

Model	AM510
Serial Number	11506014

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

Concentration Linearity Plot

System ID: 1371801-02

CONCENTRATION Unit: mg/m3

#	Standard	Measured	Allowable Range	#	Standard	Measured	Allowable Range
1	2.409	2.413	2.168–2.650	3	0.098	0.097	0.088–0.127
2	0.358	0.356	0.308–0.412	4	19.085	19.713	17.176–20.994

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	01-15-20	01-31-21	DC Voltage	E003315	01-15-20	01-31-21
Photometer	E005612	08-29-19	02-29-20	Microbalance	M001324	10-03-18	10-31-20
Pressure	E003511	10-04-19	10-31-20	Flowmeter	E003769	04-03-19	04-30-20

Calibrated

January 29, 2020
Date

Personal Aerosol Monitor Performance check with High Volume Sampler

Preformance Check ref. No. : AS0200201-2 Report Issue Date: 27/01/2020

Date of performance check : 20/01/2020

Objective:

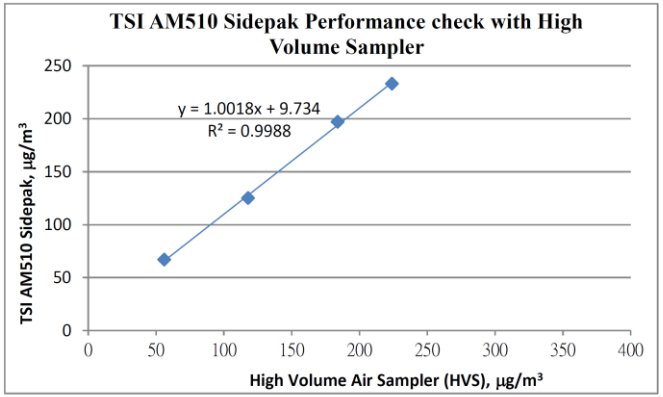
A dust meter, TSI AM510 Sidepak, and a Total Suspended Particulate High Volume Air Sampler (HVS) were placed together to measure the Total Suspended Particulate (TSP) concentrations simultaneously to check the performance.

Equipment Used:

Equipment	Manufacturer and Model	Serial Number
Personal Aerosol Monitor	TSI AM510 Sidepak	11506014
Total Suspended Particulate High Volume Air Sampler (HVS)	GS2310	10346

Resuslt:

Equipment	Measurement Result, μg/m³			
TSI AM510 Sidepak	67	125	197	233
High Volume Air Sampler (HVS)	56	118	184	224



Tested by : Checked by :

Name : (Chan Kwok Ho) Name : (Wong Yin Tong)

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

Certificate No.: CC0022012

1. Description

Calibration item :	a) Temperature b) Relative humidity c) Wind Speed d) Wind Direction
Equipment description :	Weather Station
Manufacturer :	Davis Vantage Pro 2
Type / Model No. :	6312CEU
Serial No. :	AY17O606003
Assigned equipment no. :	N/A
Adjustment :	N/A
Remark :	Received with good condition

2. Customer information

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

3. Date of performance of the calibration

Date of calibration :	11 December 2020

Approved Signatory
Warren Yeung

Company Chop:
Certificate issue date: 15 December 2020

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

4. Result of Calibration

a) Temperature

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

Estimated expanded uncertainty: 1 °C Technical Requirement: N/A

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

b) Relative Humidity Temperature setting of humidity chamber : 23 °C

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

Estimated expanded uncertainty: 2.5 %RH Technical Requirement: N/A

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

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c) Wind Speed

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

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

a) Wind direction

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

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

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

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5. Reference method for calibration

Temperature	JIF 1183-2007
Relative humidity	JJG 1076-2001
Wind Speed	SOP-251
Wind Direction	SOP-252

6. Environment condition of calibration

Temperature ; ℃	24.3 ºC
Relative humidity ; %RH	48 %RH

7. Reference equipment used in the calibration

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

Note1: The estimated expanded uncertainties have been calculated in "Evaluation and expression of uncertainty in measurement" and give an interval 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: Date: 11 December 2020

Checked by: Date: 11 December 2020

*** End of Certificate ***

CT-END-02

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Appendix F – Weather information

General Information

Date	Absolute Daily Min Temperature (˚C)	Absolute Daily Max Temperature (˚C)	Total Rainfall (mm)
01/12/2020	17	22.4	0.0
02/12/2020	17.4	22.7	0.0
03/12/2020	15.4	20.6	0.0
04/12/2020	13.8	18.5	0.0
05/12/2020	13.9	19.8	0.0
06/12/2020	15.4	21.6	0.0
07/12/2020	18.1	23.2	0.0
08/12/2020	17.8	21.9	0.0
09/12/2020	18.4	21.4	Trace
10/12/2020	18.7	23.5	0.3
11/12/2020	20.3	23.6	Trace
12/12/2020	20.2	22.1	Trace
13/12/2020	20.2	22.5	0.0
14/12/2020	15.5	22.1	Trace
15/12/2020	13.4	16.8	Trace
16/12/2020	13.3	16.5	0.0
17/12/2020	13.6	16.5	0.0
18/12/2020	14.7	19.3	0.0
19/12/2020	12.5	17.8	0.0
20/12/2020	11.9	18.5	0.0
21/12/2020	13.0	19.6	0.0
22/12/2020	14.7	19.6	0.0
23/12/2020	16.9	19.7	1.2
24/12/2020	18.3	22.5	0.0
25/12/2020	17.4	20.9	0.0
26/12/2020	17.0	21.1	0.0
27/12/2020	17.6	24.5	0.0
28/12/2020	18.7	23.7	0.0
29/12/2020	18.7	24.5	0.0
30/12/2020	10.6	21.6	0.0
31/12/2020	8.1	14.2	0.0

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=2020&m=12

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

Date	Time	Wind Speed (m/s)	Wind Direction	Date	Time	Wind Speed (m/s)	Wind Direction	Date	Time	Wind Speed (m/s)	Wind Direction	Date	Time	Wind Speed (m/s)	Wind Direction
01/12/2020	0:00	0	0	02/12/2020	0:00	0	67.5	03/12/2020	0:00	0.9	22.5	04/12/2020	0:00	0.4	247.5
01/12/2020	1:00	0.4	225	02/12/2020	1:00	0.4	45	03/12/2020	1:00	0.9	22.5	04/12/2020	1:00	0.9	22.5
01/12/2020	2:00	0.4	0	02/12/2020	2:00	0	0	03/12/2020	2:00	0.9	157.5	04/12/2020	2:00	0.9	45
01/12/2020	3:00	0.4	0	02/12/2020	3:00	0.4	22.5	03/12/2020	3:00	0.9	22.5	04/12/2020	3:00	1.3	22.5
01/12/2020	4:00	0	337.5	02/12/2020	4:00	0.4	22.5	03/12/2020	4:00	0.4	67.5	04/12/2020	4:00	0.9	112.5
01/12/2020	5:00	0	315	02/12/2020	5:00	0.9	67.5	03/12/2020	5:00	0.9	337.5	04/12/2020	5:00	0.9	90
01/12/2020	6:00	0.4	315	02/12/2020	6:00	0.4	45	03/12/2020	6:00	0.4	225	04/12/2020	6:00	0.4	292.5
01/12/2020	7:00	0.4	45	02/12/2020	7:00	0.4	67.5	03/12/2020	7:00	0.9	135	04/12/2020	7:00	0.4	157.5
01/12/2020	8:00	0.4	270	02/12/2020	8:00	0.4	225	03/12/2020	8:00	0.9	67.5	04/12/2020	8:00	0.9	225
01/12/2020	9:00	0.9	337.5	02/12/2020	9:00	0.9	22.5	03/12/2020	9:00	0.9	315	04/12/2020	9:00	0.9	90
01/12/2020	10:00	0	90	02/12/2020	10:00	1.8	337.5	03/12/2020	10:00	1.3	45	04/12/2020	10:00	0.9	135
01/12/2020	11:00	0.9	22.5	02/12/2020	11:00	2.2	22.5	03/12/2020	11:00	1.3	135	04/12/2020	11:00	0.9	90
01/12/2020	12:00	0.9	337.5	02/12/2020	12:00	1.3	112.5	03/12/2020	12:00	1.3	337.5	04/12/2020	12:00	1.3	45
01/12/2020	13:00	1.8	22.5	02/12/2020	13:00	1.8	45	03/12/2020	13:00	0.9	67.5	04/12/2020	13:00	0.9	112.5
01/12/2020	14:00	1.3	90	02/12/2020	14:00	1.8	0	03/12/2020	14:00	1.3	90	04/12/2020	14:00	0.9	67.5
01/12/2020	15:00	1.3	0	02/12/2020	15:00	1.3	270	03/12/2020	15:00	0.9	112.5	04/12/2020	15:00	0.9	112.5
01/12/2020	16:00	0.4	292.5	02/12/2020	16:00	0.4	22.5	03/12/2020	16:00	1.3	0	04/12/2020	16:00	0.9	135
01/12/2020	17:00	0.4	45	02/12/2020	17:00	0.4	90	03/12/2020	17:00	1.3	22.5	04/12/2020	17:00	0.9	0
01/12/2020	18:00	0.4	90	02/12/2020	18:00	0.4	45	03/12/2020	18:00	0.9	337.5	04/12/2020	18:00	0.4	45
01/12/2020	19:00	0.4	45	02/12/2020	19:00	0.4	180	03/12/2020	19:00	0.4	22.5	04/12/2020	19:00	0.4	90
01/12/2020	20:00	0.9	22.5	02/12/2020	20:00	0.9	22.5	03/12/2020	20:00	0.9	45	04/12/2020	20:00	0.9	22.5
01/12/2020	21:00	0.4	0	02/12/2020	21:00	0.9	0	03/12/2020	21:00	0.4	225	04/12/2020	21:00	0.4	112.5
01/12/2020	22:00	0	0	02/12/2020	22:00	0.4	67.5	03/12/2020	22:00	0.9	225	04/12/2020	22:00	0.4	0
01/12/2020	23:00	0	67.5	02/12/2020	23:00	0.4	67.5	03/12/2020	23:00	1.3	22.5	04/12/2020	23:00	0.4	90

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

Date	Time	Wind Speed (m/s)	Wind Direction	Date	Time	Wind Speed (m/s)	Wind Direction	Date	Time	Wind Speed (m/s)	Wind Direction	Date	Time	Wind Speed (m/s)	Wind Direction
05/12/2020	0:00	0.4	0	06/12/2020	0:00	0.4	45	07/12/2020	0:00	0.4	270	08/12/2020	0:00	0.4	22.5
05/12/2020	1:00	0.4	247.5	06/12/2020	1:00	0.9	0	07/12/2020	1:00	0.4	247.5	08/12/2020	1:00	0	315
05/12/2020	2:00	0.9	315	06/12/2020	2:00	0.4	0	07/12/2020	2:00	0.4	247.5	08/12/2020	2:00	0.4	45
05/12/2020	3:00	0.9	45	06/12/2020	3:00	0.4	22.5	07/12/2020	3:00	0.4	45	08/12/2020	3:00	0.4	225
05/12/2020	4:00	0.4	22.5	06/12/2020	4:00	0.4	180	07/12/2020	4:00	0.9	315	08/12/2020	4:00	0.4	247.5
05/12/2020	5:00	0.4	315	06/12/2020	5:00	0	45	07/12/2020	5:00	0	22.5	08/12/2020	5:00	0.9	135
05/12/2020	6:00	0	247.5	06/12/2020	6:00	0.4	157.5	07/12/2020	6:00	0	247.5	08/12/2020	6:00	0.9	90
05/12/2020	7:00	0.4	247.5	06/12/2020	7:00	0	0	07/12/2020	7:00	0.4	0	08/12/2020	7:00	1.8	45
05/12/2020	8:00	0.9	22.5	06/12/2020	8:00	0.9	22.5	07/12/2020	8:00	0	225	08/12/2020	8:00	1.3	45
05/12/2020	9:00	0.9	135	06/12/2020	9:00	0.4	225	07/12/2020	9:00	0.4	270	08/12/2020	9:00	0.4	157.5
05/12/2020	10:00	0.9	247.5	06/12/2020	10:00	1.3	45	07/12/2020	10:00	0.4	247.5	08/12/2020	10:00	0.4	225
05/12/2020	11:00	0.9	270	06/12/2020	11:00	0.9	22.5	07/12/2020	11:00	0.4	270	08/12/2020	11:00	0.4	45
05/12/2020	12:00	1.3	112.5	06/12/2020	12:00	0.9	90	07/12/2020	12:00	0.4	270	08/12/2020	12:00	0.4	135
05/12/2020	13:00	1.3	247.5	06/12/2020	13:00	1.3	90	07/12/2020	13:00	0.4	270	08/12/2020	13:00	0.4	157.5
05/12/2020	14:00	0.9	67.5	06/12/2020	14:00	0.9	90	07/12/2020	14:00	0.4	112.5	08/12/2020	14:00	0.9	247.5
05/12/2020	15:00	0.9	135	06/12/2020	15:00	0.9	90	07/12/2020	15:00	0.9	112.5	08/12/2020	15:00	0.4	112.5
05/12/2020	16:00	0.9	112.5	06/12/2020	16:00	1.3	112.5	07/12/2020	16:00	0.9	0	08/12/2020	16:00	0.9	337.5
05/12/2020	17:00	0.9	22.5	06/12/2020	17:00	0.4	112.5	07/12/2020	17:00	0.4	112.5	08/12/2020	17:00	0.9	90
05/12/2020	18:00	0.9	22.5	06/12/2020	18:00	0.4	180	07/12/2020	18:00	0.9	180	08/12/2020	18:00	1.3	0
05/12/2020	19:00	0.9	0	06/12/2020	19:00	0.4	112.5	07/12/2020	19:00	0.4	0	08/12/2020	19:00	0.9	0
05/12/2020	20:00	0.4	22.5	06/12/2020	20:00	0.9	22.5	07/12/2020	20:00	0.4	270	08/12/2020	20:00	0	22.5
05/12/2020	21:00	0.9	337.5	06/12/2020	21:00	0.4	22.5	07/12/2020	21:00	0.4	67.5	08/12/2020	21:00	0.4	22.5
05/12/2020	22:00	0.4	0	06/12/2020	22:00	0	0	07/12/2020	22:00	0.9	0	08/12/2020	22:00	0.9	0
05/12/2020	23:00	0.4	337.5	06/12/2020	23:00	0	337.5	07/12/2020	23:00	0.9	22.5	08/12/2020	23:00	0.4	337.5

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

Date	Time	Wind Speed (m/s)	Wind Direction	Date	Time	Wind Speed (m/s)	Wind Direction	Date	Time	Wind Speed (m/s)	Wind Direction	Date	Time	Wind Speed (m/s)	Wind Direction
09/12/2020	0:00	0.4	22.5	10/12/2020	0:00	0.9	0	11/12/2020	0:00	0.4	112.5	12/12/2020	0:00	0	270
09/12/2020	1:00	0.4	90	10/12/2020	1:00	0.9	0	11/12/2020	1:00	0.4	90	12/12/2020	1:00	0	0
09/12/2020	2:00	0.4	22.5	10/12/2020	2:00	0.9	0	11/12/2020	2:00	0.9	90	12/12/2020	2:00	0	90
09/12/2020	3:00	0.4	337.5	10/12/2020	3:00	0.4	0	11/12/2020	3:00	0.9	67.5	12/12/2020	3:00	0	112.5
09/12/2020	4:00	0.4	22.5	10/12/2020	4:00	0	45	11/12/2020	4:00	0.9	22.5	12/12/2020	4:00	0.4	45
09/12/2020	5:00	0.4	45	10/12/2020	5:00	0	45	11/12/2020	5:00	0.4	90	12/12/2020	5:00	0	112.5
09/12/2020	6:00	0	315	10/12/2020	6:00	0.4	90	11/12/2020	6:00	0.4	112.5	12/12/2020	6:00	0	135
09/12/2020	7:00	0.4	270	10/12/2020	7:00	0	270	11/12/2020	7:00	0	112.5	12/12/2020	7:00	0.4	112.5
09/12/2020	8:00	0.4	225	10/12/2020	8:00	1.3	90	11/12/2020	8:00	0	22.5	12/12/2020	8:00	0.9	90
09/12/2020	9:00	0.4	247.5	10/12/2020	9:00	0.9	0	11/12/2020	9:00	0.4	0	12/12/2020	9:00	0.4	292.5
09/12/2020	10:00	0.9	45	10/12/2020	10:00	0.9	22.5	11/12/2020	10:00	0.9	112.5	12/12/2020	10:00	0.9	0
09/12/2020	11:00	0.9	0	10/12/2020	11:00	1.3	112.5	11/12/2020	11:00	0.9	90	12/12/2020	11:00	0.9	112.5
09/12/2020	12:00	1.3	45	10/12/2020	12:00	0.4	90	11/12/2020	12:00	1.3	90	12/12/2020	12:00	0.4	112.5
09/12/2020	13:00	0.9	112.5	10/12/2020	13:00	0.4	45	11/12/2020	13:00	0.9	112.5	12/12/2020	13:00	0.9	0
09/12/2020	14:00	1.3	22.5	10/12/2020	14:00	0	180	11/12/2020	14:00	0.9	90	12/12/2020	14:00	0.4	0
09/12/2020	15:00	0.9	90	10/12/2020	15:00	0	180	11/12/2020	15:00	1.3	90	12/12/2020	15:00	0.9	45
09/12/2020	16:00	0.9	112.5	10/12/2020	16:00	0.4	270	11/12/2020	16:00	1.3	90	12/12/2020	16:00	0.9	112.5
09/12/2020	17:00	0.4	112.5	10/12/2020	17:00	0.4	112.5	11/12/2020	17:00	0.9	90	12/12/2020	17:00	1.3	112.5
09/12/2020	18:00	0.9	112.5	10/12/2020	18:00	0.4	112.5	11/12/2020	18:00	1.3	90	12/12/2020	18:00	0.9	90
09/12/2020	19:00	0.9	112.5	10/12/2020	19:00	0	135	11/12/2020	19:00	1.3	112.5	12/12/2020	19:00	0.9	112.5
09/12/2020	20:00	0.4	0	10/12/2020	20:00	1.3	112.5	11/12/2020	20:00	0.9	112.5	12/12/2020	20:00	0.4	337.5
09/12/2020	21:00	0.4	0	10/12/2020	21:00	0.9	90	11/12/2020	21:00	0.4	112.5	12/12/2020	21:00	0.4	112.5
09/12/2020	22:00	0.4	292.5	10/12/2020	22:00	0.4	112.5	11/12/2020	22:00	0.4	45	12/12/2020	22:00	0.9	112.5
09/12/2020	23:00	0.4	315	10/12/2020	23:00	0.9	112.5	11/12/2020	23:00	0.4	112.5	12/12/2020	23:00	0.9	90

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

Date	Time	Wind Speed (m/s)	Wind Direction	Date	Time	Wind Speed (m/s)	Wind Direction	Date	Time	Wind Speed (m/s)	Wind Direction	Date	Time	Wind Speed (m/s)	Wind Direction
13/12/2020	0:00	0.4	112.5	14/12/2020	0:00	0.9	135	15/12/2020	0:00	0.4	225	16/12/2020	0:00	0.4	247.5
13/12/2020	1:00	0.4	90	14/12/2020	1:00	1.3	112.5	15/12/2020	1:00	0.4	270	16/12/2020	1:00	0.4	225
13/12/2020	2:00	0.9	45	14/12/2020	2:00	0.4	90	15/12/2020	2:00	0.4	112.5	16/12/2020	2:00	0.4	225
13/12/2020	3:00	0.9	22.5	14/12/2020	3:00	0.4	90	15/12/2020	3:00	1.3	112.5	16/12/2020	3:00	0.4	247.5
13/12/2020	4:00	0.9	90	14/12/2020	4:00	0.4	112.5	15/12/2020	4:00	0.4	247.5	16/12/2020	4:00	0	225
13/12/2020	5:00	1.3	22.5	14/12/2020	5:00	0.4	90	15/12/2020	5:00	0.4	67.5	16/12/2020	5:00	0.4	157.5
13/12/2020	6:00	0.9	90	14/12/2020	6:00	0.4	90	15/12/2020	6:00	0.9	247.5	16/12/2020	6:00	0.4	135
13/12/2020	7:00	1.3	90	14/12/2020	7:00	0.9	112.5	15/12/2020	7:00	0.4	247.5	16/12/2020	7:00	0.4	247.5
13/12/2020	8:00	1.3	90	14/12/2020	8:00	0.9	112.5	15/12/2020	8:00	0	22.5	16/12/2020	8:00	0.4	90
13/12/2020	9:00	0.9	67.5	14/12/2020	9:00	1.3	0	15/12/2020	9:00	0.4	292.5	16/12/2020	9:00	0.4	247.5
13/12/2020	10:00	1.3	90	14/12/2020	10:00	1.8	22.5	15/12/2020	10:00	1.3	22.5	16/12/2020	10:00	0.9	247.5
13/12/2020	11:00	1.8	112.5	14/12/2020	11:00	0.9	337.5	15/12/2020	11:00	1.3	67.5	16/12/2020	11:00	0.4	225
13/12/2020	12:00	1.3	90	14/12/2020	12:00	1.3	45	15/12/2020	12:00	0.9	45	16/12/2020	12:00	0.4	45
13/12/2020	13:00	1.8	90	14/12/2020	13:00	0.9	337.5	15/12/2020	13:00	0.4	90	16/12/2020	13:00	0.9	45
13/12/2020	14:00	1.8	112.5	14/12/2020	14:00	1.3	90	15/12/2020	14:00	0.9	225	16/12/2020	14:00	0.9	225
13/12/2020	15:00	1.8	90	14/12/2020	15:00	1.3	22.5	15/12/2020	15:00	0.4	90	16/12/2020	15:00	0.9	22.5
13/12/2020	16:00	1.3	112.5	14/12/2020	16:00	1.8	0	15/12/2020	16:00	0.4	45	16/12/2020	16:00	0.9	337.5
13/12/2020	17:00	1.3	90	14/12/2020	17:00	0.4	112.5	15/12/2020	17:00	0.9	0	16/12/2020	17:00	0.4	225
13/12/2020	18:00	0.4	112.5	14/12/2020	18:00	0.4	0	15/12/2020	18:00	0.4	337.5	16/12/2020	18:00	0.4	22.5
13/12/2020	19:00	0.4	90	14/12/2020	19:00	0.4	90	15/12/2020	19:00	0.4	337.5	16/12/2020	19:00	0.4	225
13/12/2020	20:00	0.4	112.5	14/12/2020	20:00	0.4	45	15/12/2020	20:00	0.4	22.5	16/12/2020	20:00	0.9	0
13/12/2020	21:00	0.4	67.5	14/12/2020	21:00	0.4	135	15/12/2020	21:00	0.4	247.5	16/12/2020	21:00	0.4	45
13/12/2020	22:00	0.4	112.5	14/12/2020	22:00	0	225	15/12/2020	22:00	0.4	135	16/12/2020	22:00	0.4	180
13/12/2020	23:00	0.9	112.5	14/12/2020	23:00	0.4	225	15/12/2020	23:00	0.4	337.5	16/12/2020	23:00	0.4	180

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

Date	Time	Wind Speed (m/s)	Wind Direction	Date	Time	Wind Speed (m/s)	Wind Direction	Date	Time	Wind Speed (m/s)	Wind Direction	Date	Time	Wind Speed (m/s)	Wind Direction
17/12/2020	0:00	0	202.5	18/12/2020	0:00	0	292.5	19/12/2020	0:00	1.3	337.5	20/12/2020	0:00	0.4	112.5
17/12/2020	1:00	0.4	225	18/12/2020	1:00	0.4	135	19/12/2020	1:00	0.9	90	20/12/2020	1:00	0.4	157.5
17/12/2020	2:00	0.4	247.5	18/12/2020	2:00	0.4	225	19/12/2020	2:00	0.9	22.5	20/12/2020	2:00	0.9	90
17/12/2020	3:00	0	247.5	18/12/2020	3:00	0.4	67.5	19/12/2020	3:00	0.4	22.5	20/12/2020	3:00	0.4	45
17/12/2020	4:00	0.9	247.5	18/12/2020	4:00	0.4	225	19/12/2020	4:00	0.4	45	20/12/2020	4:00	1.3	0
17/12/2020	5:00	0.4	225	18/12/2020	5:00	0.9	337.5	19/12/2020	5:00	0.9	67.5	20/12/2020	5:00	0.4	45
17/12/2020	6:00	0	202.5	18/12/2020	6:00	0.4	67.5	19/12/2020	6:00	1.3	315	20/12/2020	6:00	1.3	45
17/12/2020	7:00	0.4	225	18/12/2020	7:00	0.4	22.5	19/12/2020	7:00	1.8	45	20/12/2020	7:00	0.9	135
17/12/2020	8:00	0	157.5	18/12/2020	8:00	0.4	315	19/12/2020	8:00	0.9	0	20/12/2020	8:00	1.3	45
17/12/2020	9:00	0.4	270	18/12/2020	9:00	0.4	90	19/12/2020	9:00	0.9	292.5	20/12/2020	9:00	0.9	202.5
17/12/2020	10:00	0.4	225	18/12/2020	10:00	0.9	67.5	19/12/2020	10:00	0.9	180	20/12/2020	10:00	0.9	67.5
17/12/2020	11:00	0	45	18/12/2020	11:00	0.9	225	19/12/2020	11:00	0.9	135	20/12/2020	11:00	0.9	90
17/12/2020	12:00	0.9	0	18/12/2020	12:00	0.9	90	19/12/2020	12:00	1.8	45	20/12/2020	12:00	0.4	112.5
17/12/2020	13:00	0.9	22.5	18/12/2020	13:00	0.9	270	19/12/2020	13:00	1.3	45	20/12/2020	13:00	1.3	90
17/12/2020	14:00	0.4	337.5	18/12/2020	14:00	0.9	67.5	19/12/2020	14:00	1.8	45	20/12/2020	14:00	1.3	90
17/12/2020	15:00	1.3	22.5	18/12/2020	15:00	0.9	225	19/12/2020	15:00	1.3	45	20/12/2020	15:00	1.3	90
17/12/2020	16:00	0.4	22.5	18/12/2020	16:00	1.3	112.5	19/12/2020	16:00	0.9	90	20/12/2020	16:00	0.9	45
17/12/2020	17:00	0.4	292.5	18/12/2020	17:00	0.9	67.5	19/12/2020	17:00	0.4	90	20/12/2020	17:00	0.9	67.5
17/12/2020	18:00	0.4	0	18/12/2020	18:00	0.4	247.5	19/12/2020	18:00	0.9	337.5	20/12/2020	18:00	0.4	0
17/12/2020	19:00	0.4	337.5	18/12/2020	19:00	0.9	45	19/12/2020	19:00	0.9	45	20/12/2020	19:00	0.9	337.5
17/12/2020	20:00	0.4	337.5	18/12/2020	20:00	45	337.5	19/12/2020	20:00	0.4	180	20/12/2020	20:00	0.9	45
17/12/2020	21:00	0.4	247.5	18/12/2020	21:00	0.4	0	19/12/2020	21:00	0.4	0	20/12/2020	21:00	0.9	45
17/12/2020	22:00	0.4	315	18/12/2020	22:00	0.9	45	19/12/2020	22:00	0.4	112.5	20/12/2020	22:00	0.4	45
17/12/2020	23:00	0.4	247.5	18/12/2020	23:00	0.9	202.5	19/12/2020	23:00	0.9	90	20/12/2020	23:00	0.4	180

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

Date	Time	Wind Speed (m/s)	Wind Direction	Date	Time	Wind Speed (m/s)	Wind Direction	Date	Time	Wind Speed (m/s)	Wind Direction	Date	Time	Wind Speed (m/s)	Wind Direction
21/12/2020	0:00	0.4	45	22/12/2020	0:00	0	67.5	23/12/2020	0:00	0.9	112.5	24/12/2020	0:00	0.4	135
21/12/2020	1:00	0.4	0	22/12/2020	1:00	0	0	23/12/2020	1:00	0.9	112.5	24/12/2020	1:00	0.4	112.5
21/12/2020	2:00	0.4	315	22/12/2020	2:00	0	22.5	23/12/2020	2:00	0.9	112.5	24/12/2020	2:00	0	202.5
21/12/2020	3:00	0.4	90	22/12/2020	3:00	0.9	45	23/12/2020	3:00	0.4	270	24/12/2020	3:00	0	135
21/12/2020	4:00	0.4	112.5	22/12/2020	4:00	0	315	23/12/2020	4:00	0.9	112.5	24/12/2020	4:00	0	135
21/12/2020	5:00	0.9	0	22/12/2020	5:00	0.4	292.5	23/12/2020	5:00	1.3	22.5	24/12/2020	5:00	0	135
21/12/2020	6:00	1.3	45	22/12/2020	6:00	0	45	23/12/2020	6:00	0	45	24/12/2020	6:00	0.4	90
21/12/2020	7:00	0.9	112.5	22/12/2020	7:00	0.4	337.5	23/12/2020	7:00	0.4	247.5	24/12/2020	7:00	0.4	315
21/12/2020	8:00	0.9	22.5	22/12/2020	8:00	0.4	247.5	23/12/2020	8:00	0	225	24/12/2020	8:00	0	292.5
21/12/2020	9:00	1.3	0	22/12/2020	9:00	0.4	292.5	23/12/2020	9:00	0.9	0	24/12/2020	9:00	0.4	292.5
21/12/2020	10:00	0.9	202.5	22/12/2020	10:00	0.4	0	23/12/2020	10:00	0.9	0	24/12/2020	10:00	0.4	90
21/12/2020	11:00	0.9	247.5	22/12/2020	11:00	0.9	0	23/12/2020	11:00	0.9	337.5	24/12/2020	11:00	0.4	270
21/12/2020	12:00	0.9	90	22/12/2020	12:00	0.4	315	23/12/2020	12:00	0.9	22.5	24/12/2020	12:00	0.9	90
21/12/2020	13:00	0.9	247.5	22/12/2020	13:00	0.9	112.5	23/12/2020	13:00	0.4	135	24/12/2020	13:00	0.4	270
21/12/2020	14:00	0.4	135	22/12/2020	14:00	1.8	112.5	23/12/2020	14:00	1.3	112.5	24/12/2020	14:00	0.9	90
21/12/2020	15:00	1.3	90	22/12/2020	15:00	0.9	90	23/12/2020	15:00	0.4	135	24/12/2020	15:00	0.4	90
21/12/2020	16:00	1.3	112.5	22/12/2020	16:00	0.9	112.5	23/12/2020	16:00	0.9	112.5	24/12/2020	16:00	2.2	247.5
21/12/2020	17:00	1.3	22.5	22/12/2020	17:00	0.9	112.5	23/12/2020	17:00	1.3	112.5	24/12/2020	17:00	1.3	247.5
21/12/2020	18:00	0.9	112.5	22/12/2020	18:00	0.9	112.5	23/12/2020	18:00	0.4	112.5	24/12/2020	18:00	0.9	247.5
21/12/2020	19:00	0.9	0	22/12/2020	19:00	0.4	135	23/12/2020	19:00	0	45	24/12/2020	19:00	0.4	225
21/12/2020	20:00	0.4	0	22/12/2020	20:00	0.4	112.5	23/12/2020	20:00	0.4	135	24/12/2020	20:00	1.3	112.5
21/12/2020	21:00	0.9	337.5	22/12/2020	21:00	0.9	0	23/12/2020	21:00	0.4	135	24/12/2020	21:00	1.3	45
21/12/2020	22:00	0	0	22/12/2020	22:00	0.4	337.5	23/12/2020	22:00	0.4	135	24/12/2020	22:00	0.9	0
21/12/2020	23:00	0	67.5	22/12/2020	23:00	0.4	315	23/12/2020	23:00	0.4	112.5	24/12/2020	23:00	0.4	90

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

Date	Time	Wind Speed (m/s)	Wind Direction	Date	Time	Wind Speed (m/s)	Wind Direction	Date	Time	Wind Speed (m/s)	Wind Direction	Date	Time	Wind Speed (m/s)	Wind Direction
25/12/2020	0:00	0.9	22.5	26/12/2020	0:00	1.3	112.5	27/12/2020	0:00	0.4	112.5	28/12/2020	0:00	0.9	112.5
25/12/2020	1:00	0.4	0	26/12/2020	1:00	1.3	0	27/12/2020	1:00	0.4	67.5	28/12/2020	1:00	0.9	112.5
25/12/2020	2:00	0.9	45	26/12/2020	2:00	1.3	112.5	27/12/2020	2:00	0.9	90	28/12/2020	2:00	0.9	90
25/12/2020	3:00	0.9	337.5	26/12/2020	3:00	2.2	90	27/12/2020	3:00	0.9	90	28/12/2020	3:00	0.4	112.5
25/12/2020	4:00	0	112.5	26/12/2020	4:00	1.8	90	27/12/2020	4:00	0.4	135	28/12/2020	4:00	0.4	112.5
25/12/2020	5:00	0.4	0	26/12/2020	5:00	1.8	112.5	27/12/2020	5:00	0	135	28/12/2020	5:00	0	112.5
25/12/2020	6:00	0.4	22.5	26/12/2020	6:00	1.8	90	27/12/2020	6:00	0	0	28/12/2020	6:00	0	135
25/12/2020	7:00	0.4	337.5	26/12/2020	7:00	1.3	112.5	27/12/2020	7:00	0	157.5	28/12/2020	7:00	0	180
25/12/2020	8:00	1.3	112.5	26/12/2020	8:00	0.9	112.5	27/12/2020	8:00	0	0	28/12/2020	8:00	0.4	112.5
25/12/2020	9:00	0.9	112.5	26/12/2020	9:00	1.3	90	27/12/2020	9:00	0.9	135	28/12/2020	9:00	1.3	112.5
25/12/2020	10:00	1.3	22.5	26/12/2020	10:00	2.2	90	27/12/2020	10:00	1.3	112.5	28/12/2020	10:00	1.8	112.5
25/12/2020	11:00	1.8	90	26/12/2020	11:00	2.7	90	27/12/2020	11:00	0.9	112.5	28/12/2020	11:00	1.8	112.5
25/12/2020	12:00	1.3	90	26/12/2020	12:00	2.7	112.5	27/12/2020	12:00	0.4	135	28/12/2020	12:00	1.3	112.5
25/12/2020	13:00	1.3	112.5	26/12/2020	13:00	2.7	90	27/12/2020	13:00	0.4	247.5	28/12/2020	13:00	1.3	112.5
25/12/2020	14:00	0.9	90	26/12/2020	14:00	2.2	90	27/12/2020	14:00	0.4	90	28/12/2020	14:00	1.8	90
25/12/2020	15:00	0.9	112.5	26/12/2020	15:00	0.9	112.5	27/12/2020	15:00	0.4	112.5	28/12/2020	15:00	1.8	112.5
25/12/2020	16:00	1.3	112.5	26/12/2020	16:00	1.3	90	27/12/2020	16:00	0.4	247.5	28/12/2020	16:00	2.7	90
25/12/2020	17:00	1.3	112.5	26/12/2020	17:00	0.9	90	27/12/2020	17:00	0	112.5	28/12/2020	17:00	1.8	112.5
25/12/2020	18:00	1.3	90	26/12/2020	18:00	0.9	90	27/12/2020	18:00	0.4	112.5	28/12/2020	18:00	0.9	90
25/12/2020	19:00	0.9	90	26/12/2020	19:00	0.4	112.5	27/12/2020	19:00	0.9	90	28/12/2020	19:00	2.2	90
25/12/2020	20:00	1.3	90	26/12/2020	20:00	0.4	112.5	27/12/2020	20:00	0.9	112.5	28/12/2020	20:00	2.2	90
25/12/2020	21:00	2.2	112.5	26/12/2020	21:00	0.9	112.5	27/12/2020	21:00	0.9	112.5	28/12/2020	21:00	2.2	67.5
25/12/2020	22:00	1.8	90	26/12/2020	22:00	1.3	112.5	27/12/2020	22:00	0.9	112.5	28/12/2020	22:00	1.8	90
25/12/2020	23:00	2.2	90	26/12/2020	23:00	0.9	112.5	27/12/2020	23:00	0.9	112.5	28/12/2020	23:00	1.3	112.5

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

Date	Time	Wind Speed (m/s)	Wind Direction	Date	Time	Wind Speed (m/s)	Wind Direction	Date	Time	Wind Speed (m/s)	Wind Direction	Date	Time	Wind Speed (m/s)	Wind Direction
29/12/2020	0:00	0.9	45	30/12/2020	0:00	0	45	31/12/2020	0:00	0.9	67.5				
29/12/2020	1:00	1.8	90	30/12/2020	1:00	1.3	112.5	31/12/2020	1:00	0.9	45				
29/12/2020	2:00	1.3	112.5	30/12/2020	2:00	1.3	315	31/12/2020	2:00	0.9	67.5				
29/12/2020	3:00	2.7	90	30/12/2020	3:00	1.8	0	31/12/2020	3:00	1.3	45				
29/12/2020	4:00	2.2	90	30/12/2020	4:00	2.2	337.5	31/12/2020	4:00	0.9	45				
29/12/2020	5:00	1.3	112.5	30/12/2020	5:00	1.3	45	31/12/2020	5:00	0.9	22.5				
29/12/2020	6:00	0.9	90	30/12/2020	6:00	1.8	0	31/12/2020	6:00	0.9	270				
29/12/2020	7:00	1.3	112.5	30/12/2020	7:00	1.8	22.5	31/12/2020	7:00	0.4	22.5				
29/12/2020	8:00	1.3	112.5	30/12/2020	8:00	2.2	22.5	31/12/2020	8:00	0.4	270				
29/12/2020	9:00	0.9	135	30/12/2020	9:00	1.3	0	31/12/2020	9:00	0.9	225				
29/12/2020	10:00	0.9	112.5	30/12/2020	10:00	1.3	292.5	31/12/2020	10:00	0.4	112.5				
29/12/2020	11:00	1.3	112.5	30/12/2020	11:00	1.3	45	31/12/2020	11:00	0.9	90				
29/12/2020	12:00	1.3	112.5	30/12/2020	12:00	2.2	67.5	31/12/2020	12:00	0.9	180				
29/12/2020	13:00	0.9	90	30/12/2020	13:00	2.2	45	31/12/2020	13:00	1.3	90				
29/12/2020	14:00	0.9	112.5	30/12/2020	14:00	1.8	45	31/12/2020	14:00	1.3	0				
29/12/2020	15:00	0.9	112.5	30/12/2020	15:00	1.8	0	31/12/2020	15:00	1.8	90				
29/12/2020	16:00	0.9	112.5	30/12/2020	16:00	1.3	337.5	31/12/2020	16:00	1.3	67.5				
29/12/2020	17:00	0.9	112.5	30/12/2020	17:00	1.3	45	31/12/2020	17:00	1.3	247.5				
29/12/2020	18:00	0.9	112.5	30/12/2020	18:00	1.3	90	31/12/2020	18:00	0.9	247.5				
29/12/2020	19:00	0.9	112.5	30/12/2020	19:00	1.3	45	31/12/2020	19:00	0.4	225				
29/12/2020	20:00	0.4	112.5	30/12/2020	20:00	0.9	315	31/12/2020	20:00	1.3	112.5				
29/12/2020	21:00	0.9	112.5	30/12/2020	21:00	0.9	45	31/12/2020	21:00	1.3	45				
29/12/2020	22:00	0	90	30/12/2020	22:00	1.3	45	31/12/2020	22:00	0.9	0				
29/12/2020	23:00	0	0	30/12/2020	23:00	0.9	22.5	31/12/2020	23:00	0.4	90				

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

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			
2/12/2020	Sunny	21.5	1020.5	14.2291	14.4206	0.1915	2073.31	2097.34	1442	49	49	1.42	2045	94
8/12/2020	Sunny	24.3	1019.7	15.0145	15.1932	0.1787	2219.55	2243.58	1442	48	48	1.38	1990	90
14/12/2020	Cloudy	21.3	1018.1	18.4241	18.5974	0.1733	2244.63	2268.67	1442	48	48	1.37	1982	87
19/12/2020	Sunny	13.5	1023.4	15.5175	15.6856	0.1681	2268.77	2292.81	1442	50	50	1.46	2103	80
23/12/2020	Sunny	19.5	1016.9	15.6335	15.7495	0.116	2294.62	2318.65	1442	48	48	1.38	1987	58
29/12/2020	Sunny	23.7	1014.8	18.5162	18.7598	0.2436	2319.51	2343.54	1442	50	50	1.43	2055	119
												Maximum		119
												Minimum		58
												Average		88
												Action Level		182
												Limit Level		260

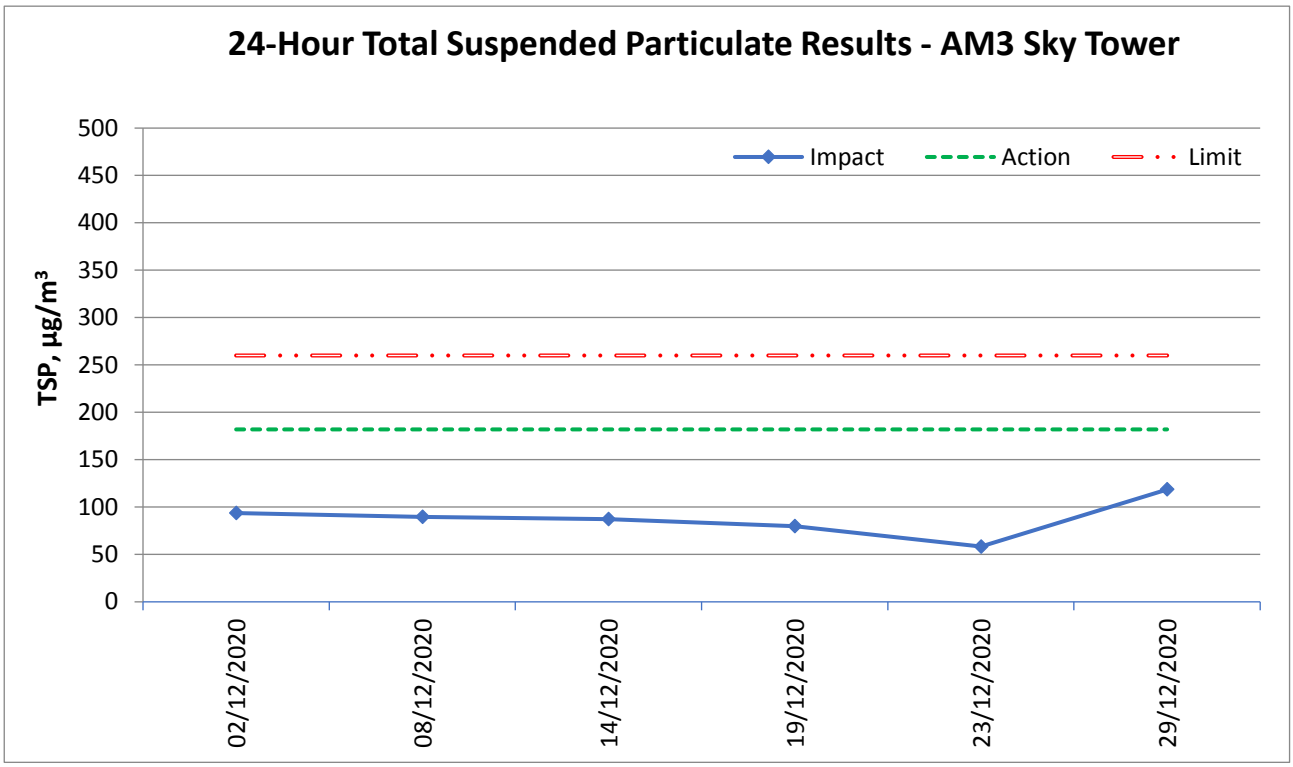
Location: AM4(A) – The Hong Kong Society for the Blind's Factory cum Sheltered Workshop

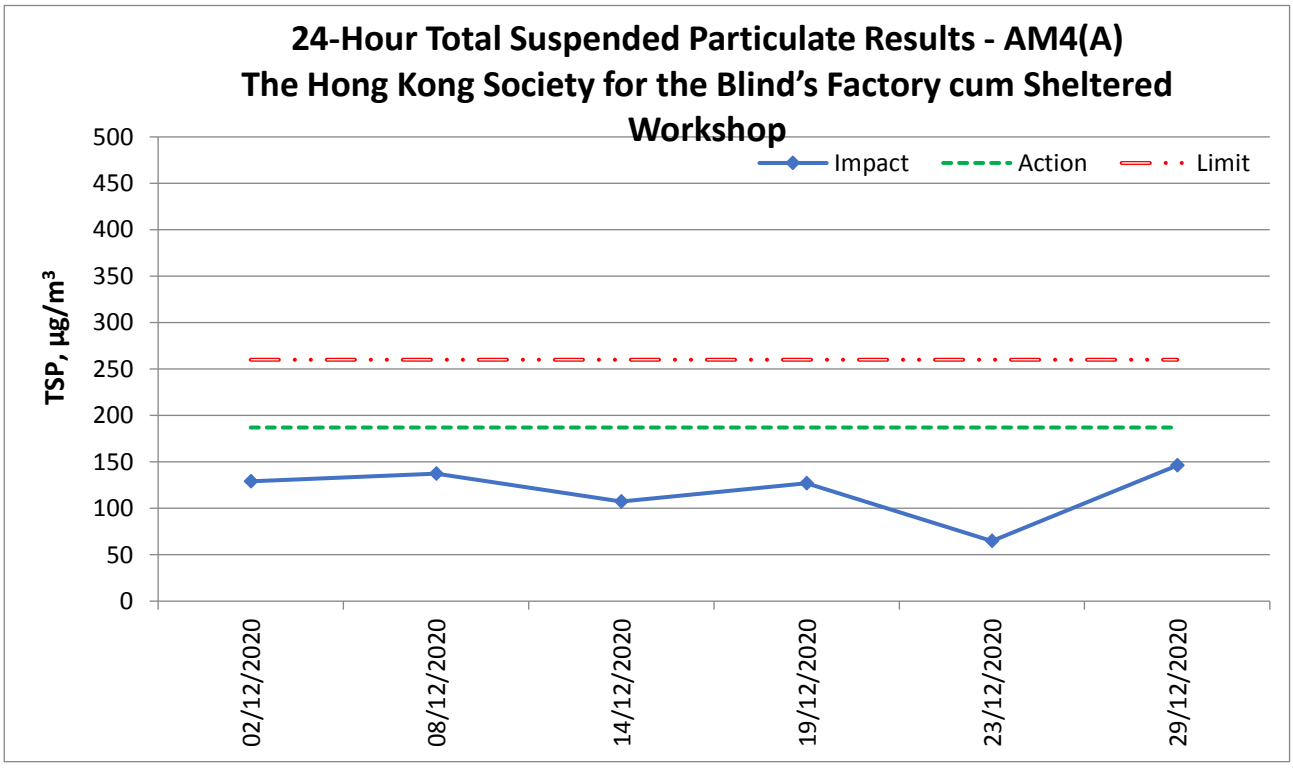
Start Date	Weather	Air Temp. (℃)	Atmospheric Pressure (hPa)	Filter weight (g)		Particulate weight (g)	Elapse Time		Sampling Time (min)	Flow Rate (cfm)		Av. Flow (m^3/min)	Total vol. (m^3)	Conc. (μg/m^3)
				Initial	Final		Initial	Final		Initial	Final			
2/12/2020	Sunny	21.5	1020.5	17.8512	18.1141	0.2629	1891.67	1915.73	1444	50	50	1.41	2040	129
8/12/2020	Sunny	24.3	1019.7	18.3408	18.6193	0.2785	1943.75	1967.8	1443	50	50	1.41	2028	137
14/12/2020	Cloudy	21.3	1018.1	18.3563	18.5666	0.2103	1968.12	1992.17	1443	48	48	1.36	1957	107
19/12/2020	Sunny	13.5	1023.4	18.4644	18.7222	0.2578	1993.52	2017.55	1442	49	49	1.41	2031	127
23/12/2020	Sunny	19.5	1016.9	15.6572	15.7896	0.1324	2019.67	2043.69	1441	50	50	1.42	2044	65
29/12/2020	Sunny	23.7	1014.8	18.4196	18.7144	0.2948	2044.67	2068.71	1442	49	49	1.38	2017	146
												Maximum		146
												Minimum		65
												Average		119
												Action Level		187
												Limit Level		260

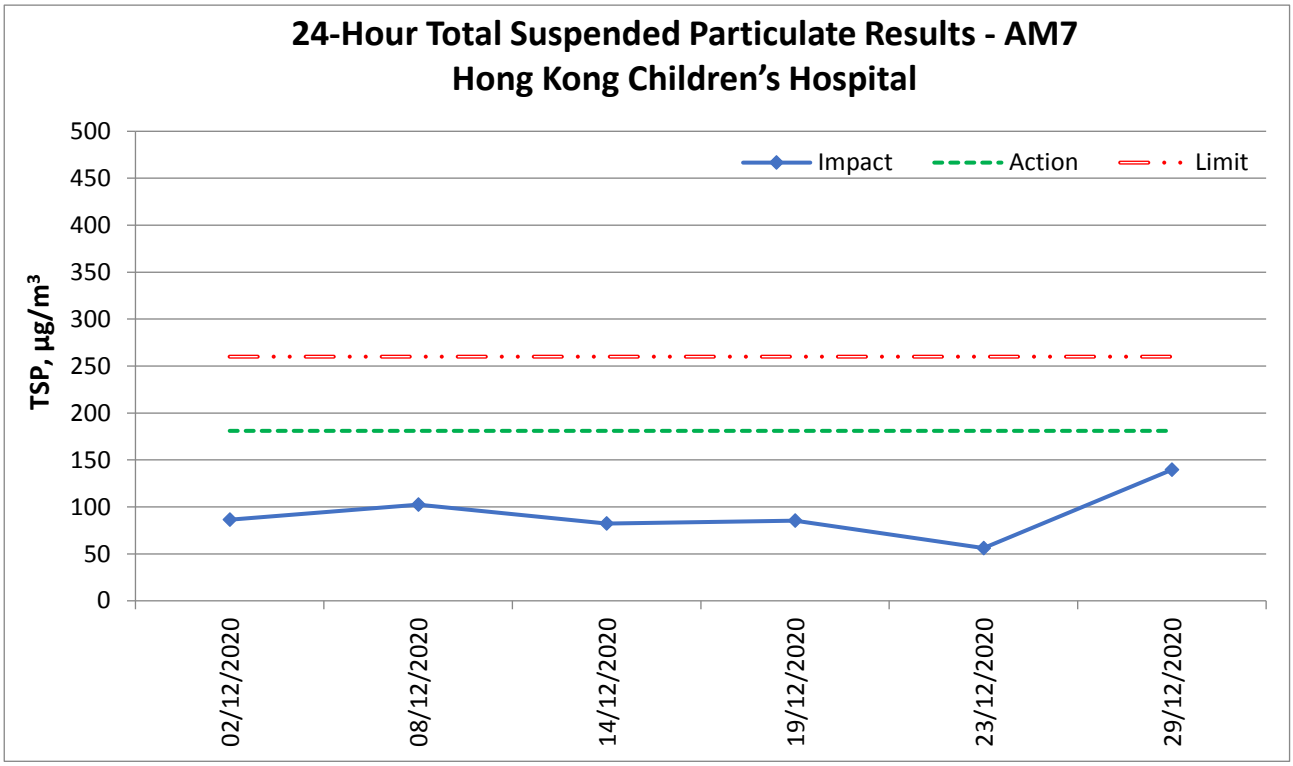
Location: AM7 – Hong Kong Children's Hospital

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			
2/12/2020	Sunny	21.5	1020.5	18.3602	18.5379	0.1777	6738.82	6762.84	1441	52	52	1.43	2057	86
8/12/2020	Sunny	24.3	1019.7	15.1894	15.3906	0.2012	6763.04	6787.08	1442	50	50	1.36	1967	102
14/12/2020	Cloudy	21.3	1018.1	18.2399	18.4086	0.1687	6788.01	6812.05	1442	52	52	1.42	2054	82
19/12/2020	Sunny	13.5	1023.4	18.3526	18.5305	0.1779	6812.17	6836.21	1442	52	52	1.45	2088	85
23/12/2020	Sunny	19.5	1016.9	18.588	18.7036	0.1156	6836.34	6860.37	1442	52	52	1.43	2059	56
29/12/2020	Sunny	23.7	1014.8	15.6733	15.9584	0.2851	6860.47	6884.51	1442	52	52	1.42	2043	140
												Maximum		140
												Minimum		56
												Average		92
												Action Level		181
												Limit Level		260

24-hour average TSP






24-Hour Total Suspended Particulate Results - AM7
Hong Kong Children's Hospital
TSP, µg/m³
500
450
400
350
300
250
200
150
100
50
0
Impact
Action
Limit
02/12/2020
08/12/2020
14/12/2020
19/12/2020
23/12/2020
29/12/2020

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

Location:
AM3 -
Sky Tower

Date	Measurement Period			1-hr TSP concentration, $\mu g/m^3$	Weather
2/12/2020	9:00	-	10:00	112	Sunny
	10:00	-	11:00	116	
	11:00	-	12:00	123	
8/12/2020	13:00	-	14:00	105	Sunny
	14:00	-	15:00	108	
	15:00	-	16:00	110	
14/12/2020	9:00	-	10:00	98	Cloudy
	10:00	-	11:00	105	
	11:00	-	12:00	106	
19/12/2020	13:00	-	14:00	89	Sunny
	14:00	-	15:00	92	
	15:00	-	16:00	94	
23/12/2020	9:00	-	10:00	67	Sunny
	10:00	-	11:00	68	
	11:00	-	12:00	73	
29/12/2020	13:00	-	14:00	91	Sunny
	14:00	-	15:00	94	
	15:00	-	16:00	95	
Maximum				123	
Minimum				67	
Average				97	
Action Level				297	
Limit Level				500	

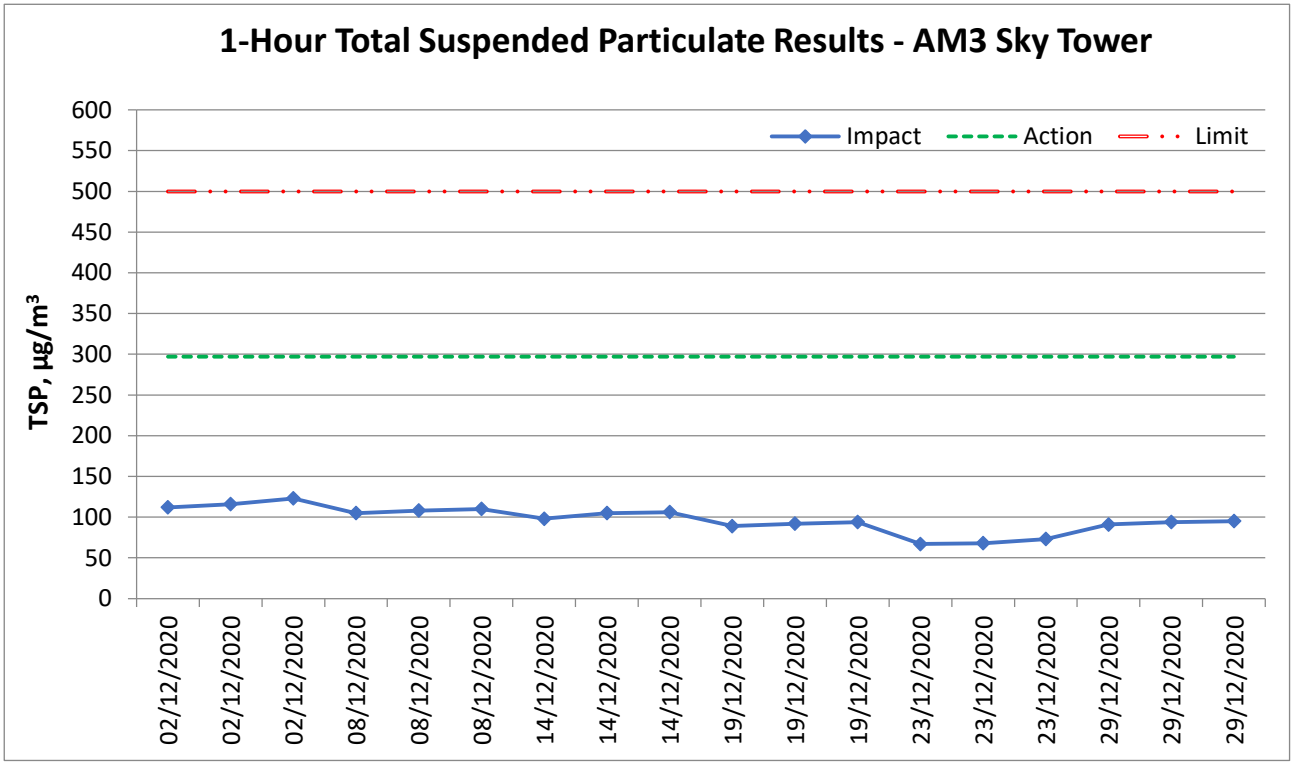
Location:
AM4(A) - The Hong Kong Society for the Blind's Factory cum Sheltered Workshop

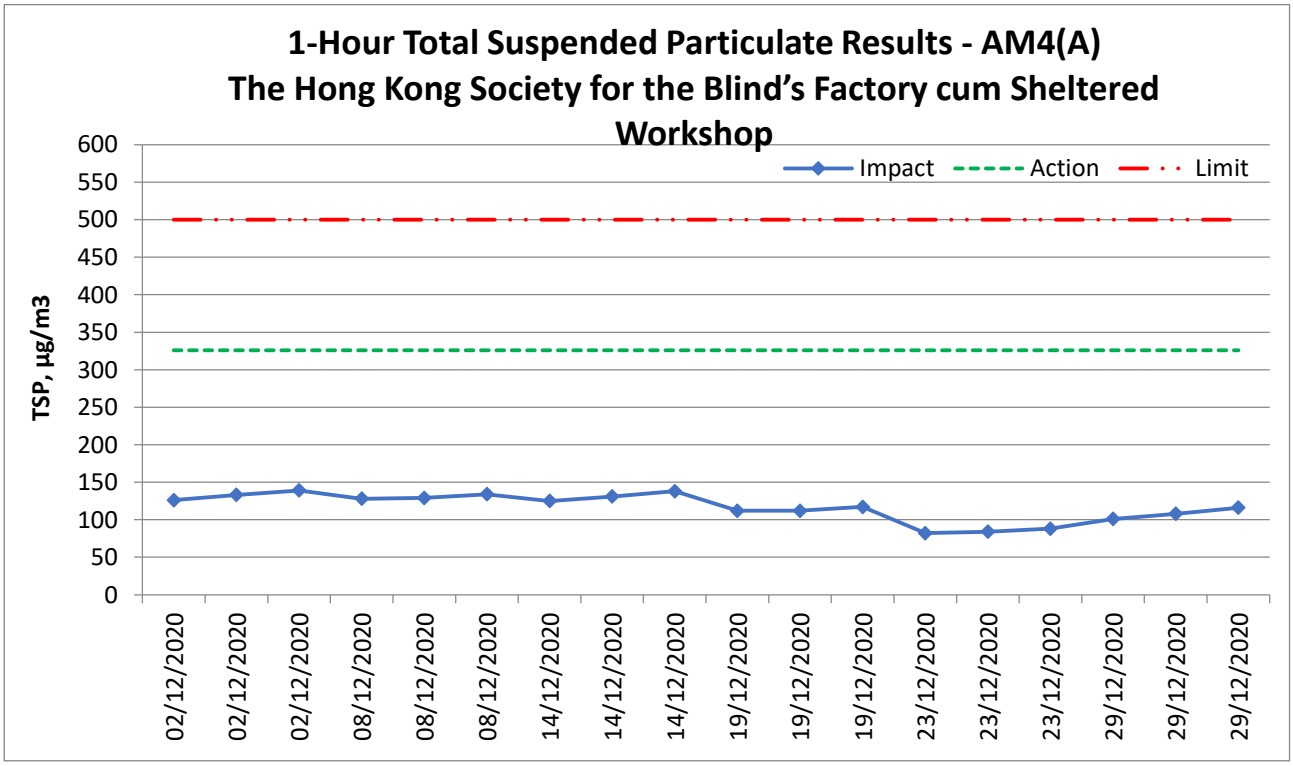
Date	Measurement Period			1-hr TSP concentration, $\mu g/m^3$	Weather
2/12/2020	13:00	-	14:00	126	Sunny
	14:00	-	15:00	133	
	15:00	-	16:00	139	
8/12/2020	9:00	-	10:00	128	Sunny
	10:00	-	11:00	129	
	11:00	-	12:00	134	
14/12/2020	13:00	-	14:00	125	Cloudy
	14:00	-	15:00	131	
	15:00	-	16:00	138	
19/12/2020	9:00	-	10:00	112	Sunny
	10:00	-	11:00	112	
	11:00	-	12:00	117	
23/12/2020	13:00	-	14:00	82	Sunny
	14:00	-	15:00	84	
	15:00	-	16:00	88	
29/12/2020	9:00	-	10:00	101	Sunny
	10:00	-	11:00	108	
	11:00	-	12:00	116	
Maximum				139	
Minimum				82	
Average				117	
Action Level				326	
Limit Level				500	

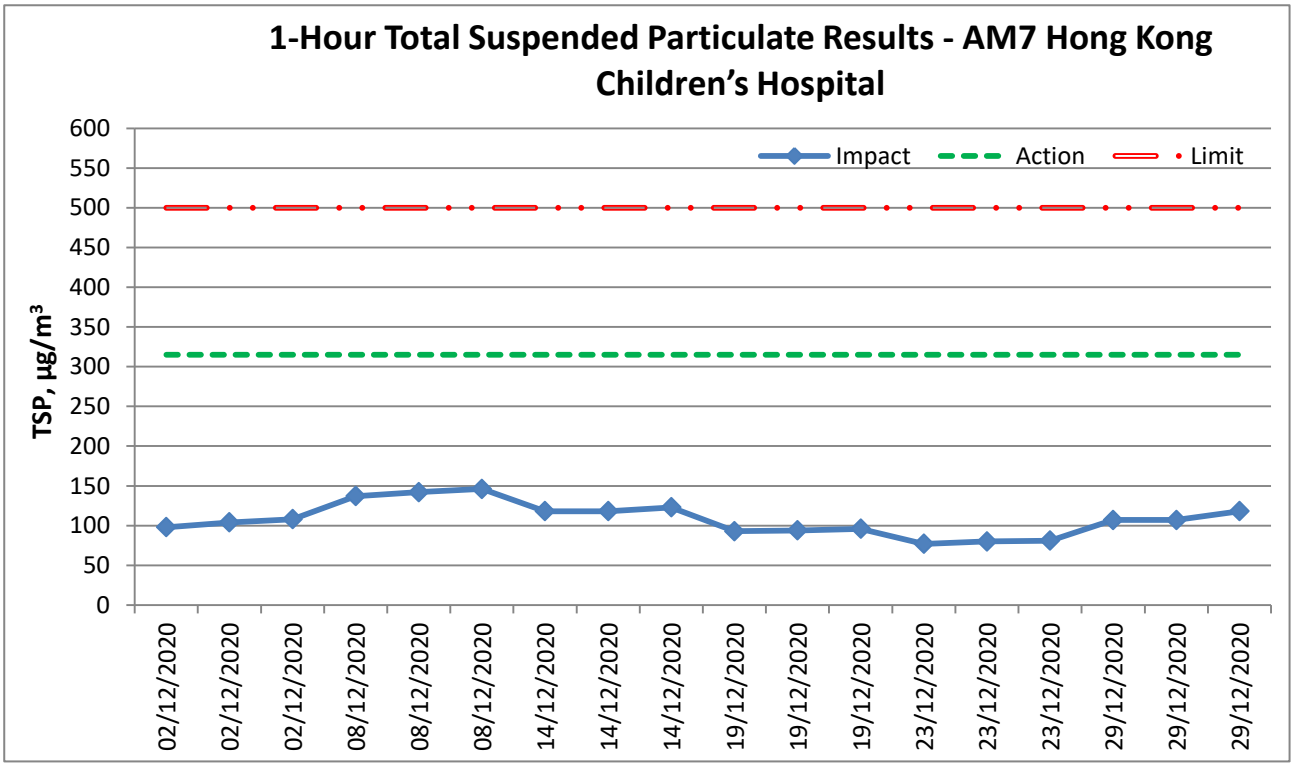
Location: **AM7 - Hong Kong Children's Hospital**

Date	Measurement Period			1-hr TSP concentration, $\mu g/m^3$	Weather
2/12/2020	9:00	-	10:00	98	Sunny
	10:00	-	11:00	104	
	11:00	-	12:00	108	
8/12/2020	11:00	-	12:00	137	Sunny
	13:00	-	14:00	142	
	14:00	-	15:00	146	
14/12/2020	9:00	-	10:00	118	Cloudy
	10:00	-	11:00	118	
	11:00	-	12:00	123	
19/12/2020	9:00	-	10:00	93	Sunny
	10:00	-	11:00	94	
	11:00	-	12:00	96	
23/12/2020	13:00	-	14:00	77	Sunny
	14:00	-	15:00	80	
	15:00	-	16:00	81	
29/12/2020	9:00	-	10:00	107	Sunny
	10:00	-	11:00	107	
	11:00	-	12:00	118	
Maximum				146	
Minimum				77	
Average				108	
Action Level				315	
Limit Level				500	

1-hour average TSP






1-Hour Total Suspended Particulate Results - AM7 Hong Kong Children's Hospital
TSP, µg/m³
600
550
500
450
400
350
300
250
200
150
100
50
0
Impact
Action
Limit
02/12/2020
02/12/2020
02/12/2020
08/12/2020
08/12/2020
08/12/2020
14/12/2020
14/12/2020
14/12/2020
19/12/2020
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29/12/2020
29/12/2020

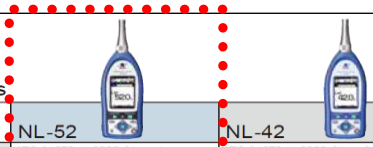
Appendix I – Event and Action Plan for air quality

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} Δ-time-weighted equivalent continuous sound level: $L_{A\Delta eq}$ ＊2 Maximum Δ-time-weighted equivalent continuous sound level: $L_{A\Delta max}$ ＊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 ℃)	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 ℃
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.

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

校 准 证 书
CALIBRATION CERTIFICATE

证书编号：2HB20001172-0003
Certificate No.

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	2020-07-15
校准日期：Cal. Date	2020-07-20
签发日期：App. Date	2020-07-20
建议校准周期：Reference Cal. Period	12个月(12 Months)
结论：Conclusion	所校准项目合格(Passed at Calibration Items)

校准：Calibrated by 陈卓辉　　核验：Inspected by 钟灏

签发：Approved by 郑木为　　印章：Stamp

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

CEPREI Calibration and Testing Centre
H.Q. Addr: No.110,Dongguanzhuang Road,Tianhe District,Guangzhou
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的要求，获得中国合格评定国家认可委员会（CNAS）认可，认可证书号为：CNAS L13344。
This laboratory quality management system meets the ISO/IEC 17025 and is accredited by the China National Accreditation Service for Conformity Assessment, No. CNAS L13344.

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

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

名 称 (Description)	证书号/有效期/溯源单位 (Certificate No./Due Date/Traceability to)	技术指标 (Specification)
数字多用表	4GC19040017-0001/2020-11-03/赛宝	DCV：±0.0035%；ACV：±0.06%；DCI：±0.05%；ACI：±0.1%；R：±0.01%；f：±0.01%
步进衰减器	4GC20000158-0012/2021-04-29/赛宝	±3dB
标准传声器	GFJGJL100120031016 4/2021-02-26/航空304所	U=(0.05~0.12)dB（k=2）
声校准器	4GC19040146-0209/2020-12-29/赛宝	1级
正弦信号发生器	4GC19040057-0001/2020-11-05/赛宝	f：±1mHz；失真度：<-70dB
PULSE分析系统	4GC20000009-0001/2021-01-08/赛宝	频率:U_{rel}=0.001%,k=2;电压:U_{rel}=0.04%,k=2
前置放大器	GFJGJL100120031016 5/2021-02-26/航空304所	U=0.3dB（k=2）

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

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

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

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

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

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

Calibration Certificate of Sound Level Meter

CEPREI

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

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

无影响证书中校准结果准确度的因素和缺陷。

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

2 指示声级调整 (Indication SPL Calibration)　　频率(Frequency)=1000Hz

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

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

3 级线性 (Level Linearity)

3.1 参考级量程 (Reference Range)　　频率(Frequency): 8000Hz

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

3.2 其它级量程 (Other Range)　　频率(Frequency): 1000Hz

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

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

4 A计权特性(A-Weighting Characteristic)

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

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

5 C计权特性(C-Weighting Characteristic)

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

CEPREI

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

6 自生噪声 (Autogenous noise)

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

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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)
CEPREI CHINA CEPREI LABORATORY CALIBRATION & TESTING CENTRE

校 准 证 书
CALIBRATION CERTIFICATE

证书编号：2HB20001172-0004
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.	00976204
管理号：Asset No.	AAST-SLM-11
接收日期：Rec. Date	2020-07-15
校准日期：Cal. Date	2020-07-20
签发日期：App. Date	2020-07-20
建议校准周期：Reference Cal. Period	12个月(12 Months)
结论：Conclusion	所校准项目合格(Passed at Calibration Items)

校准：Calibrated by 陈卓辉　　核验：Inspected by 钟灏

签发：Approved by 郑木为　　印章：Stamp

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

CEPREI Calibration and Testing Centre
H.Q. Addr: No.110,Dongguanzhuang Road,Tianhe District,Guangzhou
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的要求，获得中国合格评定国家认可委员会（CNAS）认可，认可证书号为：CNAS L13344。
This laboratory quality management system meets the ISO/IEC 17025 and is accredited by the China National Accreditation Service for Conformity Assessment, No. CNAS L13344.

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

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

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

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

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

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

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

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

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

Calibration Certificate of Sound Level Meter

CEPREI

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

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

无影响证书中校准结果准确度的因素和缺陷。

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

2 指示声级调整 (Indication SPL Calibration)　　频率(Frequency)=1000Hz

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

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

3 级线性 (Level Linearity)

3.1 参考级量程 (Reference Range)　　频率(Frequency): 8000Hz

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

3.2 其它级量程 (Other Range)　　频率(Frequency): 1000Hz

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

CEPREI

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

4 A计权特性(A-Weighting Characteristic)

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

CEPREI

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

5 C计权特性(C-Weighting Characteristic)

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

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

6 自生噪声 (Autogenous noise)

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

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Catalogue of Sound Calibrator	Calibration Certificate of Sound Calibrator

For microphone calibration **NC-74**

How to use

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

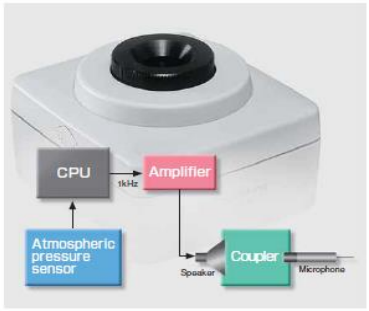


Usage example (NL series)

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

Atmospheric pressure compensation principle

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



Using the 1/2-inch adapter

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



Specifications

Applicable standards	IEC 60942:2003 Class 1 JIS C1515:2004 Class 1	
Suitable microphones	1-inch microphones	IEC 61094-1 Type LS1P UC-27 UC-25 UC-34
	1/2-inch microphones	IEC 61094-1 Type LS2aP UC-59 UC-57 UC-53A UC-52 UC-26 UC-30 UC-31 UC-33P
Nominal sound pressure level	94 dB	
Sound pressure level tolerance	±0.3 dB	
Nominal frequency	1 kHz	
Frequency tolerance	±1.0 % or less	
Power requirements	IEC LR6 (size AA) alkaline battery × 2	
Dimensions, mass	Approx. 49 (H) × 80 (W) × 74 (D) mm Approx. 200 g (including batteries)	
Supplied accessories	Case × 1 IEC LR6 (size AA) alkaline battery × 2 1/2-inch microphone adapter NC-74-002 × 1	

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

* Specification subject to change without notice.

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

Distributed by:

Printed in Japan 0510-1 0807.P.MP

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: 2IIB20001561-0002
Certificate No.

CNAS 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-74
制造商: Manufacturer	RION
机身号: Serial No.	34678556
管理号: Asset No.	AAST-SLC-06
接收日期: Rec. Date	2020-09-08
校准日期: Cal. Date	2020-09-12
签发日期: App. Date	2020-09-12
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 钟灏
签发: Approved by 郑木为
印章: Stamp

赛宝计量检测中心
广州市番禺区东涌镇广州天河区东涌镇110号
客服电话: 020-87237633 传真: 020-87236189
技术电话: 020-87236888
邮件: cal@ceprei.com
网址: www.ceprei-cal.com

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

Calibration Certificate of Sound Calibrator

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。(Please see the attachment of certificate No. L13344 at CNAS website for details, beyond which is not accredited).

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

名　称 (Description)	证书号/有效期/溯源单位 (Certificate No./Due Date/Traceability to)	技术指标 (Specification)	测量范围 (Measuring Range)
PULSE分析系统	LSwa2020-02491/2021-04-26/中国计量院	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^{-6}～30)V
标准传声器	GFJGJL1001200510164/2021-02-26/航空304所	U=(0.05～0.12)dB（k=2）	20Hz～20kHz
前置放大器	GFJGJL1001200510165/2021-02-26/航空304所	U=0.3dB（k=2）	（10～20000）Hz

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

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

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

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

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

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

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	94.05	0.05	≤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	1003.7	0.37	≤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	0.96	≤3.00	P	5.0

CEPREI

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

校 准 证 书
CALIBRATION CERTIFICATE

证书编号：2HB20001172-0006
Certificate No.

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

校准：Calibrated by 陈卓辉
核验：Inspected by 钟灏
签发：Approved by 郑木为
印章：Stamp

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

CEPREI Calibration and Testing Centre
H.Q. Addr: No.110,Dongguanzhuang Road,Tianhe District,Guangzhou
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的要求，获得中国合格评定国家认可委员会（CNAS）认可，认可证书号为：CNAS L13344。
This laboratory quality management system meets the ISO/IEC 17025 and is accredited by the China National Accreditation Service for Conformity Assessment, No. CNAS L13344.

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

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

名 称 (Description)	证书号/有效期/溯源单位 (Certificate No./Due Date/Traceability to)	技术指标 (Specification)
标准传声器	GFJGJL100120031016 4/2021-02-26/航空304所	U=(0.05~0.12)dB（k=2）
前置放大器	GFJGJL100120031016 5/2021-02-26/航空304所	U=0.3dB（k=2）
PULSE分析系统	4GC20000024-0064/2021-02-12/赛宝	频率:U_{rel}=0.001%,k=2;电压:U_{rel}=0.04%,k=2

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

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

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

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

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

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

Calibration Certificate of Sound Calibrator	Catalogue of Air Flow Meter (TSI TA440)

CEPREI

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

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

无影响证书中校准结果准确度的因素和缺陷。

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

2 声压级 (Sound Pressure Level)

规定声压级 (Prescribed SPL) (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	94.38	0.38	≤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	1002.0	0.20	≤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	2.48	≤3.00	P	5.0

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数据页(Data sheet) ID：U013393 第 5 页,共 5 页 Page of

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.

TSI and the TSI logo are registered trademarks, and Airflow, the Airflow logo and LogDat2 are trademarks of TSI Incorporated.

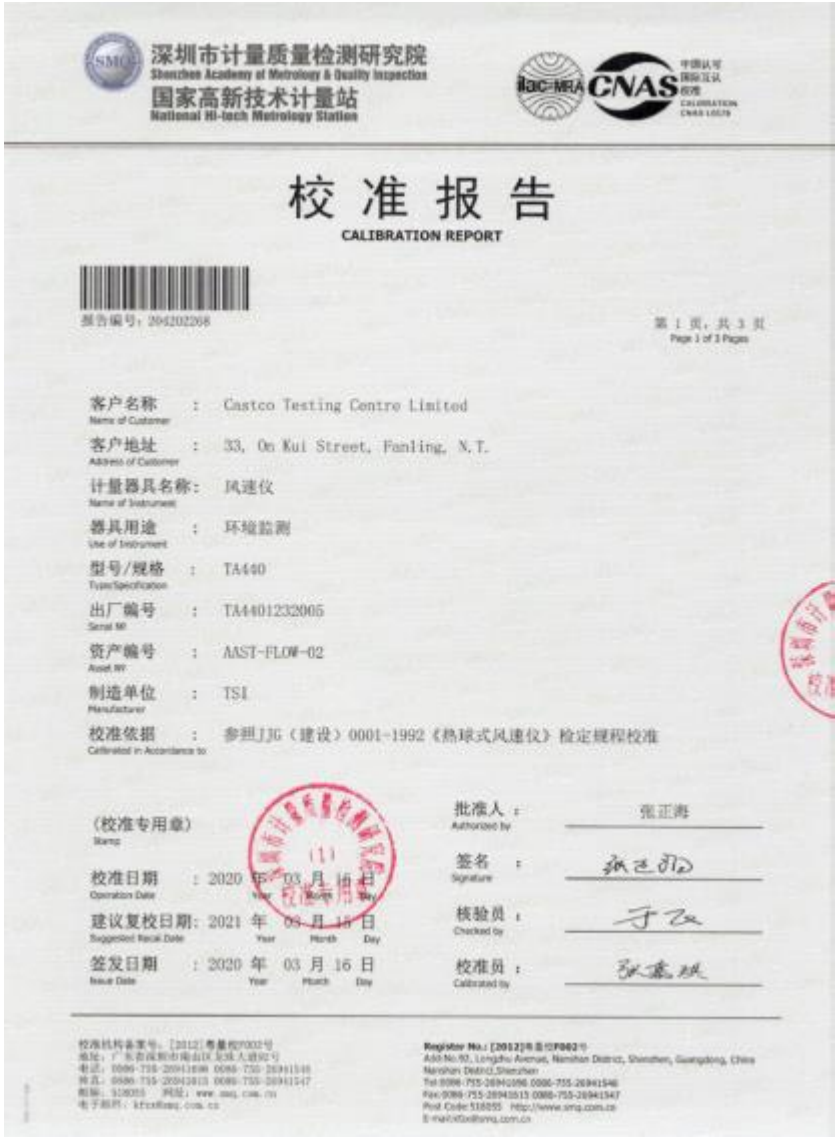
AIRFLOW INSTRUMENTS

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) ©2014 TSI Incorporated

Calibration Certificate of Air Flow Meter



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

CNAS CALIBRATION CNAS L0570

校 准 报 告
CALIBRATION REPORT

报告编号：204202268　　第 1 页，共 3 页 Page 1 of 3 Pages

客户名称 Name of Customer	:	Castco Testing Centre Limited
客户地址 Address of Customer	:	33, On Kui Street, Fanling, N.T.
计量器具名称: Name of Instrument		风速仪
器具用途 Use of Instrument	:	环境监测
型号/规格 Type/Specification	:	TA440
出厂编号 Serial NO	:	TA44012320005
资产编号 Asset NO	:	AAST-FLOW-02
制造单位 Manufacturer	:	TSI
校准依据 Calibrated in Accordance to	:	参照JJG（建设）0001-1992《热球式风速仪》检定规程校准

（校准专用章） Stamp

校准日期 Operation Date	:	2020 年 03 月 10 日 Year Month Day
建议复校日期 Suggested Recal.Date	:	2021 年 03 月 10 日 Year Month Day
签发日期 Issue Date	:	2020 年 03 月 16 日 Year Month Day

批准人 Authorized by : 张正海
签名 Signature :
核验员 Checked by :
校准员 Calibrated by :

校准机构备案号：[2012]粤量校F002号
地址：广东省深圳市南山区龙珠大道92号
电话：0086-755-26941696 0086-755-26941548
传真：0086-755-26941813 0086-755-26941547
邮编：518055 网址：www.smq.com.cn
电子邮件：kfxx@smq.com.cn

Register No.: [2012]粤量校F002号
Add:No.92, Longzhu Avenue, Nanshan District, Shenzhen, Guangdong, China
Nanshan District,Shenzhen
Tel:0086-755-26941696 0086-755-26941548
Fax:0086-755-26941813 0086-755-26941547
Post Code:518055 http://www.smq.com.cn
E-mail:kf2@smq.com.cn



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

校准报告
CALIBRATION REPORT

报告编号：204202268 Report №　　第 2 页，共 3 页 Page 2 of 3 Pages

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

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

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

名称 Equipment Name	测量范围 Measuring Range	不确定度/准确度等级/最大允许误差 Uncertainty/Accuracy Class/Maximum Permissible Error	设备编号 Equipment №	证书号/溯源单位 Certificate №/Traceability to	有效期至 Due Date
皮托静压管	——	ξ=1.002 k=1.001	SB4562/01	GQJ（V）LT2015-0028号/中国计量院	2020-05-05
风洞			SB4562	NSS201901168/广东省计量院	2024-06-26
数字压力计			SB10930	RGpv2019-2205/中国计量院	2020-09-26

附加说明
Appended Directions

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

Calibration Certificate of Air Flow Meter

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

校准报告
CALIBRATION REPORT

报告编号：204202268
Report №

校准结果
Results of Calibration

零位：0.00m/s　　满度：---

风速示值：

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

附加说明：

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

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

CNAS 中国认可 国际互认 校准 CALIBRATION CNAS L3515

校 准 报 告
CALIBRATION REPORT

报告编号：204202267

客户名称 Name of Customer	:	Castco Testing Centre Limited
客户地址 Address of Customer	:	33, On Kui Street, Fanling, N.T.
计量器具名称 Name of Instrument	:	风速仪
器具用途 Use of Instrument	:	环境监测
型号/规格 Type/Specification	:	TA440
出厂编号 Serial №.	:	TA4401706003
资产编号 Asset №.	:	AAST-FLOW-03
制造单位 Manufacturer	:	TSI
校准依据 Calibrated in Accordance to	:	参照JJG（建设）0001-1992《热球式风速仪》检定规程校准

（校准专用章）
Stamp

校准日期 Operation Date : 2020 年 03 月 16 日
建议复校日期 Suggested Recal.Date: 2021 年 03 月 15 日
签发日期 Issue Date : 2020 年 03 月 16 日

批准人 Authorized by : 张正海
签名 Signature :
核验员 Checked by :
校准员 Calibrated by :

Register No.: [2012]粤量校F002号
Add:No.82, Longzhu Avenue, Nanshan District, Shenzhen, Guangdong, China
Nanshan District, Shenzhen
Tel:0086-755-26941686 0086-755-26941546
Fax:0086-755-26941615 0086-755-26941547
Post Code:518055 http://www.smq.com.cn
E-mail:kfzx@smq.com.cn

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

校准报告
CALIBRATION REPORT

报告编号：2042022267 Report N#

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

名称 Equipment Name	测量范围 Measuring Range	不确定度/准确度等级/最大允许误差 Uncertainty/Accuracy Class/ Maximum Permissible Error	计量标准考核证书号 Certificate N#	有效期至 Due Date
——	——	——	——	——

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

名称 Equipment Name	测量范围 Measuring Range	不确定度/准确度等级/最大允许误差 Uncertainty/Accuracy Class/ Maximum Permissible Error	设备编号 Equipment N#	证书号/溯源单位 Certificate N#/ Traceability to	有效期至 Due Date
皮托静压管	——	k=1.002 k=1.001	SB4562/01	QLJ（Y）LT2015-0028号/中国计量院	2020-05-05
风阀			SB4582	MSS2019011168/广东省计量院	2024-06-26
数字压力计			SB10800	粤gpx2019-2205/中国计量院	2020-09-26

附加说明
Appended Directions

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

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

校准报告
CALIBRATION REPORT

报告编号：2042022267 Report N#

校准结果
Results of Calibration

零位：0.00m/s 满度：——

风速示值：

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

附加说明：

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

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Appendix K – Noise monitoring results and graphical presentation

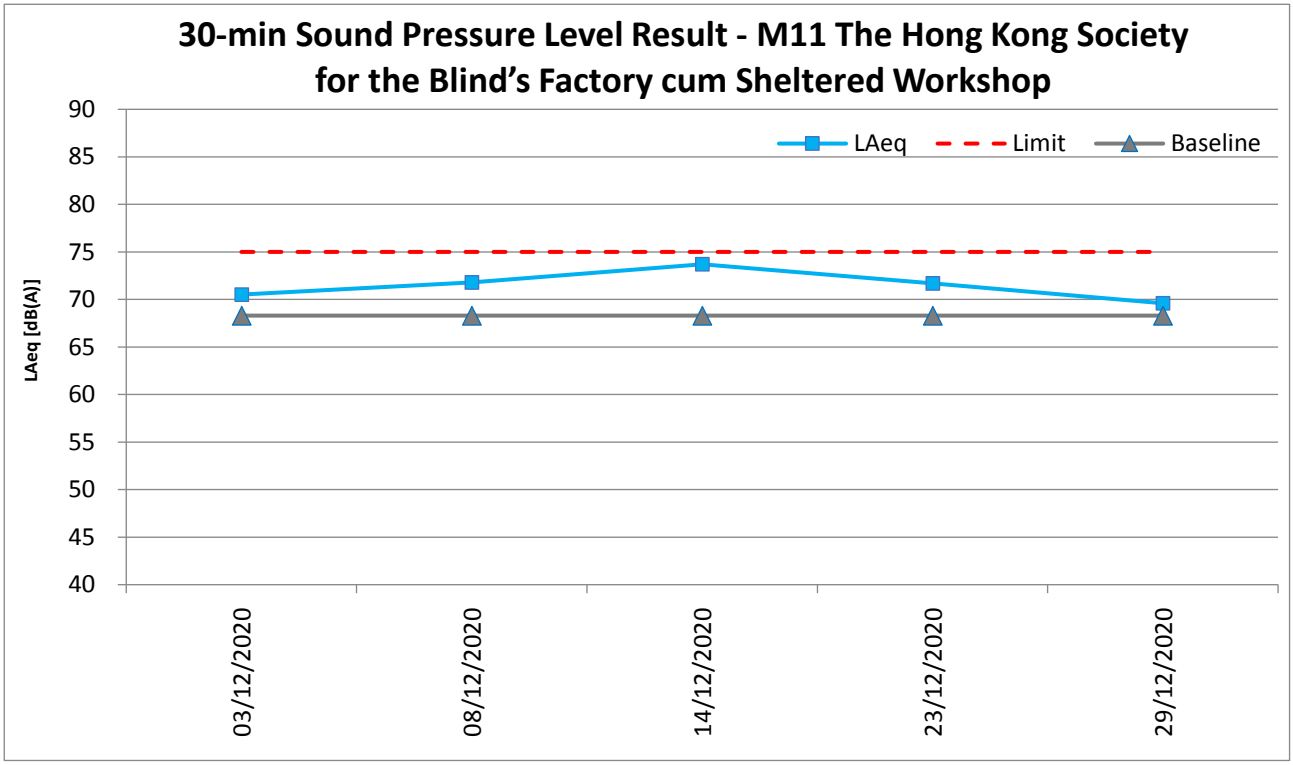
M11 - The Hong Kong Society for the Blind's Factory cum Sheltered Workshop

Date	Temp (°C)	Weather	Measured Noise Level at M11, dB(A)						Limit
			Time			Baseline	L_{Aeq}	L_{A10}	L_{A90}	
02/12/2020	21.5	Sunny	13:36	-	14:06	68.3	70.5	72.4	67.6	75
08/12/2020	24.3	Sunny	9:30	-	10:00	68.3	71.8	72.9	70.7	75
14/12/2020	21.3	Cloudy	14:18	-	14:48	68.3	73.7	75.9	69.2	75
23/12/2020	19.5	Sunny	13:57	-	14:27	68.3	71.7	73.5	65.6	75
29/12/2020	23.7	Sunny	11:15	-	11:45	68.3	69.6	72.1	64.4	75
			Maximum				73.7			
			Minimum				69.6			
			Average				71.7			

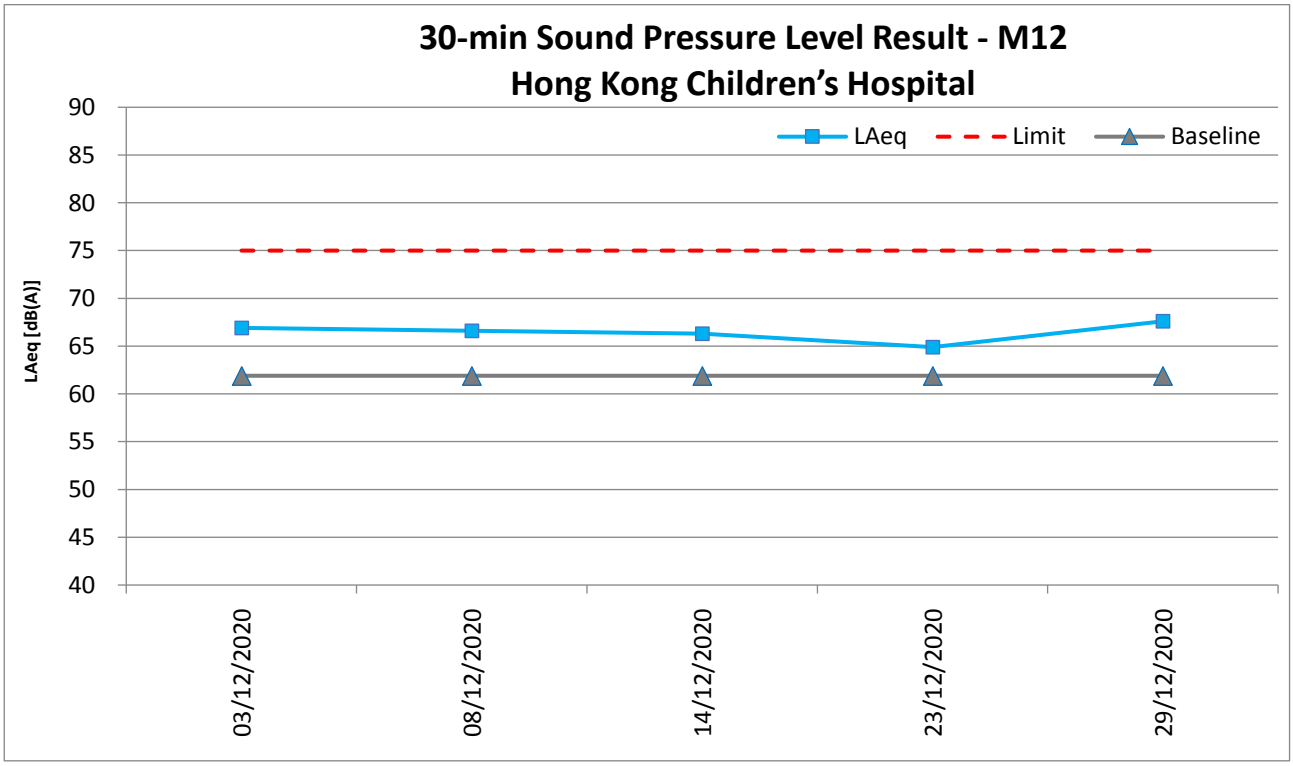
M12 - Hong Kong Children's Hospital

Date	Temp (°C)	Weather	Measured Noise Level at M12, dB(A)						Limit
			Time			Baseline	L_{Aeq}	L_{A10}	L_{A90}	
02/12/2020	21.5	Sunny	9:56	-	10:26	61.9	66.9	68.9	63.7	75
08/12/2020	24.3	Sunny	13:59	-	14:29	61.9	66.6	68.7	63.9	75
14/12/2020	21.3	Cloudy	11:04	-	11:34	61.9	66.3	68.3	63.8	75
23/12/2020	19.5	Sunny	14:59	-	15:29	61.9	64.9	66.7	62.4	75
29/12/2020	23.7	Sunny	10:25	-	10:55	61.9	67.6	69.5	65.1	75
			Maximum				67.6			
			Minimum				64.9			
			Average				66.5			

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



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



Appendix L – Event and Action Plan for noise

Event	Action			
	ET	**IEC**	**Supervisor / ER**	**Contractor**
Action Level being exceeded	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

Appendix F - Monthly Summary Waste Flow Table

Name of Department : CEDD

Contract No.: ED/2018/01

Monthly Summary Waste Flow Table for December 2020

Month	Actual Quantities of Inert C&D Materials Generated Monthly						Actual Quantities of C&D Wastes Generated Monthly				
	Total Quantity Generated	Hard Rock and Large Broken Concrete	Reused in the Contract	Reused in other Projects	Disposed as Public Fill	Imported Fill	Metals	Paper / cardboard packaging	Plastics (see Note 3)	Chemical Waste	Others, e.g. general refuse
	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000 kg)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000m^3)
Jan	1.030	--	--	--	1.030	--	--	--	--	--	0.0070
Feb	3.535	--	--	--	3.535	--	--	--	--	--	0.0008
Mar	13.992	--	--	13.075	0.917	0.933	--	--	--	--	0.0014
Apr	7.335	--	--	5.557	1.778	18.77	--	--	--	--	0.0127
May	8.024	--	--	5.642	2.382	0.620	--	0.111	--	--	0.0264
Jun	5.057	--	--	3.919	1.138	--	--	--	--	--	0.0120
Sub-total	38.973	0	0	28.193	10.78	20.323	0	0.111	0	0	0.0603
July	7.664	--	--	6.877	0.787	0.262	--	--	--	--	0.0537
Aug	6.549	--	--	1.686	4.863	0.645	--	--	--	--	0.0306
Sep	15.325	--	--	5.772	9.553	2.176	--	0.154	--	--	0.0158
Oct	10.638	--	--	9.422	1.216	1.516	--	--	--	--	0.0225
Nov	7.321	--	--	6.089	1.232	1.336	--	--	--	--	0.0273
Dec	9.515	--	--	8.000	1.515	5.629	--	0.094	--	--	0.0376
Total	95.985	0	0	66.039	29.946	31.887	0	0.359	0	0	0.2478

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

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

Appendix O – Environmental Licenses and Notification

0049

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

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

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

06/06/2019

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

Dear Sirs,

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

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

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

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

Yours faithfully,

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

再造紙 RECYCLED PAPER

(內文中文譯本)

執事先生：

工地/處所 (見英文版本)

我們已於 2019 年 6 月 6 日收到你提交的文件，詳列如下：

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

如有疑問，請與代行人查詢

環境保護署署長
(代行)

年 月 日

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

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

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

BY REGISTERED POST

25 FEB 2020

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

PENTA-OCEAN
27 FEB 2020
RECEIVED

Dear Sir/Madam,

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

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

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

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

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

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

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

Yours faithfully,

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

Encl.: Appendix

再造紙
RECYCLED PAPER

掛號郵件

先生/女士：

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

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

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

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

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

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

如有查詢，請致電 2117 7527 與本署 唐紫珊 聯絡。

環境保護署署長
（環境保護主任）
（陳偉麟代行）

連附錄

Appendix 附錄

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

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

ENVIRONMENTAL PROTECTION DEPARTMENT
環境保護署

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

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

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

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

21 February 2020
Date
日期

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

PART A 甲部 : GENERAL TERMS 一般條款

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

*Delete as appropriate
將不適用者刪去

PART B 乙部 : SPECIFIC CONDITIONS 特別條件

B1. Limitations on Discharge 排放限制

The quantity and composition of any discharge from the premises shall not exceed the limits stated in the table below(Note a). All figures are upper limits unless otherwise indicated. All units are expressed as concentration in milligramme per litre unless otherwise stated.
任何源自處所之排放的量和成份不得超過下表所列的限度(附註a)。除另予表明外，所有數字均為上限。除另予說明外，所有單位均以毫克/升的濃度表示。

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

Range 上下限

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

☐ The Licensee shall perform self-monitoring as and when required by the Authority.
持牌人須在監督要求時進行自行監測。

☒ The Licensee shall sample the discharge at the Sampling Point(s) and, at his own expense carry out analyses in accordance with the sample type and measurement frequency specified for each determinand named below:-
持牌人須在取樣點為排放抽取樣本，並依照下列指定的測量物、取樣形式及頻率，自資予以分析。

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

Results of these monitoring shall be summarized in a report on a ~~Monthly~~/Bi-monthly/~~Quarterly/Yearly~~* basis and shall be submitted to the Authority.
所有監測結果須以摘要形式，每~~一個月~~/兩個月/~~三個月/年~~*作出報告，並須呈交監督審閱。

*Delete as appropriate
將不適用者刪去

Annex II

附件 II



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

Sampling Point (S.P. 1) at sampling valve of the discharge outlet of Wastewater Treatment Facility (1)
取樣點(S.P. 1)位於廢水處理設施(1)出水口的取樣閥



Title: Wastewater Treatment Facility (1) and Sampling Point (S.P. 1) **標題: 廢水處理設施(1)及取樣點(S.P. 1)** **Construction Site of Kai Tak Development – Stage 4 Infrastructure at the Former Runway and South Apron, Kowloon City, Kowloon (CEDD Contract No. ED/2018/01)** 九龍九龍城啟德發展-前跑道和南停機坪的第4階段基礎設施之建築地盤 (土木工程拓展署合約編號ED/2018/01)	Annex to licence No.: **WT00034610-2019** 牌照編號 **WT00034610-2019** 的附件 Scale: **NTS** 比例: 不按比例 ENVIRONMENTAL PROTECTION DEPARTMENT, HONG KONG REGIONAL OFFICE (EAST) 香港環境保護署 區域辦事處(東)

Annex III

附件 III



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

Sampling Point (S.P. 2) at sampling valve of the discharge outlet of Wastewater Treatment Facility (2)
取樣點(S.P. 2)位於廢水處理設施(2)出水口的取樣閥



Title: Wastewater Treatment Facility (2) and Sampling Point (S.P. 2) **標題: 廢水處理設施(2)及取樣點(S.P. 2)** **Construction Site of Kai Tak Development – Stage 4 Infrastructure at the Former Runway and South Apron, Kowloon City, Kowloon (CEDD Contract No. ED/2018/01)** 九龍九龍城啟德發展-前跑道和南停機坪的第4階段基礎設施之建築地盤 (土木工程拓展署合約編號ED/2018/01)	Annex to licence No.: **WT00034610-2019** 牌照編號 **WT00034610-2019** 的附件 Scale: **NTS** 比例: 不按比例 ENVIRONMENTAL PROTECTION DEPARTMENT, HONG KONG REGIONAL OFFICE (EAST) 香港環境保護署 區域辦事處(東)

Annex IV

附件 IV



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

Sampling Point (S.P. 3) at sampling valve of the discharge outlet of Wastewater Treatment Facility (3)
取樣點(S.P. 3)位於廢水處理設施(3)出水口的取樣閥



Title: Wastewater Treatment Facility (3) and Sampling Point (S.P. 3) **標題: 廢水處理設施(3)及取樣點(S.P. 3)** **Construction Site of Kai Tak Development – Stage 4 Infrastructure at the Former Runway and South Apron, Kowloon City, Kowloon (CEDD Contract No. ED/2018/01)** 九龍九龍城啟德發展-前跑道和南停機坪的第4階段基礎設施之建築地盤 (土木工程拓展署合約編號ED/2018/01)	Annex to licence No.: **WT00034610-2019** 牌照編號 **WT00034610-2019** 的附件 Scale: **NTS** 比例: 不按比例 ENVIRONMENTAL PROTECTION DEPARTMENT, HONG KONG REGIONAL OFFICE (EAST) 香港環境保護署 區域辦事處(東)

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

Environmental Protection Department
Environmental Infrastructure Division
88 Victoria Road,
Kennedy Town,
Hong Kong.

環境保護署
環境基建科
香港西環
堅尼地城
域多利道88號

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

Friday, 28 June, 2019

RECEIVED
03 JUL 2019
PENTA-OCEAN

Dear Sir/Madam,

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

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

Contract No.: ED/2018/01

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

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

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

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

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

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

Yours faithfully,

(K O Yeung)
Principal Environmental Protection Officer
for Director of Environmental Protection

再造紙
RECYCLED PAPER

ISO 14001:2015
Certificate No:E103

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

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

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

31 JUL 2019

By Registered Post

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

PENTA-OCEAN
02 AUG 2019
RECEIVED

Dear Sir/Madam,

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

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

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

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

For enquiries, please contact us at Tel 2117 7546.

Yours faithfully,

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

Encl.

再造紙 RECYCLED PAPER

掛號函件

先生/女士:

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

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

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

若有任何疑問，請致電 2117 7546 與本署職員聯絡。

環境保護署署長
(環境保護主任 陳偉麟 代行)

附件

Environmental Protection Department
環 境 保 護 署

Waste Disposal Ordinance (Chapter 354)
香港法例第354章廢物處置條例
Waste Disposal (Chemical Waste)(General) Regulation
廢物處置(化學廢物)(一般)規例

Registration of Waste Producer
廢物產生者登記證

To: 致

Chemical Waste Producer 化學廢物產生者

Full Name (English) 全 名 (英 文): PENTA-OCEAN CONSTRUCTION CO., LTD.

(Chinese) (中 文): ---

I.D. Card No. (if any) 身份證號碼 :(如有者): ---

Business Reg. Cert. No. (if any) 商業登記證號碼 : (如有者): 07818486-000-05-18-7

Address for Correspondence 通訊地址: FLAT 601, K. WAH CENTRE, 191 JAVA ROAD, NORTH POINT, HONG KONG

Tel. No. 電話: 94332628

Fax No. 圖文傳真 : 25724080

With reference to your application dated 09 / 07 / 2019 **for registration as a Waste Producer under the Waste Disposal (Chemical Waste) (General) Regulation, the Waste Producer Number, WPN** 5218-286-P3182-03 **is assigned to you in respect of the location or premises listed below:—**

前於 2019 年 07 月 09 日 根據廢物處置(化學廢物)(一般)規例而來信，申請登記為廢物產生者，茲特配予廢物產生者編號第 5218-286-P3182-03 號，予下開地點或處所: —

Location or Premises where the waste is produced 產生廢物的地點或處所

Name of Establishment 機構名稱 : PENTA-OCEAN CONSTRUCTION CO., LTD.

Business Reg. Cert. No. (if any) 商業登記證號碼: (如有者): 07818486-000-05-18-7

Nature of Business 業務性質 : CONSTRUCTION

Major chemical waste types 主要化學廢物種類 : SPENT LUBRICATING OIL, SPENT MINERAL OIL, SURPLUS PAINT, SPENT BATTERY CELL CONTAINING HEAVY METALS, SPENT MIXING RESIDUE CONTAINING ACID AND ASBESTOS WASTE

Address 地址 : CONSTRUCTION SITE OF KAI TAK DEVELOPMENT - STAGE 4 INFRASTRUCTURE AT THE FORMER RUNWAY AND SOUTH APRON, KOWLOON CITY, KOWLOON (CEDD CONTRACT NO. ED/2018/01)

ENVIRONMENTAL PROTECTION DEPARTMENT 環境保護署 HONG KONG

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

Date 日期 18 / 07 / 2019

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

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

EPD 130 (Nov 2012)

FORM 3 [reg.5(a)]
NOISE CONTROL ORDINANCE
(Chapter 400)
SECTION 8(9)

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

CONSTRUCTION NOISE PERMIT NO. GW-RE0705-20

To : PENTA-OCEAN CONSTRUCTION CO., LTD.

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

CONDITIONS

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

   Full address: Kai Tak Development – Stage 4 infrastructure at the former runway and south apron (Works Area Part 3C), Kai Tak, Kowloon (CEDD Contract No. ED/2018/01). Lot No.: ---

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

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

3. Powered Mechanical Equipment

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

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

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

   Date and time of commencement : 28 August 2020 at 1900 hours

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

   This part of the permit expires on : 23 February 2021 at 2300 hours

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

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

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

General holiday (including Sunday)	0900 - 2300 hours
Any day not being a general holiday	1900 - 2300 hours

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

4. Prescribed Construction Work

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

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

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

   Date and time of commencement : Not applicable at Not applicable

   Date and hours : Not applicable.

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

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

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

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

Dated this 21st day of August 2020

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

* Delete as necessary

表格 3　　[第5(a)條]

噪音管制條例
(第400章)
第8(9)條

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

建築噪音許可證編號：GW-RE0705-20

致：PENTA-OCEAN CONSTRUCTION CO., LTD.

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

條　件

1. 可使用機動設備及／或進行訂明建築工程的建築地盤：

詳細地址：九龍啟德啟德發展計劃-前跑道及南面停機坪第四期基礎設施(工作地區第3C部分)(土木工程拓展署合約編號ED/2018/01)。　地段編號：---

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

2. 該地盤部~~分~~／全部*位於指定範圍之~~內~~／外*。

3. 機動設備

a. 在地盤範圍內可使用的各項機動設備：

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

b. 可使用機動設備的建築噪音許可證有效期：

生效日期及時間：二零二零年八月二十八日下午七時

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

此部分許可證屆滿日期及時間：二零二一年二月二十三日晚上十一時
日期　時間

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

d. 規限使用機動設備的其他條件：

1. 祇可於以下時間內使用列在條件3. a. 內的機動設備：

公眾假日包括星期日	上午九時至晚上十一時
公眾假日以外的任何一日	下午七時至晚上十一時

2. 在任何時間內，祇可使用列在條件3. a. 內其中一組機動設備。

4. 訂明建築工程

a. 在地盤範圍內可進行的訂明建築工程：

訂明建築工程的識辨代碼	*訂明建築工程的類別的說明*
	不適用

b. 可進行訂明建築工程的建築噪音許可證有效期：

生效日期及時間：不適用

日期及時間：不適用。

此部分許可證屆滿日期及時間：不適用
日期　時間

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

d. 規限進行訂明建築工程的其他條件：

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

日期：2020 年 8 月 21 日

簽署：鄧慧敏

監督
(鄧慧敏　代行)

* 刪去不適用者

Sheet Attached to Construction Noise Permit
No. GW-RE0705-20

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

Identification code of item of powered mechanical equipment (if applicable)		*Description of item of powered mechanical equipment*	*No. of units*
Group A	---	Generator, with Quality Powered Mechanical Equipment Label showing a Sound Power Level ≦95 dB(A)	One
	CNP 166	Piling, large diameter bored, reverse circulation drill	Two
	---	Air compressor, with Noise Emission Label showing a Sound Power Level of ≦104dB(A)	Two
	---	Power pack (diesel)	One
	---	Wastewater treatment plant	One
	CNP 283	Water pump, submersible (electric)	Four
	CNP 165	Piling, large diameter bored, oscillator	One
Group B	---	Generator, with Quality Powered Mechanical Equipment Label showing a Sound Power Level ≦95 dB(A)	One
	CNP 164	Piling, large diameter bored, grab and chisel	One
	CNP 048	Crane, mobile (diesel)	One
Group C	---	Generator, with Quality Powered Mechanical Equipment Label showing a Sound Power Level ≦95 dB(A)	One
	---	Welding machine (electric)	Five
	CNP 048	Crane, mobile (diesel)	One
Group D	---	Generator, with Quality Powered Mechanical Equipment Label showing a Sound Power Level ≦95 dB(A)	One
	---	Air compressor, with Noise Emission Label showing a Sound Power Level of ≦104dB(A)	One
	CNP 048	Crane, mobile (diesel)	One
	---	Wastewater treatment plant	One
	CNP 283	Water pump, submersible (electric)	Four

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

建築噪音許可證
編號 GW-RE0705-20 的附頁

3.a. 在地盤範圍內可使用的各項機動設備：

各項機動設備的識辨代碼 (如適用的話)		*各項機動設備的說明*	*數目*
A組	---	發電機，備有優質機動設備標籤顯示聲功率級≦95 分貝(A)	壹
	CNP 166	大直徑鑽孔樁，循環式鑽機	貳
	---	空氣壓縮機，備有噪音標籤顯示聲功率級≦104 分貝(A)	貳
	---	油渣動力供應器	壹
	---	污水處理器	壹
	CNP 283	潛水泵 (電動)	肆
	CNP 165	大直徑鑽孔樁，擺動機	壹
B組	---	發電機，備有優質機動設備標籤顯示聲功率級≦95 分貝(A)	壹
	CNP 164	大直徑鑽孔樁，抓斗及鑿	壹
	CNP 048	起重機，流動 (油渣)	壹
C組	---	發電機，備有優質機動設備標籤顯示聲功率級≦95 分貝(A)	壹
	---	焊接機 (電動)	伍
	CNP 048	起重機，流動 (油渣)	壹
D組	---	發電機，備有優質機動設備標籤顯示聲功率級≦95 分貝(A)	壹
	---	空氣壓縮機，備有噪音標籤顯示聲功率級≦104 分貝(A)	壹
	CNP 048	起重機，流動 (油渣)	壹
	---	污水處理器	壹
	CNP 283	潛水泵 (電動)	肆

簽署：鄧慧敏 _____
監督
(鄧慧敏 代行)

Sheet Attached to Construction Noise Permit
No. GW-RE0705-20

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

Identification code of item of powered mechanical equipment (if applicable)		*Description of item of powered mechanical equipment*	*No. of units*
Group E	---	Generator, with Quality Powered Mechanical Equipment Label showing a Sound Power Level ≦95 dB(A)	One
	CNP 048	Crane, mobile (diesel)	One
	CNP 044	Concrete lorry mixer	Two
	---	Wastewater treatment plant	One
	CNP 283	Water pump, submersible (electric)	Two
Group F	---	Generator, with Quality Powered Mechanical Equipment Label showing a Sound Power Level ≦95 dB(A)	One
	---	Welding machine (electric)	One
	CNP 166	Piling, large diameter bored, reverse circulation drill	Two
	---	Air compressor, with Noise Emission Label showing a Sound Power Level of ≦104dB(A)	One
	---	Wastewater treatment plant	One
	---	Power pack (diesel)	One
Group G	---	Generator, with Quality Powered Mechanical Equipment Label showing a Sound Power Level ≦95 dB(A)	One
	CNP 048	Crane, mobile (diesel)	One
	CNP 164	Piling, large diameter bored, grab and chisel	One
	---	Air compressor, with Noise Emission Label showing a Sound Power Level of ≦104dB(A)	One
	CNP 166	Piling, large diameter bored, reverse circulation drill	Two
	---	Power pack (diesel)	One
	CNP 283	Water pump, submersible (electric)	Two
	---	Wastewater treatment plant	One

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

建築噪音許可證
編號 GW-RE0705-20 的附頁

3.a. 在地盤範圍內可使用的各項機動設備：

各項機動設備的識辨代碼 (如適用的話)		*各項機動設備的說明*	*數目*
E組	---	發電機，備有優質機動設備標籤顯示聲功率級≦95 分貝(A)	壹
	CNP 048	起重機，流動 (油渣)	壹
	CNP 044	混凝土攪拌車	貳
	---	污水處理器	壹
	CNP 283	潛水泵 (電動)	貳
F組	---	發電機，備有優質機動設備標籤顯示聲功率級≦95 分貝(A)	壹
	---	焊接機 (電動)	壹
	CNP 166	大直徑鑽孔樁，循環式鑽機	貳
	---	空氣壓縮機，備有噪音標籤顯示聲功率級≦104 分貝(A)	壹
	---	污水處理器	壹
	---	油渣動力供應器	壹
G組	---	發電機，備有優質機動設備標籤顯示聲功率級≦95 分貝(A)	壹
	CNP 048	起重機，流動 (油渣)	壹
	CNP 164	大直徑鑽孔樁，抓斗及鑿	壹
	---	空氣壓縮機，備有噪音標籤顯示聲功率級≦104 分貝(A)	壹
	CNP 166	大直徑鑽孔樁，循環式鑽機	貳
	---	油渣動力供應器	壹
	CNP 283	潛水泵 (電動)	貳
	---	污水處理器	壹

簽署：_____
監督
(鄧慧敏 代行)

Photograph(s) attached to Construction Noise Permit No. GW-RE0705-20
建築噪音許可證編號：GW-RE0705-20 的照片



Generator, with Quality Powered Mechanical Equipment Label showing a Sound Power Level ≦95dB(A)
發電機，備有優質機動設備標籤顯示聲功率級≦95 分貝(A)



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

Photograph(s) attached to Construction Noise Permit No. GW-RE0705-20
建築噪音許可證編號：GW-RE0705-20 的照片



Wastewater treatment plant
污水處理器



Power pack (diesel)
油渣動力供應器

Photograph(s) attached to Construction Noise Permit No. GW-RE0705-20
建築噪音許可證編號：**GW-RE0705-20** 的照片

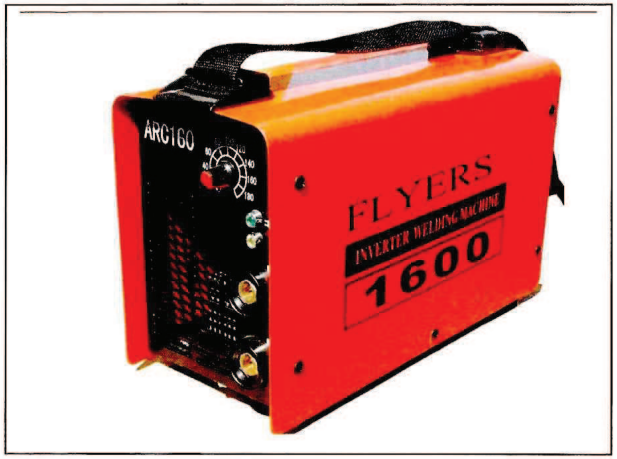


CNP 048 Crane, mobile (diesel)
起重機，流動 (油渣)



CNP 044 Concrete lorry mixer
混凝土攪拌車

Photograph(s) attached to Construction Noise Permit No. GW-RE0705-20
建築噪音許可證編號：**GW-RE0705-20** 的照片

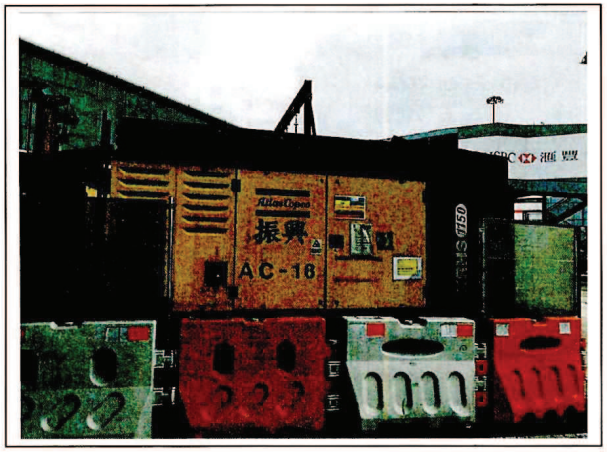


Welding machine (electric)
焊接機 (電動)



CNP 166 Piling, large diameter bored, reverse circulation drill
大直徑鑽孔樁，循環式鑽機

Photograph(s) attached to Construction Noise Permit No. GW-RE0705-20
建築噪音許可證編號：GW-RE0705-20 的照片



Air compressor, with Noise Emission Label showing a Sound Power Level of ≦104dB(A) (1)
空氣壓縮機，備有噪音標籤顯示聲功率級≦104 分貝(A) （一）



Air compressor, with Noise Emission Label showing a Sound Power Level of ≦104dB(A) (2)
空氣壓縮機，備有噪音標籤顯示聲功率級≦104 分貝(A) （二）

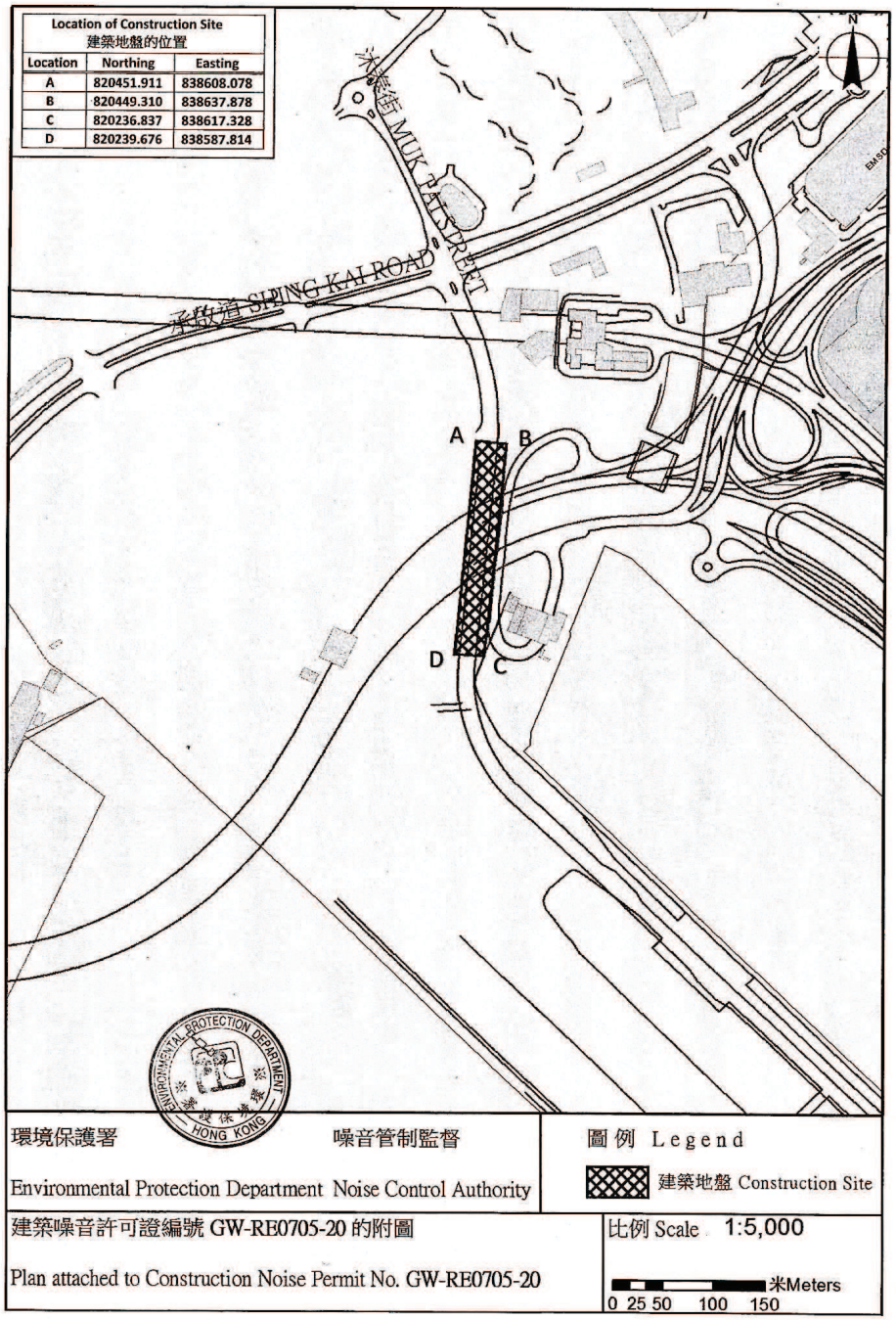
Photograph(s) attached to Construction Noise Permit No. GW-RE0705-20
建築噪音許可證編號：GW-RE0705-20 的照片



CNP 165 Piling, large diameter bored, oscillator
大直徑鑽孔樁，擺動機



CNP 164 Piling, large diameter bored, grab and chisel
大直徑鑽孔樁，抓斗及鑿


Location of Construction Site
建築地盤的位置
Location | Northing | Easting
A | 820451.911 | 838608.078
B | 820449.310 | 838637.878
C | 820236.837 | 838617.328
D | 820239.676 | 838587.814
MUK TAI STREET
SPRING KAI ROAD
A
B
C
D
N
ENVIRONMENTAL PROTECTION DEPARTMENT
HONG KONG
環境保護署
噪音管制監督
Environmental Protection Department Noise Control Authority
圖例 Legend
建築地盤 Construction Site
建築噪音許可證編號 GW-RE0705-20 的附圖
Plan attached to Construction Noise Permit No. GW-RE0705-20
比例 Scale 1:5,000
米Meters
0 25 50 100 150

FORM 3 [reg.5(a)]
NOISE CONTROL ORDINANCE
(Chapter 400)
SECTION 8(9)

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

CONSTRUCTION NOISE PERMIT NO. GW-RE0735-20

To : PENTA – OCEAN CONSTRUCTION CO., LTD.

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

CONDITIONS

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

   Full address : Kai Tak Development – Stage 4 infrastructure at the former runway and south apron (Works Area WA1), Kai Tak, Kowloon (CEDD Contract No. ED/2018/01). Lot No.: ---

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

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

3. Powered Mechanical Equipment

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

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

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

   Date and time of commencement : 09 September 2020 at 1900 hours

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

   This part of the permit expires on : 06 March 2021 at 2300 hours

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

   d. Other conditions imposed on the use of the powered mechanical equipment :
   Refer to attached sheet.

4. Prescribed Construction Work

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

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

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

   Date and time of commencement: Not applicable at Not applicable

   Days and hours: Not applicable.

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

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

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

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

Dated this 03rd day of September 20 20

Signed : _____

(TANG Wai-man, Lisa)
for Authority

* Delete as necessary

表格 3 [第5(a)條]

噪音管制條例
(第400章)
第8(9)條

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

建築噪音許可證編號： GW-RE0735-20

致： PENTA - OCEAN CONSTRUCTION CO., LTD.

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

條 件

1. 可使用機動設備及／或進行訂明建築工程的建築地盤：

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

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

2. 該地盤部分／全部*位於指定範圍之內／外*。

3. 機動設備

a. 在地盤範圍內可使用的各項機動設備：

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

b. 可使用機動設備的建築噪音許可證有效期：

生效日期及時間： 二零二零年九月九日 下午七時

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

此部分許可證屆滿日期及時間： 二零二一年三月六日 晚上十一時
日期 時間

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

d. 規限使用機動設備的其他條件：

參見附頁。

4. 訂明建築工程

a. 在地盤範圍內可進行的訂明建築工程：

訂明建築工程的識辨代碼	*訂明建築工程的類別的說明*
	不適用

b. 可進行訂明建築工程的建築噪音許可證有效期：

生效日期及時間： 不適用

日期及時間： 不適用。

此部分許可證屆滿日期及時間： 不適用
日期 時間

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

d. 規限進行訂明建築工程的其他條件：

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

日期：2020 年 09 月 03 日

簽署： 鄧慧敏

監督
(鄧慧敏 代行)

* 刪去不適用者

Sheet Attached to Construction Noise Permit
No. GW-RE0735-20

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

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

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

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

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

建築噪音許可證
編號 GW-RE0735-20 的附頁

3. d. 規限使用機動設備的其他條件：

1. 祇可於以下時間內使用列在條件 3.a. 內的機動設備：

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

2. 在任何時間內，祇可使用列在條件 3.a. 內其中一組機動設備。

簽署： _____
監督
(鄧慧敏 代行)

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



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



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

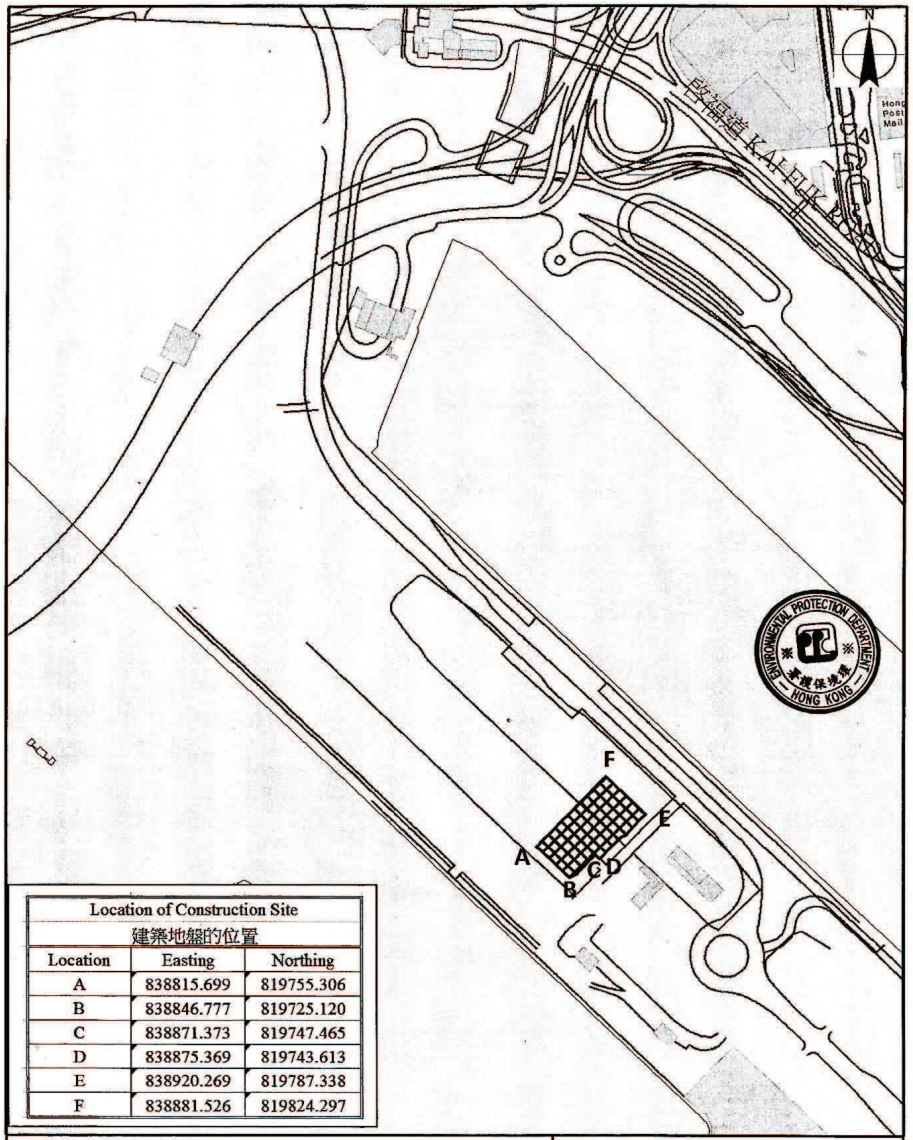
Photograph(s) attached to Construction Noise Permit No. GW-RE0735-20
建築噪音許可證編號：GW-RE0735-20 的照片



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



Welding machine (electric)
焊接機 （電動）



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

環境保護署　　噪音管制監督

Environmental Protection Department　Noise Control Authority

圖例 Legend

建築地盤 Construction Site

建築噪音許可證編號 GW-RE0735-20 的附圖

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

比例 Scale　1:5,000

米Meters

0 25 50 100 150

FORM 3 [reg.5(a)]
NOISE CONTROL ORDINANCE
(Chapter 400)
SECTION 8(9)

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

CONSTRUCTION NOISE PERMIT NO. GW-RE0869-20

To : PENTA – OCEAN CONSTRUCTION CO., LTD.

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

CONDITIONS

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

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

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

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

3. Powered Mechanical Equipment

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

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

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

   Date and time of commencement : 20 October 2020 at 1900 hours

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

   This part of the permit expires on : 08 April 2021 at 2300 hours

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

   d. Other conditions imposed on the use of the powered mechanical equipment :
   Refer to attached sheet.

4. Prescribed Construction Work

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

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

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

   Date and time of commencement: Not applicable at Not applicable

   Days and hours: Not applicable.

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

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

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

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

Dated this 16th day of October 20 20

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

* Delete as necessary

表格 3 [第5(a)條]

噪音管制條例
(第400章)
第8(9)條

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

建築噪音許可證編號： GW-RE0869-20

致：PENTA - OCEAN CONSTRUCTION CO., LTD.

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

條 件

1. 可使用機動設備及／或進行訂明建築工程的建築地盤：

詳細地址：九龍啟德啟德發展計劃-前跑道及南面停機坪第四期基礎設施(工作地區第1部分) (土木工程拓展署合約編號ED/2018/01)。 地段編號： ---

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

2. 該地盤~~部分~~／全部*位於指定範圍之內／外*。

3. 機動設備

a. 在地盤範圍內可使用的各項機動設備：

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

b. 可使用機動設備的建築噪音許可證有效期：

生效日期及時間： 二零二零年十月二十日 下午七時

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

此部分許可證屆滿日期及時間： 二零二一年四月八日 晚上十一時
日期 時間

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

d. 規限使用機動設備的其他條件：

參見附頁。

4. 訂明建築工程

a. 在地盤範圍內可進行的訂明建築工程：

訂明建築工程的識辨代碼	*訂明建築工程的類別的說明*
	不適用

b. 可進行訂明建築工程的建築噪音許可證有效期：

生效日期及時間： 不適用

日期及時間： 不適用。

此部分許可證屆滿日期及時間： 不適用
日期 時間

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

d. 規限進行訂明建築工程的其他條件：

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

日期：2020 年 10 月 16 日

簽署： 鄧慧敏

監督
(鄧慧敏 代行)

* 刪去不適用者

Sheet Attached to Construction Noise Permit
No. GW-RE0869-20

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

Identification code of item of powered mechanical equipment (if applicable)		*Description of item of powered mechanical equipment*	*No. of units*
Group A	---	Generator, with Quality Powered Mechanical Equipment Label showing a Sound Power Level ≤95 dB(A)	One
	CNP 166	Piling, large diameter bored, reverse circulation drill	Two
	---	Air compressor, with Noise Emission Label showing a Sound Power Level of ≤104 dB(A)	Two
	---	Power pack (diesel)	One
	---	Wastewater treatment plant	One
	CNP 283	Water pump, submersible (electric)	Four
	---	Welding machine (electric)	Two
Group B	---	Generator, with Quality Powered Mechanical Equipment Label showing a Sound Power Level ≤95 dB(A)	One
	---	Welding machine (electric)	Five
	CNP 048	Crane, mobile (diesel)	One
Group C	---	Generator, with Quality Powered Mechanical Equipment Label showing a Sound Power Level ≤95 dB(A)	One
	CNP 048	Crane, mobile (diesel)	One
	CNP 044	Concrete lorry mixer	One
	---	Wastewater treatment plant	One
	CNP 283	Water pump, submersible (electric)	Two
Group D	CNP 165	Piling, large diameter bored, oscillator	One
	---	Power pack (diesel)	One

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

建築噪音許可證
編號 GW-RE0869-20 的附頁

3.a. 在地盤範圍內可使用的各項機動設備：

各項機動設備的識辨代碼 (如適用的話)		*各項機動設備的說明*	*數目*
A 組	---	發電機，備有優質機動設備標籤顯示聲功率級≤95 分貝(A)	壹
	CNP 166	大直徑鑽孔樁，循環式鑽機	貳
	---	空氣壓縮機，備有噪音標籤顯示聲功率級≤104 分貝(A)	貳
	---	油渣動力供應器	壹
	---	污水處理器	壹
	CNP 283	潛水泵 （電動）	肆
	---	焊接機 (電動)	貳
B 組	---	發電機，備有優質機動設備標籤顯示聲功率級≤95 分貝 (A)	壹
	---	焊接機 (電動)	伍
	CNP 048	起重機，流動 (油渣)	壹
C 組	---	發電機，備有優質機動設備標籤顯示聲功率級≤95 分貝 (A)	壹
	CNP 048	起重機，流動 (油渣)	壹
	CNP 044	混凝土攪拌車	壹
	---	污水處理器	壹
	CNP 283	潛水泵 （電動）	貳
D 組	CNP 165	大直徑鑽孔樁，擺動機	壹
	---	油渣動力供應器	壹

簽署：_____
監督
(鄧慧敏 代行)

Sheet Attached to Construction Noise Permit
No. GW-RE0869-20

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

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

General holiday including Sunday	0900 – 2300 hours
Any day not being a general holiday	1900 – 2300 hours

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

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

建築噪音許可證
編號 GW-RE0869-20 的附頁

3. d. 規限使用機動設備的其他條件：

1. 祇可於以下時間內使用列在條件 3. a 內的機動設備：

公眾假日包括星期日	上午九時至晚上十一時
公眾假日以外的任何一日	下午七時至晚上十一時

2. 在任何時間內，祇可使用列在條件 3. a. 內其中一組機動設備。

簽署：_____
監督
(鄧慧敏 代行)

Photograph(s) attached to Construction Noise Permit No. GW-RE0869-20
建築噪音許可證編號：GW-RE0869-20 的照片



Generator, with Quality Powered Mechanical Equipment Label showing a Sound Power Level ≦95 dB(A)
發電機，備有優質機動設備標籤顯示聲功率級≦95 分貝(A)



CNP 166 Piling, large diameter bored, reverse circulation drill
大直徑鑽孔樁，循環式鑽機

Photograph(s) attached to Construction Noise Permit No. GW-RE0869-20
建築噪音許可證編號：GW-RE0869-20 的照片



Air compressor, with Noise Emission Label showing a Sound Power Level of ≦104 dB(A)
空氣壓縮機，備有噪音標籤顯示聲功率級≦104 分貝(A)



Power pack (diesel)
油渣動力供應器

Photograph(s) attached to Construction Noise Permit No. GW-RE0869-20
建築噪音許可證編號：**GW-RE0869-20** 的照片

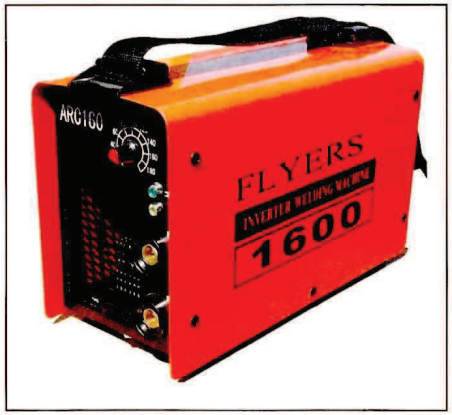


Wastewater treatment plant
污水處理器



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

Photograph(s) attached to Construction Noise Permit No. GW-RE0869-20
建築噪音許可證編號：**GW-RE0869-20** 的照片



Welding machine (electric)
焊接機 （電動）



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

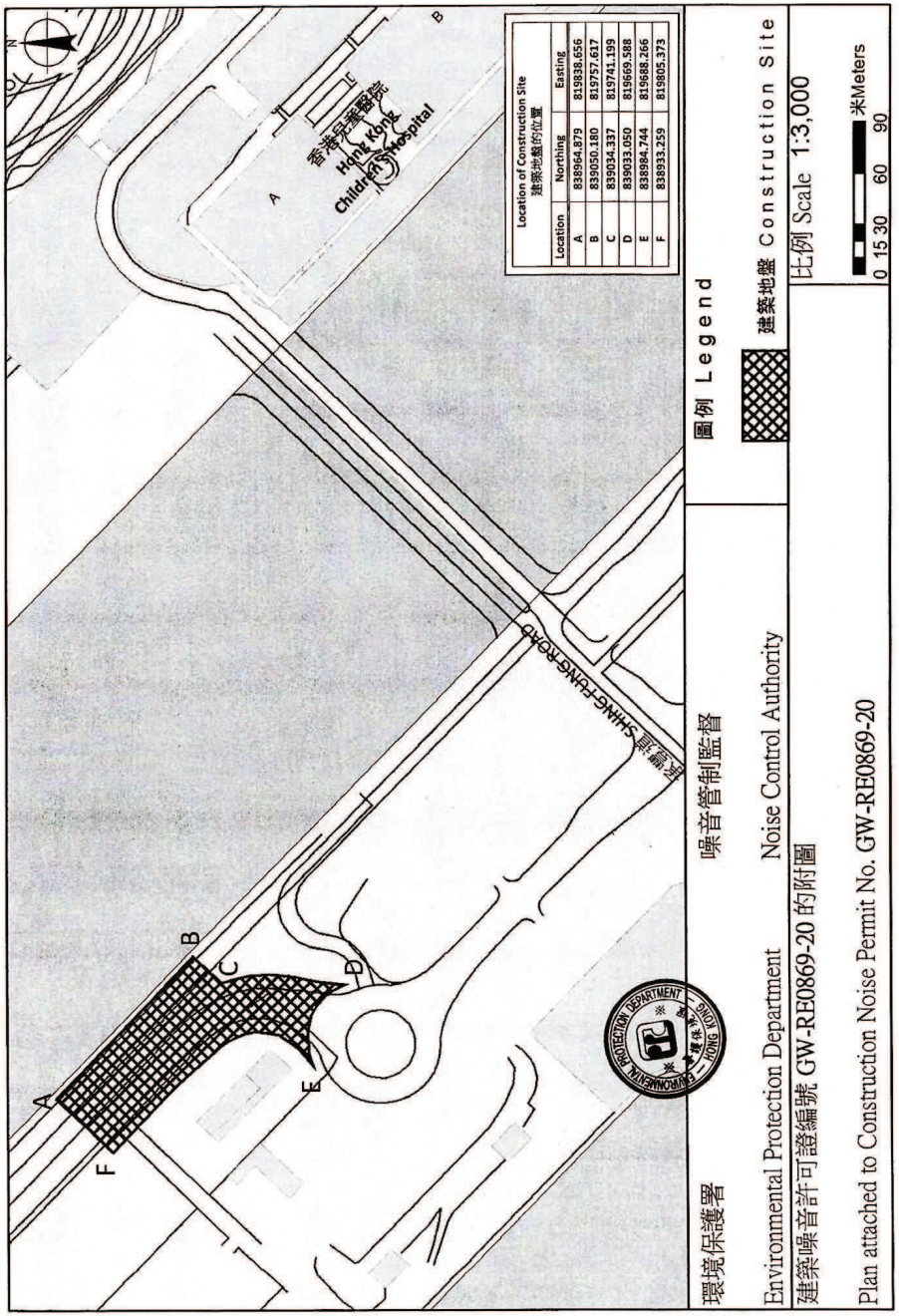
Photograph(s) attached to Construction Noise Permit No. GW-RE0869-20
建築噪音許可證編號：GW-RE0869-20 的照片



CNP 044 Concrete lorry mixer
混凝土攪拌車



CNP 165 Piling, large diameter bored, oscillator
大直徑鑽孔樁，擺動機



FORM 3 [reg.5(a)]
NOISE CONTROL ORDINANCE
(Chapter 400)
SECTION 8(9)

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

CONSTRUCTION NOISE PERMIT NO. GW-RE0991-20

To : PENTA – OCEAN CONSTRUCTION CO., LTD.

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

CONDITIONS

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

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

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

3. Powered Mechanical Equipment

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

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

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

   Date and time of commencement : 26 November 2020 at 2300 hours
   Days and hours : 0000-2400 hours on general holiday (including Sunday), 0000-0700 hours and 1900-2400 hours on any day not being a general holiday [but note Condition 3.d.1. below for the operating hours within which the use of the above listed powered mechanical equipment is allowed].
   This part of the permit expires on : 25 May 2021 at 0700 hours

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

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

   Refer to attached sheet.

4. Prescribed Construction Work

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

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

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

   Date and time of commencement: Not applicable at Not applicable
   Days and hours: Not applicable.

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

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

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

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

Dated this 23rd day of November 20 20

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

* Delete as necessary

表格 3 [第5(a)條]

噪音管制條例
(第400章)
第8(9)條

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

建築噪音許可證編號： GW-RE0991-20

致： PENTA – OCEAN CONSTRUCTION CO., LTD.

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

條 件

1. 可使用機動設備及／或進行訂明建築工程的建築地盤：

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

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

2. 該地盤部~~分~~／全部*位於指定範圍之內／~~外~~*。

3. 機動設備

a. 在地盤範圍內可使用的各項機動設備：

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

b. 可使用機動設備的建築噪音許可證有效期：

生效日期及時間： 二零二零年十一月二十六日 晚上十一時

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

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

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

d. 規限使用機動設備的其他條件：

參見附頁。

4. 訂明建築工程

a. 在地盤範圍內可進行的訂明建築工程：

訂明建築工程的識辨代碼	*訂明建築工程的類別的說明*
	不適用

b. 可進行訂明建築工程的建築噪音許可證有效期：

生效日期及時間： 不適用

日期及時間：不適用。

此部分許可證屆滿日期及時間： 不適用 (日期) (時間)

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

d. 規限進行訂明建築工程的其他條件：

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

日期：2020 年 11 月 23 日

簽署： 鄧慧敏

監督
(鄧慧敏 代行)

* 刪去不適用者

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

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

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

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

建築噪音許可證
編號 GW-RE0991-20 的附頁

3.a. 在地盤範圍內可使用的各項機動設備：

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

簽署：鄧慧敏 _____
監督
(鄧慧敏 代行)

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

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

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

Any day	2300 – 0700 hours on next day

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

3. The powered mechanical equipment covered by this permit shall not be operated when any powered mechanical equipment covered by Construction Noise Permit No. GW-RE0639-20 (CEC - CCC JOINT VENTURE) is being operated.

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

建築噪音許可證
編號 GW-RE0991-20 的附頁

3. d. 規限使用機動設備的其他條件：

1. 祇可於以下時間內使用列在條件 3. a 內的機動設備：

任何一日	晚上十一時 至 翌日上午七時

2. 在任何時間內，祇可使用列在條件 3. a. 內其中一組機動設備。

3. 當建築噪音許可證編號 GW-RE0639-20 (大陸工程 - 捷章建築聯營) 所載列的機動設備在使用時，不可使用本許可證內所載列的機動設備。

簽署：_____
監督
(鄧慧敏 代行)

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

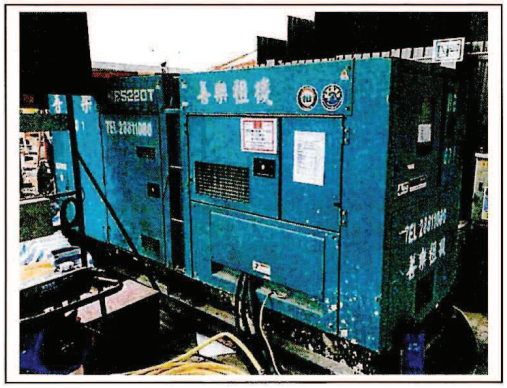


Lorry, with aerial platform, 5.5 tonne<gross vehicle weight≦38 tonne
升降台貨車，5.5噸<總重量≦38噸



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

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



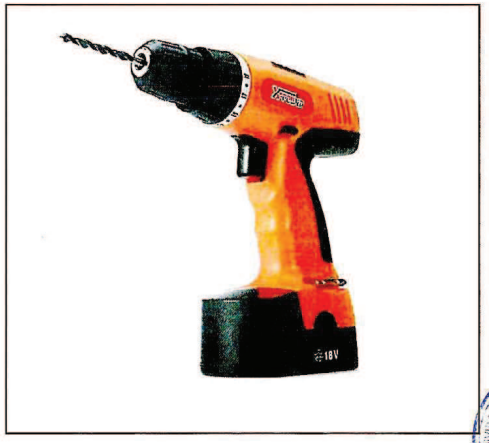
Generator, with Quality Powered Mechanical Equipment Label showing a Sound Power Level of ≦94 dB(A)
發電機，備有優質機動設備標籤顯示聲功率級≦94分貝(A)



Welding machine (electric)
焊接機 (電動)

Photograph(s) attached to Construction Noise Permit No. GW-RE0991-20

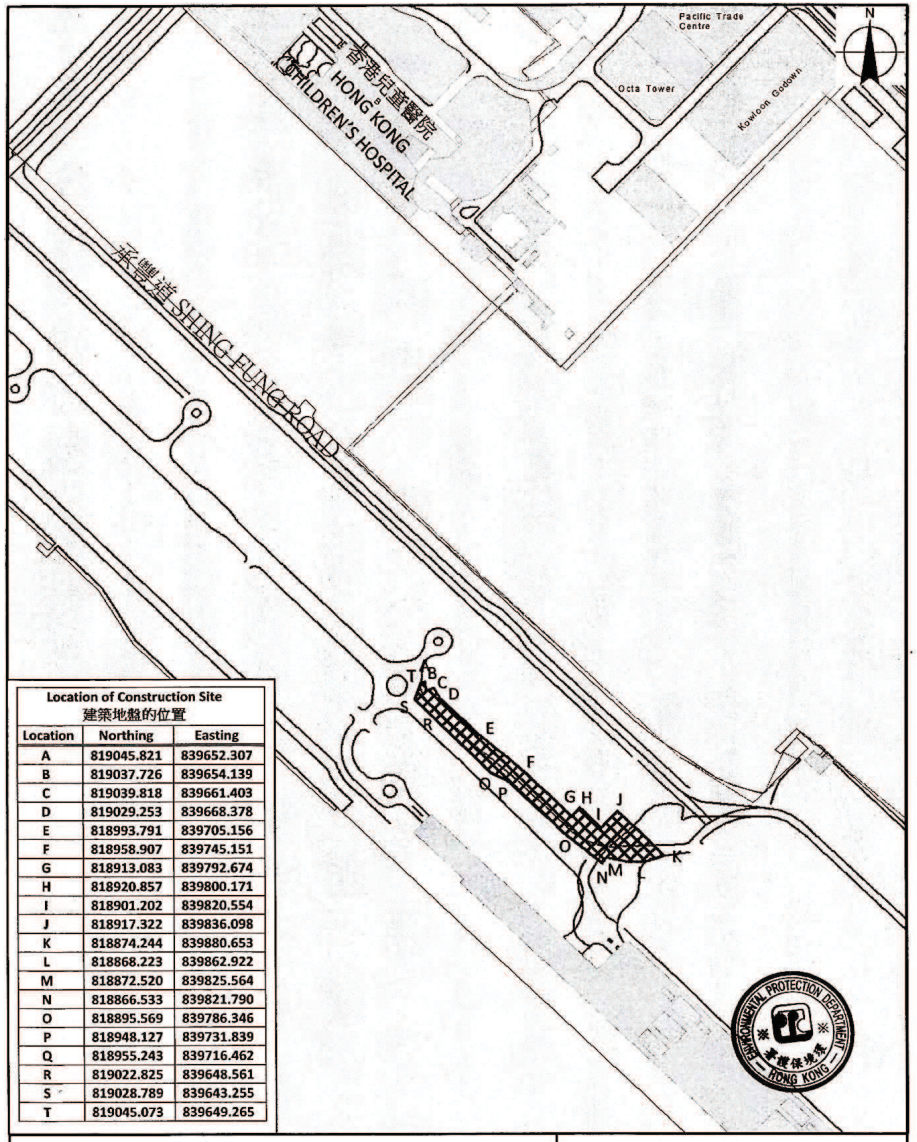
建築噪音許可證編號 GW-RE0991-20 的照片



Drill, hand-held (battery)

鑽，手提型 (乾電池)





Location of Construction Site
建築地盤的位置

Location	Northing	Easting
A	819045.821	839652.307
B	819037.726	839654.139
C	819039.818	839661.403
D	819029.253	839668.378
E	818993.791	839705.156
F	818958.907	839745.151
G	818913.083	839792.674
H	818920.857	839800.171
I	818901.202	839820.554
J	818917.322	839836.098
K	818874.244	839880.653
L	818868.223	839862.922
M	818872.520	839825.564
N	818866.533	839821.790
O	818895.569	839786.346
P	818948.127	839731.839
Q	818955.243	839716.462
R	819022.825	839648.561
S	819028.789	839643.255
T	819045.073	839649.265

環境保護署 噪音管制監督

Environmental Protection Department Noise Control Authority

圖例 Legend

建築地盤 Construction Site

建築噪音許可證編號GW-RE0991-20的附圖

Plan attached to Construction Noise Permit No. GW-RE0991-20

比例 Scale 1:5,000

米Meters

0 25 50 100 150

FORM 3 [reg.5(a)]

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

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

CONSTRUCTION NOISE PERMIT NO. GW-RE1012-20

To : PENTA-OCEAN CONSTRUCTION CO., LTD.

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

CONDITIONS

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

   Full address: Kai Tak Development – Stage 4 infrastructure at the former runway and south apron (Work Area Part 3), Kai Tak, Kowloon (CEDD Contract No. ED/2018/01). Lot No.: ---

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

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

3. Powered Mechanical Equipment

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

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

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

   Date and time of commencement : 27 November 2020 at 1900 hours

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

   This part of the permit expires on : 25 May 2021 at 2300 hours

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

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

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

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

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

4. Prescribed Construction Work

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

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

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

   Date and time of commencement : Not applicable at Not applicable

   Date and hours : Not applicable.

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

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

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

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

Dated this 23rd day of November 2020

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

* Delete as necessary

表格 3 [第5(a)條]

噪音管制條例
(第400章)
第8(9)條

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

建築噪音許可證編號：GW-RE1012-20

致：PENTA-OCEAN CONSTRUCTION CO., LTD.

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

條 件

1. 可使用機動設備及／或進行訂明建築工程的建築地盤：

詳細地址：九龍啟德啟德發展計劃-前跑道及南面停機坪第四期基礎設施(工作地區第3部分)(土木工程拓展署合約編號ED/2018/01)。地段編號：---

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

2. 該地盤~~部分~~／全部*位於指定範圍之~~內~~／外*。

3. 機動設備

a. 在地盤範圍內可使用的各項機動設備：

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

b. 可使用機動設備的建築噪音許可證有效期：

生效日期及時間：~~二零二零年十一月二十七日下午七時~~

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

此部分許可證屆滿日期及時間：二零二一年五月二十五日晚上十一時
日期 時間

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

d. 規限使用機動設備的其他條件：

1. 祇可於以下時間內使用列在條件3.a.內的機動設備：

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

2. 在任何時間內，祇可使用列在條件3.a.內的其中一組機動設備。

4. 訂明建築工程

a. 在地盤範圍內可進行的訂明建築工程：

訂明建築工程的識辨代碼	*訂明建築工程的類別的說明*
	不適用

b. 可進行訂明建築工程的建築噪音許可證有效期：

生效日期及時間：不適用

日期及時間：不適用。

此部分許可證屆滿日期及時間：不適用
日期 時間

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

d. 規限進行訂明建築工程的其他條件：

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

日期：2020 年 11 月 23 日

簽署：鄧慧敏
監督
(鄧慧敏 代行)

* 刪去不適用者

Sheet Attached to Construction Noise Permit
No. GW-RE1012-20

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

Identification code of item of powered mechanical equipment (if applicable)		*Description of item of powered mechanical equipment*	*No. of units*
Group A	CNP 021	Bar bender and cutter (electric)	Two
	---	Welding machine (electric)	Three
	---	Generator, with Quality Powered Mechanical Equipment Label showing a Sound Power Level of ≦ 93dB(A)	One
	CNP 048	Crane, mobile (diesel)	One
	---	Dump truck, with grab, 5.5 tonne<gross vehicle weight ≦38 tonne	One
	---	Air blower (electric)	Six
	CNP 283	Water pump, submersible (electric)	Six
	---	Wastewater treatment plant	Two
Group B	---	Poker, vibratory, hand-held (electric)	One
	CNP 047	Concrete pump, stationary	One
	CNP 283	Water pump, submersible (electric)	Six
	---	Wastewater treatment plant	Two
	---	Generator, with Quality Powered Mechanical Equipment Label showing a Sound Power Level of ≦ 93dB(A)	One
	CNP 044	Concrete lorry mixer	One

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

建築噪音許可證
編號 GW-RE1012-20 的附頁

3.a. 在地盤範圍內可使用的各項機動設備：

各項機動設備的識辨代碼 (如適用的話)		*各項機動設備的說明*	*數目*
A 組	CNP 021	鋼筋彎曲機及切割機 (電動)	貳
	---	焊接機 (電動)	叁
	---	發電機，備有優質機動設備標籤顯示聲功率級≦93 分貝(A)	壹
	CNP 048	起重機，流動 (油渣)	壹
	---	抓斗卸土車，5.5 噸< 總重量 ≦38 噸	壹
	---	吹風機 (電動)	陸
	CNP 283	潛水泵 (電動)	陸
	---	污水處理器	貳
B 組	---	混凝土震動機，手提 (電動)	壹
	CNP 047	混凝土泵，固定	壹
	CNP 283	潛水泵 (電動)	陸
	---	污水處理器	貳
	---	發電機，備有優質機動設備標籤顯示聲功率級≦93 分貝(A)	壹
	CNP 044	混凝土攪拌車	壹

簽署： 鄧慧敏
監督
(鄧慧敏 代行)

Photograph(s) attached to Construction Noise Permit No. GW-RE1012-20
建築噪音許可證編號：**GW-RE1012-20** 的照片



Generator, with Quality Powered Mechanical Equipment Label showing a Sound Power Level ≦93 dB(A) (1)
發電機，備有優質機動設備標籤顯示聲功率級≦93 分貝(A) (一)

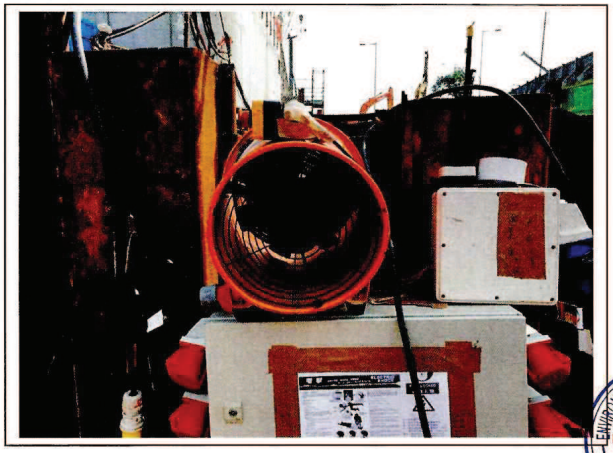


Generator, with Quality Powered Mechanical Equipment Label showing a Sound Power Level ≦93 dB(A) (2)
發電機，備有優質機動設備標籤顯示聲功率級≦93 分貝(A) (二)

Photograph(s) attached to Construction Noise Permit No. GW-RE1012-20
建築噪音許可證編號：**GW-RE1012-20** 的照片



Welding machine (electric)
焊接機 (電動)



Air blower (electric)
吹風機 (電動)

Photograph(s) attached to Construction Noise Permit No. GW-RE1012-20
建築噪音許可證編號：**GW-RE1012-20** 的照片



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



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

Photograph(s) attached to Construction Noise Permit No. GW-RE1012-20
建築噪音許可證編號：**GW-RE1012-20** 的照片



Wastewater treatment plant
污水處理器



CNP 047 Concrete pump, stationary
混凝土泵，固定

Photograph(s) attached to Construction Noise Permit No. GW-RE1012-20
建築噪音許可證編號：**GW-RE1012-20** 的照片



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



CNP 044 Concrete lorry mixer
混凝土攪拌車

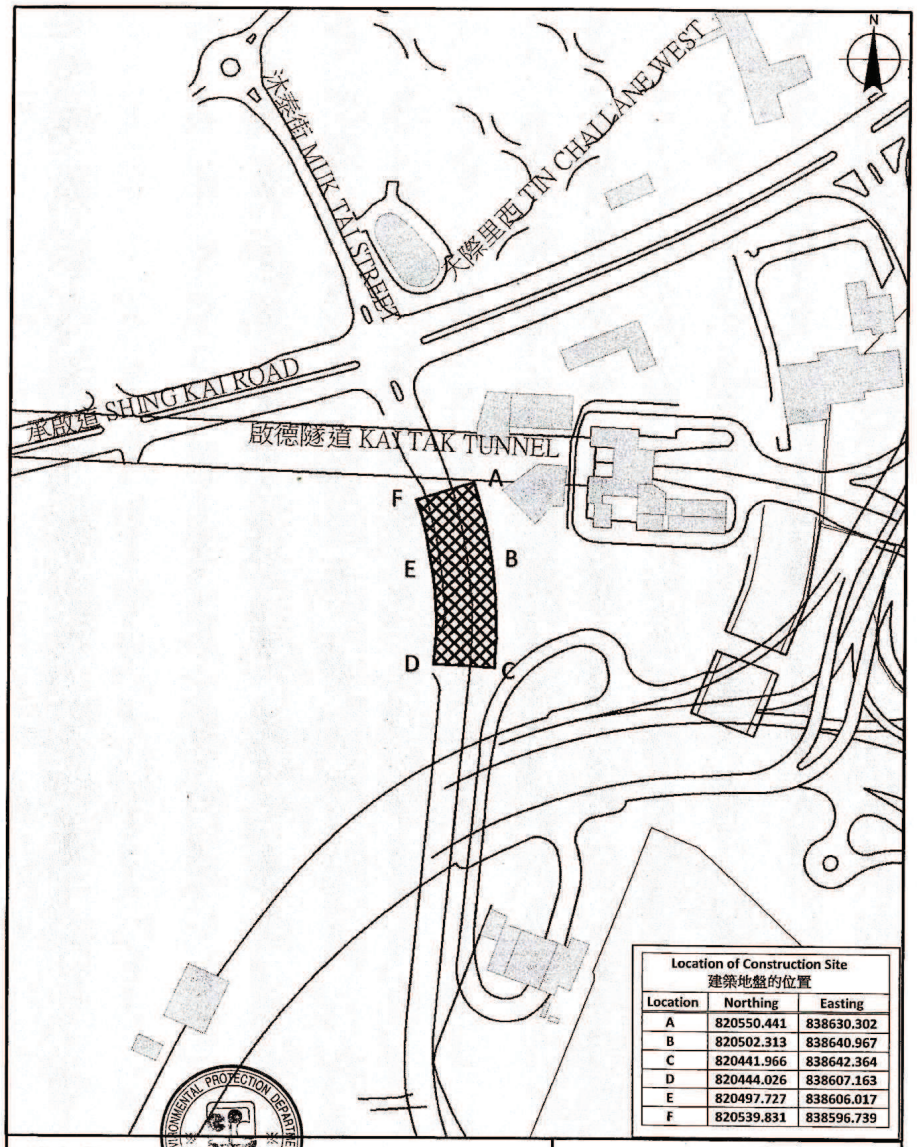
Photograph(s) attached to Construction Noise Permit No. GW-RE1012-20
建築噪音許可證編號：**GW-RE1012-20** 的照片



Dump truck, with grab, 5.5 tonne<gross vehicle weight≦38 tonne
抓斗卸土車，5.5 噸< 總重量 ≦38 噸



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



Location of Construction Site 建築地盤的位置		
Location	Northing	Easting
A	820550.441	838630.302
B	820502.313	838640.967
C	820441.966	838642.364
D	820444.026	838607.163
E	820497.727	838606.017
F	820539.831	838596.739

環境保護署 噪音管制監督

Environmental Protection Department Noise Control Authority

圖例 Legend

建築地盤 Construction Site

建築噪音許可證編號 GW-RE1012-20 的附圖

Plan attached to Construction Noise Permit No. GW-RE1012-20

比例 Scale 1:3,000

0 15 30 60 90 米Meters

FORM 3 [reg.5(a)]
NOISE CONTROL ORDINANCE
(Chapter 400)
SECTION 8(9)

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

CONSTRUCTION NOISE PERMIT NO. GW-RE1044-20

To : PENTA-OCEAN CONSTRUCTION CO., LTD.

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

CONDITIONS

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

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

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

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

3. Powered Mechanical Equipment

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

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

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

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

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

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

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

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

      Refer to attached sheet.

4. Prescribed Construction Work

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

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

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

      Date and time of commencement : Not applicable at Not applicable

      Date and hours : Not applicable.

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

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

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

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

Dated this 3rd day of December 2020

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

* Delete as necessary

表格 3 [第5(a)條]

噪音管制條例
(第400章)
第8(9)條

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

建築噪音許可證編號：GW-RE1044-20

致：PENTA-OCEAN CONSTRUCTION CO., LTD.

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

條 件

1. 可使用機動設備及／或進行訂明建築工程的建築地盤：

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

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

2. 該地盤~~部分~~／全部*位於指定範圍之~~內~~／外*。

3. 機動設備

   a. 在地盤範圍內可使用的各項機動設備：

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

   b. 可使用機動設備的建築噪音許可證有效期：

   生效日期及時間：二零二零年十二月十日下午七時

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

   此部分許可證屆滿日期及時間：二零二一年六月一日晚上十二時

   日期 時間

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

   d. 規限使用機動設備的其他條件：

   參見附頁。

4. 訂明建築工程

   a. 在地盤範圍內可進行的訂明建築工程：

訂明建築工程的識辨代碼	*訂明建築工程的類別的說明*
	不適用

   b. 可進行訂明建築工程的建築噪音許可證有效期：

   生效日期及時間：不適用

   日期及時間：不適用。

   此部分許可證屆滿日期及時間：不適用

   日期 時間

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

   d. 規限進行訂明建築工程的其他條件：

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

日期：2020 年 12 月 3 日

簽署：鄧慧敏

監督
(鄧慧敏 代行)

* 刪去不適用者

Sheet Attached to Construction Noise Permit

No. GW-RE1044-20

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

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

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

建築噪音許可證

編號 GW-RE1044-20 的附頁

3.a. 在地盤範圍內可使用的各項機動設備：

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

簽署：鄧慧敏
監督
(鄧慧敏 代行)

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

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

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

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

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

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

建築噪音許可證
編號 GW-RE1044-20 的附頁

3. d. 規限使用機動設備的其他條件：

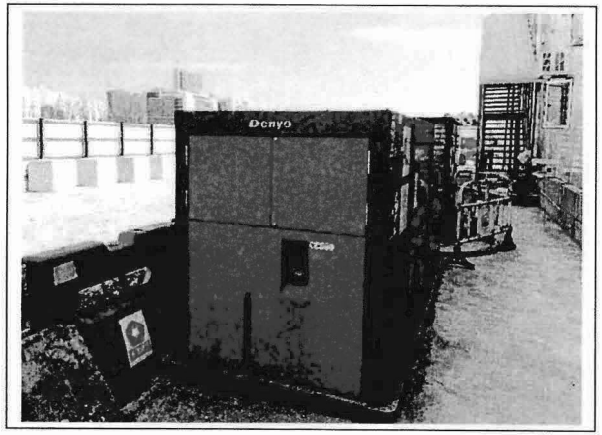
1. 祇可於以下時間內使用列在條件 3. a. 內的機動設備：

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

2. 在任何時間內，祇可使用列在條件 3. a. 內其中一組機動設備。

簽署： _____
監督
(鄧慧敏 代行)

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



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

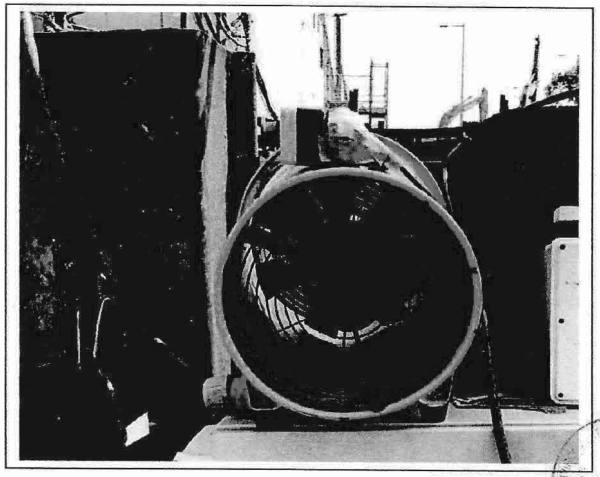


CNP 283 Water pump, submersible (electric)
潛水泵 (電動)

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

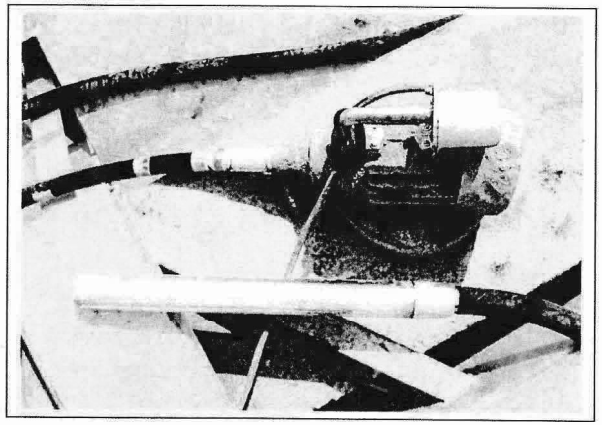


Wastewater treatment plant
污水處理器

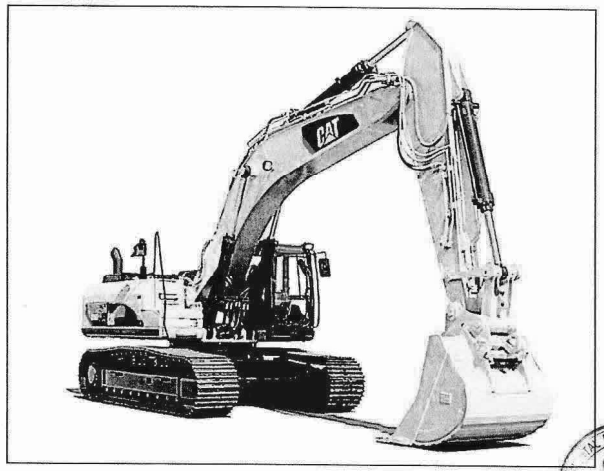


Air blower (electric)
吹風機 (電動)

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



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

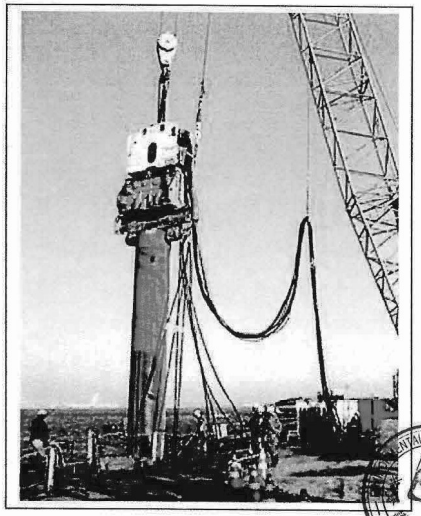


CNP 081 Excavator, tracked
挖土機， 履帶式

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

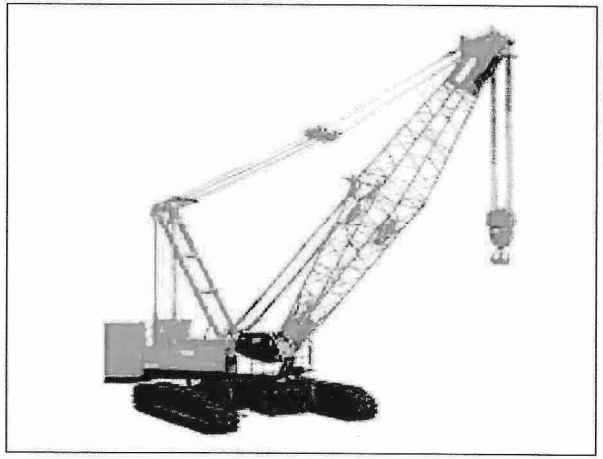


CNP 044 Concrete lorry mixer
混凝土攪拌車

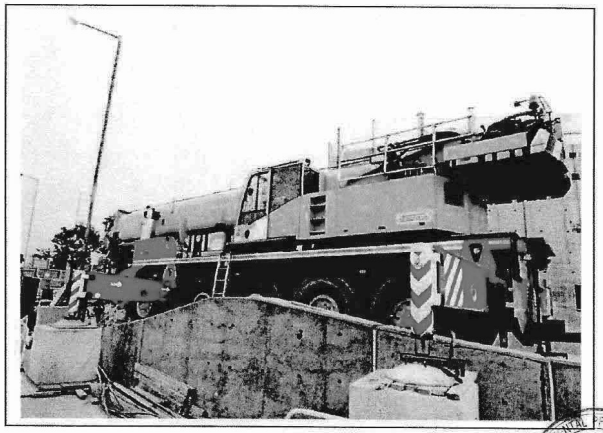


Piling, vibrating hammer
打樁機，震動鎚

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

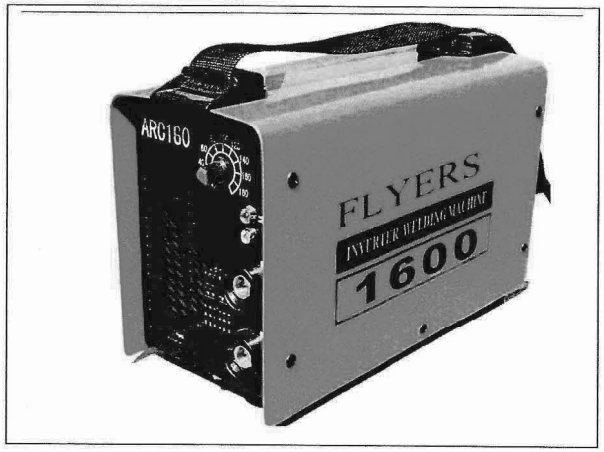


CNP 048 Crane, mobile (diesel) (1)
起重機，流動 (油渣) (1)

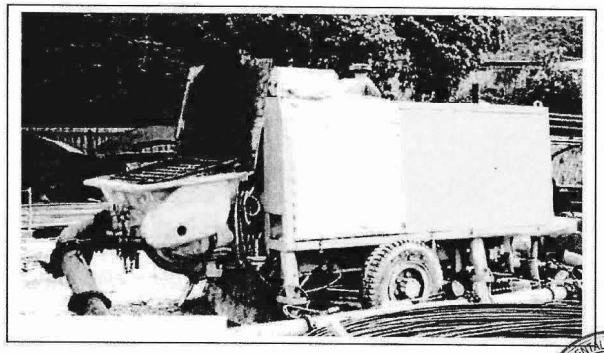


CNP 048 Crane, mobile (diesel) (2)
起重機，流動 (油渣) (2)

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

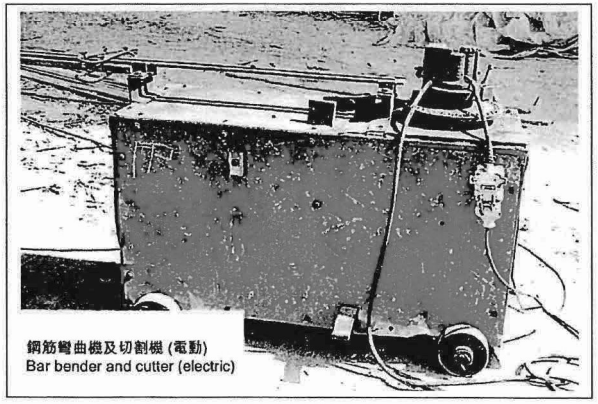


Welding machine (electric)
焊接機 (電動)



CNP 047 Concrete pump, stationary
混凝土泵，固定

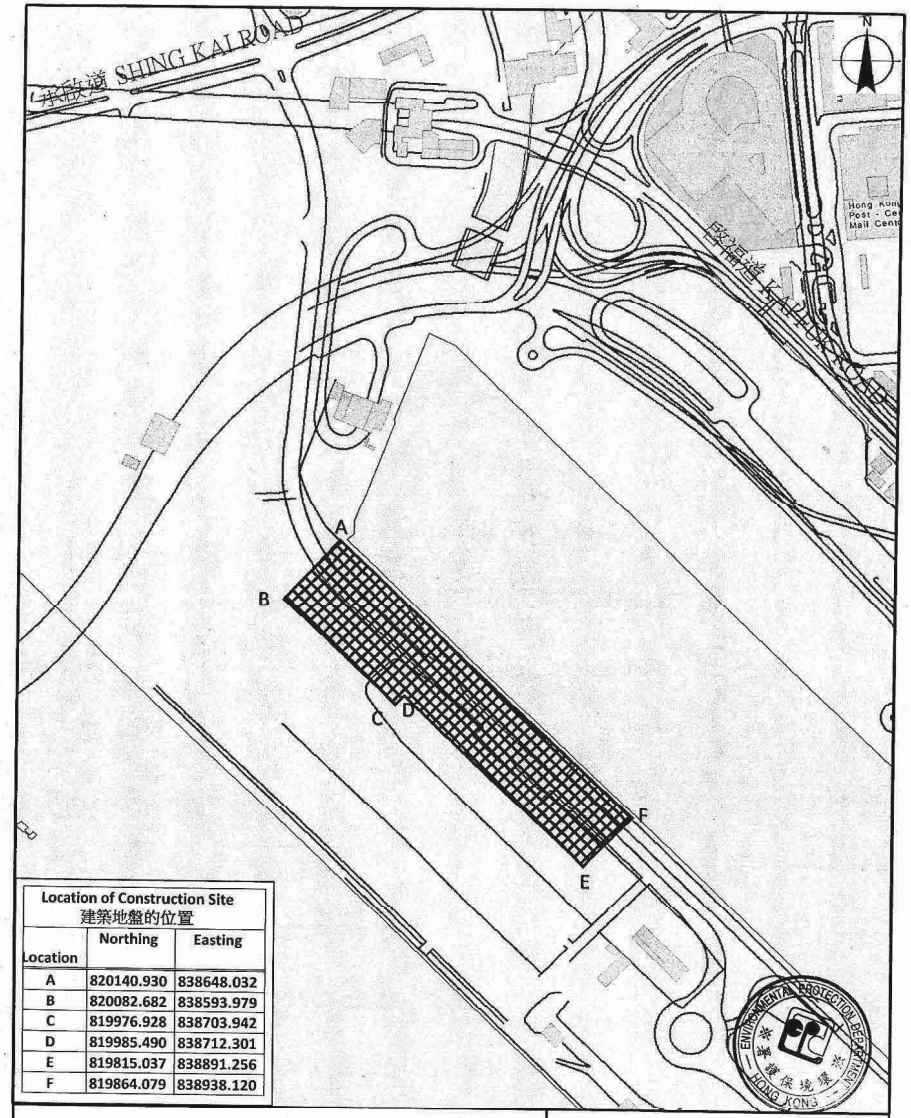
Photograph(s) attached to Construction Noise Permit No. GW-RE1044-20
建築噪音許可證編號：GW-RE1044-20 的照片



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



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



Location of Construction Site 建築地盤的位置		
Location	Northing	Easting
A	820140.930	838648.032
B	820082.682	838593.979
C	819976.928	838703.942
D	819985.490	838712.301
E	819815.037	838891.256
F	819864.079	838938.120

環境保護署 噪音管制監督

Environmental Protection Department Noise Control Authority

圖例 Legend

建築地盤 Construction Site

建築噪音許可證編號 GW-RE1044-20 的附圖

Plan attached to Construction Noise Permit No. GW-RE1044-20

比例 Scale 1:5,000

米Meters

0 25 50 100 150

FORM 3 [reg.5(a)]

NOISE CONTROL ORDINANCE

(Chapter 400)

SECTION 8(9)

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

CONSTRUCTION NOISE PERMIT NO. GW-RE1074-20

To : PENTA – OCEAN CONSTRUCTION CO., LTD.

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

CONDITIONS

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

   Full address : Kai Tak Development – Stage 4 infrastructure at the former runway and south apron (Work Area Part 2A), Kai Tak, Kowloon (CEDD Contract No. ED/2018/01). Lot No.: ---

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

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

3. Powered Mechanical Equipment

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

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

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

   Date and time of commencement : 18 December 2020 at 1900 hours

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

   This part of the permit expires on : 17 June 2021 at 0700 hours

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

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

   Refer to attached sheet.

4. Prescribed Construction Work

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

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

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

   Date and time of commencement: Not applicable at Not applicable

   Days and hours: Not applicable.

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

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

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

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

Dated this 11th day of December 20 20

Signed : 

(TANG Wai-man, Lisa)

for Authority

* Delete as necessary

表格 3 [第5(a)條]

噪音管制條例
(第400章)
第8(9)條

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

建築噪音許可證編號： GW-RE1074-20

致： PENTA - OCEAN CONSTRUCTION CO., LTD.

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

條 件

1. 可使用機動設備及／或進行訂明建築工程的建築地盤：

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

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

2. 該地盤~~部分~~／全部*位於指定範圍之~~內~~／外*。

3. 機動設備

a. 在地盤範圍內可使用的各項機動設備：

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

b. 可使用機動設備的建築噪音許可證有效期：

生效日期及時間： 二零二零年十二月十八日 下午七時

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

此部分許可證屆滿日期及時間： 二零二一年六月十七日 上午七時
日期 時間

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

d. 規限使用機動設備的其他條件：

參見附頁。

4. 訂明建築工程

a. 在地盤範圍內可進行的訂明建築工程：

訂明建築工程的識辨代碼	*訂明建築工程的類別的說明*
	不適用

b. 可進行訂明建築工程的建築噪音許可證有效期：

生效日期及時間： 不適用

日期及時間： 不適用。

此部分許可證屆滿日期及時間： 不適用
日期 時間

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

d. 規限進行訂明建築工程的其他條件：

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

日期：2020 年 12 月 11 日

簽署： 鄧慧敏

監督
(鄧慧敏 代行)

* 刪去不適用者

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

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

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

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

建築噪音許可證
編號 GW-RE1074-20 的附頁

3.a. 在地盤範圍內可使用的各項機動設備：

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

簽署：_____
監督
(鄧慧敏 代行)

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

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

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

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

建築噪音許可證
編號 GW-RE1074-20 的附頁

3.a. 在地盤範圍內可使用的各項機動設備：

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

簽署 : _____
監督
(鄧慧敏 代行)

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

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

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

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

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

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

建築噪音許可證
編號 GW-RE1074-20 的附頁

3. d. 規限使用機動設備的其他條件：

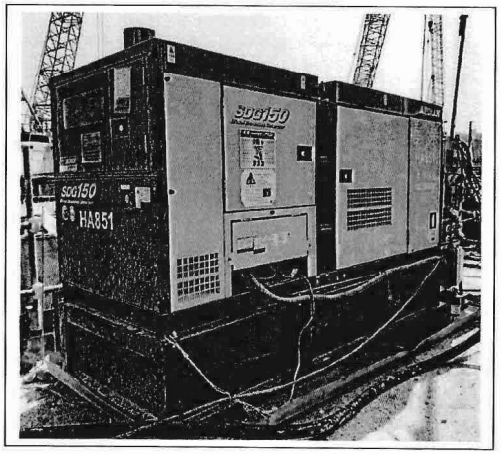
1. 祇可於以下時間內使用列在條件 3. a 內的機動設備：

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

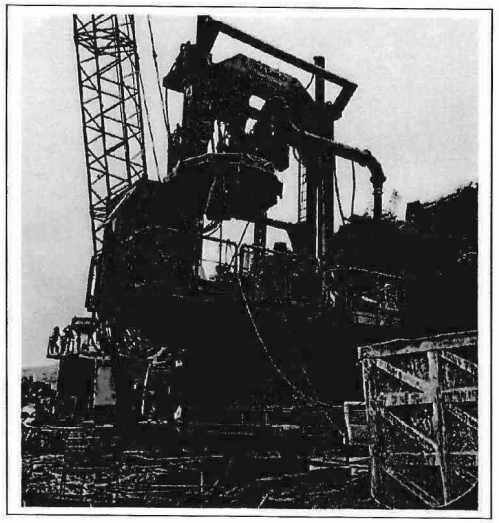
2. 在任何時間內，祇可使用列在條件 3. a. 內其中一組機動設備。

簽署： _____
監督
(鄧慧敏 代行)

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

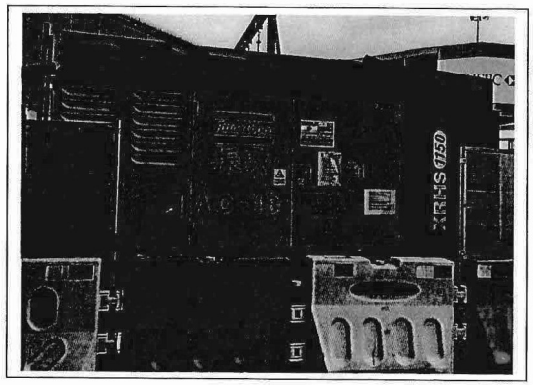


Generator, with Quality Powered Mechanical Equipment Label showing a Sound Power Level ≦95 dB(A)
發電機，備有優質機動設備標籤顯示聲功率級≦95 分貝(A)

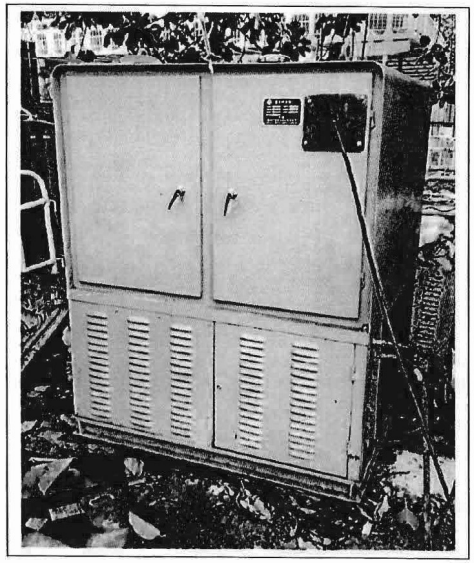


CNP 166 Piling, large diameter bored, reverse circulation drill
大直徑鑽孔樁，循環式鑽機

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

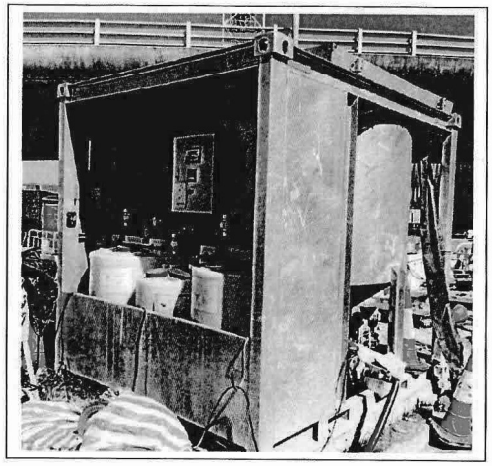


Air compressor, with Noise Emission Label showing a Sound Power Level of ≦104 dB(A)
空氣壓縮機，備有噪音標籤顯示聲功率級≦104 分貝(A)

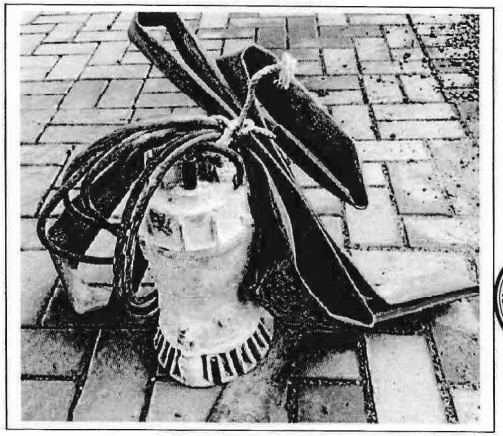


Power pack (diesel)
油渣動力供應器

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

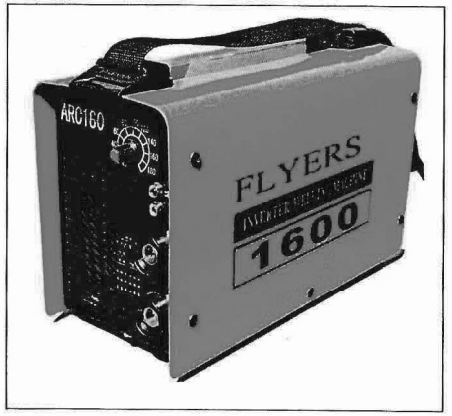


Wastewater treatment plant
污水處理器

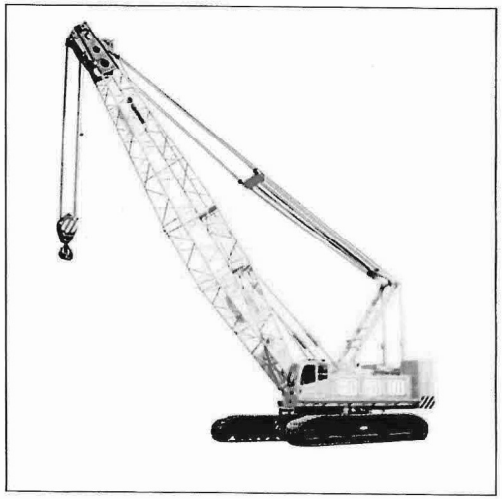


CNP 283 Water pump, submersible (electric)
潛水泵 （電動）

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

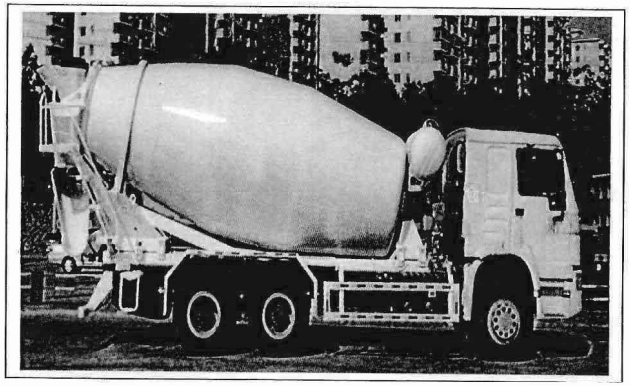


Welding machine (electric)
焊接機 （電動）

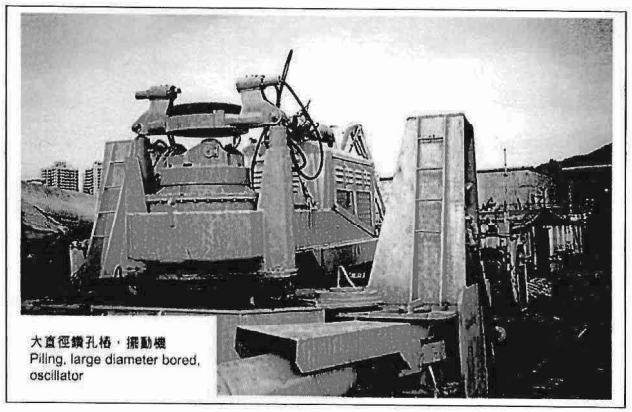


CNP 048 Crane, mobile (diesel)
起重機，流動 (油渣)

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



CNP 044 Concrete lorry mixer
混凝土攪拌車

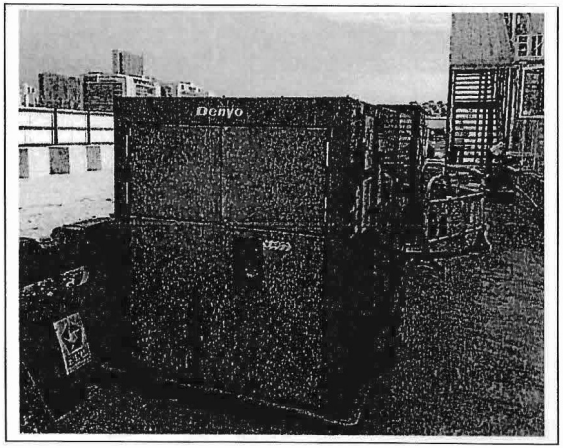


CNP 165 Piling, large diameter bored, oscillator
大直徑鑽孔樁，擺動機

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

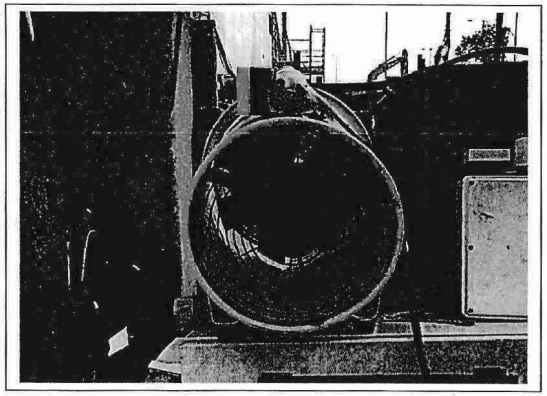


Elevated working platform, lorry mounted
升降工作台，裝在貨車上



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

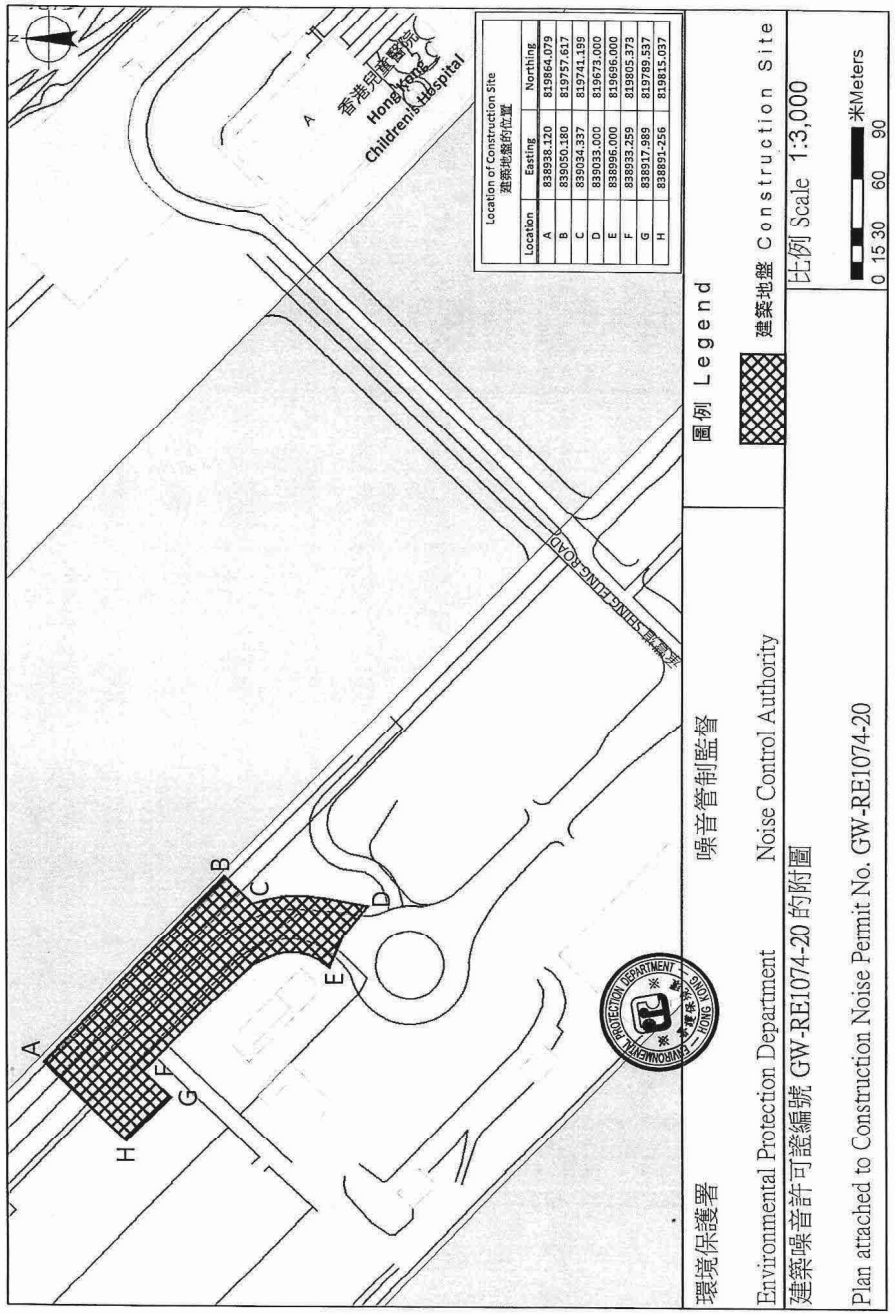
Photograph(s) attached to Construction Noise Permit No. GW-RE1074-20
建築噪音許可證編號：**GW-RE1074-20** 的照片



Air blower (electric)
吹風機 （電動）



CNP 081 Excavator, tracked
挖土機，履帶式



Appendix P – Environmental Mitigation Implementation Schedule (EMIS)

Implementation Schedule for Air Quality Measures			
EIA for KTD Development Ref.	**EIA for KTD – Roads D3A & D4A Ref.**	**Environmental Protection Measures / Mitigation Measures**	**Status**
S3.2		8 times daily watering of the work site with active dust emitting activities.	^*
S3.2	S4.8	Implementation of dust suppression measures stipulated in Air Pollution Control (Construction Dust) Regulation. The following mitigation measures, good site practices and a comprehensive dust monitoring and audit programme are recommended to minimize cumulative dust impacts.	^
		- Stockpiling site(s) should be lined with impermeable sheeting and bunded. Stockpiles should be fully covered by impermeable sheeting to reduce dust emission.	^
		- Misting for the dusty material should be carried out before being loaded into the vehicle.	^
		- Any vehicle with an open load carrying area should have properly fitted side and tail boards.	^
		- Material having the potential to create dust should not be loaded from a level higher than the side and tail boards and should be dampened and covered by a clean tarpaulin.	^
		- The tarpaulin should be properly secured and should extent at least 300 mm over the edges of the sides and tailboards. The material should also be dampened if necessary, before transportation.	^
		- The vehicles should be restricted to maximum speed of 10 km per hour and confined haulage and delivery vehicle to designated roadways insider the site. On- site unpaved roads should be compacted and kept free of lose materials.	^
		- Vehicle washing facilities should be provided at every vehicle exit point.	^
		- The area where vehicle washing takes place and the section of the road between the washing facilities and the exit point should be paved with concrete, bituminous materials or hardcores.	^
		- 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.	^
		- Every stock of more than 20 bags of cement should be covered entirely by impervious sheeting placed in an area sheltered on the top and the three sides.	^
		- Every vehicle should be washed to remove any dusty materials from its body and wheels before leaving the construction sites.	^

Implementation Schedule for Noise Measures			
EIA for KTD Development Ref.	**EIA for KTD – Roads D3A & D4A Ref.**	**Environmental Protection Measures / Mitigation Measures**	**Status**
S3.3		Use of quiet PME, movable barriers for Asphalt Paver, Breaker, Excavator and Hand-held breaker and full enclosure for Air Compressor, Bar Bender, Concrete Pump, Generator and Water Pump.	^
S3.3		Good Site Practice:	
S3.3		- Only well-maintained plant should be operated on-site and plant should be serviced regularly during the construction program.	^
		- Silencers or mufflers on construction equipment should be utilized and should be properly maintained during the construction program.	^
		- Mobile plant, if any, should be sited as far away from NSRs as possible.	^
		- Machines and plant (such as trucks) that may be in intermittent use should be shut down between works periods or should be throttled down to a minimum.	^
		- Plant known to emit noise strongly in one direction should, wherever possible, be orientated so that the noise is directed away from the nearby NSRs.	^
		- Material stockpiles and other structures should be effectively utilized, wherever practicable, in screening noise from on-site construction activities.	^
		- Scheduling of Construction Works during School Examination Period	N/A

Implementation Schedule for Water Quality Measures			
EIA for KTD Development Ref.	**EIA for KTD – Roads D3A & D4A Ref.**	**Environmental Protection Measures / Mitigation Measures**	**Status**
S3.4		<u>Construction Runoff</u> Exposed soil areas should be minimised to reduce the potential for increased siltation, contamination of runoff, and erosion. Construction runoff related impacts associated with the above ground construction activities can be readily controlled through the use of appropriate mitigation measures which include:	
S3.4		- use of sediment traps.	^
S3.4		- adequate maintenance of drainage systems to prevent flooding and overflow.	^

Implementation Schedule for Water Quality Measures			
EIA for KTD Development Ref.	**EIA for KTD – Roads D3A & D4A Ref.**	**Environmental Protection Measures / Mitigation Measures**	**Status**
	S5.8	- Surface run-off from construction sites should be discharged into storm drains via adequately designed sand/silt removal facilities such as sand traps, silt traps and sedimentation basins.	^
	S5.8	- Channels or earth bunds or sand bag barriers should be provided on site to properly direct stormwater to such silt removal facilities. Perimeter channels should be provided on site boundaries where necessary to intercept storm run-off from outside the site so that it will not wash across the site. Catchpits and perimeter channels should be constructed in advance of site formation works and earthworks.	^
	S5.8	- Silt removal facilities, channels and manholes should be maintained and the deposited silt and grit should be removed regularly, at the onset of and after each rainstorm to prevent local flooding. Any practical options for the diversion and re-alignment of drainage should comply with both engineering and environmental requirements in order to provide adequate hydraulic capacity of all drains. Minimum distance of 100 m should be maintained between the discharge points of construction site run-off and the existing saltwater intakes.	^
	S5.8	- Earthworks final surfaces should be well compacted and the subsequent permanent work or surface protection should be carried out immediately after the final surfaces are formed to prevent erosion caused by rainstorms. Appropriate drainage like intercepting channels should be provided where necessary.	^
	S5.8	- Measures should be taken to minimize the ingress of rainwater into trenches. If excavation of trenches in wet seasons is necessary, they should be dug and backfilled in short sections. Rainwater pumped out from trenches or foundation excavations should be discharged into storm drains via silt removal facilities.	^
	S5.8	- Open stockpiles of construction materials (e.g. aggregates, sand and fill material) on sites should be covered with tarpaulin or similar fabric during rainstorms.	^
	S5.8	- Manholes (including newly constructed ones) should always be adequately covered and temporarily sealed so as to prevent silt, construction materials or debris from getting into the drainage system, and to prevent storm run-off from getting into foul sewers. Discharge of surface run-off into foul sewers must always be prevented in order not to unduly overload the foul	^

Implementation Schedule for Water Quality Measures			
EIA for KTD Development Ref.	**EIA for KTD – Roads D3A & D4A Ref.**	**Environmental Protection Measures / Mitigation Measures**	**Status**
		sewerage system.	
	S5.8	- Good site practices should be adopted to remove rubbish and litter from construction sites so as to prevent the rubbish and litter from spreading from the site area. It is recommended to clean the construction sites on a regular basis.	^
S3.4		Construction site should be provided with adequately designed perimeter channel and pre-treatment facilities and proper maintenance. The boundaries of critical areas of earthworks should be marked and surrounded by dykes or embankments for flood protection. Temporary ditches should be provided to facilitate runoff discharge into the appropriate watercourses, via a silt retention pond. Permanent drainage channels should incorporate sediment basins or traps and baffles to enhance deposition rates. The design of efficient silt removal facilities should be based on the guidelines in Appendix A1 of ProPECC PN 1/94.	^
S3.4	S5.8	Ideally, construction works should be programmed to minimise surface excavation works during the rainy season (April to September). All exposed earth areas should be completed as soon as possible after earthworks have been completed, or alternatively, within 14 days of the cessation of earthworks where practicable. If excavation of soil cannot be avoided during the rainy season, or at any time of year when rainstorms are likely, exposed slope surfaces should be covered by tarpaulin or other means. If excavation in soil cannot be avoided in these months or at any time of year when rainstorms are likely, for the purpose of preventing soil erosion, temporary exposed slope surfaces should be covered e.g. by tarpaulin, and temporary access roads should be protected by crushed stone or gravel, as excavation proceeds. Intercepting channels should be provided (e.g. along the crest / edge of excavation) to prevent storm runoff from washing across exposed soil surfaces. Arrangements should always be in place in such a way that adequate surface protection measures can be safely carried out well before the arrival of a rainstorm.	^
S3.4		Sediment tanks of sufficient capacity, constructed from pre-formed individual cells of approximately 6 to 8 m^3 capacity, are recommended as a general mitigation measure which can be used for settling surface runoff prior to disposal. The system capacity is flexible and able to handle multiple inputs from a variety of sources	^

Implementation Schedule for Water Quality Measures			
EIA for KTD Development Ref.	**EIA for KTD – Roads D3A & D4A Ref.**	**Environmental Protection Measures / Mitigation Measures**	**Status**
		and particularly suited to applications where the influent is pumped.	
S3.4		Open stockpiles of construction materials (for examples, aggregates, sand and fill material) of more than 50 m^3 should be covered with tarpaulin or similar fabric during rainstorms. Measures should be taken to prevent the washing away of construction materials, soil, silt or debris into any drainage system.	^
S3.4		Manholes (including newly constructed ones) should always be adequately covered and temporarily sealed so as to prevent silt, construction materials or debris being washed into the drainage system and storm runoff being directed into foul sewers.	^
S3.4		Precautions to be taken at any time of year when rainstorms are likely, actions to be taken when a rainstorm is imminent or forecast, and actions to be taken during or after rainstorms are summarised in Appendix A2 of ProPECC PN 1/94. Particular attention should be paid to the control of silty surface runoff during storm events.	^
S3.4		Oil interceptors should be provided in the drainage system and regularly cleaned to prevent the release of oils and grease into the storm water drainage system after accidental spillages. The interceptor should have a bypass to prevent flushing during periods of heavy rain.	NA
S3.4	S5.8	<u>Wheel Washing Water</u> All vehicles and plant should be cleaned before leaving a construction site to ensure no earth, mud, debris and the like is deposited by them on roads. An adequately designed and located wheel washing bay should be provided at every site exit, and wash-water should have sand and silt settled out and removed at least on a weekly basis to ensure the continued efficiency of the process. The section of access road leading to, and exiting from, the wheel-wash bay to the public road should be paved with sufficient backfall toward the wheel-wash bay to prevent vehicle tracking of soil and silty water to public roads and drains.	^
S3.4		<u>Drainage</u> It is recommended that on-site drainage system should be installed prior to the commencement of other construction activities. Sediment traps should be installed in order to minimise the sediment loading of the effluent prior to discharge into foul sewers. There should be no direct discharge of effluent from the site into the sea.	^
S3.4		All temporary and permanent drainage pipes and culverts provided	^

Implementation Schedule for Water Quality Measures			
EIA for KTD Development Ref.	**EIA for KTD – Roads D3A & D4A Ref.**	**Environmental Protection Measures / Mitigation Measures**	**Status**
		to facilitate runoff discharge should be adequately designed for the controlled release of storm flows. All sediment control measures should be regularly inspected and maintained to ensure proper and efficient operation at all times and particularly following rain storms. The temporarily diverted drainage should be reinstated to its original condition when the construction work has finished or the temporary diversion is no longer required.	
S3.4		All fuel tanks and storage areas should be provided with locks and be located on sealed areas, within bunds of a capacity equal to 110% of the storage capacity of the largest tank, to prevent spilled fuel oils from reaching the coastal waters of the Victoria Harbour WCZ.	^
S3.4	S5.8	<u>Sewage Effluent</u> 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. Notices should be posted at conspicuous locations to remind the workers not to discharge any sewage or wastewater into the surrounding environment. Regular environmental audit of the construction site will provide an effective control of any malpractices and can encourage continual improvement of environmental performance on site. It is anticipated that sewage generation during the construction phase of the project would not cause water pollution problem after undertaking all required measures.	^
S3.4		<u>Stormwater Discharges</u> Minimum distances of 100 m should be maintained between the existing or planned stormwater discharges and the existing or planned seawater intakes	^
S3.4		<u>Debris and Litter</u> In order to maintain water quality in acceptable conditions with regard to aesthetic quality, contractors should be required, under conditions of contract, to ensure that site management is optimised	^

Implementation Schedule for Water Quality Measures			
EIA for KTD Development Ref.	**EIA for KTD – Roads D3A & D4A Ref.**	**Environmental Protection Measures / Mitigation Measures**	**Status**
		and that disposal of any solid materials, litter or wastes to marine waters does not occur.	
	S5.8	Boring and Drilling Water Water used in ground boring and drilling for site investigation or rock / soil anchoring should as far as practicable be re-circulated after sedimentation. When there is a need for final disposal, the wastewater should be discharged into storm drains via silt removal facilities.	^
	S5.8	Acid Cleaning, Etching and Pickling Wastewater Acidic wastewater generated from acid cleaning, etching, pickling and similar activities should be neutralized to within the pH range of 6 to 10 before discharging into foul sewers.	NA
	S5.8	Effluent Discharge There is a need to apply to EPD for a discharge licence for discharge of effluent from the construction site under the WPCO. The discharge quality must meet the requirements specified in the discharge licence. All the runoff and wastewater generated from the works areas should be treated so that it satisfies all the standards listed in the TM-DSS. Minimum distance of 100 m should be maintained between the discharge points of construction site effluent and the existing seawater intakes and the planned WSR mentioned in S5.3.1 as appropriate. The beneficial uses of the treated effluent for other on-site activities such as dust suppression, wheel washing and general cleaning etc., can minimise water consumption and reduce the effluent discharge volume. If monitoring of the treated effluent quality from the works areas is required during the construction phase of the Project, the monitoring should be carried out in accordance with the relevant WPCO licence which is under the ambit of regional office (RO) of EPD.	^
	S5.8	Accidental Spillage Contractor must register as a chemical waste producer if chemical wastes would be produced from the construction activities. The Waste Disposal Ordinance (Cap 354) and its subsidiary regulations in particular the Waste Disposal (Chemical Waste) (General) Regulation, should be observed and complied with for control of chemical wastes. Any service shop and maintenance facilities should be located on	^

Implementation Schedule for Water Quality Measures			
EIA for KTD Development Ref.	**EIA for KTD – Roads D3A & D4A Ref.**	**Environmental Protection Measures / Mitigation Measures**	**Status**
		hard standings within a bunded area, and sumps and oil interceptors should be provided. Maintenance of vehicles and equipment involving activities with potential for leakage and spillage should only be undertaken within the areas appropriately equipped to control these discharges.	
	S5.8	Disposal of chemical wastes should be carried out in compliance with the Waste Disposal Ordinance. The Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes published under the Waste Disposal Ordinance details the requirements to deal with chemical wastes. General requirements are given as follows: - Suitable containers should be used to hold the chemical wastes to avoid leakage or spillage during storage, handling and transport.	^
	S5.8	- Chemical waste containers should be suitably labelled, to notify and warn the personnel who are handling the wastes, to avoid accidents.	^
	S5.8	- Storage area should be selected at a safe location on site and adequate space should be allocated to the storage area.	^

Implementation Schedule for Waste Management Measures			
EIA for KTD Development Ref.	**EIA for KTD – Roads D3A & D4A Ref.**	**Environmental Protection Measures / Mitigation Measures**	**Status**
S3.5		Good Site Practices It is not anticipated that adverse waste management related impacts would arise, provided that good site practices are adhered to. Recommendations for good site practices during construction activities include:	
S3.5		- Nomination of an approved person, such as a site manager, to be responsible for good site practices, arrangements for collection and effective disposal to an appropriate facility, of all wastes generated at the site.	^
	S6.7	- Prepare a Waste Management Plan, which becomes a part of the Environmental Management Plan, in accordance with the requirements stipulated in ETWB TC(W) No. 19/2005, approved by the Engineer/Supervising Officer of the Project based on current practices on construction sites.	^
S3.5	S6.7	- Training of site personnel in proper waste management and chemical waste handling procedures.	^

Implementation Schedule for Waste Management Measures			
EIA for KTD Development Ref.	**EIA for KTD – Roads D3A & D4A Ref.**	**Environmental Protection Measures / Mitigation Measures**	**Status**
S3.5	S6.7	- Provision of sufficient waste disposal points and regular collection for disposal.	^*
S3.5	S6.7	- Appropriate measures to minimise windblown litter and dust during transportation of waste by either covering trucks or by transporting wastes in enclosed containers.	^
S3.5		- A recording system for the amount of wastes generated, recycled and disposed of (including the disposal sites).	^
	S6.7	- Regular cleaning and maintenance programme for drainage systems, sumps and oil interceptors.	^
	S6.7	- Training should be provided to workers about the concepts of site cleanliness and appropriate waste management procedures, including waste reduction, reuse and recycle.	^
S3.5		<u>Waste Reduction Measures</u> Good management and control can prevent the generation of a significant amount of waste. Waste reduction is best achieved at the planning and design stage, as well as by ensuring the implementation of good site practices. Recommendations to achieve waste reduction include:	^
S3.5	S6.7	- Sort C&D waste from demolition of the remaining structures to recover recyclable portions such as metals.	NA
S3.5	S6.7	- Segregation and storage of different types of waste in different containers, skips or stockpiles to enhance reuse or recycling of materials and their proper disposal.	^
S3.5	S6.7	- Encourage collection of aluminium cans, PET bottles and paper by providing separate labelled bins to enable these wastes to be segregated from other general refuse generated by the work force.	^
S3.5		- Any unused chemicals or those with remaining functional capacity should be recycled.	^
S3.5	S6.7	- Proper storage and site practices to minimise the potential for damage or contamination of construction materials.	^
S3.5		<u>Construction and Demolition Materials</u> Mitigation measures and good site practices should be incorporated in the contract document to control potential environmental impact from handling and transportation of C&D material. The mitigation measures include:	
S3.5		- Where it is unavoidable to have transient stockpiles of C&D material within the Project work site pending collection for	^

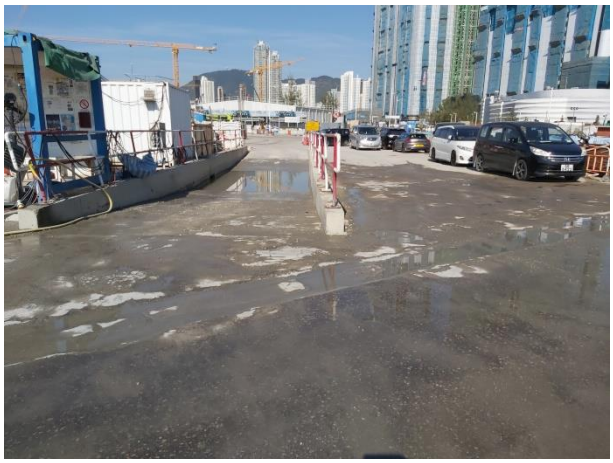
Implementation Schedule for Waste Management Measures			
EIA for KTD Development Ref.	**EIA for KTD – Roads D3A & D4A Ref.**	**Environmental Protection Measures / Mitigation Measures**	**Status**
		disposal, the transient stockpiles shall be located away from waterfront or storm drains as far as possible.	
S3.5		- Open stockpiles of construction materials or construction wastes on-site should be covered with tarpaulin or similar fabric.	^
S3.5		- Skip hoist for material transport should be totally enclosed by impervious sheeting.	^
S3.5		- Every vehicle should be washed to remove any dusty materials from its body and wheels before leaving a construction site.	^
S3.5		- The area where vehicle washing takes place and the section of the road between the washing facilities and the exit point should be paved with concrete, bituminous materials or hardcores.	^
S3.5		- The load of dusty materials carried by vehicle leaving a construction site should be covered entirely by clean impervious sheeting to ensure dust materials do not leak from the vehicle.	^
S3.5		- All dusty materials should be sprayed with water prior to any loading, unloading or transfer operation so as to maintain the dusty materials wet.	^
S3.5		- The height from which excavated materials are dropped should be controlled to a minimum practical height to limit fugitive dust generation from unloading.	^
S3.5		- When delivering inert C&D material to public fill reception facilities, the material should consist entirely of inert construction waste and of size less than 250mm or other sizes as agreed with the Secretary of the Public Fill Committee. In order to monitor the disposal of the surplus C&D material at the designed public fill reception facility and to control fly tipping, a trip-ticket system as stipulated in the ETWB TCW No. 31/2004 "Trip Ticket System for Disposal of Construction and Demolition Materials" should be included as one of the contractual requirements and implemented by an Environmental Team undertaking the Environmental Monitoring and Audit work. An Independent Environmental Checker should be responsible for auditing the results of the system.	^
	S6.7	- Plan and stock construction materials carefully to minimize amount of waste generated and avoid unnecessary generation	^

Implementation Schedule for Waste Management Measures			
EIA for KTD Development Ref.	**EIA for KTD – Roads D3A & D4A Ref.**	**Environmental Protection Measures / Mitigation Measures**	**Status**
		of waste.	
S3.5		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.	^
	S6.7	Separation of chemical wastes for special handling and appropriate treatment.	^
S3.5		General Refuse General refuse should be stored in enclosed bins or compaction units separate from C&D material. A licensed waste collector should be employed by the contractor to remove general refuse from the site, separately from C&D material. Effective collection and storage methods (including enclosed and covered area) of site wastes would be required to prevent waste materials from being blown around by wind, wastewater discharge by flushing or leaching into the marine environment, or creating odour nuisance or pest and vermin problem.	^

Implementation Schedule for Landscape and Visual Measures			
EIA for KTD Development Ref.	**EIA for KTD – Roads D3A & D4A Ref.**	**Environmental Protection Measures / Mitigation Measures**	**Status**
S3.8.12		All existing trees should be carefully protected during construction.	^
S3.8.12		Trees unavoidably affected by the works should be transplanted where practical. Detailed transplanting proposal will be submitted to relevant government departments for approval in accordance with ETWBC 2/2004 and 3/2006. Final locations of transplanted trees should be agreed prior to commencement of the work.	NA
S3.8.12		Control of night-time lighting.	^
S3.8.12		Erection of decorative screen hoarding.	^
	S7.9	Construction Site Control - CM1 - Minimized construction area and contractor's temporary works areas.	^
		- CM2- Control of night-time lighting and glare by hooding all lights.	^
		- CM3 - Erection of decorative mesh screens or construction	^

Implementation Schedule for Landscape and Visual Measures			
EIA for KTD Development Ref.	**EIA for KTD – Roads D3A & D4A Ref.**	**Environmental Protection Measures / Mitigation Measures**	**Status**
		hoardings around works areas in visually unobtrusive colours.	
		- CM4 - Reduction of construction period to practical minimum.	^
		- CM5 - Limitation of / Ensuring no run-off into surrounding landscape and adjacent seawater areas.	^
		- CM6 - Temporary or advance landscape should be provided along the temporary access roads to the Cruise Terminal until such time as road D3 is open.	NA

Remarks:			
^	Compliance of mitigation measure.	X	Non-compliance of mitigation measure.
N/A N/A (1)	Not Applicable at this stage. Not observed.	●	Non-compliance but rectified by the contractor.
*	Recommendation was made during site audit but improved/rectified by the contractor.	#	Recommendation was made during audit and to be improved/ rectified by the contractor.

Mitigation Measures undertaken by the Contractor for site inspections			
			
Date:	03 December 2020	Date:	17 December 2020
Mitigation Measures:	Haul road was sprayed with water to maintain the entire road surface wet.	Mitigation Measures:	Provided domestic garbage bins for waste storage.
			
Date:	24 December 2020	Date:	31 December 2020
Mitigation Measures:	Quiet PME was used.	Mitigation Measures:	Vehicle washing basin was provided.

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

Reporting Month: December 2020

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

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

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

Complaint Log for ED/2018/01				
Complaint Ref. No.	Date of Complaint	Description of Complaint	Investigation / Recommendations / Actions	Close-Out Date / Status
C0001	A dust complaint was referred from the Contractor on 21 October 2020 regarding a pubic complaint via 1823 hotline (Case no. 3-6518939602) on 20 October 2020.	1. The water spraying system was not operated in proper time. 2. Stockpile was not covered properly. 3. Haul road was not wetted. 4. Materials transported on trucks were not provided with mechanical covers.	<u>Investigation</u> 1. Based on the information provided by the Contractor on 22 October 2020, the water sprinklers system was sprayed every 15 minutes with 70 seconds interval automatically. For the area that water sprinklers system was not covered, manual water spraying was provided. Dump trucks were covered with mechanical cover after loading the materials. The stockpile area was covered by the tarpaulin during night time. 2. Based on the monitoring results on 16 October 2020, the 1-hour and 24-hour TSP results were below the Action Levels and Limit Levels. 3. Regular site inspection was conducted by ET on 22 October 2020, no adverse observation against the dust impact was recorded. <u>Recommendations</u> To minimize the impact for air quality, mitigation measures should be enhanced specially in dry seasons are recommended: 1. Increase the frequency and duration for automatic water spraying system. 2. Main haul road and the area that water sprinklers system was not covered in the construction site should be wetted by water trucks or manually in regular basis. 3. Ensure stockpiling sites should be lined with impermeable sheeting and bunded. Stockpiles should be fully covered by impermeable sheeting at all time except during working process.	- Closed-out on 5 Nov 2020 - No further complaint was received.

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