

Civil Engineering and Development Department

Trunk Road T2
Monthly Environmental Monitoring and Audit Report
(under EP-451/2013)
December 2020
(Version 1.0)

Approved By 
(Environmental Team Leader:
Mr. KS Lee)

REMARKS:

The information supplied and contained within this report is, to the best of our knowledge, correct at the time of printing.

CINOTECH accepts no responsibility for changes made to this report by third parties

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Ref.: CEDKTD2EM00_0_0145L.21

14 January 2021

Hyder-Meinhardt Joint Venture
17/F, Two Harbour Square
180 Wai Yip Street, Kwun Tong
Kowloon, Hong Kong

By Post and E-mail

Attention: Mr. Edwin Ching

Dear Mr. Ching,

**Re: Agreement No. EDO 01/2019
Independent Environmental Checker for
Contract No. ED/2018/04 – Trunk Road T2 and Infrastructure Works for
Developments at the Former South Apron**

Monthly EM&A Report (December 2020) for EP-451/2013

Reference is made to the Environmental Team's submission of the Monthly EM&A Report for December 2020 (Version 1.0) certified by the ET Leader and provided to us via e-mail on 14 January 2021.

We are pleased to inform you that we have no adverse comment on the captioned submission. We write to verify the captioned submission in accordance with Condition 3.4 of EP-451/2013.

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

Yours sincerely,

For and on behalf of

Ramboll Hong Kong Limited



Manson Yeung

Independent Environmental Checker

c.c.	CEDD	Attn.: Mr. Tommy Wong	Fax: 2739 0076
	BTP	Attn.: Mr. Ivan Chau	Fax: 2293 7499
	Cinotech	Attn.: Mr. K. S. Lee	Fax: 3107 1388

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EXECUTIVE SUMMARY

Introduction

1. This is the 10th Environmental Monitoring and Audit (EM&A) Report prepared by the Environmental Team (ET), Cinotech Consultants Ltd., for “Trunk Road T2”. This report summarized the monitoring results and audits findings of the EM&A programme under the issued Environmental Permit (EP) No. EP-451/2013 and in accordance with the EM&A Manual (AEIAR-174/2013) during the reporting month of December 2020.

Summary of Main Works Undertaken and Key Measures Implemented

2. The main works undertaken during the reporting period are as follows:

Kai Tak:

- Depressed Road – Capping Beam
- Depressed Road – Excavation
- Depressed Road – Strut Installation
- SUS Bulkhead Removal
- West Ventilation Building – Slurry Wall
- Launching Shaft / Break-in Plug - Diaphragm Wall
- Launching Shaft / C&C Tunnel – Capping Beam
- Launching Shaft / C&C Tunnel – Pump Well Installation
- Launching Shaft / C&C Tunnel – Gantry Beam
- C&C Strutting Slab
- C&C Bulk Excavation
- C&C Tunnel – Pumping Test
- CKL Junction Improvement works
- 132kV substation E&M Works
- CLP Installation
- Road S20 / AMAWBC – Road & Drain
- CUE Section 6A – Excavation
- Road L10 (North) ELS
- District Cooling System (DCS)
- Hoi Bun Road Junction Improvement
- Mortar Plant Civil Works
- Mortar Plant Assembly
- Amenities Civil Works
- 2nd SOR & CLC Office at CKL
- West Bound – Drill & Break Tunnel

3. Implementation of the key mitigation measures during the reporting period are as follows:

Air Quality

- Water spraying regularly on construction site area to avoid dust generation.
- Excavated dusty materials were covered by impervious sheets.

Noise

- Air compressor was operated with door closed and have valid noise labels.
- Use of Quality Powered Mechanical Equipment (QPME)
- Erecting noise barriers on site to minimize noise impact generated from breaking activities.
- Wrapping up the breaker with acoustic insulation sheets.

Water Quality

- WetSep was constructed to treat the surface runoff prior to discharge.

Landscape and Visual

- Tree protection zone were fenced off to protect the existing tree.

Summary of Exceedances, Investigation and Follow-up

4. Exceedance of Action/Limit levels during the reporting month (December 2020) and the investigation results and/or follow-up actions:

Air Quality Monitoring

- One (1) Action Level exceedance for 24-hour TSP was recorded.
- One (1) Limit Level exceedance for 24-hour TSP was recorded.

Construction Noise Monitoring

- One (1) Limit Level exceedance for day time construction noise was recorded in this reporting month.
- One (1) Action Level exceedance was recorded due to the documented complaint received in this reporting month.

Landscape and Visual Monitoring and Audit

- No non-compliance of the landscape and visual impact was recorded in the reporting month. The implementation of landscape and visual and mitigation measures was checked by a Registered Landscape Architect (RLA) during the environmental site inspections.

Complaint Handling, Prosecution and Public Engagement**Table I Summary of Complaint/Summons/Prosecution in the Reporting Month**

Event	Event Details		Follow-up/ Remedial Actions	Status/ Remarks
	Number	Brief Description		
Complaints Received	1	A verbal complaint regarding the noise nuisance, generated from the construction works nearby PWCL building, was received by CEDD.	Contractor has taken the remedial action (i.e. Some of the breakers in which were operated nearby the concerned area were wrapped up with the acoustic insulation sheets) and noise mitigation measures (i.e. Noise barrier was installed adjoining the building to minimize the influence of construction noise, maintenance for all Powered Mechanical	Closed

			Equipment was conducted regularly, review on the construction programme to minimize the operations of PMEs near the PWCL) to minimize the noise impact generated from breaking activities.	
Notification of Summons and Prosecutions Received	0	-	-	-
Public Engagement Activities	0	-	-	-

Reporting Changes

5. The laboratory testing, measurements and analysis required for the environmental monitoring works of the Trunk Road T2 project are performed by another HOKLAS laboratory, namely High Precision Chemical Testing Ltd. (Ref: HOKLAS 296) starting from 01 December 2020.
6. According to the notice by Engineer via email dated 5 January 2021, the Contractor of Trunk Road T2 Project has revised the arrangement of unloading ramp and conveyor belt of the barging point at Kai Tak Area (South Apron) to facilitate the coming TBM works.

Future Key Issues

7. The key works or activities will be anticipated in the next reporting period are as follows:

Table II Summary Table for Site Activities in the next Reporting Period

Site Activities (January 2021)	Key Environmental Issues
1. Launching Shaft – Excavation 2. CUE Section 6A – RC Structure 3. Foot Bridge (FT-02) ELS 4. Workshop Civil Works	(A) / (B) / (C) / (D)

Note:

- (A) Dust generation from haul road, stockpile of dusty materials, exposed site area, excavation works and rock breaking activities;
- (B) Noisy construction activity such as rock-breaking activities and piling works;
- (C) Runoff from exposed slope or site area; and
- (D) Wastewater and runoff discharge from site.

1 INTRODUCTION

Background

- 1.1 In 2009, Civil Engineering and Development Department (CEDD) commissioned a Kai Tak Development (KTD) – Trunk Road T2 and Infrastructure at South Apron Investigation. The assignment covers the provision of the Trunk Road T2 and its connections with the Central Kowloon Route (CKR) at the north apron area and the Tseung Kwan O – Lam Tin Tunnel (TKOLTT) to the south in the Cha Kwo Ling area.
- 1.2 The Trunk Road T2 Project is one of the designated Projects under Schedule 2 of the EIAO proposed in the KTD. CEDD submitted the Project Profile (No. PP-379/2009) on 24 March 2009 for application for an EIA study brief for the Trunk Road T2 Project under the EIAO. Accordingly, an EIA Study Brief (ESB-203/2009) for the Trunk Road T2 Project was issued on 30 April 2009. The Environmental Impact Assessment (EIA) Report for the Trunk Road T2 Project was approved under the Environmental Impact Assessment Ordinance (EIAO) on 19 September 2013. The corresponding Environmental Permit (EP) was issued on 19 September 2013 (EP no.: EP-451/2013).
- 1.3 The Contract No. ED/2018/04 is the main contract of Trunk Road T2 (“T2 Main Works”) which comprises mainly the design and construction of a dual two-lane trunk road of approximately 3.0km long with about 2.7km of the trunk road in form of tunnel; ventilation and administration buildings, environmental protection and mitigation works and etc. The EM&A programme at Kai Tak area under this Contract is governed by the EP-451/2013 and EM&A Manual (AEIAR-174/2013). The work areas of the T2 Main Works are shown in **Figure 1** and the works to be executed under this Contract and corresponding EP is summarized as follows:

Environmental Permit	Works Description
EP-451/2013 – Trunk Road T2	<u>Trunk Road T2</u> <ul style="list-style-type: none"> • Construction of highway and sub-sea tunnel connecting between Central Kowloon Route and Cha Kwo Ling Tunnel • Western & Eastern Ventilation Buildings

Monitoring Works in Kai Tak under EP-451/2013

- 1.4 Under Contract No. KL/2014/03 - Kai Tak Development - Stage 3 Infrastructure Works for Development at the Southern Part of the Former Runway (“T2 Advance Works”), the baseline monitoring works in Kai Tak under the EM&A Manual (AEIAR-174/2013) were conducted by the Environmental Team (ET) for the Contract No. KL/2014/03 at the approved relocated monitoring locations (EPD reference: EP2/K19/A/21 pt.5), namely KTD1a, KTD2a & KER1a. During the impact monitoring period, monitoring locations KTD 2a and KER 1a were relocated to new locations, i.e. KTD 2b and KER 1b (EPD reference: () in EP2/K19/A/21 pt. 6 and () in EP2/K19/A/21 pt. 5) respectively. Location KTD2b was then further relocated to location KTD2c, the proposal of such relocation was submitted to EPD on 24 March 2020 and was approved by EPD on 6 April 2020 (EPD reference: () in EP2/K19/A/21 pt.7). The aforementioned relocation was effective from 9 April 2020. Since the major part of work under Contract No. KL/2014/03 has been completed and monitoring works conducted by the ET of Contract No. KL/2014/03 was determined to be ceased, the impact monitoring within the Kai Tak area was then handed over to the ET of Contract No. ED/2018/04 on 1 August 2020. The monitoring location has been reviewed and updated to obtain the data with higher representative

based on several conditions, such as distance between monitoring location and the sensitive receiver, non-project related interference, obstruction to the construction works on site and the power supply problem. The monitoring location KTD1a and KER1b has been updated to the monitoring location KTD1 and KER1 on 3 August 2020, where are the original location as proposed in the EM&A manual (AEIAR-174/2013). And the monitoring location KTD2c was remained unchanged after the aforementioned review. The impact monitoring for the three stations KTD1, KTD2c and KER1 are currently conducted by the ET of T2 Main Works

Monitoring Works in Cha Kwo Ling under EP-451/2013

- 1.5 The environmental impact of the remaining works in Cha Kwo Ling, under EP-451/2013, shall be monitored at the two proposed stations, namely CKL1, CKL2, in accordance to the EM&A Manual (AEIAR-174/2013). The impact monitoring for the two proposed stations shall be conducted by the ET of T2 Main Works.
- 1.6 Cinotech Consultants Ltd. was designated as the Environmental Team (ET) to undertake the EM&A works for “Trunk Road T2 and Infrastructure Works for Developments at the Former South Apron” (hereinafter called the “Project”).

Purpose of the Report

- 1.7 This is the 10th Monthly EM&A Report which summarises the impact monitoring results and audit findings for the EM&A programme during the reporting period in December 2020.

Project Organizations

- 1.8 Different Parties with different levels of involvement in the Project organization include:
- Permit Holder – Civil Engineering and Development Department (CEDD)
 - Supervisor Representative – Hyder-Meinhardt Joint Venture (HMJV)
 - Environmental Team (ET) – Cinotech Consultants Limited (Cinotech)
 - Independent Environmental Checker (IEC) – Ramboll Hong Kong Limited (Ramboll)
 - Contractor – Bouygues Travaux Publics (BTP)
- 1.9 The key contacts of the Project are shown in **Table 1.1**.

Table 1.1 Key Project Contacts

Party	Role	Contact Person	Phone No.
CEDD	Permit Holder	Mr. Wong Chi Wai, Tommy	3842 7111
HMJV	Supervisor Representative	Mr. Joe Nam	5183 0830
Cinotech	Environmental Team	Mr. KS Lee (ETL)	2151 2091
		Ms. Karina Chan	2157 3880
Ramboll	Independent Environmental Checker	Mr. Manson Yeung	3465 2888
BTP	Contractor	Mr. Bryan Lee	5588 3891

1.10 The Organizational Structure for Environmental Management is shown in **Figure 1.2**.

Construction Activities undertaken during the Reporting Month

1.11 The major site activities undertaken in the reporting month included:

Kai Tak:

- Depressed Road – Capping Beam
- Depressed Road – Excavation
- Depressed Road – Strut Installation
- SUS Bulkhead Removal
- West Ventilation Building – Slurry Wall
- Launching Shaft / Break-in Plug - Diaphragm Wall
- Launching Shaft / C&C Tunnel – Capping Beam
- Launching Shaft / C&C Tunnel – Pump Well Installation
- Launching Shaft / C&C Tunnel – Gantry Beam
- C&C Strutting Slab
- C&C Bulk Excavation
- C&C Tunnel – Pumping Test
- CKL Junction Improvement works
- 132kV substation E&M Works
- CLP Installation
- Road S20 / AMAWBC – Road & Drain
- CUE Section 6A – Excavation
- Road L10 (North) ELS
- District Cooling System (DCS)
- Hoi Bun Road Junction Improvement
- Mortar Plant Civil Works
- Mortar Plant Assembly
- Amenities Civil Works
- 2nd SOR & CLC Office at CKL
- West Bound – Drill & Break Tunnel

Summary of EM&A Requirements

1.12 The EM&A programme requires construction noise, air quality monitoring and environmental site audit, etc. The EM&A requirements for each parameter are described in the following sections, including:

- All monitoring parameters;
- Action and Limit levels for all environmental parameters;
- Event Action Plans;
- Environmental mitigation measures, as recommended in the Project EIA Report.

1.13 The advice on the implementation status of environmental protection and pollution control/mitigation measures is summarized in **Section 10** of this report.

1.14 This report presents the monitoring results, observations, locations, equipment, period, methodology and QA/QC procedures of the monitoring parameters of the required environmental monitoring works and audit works for the Project in December 2020.

Status of Environmental Licensing and Permitting

1.15 All permits/licenses obtained for the Project are summarized in **Table 1.3**.

Table 1.3 Summary of Environmental License and Permit

Permit / License No.	Valid Period		Status
	From	To	
Environmental Permit (EP)			
EP-451/2013	19 Sep 2013	N/A	Valid
Notification pursuant to Air Pollution (Construction Dust) Regulation			
Ref. No.: 451120	20 Nov 2019	N/A	Valid
Billing Account for Construction Waste Disposal			
A/C No.: 7036016	09 Dec 2019	N/A	Valid
Billing Account for Vessel Disposal			
A/C No.:7037747	19 Oct 2020	13 Jan 2021	Valid
Construction Noise Permit			
CNP No. (For Portion Depressed Road): GW-RE0729-20	7 Sept 2020	26 Feb 2021	Valid
CNP No. (For Launching Shaft and Barging Point): GW-RE0459-20	15 Jun 2020	10 Dec 2020	Expired on 10 Dec 2020
CNP No. (For Launching Shaft and Barging Point): GW-RE0653-20	5 Aug 2020	29 Dec 2020	Expired on 29 Dec 2020
CNP No. (For Shaft Area and Depressed Road): GW-RE1106-20	29 Dec 2020	28 Apr 2021	Valid
CNP No. (For Site Office and Support Area): GW-RE0588-20	15 Jul 2020	14 Jan 2021	Valid
CNP No.: GW-RE0871-20	1 Nov 2020	15 Dec 2020	Expired on 15 Dec 2020
CNP No.: GW-RE1065-20	15 Dec 2020	15 Feb 2021	Valid
Wastewater Discharge License			
WT00036183-2020 (For Depressed Road Area)	28 Jul 2020	31 Jul 2025	Valid
WT00036228-2020 (For Launching Shaft)	28 Jul 2020	31 Jul 2025	Valid
Chemical Waste Producer License			
WPN: 5213-286-B2557-03	09 Mar 2020	N/A	Valid

2 AIR QUALITY

Monitoring Requirement

- 2.1 According to the EM&A Manual (AEIAR-174/2013), 24-hour Total Suspended Particulates (TSP) monitoring was conducted to monitor the air quality for this Project. For regular impact monitoring, a sampling frequency of at least once in every six days at all of the monitoring stations for 24-hour TSP monitoring. In case of complaints, 1-hour TSP monitoring should be conducted at least three times in every six days when the highest dust impacts are likely to occur. **Appendix A** shows the established Action/Limit Levels for the environmental monitoring works.

Monitoring Locations

- 2.2 Five designated monitoring stations were selected for air quality monitoring programme. **Table 2.1** describes the air quality monitoring locations, which are also depicted in **Figure 2**.
- 2.3 The monitoring location at Kai Tak area has been reviewed and updated to obtain the data with higher representative based on several conditions, such as distance between monitoring location and the sensitive receiver, non-project related interference, obstruction to the construction works on site and the power supply problem. The monitoring location KTD1a and KER1b has been updated to KTD1 and KER1 respectively, where are the original location as proposed in the EM&A manual (AEIAR-174/2013). And the monitoring location KTD2c was remained unchanged after the aforementioned review.

Table 2.1 Air Quality Monitoring Locations

Monitoring Stations	Location
KTD1	Centre of Excellence in Paediatrics (Children's Hospital)
KTD2c	G/IC Zone next to Kwun Tong Bypass (Next to the Kowloon Bay Sewage Interception Station)
KER1	Future Residential Development at Kerry Godown
CKL1	Flat 121 Cha Kwo Ling Village
CKL2	Flat 103 Cha Kwo Ling Village

Monitoring Parameters and Frequency

- 2.4 **Table 2.2** summarizes the monitoring parameters, monitoring period and frequencies of impact air quality monitoring. The monitoring schedule is shown in **Appendix B**.

Table 2.2 Frequency and Parameters of Air Quality Monitoring

Monitoring Stations	Parameter	Period	Frequency
KTD1, KTD2c, KER1, CKL1 & CKL2	1-hour TSP	0700 – 1900	3 times per 6 days (as required in case of complaints)
KTD1, KTD2c, KER1, CKL1 & CKL2	24-hour TSP	24 hours	Once every 6 days

Monitoring Equipment

- 2.5 High Volume Samplers (HVS) in compliance with the specification stipulated in the EM&A Manual (AEIAR-174/2013), Section 2.2.1.4, were used to carry out 24-hour TSP monitoring. Direct reading dust meter were also used to measure 1-hour average TSP levels. The 1-hour sampling was determined by HVS to check the validity and accuracy of the results measured by direct reading method.
- 2.6 Wind data monitoring equipment was set at rooftop (about 41/F) of Yau Lai Estate Bik Lai House, Lam Tin for logging wind speed and wind direction such that the wind sensors were clear of obstructions or turbulence caused by building. The wind data monitoring equipment was re-calibrated at least once every six months and the wind directions were divided into 16 sectors of 22.5 degrees each. Wind data is attached in **Appendix D**.
- 2.7 **Table 2.3** summarizes the equipment used for air quality monitoring. Copies of calibration certificates are attached in **Appendix C**.

Table 2.3 Air Quality Monitoring Equipment

Equipment	Model	Quantity
HVS Sampler	TISCH Model: TE-5170 (Serial no. 0723, 1956, 10595, 1316, 5280)	5
Calibrator	TISCH Model: TE-5025A (Serial no. 3746)	1
Wind Anemometer	Davis Weather Monitor II, Model no. 7440 (Serial no. MC01010A44)	1

Monitoring Methodology

1-hour TSP Monitoring

Measuring Procedures

- 2.8 The measuring procedures of the 1-hour dust meter are in accordance with the Manufacturer's Instruction Manual as follows:

(Sibata Model No.: LD-3B/LD-5R)

- The 1-hour dust meter is placed at least 1.3 meters above ground.
- Set POWER to "ON" and make sure that the battery level was not flash or in low level.
- Allow the instrument to stand for about 3 minutes and then the cap of the air sampling inlet has been released.
- Push the knob at MEASURE position.

- Set time/mode setting to [BG] by pushing the time setting switch. Then, start the background measurement by pushing the start/stop switch once. It will take 6 sec. to complete the background measurement.
- Push the time setting switch to change the time setting display to [MANUAL] at the bottom left of the liquid crystal display. Finally, push the start/stop switch to stop the measuring after 1 hour sampling.
- Information such as sampling date, time, count value and site condition were recorded during the monitoring period.

Maintenance/Calibration

2.9 The following maintenance/calibration is required for the 1-hour dust meter:

- Check and calibrate the meter by HVS to check the validity and accuracy of the results measured by direct reading method at 2-month intervals throughout all stages of the air quality monitoring.

24-hour TSP Monitoring

Instrumentation

2.10 High volume samplers (HVS) (TISCH Model: TE-5170) complete with appropriate sampling inlets was 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). Moreover, the HVS also met all the requirements in Section 2.2 of the Annex II Specification.

2.11 The positioning of the HVS samplers are as follows:

- A horizontal platform with appropriate support to secure the samplers against gusty wind shall be provided;
- No two samplers shall be placed less than 2 meter apart;
- The distance between the sampler and an obstacle, such as buildings, must be at least twice the height that the obstacle protrudes above the sampler;
- A minimum of 2 metres of separation from walls, parapets and penthouses is required for rooftop samplers;
- A minimum of 2 metres of separation from any supporting structure, measured horizontally is required;
- No furnace or incinerator flue is nearby;
- Airflow around the sampler is unrestricted;
- The sampler is more than 20 metres from the dripline;
- Any wire fence and gate, to protect the sampler, shall not cause any obstruction during monitoring;
- Permission must be obtained to set up the samplers and to obtain access to the monitoring stations; and
- A secured supply of electricity is needed to operate the samplers.

Operating/analytical procedures for the operation of HVS

2.12 Operating/analytical procedures for the air quality monitoring are highlighted as follows:

- Prior to the commencement of the dust sampling, the flow rate of the high volume sampler was properly set (between 0.6 m³/min. and 1.7 m³/min.) in accordance with the EM&A manual (AEIAR-174/2013). The flow rate shall be indicated on the flow rate chart.
- For TSP sampling, fiberglass filters with a collection efficiency of > 99% for particles of 0.3µm diameter were used.
- 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.
- The filter holding frame was then removed by loosening the four nuts and a weighted and conditioned filter was carefully centered with the stamped number upwards, on a supporting screen.
- 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 should be sufficient to avoid air leakage at the edges.
- The shelter lid was closed and secured with the aluminum strip.
- The timer was then 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).
- After sampling, the filter was removed and sent to the HOKLAS laboratory (High Precision Chemical Testing Ltd.) for weighing. The elapsed time was also recorded.
- Before weighing, all filters were equilibrated in a conditioning environment for 24 hours. The conditioning environment temperature should be between 25°C and 30°C and not vary by more than ±3°C; the relative humidity (RH) should be < 50% and not vary by more than ±5%. A convenient working RH is 40%.

Maintenance/Calibration

2.13 The following maintenance/calibration is required for the HVS:

- The high volume motors 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 at bi-monthly intervals using TE-5025A Calibration Kit throughout all stages of the air quality monitoring.

Results and Observations

- 2.14 Impact air quality monitoring was conducted at five monitoring stations as scheduled. The monitoring schedule is shown in **Appendix B**.
- 2.15 One (1) Action Level and One (1) Limit Level exceedance were recorded for 24-hour TSP monitoring in the reporting month. Details of the exceedance are presented in **Appendix M**.
- 2.16 The air temperature, relative humidity, and the precipitation data were obtained from daily extracts of Hong Kong Observatory Climate Information Service. This weather information for the reporting month is summarized in **Appendix D**.
- 2.17 The monitoring data and graphical presentations of 24-hour TSP monitoring results are shown in **Appendix F**.
- 2.18 According to field observations observed in the reporting period, the major dust source identified at the designated air quality monitoring stations are as follows:

Table 2.4 Major Dust Source during Air Quality Monitoring

Monitoring Stations	Major Dust Source
KTD 1 - Centre of Excellence in Paediatrics (Children's Hospital)	<ul style="list-style-type: none"> • Loading and unloading of C&D wastes in the site; • Vehicle movement in the site; • Construction activities at the nearby construction sites of New Acute Hospital; and, • Road traffic along Shing Fung Road, Shing Cheong Road, Cheung Yip Street, Kai Hing Road and Kwun Tong Bypass.
KTD 2c - G/IC Zone next to Kwun Tong Bypass (Next to the Kowloon Bay Sewage Interception Station)	
KER 1 – Future Residential Development at Kerry Godown	
CKL1 - Flat 121 Cha Kwo Ling Village	Road Traffic along Cha Kwo Ling Road
CKL2 - Flat 103 Cha Kwo Ling Village	Road Traffic along Cha Kwo Ling Road

Comparison of EM&A Result with EIA Prediction

- 2.19 The air monitoring data was compared with the predictions in Table 4.14 of EIA Report, AEIAR-174/2013 (as approved in 2013) as summarised in **Table 2.6** for 24-hour TSP.

Table 2.6 Comparison of 24-hr TSP Monitoring Data with Predictions in EIA Report

Monitoring Stations	ASR ID	Predicted Maximum 24-hr TSP Concentration in EIA Report (AEIAR-174/2013), $\mu\text{g}/\text{m}^3$	Maximum 24-hr TSP Concentration in the Reporting Month (December 2020), $\mu\text{g}/\text{m}^3$
KTD 1 - Centre of Excellence in Paediatrics (Children's Hospital)	KTD3	126	160.2
KTD 2c - G/IC Zone next to Kwun Tong Bypass (Next to the Kowloon Bay Sewage	N/A ⁽¹⁾	N/A ⁽¹⁾	324.3

Monitoring Stations	ASR ID	Predicted Maximum 24-hr TSP Concentration in EIA Report (AEIAR-174/2013), $\mu\text{g}/\text{m}^3$	Maximum 24-hr TSP Concentration in the Reporting Month (December 2020), $\mu\text{g}/\text{m}^3$
Interception Station			
KER 1 – Future Residential Development at Kerry Godown	KTD6	169	202.7
CKL1 - Flat 121 Cha Kwo Ling Village	N/A ⁽¹⁾	N/A ⁽¹⁾	171.7
CKL2 - Flat 103 Cha Kwo Ling Village	N/A ⁽¹⁾	N/A ⁽¹⁾	157.3

Remarks:

(1) No 24-hr TSP concentration was predicted in EIA Report (AEIAR-174/2013)

- 2.20 In the reporting month the 24-hour TSP concentration at KER1 was higher than the prediction in the EIA Report, AEIAR-174/2013 (as approved in 2013), and this may due to the fluctuation of road traffic along Kai Hing Road which affected the result of 24-hour TSP concentration at KER1. Besides, the 24-hour TSP concentration at KTD1 was higher than the prediction in the EIA Report, AEIAR-174/2013 (as approved in 2013), and this may due to the fluctuation of road traffic along Shing Fung Road which affected the result of 24-hour TSP concentration at KTD1. One (1) Action Level and One (1) Limit level exceedance for 24-hour TSP were recorded in the reporting period. Details of the exceedance are presented in **Appendix M**.

3 NOISE

Monitoring Requirements

- 3.1 According to the EM&A Manual (AEIAR-174/2013), construction noise monitoring was conducted to monitor the construction noise arising from the construction activities. The regular monitoring frequency for each monitoring station shall be on a weekly basis and conduct one set of measurements between 0700 and 1900 hours on normal weekdays. **Appendix A** shows the established Action and Limit Levels for the environmental monitoring works.

Monitoring Locations

- 3.2 Noise monitoring was conducted at five designated monitoring stations, namely KTD1, KTD2c, KER1, CKL1 and CKL2 in the reporting period. **Table 3.1** and **Figure 2** show the locations of these stations.
- 3.3 The monitoring location at Kai Tak area has been reviewed and updated to obtain the data with higher representative based on several conditions, such as distance between monitoring location and the sensitive receiver, non-project related interference, obstruction to the construction works on site and the power supply problem. The monitoring location KTD1a and KER1b has been updated to KTD1 and KER1 respectively, where are the original location as proposed in the EM&A manual (AEIAR-174/2013). And the monitoring location KTD2c was remained unchanged after the aforementioned review.

Table 3.1 Noise Monitoring Stations

Monitoring Stations	Location
KTD1	Centre of Excellence in Paediatrics (Children's Hospital)
KTD2c	G/IC Zone next to Kwun Tong Bypass (Next to the Kowloon Bay Sewage Interception Station)
KER1	Future Residential Development at Kerry Godown
CKL1	Flat 121 Cha Kwo Ling Village
CKL2	Flat 103 Cha Kwo Ling Village

Monitoring Parameters, Frequency and Duration

- 3.4 **Table 3.2** summarizes the monitoring parameters, frequency and total duration of monitoring. The noise monitoring schedule is shown in **Appendix B**.

Table 3.2 Frequency and Parameters of Noise Monitoring

Monitoring Stations	Time Period	Duration	Frequency	Parameter	Measurement
KTD1	0700-1900 hrs on normal weekdays	30 minutes	Once per week	L ₁₀ (30 min.) dB(A)	Façade Measurement
KTD2c					Free Field Measurement
KER1					Free Field Measurement
CKL1					Free Field Measurement
CKL2					Free Field Measurement

Monitoring Equipment

3.5 Integrating Sound Level Meter was used for impact noise monitoring. The meters were Type 1 sound level meter capable of giving a continuous readout of the noise level readings including equivalent continuous sound pressure level (L_{eq}) and percentile sound pressure level (L_x) that also complied with International Electrotechnical Commission Publications 651:1979 (Type 1) and 804:1985 (Type 1) specifications. **Table 3.3** summarizes the noise monitoring equipment being used within the reporting period. Copies of calibration certificates are attached in **Appendix G**.

Table 3.3 Noise Monitoring Equipment

Equipment	Model	Quantity
Integrating Sound Level Meter	SVAN 979 (Serial no. 27190, 27189)	2
	BSWA 308 (Serial no. 570188)	1
Calibrator	ST-120 (Serial no. 181001608, 181001636)	2

Monitoring Methodology and QA/QC Procedure

3.6 The monitoring procedures are as follows:

- The monitoring station was normally be at a point 1m from the exterior of the sensitive receivers building façade and be at a position 1.2m above the ground.
- For free field measurement, the meter was positioned away from any nearby reflective surfaces. All records for free field noise levels were adjusted with a correction of +3 dB(A).
- The battery condition was checked to ensure the correct functioning of the meter.
- Parameters such as frequency weighting, the time weighting and the measurement time were set as follows:
 - Frequency weighting: A
 - Time weighting: Fast
 - Time measurement: 30 minutes
- Prior to and after each noise measurement, the meter was calibrated using a Calibrator for 94.0 dB at 1000 Hz. If the difference in the calibration level before and after measurement was more than 1.0 dB, the measurement would be considered invalid and repeat of noise measurement would be required after re-calibration or repair of the equipment.

- The wind speed was frequently checked with the portable wind meter.
- At the end of the monitoring period, the L_{eq} , L_{90} and L_{10} were recorded. In addition, site conditions and noise sources were recorded on a standard record sheet.
- Noise monitoring would be cancelled in the presence of fog, rain, and wind with a steady speed exceeding 5 m/s, or wind with gusts exceeding 10 m/s. Supplementary monitoring would be provided to ensure sufficient data would be obtained.

Maintenance and Calibration

- 3.7 The microphone head of the sound level meter and calibrator were cleaned with a soft cloth at quarterly intervals.
- 3.8 The sound level meter and calibrator were checked and calibrated at yearly intervals.
- 3.9 Immediately prior to and following each noise measurement the accuracy of the sound level meter was checked using an acoustic calibrator generating a known sound pressure level at a known frequency. Measurements were accepted as valid only if the calibration levels from before and after the noise measurement agree to within 1.0 dB.

Results and Observations

- 3.10 Impact noise monitoring was conducted at five monitoring stations as scheduled. The monitoring schedule is shown in **Appendix B**. One (1) Limit Level exceedance was recorded for day time construction noise monitoring in the reporting month. One (1) Action Level exceedance was recorded due to the documented complaint received in the reporting month.
- 3.11 Noise monitoring results and graphical presentations are shown in **Appendix H**.
- 3.12 According to field observations observed in the reporting period, the major noise sources identified at the noise monitoring stations are shown in **Table 3.4**.

Table 3.4 Other Noise Source Identified during Noise Monitoring

Monitoring Stations	Major Noise Source
KTD 1	<ul style="list-style-type: none"> • Project related construction activities (Loading and unloading of C&D waste, travel of vehicles, use of PME and other plants, and other construction activities); • Vehicle movement in the site; • Road traffic along Shing Fung Road; and, • Non-project related construction activities at the nearby construction site of New Acute Hospital.
KTD 2c	<ul style="list-style-type: none"> • Project related construction activities (Loading and unloading of C&D waste, travel of vehicles, use of PME and other plants, and other construction activities); • Vehicle movement in the site; • Road traffic along Kwun Tong By-pass; and, • Non-project related construction activities at the nearby construction site of New Acute Hospital
KER 1	<ul style="list-style-type: none"> • Road traffic along Kai Hing Road. • Project related construction activities (Travel of vehicles, use of PME and other plants, and other construction activities)
CKL1	Road traffic along Cha Kwo Ling Road.

Monitoring Stations	Major Noise Source
CKL2	Road traffic along Cha Kwo Ling Road

- 3.13 The baseline noise level and the Noise Limit Level at each designated noise monitoring station are presented in **Table 3.5**.

Table 3.5 Baseline Noise Level and Noise Limit Level for Monitoring Stations

Monitoring Stations	Baseline Noise Level, dB (A) (at 0700 – 1900 hrs on normal weekdays)	Noise Limit Level, dB (A) (at 0700 – 1900 hrs on normal weekdays)
KTD1	78	75
KTD2c	64	
KER1	65	
CKL1	72.4	
CKL2	71.4	

Comparison of EM&A Result with EIA Prediction

- 3.14 The noise monitoring data was compared with the predictions in Table 5.13 of EIA Report (AEIAR-174/2013) as summarised in **Table 3.6**.

Table 3.6 Maximum Predicted Mitigated Construction Noise Levels in EIA Report

Monitoring Stations	NSR ID	Maximum Predicted Mitigated Construction Noise Levels in EIA Report (AEIAR-174/2013), dB(A)	Maximum Construction Noise Levels in the Reporting Month (December 2020), Leq (30min) dB(A)
KTD 1 - Centre of Excellence in Paediatrics (Children's Hospital)	KTD1	74	72.6
KTD 2c - G/IC Zone next to Kwun Tong Bypass (Next to the Kowloon Bay Sewage Interception Station)	N/A ⁽¹⁾	N/A ⁽¹⁾	75.1
KER 1 – Future Residential Development at Kerry Godown	KER1	75	89.4
CKL1 - Flat 121 Cha Kwo Ling Village	CKL4	71	73.8
CKL2 - Flat 103 Cha Kwo Ling Village	CKL5	69	73.6

Remarks:

- (1) No Maximum Predicted Mitigated Construction Noise Levels was predicted in EIA Report (AEIAR-174/2013)

- 3.15 The results at CKL1 and CKL2 were higher than the maximum predicted mitigated construction noise level in the EIA Report, AEIAR-174/2013 (as approved in 2013), this may be due to

fluctuations of traffic flow along Cha Kwo Ling Road throughout the day. Moreover, the result at KER1 was also higher than the maximum predicted mitigated construction noise level in the EIA Report. Based on the field observation, it was due to the sheet piling works and breaking activities carried out at the Launching Shaft portion, in which nearby the monitoring station, with no noise mitigation measure implemented. Besides, the results at KTD1 was lower than the maximum predicted mitigated construction noise level in the EIA Report. One (1) Limit level and one (1) Action Level exceedance were recorded in the reporting period. Details of the exceedance are presented in **Appendix M**.

4 WATER QUALITY

Monitoring Requirement

- 4.1 According to Section 4.3.1.1 of EM&A Manual (AEIAR-174/2013), no water quality monitoring is required during the construction phase.
- 4.2 According to Section 4.3.1.5 of EM&A Manual (AEIAR-174/2013), compliance site audits are to be undertaken by the Engineer and ET and escorted by the Contractor to ensure that a valid discharge license has been issued by the EPD prior to the discharge of the effluent from the construction activities of the Project site. Monitoring of the quality of the treated effluent from the works areas should be carried out in accordance with the Water Pollution Control Ordinance (WPCO) license. The audit results reflect whether the effluent quality is in compliance with the discharge license requirements, the summaries of site audits are attached in **Appendix I**.
- 4.3 In the event of non-compliance the responsibilities of the relevant parties is detailed in the Event / Action plan attached in **Appendix J**.

5 MARINE ECOLOGY

- 5.1 According to Section 5.3.1.1 of EM&A Manual (AEIAR-174/2013), ET will be required to undertake audit of good site practice for habitat protection as detailed below. The summaries of site audits are attached in **Appendix I**.
 - Avoid damage and disturbance to the remaining and surrounding natural habitat;
 - Ensure placement of equipment is within designated areas within the existing disturbed land;
 - Ensure construction activities are restricted to within the proposed works boundary;
 - Ensure spoil heaps are be covered at all times;
 - Ensure that disturbed areas are reinstated immediately after completion of the works; and
 - Ensure enhancement planting works undertaken.

6 FISHERIES

- 6.1 According to Section 6.3.1.2 of EM&A Manual (AEIAR-174/2013), no specific fisheries

monitoring and audit programme is required during the construction phase.

- 6.2 The implementation of the water quality mitigation measures stated in the Water Quality Impact Assessment (Refer to Section 6 of the EIA Report (AEIAR-174/2013)) will be audited as part of the EM&A procedures during the construction period and the details are presented in **Section 4.2** of this Report. The summaries of site audits are attached in **Appendix I**.

7 LANDSCAPE AND VISUAL

- 7.1 According to the EM&A Manual (AEIAR-174/2013), a series of mitigation measures were recommended to ameliorate the landscape and visual impacts of the Project. The mitigation measures for construction stage are summarized in **Table 7.1** below and provided in **Appendix K**:

Table 7.1 Construction Phase Landscape and Visual Mitigation Measures

ID No.	Landscape and Visual Mitigation Measure
CM1	All works shall be carefully designed to minimize impacts on existing landscape resources and visually sensitive receivers. Existing trees within works area shall be retained and protected.
CM2	Existing trees of good quality and condition that are unavoidably affected by the works should be transplanted.
CM3	Not used.
CM4	Not used.
CM5	Large temporary stockpiles of excavated material shall be covered with unobtrusive sheeting to prevent dust and dirt spreading to adjacent landscape areas and vegetation, and to create a neat and tidy visual appearance.
CM6	Construction plant and building material shall be orderly and carefully stored in order to create a neat and tidy visual appearance
CM7	Erection of decorative screen hoarding should be designed to be compatible with the existing urban context.
CM8	All lighting in construction site shall be carefully controlled to minimize light pollution and night-time glare to nearby residences and GIC user. The contractor shall consider other security measures, which shall minimize the visual impacts.

- 7.2 A specialist Landscape Sub-Contractor should be employed by the Contractor for the implementation of landscape construction works and subsequent maintenance operations during the establishment period. It is proposed that the planting works will be on-site and the planting should be completed during the construction contract. The monitoring of the planting establishment should be undertaken for a 12 month period which could extend throughout the

Contractor's one-year maintenance period, which will be within the first operational year of the Project.

- 7.3 All measures undertaken by both the Contractor and the specialist Landscape Sub-Contractor during the construction phase and first year of the operational phase shall be audited by a Registered Landscape Architect (RLA), as a member of the Environmental Team (ET), on a regular basis to ensure compliance with the intended aims of the measures. To fulfil the aforementioned requirements, on-site landscape and visual mitigation measures were audited by RLA in the reporting month.
- 7.4 According to Section 7.3.1.2 of the EM&A Manual (AEIAR-174/2013), site audits shall be undertaken at least once every two weeks throughout the construction period to monitor and audit the timely implementation of landscape and visual mitigation measures within the site boundaries of this Project.
- 7.5 The broad scope of the audit is detailed below but should also be undertaken with reference to the more specific checklist provided in **Table 7.2**. The summaries of site audits are attached in **Appendix I**:
- The extent of the agreed works areas should be regularly checked during the construction phase. Any trespass by the Contractor outside the limit of the works, including any damage to existing trees and soft landscape areas shall be prohibited;
 - the progress of the engineering works should be regularly reviewed on site to identify the earliest practical opportunities for the landscape works to be undertaken;
 - all existing trees and vegetation within the study area which are not directly affected by the works are retained and protected;
 - the methods of protecting existing vegetation proposed by the Contractor are acceptable and enforced;
 - preparation, lifting transport and re-planting operations for any transplanted trees;
 - all landscaping works are carried out in accordance with the specifications;
 - the planting of new trees, shrubs, groundcover, climbers, ferns, grasses and other plants, together with the replanting of any transplanted trees are carried out properly and within the right season; and
 - all necessary horticultural operations and replacement planting are undertaken throughout the Establishment Period to ensure the healthy establishment and growth of both transplanted trees and all newly established plants.

Table 7.2 Construction Phase Audit Checklist for Landscape and Visual Mitigation Measures

Area of Works	Items to be Monitored
Advance planting	Monitoring of implementation and maintenance of planting, and against possible incursion, physical damage, fire, pollution, surface erosion, etc.
Protection of all trees and existing soft landscape areas to be retained	Identification and demarcation of trees / vegetation to be retained, erection of physical protection (e.g. fencing), monitoring against possible incursion, physical damage, fire, pollution, surface erosion, etc.
Clearance of existing vegetation	Identification and demarcation of trees / vegetation to be cleared, checking of extent of works to minimise damage, monitoring of adjacent areas against possible incursion, physical damage, fire, pollution, surface erosion, etc.
Pruning of trees	Identification and demarcation of trees / vegetation to be pruned, monitoring of extent of pruning to minimise damage, timing of operations, implementation of all stages of preparatory and pruning works, and maintenance of pruned vegetation, etc.
Plant supply	Monitoring of operations relating to the supply of specialist plant material (including the collecting, germination and growth of plants from seed) to ensure that plants will be available in time to be used within the construction works.
Soiling, planting, etc.	Monitoring of implementation and maintenance of soiling and planting works and against possible incursion, physical damage, fire, pollution, surface erosion, etc.
Site fencing and hoarding	Implementation and maintenance, to ensure compliance with agreed designs and check that it matches the surrounding environment and does not cause visual intrusion.
Architectural treatment of engineering works.	Implementation and maintenance of mitigation measures, to ensure compliance with agreed designs as applicable.
Establishment Works	Monitoring of implementation of maintenance operations during Establishment Period.

- 7.6 In the event of non-compliance the responsibilities of the relevant parties is detailed in the Event / Action plan attached in **Appendix J**.
- 7.7 In the reporting month, no non-compliance of the landscape and visual mitigation measures was recorded by RLA.

8 CULTURAL HERITAGE

- 8.1 According to Section 8.3.1.1 of EM&A Manual (AEIAR-174/2013), as a precautionary measure, it is recommended that if any antiquity or supposed antiquity is discovered during the course of the excavation works undertaken by the Contractor, the discovery shall be reported to the AMO immediately and all necessary measures taken to preserve it.
- 8.2 According to Section 8.3.1.2 of EM&A Manual (AEIAR-174/2013), no EM&A is required during the construction and operational phase.

9 WASTE MANAGEMENT

- 9.1 According to Section 9.3.1.1 of EM&A Manual (AEIAR-174/2013), the effective management of waste arisings during the construction phase will be monitored through the site audit programme. Regular audits and site inspections should be carried out by the Engineer, ET and Contractor to ensure that the recommended good site practices and other mitigation measures are implemented by the Contractor. The summaries of site audits are attached in **Appendix I**.
- 9.2 According to Sections 9.3.1.3 and 9.3.1.4 of EM&A Manual (AEIAR-174/2013), documents including licenses, permits, disposal and recycling records should be reviewed and audited during site audits for the compliance with the legislation and contract requirements to ensure proper records are being maintained and procedures undertaken in accordance with the Waste Management Plan.
- 9.3 With reference to the relevant handing records of this Project, the quantities of different types of waste generated in the reporting month are summarized and presented in the **Appendix O**.

10 ENVIRONMENTAL AUDIT**Site Audits**

- 10.1 Site audits were carried out on a weekly basis to monitor the timely implementation of proper environmental management practices and mitigation measures in the Project site. The summaries of site audits are attached in **Appendix I**.
- 10.2 Site audits were conducted on 03, 10, 17, 24 and 31 December 2020 in the reporting month. Site inspection of the IEC was conducted on 17 December 2020. No non-compliance was observed during the site audit.

Implementation Status of Environmental Mitigation Measures

- 10.3 According to Environmental Permits, the approved EIA Reports (Register No.: AEIAR-174/2013 and AEIAR-173/2013), and the EM&A Manuals of the Project (AEIAR-174/2013 and AEIAR-173/2013), the mitigation measures detailed in the documents are recommended to be implemented during the construction phase. An Environmental Mitigation Implementation Schedule (EMIS) is provided in **Appendix K**.
- 10.4 The ET weekly site inspections were carried out during the reporting month and the observations and recommendations are summarized in **Table 10.1**. Refer to **Appendix I** for the site inspection summary reports in the reporting month.

Table 10.1 Observations and Recommendations of Site Audit

Parameters	Date	Observations and Recommendations	Follow-up
<i>Air Quality</i>	N/A	There was no observation in the reporting period.	N/A
<i>Noise</i>	3 December 2020	Contractor should provide noise mitigation measure during breaking activities at Launching Shaft area.	The breaker was wrapped with the acoustic insulation material.
	31 December 2020	Noise mitigation measure shall always be implemented on site.	The breaker was wrapped with the acoustic insulation material.
<i>Water Quality</i>	3 December 2020	Drainage system on site should always be provided with well-maintained to prevent untreated surface runoff discharge outside the site.	Contractor confirmed that all surface runoff will be treated on site prior to discharge.
	10 December 2020	Ponding water was observed at Launching Shaft area.	Ponding water was pumped out and treated on site prior to discharge.

Parameters	Date	Observations and Recommendations	Follow-up
<i>Ecology</i>	N/A	There was no observation in the reporting period.	N/A
<i>Landscape and Visual</i>	N/A	There was no observation in the reporting period.	N/A
<i>Waste / Chemical Management</i>	N/A	There was no observation in the reporting period.	N/A
<i>Permits /Licences</i>	N/A	There was no observation in the reporting period.	N/A

Implementation Status of Event and Action Plans

10.5 The Event and Action Plans for air quality, construction noise, and landscape and visual are presented in **Appendix J**.

Air Quality Monitoring

- One (1) Action Level and One (1) Limit Level exceedance for 24-hour TSP monitoring were recorded.

Construction Noise Monitoring

- One (1) Limit Level exceedance for construction noise monitoring was recorded in the reporting month.
- One (1) Action Level exceedance was recorded due to the documented complaint received in the reporting month;

Landscape and Visual

- No landscape and visual non-conformity was recorded.

Status of Required Submission under Environmental Permit

- 10.6 According the Section 11.3.2.1 (c) of the EM&A Manual (AEIAR-174/2013), status of required submission under EP-451/2013 during the reporting period are summarized in **Table 10.2**.

Table 10.2 Status of Required Submission under Environmental Permit

EP Condition	Submission	Submission Date
EP-451/2013		
Condition 2.3	Management Organization of Main Construction Companies	20 January 2020
Condition 2.4	Design Drawing of the Project	20 January 2020
Condition 2.5	Landscape Mitigation Plan(s)	7 May 2020
Condition 2.10 (a)	Supplementary Contamination Assessment Plan	18 December 2015
Condition 2.10 (b)	Supplementary Contamination Assessment Report	6 December 2016
Condition 3.3	Updated Baseline Monitoring Report	03 November 2020
Condition 3.4	Monthly EM&A Report (November 2020)	15 December 2020

11 ENVIRONMENTAL NON-CONFORMANCE

Summary of Complaint, Warning, Notification of any Summons and Successful Prosecution

11.1 The summaries of environmental complaint, warning, summon and notification of successful prosecution for the Project is presented in **Appendix L**.

Summary of Exceedance

11.2 The summary of exceedance record in the reporting month is shown in **Appendix M**.

11.3 No non-conformity was recorded for landscape and visual inspections conducted in the reporting month.

12 FUTURE KEY ISSUES

Tentative construction programmes for the next three months are provided in **Appendix N**.

12.1 Major site activities undertaken for the coming months are summarized as follows:

- Launching Shaft – Excavation
- CUE Section 6A – RC Structure
- Foot Bridge (FT-02) ELS
- Workshop Civil Works

12.2 Key environmental issues in the coming months include:

- Wheel washing bay at site exits;
- Temporary noise barriers for PMEs;
- Sedimentation tank for settling muddy water; and
- Make sure open stockpiles are covered during rainstorm.

Monitoring Schedule

12.3 The tentative environmental monitoring schedule for the next three months are shown in **Appendix B**.

13 CONCLUSIONS AND RECOMMENDATIONS

Conclusions

- 13.1 This is the 10th Monthly EM&A Report which presents the EM&A works undertaken during the reporting month in accordance with the EM&A Manual (AEIAR-174/2013) and the requirement under EP.

Air Quality Monitoring

- 13.2 One (1) Action Level and One (1) Limit Level exceedance were recorded for 24-hour TSP monitoring in the reporting month.

Construction Noise Monitoring

- 13.3 One (1) Limit Level exceedance was recorded for day-time construction noise monitoring in the reporting month.
- 13.4 One (1) Action Level exceedance was recorded due to the documented complaint received in the reporting month.

Site Audit

- 13.5 5 ET joint weekly environmental site inspections were conducted in the reporting month.

Complaint, Notification of Summons and Successful Prosecution

- 13.6 One (1) environmental complaint was received in the reporting month. No notifications of summons and successful prosecutions were received in the reporting month.

Recommendations

- 13.7 According to the environmental audit performed in the reporting month, the following recommendations was made:

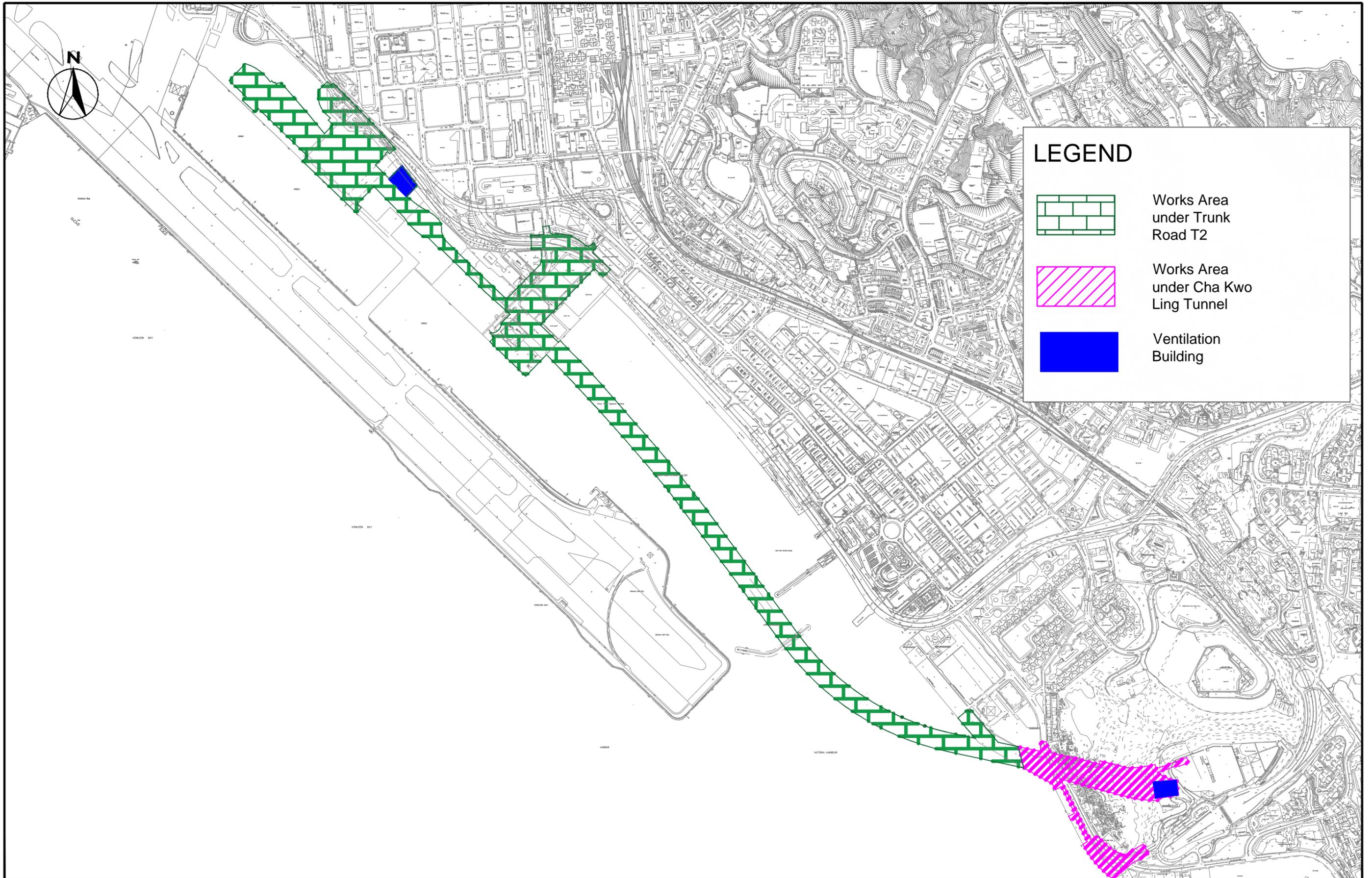
Water Quality

- Drainage system on site shall always be provided with well-maintained.
- Ponding water shall be avoided.

Noise

- Noise mitigation measures should be implemented on site to minimize construction noise nuisance.

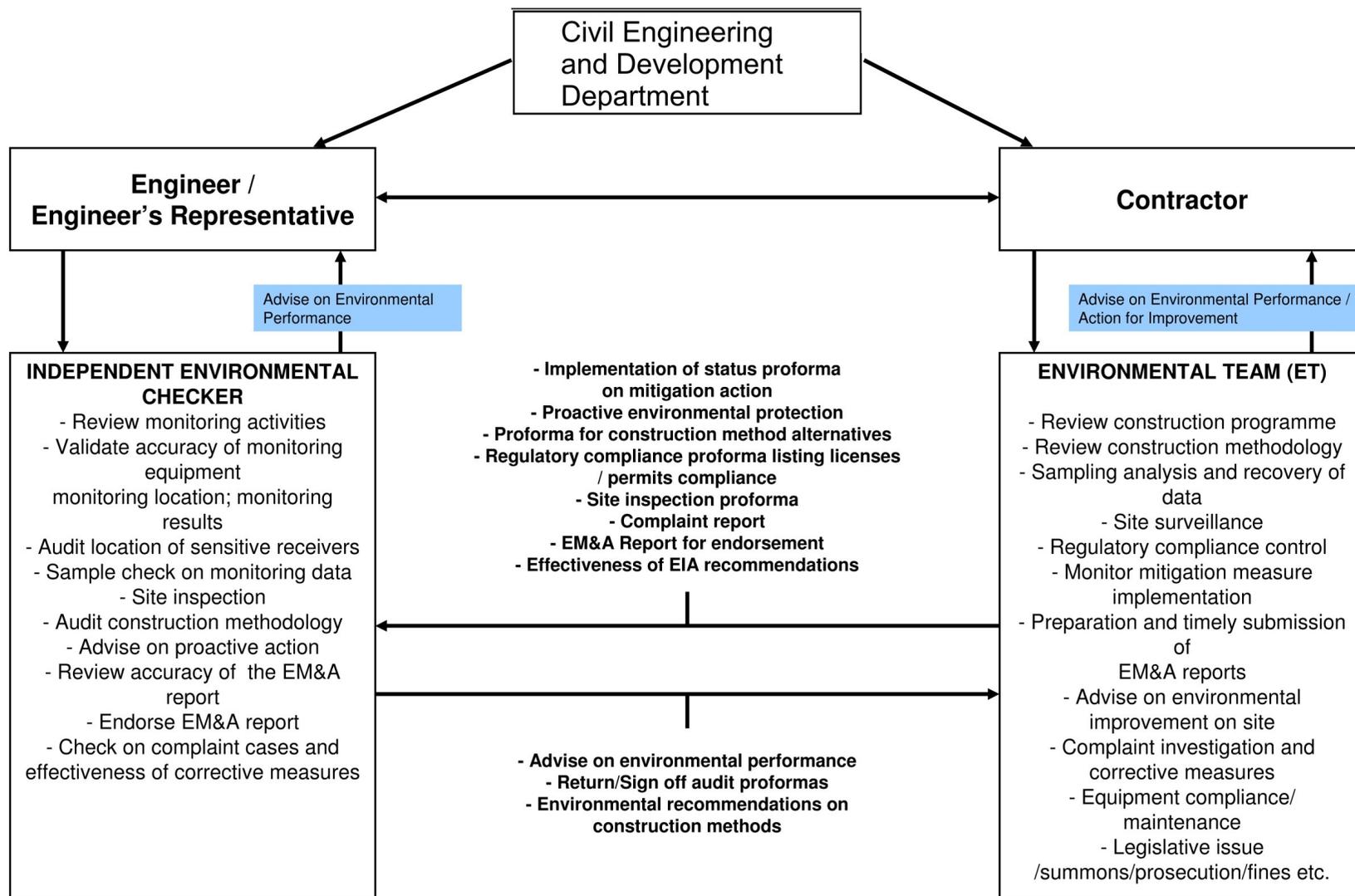
FIGURES



LEGEND

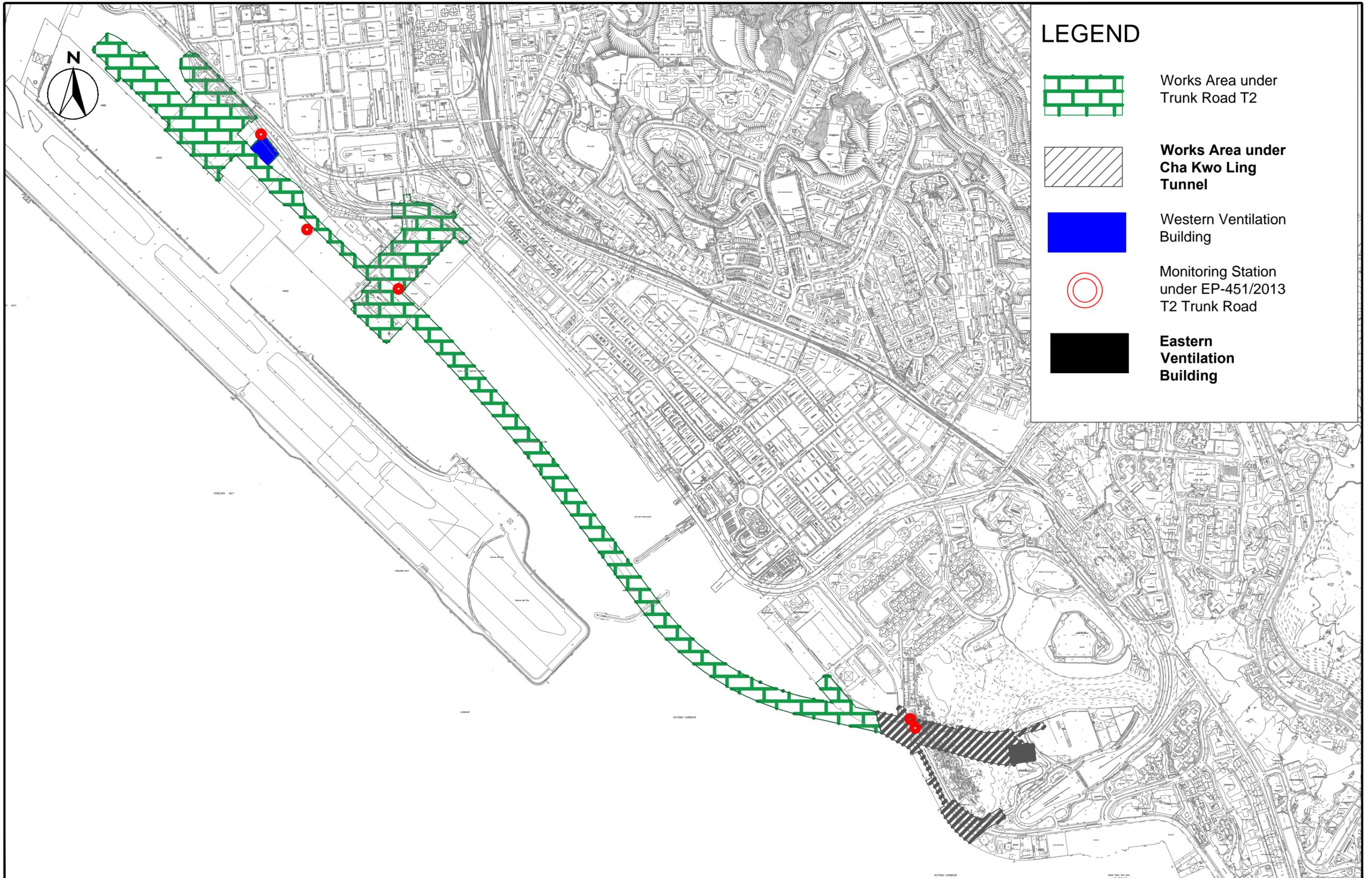
-  Works Area under Trunk Road T2
-  Works Area under Cha Kwo Ling Tunnel
-  Ventilation Building

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CHECK	KC	DRAWN	TL
JOB No.	MA20003	FIGURE No.	Fig 1
		REV	-

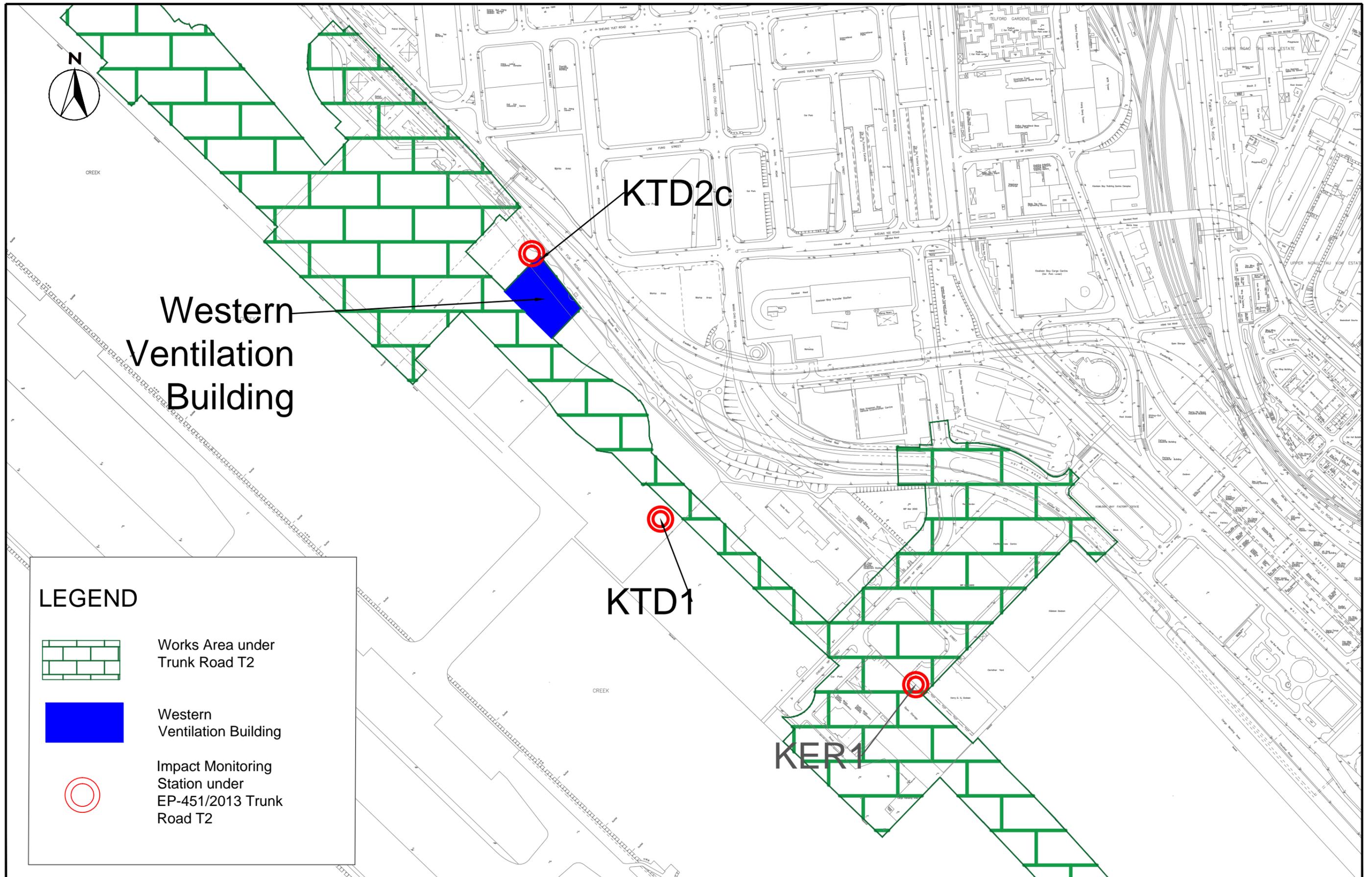


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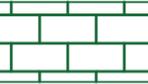
Drawing title			Original Size	A3	Scale	N.T.S	Date	18/JAN/2013
PROJECT ORGANISATION AND LINES OF COMMUNICATION			© Copyright reserved		Drawing No.		FIGURE 1.2	
Rev.	Description	Date				Rev.		-



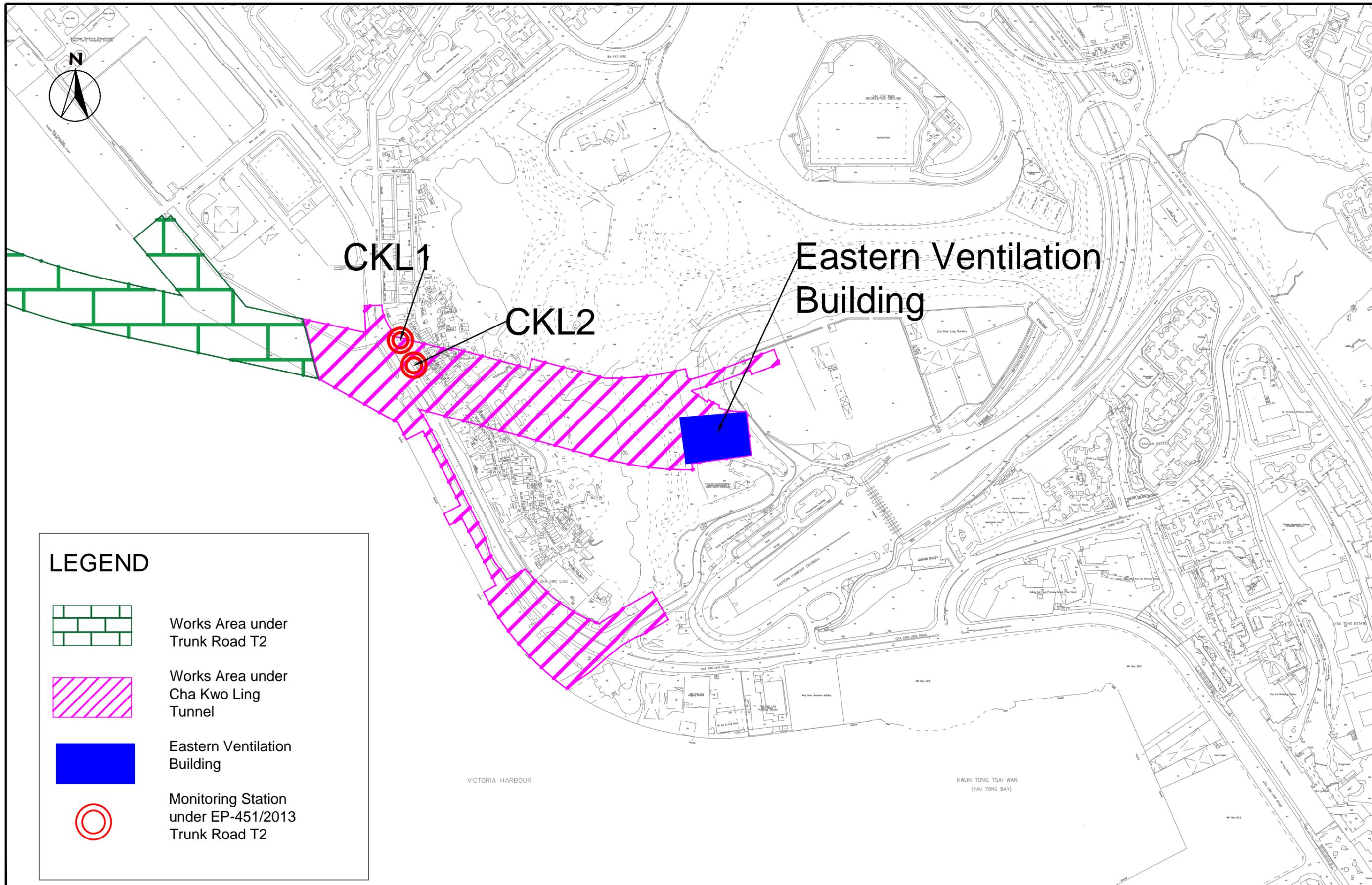
SCALE	1:10000@A3	DATE	July 20
CHECK	KC	DRAWN	TL
JOB No.	MA20003	FIGURE No.	Fig 2
		REV	-



LEGEND

-  Works Area under Trunk Road T2
-  Western Ventilation Building
-  Impact Monitoring Station under EP-451/2013 Trunk Road T2

SCALE	1:4000@A3	DATE	Sep 20
CHECK	KC	DRAWN	TL
JOB No.	MA20003	FIGURE No.	Fig 2a
		REV	-



LEGEND

-  Works Area under Trunk Road T2
-  Works Area under Cha Kwo Ling Tunnel
-  Eastern Ventilation Building
-  Monitoring Station under EP-451/2013 Trunk Road T2

SCALE	1:4000@A3	DATE	March 20
CHECK	KC	DRAWN	TL
JOB No.	MA20003	FIGURE No.	Fig 2b
		REV	-

**APPENDIX A
ACTION AND LIMIT LEVELS**

Appendix A - Action and Limit Levels

Table A-1 Action and Limit Levels for 1-hour TSP (in case of complaints)

Location	Action Level, $\mu\text{g}/\text{m}^3$	Limit Level, $\mu\text{g}/\text{m}^3$
KTD1	285	500
KTD2c	279	
KER1	295	
CKL1	323	
CKL2	327	

Table A-2 Action and Limit Levels for 24-hour TSP

Location	Action Level, $\mu\text{g}/\text{m}^3$	Limit Level, $\mu\text{g}/\text{m}^3$
KTD1	177	260
KTD2c	157	
KER1	172	
CKL1	191	
CKL2	183	

Table A-3 Action and Limit Levels for Noise during Construction Period

Time Period	Action Level	Limit Level
0700-1900 hrs on normal weekdays	When one documented complaint is received	75 dB(A) ⁽¹⁾

Note:

(1) 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.

**APPENDIX B
ENVIRONMENTAL MONITORING
SCHEDULES**

Contract No. ED/2018/04
Trunk Road T2 and Infrastructure Works for Developments at the Former South Apron
Impact Air and Noise Monitoring Schedule (December 2020)

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
		1-Dec	2-Dec	3-Dec	4-Dec	5-Dec
			24-hr TSP	Noise		
6-Dec	7-Dec	8-Dec	9-Dec	10-Dec	11-Dec	12-Dec
		24-hr TSP	Noise			
13-Dec	14-Dec	15-Dec	16-Dec	17-Dec	18-Dec	19-Dec
	24-hr TSP	Noise [KTD1, KER1, KTD2c only]			Noise [CKL1, CKL2 only]	24-hr TSP
20-Dec	21-Dec	22-Dec	23-Dec	24-Dec	25-Dec	26-Dec
	Noise		24-hr TSP			
27-Dec	28-Dec	29-Dec	30-Dec	31-Dec		
		24-hr TSP [CKL1, CKL2, KTD2c, KTD1 only]	Noise	24-hr TSP [KER1]		

The schedule may be changed due to unforeseen circumstances (adverse weather, safety concerns, etc.)

*Noise: Noise Monitoring works in both Kai Tak and Cha Kwo Ling (KTD1, KTD2c, KER1, CKL1 and CKL2)

**24-hr TSP: 24-hr TSP Monitoring works in both Kai Tak and Cha Kwo Ling (KTD1, KTD2c, KER1, CKL1 and CKL2)

***Due to the loss of electrical power supply by Contractor, the 24hr TSP monitoring at KER1 on 29 Dec 2020 was then postponed to 31 Dec 2020.

Air Quality Monitoring Station

24-hr TSP

KTD1 - Centre of Excellence in Paediatrics (Children's Hospital)

KTD2c - G/IC Zone next to Kwun Tong Bypass (Next to the Kowloon Bay Sewage Interception Station)

KER1 - Future Residential Development at Kerry Godown

CKL1 - Flat 121 Cha Kwo Ling Village

CKL2 - Flat 103 Cha Kwo Ling Village

Noise Monitoring Station

KTD1 - Centre of Excellence in Paediatrics (Children's Hospital)

KTD2c - G/IC Zone next to Kwun Tong Bypass (Next to the Kowloon Bay Sewage Interception Station)

KER1 - Future Residential Development at Kerry Godown

CKL1 - Flat 121 Cha Kwo Ling Village

CKL2 - Flat 103 Cha Kwo Ling Village

Contract No. ED/2018/04
Trunk Road T2 and Infrastructure Works for Developments at the Former South Apron
Tentative Impact Air and Noise Monitoring Schedule (January 2021)

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

The schedule may be changed due to unforeseen circumstances (adverse weather, safety concerns, etc.)

*Noise: Noise Monitoring works in both Kai Tak and Cha Kwo Ling (KTD1, KTD2c, KER1, CKL1 and CKL2)

**24-hr TSP: 24-hr TSP Monitoring works in both Kai Tak and Cha Kwo Ling (KTD1, KTD2c, KER1, CKL1 and CKL2)

Air Quality Monitoring Station

24-hr TSP

KTD1 - Centre of Excellence in Paediatrics (Children's Hospital)

KTD2c - G/IC Zone next to Kwun Tong Bypass (Next to the Kowloon Bay Sewage Interception Station)

KER1 - Future Residential Development at Kerry Godown

CKL1 - Flat 121 Cha Kwo Ling Village

CKL2 - Flat 103 Cha Kwo Ling Village

Noise Monitoring Station

KTD1 - Centre of Excellence in Paediatrics (Children's Hospital)

KTD2c - G/IC Zone next to Kwun Tong Bypass (Next to the Kowloon Bay Sewage Interception Station)

KER1 - Future Residential Development at Kerry Godown

CKL1 - Flat 121 Cha Kwo Ling Village

CKL2 - Flat 103 Cha Kwo Ling Village

Contract No. ED/2018/04
Trunk Road T2 and Infrastructure Works for Developments at the Former South Apron
Tentative Impact Air and Noise Monitoring Schedule (February 2021)

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

The schedule may be changed due to unforeseen circumstances (adverse weather, safety concerns, etc.)

*Noise: Noise Monitoring works in both Kai Tak and Cha Kwo Ling (KTD1, KTD2c, KER1, CKL1 and CKL2)

**24-hr TSP: 24-hr TSP Monitoring works in both Kai Tak and Cha Kwo Ling (KTD1, KTD2c, KER1, CKL1 and CKL2)

Air Quality Monitoring Station

24-hr TSP

KTD1 - Centre of Excellence in Paediatrics (Children's Hospital)
 KTD2c - G/IC Zone next to Kwun Tong Bypass (Next to the Kowloon Bay Sewage Interception Station)
 KER1 - Future Residential Development at Kerry Godown
 CKL1 - Flat 121 Cha Kwo Ling Village
 CKL2 - Flat 103 Cha Kwo Ling Village

Noise Monitoring Station

KTD1 - Centre of Excellence in Paediatrics (Children's Hospital)
 KTD2c - G/IC Zone next to Kwun Tong Bypass (Next to the Kowloon Bay Sewage Interception Station)
 KER1 - Future Residential Development at Kerry Godown
 CKL1 - Flat 121 Cha Kwo Ling Village
 CKL2 - Flat 103 Cha Kwo Ling Village

Contract No. ED/2018/04
Trunk Road T2 and Infrastructure Works for Developments at the Former South Apron
Tentative Impact Air and Noise Monitoring Schedule (March 2021)

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

The schedule may be changed due to unforeseen circumstances (adverse weather, safety concerns, etc.)

*Noise: Noise Monitoring works in both Kai Tak and Cha Kwo Ling (KTD1, KTD2c, KER1, CKL1 and CKL2)

**24-hr TSP: 24-hr TSP Monitoring works in both Kai Tak and Cha Kwo Ling (KTD1, KTD2c, KER1, CKL1 and CKL2)

Air Quality Monitoring Station

24-hr TSP

KTD1 - Centre of Excellence in Paediatrics (Children's Hospital)

KTD2c - G/IC Zone next to Kwun Tong Bypass (Next to the Kowloon Bay Sewage Interception Station)

KER1 - Future Residential Development at Kerry Godown

CKL1 - Flat 121 Cha Kwo Ling Village

CKL2 - Flat 103 Cha Kwo Ling Village

Noise Monitoring Station

KTD1 - Centre of Excellence in Paediatrics (Children's Hospital)

KTD2c - G/IC Zone next to Kwun Tong Bypass (Next to the Kowloon Bay Sewage Interception Station)

KER1 - Future Residential Development at Kerry Godown

CKL1 - Flat 121 Cha Kwo Ling Village

CKL2 - Flat 103 Cha Kwo Ling Village

**APPENDIX C
COPIES OF CALIBRATION
CERTIFICATES FOR AIR QUALITY
MONITORING**

High-Volume TSP Sampler

5-POINT CALIBRATION DATA SHEET



File No. MA20003/44/0003

Project No. KTD1 - Centre of Excellence in Paediatrics (Children's Hospital)
 Date: 3-Oct-20 Next Due Date: 3-Dec-20 Operator: SK
 Equipment No.: A-01-44 Model No.: TE-5170 Serial No. 1316

Ambient Condition			
Temperature, Ta (K)	301.3	Pressure, Pa (mmHg)	758.4

Orifice Transfer Standard Information					
Serial No.	3746	Slope, mc	0.0592	Intercept, bc	-0.02740
Last Calibration Date:	17-Jan-20	$mc \times Qstd + bc = [\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$ $Qstd = \{[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2} - bc\} / mc$			
Next Calibration Date:	17-Jan-21				

Calibration of TSP Sampler					
Calibration Point	Orifice			HVS	
	ΔH (orifice), in. of water	$[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$	Qstd (CFM) X - axis	ΔW (HVS), in. of water	$[\Delta W \times (Pa/760) \times (298/Ta)]^{1/2}$ Y-axis
1	12.8	3.55	60.50	8.6	2.91
2	10.3	3.19	54.32	6.5	2.53
3	7.9	2.79	47.63	4.9	2.20
4	5.8	2.39	40.88	3.3	1.80
5	3.0	1.72	29.53	1.8	1.33

By Linear Regression of Y on X

Slope, mw = 0.0511 Intercept, bw = -0.2236
 Correlation coefficient* = 0.9972

*If Correlation Coefficient < 0.990, check and recalibrate.

Set Point Calculation

From the TSP Field Calibration Curve, take Qstd = 43 CFM

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

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

Therefore, Set Point; W = $(mw \times Qstd + bw)^2 \times (760 / Pa) \times (Ta / 298) =$ 3.95

Remarks: _____

Conducted by: SK Wong Signature: Date: 3 October 2020

Checked by: Henry Leung Signature: Date: 3 October 2020

High-Volume TSP Sampler

5-POINT CALIBRATION DATA SHEET



File No. MA20003/41/0002

Project No. KTD 2c - G/IC Zone next to Kwun Tong Bypass (Next to the Kowloon Bay Sewage Interception Station)
 Date: 3-Oct-20 Next Due Date: 3-Dec-20 Operator: SK
 Equipment No.: A-01-41 Model No.: TE 5170 Serial No. 5280

Ambient Condition			
Temperature, Ta (K)	301.3	Pressure, Pa (mmHg)	758.4

Orifice Transfer Standard Information					
Serial No.	3746	Slope, mc	0.0592	Intercept, bc	-0.0274
Last Calibration Date:	17-Jan-20	$mc \times Qstd + bc = [\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$ $Qstd = \{[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2} - bc\} / mc$			
Next Calibration Date:	17-Jan-21				

Calibration of TSP Sampler					
Calibration Point	Orifice			HVS	
	ΔH (orifice), in. of water	$[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$	Qstd (CFM) X - axis	ΔW (HVS), in. of water	$[\Delta W \times (Pa/760) \times (298/Ta)]^{1/2}$ Y-axis
1	13.6	3.66	62.35	6.6	2.55
2	11.0	3.29	56.12	5.3	2.29
3	8.0	2.81	47.93	4.1	2.01
4	4.6	2.13	36.46	2.6	1.60
5	2.5	1.57	27.00	1.8	1.33

By Linear Regression of Y on X

Slope, mw = 0.0344 Intercept, bw = 0.3744
 Correlation coefficient* = 0.9984

*If Correlation Coefficient < 0.990, check and recalibrate.

Set Point Calculation

From the TSP Field Calibration Curve, take Qstd = 43 CFM

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

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

Therefore, Set Point; W = $(mw \times Qstd + bw)^2 \times (760 / Pa) \times (Ta / 298) =$ 3.49

Remarks: _____

Conducted by: SK Wong Signature: Date: 3 October 2020

Checked by: Henry Leung Signature: Date: 3 October 2020

High-Volume TSP Sampler

5-POINT CALIBRATION DATA SHEET



File No. MA20003/18/0005

Project No. CKL 1 - Flat 121 Cha Kwo Ling Village
 Date: 6-Nov-20 Next Due Date: 6-Jan-21 Operator: SK
 Equipment No.: A-01-18 Model No.: TE 5170 Serial No. 0723

Ambient Condition			
Temperature, Ta (K)	<u>297.7</u>	Pressure, Pa (mmHg)	<u>761.9</u>

Orifice Transfer Standard Information					
Serial No.	<u>3746</u>	Slope, mc	<u>0.0592</u>	Intercept, bc	<u>-0.0274</u>
Last Calibration Date:	<u>17-Jan-20</u>	$mc \times Qstd + bc = [\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$ $Qstd = \{[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2} - bc\} / mc$			
Next Calibration Date:	<u>17-Jan-21</u>				

Calibration of TSP Sampler					
Calibration Point	Orifice			HVS	
	ΔH (orifice), in. of water	$[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$	Qstd (CFM) X - axis	ΔW (HVS), in. of water	$[\Delta W \times (Pa/760) \times (298/Ta)]^{1/2}$ Y-axis
1	<u>13.8</u>	3.72	63.32	<u>10.1</u>	3.18
2	<u>11.2</u>	3.35	57.09	<u>7.6</u>	2.76
3	<u>8.4</u>	2.90	49.51	<u>6.0</u>	2.45
4	<u>5.3</u>	2.31	39.42	<u>3.6</u>	1.90
5	<u>3.1</u>	1.76	30.26	<u>1.9</u>	1.38

By Linear Regression of Y on X

Slope, mw = 0.0533 Intercept, bw = -0.2162
 Correlation coefficient* = 0.9984

*If Correlation Coefficient < 0.990, check and recalibrate.

Set Point Calculation

From the TSP Field Calibration Curve, take Qstd = 43 CFM

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

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

Therefore, Set Point; W = $(mw \times Qstd + bw)^2 \times (760 / Pa) \times (Ta / 298) =$ 4.29

Remarks: _____

Conducted by: SK Wong Signature: Date: 06 November 2020
 Checked by: Henry Leung Signature: Date: 06 November 2020

High-Volume TSP Sampler

5-POINT CALIBRATION DATA SHEET



File No. MA20003/55/0005

Project No. CKL 2 - Flat 103 Cha Kwo Ling Village
 Date: 6-Nov-20 Next Due Date: 6-Jan-21 Operator: SK
 Equipment No.: A-01-55 Model No.: TE 5170 Serial No. 1956

Ambient Condition			
Temperature, Ta (K)	<u>297.7</u>	Pressure, Pa (mmHg)	<u>761.9</u>

Orifice Transfer Standard Information					
Serial No.	<u>3746</u>	Slope, mc	<u>0.0592</u>	Intercept, bc	<u>-0.0274</u>
Last Calibration Date:	<u>17-Jan-20</u>	$mc \times Qstd + bc = [\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$ $Qstd = \{[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2} - bc\} / mc$			
Next Calibration Date:	<u>17-Jan-21</u>				

Calibration of TSP Sampler					
Calibration Point	Orifice			HVS	
	ΔH (orifice), in. of water	$[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$	Qstd (CFM) X - axis	ΔW (HVS), in. of water	$[\Delta W \times (Pa/760) \times (298/Ta)]^{1/2}$ Y-axis
1	<u>14.5</u>	3.81	64.90	<u>9.6</u>	3.10
2	<u>11.3</u>	3.37	57.35	<u>7.0</u>	2.65
3	<u>8.4</u>	2.90	49.51	<u>5.6</u>	2.37
4	<u>5.4</u>	2.33	39.78	<u>3.5</u>	1.87
5	<u>3.1</u>	1.76	30.26	<u>2.2</u>	1.49

By Linear Regression of Y on X

Slope, mw = 0.0461 Intercept, bw = 0.0661
 Correlation coefficient* = 0.9977

*If Correlation Coefficient < 0.990, check and recalibrate.

Set Point Calculation

From the TSP Field Calibration Curve, take Qstd = 43 CFM

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

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

Therefore, Set Point; W = $(mw \times Qstd + bw)^2 \times (760 / Pa) \times (Ta / 298) =$ 4.19

Remarks: _____

Conducted by: SK Wong Signature: [Signature] Date: 06 November 2020
 Checked by: Henry Leung Signature: [Signature] Date: 06 November 2020

High-Volume TSP Sampler

5-POINT CALIBRATION DATA SHEET



File No. MA20003/04/0002

Project No. KER 1 - Future Residential Development at Kerry Godown
 Date: 3-Oct-20 Next Due Date: 3-Dec-20 Operator: SK
 Equipment No.: A-01-04 Model No.: TE 5170 Serial No. 10595

Ambient Condition			
Temperature, Ta (K)	301.3	Pressure, Pa (mmHg)	758.4

Orifice Transfer Standard Information					
Serial No.	3746	Slope, mc	0.0592	Intercept, bc	-0.0274
Last Calibration Date:	17-Jan-20	$mc \times Qstd + bc = [\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$ $Qstd = \{[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2} - bc\} / mc$			
Next Calibration Date:	17-Jan-21				

Calibration of TSP Sampler					
Calibration Point	Orifice			HVS	
	ΔH (orifice), in. of water	$[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$	Qstd (CFM) X - axis	ΔW (HVS), in. of water	$[\Delta W \times (Pa/760) \times (298/Ta)]^{1/2}$ Y-axis
1	13.5	3.65	62.12	6.6	2.55
2	10.7	3.25	55.36	5.3	2.29
3	8.2	2.84	48.52	4.0	1.99
4	4.4	2.08	35.66	2.5	1.57
5	2.6	1.60	27.52	1.8	1.33

By Linear Regression of Y on X

Slope, mw = 0.0353 Intercept, bw = 0.3298
 Correlation coefficient* = 0.9974

*If Correlation Coefficient < 0.990, check and recalibrate.

Set Point Calculation

From the TSP Field Calibration Curve, take Qstd = 43 CFM

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

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

Therefore, Set Point; W = $(mw \times Qstd + bw)^2 \times (760 / Pa) \times (Ta / 298) =$ 3.45

Remarks: _____

Conducted by: SK Wong Signature: Date: 3 October 2020

Checked by: Henry Leung Signature: Date: 3 October 2020

High-Volume TSP Sampler

5-POINT CALIBRATION DATA SHEET

File No. MA20003/04/0003

Project No. KER 1 - Future Residential Development at Kerry Godown
 Date: 3-Dec-20 Next Due Date: 3-Feb-21 Operator: SK
 Equipment No.: A-01-04 Model No.: TE 5170 Serial No. 10595

Ambient Condition			
Temperature, Ta (K)	<u>290.4</u>	Pressure, Pa (mmHg)	<u>765.8</u>

Orifice Transfer Standard Information					
Serial No.	<u>3746</u>	Slope, mc	<u>0.0592</u>	Intercept, bc	<u>-0.0274</u>
Last Calibration Date:	<u>17-Jan-20</u>	$mc \times Qstd + bc = [\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$ $Qstd = \{[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2} - bc\} / mc$			
Next Calibration Date:	<u>17-Jan-21</u>				

Calibration of TSP Sampler					
Calibration Point	Orifice			HVS	
	ΔH (orifice), in. of water	$[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$	Qstd (CFM) X-axis	ΔW (HVS), in. of water	$[\Delta W \times (Pa/760) \times (298/Ta)]^{1/2}$ Y-axis
1	<u>13.3</u>	3.71	63.10	<u>6.5</u>	2.59
2	<u>10.8</u>	3.34	56.91	<u>5.2</u>	2.32
3	<u>8.3</u>	2.93	49.95	<u>4.0</u>	2.03
4	<u>4.5</u>	2.16	36.90	<u>2.6</u>	1.64
5	<u>2.5</u>	1.61	27.62	<u>1.8</u>	1.36

By Linear Regression of Y on X

Slope, mw = 0.0341 Intercept, bw = 0.3916
 Correlation coefficient* = 0.9963

*If Correlation Coefficient < 0.990, check and recalibrate.

Set Point Calculation

From the TSP Field Calibration Curve, take Qstd = 43 CFM
 From the Regression Equation, the "Y" value according to

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

Therefore, Set Point; W = $(mw \times Qstd + bw)^2 \times (760 / Pa) \times (Ta / 298) =$ 3.33

Remarks: _____

Conducted by: SK Wong Signature: _____ Date: 03 December 2020

Checked by: Henry Leung Signature: _____ Date: 03 December 2020

High-Volume TSP Sampler

5-POINT CALIBRATION DATA SHEET

File No. MA20003/44/0004

Project No. KTD1 - Centre of Excellence in Paediatrics (Children's Hospital)
 Date: 3-Dec-20 Next Due Date: 3-Feb-21 Operator: SK
 Equipment No.: A-01-44 Model No.: TE-5170 Serial No. 1316

Ambient Condition			
Temperature, Ta (K)	<u>290.4</u>	Pressure, Pa (mmHg)	<u>765.8</u>

Orifice Transfer Standard Information					
Serial No.	<u>3746</u>	Slope, mc	<u>0.0592</u>	Intercept, bc	<u>-0.02740</u>
Last Calibration Date:	<u>17-Jan-20</u>	$mc \times Qstd + bc = [\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$ $Qstd = \{[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2} - bc\} / mc$			
Next Calibration Date:	<u>17-Jan-21</u>				

Calibration of TSP Sampler					
Calibration Point	Orifice			HVS	
	ΔH (orifice), in. of water	$[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$	Qstd (CFM) X - axis	ΔW (HVS), in. of water	$[\Delta W \times (Pa/760) \times (298/Ta)]^{1/2}$ Y-axis
1	<u>12.9</u>	3.65	62.16	<u>8.7</u>	3.00
2	<u>10.4</u>	3.28	55.86	<u>6.6</u>	2.61
3	<u>7.9</u>	2.86	48.74	<u>4.9</u>	2.25
4	<u>5.9</u>	2.47	42.18	<u>3.4</u>	1.87
5	<u>3.1</u>	1.79	30.71	<u>1.8</u>	1.36

By Linear Regression of Y on X

Slope, mw = 0.0520 Intercept, bw = -0.2699

Correlation coefficient* = 0.9982

*If Correlation Coefficient < 0.990, check and recalibrate.

Set Point Calculation

From the TSP Field Calibration Curve, take Qstd = 43 CFM

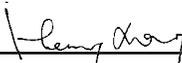
From the Regression Equation, the "Y" value according to

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

Therefore, Set Point; W = $(mw \times Qstd + bw)^2 \times (760 / Pa) \times (Ta / 298) =$ 3.73

Remarks: _____

Conducted by: SK Wong Signature:  Date: 03 December 2020

Checked by: Henry Leung Signature:  Date: 03 December 2020

High-Volume TSP Sampler

5-POINT CALIBRATION DATA SHEET

File No. MA20003/41/0003

Project No. KTD 2c - G/IC Zone next to Kwun Tong Bypass (Next to the Kowloon Bay Sewage Interception Station)
 Date: 3-Dec-20 Next Due Date: 3-Feb-21 Operator: SK
 Equipment No.: A-01-41 Model No.: TE 5170 Serial No. 5280

Ambient Condition			
Temperature, Ta (K)	<u>290.4</u>	Pressure, Pa (mmHg)	<u>765.8</u>

Orifice Transfer Standard Information					
Serial No.	<u>3746</u>	Slope, mc	<u>0.0592</u>	Intercept, bc	<u>-0.0274</u>
Last Calibration Date:	<u>17-Jan-20</u>	$mc \times Qstd + bc = [\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$ $Qstd = \{[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2} - bc\} / mc$			
Next Calibration Date:	<u>17-Jan-21</u>				

Calibration of TSP Sampler					
Calibration Point	Orifice			HVS	
	ΔH (orifice), in. of water	$[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$	Qstd (CFM) X-axis	ΔW (HVS), in. of water	$[\Delta W \times (Pa/760) \times (298/Ta)]^{1/2}$ Y-axis
1	<u>13.5</u>	3.74	63.57	<u>6.5</u>	2.59
2	<u>11.1</u>	3.39	57.69	<u>5.2</u>	2.32
3	<u>8.1</u>	2.89	49.35	<u>4.1</u>	2.06
4	<u>4.6</u>	2.18	37.30	<u>2.5</u>	1.61
5	<u>2.6</u>	1.64	28.16	<u>1.8</u>	1.36

By Linear Regression of Y on X

Slope, mw = 0.0346 Intercept, bw = 0.3558
 Correlation coefficient* = 0.9975

*If Correlation Coefficient < 0.990, check and recalibrate.

Set Point Calculation

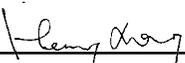
From the TSP Field Calibration Curve, take Qstd = 43 CFM
 From the Regression Equation, the "Y" value according to

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

Therefore, Set Point; W = $(mw \times Qstd + bw)^2 \times (760 / Pa) \times (Ta / 298) =$ 3.28

Remarks: _____

Conducted by: SK Wong Signature:  Date: 03 December 2020

Checked by: Henry Leung Signature:  Date: 03 December 2020

Certificate of Calibration

Calibration Certification Information			
Cal. Date: January 17, 2020	Rootsmeter S/N: 438320	Ta: 295 °K	
Operator: Jim Tisch		Pa: 744.2 mm Hg	
Calibration Model #: TE-5025A	Calibrator S/N: 3746		

Run	Vol. Init (m3)	Vol. Final (m3)	ΔVol. (m3)	ΔTime (min)	ΔP (mm Hg)	ΔH (in H2O)
1	1	2	1	1.4340	3.2	2.00
2	3	4	1	1.0180	6.4	4.00
3	5	6	1	0.9080	7.9	5.00
4	7	8	1	0.8700	8.7	5.50
5	9	10	1	0.7150	12.6	8.00

Data Tabulation					
Vstd (m3)	Qstd (x-axis)	$\sqrt{\Delta H \left(\frac{Pa}{Pstd} \right) \left(\frac{Tstd}{Ta} \right)}$ (y-axis)	Va	Qa (x-axis)	$\sqrt{\Delta H \left(\frac{Ta}{Pa} \right)}$ (y-axis)
0.9849	0.6868	1.4066	0.9957	0.6944	0.8904
0.9807	0.9633	1.9892	0.9914	0.9739	1.2592
0.9787	1.0779	2.2240	0.9894	1.0896	1.4078
0.9776	1.1237	2.3325	0.9883	1.1360	1.4765
0.9724	1.3601	2.8131	0.9831	1.3749	1.7808
QSTD	m=	2.09221	QA	m=	1.31010
	b=	-0.02779		b=	-0.01759
	r=	0.99994		r=	0.99994

Calculations	
Vstd= $\Delta Vol \left(\frac{Pa - \Delta P}{Pstd} \right) \left(\frac{Tstd}{Ta} \right)$	Va= $\Delta Vol \left(\frac{Pa - \Delta P}{Pa} \right)$
Qstd= $Vstd / \Delta Time$	Qa= $Va / \Delta Time$
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= $1/m \left(\left(\sqrt{\Delta H \left(\frac{Ta}{Pa} \right)} \right) - b \right)$

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

Certificate of Calibration - Wind Monitoring Station

Description: Yau Lai Estate, Bik Lai House
 Manufacturer: Davis Instruments
 Model No.: Davis7440
 Serial No.: MC01010A44
 Equipment No.: SA-03-04
 Date of Calibration: 21-Aug-2020
 Next Due Date: 21-Feb-2021

1. Performance check of Wind Speed

Wind Speed, m/s		Difference D (m/s)
Wind Speed Reading (V1)	Anemometer Value (V2)	$D = V1 - V2$
0.0	0.0	0.0
1.5	1.5	0.0
2.2	2.3	-0.1
3.5	3.4	0.1

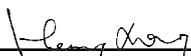
2. Performance check of Wind Direction

Wind Direction (°)		Difference D (°)
Wind Direction Reading (W1)	Marine Compass Value (W2)	$D = W1 - W2$
0	0	0.0
90	90	0.0
180	180	0.0
270	270	0.0

Test Specification:

1. Performance Wind Speed Test - The wind meter was on-site calibrated against the anemometer
2. Performance Wind Direction Test - The wind meter was on-site calibrated against the marine compass at four direction

Calibrated by: 
 Wong Shing Kwai

Approved by: 
 Henry Leung

APPENDIX D
WEATHER INFORMATION

Appendix D - Weather Conditions During Impact Monitoring Period

Date	Mean Air Temperature (°C) ¹	Mean Relative Humidity (%) ²	Precipitation (mm) ³
1-Dec-20	19.7	66	0.0
2-Dec-20	19.9	65	0.0
3-Dec-20	17.4	64	0.0
4-Dec-20	15.9	63	0.0
5-Dec-20	16.8	63	0.0
6-Dec-20	18.2	69	0.0
7-Dec-20	20.7	63	0.0
8-Dec-20	19.9	64	0.0
9-Dec-20	19.8	71	Trace
10-Dec-20	20.9	78	0.3
11-Dec-20	21.6	82	Trace
12-Dec-20	20.9	84	Trace
13-Dec-20	20.9	78	0.0
14-Dec-20	19.5	80	Trace
15-Dec-20	15.4	72	Trace
16-Dec-20	14.8	71	0.0
17-Dec-20	14.9	71	0.0
18-Dec-20	16.4	68	0.0
19-Dec-20	15.0	63	0.0
20-Dec-20	14.9	59	0.0
21-Dec-20	16.5	58	0.0
22-Dec-20	17.4	66	0.0
23-Dec-20	18.4	83	1.2
24-Dec-20	20.0	76	0.0
25-Dec-20	18.9	77	0.0
26-Dec-20	18.7	79	0.0
27-Dec-20	20.4	71	0.0
28-Dec-20	20.6	69	0.0
29-Dec-20	21.0	75	0.0
30-Dec-20	15.1	50	0.0
31-Dec-20	10.9	37	0.0

(Reporting Month: December 2020)

Remarks:

Source - Hong Kong Observatory

¹⁻³Retrieved from Manned Weather Station (Hong Kong Observatory) (22°18'07" N, 114°10'27" E)

Appendix D - Weather Conditions

December 2020			
Wind Speed and Directions			
Date	Time	Wind Speed m-s	Direction
1 Dec 2020	12:00 AM	0.4	NNW
1 Dec 2020	1:00 AM	0.4	ESE
1 Dec 2020	2:00 AM	0.4	SE
1 Dec 2020	3:00 AM	0.4	SE
1 Dec 2020	4:00 AM	0.4	SE
1 Dec 2020	5:00 AM	0.4	SE
1 Dec 2020	6:00 AM	0.4	ESE
1 Dec 2020	7:00 AM	0.4	SE
1 Dec 2020	8:00 AM	0.4	NW
1 Dec 2020	9:00 AM	0.4	NW
1 Dec 2020	10:00 AM	1.3	NNW
1 Dec 2020	11:00 AM	1.3	NNW
1 Dec 2020	12:00 PM	1.3	NNW
1 Dec 2020	1:00 PM	1.8	NNW
1 Dec 2020	2:00 PM	0.9	NNE
1 Dec 2020	3:00 PM	0.9	NNE
1 Dec 2020	4:00 PM	0.4	ENE
1 Dec 2020	5:00 PM	1.3	SE
1 Dec 2020	6:00 PM	0.4	NE
1 Dec 2020	7:00 PM	0.4	NE
1 Dec 2020	8:00 PM	0.4	SE
1 Dec 2020	9:00 PM	1.3	SE
1 Dec 2020	10:00 PM	0.9	N
1 Dec 2020	11:00 PM	1.3	E
2 Dec 2020	12:00 AM	1.3	ESE
2 Dec 2020	1:00 AM	1.3	E
2 Dec 2020	2:00 AM	1.3	E
2 Dec 2020	3:00 AM	1.8	E
2 Dec 2020	4:00 AM	1.3	E
2 Dec 2020	5:00 AM	1.3	E
2 Dec 2020	6:00 AM	1.8	ESE
2 Dec 2020	7:00 AM	1.8	E
2 Dec 2020	8:00 AM	2.2	E
2 Dec 2020	9:00 AM	1.3	SE
2 Dec 2020	10:00 AM	3.1	SE
2 Dec 2020	11:00 AM	3.1	E
2 Dec 2020	12:00 PM	3.6	ESE
2 Dec 2020	1:00 PM	2.2	E
2 Dec 2020	2:00 PM	1.8	E
2 Dec 2020	3:00 PM	1.8	ESE
2 Dec 2020	4:00 PM	1.8	ESE
2 Dec 2020	5:00 PM	1.8	E
2 Dec 2020	6:00 PM	1.8	ESE
2 Dec 2020	7:00 PM	1.8	E

Appendix D - Weather Conditions

December 2020			
Wind Speed and Directions			
Date	Time	Wind Speed m-s	Direction
2 Dec 2020	8:00 PM	2.2	E
2 Dec 2020	9:00 PM	1.8	E
2 Dec 2020	10:00 PM	2.2	E
2 Dec 2020	11:00 PM	2.2	E
3 Dec 2020	12:00 AM	1.8	ESE
3 Dec 2020	1:00 AM	0.9	E
3 Dec 2020	2:00 AM	0.9	E
3 Dec 2020	3:00 AM	0.9	ENE
3 Dec 2020	4:00 AM	1.3	E
3 Dec 2020	5:00 AM	1.8	E
3 Dec 2020	6:00 AM	1.3	E
3 Dec 2020	7:00 AM	1.3	ESE
3 Dec 2020	8:00 AM	1.8	ESE
3 Dec 2020	9:00 AM	1.3	ESE
3 Dec 2020	10:00 AM	1.8	ESE
3 Dec 2020	11:00 AM	1.3	ESE
3 Dec 2020	12:00 PM	0.9	ESE
3 Dec 2020	1:00 PM	1.3	ESE
3 Dec 2020	2:00 PM	1.3	ESE
3 Dec 2020	3:00 PM	2.2	ESE
3 Dec 2020	4:00 PM	1.8	ESE
3 Dec 2020	5:00 PM	0.4	WNW
3 Dec 2020	6:00 PM	0.9	SE
3 Dec 2020	7:00 PM	1.3	ESE
3 Dec 2020	8:00 PM	1.3	ESE
3 Dec 2020	9:00 PM	1.3	SE
3 Dec 2020	10:00 PM	0.9	SE
3 Dec 2020	11:00 PM	0.9	SE
4 Dec 2020	12:00 AM	0.9	E
4 Dec 2020	1:00 AM	0.9	ESE
4 Dec 2020	2:00 AM	0.9	ESE
4 Dec 2020	3:00 AM	1.8	E
4 Dec 2020	4:00 AM	1.3	ESE
4 Dec 2020	5:00 AM	1.3	E
4 Dec 2020	6:00 AM	1.3	E
4 Dec 2020	7:00 AM	1.3	NNW
4 Dec 2020	8:00 AM	1.3	E
4 Dec 2020	9:00 AM	1.8	E
4 Dec 2020	10:00 AM	1.8	SE
4 Dec 2020	11:00 AM	2.7	ESE
4 Dec 2020	12:00 PM	1.8	ESE
4 Dec 2020	1:00 PM	1.8	ESE
4 Dec 2020	2:00 PM	1.8	ESE
4 Dec 2020	3:00 PM	1.8	ESE

Appendix D - Weather Conditions

December 2020			
Wind Speed and Directions			
Date	Time	Wind Speed m-s	Direction
4 Dec 2020	4:00 PM	1.8	ESE
4 Dec 2020	5:00 PM	1.3	SE
4 Dec 2020	6:00 PM	1.3	ESE
4 Dec 2020	7:00 PM	1.3	ESE
4 Dec 2020	8:00 PM	1.3	E
4 Dec 2020	9:00 PM	1.8	E
4 Dec 2020	10:00 PM	1.8	E
4 Dec 2020	11:00 PM	1.3	ESE
5 Dec 2020	12:00 AM	0.9	E
5 Dec 2020	1:00 AM	1.3	ESE
5 Dec 2020	2:00 AM	1.3	SE
5 Dec 2020	3:00 AM	0.9	ESE
5 Dec 2020	4:00 AM	1.3	SE
5 Dec 2020	5:00 AM	0.9	E
5 Dec 2020	6:00 AM	1.3	ESE
5 Dec 2020	7:00 AM	0.9	SE
5 Dec 2020	8:00 AM	1.3	E
5 Dec 2020	9:00 AM	0.9	E
5 Dec 2020	10:00 AM	0.9	NNW
5 Dec 2020	11:00 AM	0.9	WNW
5 Dec 2020	12:00 PM	0.4	WNW
5 Dec 2020	1:00 PM	0.9	E
5 Dec 2020	2:00 PM	0.9	N
5 Dec 2020	3:00 PM	0.4	W
5 Dec 2020	4:00 PM	0.4	WNW
5 Dec 2020	5:00 PM	0.4	WNW
5 Dec 2020	6:00 PM	0.9	WNW
5 Dec 2020	7:00 PM	0.9	N
5 Dec 2020	8:00 PM	1.3	E
5 Dec 2020	9:00 PM	1.8	ESE
5 Dec 2020	10:00 PM	1.8	E
5 Dec 2020	11:00 PM	1.3	ESE
6 Dec 2020	12:00 AM	1.8	E
6 Dec 2020	1:00 AM	3.1	ESE
6 Dec 2020	2:00 AM	3.6	E
6 Dec 2020	3:00 AM	2.2	ESE
6 Dec 2020	4:00 AM	3.1	E
6 Dec 2020	5:00 AM	2.2	E
6 Dec 2020	6:00 AM	1.8	ESE
6 Dec 2020	7:00 AM	2.2	E
6 Dec 2020	8:00 AM	2.7	ESE
6 Dec 2020	9:00 AM	1.8	E
6 Dec 2020	10:00 AM	1.8	E
6 Dec 2020	11:00 AM	2.2	ESE

Appendix D - Weather Conditions

December 2020			
Wind Speed and Directions			
Date	Time	Wind Speed m-s	Direction
6 Dec 2020	12:00 PM	1.8	ESE
6 Dec 2020	1:00 PM	1.3	ESE
6 Dec 2020	2:00 PM	0.9	ESE
6 Dec 2020	3:00 PM	0.9	ESE
6 Dec 2020	4:00 PM	1.3	ESE
6 Dec 2020	5:00 PM	0.9	SE
6 Dec 2020	6:00 PM	0.9	NNW
6 Dec 2020	7:00 PM	0.9	NNW
6 Dec 2020	8:00 PM	0.4	WNW
6 Dec 2020	9:00 PM	0.4	WNW
6 Dec 2020	10:00 PM	0.4	NNW
6 Dec 2020	11:00 PM	0.4	ESE
7 Dec 2020	12:00 AM	0.9	ESE
7 Dec 2020	1:00 AM	0.4	ESE
7 Dec 2020	2:00 AM	0.9	ESE
7 Dec 2020	3:00 AM	0.9	SE
7 Dec 2020	4:00 AM	0.9	ESE
7 Dec 2020	5:00 AM	1.3	ESE
7 Dec 2020	6:00 AM	0.9	SE
7 Dec 2020	7:00 AM	0.9	ESE
7 Dec 2020	8:00 AM	1.3	ESE
7 Dec 2020	9:00 AM	1.8	E
7 Dec 2020	10:00 AM	1.8	ESE
7 Dec 2020	11:00 AM	1.3	E
7 Dec 2020	12:00 PM	1.3	WNW
7 Dec 2020	1:00 PM	0.9	NW
7 Dec 2020	2:00 PM	0.9	SE
7 Dec 2020	3:00 PM	0.9	WNW
7 Dec 2020	4:00 PM	0.9	W
7 Dec 2020	5:00 PM	0.9	WNW
7 Dec 2020	6:00 PM	0.9	NNW
7 Dec 2020	7:00 PM	0.4	WNW
7 Dec 2020	8:00 PM	0.4	NW
7 Dec 2020	9:00 PM	0.4	WNW
7 Dec 2020	10:00 PM	0	SE
7 Dec 2020	11:00 PM	0.4	WNW
8 Dec 2020	12:00 AM	0.9	WNW
8 Dec 2020	1:00 AM	0.9	NW
8 Dec 2020	2:00 AM	0.9	W
8 Dec 2020	3:00 AM	0.4	WNW
8 Dec 2020	4:00 AM	0.9	WNW
8 Dec 2020	5:00 AM	0.9	WNW
8 Dec 2020	6:00 AM	0.4	WNW
8 Dec 2020	7:00 AM	0.4	WNW

Appendix D - Weather Conditions

December 2020			
Wind Speed and Directions			
Date	Time	Wind Speed m-s	Direction
8 Dec 2020	8:00 AM	0.4	W
8 Dec 2020	9:00 AM	0.9	W
8 Dec 2020	10:00 AM	1.3	NNW
8 Dec 2020	11:00 AM	0.9	NNW
8 Dec 2020	12:00 PM	1.8	NNW
8 Dec 2020	1:00 PM	3.1	NNW
8 Dec 2020	2:00 PM	3.1	NNW
8 Dec 2020	3:00 PM	1.8	NNW
8 Dec 2020	4:00 PM	1.3	WNW
8 Dec 2020	5:00 PM	1.3	NNW
8 Dec 2020	6:00 PM	0.9	NNW
8 Dec 2020	7:00 PM	0.9	W
8 Dec 2020	8:00 PM	0.4	WNW
8 Dec 2020	9:00 PM	0.4	WNW
8 Dec 2020	10:00 PM	0.4	NW
8 Dec 2020	11:00 PM	0.4	W
9 Dec 2020	12:00 AM	0	SE
9 Dec 2020	1:00 AM	0.4	SSE
9 Dec 2020	2:00 AM	0.4	SSE
9 Dec 2020	3:00 AM	0	SSE
9 Dec 2020	4:00 AM	0.4	SE
9 Dec 2020	5:00 AM	0.9	ESE
9 Dec 2020	6:00 AM	0.4	E
9 Dec 2020	7:00 AM	0.9	ESE
9 Dec 2020	8:00 AM	1.8	ESE
9 Dec 2020	9:00 AM	2.2	E
9 Dec 2020	10:00 AM	1.8	ESE
9 Dec 2020	11:00 AM	1.8	SE
9 Dec 2020	12:00 PM	1.8	E
9 Dec 2020	1:00 PM	1.3	ESE
9 Dec 2020	2:00 PM	1	E
9 Dec 2020	3:00 PM	0.1	SE
9 Dec 2020	4:00 PM	2.6	ESE
9 Dec 2020	5:00 PM	1.9	E
9 Dec 2020	6:00 PM	1.6	E
9 Dec 2020	7:00 PM	0.5	E
9 Dec 2020	8:00 PM	0.1	E
9 Dec 2020	9:00 PM	1.9	ESE
9 Dec 2020	10:00 PM	2.5	SE
9 Dec 2020	11:00 PM	2.2	SSE
10 Dec 2020	12:00 AM	0.4	SE
10 Dec 2020	1:00 AM	0.4	E
10 Dec 2020	2:00 AM	1.1	SE
10 Dec 2020	3:00 AM	0.7	SE

Appendix D - Weather Conditions

December 2020			
Wind Speed and Directions			
Date	Time	Wind Speed m-s	Direction
10 Dec 2020	4:00 AM	0.6	SSE
10 Dec 2020	5:00 AM	0.2	SE
10 Dec 2020	6:00 AM	0.4	ESE
10 Dec 2020	7:00 AM	1	ESE
10 Dec 2020	8:00 AM	0.5	E
10 Dec 2020	9:00 AM	1.4	ESE
10 Dec 2020	10:00 AM	0.7	E
10 Dec 2020	11:00 AM	0.7	E
10 Dec 2020	12:00 PM	1.2	ESE
10 Dec 2020	1:00 PM	1.2	ESE
10 Dec 2020	2:00 PM	0.4	SE
10 Dec 2020	3:00 PM	1.3	SSE
10 Dec 2020	4:00 PM	0.9	SE
10 Dec 2020	5:00 PM	0.9	ESE
10 Dec 2020	6:00 PM	0.4	WNW
10 Dec 2020	7:00 PM	0.9	ESE
10 Dec 2020	8:00 PM	1.3	ESE
10 Dec 2020	9:00 PM	1.3	ESE
10 Dec 2020	10:00 PM	1.8	E
10 Dec 2020	11:00 PM	1.3	ESE
11 Dec 2020	12:00 AM	1.8	ESE
11 Dec 2020	1:00 AM	1.8	ESE
11 Dec 2020	2:00 AM	1.8	ESE
11 Dec 2020	3:00 AM	2.2	ESE
11 Dec 2020	4:00 AM	1.8	ESE
11 Dec 2020	5:00 AM	1.8	E
11 Dec 2020	6:00 AM	1.3	E
11 Dec 2020	7:00 AM	1.8	ESE
11 Dec 2020	8:00 AM	1.8	SE
11 Dec 2020	9:00 AM	1.8	SE
11 Dec 2020	10:00 AM	1.8	ESE
11 Dec 2020	11:00 AM	1.8	ESE
11 Dec 2020	12:00 PM	1.8	NW
11 Dec 2020	1:00 PM	3.6	NW
11 Dec 2020	2:00 PM	4	NW
11 Dec 2020	3:00 PM	4.5	NW
11 Dec 2020	4:00 PM	3.1	NW
11 Dec 2020	5:00 PM	4	NW
11 Dec 2020	6:00 PM	1.8	NW
11 Dec 2020	7:00 PM	0.9	NW
11 Dec 2020	8:00 PM	0.9	W
11 Dec 2020	9:00 PM	0.4	N
11 Dec 2020	10:00 PM	0.4	NW
11 Dec 2020	11:00 PM	0.4	WNW

Appendix D - Weather Conditions

December 2020			
Wind Speed and Directions			
Date	Time	Wind Speed m-s	Direction
12 Dec 2020	12:00 AM	0.9	W
12 Dec 2020	1:00 AM	0.9	W
12 Dec 2020	2:00 AM	0.9	W
12 Dec 2020	3:00 AM	1.3	W
12 Dec 2020	4:00 AM	0.9	W
12 Dec 2020	5:00 AM	0.9	W
12 Dec 2020	6:00 AM	0.9	W
12 Dec 2020	7:00 AM	1.8	W
12 Dec 2020	8:00 AM	0.9	W
12 Dec 2020	9:00 AM	0.9	NNW
12 Dec 2020	10:00 AM	1.3	ENE
12 Dec 2020	11:00 AM	1.8	NW
12 Dec 2020	12:00 PM	1.3	W
12 Dec 2020	1:00 PM	1.8	W
12 Dec 2020	2:00 PM	1.3	W
12 Dec 2020	3:00 PM	0.9	NNW
12 Dec 2020	4:00 PM	1.3	NW
12 Dec 2020	5:00 PM	0.9	W
12 Dec 2020	6:00 PM	0.9	NW
12 Dec 2020	7:00 PM	1.3	NW
12 Dec 2020	8:00 PM	1.3	W
12 Dec 2020	9:00 PM	0.9	NW
12 Dec 2020	10:00 PM	1.3	WNW
12 Dec 2020	11:00 PM	1.8	NW
13 Dec 2020	12:00 AM	1.8	WNW
13 Dec 2020	1:00 AM	1.8	NW
13 Dec 2020	2:00 AM	1.8	NW
13 Dec 2020	3:00 AM	1.3	W
13 Dec 2020	4:00 AM	0.9	W
13 Dec 2020	5:00 AM	0.9	WNW
13 Dec 2020	6:00 AM	0.9	ENE
13 Dec 2020	7:00 AM	0.4	NW
13 Dec 2020	8:00 AM	0.9	W
13 Dec 2020	9:00 AM	1.3	W
13 Dec 2020	10:00 AM	1.3	W
13 Dec 2020	11:00 AM	1.3	W
13 Dec 2020	12:00 PM	1.8	W
13 Dec 2020	1:00 PM	1.3	WNW
13 Dec 2020	2:00 PM	1.8	NW
13 Dec 2020	3:00 PM	2.2	NW
13 Dec 2020	4:00 PM	3.6	NW
13 Dec 2020	5:00 PM	3.6	NW
13 Dec 2020	6:00 PM	1.3	NW
13 Dec 2020	7:00 PM	1.3	NW

Appendix D - Weather Conditions

December 2020			
Wind Speed and Directions			
Date	Time	Wind Speed m-s	Direction
13 Dec 2020	8:00 PM	0.9	NW
13 Dec 2020	9:00 PM	0.4	WNW
13 Dec 2020	10:00 PM	0.4	WNW
13 Dec 2020	11:00 PM	0.4	W
14 Dec 2020	12:00 AM	0.4	WNW
14 Dec 2020	1:00 AM	1.3	NW
14 Dec 2020	2:00 AM	1.8	NW
14 Dec 2020	3:00 AM	1.3	NW
14 Dec 2020	4:00 AM	1.3	NW
14 Dec 2020	5:00 AM	1.8	NW
14 Dec 2020	6:00 AM	1.3	NW
14 Dec 2020	7:00 AM	0.9	NW
14 Dec 2020	8:00 AM	0.9	NW
14 Dec 2020	9:00 AM	1.8	NW
14 Dec 2020	10:00 AM	1.3	NW
14 Dec 2020	11:00 AM	1.8	NW
14 Dec 2020	12:00 PM	1.3	W
14 Dec 2020	1:00 PM	1.8	W
14 Dec 2020	2:00 PM	1.3	W
14 Dec 2020	3:00 PM	1.8	NW
14 Dec 2020	4:00 PM	4	NW
14 Dec 2020	5:00 PM	3.6	NW
14 Dec 2020	6:00 PM	3.6	NW
14 Dec 2020	7:00 PM	1.3	NW
14 Dec 2020	8:00 PM	1.3	NW
14 Dec 2020	9:00 PM	1.3	NW
14 Dec 2020	10:00 PM	0.9	W
14 Dec 2020	11:00 PM	1.3	W
15 Dec 2020	12:00 AM	1.8	W
15 Dec 2020	1:00 AM	1.3	W
15 Dec 2020	2:00 AM	1.3	W
15 Dec 2020	3:00 AM	0.9	W
15 Dec 2020	4:00 AM	0.9	WNW
15 Dec 2020	5:00 AM	0.9	W
15 Dec 2020	6:00 AM	0.9	NW
15 Dec 2020	7:00 AM	1.3	WNW
15 Dec 2020	8:00 AM	1.3	W
15 Dec 2020	9:00 AM	1.3	W
15 Dec 2020	10:00 AM	1.3	NW
15 Dec 2020	11:00 AM	1.3	NW
15 Dec 2020	12:00 PM	1.3	NW
15 Dec 2020	1:00 PM	0.9	NW
15 Dec 2020	2:00 PM	0.9	NW
15 Dec 2020	3:00 PM	1.3	W

Appendix D - Weather Conditions

December 2020			
Wind Speed and Directions			
Date	Time	Wind Speed m-s	Direction
15 Dec 2020	4:00 PM	1.3	NW
15 Dec 2020	5:00 PM	1.3	W
15 Dec 2020	6:00 PM	2.2	NW
15 Dec 2020	7:00 PM	1.8	NW
15 Dec 2020	8:00 PM	1.3	NW
15 Dec 2020	9:00 PM	2.2	NW
15 Dec 2020	10:00 PM	2.2	NW
15 Dec 2020	11:00 PM	1.3	NW
16 Dec 2020	12:00 AM	1.8	NW
16 Dec 2020	1:00 AM	1.8	NW
16 Dec 2020	2:00 AM	1.3	NW
16 Dec 2020	3:00 AM	0.9	WNW
16 Dec 2020	4:00 AM	1.3	NW
16 Dec 2020	5:00 AM	0.9	W
16 Dec 2020	6:00 AM	1.3	W
16 Dec 2020	7:00 AM	1.3	NW
16 Dec 2020	8:00 AM	2.2	NW
16 Dec 2020	9:00 AM	1.8	NW
16 Dec 2020	10:00 AM	1.8	NW
16 Dec 2020	11:00 AM	1.8	E
16 Dec 2020	12:00 PM	1.3	NW
16 Dec 2020	1:00 PM	2.7	NW
16 Dec 2020	2:00 PM	1.8	NW
16 Dec 2020	3:00 PM	1.8	NW
16 Dec 2020	4:00 PM	2.7	NW
16 Dec 2020	5:00 PM	1.8	NW
16 Dec 2020	6:00 PM	1.8	NW
16 Dec 2020	7:00 PM	1.8	NW
16 Dec 2020	8:00 PM	1.8	NW
16 Dec 2020	9:00 PM	2.2	NW
16 Dec 2020	10:00 PM	1.8	NW
16 Dec 2020	11:00 PM	0.9	NW
17 Dec 2020	12:00 AM	1.3	NW
17 Dec 2020	1:00 AM	0.9	NE
17 Dec 2020	2:00 AM	0.4	NNE
17 Dec 2020	3:00 AM	0.4	NE
17 Dec 2020	4:00 AM	0.4	NW
17 Dec 2020	5:00 AM	0.4	N
17 Dec 2020	6:00 AM	0.9	NE
17 Dec 2020	7:00 AM	0.9	NE
17 Dec 2020	8:00 AM	0.9	NE
17 Dec 2020	9:00 AM	0.9	NW
17 Dec 2020	10:00 AM	0.9	NW
17 Dec 2020	11:00 AM	0.9	NW

Appendix D - Weather Conditions

December 2020			
Wind Speed and Directions			
Date	Time	Wind Speed m-s	Direction
17 Dec 2020	12:00 PM	1.3	NW
17 Dec 2020	1:00 PM	2.2	NW
17 Dec 2020	2:00 PM	2.2	NW
17 Dec 2020	3:00 PM	2.7	NW
17 Dec 2020	4:00 PM	4.5	NW
17 Dec 2020	5:00 PM	3.1	NW
17 Dec 2020	6:00 PM	2.7	NW
17 Dec 2020	7:00 PM	2.2	NW
17 Dec 2020	8:00 PM	1.8	NW
17 Dec 2020	9:00 PM	0.9	NW
17 Dec 2020	10:00 PM	0.4	NE
17 Dec 2020	11:00 PM	0.4	N
18 Dec 2020	12:00 AM	0.4	N
18 Dec 2020	1:00 AM	0.4	N
18 Dec 2020	2:00 AM	0.4	N
18 Dec 2020	3:00 AM	0.4	N
18 Dec 2020	4:00 AM	0.4	N
18 Dec 2020	5:00 AM	0.4	N
18 Dec 2020	6:00 AM	0.4	N
18 Dec 2020	7:00 AM	0.4	N
18 Dec 2020	8:00 AM	0.4	NNW
18 Dec 2020	9:00 AM	0.4	NNW
18 Dec 2020	10:00 AM	0.4	NE
18 Dec 2020	11:00 AM	0.9	NE
18 Dec 2020	12:00 PM	2.2	NW
18 Dec 2020	1:00 PM	1.8	NW
18 Dec 2020	2:00 PM	2.7	NW
18 Dec 2020	3:00 PM	3.1	NW
18 Dec 2020	4:00 PM	2.2	NW
18 Dec 2020	5:00 PM	1.3	W
18 Dec 2020	6:00 PM	1.3	W
18 Dec 2020	7:00 PM	1.8	NW
18 Dec 2020	8:00 PM	1.3	W
18 Dec 2020	9:00 PM	1.3	W
18 Dec 2020	10:00 PM	1.3	W
18 Dec 2020	11:00 PM	1.3	WNW
19 Dec 2020	12:00 AM	1.3	W
19 Dec 2020	1:00 AM	1.3	W
19 Dec 2020	2:00 AM	1.3	WNW
19 Dec 2020	3:00 AM	0.9	W
19 Dec 2020	4:00 AM	0.9	W
19 Dec 2020	5:00 AM	0.9	W
19 Dec 2020	6:00 AM	0.9	W
19 Dec 2020	7:00 AM	0.9	NW

Appendix D - Weather Conditions

December 2020			
Wind Speed and Directions			
Date	Time	Wind Speed m-s	Direction
19 Dec 2020	8:00 AM	0.9	NW
19 Dec 2020	9:00 AM	0.4	W
19 Dec 2020	10:00 AM	0.4	W
19 Dec 2020	11:00 AM	0.9	NW
19 Dec 2020	12:00 PM	1.3	NW
19 Dec 2020	1:00 PM	0.9	W
19 Dec 2020	2:00 PM	0.9	WSW
19 Dec 2020	3:00 PM	0.9	W
19 Dec 2020	4:00 PM	0.9	NW
19 Dec 2020	5:00 PM	0.9	W
19 Dec 2020	6:00 PM	1.8	ESE
19 Dec 2020	7:00 PM	1.8	ESE
19 Dec 2020	8:00 PM	2.2	E
19 Dec 2020	9:00 PM	2.2	E
19 Dec 2020	10:00 PM	1.3	ESE
19 Dec 2020	11:00 PM	0.9	SE
20 Dec 2020	12:00 AM	0.4	SE
20 Dec 2020	1:00 AM	1.3	ESE
20 Dec 2020	2:00 AM	0.9	ENE
20 Dec 2020	3:00 AM	0.9	ESE
20 Dec 2020	4:00 AM	1.3	E
20 Dec 2020	5:00 AM	0.9	ESE
20 Dec 2020	6:00 AM	0.9	ESE
20 Dec 2020	7:00 AM	0.9	E
20 Dec 2020	8:00 AM	1.3	E
20 Dec 2020	9:00 AM	0.9	E
20 Dec 2020	10:00 AM	1.8	ESE
20 Dec 2020	11:00 AM	1.8	NW
20 Dec 2020	12:00 PM	1.8	NW
20 Dec 2020	1:00 PM	2.7	NW
20 Dec 2020	2:00 PM	3.6	NW
20 Dec 2020	3:00 PM	2.7	NW
20 Dec 2020	4:00 PM	4	NW
20 Dec 2020	5:00 PM	2.7	NW
20 Dec 2020	6:00 PM	2.2	NW
20 Dec 2020	7:00 PM	0.9	W
20 Dec 2020	8:00 PM	0.9	W
20 Dec 2020	9:00 PM	0.4	W
20 Dec 2020	10:00 PM	0.4	WNW
20 Dec 2020	11:00 PM	0.4	SE
21 Dec 2020	12:00 AM	0.4	ESE
21 Dec 2020	1:00 AM	0	ESE
21 Dec 2020	2:00 AM	0.4	SE
21 Dec 2020	3:00 AM	0.9	E

Appendix D - Weather Conditions

December 2020			
Wind Speed and Directions			
Date	Time	Wind Speed m-s	Direction
21 Dec 2020	4:00 AM	1.3	ESE
21 Dec 2020	5:00 AM	1.3	ESE
21 Dec 2020	6:00 AM	0.9	ESE
21 Dec 2020	7:00 AM	0.9	ESE
21 Dec 2020	8:00 AM	0.9	E
21 Dec 2020	9:00 AM	0.4	ESE
21 Dec 2020	10:00 AM	1.8	NW
21 Dec 2020	11:00 AM	1.8	NW
21 Dec 2020	12:00 PM	2.2	NW
21 Dec 2020	1:00 PM	1.8	NW
21 Dec 2020	2:00 PM	2.7	NW
21 Dec 2020	3:00 PM	1.8	NW
21 Dec 2020	4:00 PM	2.7	NW
21 Dec 2020	5:00 PM	0.9	NE
21 Dec 2020	6:00 PM	1.8	NW
21 Dec 2020	7:00 PM	1.8	NW
21 Dec 2020	8:00 PM	0.9	NW
21 Dec 2020	9:00 PM	1.8	NW
21 Dec 2020	10:00 PM	2.2	NW
21 Dec 2020	11:00 PM	1.8	NW
22 Dec 2020	12:00 AM	1.3	NW
22 Dec 2020	1:00 AM	0.4	NW
22 Dec 2020	2:00 AM	0.4	NW
22 Dec 2020	3:00 AM	0.9	NW
22 Dec 2020	4:00 AM	0.4	WNW
22 Dec 2020	5:00 AM	0.4	WNW
22 Dec 2020	6:00 AM	0.9	NW
22 Dec 2020	7:00 AM	0.4	NW
22 Dec 2020	8:00 AM	1.3	NW
22 Dec 2020	9:00 AM	0.9	NW
22 Dec 2020	10:00 AM	1.8	NW
22 Dec 2020	11:00 AM	1.8	NW
22 Dec 2020	12:00 PM	1.3	NW
22 Dec 2020	1:00 PM	0.9	ESE
22 Dec 2020	2:00 PM	0.9	NW
22 Dec 2020	3:00 PM	0.9	NW
22 Dec 2020	4:00 PM	2.2	NW
22 Dec 2020	5:00 PM	1.8	NW
22 Dec 2020	6:00 PM	1.3	NW
22 Dec 2020	7:00 PM	0.4	NW
22 Dec 2020	8:00 PM	0.9	NW
22 Dec 2020	9:00 PM	0.4	NNW
22 Dec 2020	10:00 PM	0	NW
22 Dec 2020	11:00 PM	0.4	ESE

Appendix D - Weather Conditions

December 2020			
Wind Speed and Directions			
Date	Time	Wind Speed m-s	Direction
23 Dec 2020	12:00 AM	0.9	ESE
23 Dec 2020	1:00 AM	0.9	ESE
23 Dec 2020	2:00 AM	0	ESE
23 Dec 2020	3:00 AM	0	---
23 Dec 2020	4:00 AM	0	---
23 Dec 2020	5:00 AM	0	NNW
23 Dec 2020	6:00 AM	0	W
23 Dec 2020	7:00 AM	0.4	NW
23 Dec 2020	8:00 AM	1.3	NW
23 Dec 2020	9:00 AM	1.3	W
23 Dec 2020	10:00 AM	1.3	NW
23 Dec 2020	11:00 AM	0.9	W
23 Dec 2020	12:00 PM	1.3	NW
23 Dec 2020	1:00 PM	1.8	NW
23 Dec 2020	2:00 PM	1.3	NW
23 Dec 2020	3:00 PM	1.3	W
23 Dec 2020	4:00 PM	1.3	W
23 Dec 2020	5:00 PM	1.3	W
23 Dec 2020	6:00 PM	1.3	NW
23 Dec 2020	7:00 PM	1.3	W
23 Dec 2020	8:00 PM	1.3	NW
23 Dec 2020	9:00 PM	0.9	W
23 Dec 2020	10:00 PM	0.9	W
23 Dec 2020	11:00 PM	1.3	W
24 Dec 2020	12:00 AM	1.3	W
24 Dec 2020	1:00 AM	0.9	W
24 Dec 2020	2:00 AM	0.9	W
24 Dec 2020	3:00 AM	0.9	W
24 Dec 2020	4:00 AM	1.3	WNW
24 Dec 2020	5:00 AM	0.4	W
24 Dec 2020	6:00 AM	0.4	W
24 Dec 2020	7:00 AM	0.4	W
24 Dec 2020	8:00 AM	0.9	WNW
24 Dec 2020	9:00 AM	1.3	NW
24 Dec 2020	10:00 AM	0.9	W
24 Dec 2020	11:00 AM	1.3	W
24 Dec 2020	12:00 PM	1.8	NW
24 Dec 2020	1:00 PM	3.1	NW
24 Dec 2020	2:00 PM	4.9	NW
24 Dec 2020	3:00 PM	3.1	NW
24 Dec 2020	4:00 PM	3.1	NW
24 Dec 2020	5:00 PM	1.8	NW
24 Dec 2020	6:00 PM	1.3	NW
24 Dec 2020	7:00 PM	1.8	NW

Appendix D - Weather Conditions

December 2020			
Wind Speed and Directions			
Date	Time	Wind Speed m-s	Direction
24 Dec 2020	8:00 PM	0.9	NE
24 Dec 2020	9:00 PM	0.9	NW
24 Dec 2020	10:00 PM	1.3	NW
24 Dec 2020	11:00 PM	1.3	NW
25 Dec 2020	12:00 AM	1.3	NW
25 Dec 2020	1:00 AM	1.3	NW
25 Dec 2020	2:00 AM	1.3	NW
25 Dec 2020	3:00 AM	1.3	E
25 Dec 2020	4:00 AM	1.8	E
25 Dec 2020	5:00 AM	1.8	E
25 Dec 2020	6:00 AM	1.3	E
25 Dec 2020	7:00 AM	1.3	ESE
25 Dec 2020	8:00 AM	1.3	ESE
25 Dec 2020	9:00 AM	1.3	ENE
25 Dec 2020	10:00 AM	0.9	ENE
25 Dec 2020	11:00 AM	1.3	NW
25 Dec 2020	12:00 PM	1.3	NW
25 Dec 2020	1:00 PM	1.3	NW
25 Dec 2020	2:00 PM	1.8	NW
25 Dec 2020	3:00 PM	0.9	ESE
25 Dec 2020	4:00 PM	1.3	NW
25 Dec 2020	5:00 PM	1.3	NNW
25 Dec 2020	6:00 PM	1.3	ENE
25 Dec 2020	7:00 PM	1.3	ESE
25 Dec 2020	8:00 PM	1.8	E
25 Dec 2020	9:00 PM	1.8	ESE
25 Dec 2020	10:00 PM	2.7	SE
25 Dec 2020	11:00 PM	2.2	E
26 Dec 2020	12:00 AM	2.2	E
26 Dec 2020	1:00 AM	1.8	E
26 Dec 2020	2:00 AM	1.3	E
26 Dec 2020	3:00 AM	1.3	E
26 Dec 2020	4:00 AM	0.9	NW
26 Dec 2020	5:00 AM	0.4	WNW
26 Dec 2020	6:00 AM	0.9	WNW
26 Dec 2020	7:00 AM	0.9	W
26 Dec 2020	8:00 AM	0.9	W
26 Dec 2020	9:00 AM	0.9	WNW
26 Dec 2020	10:00 AM	0.4	ESE
26 Dec 2020	11:00 AM	0.4	WNW
26 Dec 2020	12:00 PM	0.9	W
26 Dec 2020	1:00 PM	0.9	W
26 Dec 2020	2:00 PM	0.9	W
26 Dec 2020	3:00 PM	1.3	W

Appendix D - Weather Conditions

December 2020			
Wind Speed and Directions			
Date	Time	Wind Speed m-s	Direction
26 Dec 2020	4:00 PM	0.9	W
26 Dec 2020	5:00 PM	0.4	W
26 Dec 2020	6:00 PM	0.4	ESE
26 Dec 2020	7:00 PM	0.4	ENE
26 Dec 2020	8:00 PM	0.9	W
26 Dec 2020	9:00 PM	1.3	W
26 Dec 2020	10:00 PM	1.3	W
26 Dec 2020	11:00 PM	1.3	W
27 Dec 2020	12:00 AM	0.9	NW
27 Dec 2020	1:00 AM	1.3	E
27 Dec 2020	2:00 AM	1.3	NW
27 Dec 2020	3:00 AM	4.9	NW
27 Dec 2020	4:00 AM	3.1	NW
27 Dec 2020	5:00 AM	3.1	NW
27 Dec 2020	6:00 AM	1.3	NW
27 Dec 2020	7:00 AM	0.4	W
27 Dec 2020	8:00 AM	1.3	NW
27 Dec 2020	9:00 AM	0.9	NE
27 Dec 2020	10:00 AM	0.9	NW
27 Dec 2020	11:00 AM	0.4	NW
27 Dec 2020	12:00 PM	0.9	W
27 Dec 2020	1:00 PM	0.4	W
27 Dec 2020	2:00 PM	0.4	NW
27 Dec 2020	3:00 PM	0.4	ENE
27 Dec 2020	4:00 PM	0.4	ESE
27 Dec 2020	5:00 PM	0.4	NNW
27 Dec 2020	6:00 PM	0.4	ESE
27 Dec 2020	7:00 PM	0.4	NW
27 Dec 2020	8:00 PM	0.4	WNW
27 Dec 2020	9:00 PM	0.4	NE
27 Dec 2020	10:00 PM	0.4	NW
27 Dec 2020	11:00 PM	0.9	NW
28 Dec 2020	12:00 AM	0.9	WNW
28 Dec 2020	1:00 AM	0.4	NW
28 Dec 2020	2:00 AM	0.9	NW
28 Dec 2020	3:00 AM	0.9	NW
28 Dec 2020	4:00 AM	0.4	NW
28 Dec 2020	5:00 AM	0.4	NW
28 Dec 2020	6:00 AM	0	NW
28 Dec 2020	7:00 AM	0.4	WNW
28 Dec 2020	8:00 AM	0.9	NE
28 Dec 2020	9:00 AM	0.9	NE
28 Dec 2020	10:00 AM	0.4	NW
28 Dec 2020	11:00 AM	0.9	NW

Appendix D - Weather Conditions

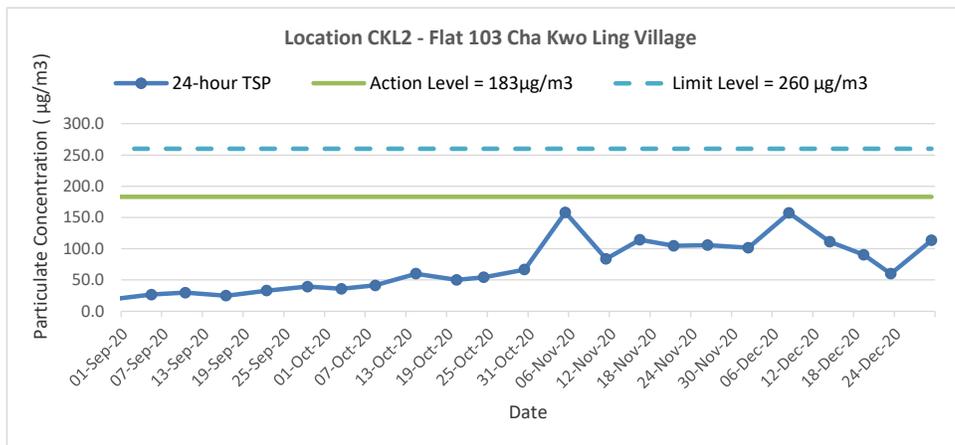
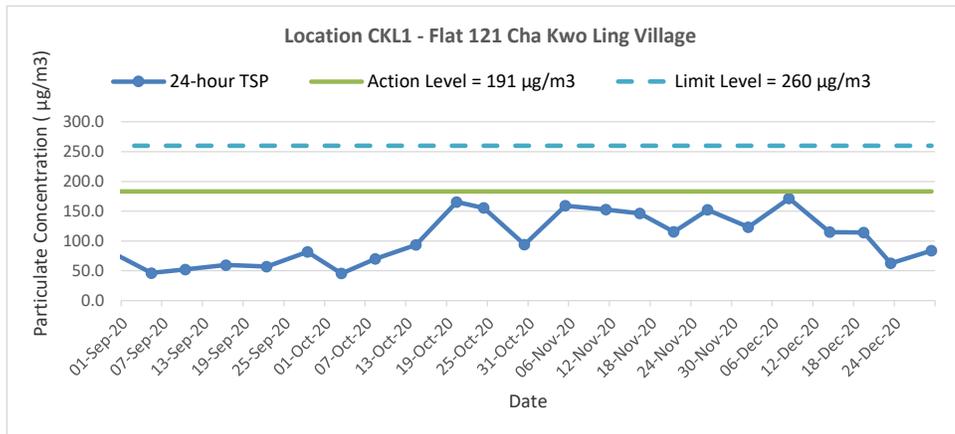
December 2020			
Wind Speed and Directions			
Date	Time	Wind Speed m-s	Direction
28 Dec 2020	12:00 PM	1.3	NW
28 Dec 2020	1:00 PM	0.9	NW
28 Dec 2020	2:00 PM	0.4	NW
28 Dec 2020	3:00 PM	0.4	NE
28 Dec 2020	4:00 PM	0.4	NE
28 Dec 2020	5:00 PM	0.4	NW
28 Dec 2020	6:00 PM	0	NW
28 Dec 2020	7:00 PM	0.4	ESE
28 Dec 2020	8:00 PM	0	WSW
28 Dec 2020	9:00 PM	0	ESE
28 Dec 2020	10:00 PM	0.4	ESE
28 Dec 2020	11:00 PM	0.4	SE
29 Dec 2020	12:00 AM	1.3	ESE
29 Dec 2020	1:00 AM	1.3	WNW
29 Dec 2020	2:00 AM	0.9	NW
29 Dec 2020	3:00 AM	0.9	NW
29 Dec 2020	4:00 AM	0.9	W
29 Dec 2020	5:00 AM	1.3	NW
29 Dec 2020	6:00 AM	1.3	W
29 Dec 2020	7:00 AM	0.4	WNW
29 Dec 2020	8:00 AM	1.3	NW
29 Dec 2020	9:00 AM	0.9	W
29 Dec 2020	10:00 AM	1.8	W
29 Dec 2020	11:00 AM	1.3	W
29 Dec 2020	12:00 PM	0.9	W
29 Dec 2020	1:00 PM	0.9	W
29 Dec 2020	2:00 PM	0.4	NW
29 Dec 2020	3:00 PM	0.9	NW
29 Dec 2020	4:00 PM	1.3	NW
29 Dec 2020	5:00 PM	1.3	NW
29 Dec 2020	6:00 PM	1.3	NW
29 Dec 2020	7:00 PM	0.9	NW
29 Dec 2020	8:00 PM	0	---
29 Dec 2020	9:00 PM	0	---
29 Dec 2020	10:00 PM	0	NNW
29 Dec 2020	11:00 PM	0	NNW
30 Dec 2020	12:00 AM	0.4	NW
30 Dec 2020	1:00 AM	1.3	NW
30 Dec 2020	2:00 AM	2.2	NW
30 Dec 2020	3:00 AM	4	NW
30 Dec 2020	4:00 AM	4.9	NW
30 Dec 2020	5:00 AM	4	NW
30 Dec 2020	6:00 AM	3.1	NW
30 Dec 2020	7:00 AM	4	NW

Appendix D - Weather Conditions

December 2020			
Wind Speed and Directions			
Date	Time	Wind Speed m-s	Direction
30 Dec 2020	8:00 AM	4	NW
30 Dec 2020	9:00 AM	1.3	NW
30 Dec 2020	10:00 AM	1.8	NW
30 Dec 2020	11:00 AM	1.8	NW
30 Dec 2020	12:00 PM	0.9	NW
30 Dec 2020	1:00 PM	0.9	NW
30 Dec 2020	2:00 PM	1.3	NW
30 Dec 2020	3:00 PM	1.3	NW
30 Dec 2020	4:00 PM	0.9	WNW
30 Dec 2020	5:00 PM	0.9	W
30 Dec 2020	6:00 PM	0.9	W
30 Dec 2020	7:00 PM	0.9	W
30 Dec 2020	8:00 PM	0.9	WNW
30 Dec 2020	9:00 PM	1.3	W
30 Dec 2020	10:00 PM	1.8	WNW
30 Dec 2020	11:00 PM	1.8	WNW
31 Dec 2020	12:00 AM	0.9	WNW
31 Dec 2020	1:00 AM	1.3	WNW
31 Dec 2020	2:00 AM	2.2	WNW
31 Dec 2020	3:00 AM	1.3	WNW
31 Dec 2020	4:00 AM	1.8	NW
31 Dec 2020	5:00 AM	1.3	WNW
31 Dec 2020	6:00 AM	1.3	WNW
31 Dec 2020	7:00 AM	0.9	WNW
31 Dec 2020	8:00 AM	0.4	WNW
31 Dec 2020	9:00 AM	0.4	WNW
31 Dec 2020	10:00 AM	0.4	N
31 Dec 2020	11:00 AM	0.9	N
31 Dec 2020	12:00 PM	0.4	WNW
31 Dec 2020	1:00 PM	0.9	WNW
31 Dec 2020	2:00 PM	1.3	WNW
31 Dec 2020	3:00 PM	0.9	WNW
31 Dec 2020	4:00 PM	0.9	WNW
31 Dec 2020	5:00 PM	1.3	WNW
31 Dec 2020	6:00 PM	0.9	WNW
31 Dec 2020	7:00 PM	1.3	WNW
31 Dec 2020	8:00 PM	1.3	WNW
31 Dec 2020	9:00 PM	1.3	WNW
31 Dec 2020	10:00 PM	0.9	NNE
31 Dec 2020	11:00 PM	0.9	E

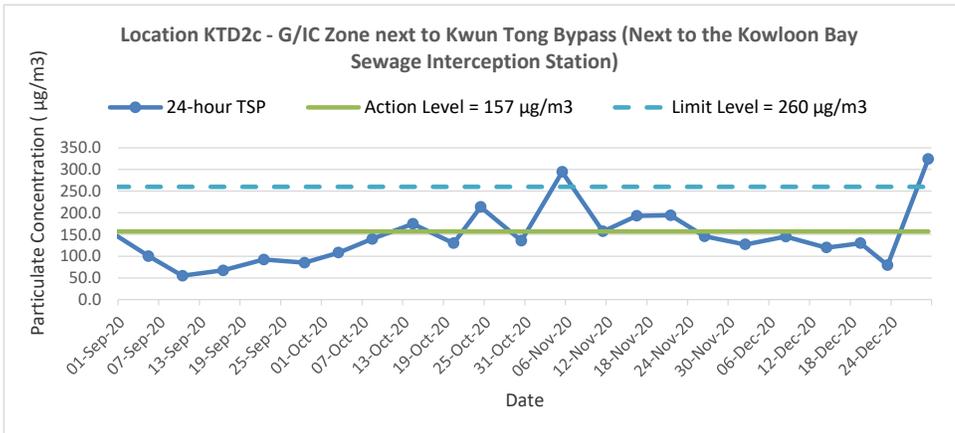
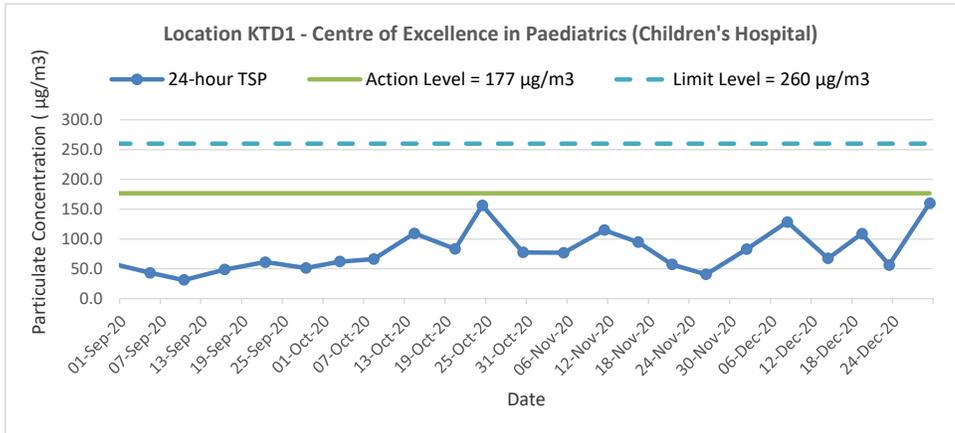
**APPENDIX F
24-HOUR TSP MONITORING RESULTS
AND GRAPHICAL PRESENTATIONS**

24-hr TSP Concentration Levels



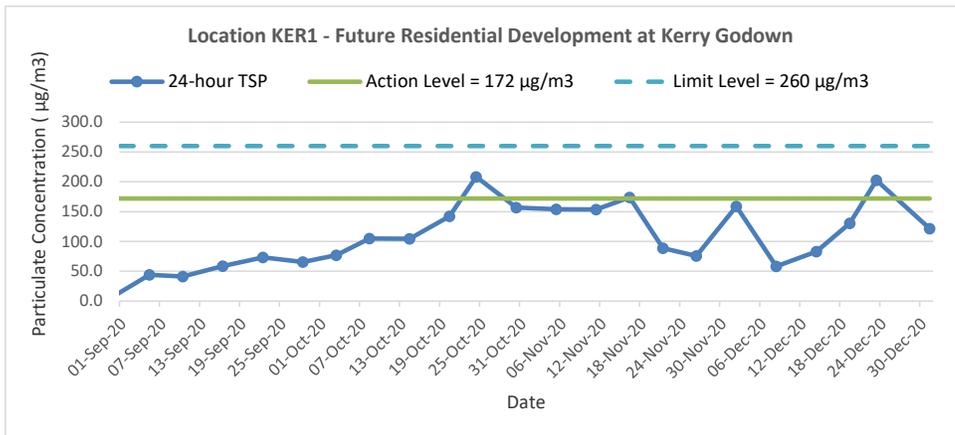
Title	Trunk Road T2 and Infrastructure Works for Developments at the Former South Apron	Date	Dec-20	Project No.	MA20003	CINOTECH
	Graphical Presentation of 24-hour TSP Monitoring Results			Appendix	F	

24-hr TSP Concentration Levels



Title	Trunk Road T2 and Infrastructure Works for Developments at the Former South Apron	Date	Dec-20	Project No.	MA20003	CINOTECH
	Graphical Presentation of 24-hour TSP Monitoring Results			Appendix	F	

24-hr TSP Concentration Levels



Title	Trunk Road T2 and Infrastructure Works for Developments at the Former South Apron	Date	Dec-20	Project No.	MA20003	CINOTECH
	Graphical Presentation of 24-hour TSP Monitoring Results			Appendix	F	

Appendix F - 24-hour TSP Impact Monitoring Results

Location CKL1 - Flat 121 Cha Kwo Ling Village

Start Date	Weather Condition	Air Temp. (K)	Atmospheric Pressure, Pa (mmHg)	Filter Weight (g)		Particulate weight (g)	Elapse Time		Sampling Time (hrs.)	Flow Rate (m ³ /min.)		Av. Flow (m ³ /min)	Total vol. (m ³)	Conc. (µg/m ³)	Action Level (µg/m ³)	Limit Level (µg/m ³)
				Initial	Final		Initial	Final		Initial	Final					
2-Dec-20	Sunny	291.7	766.6	2.6900	2.9085	0.2185	1599.9	1623.9	24.0	1.23	1.23	1.23	1773.0	123.2	191.0	260.0
8-Dec-20	Cloudy	292.9	765.0	2.6689	2.9725	0.3036	1623.9	1647.9	24.0	1.23	1.23	1.23	1768.1	171.7		
14-Dec-20	Sunny	290.5	766.1	2.6804	2.8847	0.2043	1647.9	1671.9	24.0	1.23	1.24	1.23	1775.9	115.0		
19-Dec-20	Sunny	288.0	768.8	2.6817	2.8856	0.2039	1671.9	1695.9	24.0	1.24	1.24	1.24	1785.6	114.2		
23-Dec-20	Sunny	292.2	763.5	2.6652	2.7761	0.1109	1695.9	1719.9	24.0	1.23	1.23	1.23	1768.2	62.7		
29-Dec-20	Sunny	291.1	765.1	2.6867	2.8355	0.1488	1719.9	1743.9	24.0	1.22	1.24	1.23	1773.2	83.9		
Note: <i>Bold Italic</i> means Action Level exceedance <i>Bold Italic with underline</i> means Limit Level exceedance													Min	62.7		
													Max	171.7		
													Average	111.8		

Location CKL2 - Flat 103 Cha Kwo Ling Village

Start Date	Weather Condition	Air Temp. (K)	Atmospheric Pressure, Pa (mmHg)	Filter Weight (g)		Particulate weight (g)	Elapse Time		Sampling Time (hrs.)	Flow Rate (m ³ /min.)		Av. Flow (m ³ /min)	Total vol. (m ³)	Conc. (µg/m ³)	Action Level (µg/m ³)	Limit Level (µg/m ³)
				Initial	Final		Initial	Final		Initial	Final					
2-Dec-20	Sunny	291.7	766.6	2.6922	2.8729	0.1807	13763.3	13787.3	24.0	1.23	1.24	1.24	1778.5	101.6	183.0	260.0
8-Dec-20	Cloudy	292.9	765.0	2.6592	2.9381	0.2789	13787.3	13811.3	24.0	1.23	1.23	1.23	1772.9	157.3		
14-Dec-20	Sunny	290.5	766.1	2.6541	2.8523	0.1982	13811.3	13835.3	24.0	1.23	1.24	1.24	1781.8	111.2		
19-Dec-20	Sunny	288.0	768.8	2.6738	2.8356	0.1618	13835.3	13859.3	24.0	1.24	1.25	1.25	1793.0	90.2		
23-Dec-20	Sunny	292.2	763.5	2.6649	2.7714	0.1065	13859.3	13883.3	24.0	1.23	1.23	1.23	1773.1	60.1		
29-Dec-20	Sunny	291.1	765.1	2.6634	2.8652	0.2018	13883.3	13907.3	24.0	1.23	1.24	1.24	1778.8	113.5		
Note: <i>Bold Italic</i> means Action Level exceedance <i>Bold Italic with underline</i> means Limit Level exceedance													Min	60.1		
													Max	157.3		
													Average	105.6		

Appendix F - 24-hour TSP Impact Monitoring Results

Location KTD1 - Centre of Excellence in Paediatrics (Children's Hospital)

Start Date	Weather Condition	Air Temp. (K)	Atmospheric Pressure, Pa (mmHg)	Filter Weight (g)		Particulate weight (g)	Elapse Time		Sampling Time (hrs.)	Flow Rate (m ³ /min.)		Av. Flow (m ³ /min)	Total vol. (m ³)	Conc. (µg/m ³)	Action Level (µg/m3)	Limit Level (µg/m3)
				Initial	Final		Initial	Final		Initial	Final					
2-Dec-20	Sunny	291.7	766.6	2.6825	2.8306	0.1481	13360.5	13384.5	24.0	1.24	1.24	1.24	1787.4	82.9	177.0	260.0
8-Dec-20	Cloudy	292.9	765.0	2.6642	2.8882	0.2240	13384.5	13408.5	24.0	1.21	1.21	1.21	1743.4	128.5		
14-Dec-20	Sunny	290.5	766.1	2.6679	2.7858	0.1179	13408.5	13432.5	24.0	1.21	1.22	1.22	1750.8	67.3		
19-Dec-20	Sunny	288.0	768.8	2.6702	2.8622	0.1920	13432.5	13456.5	24.0	1.22	1.22	1.22	1760.2	109.1		
23-Dec-20	Sunny	292.2	763.5	2.6839	2.7821	0.0982	13456.5	13480.5	24.0	1.21	1.21	1.21	1743.5	56.3		
29-Dec-20	Sunny	291.1	765.1	2.6846	2.9647	0.2801	13480.5	13504.5	24.0	1.21	1.22	1.21	1748.3	160.2		
													Min	56.3		
													Max	160.2		
													Average	100.7		

Note: **Italic** means Action Level exceedance
Italic with underline means Limit Level exceedance

Location KTD2c - G/IC Zone next to Kwun Tong Bypass (Next to the Kowloon Bay Sewage Interception Station)

Start Date	Weather Condition	Air Temp. (K)	Atmospheric Pressure, Pa (mmHg)	Filter Weight (g)		Particulate weight (g)	Elapse Time		Sampling Time (hrs.)	Flow Rate (m ³ /min.)		Av. Flow (m ³ /min)	Total vol. (m ³)	Conc. (µg/m ³)	Action Level (µg/m3)	Limit Level (µg/m3)
				Initial	Final		Initial	Final		Initial	Final					
2-Dec-20	Sunny	291.7	766.6	2.6731	2.9024	0.2293	11742.0	11766.0	24.0	1.25	1.26	1.25	1803.2	127.2	157.0	260.0
8-Dec-20	Cloudy	292.9	765.0	2.6672	2.9192	0.2520	11766.0	11790.0	24.0	1.21	1.21	1.21	1739.8	144.8		
14-Dec-20	Sunny	290.5	766.1	2.6733	2.8830	0.2097	11790.2	11814.2	24.0	1.21	1.22	1.22	1750.3	119.8		
19-Dec-20	Sunny	288.0	768.8	2.6513	2.8807	0.2294	11814.7	11838.7	24.0	1.22	1.23	1.22	1763.5	130.1		
23-Dec-20	Sunny	292.2	763.5	2.6537	2.7913	0.1376	11838.9	11862.9	24.0	1.21	1.21	1.21	1740.0	79.1		
29-Dec-20	Sunny	291.1	765.1	2.6800	3.2465	0.5665	11863.2	11887.2	24.0	1.20	1.22	1.21	1746.7	324.3		
													Min	79.1		
													Max	324.3		
													Average	154.2		

Note: **Italic** means Action Level exceedance
Italic with underline means Limit Level exceedance

Location KER1 - Future Residential Development at Kerry Godown

Start Date	Weather Condition	Air Temp. (K)	Atmospheric Pressure, Pa (mmHg)	Filter Weight (g)		Particulate weight (g)	Elapse Time		Sampling Time (hrs.)	Flow Rate (m ³ /min.)		Av. Flow (m ³ /min)	Total vol. (m ³)	Conc. (µg/m ³)	Action Level (µg/m3)	Limit Level (µg/m3)
				Initial	Final		Initial	Final		Initial	Final					
2-Dec-20	Sunny	291.7	766.6	2.6743	2.9599	0.2856	10928.6	10952.6	24.0	1.24	1.25	1.25	1796.1	159.0	172.0	260.0
8-Dec-20	Cloudy	292.9	765.0	2.6655	2.7671	0.1016	10952.6	10976.6	24.0	1.21	1.21	1.21	1739.2	58.4		
14-Dec-20	Sunny	290.5	766.1	2.6658	2.8108	0.1450	10976.6	11000.6	24.0	1.21	1.22	1.22	1749.9	82.9		
19-Dec-20	Sunny	288.0	768.8	2.6779	2.9082	0.2303	11000.6	11024.6	24.0	1.22	1.22	1.22	1763.4	130.6		
23-Dec-20	Sunny	292.2	763.5	2.6687	3.0213	0.3526	11024.6	11048.6	24.0	1.21	1.21	1.21	1739.4	202.7		
31-Dec-20	Sunny	284.4	770.7	2.6660	2.8822	0.2162	11048.6	11072.6	24.0	1.24	1.23	1.24	1781.7	121.3		
													Min	58.4		
													Max	202.7		
													Average	125.8		

Note: **Italic** means Action Level exceedance
Italic with underline means Limit Level exceedance

Due to the loss of electrical power supply by Contractor, the 24hr TSP monitoring at KER1 on 29 Dec 2020 was then postponed to 31 Dec 2020.

**APPENDIX G
COPIES OF CALIBRATION
CERTIFICATES FOR NOISE
MONITORING**



Equipment no.: N-13-01

Calibration Certificate**0025247**

Customer : Cinotech Consultants Limited RM 1710, Technology Park, 18 On Lai Street, Shatin, N.T. Hong Kong	Object 1 : ST-120 sound calibrator Serial No. /Ref. No. : 181001608 Object 2 : Serial No. /Ref. No. :
Customer Code : SVEC09005	Manufacturer : Soundtek
Date of calibration: 05/11/2020 Date of the recommended re-calibration: 05/11/2021	Certificate No.: 0025247 Handle by: E0002

Measuring results

Reference value	Indication value	Deviation	Allowed deviation	Object
94.0dB	93.7dB	-0.3dB	+/- 0.3dB	1
114.0dB	113.6dB	-0.4dB	+/- 0.5dB	1

Measuring equipment

index	Calibrator / Master	Traceability
1	Master Sound Meter, SVAN949,sn:8571	IEC61672
2	Sound Calibrator, SV30A sn:32580	IEC60942

Ambient conditions

Temperature (20...26)°C Humidity (20...60)%RH

Measuring procedure

Calibrated by Type 1 Sound Level Meter and 1kHz Sound Source

Uncertainty

+/- 0.2dB for probability not less than 95%.

Conformity

- 1.The resulted values were those obtained at the time of test and applies only to the item calibrated.
- 2.The measurement uncertainty was calculated according to the regulations of GUM with the coverage factor k=2 and contains the uncertainty of the measuring procedure and the uncertainty of the measuring system.
- 3.The equipment being used in this calibration are regularly calibrated by laboratory according to ISO/IEC17025.
- 4.HKAS has accredited this laboratory (HOKLAS 267) for specific calibration activities as listed in the HOKLAS directory of accredited laboratories.
- 5.The calibrations certificate may not be reproduced.

Measured value(s) **within** the allowable deviation.

Performed by

Calibration Technician

Mr. K.L. Ng

Approved by

Quality Manager



Equipment no. : N-13-02

Calibration Certificate**0025249**

Customer : Cinotech Consultants Limited RM 1710, Technology Park, 18 On Lai Street, Shatin, N.T. Hong Kong	Object 1 : ST-120 sound calibrator Serial No. /Ref. No. : 181001636 Object 2 : Serial No. /Ref. No. :
Customer Code : SVEC09005	Manufacturer : Soundtek
Date of calibration: 05/11/2020 Date of the recommended re-calibration: 05/11/2021	Certificate No.: 0025249 Handle by: E0002

Measuring results

Reference value	Indication value	Deviation	Allowed deviation	Object
94.0dB	93.7dB	-0.3dB	+/- 0.3dB	1
114.0dB	113.6dB	-0.4dB	+/- 0.5dB	1

Measuring equipment

index	Calibrator / Master	Traceability
1	Master Sound Meter, SVAN949,sn:8571	IEC61672
2	Sound Calibrator, SV30A sn:32580	IEC60942

Ambient conditions

Temperature (20...26)°C

Humidity (20...60)%RH

Measuring procedure

Calibrated by Type 1 Sound Level Meter and 1kHz Sound Source .

Uncertainty

+/- 0.2dB for probability not less than 95%.

Conformity

- 1.The resulted values were those obtained at the time of test and applies only to the item calibrated.
- 2.The measurement uncertainty was calculated according to the regulations of GUM with the coverage factor k=2 and contains the uncertainty of the measuring procedure and the uncertainty of the measuring system.
- 3.The equipment being used in this calibration are regularly calibrated by laboratory according to ISO/IEC17025.
- 4.HKAS has accredited this laboratory (HOKLAS 267) for specific calibration activities as listed in the HOKLAS directory of accredited laboratories.
- 5.The calibrations certificate may not be reproduced.

Measured value(s) **within** **the allowable deviation.**

Performed by

Calibration Technician

Mr. K.L. Ng

Approved by

Quality Manager



Calibration Certificate

0023155

Customer : Cinotech Consultants Limited RM 1710, Technology Park, 18 On Lai Street, Shatin, N.T. Hong Kong	Object 1 : SVAN979 SLM Serial No. /Ref. No. : 27189 / SN-01-01 Object 2 : Microphone Serial No. /Ref. No. : 25204
Customer Code : SVEC09005	Manufacturer : BSWAtech
Date of calibration: 08/01/2020 Date of the recommended re-calibration: 08/01/2021	Certificate No.: 0023155 Handle by: E0002

Measuring results

Reference value	Indication value	Deviation	Allowed deviation	Object
94.0dB	93.7dB	-0.3dB	+/- 1.5dB	1
114.0dB	113.6dB	-0.4dB	+/- 1.5dB	1

Measuring equipment

index	Calibrator / Master	Traceability
1	Master Sound Meter, SVAN949,sn:8571	IEC61672
2	Sound Calibrator, SV30A sn:32580	IEC60942

Ambient conditions

Temperature (20...26)°C

Humidity (20...60)%RH

Measuring procedure

Calibrated by Type 1 Sound Calibrator with Master Sound Level Meter under 1kHz Frequency.

Uncertainty

+/- 0.2dB for probability not less than 95%.

Conformity

- 1.The resulted values were those obtained at the time of test and applies only to the item calibrated.
- 2.The measurement uncertainty was calculated according to the regulations of GUM with the coverage factor k=2 and contains the uncertainty of the measuring procedure and the uncertainty of the measuring system.
- 3.The equipment being used in this calibration are regularly calibrated by laboratory according to ISO/IEC17025.
- 4.HKAS has accredited this laboratory (HOKLAS 267) for specific calibration activities as listed in the HOKLAS directory of accredited laboratories.
- 5.The calibrations certificate may not be reproduced.

Measured value(s) **within** the allowable deviation.

Performed by

Calibration Technician

Approved by

Quality Manager



Calibration Certificate

0023156

Customer : Cinotech Consultants Limited RM 1710, Technology Park, 18 On Lai Street, Shatin, N.T. Hong Kong	Object 1 : SVAN979 SLM Serial No. /Ref. No. : 27190 / SN-01-02 Object 2 : Microphone Serial No. /Ref. No. : 25202
Customer Code : SVEC09005	Manufacturer : BSWAtech
Date of calibration: 08/01/2020 Date of the recommended re-calibration: 08/01/2021	Certificate No.: 0023156 Handle by: E0002

Measuring results

Reference value	Indication value	Deviation	Allowed deviation	Object
94.0dB	94.0dB	0.0dB	+/- 1.5dB	1
114.0dB	113.9dB	-0.1dB	+/- 1.5dB	1

Measuring equipment

index	Calibrator / Master	Traceability
1	Master Sound Meter, SVAN949,sn:8571	IEC61672
2	Sound Calibrator, SV30A sn:32580	IEC60942

Ambient conditions

Temperature (20...26)°C

Humidity (20...60)%RH

Measuring procedure

Calibrated by Type 1 Sound Calibrator with Master Sound Level Meter under 1kHz Frequency.

Uncertainty

+/- 0.2dB for probability not less than 95%.

Conformity

1. The resulted values were those obtained at the time of test and applies only to the item calibrated.
2. The measurement uncertainty was calculated according to the regulations of GUM with the coverage factor k=2 and contains the uncertainty of the measuring procedure and the uncertainty of the measuring system.
3. The equipment being used in this calibration are regularly calibrated by laboratory according to ISO/IEC17025.
4. HKAS has accredited this laboratory (HOKLAS 267) for specific calibration activities as listed in the HOKLAS directory of accredited laboratories.
5. The calibrations certificate may not be reproduced.

Measured value(s) **within** the allowable deviation.

Performed by

Calibration Technician

Approved by

Quality Manager



Equipment no.: N-12-03

Calibration Certificate**0024996**

Customer : Cinotech Consultants Limited RM 1710, Technology Park, 18 On Lai Street, Shatin, N.T. Hong Kong	Object 1 : BSWA 308 SLM Serial No. /Ref. No. : 570188 / 550850 Object 2 : Serial No. /Ref. No. :
Customer Code : SVEC09005	Manufacturer : BSWAtech
Date of calibration: 07/10/2020 Date of the recommended re-calibration: 07/10/2021	Certificate No.: 0024996 Handle by: E0002

Measuring results

Reference value	Indication value	Deviation	Allowed deviation	Object
94.0dB	92.9dB	-1.1dB	+/- 1.5dB	1
114.0dB	112.8dB	-1.2dB	+/- 1.5dB	1

Measuring equipment

index	Calibrator / Master	Traceability
1	Master Sound Meter, SVAN949,sn:8571	IEC61672
2	Sound Calibrator, SV30A sn:32580	IEC60942

Ambient conditions

Temperature (20...26)°C

Humidity (20...60)%RH

Measuring procedure

Calibrated by Type 1 Sound Calibrator with Master Sound Level Meter under 1kHz Frequency.

Uncertainty

+/- 0.2dB for probability not less than 95%.

Conformity

- 1.The resulted values were those obtained at the time of test and applies only to the item calibrated.
- 2.The measurement uncertainty was calculated according to the regulations of GUM with the coverage factor k=2 and contains the uncertainty of the measuring procedure and the uncertainty of the measuring system.
- 3.The equipment being used in this calibration are regularly calibrated by laboratory according to ISO/IEC17025.
- 4.HKAS has accredited this laboratory (HOKLAS 267) for specific calibration activities as listed in the HOKLAS directory of accredited laboratories.
- 5.The calibrations certificate may not be reproduced.

Measured value(s) **within** the allowable deviation.

Performed by

Calibration Technician

Mr. K.L. Ng

Approved by

Quality Manager

Mr. K.S. Ng

**APPENDIX H
NOISE MONITORING RESULTS AND
GRAPHICAL PRESENTATIONS**

Appendix H - Noise Monitoring Results

(0700-1900 hrs on Normal Weekdays)

Location CKL1 - Flat 121 Cha Kwo Ling Village							
Date	Time	Weather	Unit: dB (A) (30-min)				
			Measured Noise Level			Baseline Level	Construction Noise Level
			L _{eq}	L ₁₀	L ₉₀	L _{eq}	L _{eq}
3-Dec-20	16:10	Sunny	73.8	76.8	62.9	72.4	68
9-Dec-20	16:45	Cloudy	73.1	76.4	63.2	72.4	65
18-Dec-20	13:00	Cloudy	68.5	71.8	57.1	72.4	68.5 Measured ≤ Baseline
21-Dec-20	15:50	Sunny	73.8	77.1	61.5	72.4	68
30-Dec-20	13:30	Sunny	69.9	72.5	60.7	72.4	69.9 Measured ≤ Baseline

Location CKL2 - Flat 103 Cha Kwo Ling Village							
Date	Time	Weather	Unit: dB (A) (30-min)				
			Measured Noise Level			Baseline Level	Construction Noise Level
			L _{eq}	L ₁₀	L ₉₀	L _{eq}	L _{eq}
3-Dec-20	16:55	Sunny	72.6	76.6	63.8	71.4	66.4
9-Dec-20	17:20	Cloudy	71.7	75.1	62.8	71.4	59.9
18-Dec-20	13:00	Cloudy	71.8	75.0	62.0	71.4	61.2
21-Dec-20	16:30	Sunny	73.6	77.3	60.6	71.4	69.6
30-Dec-20	13:00	Sunny	70.4	74.0	60.9	71.4	70.4 Measured ≤ Baseline

Appendix H - Noise Monitoring Results

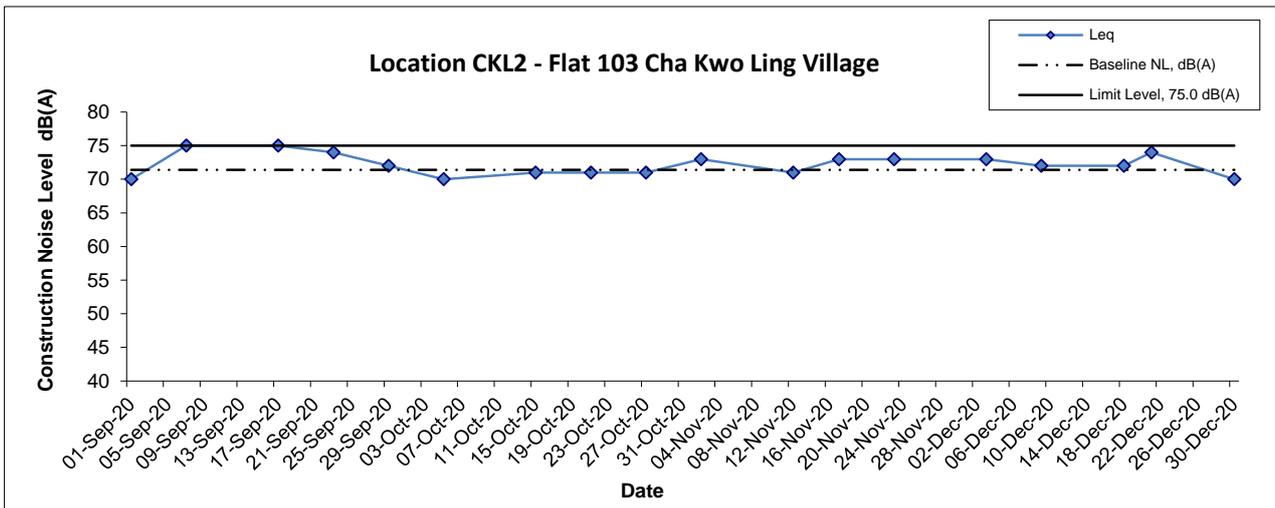
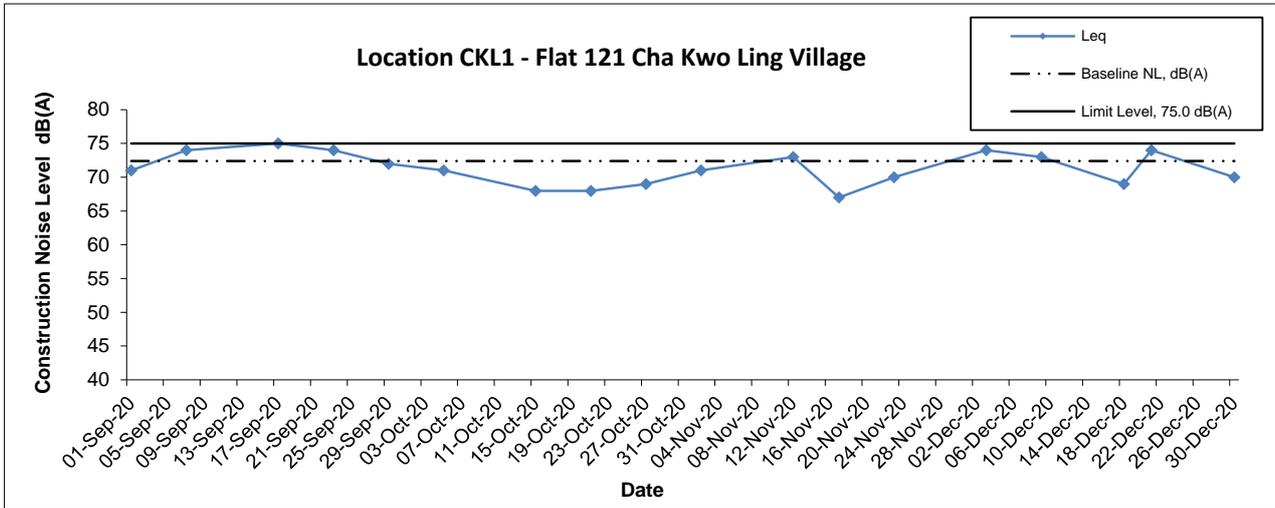
(0700-1900 hrs on Normal Weekdays)

Location KTD1 - Centre of Excellence in Paediatrics (Rooftop of Children's Hospital)							
Date	Time	Weather	Unit: dB (A) (30-min)				
			Measured Noise Level			Baseline Level	Construction Noise Level
			L _{eq}	L ₁₀	L ₉₀	L _{eq}	L _{eq}
3-Dec-20	11:00	Sunny	70.1	70.9	69.0	78.0	70.1 Measured ≤ Baseline
9-Dec-20	15:00	Cloudy	72.6	77.2	67.1	78.0	72.6 Measured ≤ Baseline
15-Dec-20	11:30	Fine	66.0	67.5	64.3	78.0	66 Measured ≤ Baseline
21-Dec-20	14:20	Sunny	70.8	72.6	69.1	78.0	70.8 Measured ≤ Baseline
30-Dec-20	15:40	Sunny	71.1	72.8	69.5	78.0	71.1 Measured ≤ Baseline

Location KTD2c - G/C Zone next to Kwun Tong Bypass (Next to the Kowloon Bay Sewage Interception Station)							
Date	Time	Weather	Unit: dB (A) (30-min)				
			Measured Noise Level			Baseline Level	Construction Noise Level
			L _{eq}	L ₁₀	L ₉₀	L _{eq}	L _{eq}
3-Dec-20	11:00	Sunny	74.2	75.7	71.3	64.0	74
9-Dec-20	13:50	Cloudy	74.1	75.0	73.1	64.0	74
15-Dec-20	11:00	Fine	68.2	69.8	65.6	64.0	66
21-Dec-20	13:15	Sunny	74.0	75.7	71.1	64.0	74
30-Dec-20	16:35	Sunny	75.1	80.4	64.8	64.0	75

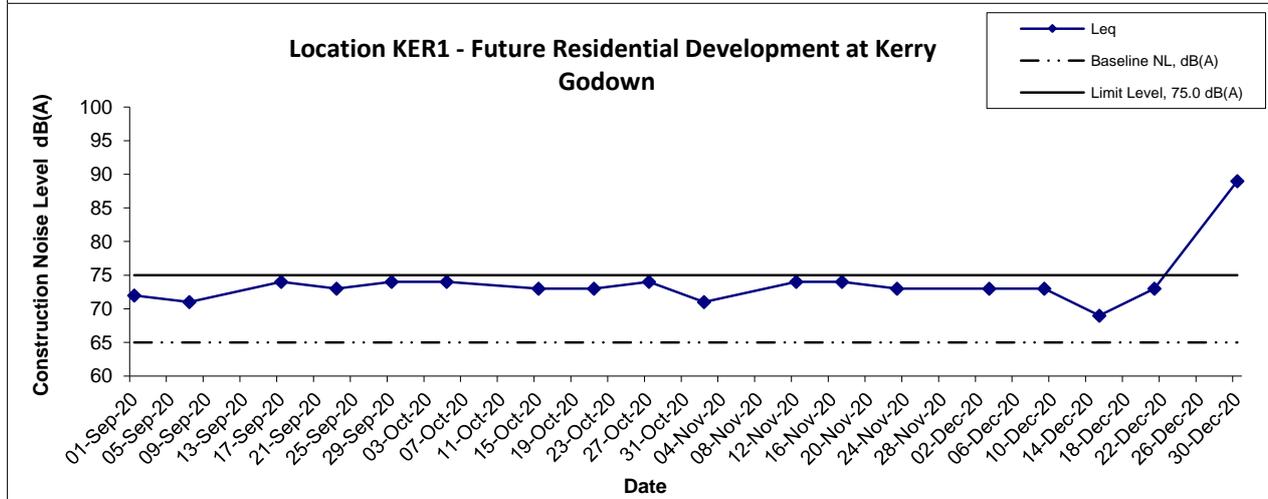
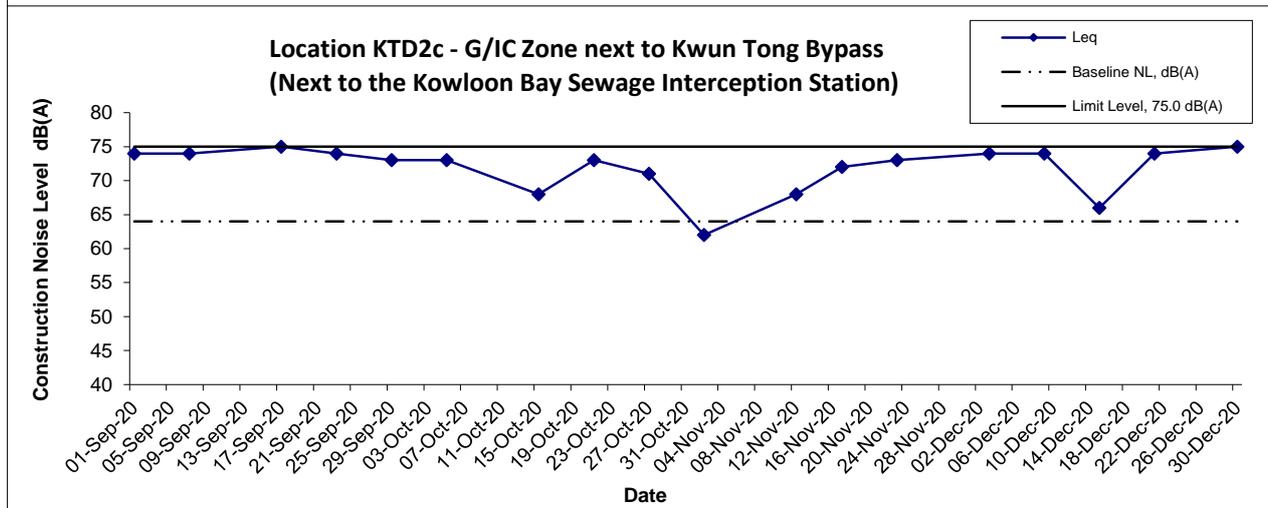
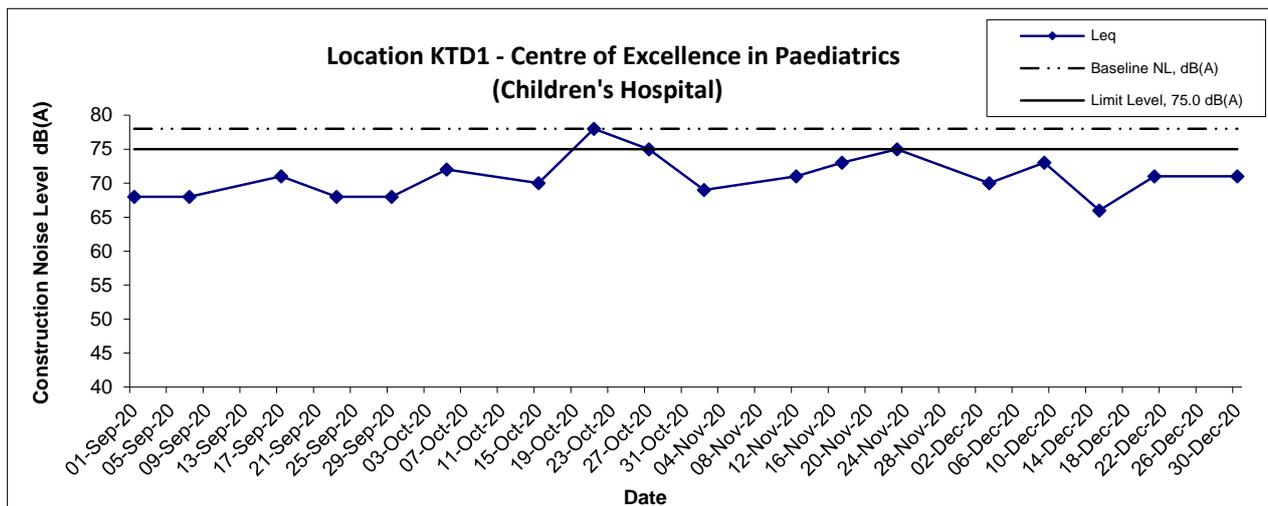
Location KER1 - Future Residential Development at Kerry Godown							
Date	Time	Weather	Unit: dB (A) (30-min)				
			Measured Noise Level			Baseline Level	Construction Noise Level
			L _{eq}	L ₁₀	L ₉₀	L _{eq}	L _{eq}
3-Dec-20	13:00	Sunny	73.3	75.4	69.4	65.0	73
9-Dec-20	15:40	Cloudy	73.5	76.8	64.6	65.0	73
15-Dec-20	13:00	Fine	70.8	70.9	68.5	65.0	69
21-Dec-20	11:30	Sunny	73.4	76.5	68.8	65.0	73
30-Dec-20	14:45	Sunny	89.4	93.6	69.5	65.0	89

Noise Levels



Title Kai Tak Development – Trunk Road T2 and Infrastructure Works at the Former South Apron Graphical Presentation of Construction Noise Monitoring Results	Date	Project	CINOTECH
	Dec 20	No. MA20003 Appendix H	

Noise Levels



Title Kai Tak Development – Trunk Road T2 and Infrastructure Works at the Former South Apron Graphical Presentation of Construction Noise Monitoring Results	Date	Project	CINOTECH
	Dec 20	No. MA20003 Appendix H	

**APPENDIX I
SITE AUDIT SUMMARY**

Weekly Site Inspection Record Summary

Inspection Information

Checklist Reference Number	201203
Date	03 December 2020 (Thursday)
Time	09:30 – 12:00

Ref. No.	Non-Compliance	Related Item No.
-	None identified	-

Ref. No.	Remarks/Observations	Related Item No.
201203 – R2	<p>B. Water Quality</p> <ul style="list-style-type: none"> Drainage system on site should always be provided with well-maintained to prevent untreated surface runoff discharge outside the site. 	B1
201203 – R1	<p>C. Air Quality</p> <ul style="list-style-type: none"> No environmental deficiency was identified during site inspection. <p>D. Construction Noise Impact</p> <ul style="list-style-type: none"> Contractor should provide noise mitigation measure during breaking activities at launching shaft area. <p>E. Waste/Chemical Management</p> <ul style="list-style-type: none"> No environmental deficiency was identified during site inspection. <p>F. Visual and Landscape</p> <ul style="list-style-type: none"> No environmental deficiency was identified during site inspection. <p>G. Permits/Licences</p> <ul style="list-style-type: none"> No environmental deficiency was identified during site inspection. <p>H. Marine Ecology</p> <ul style="list-style-type: none"> No environmental deficiency was identified during site inspection. <p>I. Others</p> <ul style="list-style-type: none"> No environmental deficiency was identified on previous inspection session (Ref No.: 201126). 	D5, D7

	Name	Signature	Date
Recorded by	Tim Lui		03 December 2020
Checked by	Karina Chan		03 December 2020

Weekly Site Inspection Record Summary

Inspection Information

Checklist Reference Number	201210
Date	10 December 2020 (Thursday)
Time	09:30 – 12:00

Ref. No.	Non-Compliance	Related Item No.
-	None identified	-

Ref. No.	Remarks/Observations	Related Item No.
201210 – R1	<p>B. Water Quality</p> <ul style="list-style-type: none"> • Ponding water was observed at Launching Shaft area.. <p>C. Air Quality</p> <ul style="list-style-type: none"> • No environmental deficiency was identified during site inspection. <p>D. Construction Noise Impact</p> <ul style="list-style-type: none"> • No environmental deficiency was identified during site inspection. <p>E. Waste/Chemical Management</p> <ul style="list-style-type: none"> • No environmental deficiency was identified during site inspection. <p>F. Visual and Landscape</p> <ul style="list-style-type: none"> • No environmental deficiency was identified during site inspection. <p>G. Permits/Licences</p> <ul style="list-style-type: none"> • No environmental deficiency was identified during site inspection. <p>H. Marine Ecology</p> <ul style="list-style-type: none"> • No environmental deficiency was identified during site inspection. <p>I. Others</p> <ul style="list-style-type: none"> • Follow-up on the previous audit session (Ref No.: 201203), all items have been rectified. 	B9

	Name	Signature	Date
Recorded by	Tim Lui		10 December 2020
Checked by	Karina Chan		10 December 2020

Weekly Site Inspection Record Summary

Inspection Information

Checklist Reference Number	201217
Date	17 December 2020 (Thursday)
Time	09:30 – 12:00

Ref. No.	Non-Compliance	Related Item No.
-	None identified	-

Ref. No.	Remarks/Observations	Related Item No.
	<p>B. Water Quality</p> <ul style="list-style-type: none"> No environmental deficiency was identified during site inspection. <p>C. Air Quality</p> <ul style="list-style-type: none"> No environmental deficiency was identified during site inspection. <p>D. Construction Noise Impact</p> <ul style="list-style-type: none"> No environmental deficiency was identified during site inspection. <p>E. Waste/Chemical Management</p> <ul style="list-style-type: none"> No environmental deficiency was identified during site inspection. <p>F. Visual and Landscape</p> <ul style="list-style-type: none"> No environmental deficiency was identified during site inspection. <p>G. Permits/Licences</p> <ul style="list-style-type: none"> No environmental deficiency was identified during site inspection. <p>H. Marine Ecology</p> <ul style="list-style-type: none"> No environmental deficiency was identified during site inspection. <p>I. Others</p> <ul style="list-style-type: none"> Follow-up on the previous audit session (Ref No.: 201210), all items have been rectified. 	

	Name	Signature	Date
Recorded by	Tim Lui		17 December 2020
Checked by	Karina Chan		17 December 2020

Weekly Site Inspection Record Summary

Inspection Information

Checklist Reference Number	201224
Date	24 December 2020 (Thursday)
Time	09:30 – 12:00

Ref. No.	Non-Compliance	Related Item No.
-	None identified	-

Ref. No.	Remarks/Observations	Related Item No.
	<p>B. Water Quality</p> <ul style="list-style-type: none"> No environmental deficiency was identified during site inspection. <p>C. Air Quality</p> <ul style="list-style-type: none"> No environmental deficiency was identified during site inspection. <p>D. Construction Noise Impact</p> <ul style="list-style-type: none"> No environmental deficiency was identified during site inspection. <p>E. Waste/Chemical Management</p> <ul style="list-style-type: none"> No environmental deficiency was identified during site inspection. <p>F. Visual and Landscape</p> <ul style="list-style-type: none"> No environmental deficiency was identified during site inspection. <p>G. Permits/Licences</p> <ul style="list-style-type: none"> No environmental deficiency was identified during site inspection. <p>H. Marine Ecology</p> <ul style="list-style-type: none"> No environmental deficiency was identified during site inspection. <p>I. Others</p> <ul style="list-style-type: none"> No major environmental deficiency was identified on previous audit session (Ref No.:201217). 	

	Name	Signature	Date
Recorded by	Tim Lui		24 December 2020
Checked by	Karina Chan		24 December 2020

Weekly Site Inspection Record Summary

Inspection Information

Checklist Reference Number	201231
Date	31 December 2020 (Thursday)
Time	09:30 – 12:00

Ref. No.	Non-Compliance	Related Item No.
-	None identified	-

Ref. No.	Remarks/Observations	Related Item No.
201231 – R1	<p>B. Water Quality</p> <ul style="list-style-type: none"> No environmental deficiency was identified during site inspection. <p>C. Air Quality</p> <ul style="list-style-type: none"> No environmental deficiency was identified during site inspection. <p>D. Construction Noise Impact</p> <ul style="list-style-type: none"> Noise mitigation measure shall be always implemented on site. <p>E. Waste/Chemical Management</p> <ul style="list-style-type: none"> No environmental deficiency was identified during site inspection. <p>F. Visual and Landscape</p> <ul style="list-style-type: none"> No environmental deficiency was identified during site inspection. <p>G. Permits/Licences</p> <ul style="list-style-type: none"> No environmental deficiency was identified during site inspection. <p>H. Marine Ecology</p> <ul style="list-style-type: none"> No environmental deficiency was identified during site inspection. <p>I. Others</p> <ul style="list-style-type: none"> No major environmental deficiency was identified on previous audit session (Ref No.:201224). 	D7

	Name	Signature	Date
Recorded by	Tim Lui		31 December 2020
Checked by	Karina Chan		31 December 2020

APPENDIX J
EVENT AND ACTION PLANS

Appendix J - Event Action Plans

Table J-1 Event/Action Plan for Air Construction Dust Monitoring

Event	Action			
	ET	IEC	ER	Contractor
Action Level				
1. Exceedance for one sample	<ol style="list-style-type: none"> 1. Identify source, investigate the causes of complaint and propose remedial measures; 2. Inform IEC and ER; 3. Repeat measurement to confirm finding; 4. Increase monitoring frequency. 	<ol style="list-style-type: none"> 1. Check monitoring data submitted by ET; 2. Check Contractor's working method. 	<ol style="list-style-type: none"> 1. Notify Contractor. 	<ol style="list-style-type: none"> 1. Rectify any unacceptable practice; 2. Amend working methods agreed with the ER as appropriate.
2. Exceedance by two or more consecutive samples	<ol style="list-style-type: none"> 1. Identify source; 2. Inform IEC and ER; 3. Advise the ER on the effectiveness of the proposed remedial measures; 4. Repeat measurements to confirm findings; 5. Increase monitoring frequency to daily; 6. Discuss with IEC, ER and Contractor on remedial actions required; 	<ol style="list-style-type: none"> 1. Check monitoring data submitted by ET; 2. Check Contractor's working method; 3. Discuss with ET, ER and Contractor on possible remedial measures if required; 4. Advise the ER on the effectiveness of the proposed remedial measures; 	<ol style="list-style-type: none"> 1. Notify Contractor; 2. Ensure remedial measures properly implemented. 	<ol style="list-style-type: none"> 1. Submit proposals for remedial actions to IEC within three working days of notification; 2. Implement the agreed proposals; 3. Amend proposal if appropriate.

Appendix J - Event Action Plans

Event	Action			
	ET	IEC	ER	Contractor
	7. If exceedance continues, arrange meeting with IEC, Contractor and ER; 8. If exceedance stops, cease additional monitoring.			
Limit level				
1. Exceedance for one sample	1. Identify source, investigate the causes of exceedance and propose remedial measures; 2. Inform the IEC, ER, and Contractor; 3. Repeat measurement to confirm finding; 4. Increase monitoring frequency to daily; 5. Assess effectiveness of Contractor's remedial actions and keep IEC and ER informed of the results.	1. Check monitoring data submitted by ET; 2. Check Contractor's working method; 3. Discuss with ET, ER and Contractor on possible remedial measures; 4. Advise the ER and ET on the effectiveness of the proposed remedial measures; 5. Supervise implementation of remedial measures.	1. Confirm receipt of notification of exceedance in writing; 2. Notify Contractor; 3. Ensure remedial measures properly implemented.	1. Take immediate action to avoid further exceedance; 2. Submit proposals for remedial actions to the ER and copy to the ET and IEC within three working days of notification; 3. Implement the agreed proposals; 4. Amend proposal if appropriate.
2. Exceedance for two or more consecutive	1. Notify IEC, ER and Contractor; 2. Identify source;	1. Discuss amongst ER, ET, and Contractor on the potential remedial actions;	1. Confirm receipt of notification of exceedance in writing;	1. Take immediate action to avoid further exceedance; 2. Submit proposals for remedial

Appendix J - Event Action Plans

Event	Action			
	ET	IEC	ER	Contractor
samples	<ol style="list-style-type: none"> 3. Repeat measurement to confirm findings; 4. Increase monitoring frequency to daily; 5. Carry out analysis of Contractor's working procedures with the ER to determine possible mitigation to be implemented; 6. Arrange meeting with IEC and ER to discuss the remedial actions to be taken; 7. Assess effectiveness of Contractor's remedial actions and keep IEC, EPD and ER informed of the results; 8. If exceedance stops, cease additional monitoring. 	<ol style="list-style-type: none"> 2. Review Contractor's remedial actions whenever necessary to assure their effectiveness and advise the ER and ET accordingly; 3. Supervise the implementation of remedial measures. 	<ol style="list-style-type: none"> 2. Notify Contractor; 3. In consolidation with the IEC and ET, agree with the Contractor on the remedial measures to be implemented; 4. Ensure remedial measures properly implemented; 5. If exceedance continues, consider what portion of the work is responsible and instruct the Contractor to stop that portion of work until the exceedance is abated. 	<ol style="list-style-type: none"> actions to ER and copy to the IEC and ET within three working days of notification; 3. Implement the agreed proposals; 4. Resubmit proposals if problem still not under control; 5. Stop the relevant portion of works as determined by the ER until the exceedance is abated.

Appendix J - Event Action Plans

Table J-2 Event/Action Plan for Construction Noise Monitoring

Event	Action			
	ET	IEC	ER	Contractor
Action Level	<ol style="list-style-type: none"> 1. Notify IEC, ER and Contractor; 2. Carry out investigation; 3. Report the results of investigation to the IEC and Contractor; 4. Discuss jointly with the ER and formulate remedial measures; 5. Increase monitoring frequency to check mitigation effectiveness. 	<ol style="list-style-type: none"> 1. Review the monitoring data submitted by the ET; 2. Review the construction methods and proposed redial measures by the Contractor, and advise the ET and ER if the proposed remedial measures would be sufficient. 	<ol style="list-style-type: none"> 1. Notify Contractor; 2. Require Contractor to propose remedial measures for implementation if required. 	<ol style="list-style-type: none"> 1. Submit noise mitigation proposals to the ER and copy to the IEC and ET; 2. Implement noise mitigation proposals.
Limit Level	<ol style="list-style-type: none"> 1. Notify IEC, ER and Contractor; 2. Identify source; 3. Repeat measurements to confirm findings; 4. Carry out analysis of Contractor's working 	<ol style="list-style-type: none"> 1. Discuss amongst ER, ET, and Contractor on the potential remedial actions; 2. Review the Contractor's remedial actions whenever necessary to assure their effectiveness and advise the 	<ol style="list-style-type: none"> 1. Confirm receipt of notification of failure in writing; 2. Notify Contractor; 3. Require Contractor to propose remedial measures for the analysed noise 	<ol style="list-style-type: none"> 1. Take immediate action to avoid further exceedance; 2. Submit proposals for remedial actions to the ER and copy to the ET and IEC within 3 working days of notification;

Appendix J - Event Action Plans

Event	Action			
	ET	IEC	ER	Contractor
	<p>procedures to determine possible mitigation to be implemented;</p> <p>5. Record the causes and action taken for the exceedances;</p> <p>6. Increase the monitoring frequency;</p> <p>7. Assess the effectiveness of the Contractor's remedial action with the ER and keep the IEC informed of the results;</p> <p>8. If exceedance stops, cease additional monitoring.</p>	<p>ER accordingly;</p> <p>3. Supervise the implementation of remedial measures.</p>	<p>problem;</p> <p>4. Ensure remedial measures properly implemented;</p> <p>5. If exceedance continues, consider what portion of the work is responsible and instruct the Contractor to stop that portion of work until the exceedance is abated.</p>	<p>3. Implement the agreed proposals;</p> <p>4. Resubmit proposals if problem still not under control;</p> <p>5. Stop the relevant portion of works as determined by the ER until the exceedance is abated.</p>

Appendix J - Event Action Plans

Table J-3 Event/Action Plan for Landscape and Visual

Event	Action			
	ET	IEC	ER	Contractor
Non-conformity on one occasion	<ol style="list-style-type: none"> 1. Identify Source; 2. Inform the IEC and the ER; 3. Discuss remedial actions with IEC, ER and Contractor 4. Monitor remedial actions until rectification has been completed. 	<ol style="list-style-type: none"> 1. Check report; 2. Check Contractor's working method; 3. Discuss with ET and the Contractor on possible remedial measures; 4. Advise ER on effectiveness of proposed remedial measures; 5. Check implementation of remedial measures 	<ol style="list-style-type: none"> 1. Notify Contractor; 2. Ensure remedial measures are properly implemented. 	<ol style="list-style-type: none"> 1. Amend working methods; 2. Rectify damage and undertake any necessary replacement.

Appendix J - Event Action Plans

Event	Action			
	ET	IEC	ER	Contractor
Repeated Non-conformity	<ol style="list-style-type: none"> 1. Identify source; 2. Inform the IEC and the ER; 3. Increase monitoring frequency; 4. Discuss remedial actions with the IEC, the ER and the Contractor; 5. Monitor remedial actions until rectification has been completed; 6. If exceedance stops, cease additional monitoring. 	<ol style="list-style-type: none"> 1. Check monitoring report; 2. Check Contractor's working method; 3. Discuss with ET and the Contractor on possible remedial measures; 4. Advise ER on effectiveness of proposed remedial measures; 5. Check implementation of remedial measures 	<ol style="list-style-type: none"> 1. Notify Contractor; 2. Ensure remedial measures are properly implemented. 	<ol style="list-style-type: none"> 1. Amend working methods; 2. Rectify damage and undertake any necessary replacement.

**APPENDIX K
ENVIRONMENTAL MITIGATION
IMPLEMENTATION SCHEDULE (EMIS)**

EM&A Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concern to Address	Location/Timing	Implementation Agent	Relevant Standard or Requirement	Implementation Stages			Status
						D	C	O	
Air Quality Impact									
S2.3.1.1	<p>The specific mitigation comprises the following:</p> <p>watering of the construction areas 12 times per day to reduce dust emissions by 91.7%, with reference to the "Control of Open Fugitive Dust Sources" (USEPA AP-42). The amount of water to be applied would be 0.91L/m² for the respective watering frequency;</p> <p>Dust enclosures with watering would be provided along the loading ramps and conveyor belts for unloading the C&D materials to the barge for dust suppression; and</p> <p>3-sided barriers around the stockpiling areas WA3 and WA4.</p>	To minimize dust emission during construction works	All relevant works sites, conveyor belts and stockpiles	Contractor and Sub-contractors	APCO / EIAO	Y	Y		^
									N/A(1)
									^
S2.3.1.2	<p>The dust control measures detailed below shall also be incorporated into the Contract Specification where practicable as an integral part of good construction practice:</p> <p>Use of regular watering to reduce dust emissions from exposed site surfaces and unpaved roads, particularly during dry weather;</p> <p>Use of frequent watering for particularly dusty construction areas and areas close to ASRs;</p> <p>Side enclosure and covering of any aggregate or dusty material storage piles to reduce emissions. Where this is not practicable owing to frequent usage, watering shall be applied to aggregate fines;</p> <p>Open stockpiles shall be avoided or covered. Prevent placing dusty material storage piles near ASRs;</p> <p>Tarpaulin covering of all dusty vehicle loads transported to, from and between site locations;</p>	To minimize dust emission during construction works	All relevant works sites	Contractor and Sub-contractors	APCO / EIAO	Y	Y		^
									^
									^
									^
									^

EM&A Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concern to Address	Location/Timing	Implementation Agent	Relevant Standard or Requirement	Implementation Stages			Status
						D	C	O	
	Establishment and use of vehicle wheel and body washing facilities at the exit points of the site;								^
	Imposition of speed controls for vehicles on unpaved site roads, 8 km per hour is the recommended limit;								N/A(1)
	Routing of vehicles and position of construction plant should be at the maximum possible distance from ASRs;								^
	Every stock of more than 20 bags of cement or dry pulverised fuel ash (PFA) should be covered entirely by impervious sheeting or placed in an area sheltered on the top and the 3 sides;								^
	Cement or dry PFA delivered in bulk should be stored in a closed silo fitted with an audible high level alarm which is interlocked with the material filling line and no overfilling is allowed; and								N/A(1)
	Loading, unloading, transfer, handling or storage of bulk cement or dry PFA should be carried out in a totally enclosed system or facility, and any vent or exhaust should be fitted with an effective fabric filter or equivalent air pollution control system.								N/A(1)

EM&A Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concern to Address	Location/Timing	Implementation Agent	Relevant Standard or Requirement	Implementation Stages			Status
						D	C	O	
Noise Impact									
S3.4.1.1	The use of quieter plant, including Quality Powered Mechanical Equipment (QPME) is specified for the list of equipment: - Concrete lorry mixer - Dump Truck, 5.5 tonne < gross vehicle weight ≤ 38 tonne - Generator, Super Silenced, 70 dB(A) at 7m - Poker, vibratory, Hand-held (electric) - Water Pump, Submersible (Electric) - Mobile Crane - KOBELCO CKS900 - Excavator, wheeled/tracked - HYUNDAI R80CR-9	To minimise air-borne noise impacts	All relevant works sites	Contractor and Sub-contractors	NCO / EIAO		Y		^
S3.4.1.1	Use of temporary or fixed noise barriers with a surface density of at least 10kg/m ² to screen noise from movable and stationary plant.	To minimise air-borne noise impacts	All relevant works sites	Contractor and Sub-contractors	NCO / EIAO		Y		*
S3.4.1.1	Use of enclosures with covers at top and three sides and a surface density of at least 10kg/m ² to screen noise from generally static noisy plant such as air compressors.	To minimise air-borne noise impacts	All relevant works sites	Contractor and Sub-contractors	NCO / EIAO		Y		N/A(1)
S3.4.1.1	Use of acoustic fabric for the silent piling system, drill rigs, rock drills etc.	To minimise air-borne noise impacts	All relevant works sites	Contractor and Sub-contractors	NCO / EIAO		Y		N/A(1)
S3.4.1.1	Proper fitting of silencers and mufflers on the ventilation fans.	To minimise air-borne noise impacts	All relevant works sites	Contractor and Sub-contractors	NCO / EIAO		Y		N/A(1)
S3.4.1.1	Implementation of good site practice: Only well-maintained plant should be operated on-site and plants should be serviced regularly during the construction period; Mobile plant, if any, should be sited as far from NSRs as possible; Plant known to emit noise strongly in one direction should, wherever possible, be properly orientated so that the noise is directed away from the nearby NSRs; Use of site hoarding as a noise barrier to screen noise at low level NSRs; Machines and plant that may be in intermittent use should be shut down between works periods or should be throttled down to a minimum; and	To minimise air-borne noise impacts	All relevant works sites	Contractor and Sub-contractors	NCO / EIAO		Y		^ ^ ^ ^

EM&A Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concern to Address	Location/Timing	Implementation Agent	Relevant Standard or Requirement	Implementation Stages			Status
						D	C	O	
	Any material stockpiles and other structures should be effectively utilised, wherever practicable, to screen the noise from on-site construction activities.								^
	The advancing speed of the TBM should be restricted to 2m/hr in order to ensure compliance with the daytime ground-borne noise limits.								N/A
Water Quality									
S4.2.1.1	<p>In accordance with the Practice Note for Professional Persons on Construction Site Drainage, Environmental Protection Department, 1994 (ProPECC PN 1/94), construction phase mitigation measures shall include the following:</p> <p>Surface run-off from the construction site, including all Works Areas, will be discharged into storm drains via adequately designed sand/silt removal facilities such as sand traps, silt traps and sedimentation basins. At the establishment of works sites and works areas including the barging point, perimeter cut-off drains to direct off-site water around the site should be constructed with internal drainage works and erosion and sedimentation control facilities implemented. Channels (both temporary and permanent drainage pipes and culverts), earth bunds or sand bag barriers should be provided to divert the storm water to the silt removal facilities. The design of the temporary on-site drainage system will be undertaken by the Contractor prior to the commencement of construction and the catch-pits and perimeter channels would be constructed in advance of site formation works and earthworks;</p>	To control water quality impact from construction site runoff and general construction activities	All works sites	Contractor and Sub-contractors	Water Pollution Control Ordinance / ProPECC PN 1/94		Y		*
	<p>Dikes or embankments for flood protection should be implemented around the boundaries of earthwork areas and Works Areas. Temporary ditches should be provided to facilitate the runoff discharge into an appropriate watercourse, through a site/sediment trap;</p> <p>The design of efficient silt removal facilities should be based on the guidelines in Appendix A1 of ProPECC PN 1/94, which states that the retention time for silt/sand traps should be 5 minutes under maximum flow conditions. The sizes may vary depending upon the flow rate, but for a flow rate of 0.1m³/s, a sedimentation basin of 30m³ would be required and for a flow rate of 0.5m³/s the basin would be 150m³. All effluent discharged from the construction site should comply with the standards stipulated in the TM-DSS. The detailed design of the sand/silt traps shall be undertaken by the Contractor prior to the commencement of construction;</p>								^
									N/A(1)

EM&A Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concern to Address	Location/Timing	Implementation Agent	Relevant Standard or Requirement	Implementation Stages			Status
						D	C	O	
	In accordance with ProPECC PN 1/94, the construction works should be programmed to minimise surface excavation works during rainy seasons (April to September), as far as practicable. All exposed earth areas should be completed and vegetated as soon as possible after the 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;								^
	The overall slope of works sites should be kept to a minimum to reduce the erosive potential of surface water flows, and all trafficked areas and access roads should be protected by coarse stone ballast. An additional advantage accruing from the use of crushed stone is the positive traction gained during the prolonged periods of inclement weather and the reduction of surface sheet flows;								^
	All drainage facilities and erosion and sediment control structures should be regularly inspected and maintained to ensure their proper and efficient operation at all times particularly following rainstorms. Deposited silts and grits should be removed regularly and disposed of by spreading evenly over stable, vegetated areas;								^
	Measures should be taken to minimise the ingress of site drainage into excavations. If the excavation of trenches in wet season is inevitable, they should be dug and backfilled in short sections wherever practicable. The water pumped out from trenches or foundation excavations should be discharged into storm drains via silt removal facilities;								^
	Open stockpiles of construction materials (for example, aggregates, sand and fill material) 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;								^

EM&A Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concern to Address	Location/Timing	Implementation Agent	Relevant Standard or Requirement	Implementation Stages			Status
						D	C	O	
	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;								^
	Precautions to be taken at any time of the year when rainstorms are likely, actions to be taken when a rainstorm is imminent or forecasted and 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;								N/A(1)
	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 sited wheel washing facilities should be provided at the exit of every construction site where practicable. Wash- water should have sand and silt settled out and removed at least on a weekly basis to ensure the continued efficiency of the process. The section of access road leading to, and exiting from, the wheel-washing bay to public roads should be paved with sufficient backfall toward the wheel- washing bay to prevent vehicle tracking of soil and silty water to public roads and drains;								^
	Oil interceptors should be provided in the drainage system downstream of any oil/fuel pollution sources, specifically Works Areas WA1, WA2, WA4 and WA5 where plant maintenance is proposed. Oil interceptors should be emptied and cleaned regularly to prevent the release of oil and grease into the storm water drainage system after accidental spillage. A bypass should be provided for oil interceptors to prevent flushing during heavy rain;								N/A(1)
	The construction solid waste, debris and rubbish on-site should be collected, handled and disposed of properly to avoid causing any water quality impacts. The requirements for solid waste management are detailed in Section 11 Waste Management of this EIA report; and								^
	All fuel tanks and storage areas should be provided with locks and sited on sealed areas, within bunds of a capacity equal to 110% of the storage capacity of the largest tank to prevent spilled fuel oils from reaching the nearby WSRs.								^

EM&A Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concern to Address	Location/Timing	Implementation Agent	Relevant Standard or Requirement	Implementation Stages			Status
						D	C	O	
S4.2.1.1 and 4.3.1.5	There is a need to apply to the 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 distances of 100m should be maintained between the discharge points of construction site effluent and the existing seawater intakes. 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 WPCO license	To control water quality impact from effluent discharge from construction site	All works sites	Contractor and Sub-contractors	Water Pollution Control Ordinance		Y		N/A(1)
S4.2.1.1	Specific mitigation measures for the tunnelling works using TBM, soft ground and mechanical excavation techniques should include the following: The cut-and-cover tunnelling works should be conducted sequentially as far as practicable to limit the amount of construction wastewater generated from the exposed areas during the wet season (April to September);	To minimize construction water quality impact from tunnelling and excavation works	All tunnelling and excavation portion	Contractor and Sub-contractors	TMEIA TMwater ProPECC PN 1/94 WPCO		Y		N/A
	Uncontaminated discharge should pass through settlement tanks prior to discharge;								N/A
	If contaminated groundwater is found during the course of the works, no direct discharge of groundwater from contaminated areas should be adopted. Any contaminated groundwater should be properly treated in compliance with the requirements of the TM-DSS. If wastewater treatment is to be deployed for treating the contaminated groundwater, the wastewater treatment unit should deploy suitable treatment processes (e.g. oil interceptor/activated carbon) to reduce the pollution level to an acceptable standard and remove any prohibited substances (such as TPH) to an undetectable range;								N/A
	If groundwater recharging wells are deployed, recharging wells should be installed as appropriate for recharging the contaminated groundwater back into the ground. The recharging wells should be selected at places where the groundwater quality will not be affected by the recharge operation as indicated in the Section 2.3 of TM-DSS;								N/A

EM&A Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concern to Address	Location/Timing	Implementation Agent	Relevant Standard or Requirement	Implementation Stages			Status
						D	C	O	
	The baseline groundwater quality shall be determined prior to the selection of the recharge wells, and submit a working plan (including the laboratory analytical results showing the quality of groundwater at the proposed recharge location(s) as well as the pollutant levels of groundwater to be recharged) to EPD for agreement. Pollution levels of groundwater to be recharged shall not be higher than pollutant levels of ambient groundwater at the recharge well. Prior to recharge, any prohibited substances such as TPH products should be removed as necessary by installing the petrol interceptor;								N/A
	The wastewater with high concentrations of SS should be treated such as by settlement in tanks with sufficient retention time before discharge. Oil interceptors would also be required to remove the oil, lubricants and grease from the wastewater.								N/A
S4.2.1.1	<p>In order to prevent any accidental release of bentonite slurry from getting into the surrounding environment, the following specific control measures shall be followed to reduce the risk and impacts of accidental spillage:</p> <p>All bentonite slurry should be stored in a container that resistant to corrosion, maintained in good conditions and securely closed;</p> <p>The container should be labelled in English and Chinese and note that the container is for storage of bentonite slurry only;</p> <p>The storage container should be placed on an area of impermeable flooring and bunded with capacity to accommodate 110% of the volume of the container size or 20% by volume stored in the area and enclosed with at least 3 sides;</p> <p>The storage container should be sufficiently covered to prevent rainfall entering the container or bunded area (water collected within the bund must be tested and disposed of as chemical waste, if necessary);</p> <p>An emergency clean up kit shall be readily available where bentonite fluid will be stored or used; and</p>	To control water quality impact from bentonite slurry	All relevant works sites	Contractor and Sub-contractors	WPCO		Y		^
									^
									N/A(1)
									^
									N/A(1)

EM&A Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concern to Address	Location/Timing	Implementation Agent	Relevant Standard or Requirement	Implementation Stages			Status
						D	C	O	
	The handling and disposal of bentonite slurries should be undertaken in accordance within ProPECC PN 1/94. Surplus bentonite slurries used in construction works shall be reconditioned and reused wherever practicable. Residual bentonite slurry shall be disposed of from the site as soon as possible as stipulated in Clause 8.56 of the General Specification for Civil Engineering Works. The Contractor should explore alternative disposal outlets for the residual bentonite slurry (dewatered bentonite slurry to be disposed to a public filling area and liquid bentonite slurry, if mixed with inert fill material, to be disposed to a public filling area) and disposal at landfill should be the last resort.								N/A(1)
S4.2.1.1	The proposed barging point at South Apron will not involve marine works like dredging or modifying the submerged portion of the existing seawall. As such, no direct adverse water quality impacts are anticipated during its construction or operation. However, mitigation measures as outlined above should be applied to minimise water quality impacts from site run-off and temporary open stockpiles of spoil at the proposed barging point, where appropriate. Other good site practices include: All vessels should be sized so that adequate clearance is maintained between vessels and the seabed in all tide conditions, to ensure that undue turbidity is not generated by turbulence from vessel movement or propeller wash;	To minimize construction water quality impact from barging point	Barging Point	Contractor and Sub-contractors	EIAO-TM WPCO		Y		N/A(1)
	All hopper barges should be fitted with tight fitting seals to their bottom openings to prevent leakage of material;								^
	Construction activities should not cause foam, oil, grease, scum, litter or other objectionable matter to be present on the water within the site; and								N/A(1)
	Loading of barges and hoppers should be controlled to prevent splashing of material into the surrounding water. Barges or hoppers should not be filled to a level that will cause the overflow of materials or polluted water during loading or transportation.								^
S4.2.1.1	If chemical toilets and sewage holding tanks are required for handling sewage generated by the construction workforce, a licensed contractor should be employed to provide appropriate and adequate portable toilets and be responsible for appropriate disposal and maintenance.	To minimize construction water quality impact from sewage and effluent	All works sites	Contractor	WPCO		Y		^

EM&A Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concern to Address	Location/Timing	Implementation Agent	Relevant Standard or Requirement	Implementation Stages			Status
						D	C	O	
S4.2.1.1	In order to protect against impacts to the surrounding marine waters of the KTTS and Victoria Harbour in the event of an accidental spillage of fuel or oil, the Contractor will be required to prepare a spill response plan to the satisfaction of AFCD, EPD, FSD, Police, TD and WSD to define procedures for the control, containment and clean-up of any spillage that could occur on the construction site.	To control water quality impact from accidental chemical spillage	All works sites	Contractor	EIAO-TM WPCO WDO		Y		N/A(1)
S4.2.1.1	The Contractor must, also, 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.	To control water quality impact from accidental chemical spillage	All works sites	Contractor	EIAO-TM WPCO WDO		Y		N/A(1)
S4.2.1.1	Any service shop and maintenance facilities should be located on 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.	To control water quality impact from accidental chemical spillage	All works sites	Contractor	EIAO-TM WPCO WDO		Y		N/A(1)
S4.2.1.1	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:	To control water quality impact from accidental chemical spillage	All works sites	Contractor	EIAO-TM WPCO WDO		Y		N/A(1)
	Suitable containers should be used to hold the chemical wastes to avoid leakage or spillage during storage, handling and transport;								N/A(1)
	Chemical waste containers should be suitably labelled, to notify and warn the personnel who are handling the wastes, to avoid accidents; and								N/A(1)
	Storage area should be selected at a safe location on site and adequate space should be allocated to the storage area.								N/A(1)

EM&A Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concern to Address	Location/Timing	Implementation Agent	Relevant Standard or Requirement	Implementation Stages			Status
						D	C	O	
S4.2.1.1	The road drainage in the tunnel should pass through oil interceptors to remove oil, and grease before being discharged into the public storm water drainage system;	To mitigate runoff from tunnel during the operational phase	Tunnel	CEDD	WPCO			Y	N/A
	Silt traps and oil interceptors should be cleaned and maintained regularly; and								N/A
	The oily contents of oil interceptors should be transferred to an appropriate disposal facility, or to be collected for reuse, if possible.								N/A
Marine Ecology									
S5.3.1.1	Good construction practice measures have been recommended to be implemented as follows:	Minimize waste generation during construction	Contractor	Work Sites	Construction phase of Main Works Stage 1, Stage 2 and Stage 3			Y	N/A(1)
	Avoid damage and disturbance to the remaining and surrounding natural habitat;								N/A(1)
	Placement of equipment in designated areas within the existing disturbed land;								N/A(1)
	Spoil heaps should be covered at all times;								N/A(1)
	Construction activities should be restricted to the designated works areas; and								N/A(1)
Disturbed areas to be reinstated immediately after completion of the works.	N/A(1)								
Fisheries									
S6.2.1.2	No fisheries specific mitigation measures.								

EM&A Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concern to Address	Location/Timing	Implementation Agent	Relevant Standard or Requirement	Implementation Stages			Status
						D	C	O	
Landscape and Visual									
S7.2.1.2	All works shall be carefully designed to minimize impacts on existing landscape resources and visually sensitive receivers. Existing trees within works area shall be retained and protected.	To minimise impact on existing trees	All relevant works sites	CEDD's Contractor	EIAO TM	Y	Y		^
S7.2.1.2	Existing trees of good quality and condition that are unavoidably affected by the works should be transplanted.	To minimise impact on existing trees	All relevant works sites	CEDD's Contractor	EIAO TM	Y	Y		N/A
S7.2.1.2	Large temporary stockpiles of excavated material shall be covered with unobtrusive sheeting to prevent dust and dirt spreading to adjacent landscape areas and vegetation, and to create a neat and tidy visual appearance.	To prevent unnecessary dust and dirt contaminating the air and adjacent areas.	All relevant works sites	CEDD's Contractor	EIAO TM		Y		^
S7.2.1.2	Construction plant and building material shall be orderly and carefully stored in order to create a neat and tidy visual appearance.	To mitigate potential visually obtrusive areas	All relevant works sites	CEDD's Contractor	EIAO TM		Y		^
S7.2.1.2	Erection of decorative screen hoarding should be designed to be compatible with the existing urban context.	To mitigate and screen any potential visually obtrusive areas and enhance urban environment	All relevant works sites	CEDD's Contractor	EIAO TM		Y		^
S7.2.1.2	All lighting in construction site shall be carefully controlled to minimize light pollution and night-time glare to nearby residences and GIC user. The contractor shall consider other security measures, which shall minimize the visual impacts.	To mitigate light pollution and adverse visual impacts on surrounding environment	All relevant works sites	CEDD's Contractor	EIAO TM		Y		^
S7.2.1.2	Compensatory tree planting shall be incorporated along all roadside amenity areas affected by the construction works. The required numbers and locations of compensatory trees shall be determined and agreed with the Government during Tree Removal Application process under ETWB TCW No. 3/2006.	To reinstate and maximise compensatory tree numbers to equal or greater conditions	All relevant works sites	CEDD's Contractor	EIAO TM		Y		N/A(1)

EM&A Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concern to Address	Location/Timing	Implementation Agent	Relevant Standard or Requirement	Implementation Stages			Status
						D	C	O	
S7.2.1.2	Compensatory tree planting shall be incorporated by the Project. The required numbers of compensatory trees shall follow the requirements of ETWB TCW No. 3/2006. Loss of amenity area adjacent to the Kwun Tong By-pass and planting areas in KTD South Apron will be mitigated by the creation of the Kai Tak South Apron: Amenity Area, which will be equal to or larger than the current provision.	To reinstate and maximise compensatory tree	All relevant works sites	CEDD's Contractor	EIAO TM		Y		N/A(1)
S7.2.1.2	Trees and shrubs and climbers etc. shall be planted to soften and screen proposed roads, central strip and associated structure, and to enhance streetscape greening effect where appropriate.	To mitigate hard surfaces and hard standing landscape areas and to soften and enhance proposed design features	All relevant works sites	CEDD's Contractor	EIAO TM	Y		Y	N/A
S7.2.1.2	All works area, excavated area and disturbed area for tunnel construction and temporary road diversion or any other proposed works shall be reinstated to former conditions or better, with reasonable landscape treatment and to the satisfaction of the relevant Government departments.	To reinstate and maximise hard and soft landscape areas to equal or greater conditions	All relevant works sites	CEDD's Contractor	EIAO TM	Y		Y	N/A
S7.2.1.2	Tunnel portals and all above ground structures shall be sensitively designed to ensure the element with colour, texture and tonal quality being compatible to the existing urban context. Trees and shrub planting to minimize the potential adverse landscape and visual impacts shall be included where space permits. Roof top greening and vertical greening shall also be provided.	To mitigate hard surfaces and hard standing landscape areas and to soften and enhance proposed design features	All relevant works sites	CEDD's Contractor	EIAO TM	Y		Y	N/A
S7.2.1.2	All works shall be carefully designed to minimize impacts on existing landscape resources and visually sensitive receivers. Existing trees within works area shall be retained and protected.	To minimise impact on existing trees	All relevant works sites	CEDD's Contractor	EIAO TM	Y		Y	N/A
S7.2.1.2	Existing trees of good quality and condition that are unavoidably affected by the works should be transplanted.	To minimise impact on existing trees	All relevant works sites	CEDD's Contractor	EIAO TM	Y		Y	N/A
Cultural Heritage									
S8.2.1.1 and 8.2.1.2	No culture heritage specific mitigation measures								

EM&A Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concern to Address	Location/Timing	Implementation Agent	Relevant Standard or Requirement	Implementation Stages			Status
						D	C	O	
Waste Management Implication									
S9.2.1.2	The requirements as stipulated in the ETWB TC(W) No.19/2005 Environmental Management on Construction Sites and the other relevant guidelines should be included in the Particular Specification for the future contractor as appropriate.	To keep trace of the generation, minimization, reuse and disposal of C&D materials	All areas / throughout construction period	Contractor	ETWB TC(W) No.19/2005		Y		N/A
S9.2.1.2	The future contractor should be requested to submit an outline Waste Management Plan (WMP) prior to the commencement of construction work, in accordance with the ETWB TC(W) No.19/2005 so as to provide an overall framework of waste management and reduction. The WMP should include: - Waste management policy; - Record of generated waste; - Waste reduction target; - Waste reduction programme; - Role and responsibility of waste management team; - Benefit of waste management; - Analysis of waste materials; - Reuse, recycling and disposal plans; - Transportation process of waste products; and - Monitoring and action plan.	To keep trace of the generation, minimization, reuse and disposal of C&D materials	All areas / throughout construction period	Contractor	ETWB TC(W) No.19/2005		Y		N/A(1)
S9.2.1.2	The waste management hierarchy should be strictly followed. This hierarchy should be adopted to evaluate the waste management options in order to maximise the extent of waste reduction and cost reduction. The records of quantities of waste generated, recycled and disposed (locations) should be properly documented.	To keep trace of the generation, minimization, reuse and disposal of C&D materials	All areas / throughout construction period	Contractor	ETWB TC(W) No.19/2005		Y		N/A(1)
S9.2.1.2	A trip-ticket system should be established in accordance with DevB TC(W) No. 6/2010 and Waste Disposal (Charges for Disposal of Construction Waste) Regulation to monitor the disposal of public fill and solid wastes at public filling facilities and landfills, and to control fly-tipping. A trip-ticket system would be included as one of the contractual requirements for the future contractor to strictly implement. The Engineer would also regularly audit the effectiveness of the system.	To monitor disposal of waste and control fly-tipping	All areas / throughout construction period	Contractor	DEVB TC(W) No. 6/2010		Y		N/A(1)

EM&A Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concern to Address	Location/Timing	Implementation Agent	Relevant Standard or Requirement	Implementation Stages			Status
						D	C	O	
S9.2.1.2	A recording system for the amount of waste generated, recycled and disposed (locations) should be established. The future contractor should also provide proper training to workers regarding the appropriate concepts of site cleanliness and waste management procedures, e.g. waste reduction, reuse and recycling all the time.	To monitor disposal of waste and control fly-tipping	All areas / throughout construction period	Contractor	DEVB TC(W) No. 6/2010		Y		N/A(1)
S9.2.1.2	The CEDD should be timely notified of the estimated spoil volumes to be generated and the PFC should be notified and agreement sort on the disposal of surplus inert C&D materials e.g. good quality rock during detailed design of the Trunk Road T2 Project. Wherever practicable, C&D materials should be segregated from other wastes to avoid contamination and to ensure acceptability at public filling areas or reclamation sites.	To monitor disposal of waste and control fly-tipping	All areas / throughout construction period	Contractor	DEVB TC(W) No. 6/2010		Y		N/A(1)
S9.2.1.2	The extent of cutting operation should be optimised where possible. Earth retaining structures and bored pile walls should be proposed to minimise the extent of cutting.	To minimize, reuse and disposal of C&D materials	All areas / throughout construction period	Contractor	DevB TC(W) No.6/2010		Y		N/A(1)
S9.2.1.2	Inert C&D materials from road pavement would be reused for backfilling where possible	To minimize, reuse and disposal of C&D materials	All areas / throughout construction period	Contractor	DevB TC(W) No.6/2010		Y		N/A(1)
S9.2.1.2	TBM generated alluvium and other C&D materials should be treated at a slurry treatment plant prior to transferring to Public Fill Reception Facilities.	To minimize, reuse and disposal of C&D materials	TBM works area / during TBM works	Contractor	DevB TC(W) No.6/2010		Y		N/A
S9.2.1.2	The site and surroundings should be kept tidy and litter free.	To implement good site practice for handling, sorting reuse and recycling of wastes	All areas / throughout construction period	Contractor	WDO, Land (Miscellaneous Provisions) Ordinance, DevB TC(W) No. 6/2010		Y		^

EM&A Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concern to Address	Location/Timing	Implementation Agent	Relevant Standard or Requirement	Implementation Stages			Status
						D	C	O	
S9.2.1.2	No waste is allowed to be burnt on site.	To implement good site practice for handling, sorting reuse and recycling of wastes	All areas / throughout construction period	Contractor	WDO, Land (Miscellaneous Provisions) Ordinance, DevB TC(W) No. 6/2010		Y		^
S9.2.1.2	Make provisions in contract documents to allow and promote the use of recycled aggregates where appropriate.	To implement good site practice for handling, sorting reuse and recycling of wastes	Detailed Design	Design Consultant	WDO, Land (Miscellaneous Provisions) Ordinance, DevB TC(W) No. 6/2010	Y			N/A(1)
S9.2.1.2	Prohibit the future contractor to dispose of C&D materials at any sensitive locations e.g. natural habitat, etc. The future contractor should propose the final disposal sites in the WMP for approval before implementation.	To implement good site practice for handling, sorting reuse and recycling of wastes	All areas / throughout construction period	Contractor	WDO, Land (Miscellaneous Provisions) Ordinance, DevB TC(W) No. 6/2010		Y		N/A(1)
S9.2.1.2	Stockpiled C&D materials should be covered by tarpaulin and/or watered as appropriate to prevent windblown dust and surface run off.	To implement good site practice for handling, sorting reuse and recycling of wastes	All areas / throughout construction period	Contractor	WDO, Land (Miscellaneous Provisions) Ordinance, DevB TC(W) No. 6/2010		Y		^
S9.2.1.2	Excavated C&D materials in trucks should be covered by tarpaulins to reduce the potential for spillage and dust generation.	To implement good site practice for handling, sorting reuse and recycling of wastes	All areas / throughout construction period	Contractor	WDO, Land (Miscellaneous Provisions) Ordinance, DevB TC(W) No. 6/2010		Y		^
S9.2.1.2	Wheel washing facilities should be used by all trucks leaving the site to prevent transferring mud trails onto public roads.	To implement good site practice for handling, sorting reuse and recycling of wastes	All areas / throughout construction period	Contractor	WDO, Land (Miscellaneous Provisions) Ordinance, DevB TC(W) No. 6/2010		Y		^
S9.2.1.2	Excavated marine deposit (sediment) should be disposed of in a gazetted marine disposal ground under the requirements of the DASO or treated for backfilling.	To ensure proper disposal of marine sediment	All areas / throughout construction period	Contractor	ETWB TC(W) No.34/2002		Y		N/A(1)

EM&A Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concern to Address	Location/Timing	Implementation Agent	Relevant Standard or Requirement	Implementation Stages			Status
						D	C	O	
S9.2.1.2	Standard formwork or pre-fabrication should be used as far as practicable to minimise the C&D materials arising. The use of more durable formwork or plastic facing for construction works should also be considered. The use of wooden hoardings should be avoided and metal hoarding should be used to facilitate recycling. Purchasing of construction materials should be carefully planned in order to avoid over-ordering and wastage.	To minimize, reuse and disposal of C&D materials	All areas / throughout construction period	Contractor	WDO, Land (Miscellaneous Provisions) Ordinance, DevB TC(W) No. 6/2010		Y		N/A(1)
S9.2.1.2	The future contractor should recycle as many C&D materials as possible on-site. The public fill and C&D waste should be segregated and stored in separate containers or skips to facilitate the reuse or recycling of materials and proper disposal. Where practicable, the concrete and masonry should be crushed and used as fill materials. Steel reinforcement bar should be collected for use by scrap steel mills. Different areas of the sites should be considered for segregation and storage activities.	To minimize, reuse and disposal of C&D materials	All areas / throughout construction period	Contractor	WDO, Land (Miscellaneous Provisions) Ordinance, DevB TC(W) No. 6/2010		Y		^
S9.2.1.2	All falsework should be steel instead of wood as far as practicable.	To minimize, reuse and disposal of C&D materials	All areas / throughout construction period	Contractor	DevB TC(W) No.6/2010		Y		N/A(1)

EM&A Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concern to Address	Location/Timing	Implementation Agent	Relevant Standard or Requirement	Implementation Stages			Status
						D	C	O	
S9.2.1.2	<p>Chemical waste producers should register with the EPD and chemical waste should be handled in accordance with the Code of Practice on the Packaging, Handling and Storage of Chemical Wastes as follows:</p> <ul style="list-style-type: none"> - Suitable for the substance to be held, resistant to corrosion, maintained in good conditions and securely closed; - Having a capacity of <450L unless the specifications have been approved by the EPD; and - Displaying a label in English and Chinese according to the instructions prescribed in Schedule 2 of the Regulations. - Clearly labelled and used solely for the storage of chemical wastes; - Enclosed with at least 3 sides; - Impermeable floor and bund with capacity to accommodate 110% of the volume of the largest container or 20% by volume of the chemical waste stored in the area, whichever is greatest; - Adequate ventilation; - Sufficiently covered to prevent rainfall entering (water collected within the bund must be tested and disposed of as chemical waste, if necessary); and - Incompatible materials are adequately separated. 	To properly store the chemical waste within works sites and works areas	All areas / throughout construction period	Contractor	Code of Practice on the Packaging, Handling and Storage of Chemical Wastes		Y		N/A(1)
S9.2.1.2	Waste oils, chemicals or solvents should not be disposed of to drain.	To implement good site practice for handling, sorting reuse and recycling of wastes	All areas / throughout construction period	Contractor	EIAO TM		Y		^

EM&A Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concern to Address	Location/Timing	Implementation Agent	Relevant Standard or Requirement	Implementation Stages			Status
						D	C	O	
S9.2.1.2	Adequate numbers of portable toilets should be provided for on-site workers. Portable toilets should be maintained in reasonable states, which will not deter the workers from utilising them. Night soil should be regularly collected by licensed collectors.	To ensure proper disposal of sewage sludge	All areas / throughout construction period	Contractor	WDO, Land (Miscellaneous Provisions) Ordinance, DevB TC(W) No. 6/2010		Y		N/A(1)
S9.2.1.2	General refuse arising on-site should be stored in enclosed bins or compaction units separately from C&D and chemical wastes. Sufficient dustbins should be provided for storage of waste as required under the Public Cleansing and Prevention of Nuisances By- laws. In addition, general refuse should be cleared daily and disposed of to the nearest licensed landfill. Burning of refuse on construction sites is prohibited.	To separate the general refuse from other waste types and proper disposal of the refuse	All areas / throughout construction period	Contractor	WDO, Land (Miscellaneous Provisions) Ordinance		Y		^
S9.2.1.2	All waste containers should be in a secure area on hardstanding.	To implement good site practice for handling, sorting reuse and recycling of wastes	All areas / throughout construction period	Contractor	WDO, Land (Miscellaneous Provisions) Ordinance		Y		^
S9.2.1.2	Aluminium cans should be collected and recovered from the waste stream by reputable collectors if they are segregated and easily accessible. Separately labelled bins for their deposition should be provided as far as practicable.	To implement on-site sorting facilitating reuse and recycling of materials as well as proper disposal of waste	All areas / throughout construction period	Contractor	WDO, Land (Miscellaneous Provisions) Ordinance		Y		N/A(1)
S9.2.1.2	Office wastes can be reduced by recycling of paper if such volume is sufficiently large to warrant collection. Participation in a local collection scheme by the future contractor should be advocated. Waste separation facilities for paper, aluminium cans, plastic bottles, etc should be provided on-site.	To separate the general refuse from other waste types and proper disposal of the refuse	Site Offices / throughout construction period	Contractor	WDO, Land (Miscellaneous Provisions) Ordinance		Y		N/A(1)

EM&A Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concern to Address	Location/Timing	Implementation Agent	Relevant Standard or Requirement	Implementation Stages			Status
						D	C	O	
S9.2.1.2	Training should be provided to workers about the concepts of site cleanliness and appropriate waste management procedure, including waste reduction, reuse and recycling.	To implement good site practice for handling, sorting reuse and recycling of wastes	Contract Mobilisation	Contractor	WDO, Land (Miscellaneous Provisions) Ordinance		Y		N/A(1)
S9.2.1.2	During construction phase, regular site inspections and supervision of the waste management procedures shall be undertaken as part of the EM&A procedures.	To ensure proper control, all waste is removed from site areas as appropriate and illegal disposal of waste is not being undertaken	All areas / throughout construction period	Contractor	EIAO TM		Y		^

Remarks: EM&A Programme under EP-451/2013	
D	Design
C	Construction
Y	Yes
O	Operation
^	Compliance of mitigation measure;
N/A N/A(1)	Not applicable at this stage; Not observed;
*	Recommendation was made during site audit but improved/rectified by the contractor;
#	Recommendation was made during site audit but not yet improved/rectified by the contractor;
X	Non-compliance of mitigation measure;
•	Non-compliance but rectified by the contractor.

**APPENDIX L
SUMMARIES OF ENVIRONMENTAL
COMPLAINT, WARNING, SUMMON
AND NOTIFICATION OF SUCCESSFUL
PROSECUTION**

Contract No. ED/2018/04
Trunk Road T2 and Infrastructure Works for Development at the Former South Apron

Appendix L – Summary of environmental complaint, warning, summon and notification of successful prosecution

Reporting Month: December 2020

Log Ref.	Location	Received Date	Details of Complaint/warning/summon and prosecution	Investigation/Mitigation Action	Status
#N03	The Launching Shaft	03 December 2020	A verbal complaint regarding the noise nuisance, generated from the construction works nearby PWCL building, was received by CEDD.	Contractor has taken the remedial action (i.e. Some of the breakers in which were operated nearby the concerned area were wrapped up with the acoustic insulation sheets) and noise mitigation measures (i.e. Noise barrier was installed adjoining the building to minimize the influence of construction noise, maintenance for all Powered Mechanical Equipment was conducted regularly, review on the construction programme to minimize the operations of PME near the PWCL) to minimize the noise impact generated from breaking activities.	Closed

Remarks:

No environmental warning/summon and prosecution were received in the reporting period.

APPENDIX M
SUMMARY OF EXCEEDANCE

Environmental Permit No.: EP-451/2013
Environmental Team for Trunk Road T2

Appendix M – Summary of Exceedance

Reporting Month: December 2020

(A) Exceedance Report for Air Quality

One (1) Action Level and One (1) Limit Level exceedance of 24hr TSP monitoring was recorded in this reporting month.

Monitoring Station	Start Date	Conc. ($\mu\text{g}/\text{m}^3$)	Level exceeded
KTD2c	29 Dec 2020	324.3	Limit level
KER1	23 Dec 2020	202.7	Action Level

For the limit level exceedance recorded at KTD2c, it was deduced due to the short distance between dust source and monitoring station.

Besides, the action level exceedance recorded at KER1 was deduced due to the fluctuation of road traffic flow along Kai Hing Road and vehicle movement from the adjacent building (Kerry D.G. Warehouse (Kowloon Bay)).

(B) Exceedance Report for Construction Noise

Action Level for Construction Noise

One (1) Action Level exceedance was recorded due to the documented complaint received in this reporting month.

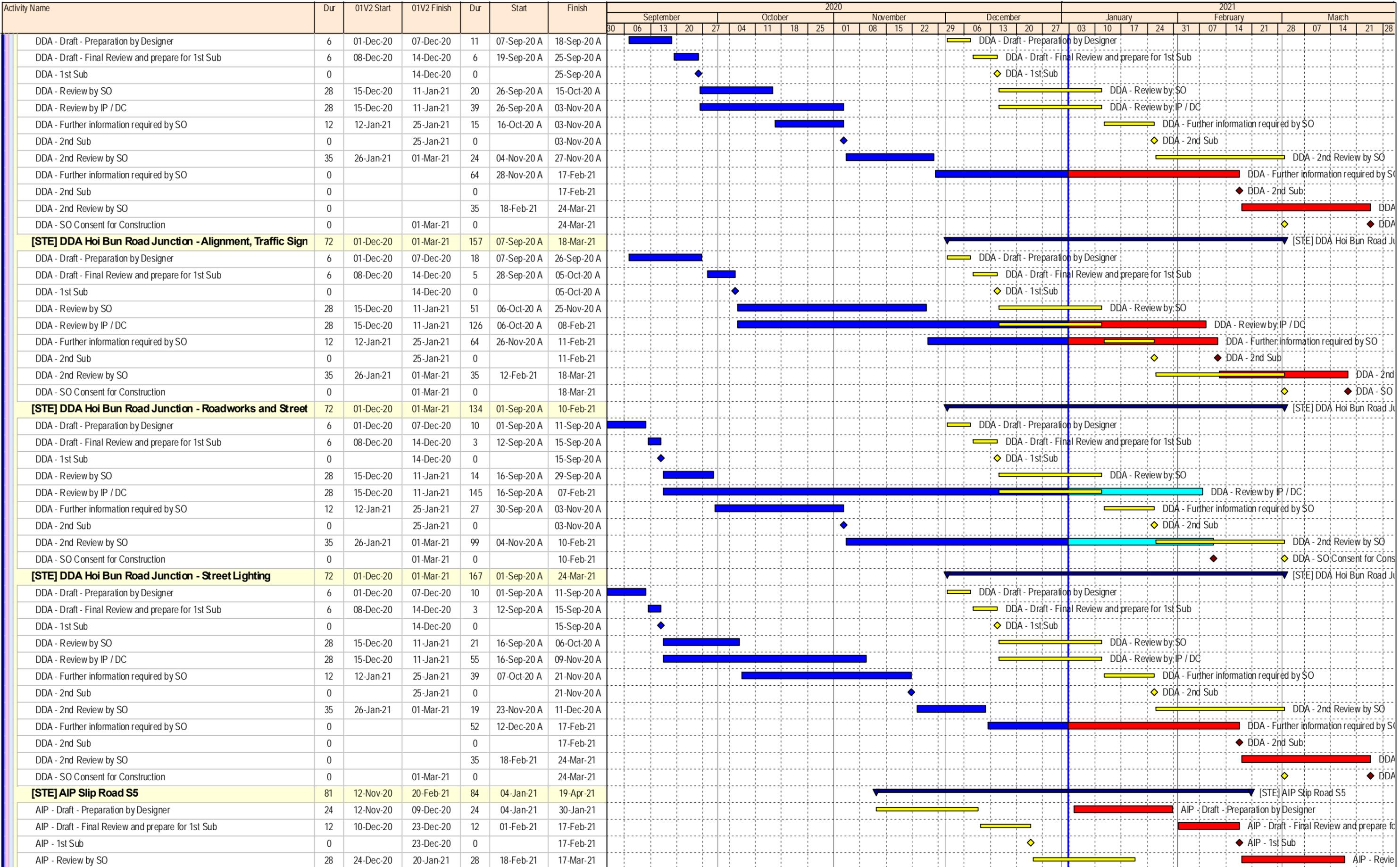
Limit Level for Construction Noise

One (1) exceedance for daytime construction noise monitoring was recorded in the reporting month.

Date	Monitoring Location	Measured Level (L_{eq} dB(A))	Baseline Noise Level (L_{eq} dB(A))	Construction Noise Level (L_{eq} dB(A))	Limit Level
30 Dec 2020	KER1	89.4	65	<u>89</u>	75

(C) Summary of Landscape and Visual Non-Conformity
(NIL in the reporting month)

**APPENDIX N
TENTATIVE CONSTRUCTION
PROGRAMME**

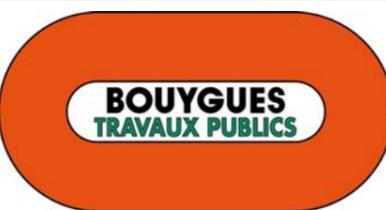


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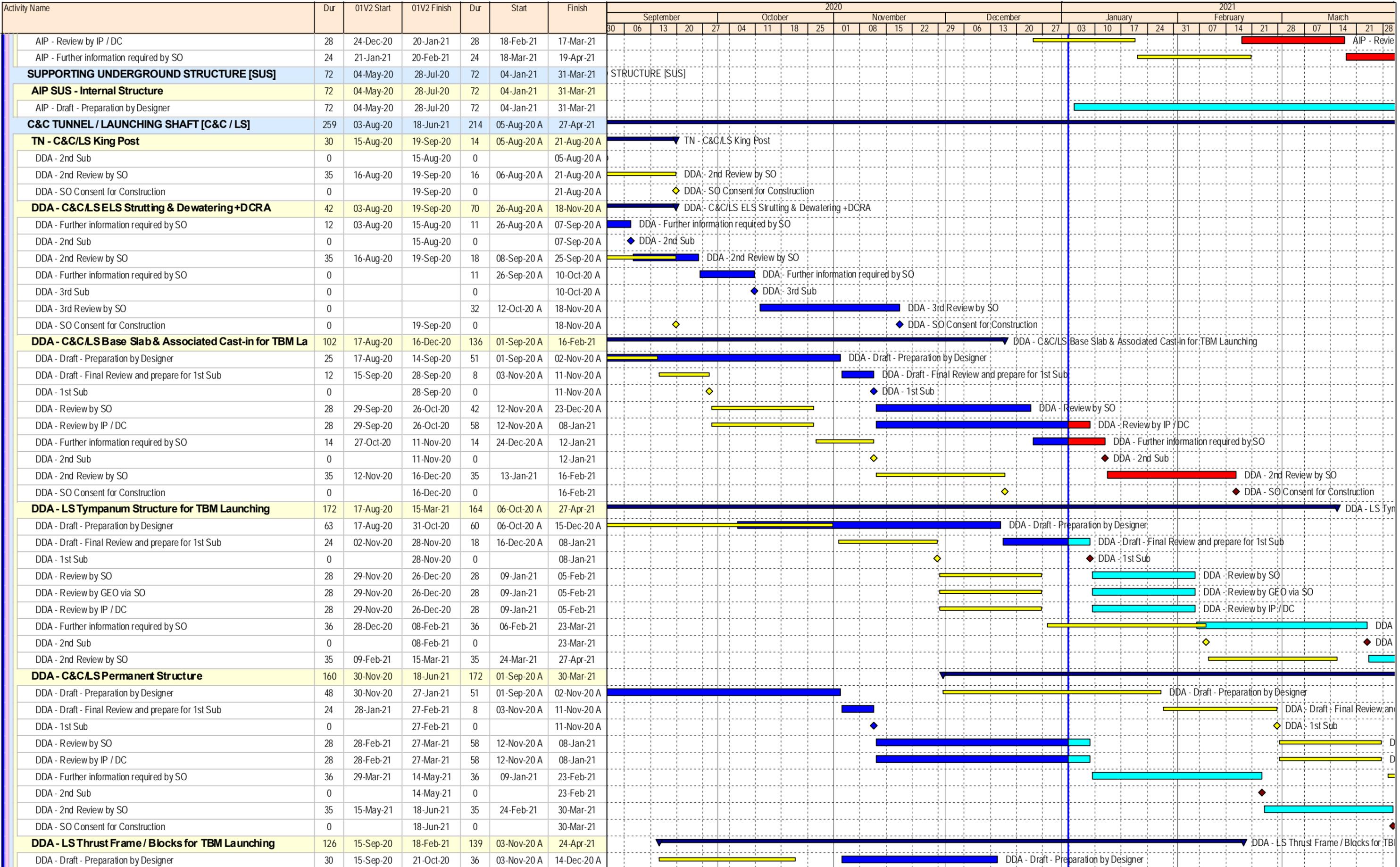
- Milestone
- Planned Bar
- Critical Activity
- Actual Milestone
- Actual Work
- Baseline Milestone
- Baseline Bar
- Summary

ED/2018/04 Trunk Road T2 and Infrastructure Works for Developments at South Apron

Three Months Rolling Programme (Dec-20)



Date	Revision	Checked	Approved
05-Nov-19	00V0	WYu	
18-Dec-19	00V1	WYu	
22-Feb-20	01V0	SPa/LLo	WYu
09-Apr-20	01V1	SPa/LLo	WYu
17-Jul-20	01V2	SPa/LLo	WYu
09-Oct-20	01V3	SPa/LLo	WYu

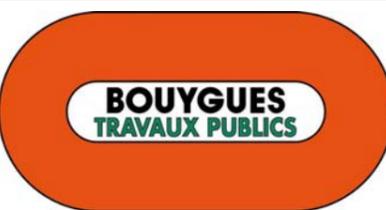


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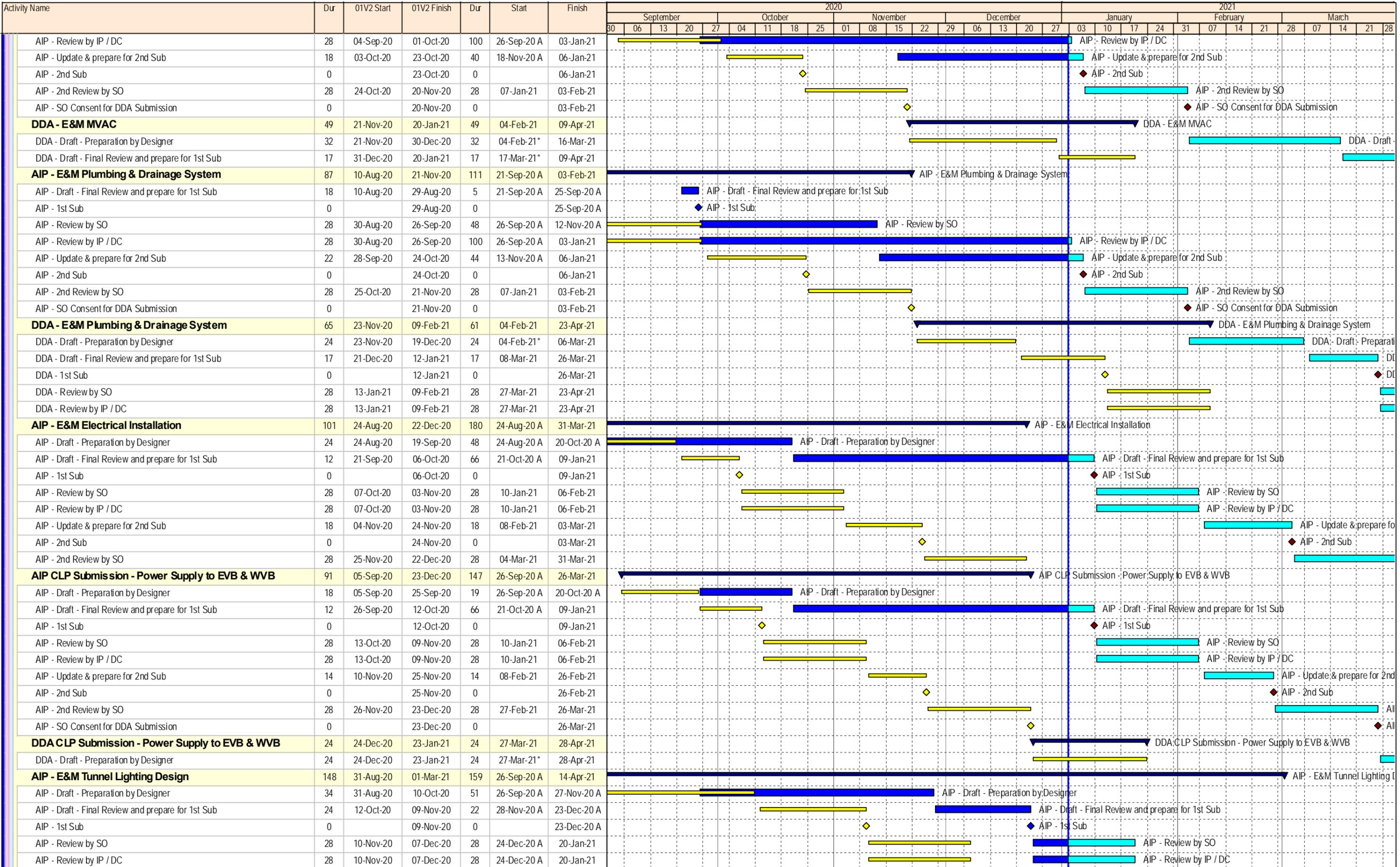
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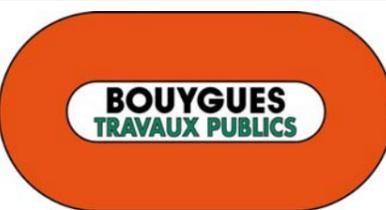
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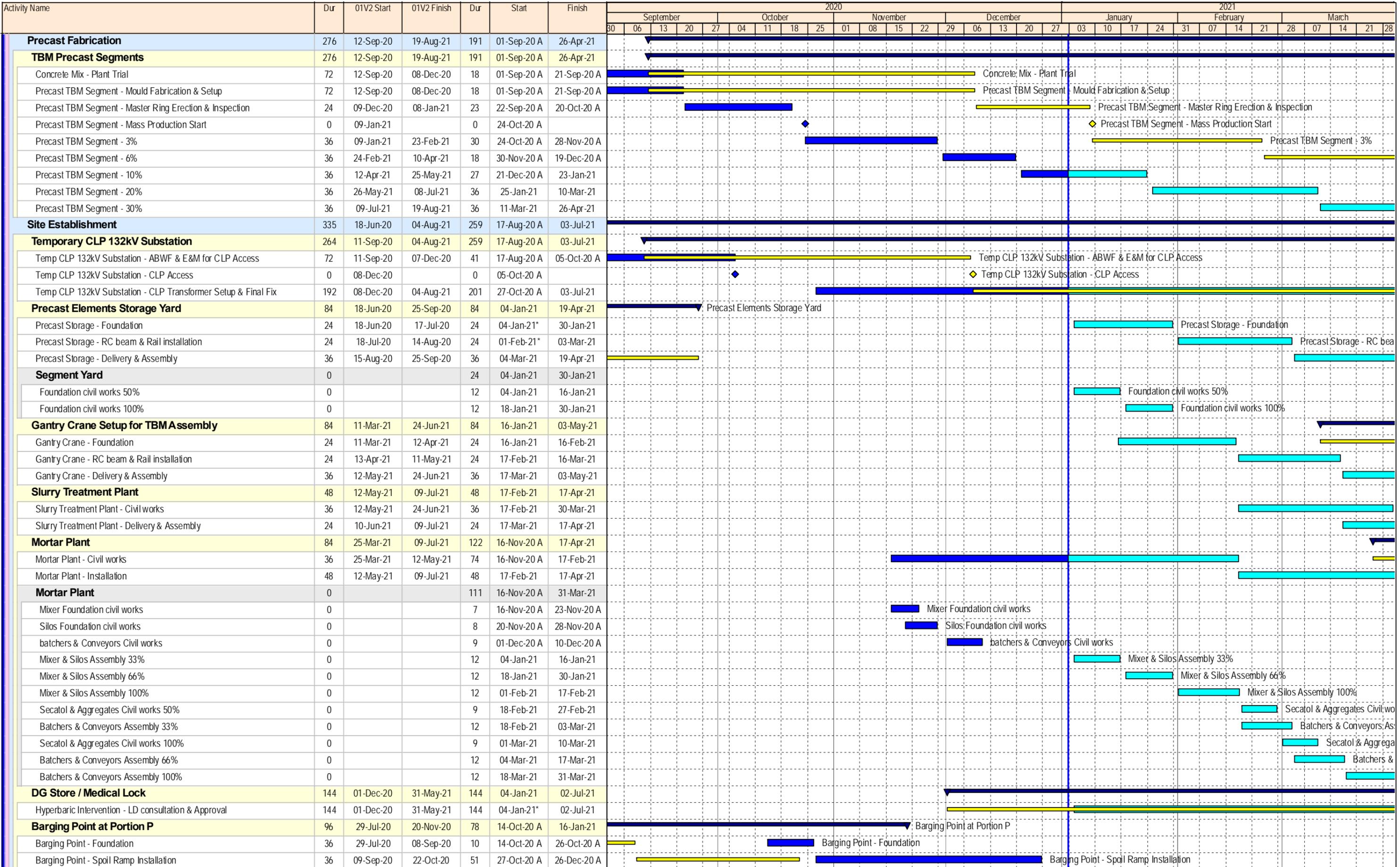
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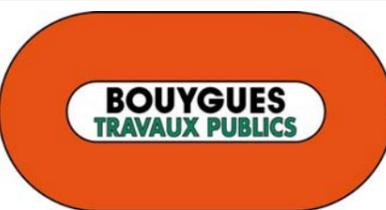


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**APPENDIX O
WASTE GENERATED IN THE
REPORTING MONTH**



Trunk Road T2 and Infrastructure Works
for Developments at the Former South Apron
Contract No. ED/2018/04

Name of Department: CEDD

Monthly Summary Waste Flow Table for 2020 (KT)

Month	Actual Quantities of Inert C&D Materials Generated Monthly						Actual Quantities of C&D Wastes Generated Monthly				
	a.Total Quantity Generated (a=b+c+d+e)	b. Hard Rock and Large Broken Concrete	c. Reused in the Contract	d. Reused in Other Projects	e. Disposed as Public Fill	f. Imported Fill	g. Metals	h. Paper / Cardboard Packaging	i. Plastics	j. Chemical Waste	k. Others, e.g. general refuse
	(in '000m ³)	(in '000m ³)	(in '000m ³)	(in '000m ³)	(in '000m ³)	(in '000m ³)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000m ³)
January	0.094	0.015	0.000	0.000	0.079	0.000	0.000	0.000	0.000	0.000	0.078
February	0.149	0.049	0.000	0.000	0.100	0.000	0.000	0.000	0.000	0.000	0.052
March	0.000	0.000	0.000	0.000	0.000	0.000	22.470	0.000	0.000	0.000	0.147
April	0.000	0.000	0.000	0.000	0.000	0.000	25.830	0.339	0.000	0.000	0.230
May	0.980	0.000	0.000	0.980	0.000	0.000	7.980	0.000	0.000	0.000	0.171
June	37.588	0.000	0.000	37.570	0.018	0.000	4.850	0.000	0.000	0.000	0.136
Sub-total	38.811	0.064	0.000	38.550	0.197	0.000	61.130	0.339	0.000	0.000	0.814
July	60.070	0.000	0.000	60.070	0.000	0.000	9.130	0.000	0.000	0.000	0.118
August	18.840	0.000	0.000	18.840	0.000	0.000	37.680	0.200	0.000	0.000	0.147
September	14.574	0.000	0.000	14.240	0.334	0.000	20.770	0.000	0.000	0.000	0.130
October	11.577	0.000	0.000	10.870	0.707	0.000	16.750	0.000	0.000	0.000	0.104
November	22.390	0.067	0.000	21.200	1.123	0.000	19.250	0.000	0.000	0.000	0.086
December	23.130	3.864	0.000	19.200	0.066	0.000	0.000	0.460	0.000	0.000	0.076
Total	189.392	3.995	0.000	182.970	2.427	0.000	164.710	0.999	0.000	0.000	1.475

Total C&D waste generated = a+b+f+g+h+i+j+k

Total C&D waste generated (excluded excavated material) = g+h+i+j+k

Total C&D waste recycled = c+d+g+h+i