



JOB No.: TCS00864/16

**CEDD SERVICE CONTRACT NO. NTE/07/2016
ENVIRONMENTAL TEAM FOR DEVELOPMENT OF
ANDERSON ROAD QUARRY SITE – SITE FORMATION
AND ASSOCIATED INFRASTRUCTURE WORKS**

**MONTHLY ENVIRONMENTAL MONITORING AND AUDIT
REPORT (DECEMBER 2020)**

**PREPARED FOR
CIVIL ENGINEERING AND DEVELOPMENT DEPARTMENT
(CEDD)**

Date	Reference No.	Prepared By	Certified By
15 January 2021	TCS00864/16/600/R0438v2	 Nicola Hon (Environmental Consultant)	 Tam Tak Wing (Environmental Team Leader)

Version	Date	Remarks
1	14 January 2021	First Submission
2	15 January 2021	Amended according to the IEC's comments on 15 January 2021



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East Development Office
8/F, South Tower, West Kowloon Government Offices
11 Hoi Ting Road
Yau Ma Tei
Kowloon

Your reference:

Our reference: HKCEDD10/50/107034

Date: 18 January 2021

Attention: Mr Leung Siu Kau, Kelvin

BY POST

Dear Sirs

Agreement No.: NTE 08/2016
Independent Environmental Checker for Development of Anderson Road Quarry Site
– Site Formation and Associated Infrastructure Works
Monthly Environmental Monitoring and Audit Report (December 2020)

We refer to the emails of 14 and 15 January 2021 from Action-United Environmental Services and Consulting attaching a Monthly Environmental Monitoring and Audit Report (December 2020) for the captioned project.

We have no further comment and hereby verify the captioned report.

Should you have any queries, please do not hesitate to contact the undersigned or our Mr Ricky Lau on 2618 2831.

Yours faithfully
ANewR CONSULTING LIMITED

Adi Lee
Independent Environmental Checker

LYMA/LCCR/lsm

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EXECUTIVE SUMMARY

- ES01 Action-United Environmental Services & Consulting (AUES) has been awarded the Civil Engineering and Development Department (CEDD) Service Contract No. NTE/07/2016 Environmental Team for Development of Anderson Road Quarry Site – Site Formation and Associated Infrastructure Works (hereinafter called “the Service Contract”) on 15 December 2016. The commencement date of the Service Contract is from December 2016 and the Contract Period is 70 months.
- ES02 The Services under the Service Contract is to provide environmental monitoring and audit (EM&A) services for the Works Contracts pursuant to the requirement of Environmental Team (ET) under the EM&A manual to ensure that the environmental performance of the Works Contracts comply with the requirement specified in the EM&A Manual and EIA Report of Development of Anderson Road Quarry and other relevant statutory requirements.
- ES03 To facilitate the project management and implementation, the Service Contract has been divided to three CEDD contracts including Contract NE/2016/01 (Contract 1), Contract NE/2016/05 (Contract 2) and Contract NE/2017/03 (Contract 3). As advised by the Resident Engineer (RE), the commencement date of Contract 1 was 21 December 2016 and the major construction works has been commenced on 12 April 2017. The commencement date of Contract 2 was 31 March 2017 and the major construction activities have been commenced on 2 May 2017. Furthermore, Contract 3 was commenced on 31 May 2018 and the major construction activities works was commenced in November 2018. The EM&A programme under the Project was commenced on 12 April 2017 pursuant to the requirement under the EM&A manual.
- ES04 This is the 45th monthly EM&A report presenting the monitoring results and inspection findings for the period from **1 to 31 December 2020** (hereinafter ‘the Reporting Period’).

ENVIRONMENTAL MONITORING AND AUDIT ACTIVITIES

- ES05 Environmental monitoring activities under the EM&A programme in the Reporting Period are summarized in the following table.

Environmental Aspect	Environmental Monitoring Parameters / Inspection	Reporting Period	
		Number of Active Monitoring Locations	Total Occasions
Air Quality	1-hour TSP	6	90
	24-hour TSP	4	24
Construction Noise	L _{eq(30min)} Daytime for Contract NE/2016/01	7	35
	L _{eq(30min)} Daytime for Contract NE/2017/03	3	15

BREACH OF ACTION AND LIMIT (A/L) LEVELS

- ES06 No exceedance of air quality was recorded in the Reporting Period. For construction noise monitoring, no Limit Level exceedance was recorded but one noise complaints (which triggered Action Level) was received in the reporting period. The environmental exceedance, NOE issued and investigation of exceedance are summarized in the following table.

Environmental Aspect	Monitoring Parameters	Action Level	Limit Level	Event & Action		
				NOE Issued	Investigation	Corrective Actions
Air Quality	1-hour TSP	0	0	0	NA	NA
	24-hour TSP	0	0	0	NA	NA
Construction Noise	L _{eq(30min)} Daytime	1	0	0	Project-related	The Contractor had enhanced the noise mitigation measures

ENVIRONMENTAL COMPLAINT

In the reporting period, there were two complaints received for Contract 1 regarding the dust and noise concerns. Investigation had undertaken by ET upon receipt of the complaint as follows.

- (a) A public complaint was received by EPD on 4 December 2020 regarding the dust impact. The complainant mentioned that the construction site opposite to On Tai Estate had dust emission problem due to lack of water spraying. In our investigation, the Contractor has implemented dust mitigation measures to eliminate the inconvenience caused to the nearby resident. In view of the potential traffic dust impact and implementation of dust mitigation measures, it is considered that the complaint was not valid to the Project.
- (b) A public complaint was received by 1823 on 3 December 2020 and subsequently referred by EPD on 4 December 2020 regarding the construction dust and noise impact arising from the project. There were acoustic mats erected on the slope of East Portal, however, the complainant enquired about effectiveness of the noise barriers with dozens of 15 cm "X"-shaped cuts. Moreover, there was lack of water sprinkling on the site and fugitive dust was blowing to the village. In our investigation, the Contractor had provided the dust and noise mitigation measures to minimize the dust and noise impact to the resident nearby. To response the concern from the complainant, as enhancement noise measure, the Contractor extended the noise barrier to encircle noisy activity. Since the works were conducted within approved normal hours with implementation of noise and dust mitigation measures, there were no breaches of legislative requirement.

NOTIFICATION OF SUMMONS AND SUCCESSFUL PROSECUTIONS

- ES07 No environmental summons or successful prosecutions for the Project were recorded in the Reporting Period.

REPORTING CHANGE

- ES08 No reporting change was made in the Reporting Period.

SITE INSPECTION

- ES09 In this Reporting Period, joint site inspections to evaluate the site environmental performance for **Contract 1** were carried out by the RE, ET and Contractor on **1st, 10th, 15th, 22nd and 29th December 2020** in which IEC joined the site inspection with SSEMCC on **10th December 2020**. No non-compliance was noted during the site inspection.
- ES10 In this Reporting Period, joint site inspections to evaluate the site environmental performance for **Contract 2** were carried out by the RE, ET and Contractor on **2nd, 9th, 16th, 23rd and 30th December 2020** in which IEC joined the site inspection with SSEMCC on **16th December 2020**. No non-compliance was noted during the site inspection.
- ES11 In this Reporting Period, joint site inspections to evaluate the site environmental performance for **Contract 3** were carried out by the RE, ET and Contractor on **4th, 11th, 18th, 24th and 31st December 2020** in which IEC joined the site inspection with SSEMCC on **11th December 2020**. No non-compliance was noted during the site inspection.

FUTURE KEY ISSUES

- ES12 During dry season, the Contractors should fully implement air quality mitigation measures to reduce construction dust emission as far as practicable. Furthermore, since construction site is highly visible to the resident at nearby estates, noise mitigation measures such as using of quiet plants should be implemented in accordance with the EM&A requirement.
- ES13 Since construction site is highly visible to the resident at nearby estates, the Contractors should pay special attention on potential environmental impact generated by the site activities and adhere

implement adequate air quality and noise mitigation measures as far as practicable to reduce the impact to the public.

- ES14 Construction noise is one of the key environmental issues during construction work of the Project. Noise mitigation measures such as using quiet plants and noise barriers shall be implemented where practicable according to the EM&A manual.
- ES15 In addition, the Contractors should ensure all effluent discharge shall be fulfilled the Technical Memorandum of Effluent Discharged into Drainage and Sewerage Systems, inland and Coastal Waters criteria or relevant discharge license requirement.

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1. INTRODUCTION

PROJECT BACKGROUND

- 1.1.1 Action-United Environmental Services & Consulting (hereinafter referred as “AUES”) has been awarded the CEDD Service Contract No. NTE/07/2016 Environmental Team for Development of Anderson Road Quarry Site – Site Formation and Associated Infrastructure Works (hereinafter called “the Service Contract”) on 15 December 2016. The commencement date of the Service Contract was December 2016 and the Contract Period is 70 months.
- 1.1.2 The Services under the Service Contract is to provide environmental monitoring and audit (EM&A) services for the Works Contracts pursuant to the requirement of Environmental Team (ET) under the EM&A manual to ensure that the environmental performance of the Works Contracts comply with the requirement specified in the EM&A Manual and Environmental Impact Assessment (EIA) Report of Development of Anderson Road Quarry and other relevant statutory requirements.
- 1.1.3 Development of Anderson Road Quarry is to provide land and the associated infrastructures for the proposed land used at the existing Anderson Road Quarry Site at the North-eastern of East Kowloon according to the final Recommended Outline Development Plan (hereinafter named as the Project Works).
- 1.1.4 To facilitate the project management and implementation, the Service Contract has been divided to three CEDD contracts including Contract NE/2016/01 (Contract 1), Contract NE/2016/05 (Contract 2) and Contract NE/2017/03 (Contract 3). As advised by the Resident Engineer (RE), the commencement date of Contract 1 was 21 December 2016 and the major construction works has been commenced on 12 April 2017. The commencement date of Contract 2 was 31 March 2017 and the major construction activities have been commenced on 2 May 2017. Furthermore, Contract 3 was commenced on 31 May 2018 and the major construction activities works was commenced in November 2018. The EM&A programme under the Project was commenced on 12 April 2017 pursuant to the requirement under the EM&A manual.
- 1.1.5 According to the Approved EM&A Manual, air quality and noise monitoring are required to be monitored during the construction phase of the Project. As part of the EM&A program, baseline monitoring is required to determine the ambient environmental conditions. Baseline monitoring including air quality and noise conducted between **January** and **April 2019** at all designated monitoring locations were before construction work commencement. Furthermore, the Baseline Monitoring Report which verified by the Independent Environmental Checker (hereinafter referred as “the IEC”) has been submitted to Environmental Protection Department (EPD) on **9 May 2017** for endorsement.
- 1.1.6 This is the **45th** monthly EM&A report presenting the monitoring results and inspection findings for the period from **1 to 31 December 2020** (hereinafter referred as “Reporting Period”).

REPORT STRUCTURE

- 1.1.1 The monthly EM&A Report is structured into the following sections:-

Section 1	<i>Introduction</i>
Section 2	<i>Project Organization and Construction Progress</i>
Section 3	<i>Summary of Impact Monitoring Requirements</i>
Section 4	<i>Air Quality Monitoring</i>
Section 5	<i>Construction Noise Monitoring</i>
Section 6	<i>Waste Management</i>
Section 7	<i>Site Inspections</i>
Section 8	<i>Environmental Complaints and Non-Compliance</i>
Section 9	<i>Implementation Status of Mitigation Measures</i>
Section 10	<i>Conclusions and Recommendations</i>

2. PROJECT ORGANIZATION AND CONSTRUCTION PROGRESS

CONSTRUCTION CONTRACT PACKAGING

- 2.1.1 To facilitate the project management and implementation, the Project was divided by 3 works contracts as described in following. The details of each contract are summarized below and the delineation of each contract is shown in [Appendix A](#).

Contract 1 (Contract No. NE/2016/01)

- 2.1.2 Commencement date of Contract 1 was in late December 2016 and the major scope of work of Contract 1 is listed below:

- Formation of about 40 hectares (ha) of land platforms at the ARQ site and the associated geotechnical works;
- Road works including construction of approximately 3-kilometer long vehicular roads, footpaths, cycle tracks, an approximately 130-meter long underpass at the southern end and a public transport terminus at the northern end at the ARQ site;
- Provision of and improvement to water supply, drainage and sewerage systems as well as landscaping works; and
- Construction of proposed subway structures and lift tower structures of pedestrian connectivity facilities.

Contract 2 (Contract No. NE/2016/05)

- 2.1.3 Commencement date of Contract 2 was 31 March 2017 and the major Scope of Work of the Contract 2 is listed below:

- (i) Construction of the following pedestrian connectivity facilities with covered elevated walkways, covered at grad walkways, escalators, lift towers with associated staircase and lifts:-
 - (a) Linking Hiu Kwong street with Hiu Ming Street (E1)
 - (b) Linking the proposed “Footbridge Link at Sau Ming Road” with Hiu Ming Street (E2, C1 and E3)
 - (c) Linking the proposed bus-to-bus interchange at Tseung Kwan O Tunnel Toll Plaza with Lin Tak Road (E12)
- (ii) Construction of bus-to-bus interchange (BBI) at Tseung Kwan O Tunnel Toll Plaza;
- (iii) Associated landscape works;
- (iv) Construction of green routes connecting to Jordan Valley Park and Choi Wing Road; and
- (v) Slope improvement works in the vicinity of Po Lam Road South and other associated works.

Contract 3 (Contract No. NE/2017/03)

- 2.1.4 The commencement date of Contract 3 is on 31 May 2018 and the major Scope of Work of the Contract 3 is listed below:

- (i) Site formation and road works in the following sections:-
 - (a) at junction of Clear Water Bay Road (CWBR) and On Sau Road constructed under the Development at Anderson Road (DAR) project including the provision of U-turn facility and noise mitigation measures (RIW1);
 - (b) at New Clear Water Bay Road (NCWBR) near Shun Lee Tsuen Road including the road widening works at NCWBR, modification of existing subway structure and provision of noise mitigation measures (RIW2); and
 - (c) at the junction of Lin Tak Road and Sau Mau Ping Road, construction of flyover above Tseung Kwan O Road, provision of loading and unloading bays along Lin Tak Road and noise mitigation measures (RIW3).
- (ii) construction of the following pedestrian connectivity facilities with covered elevated walkways, escalators and lift towers with associated staircases and lifts:-

- (a) linking Anderson Road Quarry site with the DAR Site (except the works covered under Contract 1) (System A and System B);
 - (b) linking Hiu Ming Street with Hiu Yuk Path (E8); and
 - (c) linking the proposed bus-bus interchange at Tseung Kwan O Tunnel Toll Plaza with Sau Mau Ping Road (E11).
- (iii) Associated landscape works.

PROJECT ORGANIZATION

2.1.1 The project organization and contact details for Contracts 1, 2 and 3 are shown in [Appendix B](#).

CONSTRUCTION PROGRESS

2.1.5 The 3-month rolling construction programme for Contracts 1, 2 and 3 are shown in [Appendix C](#). The major construction activities conducted in the Reporting Period are summarized in below.

Contract 1 (NE/2016/01)Temporary Traffic Arrangement (TTA) at On Sau Road:

- Implementation of TTA at the junction between On Sau Road and Road L4 for road improvement works to continue

Pedestrian Connectivity System B:

- PC system B substructure backfill work to continue.
- Bamboo Scaffold Erection for external ABWF works.

Construction of Internal Road L1:

- Excavation and laying of watermain to continue.
- Road work, footpath and cycle track at L1 east to continue.
- Gullies and upper drainage construction for road L1 west to continue.

Box Culvert BC1 at Internal Road L1:

- Defect rectification work to continue

Construction of Internal Road L2

- Site formation works to continue.
- Drainage pipe lower and middle level complete, upper level and gully pipe to continue
- Watermain works and UU laying to continue

Retaining Wall RWA9 at Road L3

- Backfilling and SRT of RWA9 Bays 1- Bay10 to continue
- Backfilling and SRT of RWA9 Bays 18-20 to continue.
- Mass concrete fill behind Bay 17 to continue.
- Trimming of pile head of bored pile no. RWA9-P1&P2 to continue.
- Base slab construction of Bay 16 to continue.
- Wall construction of RWA9 Bays 12, 14, 15 and 16 to continue
- Lower level drainage in progress.
- Construction of manhole SMH1, TM26a &TM26 to continue.

Retaining Wall RWA10 at Road L3

- RWA10 Bay 7 wall construction to continue.
- Backfill behind Bays 6 to 16 to continue.

Box Culvert BC2 at Internal Road L3:

- Backfilling at Bay 17 chamber structure to continue.

Construction of Internal Road L5:

- Concrete kerb construction and road base, base course laying to continue.

Water Pumping Station including Retaining Wall RWA13 and RWA14:

- Backfill at retaining wall RWA13 & RWA14 (Bay 15) to continue.
- To continue the watermain works outside Water Pumping Station.
- To continue the Metal Works (i.e.: chequer plate.).
- To continue with the ABWF Works (i.e.: floor)
- To continue with the E&M Works.
- To continue the mass concrete fill works at slope A13.

Water Reservoir

- To continue excavation works (rock breaking) for drainage.
- To continue drainage works (manhole construction and pipe laying).

Artificial Flood Attenuation Lake

- To continue laying granular bed, HDPE membrane and concrete lining works at remaining part of lake bottom.
- To continue with drainage works.
- To continue excavation of the remaining floating bridge footing.
- To continue the construction of floating bridge footing.

Underground Stormwater Retention Tank (USRT)

- Backfill around USRT in progress.
- Backfill around Ventilation Duct area to continue.

Internal Road L4, Pedestrian Connectivity System A, Noise Barrier, RWA12 and RWA18:

- RWA12 Bays 22 and 23 wall construction to continue.
- Construction of gully for road drainage manhole R428 construction complete
- System A south piling work to continue. Pile loading test to continue
- Excavation and pipe laying for DN300 fresh watermain and NS125 salt watermain complete.
- Excavation and road lighting ducting works complete
- Construction of additional buttress wall complete
- Road works (laying sub-base and kerb construction) complete
- Excavation and traffic signal post ducting works to continue

PC System A

- North Tower wall construction to continue.
- Sump pit construction to continue.
- Subway SYA-SW1 construction to continue.
- South Tower forming of no-fines concrete slope to continue.
- South Tower extension of h-pile to continue

PTT

- Drainage work at Row A& B C&D, D&E complete, gully pipe and down pipe catchpit in progress.

Slope Stabilization at Portion B1:

- Continue to carry out stabilization works at Feature No. 11NE-D/C1004, 11NE-D/C1005, Slope A15b, 11NE-D/C947, 11NE-D/C949, 11NE-D/C976 and 11NE-D/C977

Slope Stabilization at Portion B5

- Continue to erect inspection scaffolds from 2nd to 8th berm
- Continue to carry out stabilization works at 11NE-D/C949 and 11NE-D/C948

Road Improvement Works at Po Lam Road:

- Construction of permanent footpath and surface drainage system to continue

MEP Works:

- Submission of designs and materials related to MEP works to continue.
- E&M installation works at Pump Hall of Fresh Water Pumping Station to continue.
- E&M installation works at Pedestrian Connectivity System B to continue
- E&M installation works at USRT to continue

Site Formation Work at Portion B13

- Excavation to formation level to continue.

Site Formation Work at Portion B7 & B15:

- Chainlink fence and UC construction at land parcel R2-5 & Portion B15 to continue.

Site Formation Work at Portion B3:

- UC construction at land parcel C-5 to continue.
- Chainlink fence installation and UC construction at land parcel R2-7 and C-1 to continue.

Site Formation Work at Portion B14:

- Backfilling and proof rolling/ SRT at Portion B14 to continue.

Site Formation Work at Portion E2 & E3:

- Backfilling & SRT of fill slope zone of Portion E2 & E3 to continue

Site Formation Work at Portion A1 (land parcel R2-8):

- Backfilling, proof rolling chainlink fence and UC construction at land parcel R2-8 to continue.

Site Formation Work at Portion A-1 (land parcel G-1):

- Chainlink fence & UC construction at land parcel G-1 completed.

Site Formation Work at Portion G3, G4, G5 & Slope A6:

- Excavation to formation level at land parcel G3 to continue.
- Chainlink fence installation at land parcel G3 to continue.

Cavern (Portion B5):

- Rock fall fence installation complete.
- Rock mapping of Sub Area 5 slope at Ch0-Ch40 on level +208mPD - 210.5mPD to continue.
- Rock breaking of existing slope at Ch40-240 on level +204-206mPD to continue
- Rock dowel construction at Ch40-140 on level+206+208.5 to continue
- Planter wall construction to continue.

Underpass, East and West Portal:

- Box Culvert BC 3 Bay 10,11 at East Portal – structure works to continue
- Box Culvert BC3 Bay 11 &12, Excavation work in progress
- Safety precaution measure completed for site formation works at East Portal.
- Site Formation works at East Portal in progress.
- West Portal Structure works in progress.
- Relocation of the Fire Hydrant at Po Lam Road in progress.

Contract 2 (NE/2016/05)

1. Portion 1:
 - Continue Piling works for Pile Cap E1 –PC4 and E1-PC5; and
 - Backfilling with no-fines concrete around pile cap E1-RS1, E1-PC1 and E1-PC2.
2. Portion 2: Rock breaking for E3-F1.
3. Portion 3: Relocation of existing pedestrian crossing

4. Portion 4: Rectification of defects
5. Portion 5:
 - Footing construction of the covered walkway footing BBI-NB-F2,F1a, F1b.
 - Footing construction for Northern and Southern High Mast footings
 - Drainage Works
6. Portion 6:
 - Rock breaking for rock cut slope and BBI Footing.
 - Fixing formwork, reinforcement and place concrete for RWE12.

Contract 3 (NE/2017/03)Works in Road Improvement Works 1 (RIW1)

- Earth works (such as temporary soil nail, form working platform etc), RC works and no-fine concrete construction at RWC2 in-progress;
- Backfilling works at west side of KS27 subway extension is in progress;
- RC works for noise barrier in-progress;

Works in Road Improvement Works 2 (RIW2)

- Earth works (such as temporary soil nail, form working platform etc), RC works at Slope C3 is in progress;
- Utilities works at SE2 is in-progress;

Works in Road Improvement Works 3 (RIW3)

- Mini-pile construction at RWD1 along Sau Mau Ping Road was completed. RC works for RWD1 Bay 1 – 10 was in progress. ELS works for RWD1 Bay 11 – 14 was in progress.
- Construction of retaining wall RWD2 at Slope D2 was in-progress;
- Rock excavation works using drill and split method at Slope D3 along Lin Tak Road was in-progress;
- Construction of mass concreting retaining wall at slope crest of Slope D3 was in-progress;
- No-fines concrete construction at slope crest of Slope D3 is in progress;
- Inspection Pit for UU at Sau Mau Ping Road is in progress.

Pedestrian Connectivity Facility E8 (PC-E8)

- RC works for escalator pit E7/E8 and E11/E12 were in-progress;
- ELS works for construction F8 abutment was in-progress.

Pedestrian Connectivity Facility E11 (PC-E11)

- ELS works, pile cap construction works and preparation works for drainage diversion works at PC1 were in-progress;
- Construction of RC structure at PC6 was in-progress;
- Construction of pier head at PC2 – PC5 were in-progress;
- Preparation works for steel-frame fabrication at off-site fabrication yard is on-going..

Pedestrian Connectivity Facilities Systems A (PC-SYA)

- RC construction works for sub-structure was completed;
- Backfilling to ground level and preparation works for construct above-ground structure were in-progress;

Pedestrian Connectivity Facilities Systems B (PC-SYB)

- Construction of RC pier at P6 and P7 is in-progress;
- Gasmain diversion works (by Towngas) at PC2 is in-progress;
- Cable diversion works (by CLPE) at PC1 is in-progress.

Tseung Kwan O Bus-Bus Interchange New Public Toilet (BBI-Toilet)

- Carry-out outstanding works and additional works.

- 2.1.6 Summary of the relevant permits, licenses, and/or notifications on environmental protection for the Project of contracts 1, 2 and 3 are presented in *Tables 2-1, 2-2 and 2-3*.

Table 2-1 Status of Environmental Licenses and Permits of the Contract 1

Item	Description	License/Permit Status			
		Permit no./ account no./ Ref. no.	Valid Period		Status
			From	To	
1	Form NA – Notification pursuant to Air pollution Control (Construction Dust) Regulation	EPD ref. no. 411762	NA	NA	valid
	Form NB – Notification pursuant to Air pollution Control (Construction Dust) Regulation	EPD ref. no. 412730	NA	NA	valid
2	Chemical Waste Producer Registration	Registration no. WPN 5213-292-C4115-01	15 Feb 17	End of project	valid
3	Water Pollution Control Ordinance – Discharge License	WT00028050-2017	29 May 17	31 May 22	valid
4	Waste Disposal Regulation – Billing Account for Disposal of Construction Waste	Account no. 7026925	20 Jan 17	End of project	valid
5	Construction Noise Permit	GW-RE0865-20	13 Nov 20	12 Feb 21	valid

Table 2-2 Status of Environmental Licenses and Permits of the Contract 2

Item	Description	License/Permit Status			
		Permit no./ account no./ Ref. no.	Valid Period		Status
			From	To	
1	Notification pursuant to Air pollution Control (Construction Dust) Regulation	EPD ref. no. 312173	NA	NA	valid
2	Chemical Waste Producer Registration	Registration no. WPN 5213-294-K2890-08	3 Jul 17	End of Project	Valid
3	Water Pollution Control Ordinance – Discharge License	WT00028685-2017	02 Aug 17	31 Aug 22	Valid
		WT00028686-2017	02 Aug 17	31 Aug 22	Valid
		WT00028687-2017	02 Aug 17	31 Aug 22	Valid
4	Waste Disposal Regulation – Billing Account for Disposal of Construction Waste	Account no. 7027548	12 Apr 17	End of project	Valid
5	Construction Noise Permit	GW-RE0587-20	13 Jul 20	25 Nov 20	Valid
		GW-RE0966-20	20 Nov 20	19 Feb 21	Valid

Table 2-3 Status of Environmental Licenses and Permits of the Contract 3

Item	Description	License/Permit Status			
		Permit no./ account no./ Ref. no.	Valid Period		Status
			From	To	
1	Form NA – Notification pursuant to Air Pollution Control (Construction Dust) Regulation	Notification to EPD on 29 May 2018.			
2	Chemical Waste Producer Registration	<u>For Area R1W3 (E11)</u> Registration no. WPN : 5213-294-C4239-04	6-Aug-18	End of Project	Valid
		<u>For Area System A</u> Registration no. WPN: 5213-293-C4239-05	6-Aug-18	End of Project	Valid
		<u>For Area System B</u> Registration no. WPN 5213-294-C4239-03	6-Aug-18	End of Project	Valid
		<u>For Area E8</u> Registration no. WPN 5213-292-C4239-06	6-Aug-18	End of Project	Valid
3	Water Pollution Control Ordinance – Discharge License	<u>For Area R1W3 (E11)</u> WT00032742-2018	18-Jan-19	31-Jan-24	Valid
		<u>For Area System A</u> WT00033223-2019	31-Jan-19	31-Jan-24	Valid
		<u>For Area System B</u> WT00033229-2019	24-Jun-19	30-Jun-24	Valid
		<u>For Area E8</u> WT00033224-2019	21-Mar-19	31-Mar-24	Valid
4	Waste Disposal Regulation – Billing Account for Disposal of Construction Waste	Account no.7031075	20 July 2018	End of project	Valid

3. SUMMARY OF IMPACT MONITORING REQUIREMENTS

GENERAL

3.1.1 The Environmental Monitoring and Audit requirements are set out in the Approved EM&A manual. Environmental issues such as air quality, construction noise and water quality were identified as the key issues during the construction phase of the Project.

3.1.2 A summary of construction phase EM&A requirements are presented in the sub-sections below.

MONITORING PARAMETERS

3.1.3 The EM&A program of construction phase monitoring shall cover the following environmental issues:

- Air quality; and
- Construction noise

3.1.4 A summary of the monitoring parameters is presented in *Table 3-1*.

Table 3-1 Summary of EM&A Requirements

Environmental Issue	Parameters
Air Quality	<ul style="list-style-type: none"> • 1-hour TSP by Real-Time Portable Dust Meter; and • 24-hour TSP by High Volume Air Sampler
Noise	<ul style="list-style-type: none"> • Leq(30min) in normal working days (Monday to Saturday) 07:00-19:00 except public holiday • Supplementary information for data auditing, statistical results such as L₁₀ and L₉₀ shall also be obtained for reference.

MONITORING LOCATIONS

3.1.5 According to the EM&A Manual Section 4.6, seven (7) most representative and affected air sensitive receivers (ASR) were selected as air monitoring stations (AQM). During site visit at the subject site before the baseline monitoring, it was noted that some planned ASRs identified in the EM&A Manual are still under construction/ has not yet constructed and there were no suitable location to set up the high volume sampler to carry out the baseline 24-hour TSP monitoring. Therefore, a proposed change for the baseline monitoring programme was submitted and agreed by EPD before the baseline monitoring. The impact air quality monitoring locations are listed in *Table 3-2* and illustrated in *Appendix D*.

Table 3-2 Impact Monitoring Stations – Air Quality

ID	ASR ID in EIA	Location in the EM&A Manual	Identified Location during Site Visit	Status
AMS-1	ACYC-01	Chi Yum Ching She	Ground of Chi Yum Ching facing the project site	Replaced by AMS-1a
AMS-1a (*)	ACYC-01	Tan Shan Village No. 5 - 6	Ground of Tan Shan Village No. 5 - 6 facing the project site	Active
AMS-2 (#)	DARB-13	Block 8, Site B	Ground of Fung Tai House of On Tai Estate	Active
AMS-3 (:)	DARC-16	Planned Clinic and Community Centre, Site C2	Ground of Planned Clinic and Community Centre facing Anderson Road (Ancillary Facilities Building)	Active
AMS-4	DARC-26	Planned School, Site C2 ^{Note 1}	Ground of Planned School facing Anderson Road	Not yet commenced
AMS-5	DARE-06	Block 5, DAR Site E	Main roof of Oi Tat House of On Tat Estate facing the project site	Active
AMS-6	DARE-17	Block 9, Site E	Main roof of Hau Tat House of On Tat Estate facing the	Active

ID	ASR ID in EIA	Location in the EM&A Manual	Identified Location during Site Visit	Status
			project site	
AMS-7	AMYT-04	Ma Yau Tong Village	Balcony at 2 nd floor of Village House Anderson Road No. 1 facing the project site	Active

Note 1: The ASR is under construction.

(#) AMS-2 was activated on 26 November 2018 since Fung Tai House became an air sensitive receiver. 1-hour TSP monitoring was commenced on 26 November 2018 while installation of HVS for 24-hour TSP was pending approval from Housing Authority.

() 24-hour TSP monitoring at AMS1 was abandoned since May 2019 due to lack of power supply and the landlord was unreachable. The alternation location of AMS1a was activated on 15 June 2019 for 1-hour and 24-hour TSP monitoring. The proposal was agreed by EPD on 9 Aug 2019.*

(:) AMS-3 was effective on 3 December 2019.

Construction Noise

- 3.1.6 According to the EM&A Manual Section 5.5, three (3) most representative and affected noise sensitive receivers (NSR) were selected as monitoring stations. As recommended by the RE and agreed by IEC, one (1) additional noise monitoring location is proposed to add in Oi Tat House of On Tat Estate (hereafter “NMS-4”) to oversee the possible noise impact pose to the resident in On Tat Estate, which is an existing NSR close to the major works activities. Moreover, review of impact monitoring location was proposed to IEC in view of the current site condition and it was agreed by all parties. The details of noise monitoring location are listed in **Table 3-3** and illustrated in **Appendix D**.

Table 3-3 Impact Monitoring Stations – Construction Noise

ID	NSR ID in EIA	Location	Status
NMS-1	Site C2 – School 05 ^{Note 1}	Ground of planned school at DAR facing the project site	Not yet commenced
NMS-2 (@)	Site E – School	Rooftop of S.K.H. St. John’s Tsang Shiu Tim Primary School, where 1m from the exterior of the building facing the project site	Active
NMS-3(:)	Site C2 – R102–	Ground of Ancillary Facilities Building facing the project site	Active
NMS-4*	Oi Tat House	1m from the exterior of ground floor façade of Oi Tat House of On Tat Estate facing the project site	Suspended
NMS-4a#	Oi Tat House	Rooftop of Oi Tat House where 1m from the exterior of Oi Tat House facing the project site	Active
NMS-5#	Hau Tat House	22/F, refuge floor of Hau Tat House where 1m from the exterior of Hau Tat House facing the project site.	Active
NMS-6~	Yung Tai House of On Tai Estate	Rooftop of Yung Tai House where 1m from the exterior of the building facing the project site)	Active
NMS-7~	Chi Tai House of On Tai Estate	Rooftop of Chi Tai House where 1m from the exterior of the building facing the project site	Active
NMS-8^	No. 3-4 Ma Yau Tong Village	1m from the exterior of the building façade and facing the construction site	Active

Note 1: Construction of the NSR is not yet commenced.

() Additional noise monitoring location was recommended by RE and agreed by IEC. It was temporary suspended and the monitoring location is relocated to NMS4a with effective on 15 Nov 2017.*

(@) NMS-2 was effective on 15 November 2019.

- (:) NMS-3 was effective on 3 December 2019
- (#) Review of noise monitoring locations was proposed by ET and NMS-5 was effective on 15 November 2017.
- (~) Review of noise monitoring locations was proposed by ET and NMS-6 and NMS-7 were effective on 28 Feb 2018.
- (^) Review of noise monitoring locations was proposed by ET and NMS-8 was effective on 18 April 2018. Noise monitoring at NMS-8 was started on 3 May 2018 upon commencement of construction at relevant section.

Addition Construction Noise Monitoring Location

- 3.1.7 A Work Instruction was issued from AECOM to AUES in November 2018 for installing three additional noise monitoring stations under Contract 3. According to the Work Instruction, one noise monitoring station was proposed to install at System A Area and two station monitoring points were proposed to install at E8 Area. The noise monitoring locations are shown in **Table 3-4** below and illustrated in **Appendix D**.

Table 3-4 Additional Impact Monitoring Stations – Construction Noise

ID	Location	Description
CN1	Holm Glad College	Ground floor of Holm Glad College, where 1m from the exterior of the building facing E8
CN2	Leung Shek Chee College	Ground floor of Leung Shek Chee College, where 1m from the exterior of the building facing E8
CN3	Oi Tat House of On Tat Estate	Ground floor of Oi Tat House of On Tat Estate, where 1m from the exterior of the building facing System A

MONITORING FREQUENCY AND PERIOD

- 3.1.8 The requirements of impact monitoring in the approved *EM&A Manual* and presented as follows.

Air Quality Monitoring

- 3.1.9 Frequency of impact air quality monitoring is as follows:

- 1-hour TSP 3 times every six days during course of works throughout the construction period
- 24-hour TSP Once every 6 days during course of works throughout the construction period

Noise Monitoring

- 3.1.10 Noise monitoring will be to conduct at the all available designated monitoring stations. The monitoring frequency shall depend on the scale of the construction activities. The following is an initial guide on the regular monitoring frequency for each station on a weekly basis when noise generating activities are underway:
- one set of $Leq_{(30min)}$ measurements between 07:00 and 19:00 hours on normal weekdays

MONITORING EQUIPMENT

Air Quality Monitoring

- 3.1.11 The 24-hour and 1-hour TSP levels shall be measured by following the standard high volume sampling method as set out in the *Title 40 of the Code of Federal Regulations, Chapter 1 (Part 50), Appendix B*. If the ET proposes to use a direct reading dust meter to measure 1-hour TSP levels, it shall submit sufficient information to the IEC to prove that the instrument is capable of achieving a comparable results to the HVS. The instrument should be calibrated regularly, and the 1-hour sampling shall be determined on yearly basis by the HVS to check the validity and accuracy of the results measured by direct reading method. The filter paper of 24-hour TSP measurement shall be determined by HOKLAS accredited laboratory.
- 3.1.12 All equipment to be used for air quality monitoring is listed in **Table 3-5**.

Table 3-5 Air Quality Monitoring Equipment

Equipment		Model
24-hour TSP	High Volume Air Sampler	TISCH High Volume Air Sampler, HVS Model TE-5170
	Calibration Kit	TISCH Model TE-5025A
1- hour TSP	Portable Dust Meter	Sibata LD-3B Laser Dust Monitor

Noise Monitoring

- 3.1.13 Sound level meter in compliance with the International Electrotechnical Commission Publications 651: 1979 (Type 1) and 804: 1985 (Type 1) specifications shall be used for carrying out the noise monitoring. The sound level meter shall be checked using an acoustic calibrator. The wind speed shall be checked with a portable wind speed meter capable of measuring the wind speed in ms^{-1} .
- 3.1.14 Noise equipment as perform for construction phase monitoring is listed in **Table 3-6**.

Table 3-6 Construction Noise Monitoring Equipment

Equipment	Model
Integrating Sound Level Meter	B&K-2238
Calibrator	Rion NC-74, Rion NC-75 & B&K-4231
Portable Wind Speed Indicator	Anemometer AZ Instrument 8908

MONITORING METHODOLOGY1-hour TSP

- 3.1.15 The 1-hour TSP monitor was a brand named “Sibata LD-3 Laser Dust monitor Particle Mass Profiler & Counter” which is a portable, battery-operated laser photometer. The 1-hour TSP meter provides a real time 1-hour TSP measurement based on 90° light scattering. The 1-hour TSP monitor consists of the following:
- A pump to draw sample aerosol through the optic chamber where TSP is measured;
 - A sheath air system to isolate the aerosol in the chamber to keep the optics clean for maximum reliability; and
 - A built-in data logger compatible with Windows based program to facilitate data collection, analysis and reporting.
- 3.1.16 The 1-hour TSP meter to be used will be within the valid period, calibrated by the manufacturer prior to purchasing. Zero response of the instrument will be checked before and after each monitoring event.

24-hour TSP

- 3.1.17 The equipment used for 24-hour TSP measurement is Thermo Andersen Model GS2310 TSP high volume air sampling system, which complied with *EPA Code of Federal Regulation, Appendix B to Part 50*. The High Volume Air Sampler (HVS) consists of the following:
- An anodized aluminum shelter;
 - A 8”x10” stainless steel filter holder;
 - A blower motor assembly;
 - A continuous flow/pressure recorder;
 - A motor speed-voltage control/elapsed time indicator;
 - A 7-day mechanical timer, and
 - A power supply of 220v/50 Hz
- 3.1.18 For HVS for 24-hour TSP monitoring, the HVS is mounted in a metallic cage with a top for protection and also it is sat on the existing ground or the roof of building. The flow rate of the

HVS between 0.6m³/min and 1.7m³/min will be properly set in accordance with the manufacturer's instruction to within the range recommended in *EPA Code of Federal Regulation, Appendix B to Part 50*. Glass Fiber Filter 8" x 10" of TE-653 will be used for 24-Hour TSP monitoring and would be supplied by laboratory. The general procedures of sampling are described as below:-

- A horizontal platform with appropriate support to secure the samples against gusty wind should be provided;
- No two samplers should be placed less than 2 meters apart;
- The distance between the sampler and an obstacle, such as building, must be at least twice the height that the obstacle protrudes above the sample;
- A minimum of 2 meters of separation from any supporting structure, measured horizontally is required;
- Before placing any filter media at the HVS, the power supply will be checked to ensure the sampler work properly;
- The filter paper will be set to align on the screen of HVS to ensure that the gasket formed an air tight seal on the outer edges of the filter. Then filter holder frame will be tightened to the filter hold with swing bolts. The holding pressure should be sufficient to avoid air leakage at the edge;
- The mechanical timer will be set for a sampling period of 24 hours (00:00 mid-night to 00:00 mid-night next day). Information will be recorded on the field data sheet, which would be included the sampling data, starting time, the weather condition at current and the filter paper ID with the initial weight;
- After sampling, the filter paper will be collected and transfer from the filter holder of the HVS to a sealed envelope and sent to a local HOKLAS accredited laboratory for quantifying.

3.1.19 All the sampled 24-hour TSP filters will be kept in normal air conditioned room conditions, i.e. 70% HR (Relative Humidity) and 25°C, for six months prior to disposal.

3.1.20 The HVS used for 24-hour TSP monitoring will be calibrated before the commencement for sampling, and after in two months interval for 1 point checking of maintenance and six months interval for five points calibrate in accordance with the manufacturer's instruction using the NIST-certified standard calibrator (Tisch Calibration Kit Model TE-5025A) to establish a relationship between the follow recorder meter reading in cfm (cubic feet per minute) and the standard flow rate, Qstd, in m³/min. Motor brushes of HVS will be regularly replaced of about five hundred hours per time. The calibration certificates of all monitoring equipment used for the impact monitoring program in the Reporting Period and the HOKLAS accredited certificate of laboratory are attached in [Appendix E](#).

Noise Monitoring

3.1.21 As referred to in the Technical Memorandum (TM) issued under the NCO, sound level meters in compliance with the International Electrotechnical Commission Publications 651: 1979 (Type 1) and 804:1985 (Type 1) specifications shall be used for carrying out the noise monitoring. Immediately prior to and following each noise measurement the accuracy of the sound level meter shall be checked using an acoustic calibrator generating a known sound pressure level at a known frequency. Measurements may be accepted as valid only if the calibration levels from before and after the noise measurement agree to within 1.0 dB.

3.1.22 All noise measurements will be performed with the meter set to FAST response and on the A-weighted equivalent continuous sound pressure level (Leq). Leq_(30 min) in six consecutive Leq_(5 min) measurements will be used as the monitoring parameter for the time period between 07:00-19:00 hours on weekdays throughout the construction period.

3.1.23 The sound level meter will be mounted on a tripod at a height of 1.2 m and placed at the assessment point and oriented such that the microphone is pointed to the site with the

microphone facing perpendicular to the line of sight. The windshield will be fitted for all measurements. Where a measurement is to be carried out at a building, the assessment point would normally be at a position 1 m from the exterior of the building façade. Where a measurement is to be made for noise being received at a place other than a building, the assessment point would be at a position 1.2 m above the ground in a free-field situation, i.e. at least 3.5 m away from reflective surfaces such as adjacent buildings or walls.

- 3.1.24 Immediately prior to and following each noise measurement the accuracy of the sound level meter will be checked using an acoustic calibrator generating a known sound pressure level at a known frequency. Measurements will be accepted as valid only if the calibration level from before and after the noise measurement agrees to within 1.0 dB.
- 3.1.25 Noise measurements will not be made in fog, rain, wind with a steady speed exceeding 5m/s or wind with gusts exceeding 10m/s. The wind speed will be checked with a portable wind speed meter capable of measuring the wind speed in m/s.
- 3.1.26 The sound level meter and calibrator are calibrated and certified by a laboratory accredited under HOKLAS or any other international accreditation scheme at yearly basis. The calibration certificates of all monitoring equipment used for the impact monitoring program in the Reporting Period is attached in [Appendix E](#).

Meteorological Information

- 3.1.27 The meteorological information including wind direction, wind speed, humidity, rainfall, air pressure and temperature etc. during baseline monitoring is extracted from the closest Hong Kong Observatory Station. To obtain the most appropriate meteorological information where available, the data of temperature is extracted from the Kwun Tong Observatory Station; the data of wind speed and wind direction are extracted from Kai Tak Observatory Station and the data of humidity is extracted from King's Park Station.

DERIVATION OF ACTION/LIMIT (A/L) LEVELS

- 3.1.28 The baseline results form the basis for determining the environmental acceptance criteria for the impact monitoring. According to the approved Environmental Monitoring and Audit Manual, the air quality, construction noise were set up, namely Action and Limit levels are listed in **Tables 3-7 and 3-8**.

Table 3-7 Action and Limit Levels for Air Quality Monitoring

Monitoring Station	Action Level ($\mu\text{g}/\text{m}^3$)		Limit Level ($\mu\text{g}/\text{m}^3$)	
	1-hour TSP	24-hour TSP	1-hour TSP	24-hour TSP
AMS-1	313	154	500	260
AMS-1a(*)	313	154	500	260
AMS-2	319	165	500	260
AMS-3	319	165	500	260
AMS-4	315	165	500	260
AMS-5	299	166	500	260
AMS-6	303	168	500	260
AMS-7	307	156	500	260

(*) 24-hour TSP monitoring at AMS1 was abandoned since May 2019 due to lack of power supply and the landlord was unreachable. The alternation location of AMS1a was activated on 15 June 2019 for 1-hour and 24-hour TSP monitoring. The proposal was agreed by EPD on 9 Aug 2019.

Table 3-8 Action and Limit Levels for Construction Noise

Monitoring Location	Action Level	Limit Level in dB(A)
	Time Period: 0700-1900 hours on normal weekdays	
NMS-1	When one or more documented	70 dB(A) ^{Note 1} / 65 dB(A) ^{Note 1}

Monitoring Location	Action Level	Limit Level in dB(A)
	Time Period: 0700-1900 hours on normal weekdays	
NMS-2(@)	complaints are received	
NMS-3(:)		75 dB(A)
NMS-4*		75 dB(A)
NMS-4a#		75 dB(A)
NMS-5#		75 dB(A)
NMS-6~		75 dB(A)
NMS-7~		75 dB(A)
NMS-8^		75 dB(A)
CN1+		70 dB(A) ^{Note 1} / 65 dB(A) ^{Note 1}
CN2+		70 dB(A) ^{Note 1} / 65 dB(A) ^{Note 1}
CN3+		75 dB(A)

Note 1: Noise Limit Levels for school is 70dB(A) and should be reduced to 65dB(A) during examination period.

Note: If works are to be carried out during restricted hours, the conditions stipulated in the construction noise permit issued by the Noise Control Authority have to be followed.

Remark: (*) Additional noise monitoring location was recommended by RE and agreed by IEC. It was temporary suspended and the monitoring location is relocated to NMS4a with effective on 15 Nov 2017.

(@) NMS-2 was effective on 15 November 2019.

(:) NMS-3 was effective on 3 December 2019

(#) Review of noise monitoring locations was proposed by ET and NMS-5 was effective on 15 Nov 2017.

(~) Review of noise monitoring locations was proposed by ET and NMS-6 and NMS-7 were effective on 28 Feb 2018.

(^) Review of noise monitoring locations was proposed by ET and NMS-8 was effective on 18 April 2018. Noise monitoring at NMS-8 was started on 3 May 2018 upon commencement of construction at relevant section.

(+) Additional noise monitoring locations as instructed by AECOM which effective in Dec 18.

- 3.1.29 Should non-compliance of the environmental quality criteria occurs, remedial actions will be triggered according to the Event and Action Plan which presented in [Appendix F](#).

DATA MANAGEMENT AND DATA QA/QC CONTROL

- 3.1.30 All monitoring data will be handled by the ET's in-house data recording and management system. The monitoring data recorded in the equipment will be downloaded directly from the equipment at the end of each monitoring day. The downloaded monitoring data will input into a computerized database properly maintained by the ET. The laboratory results will be input directly into the computerized database and checked by personnel other than those who input the data.
- 3.1.31 For monitoring parameters that require laboratory analysis, the local laboratory shall follow the QA/QC requirements as set out under the HOKLAS scheme for the relevant laboratory tests.

4. AIR QUALITY MONITORING

GENERAL

4.1.1 In the Reporting Period, air quality monitoring was performed at the active designated monitoring locations AMS-1a, AMS-2, AMS-3, AMS-5, AMS-6 and AMS-7. Since installation of HVS for 24-hour TSP at AMS-2 and AMS-3 were pending approval from relevant departments, only 1-hour TSP monitoring was conducted at AMS-2 and AMS-3. No monitoring was conducted at AMS-4 since they are planned ASR which are still under construction/ not yet constructed.

4.1.2 The air quality monitoring schedule is presented in *Appendix G* and the monitoring results are summarized in the following sub-sections.

RESULTS OF AIR QUALITY MONITORING

4.1.3 In the Reporting Period, a total of **90** events of 1-hour TSP monitoring and **24** events of 24-hours TSP were carried out and the monitoring results are summarized in *Tables 4-1 to 4-5*. The detailed 24-hour TSP monitoring data are presented in *Appendix H* and the relevant graphical plots are shown in *Appendix I*.

Table 4-1 Summary of 24-hour and 1-hour TSP Monitoring Results (AMS-1a)

Date	24-hour TSP ($\mu\text{g}/\text{m}^3$)	1-hour TSP ($\mu\text{g}/\text{m}^3$)				
		Date	Start Time	1 st reading	2 nd reading	3 rd reading
1-Dec-20	33	2-Dec-20	13:26	70	72	76
7-Dec-20	34	8-Dec-20	9:18	68	71	65
12-Dec-20	33	14-Dec-20	13:44	55	54	56
18-Dec-20	16	24-Dec-20	9:27	38	46	40
23-Dec-20	37	29-Dec-20	13:44	62	66	65
28-Dec-20	28	-	-	-	-	-
Average (Range)	30 (16 – 37)	Average (Range)		60 (38 – 76)		

Table 4-2 Summary of 1-hour TSP Monitoring Results (AMS-2)

1-hour TSP ($\mu\text{g}/\text{m}^3$)				
Date	Start Time	1 st reading	2 nd reading	3 rd reading
2-Dec-20	9:24	68	77	72
8-Dec-20	9:41	74	76	72
14-Dec-20	9:10	68	66	70
24-Dec-20	13:26	56	59	61
29-Dec-20	9:10	70	65	64
Average (Range)		68 (56 – 77)		

Table 4-3 Summary of 1-hour TSP Monitoring Results (AMS-3)

1-hour TSP ($\mu\text{g}/\text{m}^3$)				
Date	Start Time	1 st reading	2 nd reading	3 rd reading
2-Dec-20	12:58	75	82	79
8-Dec-20	13:06	78	81	87
14-Dec-20	12:20	76	74	76
24-Dec-20	12:40	80	77	74
29-Dec-20	12:20	78	73	72
Average (Range)		77 (72 – 87)		

Table 4-4 Summary of 24-hour and 1-hour TSP Monitoring Results (AMS-5)

Date	24-hour TSP ($\mu\text{g}/\text{m}^3$)	1-hour TSP ($\mu\text{g}/\text{m}^3$)				
		Date	Start Time	1 st reading	2 nd reading	3 rd reading
1-Dec-20	30	2-Dec-20	9:27	70	72	70
7-Dec-20	67	8-Dec-20	9:09	75	80	71
12-Dec-20	40	14-Dec-20	9:26	66	65	64
18-Dec-20	44	24-Dec-20	9:18	84	75	79
23-Dec-20	49	29-Dec-20	9:25	72	70	68
28-Dec-20	55	-	-	-	-	-
Average (Range)	47 (30 – 67)	Average (Range)		72 (64 – 84)		

Table 4-5 Summary of 24-hour and 1-hour TSP Monitoring Results (AMS-6)

Date	24-hour TSP ($\mu\text{g}/\text{m}^3$)	1-hour TSP ($\mu\text{g}/\text{m}^3$)				
		Date	Start Time	1 st reading	2 nd reading	3 rd reading
1-Dec-20	48	2-Dec-20	9:42	69	70	68
7-Dec-20	84	8-Dec-20	9:26	83	74	81
12-Dec-20	44	14-Dec-20	9:55	68	67	64
18-Dec-20	40	24-Dec-20	9:31	82	75	73
23-Dec-20	38	29-Dec-20	9:55	84	82	78
28-Dec-20	46	-	-	-	-	-
Average (Range)	50 (38 – 84)	Average (Range)		75 (64 – 84)		

Table 4-6 Summary of 24-hour and 1-hour TSP Monitoring Results (AMS-7)

Date	24-hour TSP ($\mu\text{g}/\text{m}^3$)	1-hour TSP ($\mu\text{g}/\text{m}^3$)				
		Date	Start Time	1 st reading	2 nd reading	3 rd reading
1-Dec-20	56	2-Dec-20	13:57	77	86	89
7-Dec-20	58	8-Dec-20	13:34	69	71	75
12-Dec-20	34	14-Dec-20	12:55	71	72	70
18-Dec-20	33	24-Dec-20	9:55	45	52	49
23-Dec-20	50	29-Dec-20	12:53	74	73	71
28-Dec-20	37	-	-	-	-	-
Average (Range)	45 (33 – 58)	Average (Range)		70 (45 – 89)		

4.1.4 As shown in *Tables 4-1 to 4-6*, all the 1-hour TSP and 24-hour TSP monitoring results in the Reporting Period were below the Action and Limit Levels. No Notification of Exceedance (NOE) was issued in this Reporting Period.

4.1.5 The meteorological data during the impact monitoring days are summarized in *Appendix J*.

5. CONSTRUCTION NOISE MONITORING

GENERAL

- 5.1.1 In the Reporting Period, noise monitoring was performed at designated monitoring locations NMS2 and NMS3 and the additional monitoring locations NMS4a, NMS5, NMS6, NMS7 and NMS8. No monitoring was conducted at the designated monitoring locations NMS1 since they are the planned NSR and still under the construction.
- 5.1.2 In addition, a Work Instruction was issued from AECOM to AUES in November 2018 for installing three additional noise monitoring stations, i.e., CN1, CN2 and CN3 for Contract 3. Impact noise monitoring was performed at the three additional noise monitoring locations since December 2018.
- 5.1.3 The noise monitoring schedule is presented in *Appendix G* and the monitoring results are summarized in the following sub-sections.

NOISE MONITORING RESULTS IN REPORTING MONTH

- 5.1.4 In the Reporting Period, a total of **35** events noise measurements were carried out at the designated locations under Contract 1. The noise monitoring results at the designated locations are summarized in *Tables 5-1*. The detailed noise monitoring data are presented in *Appendix H* and the relevant graphical plots are shown in *Appendix I*.

Table 5-1 Summary of Construction Noise Monitoring Results for Contract 1

Construction Noise Level ($L_{eq30min}$), dB(A)						
Date	NMS2	NMS3	NMS4a	NMS5	NMS6	NMS7
2-Dec-20	63	66	64	60	64	60
8-Dec-20	63	67	66	63	66	62
14-Dec-20	66	66	69	68	70	67
24-Dec-20	63	64	65	66	70	69
29-Dec-20	65	66	65	68	71	61
Limit Level	70 dB(A) / 65 dB(A) ^{Note 1}		75 dB(A)			

Note 1: Noise Limit Levels for school is 70dB(A) and should be reduced to 65dB(A) during examination period;

Table 5-1a Summary of Construction Noise Monitoring Results for Contract 1

Construction Noise Level ($L_{eq30min}$), dB(A)	
Date	NMS8
2-Dec-20	66
11-Dec-20	65
17-Dec-20	67
21-Dec-20	65
31-Dec-20	61
Limit Level	75 dB(A)

- 5.1.5 For the additional noise monitoring under Contract 3, a total of **15** events noise measurements were performed for the Contract. The noise monitoring results are summarized in *Tables 5-2*. The detailed noise monitoring data are presented in *Appendix H* and the relevant graphical plots are shown in *Appendix I*.

Table 5-2 Summary of Construction Noise Monitoring Results for Contract 3

Construction Noise Level ($L_{eq30min}$), dB(A)			
Date	CN1	CN2	CN3
2-Dec-20	70	66	61
11-Dec-20	66	64	63
17-Dec-20	65	63	63

21-Dec-20	68	64	61
31-Dec-20	58	57	60
Limit Level	70 dB(A) / 65 dB(A)^{Note 1}	70 dB(A)^{Note 1} / 65 dB(A)^{Note 1}	75 dB(A)

Note 1: Noise Limit Levels for school is 70dB(A) and should be reduced to 65dB(A) during examination period.

- 5.1.6 As shown in **Tables 5-1 and 5-2**, no Limit Level exceedance was recorded in this Reporting Period. Moreover, one noise complaint (which triggered Action level exceedance) was received under the Project. The investigation for the noise complaint is included in Section 8 of the report.

6. WASTE MANAGEMENT**GENERAL WASTE MANAGEMENT**

- 6.1.1 Waste management was carried out by an on-site Environmental Officer or an Environmental Supervisor from time to time.

RECORDS OF WASTE QUANTITIES

- 6.1.2 All types of waste arising from the construction work are classified into the following:
- Construction & Demolition (C&D) Material;
 - Chemical Waste;
 - General Refuse; and
 - Excavated Soil.
- 6.1.3 The quantities of waste for disposal in this Reporting Period are summarized in **Tables 6-1** and **6-2** and the Monthly Summary Waste Flow Table is shown in **Appendix K**. Whenever possible, materials were reused on-site as far as practicable.

Table 6-1 Summary of Quantities of Inert C&D Materials

Type of Waste	Contract 1		Contract 2		Contract 3	
	Quantity	Disposal Location	Quantity	Disposal Location	Quantity	Disposal Location
Total generated Inert C&D Materials ('000m ³) (#)	16.53	-	0.1	-	1.442	-
Hard Rock and Large Broken Concrete ('000m ³)	0	-	0	-	0	-
Reused in this Contract (Inert) ('000m ³)	4.965	-	0	-	0.503	-
Reused in other Projects (Inert) ('000m ³)	10.597	*	0	-	0.308	*
Disposal as Public Fill (Inert) ('000m ³)	0.968	TKO 137	0.03	TKO 137	0.939	TKO 137

Remark (#): The total generated inert C&D materials will not take account for the hard rock and large broken concrete.

(*) Approved alternative disposal ground.

Table 6-2 Summary of Quantities of C&D Wastes

Type of Waste	Contract 1		Contract 2		Contract 3	
	Quantity	Disposal Location	Quantity	Disposal Location	Quantity	Disposal Location
Recycled Metal ('000kg)	0	-	0	-	0	-
Recycled Paper / Cardboard Packing ('000kg)	1.231	Licensed collector	0	-	0	-
Recycled Plastic ('000kg)	0	-	0	-	0.546	Licensed collector
Chemical Wastes ('000kg)	0	Licensed collector	0	-	0	-
General Refuses ('000m ³)	0.162	SENT	0.07	SENT	0.042	SENT

7. SITE INSPECTION**REQUIREMENTS**

- 7.1.1 According to the approved EM&A Manual, the environmental site inspection shall be formulated by ET Leader. Weekly environmental site inspections should be carried out to confirm the environmental performance.

FINDINGS / DEFICIENCIES DURING THE REPORTING MONTH**Contract 1**

- 7.1.2 In the Reporting Period, joint site inspections for Contract 1 to evaluate site environmental performance were carried out by the RE, ET and the Contractor on **1st, 10th, 15th, 22nd and 29th December 2020** in which IEC joined the site inspection with SSEMC on **10th December 2020**. No non-compliance was noted. The findings / deficiencies of **Contract 1** that observed during the weekly site inspection are listed in **Table 7-1**.

Table 7-1 Site Observations of Contract 1

Date	Findings / Deficiencies	Follow-Up Status
24 November 2020 (Last Reporting Period)	<ul style="list-style-type: none"> The Contractor should provide acoustic mat for the breaker at Water Reservoir. 	<ul style="list-style-type: none"> Acoustic mat was provided.
1 December 2020	<ul style="list-style-type: none"> NRMM label should be displayed on the generator used on site. (USRT) The Contractor was reminded to provide water spraying more frequently during the dry seasons. (General) 	<ul style="list-style-type: none"> NRMM label was provided. Reminder Only.
10 December 2020	<ul style="list-style-type: none"> Drip tray should be provided for chemical storage on-site. (PTT & Po Lam Road) Water spraying frequency should be increased for the haul road and dusty activities during dry season to reduce dust impact. Moreover, proper noise mitigation measures should be provided for the works area near to the NSR to reduce noise impact (General) 	<ul style="list-style-type: none"> Chemical containers were removed. (PTT & Po Lam Road) Reminder only.
15 December 2020	<ul style="list-style-type: none"> The Contractor was reminded to provide water spraying on site (General) 	<ul style="list-style-type: none"> Reminder only.
22 December 2020	<ul style="list-style-type: none"> The Contractor was reminded to provide water spraying on site (General) 	<ul style="list-style-type: none"> Reminder only.
29 December 2020	<ul style="list-style-type: none"> The Contractor was reminded to provide water spraying during breaking works. (PTT). 	<ul style="list-style-type: none"> Reminder only.

Contract 2

- 7.1.3 In the Reporting Period, joint site inspections for Contract 2 to evaluate site environmental performance were carried out by the RE, ET and the Contractor on **2nd, 9th, 16th, 23rd and 30th December 2020** in which IEC joined the site inspection with SSEMC on **16th December 2020**. No non-compliance was noted. The findings / deficiencies of **Contract 2** that observed during the weekly site inspection are listed in **Table 7-2**.

Table 7-2 Site Observations of Contract 2

Date	Findings / Deficiencies	Follow-Up Status
2 December 2020	<ul style="list-style-type: none"> Retained tree without tree protection zone was observed at portion 1. The Contractor was 	<ul style="list-style-type: none"> Tree protection zone was provided

Date	Findings / Deficiencies	Follow-Up Status
	advised to provide tree protection for retained tree.	for retained tree.
9 December 2020	<ul style="list-style-type: none"> The Contractor was reminded to remove construction material near tree protection zone at portion 2. The Contractor was reminded to spray water regularly at exposed work area for dust suppression. 	<ul style="list-style-type: none"> Reminder only. Reminder only.
16 December 2020	<ul style="list-style-type: none"> The Contractor was reminded to review the temporary drainage system at portion 3. 	<ul style="list-style-type: none"> Reminder only.
23 December 2020	<ul style="list-style-type: none"> The Contractor was reminded to enhance the housekeeping within site area. 	<ul style="list-style-type: none"> Reminder only.
30 December 2020	<ul style="list-style-type: none"> The Contractor was reminded to enhance the housekeeping within site area. 	<ul style="list-style-type: none"> Reminder only.

Contract 3

- 7.1.4 In the Reporting Period, joint site inspections for Contract 3 to evaluate site environmental performance were carried out by the RE, ET and the Contractor on **4th, 11th, 18th, 24th and 31st December 2020** in which IEC joined the site inspection with SSEMC on **11th December 2020**. No non-compliance was noted. The findings / deficiencies of **Contract 3** that observed during the weekly site inspection are listed in **Table 7-3**

Table 7-3 Site Observations of Contract 3

Date	Findings / Deficiencies	Follow-Up Status
4 December 2020	<ul style="list-style-type: none"> The Contractor was reminded to clear the stagnant water at F1.. The Contractor was reminded to provide water spraying at E11. 	<ul style="list-style-type: none"> Reminder only. Reminder only.
11 December 2020	<ul style="list-style-type: none"> The Contractor was reminded to provide water spraying System B. 	<ul style="list-style-type: none"> Reminder only.
18 December 2020	<ul style="list-style-type: none"> No adverse environmental issue was observed. 	<ul style="list-style-type: none"> NA
24 December 2020	<ul style="list-style-type: none"> No adverse environmental issue was observed. 	<ul style="list-style-type: none"> NA
31 December 2020	<ul style="list-style-type: none"> No adverse environmental issue was observed. 	<ul style="list-style-type: none"> NA

8. ENVIRONMENTAL COMPLAINT AND NON-COMPLIANCE**ENVIRONMENTAL COMPLAINT, SUMMONS AND PROSECUTION**

- 8.1.1 In the Reporting Period, two environmental complaints were received for Contract 1 in relation to the construction noise and dust emission.

Complaints received for Contract 1

- (c) A public complaint was received by EPD on 4 December 2020 regarding the dust impact. The complainant mentioned that the construction site opposite to On Tai Estate had dust emission problem due to lack of water spraying. He/she requested relevant department to follow up. In our investigation, CWSTVJV has implemented dust mitigation measures to eliminate the inconvenience caused to the nearby resident. In view of the potential traffic dust impact and implementation of dust mitigation measures, it is considered that the complaint was not valid to the Project.
- (d) A public complaint was received by 1823 on 3 December 2020 and subsequently referred by EPD on 4 December 2020 regarding the construction dust and noise impact arising from the project. There were acoustic mats erected on the slope of East Portal, however, the complainant enquired about effectiveness of the noise barriers with dozens of 15 cm "X"-shaped cuts. Moreover, there was lack of water sprinkling on the site and fugitive dust was blowing to the village. In our investigation, CWSTVJV had provided the dust and noise mitigation measures to minimize the dust and noise impact to the resident nearby. To response the concern from the complainant, as enhancement noise measure, the Contractor extended the noise barrier to encircle noisy activity. Since the works were conducted within approved normal hours with implementation of noise and dust mitigation measures, there were no breaches of legislative requirement.
- 8.1.2 Besides, no summons and prosecution under the EM&A Programme was lodged for the project. Investigation for the complaint was undertaken by the ET and presented in following sections.
- 8.1.3 The complaint log and Investigation Reports issued in the Reporting Period are shown in [Appendix M](#).
- 8.1.4 The statistical summary table of environmental complaint, summons and prosecution is presented in **Tables 8-1, 8-2 and 8-3**.

Table 8-1 Statistical Summary of Environmental Complaints

Reporting Period	Contract no.	Environmental Complaint Statistics		
		Frequency	Cumulative	Complaint Nature
1 Apr 2017 – 30 Nov 2020	1	0	44	Dust, Noise and light nuisance
21 Mar 2017 – 30 Nov 2020	2	0	10	Noise
31 May 2018 – 30 Nov 2020	3	0	6	Waste Management, Noise, Water Quality
1 – 31 December 2020	1	2	46	Dust & Noise
	2	0	10	NA
	3	0	6	NA

Table 8-2 Statistical Summary of Environmental Summons

Reporting Period	Contract no.	Environmental Summons Statistics		
		Frequency	Cumulative	Summons Nature
1 Apr 2017 – 30 Nov 2020	1	0	0	NA
21 Mar 2017 – 30 Nov 2020	2	0	0	NA
31 May 2018 – 30 Nov 2020	3	0	0	NA

Reporting Period	Contract no.	Environmental Summons Statistics		
		Frequency	Cumulative	Summons Nature
1 – 31 December 2020	1	0	0	NA
	2	0	0	NA
	3	0	0	NA

Table 8-3 Statistical Summary of Environmental Prosecution

Reporting Period	Contract no.	Environmental Prosecution Statistics		
		Frequency	Cumulative	Prosecution Nature
1 Apr 2017 – 30 Nov 2020	1	0	0	NA
21 Mar 2017 – 30 Nov 2020	2	0	0	NA
31 May 2018 – 30 Nov 2020	3	0	0	NA
1 – 31 December 2020	1	0	0	NA
	2	0	0	NA
	3	0	0	NA

9. IMPLEMENTATION STATUS OF MITIGATION MEASURES**GENERAL REQUIREMENTS**

- 9.1.1 The environmental mitigation measures that recommended in the Implementation Schedule for Environmental Mitigation Measures (ISEMM) in the approved EM&A Manual covered the issues of dust, noise, water and waste and they are summarized presented in [Appendix L](#).
- 9.1.2 All contracts under the Project shall be implementing the required environmental mitigation measures according to the approved EM&A Manual as subject to the site condition. Environmental mitigation measures generally implemented in this Reporting Period are summarized in **Table 9-1**.

Table 9-1 Environmental Mitigation Measures

Issues	Environmental Mitigation Measures
Water Quality	<ul style="list-style-type: none"> Wastewater to be treated by filtration system; such as, silt curtain or sedimentation tank before discharge. Replace silt curtain materials if necessary
Air Quality	<ul style="list-style-type: none"> Maintain damp / wet surface on access road Keep slow speed in the sites All vehicles must use wheel washing facility before off site All vehicles must use wheel washing facility before off site Sprayed water during breaking works
Noise	<ul style="list-style-type: none"> Restrain operation time of plants from 07:00 to 19:00 on any working day except for Public Holiday and Sunday. Keep good maintenance of plants Place noisy plants away from residence or school Provide noise barriers or hoarding to enclose the noisy plants or works Shut down the plants when not in used.
Waste and Chemical Management	<ul style="list-style-type: none"> On-site sorting prior to disposal Follow requirements and procedures of the “Trip-ticket System” Predict required quantity of concrete accurately Collect the unused fresh concrete at designated locations in the sites for subsequent disposal
General	<ul style="list-style-type: none"> The site was generally kept tidy and clean.

TENTATIVE CONSTRUCTION ACTIVITIES IN THE COMING MONTH

- 9.1.3 Construction activities for Contract 1 in the coming month are listed below:
- Temporary Traffic Arrangement (TTA) at On Sau Road:
- Implementation of TTA at the junction between On Sau Road and Road L4 for road improvement works to continue
- Pedestrian Connectivity System B:
- PC system B substructure backfill work to continue.
 - Bamboo Scaffold Erection for external ABWF works.
- Construction of Internal Road L1:
- Excavation and laying of watermain to continue.
 - Road work, footpath and cycle track at L1 east to continue.
 - Gullies and upper drainage construction for road L1 west to continue.
- Box Culvert BC1 at Internal Road L1:
- Defect rectification work to continue
- Construction of Internal Road L2

- Site formation works to continue.
- Drainage pipe lower and middle level complete, upper level and gully pipe to continue
- Watermain works and UU laying to continue

Retaining Wall RWA9 at Road L3

- Backfilling and SRT of RWA9 Bays 1- Bay10 to continue
- Backfilling and SRT of RWA9 Bays 18-20 to continue.
- Mass concrete fill behind Bay 17 to continue.
- Base slab construction of Bay 16 to continue.
- Wall construction of RWA9 Bays 15 and 16 to continue
- Lower level drainage in progress.
- Construction of manhole SMH1, TM26a &TM26 to continue.

Retaining Wall RWA10 at Road L3

- Backfill behind Bays 6 to 16 to continue.

Box Culvert BC2 at Internal Road L3:

- Backfilling at Bay 17 chamber structure to continue.

Construction of Internal Road L5:

- The First Batch paving block were arrived. Laying the concrete kerb construction for the cycle track and footpath before the demonstration of porous concrete pavement set up.

Water Pumping Station including Retaining Wall RWA13 and RWA14:

- Backfill at retaining wall RWA13 to continue.
- To continue the watermain works outside Water Pumping Station.
- To continue the Metal Works (i.e.: chequer plate.).
- To continue with the ABWF Works (i.e.: floor)
- To continue with the E&M Works.
- To continue the mass concrete fill works at slope A13.

Water Reservoir

- To continue excavation works (rock breaking) for watermain works (i.e.: valve chamber).
- To continue drainage works (backfilling).

Artificial Flood Attenuation Lake

- To continue laying granular bed, HDPE membrane and concrete lining works at remaining part of lake bottom.
- To continue with drainage works.
- To continue the construction of floating bridge footing.

Underground Stormwater Retention Tank (USRT)

- Backfill around USRT to continue.
- Backfill around Ventilation Duct area to continue.

Internal Road L4, Pedestrian Connectivity System A, Noise Barrier, RWA12 and RWA18:

- RWA12 Bay 21 wall construction to continue.
- Backfilling behind Bays 22-26 to continue.
- 600 concrete pipe between R343 and CP17-1 in progress.
- Pressure test and swabbing for DN300 fresh watermain and NS125 salt watermain at CHC-10 to CHC390 complete.
- Road works (laying sub-base, kerb construction and flexible pavement) complete
- Excavation and traffic signal post ducting works to continue

PC System A

- North Tower wall construction to continue.
- Subway SYA-SW1 wall and top slab construction to continue.

- South Tower forming of no-fines concrete slope to continue.
- South Tower extension of h-pile to continue.
- South Tower installation of capping plate to continue
-

PTT

- Steel work and PMMA panel installation to continue, make good formation condition and rock breaking for cycle track would commence.

Slope Stabilization at Portion B1:

- Continue to carry out stabilization works at Feature No. 11NE-D/C1004, 11NE-D/C1005, Slope A15b, 11NE-D/C947, 11NE-D/C949, 11NE-D/C976 and 11NE-D/C977

Slope Stabilization at Portion B5

- Continue to erect inspection scaffolds from 2nd to 6th berm
- Continue to carry out stabilization works at Feature No. 11NE-D/C949 and 11NE-D/C948
- Continue to trim the slope profile of Feature 11NE-D/C902 and Slope A15a

Road Improvement Works at Po Lam Road:

- Construction of permanent footpath and surface drainage system to continue
- Excavation works to facilitate installation of the E&M/ACT/Earth pit and construction of permanent footpath and surface drainage system to continue
- Remove the existing concrete pavement and reconstruction to continue

MEP Works:

- Submission of designs and materials related to MEP works to continue.
- E&M installation works at Pump Hall of Fresh Water Pumping Station to continue.
- E&M installation works at Pedestrian Connectivity System B to continue
- E&M installation works at USRT to continue

Site Formation Work at Portion B13:

- Excavation to formation level to continue.

Site Formation Work at Portion B7 & B15:

- Chainlink fence and UC construction at land parcel R2-5 & Portion B15 to continue.

Site Formation Work at Portion B3:

- UC construction at land parcel C-5 to continue.
- Chain-link fence installation and UC construction at land parcel R2-7 and C-1 completed.

Site Formation Work at Portion B14:

- Backfilling and proof rolling/ SRT at Portion B14 to continue.

Site Formation Work at Portion E2 & E3:

- Backfilling & SRT of fill slope zone of Portion E2 & E3 to continue

Site Formation Work at Portion A1 (land parcel R2-8):

- Backfilling, proof rolling chain-link fence and UC construction at land parcel R2-8 to continue.

Site Formation Work at Portion A-1 (land parcel G-1):

- Chain-link fence & UC construction at land parcel G-1 completed.

Site Formation Work at Portion G3 & Slope A6:

- Excavation to formation level at land parcel G3 to continue.
- Chain-link fence installation at land parcel G3 to continue.

Cavern (Portion B5):

- Rock fall fence installation complete.
- Rock mapping of Sub Area 5 slope at Ch0-Ch40 on level +208mPD - 210.5mPD to continue.
- Rock breaking of existing slope at Ch40-240 on level +204-206mPD to continue
- Rock dowel construction at Ch40-140 on level+206+208.5 to continue
- Planter wall construction to continue.

Underpass, East and West Portal:

- East Portal Head Wall construct work in progress
- East Portal site formation works for RWA1C retaining wall in progress
- East Portal drainage system construct manhole and rock excavation in progress
- West Portal Buttress wall construct work in progress
- West Portal Slope A3 construct u-channel and berm in progress
- Underpass – profile barrier, VE panel frame, painting, drainage works in progress.

9.1.4 Construction activities for Contract 2 in the coming month are listed below:

- Portion 1: Continue grouting works for piles at Pile Cap E1 –PC3.
Construction for pile cap E1 –PC3 & E1 –PC5.
Construction of Pier E1-P1.
Backfilling with no-fines concrete around pile cap E1-PC6.
- Portion 2: Existing lighting removal
Installation of rock dowel and shotcreting.
- Portion 3: Rock Excavation for E2-F4.
Tree branch pruning of Tree No. P-T00967.
- Portion 6:
 - Drainage work
 - Cable diversion.
 - Fixing formwork, reinforcement and place concrete for RWE12

9.1.5 Construction activities for Contract 3 in the coming month are listed below:

Road Improvement Works 1 (RIW1)

- Site formation, ELS works & RC works at RWC2;
- Backfilling works at KS27;

Road Improvement Works 2 (RIW2)

- ELS at Zone 6 & 7;
- Retaining wall construction for Bay 2 to 8;
- Remove piling platform at CT4 and utilities diversion works;
- Predrilling works at SE2.

Road Improvement Works 3 (RIW3)

- Construction of retaining wall RWD1 Bay 1 – 10 at Slope D1;
- ELS construction for RWD1 Bay 11 – 14 at Slope D1;
- ELS construction for footings of noise barrier VB1 SE1 at Slope D1;
- Construction of retaining wall RWD2 at Slope D2;
- Backfilling works at Slope D2;
- Stage 1 rock excavation at Slope D3;
- Soil nail installation at Slope D3; and
- Watermain works at Sau Mau Ping Road.

Pedestrian Connectivity Facility E8 (PC-E8)

- Construction of Deck at P3/P4;
- Escalator installation for E1/E2, E7/E8;

- Steel roof installation at P1/P2, P3/P4; and
- ELS construction for F8

Pedestrian Connectivity Facility E11 (PC-E11)

- Construction of ELS for PC1
- Diversion of Dia. 900mm Concrete Pipe and Construction of Manhole at PC1;
- Construction of lift tower LT2 & ST2 at PC6.

Pedestrian Connectivity Facility System A (PC-SYA)

- Backfilling to existing ground level and erection formworks for above ground structure construction.

Pedestrian Connectivity Facility System A (PC-SYB)

- Construction of RC structure at PC8 and Construction of pile cap at PC7; and
- Site coordination with Towngas and gasmain diversion works at PC2 (On Sau Road).

KEY ISSUES FOR THE COMING MONTH

9.1.6 Key issues to be considered in the coming month include:

- Implementation of dust suppression measures at all times;
- Potential wastewater quality impact due to surface runoff;
- Potential fugitive dust quality impact due from the dry/loose/exposure soil surface/dusty material;
- Disposal of empty engine oil containers within site area;
- Ensure dust suppression measures are implemented properly;
- Sediment catch-pits and silt removal facilities should be regularly maintained;
- Management of chemical wastes;
- Discharge of site effluent to the nearby wetland, stockpiling or disposal of materials, and any dredging or construction area at this area are prohibited;
- Follow-up of improvement on general waste management issues; and
- Implementation of construction noise preventative control measures

9.1.7 During dry season, the Contractors should fully implement air quality mitigation measures to reduce construction dust emission as far as practicable. Furthermore, since construction site is highly visible to the resident at nearby estates, noise mitigation measures such as using of quiet plants should be implemented in accordance with the EM&A requirement.

9.1.8 The Contractors should pay special attention on water quality mitigation measures and fully implement according to the ISEMM of the EM&A Manual, in particular to prevent muddy water or other water pollutants from site surface overflow to public area should be properly maintained. The implementation of water quality mitigation measures conducted by the Contractor is shown in [Appendix N](#).

10. CONCLUSIONS AND RECOMMENDATIONS

CONCLUSIONS

- 10.1.1 This is 45th monthly EM&A report presenting the monitoring results and inspection findings for the Reporting Period from 1 to 31 December 2020.
- 10.1.2 No 24-hour or 1-hour TSP monitoring results that triggered the Action or Limit Levels were recorded. No NOEs or the associated corrective actions were therefore issued.
- 10.1.3 For construction noise, no Limit Level exceedance was recorded and no Notification of Exceedance was issued during this Reporting Period. However, one noise complaint (which triggered Action Level exceedance) was received under the project. Investigation for the complaint was undertaken by the ET (refer to S10.1.4)
- 10.1.4 In the Reporting Period, there were two complaints received in relation to the dust and noise concerns for Contract 1 respectively. Investigation had undertaken by ET upon receipt of the complaint. In our investigation, the Contractor had provided the noise and dust mitigation measures to minimize the noise impact to the resident nearby. It was concluded that the dust impact was not valid to the project. For the noise complaint, it was likely related to the contact works, as enhancement noise measure, the Contractor extended the noise barrier to encircle noisy activity. As the works were conducted within approved normal hours with implementation of noise and dust mitigation measures, there were no breaches of legislative requirement.
- 10.1.5 No notification of summons or successful prosecution was received under the Project.
- 10.1.6 During the Reporting Period, weekly joint site inspection by the RE, ET with the relevant Main-contractor was carried out for Contracts 1, 2 and 3 in accordance with the EM&A Manual stipulation whereas IEC performed monthly site inspection for both contracts. No non-compliance observed during the site inspection.

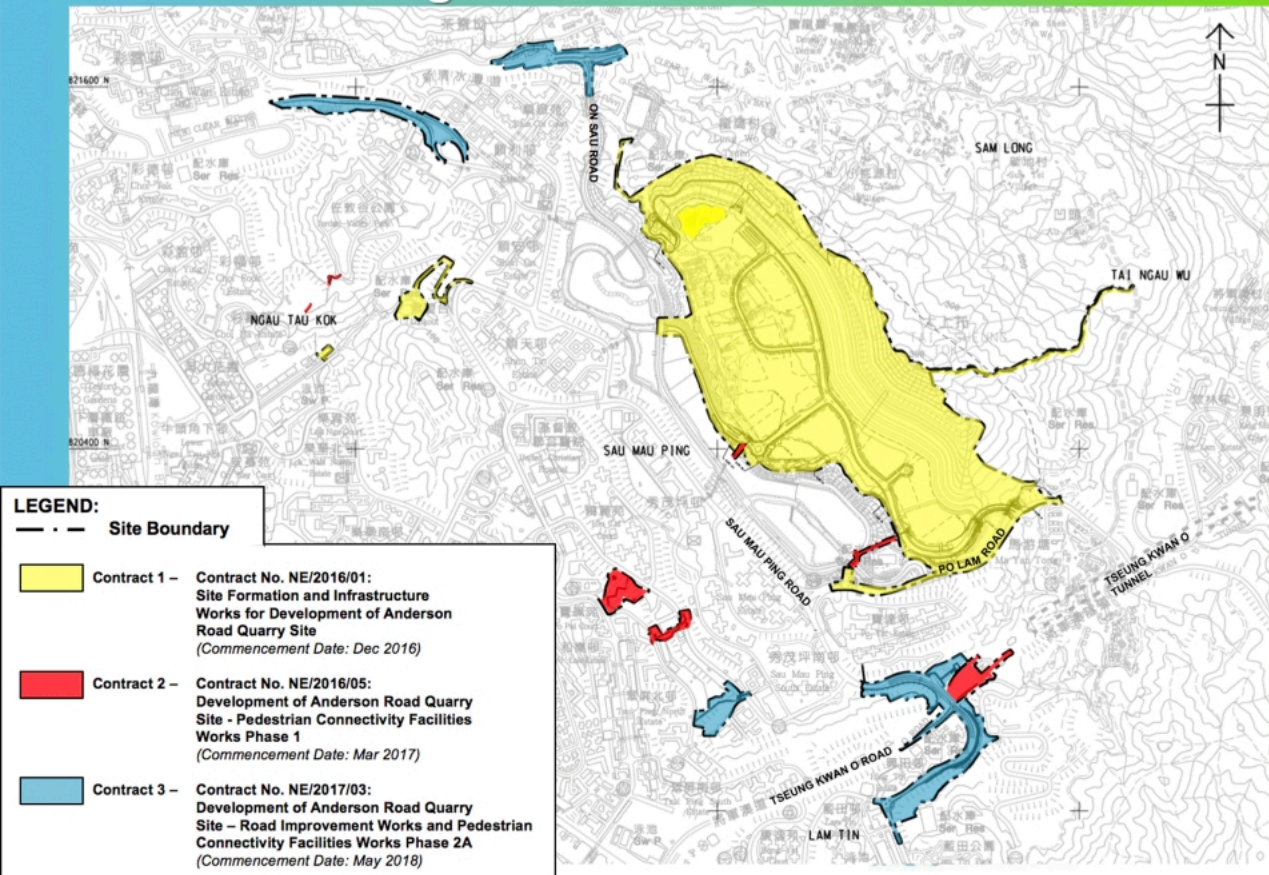
RECOMMENDATIONS

- 10.1.7 During dry season, the Contractors should fully implement air quality mitigation measures to reduce construction dust emission as far as practicable. Furthermore, since construction site is highly visible to the resident at nearby estates, noise mitigation measures such as using of quiet plants should be implemented in accordance with the EM&A requirement.
- 10.1.8 Since construction site is highly visible to the resident at nearby estates, the Contractors should pay special attention on potential environmental impact generated by the site activities and adhere implement adequate air quality and noise mitigation measures as far as practicable to reduce the impact to the public.
- 10.1.9 Construction noise is one of the key environmental issues during construction work of the Project. Noise mitigation measures such as using quiet plants and noise barriers shall be implemented where practicable according to the EM&A manual.
- 10.1.10 In addition, the Contractors should ensure all effluent discharge shall be fulfilled the Technical Memorandum of Effluent Discharged into Drainage and Sewerage Systems, inland and Coastal Waters criteria or relevant discharge license requirement.
- 10.1.11 Mosquito control measures should be continued to prevent mosquito breeding on site.

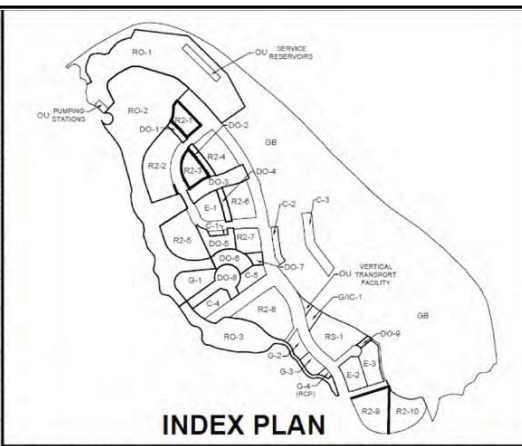
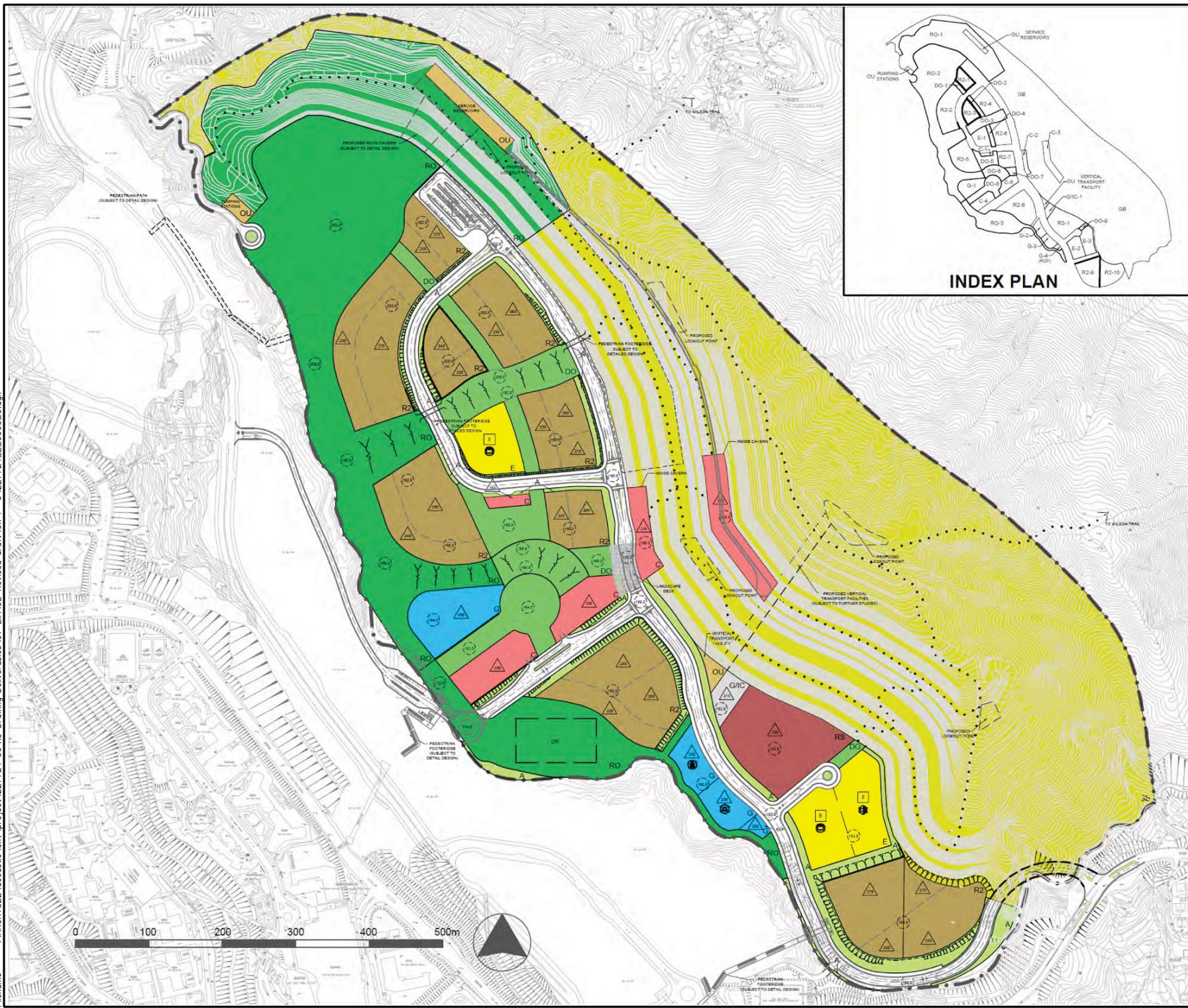
Appendix A

Layout plan of the Project

Contract Packages



Layout plan of Contract 1 (NE/2016/01)



LEGEND

- POLICE STATION
- DIVISIONAL FIRE STATION
- SECONDARY SCHOOL
- PRIMARY SCHOOL
- PUBLIC TRANSPORT TERMINUS
- PLANNING BOUNDARY
- UNDERPASS
- PROPOSED PEDESTRIAN TRAIL
- PEDESTRIAN PRECINCT
- DRAINAGE RESERVE
- MAXIMUM BUILDING HEIGHT (in m above PD)
- MAXIMUM BUILDING HEIGHT (in storeys)
- PROPOSED LEVEL (in m above PD)
- PROPOSED SLOPE
- REFUSE COLLECTION POINT
- FOOTBRIDGE
- COMMERCIAL
- SPECIAL RESIDENTIAL
- RESIDENTIAL ZONE-2
- GOVERNMENT
- GOVERNMENT INSTITUTION OR COMMUNITY
- EDUCATION
- REGIONAL OPEN SPACE
- DISTRICT OPEN SPACE
- AMENITY
- OTHER SPECIFIED USES
- GREEN BELT
- ROADS, JUNCTIONS, ETC.
- AREA WITH POTENTIAL FOR ROCK CAVERN DEVELOPMENT

Rev	Description	By	Date
C	THIRD ISSUE	GL	03/14
B	SECOND ISSUE	GL	01/14
A	FIRST ISSUE	GL	10/13

Consultant: **ARUP**

Contract No. and Title: **Agreement No. CE 18/2012(CE)**
Development of Anderson Road Quarry - Investigation

Drawing title: **Recommended Outline Development Plan**

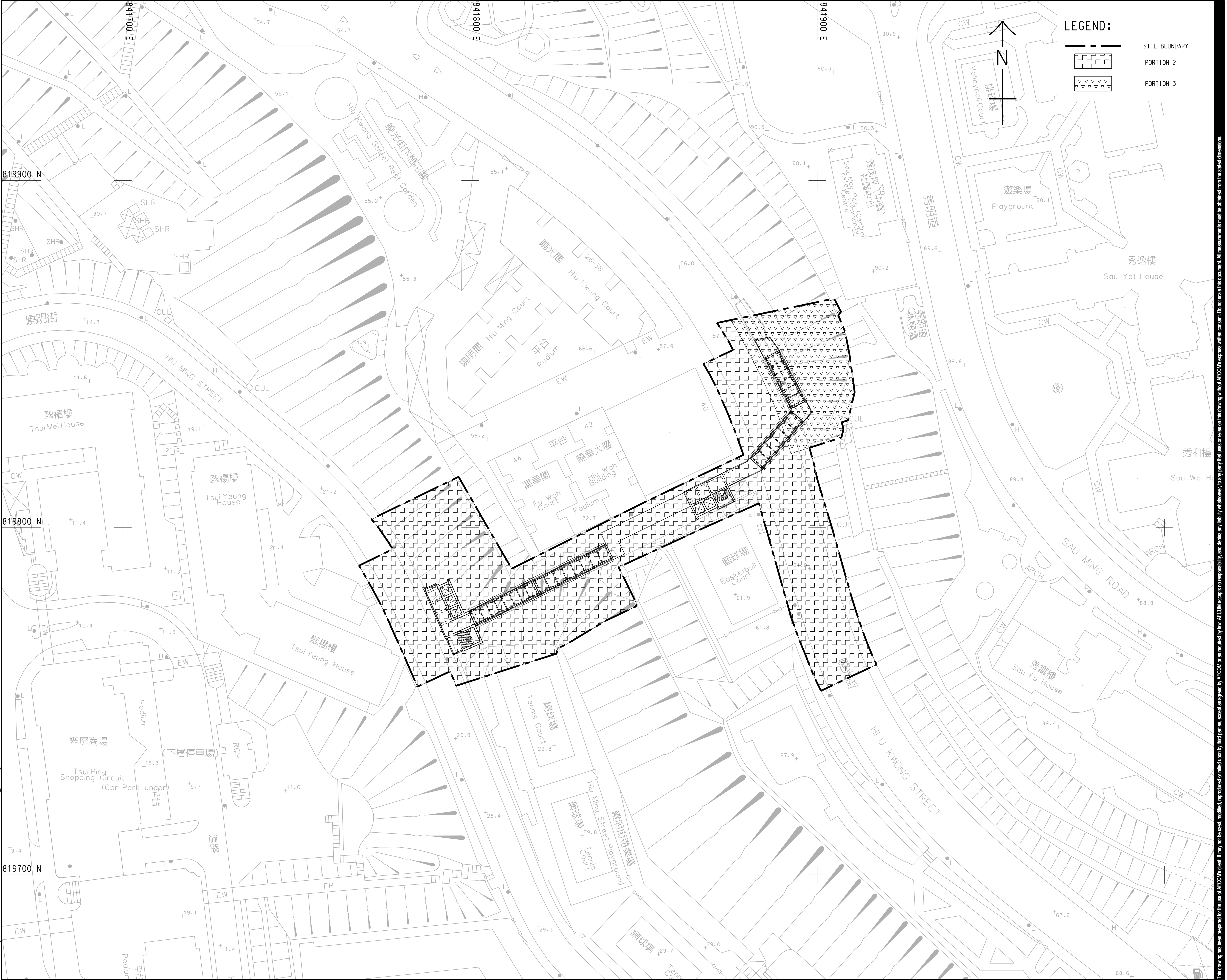
Drawing no. 227724/E/0003		Rev. C	
Drawn	Date	Checked	Approved
GL	03/14	TC	ST
Scale	AS SHOWN	Status	PRELIMINARY

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Civil Engineering and Development Department

Layout plan of Contract 2 (NE/2016/05)

Pld File by: WANGGLW 2016/10/24
PATH P:\Projects\60328348\DRAWING\CONTRACT\PC1\2000\PC1_2016.dgn
Project Management Initials: Designer: PCTK Checked: AC Approved: BWCW ISO A1 594mm x 841mm



LEGEND:

--- SITE BOUNDARY

[Hatched Box] PORTION 2

[Dotted Box] PORTION 3




AECOM

PROJECT
項目

**DEVELOPMENT OF
ANDERSON ROAD
QUARRY SITE - INVESTIGATION,
DESIGN AND CONSTRUCTION**

CONTRACT TITLE
PEDESTRIAN CONNECTIVITY
FACILITIES WORKS PHASE 1

CLIENT
業主

 **土木 工程 拓展 署**
**Civil Engineering and
Development Department**

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ISSUE/REVISION
修訂

I/R 修訂	DATE 日期	DESCRIPTION 內容摘要	CHK. 校核
-	OCT. 16	TENDER DRAWING	AC

STATUS
階段

SCALE
比例

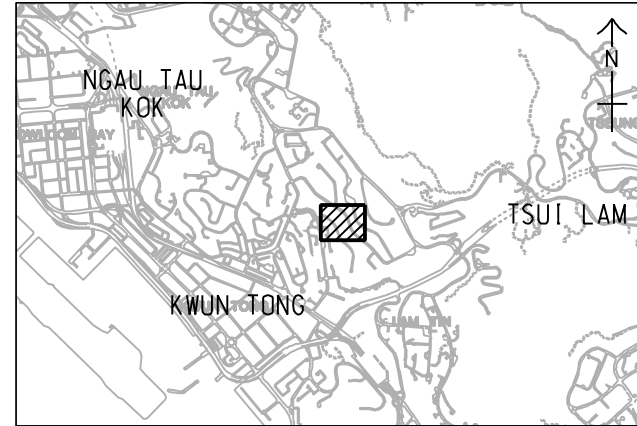
A1 1 : 500

DIMENSION UNIT
尺寸單位

METRES

KEY PLAN
索引圖

A1 1 : 60000



PROJECT NO.
項目編號

60328348

CONTRACT NO.
合約編號

NE/2016/05

SHEET TITLE
圖紙名稱

E2-C1-E3 - PORTION OF SITE

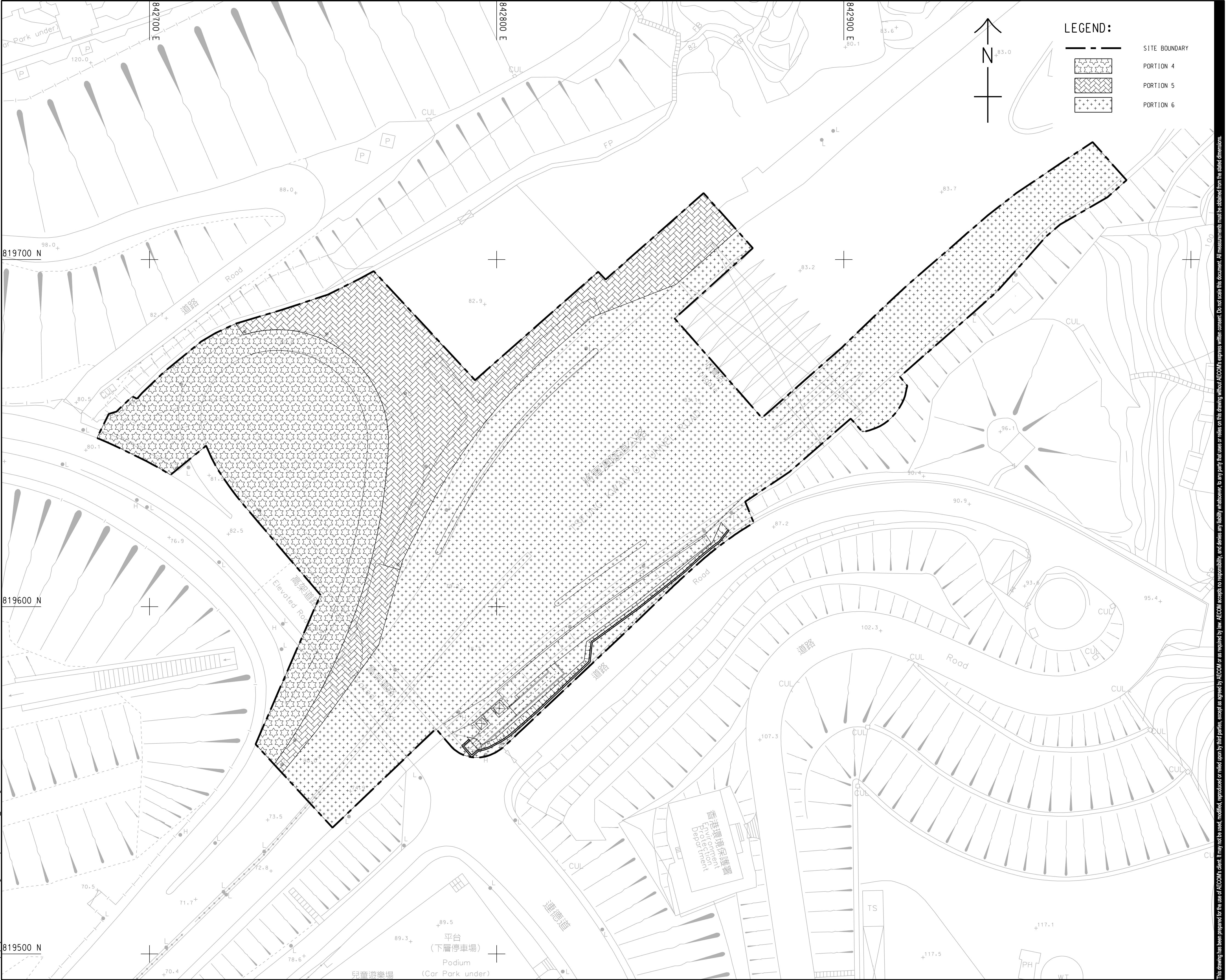
SHEET NUMBER
圖紙編號

60328348/PC1/2016

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Project Management Initials:
Designer:
PCTK Checked:
Approved:
BWCW ISO A1 594mm x 841mm



LEGEND:

- SITE BOUNDARY
- PORTION 4
- PORTION 5
- PORTION 6

AECOM

PROJECT
項目

**DEVELOPMENT OF
ANDERSON ROAD
QUARRY SITE - INVESTIGATION,
DESIGN AND CONSTRUCTION**

CONTRACT TITLE
PEDESTRIAN CONNECTIVITY
FACILITIES WORKS PHASE 1

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1/R	修訂	日期	內容摘要

STATUS
階段

SCALE
比例

A1 1 : 500

DIMENSION UNIT
尺寸單位

METRES

KEY PLAN
索引圖

A1 1 : 60000

PROJECT NO.
項目編號

60328348

CONTRACT NO.
合約編號

NE/2016/05

SHEET TITLE
圖紙名稱

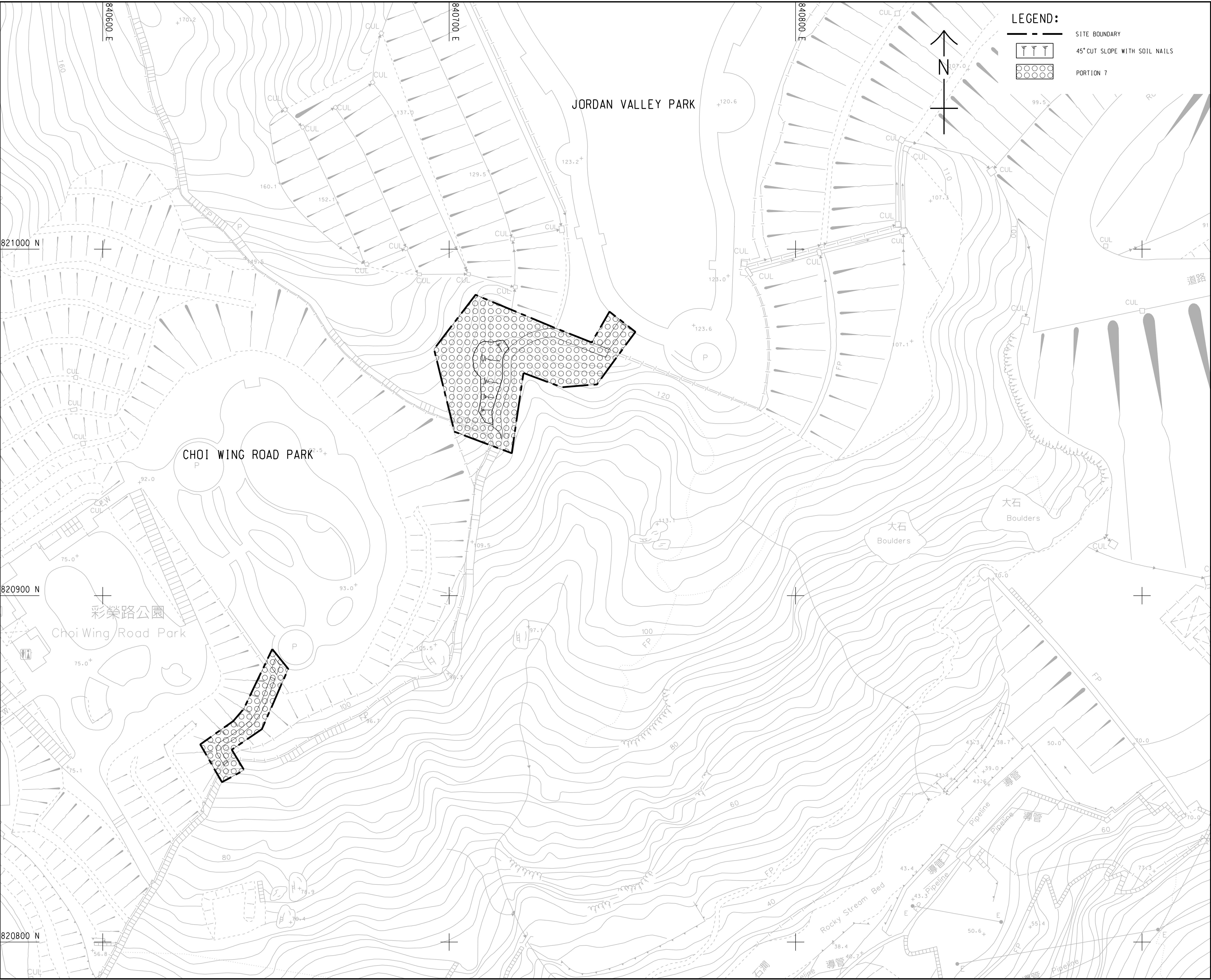
E12 AND BBI - PORTION OF SITE

SHEET NUMBER
圖紙編號

60328348/PC1/3016

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Plot File by: WANGGLW 2016/10/28
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Project Management Initials: Designer: PC1K Checked: AC Approved: BWCW ISO A1 594mm x 841mm



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PROJECT
項目

**DEVELOPMENT OF
ANDERSON ROAD
QUARRY SITE - INVESTIGATION,
DESIGN AND CONSTRUCTION**

CONTRACT TITLE
PEDESTRIAN CONNECTIVITY
FACILITIES WORKS PHASE 1

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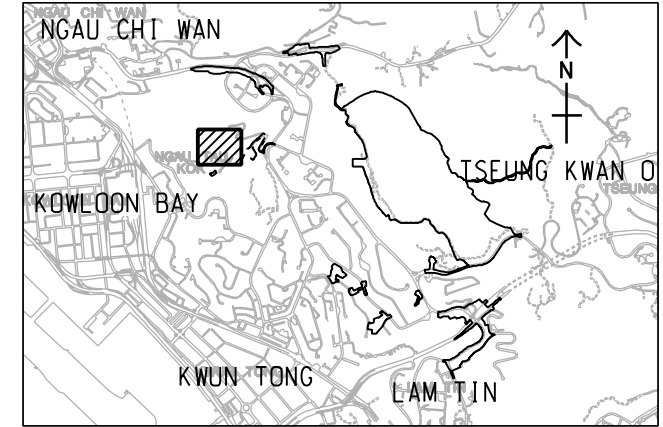
I/R 修訂	DATE 日期	DESCRIPTION 內容摘要	CHK. 校核
-	OCT. 16	TENDER DRAWING	AC

STATUS
階段

SCALE 比例 **DIMENSION UNIT** 尺寸單位

A1 1 : 500 METRES

KEY PLAN 索引圖 A1 1 : 60000



PROJECT NO.
項目編號

60328348

CONTRACT NO.
合約編號

NE/2016/05

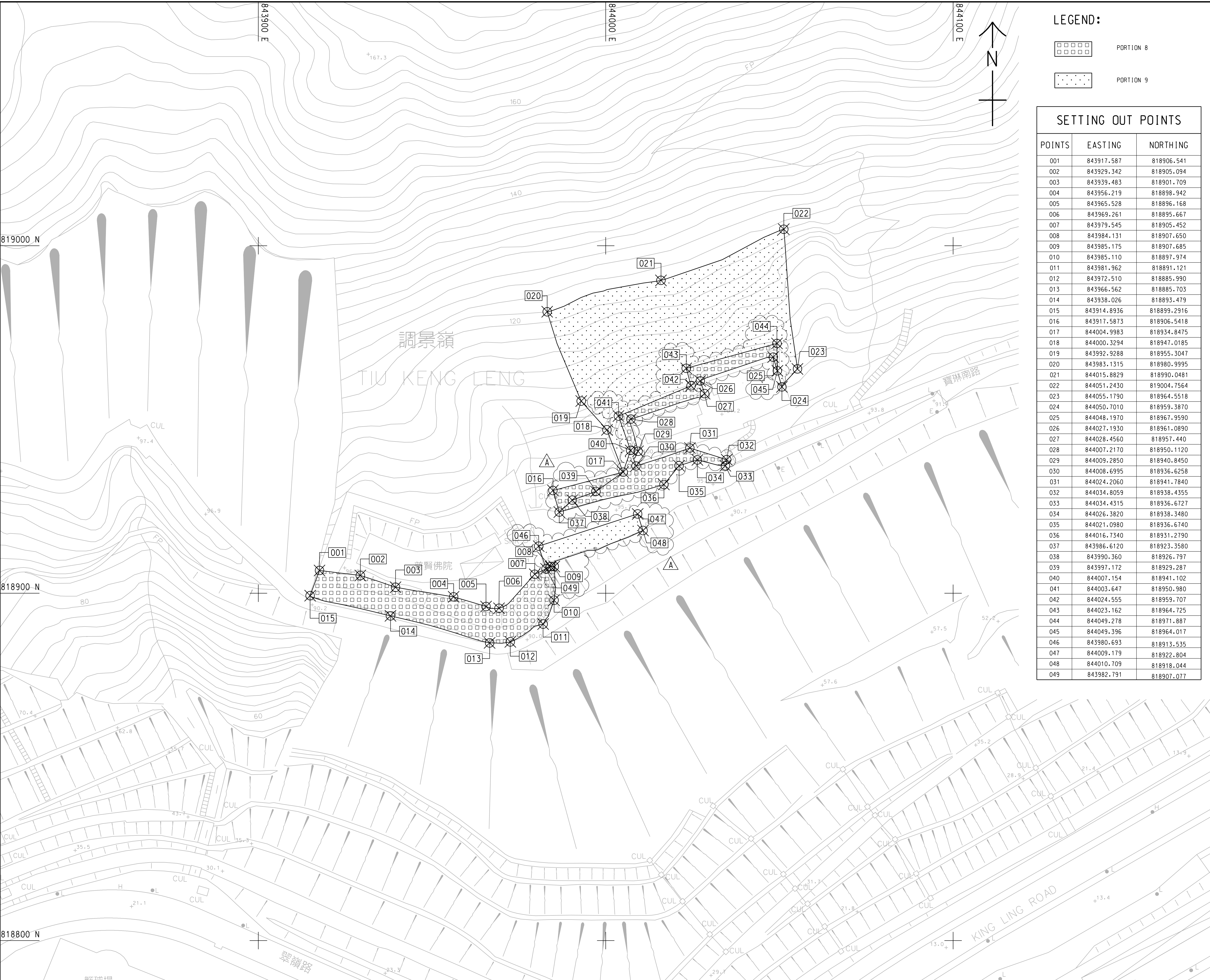
SHEET TITLE
圖紙名稱

GREEN ROUTE - PORTION OF SITE

SHEET NUMBER
圖紙編號

60328348/PC1/5007

Pld File by: WANGGLW 2016/11/16
PATH P:\Projects\8626363\DRAWING\CONTRACT\PC1\8000\PC1_8501.dgn
Project Management Initials: Designer: PCTK Checked: AC Approved: BWCW ISO A1 594mm x 841mm



LEGEND:

- PORTION 8
- PORTION 9

SETTING OUT POINTS

POINTS	EASTING	NORTHING
001	843917.587	818906.541
002	843929.342	818905.094
003	843939.483	818901.709
004	843956.219	818898.942
005	843965.528	818896.168
006	843969.261	818895.667
007	843979.545	818905.452
008	843984.131	818907.650
009	843985.175	818907.685
010	843985.110	818897.974
011	843981.962	818891.121
012	843972.510	818885.990
013	843966.562	818885.703
014	843938.026	818893.479
015	843914.8936	818899.2916
016	843917.5873	818906.5418
017	844004.9983	818934.8475
018	844000.3294	818947.0185
019	843992.9288	818955.3047
020	843983.1315	818980.9995
021	844015.8829	818990.0481
022	844051.2430	819004.7564
023	844055.1790	818964.5518
024	844050.7010	818959.3870
025	844048.1970	818967.9590
026	844027.1930	818961.0890
027	844028.4560	818957.440
028	844007.2170	818950.1120
029	844009.2850	818940.8450
030	844008.6995	818936.6258
031	844024.2060	818941.7840
032	844034.8059	818938.4355
033	844034.4315	818936.6727
034	844026.3820	818938.3480
035	844021.0980	818936.6740
036	844016.7340	818931.2790
037	843986.6120	818923.3580
038	843990.360	818926.797
039	843997.172	818929.287
040	844007.154	818941.102
041	844003.647	818950.980
042	844024.555	818959.707
043	844023.162	818964.725
044	844049.278	818971.887
045	844049.396	818964.017
046	843980.693	818913.535
047	844009.179	818922.804
048	844010.709	818918.044
049	843982.791	818907.077

AECOM

PROJECT

DEVELOPMENT OF
ANDERSON ROAD
QUARRY SITE - INVESTIGATION,
DESIGN AND CONSTRUCTION

CONTRACT TITLE
PEDESTRIAN CONNECTIVITY
FACILITIES WORKS PHASE 1

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-	OCT. 16	TENDER DRAWING	AC
修訂	日期	內容摘要	校核

STATUS

備版

SCALE

比例

A1 1: 500

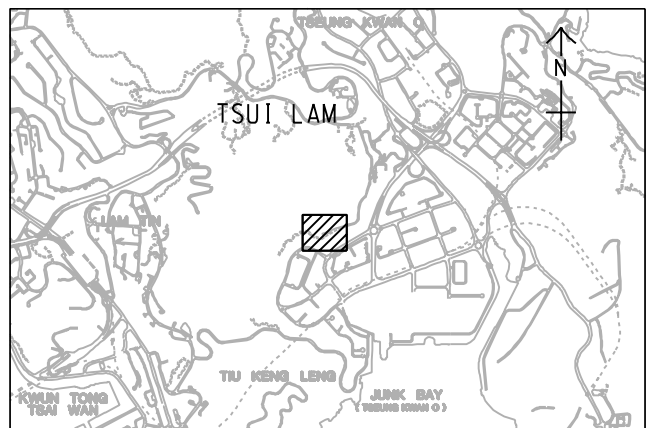
DIMENSION UNIT

尺寸單位

METRES

KEY PLAN

索引圖



PROJECT NO.

項目編號

60328348

CONTRACT NO.

合約編號

NE/2016/05

SHEET TITLE

圖紙名稱

INFRASTRUCTURAL WORKS AT
PO LAM ROAD SOUTH TIU KENG
LENG – PORTION OF SITE

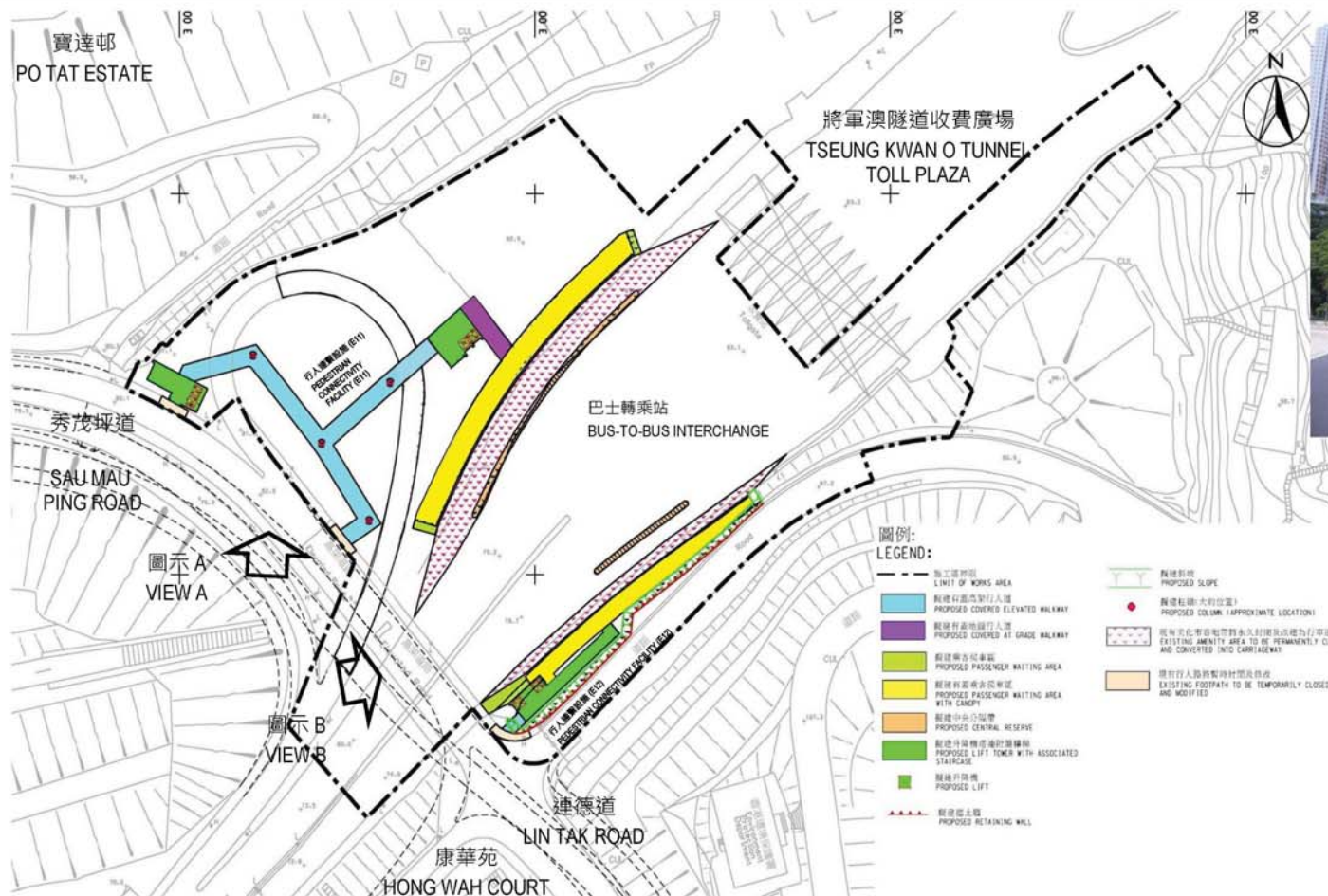
SHEET NUMBER

圖紙編號

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**Layout plan of Contract 3 (NE/2017/03)
(Non-Designated Area)**



圖示 A

VIEW A



圖示 B

VIEW B

圖則名稱 Drawing Title

行人連繫設施(巴士轉乘站、E11及E12) - 平面圖及構思圖
Pedestrian Connectivity Facilities (Bus-to-Bus Interchange, E11 and E12)
- Layout Plan and Artist's Impression

項目編號 Item No.

765CL

比例 Scale

圖則編號 Drawing No.

附件五 Appendix 5

辦事處 Office

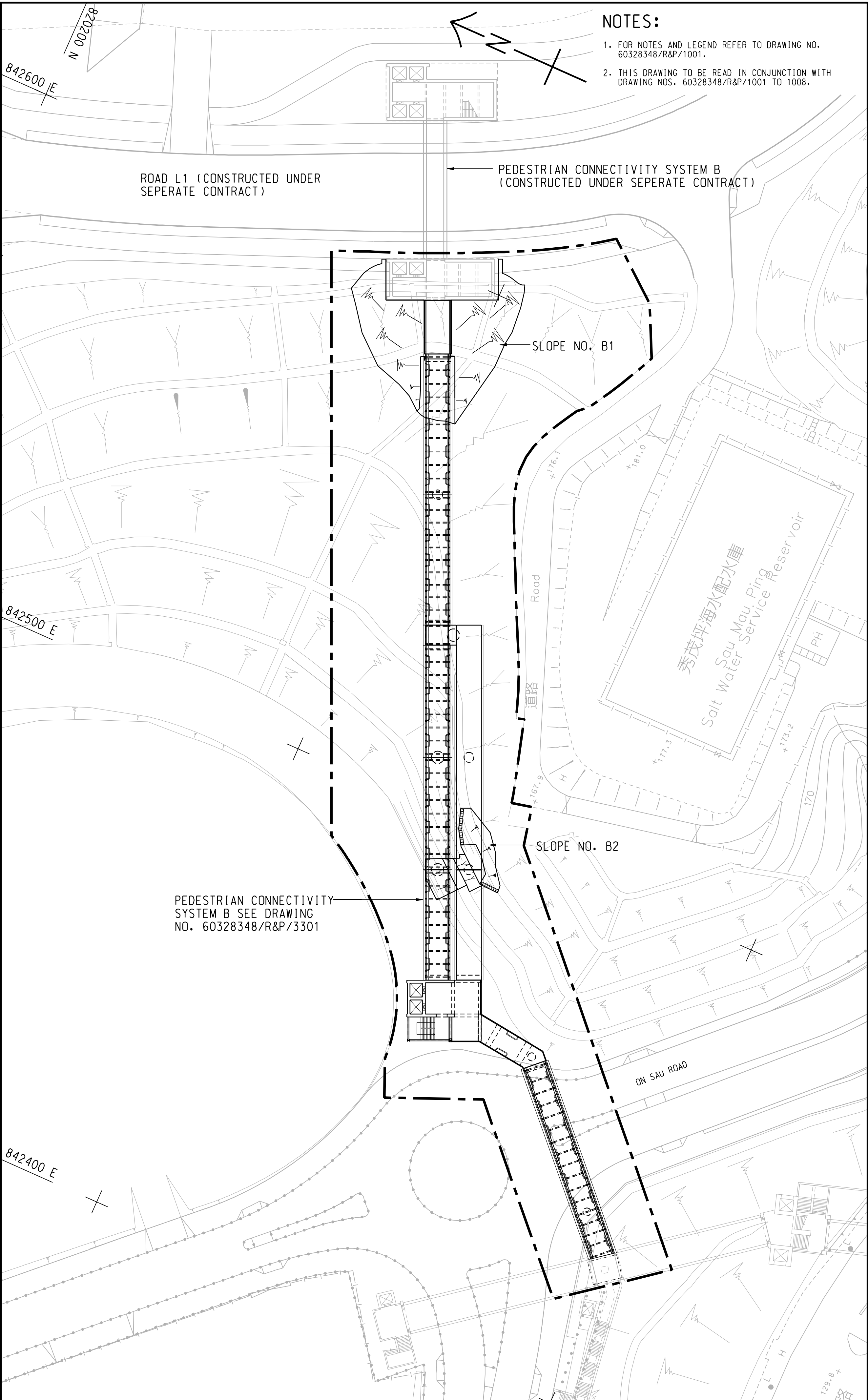
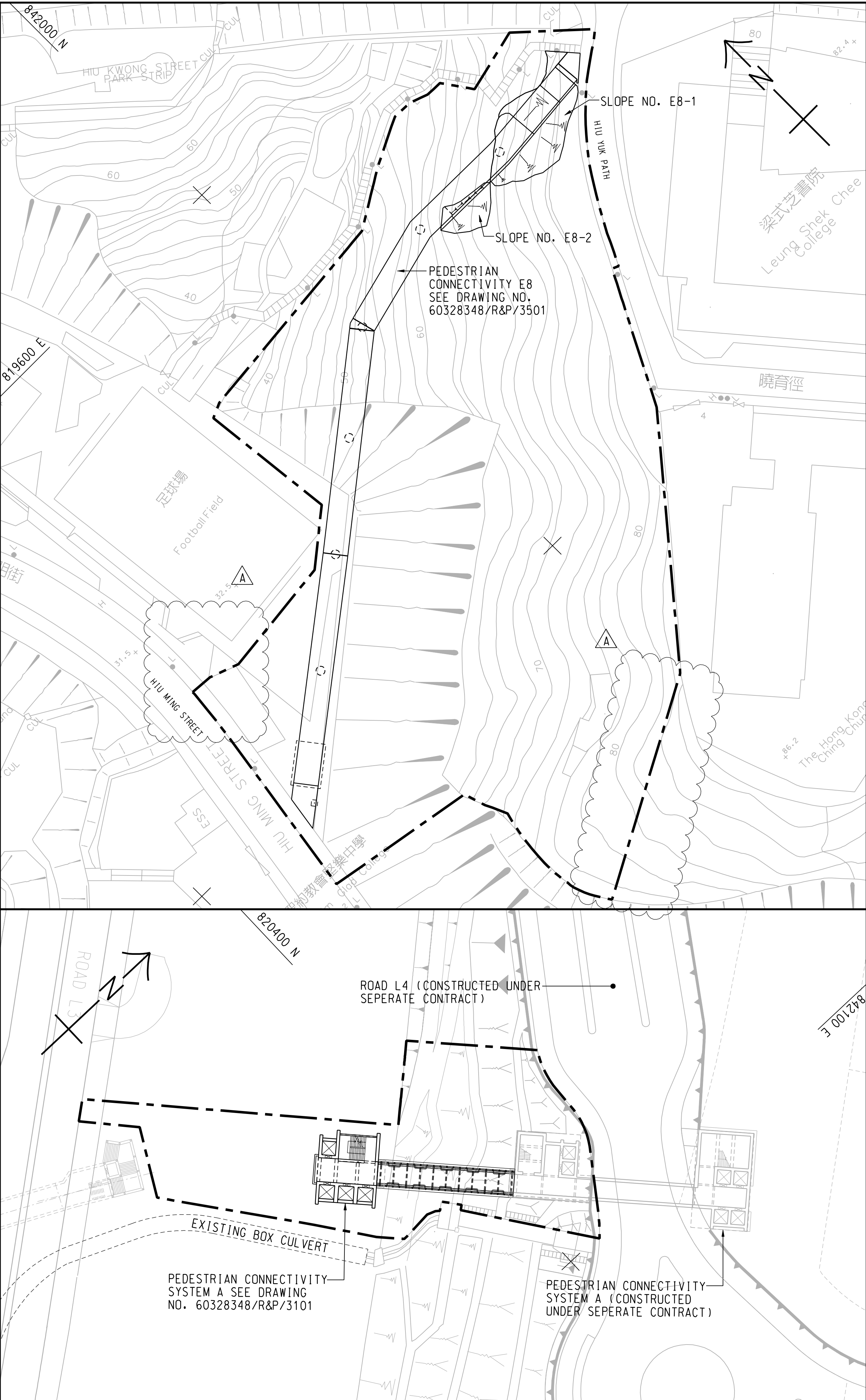
新界東拓展處
NEW TERRITORIES EAST
DEVELOPMENT OFFICE



土木工程拓展署
CIVIL ENGINEERING
AND DEVELOPMENT
DEPARTMENT

Pld File by: WJMT 2017/11/18
PATH P:\Projects\60328348\DRAWING\CONTRACT\R&P\1000\R&P_1008.dgn

Project Management Initials: Designer: CCYT Checked: AMVC Approved: HKT ISO A1 594mm x 841mm



- NOTES:
1. FOR NOTES AND LEGEND REFER TO DRAWING NO. 60328348/R&P/1001.
 2. THIS DRAWING TO BE READ IN CONJUNCTION WITH DRAWING NOS. 60328348/R&P/1001 TO 1008.

AECOM

PROJECT
項目

DEVELOPMENT OF
ANDERSON ROAD
QUARRY SITE - INVESTIGATION,
DESIGN AND CONSTRUCTION

CONTRACT TITLE
DEVELOPMENT OF ANDERSON ROAD
QUARRY SITE - ROAD IMPROVEMENT
WORKS AND PEDESTRIAN CONNECTIVITY
FACILITIES WORKS PHASE 2A

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A	NOV. 17	TENDER ADDENDUM NO. 1	AWYC	Y/C
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I/R 修訂	DATE 日期	DESCRIPTION 內容摘要		CHK. 校核

STATUS
階段

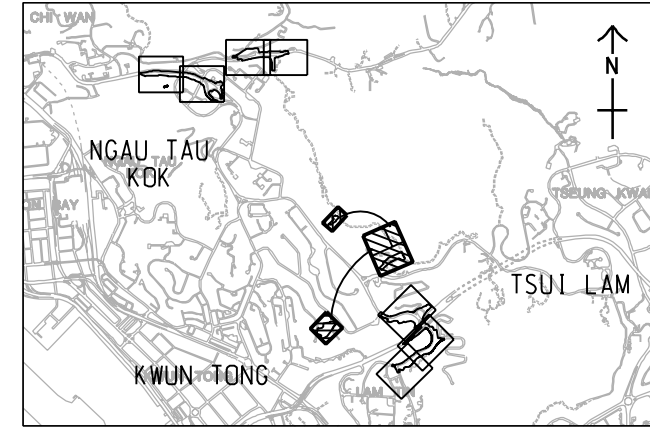
SCALE
比例

DIMENSION UNIT
尺寸單位

A1 1 : 500 METRES

KEY PLAN
索引圖

A1 1 : 60000



PROJECT NO.
項目編號

CONTRACT NO.
合約編號

60328348 NE/2017/03

SHEET TITLE
圖紙名稱

GENERAL LAYOUT

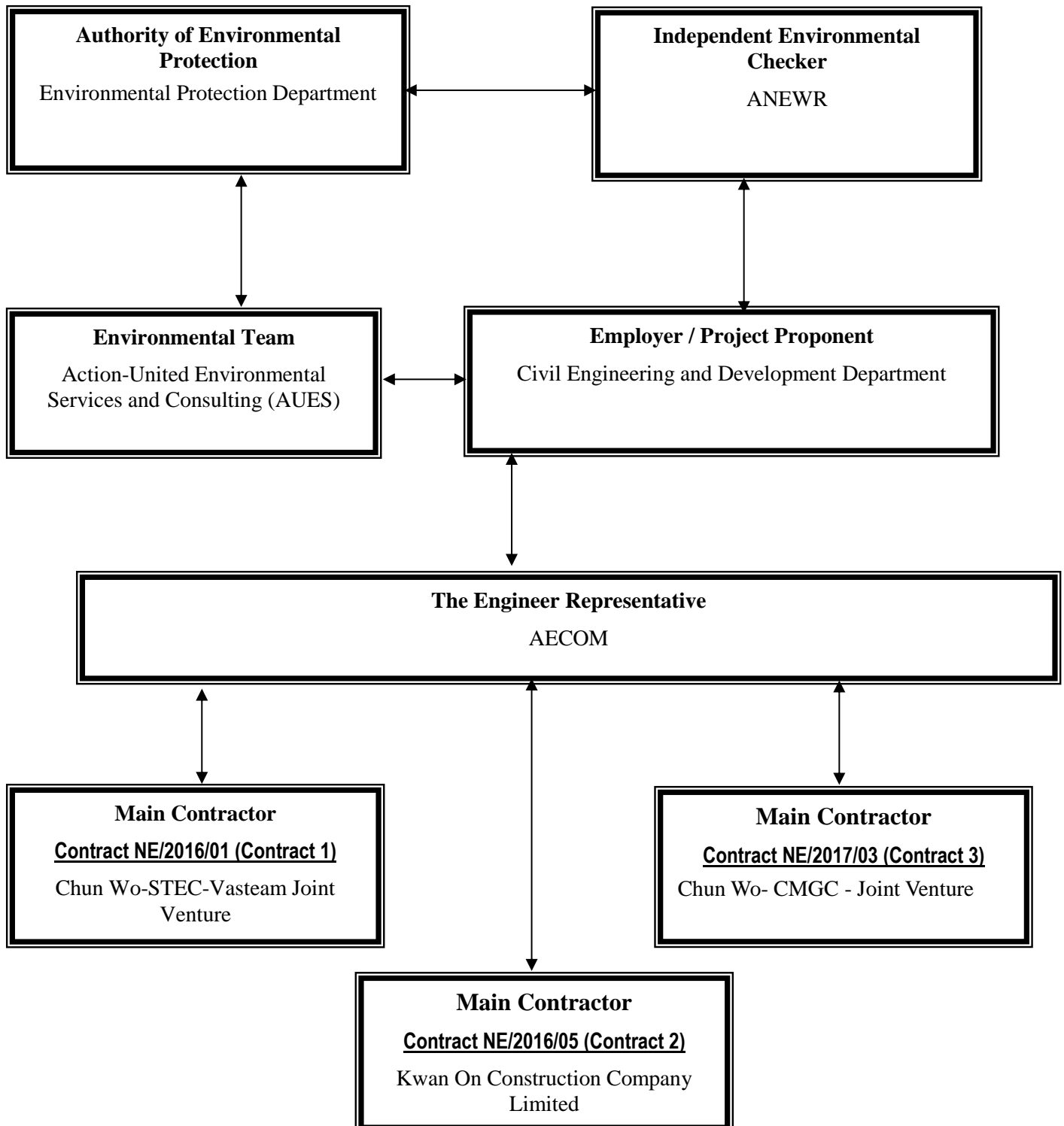
SHEET NUMBER
圖紙編號

60328348/R&P/1008A

Appendix B

Project Organization Structure

Project Organization Structure



Contact Details of Key Personnel for Contract 1 – NE/2016/01

Organization	Project Role	Name of Key Staff	Tel No.	Fax No.
CEDD	Engineer	Leung Siu Kau, Kelvin	2301 1383	2739 0076
AECOM	Chief Resident Engineer	Lee, Yu Ching Paul	5723 6880	2473 3221
AECOM	Senior Resident Engineer	Li, Ling Tommy	9389 8792	2473 3221
ANWR	Independent Environmental Checker	Adi Lee	2618 2836	3007 8648
CSVJV	Project Manager	William Leung	2638 7181	2744 6937
CSVJV	Site Agent	TY Leung	2638 7181	2744 6937
CSVJV	Project Environmental Manager	Shelton Chan	2638 7181	2744 6937
CSVJV	Environmental Officer	Ken Chu	2638 7181	2744 6937
AUES	Environmental Team Leader	T. W. Tam	2959 6059	2959 6079
AUES	Environmental Consultant	Nicola Hon	2959 6059	2959 6079
AUES	Environmental Consultant	Ben Tam	2959 6059	2959 6079

Legend:*CEDD (Employer) – Civil Engineering and Development Department**AECOM (Engineer) – AECOM Asia Co. Ltd.**CSVJV (Main Contractor) – Chun Wo-STECC-Vastream Joint Venture**ANWR (IEC) – ANWR Consulting Limited**AUES (ET) – Action-United Environmental Services & Consulting*

Contact Details of Key Personnel for Contract 2 – NE/2016/05

Organization	Project Role	Name of Key Staff	Tel No.	Fax No.
CEDD	Engineer	Leung Siu Kau, Kelvin	2301 1383	2739 0076
AECOM	Chief Resident Engineer	Lee, Yu Ching Paul	5723 6880	2473 3221
AECOM	Senior Resident Engineer	Vincent Yuen	5599 1466	2473 3221
ANWR	Independent Environmental Checker	Adi Lee	2618 2836	3007 8648
KOCCL	Project Director	Ambrose Kwong	2889 2675	2558 6900
KOCCL	Site Agent	Mr. Albert PK Ng	9150 1523	2558 6900
KOCCL	Safety and Environmental Manager	Joly C K Kwong	6111 5711	2558 6900
KOCCL	Environmental Officer	Leung Ka Kui	6671 0383	2558 6900
AUES	Environmental Team Leader	T. W. Tam	2959 6059	2959 6079
AUES	Environmental Consultant	Nicola Hon	2959 6059	2959 6079
AUES	Environmental Consultant	Ben Tam	2959 6059	2959 6079

Legend:*CEDD (Employer) – Civil Engineering and Development Department**AECOM (Engineer) – AECOM Asia Co. Ltd.**KOCCL (Main Contractor) – Kwan On Construction Company Limited**ANWR (IEC) – ANewR Consulting Limited**AUES (ET) – Action-United Environmental Services & Consulting*

Contact Details of Key Personnel for Contract 3 –NE/2017/03

Organization	Project Role	Name of Key Staff	Tel No.	Fax No.
CEDD	Engineer	Leung Siu Kau, Kelvin	2301 1383	2739 0076
AECOM	Chief Resident Engineer	Lee, Yu Ching Paul	5723 6880	2473 3221
AECOM	Senior Resident Engineer	Brad Chan	5506 0068	2473 3221
ANEWR	Independent Environmental Checker	Adi Lee	2618 2836	3007 8648
CW – CMGC - JV	Construction Manager	William Leung	9464 1392	3965 9900
CW – CMGC - JV	Site Agent	Chris Lam	9801 9974	3965 9900
CW – CMGC - JV	Environmental Officer	King Lam	9570 6187	3965 9900
CW – CMGC - JV	Environmental Supervisor	Belle Mak	6094 1580	3965 9900
AUES	Environmental Team Leader	T. W. Tam	2959 6059	2959 6079
AUES	Environmental Consultant	Nicola Hon	2959 6059	2959 6079
AUES	Environmental Consultant	Ben Tam	2959 6059	2959 6079

Legend:*CEDD (Employer) – Civil Engineering and Development Department**AECOM (Engineer) – AECOM Asia Co. Ltd.**CW – CMGC - JV (Main Contractor) – Chun Wo- CMGC - Joint Venture**ANEWR (IEC) –ANewR Consulting Limited**AUES (ET) – Action-United Environmental Services & Consulting*






Appendix C

Construction Programme

- (a) Contract 1 (NE/2016/01)**
- (b) Contract 2 (NE/2016/05)**
- (c) Contract 3 (NE/2017/03)**

Contract 1 (NE/2016/01)

<div><div><div><div></div><div>俊和 - 上隧 - 浩隆聯營</div><div>CHUN WO – STEC – VASTEAM JOINT VENTURE</div></div></div><div><div><div>TEC</div><div>隧道股份</div></div></div><div><div><div></div><div></div></div></div></div>		CONTRACT NO.NE/2016/01 SITE FORMATION AND INFRASTRUCTURE WORKS FOR DEVELOPMENT OF ANDERSON ROAD QUARRY SITE 3-MONTH ROLLING PROGRAMME							Page 1 of 4				
Activity ID	Activity Name	BL Project Duration	BL Project Start	BL Project Finish	At Completion Duration	Start	Finish	Q4, 2020		Qtr 1, 2021			
								Nov	Dec	Jan		Feb	
Anderson Rd Sub-programme (Dec 2020) _ccn _201205													
Fresh Water Pumping Station													
Stage 5 -ABWF, Finishing & E&M													
FWP-1300	Pumping Station ABWF	0			304	31-Dec-19 A	08-Jan-21			Pumping Station ABWF			
FWP-1310	Pumping Station finishing	0			278	25-Feb-20 A	29-Jan-21			Pumping Station finishing			
FWP-1320	Pumping Station E&M works	0			244	29-Jun-20 A	23-Apr-21						
Salt Water Reservoir													
ABWF, Finishing & E&M													
SWR-1410	Saltwater Reservoir ABWF & Finishing	0			473	18-Feb-20 A	18-Sep-21						
SWR-1420	Saltwater Reservoir E&M works	0			402	29-May-20 A	02-Oct-21						
Fresh Water Reservoir													
ABWF, Finishing & E&M													
FWR-1990	Freshwater Reservoir ABWF & Finishing	0			256	03-Mar-20 A	11-Jan-21			Freshwater Reservoir ABWF & Finishing			
FWR-2000	Freshwater Reservoir E&M works	0			254	12-Oct-20 A	19-Aug-21						
RWS Access Road & External Works													
FWP-1400	Formation & Slope RWA13 works	0			379	16-May-20 A	21-Aug-21						
FWP-1410	Watermain (DN600 & DN450) & Irrigation System along WSA access road	0			379	16-May-20 A	21-Aug-21						
FWP-1420	Drainage (sewerage & surface) along WSA access road	0			317	30-Jul-20 A	21-Aug-21						
FWP-1430	CLP power supply duct	0			276	16-Sep-20 A	21-Aug-21						
Pedestrian Connection System A & B													
PC system B													
PCB-1090	System B - Backfill south tower	81	19-Aug-19	23-Nov-19	250	16-Feb-20 A	16-Dec-20			System B - Backfill south tower			
PCB-1100	System B - Backfill north tower	81	19-Aug-19	23-Nov-19	250	16-Feb-20 A	16-Dec-20			System B - Backfill north tower			
PCB-1110	System B -ABWF	81	05-Aug-19	09-Nov-19	214	16-Apr-20 A	31-Dec-20			System B - ABWF			
PCB-1120	System B - E&M	22	23-Sep-19	19-Oct-19	173	05-Jun-20 A	31-Dec-20			System B - E&M			
PCB-1130	System B - E&M T&C	24	21-Oct-19	16-Nov-19	24	02-Jan-21	29-Jan-21			System B - E&M T&C			
PCB-1140	System B - Lift installation	75	21-Oct-19	18-Jan-20	75	02-Jan-21	06-Apr-21						
PC system A													
PCA-1030	B5 - Construction of Sub-Structure of Lift Tower(+166 to +175mPD)	0			60	16-Nov-20 A	27-Jan-21			B5 - Construction of Sub-Structure of Lift Tower(+166 to +175mPD)			
PCA-1040	B5 - Construction of Super Structure of Lift Tower (+175mPD to Roof Level)	0			60	28-Jan-21	14-Apr-21						
PCA-1120	C1a - Construction of Pile Caps	0			81	23-Sep-20 A	31-Dec-20			C1a - Construction of Pile Caps			
PCA-1130	C1a - Construction of Sub-Structure of Lift Tower (+166 to +175mPD)	0			60	04-Nov-20 A	15-Jan-21 A						
PCA-1140	C1a - Construction of Subway	0			90	02-Jan-21	23-Apr-21						
Artificial Flood Attenuation Lake													
Retaining wall Part 11 Bay 47-49)													
ART-1480	Art retain wall - Part 11 bay 46	12	18-Dec-19	03-Jan-20	164	08-Jun-20 A	21-Dec-20			Art retain wall - Part 11 bay 46			
ART-1490	Art retain wall - Part 11 bay 47	12	18-Dec-19	03-Jan-20	164	08-Jun-20 A	21-Dec-20			Art retain wall - Part 11 bay 47			
ART-1500	Art retain wall - Part 11 bay 48	12	27-Dec-19	10-Jan-20	164	15-Jun-20 A	30-Dec-20			Art retain wall - Part 11 bay 48			
ART-1510	Art retain wall - Part 11 bay 49	12	18-Dec-19	03-Jan-20	164	08-Jun-20 A	21-Dec-20			Art retain wall - Part 11 bay 49			
Retaining wall Part 12 Bay 50-52)													
ART-1520	Art retain wall - Part 12 backfill by course material, excavation, 300mm rock fill	14	11-Jan-20	30-Jan-20	162	30-Jun-20 A	12-Jan-21			Art retain wall - Part 12 backfill by course material, excavation, 300mm rock fill			
ART-1530	Art retain wall - Part 12 bay 50	12	31-Jan-20	13-Feb-20	12	13-Jan-21	26-Jan-21			Art retain wall - Part 12 bay 50			
ART-1540	Art retain wall - Part 12 bay 51	12	07-Feb-20	20-Feb-20	12	20-Jan-21	02-Feb-21			Art retain wall - Part 12 bay 51			
ART-1550	Art retain wall - Part 12 bay 52	12	31-Jan-20	13-Feb-20	12	13-Jan-21	26-Jan-21			Art retain wall - Part 12 bay 52			
Backfill at back of retaining wall													
<div><div><div></div><div>Planned Bar (WP)</div></div><div><div></div><div>Actual Bar</div></div><div><div></div><div>Forecast Bar</div></div></div> <div><div><div></div><div>Planned Milestone (WP)</div></div><div><div></div><div>Milestone</div></div></div>						3-month Rolling Programme		Date	Revision		Checked	Approved	
Anderson Rd Sub-programme						15-Dec-20		15-Dec-20	C1-MPU202012				

 Planned Bar (WP)  Planned Milestone (WP)  Actual Bar  Milestone  Forecast Bar	<h2 style="text-align: center;">3-month Rolling Programme</h2> <p style="text-align: center;">Anderson Rd Sub-programme 15-Dec-20</p>	Date	Revision	Checked	Approved
		15-Dec-20	C1-MPU202012		

<div><div><div><div><div><div></div><div>TEC</div></div><div>俊和 - 上隧 - 浩隆聯營</div><div>CHUN WO – STEC – VASTEAM JOINT VENTURE</div></div><div><div><div></div><div>隧道股份</div></div></div></div></div><div>CONTRACT NO.NE/2016/01 SITE FORMATION AND INFRASTRUCTURE WORKS FOR DEVELOPMENT OF ANDERSON ROAD QUARRY SITE 3-MONTH ROLLING PROGRAMME</div><div>Page 3 of 4</div></div>				Activity IDActivity NameBL Project DurationBL Project StartBL Project FinishAt Completion DurationStartFinish										Qtr 1, 2021									
Road Works - Drainage										JanFebMar													
L4-4250	L4 (Drainage) - Excavate & lay drain CH150 to CH200	0			189	18-May-20 A	31-Dec-20	L4 (Drainage) - Excavate & lay drain CH150 to CH200															
L4-4260	L4 (Drainage) - Backfill for water main CH0 to CH200	0			30	02-Jan-21	05-Feb-21	L4 (Drainage) - Backfill for water main CH0 to CH200															
L4-4270	L4 (Drainage) - Excavate & lay drain CH200 to CH250	0			179	29-May-20 A	31-Dec-20	L4 (Drainage) - Excavate & lay drain CH200 to CH250															
L4-4280	L4 (Drainage) - Excavate & lay drain CH250 to CH300	0			80	02-Jan-21	12-Apr-21	L4 (Drainage) - Excavate & lay drain CH250 to CH300															
L4-4290	L4 (Drainage) - Excavate & lay drain CH300 to CH350	0			179	29-May-20 A	31-Dec-20	L4 (Drainage) - Excavate & lay drain CH300 to CH350															
L4-4300	L4 (Drainage) - Excavate & lay drain CH350 to CH400	0			80	02-Jan-21	12-Apr-21	L4 (Drainage) - Excavate & lay drain CH350 to CH400															
Retaining Wall RWA9 at Road L3																							
RWA9 Bay 13 to Bay 16																							
RWA9-1190	RWA9 - Break bore pile head for Bay 16 & lay blinding layer	0			57	31-Oct-20 A	08-Jan-21	RWA9 - Break bore pile head for Bay 16 & lay blinding layer															
RWA9-1200	RWA9 - F/W & rebat fixing to Bay 16 Base Slab	0			21	09-Jan-21	02-Feb-21	RWA9 - F/W & rebat fixing to Bay 16 Base Slab															
RWA9-1210	RWA9 - Concrete laying for Bay 16 Base Slab	0			1	03-Feb-21	03-Feb-21	RWA9 - Concrete laying for Bay 16 Base Slab															
RWA9-1220	RWA9 - F/W & rebat fixing to Bay 13, 14 & 15 Base Slab	0			14	04-Feb-21	23-Feb-21	RWA9 - F/W & rebat fixing to Bay 13, 14 & 15 Base Slab															
RWA9-1230	RWA9 - Concrete laying for Bay 13, 14 & 15 Base Slab	0			3	24-Feb-21	26-Feb-21	RWA9 - Concrete laying for Bay 13, 14 & 15 Base Slab															
RWA9-1240	RWA9 - F/W & rebat fixing to Bay 16 wall	0			21	27-Feb-21	23-Mar-21	RWA9 - F/W & rebat fixing to Bay 16 wall															
RWA9 Bay 17 to Bay 20																							
RWA9-1290	RWA9 - F/W & rebat fixing to Bay 17 & 19 Base Slab	0			51	31-Oct-20 A	31-Dec-20	RWA9 - F/W & rebat fixing to Bay 17 & 19 Base Slab															
RWA9-1300	RWA9 - Concrete laying for Bay 17 & 19 Base Slab	0			3	02-Jan-21	05-Jan-21	RWA9 - Concrete laying for Bay 17 & 19 Base Slab															
RWA9-1310	RWA9 - F/W & rebat fixing to Bay 18 & 20 Base Slab	0			10	06-Jan-21	16-Jan-21	RWA9 - F/W & rebat fixing to Bay 18 & 20 Base Slab															
RWA9-1320	RWA9 - Concrete laying for Bay 18 & 20 Base Slab	0			3	18-Jan-21	20-Jan-21	RWA9 - Concrete laying for Bay 18 & 20 Base Slab															
RWA9-1330	RWA9 - F/W & rebat fixing to Bay 17 & 19 Wall	0			10	21-Jan-21	01-Feb-21	RWA9 - F/W & rebat fixing to Bay 17 & 19 Wall															
RWA9-1340	RWA9 - Concrete laying for Bay 17 & 19 Wall	0			3	02-Feb-21	04-Feb-21	RWA9 - Concrete laying for Bay 17 & 19 Wall															
RWA9-1350	RWA9 - F/W & rebat fixing to Bay 18 & 20 Wall	0			14	05-Feb-21	24-Feb-21	RWA9 - F/W & rebat fixing to Bay 18 & 20 Wall															
RWA9-1360	RWA9 - Concrete laying for Bay 18 & 20 Wall	0			3	25-Feb-21	27-Feb-21	RWA9 - Concrete laying for Bay 18 & 20 Wall															
RWA9 Bay 21 & Bay 22																							
RWA9-1370	RWA9 - Excav & formation work for Bay 20 to 21 & lay blinding layer	0			21	21-Jan-21	17-Feb-21	RWA9 - Excav & formation work for Bay 20 to 21 & lay blinding layer															
RWA9-1380	RWA9 - F/W & rebat fixing to Bay 21 & 22 Base Slab	0			21	18-Feb-21	13-Mar-21	RWA9 - F/W & rebat fixing to Bay 21 & 22 Base Slab															
Road Works L5,L1 east (between Junction L3 & L5)																							
Road L5																							
RL5-1040	Road L5 - ducting for Street Lighting	0			310	02-Dec-19 A	16-Dec-20	Road L5 - ducting for Street Lighting															
RL5-1050	Road L5 - Road Pavement	0			313	04-Dec-19 A	22-Dec-20	Road L5 - Road Pavement															
RL5-1060	Road L5 - Landscape furniture	0			184	16-May-20 A	22-Dec-20	Road L5 - Landscape furniture															
Road L1 east part 1 (L5 toward L3 Junction)																							
RL1a-1030	Road L1 east 1 - UU installation	0			315	28-Nov-19 A	18-Dec-20	Road L1 east 1 - UU installation															
RL1a-1040	Road L1 east 1 - ducting for Street Lighting	0			261	10-Feb-20 A	22-Dec-20	Road L1 east 1 -ducting for Street Lighting															
RL1a-1050	Road L1 east 1 - Road Pavement	0			309	09-Dec-19 A	22-Dec-20	Road L1 east 1 -Road Pavement															
RL1a-1060	Road L1 east 1 - Landscape furniture	0			195	25-May-20 A	15-Jan-21	Road L1 east 1 - Landscape furniture															
Road L1 east part 2 (L5 toward PC system B)																							
RL1b-1040	Road L1 east 2 - ducting for Street Lighting	0			297	19-Dec-19 A	18-Dec-20	Road L1 east 2 - ducting for Street Lighting															
RL1b-1050	Road L1 east 2 - Road Pavement	0			213	17-Apr-20 A	31-Dec-20	Road L1 east 2 - Road Pavement															
RL1b-1060	Road L1 east 2 - Landscape furniture	0			190	13-Jun-20 A	29-Jan-21	Road L1 east 2 - Landscape furniture															
Road L1 east part 3 (Junction L3 toward L5)																							
RL1c-1020	Road L1 east 3 - Watermain installation	0			260	11-Feb-20 A	22-Dec-20	Road L1 east 3 -Watermain installation															
RL1c-1023	Road L1 east 3 - Fibe optic installation	0			220	16-Apr-20 A	08-Jan-21	Road L1 east 3 - Fibe optic installation															
RL1c-1030	Road L1 east 3 - UU installation	0			288	06-Jan-20 A	22-Dec-20	Road L1 east 3 -UU installation															

<div><div><div><div></div><div>俊和 - 上隧 - 浩隆聯營</div><div>CHUN WO - STEC - VASTEAM JOINT VENTURE</div></div><div><div><div>TEC</div><div>隧道股份</div></div></div></div></div>		CONTRACT NO.NE/2016/01 SITE FORMATION AND INFRASTRUCTURE WORKS FOR DEVELOPMENT OF ANDERSON ROAD QUARRY SITE 3-MONTH ROLLING PROGRAMME							Page 4 of 4				
Activity ID	Activity Name	BL Project Duration	BL Project Start	BL Project Finish	At Completion Duration	Start	Finish	Nov 2020		Qtr 1, 2021			
RL1c-1040	Road L1 east 3 - ducting for Street Lighting	0			218	16-Apr-20 A	06-Jan-21						
RL1c-1050	Road L1 east 3 - Road Pavement	0			214	16-Apr-20 A	31-Dec-20						
RL1c-1060	Road L1 east 2 - Landscape furniture	0			199	13-Jun-20 A	09-Feb-21						
Road Works PTT, L1 west (between Junction L3 & PTT)													
Road L1 west part 1 (Box culvert BC1)													
RL1c-1070	Road L1 west 1 - Drain Works (except gully near slope)	0			339	11-Nov-19 A	31-Dec-20						
RL1c-1090	Road L1 west 1 - Watermain installation	0			187	28-May-20 A	09-Jan-21						
RL1c-1100	Road L1 west 1 - Fibe optic installation	0			199	28-May-20 A	23-Jan-21						
RL1c-1110	Road L1 west 1 - UU installation	0			45	17-Dec-20	10-Feb-21						
RL1c-1120	Road L1 west 1 - ducting for Street Lighting	0			40	29-Dec-20	17-Feb-21						
RL1c-1130	Road L1 west 1 - Road Pavement	0			40	29-Dec-20	17-Feb-21						

Planned Bar (WP)

Actual Bar

Forecast Bar

Planned Milestone (WP)

Milestone

3-month Rolling Programme

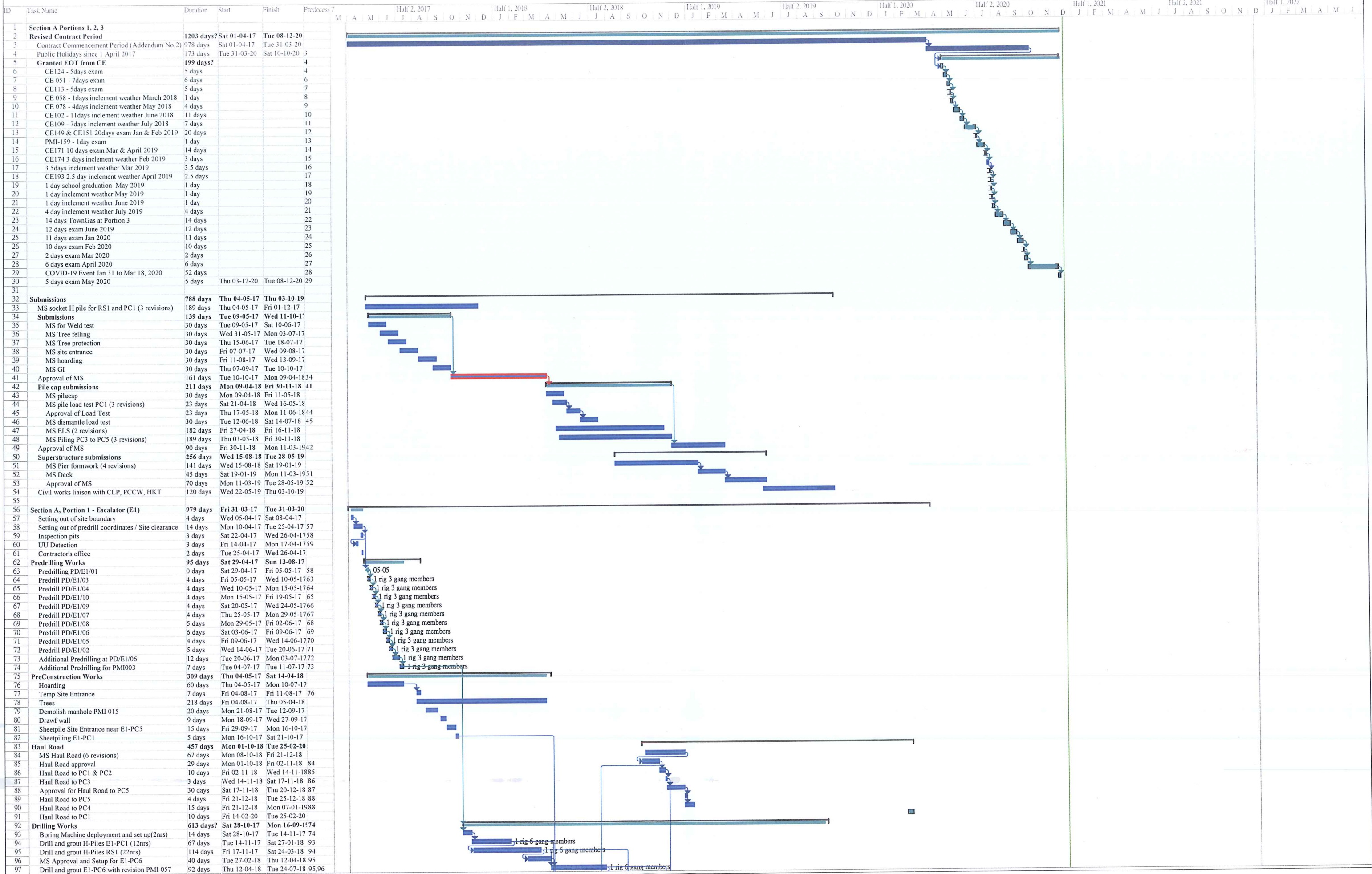
Anderson Rd Sub-programme

15-Dec-20

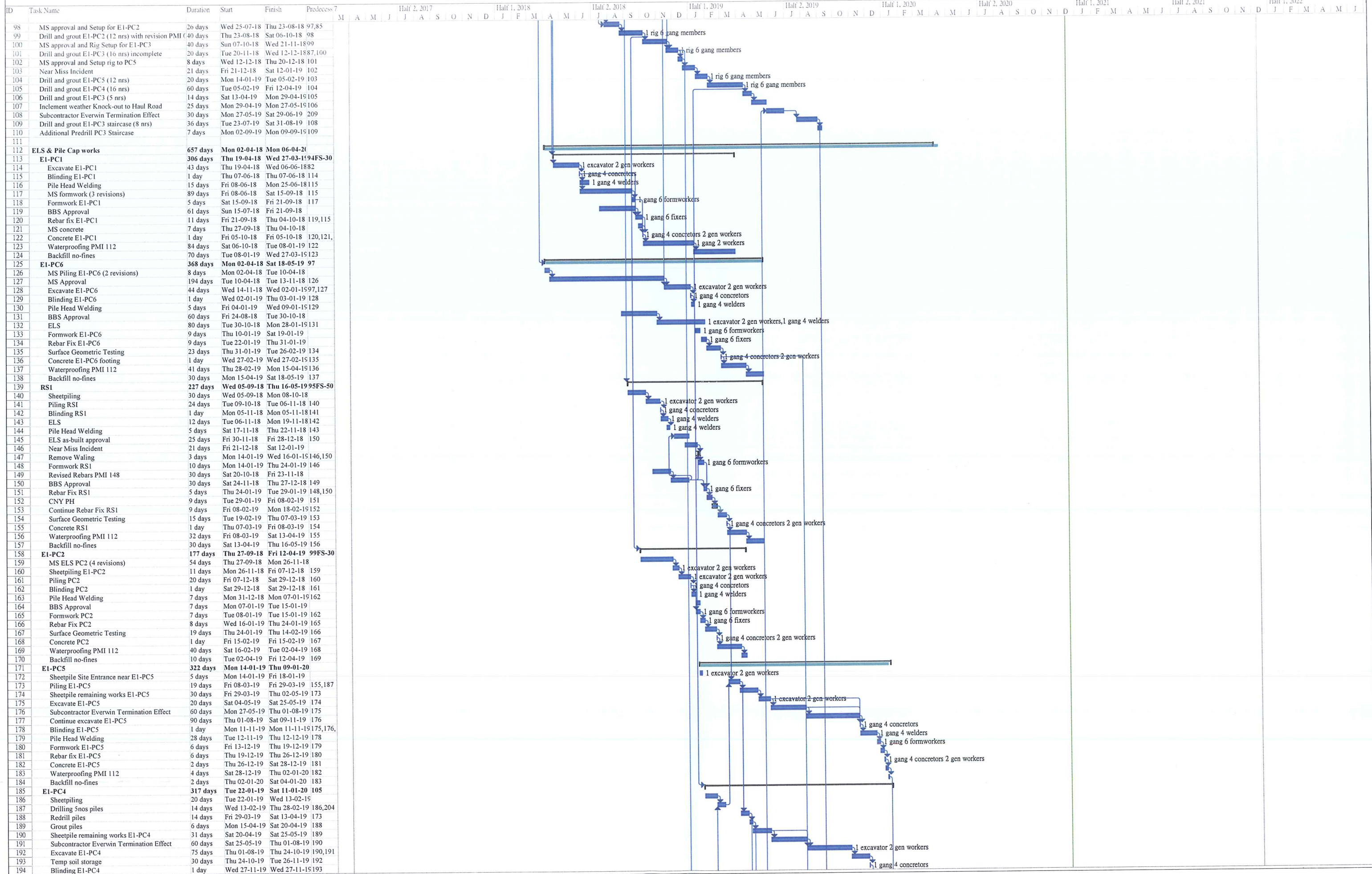
Date	Revision	Checked	Approved
15-Dec-20	C1-MPU202012		

Contract 2 (NE/2016/05)

Contract No. NE/2016/05
Development of Anderson Road Quarry Site
Connection of Pedestrian Facilities Works Phase 1 - Accepted Programme
Section A Portions 1, 2, 3 - Dec 2020



Contract No. NE/2016/05
Development of Anderson Road Quarry Site
Connection of Pedestrian Facilities Works Phase 1 - Accepted Programme
Section A Portions 1, 2, 3 - Dec 2020



Project: portion 1-3 (7 Sept. 2020)
Date: Mon 14-12-20

Task

Split

Milestone

Summary

Project Summary

External Tasks

External Milestone

Inactive Task

Inactive Milestone

Inactive Summary

Manual Task

Duration-only

Manual Summary Rollup

Manual Summary

Start-only

Finish-only

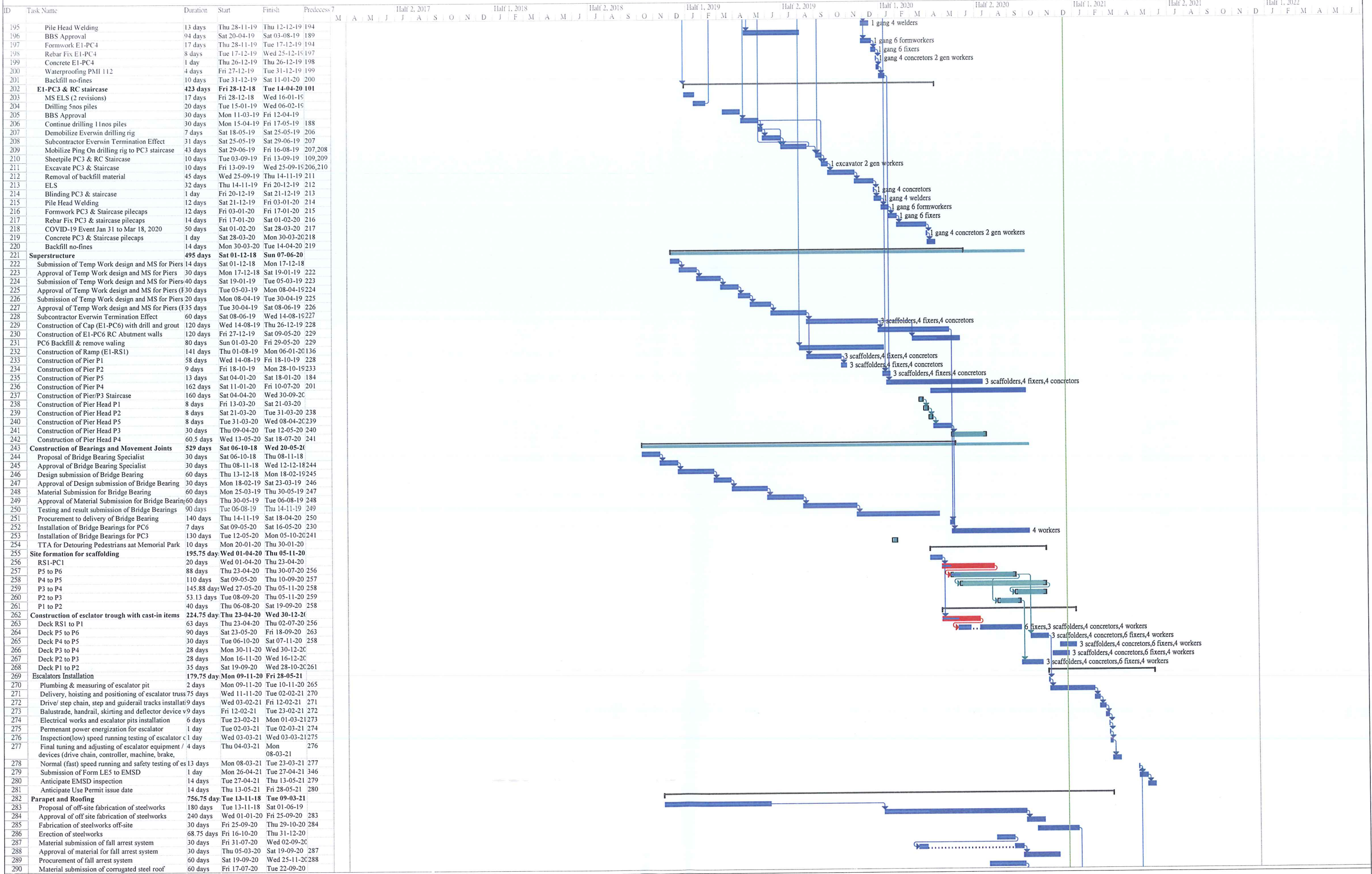
Deadline

Critical

Critical Split

Progress

Contract No. NE/2016/05
Development of Anderson Road Quarry Site
Connection of Pedestrian Facilities Works Phase 1 - Accepted Programme
Section A Portions 1, 2, 3 - Dec 2020



Project: portion 1-3 (7 Sept. 2020)
Date: Mon 14-12-20

Task

Split

Milestone

Summary

Project Summary

External Tasks

External Milestone

Inactive Task

Inactive Milestone

Inactive Summary

Manual Task

Duration-only

Manual Summary Rollup

Manual Summary

Start-only

Finish-only

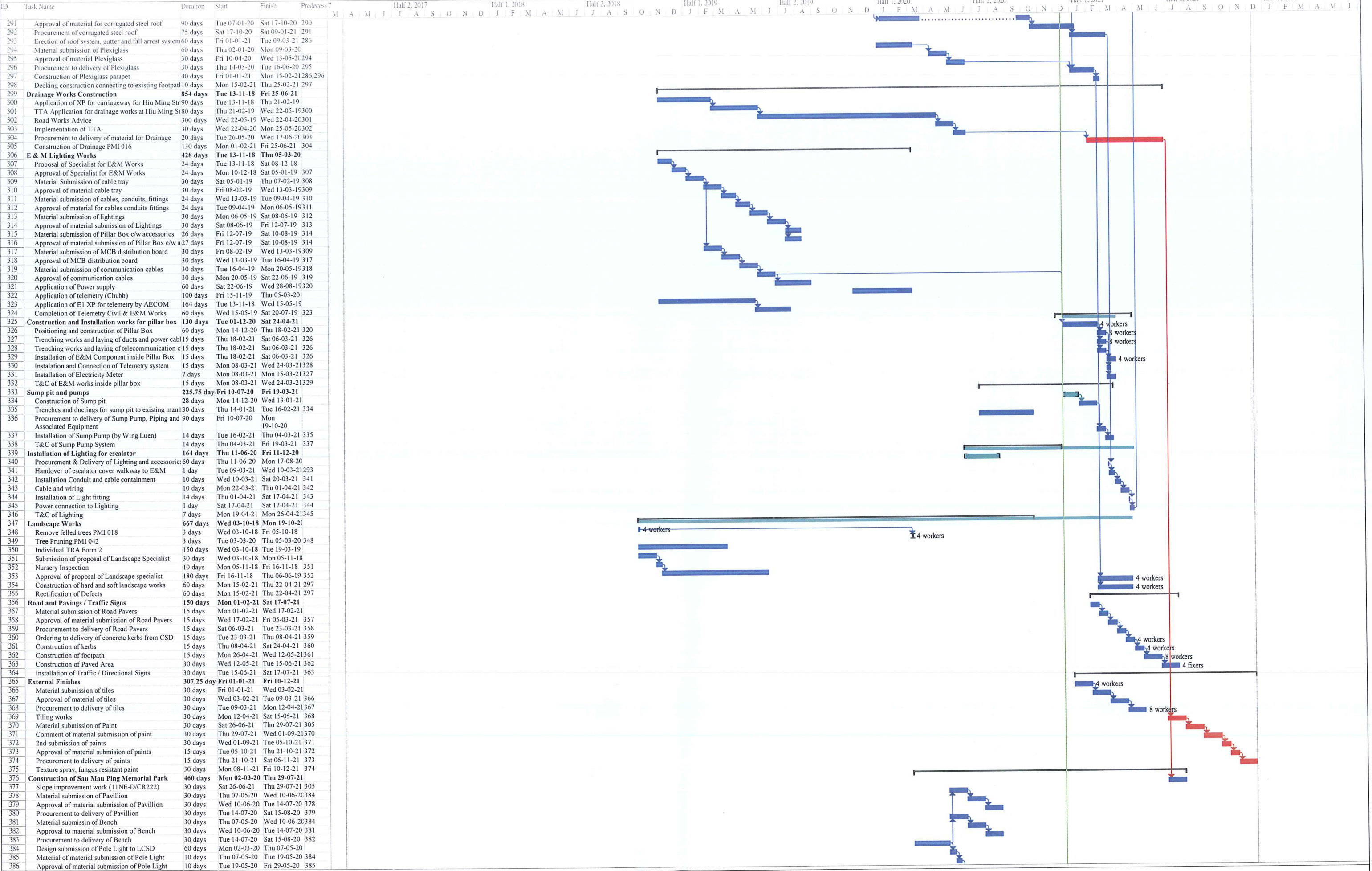
Deadline

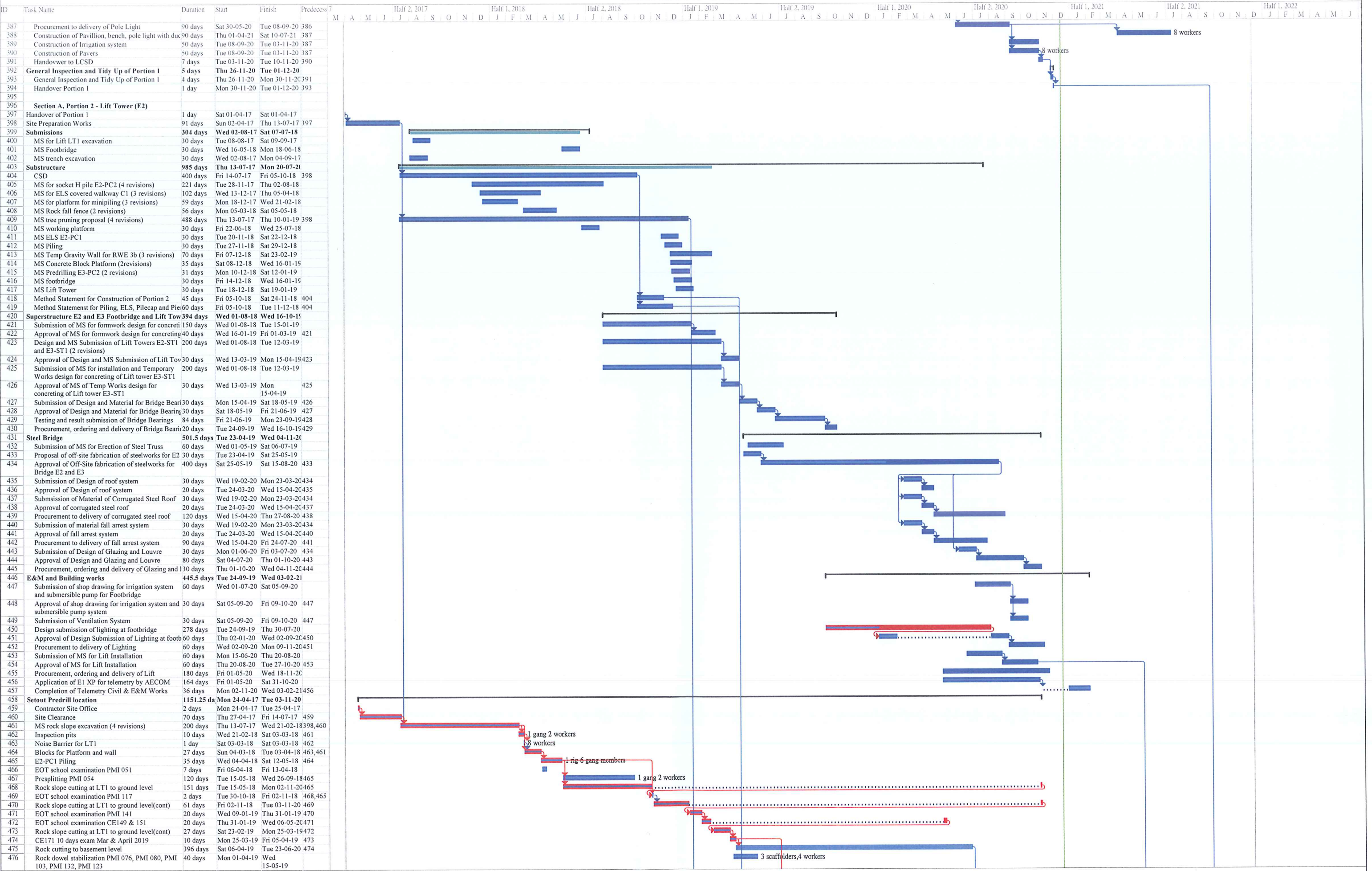
Critical

Critical Split

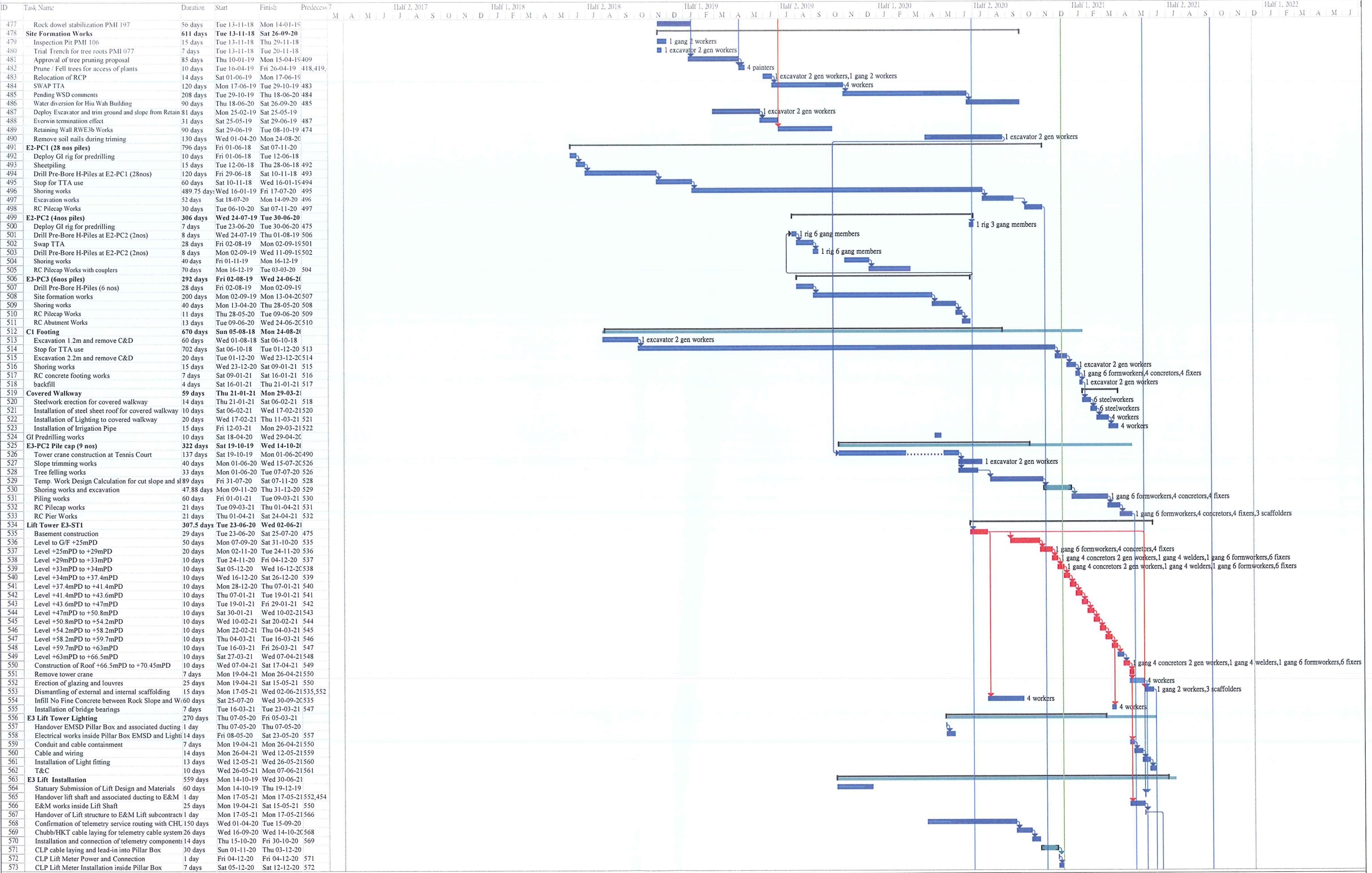
Progress

Contract No. NE/2016/05
Development of Anderson Road Quarry Site
Connection of Pedestrian Facilities Works Phase 1 - Accepted Programme
Section A Portions 1, 2, 3 - Dec 2020

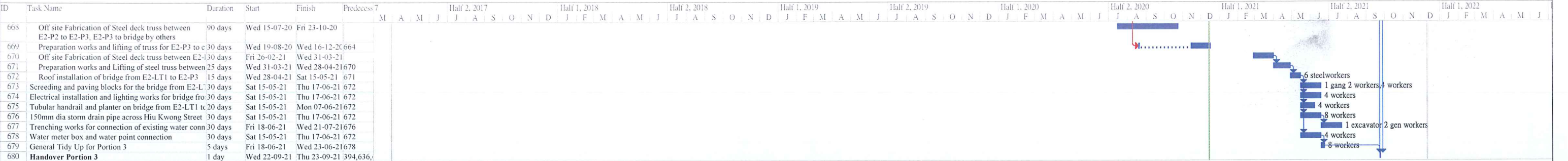




Contract No. NE/2016/05
Development of Anderson Road Quarry Site
Connection of Pedestrian Facilities Works Phase 1 - Accepted Programme
Section A Portions 1, 2, 3 - Dec 2020

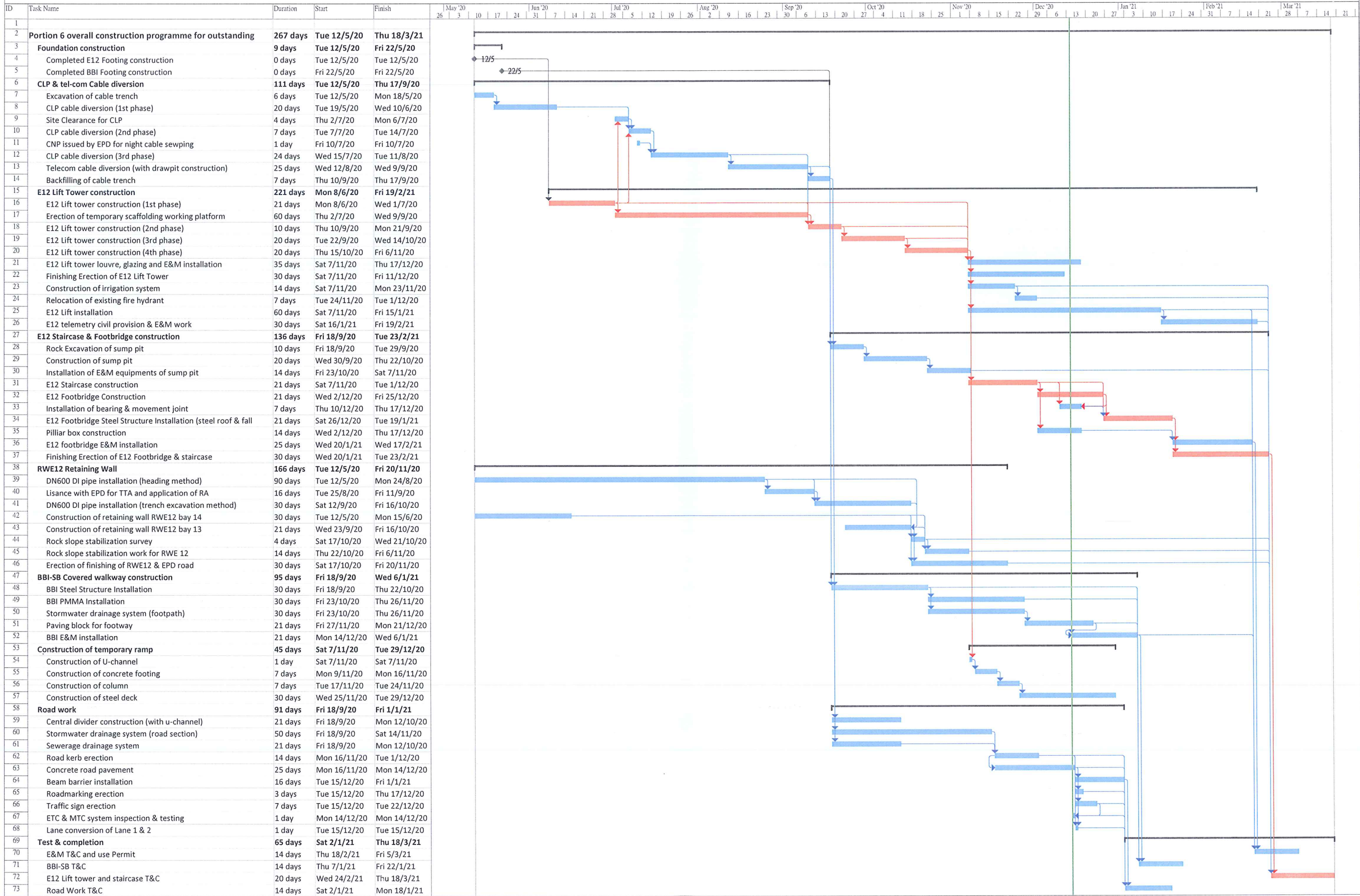


Contract No. NE/2016/05 Development of Anderson Road Quarry Site Connection of Pedestrian Facilities Works Phase 1 - Accepted Programme Section A Portions 1, 2, 3 - Dec 2020
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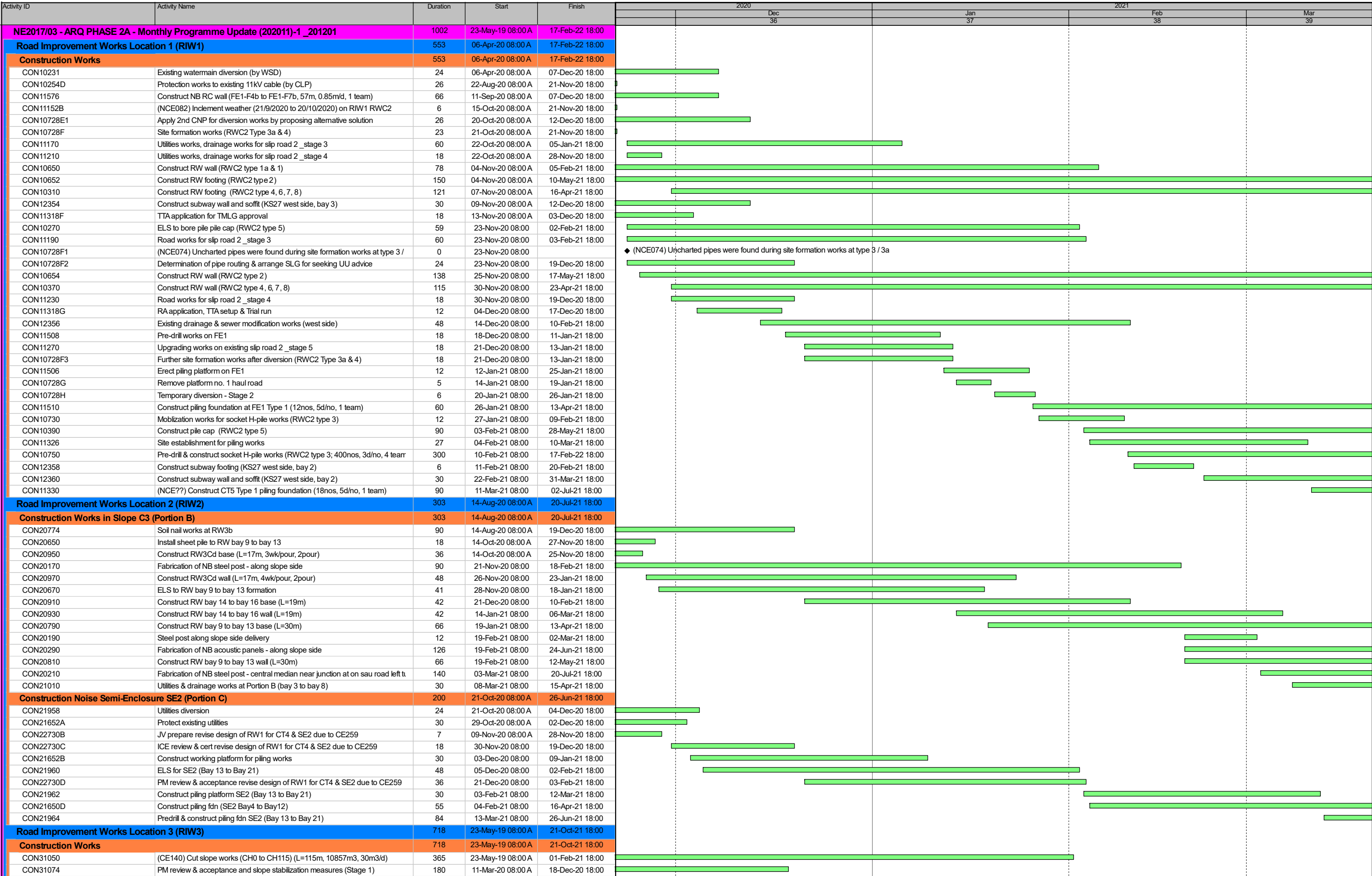


Project: portion 1-3 (7 Sept. 2020)	Task		Summary		External Milestone		Inactive Summary		Manual Summary Rollup		Finish-only		Critical Split	
Date: Mon 14-12-20	Split		Project Summary		Inactive Task		Manual Task		Manual Summary		Deadline		Progress	
	Milestone		External Tasks		Inactive Milestone		Duration-only		Start-only		Critical			

Monthly programme for section D Portion 6
(31 December2020)



Contract 3 (NE/2017/03)



Actual Work
Remaining Work
Milestone

Activity ID	Activity Name	Duration	Start	Finish	2020				2021			
							Dec 36		Jan 37		Feb 38	Mar 39
CON30654	(EWN 50, EWN52, EWN57, EWN58) JV Pending WSD confirm SMPR waterr	177	01-Jun-20 08:00 A	31-Dec-20 18:00								
CON30850	Construct slip road 4 utilities works & black fill & road works	72	18-Aug-20 08:00 A	04-Dec-20 18:00								
CON30250	Construct mini pile at RWD1 (bay 8 to bay 14) (121nos, 1.4d/no, 2 teams)	81	21-Aug-20 08:00 A	24-Dec-20 18:00								
CON30252	ELS works at RWD1- Type 4	81	21-Aug-20 08:00 A	24-Dec-20 18:00								
CON30870	Construct slip road 4 road works	72	15-Sep-20 08:00 A	05-Jan-21 18:00								
CON30310	Construct RWD1 (bay 1 to bay 7) wall (2 teams)	60	18-Sep-20 08:00 A	30-Nov-20 18:00								
CON30054	Erect fencing, gate at new works area	48	02-Oct-20 08:00 A	28-Nov-20 18:00								
CON30310B	(NCE082) Inclement weather (21/9/2020 to 20/10/2020) affected to RIW3 RW	6	18-Nov-20 08:00 A	23-Nov-20 18:00								
CON30330	Construct RWD1 (bay 1 to bay 7) utilities works & backfill (2 teams)	60	24-Nov-20 08:00	04-Feb-21 18:00								
CON30530	Drainage & utilities works (bay 1 to bay 7)	60	27-Nov-20 08:00	08-Feb-21 18:00								
CON30070	Form haul road B	42	30-Nov-20 08:00	20-Jan-21 18:00								
CON30550	Road works (bay 1 to bay 7)	60	21-Dec-20 08:00	06-Mar-21 18:00								
CON31310	Utilities works, drainage works & watermain (CH0 to CH115)	72	22-Dec-20 08:00	22-Mar-21 18:00								
CON30250A	(NCE082) Inclement weather (21/8/2020 to 20/9/2020) affected to RIW3 mini	19	28-Dec-20 08:00	19-Jan-21 18:00								
CON30650	Construct Twin Fresh Watermain CH10 to CH100	120	02-Jan-21 08:00	01-Jun-21 18:00								
CON30656	Construct Twin Fresh Watermain CH10 to CH100	160	02-Jan-21 08:00	20-Jul-21 18:00								
CON30658	Construct Twin Fresh Watermain CH270 to CH320	184	02-Jan-21 08:00	17-Aug-21 18:00								
CON30662	Construct Fresh Watermain ACH320 to CH400 (EPD access)	180	02-Jan-21 08:00	12-Aug-21 18:00								
CON31730	Road re-alignment & TTA modification on SMPR	30	06-Jan-21 08:00	09-Feb-21 18:00								
CON31330	Road works (CH0 to CH115)	60	13-Jan-21 08:00	30-Mar-21 18:00								
CON30250B	(NCE082) Inclement weather (21/9/2020 to 20/10/2020) on RIW3 D1	6	20-Jan-21 08:00	26-Jan-21 18:00								
CON30130	Slope works at slope D1 (stage 2, 20% completed)	72	21-Jan-21 08:00	22-Apr-21 18:00								
CON30350	Construct RWD1 (bay 8 to bay 14) pile cap (2 teams)	60	27-Jan-21 08:00	14-Apr-21 18:00								
CON30370	Construct RWD1 (bay 8 to bay 14) wall (2 teams)	60	27-Feb-21 08:00	13-May-21 18:00								
CON30430	Construct RWD1-Type 4 pile cap (CH144~CH160, 16m)	60	27-Feb-21 08:00	13-May-21 18:00								
CON30660	Construct Twin Fresh Watermain CH100 to CH190	174	20-Mar-21 08:00	21-Oct-21 18:00								
CON30666	Construct Salt Watermain A near F1-3 (TKO Rd Slip Rd)	60	20-Mar-21 08:00	04-Jun-21 18:00								
Pedestrian Connectivity Facility (PC-E11)		425	28-Feb-20 08:00 A	26-May-21 18:00								
Construction Works		425	28-Feb-20 08:00 A	26-May-21 18:00								
CON43010	Maintenance temporary access form lin tak road to new bus-bus interchange	288	28-Feb-20 08:00 A	11-Jan-21 18:00								
CON42270	Construct U/G utilities & backfill	120	07-Sep-20 08:00 A	23-Mar-21 18:00								
CON42910	Application for power supply & energization (PC-E11)	144	11-Sep-20 08:00 A	28-Apr-21 18:00								
CON42294	Existing DN900 drainage pipe diversion	66	12-Sep-20 00:00 A	01-Dec-20 18:00								
CON42350E	(CE148) Provision of additional wall for lift shafts at E11-LT2	60	05-Nov-20 08:00 A	16-Jan-21 18:00								
CON42294A	(NCE082) Inclement weather (21/9/2020 to 20/10/2020) on E11-PC1	6	02-Dec-20 08:00	08-Dec-20 18:00								
CON42296	Construct type L manhole (2nos)	60	09-Dec-20 08:00	23-Feb-21 18:00								
CON42298	Construct sub-structure for E11-PC1	60	19-Dec-20 08:00	05-Mar-21 18:00								
CON42450	Erect steel frame E11-FB2, construct floor slab & side planter	30	14-Jan-21 08:00	20-Feb-21 18:00								
CON42630	Construct covered-walkway between PC-E11 & BBI toilet	102	18-Jan-21 08:00	26-May-21 18:00								
CON42670	Install glass & window to lift tower no 2	42	18-Jan-21 08:00	10-Mar-21 18:00								
CON42430	Erect steel frame E11-FB3, construct floor slab & side planter	30	20-Jan-21 08:00	26-Feb-21 18:00								
CON42530	Erect steel frame E11-FB4, construct floor slab & side planter	30	26-Jan-21 08:00	04-Mar-21 18:00								
CON42550	Erect steel frame E11-FB5, construct floor slab & side planter	30	01-Feb-21 08:00	10-Mar-21 18:00								
CON42510	Erect roof steel frame, gutter, corrugated metal sheet & fall arrest system E11-F	48	22-Feb-21 08:00	22-Apr-21 18:00								
CON42490	Erect roof steel frame, gutter, corrugated metal sheet & fall arrest system E11-F	48	27-Feb-21 08:00	28-Apr-21 18:00								
CON42590	Erect roof steel frame, gutter, corrugated metal sheet & fall arrest system E11-F	48	05-Mar-21 08:00	05-May-21 18:00								
CON42390	Construct lift tower 1 (2 teams)	60	06-Mar-21 08:00	21-May-21 18:00								
CON42610	Erect roof steel frame, gutter, corrugated metal sheet & fall arrest system E11-F	48	11-Mar-21 08:00	11-May-21 18:00								
CON42770	ABWF works @LT2 (inside 2nos lift shaft)	12	11-Mar-21 08:00	24-Mar-21 18:00								
Pedestrian Connectivity Facility (PC-E8)		180	04-Sep-20 08:00 A	04-May-21 18:00								
Construction Works		180	04-Sep-20 08:00 A	04-May-21 18:00								
CON41610	1_ Install escalator & temp. T&C (E8-E1 & E8-E2) (F1 to P1)	90	04-Sep-20 08:00 A	21-Dec-20 18:00								
CON41650	2_ Install escalator & temp. T&C (E8-E7 & E8-E8) (P3 to P4)	90	19-Sep-20 08:00 A	08-Jan-21 18:00								
CON41230	Erect steel roof & install roof cladding P3>P4	48	21-Sep-20 08:00 A	28-Dec-20 18:00								
CON41170	Erect steel roof & install roof cladding F9 & F1>P1	48	05-Oct-20 08:00 A	07-Dec-20 18:00								
CON40590E	Rock stabilization works to E8-F8 (additional duration due to higher rockhead l	18	12-Nov-20 08:00 A	02-Dec-20 18:00								
CON40910	Construct pier E8-P2 (2 pour)	42	19-Nov-20 08:00 A	09-Jan-21 18:00								
CON41770	E&M works (F9 & F1 to P1)	60	30-Nov-20 08:00	10-Feb-21 18:00								
CON41850	E&M works (P5 to P6)	60	30-Nov-20 08:00	10-Feb-21 18:00								
CON40870	Construct footing E8-F8 (72m3) & backfilling	30	03-Dec-20 08:00	09-Jan-21 18:00								
CON41250	Erect steel roof & install roof cladding P4>P5	48	29-Dec-20 08:00	26-Feb-21 18:00								
CON41270	Erect steel roof & install roof cladding P5>P6	48	29-Dec-20 08:00	26-Feb-21 18:00								
CON41690	3A_ Install escalator & temp. T&C (E8-E9 & E8-E10) (P4 to P5)	90	29-Dec-20 08:00	21-Apr-21 18:00								
CON41710	3B_ Install escalator & temp. T&C (E8-E11 & E8-E12) (P5 to P6)	90	29-Dec-20 08:00	21-Apr-21 18:00								
CON41010	Construct E8-ABT	30	11-Jan-21 08:00	17-Feb-21 18:00								
CON41050	Construct escalator pit P1>P2 (E3 & E4)	60	11-Jan-21 08:00	24-Mar-21 18:00								
CON41070	Construct escalator pit P2>P3 (E5 & E6)	60	11-Jan-21 08:00	24-Mar-21 18:00								
CON41890	E&M works (P3 to P4)	60	11-Feb-21 08:00	29-Apr-21 18:00								
CON41150	Construct escalator pit P6>ABT (E13 & E14)	60	18-Feb-21 08:00	04-May-21 18:00								
Pedestrian Connectivity Facility System A (SYA)		187	11-Aug-20 08:00 A	30-Mar-21 18:00								
Construction Works		187	11-Aug-20 08:00 A	30-Mar-21 18:00								

- Actual Work
- Remaining Work
- Milestone

Activity ID	Activity Name	Duration	Start	Finish	2020				2021			
							Dec 36		Jan 37		Feb 38	Mar 39
CON50250	Construct superstructure of lift tower to roof level (3m/pour, +144 to +165.7mPI	162	11-Aug-20 08:00 A	25-Feb-21 18:00								
CON50250A	(NCE081) Inclement weather (21/8/2020 to 20/9/2020) affected to SYA	19	26-Feb-21 08:00	19-Mar-21 18:00								
CON50250B	(NCE082) Inclement weather (21/9/2020 to 20/10/2020) affected to SYA	6	20-Mar-21 08:00	30-Mar-21 18:00								
Pedestrian Connectivity Facility System B (SYB)		478	12-Jun-20 08:00 A	28-Jan-22 18:00								
Construction Works		478	12-Jun-20 08:00 A	28-Jan-22 18:00								
CON52190	Construct above ground structure SYB-ABT	90	12-Jun-20 08:00 A	28-Dec-20 18:00								
CON50859G	(NCE079) Further excavation to facilitate Towngas diversion as per-request in	54	27-Oct-20 08:00 A	30-Dec-20 18:00								
CON51910	Construct pier SYB-P8 (2 pour)	42	03-Nov-20 08:00 A	09-Jan-21 18:00								
CON51970	Construct pier SYB-P7 (2 pour)	42	12-Nov-20 08:00 A	11-Jan-21 18:00								
CON50859F	(NCE082) Inclement weather (21/9/2020 to 20/10/2020) on Sys B	6	18-Nov-20 08:00 A	24-Nov-20 18:00								
CON51290	Install sheet pile at SYB-PC6	12	08-Dec-20 08:00	21-Dec-20 18:00								
CON51310	Excavate & install support at SYB-PC6	30	22-Dec-20 08:00	28-Jan-21 18:00								
CON50855	Gasmain diversion (Sys B) - Apply 2nd stage TTA & civil works for gasmain dive	12	31-Dec-20 08:00	14-Jan-21 18:00								
CON51810	Construct underground drainage pipe	312	11-Jan-21 08:00	28-Jan-22 18:00								
CON50856	Gasmain diversion (Sys B) - gasmain diversion works (by Towngas)	36	15-Jan-21 08:00	01-Mar-21 18:00								
CON51050	Mobilisation piling rig plant to SYS-PC6	6	29-Jan-21 08:00	04-Feb-21 18:00								
CON51370	Install sheet pile at SYB-PC4	12	29-Jan-21 08:00	11-Feb-21 18:00								
CON51070	Pre-drill & construct piling fdn at SYB-PC6	50	05-Feb-21 08:00	12-Apr-21 18:00								
CON51390	Excavate & install support at SYB-PC4	30	16-Feb-21 08:00	22-Mar-21 18:00								
CON50857	Gasmain diversion (Sys B) - Reinstate road surface including pedestrain road	8	02-Mar-21 08:00	10-Mar-21 18:00								
CON50858	Gasmain diversion (Sys B) - Apply 3rd stage TTA (reinstate central median)	14	11-Mar-21 08:00	30-Mar-21 18:00								
Bus-Bus Interchange Public Toilet (BBI Toilet)		365	01-Apr-20 08:00 A	01-Apr-21 18:00								
Works related to section 10A - Establishment Works for Landscape Softworks in Section 10		365	01-Apr-20 08:00 A	01-Apr-21 18:00								
CON43370	Establishment Works for Landscape Softworks in Section 10 (Portion FI)	365	01-Apr-20 08:00 A	01-Apr-21 18:00								

- Actual Work
- Remaining Work
- Milestone

Appendix D

Monitoring Locations for Impact Monitoring

**Monitoring Locations
for
Contract 1 (NE/2016/01)**


DO NOT SCALE DRAWING. CHECK ALL DIMENSIONS ON SITE.
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HVS in AMS-1 for 24-Hour TSP



- Legend
- Study Area
 - 500m Assessment Area
 - Dust Monitoring Locations

B	SECOND ISSUE	GL	03/14
A	FIRST ISSUE	GL	10/13
Rev	Description	By	Date
Consultant			
ARUP			
Contract No. and Title			
Agreement No. CE 18/2012(CE)			
Development of Anderson Road Quarry - Investigation			
Drawing title			
Locations of Construction Dust Monitoring (Sheet 1 of 3)			
Drawing no.		Rev.	
227724/E/1045		B	
Drawn GL	Date 03/14	Checked TC	Approved ST
Scale 1:5000 @A3		Status PRELIMINARY	
COPYRIGHT RESERVED			
			
土木工程拓展署 Civil Engineering and Development Department			

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NMS-7 (Chi Tai House of On Tai Estate)

Building layout is assumed for assessment purpose

NMS-6 (Yung Tai House of On Tai Estate)

Building layout is assumed for assessment purpose

NMS-3 (Site C2 - R102)

NMS-1 (Site C2 + School 05)

NMS-5 (Hau Tat House of On Tat Estate)

NMS-4 / NMS-4a (On Tat House of On Tat Estate)

Building layout is assumed for assessment purpose

NMS-2 (Site E - School)
(Site E - School)

Legend

- Study Area
- Construction Noise Monitoring Location
- Construction and Operational Road Traffic Noise Monitoring Location
- Review Noise monitoring Location

C	THIRD ISSUE	GL	05/14
B	SECOND ISSUE	GL	03/14
A	FIRST ISSUE	GL	10/13
Rev	Description	By	Date

Consultant

ARUP

Contract No. and Title

Agreement No. CE 18/2012(CE)

Development of
Anderson Road Quarry -
Investigation

Drawing title

Locations of Noise
Monitoring

Drawing no. 227724/E/2400 Rev. C

Drawn	Date	Checked	Approved
GL	05/14	TC	ST
Scale	1:5000	Status	PRELIMINARY




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Civil Engineering and
Development Department

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Legend

-  Study Area
-  500m Assessment Area
-  Dust Monitoring Locations

B SECOND ISSUE		GL	03/14
A FIRST ISSUE		GL	10/13
Rev	Description	By	Date
Consultant			
ARUP			
Contract No. and Title			
Agreement No. CE 18/2012(CE)			
Development of Anderson Road Quarry - Investigation			
Drawing title			
Locations of Construction Dust Monitoring (Sheet 2 of 3)			
Drawing no.		Rev.	
227724/E/1046		B	
Drawn	Date	Checked	Approved
GL	03/14	TC	ST
Scale	1:5000	ma3	PRELIMINARY
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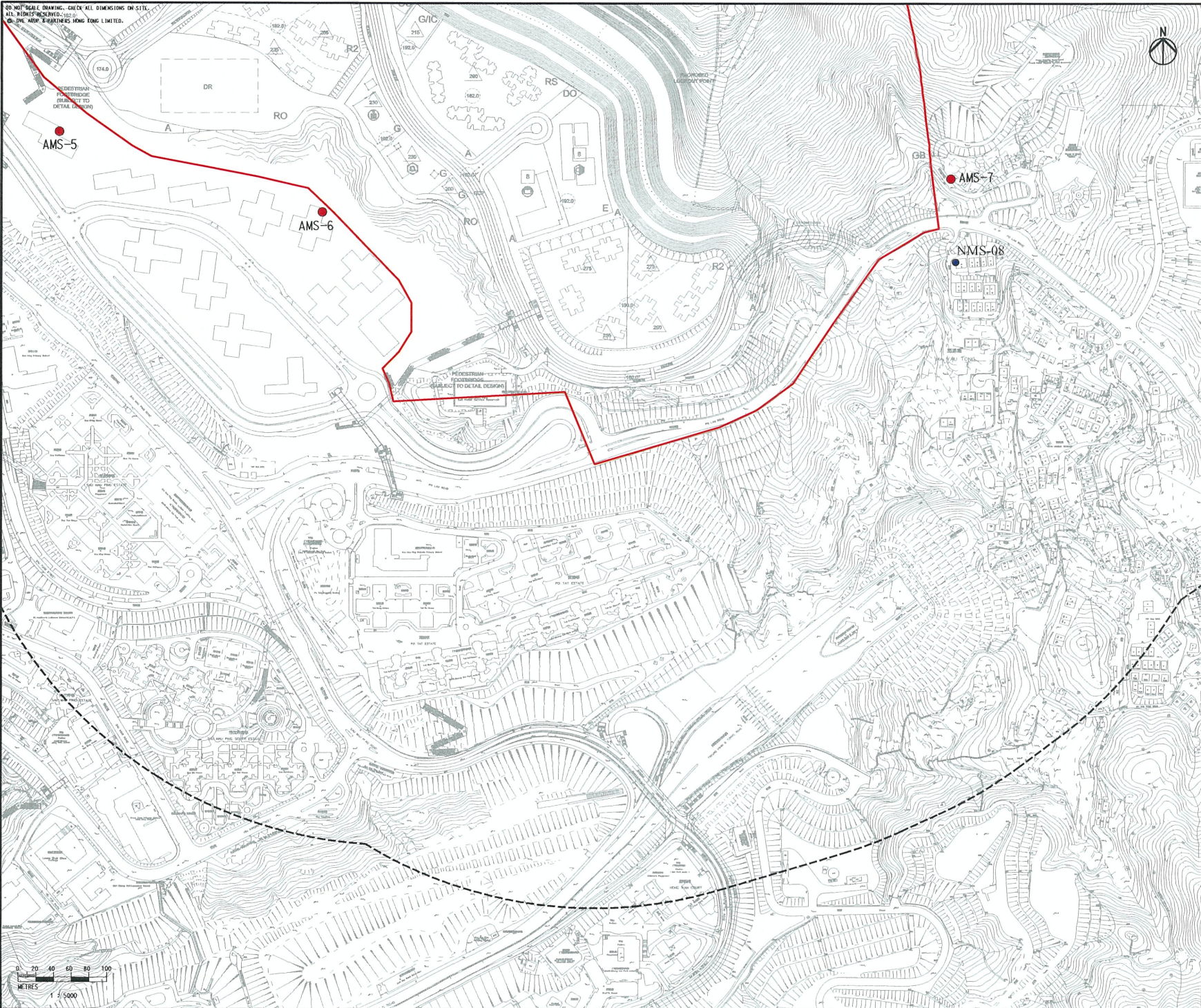


HVS in AMS-5 for 24-Hour TSP



HVS in AMS-6 for 24-Hour TSP





Legend

- Study Area
- 500m Assessment Area
- Dust Monitoring Locations
- Noise Monitoring Location

Rev	Description	By	Date
B	SECOND ISSUE	GL	03/14
A	FIRST ISSUE	GL	10/13

Consultant

Contract No. and Title

Agreement No. CE 18/2012(CE)

Development of
Anderson Road Quarry -
Investigation

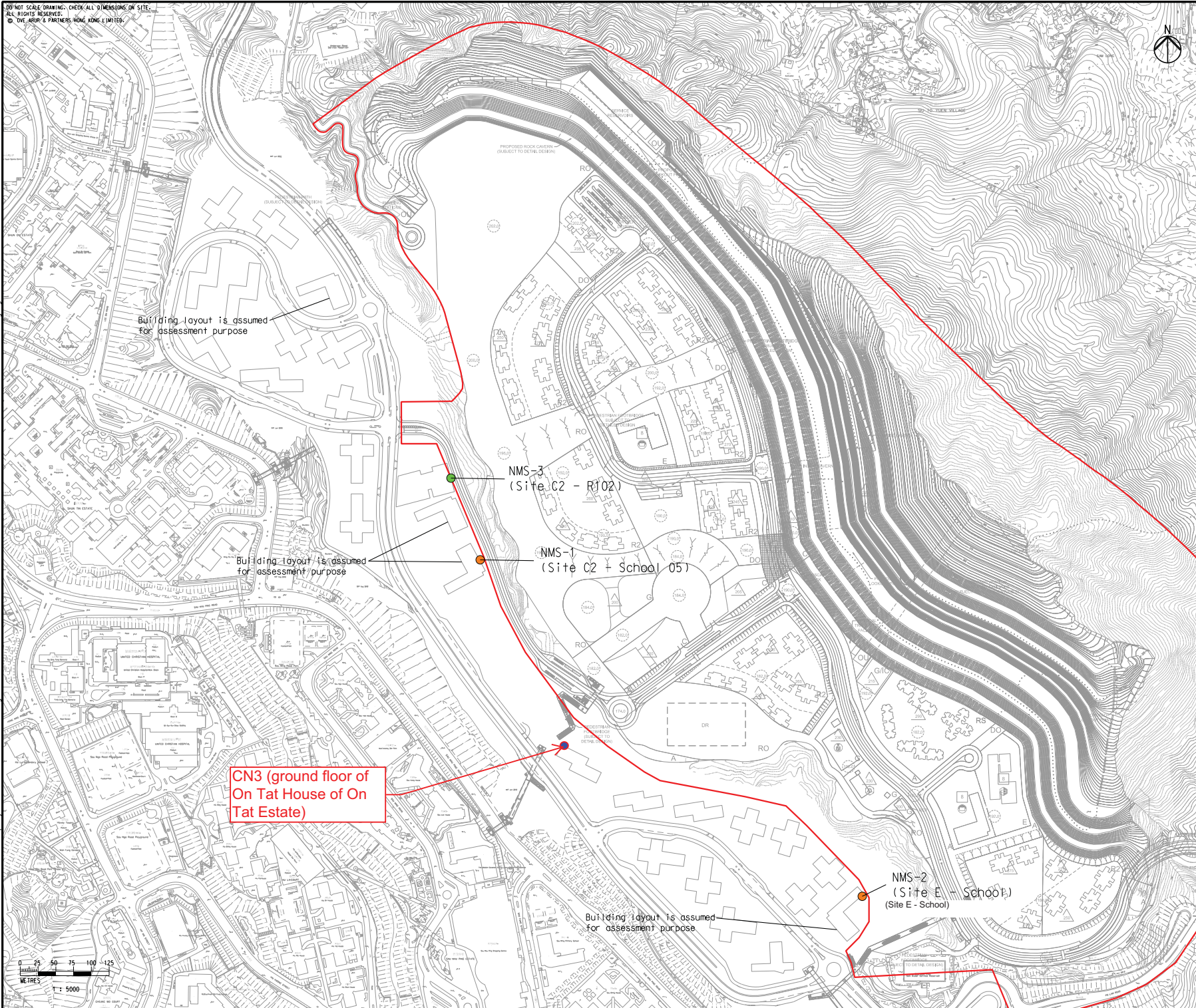
Drawing title

Locations of Construction Dust
and Noise Monitoring

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**Monitoring Locations
for
Contract 3 (NE/2017/03)**

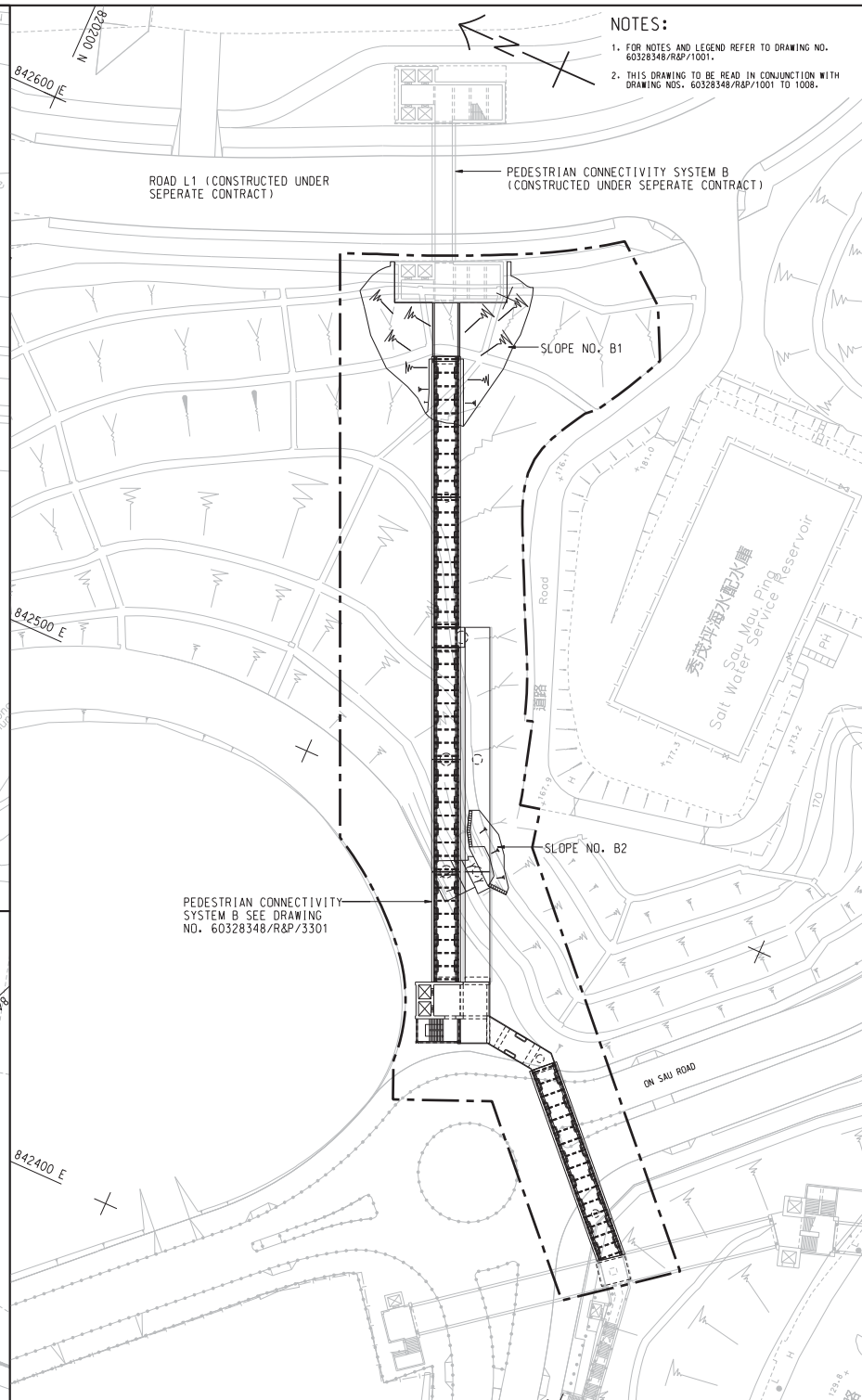
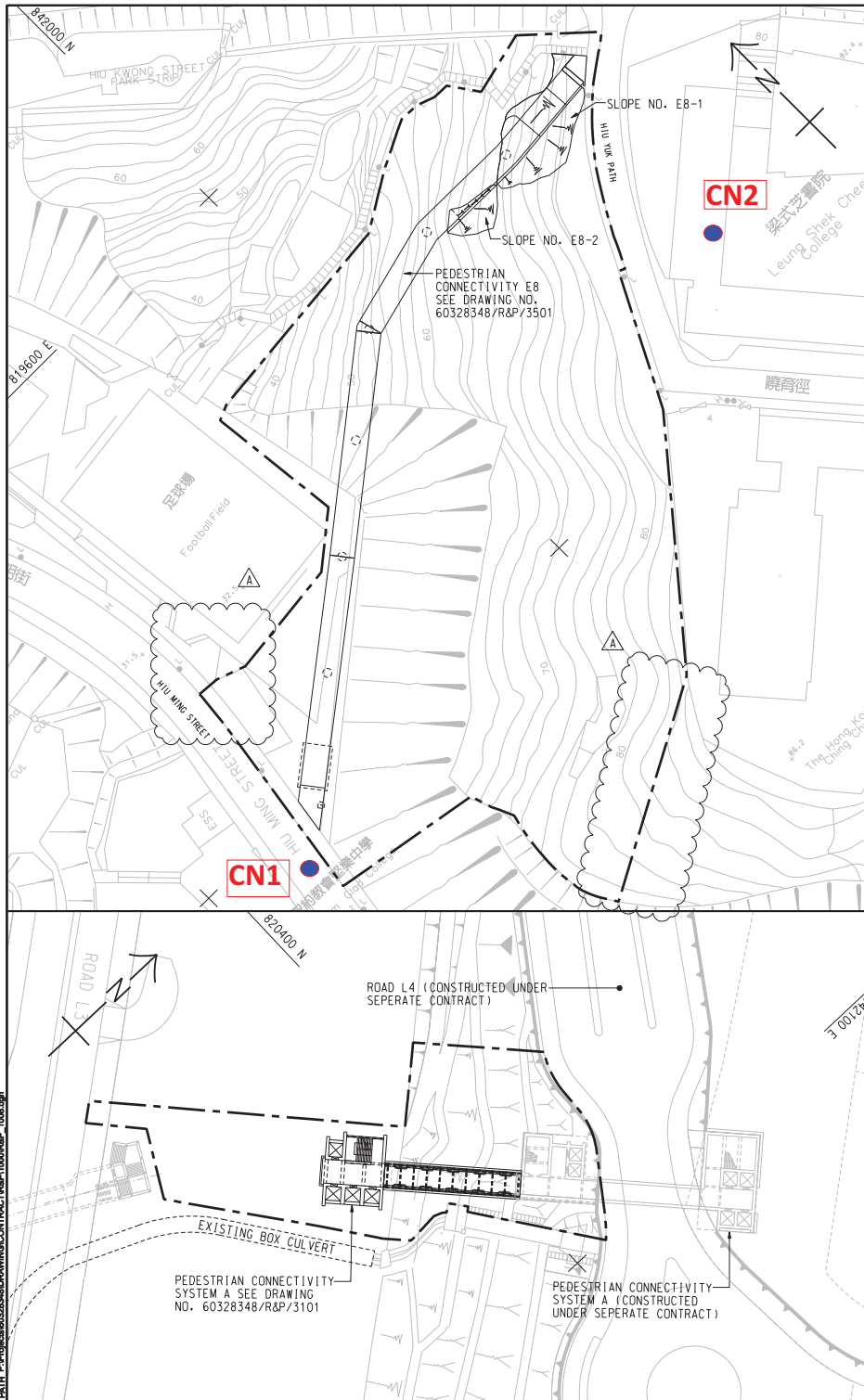
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- Legend
- Study Area
 - Construction Noise Monitoring Location
 - Construction and Operational Road Traffic Noise Monitoring Location
 - Noise monitoring Location

C	THIRD ISSUE	GL	05/14
B	SECOND ISSUE	GL	03/14
A	FIRST ISSUE	GL	10/13
Rev	Description	By	Date
Consultant			
ARUP			
Contract No. and Title			
Agreement No. CE 18/2012(CE)			
Development of Anderson Road Quarry - Investigation			
Drawing title			
Locations of Noise Monitoring			
Drawing no.		Rev.	
227724/E/2400		C	
Drawn	Date	Checked	Approved
GL	05/14	TC	ST
Scale	1:5000	Status	PRELIMINARY
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CEDD 土木工程拓展署 Civil Engineering and Development Department			

Printed by : 6/3/2014
Filename : \\HKGN1522\acoustic\env\project\227724-50\13 Drawing Deliverables\08 EMEA\03 Final\Noise\227724_E-2400_C - Locations of Noise Monitoring.dgn



NOTES:
1. FOR NOTES AND LEGEND REFER TO DRAWING NO. 60328348/R&P/1001.
2. THIS DRAWING TO BE READ IN CONJUNCTION WITH DRAWING NOS. 60328348/R&P/1001 TO 1008.

AECOM
PROJECT NO. 60328348
DEVELOPMENT OF ANDERSON ROAD QUARRY SITE - INVESTIGATION, DESIGN AND CONSTRUCTION
CONTRACT TITLE DEVELOPMENT OF ANDERSON ROAD QUARRY SITE - ROAD IMPROVEMENT WORKS AND PEDESTRIAN CONNECTIVITY FACILITIES WORKS PHASE 2A
CLIENT AECOM
CONSULTANT AECOM Asia Company Ltd.
SUB-CONSULTANTS
ISSUE/REVISION
SCALE A1: 800
DIMENSION UNIT METRES
KEY PLAN
PROJECT NO. 60328348
CONTRACT NO. NE/2017/03
SHEET TITLE GENERAL LAYOUT
SHEET NUMBER 60328348/R&P/1008A

noise monitoring location

NO.	DATE	DESCRIPTION	CHK.
A	NOV. 17	TENDER ADDENDUM NO. 1	AWYC
-	OCT. 17	TENDER DRAWING	AWYC

STATUS

NGAU TAU
TSUI LAM
KUN TONG

Appendix E

Calibration Certificate of Monitoring Equipment and HOKLAS-accreditation Certificate of the Testing Laboratory

TSP SAMPLER CALIBRATION CALCULATION SPREADSHEET

Location : Tan Shan Village No. 5 - 6	Date of Calibration: 5-Oct-20
Location ID : AMS1a	Next Calibration Date: 5-Dec-20
Model: TISCH High Volume Air Sampler TE-5170	Technician: Mr. Fai So

CONDITIONS

Sea Level Pressure (hPa)	1011.2	Corrected Pressure (mm Hg)	758.4
Temperature (°C)	28.0	Temperature (K)	301

CALIBRATION ORIFICE

Make-> TISCH	Qstd Slope ->
Model-> TE-5025A	2.03014
Serial # -> 1612	Qstd Intercept ->
	-0.04616

CALIBRATION

Plate No.	H2O (L) (in)	H2O (R) (in)	H2O (in)	Qstd (m3/min)	I (chart)	IC corrected	LINEAR REGRESSION
18	4.7	4.7	9.4	1.524	54	53.67	Slope = 30.2212
13	3.8	3.8	7.6	1.372	48	47.71	Intercept = 7.0946
10	2.9	2.9	5.8	1.202	44	43.73	Corr. coeff. = 0.9984
7	1.8	1.8	3.6	0.952	36	35.78	
5	1.1	1.1	2.2	0.749	30	29.82	

Calculations :

$$Qstd = 1/m[\text{Sqrt}(H2O(Pa/Pstd)(Tstd/Ta))-b]$$

$$IC = I[\text{Sqrt}(Pa/Pstd)(Tstd/Ta)]$$

Qstd = standard flow rate

IC = corrected chart responses

I = actual chart response

m = calibrator Qstd slope

b = calibrator Qstd intercept

Ta = actual temperature during calibration (deg K)

Pstd = actual pressure during calibration (mm Hg)

For subsequent calculation of sampler flow:

$$1/m((I) [\text{Sqrt}(298/Tav)(Pav/760)]-b)$$

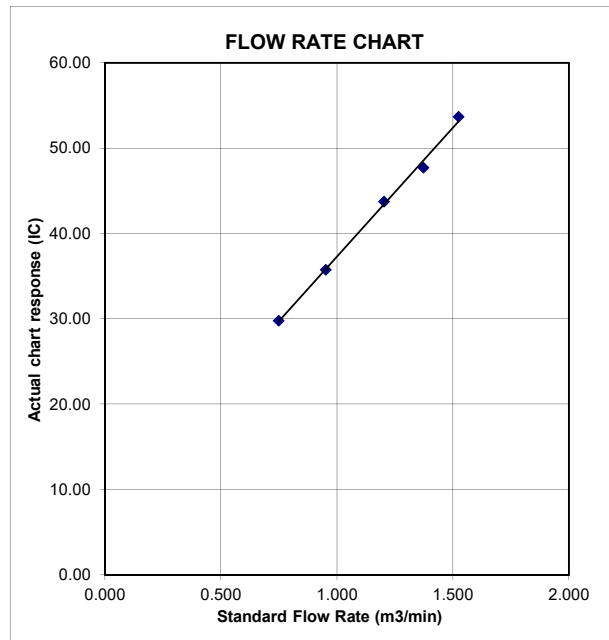
m = sampler slope

b = sampler intercept

I = chart response

Tav = daily average temperature

Pav = daily average pressure



TSP SAMPLER CALIBRATION CALCULATION SPREADSHEET

Location : Oi Tat House Date of Calibration: 5-Oct-20
 Location ID : AMS 5 Next Calibration Date: 5-Dec-20
 Model: TISCH High Volume Air Sampler TE-5170 Technician: Mr. Fai So

CONDITIONS

Sea Level Pressure (hPa)	1011.2	Corrected Pressure (mm Hg)	758.4
Temperature (°C)	28.0	Temperature (K)	301

CALIBRATION ORIFICE

Make->	TISCH	Qstd Slope ->	2.03014
Model->	TE-5025A	Qstd Intercept ->	-0.04616
Serial # ->	1612		

CALIBRATION

Plate No.	H2O (L) (in)	H2O (R) (in)	H2O (in)	Qstd (m3/min)	I (chart)	IC corrected	LINEAR REGRESSION
18	6	6	12	1.719	40	39.76	Slope = 28.1152 Intercept = -7.3884 Corr. coeff. = 0.9910
13	4.7	4.7	9.4	1.524	36	35.78	
10	3.5	3.5	7	1.318	32	31.81	
7	2.3	2.3	4.6	1.073	22	21.87	
5	1.4	1.4	2.8	0.842	16	15.90	

Calculations :

$$Qstd = 1/m[\text{Sqrt}(H2O(Pa/Pstd)(Tstd/Ta))-b]$$

$$IC = I[\text{Sqrt}(Pa/Pstd)(Tstd/Ta)]$$

Qstd = standard flow rate

IC = corrected chart responses

I = actual chart response

m = calibrator Qstd slope

b = calibrator Qstd intercept

Ta = actual temperature during calibration (deg K

Pstd = actual pressure during calibration (mm Hg

For subsequent calculation of sampler flow:

$$1/m((I)[\text{Sqrt}(298/Tav)(Pav/760)]-b)$$

m = sampler slope

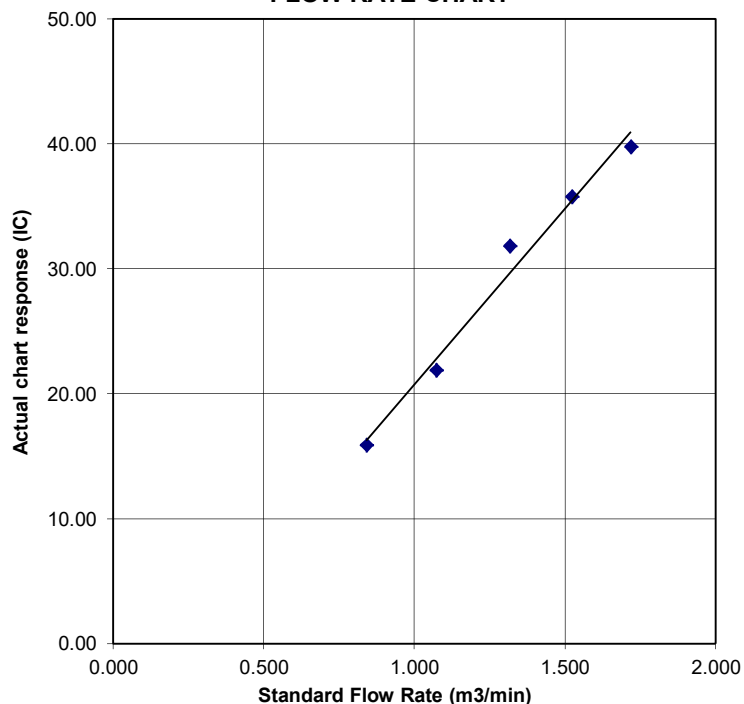
b = sampler intercept

I = chart response

Tav = daily average temperature

Pav = daily average pressure

FLOW RATE CHART



TSP SAMPLER CALIBRATION CALCULATION SPREADSHEET

Date of Calibration: 5-Oct-20

Next Calibration Date: 5-Dec-20

Technician: Mr. Fai So

CONDITIONS

1011.2

28.0

758.4

301

CALIBRATION ORIFICE

TISCH

TE-5025A

1612

2.03014

-0.04616

CALIBRATION

Plate No.	H2O (L) (in)	H2O (R) (in)	H2O (in)	Qstd (m3/min)	I (chart)	IC corrected	LINEAR REGRESSION
18	5.4	5.4	10.8	1.632	54	53.67	Slope = 45.0309
13	4.2	4.2	8.4	1.442	48	47.71	Intercept = -18.7794
10	3.4	3.4	6.8	1.299	40	39.76	Corr. coeff. = 0.9977
7	2.2	2.2	4.4	1.050	28	27.83	
5	1.3	1.3	2.6	0.812	18	17.89	

Calculations :

$$Q_{std} = 1/m[\text{Sqrt}(H20(Pa/P_{std})(T_{std}/T_a)) - b]$$

$$IC = I[\text{Sqrt}(Pa/Pstd)(Tstd/Ta)]$$

Qstd = standard flow rate

IC = corrected chart responses

I = actual chart response

m = calibrator Qstd slope

b = calibrator Qstd intercept

Ta = actual temperature during calibration (deg K

Pstd = actual pressure during calibration (mm Hg

For subsequent calculation of sampler flow:

$$1/m((I)[\text{Sqrt}(298/T_{av})(P_{av}/760)]-b)$$

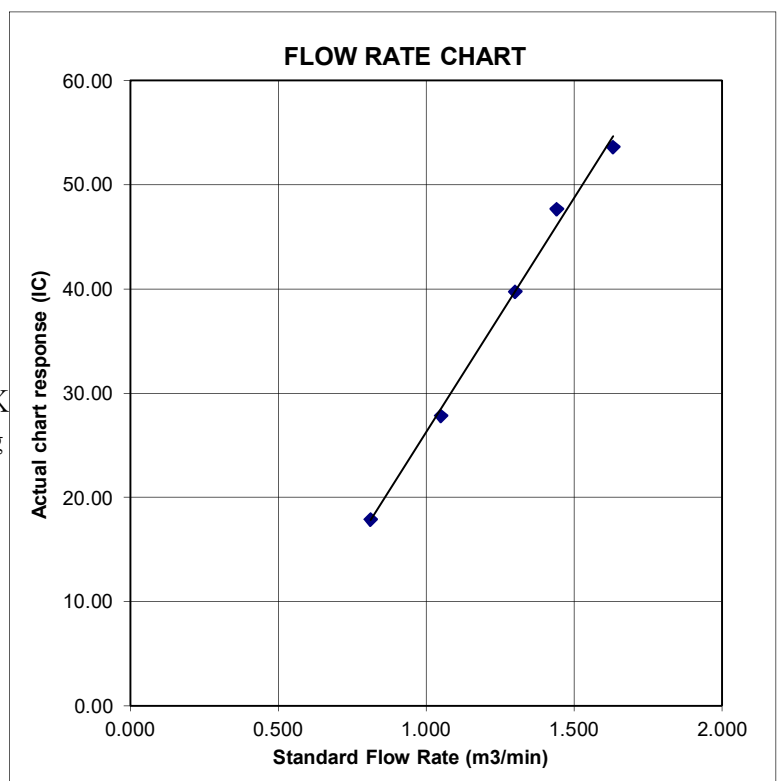
m = sampler slope

b = sampler intercept

I = chart response

Tav = daily average temperature

P_{av} = daily average pressure



TSP SAMPLER CALIBRATION CALCULATION SPREADSHEET

Location : Ma Yau Tong Village

Date of Calibration: 5-Oct-20

Location ID : AMS 7

Next Calibration Date: 5-Dec-20

Model: TISCH High Volume Air Sampler TE-5170

Technician: Mr. Fai So

CONDITIONS

Sea Level Pressure (hPa)

1011.2

Corrected Pressure (mm Hg)

758.4

Temperature (°C)

28.0

Temperature (K)

301

CALIBRATION ORIFICE

Make-> TISCH

Qstd Slope ->

2.03014

Model-> TE-5025A

Qstd Intercept ->

-0.04616

Serial # -> 1612

CALIBRATION

Plate No.	H2O (L) (in)	H2O (R) (in)	H2O (in)	Qstd (m3/min)	I (chart)	IC corrected	LINEAR REGRESSION
18	3.2	3.2	6.4	1.261	52	51.69	Slope = 37.9754
13	2.5	2.5	5	1.118	48	47.71	Intercept = 4.8614
10	2.0	2.0	4	1.002	44	43.73	Corr. coeff. = 0.9924
7	1.2	1.2	2.4	0.781	36	35.78	
5	0.8	0.8	1.6	0.642	28	27.83	

Calculations :

$$Qstd = 1/m[\text{Sqrt}(H2O(Pa/Pstd)(Tstd/Ta))-b]$$

$$IC = I[\text{Sqrt}(Pa/Pstd)(Tstd/Ta)]$$

Qstd = standard flow rate

IC = corrected chart responses

I = actual chart response

m = calibrator Qstd slope

b = calibrator Qstd intercept

Ta = actual temperature during calibration (deg K)

Pstd = actual pressure during calibration (mm Hg)

For subsequent calculation of sampler flow:

$$1/m((I) [\text{Sqrt}(298/Tav)(Pav/760)]-b)$$

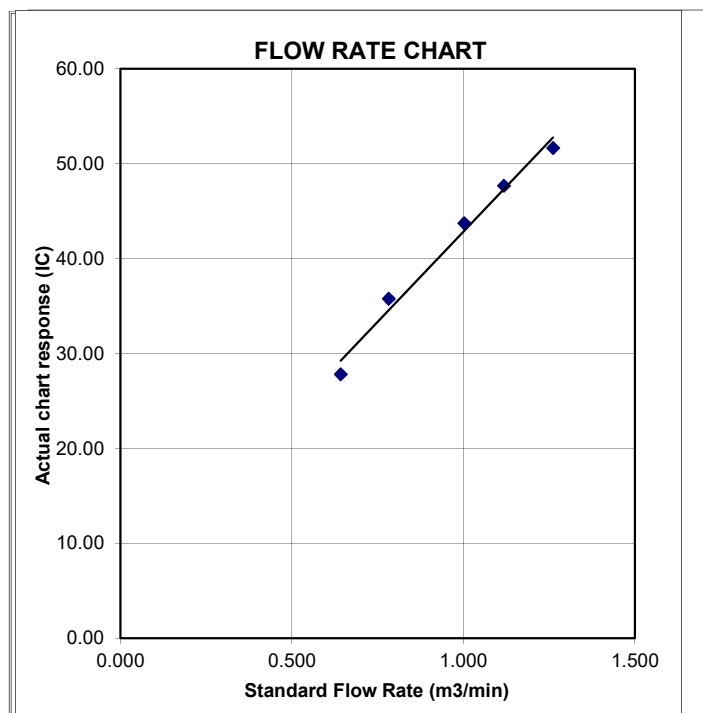
m = sampler slope

b = sampler intercept

I = chart response

Tav = daily average temperature

Pav = daily average pressure



TSP SAMPLER CALIBRATION CALCULATION SPREADSHEET

Location : Tan Shan Village No. 5 - 6				Date of Calibration: 5-Dec-20															
Location ID : AMS1a				Next Calibration Date: 5-Feb-21															
Model: TISCH High Volume Air Sampler TE-5170				Technician: Mr. Fai So															
CONDITIONS																			
Sea Level Pressure (hPa)		<input type="text" value="1021.5"/>		Corrected Pressure (mm Hg)		<input type="text" value="766.125"/>													
Temperature (°C)		<input type="text" value="16.8"/>		Temperature (K)		<input type="text" value="290"/>													
CALIBRATION ORIFICE																			
Make->		<input type="text" value="TISCH"/>		Qstd Slope ->		<input type="text" value="2.03014"/>													
Model->		<input type="text" value="TE-5025A"/>		Qstd Intercept ->		<input type="text" value="-0.04616"/>													
Serial # ->		<input type="text" value="1612"/>																	
CALIBRATION																			
Plate No.	H2O (L) (in)	H2O (R) (in)	H2O (in)	Qstd (m3/min)	I (chart)	IC corrected	LINEAR REGRESSION												
18	6.1	6.1	12.2	1.774	54	54.98	Slope = 43.3678 Intercept = -21.6700 Corr. coeff. = 0.9967												
13	4.9	4.9	9.8	1.593	48	48.87													
10	3.7	3.7	7.4	1.387	36	36.65													
7	2.5	2.5	5	1.144	28	28.51													
5	1.6	1.6	3.2	0.920	18	18.33													
Calculations : $Qstd = 1/m[\text{Sqrt}(H2O(Pa/Pstd)(Tstd/Ta))-b]$ $IC = I[\text{Sqrt}(Pa/Pstd)(Tstd/Ta)]$ Qstd = standard flow rate IC = corrected chart responses I = actual chart response m = calibrator Qstd slope b = calibrator Qstd intercept Ta = actual temperature during calibration (deg K) Pstd = actual pressure during calibration (mm Hg) For subsequent calculation of sampler flow: $1/m((I)[\text{Sqrt}(298/Tav)(Pav/760)]-b)$ m = sampler slope b = sampler intercept I = chart response Tav = daily average temperature Pav = daily average pressure																			
<div style="display: flex; align-items: center;"> <div style="flex: 1;"> <table border="1" style="margin-top: 10px;"> <caption>Data points from Flow Rate Chart</caption> <thead> <tr> <th>Standard Flow Rate (m3/min)</th> <th>Actual chart response (IC)</th> </tr> </thead> <tbody> <tr><td>0.920</td><td>18.33</td></tr> <tr><td>1.144</td><td>28.51</td></tr> <tr><td>1.387</td><td>36.65</td></tr> <tr><td>1.593</td><td>48.87</td></tr> <tr><td>1.774</td><td>54.98</td></tr> </tbody> </table> </div> <div style="flex: 1; text-align: center;"> FLOW RATE CHART </div> </div>								Standard Flow Rate (m3/min)	Actual chart response (IC)	0.920	18.33	1.144	28.51	1.387	36.65	1.593	48.87	1.774	54.98
Standard Flow Rate (m3/min)	Actual chart response (IC)																		
0.920	18.33																		
1.144	28.51																		
1.387	36.65																		
1.593	48.87																		
1.774	54.98																		

TSP SAMPLER CALIBRATION CALCULATION SPREADSHEET

Location : Oi Tat House Date of Calibration: 5-Dec-20
 Location ID : AMS 5 Next Calibration Date: 5-Feb-21
 Model: TISCH High Volume Air Sampler TE-5170 Technician: Mr. Fai So

CONDITIONS

Sea Level Pressure (hPa)	1021.5	Corrected Pressure (mm Hg)	766.125
Temperature (°C)	16.8	Temperature (K)	290

CALIBRATION ORIFICE

Make->	TISCH	Qstd Slope ->	2.03014
Model->	TE-5025A	Qstd Intercept ->	-0.04616
Serial # ->	1612		

CALIBRATION

Plate No.	H2O (L) (in)	H2O (R) (in)	H2O (in)	Qstd (m3/min)	I (chart)	IC corrected	LINEAR REGRESSION
18	6.1	6.1	12.2	1.774	55	56.00	Slope = 43.3364 Intercept = -21.2200 Corr. coeff. = 0.9948
13	4.9	4.9	9.8	1.593	48	48.87	
10	3.7	3.7	7.4	1.387	37	37.67	
7	2.5	2.5	5	1.144	26	26.47	
5	1.6	1.6	3.2	0.920	20	20.36	

Calculations :

$$Qstd = 1/m[\text{Sqrt}(H2O(Pa/Pstd)(Tstd/Ta))-b]$$

$$IC = I[\text{Sqrt}(Pa/Pstd)(Tstd/Ta)]$$

Qstd = standard flow rate

IC = corrected chart responses

I = actual chart response

m = calibrator Qstd slope

b = calibrator Qstd intercept

Ta = actual temperature during calibration (deg K

Pstd = actual pressure during calibration (mm Hg

For subsequent calculation of sampler flow:

$$1/m((I)[\text{Sqrt}(298/Tav)(Pav/760)]-b)$$

m = sampler slope

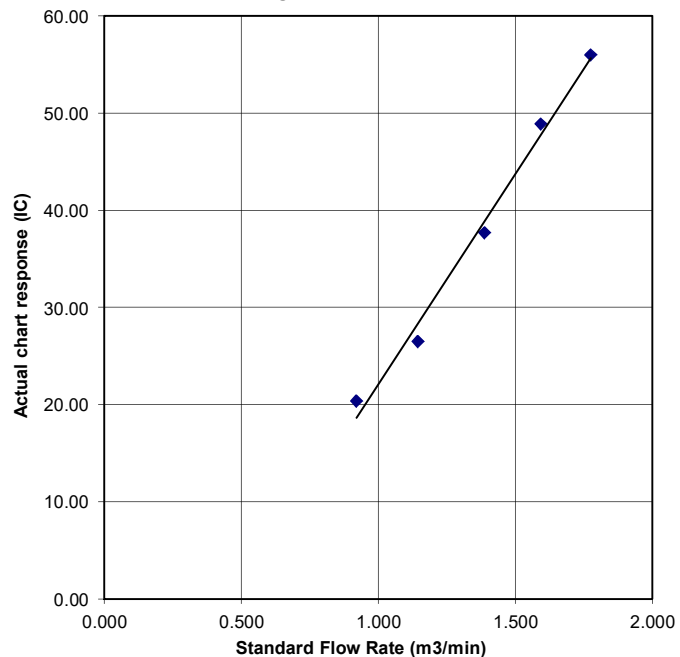
b = sampler intercept

I = chart response

Tav = daily average temperature

Pav = daily average pressure

FLOW RATE CHART



TSP SAMPLER CALIBRATION CALCULATION SPREADSHEET

Date of Calibration: 5-Dec-20

Next Calibration Date: 5-Feb-21

Technician: Mr. Fai So

CONDITIONS

1021.5

16.8

766.125

290

CALIBRATION ORIFICE

TISCH

TE-5025A

1612

2.03014

-0.04616

CALIBRATION

Plate No.	H2O (L) (in)	H2O (R) (in)	H2O (in)	Qstd (m3/min)	I (chart)	IC corrected	LINEAR REGRESSION
18	6	6	12	1.760	52	52.94	Slope = 40.3048
13	5.1	5.1	10.2	1.624	46	46.83	Intercept = -18.7596
10	3.9	3.9	7.8	1.423	36	36.65	Corr. coeff. = 0.9961
7	2.5	2.5	5	1.144	28	28.51	
5	1.7	1.7	3.4	0.947	19	19.34	

Calculations :

$$Q_{std} = 1/m[\text{Sqrt}(H20(Pa/P_{std})(T_{std}/T_a))-b]$$

$$IC = I[\text{Sqrt}(Pa/Pstd)(Tstd/Ta)]$$

Qstd = standard flow rate

IC = corrected chart responses

I = actual chart response

$m = \text{calibrator Qstd slope}$

b = calibrator Qstd intercept

Ta = actual temperature during calibration (deg K

Pstd = actual pressure during calibration (mm Hg

For subsequent calculation of sampler flow:

$$1/m((I)[\text{Sqrt}(298/T_{av})(P_{av}/760)]-b)$$

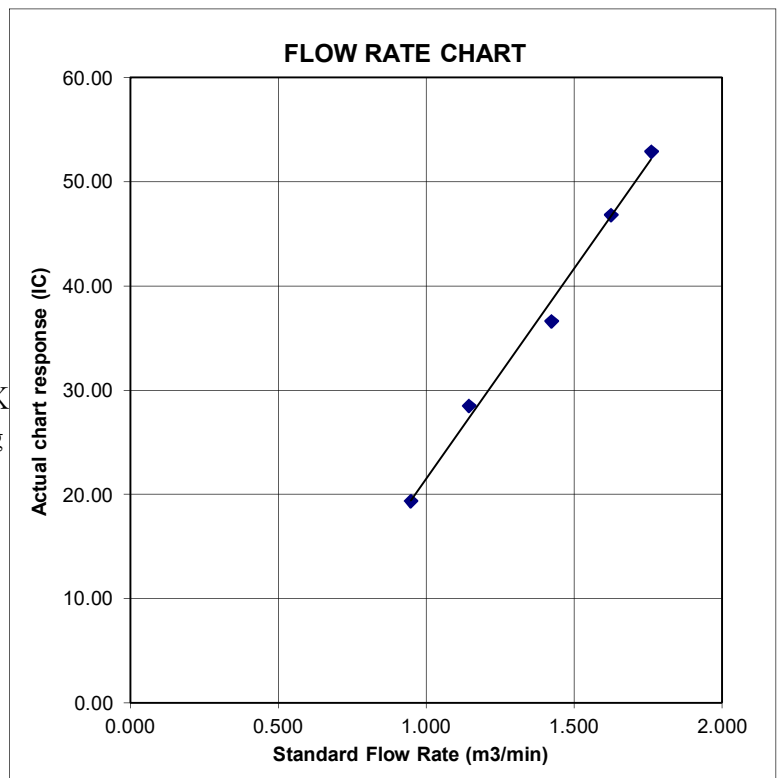
m = sampler slope

b = sampler intercept

I = chart response

Tav = daily average temperature

P_{av} = daily average pressure



TSP SAMPLER CALIBRATION CALCULATION SPREADSHEET

Location : Ma Yau Tong Village

Date of Calibration: 5-Dec-20

Location ID : AMS 7

Next Calibration Date: 5-Feb-21

Model: TISCH High Volume Air Sampler TE-5170

Technician: Mr. Fai So

CONDITIONS

Sea Level Pressure (hPa)

1021.5

Temperature (°C)

16.8

Corrected Pressure (mm Hg)

766.125

Temperature (K)

290

CALIBRATION ORIFICE

Make-> TISCH

Model-> TE-5025A

Serial # -> 1612

Qstd Slope ->

2.03014

Qstd Intercept ->

-0.04616

CALIBRATION

Plate No.	H2O (L) (in)	H2O (R) (in)	H2O (in)	Qstd (m3/min)	I (chart)	IC corrected	LINEAR REGRESSION
18	6.2	6.2	12.4	1.789	53	53.96	Slope = 40.7522
13	5.0	5.0	10	1.609	48	48.87	Intercept = -18.3498
10	3.7	3.7	7.4	1.387	37	37.67	Corr. coeff. = 0.9950
7	2.5	2.5	5	1.144	26	26.47	
5	1.6	1.6	3.2	0.920	20	20.36	

Calculations :

$$Qstd = 1/m[\text{Sqrt}(H2O(Pa/Pstd)(Tstd/Ta))-b]$$

$$IC = I[\text{Sqrt}(Pa/Pstd)(Tstd/Ta)]$$

Qstd = standard flow rate

IC = corrected chart responses

I = actual chart response

m = calibrator Qstd slope

b = calibrator Qstd intercept

Ta = actual temperature during calibration (deg K)

Pstd = actual pressure during calibration (mm Hg)

For subsequent calculation of sampler flow:

$$1/m((I) [\text{Sqrt}(298/Tav)(Pav/760)]-b)$$

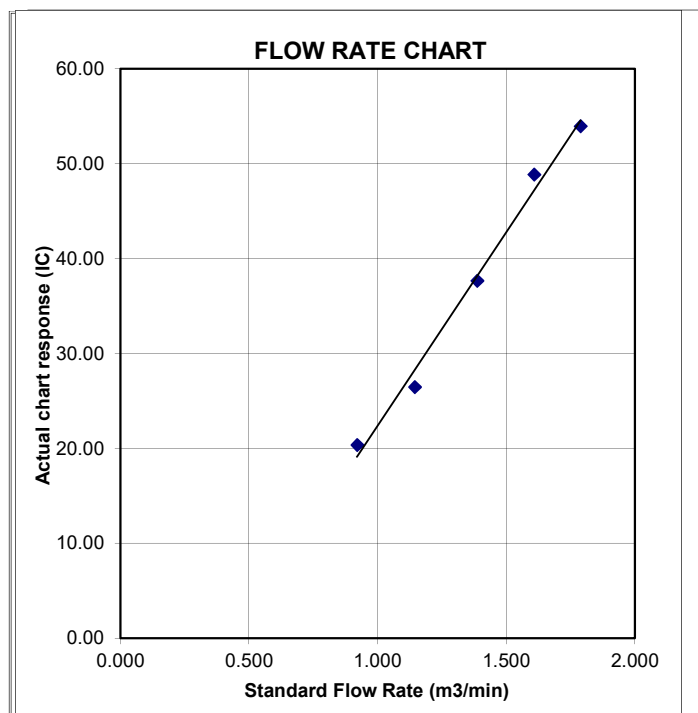
m = sampler slope

b = sampler intercept

I = chart response

Tav = daily average temperature

Pav = daily average pressure



Certificate of Calibration

校正證書

Certificate No. : C200487

證書編號

ITEM TESTED / 送檢項目 (Job No. / 序引編號 : IC19-1098)

Date of Receipt / 收件日期 : 7 January 2020

Description / 儀器名稱 : Sound Calibrator (EQ089)

Manufacturer / 製造商 : Rion

Model No. / 型號 : NC-75

Serial No. / 編號 : 34680623

Supplied By / 委託者 : Action-United Environmental Services and Consulting
Unit A, 20/F., Gold King Industrial Building,
35-41 Tai Lin Pai Road, Kwai Chung, N.T.

TEST CONDITIONS / 測試條件

Temperature / 溫度 : $(23 \pm 2)^{\circ}\text{C}$

Relative Humidity / 相對濕度 : $(50 \pm 25)\%$

Line Voltage / 電壓 : ---

TEST SPECIFICATIONS / 測試規範

Calibration check

DATE OF TEST / 測試日期 : 22 January 2020

TEST RESULTS / 測試結果

The results apply to the particular unit-under-test only.

The results do not exceed manufacturer's specification.

The results are detailed in the subsequent page(s).

The test equipment used for calibration are traceable to National Standards via :

- The Government of The Hong Kong Special Administrative Region Standard & Calibration Laboratory
- The Bruel & Kjaer Calibration Laboratory, Denmark
- Agilent Technologies / Keysight Technologies
- Fluke Everett Service Center, USA

Tested By

測試



K P Cheuk

Assistant Engineer

Certified By

核證



K C Lee

Engineer

Date of Issue

簽發日期

: 24 January 2020

The test equipment used for calibration is traceable to the National Standards as specified in this certificate. This certificate shall not be reproduced except in full, without the prior written approval of this laboratory.

本證書所載校正用之測試器材均可溯源至國際標準。局部複印本證書需先獲本實驗室書面批准。

Certificate of Calibration

校正證書

Certificate No. : C200487

證書編號

- The unit-under-test (UUT) was allowed to stabilize in the laboratory for over 12 hours before the commencement of the test.
- The results presented are the mean of 3 measurements at each calibration point.
- Test equipment :

Equipment ID	Description	Certificate No.
CL130	Universal Counter	C193756
CL281	Multifunction Acoustic Calibrator	CDK1806821
TST150A	Measuring Amplifier	C181288

- Test procedure : MA100N.

- Results :

5.1 Sound Level Accuracy

UUT Nominal Value	Measured Value (dB)	Mfr's Spec. (dB)	Uncertainty of Measured Value (dB)
94 dB, 1 kHz	94.0	± 0.25	± 0.2

5.2 Frequency Accuracy

UUT Nominal Value (kHz)	Measured Value (kHz)	Mfr's Spec.	Uncertainty of Measured Value (Hz)
1	1.000 0	1 kHz ± 0.1 %	± 0.1

Remark : The uncertainties are for a confidence probability of not less than 95 %.

Note :

Only the original copy or the laboratory's certified true copy is valid.

The values given in this Certificate only relate to the values measured at the time of the test and any uncertainties quoted will not include allowance for the equipment long term drift, variations with environment changes, vibration and shock during transportation, overloading, mis-handling, or the capability of any other laboratory to repeat the measurement. Sun Creation Engineering Limited shall not be liable for any loss or damage resulting from the use of the equipment.



SUB-CONTRACTING REPORT

CONTACT	: MR BEN TAM	WORK ORDER	: HK2001299
CLIENT	: ACTION UNITED ENVIRONMENT SERVICES AND CONSULTING		
ADDRESS	: RM A 20/F., GOLD KING IND BLDG, NO. 35-41 TAI LIN PAI ROAD, KWAI CHUNG, N.T. HONG KONG	SUB-BATCH	: 1
		DATE RECEIVED	: 6-JAN-2020
		DATE OF ISSUE	: 10-JAN-2020
PROJECT	: ----	NO. OF SAMPLES	: 1
		CLIENT ORDER	: ----

General Comments

- Sample(s) was/ were submitted by client. Sample(s) arrived laboratory in ambient condition. The result(s) related only to the item(s) tested.
- Sample information (Project name, Sample ID, Sampling date/time, etc., if any) is provided by client.
- Calibration was subcontracted to and analysed by Action United Enviro Services.

Signatories

This document has been signed by those names that appear on this report and are the authorised signatories

Signatories

Position

Richard Fung

Managing Director

This is the Final Report and supersedes any preliminary report with this batch number.

Results apply to sample(s) as submitted. All pages of this report have been checked and approved for release.

ALS Technichem (HK) Pty Ltd
Part of the **ALS Laboratory Group**

11/F. Chung Shun Knitting Centre 1 - 3 Wing Yip Street Kwai Chung N.T. Hong Kong
Tel. +852 2610 1044 Fax. +852 2610 2021 www.alsglobal.com

WORK ORDER : HK2001299
SUB-BATCH : 1
CLIENT : ACTION UNITED ENVIRONMENT SERVICES AND CONSULTING
PROJECT : ----



ALS Lab ID	Client's Sample ID	Sample Type	Sample Date	External Lab Report No.
HK2001299-001	S/N: 11008017	AIR	06-Jan-2020	S/N: 11008017

Equipment Verification Report (TSP)

Equipment Calibrated:

Type: Laser Dust monitor
Manufacturer: TSI AM510
Serial No. 11008017
Equipment Ref: EQ102
Work Order: HK2001299

Standard Equipment:

Standard Equipment: Higher Volume Sampler (TSP)
Location & Location ID: AUES Office (Calibration Room)
Equipment Ref: HVS 018
Last Calibration Date: 3 December 2019

Equipment Verification Results:

Verification Date: 27 & 31 December 2019

Hour	Time	Mean Temp °C	Mean Pressure (hPa)	Concentration in mg/m ³ (Standard Equipment)	Concentration in mg/m ³ (Calibrated Equipment)	Tolerance (mg/m ³)
2hr	09:08 ~ 11:10	18.0	1020.3	0.040	0.076	+0.036
2hr	11:15 ~ 13:16	19.2	1024.9	0.048	0.087	+0.039
2hr15min	13:22 ~ 15:23	19.2	1024.9	0.034	0.066	+0.032

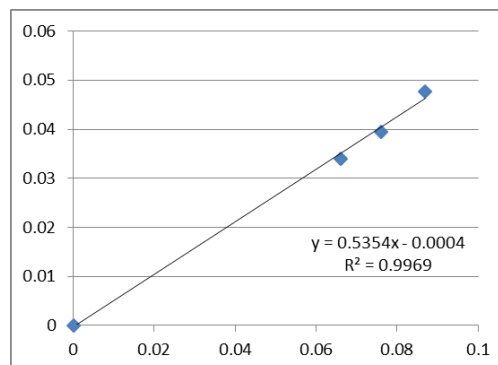
Linear Regression of Y or X

Slope (factor): 0.5354
Correlation Coefficient (R) 0.9984
Date of Issue 6 January 2020

Remarks:

- Strong** Correlation ($R > 0.8$)
- Factor 0.5354 should be apply for TSP monitoring

*If $R < 0.5$, repair or re-verification is required for the equipment



Operator : Fai So Signature :  Date : 6 January 2020

QC Reviewer : Ben Tam Signature :  Date : 6 January 2020

TSP SAMPLER CALIBRATION CALCULATION SPREADSHEET

Location : Gold King Industrial Building, Kwai Chung
 Location ID : Calibration Room

Date of Calibration: 3-Dec-19
 Next Calibration Date: 3-Mar-20

CONDITIONS

Sea Level Pressure (hPa) 1023.1
 Temperature (°C) 16.4

Corrected Pressure (mm Hg) 767.325
 Temperature (K) 289

CALIBRATION ORIFICE

Make-> TISCH
 Model-> 5025A
 Calibration Date-> 5-Feb-19

Qstd Slope -> 2.0968
 Qstd Intercept -> -0.00065
 Expiry Date-> 5-Feb-20

CALIBRATION

Plate No.	H2O (L) (in)	H2O (R) (in)	H2O (in)	Qstd (m3/min)	I (chart)	IC corrected	LINEAR REGRESSION
18	6.5	6.5	13.0	1.754	53	54.04	Slope = 36.7338 Intercept = -9.6198 Corr. coeff. = 0.9986
13	5.2	5.2	10.4	1.569	48	48.94	
10	4.1	4.1	8.2	1.393	41	41.80	
8	2.6	2.6	5.2	1.109	30	30.59	
5	1.6	1.6	3.2	0.870	22	22.43	

Calculations :

$$Qstd = 1/m[\text{Sqrt}(H2O(Pa/Pstd)(Tstd/Ta))-b]$$

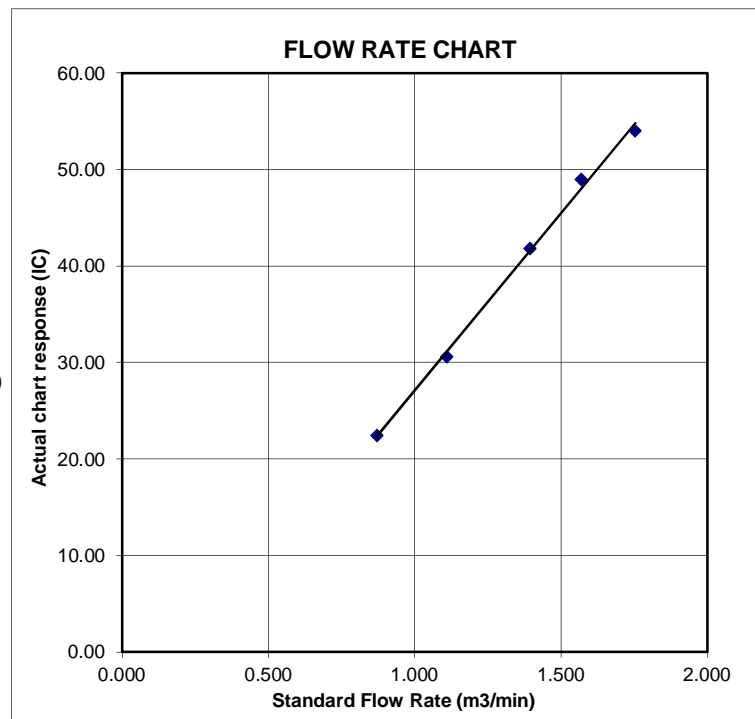
$$IC = I[\text{Sqrt}(Pa/Pstd)(Tstd/Ta)]$$

Qstd = standard flow rate
 IC = corrected chart responses
 I = actual chart response
 m = calibrator Qstd slope
 b = calibrator Qstd intercept
 Ta = actual temperature during calibration (deg K)
 Pstd = actual pressure during calibration (mm Hg)

For subsequent calculation of sampler flow:

$$1/m((I) [\text{Sqrt}(298/Tav)(Pav/760)]-b)$$

m = sampler slope
 b = sampler intercept
 I = chart response
 Tav = daily average temperature
 Pav = daily average pressure





Certificate of Calibration

Calibration Certification Information

Cal. Date: February 5, 2019 Rootsmeter S/N: 438320 Ta: 293 °K
Operator: Jim Tisch Pa: 753.1 mm Hg
Calibration Model #: TE-5025A Calibrator S/N: 1941

Run	Vol. Init (m3)	Vol. Final (m3)	ΔVol. (m3)	ΔTime (min)	ΔP (mm Hg)	ΔH (in H2O)
1	1	2	1	1.4830	3.2	2.00
2	3	4	1	1.0430	6.4	4.00
3	5	6	1	0.9300	7.9	5.00
4	7	8	1	0.8870	8.7	5.50
5	9	10	1	0.7320	12.7	8.00

Data Tabulation

Vstd (m3)	Qstd (x-axis)	$\sqrt{\Delta H \left(\frac{Pa}{Pstd} \right) \left(\frac{Tstd}{Ta} \right)}$ (y-axis)	Va	Qa (x-axis)	$\sqrt{\Delta H \left(\frac{Ta}{Pa} \right)}$ (y-axis)
1.0036	0.6767	1.4197	0.9958	0.6714	0.8821
0.9993	0.9581	2.0078	0.9915	0.9506	1.2475
0.9973	1.0723	2.2448	0.9895	1.0640	1.3947
0.9962	1.1231	2.3544	0.9884	1.1144	1.4628
0.9908	1.3536	2.8395	0.9831	1.3431	1.7642
QSTD	m=	2.09680	QA	m=	1.31298
	b=	-0.00065		b=	-0.00040
	r=	0.99999		r=	0.99999

Calculations

Vstd= $\Delta Vol((Pa-\Delta P)/Pstd)(Tstd/Ta)$	Va= $\Delta Vol((Pa-\Delta P)/Pa)$
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



SUB-CONTRACTING REPORT

CONTACT	: MR BEN TAM	WORK ORDER	: HK2001300
CLIENT	: ACTION UNITED ENVIRONMENT SERVICES AND CONSULTING		
ADDRESS	: RM A 20/F., GOLD KING IND BLDG, NO. 35-41 TAI LIN PAI ROAD, KWAI CHUNG, N.T. HONG KONG	SUB-BATCH	: 1
		DATE RECEIVED	: 6-JAN-2020
		DATE OF ISSUE	: 10-JAN-2020
PROJECT	: ----	NO. OF SAMPLES	: 1
		CLIENT ORDER	: ----

General Comments

- Sample(s) was/ were submitted by client. Sample(s) arrived laboratory in ambient condition. The result(s) related only to the item(s) tested.
- Sample information (Project name, Sample ID, Sampling date/time, etc., if any) is provided by client.
- Calibration was subcontracted to and analysed by Action United Enviro Services.

Signatories

This document has been signed by those names that appear on this report and are the authorised signatories

Signatories

Position

Richard Fung

Managing Director

This is the Final Report and supersedes any preliminary report with this batch number.

Results apply to sample(s) as submitted. All pages of this report have been checked and approved for release.

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Part of the **ALS Laboratory Group**

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Tel. +852 2610 1044 Fax. +852 2610 2021 www.alsglobal.com

WORK ORDER : HK2001300
SUB-BATCH : 1
CLIENT : ACTION UNITED ENVIRONMENT SERVICES AND CONSULTING
PROJECT : ----



ALS Lab ID	Client's Sample ID	Sample Type	Sample Date	External Lab Report No.
HK2001300-001	S/N: 366410	AIR	06-Jan-2020	S/N: 366410

Equipment Verification Report (TSP)

Equipment Calibrated:

Type: Laser Dust monitor
Manufacturer: Sibata LD-3B
Serial No. 366410
Equipment Ref: EQ110
Job Order HK2001300

Standard Equipment:

Standard Equipment: Higher Volume Sampler
Location & Location ID: AUES office (calibration room)
Equipment Ref: HVS 018
Last Calibration Date: 3 December 2019

Equipment Verification Results:

Testing Date: 27&31 December 2019

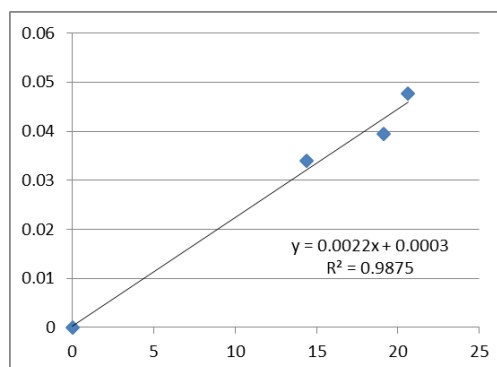
Hour	Time	Mean Temp °C	Mean Pressure (hPa)	Concentration in mg/m ³ (Standard Equipment)	Total Count (Calibrated Equipment)	Count/Minute (Total Count/60min)
2hr	09:08 ~ 11:10	18.0	1020.3	0.040	2298	19.2
2hr	11:15 ~ 13:16	19.2	1024.9	0.048	2477	20.6
2hr15min	13:22 ~ 15:23	19.2	1024.9	0.034	1941	14.4

Sensitivity Adjustment Scale Setting (Before Calibration) 674 (CPM)

Sensitivity Adjustment Scale Setting (After Calibration) 674 (CPM)

Linear Regression of Y or X

Slope (K-factor): 0.0022
Correlation Coefficient 0.9937
Date of Issue 6 January 2020



Remarks:

1. **Strong** Correlation ($R > 0.8$)
 2. Factor 0.0022 should be apply for TSP monitoring
- *If $R < 0.5$, repair or re-verification is required for the equipment

Operator : Fai So Signature :  Date : 6 January 2020

QC Reviewer : Ben Tam Signature :  Date : 6 January 2020

TSP SAMPLER CALIBRATION CALCULATION SPREADSHEET

Location : Gold King Industrial Building, Kwai Chung
 Location ID : Calibration Room

Date of Calibration: 3-Dec-19
 Next Calibration Date: 3-Mar-20

CONDITIONS

Sea Level Pressure (hPa) 1023.1
 Temperature (°C) 16.4

Corrected Pressure (mm Hg) 767.325
 Temperature (K) 289

CALIBRATION ORIFICE

Make-> TISCH
 Model-> 5025A
 Calibration Date-> 5-Feb-19

Qstd Slope -> 2.0968
 Qstd Intercept -> -0.00065
 Expiry Date-> 5-Feb-20

CALIBRATION

Plate No.	H2O (L) (in)	H2O (R) (in)	H2O (in)	Qstd (m3/min)	I (chart)	IC corrected	LINEAR REGRESSION
18	6.5	6.5	13.0	1.754	53	54.04	Slope = 36.7338 Intercept = -9.6198 Corr. coeff. = 0.9986
13	5.2	5.2	10.4	1.569	48	48.94	
10	4.1	4.1	8.2	1.393	41	41.80	
8	2.6	2.6	5.2	1.109	30	30.59	
5	1.6	1.6	3.2	0.870	22	22.43	

Calculations :

$$Qstd = 1/m[\text{Sqrt}(H2O(Pa/Pstd)(Tstd/Ta))-b]$$

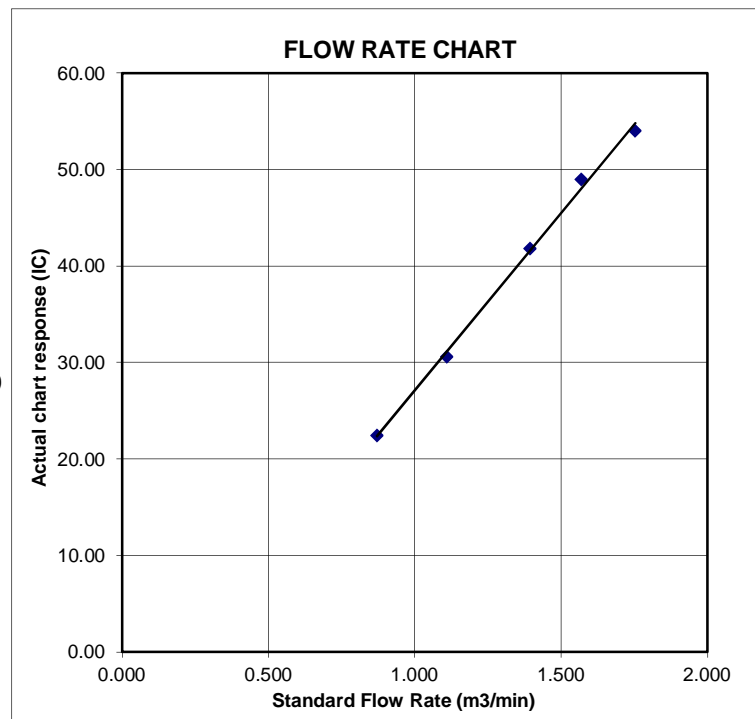
$$IC = I[\text{Sqrt}(Pa/Pstd)(Tstd/Ta)]$$

Qstd = standard flow rate
 IC = corrected chart responses
 I = actual chart response
 m = calibrator Qstd slope
 b = calibrator Qstd intercept
 Ta = actual temperature during calibration (deg K)
 Pstd = actual pressure during calibration (mm Hg)

For subsequent calculation of sampler flow:

$$1/m((I) [\text{Sqrt}(298/Tav)(Pav/760)]-b)$$

m = sampler slope
 b = sampler intercept
 I = chart response
 Tav = daily average temperature
 Pav = daily average pressure





Certificate of Calibration

Calibration Certification Information

Cal. Date: February 5, 2019 Rootsmeter S/N: 438320 Ta: 293 °K
Operator: Jim Tisch Pa: 753.1 mm Hg
Calibration Model #: TE-5025A Calibrator S/N: 1941

Run	Vol. Init (m3)	Vol. Final (m3)	ΔVol. (m3)	ΔTime (min)	ΔP (mm Hg)	ΔH (in H2O)
1	1	2	1	1.4830	3.2	2.00
2	3	4	1	1.0430	6.4	4.00
3	5	6	1	0.9300	7.9	5.00
4	7	8	1	0.8870	8.7	5.50
5	9	10	1	0.7320	12.7	8.00

Data Tabulation

Vstd (m3)	Qstd (x-axis)	$\sqrt{\Delta H \left(\frac{Pa}{Pstd} \right) \left(\frac{Tstd}{Ta} \right)}$ (y-axis)	Va	Qa (x-axis)	$\sqrt{\Delta H \left(\frac{Ta}{Pa} \right)}$ (y-axis)
1.0036	0.6767	1.4197	0.9958	0.6714	0.8821
0.9993	0.9581	2.0078	0.9915	0.9506	1.2475
0.9973	1.0723	2.2448	0.9895	1.0640	1.3947
0.9962	1.1231	2.3544	0.9884	1.1144	1.4628
0.9908	1.3536	2.8395	0.9831	1.3431	1.7642
QSTD	m=	2.09680	QA	m=	1.31298
	b=	-0.00065		b=	-0.00040
	r=	0.99999		r=	0.99999

Calculations

Vstd = $\Delta Vol / ((Pa - \Delta P) / Pstd) (Tstd / Ta)$	Va = $\Delta Vol / ((Pa - \Delta P) / Pa)$
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



SUB-CONTRACTING REPORT

CONTACT	: MR BEN TAM	WORK ORDER	: HK2001298
CLIENT	: ACTION UNITED ENVIRONMENT SERVICES AND CONSULTING		
ADDRESS	: RM A 20/F., GOLD KING IND BLDG, NO. 35-41 TAI LIN PAI ROAD, KWAI CHUNG, N.T. HONG KONG	SUB-BATCH	: 1
		DATE RECEIVED	: 6-JAN-2020
		DATE OF ISSUE	: 10-JAN-2020
PROJECT	: ----	NO. OF SAMPLES	: 1
		CLIENT ORDER	: ----

General Comments

- Sample(s) was/ were submitted by client. Sample(s) arrived laboratory in ambient condition. The result(s) related only to the item(s) tested.
- Sample information (Project name, Sample ID, Sampling date/time, etc., if any) is provided by client.
- Calibration was subcontracted to and analysed by Action United Enviro Services.

Signatories

This document has been signed by those names that appear on this report and are the authorised signatories

Signatories

Position

Richard Fung

Managing Director

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Results apply to sample(s) as submitted. All pages of this report have been checked and approved for release.

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Part of the ALS Laboratory Group

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WORK ORDER : HK2001298

SUB-BATCH : 1

CLIENT : ACTION UNITED ENVIRONMENT SERVICES AND CONSULTING

PROJECT : ----



ALS Lab ID	Client's Sample ID	Sample Type	Sample Date	External Lab Report No.
HK2001298-001	S/N: 2X6145	AIR	06-Jan-2020	S/N: 2X6145

Equipment Verification Report (TSP)

Equipment Calibrated:

Type: Laser Dust monitor
Manufacturer: Sibata LD-3B
Serial No. 2X6145
Equipment Ref: EQ105
Job Order HK2001298

Standard Equipment:

Standard Equipment: Higher Volume Sampler
Location & Location ID: AUES office (calibration room)
Equipment Ref: HVS 018
Last Calibration Date: 3 December 2019

Equipment Verification Results:

Testing Date: 27&31 December 2019

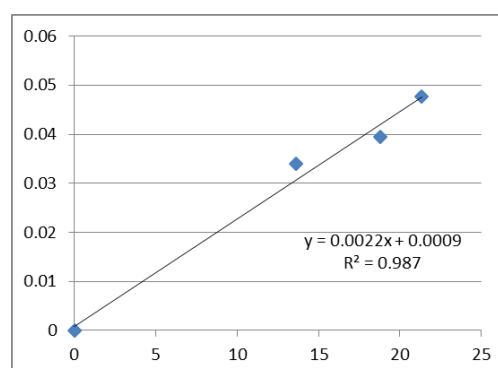
Hour	Time	Mean Temp °C	Mean Pressure (hPa)	Concentration in mg/m ³ (Standard Equipment)	Total Count (Calibrated Equipment)	Count/Minute (Total Count/60min)
2hr	09:08 ~ 11:10	18.0	1020.3	0.040	2254	18.8
2hr	11:15 ~ 13:16	19.2	1024.9	0.048	2561	21.3
2hr15min	13:22 ~ 15:23	19.2	1024.9	0.034	1841	13.6

Sensitivity Adjustment Scale Setting (Before Calibration) 586 (CPM)

Sensitivity Adjustment Scale Setting (After Calibration) 586 (CPM)

Linear Regression of Y or X

Slope (K-factor): 0.0022
Correlation Coefficient 0.9935
Date of Issue 6 January 2020



Remarks:

1. **Strong** Correlation ($R > 0.8$)
 2. Factor 0.0022 should be apply for TSP monitoring
- *If $R < 0.5$, repair or re-verification is required for the equipment

Operator : Fai So Signature :  Date : 6 January 2020

QC Reviewer : Ben Tam Signature :  Date : 6 January 2020

TSP SAMPLER CALIBRATION CALCULATION SPREADSHEET

Location : Gold King Industrial Building, Kwai Chung
 Location ID : Calibration Room

Date of Calibration: 3-Dec-19
 Next Calibration Date: 3-Mar-20

CONDITIONS

Sea Level Pressure (hPa) 1023.1
 Temperature (°C) 16.4

Corrected Pressure (mm Hg) 767.325
 Temperature (K) 289

CALIBRATION ORIFICE

Make-> TISCH
 Model-> 5025A
 Calibration Date-> 5-Feb-19

Qstd Slope -> 2.0968
 Qstd Intercept -> -0.00065
 Expiry Date-> 5-Feb-20

CALIBRATION

Plate No.	H2O (L) (in)	H2O (R) (in)	H2O (in)	Qstd (m3/min)	I (chart)	IC corrected	LINEAR REGRESSION
18	6.5	6.5	13.0	1.754	53	54.04	Slope = 36.7338 Intercept = -9.6198 Corr. coeff. = 0.9986
13	5.2	5.2	10.4	1.569	48	48.94	
10	4.1	4.1	8.2	1.393	41	41.80	
8	2.6	2.6	5.2	1.109	30	30.59	
5	1.6	1.6	3.2	0.870	22	22.43	

Calculations :

$$Qstd = 1/m[\text{Sqrt}(H2O(Pa/Pstd)(Tstd/Ta))-b]$$

$$IC = I[\text{Sqrt}(Pa/Pstd)(Tstd/Ta)]$$

Qstd = standard flow rate

IC = corrected chart responses

I = actual chart response

m = calibrator Qstd slope

b = calibrator Qstd intercept

Ta = actual temperature during calibration (deg K)

Pstd = actual pressure during calibration (mm Hg)

For subsequent calculation of sampler flow:

$$1/m((I) [\text{Sqrt}(298/Tav)(Pav/760)]-b)$$

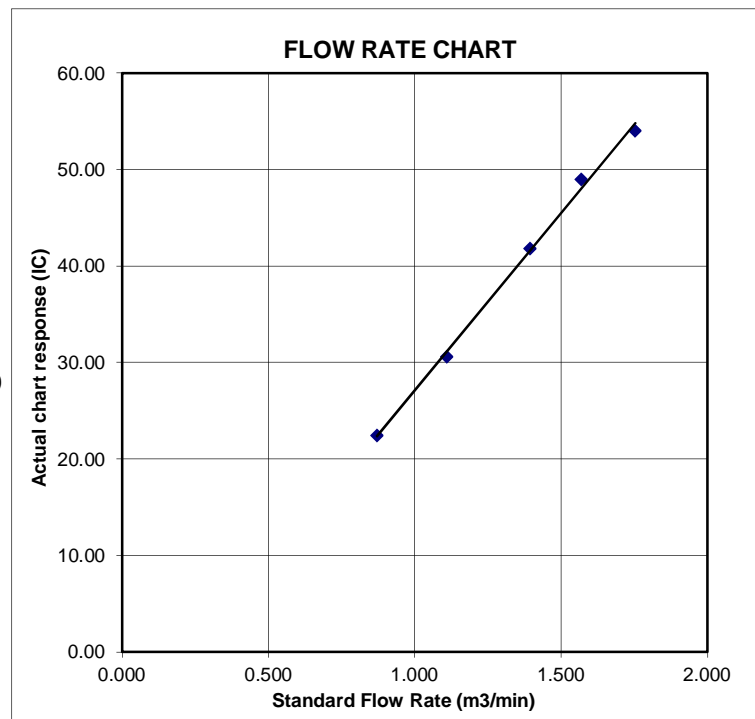
m = sampler slope

b = sampler intercept

I = chart response

Tav = daily average temperature

Pav = daily average pressure





Certificate of Calibration

Calibration Certification Information

Cal. Date: February 5, 2019 Rootsmeter S/N: 438320 Ta: 293 °K
Operator: Jim Tisch Pa: 753.1 mm Hg
Calibration Model #: TE-5025A Calibrator S/N: 1941

Run	Vol. Init (m3)	Vol. Final (m3)	ΔVol. (m3)	ΔTime (min)	ΔP (mm Hg)	ΔH (in H2O)
1	1	2	1	1.4830	3.2	2.00
2	3	4	1	1.0430	6.4	4.00
3	5	6	1	0.9300	7.9	5.00
4	7	8	1	0.8870	8.7	5.50
5	9	10	1	0.7320	12.7	8.00

Data Tabulation

Vstd (m3)	Qstd (x-axis)	$\sqrt{\Delta H \left(\frac{Pa}{Pstd} \right) \left(\frac{Tstd}{Ta} \right)}$ (y-axis)	Va	Qa (x-axis)	$\sqrt{\Delta H \left(\frac{Ta}{Pa} \right)}$ (y-axis)
1.0036	0.6767	1.4197	0.9958	0.6714	0.8821
0.9993	0.9581	2.0078	0.9915	0.9506	1.2475
0.9973	1.0723	2.2448	0.9895	1.0640	1.3947
0.9962	1.1231	2.3544	0.9884	1.1144	1.4628
0.9908	1.3536	2.8395	0.9831	1.3431	1.7642
QSTD	m=	2.09680	QA	m=	1.31298
	b=	-0.00065		b=	-0.00040
	r=	0.99999		r=	0.99999

Calculations

Vstd= $\Delta Vol((Pa-\Delta P)/Pstd)(Tstd/Ta)$	Va= $\Delta Vol((Pa-\Delta P)/Pa)$
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



SUB-CONTRACTING REPORT

CONTACT	: MR BEN TAM	WORK ORDER	: HK2001293
CLIENT	: ACTION UNITED ENVIRONMENT SERVICES AND CONSULTING		
ADDRESS	: RM A 20/F., GOLD KING IND BLDG, NO. 35-41 TAI LIN PAI ROAD, KWAI CHUNG, N.T. HONG KONG	SUB-BATCH	: 1
		DATE RECEIVED	: 6-JAN-2020
		DATE OF ISSUE	: 10-JAN-2020
PROJECT	: ----	NO. OF SAMPLES	: 1
		CLIENT ORDER	: ----

General Comments

- Sample(s) was/ were submitted by client. Sample(s) arrived laboratory in ambient condition. The result(s) related only to the item(s) tested.
- Sample information (Project name, Sample ID, Sampling date/time, etc., if any) is provided by client.
- Calibration was subcontracted to and analysed by Action United Enviro Services.

Signatories

This document has been signed by those names that appear on this report and are the authorised signatories

Signatories

Position

Richard Fung

Managing Director

This is the Final Report and supersedes any preliminary report with this batch number.

Results apply to sample(s) as submitted. All pages of this report have been checked and approved for release.

ALS Technichem (HK) Pty Ltd
Part of the ALS Laboratory Group

11/F. Chung Shun Knitting Centre 1 - 3 Wing Yip Street Kwai Chung N.T. Hong Kong
Tel. +852 2610 1044 Fax. +852 2610 2021 www.alsglobal.com

WORK ORDER : HK2001293
SUB-BATCH : 1
CLIENT : ACTION UNITED ENVIRONMENT SERVICES AND CONSULTING
PROJECT : ----



ALS Lab ID	Client's Sample ID	Sample Type	Sample Date	External Lab Report No.
HK2001293-001	S/N: 3Y6503	AIR	06-Jan-2020	S/N: 3Y6503

Equipment Verification Report (TSP)

Equipment Calibrated:

Type: Laser Dust monitor
Manufacturer: Sibata LD-3B
Serial No. 3Y6503
Equipment Ref: EQ112
Job Order HK2001293

Standard Equipment:

Standard Equipment: Higher Volume Sampler
Location & Location ID: AUES office (calibration room)
Equipment Ref: HVS 018
Last Calibration Date: 3 December 2019

Equipment Verification Results:

Testing Date: 27&31 December 2019

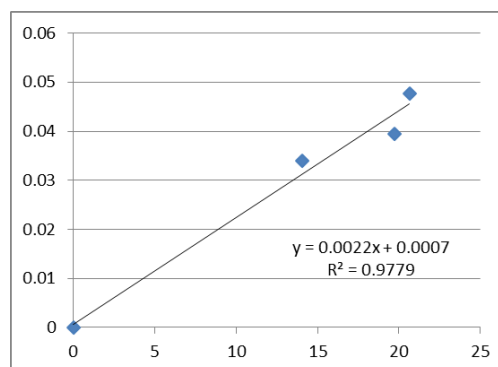
Hour	Time	Mean Temp °C	Mean Pressure (hPa)	Concentration in mg/m ³ (Standard Equipment)	Total Count (Calibrated Equipment)	Count/Minute (Total Count/60min)
2hr	09:08 ~ 11:10	18.0	1020.3	0.040	2371	19.8
2hr	11:15 ~ 13:16	19.2	1024.9	0.048	2479	20.7
2hr15min	13:22 ~ 15:23	19.2	1024.9	0.034	1899	14.1

Sensitivity Adjustment Scale Setting (Before Calibration) 655 (CPM)

Sensitivity Adjustment Scale Setting (After Calibration) 655 (CPM)

Linear Regression of Y or X

Slope (K-factor): 0.0022
Correlation Coefficient 0.9889
Date of Issue 6 January 2020



Remarks:

1. **Strong** Correlation ($R > 0.8$)
 2. Factor 0.0022 should be apply for TSP monitoring
- *If $R < 0.5$, repair or re-verification is required for the equipment

Operator : Fai So Signature :  Date : 6 January 2020

QC Reviewer : Ben Tam Signature :  Date : 6 January 2020

TSP SAMPLER CALIBRATION CALCULATION SPREADSHEET

Location : Gold King Industrial Building, Kwai Chung
 Location ID : Calibration Room

Date of Calibration: 3-Dec-19
 Next Calibration Date: 3-Mar-20

CONDITIONS

Sea Level Pressure (hPa) 1023.1
 Temperature (°C) 16.4

Corrected Pressure (mm Hg) 767.325
 Temperature (K) 289

CALIBRATION ORIFICE

Make-> TISCH
 Model-> 5025A
 Calibration Date-> 5-Feb-19

Qstd Slope -> 2.0968
 Qstd Intercept -> -0.00065
 Expiry Date-> 5-Feb-20

CALIBRATION

Plate No.	H2O (L) (in)	H2O (R) (in)	H2O (in)	Qstd (m3/min)	I (chart)	IC corrected	LINEAR REGRESSION
18	6.5	6.5	13.0	1.754	53	54.04	Slope = 36.7338 Intercept = -9.6198 Corr. coeff. = 0.9986
13	5.2	5.2	10.4	1.569	48	48.94	
10	4.1	4.1	8.2	1.393	41	41.80	
8	2.6	2.6	5.2	1.109	30	30.59	
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Calculations :

$$Qstd = 1/m[\text{Sqrt}(H2O(Pa/Pstd)(Tstd/Ta))-b]$$

$$IC = I[\text{Sqrt}(Pa/Pstd)(Tstd/Ta)]$$

Qstd = standard flow rate

IC = corrected chart responses

I = actual chart response

m = calibrator Qstd slope

b = calibrator Qstd intercept

Ta = actual temperature during calibration (deg K)

Pstd = actual pressure during calibration (mm Hg)

For subsequent calculation of sampler flow:

$$1/m((I) [\text{Sqrt}(298/Tav)(Pav/760)]-b)$$

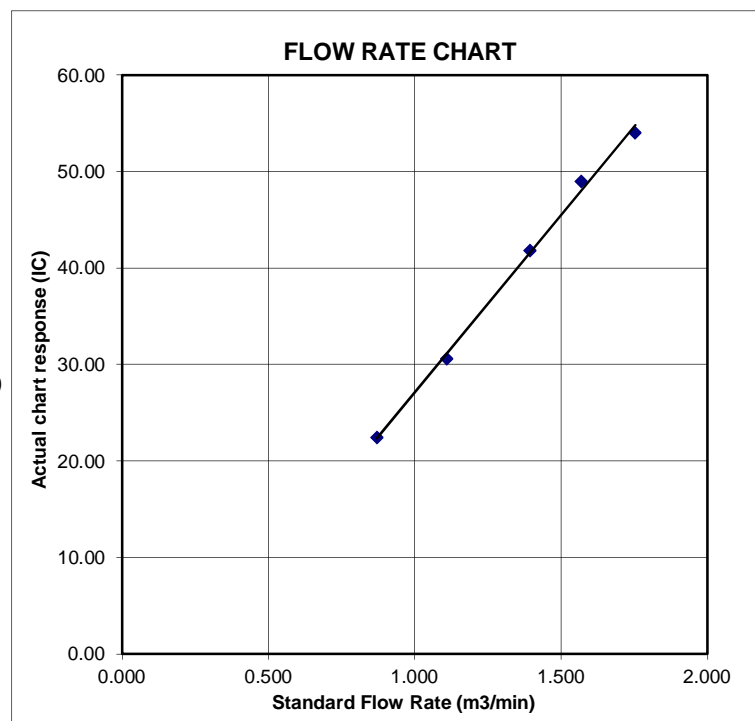
m = sampler slope

b = sampler intercept

I = chart response

Tav = daily average temperature

Pav = daily average pressure





Certificate of Calibration

Calibration Certification Information

Cal. Date: February 5, 2019 Rootsmeter S/N: 438320 Ta: 293 °K
Operator: Jim Tisch Pa: 753.1 mm Hg
Calibration Model #: TE-5025A Calibrator S/N: 1941

Run	Vol. Init (m3)	Vol. Final (m3)	ΔVol. (m3)	ΔTime (min)	ΔP (mm Hg)	ΔH (in H2O)
1	1	2	1	1.4830	3.2	2.00
2	3	4	1	1.0430	6.4	4.00
3	5	6	1	0.9300	7.9	5.00
4	7	8	1	0.8870	8.7	5.50
5	9	10	1	0.7320	12.7	8.00

Data Tabulation

Vstd (m3)	Qstd (x-axis)	$\sqrt{\Delta H \left(\frac{Pa}{Pstd} \right) \left(\frac{Tstd}{Ta} \right)}$ (y-axis)	Va	Qa (x-axis)	$\sqrt{\Delta H \left(\frac{Ta}{Pa} \right)}$ (y-axis)
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0.9993	0.9581	2.0078	0.9915	0.9506	1.2475
0.9973	1.0723	2.2448	0.9895	1.0640	1.3947
0.9962	1.1231	2.3544	0.9884	1.1144	1.4628
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QSTD	m=	2.09680	QA	m=	1.31298
	b=	-0.00065		b=	-0.00040
	r=	0.99999		r=	0.99999

Calculations

Vstd= $\Delta Vol((Pa-\Delta P)/Pstd)(Tstd/Ta)$	Va= $\Delta Vol((Pa-\Delta P)/Pa)$
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

校正證書

Certificate No. : C203573
證書編號

ITEM TESTED / 送檢項目 (Job No. / 序引編號: IC20-1324)

Date of Receipt / 收件日期: 19 June 2020

Description / 儀器名稱 : Integrating Sound Level Meter (EQ010)
Manufacturer / 製造商 : Brüel & Kjær
Model No. / 型號 : 2238
Serial No. / 編號 : 2285721
Supplied By / 委託者 : Action-United Environmental Services and Consulting
Unit A, 20/F., Gold King Industrial Building,
35-41 Tai Lin Pai Road, Kwai Chung, N.T.

TEST CONDITIONS / 測試條件

Temperature / 溫度 : $(23 \pm 2)^{\circ}\text{C}$
Line Voltage / 電壓 : ---

Relative Humidity / 相對濕度 : $(50 \pm 25)\%$

TEST SPECIFICATIONS / 測試規範

Calibration check

DATE OF TEST / 測試日期 : 29 June 2020


TEST RESULTS / 測試結果

The results apply to the particular unit-under-test only.
The results do not exceed manufacturer's specification.
The results are detailed in the subsequent page(s).

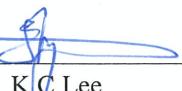
The test equipment used for calibration are traceable to National Standards via :

- The Government of The Hong Kong Special Administrative Region Standard & Calibration Laboratory
- The Bruel & Kjaer Calibration Laboratory, Denmark
- Agilent Technologies / Keysight Technologies
- Fluke Everett Service Center, USA

Tested By
測試


K P Cheuk
Assistant Engineer

Certified By
核證


K C Lee
Engineer

Date of Issue
簽發日期

6 July 2020

The test equipment used for calibration is traceable to the National Standards as specified in this certificate. This certificate shall not be reproduced except in full, without the prior written approval of this laboratory.

本證書所載校正用之測試器材均可溯源至國際標準。局部複印本證書需先獲本實驗室書面批准。

Certificate of Calibration

校正證書

Certificate No. : C203573
證書編號

- The unit-under-test (UUT) was allowed to stabilize in the laboratory for over 12 hours, and switched on to warm up for over 10 minutes before the commencement of the test.
- Self-calibration using laboratory acoustic calibrator was performed before the test from 6.1.1.2 to 6.4.
- The results presented are the mean of 3 measurements at each calibration point.
- Test equipment :

Equipment ID	Description	Certificate No.
CL280	40 MHz Arbitrary Waveform Generator	C200258
CL281	Multifunction Acoustic Calibrator	CDK1806821

- Test procedure : MA101N.

- Results :

6.1 Sound Pressure Level

6.1.1 Reference Sound Pressure Level

6.1.1.1 Before Self-calibration

UUT Setting				Applied Value		UUT Reading
Range (dB)	Parameter	Frequency Weighting	Time Weighting	Level (dB)	Freq. (kHz)	(dB)
50 - 130	L _{AFP}	A	F	94.00	1	94.3

6.1.1.2 After Self-calibration

UUT Setting				Applied Value		UUT Reading	IEC 60651 Type 1 Spec.
Range (dB)	Parameter	Frequency Weighting	Time Weighting	Level (dB)	Freq. (kHz)	(dB)	(dB)
50 - 130	L _{AFP}	A	F	94.00	1	94.1	± 0.7

6.1.2 Linearity

UUT Setting				Applied Value		UUT Reading
Range (dB)	Parameter	Frequency Weighting	Time Weighting	Level (dB)	Freq. (kHz)	(dB)
50 - 130	L _{AFP}	A	F	94.00	1	94.1 (Ref.)
				104.00		104.0
				114.00		114.0

IEC 60651 Type 1 Spec. : ± 0.4 dB per 10 dB step and ± 0.7 dB for overall different.

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Sun Creation Engineering Limited – Calibration & Testing Laboratory

c/o 4/F, 1 Hing On Lane, Tuen Mun, New Territories, Hong Kong

輝創工程有限公司 – 校正及檢測實驗室

c/o 香港新界屯門興安里一號四樓

Tel/電話: (852) 2927 2606 Fax/傳真: (852) 2744 8986

E-mail/電郵: callab@suncreation.com

Website/網址: www.suncreation.com

Certificate of Calibration

校正證書

Certificate No. : C203573
證書編號

6.2 Time Weighting

6.2.1 Continuous Signal

UUT Setting				Applied Value		UUT Reading (dB)	IEC 60651 Type 1 Spec. (dB)
Range (dB)	Parameter	Frequency Weighting	Time Weighting	Level (dB)	Freq. (kHz)		
50 - 130	L _{AFP}	A	F	94.00	1	94.1	Ref.
	L _{ASP}		S			94.1	± 0.1
	L _{AIP}		I			94.1	± 0.1

6.2.2 Tone Burst Signal (2 kHz)

UUT Setting				Applied Value		UUT Reading (dB)	IEC 60651 Type 1 Spec. (dB)
Range (dB)	Parameter	Frequency Weighting	Time Weighting	Level (dB)	Burst Duration		
30 - 110	L _{AFP}	A	F	106.0	Continuous	106.0	Ref.
	L _{AFMax}				200 ms	105.0	-1.0 ± 1.0
	L _{ASP}	S	Continuous		106.0	Ref.	
	L _{ASMax}		500 ms		102.0	-4.1 ± 1.0	

6.3 Frequency Weighting

6.3.1 A-Weighting

UUT Setting				Applied Value		UUT Reading (dB)	IEC 60651 Type 1 Spec. (dB)
Range (dB)	Parameter	Frequency Weighting	Time Weighting	Level (dB)	Freq.		
50 - 130	L _{AFP}	A	F	94.00	31.5 Hz	54.8	-39.4 ± 1.5
					63 Hz	67.9	-26.2 ± 1.5
					125 Hz	77.9	-16.1 ± 1.0
					250 Hz	85.4	-8.6 ± 1.0
					500 Hz	90.9	-3.2 ± 1.0
					1 kHz	94.1	Ref.
					2 kHz	95.3	+1.2 ± 1.0
					4 kHz	95.1	+1.0 ± 1.0
					8 kHz	93.0	-1.1 (+1.5 ; -3.0)
					12.5 kHz	89.9	-4.3 (+3.0 ; -6.0)

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E-mail/電郵: callab@suncreation.com

Website/網址: www.suncreation.com

Certificate of Calibration

校正證書

Certificate No. : C203573
證書編號

6.3.2 C-Weighting

UUT Setting				Applied Value		UUT Reading (dB)	IEC 60651 Type 1 Spec. (dB)
Range (dB)	Parameter	Frequency Weighting	Time Weighting	Level (dB)	Freq.		
50 - 130	L _{CFP}	C	F	94.00	31.5 Hz	91.2	-3.0 ± 1.5
					63 Hz	93.4	-0.8 ± 1.5
					125 Hz	94.0	-0.2 ± 1.0
					250 Hz	94.1	0.0 ± 1.0
					500 Hz	94.1	0.0 ± 1.0
					1 kHz	94.1	Ref.
					2 kHz	94.0	-0.2 ± 1.0
					4 kHz	93.3	-0.8 ± 1.0
					8 kHz	91.1	-3.0 (+1.5 ; -3.0)
					12.5 kHz	87.9	-6.2 (+3.0 ; -6.0)

6.4 Time Averaging

UUT Setting				Applied Value					UUT Reading (dB)	IEC 60804 Type 1 Spec. (dB)
Range (dB)	Parameter	Frequency Weighting	Integrating Time	Frequency (kHz)	Burst Duration (ms)	Burst Duty Factor	Burst Level (dB)	Equivalent Level (dB)		
30 - 110	L _{Acq}	A	10 sec.	4	1	1/10	110.0	100	99.9	± 0.5
			60 sec.			1/10 ²		90	89.9	± 0.5
			5 min.			1/10 ³		80	79.9	± 1.0
						1/10 ⁴		70	69.7	± 1.0

Remarks : - UUT Microphone Model No. : 4188 & S/N : 2812707

- Mfr's Spec. : IEC 60651 Type 1 & IEC 60804 Type 1

- Uncertainties of Applied Value :

94 dB : 31.5 Hz - 125 Hz	: ± 0.35 dB
250 Hz - 500 Hz	: ± 0.30 dB
1 kHz	: ± 0.20 dB
2 kHz - 4 kHz	: ± 0.35 dB
8 kHz	: ± 0.45 dB
12.5 kHz	: ± 0.70 dB
104 dB : 1 kHz	: ± 0.10 dB (Ref. 94 dB)
114 dB : 1 kHz	: ± 0.10 dB (Ref. 94 dB)
Burst equivalent level	: ± 0.2 dB (Ref. 110 dB continuous sound level)

- The uncertainties are for a confidence probability of not less than 95 %.

Note :

Only the original copy or the laboratory's certified true copy is valid.

The values given in this Certificate only relate to the values measured at the time of the test and any uncertainties quoted will not include allowance for the equipment long term drift, variations with environment changes, vibration and shock during transportation, overloading, mis-handling, or the capability of any other laboratory to repeat the measurement. Sun Creation Engineering Limited shall not be liable for any loss or damage resulting from the use of the equipment.

The test equipment used for calibration is traceable to the National Standards as specified in this certificate. This certificate shall not be reproduced except in full, without the prior written approval of this laboratory.

本證書所載校正用之測試器材均可溯源至國際標準。局部複印本證書需先獲本實驗室書面批准。

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Tel/電話: (852) 2927 2606

Fax/傳真: (852) 2744 8986

E-mail/電郵: callab@suncreation.com

Website/網址: www.suncreation.com

Certificate of Calibration

校正證書

Certificate No. : C203572
證書編號

ITEM TESTED / 送檢項目 (Job No. / 序引編號 : IC20-1324)

Date of Receipt / 收件日期 : 19 June 2020

Description / 儀器名稱 : Sound Calibrator (EQ082)
Manufacturer / 製造商 : Brüel & Kjær
Model No. / 型號 : 4231
Serial No. / 編號 : 2713428
Supplied By / 委託者 : Action-United Environmental Services and Consulting
Unit A, 20/F., Gold King Industrial Building,
35-41 Tai Lin Pai Road, Kwai Chung, N.T.

TEST CONDITIONS / 測試條件

Temperature / 溫度 : $(23 \pm 2)^{\circ}\text{C}$
Line Voltage / 電壓 : ---

Relative Humidity / 相對濕度 : $(50 \pm 25)\%$

TEST SPECIFICATIONS / 測試規範

Calibration check

DATE OF TEST / 測試日期 : 29 June 2020

TEST RESULTS / 測試結果


The results apply to the particular unit-under-test only.
The results do not exceed manufacturer's specification.
The results are detailed in the subsequent page(s).

The test equipment used for calibration are traceable to National Standards via :

- The Government of The Hong Kong Special Administrative Region Standard & Calibration Laboratory
- The Bruel & Kjaer Calibration Laboratory, Denmark
- Agilent Technologies / Keysight Technologies
- Fluke Everett Service Center, USA

Tested By
測試

:


K P Cheuk
Assistant Engineer

Certified By
核證

:


K C Lee
Engineer

Date of Issue
簽發日期

:

6 July 2020

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Sun Creation Engineering Limited - Calibration & Testing Laboratory

c/o 4/F, 1 Hing On Lane, Tuen Mun, New Territories, Hong Kong

輝創工程有限公司 - 校正及檢測實驗室

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Website/網址: www.suncreation.com

Certificate of Calibration

校正證書

Certificate No. : C203572
證書編號

1. The unit-under-test (UUT) was allowed to stabilize in the laboratory for over 12 hours before the commencement of the test.
2. The results presented are the mean of 3 measurements at each calibration point.
3. Test equipment :

Equipment ID	Description	Certificate No.
CL130	Universal Counter	C193756
CL281	Multifunction Acoustic Calibrator	CDK1806821
TST150A	Measuring Amplifier	C201309

4. Test procedure : MA100N.

5. Results :

5.1 Sound Level Accuracy

UUT Nominal Value	Measured Value (dB)	Mfr's Spec. (dB)	Uncertainty of Measured Value (dB)
94 dB, 1 kHz	94.0	± 0.2	± 0.2
114 dB, 1 kHz	114.1		

5.2 Frequency Accuracy

UUT Nominal Value (kHz)	Measured Value (kHz)	Mfr's Spec.	Uncertainty of Measured Value (Hz)
1	1.000 0	1 kHz ± 0.1 %	± 0.1

Remark : The uncertainties are for a confidence probability of not less than 95 %.

Note :

Only the original copy or the laboratory's certified true copy is valid.

The values given in this Certificate only relate to the values measured at the time of the test and any uncertainties quoted will not include allowance for the equipment long term drift, variations with environment changes, vibration and shock during transportation, overloading, mis-handling, or the capability of any other laboratory to repeat the measurement. Sun Creation Engineering Limited shall not be liable for any loss or damage resulting from the use of the equipment.

The test equipment used for calibration is traceable to the National Standards as specified in this certificate. This certificate shall not be reproduced except in full, without the prior written approval of this laboratory.

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Website/網址: www.suncreation.com

Certificate of Calibration

校正證書

Certificate No. : C203574
證書編號

ITEM TESTED / 送檢項目 (Job No. / 序引編號 : IC20-1324)

Date of Receipt / 收件日期 : 19 June 2020

Description / 儀器名稱 : Integrating Sound Level Meter (EQ009)
Manufacturer / 製造商 : Brüel & Kjær
Model No. / 型號 : 2238
Serial No. / 編號 : 2285722
Supplied By / 委託者 : Action-United Environmental Services and Consulting
Unit A, 20/F., Gold King Industrial Building,
35-41 Tai Lin Pai Road, Kwai Chung, N.T.

TEST CONDITIONS / 測試條件

Temperature / 溫度 : $(23 \pm 2)^{\circ}\text{C}$
Line Voltage / 電壓 : ---

Relative Humidity / 相對濕度 : $(50 \pm 25)\%$

TEST SPECIFICATIONS / 測試規範

Calibration check

DATE OF TEST / 測試日期 : 29 June 2020

TEST RESULTS / 測試結果


The results apply to the particular unit-under-test only.
The results do not exceed manufacturer's specification.
The results are detailed in the subsequent page(s).

The test equipment used for calibration are traceable to National Standards via :

- The Government of The Hong Kong Special Administrative Region Standard & Calibration Laboratory
- The Bruel & Kjaer Calibration Laboratory, Denmark
- Agilent Technologies / Keysight Technologies
- Fluke Everett Service Center, USA


Tested By
測試

:


K P Cheuk
Assistant Engineer

Certified By
核證

:


K C Lee
Engineer

Date of Issue
簽發日期

:

6 July 2020

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Certificate of Calibration

校正證書

Certificate No. : C203574
證書編號

- The unit-under-test (UUT) was allowed to stabilize in the laboratory for over 12 hours, and switched on to warm up for over 10 minutes before the commencement of the test.
- Self-calibration using laboratory acoustic calibrator was performed before the test from 6.1.1.2 to 6.4.
- The results presented are the mean of 3 measurements at each calibration point.
- Test equipment :

Equipment ID	Description	Certificate No.
CL280	40 MHz Arbitrary Waveform Generator	C200258
CL281	Multifunction Acoustic Calibrator	CDK1806821

- Test procedure : MA101N.

- Results :

6.1 Sound Pressure Level

6.1.1 Reference Sound Pressure Level

6.1.1.1 Before Self-calibration

UUT Setting				Applied Value		UUT Reading (dB)
Range (dB)	Parameter	Frequency Weighting	Time Weighting	Level (dB)	Freq. (kHz)	
52 - 132	L _{AFP}	A	F	94.00	1	93.8

6.1.1.2 After Self-calibration

UUT Setting				Applied Value		UUT Reading (dB)	IEC 60651 Type 1 Spec. (dB)
Range (dB)	Parameter	Frequency Weighting	Time Weighting	Level (dB)	Freq. (kHz)		
52 - 132	L _{AFP}	A	F	94.00	1	94.0	± 0.7

6.1.2 Linearity

UUT Setting				Applied Value		UUT Reading (dB)
Range (dB)	Parameter	Frequency Weighting	Time Weighting	Level (dB)	Freq. (kHz)	
52 - 132	L _{AFP}	A	F	94.00	1	94.0 (Ref.)
				104.00		104.0
				114.00		114.0

IEC 60651 Type 1 Spec. : ± 0.4 dB per 10 dB step and ± 0.7 dB for overall different.

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6.2 Time Weighting

6.2.1 Continuous Signal

UUT Setting				Applied Value		UUT Reading (dB)	IEC 60651 Type 1 Spec. (dB)
Range (dB)	Parameter	Frequency Weighting	Time Weighting	Level (dB)	Freq. (kHz)		
52 - 132	L _{AFP}	A	F	94.00	1	94.0	Ref.
	L _{ASP}		S			94.0	± 0.1
	L _{AIP}		I			94.1	± 0.1

6.2.2 Tone Burst Signal (2 kHz)

UUT Setting				Applied Value		UUT Reading (dB)	IEC 60651 Type 1 Spec. (dB)
Range (dB)	Parameter	Frequency Weighting	Time Weighting	Level (dB)	Burst Duration		
32 - 112	L _{AFP}	A	F	106.0	Continuous	106.0	Ref.
	L _{AFMax}				200 ms	105.0	-1.0 ± 1.0
	L _{ASP}	S	Continuous		106.0	Ref.	
	L _{ASMax}		500 ms		102.0	-4.1 ± 1.0	

6.3 Frequency Weighting

6.3.1 A-Weighting

UUT Setting				Applied Value		UUT Reading (dB)	IEC 60651 Type 1 Spec. (dB)
Range (dB)	Parameter	Frequency Weighting	Time Weighting	Level (dB)	Freq.		
52 - 132	L _{AFP}	A	F	94.00	31.5 Hz	54.5	-39.4 ± 1.5
					63 Hz	67.8	-26.2 ± 1.5
					125 Hz	77.8	-16.1 ± 1.0
					250 Hz	85.3	-8.6 ± 1.0
					500 Hz	90.8	-3.2 ± 1.0
					1 kHz	94.0	Ref.
					2 kHz	95.2	+1.2 ± 1.0
					4 kHz	95.0	+1.0 ± 1.0
					8 kHz	92.8	-1.1 (+1.5 ; -3.0)
					12.5 kHz	89.7	-4.3 (+3.0 ; -6.0)

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Certificate of Calibration

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Certificate No. : C203574
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6.3.2 C-Weighting

UUT Setting				Applied Value		UUT	IEC 60651
Range (dB)	Parameter	Frequency Weighting	Time Weighting	Level (dB)	Freq.	Reading (dB)	Type 1 Spec. (dB)
52 - 132	L _{CFP}	C	F	94.00	31.5 Hz	90.9	-3.0 ± 1.5
					63 Hz	93.2	-0.8 ± 1.5
					125 Hz	93.8	-0.2 ± 1.0
					250 Hz	94.0	0.0 ± 1.0
					500 Hz	94.0	0.0 ± 1.0
					1 kHz	94.0	Ref.
					2 kHz	93.8	-0.2 ± 1.0
					4 kHz	93.2	-0.8 ± 1.0
					8 kHz	90.9	-3.0 (+1.5 ; -3.0)
					12.5 kHz	87.8	-6.2 (+3.0 ; -6.0)

6.4 Time Averaging

UUT Setting				Applied Value					UUT	IEC 60804
Range (dB)	Parameter	Frequency Weighting	Integrating Time	Frequency (kHz)	Burst Duration (ms)	Burst Duty Factor	Burst Level (dB)	Equivalent Level (dB)	Reading (dB)	Type 1 Spec. (dB)
32 - 112	L _{Aeq}	A	10 sec.	4	1	1/10	110.0	100	99.9	± 0.5
			60 sec.			1/10 ²		90	89.6	± 0.5
			5 min.			1/10 ³		80	79.1	± 1.0
						1/10 ⁴		70	69.2	± 1.0

Remarks : - UUT Microphone Model No. : 4188 & S/N : 2812706

- Mfr's Spec. : IEC 60651 Type 1 & IEC 60804 Type 1

- Uncertainties of Applied Value :

94 dB : 31.5 Hz - 125 Hz	: ± 0.35 dB
250 Hz - 500 Hz	: ± 0.30 dB
1 kHz	: ± 0.20 dB
2 kHz - 4 kHz	: ± 0.35 dB
8 kHz	: ± 0.45 dB
12.5 kHz	: ± 0.70 dB
104 dB : 1 kHz	: ± 0.10 dB (Ref. 94 dB)
114 dB : 1 kHz	: ± 0.10 dB (Ref. 94 dB)
Burst equivalent level	: ± 0.2 dB (Ref. 110 dB continuous sound level)

- The uncertainties are for a confidence probability of not less than 95 %.

Note :

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Hong Kong Accreditation Service
香港認可處

Certificate of Accreditation
認可證書

This is to certify that
特此證明

ALS TECHNICHEM (HK) PTY LIMITED

11/F., Chung Shun Knitting Centre, 1-3 Wing Yip Street, Kwai Chung, New Territories, Hong Kong
香港新界葵涌永業街1-3號忠信針織中心11樓

has been accepted by the HKAS Executive, on the recommendation of the Accreditation Advisory Board, as a
為香港認可處執行機關根據認可諮詢委員會建議而接受的

HOKLAS Accredited Laboratory
「香港實驗所認可計劃」認可實驗所

This laboratory meets the requirements of ISO / IEC 17025 : 2005 – General requirements for the competence
此實驗所符合ISO / IEC 17025 : 2005 – 《測試及校正實驗所能力的通用規定》所訂的要求，
of testing and calibration laboratories and it has been accredited for performing specific tests or calibrations as
獲認可進行載於香港實驗所認可計劃《認可實驗所名冊》內下述測試類別中的指定
listed in the HOKLAS Directory of Accredited Laboratories within the test category of
測試或校正工作

Environmental Testing
環境測試

This laboratory is accredited in accordance with the recognised International Standard ISO / IEC 17025 : 2005.
本實驗所乃根據公認的國際標準 ISO / IEC 17025 : 2005 獲得認可。

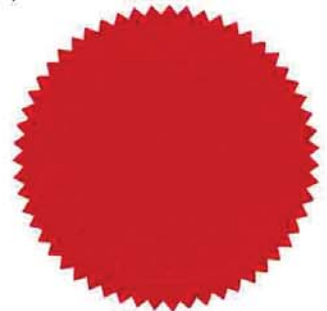
This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory
這項認可資格演示在指定範疇所需的技術能力及實驗所質量管理體系的運作
quality management system (see joint IAF-ILAC-ISO Communiqué).
(見國際認可論壇、國際實驗所認可合作組織及國際標準化組織的聯合公報)。

The common seal of the Hong Kong Accreditation Service is affixed hereto by the authority of the HKAS Executive
香港認可處根據認可處執行機關的權限在此蓋上通用印章

CHAN Sing Sing, Terence, Executive Administrator
執行幹事 陳成城
Issue Date : 5 May 2009
簽發日期：二零零九年五月五日

Registration Number : **HOKLAS 066**
註冊號碼：

Date of First Registration : 15 September 1995
首次註冊日期：一九九五年九月十五日



Appendix F

Event and Action Plan

Event / Action Plan for construction dust

Event	Action			
	ET	IEC	ER	Contractor
Action Level exceedance for one sample	<ol style="list-style-type: none"> 1. Identify source, investigate the causes of exceedance and propose remedial measures; 2. Inform IEC, ER and Contractor; 3. Repeat measurement to confirm finding; and 4. Increase monitoring frequency to daily. 	<ol style="list-style-type: none"> 1. Check monitoring data submitted by ET; 2. Check Contractor's working method; and 3. Review and advise the ET and ER on the effectiveness of the proposed remedial measures. 	<ol style="list-style-type: none"> 1. Notify Contractor. 	<ol style="list-style-type: none"> 1. Identify source, investigate the causes of exceedance and propose remedial measures; 2. Rectify any unacceptable practice and implement remedial measures; and 3. Amend working methods agreed with ER if appropriate.
Action Level exceedance for two or more consecutive samples	<ol style="list-style-type: none"> 1. Identify source, investigate the causes of exceedance and propose remedial measures; 2. Inform IEC, ER and Contractor; 3. Advise the ER and Contractor 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; 7. If exceedance continues, arrange meeting with IEC and ER; and 8. If exceedance stops, cease additional monitoring. 	<ol style="list-style-type: none"> 1. Check monitoring data submitted by ET; 2. Check Contractor's working method; 3. Discuss with ET and Contractor on possible remedial measures; 4. Advise the ET and ER on the effectiveness of the proposed remedial measures; and 5. Supervise Implementation of remedial measures. 	<ol style="list-style-type: none"> 1. Confirm receipt of notification of failure in writing; 2. Notify Contractor; and 3. Supervise and ensure remedial measures properly implemented. 	<ol style="list-style-type: none"> 1. Identify source, investigate the causes of exceedance and propose remedial measures; 2. Submit proposals for remedial actions to ER with a copy to ET and IEC within 3 working days of notification; 3. Implement the agreed proposals; and 4. Amend proposal if appropriate.
Limit Level exceedance for one sample	<ol style="list-style-type: none"> 1. Identify source, investigate the causes of exceedance and propose remedial measures; 2. Inform ER, Contractor, IEC and EPD; 3. Repeat measurement to confirm finding; 4. Increase monitoring frequency to daily; and 5. Assess effectiveness of Contractor's remedial actions and keep IEC, EPD and ER informed of the results. 	<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; 4. Advise the ER and ET on the effectiveness of the proposed remedial measures; and 5. Supervise implementation of remedial measures. 	<ol style="list-style-type: none"> 1. Confirm receipt of notification of failure in writing; 2. Notify Contractor; and 3. Supervise and ensure remedial measures properly implemented. 	<ol style="list-style-type: none"> 1. Identify source, investigate the causes of exceedance and propose remedial measures; 2. Take immediate action to avoid further exceedance; 3. Submit proposals for remedial actions to ER with a copy to ET and IEC within 3 working days of notification; 4. Implement the agreed proposals; and 5. Amend proposal if appropriate.
Limit Level exceedance for two or more consecutive samples	<ol style="list-style-type: none"> 1. Notify IEC, ER, Contractor and EPD; 2. Identify source; 3. Repeat measurement to confirm findings; 4. Increase monitoring frequency to daily; 5. Carry out analysis of Contractor's working procedures to determine possible mitigation to be implemented; 6. Arrange meeting with IEC, Contractor 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; and 8. If exceedance stops, cease additional monitoring. 	<ol style="list-style-type: none"> 1. Check monitoring data submitted by ET; 2. Check Contractor's working method; 3. Discuss amongst ER, ET, and Contractor on the potential remedial actions; 4. Review Contractor's remedial actions whenever necessary to assure their effectiveness and advise the ER accordingly; and 5. Supervise the implementation of remedial measures. 	<ol style="list-style-type: none"> 1. Confirm receipt of notification of failure in writing; 2. Notify Contractor; 3. In consultation with the ET and IEC, agree with the Contractor on the remedial measures to be implemented; 4. Supervise and ensure remedial measures properly implemented; and 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"> 1. Identify source, investigate the causes of exceedance and propose remedial measures; 2. Take immediate action to avoid further exceedance; 3. Submit proposals for remedial actions to ER with a copy to ET and IEC within 3 working days of notification; 4. Implement the agreed proposals; 5. Resubmit proposals if problem still not under control; and 6. Stop the relevant portion of works as determined by the ER until the exceedance is abated.

Event and Action Plan for Construction Noise

Event	Action			
	ET	IEC	ER	Contractor
Action Level Exceedance	<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, ER and Contractor; 4. Discuss with the Contractor and formulate remedial measures; and 5. Increase monitoring frequency to check mitigation effectiveness. 	<ol style="list-style-type: none"> 1. Review the analysed results submitted by the ET; 2. Review the proposed remedial measures by the Contractor and advise the ER accordingly; and 3. Supervise the implementation of remedial measures. 	<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 problem; and 4. Ensure remedial measures are properly implemented. 	<ol style="list-style-type: none"> 1. Submit noise mitigation proposals to IEC and ER; and 2. Implement noise mitigation proposals.
Limit Level Exceedance	<ol style="list-style-type: none"> 1. Identify source; 2. Inform IEC, ER, EPD and Contractor; 3. Repeat measurements to confirm findings; 4. Increase monitoring frequency; 5. Carry out analysis of Contractor's working procedures to determine possible mitigation to be implemented; 6. Inform IEC, ER and EPD the causes and actions taken for the exceedances; 7. Assess effectiveness of Contractor's remedial actions and keep IEC, EPD and ER informed of the results; and 8. If exceedance stops, cease additional monitoring. 	<ol style="list-style-type: none"> 1. Discuss amongst ER, ET, and Contractor on the potential remedial actions; 2. Review Contractors remedial actions whenever necessary to assure their effectiveness and advise the ER accordingly; and 3. Supervise the implementation of remedial measures. 	<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 problem; 4. Ensure remedial measures properly implemented; and 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"> 1. Take immediate action to avoid further exceedance; 2. Submit proposals for remedial actions to IEC within 3 working days of notification; 3. Implement the agreed proposals; 4. Resubmit proposals if problem still not under control; and 5. Stop the relevant portion of works as determined by the ER until the exceedance is abated.

Appendix G

Impact Monitoring Schedule

Impact Monitoring Schedule for the Reporting Period

Date		Noise Monitoring (0700 – 1900)	Air Quality Monitoring	
			1-hour TSP	24-hour TSP
Tue	1-Dec-20			✓
Wed	2-Dec-20	CN1, CN2, CN3, NMS2, NMS3, NMS-4a, NMS5, NMS6, NMS7 and NMS8	✓	
Thu	3-Dec-20			
Fri	4-Dec-20			
Sat	5-Dec-20			
Sun	6-Dec-20			
Mon	7-Dec-20			✓
Tue	8-Dec-20	NMS2, NMS3, NMS-4a, NMS5, NMS6 and NMS7	✓	
Wed	9-Dec-20			
Thu	10-Dec-20			
Fri	11-Dec-20	CN1, CN2, CN3 and NMS8		
Sat	12-Dec-20			✓
Sun	13-Dec-20			
Mon	14-Dec-20	NMS2, NMS3, NMS-4a, NMS5, NMS6 and NMS7	✓	
Tue	15-Dec-20			
Wed	16-Dec-20			
Thu	17-Dec-20	CN1, CN2, CN3 and NMS8		
Fri	18-Dec-20			✓
Sat	19-Dec-20			
Sun	20-Dec-20			
Mon	21-Dec-20	CN1, CN2, CN3 and NMS8		
Tue	22-Dec-20			
Wed	23-Dec-20			✓
Thu	24-Dec-20	NMS2, NMS3, NMS-4a, NMS5, NMS6 and NMS7	✓	
Fri	25-Dec-20			
Sat	26-Dec-20			
Sun	27-Dec-20			
Mon	28-Dec-20			✓
Tue	29-Dec-20	NMS2, NMS3, NMS-4a, NMS5, NMS6 and NMS7	✓	
Wed	30-Dec-20			
Thu	31-Dec-20	CN1, CN2, CN3 and NMS8		

✓	Monitoring Day
	Sunday or Public Holiday

Impact Monitoring Schedule for next Reporting Period

Date		Noise Monitoring (0700 – 1900)	Air Quality Monitoring	
			1-hour TSP	24-hour TSP
Fri	1-Jan-21			
Sat	2-Jan-21			✓
Sun	3-Jan-21			
Mon	4-Jan-21	NMS2, NMS3, NMS-4a, NMS5, NMS6 and NMS7	✓	
Tue	5-Jan-21			
Wed	6-Jan-21	CN1, CN2, CN3 and NMS8		
Thu	7-Jan-21			✓
Fri	8-Jan-21			
Sat	9-Jan-21		✓	
Sun	10-Jan-21			
Mon	11-Jan-21			
Tue	12-Jan-21	CN1, CN2, CN3 and NMS8		
Wed	13-Jan-21			✓
Thu	14-Jan-21			
Fri	15-Jan-21	NMS2, NMS3, NMS-4a, NMS5, NMS6 and NMS7	✓	
Sat	16-Jan-21			
Sun	17-Jan-21			
Mon	18-Jan-21	CN1, CN2, CN3 and NMS8		
Tue	19-Jan-21			✓
Wed	20-Jan-21			
Thu	21-Jan-21	NMS2, NMS3, NMS-4a, NMS5, NMS6 and NMS7	✓	
Fri	22-Jan-21			
Sat	23-Jan-21			
Sun	24-Jan-21			
Mon	25-Jan-21			✓
Tue	26-Jan-21			
Wed	27-Jan-21	NMS2, NMS3, NMS-4a, NMS5, NMS6 and NMS7	✓	
Thu	28-Jan-21			
Fri	29-Jan-21	CN1, CN2, CN3 and NMS8		
Sat	30-Jan-21			✓
Sun	31-Jan-21			

✓	Monitoring Day
	Sunday or Public Holiday

Appendix H

Database of Monitoring Result

24-HOUR TSP MONITORING RESULT DATABASE

24-hour TSP Monitoring Data for AMS1a															
DATE	SAMPLE NUMBER	ELAPSED TIME			CHART READING			AVG TEMP	AVG AIR PRESS	STANDARD FLOW RATE	AIR VOLUME	FILTER WEIGHT (g)		DUST WEIGHT COLLECTED	24-hr TSP (µg/m³)
		INITIAL	FINAL	(min)	MIN	MAX	AVG	(°C)	(hPa)	(m³/min)	(std m³)	INITIAL	FINAL	(g)	
1-Dec-20	26281	23275.7	23299.71	1440.6	31	32	31.5	19.3	1020	0.82	1183	2.6797	2.7184	0.0387	33
7-Dec-20	26493	23299.71	23323.71	1440	31	32	31.5	18.8	1020.4	1.24	1780	2.6482	2.708	0.0598	34
12-Dec-20	26458	23323.71	23347.71	1440	30	32	31	20.9	1015.3	1.22	1757	2.652	2.7097	0.0577	33
18-Dec-20	26523	23347.71	23371.71	1440	31	32	31.5	17.5	1021.1	1.24	1783	2.6506	2.6783	0.0277	16
23-Dec-20	26568	23371.71	23395.71	1440	30	32	31	18.4	1016.9	1.22	1762	2.6964	2.7621	0.0657	37
28-Dec-20	26529	23395.71	23419.71	1440	30	32	31	18.7	1014.8	1.22	1761	2.6617	2.7114	0.0497	28
24-hour TSP Monitoring Data for AMS-5															
DATE	SAMPLE NUMBER	ELAPSED TIME			CHART READING			AVG TEMP	AVG AIR PRESS	STANDARD FLOW RATE	AIR VOLUME	FILTER WEIGHT (g)		DUST WEIGHT COLLECTED	24-hr TSP (µg/m³)
		INITIAL	FINAL	(min)	MIN	MAX	AVG	(°C)	(hPa)	(m³/min)	(std m³)	INITIAL	FINAL	(g)	
1-Dec-20	26264	9888.07	9912.07	1440.00	30	32	31.0	19.7	1022.3	1.38	1988	2.6851	2.7449	0.0598	30
7-Dec-20	26515	9912.07	9936.08	1440.60	30	32	31.0	20.7	1020.4	1.21	1747	2.6622	2.7790	0.1168	67
12-Dec-20	26366	9936.08	9960.08	1440.00	30	32	31.0	20.9	1015.3	1.21	1743	2.6832	2.7521	0.0689	40
18-Dec-20	26520	9960.08	9984.08	1440.00	30	32	31.0	16.5	1021.6	1.22	1754	2.6544	2.7308	0.0764	44
23-Dec-20	26525	9984.08	10008.08	1440.00	30	32	31.0	18.4	1016.9	1.21	1749	2.6593	2.7442	0.0849	49
28-Dec-20	26583	10008.08	10032.08	1440.00	30	32	31.0	18.7	1014.8	1.21	1747	2.6915	2.7882	0.0967	55
24-hour TSP Monitoring Data for AMS-6															
DATE	SAMPLE NUMBER	ELAPSED TIME			CHART READING			AVG TEMP	AVG AIR PRESS	STANDARD FLOW RATE	AIR VOLUME	FILTER WEIGHT (g)		DUST WEIGHT COLLECTED	24-hr TSP (µg/m³)
		INITIAL	FINAL	(min)	MIN	MAX	AVG	(°C)	(hPa)	(m³/min)	(std m³)	INITIAL	FINAL	(g)	
1-Dec-20	26263	15092.02	15116.02	1440.00	30	32	31.0	19.7	1022.3	1.11	1605	2.6912	2.7686	0.0774	48
7-Dec-20	26514	15116.02	15140.02	1440.00	30	32	31.0	20.7	1020.4	1.24	1790	2.6717	2.8223	0.1506	84
12-Dec-20	26423	15140.02	15164.02	1440.00	30	32	31.0	20.9	1015.3	1.24	1787	2.7948	2.8739	0.0791	44
18-Dec-20	26521	15164.02	15188.02	1440.00	30	32	31.0	16.5	1021.6	1.25	1799	2.6516	2.7243	0.0727	40
23-Dec-20	26528	15188.02	15212.02	1440.00	30	32	31.0	18.4	1016.9	1.24	1792	2.6779	2.7460	0.0681	38
28-Dec-20	26582	15212.02	15236.02	1440.00	30	32	31.0	18.7	1014.8	1.24	1791	2.6984	2.7812	0.0828	46
24-hour TSP Monitoring Data for AMS-7															
DATE	SAMPLE NUMBER	ELAPSED TIME			CHART READING			AVG TEMP	AVG AIR PRESS	STANDARD FLOW RATE	AIR VOLUME	FILTER WEIGHT (g)		DUST WEIGHT COLLECTED	24-hr TSP (µg/m³)
		INITIAL	FINAL	(min)	MIN	MAX	AVG	(°C)	(hPa)	(m³/min)	(std m³)	INITIAL	FINAL	(g)	
1-Dec-20	26282	10428.18	10452.19	1440.60	35	36	35.5	19.3	1020	0.82	1180	2.6935	2.7594	0.0659	56
7-Dec-20	26492	10452.19	10476.19	1440.00	35	36	35.5	18.8	1020.4	1.33	1920	2.6572	2.7693	0.1121	58
12-Dec-20	26495	10416.19	10440.19	1440.00	34	36	35.0	20.9	1015.3	1.32	1895	2.6617	2.7270	0.0653	34
18-Dec-20	26522	10440.19	10464.20	1440.60	34	35	34.5	17.5	1021.1	1.31	1889	2.6489	2.7110	0.0621	33
23-Dec-20	26567	10464.20	10488.20	1440.00	34	36	35.0	18.4	1016.9	1.32	1901	2.6852	2.7805	0.0953	50

28-Dec-20	26581	10488.20	10512.20	1440.00	34	36	35.0	18.7	1014.8	1.32	1899	2.7175	2.7873	0.0698	37
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NOISE MONITORING RESULT DATABASE FOR CONTRACT 1

Noise Measurement Results (dB) of NMS2																					
Date	Start Time	1st Leq (5min)			2nd Leq (5min)			3rd Leq (5min)			4th Leq (5min)			5th Leq (5min)			6th Leq (5min)			Leq30min, dB(A)	Limit Level dB(A)
		Leq, dB(A)	L10, dB(A)	L90, dB(A)	Leq, dB(A)	L10, dB(A)	L90, dB(A)	Leq, dB(A)	L10, dB(A)	L90, dB(A)	Leq, dB(A)	L10, dB(A)	L90, dB(A)	Leq, dB(A)	L10, dB(A)	L90, dB(A)	Leq, dB(A)	L10, dB(A)	L90, dB(A)		
2-Dec-20	10:25	62.6	66.6	60.1	62.5	65.4	58.6	61.6	65	57.3	63.9	66.5	57	64.9	67.2	58.5	63	67.3	58	63	70
8-Dec-20	10:44	63.5	66.6	58.1	64.2	67.9	59.7	64.3	67.7	59.9	63.1	66.8	60.8	62.7	65.9	59.9	61.2	64.9	58	63	70
14-Dec-20	11:11	65.7	67.2	62	66.6	69.5	63.2	67.4	70.2	64.1	65.4	67.5	62.6	65	66.5	62.5	63.8	67	60.8	66	70
24-Dec-20	15:49	63.4	64.5	61	64.3	65	62.5	62.1	63.5	60.5	63.3	65	60.5	62.1	64.5	60.5	63.7	65	61.5	63	70
29-Dec-20	11:11	64.8	67.2	61.6	65.6	68.1	62.4	66.6	69.2	63.3	64.2	67.1	61.9	63.4	66.2	60.8	65.7	68.6	64.5	65	70

Noise Measurement Results (dB) of NMS3																					
Date	Start Time	1st Leq (5min)			2nd Leq (5min)			3rd Leq (5min)			4th Leq (5min)			5th Leq (5min)			6th Leq (5min)			Leq30min, dB(A)	Limit Level dB(A)
		Leq, dB(A)	L10, dB(A)	L90, dB(A)	Leq, dB(A)	L10, dB(A)	L90, dB(A)	Leq, dB(A)	L10, dB(A)	L90, dB(A)	Leq, dB(A)	L10, dB(A)	L90, dB(A)	Leq, dB(A)	L10, dB(A)	L90, dB(A)	Leq, dB(A)	L10, dB(A)	L90, dB(A)		
2-Dec-20	15:30	66.5	69.3	62.4	65.5	68.2	61.6	66.2	69.0	62.0	63.5	67.8	60.8	67.2	68.5	63.6	66.8	69.6	62.7	66	75
8-Dec-20	9:42	67.1	69.0	64.5	67.7	70.0	63.0	66.3	69.0	63.5	68.3	70.0	63.5	67.9	69.5	63.0	67.3	70.0	63.5	67	75
14-Dec-20	14:10	65.5	67.3	62.1	67.0	68.1	63.8	65.3	67.6	62.9	64.7	67.4	60.8	66.0	67.9	62.5	65.2	67.1	62.3	66	75
24-Dec-20	15:02	65.1	68.5	60.5	63.4	67.5	61.0	62.9	66.5	61.5	64.4	68.5	60.0	65.1	68.0	61.5	63.3	66.5	62.0	64	75
29-Dec-20	14:11	65.5	68.1	62.0	63.8	65.6	61.2	65.7	67.5	62.7	66.6	68.7	63.1	68.5	70.6	64.2	67.0	69.4	62.8	66	75

Noise Measurement Results (dB) of NMS4a																					
Date	Start Time	1st Leq (5min)			2nd Leq (5min)			3rd Leq (5min)			4th Leq (5min)			5th Leq (5min)			6th Leq (5min)			Leq30min, dB(A)	Limit Level dB(A)
		Leq, dB(A)	L10, dB(A)	L90, dB(A)	Leq, dB(A)	L10, dB(A)	L90, dB(A)	Leq, dB(A)	L10, dB(A)	L90, dB(A)	Leq, dB(A)	L10, dB(A)	L90, dB(A)	Leq, dB(A)	L10, dB(A)	L90, dB(A)	Leq, dB(A)	L10, dB(A)	L90, dB(A)		
2-Dec-20	9:27	62.8	64.7	59.8	66	65.4	60	62.5	64.2	59.7	63	64.6	60.8	63.1	65	60.6	63.2	65.5	60.4	64	75
8-Dec-20	10:34	65.3	66.5	60.5	64.4	65	61.5	64.8	67	62.5	67.1	68.5	62.5	67.6	69.5	63	66.1	68.5	61.5	66	75
14-Dec-20	9:26	69.6	71.2	65.3	71.2	71.6	66.1	67.9	69.7	65.3	68.6	70.3	66.2	68.3	70.1	66.1	69.3	70.9	67	69	75
24-Dec-20	9:30	63.3	67	62	64.7	68.5	62	63.3	66	61	66.4	68	64.5	64.7	67	63	66.7	69	65.5	65	75
29-Dec-20	9:23	66.3	68.9	62.2	67.8	67.7	62.4	63.4	64.5	62	63.6	65.4	61.6	65.2	67.9	62.1	64.2	66.3	61.8	65	75

Noise Measurement Results (dB) of NMS5										
Date	Start	1st Leq (5min)			2nd Leq (5min)			3rd Leq (5min)		

	Time	Leq, dB(A)	L10, dB(A)	L90, dB(A)	Leq, dB(A)	L10, dB(A)	L90, dB(A)	Leq, dB(A)	L10, dB(A)	L90, dB(A)	Leq, dB(A)	L10, dB(A)	L90, dB(A)	Leq, dB(A)	L10, dB(A)	L90, dB(A)	Leq, dB(A)	L10, dB(A)	L90, dB(A)	dB(A)	Level dB(A)
2-Dec-20	10:13	61.2	63.1	58.8	60.2	62.3	57.8	60.8	62.5	58.1	60.1	62.2	56.9	57.8	59.8	55.3	59.8	61.6	57.2	60	75
8-Dec-20	11:26	63.3	65.5	60.5	62.7	64.5	60.5	62.2	64.5	60	63.3	66	59.5	63.2	65.5	61	64.4	66.5	61	63	
14-Dec-20	10:20	67.4	68.9	65.3	68.3	69.5	66.5	68.6	70.1	66.9	68.5	69.8	67.1	68.1	69.2	66	67.4	68.8	65.7	68	75
24-Dec-20	10:27	66.4	68	62	65.5	66	64.5	64.3	65	62	64.9	65	64	66.7	69.5	64.5	66.3	67.5	65	66	75
29-Dec-20	10:22	67.6	69.6	65.5	68.4	70	66.6	67.1	68.4	65.7	68.5	72.1	64.8	67.8	69	66.5	67.1	68.6	65.5	68	75

Noise Measurement Results (dB) of NMS6

Date	Start Time	1st Leq (5min)			2nd Leq (5min)			3rd Leq (5min)			4th Leq (5min)			5th Leq (5min)			6th Leq (5min)			Leq30min, dB(A)	Limit Level dB(A)
		Leq, dB(A)	L10, dB(A)	L90, dB(A)	Leq, dB(A)	L10, dB(A)	L90, dB(A)	Leq, dB(A)	L10, dB(A)	L90, dB(A)	Leq, dB(A)	L10, dB(A)	L90, dB(A)	Leq, dB(A)	L10, dB(A)	L90, dB(A)	Leq, dB(A)	L10, dB(A)	L90, dB(A)		
2-Dec-20	13:15	61.2	63.2	58.6	60.3	62.7	57	61.1	62.7	58.6	63.9	65.9	61	62.5	64.8	59.3	62	64.3	57.9	64	75
8-Dec-20	13:17	62.7	64.5	60.5	64.4	68	60.5	63.4	65.5	61	64.3	66.5	59	62.8	65	59.5	65.2	66.5	60	66	75
14-Dec-20	14:43	68.6	70.6	65.2	67.8	69.5	65.7	68.6	69.9	67	68.2	69.8	66.2	69	70.5	67.2	68.6	70.1	66.6	70	75
24-Dec-20	13:25	67.4	69	65	68.5	70	66	68	69.5	66.5	69.5	71.5	66.5	68	70.7	65.5	68.5	69	65	70	75
29-Dec-20	14:37	67.4	70.4	56	69.7	72.6	64	69.6	71.9	66.2	67.8	70	65.1	68.3	70.4	65.2	68	69.8	65.9	71	75

Noise Measurement Results (dB) of NMS7

Date	Start Time	1st Leq (5min)			2nd Leq (5min)			3rd Leq (5min)			4th Leq (5min)			5th Leq (5min)			6th Leq (5min)			Leq30min, dB(A)	Limit Level dB(A)
		Leq, dB(A)	L10, dB(A)	L90, dB(A)	Leq, dB(A)	L10, dB(A)	L90, dB(A)	Leq, dB(A)	L10, dB(A)	L90, dB(A)	Leq, dB(A)	L10, dB(A)	L90, dB(A)	Leq, dB(A)	L10, dB(A)	L90, dB(A)	Leq, dB(A)	L10, dB(A)	L90, dB(A)		
2-Dec-20	14:07	59	61.7	54.1	60.3	62.4	57.6	58.1	60.6	53.9	58.4	60.5	55.5	62.8	63.8	55.3	58.9	61.4	54.6	60	75
8-Dec-20	14:08	61.5	64.5	55.5	62.8	66.5	55	61.7	63.5	57.5	62.5	65	58.5	61.3	64.5	57	63.2	66.5	58.5	62	75
14-Dec-20	15:38	67.9	70	64.9	67.6	69.6	65.2	68.3	70.1	65.9	66	68.2	63.1	66.4	68.3	63.8	67.8	69.6	65.7	67	75
24-Dec-20	14:19	69.1	70.5	63	71.1	73.5	62.5	69.3	72	61.5	67.7	69.5	62	69	70.5	67	69.8	68.5	64.5	69	75
29-Dec-20	15:30	61.3	64.4	57.1	60.8	62.9	58	59.8	61.3	57.4	62.6	63	58.3	61.6	64.8	57.6	61.7	65.1	56.5	61	75

Noise Measurement Results (dB) of NMS8

Date	Start Time	1st Leq (5min)			2nd Leq (5min)			3rd Leq (5min)			4th Leq (5min)			5th Leq (5min)			6th Leq (5min)			Leq30min, dB(A)	Limit Level dB(A)
		Leq, dB(A)	L10, dB(A)	L90, dB(A)	Leq, dB(A)	L10, dB(A)	L90, dB(A)	Leq, dB(A)	L10, dB(A)	L90, dB(A)	Leq, dB(A)	L10, dB(A)	L90, dB(A)	Leq, dB(A)	L10, dB(A)	L90, dB(A)	Leq, dB(A)	L10, dB(A)	L90, dB(A)		
2-Dec-20	14:04	66.2	68.4	62.6	66.8	69	63.5	65.6	68	62.2	63.9	67.1	55.9	66.5	68.8	62.6	65.6	67.2	62.1	66	75
11-Dec-20	13:41	65.2	68	59.7	66	68.7	60.5	64.7	67.6	59.3	64.1	67.5	56.9	65.5	68.7	59.7	66.8	68.3	60.4	65	75
17-Dec-20	9:32	66.3	68.5	62	67.4	69.5	64	68.4	71	64	67.3	69.5	63	65.4	68	60.5	67.2	68.5	65	67	75
21-Dec-20	14:13	65.7	68	60.4	64.4	67.5	59.4	64.8	67	56.7	65.7	68.3	61.6	63.5	67.5	59.5	65.7	68.3	61.7	65	75
31-Dec-20	11:21	63.2	64.1	56.2	60.1	62	55.1	59.6	62.1	54.7	62.4	63.8	55.6	61.8	62.4	54.1	58.4	60.5	53.6	61	75

NOISE MONITORING RESULT DATABASE FOR CONTRACT 3

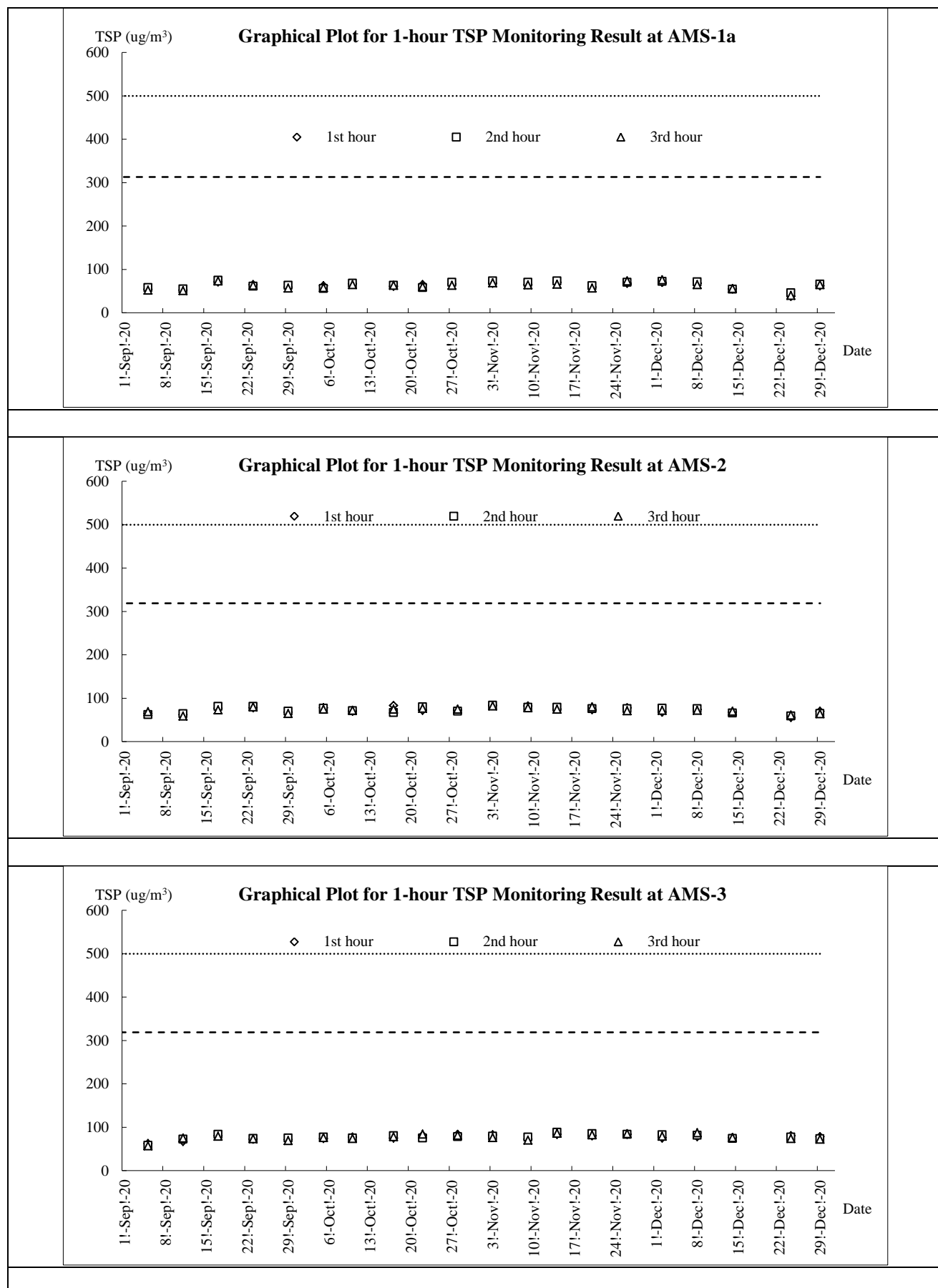
Noise Measurement Results (dB) of CN1																					
Date	Start Time	1st Leq (5min)			2nd Leq (5min)			3rd Leq (5min)			4th Leq (5min)			5th Leq (5min)			6th Leq (5min)			Leq30min, dB(A)	Limit Level dB(A)
		Leq, dB(A)	L10, dB(A)	L90, dB(A)	Leq, dB(A)	L10, dB(A)	L90, dB(A)	Leq, dB(A)	L10, dB(A)	L90, dB(A)	Leq, dB(A)	L10, dB(A)	L90, dB(A)	Leq, dB(A)	L10, dB(A)	L90, dB(A)	Leq, dB(A)	L10, dB(A)	L90, dB(A)		
2-Dec-20	15:47	70.7	71.1	68.3	69.2	69.7	68.2	69.1	69.8	68.1	73.5	73.3	65.1	66.7	68.6	64.8	68.7	69.4	65.9	70	70
11-Dec-20	15:07	64.7	62.6	56.5	69.5	64.9	57.9	62.2	59.5	56.8	64.6	61.8	58.7	66.2	63.8	59.5	65	62.4	58	66	70
17-Dec-20	13:02	66.6	69	61.5	65.1	66.5	62	65.8	67.5	63	64.3	66.5	61.5	64.2	66.5	61.5	66.1	68.5	63.5	65	70
21-Dec-20	13:03	67.8	69.3	65.7	66.8	68.2	63.2	67.3	68.9	65.6	68.5	70	66.8	68.4	70.2	65.6	65.7	67.2	62.8	68	70
31-Dec-20	15:20	58.4	60.4	53.4	58.2	59.6	52.6	58.1	59.2	51.3	56.1	58.7	51.8	61.4	61.9	53.9	55.8	57	50.6	58	70

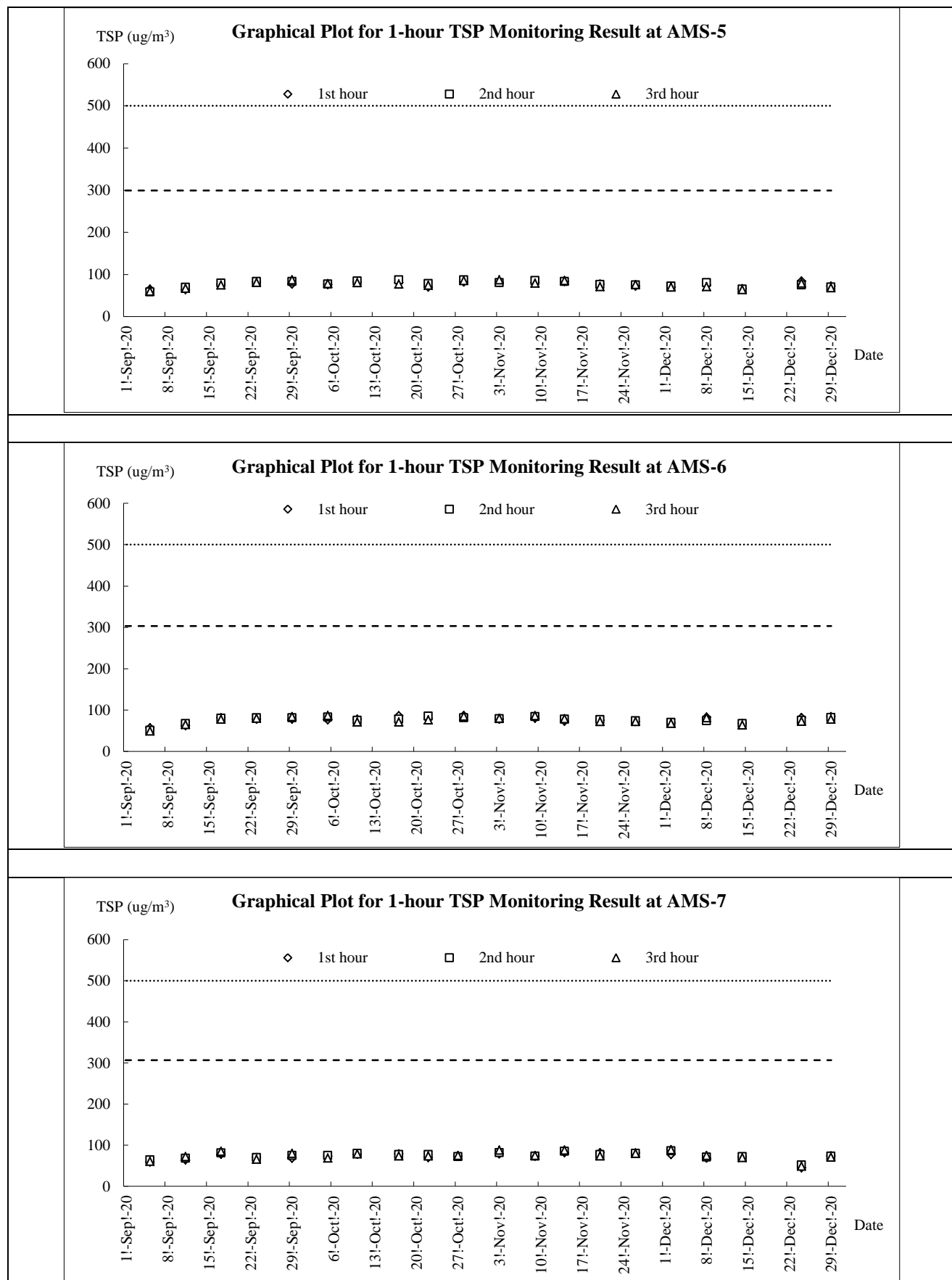
Noise Measurement Results (dB) of CN2																					
Date	Start Time	1st Leq (5min)			2nd Leq (5min)			3rd Leq (5min)			4th Leq (5min)			5th Leq (5min)			6th Leq (5min)			Leq30min, dB(A)	Limit Level dB(A)
		Leq, dB(A)	L10, dB(A)	L90, dB(A)	Leq, dB(A)	L10, dB(A)	L90, dB(A)	Leq, dB(A)	L10, dB(A)	L90, dB(A)	Leq, dB(A)	L10, dB(A)	L90, dB(A)	Leq, dB(A)	L10, dB(A)	L90, dB(A)	Leq, dB(A)	L10, dB(A)	L90, dB(A)		
2-Dec-20	15:11	61.2	62.8	57.2	59.5	61.7	57.3	63	64.8	57.7	69.2	72.1	61.1	68.1	71.2	60.7	68.5	71.8	61.7	66	70
11-Dec-20	14:32	64.8	64.2	58	66.4	69	59.5	62.1	65.5	58.6	63.5	66.6	59.9	64.7	67.8	59.7	61.5	64.9	58.2	64	70
17-Dec-20	11:17	62.7	65.5	57.5	62.4	65.5	57	63.7	66.5	57.5	62.1	64.5	55	61.7	65.5	54.5	63.1	66	56.5	63	70
21-Dec-20	13:45	63.8	65.4	56.8	65.7	67.8	59.9	64.3	66.5	58.6	63.4	65.1	58.2	61.5	63.2	55.5	62.8	64.3	57.6	64	70
31-Dec-20	14:44	56.7	56.2	51.5	55.9	58.1	52.6	54.8	56.4	51.1	56.4	58.1	51.2	58.6	59.4	53.7	58.7	59.1	53.6	57	70

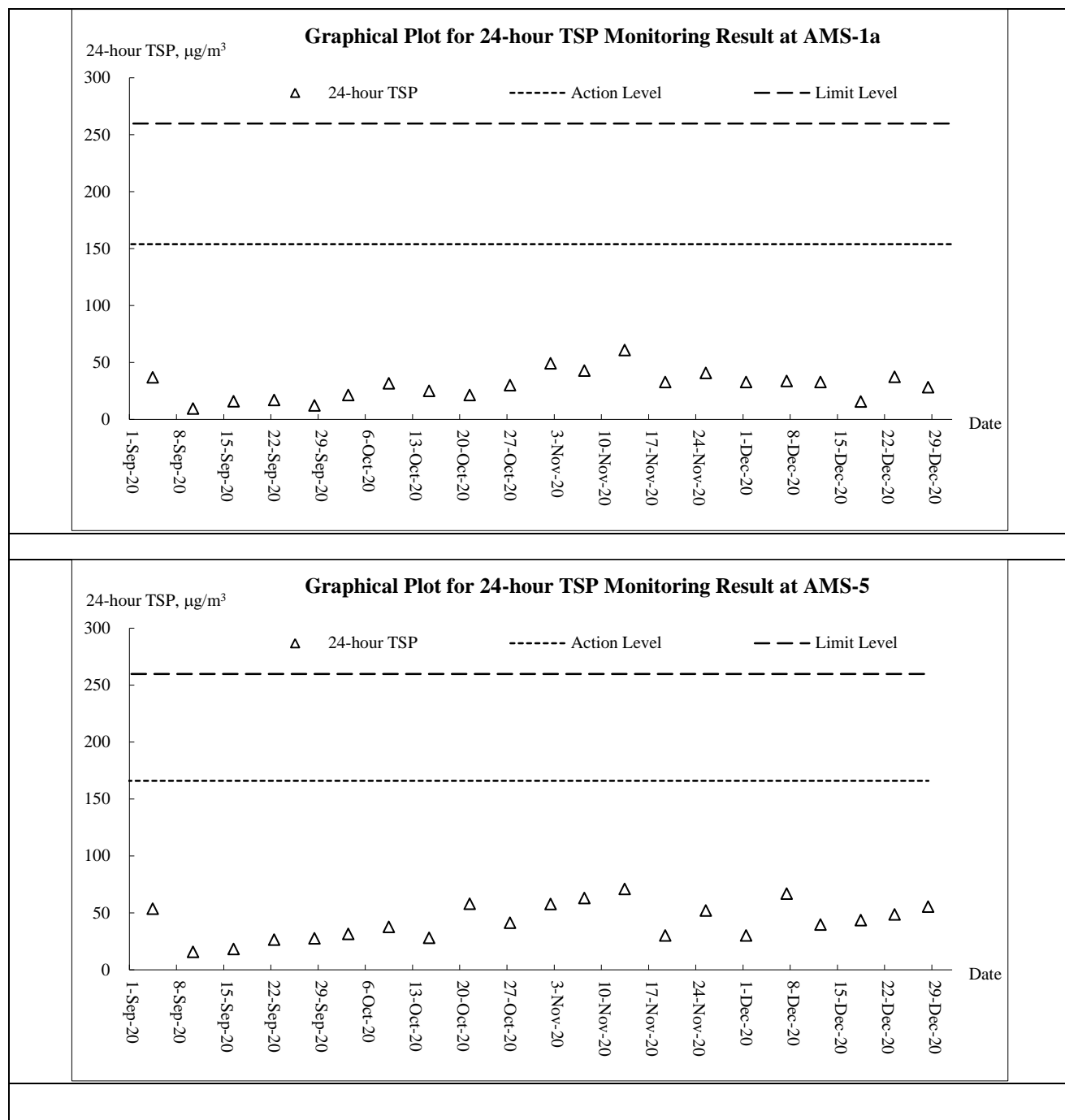
Noise Measurement Results (dB) of CN3																					
Date	Start Time	1st Leq (5min)			2nd Leq (5min)			3rd Leq (5min)			4th Leq (5min)			5th Leq (5min)			6th Leq (5min)			Leq30min, dB(A)	Limit Level dB(A)
		Leq, dB(A)	L10, dB(A)	L90, dB(A)	Leq, dB(A)	L10, dB(A)	L90, dB(A)	Leq, dB(A)	L10, dB(A)	L90, dB(A)	Leq, dB(A)	L10, dB(A)	L90, dB(A)	Leq, dB(A)	L10, dB(A)	L90, dB(A)	Leq, dB(A)	L10, dB(A)	L90, dB(A)		
2-Dec-20	9:36	60.9	62.2	55.6	60.6	62	55.4	57.9	59.6	53.9	63.4	63.8	55.4	60.6	62	54	59.3	61.4	54.8	61	75
11-Dec-20	9:56	64.2	70.6	58.6	64.7	69.9	59.9	62.2	66.8	58.8	61.2	66.9	57.7	61.5	65.5	56.6	63.1	67.5	57.4	63	75
17-Dec-20	10:24	65.9	67.5	57	61.3	64.5	56.5	60.1	62.5	57	61.7	66	58.5	64.3	68.5	58	61.7	65.5	58	63	75
21-Dec-20	15:11	63.3	65.6	58.6	61.1	63.5	57.9	60.7	62.6	56	59.5	61.6	57.8	61.1	62.2	55	60	62	56.7	61	75
31-Dec-20	10:18	59.5	61.7	55.4	61.7	62.2	57	60.4	62.7	57.2	56.2	59.4	55.2	58.7	60.8	56.2	60.4	61.1	57.3	60	75

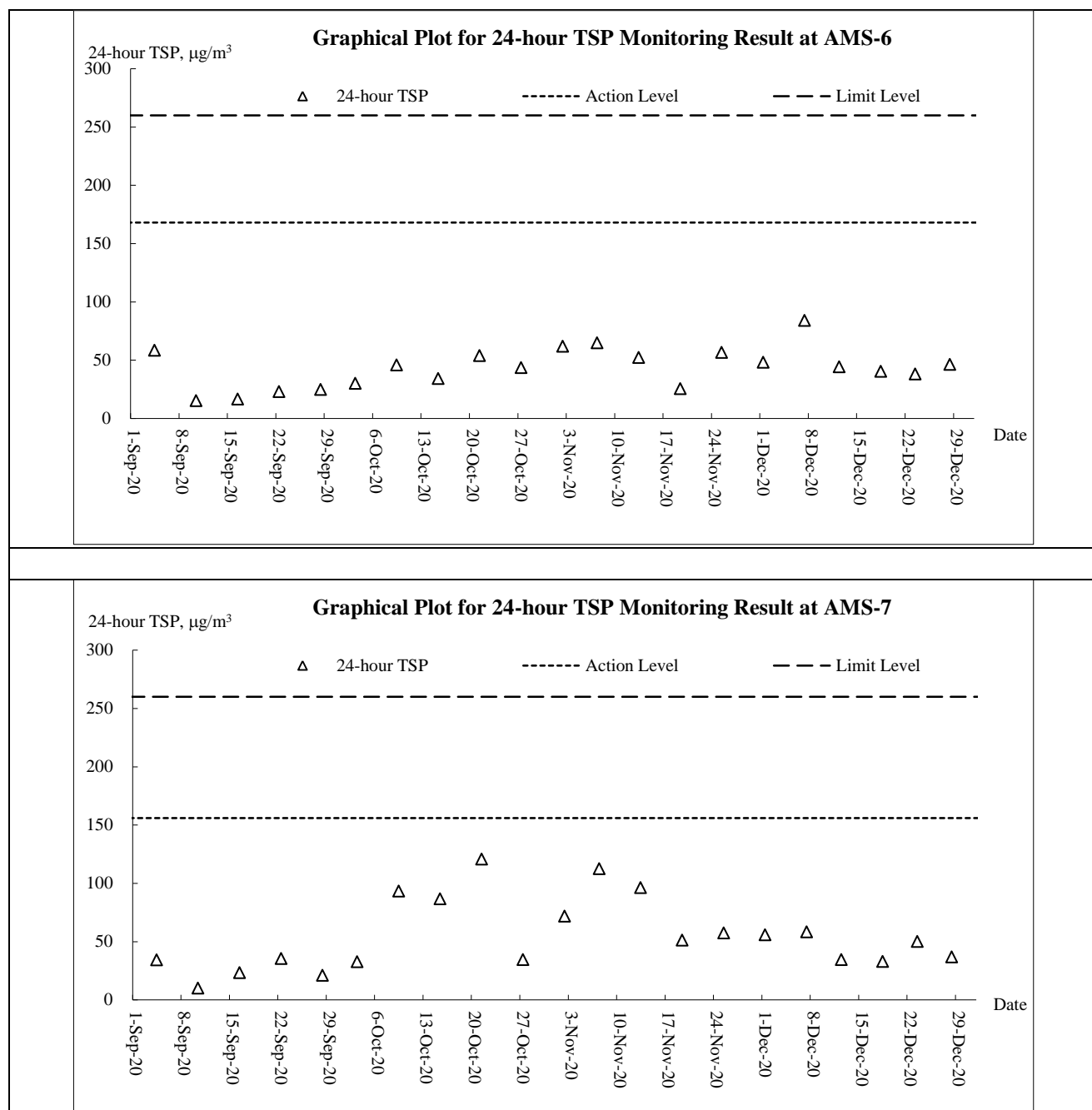
Appendix I

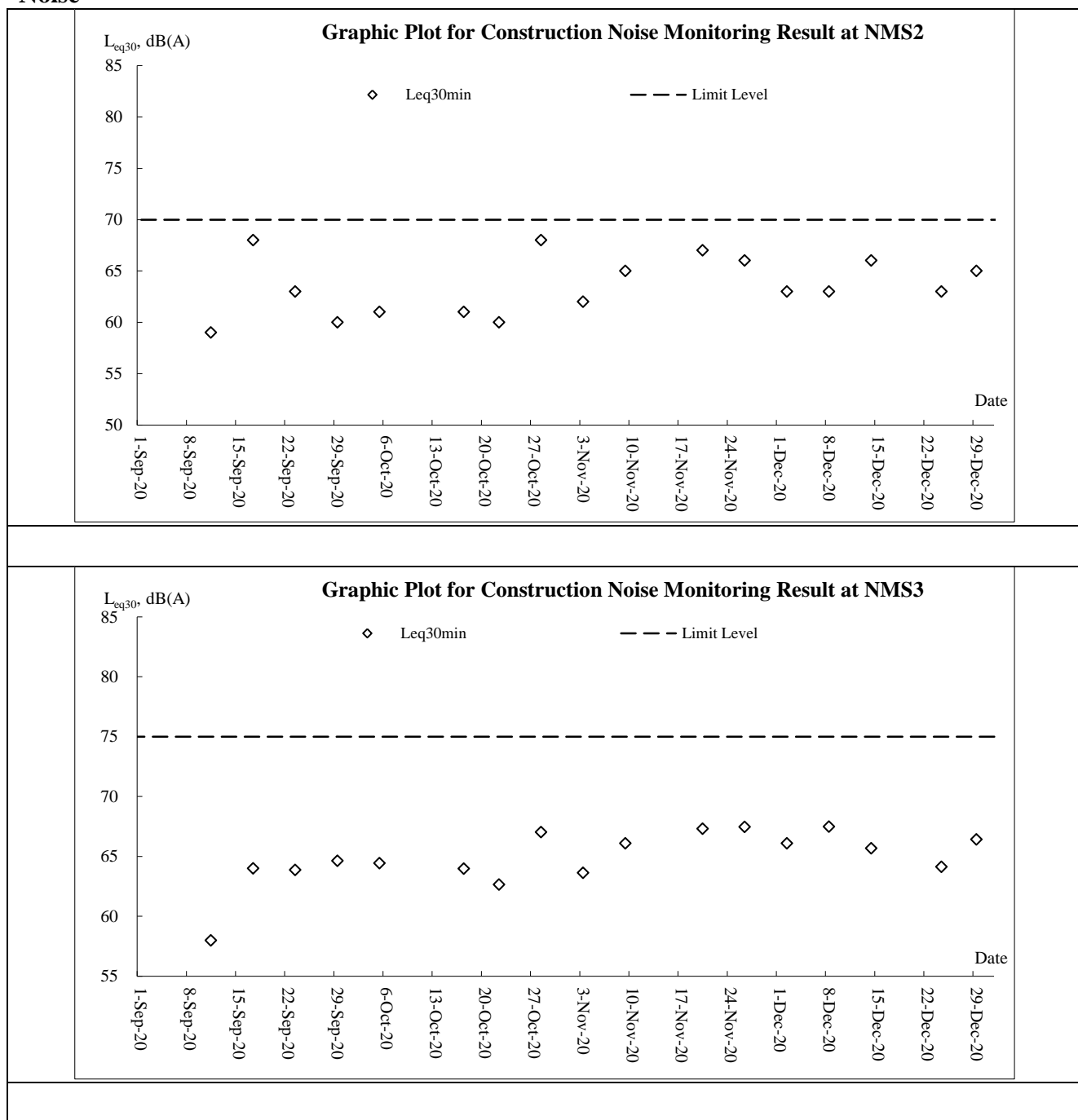
Graphical Plots for Monitoring Result

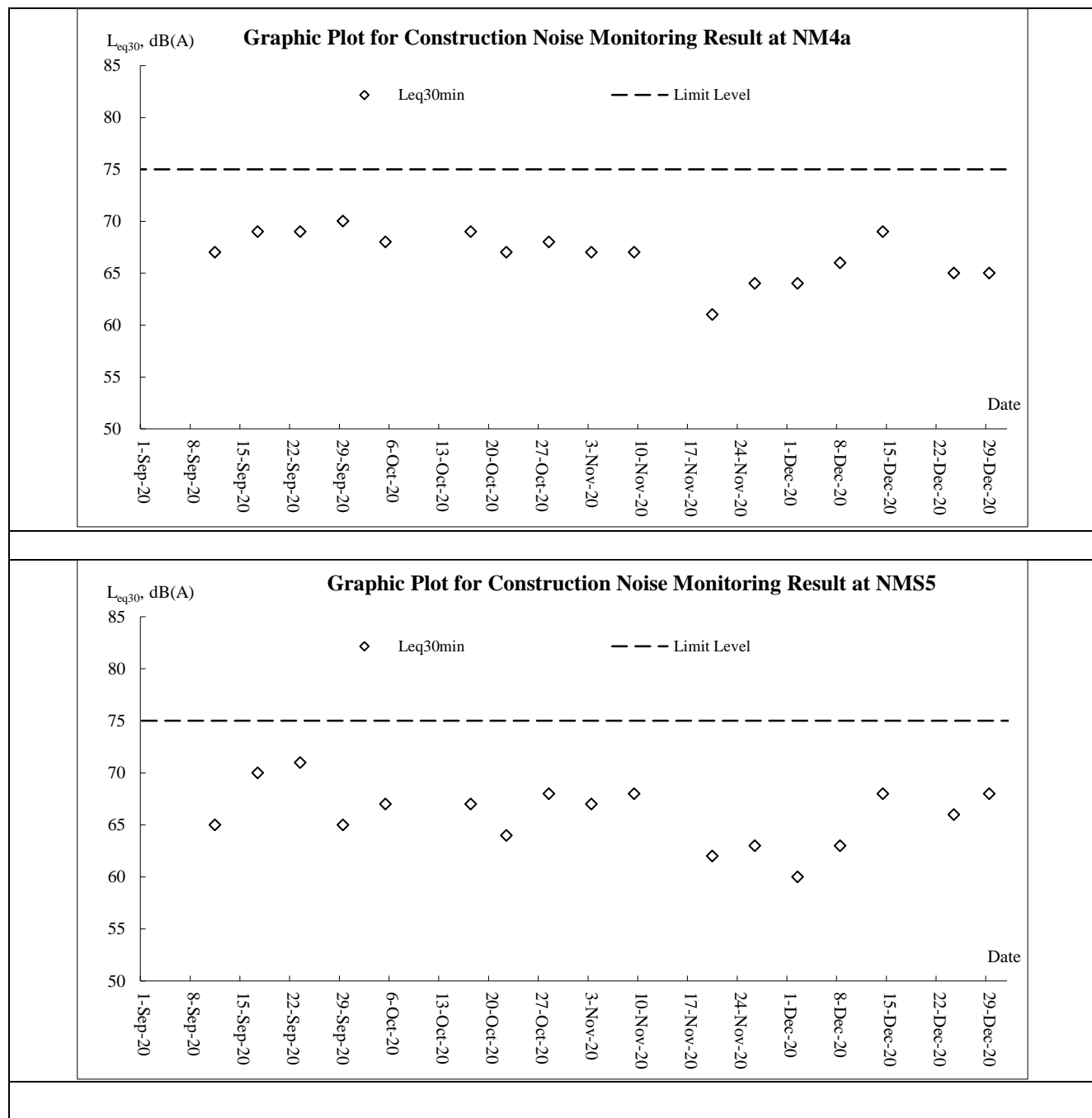
Air Quality – 1-hour TSP

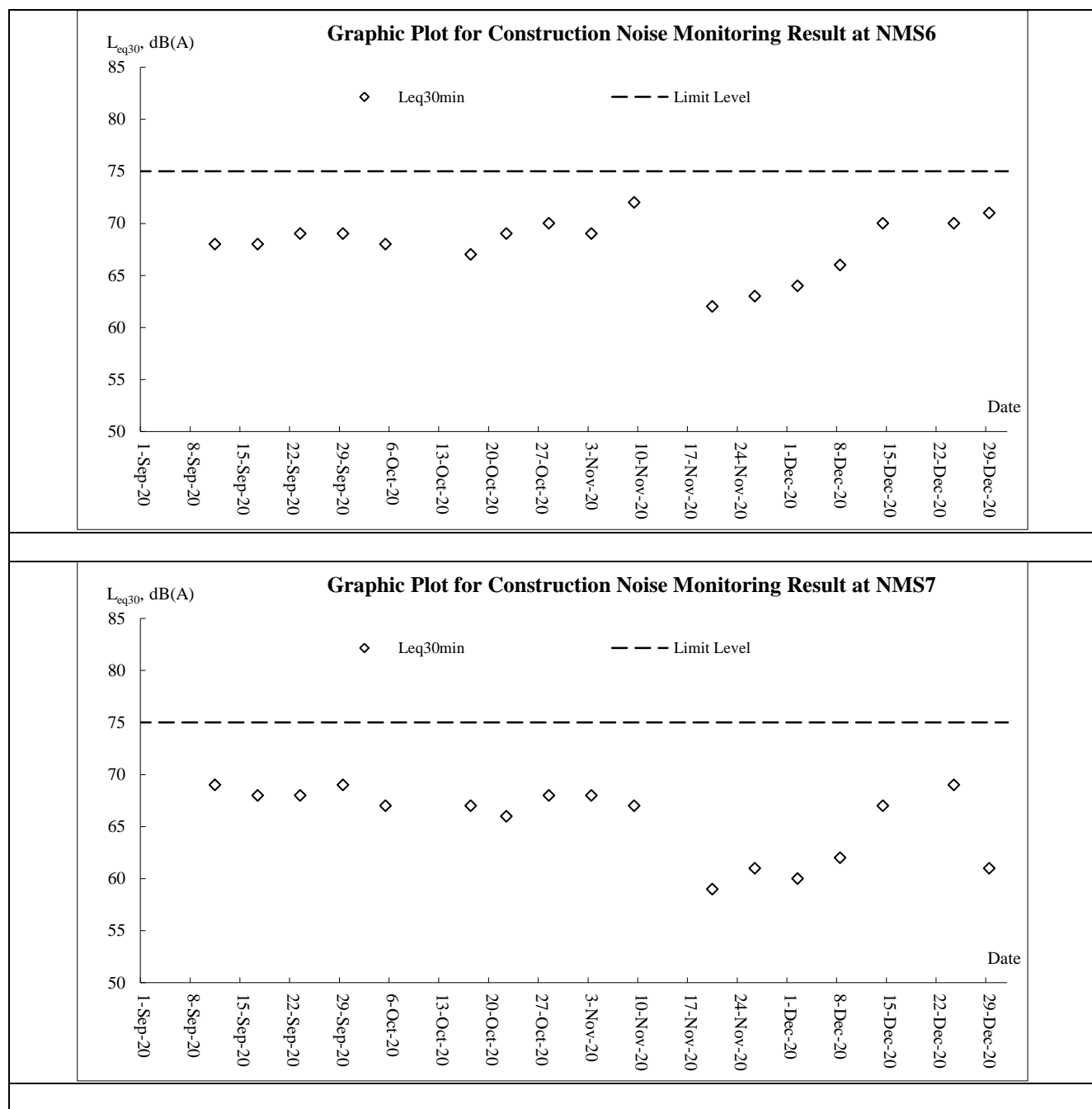


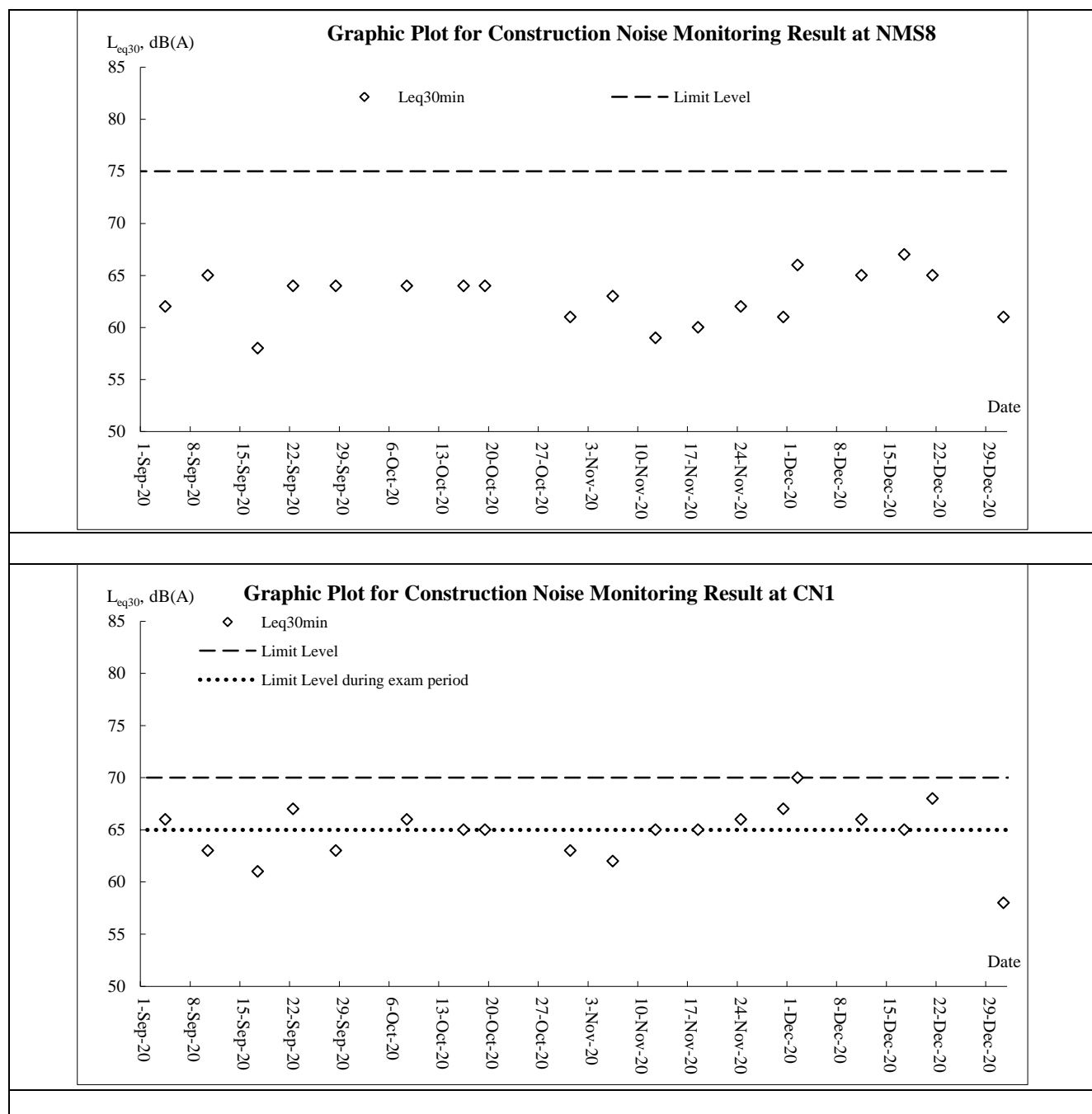
Air Quality – 24-hour TSP

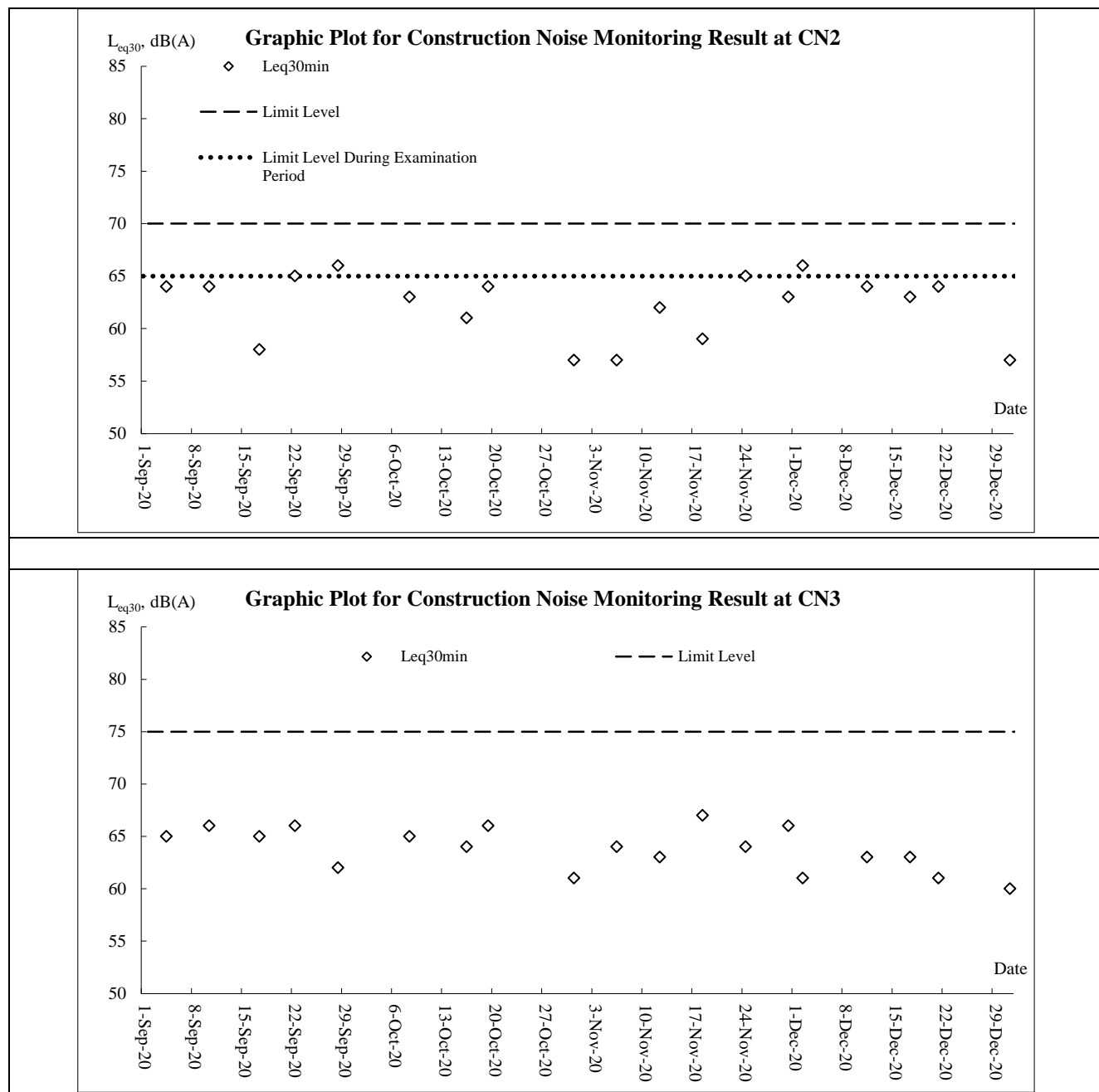


Noise









Appendix J

Meteorological Data

Date		Weather	Total Rainfall (mm)	Kwun Tong Station	Kai Tak Station		King's Park Station
				Mean Air Temp. (°C)	Wind Speed (km/h)	Wind Direction	Mean Relative Humidity (%)
1-Dec-20	Tue	Temperatures will fall progressively.	0	18.7	10	N/NE	59.5
2-Dec-20	Wed	Fine and dry in the next couple of days.	0	19.1	9.2	N/NE	61.2
3-Dec-20	Thu	Fine and dry.	0	17.8	10.7	N/NW	56.7
4-Dec-20	Fri	Fine and dry. Cool tonight. Moderate to fresh northerly winds.	0	15.8	9.5	N/NW	57.5
5-Dec-20	Sat	Cool in the morning and at night.	0	16.4	7.7	N/NW	61
6-Dec-20	Sun	Mainly cloudy and dry.	0	18.2	8.7	E/SE	61.7
7-Dec-20	Mon	Sunny periods in the afternoon.	0	21	7	W/NW	58.5
8-Dec-20	Tue	Mainly cloudy. Dry with sunny intervals in the afternoon.	0	20	9.2	NW	58
9-Dec-20	Wed	Mainly cloudy with bright periods.	Trace	18.9	10	E	64.2
10-Dec-20	Thu	Bright periods during the day.	0.3	20.9	6.7	N/NE	72.5
11-Dec-20	Fri	Mainly cloudy. Sunny intervals during the day	Trace	22.1	10	E/SE	77.5
12-Dec-20	Sat	Moderate east to northeasterly winds.	Trace	20.5	11	E/SE	69.7
13-Dec-20	Sun	Moderate to fresh easterly winds	0	20.2	14.5	E/SE	74.5
14-Dec-20	Mon	Mainly cloudy. Bright at first.	Trace	17.9	10	E/SE	78
15-Dec-20	Tue	Mainly cloudy and cool.	Trace	13.7	8.5	N/NE	73
16-Dec-20	Wed	Moderate north to northeasterly winds, occasionally fresh.	0	13.9	8.7	N/NE	67.5
17-Dec-20	Thu	Mainly cloudy. Dry with bright periods in the afternoon.	0	14.3	7.5	N/NW	68.2
18-Dec-20	Fri	Dry with sunny periods in the afternoon.	0	16.7	9.7	W/NW	61.5
19-Dec-20	Sat	Mainly cloudy and cool tonight.	0	14.6	10.5	W/NW	57
20-Dec-20	Sun	Moderate north to northeasterly winds, occasionally fresh offshore.	0	15.9	11	N/NW	46
21-Dec-20	Mon	Mainly fine and dry.	0	16.3	8.5	W/NW	48.5
22-Dec-20	Tue	Mainly cloudy and dry. Rather cool in the morning	0	16.2	9.2	E/SE	58
23-Dec-20	Wed	Mainly fine. Dry in the afternoon.	1.2	17.6	10	E/SE	81.5
24-Dec-20	Thu	Moderate north to northeasterly winds.	0	21.4	7	W/SW	71.7
25-Dec-20	Fri	Mainly fine and dry.	0	18.3	6.5	W/SW	67
26-Dec-20	Sat	Moderate easterly winds, fresh offshore.	0	18.1	7.2	SE	61.2
27-Dec-20	Sun	Mainly fine. Dry in the afternoon.	0	21.7	8	E/SE	56.7
28-Dec-20	Mon	Mainly fine. Visibility relatively low in some areas	0	21	15	E/SE	61
29-Dec-20	Tue	Light to moderate easterly winds	0	22.4	15	E/SE	67
30-Dec-20	Wed	Fine and dry. Become cold tonight	0	15.1	16	N/NW	52.5
31-Dec-20	Thu	Fine and dry. Become cold tonight.	0	10	9.2	E/NE	23.7

Appendix K

Waste Flow Table

Monthly Summary Waste Flow Table for 2020 (year)

Month	Actual Quantities of Inert C&D Materials Generated Monthly						Actual Quantities of C&D Wastes Generated Monthly				
	Total Quantity Generated	Hard Rock and Large Broken Concrete	Reused in the Contract (see Note 6)	Reused in other Projects (see Note 8)	Disposed as Public Fill	Imported Fill	Metals (see Note 9)	Paper/ cardboard packaging	Plastics (see Note 3)	Chemical Waste (see Note 5)	Others, e.g. general refuse
	(in '000m ³)	(in '000m ³)	(in '000m ³)	(in '000m ³)	(in '000m ³)	(in '000m ³)	(in '000 kg)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000m ³)
Jan	129.197	22.841	126.974	0.924	1.299	0.000	0.005	0.025	0.007	0.000	0.141
Feb	110.670	2.524	109.300	1.240	0.130	0.000	0.000	0.000	0.000	0.000	0.205
Mar	161.220	2.884	153.483	7.567	0.170	0.000	0.007	0.000	0.008	0.000	0.169
Apr	47.464	1.609	35.093	11.120	1.251	1.103	0.004	0.575	0.003	0.000	0.120
May	71.700	0.723	58.845	12.190	0.665	0.000	0.000	0.142	0.000	0.000	0.087
Jun	73.326	1.753	61.073	12.146	0.107	0.000	0.000	0.000	0.000	0.000	0.096
Sub-total	593.577	32.334	544.768	45.187	3.622	1.103	0.016	0.742	0.018	0.000	0.818
Jul	40.409	0.735	27.864	11.906	0.639	0.000	0.023	0.529	0.019	0.000	0.230
Aug	30.703	1.775	19.691	10.472	0.540	0.000	0.000	0.000	0.000	0.000	0.150
Sep	13.692	0.262	5.374	8.195	0.123	0.000	0.003	0.020	0.001	0.000	0.147
Oct	31.429	0.000	21.336	9.913	0.180	0.019	0.013	0.000	0.011	0.000	0.460
Nov	21.542	0.234	4.198	16.556	0.788	0.000	0.000	0.189	0.000	0.166	0.139
Dec	16.530	0.000	4.965	10.597	0.968	0.000	0.000	1.231	0.000	0.000	0.162
Total	747.882	35.340	628.196	112.826	6.860	1.122	0.055	2.711	0.049	0.166	2.106

Notes:

- (1) The performance targets are given in PS Clause 1.119 (14).
- (2) The waste flow table shall also include C&D materials that are specified in the Contract to be imported for use at the Site.
- (3) Plastics refer to plastic bottles/containers, plastic sheets/foam from packaging material and waste will be collected by recycler for recycling.
- (4) Use the conversion factor, density of general refuse (1 t/m³) and inert C&D materials (2 t/m³).
- (5) Use the conversion factor for chemical waste (0.88kg/L).
- (6) Assume a dump truck delivers 7.5 m³ material in 1 trip.
- (7) The cut-off date of this summary is 20th of each month.
- (8) The Inert C&D materials of reused in other Projects including glass materials.
- (9) The C&D waste generation of metal including rechargeable battery recycling.

Name of Department : CEDDContract No. : NE/2016/05**Monthly Summary Waste Flow Table for 2020** (year)**[PS Clause 1.129]**

Month	Actual Quantities of Inert C&D Materials Generated Monthly						Actual Quantities of C&D Wastes Generated Monthly				
	Total Quantity Generated	Hard Rock & Large Broken Concrete	Reused in the Contract	Reused in other Projects	Disposed as Public Fill	Imported Fill	Metals	Paper/ cardboard packaging	Plastics (see Note 3)	Chemicals Waste	Others, e.g. general refuse
	(in '000 m ³)	(in '000 m ³)	(in '000 m ³)	(in '000 m ³)	(in '000 m ³)	(in '000 m ³)	(in '000 kg)	(in '000 kg)	(in '000 kg)	(in '000 kg)	(in '000 m ³)
Jan	0.397	0	0.113	0	0.150	0	0	0	0	0	0.134
Feb	0.237	0	0.071	0	0.118	0	0	0	0	0	0.048
Mar	0.615	0	0	0	0.405	0	0	0	0	0	0.210
Apr	0.608	0	0	0	0.528	0	0	0	0	0	0.080
May	0.420	0	0.05	0	0.260	0	0	0	0	0	0.110
June	0.357	0	0.017	0	0.250	0	0	0	0	0	0.090
Sub-total		0		0		0	0	0	0	0	
July	0.240	0	0.03	0	0.100	0	0	0	0	0	0.110
Aug	0.370	0	0.04	0	0.180	0	0	0	0	0	0.150
Sept	0.150	0	0	0	0.090	0	0	0	0	0	0.060
Oct	0.150	0	0	0	0.070	0	0	0	0	0	0.080
Nov	0.120	0	0	0	0.040	0	0	0	0	0	0.080
Dec	0.100	0	0	0	0.030	0	0	0	0	0	0.070
Total	3.136	0	0.321	0	2.191	0	0	0	0	0	1.152

- Notes:
- (1) The performance targets are given in PS Clause 6.14
 - (2) The waste flow table shall also include C&D materials that are specified in the Contract to be imported for use at the Site.
 - (3) Plastics refer to plastic bottles/containers, plastic sheets/foam from packaging material.
 - (4) The Contractor shall also submit the latest forecast of the total amount of C&D materials expected to be generated from the Works. Together with a breakdown of the nature where the total amount of C&D materials expected to be generated from the Works is equal to or exceeding 50,000 m³.

Contract No.: NE/2017/03

Development of Anderson Road Quarry Site – Road Improvement Works and Pedestrian Connectivity Facilities Works Phase 2A

Monthly Summary Waste Flow Table for 2020(year)

Month	Actual Quantities of Inert C&D Materials Generated Monthly						Actual Quantities of C&D Wastes Generated Monthly				
	Total Quantity Generated	Hard Rock and Large Broken Concrete	Reused in the Contract	Reused in other Projects	Disposed as Public Fill	Imported Fill	Metals	Paper/ cardboard packaging	Plastics (see Note 3)	Chemical Waste	Others, e.g. general refuse
	(in '000m ³)	(in '000m ³)	(in '000m ³)	(in '000m ³)	(in '000m ³)	(in '000m ³)	(in '000 kg)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000m ³)
Jan	1.284	0.000	0.083	1.058	1.202	0.000	0.002	0.069	0.000	0.000	0.029
Feb	4.744	0.000	0.023	1.590	4.721	0.000	0.000	0.000	0.620	0.000	0.027
Mar	6.140	0.000	0.083	0.503	6.057	0.000	0.002	0.054	0.569	0.000	0.025
Apr	1.828	0.000	0.000	0.968	1.828	0.000	0.000	0.000	0.000	0.000	0.031
May	0.380	0.000	0.000	0.015	0.380	0.000	0.000	0.000	0.260	0.000	0.026
Jun	1.181	0.000	0.000	0.135	1.181	0.000	0.002	0.176	2.210	0.000	0.015
Sub-total	15.557	0.000	0.188	4.268	15.370	0.000	0.006	0.299	3.660	0.000	0.153
Jul	2.107	0.000	0.938	1.575	1.169	0.000	0.000	0.000	0.000	0.000	0.011
Aug	2.041	0.000	0.323	0.713	1.718	0.000	0.000	0.000	0.830	0.000	0.048
Sep	2.924	0.000	0.443	0.570	2.482	0.000	0.003	0.022	0.850	0.000	0.024
Oct	1.324	0.000	0.090	1.185	1.234	0.000	0.000	0.000	1.218	0.000	0.046
Nov	0.246	0.000	0.015	0.405	0.231	0.000	0.000	0.000	0.532	0.000	0.037
Dec	1.442	0.000	0.503	0.308	0.939	0.000	0.000	0.000	0.546	0.000	0.042
Total	25.641	0.000	2.498	9.023	23.144	0.000	0.009	0.321	7.636	0.000	0.362

Contract No.: NE/2017/03

Development of Anderson Road Quarry Site – Road Improvement Works and Pedestrian Connectivity Facilities Works Phase 2A

Forecast of Total Quantities of C&D Materials to be Generated from the Contract*										
Total Quantity Generated	Hard Rock and Large Broken Concrete	Reused in the Contract	Reused in other Projects	Disposed as Public Fill	Imported Fill	Metals	Paper/ cardboard packaging	Plastics (see Note 3)	Chemical Waste	Others, e.g. general refuse
(in '000m ³)	(in '000m ³)	(in '000m ³)	(in '000m ³)	(in '000m ³)	(in '000m ³)	(in '000 kg)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000m ³)
15.000	0.000	0.000	0.000	15.000	0.000	0.100	2.000	0.300	1.000	3.500

- Notes:
- (1) The performance targets are given in PS Clause 6.14.
 - (2) The waste flow table shall also include C&D materials that are specified in the Contract to be imported for use at the Site.
 - (3) Plastics refer to plastic bottles/containers, plastic sheets/foam from packaging material and waste will be collected by recycler for recycling
 - (4) Use the conversion factor, density of general refuse (1 t/m³) and inert C&D materials (2 t/m³).
 - (5) Use the conversion factor for chemical waste (0.88kg/L)

Appendix L

Implementation Schedule for Environmental Mitigation Measures

EM&A Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concern to Address	Who to implement the measures?	Location of the measure	Implementation Status		
					Contract 1	Contract 2	Contract 3
Dust Impact (Contraction Phase)							
S4.7.2 to S4.7.5	Mitigation measures in form of regular watering under a good site practice should be adopted. Watering once per hour on exposed worksites and haul road is proposed to achieve dust removal efficiency of 91.7%. While the above watering frequencies are to be followed, the extent of watering may vary depending on actual site conditions but should be sufficient to maintain an equivalent intensity of no less than 1.75 L/m ² to achieve the respective dust removal efficiencies.	Minimize dust impact at the nearby sensitive receivers	Contractor	All construction sites	V	V	V
S4.7.6	The Contractor shall follow the procedures and requirements given in the Air Pollution Control (Construction ion Dust) Regulation.	Minimize dust impact at the nearby sensitive receivers	Contractor	All construction sites	V	V	V
S4.7.6	Following dust suppression measures should also be incorporated by the Contractor to control the dust nuisance throughout the construction phase: <ul style="list-style-type: none">Any excavated or stockpile of dusty material should be covered entirely by impervious sheeting or sprayed with water to maintain the entire surface wet and then removed or backfilled or reinstated where practicable within 24 hours of the excavation or unloading;Any dusty materials remaining after a stockpile is removed should be wet ted with water and cleared from the surface of roads;A stockpile of dusty material should not be extend beyond the pedestrian barriers, fencing or traffic cones;The load of dusty materials on a vehicle leaving a construction ion site should be covered entirely by impervious sheeting to ensure that the dusty materials do not leak from the vehicle;Where practicable, vehicle washing facilities with high pressure water jet should be provided at every discernible or designated vehicle exit point. The area where vehicle washing takes place and the road sect ion between the washing facilities and the exit point should be paved with concrete, bituminous materials or hardcores;When there are open excavation and reinstatement works, hoarding of not less than 2.4m high should be provided as far as practicable along the site boundary with provision for public crossing. Good site practice shall also be adopted by the Contractor to ensure the conditions of the hoardings are properly maintained throughout the construction ion period.The port ion of any road leading only to construction ion site that is within 30m of a vehicle entrance or exit should be kept clear of dusty materials;Surfaces where any pneumatic or power-driven drilling, cutting, polishing or other mechanical breaking operation takes place should be sprayed with water or a dust suppression chemical continuously;Any area that involves demolition activities should be sprayed with water or a dust suppression chemical immediately prior to, during and immediately	Minimize dust impact at the nearby sensitive receivers	Contractor	All construction sites	@	@	@

EM&A Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concern to Address	Who to implement the measures?	Location of the measure	Implementation Status		
					Contract 1	Contract 2	Contract 3
	after the activities so as to maintain the entire surface wet ; <ul style="list-style-type: none"> Where a scaffolding is erected around the perimeter of a building under construction, effective dust screens, sheeting or netting should be provided to enclose the scaffolding from the ground floor level of the building, or a canopy should be provided from the first floor level up to the highest level of the scaffolding; Any skip hoist for material transport should be totally enclosed by impervious sheeting; 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 Exposed earth should be properly treated by compact ion, turfing, hydroseeding, vegetation planting or sealing with latex, vinyl, bitumen, shortcrete or other suitable surface stabiliser within six months after the last construction activity on the construction site or part of the construction site where the exposed earth lies. 						
S4.7.7	Implement regular dust monitoring under EM&A programme during the Construction phase.	Control construction airborne noise	Selected Representative dust monitoring station	All construction sites where practicable	V	N/A	N/A
Noise Impact (Contraction Phase)							
S5.6.9	Implement the following good site management practices: <ul style="list-style-type: none"> only well-maintained plant should be operated on-site and plant should be serviced regularly during the construction ion programme; machines and plant (such as trucks, cranes) that may be in intermittent use should be shut down between work periods or should be throttled down to a minimum; plant known to emit noise strongly in one direct ion, where possible, be orientated so that the noise is directed away from nearby NSRs; silencers or mufflers on construction ion equipment should be properly fitted and maintained during the construction ion works; mobile plant should be sited as far away from NSRs as possible and practicable; and material stockpiles, mobile container site office and other structures should be effectively utilised, where practicable, to screen noise from on-site construction activities. 	Control construction ion airborne noise	Contractor	All construction sites where practicable	@	V	V
S5.6.11 to	Use of “ Quiet ” Plant and Working Methods.	Reduce the noise	Contractor	All	V	N/A	N/A

EM&A Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concern to Address	Who to implement the measures?	Location of the measure	Implementation Status		
					Contract 1	Contract 2	Contract 3
S5.6.13		levels of plant items		construction sites where practicable			
S5.6.14	Install temporary site hoarding (approx 2.5m high) located on the site boundaries between noisy construction activities and NSRs. The conditions of the hoardings shall be properly maintained throughout the construction period.	Reduce the construction ion noise levels at low-level zone of NSRs through partial screening.	Contractor	All construction sites where practicable	V	V	V
S5.6.15 to S5.6.18	Install movable noise barriers, full enclosure and acoustic mat, screen the noisy plants including air compressor and generator.	Screen the noisy plant items to be used at all construction sites	Contractor	All construction ion sites where practicable	V	V	N/A
S5.6.19	Sequencing operation of construction plants equipment.	Operate sequentially within the same work site to reduce the construction airborne noise	Contractor	All construction ion sites where practicable	V	V	N/A
S5.6.34	Implement temporary noise barrier along Road L4.	Further reduce the construction ion airborne noise	Contractor	Road L4 of ARQ	N/A	N/A	N/A
S5.6.35	Implement a noise monitoring under EM&A programme.	Monitor the construction noise levels at the selected representative locations	Contractor	Selected Representative Noise monitoring stations	V	N/A	N/A
Water Quality Impact (Contraction Phase)							
S6.6.3	<u>Construction Runoff</u> In accordance with the Practice Note for Professional Persons on Construction ion Site Drainage, Environmental Protection Department, 1994 (ProPECC PN 1/94), best management practices should be implemented as far as practicable as below: <ul style="list-style-type: none"> At the start of site establishment, perimeter cut-off drains to direct off-site water around the site should be constructed with internal drainage works. Channels (both temporary and permanent drainage pipes and culverts), earth bunds or sand bag barriers should be provided on site to direct stormwater to silt removal facilities. Diversion of natural stormwater should be provided as far as possible. The design of temporary on-site drainage should prevent runoff going through site surface, construction machinery and equipment in order to avoid or 	Control construction runoff	Contractor	All construction sites	V	@	V

EM&A Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concern to Address	Who to implement the measures?	Location of the measure	Implementation Status		
					Contract 1	Contract 2	Contract 3
	<p>minimize polluted runoff. Sediment at ion tanks with sufficient capacity, constructed from preformed individual cells of approximately 6 to 8 m³ capacities, are recommended as a general mitigation measure which can be used for set t ling surface runoff prior to disposal. The system capacity shall be flexible and able to handle multiple inputs from a variety of sources and suited to applications where the influent is pumped.</p> <ul style="list-style-type: none"> The dikes or embankments for flood protect ion should be implemented around the boundaries of earthwork areas. Temporary ditches should be provided to facilitate the runoff discharge into an appropriate watercourse, through a silt /sediment t rap. The silt /sediment t raps should be incorporated in the permanent drainage channels to enhance deposit ion rates. The design of efficient silt removal facilities should be based on the guidelines in Appendix A1 of ProPECC PN 1/94. The detailed design of the sand/silt traps should be undertaken by the contractor prior to the commencement of construction ion. Construction works should be programmed to minimize surface excavation works during the rainy seasons (April to September). All exposed earth areas should be completed and vegetated as soon as possible after earthworks have been completed. 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. All drainage facilities and erosion and sediment control structures should be regularly inspected and maintained to ensure proper and efficient operation at all times and particularly following rainstorms. Deposited silt and grit 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 periods is necessary, it should be dug and backfilled in short sect ions wherever practicable. Water pumped out from trenches or foundation excavations should be discharged into storm drains via silt removal facilities. All open stockpiles of construction ion materials (for example, aggregates, sand and fill material) of should be covered with tarpaulin or similar fabric during rainstorms. Measures should be taken to prevent the washing away of construction ion materials, soil, silt or debris into any drainage system. Manholes (including newly constructed ones) should always be adequately covered and temporarily sealed so as to prevent silt, construction ion 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 year when rainstorms are likely, act ions to be taken when a rainstorm is imminent or forecasted, and act ions to 						

EM&A Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concern to Address	Who to implement the measures?	Location of the measure	Implementation Status		
					Contract 1	Contract 2	Contract 3
	<p>be taken during or after rainstorms are summarized in Appendix A2 of <i>ProPECC PN 1/94</i>. Particular attention should be paid to the control of silty surface runoff during storm events.</p> <ul style="list-style-type: none"> All vehicles and plant should be cleaned before leaving a construction ion 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 every construction ion site exit 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 sect ion of access road leading to, and exiting from, the wheel-wash bay to the public road should be paved with sufficient back all toward the wheel-wash bay to prevent vehicle tracking of soil and silty water to public roads and rains. Oil interceptors should be provided in the drainage system downstream of any oil/fuel pollution sources. The 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 the oil interceptors to prevent flushing during heavy rain. Construction ion solid waste, debris and rubbish on site should be collected, handled and disposed of properly to avoid water quality impacts. All fuel tanks and storage areas should be provided with locks and sited on sealed areas, within bun ds of a capacity equal to 110% of the storage capacity of the largest tank to prevent spilled fuel oils from reaching water sensitive receivers nearby. Regular environmental audit on the construction site should be carried out in order to prevent any malpractices. Not ices should be posted at conspicuous locations to remind the workers not to discharge any sewage or wastewater into the rivers. 						
S6.6.6 and 6.6.7	<p><u>Sewage from Workforce</u></p> <ul style="list-style-type: none"> Portable chemical toilets should be provided for handling the construction sewage generated by the workforce. Assume that the capacity of the chemical toilets would be 0.4m3 and suck up twice a day under normal practices, around 45 chemical toilets would be required for the whole site at peak hour. And it should be noted that under normal construction periods, less chemical toilets would be needed. In addition, the total number of the chemical toilets would be subject to later detailed design, the capacity of the chemical toilets, and contractor's site practices. Nevertheless, a licensed contractor should be employed to provide appropriate and adequate portable toilets to cater around 37.5 m3/day sewage and be responsible for appropriate disposal and maintenance. Since portable chemical toilets will be provided, no adverse water quality impact from the workforce sewage is anticipated. 	Handling of site sewage	Contractor	All construction sites	V	V	V

EM&A Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concern to Address	Who to implement the measures?	Location of the measure	Implementation Status		
					Contract 1	Contract 2	Contract 3
	<ul style="list-style-type: none"> Notices should be posted at conspicuous locations to remind the workers not to discharge any sewage or wastewater into the nearby environment during the construction ion phase of the Project . Regular environmental audit on the construction ion site should be conducted in order to provide an effective control of any malpractices and achieve continual improvement of environmental performance on site. It is anticipated that sewage generation during the construction phase of the Project would not cause water quality impact after undertaking all required measure 						
S6.6.8 and 6.6.9	<u>Accidental Spillage</u> To prevent accidental spillage of chemicals, proper storage and handling facilities should be provided. All the tanks, containers and storage area should be bunded and the locations should be locked as far as possible from the sensitive watercourse and storm drains. The Contractor is required to register as a chemical waste producer if chemical wastes would be generated from the construction ion activities. Storage of chemical waste arising from the construction ion activities should be well managed with suitable labels and warnings while disposal of those chemical wastes should be comply with the requirement states in Waste Disposal Ordinance (Cap 354) as well as Waste Disposal (Chemical Waste) (General) Regulations.	Prevention of accidental spillage	Contractor	All construction sites	@	V	V
S6.6.11-S6.6.14	<u>Groundwater from Contaminated Area</u> The Contractor should apply for a discharge licence under the WPCO through the Regional Office of EPD for groundwater discharge. Prior to the excavation works within these potentially contaminated areas, the groundwater quality should be reviewed during the process of discharge license application. The compliancy to the TM-DSS and the existence of prohibited substance should be confirmed after further SI. If the review results indicated that the groundwater to be generated from the excavation works would be contaminated, the contaminated groundwater should be either properly treated in compliance with TMDSS or properly recharged into the ground. If wastewater treatment is deployed, the wastewater treatment unit shall deploy suitable treatment process (e.g. oil interceptor / activated carbon) to reduce the pollution level to an acceptable standard and remove any prohibited substances (e.g. Petroleum Carbon Ranges (PCRs)). All treated effluent from wastewater treatment plant shall meet the requirements as stated in TM-DSS and should be discharged into the foul sewers. 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	Minimize contaminated groundwater impacts	Contractor	All construction sites	NA	NA	NA

EM&A Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concern to Address	Who to implement the measures?	Location of the measure	Implementation Status		
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	will not be affected by the recharge operation as indicated in the Section 2.3 of TM-DSS. 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 PCBs should be removed as necessary by installing the petrol interceptor.						
Waste Management (Construction Phase)							
S8.5.2	Good Site Practice The following good site practices are recommended throughout the construction activities: <ul style="list-style-type: none"> • nomination of an approved personnel, such as a site manager, to be responsible for the implementation of good site practices, arrangements for collection and effective disposal to an appropriate facility, of all wastes generated at the site; • training of site personnel in site cleanliness, appropriate waste management procedures and concepts of waste reduction, reuse and recycling; • provision of sufficient waste disposal points and regular collection for disposal; • appropriate measures to minimize windblown litter and dust during transportation of waste by either covering trucks or by transporting wastes in enclosed containers; • regular cleaning and maintenance programme for drainage systems, sumps and oil interceptors; 	Minimize waste generation during construction	Contractor	All construction sites	V	V	V
S8.5.2 (6)	The contractor should submit a Waste Management Plan (WMP) as part of the Environmental Management Plan (EMP) in accordance with the <i>ETWB TC(W) No. 19/2005</i> for construction phase. The EMP should be submitted to the Engineer for approval. Mitigation measures proposed in the EIA Report and the EM&A Manual should be adopted.	Minimize waste generation during construction	Contractor	All construction sites	V	V	V
S8.5.3	Waste Reduction Measures Waste reduction is best achieved at the planning and design phase, as well as by ensuring the implementation of good site practices. The following recommendations are proposed to achieve reduction: <ul style="list-style-type: none"> • segregate and store different types of waste in different containers, skip or stockpiles to enhance reuse or recycling of materials and their proper disposal; • proper storage and site practices to minimize the potential for damage and contamination of construction materials; • plan and stock construction materials carefully to minimize amount of 	Reduce waste generation	Contractor	All construction sites where practicable	V	V	V

EM&A Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concern to Address	Who to implement the measures?	Location of the measure	Implementation Status		
					Contract 1	Contract 2	Contract 3
	waste generated and avoid unnecessary generation of waste; <ul style="list-style-type: none"> sort out demolition debris and excavated materials from demolition works to recover reusable/recyclable portions (i.e. soil, broken concrete, metal etc.); provide training to workers on the importance of appropriate waste management procedures, including waste reduction, reuse and recycling. 						
S8.5.5	<u>Storage of Waste</u> The following recommendation should be implemented to minimize the impacts: <ul style="list-style-type: none"> waste such as soil should be handled and stored well to ensure secure containment; stockpiling area should be provided with covers and water spraying system to prevent materials from wind-blown or being washed away; different locations should be designated to stockpile each material to enhance reuse; 	Minimize waste impacts from storage	Contractor Contractor	All construction sites	V	V	V
S8.5.6	<u>Collection and Transportation of Waste</u> The following recommendation should be implemented to minimize the impacts: <ul style="list-style-type: none"> remove waste in timely manner; employ the trucks with cover or enclosed containers for waste transportation; obtain relevant waste disposal permits from the appropriate authorities; and disposal of waste should be done at licensed waste disposal facilities. 	Minimize waste impacts from storage	Contractor	All construction sites	V	V	V
S8.5.8	<u>Excavated and C&D Material</u> Wherever practicable, C&D materials should be segregated from other wastes to avoid contamination and ensure acceptability at public filling areas or reclamation sites. The following mitigation measures should be implemented in handling the excavated and C&D materials: <ul style="list-style-type: none"> maintain temporary stockpiles and reuse excavated fill material for backfilling; carry out on-site sorting; make provisions in the Contract documents to allow and promote the use of recycled aggregates where appropriate; implement a recording system for the amount of waste generated, recycled and disposed of for checking; The recommended C&D materials handling should include: <ul style="list-style-type: none"> On-site sorting of C&D materials Reuse of C&D materials Use of Standard Formwork and Planning of Construction Materials purchasing Provision of wheel wash facilities 	Minimize waste impacts from excavated and C&D materials	Contractor	All construction sites	V	V	V
S8.5.15	<u>Contaminated Soil</u> As a precaution, it is recommended that standard good site practice should be	Remediate contaminated soil	Contractor	All construction	V	V	N/A

EM&A Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concern to Address	Who to implement the measures?	Location of the measure	Implementation Status		
					Contract 1	Contract 2	Contract 3
	implemented during the construction phase to minimize any potential exposure to contaminated soils or groundwater. The details of mitigation measures to minimize the potential environmental implications arising from the handling of contaminated materials refer to Land Contamination Section.			sites where applicable			
S8.5.17	<u>Chemical Waste</u> <ul style="list-style-type: none"> If chemical wastes are produced at the construction site, the Contractors should register with EPD as chemical waste producer. Chemical wastes should be stored in appropriate containers and collected by a licensed chemical waste Contractor. Chemical wastes (e.g. spent lubricant oil) should be recycled at an appropriate facility as far as possible, while the chemical waste that cannot be recycled should be disposed of at either the Chemical Waste Treatment Centre, or another licensed facility, in accordance with the Waste Disposal (Chemical Waste) (General) Regulation. 	Control the chemical waste and ensure proper storage, handling and disposal.	Contractor	All construction sites	V	V	V
S8.5.18	<u>General Waste</u> <ul style="list-style-type: none"> General refuse should be stored in enclosed bins separately from construction and chemical wastes. Recycling bins should also be placed to encourage recycling. Preferably enclosed and covered areas should be provided for general refuse collection and routine cleaning for these areas should also be implemented to keep areas clean. A reputable waste collector should be employed to remove general refuse on a daily basis. 	Minimize production of the general refuse and avoid odour, pest and litter impacts	Contractor	All construction sites	V	V	V
S8.5.19	<u>Sewage</u> <ul style="list-style-type: none"> The WMP should document the locations and number of portable chemical toilets depending on the number of workers, land availability, site condition and activities. Regularly collection by licensed collectors should be arranged to minimize potential environmental impacts. 	Minimize production of sewage impacts	Contractor	All construction sites	V	V	V
Ecology (Contraction Phase)							
S. 10.7.2 to 10.7.6	Re-provision of Wooded Area for ecological function at the future Quarry Park.	Compensate for the loss of three woodland patches of a total area of about 1.13ha.	Contractor/ Detailed Design Consultant (qualified botanist / horticulturist / Certified Arborist to supervise the	Northern part of the proposed Quarry Park.	N/A	N/A	N/A

EM&A Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concern to Address	Who to implement the measures?	Location of the measure	Implementation Status		
					Contract 1	Contract 2	Contract 3
.10.7.10	<p>Construction phase in situ mitigation measures to minimize impacts on hydrological condition and water quality of hillside watercourses include:</p> <ul style="list-style-type: none"> • Temporary sewerage and drainage will be designed and installed to collect wastewater and prevent it from entering nearby watercourses; • Proper locations well away from nearby watercourses will be used for temporary storage of materials (i.e. equipment, fill materials, chemicals and fuel) and temporary stockpile of construction debris and spoil, and these will be identified before commencement of works; • To prevent muddy water entering nearby watercourses, work sites close to nearby watercourses will be isolated, using such items as sandbags or silt curtains with lead edge at bottom and properly supported props. Other protective measures will also be taken to ensure that no pollution or siltation occurs to the water gathering grounds of the works site; • Stockpiling of construction materials, if necessary, will be properly covered and located away from nearby watercourses; • Erection of temporary geotextile silt fences will be carried out around earth-moving works to trap any sediments and prevent them from entering watercourses; • Construction debris and spoil will be covered and/or properly disposed as soon as possible to avoid being washed into nearby watercourses; • Exposed soil will be covered as quickly as possible following formation works, followed, where appropriate, by covering with biodegradable geotextile blanket for erosion control purposes; • Where appropriate, earth-bundling will be carried out of areas where soils have been disturbed or where vegetation has been cleared, to ensure that surface runoff will not move soils off-site; • Construction effluent, site run-off and sewage will be properly collected and/or treated. Wastewater from any construction site will be minimised via the following in descending order: reuse, recycling and treatment; • Proper locations for discharge into lots of wastewater treatment facilities well away from sensitive receivers will be identified and used; • Silt traps will be installed at points where drainage from the site enters local watercourses; • Appropriate sanitary facilities for on-site workers will be provided; • The site boundary will be clearly marked and any works beyond the boundary strictly prohibited, and • Regular water monitoring and site audit will be carried out at suitable points. If the monitoring and audit results show that pollution occurs, adequate measures including temporary cessation of works will be considered. 	Minimize impacts on Hydrological condition and water quality of hillside watercourses.	Contractor	All construction sites	V	N/A	V
S.10.7.11	Implement an emergency contingency plan during the construction phase and the	Minimize impacts on	Contractor	All	N/A	N/A	N/A

EM&A Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concern to Address	Who to implement the measures?	Location of the measure	Implementation Status		
					Contract 1	Contract 2	Contract 3
	plan will include, but not be limited to, the following: <ul style="list-style-type: none"> • Potential emergency situations; • Chemicals or hazardous materials used on-site (and their location); • Emergency response team; • Emergency response procedures; • List of emergency telephone hot lines; • Locations and types of emergency response equipment , and • Training plan and testing for effectiveness. 	Hydrological condition and water quality of hillside watercourses.		construction sites			
Landscape and visual (Contraction Phase)							
S11.14.23 , Table 11.9, CM1 [4]	All existing trees to be retained shall be carefully protected during construction.	Avoid disturbance and protection of the existing trees	Detailed Design Consultant /	The whole project area where applicable	V	@	V
S11.14.23 , Table 11.9, CM2 [3]	Tree Transplantation - Should removal of trees be unavoidable due to construction impacts, trees will be transplanted or felled. Detailed transplanting proposal will be submit ted to relevant government departments for approval in accordance with <u>LAO GN No. 7/2007, ETWB TCW No. 29/2004 and 10/2013</u> . Final locations of transplanted trees shall be agreed prior to commencement of the work.	Minimize landscape impact and retention of landscape resources	Detailed Design Consultant /	Onsite where possible. Otherwise consider offsite locations	*	N/A	V
S11.14.23 , Table 11.9, CM3 [4]	Control of operation night -time glare with well-planned lighting operation system to minimize potential glare impact to adjacent VSRs	Minimize glare impact to adjacent VSRs	Contractor/ CEDD	The whole project area where applicable	V	V	V
S11.14.23 , Table 11.9, CM [4]	Erection of decorative screen hoarding.	Minimize visual impact	Contractor/ CEDD	The whole project area where applicable	N/A	N/A	N/A
S11.14.23 , Table 11.9, CM5 [2]	Minimise disturbance and limitation of run-off – temporary structures and construction works should be planned with care to minimize disturbance to adjacent landscape, vegetation, natural stream habitats.	Minimize visual impact	Contractor/ CEDD	The whole project area where applicable	V	V	V

Legend: V = implemented; x = not implemented; @ = partially implemented; * = pending to be implemented; N/A = not applicable

Appendix M

Complaint Log

Appendix M1

Cumulative Complaint and Summons/ prosecution

Reporting Month	Number of Complaints in Reporting Month	Number of Summons/ Prosecution in Reporting Month
March 2017	1	0
April 2017	0	0
May 2017	0	0
June 2017	2	0
July 2017	3	0
August 2017	3	0
September 2017	4	0
October 2017	2	0
November 2017	3	0
December 2017	3	0
January 2018	1	0
February 2018	4	0
March 2018	0	0
April 2018	1	0
May 2018	1	0
June 2018	1	0
July 2018	0	0
August 2018	1	0
September 2018	1	0
October 2018	1	0
November 2018	3	0
December 2018	2	0
January 2019	2	0
February 2019	3	0
March 2019	1	0
April 2019	0	0
May 2019	0	0
June 2019	1	0
July 2019	1	0
August 2019	1	0
September 2019	0	0
October 2019	1	0
November 2019	4	0
December 2019	0	0
January 2020	0	0
February 2020	0	0
March 2020	4	0
April 2020	1	0
May 2020	1	0
June 2020	1	0
July 2020	1	0
August 2020	0	0
September 2020	0	0
October 2020	0	0
November 2020	1	0
December 2020	2	0
Overall Total	62	0

Appendix M2 Complaint Log

Log ref.	Date of Complaint	Date of Received by ET	Complaint Location	Complainant	Complaint nature	Channel	Ref. no.	Complaint details	Follow up action	Status	Investigation Report Ref.
1	23-Mar-17	NA	Anderson Road Quarry site	Resident of On Tat Estate	Construction noise	SPRO hotline	NA	A resident living in On Tat House reported that some night works with noise and flashing caused nuisance to nearby resident after 11:00 pm on 23 March 2017.	According the incident report conducted by the CWSTVJV, demobilization of crawler crane was undertaken on 23 March 2017 11pm and it is TD requirement to carry out demobilization of heavy machine at nighttime. It is considered this complaint was a single incident and would not be happened again in future.	no comment by IEC on 11 Oct 2017	TCS00864/16/300/F0087
2	28-Jul-17	28-Jul-17	Anderson Road Quarry site	Resident of On Tat Estate	Construction noise	SPRO hotline	NA	Mr. Hsu received a complaint from a resident living in the flat on 38/F of Yin Tat House (賢達樓), On Tat Estate. The resident complained about the noise level of our works during daytime.	Noise monitoring by Contractor was conducted in Yin Tat House, On Tat Estate, at around 2 pm on 28-Jul-2017. Another noise monitoring was carried out by ET and representatives of AECOM and JV in the presence of the complainant in her flat at 10 am on 1-Aug-2017 and was witnessed by Mr. Hsu. No exceedance of noise was recorded. The complainant was satisfied about the monitoring results.	no comment by IEC on 9 Aug 2017	TCS00864/16/300/F0060
3	29-Aug-17	29-Aug-17	Anderson Road Quarry site	Resident of On Tat Estate	Construction noise	SPRO hotline	NA	Mr. Hsu Yau Wai reported that he received complaint from a resident (Ms Cheng) living at Shing Tat House 24/F Room 22 about the noise generated from our site this week. The noise heard was mainly rock breaking noise from our site.	Noise monitoring was carried out by ET and representatives of AECOM and JV in the presence of the complainant in her flat at 3pm on 30-Aug-2017. No exceedance of noise was recorded. The complainant was satisfied about the monitoring results.	no comment by IEC on 8 Sep 2017	TCS00864/16/300/F0081
4	21-Jun-17	29-Aug-17	Anderson Road Quarry site	Resident of Po Tat Estate	Construction noise	EPD	EPD (ref.N08/RE/00019373-17)	day time construction noise of breakers (8am to 6pm)	These two complaints were forwarded by CEDD to ET on 31 August 2017 which after the complaint dates. Investigation was conducted based on the site information by the Contractor of Contract 1 as well as the observation during weekly site inspection carried out ET during June 2017. In our investigation, CWSTVJV has implemented noise mitigation measures to reduce the noise impact to the nearby resident and the working hour 08:00 to 18:00 did not breach any legal requirement. To eliminate the inconvenience caused to the nearby resident CWSTVJV was advised to further enhance the noise mitigation measures as appropriately.	no comment by IEC on 3 Nov 2017	TCS00864/16/300/F0093
5	22-Jun-17	29-Aug-17	Anderson Road Quarry site	Resident of Po Tat Estate	Dust & Construction noise	EPD	EPD (ref. N08/RE/00019428-17)	Day time construction noise of breakers (8AM to 6PM). Requested to delay the operating hour of breakers to 10AM or 11AM			TCS00864/16/300/F0093
6	15-Jul-17	29-Aug-17	Anderson Road Quarry site	Resident of Po Tat Estate	Construction noise	EPD	EPD (ref.N08/RE/00022479-17)	Construction noise	CWSTVJV has implemented noise mitigation measures to reduce the noise impact to the nearby resident and the working hour 08:00 to 18:00 did not breach any legal requirement. To eliminate the inconvenience caused to the nearby resident, CWSTVJV was advised to further enhance the noise mitigation measures as appropriately.	no comment by IEC on 3 Nov 2017	TCS00864/16/300/F0094
7	28-Jul-17	29-Aug-17	Anderson Road Quarry site	unknown	Dust	EPD	EPD (ref.N08/RE/00023986-17)	Poor control on dust emission at Anderson Road Construction Site	CWSTVJV has implemented dust mitigation measures to eliminate the inconvenience caused to the nearby resident and status of the implementation of dust mitigation measures was considered effective based on the site observation.	no comment by IEC on 15 Nov 2017	TCS00864/16/300/F0097

Log ref.	Date of Complaint	Date of Received by ET	Complaint Location	Complainant	Complaint nature	Channel	Ref. no.	Complaint details	Follow up action	Status	Investigation Report Ref.
8	2-Aug-17	29-Aug-17	Anderson Road Quarry site	Resident of On Tat Estate	Construction noise	EPD	EPD (ref.N08/RE/00024557-17)	Day time construction noise of breakers (8AM to 6PM)	CWSTVJV has implemented noise mitigation measures to reduce the noise impact to the nearby resident. According to the impact noise monitoring result obtained in August 2017, there were no breaches of EM&A requirement. However, to eliminate the inconvenience caused to the nearby resident, CWSTVJV should further enhance the noise mitigation measures as appropriately. Since the works were carried out within the non-restricted hours, it is considered that the works under the project did not breach the Noise Control Ordinance.	no comment by IEC on 15 Nov 2017	TCS00864/16/300/F0098
9	19-Sep-17	19-Sep-17	Anderson Road Quarry site	Resident of Sau Mau Ping Estate	Construction noise	SPRO hotline	NA	The complainant is living at Sau Mau Ping Estate Sau Nga House 38/F. He complained about the noise nuisance recently from August to September especially during night time after 12:00 am, even in Saturdays and Sundays. The noise nuisance caused a great disturbance to him. He made a request to conduct investigation about the source of the noise during night time.	ET has conducted an ad-hoc noise measurement for Leq (30min) on the rooftop of 秀雅樓 and 秀義樓 in the afternoon of 22 September 2017. During the course of noise measurement, construction activities such as excavation and breaking were conducted in the Quarry Site. The measurement results taken at both 秀雅樓 and 秀義樓 were 63dB(A) which below the Limit Level under the EM&A Programme.	no comment by IEC on 18 Oct 2017	TCS00864/16/300/F0088
10	21-Sep-17	13-Oct-17	Anderson Road Quarry site	Resident of Sau Mau Ping Estate	Construction noise	EPD	EPD (ref.N08/RE/00031074-17)	On 21 September 2017, the same complaint further reported that the noise can be heard at both Sau Yee House and Sau Nga House even in daytime and he strongly requested the Contractor to follow up the case immediately.			TCS00864/16/300/F0088
11	27-Sep-17	13-Oct-17	Anderson Road Quarry site	Resident of On Tat Estate	Construction noise	EPD	EPD (ref.N08/RE/00029489-17)	The complainant questioned why there were 6 to 7 breakers operating in the morning but only 1 operating in the afternoon. He requested to shift the operation of the breakers to afternoon.	CWSTVJV has implemented noise mitigation measures to reduce the noise impact to the nearby resident. According to the impact noise monitoring result obtained in September and October 2017, there were no breaches of EM&A requirement. However, to eliminate the inconvenience caused to the nearby resident, CWSTVJV should properly maintain the noise mitigation measures as appropriate. Since the works were carried out within the non-restricted hours, it is considered that the works under the project did not breach the Noise Control Ordinance.	no comment by IEC on 30 Nov 2017	TCS00864/16/300/F0106
12	3-Oct-17	13-Oct-17	Anderson Road Quarry site	Resident of On Tat Estate	Construction noise	EPD	EPD (ref. N08/RE/00032407-17)	Day time construction noise, the complainant requested using less breaker at one time, erecting taller noise barrier to cover the equipment. In addition, the complainant would like to know the construction schedule whether there will be more breaking activities in near future			TCS00864/16/300/F0106
13	25-Oct-17	26-Oct-17	Anderson Road Quarry site	Resident of Po Tat Estate	Dust	EPD	NA	投訴安達臣道地盤的泥車落泥，令他達貴樓的住所受到大塵影響，要求跟進及回覆	Investigation revealed that CWSTVJV has implemented dust mitigation measures to eliminate the inconvenience caused to the nearby resident. Nevertheless, based on the observation during site inspection on 31 October 2017, CWSTVJV was advised to enhance the dust mitigation measures particularly during dry season.	no comment by IEC on 15 Nov 2017	TCS00864/16/300/F0100

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14	6-Nov-17	7-Nov-17	Anderson Road Quarry site	Resident of On Tat Estate	Noise	EPD	NA	安達邨後達樓居民投訴石礦場地盤又再於早上 07:45 開始傳出機器不停採石的噪音(幾乎每日在 08:00-19:00 進行工程),已持續一年,他全家人受到滋擾。	Ad-hoc noise measurement was conducted by ET at rooftop of Chun Tat House in the morning of 20 November 2017 and measurement result was below the Limit Level under the EM&A Programme. CWSTVJV has implemented noise mitigation measures to reduce the noise impact to the nearby resident. Since the works were carried out within the non-restricted hours, it is considered that the works under the project did not breach the Noise Control Ordinance.	no comment by IEC on 30 Nov 2017	TCS00864/16/3 00/F0109
15	13-Nov-17	14-Nov-17	Anderson Road Quarry site	Mr. Lam Wai	light pollution and noise	SPRO hotline	NA	1. 智泰樓面向安達臣地盤方向,有照射燈深夜時分仍然常開,影響居民正常睡眠質素,照成一定的精神壓力。 2. 隔音布未固定,大風吹過發出極大的聲浪	To ease the concern by the complaint, CWSTVJV has adjusted the lights to the orientation pointing the ground and that to minimise the nuisance. For the maintenance of noise barrier, CWSTVJV has immediately fixed the noise barrier nearest to On Tai Estate and prolonged the cover area of the noise barrier to reduce the noise impact to the public.	no comment by IEC on 24 Nov 2017	TCS00864/16/3 00/F0104
16	1-Nov-17	14-Nov-17	Anderson Road Quarry site	Resident of Po Tat Estate	Noise	EPD	NA	居住於安達邨誠達樓高層的投訴人投訴由早上八時半至下午六時聽到採鐵噪音。	CWSTVJV had already deployed the acoustic mat as noise barrier at the site boundary near Shing Tat House. To enhance the noise mitigation measures, CWSTVJV deployed an acoustic mat as noise barrier for the breaking work in order to reduce construction noise affecting the upper floor of On Tat Estate.	no comment by IEC on 13 Dec 2017	TCS00864/16/3 00/F0110
17	25-Aug-17	26-Oct-17	Anderson Road Quarry site	Resident of Sau Mau Ping Estate	Construction Noise	EPD	EPD (ref.N08/RE/00027 738-17)	Night time construction noise of hammering (around 12AM)	It is confirmed by CWSTVJV and checked against the site diary that no construction activities were carried out after 19:00 at the subject site. Therefore, the complaint about noise nuisance during night time should not be related to the Project.	no comment by IEC on 14 Dec 2017	TCS00864/16/3 00/F0114
18	12-Sep-17	26-Oct-17	Anderson Road Quarry site	Resident of On Tat Estate	Construction Noise	EPD	EPD (ref. N08/RE/0 0029489-17)	Day time construction noise of breakers (8AM to 5PM)	Noise mitigation measures were implemented to reduce the noise impact to the nearby resident. According to the impact noise monitoring result in September 2017, there were no breaches of EM&A requirement. Since the works were carried out within the non-restricted hours, it is considered that the works under the project did not breach the Noise Control Ordinance.	no comment by IEC on 10 Jan 2018	TCS00864/16/3 00/F0117
19	15-Dec-17	21-Dec-17	Anderson Road Quarry site	Resident of Sau Mau Ping Estate	Construction Noise	EPD	NA	Resident of Sau Yee House complained suspected construction noise from Anderson Construction Site at restricted hour (7pm to 7am).	It is confirmed by CWSTVJV and checked against the site diary that no construction activities were carried out after 19:00 at the subject site. Therefore, the complaint about noise nuisance during night time should not be related to the Project.	no comment by IEC on 10 Jan 2018	TCS00864/16/3 00/F0118
20	20-Dec-17	21-Dec-17	Anderson Road Quarry site	Resident of On Tat Estate	Dust	EPD	NA	投訴安達臣道信和地盤水車已經壞了十多天,一直無灑水,四周非常大塵。投訴人住於安達邨,投訴安達臣道石礦場有大地盤,地盤大車工作時間不停出入揚起沙塵,吹到安達邨,影響空氣環境,要求部門到場視察。	CWSTVJV has implemented dust mitigation measures to eliminate the inconvenience caused to the nearby resident. It is considered that the complaint was an isolated case due to malfunction of water tanker and CWSTVJV has promptly rectified the deficiency. As advised by CWSTVJV, another water tanker will be deployed in mid-January 2018 to enhance the dust suppression measures throughout the construction site.	no comment by IEC on 25 Jan 2018	TCS00864/16/3 00/F0121
21	28-Dec-17	10-Jan-18	Anderson Road Quarry site	Resident of Sau Mau Ping Estate	Construction Noise	CE's office	NA	日間及凌晨均聽到轟隆聲的噪音及震動,懷疑是由附近工程引起	ET has conducted an ad-hoc noise measurement for Leq (30min) in the complainant's flat in the monitoring of 17 January 2018. It was noted that the complainant's flat is not in direct line of sight to the Anderson Road Quarry Site. The measurement noise	no comment by IEC on 8 Feb 2018	TCS00864/16/3 00/F0129

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									result was below the Limit Level under the EM&A Programme. Moreover, it is confirmed by CWSTVJV and checked against the site diary that no construction activities were carried out during restricted hour at the subject site. Therefore, the complaint about noise nuisance during restricted hour should not be related to the Project.		
22	15-Jan-18	15-Jan-18	Anderson Road Quarry site	Resident of Chun Tat House of On Tat Estate, 40/F	Construction Noise	SPRO mobile	NA	She is irritated by the construction noise of breaking rock for a long time and strongly requested to know exactly when will be the completion date of the breaking rock part of works opposite to Chun Tat House. She said we should do more on the mitigation measures because our site is very close to the residents nearby.	CWSTVJV has implemented noise mitigation measures to reduce the noise impact to the nearby resident. According to the impact noise monitoring result obtained in January 2018, there were no breaches of EM&A requirement. However, to eliminate the inconvenience caused to the nearby resident, CWSTVJV should properly maintain the noise mitigation measures as appropriate. Since the works were carried out within the non-restricted hours, it is considered that the works under the project did not breach the Noise Control Ordinance.	no comment by IEC on 8 Feb 2018	TCS00864/16/300/F0130
23	1-Feb-18	2-Feb-18	Anderson Road Quarry site	Resident of On Tai Estate (referred by Mr. Lam Wai)	Construction Noise	SPRO hotline	NA	"智泰對出，白天噪音過大，可否加裝隔音板？高層受影響"	The Environmental Team has conducted an ad-hoc noise measurement for Leq(30min) at the corridor of 22/F of Chi Tai House on 2 February 2018 facing the construction site. The measurement noise result was 65dB(A) which below the Limit Level under the EM&A Programme. In our investigation, CWSTVJV has implemented noise mitigation measures to reduce the noise impact to the nearby resident. According to the impact noise monitoring result obtained in January 2018, there were no breaches of EM&A requirement.	no comment by IEC on 22 Feb 2018	TCS00864/16/300/F0137
24	1-Feb-18	2-Feb-18	Anderson Road Quarry site	Resident of Shing Tat House (referred by Mr. Hsu Yau Wai)	Construction Noise	SPRO hotline	NA	Mr. Hsu reported that some disturbing noise was heard after 6:00 pm from the site near Shing Tat House of On Tat Estate.	AECOM has liaised with Mr. Hsu on 2 February 2018 for the complaint matter and he reported to AECOM that the noise was generated until 7:00 pm on 1 February 2018. 3. As advised by Contractor of Contract 1, breaking works at USRT area which opposite to Shing Tat House was only carried out from 8:00 to 18:00. However, rock breaking at System A was extended to 19:00 on 1 February 2018. As noise mitigation measures, noise barriers were erected for the works area. Further to the complaint case, CWSTVJV would seek for other quiet work method such as using drilling machine to reduce noise level and speed up the rock breaking process, so that to reduce the noise intensity level and the duration of exposure.	no comment by IEC on 28 Feb 2018	TCS00864/16/300/F0140
25	28-Feb-18	28-Feb-18	Anderson Road Quarry site	Resident of Shing Tat House	Construction Noise	EPD	NA	安達邨誠達樓居民，投訴人是返夜班，一年半以來長期受對出地盤日間掘石仔噪音滋擾，由於單位與地盤太近，堅持環保署跟進及回覆如何處理及減低噪音，他亦要求知道何日完工。	Breaking works at Underground Stormwater Retention Tank area which opposite to Shing Tat House was carried out from 8:00 to 18:00. The Contractor has implemented noise mitigation measures to reduce the noise impact to the nearby resident. It was advised that the rock breaking works shall tentatively be completed by end of April and it is believe that the noise impact should be minimized. Since the works were carried out within the non-restricted hours and noise monitoring noise were within acceptable level, it is considered that the works under the project did not breach the Noise Control Ordinance.	no comment by IEC on 19 Mar 2018	TCS00864/16/300/F0143

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26	11-Apr-18	12-Apr-18	Anderson Road Quarry site	Resident of HimTat House	Construction Noise	SPRO Hotline	NA	Mr. Hui Yau Wai reported that the noise irritation was becoming more severe recently and asked about the completion date of the works close to Him Tat House. The resident suspected that the noise comes from piling works nearby.	In our investigation, since construction noise was generating from other construction site next to Him Tat House, it is considered that the complaint is due to cumulative noise generated by both construction sites. However, CWSTVJV should properly provide the noise mitigation measures at works area in System B to minimize the noise impact to the resident nearby. As advised by CWSTVJV on 20 April 2018, noise barrier was being erected at works area in System B as noise mitigation measures. According to the site photo, it is considered that the coverage of noise barrier is not sufficient and CWSTVJV should enhance the measure as far as practicable. The implementation of noise mitigation measures will be kept in view in subsequent site inspection.	no comment by IEC on 7 May 2018	TCS00864/16/300/F0160b
27	25-Apr-18	7-May-18	Junction of Hiu Kwong Street and Hiu Ming Street	A school but name of school not disclosed	Construction Noise	EPD	NA	This case is considered as an enquiry and no investigation is required under the EM&A Programme.		NA	NA
28	18-May-18	24-May-18	Anderson Road Quarry Site	Undisclosed	Construction Noise	EPD	NA	投訴人指安達臣道石礦場地盤 (NE/2016/01) 在入夜 19:00 後仍見到有長臂喉工程車在運作，及持續產生大噪音及閃燈，非常擾民。	As advised by CWSTVJV and confirmed by RE/AECOM, there were no construction activities carried out after 19:00 and concreting was completed before 19:00. It is concluded that the retracting process is not a general construction work using Powered Mechanical Equipment and complaint was an isolated case due to misunderstanding of the site operation. To prevent similar incidents in future, CWSTVJV has recommended several mitigation measures.	no comment by IEC on 30 July 2018	TCS00864/16/300/F0174b
29	25-Jun-18	19-Jul-18	Pedestrian Connectively E8 under Contract 3	Kwun Tong DC member Ms. So Lai-chun	Waste Management	CEDD	NA	A public complaint was referred from CEDD on 4 July 2018 regarding accumulation of dead leaves and branches found at slope (GLA-TNK 2458) near Hiu Yuk Path on 25 June 2018. The complainant requested the relevant department to clear the leaves and branch asap	CW-CMGC-JV has immediately clear the dead leaves and maintain the site cleanliness. Since the construction work has not yet commenced and the dead leaves and overgrown branches were not related project works, it is considered that the complaint is not valid the project.	no comment by IEC on 24 Sep 2018	TCS00864/16/300/F0189b
30	22-Aug-18	29-Aug-18	Hong Wah Court	Resident of Hong Wah Court	Construction Noise	1823 Hotline	NA	投訴人指馬游塘區堆填區往將軍澳方向行車入口因配合項目需要而進行移除山坡工程，但其鑽地鑿石的噪音嚴重影響藍田康雅苑*居民，要求有關部門跟進。 *註：投訴人於 2018 年 8 月 27 日更正指受影響屋苑應為藍田康華苑。	to reduce the inconvenience caused to the nearby resident, Kwan On should properly maintain the noise mitigation measures as appropriate, such as maintain good site practice including intermittent use of machine and plant and Sequencing operation of construction plant equipment. Since the works were carried out within the non-restricted hours, it is considered that the works under the project did not breach the Noise Control Ordinance.	no comment by IEC on 7 Sep 2018	TCS00864/16/300/F0196a

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31	26-Feb-18	31-Jul-18	Anderson Road Quarry Site	Undisclosed	Construction Noise	EPD	NA	安達邨誠達樓後面地盤，2月26日晚，晚上7時後，還在落石屎，相片拍攝時間大概晚上9時半，一直至晚上十一時五十分還有工程車在地盤行駛。影響居民休息。	According to the site diary which countersigned by RE, there was no concreting work carried out after 18:00 and the construction activities conducted during restricted hours with valid CNP were completed at 23:00. It is considered that the complaint was not valid to the Project. Nevertheless, CWSTVJV was reminded that in case of any work activities need to be carried out during restricted hours, CWSTVJV should strictly follow the requirements specified in the valid CNP.	no comment by IEC on 10 Oct 2018	TCS00864/16/300/F0197a
32	6-Sep-18	7-Sep-18	Tsui Yeung House	Resident of Tsui Yeung House	Construction Noise	Verbal	NA	Mr. CHENG Keung-fung complained that the contractor has conducted the noisy works such as rock excavation beyond the normal hours.	Kwan On has implemented noise mitigation measures to reduce the noise impact to the nearby resident. As advised by Kwan On, the rock breaking works shall tentatively be completed by end of December 2018 and the mitigation measures will implemented continuously during slope construction work and the slope construction will be carried out within the working hours at Portion 2. Since the works were carried out within the non-restricted hours, it is considered that the works under the project did not breach the Noise Control Ordinance.	no comment by IEC on 22 Oct 2018	TCS00864/16/300/F0201
33	24-Oct-18	25-Oct-18	E3	Kwun Tong DC member Ms. So Lai-chun	Construction Noise	Whatsapp Message	NA	KTDC member, Ms. Ann So, complaining the noise of the breaker at E3	As advised by the Contractor, the acoustic material wrapped on the breaker was worn-out on 24 October 2018 and replacement of new acoustic materials has been installed on the breaker immediately on 25 October 2018. The rock breaking works shall tentatively be completed to the road level in the middle of November 2018 and the mitigation measures will implemented continuously during slope construction work and the slope construction will be carried out within the working hours at Portion 2. It is considered the complaint was an isolate case.	no comment by IEC on 23 Nov 2018	TCS00864/16/300/F0209a
34	12-Nov-18	13-Nov-18	Anderson Road Quarry Site	Resident of Ching Tat House (referred by Mr. Hui Yau Wai)	Construction Noise	SPRO Hotline	NA	Mr. Hui reported that he received complaint from a resident living in Ching Tat House about noise nuisance recently. Mr. Hui asked if project team can arrange some noise monitoring to check the noise level at the concerned flat or the same level at Ching Tat House.	The SPRO contacted Mr. Hui and explained to him about the purpose and benefits of the tunnel to the residents nearby and the expected date of completion of the tunnel will be earlier than 2020. Moreover, the noise mitigation measures had implemented to reduce the noise level effectively and the work progress will be closely updated to nearby stakeholders to enhance communication. Mr. Hui satisfied with the reply from SPRO and he agreed that the proposed noise monitoring in Ching Tat House was not needed. Since the works were conducted within approved normal hours with implementation of noise mitigation measures, there were no breaches of legislative requirement.	no comment by IEC on 12 Dec 2018	TCS00864/16/300/F0222a
35	14-Nov-18	14-Nov-18	Anderson Road Quarry Site	Undisclosed	Light and Noise	EPD	NA	凌晨1時，地盤仍有大光燈正射民居和機器移動聲音，影響附近居民睡眠及違反環保條例。	CWSTVJV immediately adjusted the angle and brightness of the lighting to minimize the nuisance to the resident nearby. In response to the complaint, CWSTVJV immediate carried out remedial action to minimize the nuisance to the public. It was considered that complaint for noise generated by machine moving was an isolated case. CWSTVJV was reminded to closely monitor the plant use and sequence of night work and do not to violate CNP conditions.	no comment by IEC on 3 Jan 2019	TCS00864/16/300/F0223a

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36	13-Nov-18	14-Nov-18	Anderson Road Quarry Site	Undisclosed	Noise and dust	1823	NA	Complainant requested to postpone the starting time of construction work at project site and also to solve the problem of construction noise and dust.	In our investigation, acoustic barrier and site hoarding were in place along the works area. No noticeable noise and dust impact was observed during the site inspection. As advised by CWSTVJV, the normal working hour of the construction site is 8am to 6pm and there were no violation of the relevant regulations. The senior public relation officer contacted the complainant Ms. Ma on 26 November 2018 to explain the site situation and she was satisfied with the reply. Investigation Report has been completed by ET without comment from IEC.	no comment by IEC on 18 Feb 2019	TCS00864/16/300/F0224
37	9-Dec-18	12-Dec-18	Anderson Road Quarry Site	Undisclosed	Construction noise	1823	2-4927907305	1823 has referred a case to CEDD on 10 December 2018, which the complainant complained that construction noise was generated from project site on Sunday and was affecting the resident at Hau Tat House, On Tat Estate. The complainant requested follow up action from related department as soon as possible.	In our investigation based on the information provided by CWSTVJV, there was no site activities undertaken at site access road as concerned by the complainant. The construction work carried out on Sunday was fully compliance with the CNP requirement. In response to the complaint, CWSTVJV was reminded to closely monitor the plant use and sequence of night work and do not to violate CNP conditions.	no comment by IEC on 10 Jan 2019	TCS00864/16/300/F0230a
38	19-Dec-18	27-Dec-18	Anderson Road Quarry Site	Undisclosed	Construction noise	1823	2-4948074127	1823 has referred a case to CEDD on 27 December 2018, which the complainant complained that noise barriers near the round-about at On Sau Road were not enough, and construction noise generated from the project site was affecting the resident at Ming Tai House, On Tai Estate. The complainant requested follow up actions from related department as soon as possible.	Joint site inspection was carried out on 3 January 2019 the status of implemented mitigation measures provided by CWSTVJV was inspected. It was observed that noise mitigation measures including temporary noise barrier, acoustic mat and wrapped by acoustic materials are implemented on site. However, CWSTVJV was advised to extend the coverage of noise barrier as far as practicable and fully enclose the concerned works area which has been completed on 15 January 2019. Since the works were carried out within the non-restricted hours, it is considered that the works under the project did not breach the Noise Control Ordinance.	no comment by IEC on 31 Jan 2019	TCS00864/16/300/F0237a
39	24-Jan-19	29-Jan-19	Anderson Road Quarry Site	Undisclosed	wastewater	Referred from DSD	NA	DSD has referred a case to CEDD on 24 January 2019 regarding suspended illegal discharge of cementitious slurry from construction site of Development of ARQ Site to nearby Public Stormwater Drainage System.	In our investigation, the concerned catchpit and U-channel mainly received the runoff from Po Lam Road as well as the discharge from the Anderson Road Quarry Site. It is suspected that the mud and silt found on the downstream has been accumulated over time particularly by rainstorm as well as routine discharge from construction site. As remedial action, CWSTVJV immediately clean the affected area where accessible. Nevertheless, in order to protection the watercourse at downstream of the construction site, CWSTVJV has some enhancement measures.	no comment by IEC on 29 Mar 2019	TCS00864/16/300/F0248a
40	30-Jan-19	30-Jan-19	Anderson Road Quarry Site	Undisclosed	noise	SPRO hotline	NA	A public complaint was received by SPRO hotline on 30 January 2019 regarding the construction noise near Ma Yau Tong Village and requested to add noise barrier as soon as possible.	In our investigation, CWSTVJV had provided the noise mitigation measures to minimize the noise impact to the resident nearby. The impact monitoring result obtained at Ma Yau Tong Village revealed that the construction noise were within acceptable level. Since the works were conducted within approved normal hours with implementation of noise and dust mitigation measures, there were no breaches of legislative requirement.	no comment by IEC on 15 Mar 2019	TCS00864/16/300/F0249a

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41	15-Feb-19	25-Feb-19	Anderson Road Quarry Site	Undisclosed	noise	1823	2-4948074127	1823 has referred a case to CEDD on 15 February 2019, which the complainant complained about the construction noise generated from the CEDD site near 法源寺 (Ma Yau Tong Village). The complainant requested for the details of works and the completion date, the complainant also requested CEDD to use other construction methods in order to re	In response to the complainant, CWSTVJV has proposed alternative quiet work method to alleviate the noise impact to the public. They will schedule the noisy activities to be carried out after 10am as far as practicable to minimize the impact to resident nearby, given that not affecting the site progress. Moreover, the coverage of acoustic barriers will be extended in view of the works programme.	no comment by IEC on 29 Mar 2019	TCS00864/16/300/F0251a
42	21-Feb-19	25-Feb-19	Anderson Road Quarry Site	Undisclosed	noise	EPD	NA	The resident from Sau Hong House complained that the noise from the Anderson Road Quarry construction site has gotten worse. In addition, sometimes even after midnight there are noise coming from the site. With the echo produces from the environment, this is not helping at all. Really a big disturbance to the residence in the area. The complainant suspecting the sound proof measure has lessen as time goes. Follow action is requested.	In our investigation, CWSTVJV has implemented noise mitigation measures to reduce the noise impact to the nearby resident. However, to eliminate the inconvenience caused to the nearby resident, CWSTVJV should properly maintain the noise mitigation measures as appropriate, such as maintain good site practices such as intermittent use of machine and plant and Sequencing operation of construction plant equipment. Since the works were carried out within the non-restricted hours, it is considered that the works under the project did not breach the Noise Control Ordinance. erway by ET.	no comment by IEC on 28 Mar 2019	TCS00864/16/300/F0250
43	21-Feb-19	26-Feb-19	Anderson Road Quarry Site	Undisclosed	noise	received by DEVB and referred to CEDD	NA	A public complaint was received by DEVB and referred to CEDD on 25 February 2019 regarding on the noise generated from the construction works of the Anderson Road Quarry Site affecting a local resident residing at the Anderson Road Squatter Area	Additional acoustic mat has been erected in front of the Squatter Area to minimize the noise impact. Noise mitigation measures such as acoustic barriers erected along the works area and breaker head wrapped with acoustic material were implemented continually. Alternative quiet work method was adopted such as drilling the hard rock before the breaking work to reduce the breaking duration. In our investigation, CWSTVJV had enhanced the noise mitigation measures to ease the complainant's concerns. CWSTVJV will continually implement the noise mitigation measures to reduce to noise impact to the public.	no comment by IEC on 29 Mar 2019	TCS00864/16/300/F0252a
44	1-Mar-19	26-Feb-19	E3 of Contract 2	Undisclosed	noise	CEDD	NA	A complaint is forwarded by CEDD which was received by KTDC member Mr CHENG Keung Fung from the residents of Tsui Yeung House(翠楊樓) about the noise nuisance generated and the working time up to 7:00 pm from the rock excavation of E3 lift tower. Follow up action is requested.	The representative of the engineering team explained to Mr. Cheng about the project's details and concerned site was being constructed for the future pedestrian connection facilities. The related stone drilling process is expected to be completed in mid-April to end of April 2019. Mr. Cheng was satisfied with the rapid response from CEDD and the engineering team. In our investigation, Kwan On has implemented noise mitigation measures to reduce the noise impact to the nearby resident. Since the works were carried out within the non-restricted hours, it is considered that the works under the project did not breach the Noise Control Ordinance.	no comment by IEC on 6 May 2019	TCS00864/16/300/F0264

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45	16-Jun-19	18-Jun-19	Anderson Road Quarry Site	Undisclosed	noise	EPD	NA	EPD referred a case to CEDD on 17 June 2019 regarding the construction noise heard at On Tat Estate on Sunday.	The Contractor explained that general cleaning by water jet was carried out in the construction site on the concerned day. Since the work did not involve the use of Powered Mechanical Equipment (PME), it would not violate the noise control ordinance.	no comment by IEC on 21 August 2019	TCS00864/16/300/F0301a
46	12-Jul-19	15-Jul-19	Anderson Road Quarry Site	Undisclosed	dust	EPD	NA	On 12 July 2019, a complaint was received by EPD regarding the dust impact to the residents at Po Tat Estate and On Tat Estate due to the dust emission at Anderson Road Quarry site.	In our investigation, CWSTVJV has implemented dust mitigation measures to eliminate the inconvenience caused to the nearby resident and status of implementation of dust mitigation measures was considered effective based on the site observation. Moreover, there was mostly rainy day throughout June and July 2019 in typical rainy season in Hong Kong and the dust impact was considered not significant in addition to the dust mitigation measures implemented provided by the Contractor. Nevertheless, the ET will closely monitor the environmental performance and dust mitigation measures in subsequent site inspection.	no comment by IEC on 12 August 2019	TCS00864/16/300/F0292b
47	6-Aug-19	14-Aug-19	Work Area Portion 2 E3 (Slope of Hiu Ming Street opposite of Tsui Yeung House)	翠屏 (北) 邨物業服務辦事處	Noise	1823	NA	A public complaint was received by 1823 on 6 August 2019 relating to the noise generated from construction work at the lift tower site (Slope E3) at Hui Ming Street from the residents of Tsui Yeung House. The complainant expressed that the construction works has been undertaken for 2 years and generated construction noise from 8am every day, which causing serious nuisance to the nearby residents.	In our investigation, Kwan On has implemented noise mitigation measures to reduce the noise impact to the nearby resident. Nevertheless, since the construction site is close to the residential area, adequate noise mitigation measures shall be provided to reduce to noise nuisance to the public. It is concluded that the complaint was valid to the contract. As the works were carried out within the non-restricted hours, it is considered that the works under the contract did not breach the Noise Control Ordinance.	no comment by IEC on 16 Sep 2019	TCS00864/16/300/F0310a
48	15-Oct-19	18-Oct-19	Work Area Portion 6 (Tseung Kwan O Tunnel Bus-Bus Interchange Pedestrian Connectivity Facilities E12)	Mr. Ng	Noise	1823	NA	A public complaint was received by 1823 on 15 October 2019 relating to the noise generated from construction work at Tseung Kwan O Tunnel Bus to Bus Interchange Pedestrian Connectivity Facilities E12. The complainant expressed that the construction noise was generated from breaking work at 8:20 am without noise mitigation measure, which causing nuisance to the nearby residents.	In our investigation, Kwan On has implemented noise mitigation measures to reduce the noise impact to the nearby resident. Nevertheless, since the construction site is close to the residential area, adequate noise mitigation measures shall be provided to reduce to noise nuisance to the public. As the works were carried out within the non-restricted hours, it is considered that the works under the contract did not breach the Noise Control Ordinance. Kwan On was reminded to implement the mitigation measures as far as practicable as recommended in the EM&A Programme.	no comment by IEC on 13 Nov 2019	TCS00864/16/300/F0326a

Log ref.	Date of Complaint	Date of Received by ET	Complaint Location	Complainant	Complaint nature	Channel	Ref. no.	Complaint details	Follow up action	Status	Investigation Report Ref.
49	5-Nov-19	11-Nov-19	Work Area Portion 2&3 (lift tower construction work at Hiu Kwong Street)	NA	Noise	EPD	NA	A public complaint was received by EPD relating to the noise generated from breaking work of lift tower construction work at Hiu Kwong Street (Portion 2&3).	In our investigation, Kwan On has implemented noise mitigation measures to reduce the noise impact to the nearby resident. Nevertheless, since the construction site is close to the residential area, adequate noise mitigation measures shall be provided to reduce to noise nuisance to the public. As the works were carried out within the non-restricted hours, it is considered that the works under the contract did not breach the Noise Control Ordinance. Kwan On was reminded to implement the mitigation measures as far as practicable as recommended in the EM&A Programme.	no comment by IEC on 27 Dec 2019	TCS00864/16/300/F0332a
50	7-Nov-19	11-Nov-19	Work Area Portion 6	Mr. Cheng	Noise	EPD	NA	寶達邨居民鄭先生，表示將軍澳隧道出口工程，日間噪音嚴重，8:30-17:00，幾部幾同時開動，而且無防音欄，之前是有，現要求環保署向對方反映改善	In our investigation, Kwan On has implemented noise mitigation measures to reduce the noise impact to the nearby resident. Nevertheless, since the construction site is close to the residential area, adequate noise mitigation measures shall be provided to reduce to noise nuisance to the public. As the works were carried out within the non-restricted hours, it is considered that the works under the contract did not breach the Noise Control Ordinance. Kwan On was reminded to implement the mitigation measures as far as practicable as recommended in the EM&A Programme.	no comment by IEC on 27 Dec 2019	TCS00864/16/300/F0333a
51	10-Nov-19	12-Nov-19	Underpass	Resident of Ma Yau Tong Village	Noise	EPD	NA	<p>On 10 November 2019 投訴人為馬游塘村居民，自本年初寶林路開展掘隧道工程，每天噪音不斷，由8至6，由於欠缺遮擋，聲音直向4至22號村屋，將來通車，相信噪音不只8-6，現懇請環保署為本村居民正式評估，並向政府提出村民困擾，考慮盡快設置隔音屏。</p> <p>On 11 November 2019 寶琳路近馬游塘村開掘隧道的工程地盤每日 8am-6pm 發出噪音，欠缺遮擋，聲音影響馬游塘村 4-22 號村屋。希望政府部門</p> <p>1.調查地盤有否違規 2.實施減音措施以減低對附近居民的滋擾</p>	In our investigation, CWSTVJV had implemented the noise mitigation measures to reduce to noise impact to the public. Since the works were conducted within approved normal hours with implementation of noise mitigation measures, there were no violation of legislative requirement. For the complainant's concern on the operation noise after commencement of the project, it is out of the scope of the EM&A programme and the relevant department will follow up the concern.	no comment by IEC on 30 Dec 2019	TCS00864/16/300/F0337a
52	11-Nov-19	20-Nov-19	Construction site near on Tai Estate Ancillary Facilities Building on On Sau Road	Mr. Wong (resident of Yung Tai House of On Tai Estate)	Noise	1823	ref. 2-597630 3183	黃先生投訴安秀道安泰邨服務設施大樓附近掘路工程已持續數年還未完成，並投訴其經常發出噪音滋擾，要求部門跟進。 On 22 November 2019, the project hotline received a call from the same complainant reported on the noise nuisance near On Sau Road and On	In our investigation, CWSTVJV had implemented the noise mitigation measures to reduce to noise impact to the public. However, in response to the complaint, the Contractor was advised to enhance the performance of the temporary noise barriers such as increase the coverage of the noise barrier. Since the works were conducted within normal working hours with implementation of noise mitigation measures, there were no breaches of legislative requirement.	no comment by IEC on 27 Dec 2019	TCS00864/16/300/F0338a

Log ref.	Date of Complaint	Date of Received by ET	Complaint Location	Complainant	Complaint nature	Channel	Ref. no.	Complaint details	Follow up action	Status	Investigation Report Ref.
								Yan Street. He suggested to speed up the noise making works by intensely concentrate the excavation works during day time. No intermittence is suggested in order to speed up the works and to avoid waste of manpower.			
53	5-Mar-20	6-Mar-20	Tunnel work of Anderson Road Quarry Site (the Underpass)	Resident of On Tat Estate	Noise	EPD	NA	本人是安達邨居民，隧道工程在安達臣的工程，施工至今嘈音間中改善，最近又有嘈音出現，仲係重低音，希望能加裝隔音設備，工程不知何時將嘈音減至最低。1. A public complaint was received by EPD on 5 March 2020 regarding the construction noise generated from the tunnel work of the subject site. The complainant mentioned that the noise from construction was improved before but it became serious recently.	In our investigation, CWSTVJV had implemented the noise mitigation measures to reduce to noise impact to the public. In response to the complaint, CWSTVJV had immediately installed a layer of acoustic mat at boundary of System A. Since the works were conducted within approved normal hours with implementation of noise mitigation measures, there were no violation of legislative requirement.	no comment by IEC on 1 Apr 2020	TCS00864/16/300/F0357a
54	4-Mar-20	17-Mar-20	Near Hiu Ming Street Playground (E8)	Undisclosed	Noise	1823	ref. 3-628323 7171	投訴人投訴有關秀茂坪邨秀安樓附近兩個地盤，地盤由星期一至五，每天早上約 9AM-5 PM 持續不斷發出強烈的嘈音，投訴人表示地盤是在曉明街藍球場旁邊的位置(投訴人未能告知確實街號)，因此要求部門盡快回覆及告知有關情況。A public complaint was received by 1823 on 4 March 2020 regarding the construction noise. The complainant mentioned that there were two construction sites near Hiu Ming Street Playground generated construction noise continuously during 9AM to 5PM on weekdays.	In our investigation, CW-CMGCJV had implemented the noise mitigation measures for the works at upper section of E8 near Hiu Yuk Path and no noise impact was observed and anticipated in Hiu Ming Street based on the site activities and our inspection record. It is considered that the complaint is likely related to another construction site located near Hiu Ming Street Playground and not caused by the works under the Project. Since the works were conducted within approved normal hours with implementation of noise mitigation measures, there were no violation of legislative requirement.	no comment by IEC on 15 Apr 2020	TCS00864/16/300/F0359a
55	23-Mar-20	23-Mar-20	Near Lin Tak Road (E11)	Undisclosed	Water Quality	Project hotline	NA	藍田居民梁先生反映在將軍澳道往連德道天橋的大彎位，其中有一個車輛出入口每日早上八時左右不時有泥水從地盤流出路面，估計泥水是清洗工程車輛所致，令梁先生的車輛每次駛經時被濺濕及弄污，請問有何措施改善問題？A public complaint was received by project hotline on 23 March 2020 regarding	In our investigation, the wheel washing facilities at site exit of E11 is one of the dust quality mitigation measures conducted by CW-CMGCJV and corresponding measure was implemented to prevent overflow of wastewater out of the site. In our recent site inspection, no outflow of muddy water from the site was observed and the condition of concerned Lin Tak Road was satisfactory. It is considered that the complaint was unlikely due to the project.	no comment by IEC on 15 Apr 2020	TCS00864/16/300/F0360a

Log ref.	Date of Complaint	Date of Received by ET	Complaint Location	Complainant	Complaint nature	Channel	Ref. no.	Complaint details	Follow up action	Status	Investigation Report Ref.
								overflow of muddy water from the construction site. The complainant mentioned that muddy water came out from site entrance, which spotted on his car, at 8am every morning.			
56	17-Mar-20	19-Mar-20	Anderson Road Quarry Site	Resident of Yan Tat House	Noise	Project hotline	NA	<p>許有為區議員接獲安達邨仁達樓2613室居民反映，安達臣道石礦場發展用地工程噪音持續兩年，要求工程團隊下周派員到有關單位視察，並採取可行的噪音緩解措施。許有為區議員要求陪同視察。 A public complaint was received by hotline on 17 March 2020 regarding the construction noise generated from the Anderson Road Quarry Site. The complainant mentioned that the construction noise generated from the Anderson Road Quarry Site had been continued for two years.</p>	In our investigation, CW-CMGCJV has implemented noise mitigation measures to reduce the noise impact and nuisance to the public. However, to eliminate the inconvenience caused to the nearby residents, CW-CMGCJV was advised to further adopt good practices on mitigating construction noise to reduce the noise impact to the nearby residents. Since the works were carried out within the non-restricted hours, it is considered that the works under the contract did not breach the Noise Control Ordinance. Nevertheless, as the construction site is close to the residential area, CW-CMGCJV was reminded to implement the mitigation measures as far as practicable as recommended in the EM&A Programme	no comment by IEC on 11 May 2020	TCS00864/16/300/F0361a
57	1-Apr-20	20-Apr-20	Work Area Portion 2	Undisclosed	Noise	1823	NA	<p>觀塘秀茂坪紀念公園傍及曉明街的地盤，共兩個地盤，是地政總署管轄的。投訴人表示已被工程噪音滋擾了兩年多；另外投訴人得知完工時間要到2021年，投訴人不明白為何工程頭尾要3年多時間。要求地政總署直接以電郵回覆工程長的原因及有沒有措施解決地盤發出的噪音。 A public complaint was received by 1823 on 1 April 2020 and subsequently transmitted to Environmental Team (ET) on 20 April 2020, regarding the noise nuisance generated from the construction site in Hui Ming Street. The complainant concerned about the slow progress and implementation of noise mitigation measures to alleviate the noise impact arising from the construction work.</p>	In our investigation, Kwan On has implemented noise mitigation measures to reduce the noise impact to the nearby resident. Nevertheless, since the construction site is close to the residential area, adequate noise mitigation measures shall be provided to reduce to noise nuisance to the public. It is concluded that the complaint was valid to the contract. However, as the works were carried out within the non-restricted hours, it is considered that the works under the contract did not breach the Noise Control Ordinance. Kwan On was reminded to implement the mitigation measures as far as practicable as recommended in the EM&A Programme.	no comment by IEC on 7 May 2020	TCS00864/16/300/F0366a

Log ref.	Date of Complaint	Date of Received by ET	Complaint Location	Complainant	Complaint nature	Channel	Ref. no.	Complaint details	Follow up action	Status	Investigation Report Ref.
58	11-May-20	12-May-20	Work Area Portion 2	Undisclosed	Noise	Project hotline	NA	陳先生住於翠楊樓 17 樓，投訴對面鑽石工程產生噪音對母親健康構成影響，現查詢完工日期、噪音監控標準及措施。 A public complaint was received by Project Hotline on 11 May 2020 regarding the noise generated from rock breaking work from a construction site opposite to Tsui Yeung House, which affecting his mother ' s health. The complainant enquired about the completion date of construction work, construction noise level standard and implementation of noise mitigation measures on site.	In our investigation, Kwan On has enhanced the noise mitigation measures to reduce the noise impact to the nearby resident. Based on the noise measurement result, the construction noise was reduced to acceptable level after the additional noise mitigation measures in place. Nevertheless, Kwan On was reminded to continually implement the noise mitigation measures as far as practicable in the remaining work. The performance of noise mitigation measures will keep in view by ET in subsequent site inspection	no comment by IEC on 28 May 2020	TCS00864/16/300/F0370a
59	18-Jun-20	23-Jun-20	System B	Undisclosed	Noise	EPD	NA	A public complaint was received by EPD on 18 June 2020 regarding the noise generated from rock breaking by machinery after 6pm from construction site near Hau Tat House. The complainant understood that the Contractor could carry out construction works, other than percussive piling, before 7pm under the CNP and hoped that the Contractor could arrange the noisy construction works to be carried out before 6pm. According to the information provided by the complainant, it is suspected complaint location would be Anderson Road Quarry Site, System B.	In our investigation, the Contractor has implemented noise mitigation measures to reduce the noise impact and nuisance to the public. Since the works were carried out within the non-restricted hours, it is considered that the works under the contract did not breach the Noise Control Ordinance. Nevertheless, as the construction site is close to the residential area, the Contractor was reminded to implement the mitigation measures as far as practicable as recommended in the EM&A Programme	no comment by IEC on 17 July 2020	TCS00864/16/300/F0391a
60	23-Jul-20	24-Jul-20	Anderson Road Quarry Site near On Tat Estate	Undisclosed	Noise	EPD	NA	A public complaint was received by EPD on 23 July 2020 regarding the construction noise generated from the use of PME at Anderson Road Quarry Site near On Tat Estate at 6:30am (restricted hours). He/ she requested relevant department to follow up.	In our investigation, CWSTVJV had restricted the use of PME before 7am. There was no construction work and use of PME during the restricted hours. Since the works were conducted within approved normal hours with implementation of noise mitigation measures, there were no violation of legislative requirement. Nevertheless, as the construction site is close to the residential area, CWSTVJV was reminded to implement the mitigation measures as far as practicable as recommended in the EM&A Programme	no comment by IEC on 25 August 2020	TCS00864/16/300/F0401

Log ref.	Date of Complaint	Date of Received by ET	Complaint Location	Complainant	Complaint nature	Channel	Ref. no.	Complaint details	Follow up action	Status	Investigation Report Ref.
61	14-Nov-20	18-Nov-20	Near Hiu Ming Street Playground (E8)	Undisclosed	Noise	1823	NA	A public complaint was received by 1823 on 14 November 2020 regarding the construction noise. The complainant mentioned that there was piling works at Hiu Ming Street Playground, generating huge noise during 9AM to 10AM on 14 November 2020. He/she requested relevant department to follow up	In our investigation, there was no noise impact was observed and anticipated in Hiu Ming Street based on the site activities and our inspection record. Since the works were conducted within approved normal hours with implementation of noise mitigation measures, there were no violation of legislative requirement	no comment by IEC on 4 January 2021	TCS00864/16/300/F0424
62	4-Dec-20	7-Dec-20	Opposite to On Tai Estate – lower portion of Road L4	Undisclosed	Dust	EPD	NA	A public complaint was received by EPD on 4 December 2020 regarding the dust impact. The complainant mentioned that the construction site opposite to On Tai Estate had dust emission problem due to lack of water spraying. He/she requested relevant department to follow up	In our investigation, CWSTVJV has implemented dust mitigation measures to eliminate the inconvenience caused to the nearby resident. In view of the potential traffic dust impact and implementation of dust mitigation measures, it is considered that the complaint was not valid to the Project	no comment by IEC on 4 January 2021	TCS00864/16/300/F0434
63	3-Dec-20	7-Dec-20	Ma Yau Tong Village (East Portal)	Undisclosed	Noise and dust	1823 & EPD	3-657414 1017	A public complaint was received by 1823 and EPD on 14 November 2020 regarding the construction dust and noise impact arising from the project. There were acoustic mats erected on the slope of East Portal, however, the complainant enquired about effectiveness of the noise barriers with dozens of 15 cm "X"-shaped cuts. Moreover, there was lack of water sprinkling on the site and fugitive dust was blowing to the village	In our investigation, CWSTVJV had provided the dust and noise mitigation measures to minimize the dust and noise impact to the resident nearby. To response the concern from the complainant, as enhancement noise measure, the Contractor extended the noise barrier to encircle noisy activity. Since the works were conducted within approved normal hours with implementation of noise and dust mitigation measures, there were no breaches of legislative requirement	no comment by IEC on 4 January 2021	TCS00864/16/300/F0435

Fax Cover Sheet

To **Mr. Tommy Li**

Fax No **By e-mail**

Company **AECOM**

cc

From **Nicola Hon**

Date **15 December 2020**

Our Ref TCS00864/16/300/**F0434**

No of Pages 7 (Incl. cover sheet)

**RE CEDD Service Contract No. NTE/07/2016
Environmental Team for Development of Anderson Road Quarry Site –
Site Formation and Associated Infrastructure Works
Investigation Report for Dust Complaint Opposite to On Tai Estate**

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Dear Sir,

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Yours Faithfully,
For and on Behalf of
Action-United Environmental Services & Consulting

And

Nicola Hon
Environmental Consultant

Encl.

EPD
EPD
CEDD
ANewR (IEC)

Ms. Hsu Ping Ping, Alice
Mr. Paul Wong
Mr. Kelvin Leung (Ch Eng/E2)
Mr. Adi Lee

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CEDD Service Contract No. NTE/07/2016
Environmental Team for Development of Anderson Road Quarry Site –
Site Formation and Associated Infrastructure Works

Investigation Report on Environmental Complaint / Enquires

Complaint Log No.	NTE/07/2016 – 61
Received Date by ET	7 December 2020
Related Contracts	Contract 1 (NE/2016/01)
Complaint Details	投訴位於安達臣道安泰邨對面屬於俊和的地盤因沒有灑水，導致沙塵滾滾，嚴重污染環境。
Complaint Location	Opposite to On Tai Estate – lower portion of Road L4
Date of Complaint	4 December 2020
Environmental Aspect	Dust
Complainant	Undisclosed
Complaint Route	referred by EPD
Investigation Result	<ol style="list-style-type: none"> 1. A public complaint was referred by EPD on 4 December 2020 regarding the dust impact. The complainant mentioned that the construction site opposite to On Tai Estate had dust emission problem due to lack of water spraying. He/she requested relevant department to follow up. The site layout and complaint location are shown in Figure 1. 2. As advised by the Contractor of Contract 1 - NE/2016/01 (CWSTVJV), site activities on 4 December 2020 at lower portion of Road L4 included breaking work and excavation. Dust mitigation measure such as water spraying was provided for all the dusty activities. 3. Joint site inspection among the AECOM, CW-CMGCJV and Environmental Team (ET) was carried out on 10 December 2020 for complaint investigation. Observations during site investigation are summarised as follows. <ol style="list-style-type: none"> (a) The construction site opposite to On Tai Estate was Lower Portion of Road L4. (Photo 1) (b) As dust mitigation measures, water spraying was provided for breaking and excavation works. (Photos 2 & 3) (c) Hoarding was erected along the site boundary to avoid dispersion of construction dust out of working areas. (Photo 4) (d) On Sau Road is located adjacent to construction site and On Tai Estate, fugitive dust generated by road traffic was anticipated as localized dust impact. (Photo 5) (e) Moreover, as dust control, the haul roads over the site were sprayed continuously by two water bowsers and water sprinklers. The route of water bowsers along the site are shown in Figure 2. 4. There are two air quality monitoring stations AMS2 (Ground of Fung Tai House of On Tai Estate) and AMS3 (Ground of Planned Clinic and Community Centre facing Anderson Road (Ancillary Facilities Building) for the Contract. According to the 1-hour

CEDD Service Contract No. NTE/07/2016
Environmental Team for Development of Anderson Road Quarry Site –
Site Formation and Associated Infrastructure Works

Investigation Report on Environmental Complaint / Enquires

	<p>TSP monitoring results obtained in November and December 2020, all the monitoring results were fell within the Action Level (319 $\mu\text{g}/\text{m}^3$) and Limit Level (500 $\mu\text{g}/\text{m}^3$), which revealed that the dust impact received by representative NSR were within acceptable level. The relevant air quality monitoring result is shown in <i>Appendix A</i>.</p> <p>5. In our investigation, CWSTVJV has implemented dust mitigation measures to eliminate the inconvenience caused to the nearby resident. In view of the potential traffic dust impact and implementation of dust mitigation measures, it is considered that the complaint was not valid to the Project.</p> <p>6. Nevertheless, the subject site of the project is close to the residential area, CWSTVJV was reminded to implement the dust mitigation measures as far as practicable as recommended in the EM&A Programme. The ET will closely monitor the environmental performance and dust mitigation measures in subsequent site inspection.</p>
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Prepared By : Nicola Hon




Designation : Environmental Consultant

Signature :



Date : 15 December 2020

Photo Record

 <p>On Tai Estate</p> <p>Lower Portion of Road L4</p> <p>10.12.2020</p>	
<p>Photo 1</p> <p>The construction site opposite to On Tai Estate was Lower Portion of Road L4.</p>	<p>Photo 2</p> <p>As dust mitigation measures, water spraying was provided for breaking and excavation works.</p>
 <p>10.12.2020</p>	 <p>10.12.2020</p>
<p>Photo 3</p> <p>As dust mitigation measures, water spraying was provided for breaking and excavation works.</p>	<p>Photo 4</p> <p>Hoarding was erected along the site boundary to avoid dispersion of construction dust out of working areas.</p>
 <p>10.12.2020</p>	
<p>Photo 5</p> <p>On Sau Road is located adjacent to construction site and On Tai Estate, fugitive dust generated by road traffic was anticipated as localized dust impact.</p>	

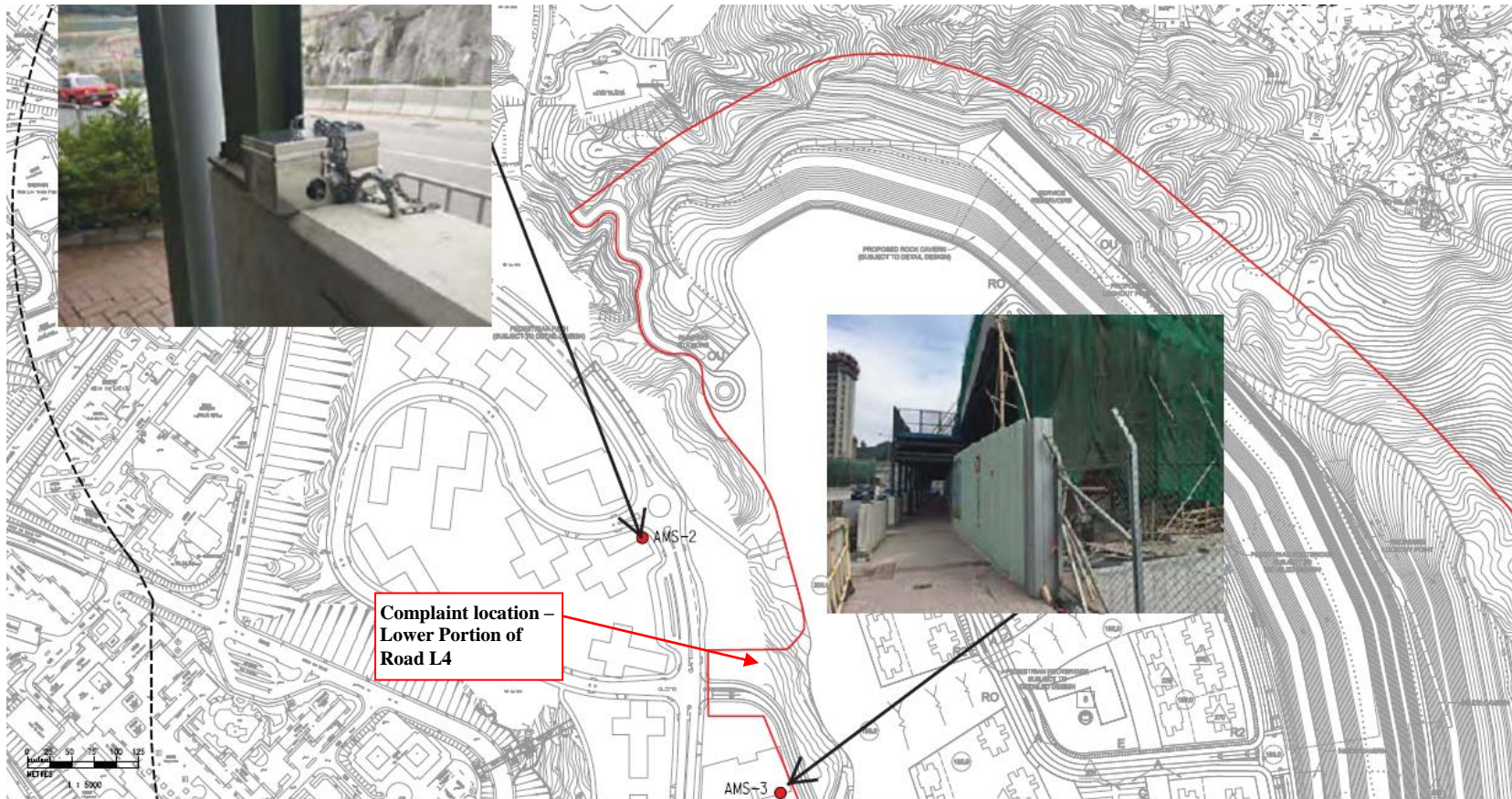


Figure 1 The Layout of NE/2016/01 and the Complaint Location



Figure 2 The Route of Water Bowsers Along the Site

Appendix A

Table 1 Summary of Construction 1-Hour TSP Monitoring Results

AMS2, 1-hour TSP ($\mu\text{g}/\text{m}^3$) Measurement				
Date	Time	1st hour	2nd hour	3rd hour
3-Nov-20	9:18	83	84	82
9-Nov-20	9:06	82	79	78
14-Nov-20	9:41	75	79	75
20-Nov-20	9:10	74	76	80
26-Nov-20	9:15	78	76	71
2-Dec-20	9:24	68	77	72
8-Dec-20	9:41	74	76	72
Action Level	319	Limit Level		500

Table 2 Summary of Construction 1-Hour TSP Monitoring Results

AMS3, 1-hour TSP ($\mu\text{g}/\text{m}^3$) Measurement				
Date	Time	1st hour	2nd hour	3rd hour
3-Nov-20	9:30	82	79	76
9-Nov-20	12:15	72	77	70
14-Nov-20	12:50	83	88	86
20-Nov-20	12:20	80	85	82
26-Nov-20	12:18	83	83	85
2-Dec-20	12:58	75	82	79
8-Dec-20	13:06	78	81	87
Action Level	319	Limit Level		500

To **Mr. Tommy Li**

Fax No

By e-mail

Company **AECOM**

cc

From **Nicola Hon**

Date

15 December 2020

Our Ref **TCS00864/16/300/F0435**

No of Pages

7

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RE

CEDD Service Contract No. NTE/07/2016

Environmental Team for Development of Anderson Road Quarry Site –

Site Formation and Associated Infrastructure Works

Investigation Report for Noise and Dust Complaint at Ma Yau Tong Village

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Nicola Hon

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ANewR (IEC)

Mr. Adi Lee

By e-mail

CEDD Service Contract No. NTE/07/2016
Environmental Team for Development of Anderson Road Quarry Site –
Site Formation and Associated Infrastructure Works

Investigation Report on Environmental Complaint / Enquires

Complaint Log No.	NTE/07/2016 – 62
Received Date by ET	7 December 2020
Related Contracts	Contract 1 (NE/2016/01)
Complaint Details	投訴人投訴寶琳路在安達臣道路口的對面，土木工程拓展署在進行建築工程，工地近斜坡面對村的部分位置，使用了隔音布設立了隔音屏障，但是隔音布被整齊地切割了幾十個約 15 厘米「X」形的切口。請問這樣被切割了的隔音布，在隔除噪音方面還有用嗎？地盤缺乏灑水，經常有大量泥塵吹入村內。
Complaint Location	Ma Yau Tong Village (East Portal)
Date of Complaint	3 December 2020
Environmental Aspect	Noise and Dust
Complainant	Villager
Complaint Route	received by 1823 (case number: 3-6574141017) and referred by EPD
Investigation Result	<ol style="list-style-type: none"> 1. A public complaint was received by 1823 on 3 December 2020 and subsequently referred by EPD on 4 December 2020 regarding the construction dust and noise impact arising from the project. There were acoustic mats erected on the slope of East Portal, however, the complainant enquired about effectiveness of the noise barriers with dozens of 15 cm "X"-shaped cuts. Moreover, there was lack of water sprinkling on the site and fugitive dust was blowing to the village. The site layout and complaint location are shown in <i>Figure 1</i>. 2. As advised by the Contractor of Contract 1 - NE/2016/01 (CWSTVJV), the major construction activities included rock excavation through drilling/ breaking. As the noise mitigation measure, the noise barriers were provided along the works area. 3. Joint site inspection among the AECOM, CWSTVJV and Environmental Team (ET) was carried out on 10 December 2020 for complaint investigation. The observations during the site inspection are summarized in below: <ol style="list-style-type: none"> (a) Hoarding was erected along the site boundary to avoid dispersion of construction dust out of working areas. Moreover, acoustic mats were erected at location facing the Ma Yau Tong. (<i>Photo 1</i>) (b) The head of the breaker was wrapped with acoustic material to minimize noise impact. (<i>Photo 2</i>) (c) Exposed slope was covered with tarpaulin sheets to reduce dust impact. (<i>Photo 3</i>) (d) Water spraying was provided for dusty activities to reduce dust impact. (<i>Photo 4</i>) (e) As enhancement noise measure, the Contractor extended the noise barrier to encircle noisy activity. (<i>Photo 5</i>)

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	<p>(f) CWSTVJV explained that to strike a balance between the public safety and noise control they cut part of the acoustic mats in "V"-shaped as a relieve to the wind-blown pressure in order to minimize risk and disturbance to road users.</p> <p>(g) Moreover, as dust control, the haul roads over the site were sprayed continuously by two water bowsers and water sprinklers. The route of water bowsers along the site are shown in <i>Figure 2</i>.</p> <p>4. There are one air quality monitoring station AMS7 (Ma Yau Tong Village) and one noise monitoring station NMS8 (No.3-4 Ma Yau Tong Village) near the East portal. According to the impact noise and air monitoring results obtained in November and December 2020 to dated, all the monitoring results were fell within the Limit Level, which revealed that the construction noise and dust received at representative NSR and ASR were within acceptable level. The relevant noise and air monitoring result is shown in <i>Appendix A</i>.</p> <p>5. In our investigation, CWSTVJV had provided the dust and noise mitigation measures to minimize the dust and noise impact to the resident nearby. To response the concern from the complainant, as enhancement noise measure, the Contractor extended the noise barrier to encircle noisy activity. Since the works were conducted within approved normal hours with implementation of noise and dust mitigation measures, there were no breaches of legislative requirement.</p>
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Prepared By : Nicola Hon

Designation : Environmental Consultant

Signature :



Date : 15 December 2020

Photo Record



Photo 1

Hoarding was erected along the site boundary to avoid dispersion of construction dust out of working areas. Moreover, acoustic mats were erected at location facing the Ma Yau Tong.



Photo 2

The head of the breaker was wrapped with acoustic material to minimize noise impact.



Photo 3

Exposed slope was covered with tarpaulin sheets to reduce dust impact.

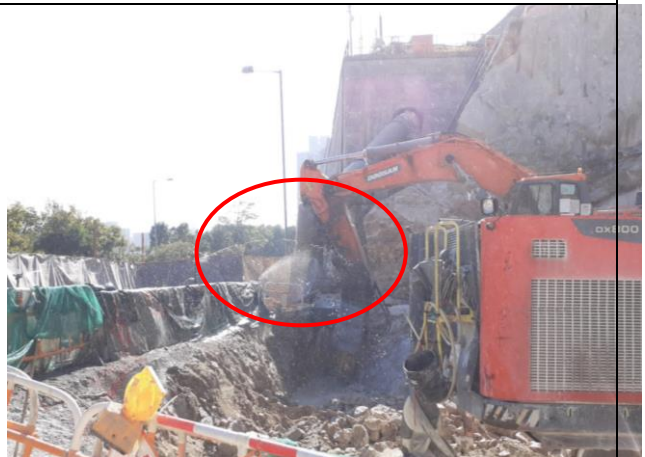


Photo 4

Water spraying was provided for dusty activities to reduce dust impact.



Photo 5

The Contractor extended the noise barrier to encircle noisy activity.

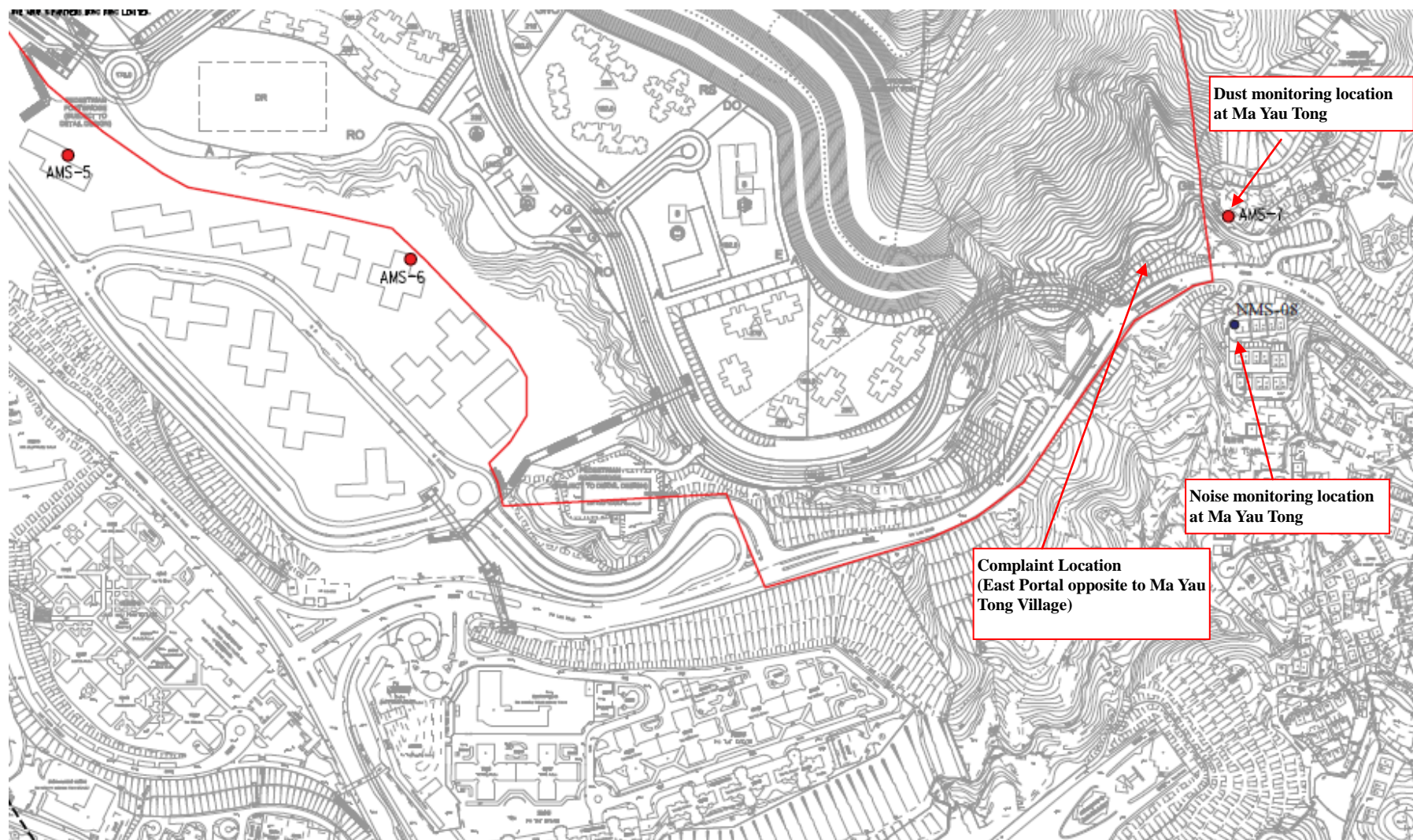


Figure 1 The Layout of NE/2016/01 and the Complaint Location



Figure 2 The Route of Water Bowsers Along the Site

Appendix A

Table 1 Summary of Construction Noise Monitoring Results

Construction Noise Level ($L_{eq30min}$), dB(A)		
Date	Time	NMS8
6-Nov-20	14:09	63
12-Nov-20	16:09	59
18-Nov-20	10:11	60
24-Nov-20	16:27	62
30-Nov-20	11:45	61
2-Dec-20	14:04	66
8-Dec-20	13:41	65
Limit Level	75 dB(A)	

Table 2 Summary of 24 hour TSP Monitoring Results

Impact 24-hour TSP Result, ($\mu\text{g}/\text{m}^3$)	
Date	AMS7
2-Nov-20	72
7-Nov-20	113
13-Nov-20	96
19-Nov-20	51
25-Nov-20	57
1-Dec-20	56
7-Dec-20	95
Limit Level	260 ($\mu\text{g}/\text{m}^3$)

Table 3 Summary of 1- hour TSP Monitoring Results

Impact 1-hour TSP for AMS7 ($\mu\text{g}/\text{m}^3$)				
Date	Time	1 st hour	2 nd hour	3 rd hour
3-Nov-20	13:41	79	82	88
9-Nov-20	12:48	73	73	75
14-Nov-20	13:21	82	85	88
20-Nov-20	13:11	82	77	74
26-Nov-20	12:53	81	80	80
2-Dec-20	13:57	77	86	89
8-Dec-20	13:34	69	71	75
Limit Level	500 ($\mu\text{g}/\text{m}^3$)			

Appendix N

Implementation Status for Water Quality Mitigation Measures

Water Quality Mitigation Measure



Paving for exposed slope to reduce dust dispersion & mitigate the silty runoff generation at SYSTEM A.



Impermeable cover for slope at PTT.



Q1. Wastewater treatment facility 30 cu.m Sedimentation Tank + AquaSed of 15 cu.m per hour



Q4. Wastewater treatment facility Temporary Water Reservoir 150 cu.m + AquaSed of 60 cu.m per hour



Q6: Wastewater treatment facility 24 cu. m.



Q7. Wastewater treatment facility 30 cu.m Sedimentation Tank + AquaSed of 60 cu.m per hour



Q9. Two nos. of 30 cu.m Sedimentation Tank + AquaSed of 60 cu.m per hour