



Sai O Trunk Sewer Sewage Pumping Station

Construction Noise Management Plan

February 2022 (Rev. 7)

Report for : Light Time Investments Limited

Report No. : 0185/21/ED/0242g

Date : 14 February 2022

Prepared by : K.W Cheng (MHKIOA)

Certified by :  (MHKIOA)

Ref.: SHKSOSPSEM00_0_0021L.22

14 February 2022

By Fax (2827 0485) and By Post

Sun Hung Kai Properties Ltd.
42/F., Sun Hung Kai Centre
30 Harbour Road, Wan Chai, Hong Kong

Attention: Mr. Sunny Cheung

Dear Sir,

**Re: Sai O Trunk Sewer Sewage Pumping Station
Environmental Permit No. EP-597/2021
Construction Noise Management Plan (0185/21/ED/0242g)**

Reference is made to the Environmental Team's submission of the Construction Noise Management Plan (0185/21/ED/0242g) certified by the ET Leader (ET's ref.: "MCL/ED/0054/2022/C") provided to us via e-mail on 14 February 2022.

We are pleased to inform you that we have no further comments on the captioned submission. We write to verify the captioned submission in accordance with Condition 2.8 of EP-597/2021 for the captioned project.

Thank you very much for your attention and please feel free to contact the undersigned should you require further information.

Yours sincerely,
For and on behalf of
Ramboll Hong Kong Ltd.



Y H Hui
Independent Environmental Checker

c.c.	AECOM	Mr. Janice Tam / Mr. CK Man	(By Fax: 3894 5801)
	Fugro	Mr. Calvin Leung	(By Fax: 2450 6138)
	SGJV	Mr. Eddie Tse	(By Fax: 3894 5801)

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Date 14 February 2022

Our Ref. MCL/ED/0054/2022/C

The EIA Ordinance Register Office,
Environmental Protection Department,
27/F, Southorn Centre,
130 Hennessy Road, Wan Chai, Hong Kong
Attn: Ms. CHEUNG Wai Yan, Louisa

BY HAND & E-MAIL

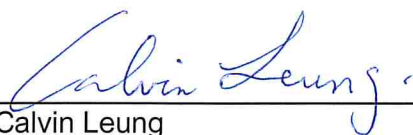
Dear Ms. Cheung,

Sai O Trunk Sewer Sewage Pumping Station**Environmental Permit: EP-597/2021****Submission of Construction Noise Management Plan (0185/21/ED/0242g)**

Pursuant to EP-597/2021 Condition 2.8, we hereby submit 3 hard copies and 1 e-copy of the Construction Noise Management Plan (0185/21/ED/0242g) for your approval. This Plan has been certified by ETL and verified by IEC accordingly.

Thank you for your kind attention, should you require further information, please do not hesitate to contact the undersigned at 3565 4441.

Yours faithfully,
for and on behalf of
Fugro Technical Services Limited



Calvin Leung
Environmental Team Leader

c.c. AECOM
Ramboll
SGJV

Ms. Janice Tam / Mr. CK Man (By email)
Mr. Y.H Hui (By email)
Mr. Ray Lo / Mr. Eddie Tse (By email)

Contents

	Page
1.0 Introduction.....	1
2.0 Construction Noise Management Plan	1
2.1 Noise Sensitive Receivers & Statutory Noise Limits	1
2.2 Construction Plant Inventory	1
2.3 Construction Noise Calculations.....	2
2.4 Noise Mitigation Measures	10
2.5 Construction Noise Levels & Compliance Status	12
3.0 Conclusion	12

Tables

Table 1	Critical Noise Sensitive Receivers & Statutory Noise Limits
Table 2	Construction Plant Inventory
Table 3	Construction Noise Calculations (Mitigated)
Table 4	Predicted Monthly Construction Noise Levels (Mitigated)
Table 5	Summary of Proposed Noise Mitigation Measures
Table 6	Implementation Schedule of Noise Mitigation Measures
Table 7	Summary of Predicted Construction Noise Levels

Figures

Figure 1	Location Plan of the Construction Site & the Noise Sensitive Receivers within the 300m Noise Study Boundary
Figure 2	Location Plan of the Noise Sensitive Receivers & Notional Source Positions
Figure 3	Alignment of the Site Boundary Hoarding as Noise Barrier for the Neighbouring Critical NSRs
Figure 4	Typical NSR and Noise Barrier Arrangement

Appendices

Appendix I	Confirmation on the Practicality of the Plant Inventory by the Resident Engineer (Mr. C.K. Man)
Appendix II	Cumulative Construction Noise Impact from the EIA Report
Appendix III	Examination Timetable in May 2022 at HKBTS

1.0 Introduction

This project refers to the construction of the Sai O Trunk Sewer Sewage Pumping Station located at Nai Chung. Preparation of a Construction Noise Management Plan (CNMP) for this contract is required in fulfilment of the associated Environmental Permit No. EP-597/2021, Part C, Condition 2.8.

The CNMP under this report applies to all the critical construction activities which are involved in a number of stages including the site clearance, excavation, foundation and superstructure construction as well as E&M installations and finally the subsequent landscaping works throughout the whole construction period. Particular attention shall be paid to the concurrent neighbouring school activities during the school examination time during which the contract is to be executed.

2.0 Construction Noise Management Plan

2.1 Noise Sensitive Receivers & Statutory Noise Limits

A total of 5 critical noise sensitive receivers (NSRs) have been identified as shown in Figure 2 and **Table 1** below. They are particularly within the 300 m distance from the site boundary as delineated in Figure 1.

Table 1 Critical Noise Sensitive Receivers & Statutory Noise Limits

Designation	Premises	Noise Limit in L_{eq} (30 min), dB(A)	Remarks
N1a	Hong Kong Baptist Theological Seminary - Staff & Students' Quarters	75	-
N1b	Hong Kong Baptist Theological Seminary - Staff & Students' Quarters	75	-
N2	Hong Kong Baptist Theological Seminary - Administration & Education Block	70 or 65 (during examination)	-
N4	Block 11, Symphony Bay Villa Concerto	75	-
N5	Zessa Vista	75	Village Houses at Nai Chung & "Village Type Development" Zone under the Draft Ma On Shan OZP No.S/MOS/23

2.2 Construction Plant Inventory

Table 2 below gives the construction plant inventory to be adopted for the 7 activities over the whole construction period. This inventory stands for the updated plant collections upon the latest review by the project team as well as confirmation of their practicality (Appendix I) by the Resident Engineer (RE) of the project.

Table 2 Construction Plant Inventory

Activity	Period	Powered Mechanical Equipment (PME)					
		Item	Classification	Identification Code	Description	Quantity	SWL ₁ , dB(A)
1.1 Site Clearance (Tree Felling)	1/2022-1/2022	1	PME	CNP 202	Petrol tree cutter (Saw, chain, hand-held)	2	114
1.2 Site Preparation	1/2022-3/2022	1	PME	QPME EPD-06284 or equivalent	Backhoe	1	99
		2	PME	CNP 103	Generator (super silenced, 70 dB(A) at 7m)	1	95
2 Excavation and Lateral Support (ELS)	2/2022-9/2022	1	PME	QPME EPD-06284 or equivalent	Backhoe	2	99
		2	SPME	QPME EPD-07425 or equivalent	Breaker (hand-held, mass > 35 kg)	1	103
		3	SPME	OCNP *	Dump truck with grab (5.5 tonnes < G.V.W. ≤ 38 tonnes)	1	105
		4	PME	CNP 282	Water pump (petrol)	2	103
		5	PME	CNP 283	Water pump (submersible, electric)	4	85
		6	PME	OCNP *	Drill rig (rotary type, diesel)	2	110
		7	PME **	CNP 182	DTH hammer drill [Rock drill (crawler mounted, hydraulic)]	2	123
		8	PME	QPME EPD-05808 or equivalent	Mobile crane	3	92
		9	PME	CNP 065	Drill / grinder (hand-held, electric)	1	98
		10	PME	OCNP *	Lorry with crane / grab (5.5 tonnes < G.V.W. ≤ 38 tonnes)	1	105
		11	PME **	QPME EPD-05791 or equivalent	Air compressor (10m ³ /min < air flow ≤ 30m ³ /min)	6	98
		12	PME	OCNP *	Grout mixer	2	90
		13	PME	CNP 103	Generator (super silenced, 70 dB(A) at 7m)	2	95
3 Bulk Excavation	6/2022-12/2022	1	PME	QPME EPD-06284 or equivalent	Backhoe	4	99
		2	SPME	QPME EPD-07425 or equivalent	Breaker (hand-held, mass > 35 kg)	1	103
		3	PME	OCNP *	Lorry with crane / grab (5.5 tonnes < G.V.W. ≤ 38 tonnes)	1	105
		4	SPME	OCNP *	Dump truck with grab (5.5 tonnes < G.V.W. ≤ 38 tonnes)	6	105
		5	PME	QPME EPD-07283 or equivalent	Roller (vibratory)	1	103
		6	PME	CNP 049	Tower crane (electric)	1	95
		7	PME	CNP 283	Water pump (submersible, electric)	10	85
		8	PME	CNP 103	Generator (super silenced, 70 dB(A) at 7m)	1	95
4 Steel Fixing and Concreting of Structure	10/2022-9/2023	1	PME	CNP 049	Tower crane (electric)	1	95
		2	PME	CNP 103	Generator (400A)	1	95
		3	PME **	CNP 047	Concrete pump (stationary / lorry mounted)	1	109
		4	PME	OCNP *	Lorry with crane / grab (5.5 tonnes < G.V.W. ≤ 38 tonnes)	1	105
		5	PME	CNP 021	Bar bender and cutter (electric)	1	90
		6	SPME **	OCNP *	Poker (vibratory, hand-held, electric)	3	102
		7	PME	CNP 283	Water pump (submersible, electric)	10	85
		8	SPME **	CNP 044	Concrete lorry mixer	4	109
		9	PME	CNP 103	Generator (super silenced, 70 dB(A) at 7m)	1	95
5 Backfilling	1/2023-6/2023	1	PME	QPME EPD-06284 or equivalent	Backhoe	2	99
		2	SPME	OCNP *	Dump truck with grab (5.5 tonnes < G.V.W. ≤ 38 tonnes)	1	105
		3	PME	QPME EPD-07283 or equivalent	Roller (vibratory)	1	103
		4	PME	CNP 283	Water pump (submersible, electric)	10	85
		5	PME	CNP 103	Generator (super silenced, 70 dB(A) at 7m)	1	95
6 E&M Installations & Pipeworks	4/2023-6/2024	1	PME	QPME EPD-05808 or equivalent	Mobile crane	1	92
		2	PME	OCNP *	Lorry with crane / grab (5.5 tonnes < G.V.W. ≤ 38 tonnes)	1	105
		3	PME	CNP 065	Drill / grinder (hand-held, electric)	1	98
		4	PME	OCNP *	Cherry picker [Aerial work platform (working height ≤ 13m)]	4	95
		5	PME	OCNP *	Scissor lift [Aerial work platform (working height ≤ 13m)]	4	95
		6	PME	CNP 103	Generator (super silenced, 70 dB(A) at 7m)	1	95
7 Finishing and Landscape Works	10/2023-6/2024	1	PME	QPME EPD-06284 or equivalent	Backhoe	2	99
		2	PME	QPME EPD-05808 or equivalent	Mobile crane	1	92
		3	SPME **	OCNP *	Poker (vibratory, hand-held, electric)	1	102
		4	SPME **	CNP 044	Concrete lorry mixer	1	109
		5	SPME	QPME EPD-07425 or equivalent	Breaker (hand-held, mass > 35 kg)	1	103
		6	PME	OCNP *	Cherry picker [Aerial work platform (working height ≤ 13m)]	4	95
		7	PME	OCNP *	Scissor lift [Aerial work platform (working height ≤ 13m)]	4	95
		8	PME	CNP 103	Generator (super silenced, 70 dB(A) at 7m)	1	95

Notes:

1. SPME = Specified Powered Mechanical Equipment ; SWL = Sound Power Level
2. * SWLs of other commonly used PME [https://www.epd.gov.hk/epd/sites/default/files/epd/english/application_for_licences/guidance/files/OtherSWLe.pdf]
3. ** To be suspended during the examination periods at NSR 'N2'

2.3 Construction Noise Calculations

Construction noise calculations based on the proposed plant inventory have been carried out to give the Corrected Noise Levels (CNLs) for the 5 most critical NSRs as tabulated in **Table 3** below. All CNLs are derived from the selected Sound Power Levels (SWLs) of the respective Powered Mechanical Equipments (PMEs) as well as corrections including those for PME % On-time, noise screening (e.g. noise barrier), distance attenuation (source-to-receiver slant distance 'R' where the source is taken at the notional source position) and façade reflection. Details of the combined CNL time variation over the whole construction period from 2022 to 2024 (with relevant noise mitigation measures) and the noise compliance status are summarized in **Table 4**. In particular the cumulative CNLs incorporating the noise contribution from the neighbouring Sai Sha Road Widening Project (extracted from Appendix 4.10, EIA Report) at the 5 NSRs are given in **Table 4** as well.

Table 3 Construction Noise Calculations (Mitigated)

NSR : N1a (Hong Kong Baptist Theological Seminary - Staff & Students' Quarters) (Mitigated)

Updated : (08-02-2022)

Activity		Period	Powered Mechanical Equipment (PME)							PME % On-time	Correction (Noise Mitigation Measures)	Distance 'R' (Source to Critical NSR), m	Predicted CNL, dB(A)		Statutory Noise Limit, dB(A)		
			Item	Classification	Identification Code	Description	Quantity	SWL, dB(A)	Combined SWL, dB(A)				Individual	Overall	Non-restricted Hours (0700-1900)	Compliance (CNL ≤ Noise Limit)	
1.1	Site Clearance (Tree Felling)	1/2022-1/2022	1	PME	CNP 202	Petrol tree cutter (Saw, chain, hand-held)	2	114	117	20	0	42	73	73	75	Complied	
1.2	Site Preparation	1/2022-3/2022	1	PME	QPME EPD-06284 or equivalent	Backhoe	1	99	99	100	0	42	62	63	75	Complied	
			2	PME	CNP 103	Generator (super silenced, 70 dB(A) at 7m)	1	95	95	100	0	42	58				
2	Excavation and Lateral Support (ELS)	2/2022-9/2022	1	PME	QPME EPD-06284 or equivalent	Backhoe	2	99	102	30	-5	**	42	54	73	75	Complied
			2	SPME	QPME EPD-07425 or equivalent	Breaker (hand-held, mass > 35 kg)	1	103	103	30	-10	**	42	50			
			3	SPME	OCNP *	Dump truck with grab (5.5 tonnes < G.V.W. ≤ 38 tonnes)	1	105	105	50	-5	**	42	60			
			4	PME	CNP 282	Water pump (petrol)	2	103	106	80	-10	**	42	58			
			5	PME	CNP 283	Water pump (submersible, electric)	4	85	91	80	-10	**	42	43			
			6	PME	OCNP *	Drill rig (rotary type, diesel)	2	110	113	70	-10	**	42	64			
			7	PME	CNP 182	DTH hammer drill [Rock drill (crawler mounted, hydraulic)]	2	123	126	20	-10	**	42	72			
			8	PME	QPME EPD-05808 or equivalent	Mobile crane	3	92	97	80	0	42	58				
			9	PME	CNP 065	Drill / grinder (hand-held, electric)	1	98	98	40	-10	**	42	47			
			10	PME	OCNP *	Lorry with crane / grab (5.5 tonnes < G.V.W. ≤ 38 tonnes)	1	105	105	30	-5	**	42	57			
			11	PME	QPME EPD-05791 or equivalent	Air compressor (10m³/min < air flow ≤ 30m³/min)	6	98	106	100	-10	**	42	58			
			12	PME	OCNP *	Grout mixer	2	90	93	100	0	42	56				
			13	PME	CNP 103	Generator (super silenced, 70 dB(A) at 7m)	2	95	98	100	-10	**	42	51			
	2/2022-9/2022 (Reduced plant operations during Examination period in May 2022 at N2)	1	PME	QPME EPD-06284 or equivalent	Backhoe	2	99	102	30	-5	**	42	54	68	75	Complied	
		2	SPME	QPME EPD-07425 or equivalent	Breaker (hand-held, mass > 35 kg)	1	103	103	30	-10	**	42	50				
		3	SPME	OCNP *	Dump truck with grab (5.5 tonnes < G.V.W. ≤ 38 tonnes)	1	105	105	50	-5	**	42	60				
		4	PME	CNP 282	Water pump (petrol)	2	103	106	80	-10	**	42	58				
		5	PME	CNP 283	Water pump (submersible, electric)	4	85	91	80	-10	**	42	43				
		6	PME	OCNP *	Drill rig (rotary type, diesel)	2	110	113	70	-10	**	42	64				
		7	PME	CNP 182	DTH hammer drill [Rock drill (crawler mounted, hydraulic)]	Suspended during Examination					**	42	-				
		8	PME	QPME EPD-05808 or equivalent	Mobile crane	3	92	97	80	0	42	58					
		9	PME	CNP 065	Drill / grinder (hand-held, electric)	1	98	98	40	-10	**	42	47				
		10	PME	OCNP *	Lorry with crane / grab (5.5 tonnes < G.V.W. ≤ 38 tonnes)	1	105	105	30	-5	**	42	57				
		11	PME	QPME EPD-05791 or equivalent	Air compressor (10m³/min < air flow ≤ 30m³/min)	Suspended during Examination					**	42	-				
		12	PME	OCNP *	Grout mixer	2	90	93	100	0	42	56					
		13	PME	CNP 103	Generator (super silenced, 70 dB(A) at 7m)	2	95	98	100	-10	**	42	51				
		3	Bulk Excavation	6/2022-12/2022	1	PME	QPME EPD-06284 or equivalent	Backhoe	4	99	105	100	-5				**
2	SPME				QPME EPD-07425 or equivalent	Breaker (hand-held, mass > 35 kg)	1	103	103	70	-10	**	42	54			
3	PME				OCNP *	Lorry with crane / grab (5.5 tonnes < G.V.W. ≤ 38 tonnes)	1	105	105	30	-5	**	42	57			
4	SPME				OCNP *	Dump truck with grab (5.5 tonnes < G.V.W. ≤ 38 tonnes)	6	105	113	50	-5	**	42	67			
5	PME				QPME EPD-07283 or equivalent	Roller (vibratory)	1	103	103	70	-5	**	42	59			
6	PME				CNP 049	Tower crane (electric)	1	95	95	100	0	42	58				
7	PME				CNP 283	Water pump (submersible, electric)	10	85	95	100	-10	**	42	48			
8	PME				CNP 103	Generator (super silenced, 70 dB(A) at 7m)	1	95	95	100	-10	**	42	48			
4	Steel Fixing and Concreting of Structure	10/2022-9/2023	1	PME	CNP 049	Tower crane (electric)	1	95	95	90	0	42	57	74	75	Complied	
			2	PME	CNP 103	Generator (400A)	1	95	95	90	-10	**	42				47
			3	PME	CNP 047	Concrete pump (stationary / lorry mounted)	1	109	109	100	-5	**	42				67
			4	PME	OCNP *	Lorry with crane / grab (5.5 tonnes < G.V.W. ≤ 38 tonnes)	1	105	105	30	-5	**	42				57
			5	PME	CNP 021	Bar bender and cutter (electric)	1	90	90	70	-10	**	42				41
			6	SPME	OCNP *	Poker (vibratory, hand-held, electric)	3	102	107	80	0	42	68				
			7	PME	CNP 283	Water pump (submersible, electric)	10	85	95	100	-10	**	42				48
			8	SPME	CNP 044	Concrete lorry mixer	4	109	115	60	-5	**	42				70
			9	PME	CNP 103	Generator (super silenced, 70 dB(A) at 7m)	1	95	95	100	-10	**	42				48
	10/2022-9/2023 (Reduced plant operations during Examination period (to be advised) at N2)	1	PME	CNP 049	Tower crane (electric)	1	95	95	90	0	42	57	61	75	Complied		
		2	PME	CNP 103	Generator (400A)	1	95	95	90	-10	**	42				47	
		3	PME	CNP 047	Concrete pump (stationary / lorry mounted)	Suspended during Examination					**	42				-	
		4	PME	OCNP *	Lorry with crane / grab (5.5 tonnes < G.V.W. ≤ 38 tonnes)	1	105	105	30	-5	**	42				57	
		5	PME	CNP 021	Bar bender and cutter (electric)	1	90	90	70	-10	**	42				41	
		6	SPME	OCNP *	Poker (vibratory, hand-held, electric)	Suspended during Examination					**	42				-	
		7	PME	CNP 283	Water pump (submersible, electric)	10	85	95	100	-10	**	42				48	
		8	SPME	CNP 044	Concrete lorry mixer	Suspended during Examination					**	42				-	
		9	PME	CNP 103	Generator (super silenced, 70 dB(A) at 7m)	1	95	95	100	-10	**	42				48	
5	Backfilling	1/2023-6/2023	1	PME	QPME EPD-06284 or equivalent	Backhoe	2	99	102	30	-5	**	42	54	62	75	Complied
			2	SPME	OCNP *	Dump truck with grab (5.5 tonnes < G.V.W. ≤ 38 tonnes)	1	105	105	50	-5	**	42	60			
			3	PME	QPME EPD-07283 or equivalent	Roller (vibratory)	1	103	103	30	-5	**	42	55			
			4	PME	CNP 283	Water pump (submersible, electric)	10	85	95	100	-10	**	42	48			
			5	PME	CNP 103	Generator (super silenced, 70 dB(A) at 7m)	1	95	95	100	-10	**	42	48			
6	E&M Installations & Pipeworks	4/2023-6/2024	1	PME	QPME EPD-05808 or equivalent	Mobile crane	1	92	92	30	0	42	49	66	75	Complied	
			2	PME	OCNP *	Lorry with crane / grab (5.5 tonnes < G.V.W. ≤ 38 tonnes)	1	105	105	30	-5	**	42				57
			3	PME	CNP 065	Drill / grinder (hand-held, electric)	1	98	98	80	-10	**	42				50
			4	PME	OCNP *	Cherry picker [Aerial work platform (working height ≤ 13m)]	4	95	101	70	0	42	62				
			5	PME	OCNP *	Scissor lift [Aerial work platform (working height ≤ 13m)]	4	95	101	70	0	42	62				
			6	PME	CNP 103	Generator (super silenced, 70 dB(A) at 7m)	1	95	95	100	-10	**	42				48
7	Finishing and Landscape Works	10/2023-6/2024	1	PME	QPME EPD-06284 or equivalent	Backhoe	2	99	102	30	-5	**	42	54	69	75	Complied
			2	PME	QPME EPD-05808 or equivalent	Mobile crane	1	92	92	30	0	42	49				
			3	SPME	OCNP *	Poker (vibratory, hand-held, electric)	1	102	102	60	0	42	62				
			4	SPME	CNP 044	Concrete lorry mixer	1	109	109	60	-5	**	42	64			
			5	SPME	QPME EPD-07425 or equivalent	Breaker (hand-held, mass > 35 kg)	1	103	103	50	-10	**	42	53			
			6	PME	OCNP *	Cherry picker [Aerial work platform (working height ≤ 13m)]	4	95	101	70	0	42	62				
			7	PME	OCNP *	Scissor lift [Aerial work platform (working height ≤ 13m)]	4	95	101	70	0	42	62				
			8	PME	CNP 103	Generator (super silenced, 70 dB(A) at 7m)	1	95	95	100	-10	**	42	48			
	10/2023-6/2024 (Reduced plant operations during Examination period (to be advised) at N2)	1	PME	QPME EPD-06284 or equivalent	Backhoe	2	99	102	30	-5	**	42	54	66	75	Complied	
		2	PME	QPME EPD-05808 or equivalent	Mobile crane	1	92	92	30	0	42	49					
		3	SPME	OCNP *	Poker (vibratory, hand-held, electric)	Suspended during Examination					**	42	-				
		4	SPME	CNP 044	Concrete lorry mixer	Suspended during Examination					**	42	-				
		5	SPME	QPME EPD-07425 or equivalent	Breaker (hand-held, mass > 35 kg)	1	103	103	50	-10	**	42	53				
		6	PME	OCNP *	Cherry picker [Aerial work platform (working height ≤ 13m)]	4	95	101	70	0	42	62					
		7	PME	OCNP *	Scissor lift [Aerial work platform (working height ≤ 13m)]	4	95	101	70	0	42	62					
8	PME	CNP 103	Generator (super silenced, 70 dB(A) at 7m)	1	95	95	100	-10	**	42	48						

Notes : 1. SPME = Specified Powered Mechanical Equipment ; SWL = Sound Power Level ; CNL = Corrected Noise Level ; * SWLs of other commonly used PME [https://www.epd.gov.hk/epd/en/sites/default/files/epd/english/application_for_licenses/guidance/files/OtherSWL_e.pdf]
2. Combined SWL = SWL + 10 log (Quantity) ; Predicted CNL (Individual) = 10 log (PME % On-time) + Correction (Measures) - 20 log (R) - 8 + Facade Reflection [where Facade Reflection = 3] ; Predicted CNL (Overall) = 10 log (∑10^{Predicted CNL (Individual) /10})
3. Noise Mitigation Measures = Noise barrier [with geometrical coverage blocking the line of sight to the subject NSR - offering ** 5 dB(A) noise reduction for mobile plant & 10 dB(A) noise reduction for stationary plant]

Sai O Truck Sewer Sewage Pumping Station – Construction Noise Management Plan

NSR : N1b (Hong Kong Baptist Theological Seminary - Staff & Students' Quarters) (Mitigated)															Updated : 08-02-2022		
Activity		Period	Item	Classification	Identification Code	Description	Quantity	SWL, dB(A)	Combined SWL, dB(A)	PME % On-time	Correction (Noise Mitigation Measures)	Distance R (Source to Critical NSR), m	Predicted CNL Individual	Predicted CNL Overall	Statutory Noise Limit Non-restricted Hours (0700-1900)	Statutory Noise Limit Compliance (CNL ≤ Noise Limit)	
1.1	Site Clearance (Tree Felling)	1/2022-1/2022	1	PME	CNP 202	Petrol tree cutter (Saw, chain, hand-held)	2	114	117	20	0	39	73	73	75	Complied	
1.2	Site Preparation	1/2022-3/2022	1	PME	QPME EPD-06284 or equivalent	Backhoe	1	99	99	100	0	39	62	64	75	Complied	
			2	PME	CNP 103	Generator (super silenced, 70 dB(A) at 7m)	1	95	95	100	0	39	58				
2	Excavation and Lateral Support (ELS)	2/2022-9/2022	1	PME	QPME EPD-06284 or equivalent	Backhoe	2	99	102	30	-5	**	39	55	74	75	Complied
			2	SPME	QPME EPD-07425 or equivalent	Breaker (hand-held, mass > 35 kg)	1	103	103	30	-10	**	39	51			
			3	SPME	OCNP *	Dump truck with grab (5.5 tonnes < G.V.W. ≤ 38 tonnes)	1	105	105	50	-5	**	39	60			
			4	PME	CNP 282	Water pump (petrol)	2	103	106	80	-10	**	39	58			
			5	PME	CNP 283	Water pump (submersible, electric)	4	85	91	80	-10	**	39	43			
			6	PME	OCNP *	Drill rig (rotary type, diesel)	2	110	113	70	-10	**	39	65			
			7	PME	CNP 182	DTH hammer drill [Rock drill (crawler mounted, hydraulic)]	2	123	126	20	-10	**	39	72			
			8	PME	QPME EPD-05808 or equivalent	Mobile crane	3	92	97	80	0		39	59			
			9	PME	CNP 065	Drill / grinder (hand-held, electric)	1	98	98	40	-10	**	39	47			
			10	PME	OCNP *	Lorry with crane / grab (5.5 tonnes < G.V.W. ≤ 38 tonnes)	1	105	105	30	-5	**	39	58			
			11	PME	QPME EPD-05791 or equivalent	Air compressor (10m³/min < air flow ≤ 30m³/min)	6	98	106	100	-10	**	39	59			
			12	PME	OCNP *	Grout mixer	2	90	93	100	0		39	56			
			13	PME	CNP 103	Generator (super silenced, 70 dB(A) at 7m)	2	95	98	100	-10	**	39	51			
		2/2022-9/2022 (Reduced plant operations during Examination period in May 2022 at N2)	1	PME	QPME EPD-06284 or equivalent	Backhoe	2	99	102	30	-5	**	39	55	69	75	Complied
			2	SPME	QPME EPD-07425 or equivalent	Breaker (hand-held, mass > 35 kg)	1	103	103	30	-10	**	39	51			
			3	SPME	OCNP *	Dump truck with grab (5.5 tonnes < G.V.W. ≤ 38 tonnes)	1	105	105	50	-5	**	39	60			
			4	PME	CNP 282	Water pump (petrol)	2	103	106	80	-10	**	39	58			
			5	PME	CNP 283	Water pump (submersible, electric)	4	85	91	80	-10	**	39	43			
			6	PME	OCNP *	Drill rig (rotary type, diesel)	2	110	113	70	-10	**	39	65			
			7	PME	CNP 182	DTH hammer drill [Rock drill (crawler mounted, hydraulic)]	Suspended during Examination				**	39	-				
			8	PME	QPME EPD-05808 or equivalent	Mobile crane	3	92	97	80	0		39	59			
			9	PME	CNP 065	Drill / grinder (hand-held, electric)	1	98	98	40	-10	**	39	47			
			10	PME	OCNP *	Lorry with crane / grab (5.5 tonnes < G.V.W. ≤ 38 tonnes)	1	105	105	30	-5	**	39	58			
			11	PME	QPME EPD-05791 or equivalent	Air compressor (10m³/min < air flow ≤ 30m³/min)	Suspended during Examination				**	39	-				
			12	PME	OCNP *	Grout mixer	2	90	93	100	0		39	56			
			13	PME	CNP 103	Generator (super silenced, 70 dB(A) at 7m)	2	95	98	100	-10	**	39	51			
3	Bulk Excavation	6/2022-12/2022	1	PME	QPME EPD-06284 or equivalent	Backhoe	4	99	105	100	-5	**	39	63	70	75	Complied
			2	SPME	QPME EPD-07425 or equivalent	Breaker (hand-held, mass > 35 kg)	1	103	103	30	-10	**	39	55			
			3	PME	OCNP *	Lorry with crane / grab (5.5 tonnes < G.V.W. ≤ 38 tonnes)	1	105	105	30	-5	**	39	58			
			4	SPME	OCNP *	Dump truck with grab (5.5 tonnes < G.V.W. ≤ 38 tonnes)	6	105	113	50	-5	**	39	68			
			5	PME	QPME EPD-07283 or equivalent	Roller (vibratory)	1	103	103	30	-5	**	39	60			
			6	PME	CNP 049	Tower crane (electric)	1	95	95	100	0		39	58			
			7	PME	CNP 283	Water pump (submersible, electric)	10	85	95	100	-10	**	39	48			
			8	PME	CNP 103	Generator (super silenced, 70 dB(A) at 7m)	1	95	95	100	-10	**	39	48			
4	Steel Fixing and Concreting of Structure	10/2022-9/2023	1	PME	CNP 049	Tower crane (electric)	1	95	95	90	0		39	58	74	75	Complied
			2	PME	CNP 103	Generator (400A)	1	95	95	90	-10	**	39	48			
			3	PME	CNP 047	Concrete pump (stationary / lorry mounted)	1	109	109	100	-5	**	39	67			
			4	PME	OCNP *	Lorry with crane / grab (5.5 tonnes < G.V.W. ≤ 38 tonnes)	1	105	105	30	-5	**	39	58			
			5	PME	CNP 021	Bar bender and cutter (electric)	1	90	90	70	-10	**	39	42			
			6	SPME	OCNP *	Poker (vibratory, hand-held, electric)	3	102	107	80	0		39	69			
			7	PME	CNP 283	Water pump (submersible, electric)	10	85	95	100	-10	**	39	48			
			8	SPME	CNP 044	Concrete lorry mixer	4	109	115	60	-5	**	39	71			
			9	PME	CNP 103	Generator (super silenced, 70 dB(A) at 7m)	1	95	95	100	-10	**	39	48			
		10/2022-9/2023 (Reduced plant operations during Examination period (to be advised) at N2)	1	PME	CNP 049	Tower crane (electric)	1	95	95	90	0		39	58	62	75	Complied
			2	PME	CNP 103	Generator (400A)	1	95	95	90	-10	**	39	48			
			3	PME	CNP 047	Concrete pump (stationary / lorry mounted)	Suspended during Examination				**	39	-				
			4	PME	OCNP *	Lorry with crane / grab (5.5 tonnes < G.V.W. ≤ 38 tonnes)	1	105	105	30	-5	**	39	58			
			5	PME	CNP 021	Bar bender and cutter (electric)	1	90	90	70	-10	**	39	42			
			6	SPME	OCNP *	Poker (vibratory, hand-held, electric)	Suspended during Examination				39	-					
			7	PME	CNP 283	Water pump (submersible, electric)	10	85	95	100	-10	**	39	48			
			8	SPME	CNP 044	Concrete lorry mixer	Suspended during Examination				**	39	-				
5	Backfilling	1/2023-6/2023	1	PME	QPME EPD-06284 or equivalent	Backhoe	2	99	102	30	-5	**	39	55	63	75	Complied
			2	SPME	OCNP *	Dump truck with grab (5.5 tonnes < G.V.W. ≤ 38 tonnes)	1	105	105	50	-5	**	39	60			
			3	PME	QPME EPD-07283 or equivalent	Roller (vibratory)	1	103	103	30	-5	**	39	56			
			4	PME	CNP 283	Water pump (submersible, electric)	10	85	95	100	-10	**	39	48			
			5	PME	CNP 103	Generator (super silenced, 70 dB(A) at 7m)	1	95	95	100	-10	**	39	48			
6	E&M Installations & Pipeworks	4/2023-6/2024	1	PME	QPME EPD-05808 or equivalent	Mobile crane	1	92	92	30	0		39	50	67	75	Complied
			2	PME	OCNP *	Lorry with crane / grab (5.5 tonnes < G.V.W. ≤ 38 tonnes)	1	105	105	30	-5	**	39	58			
			3	PME	CNP 065	Drill / grinder (hand-held, electric)	1	98	98	80	-10	**	39	50			
			4	PME	OCNP *	Cherry picker [Aerial work platform (working height ≤ 13m)]	4	95	101	70	0		39	63			
			5	PME	OCNP *	Scissor lift [Aerial work platform (working height ≤ 13m)]	4	95	101	70	0		39	63			
			6	PME	CNP 103	Generator (super silenced, 70 dB(A) at 7m)	1	95	95	100	-10	**	39	48			
7	Finishing and Landscape Works	10/2023-6/2024	1	PME	QPME EPD-06284 or equivalent	Backhoe	2	99	102	30	-5	**	39	55	70	75	Complied
			2	PME	QPME EPD-05808 or equivalent	Mobile crane	1	92	92	30	0		39	50			
			3	SPME	OCNP *	Poker (vibratory, hand-held, electric)	1	102	102	60	0		39	63			
			4	SPME	CNP 044	Concrete lorry mixer	1	109	109	60	-5	**	39	65			
			5	SPME	QPME EPD-07425 or equivalent	Breaker (hand-held, mass > 35 kg)	1	103	103	50	-10	**	39	53			
			6	PME	OCNP *	Cherry picker [Aerial work platform (working height ≤ 13m)]	4	95	101	70	0		39	63			
			7	PME	OCNP *	Scissor lift [Aerial work platform (working height ≤ 13m)]	4	95	101	70	0		39	63			
			8	PME	CNP 103	Generator (super silenced, 70 dB(A) at 7m)	1	95	95	100	-10	**	39	48			
		10/2023-6/2024 (Reduced plant operations during Examination period (to be advised) at N2)	1	PME	QPME EPD-06284 or equivalent	Backhoe	2	99	102	30	-5	**	39	55	66	75	Complied
			2	PME	QPME EPD-05808 or equivalent	Mobile crane	1	92	92	30	0		39	50			
			3	SPME	OCNP *	Poker (vibratory, hand-held, electric)	Suspended during Examination				**	39	-				
			4	SPME	CNP 044	Concrete lorry mixer	Suspended during Examination				**	39	-				
			5	SPME	QPME EPD-07425 or equivalent	Breaker (hand-held, mass > 35 kg)	1	103	103	50	-10	**	39	53			
			6	PME	OCNP *	Cherry picker [Aerial work platform (working height ≤ 13m)]	4	95	101	70	0		39	63			
			7	PME	OCNP *	Scissor lift [Aerial work platform (working height ≤ 13m)]	4	95	101	70	0		39	63			

Notes : 1. SPME = Specified Powered Mechanical Equipment ; SWL = Sound Power Level ; CNL = Corrected Noise Level ; * SWLs of other commonly used PME [https://www.epd.gov.hk/epd/files/default/files/epdenglish/application_for_licenses/guidance/files/OtherSWLc.pdf]

2. Combined SWL = SWL + 10 log (Quantity) ; Predicted CNL (Individual) = Combined SWL + 10 log (PME % On-time) + Correction (Measures) - 20 log (R) - 8 + Facade Reflection [where Facade Reflection = 3] ; Predicted CNL (Overall) = 10 log [Σ 10^{Predicted CNL (Individual) (dB)}]

3. Noise Mitigation Measures = Noise barrier [with geometrical coverage blocking the line of sight to the subject NSR - offering ** 5 dB(A) noise reduction for mobile plant & 10 dB(A) noise reduction for stationary plant]

Notes : 1. SPME = Specified Powered Mechanical Equipment ; SWL = Sound Power Level ; CNL = Corrected Noise Level ; * SWLs of other commonly used PME [https://www.epd.gov.hk/epd/sites/default/files/epd/english/application_for_licenses/guidance/files/OtherSWLc.pdf]
2. Combined SWL = SWL + 10 log (Quantity) ; Predicted CNL (Individual) = Combined SWL + 10 log (PME % On-time) + Correction (Measures) - 20 log (R) - 8 + Facade Reflection [where Facade Reflection = 3] ; Predicted CNL (Overall) = 10 log [Σ 10^{(Predicted CNL, Individual) / 10}]
3. Noise Mitigation Measures = Noise barrier [with geometrical coverage blocking the line of sight to the subject NSR - offering ** 5 dB(A) noise reduction for mobile plant & 10 dB(A) noise reduction for stationary plant]

Sai O Truck Sewer Sewage Pumping Station – Construction Noise Management Plan

NSR : N2 (Hong Kong Baptist Theological Seminary - Administration & Education Block) (Mitigated)

Updated : 14-02-2022

Activity		Period	Powered Mechanical Equipment (PME)										Predicted CNL		Statutory Noise Limit		
			Item	Classification	Identification Code	Description	Quantity	SWL, dB(A)	Combined SWL, dB(A)	PME % On time	Correction (Noise Mitigation Measures)	Distance R (Source to Critical NSR), m	Individual	Overall	Non-restricted Hours (0700-1900)	Compliance (CNL ≤ Noise Limit)	
1.1	Site Clearance (Tree Felling)	1/2022-1/2022	1	PME	CNP 202	Petrol tree cutter (Saw, chain, hand-held)	2	114	117	20	0	74	68	68	70	Complied	
1.2	Site Preparation	1/2022-3/2022	1	PME	QPME EPD-06284 or equivalent	Backhoe	1	99	99	100	0	74	57	58	70	Complied	
			2	PME	CNP 103	Generator (super silenced, 70 dB(A) at 7m)	1	95	95	100	0	74	53				
2	Excavation and Lateral Support (ELS)	2/2022-9/2022	1	PME	QPME EPD-06284 or equivalent	Backhoe	2	99	102	30	-5	**	74	49	68	70	Complied
			2	SPME	QPME EPD-07425 or equivalent	Breaker (hand-held, mass > 35 kg)	1	103	103	30	-10	**	74	45			
			3	SPME	OCNP *	Dump truck with grab (5.5 tonnes < G.V.W. ≤ 38 tonnes)	1	105	105	50	-5	**	74	55			
			4	PME	CNP 282	Water pump (petrol)	2	103	106	80	-10	**	74	53			
			5	PME	CNP 283	Water pump (submersible, electric)	4	85	91	80	-10	**	74	38			
			6	PME	OCNP *	Drill rig (rotary type, diesel)	2	110	113	70	-10	**	74	59			
			7	PME	CNP 182	DTH hammer drill [Rock drill (crawler mounted, hydraulic)]	2	123	126	20	-10	**	74	67			
			8	PME	QPME EPD-05808 or equivalent	Mobile crane	3	92	97	80	0		74	53			
			9	PME	CNP 065	Drill / grinder (hand-held, electric)	1	98	98	40	-10	**	74	42			
			10	PME	OCNP *	Lorry with crane / grab (5.5 tonnes < G.V.W. ≤ 38 tonnes)	1	105	105	30	-5	**	74	52			
			11	PME	QPME EPD-05791 or equivalent	Air compressor (10m³/min < air flow ≤ 30m³/min)	6	98	106	100	-10	**	74	53			
			12	PME	OCNP *	Grout mixer	2	90	93	100	0		74	51			
			13	PME	CNP 103	Generator (super silenced, 70 dB(A) at 7m)	2	95	98	100	-10	**	74	46			
		2/2022-9/2022 (Reduced plant operations during Examination period in May 2022 at N2)	1	PME	QPME EPD-06284 or equivalent	Backhoe	2	99	102	30	-5	**	74	49	63	65	Complied
			2	SPME	QPME EPD-07425 or equivalent	Breaker (hand-held, mass > 35 kg)	1	103	103	30	-10	**	74	45			
			3	SPME	OCNP *	Dump truck with grab (5.5 tonnes < G.V.W. ≤ 38 tonnes)	1	105	105	50	-5	**	74	55			
			4	PME	CNP 282	Water pump (petrol)	2	103	106	80	-10	**	74	53			
			5	PME	CNP 283	Water pump (submersible, electric)	4	85	91	80	-10	**	74	38			
			6	PME	OCNP *	Drill rig (rotary type, diesel)	2	110	113	70	-10	**	74	59			
			7	PME	CNP 182	DTH hammer drill [Rock drill (crawler mounted, hydraulic)]	Suspended during Examination				**	74	-				
			8	PME	QPME EPD-05808 or equivalent	Mobile crane	3	92	97	80	0		74	53			
			9	PME	CNP 065	Drill / grinder (hand-held, electric)	1	98	98	40	-10	**	74	42			
			10	PME	OCNP *	Lorry with crane / grab (5.5 tonnes < G.V.W. ≤ 38 tonnes)	1	105	105	30	-5	**	74	52			
			11	PME	QPME EPD-05791 or equivalent	Air compressor (10m³/min < air flow ≤ 30m³/min)	Suspended during Examination				**	74	-				
			12	PME	OCNP *	Grout mixer	2	90	93	100	0		74	51			
			13	PME	CNP 103	Generator (super silenced, 70 dB(A) at 7m)	2	95	98	100	-10	**	74	46			
3	Bulk Excavation	6/2022-12/2022	1	PME	QPME EPD-06284 or equivalent	Backhoe	4	99	105	100	-5	**	74	58	65	70	Complied
			2	SPME	QPME EPD-07425 or equivalent	Breaker (hand-held, mass > 35 kg)	1	103	103	70	-10	**	74	49			
			3	PME	OCNP *	Lorry with crane / grab (5.5 tonnes < G.V.W. ≤ 38 tonnes)	1	105	105	30	-5	**	74	52			
			4	SPME	OCNP *	Dump truck with grab (5.5 tonnes < G.V.W. ≤ 38 tonnes)	6	105	113	50	-5	**	74	62			
			5	PME	QPME EPD-07283 or equivalent	Roller (vibratory)	1	103	103	70	-5	**	74	54			
			6	PME	CNP 049	Tower crane (electric)	1	95	95	100	0		74	53			
			7	PME	CNP 283	Water pump (submersible, electric)	10	85	95	100	-10	**	74	43			
			8	PME	CNP 103	Generator (super silenced, 70 dB(A) at 7m)	1	95	95	100	-10	**	74	43			
4	Steel Fixing and Concreting of Structure	10/2022-9/2023	1	PME	CNP 049	Tower crane (electric)	1	95	95	90	0		74	52	69	70	Complied
			2	PME	CNP 103	Generator (400A)	1	95	95	90	-10	**	74	42			
			3	PME	CNP 047	Concrete pump (stationary / lorry mounted)	1	109	109	100	-5	**	74	62			
			4	PME	OCNP *	Lorry with crane / grab (5.5 tonnes < G.V.W. ≤ 38 tonnes)	1	105	105	30	-5	**	74	52			
			5	PME	CNP 021	Bar bender and cutter (electric)	1	90	90	70	-10	**	74	36			
			6	SPME	OCNP *	Poker (vibratory, hand-held, electric)	3	102	107	80	0		74	63			
			7	PME	CNP 283	Water pump (submersible, electric)	10	85	95	100	-10	**	74	43			
			8	SPME	CNP 044	Concrete lorry mixer	4	109	115	60	-5	**	74	65			
			9	PME	CNP 103	Generator (super silenced, 70 dB(A) at 7m)	1	95	95	100	-10	**	74	43			
		10/2022-9/2023 (Reduced plant operations during Examination period (to be advised) at N2)	1	PME	CNP 049	Tower crane (electric)	1	95	95	90	0		74	52	56	65	Complied
			2	PME	CNP 103	Generator (400A)	1	95	95	90	-10	**	74	42			
			3	PME	CNP 047	Concrete pump (stationary / lorry mounted)	Suspended during Examination				**	74	-				
			4	PME	OCNP *	Lorry with crane / grab (5.5 tonnes < G.V.W. ≤ 38 tonnes)	1	105	105	30	-5	**	74	52			
			5	PME	CNP 021	Bar bender and cutter (electric)	1	90	90	70	-10	**	74	36			
			6	SPME	OCNP *	Poker (vibratory, hand-held, electric)	Suspended during Examination				**	74	-				
			7	PME	CNP 283	Water pump (submersible, electric)	10	85	95	100	-10	**	74	43			
			8	SPME	CNP 044	Concrete lorry mixer	Suspended during Examination				**	74	-				
5	Backfilling	1/2023-6/2023	1	PME	QPME EPD-06284 or equivalent	Backhoe	2	99	102	30	-5	**	74	49	57	70	Complied
			2	SPME	OCNP *	Dump truck with grab (5.5 tonnes < G.V.W. ≤ 38 tonnes)	1	105	105	50	-5	**	74	55			
			3	PME	QPME EPD-07283 or equivalent	Roller (vibratory)	1	103	103	30	-5	**	74	50			
			4	PME	CNP 283	Water pump (submersible, electric)	10	85	95	100	-10	**	74	43			
			5	PME	CNP 103	Generator (super silenced, 70 dB(A) at 7m)	1	95	95	100	-10	**	74	43			
6	E&M Installations & Pipeworks	4/2023-6/2024	1	PME	QPME EPD-05808 or equivalent	Mobile crane	1	92	92	30	0		74	44	61	70	Complied
			2	PME	OCNP *	Lorry with crane / grab (5.5 tonnes < G.V.W. ≤ 38 tonnes)	1	105	105	30	-5	**	74	52			
			3	PME	CNP 065	Drill / grinder (hand-held, electric)	1	98	98	80	-10	**	74	45			
			4	PME	OCNP *	Cherry picker [Aerial work platform (working height ≤ 13m)]	4	95	101	70	0		74	57			
			5	PME	OCNP *	Scissor lift [Aerial work platform (working height ≤ 13m)]	4	95	101	70	0		74	57			
			6	PME	CNP 103	Generator (super silenced, 70 dB(A) at 7m)	1	95	95	100	-10	**	74	43			
7	Finishing and Landscape Works	10/2023-6/2024	1	PME	QPME EPD-06284 or equivalent	Backhoe	2	99	102	30	-5	**	74	49	64	70	Complied
			2	PME	QPME EPD-05808 or equivalent	Mobile crane	1	92	92	30	0		74	44			
			3	SPME	OCNP *	Poker (vibratory, hand-held, electric)	1	102	102	60	0		74	57			
			4	SPME	CNP 044	Concrete lorry mixer	1	109	109	60	-5	**	74	59			
			5	SPME	QPME EPD-07425 or equivalent	Breaker (hand-held, mass > 35 kg)	1	103	103	50	-10	**	74	48			
			6	PME	OCNP *	Cherry picker [Aerial work platform (working height ≤ 13m)]	4	95	101	70	0		74	57			
			7	PME	OCNP *	Scissor lift [Aerial work platform (working height ≤ 13m)]	4	95	101	70	0		74	57			
			8	PME	CNP 103	Generator (super silenced, 70 dB(A) at 7m)	1	95	95	100	-10	**	74	43			
		10/2023-6/2024 (Reduced plant operations during Examination period (to be advised) at N2)	1	PME	QPME EPD-06284 or equivalent	Backhoe	2	99	102	30	-5	**	74	49	61	65	Complied
			2	PME	QPME EPD-05808 or equivalent	Mobile crane	1	92	92	30	0		74	44			
			3	SPME	OCNP *	Poker (vibratory, hand-held, electric)	Suspended during Examination				**	74	-				
			4	SPME	CNP 044	Concrete lorry mixer	Suspended during Examination				**	74	-				
			5	SPME	QPME EPD-07425 or equivalent	Breaker (hand-held, mass > 35 kg)	1	103	103	50	-10	**	74	48			
			6	PME	OCNP *	Cherry picker [Aerial work platform (working height ≤ 13m)]	4	95	101	70	0		74	57			
			7	PME	OCNP *	Scissor lift [Aerial work platform (working height ≤ 13m)]	4	95	101	70	0		74	57			
8	PME	CNP 103	Generator (super silenced, 70 dB(A) at 7m)	1	95	95	100	-10	**	74	43						

Notes : 1. SPME = Specified Powered Mechanical Equipment ; SWL = Sound Power Level ; CNL = Corrected Noise Level ; * SWLs of other commonly used PME [https://www.epd.gov.hk/epd/files/default/files/cpd/english/application_for_licenses/guidance/files/OtherSWLe.pdf]

2. Combined SWL = SWL + 10 log (Quantity) ; Predicted CNL (Individual) = Combined SWL + 10 log (PME % On-time) + Correction (Measures) - 20 kg (R) + 8 Facade Reflection (where Facade Reflection = 3) ; Predicted CNL (Overall) = 10 log [Σ 10^{Predicted CNL (Individual) /10}]

3. Noise Mitigation Measures = Noise barrier [with geometrical coverage blocking the line of sight to the subject NSR - offering ** 5 dB(A) noise reduction for mobile plant & 10 dB(A) noise reduction for stationary plant]

Notes : 1. SPME = Specified Powered Mechanical Equipment ; SWL = Sound Power Level ; CNL = Corrected Noise Level ; * SWLs of other commonly used PME [https://www.epd.gov.hk/epd/sites/default/files/epd/english/application_for_licenses/guidance/files/OtherSWLc.pdf]
2. Combined SWL = SWL + 10 log (Quantity) ; Predicted CNL (Individual) = Combined SWL + 10 log (PME % On-time) + Correction (Measures) - 20 log (R) - 8 + Facade Reflection [where

Sai O Truck Sewer Sewage Pumping Station – Construction Noise Management Plan

NSR : N4 (Block 11, Symphony Bay Villa Concerto) (Mitigated)

Updated : 08-02-2022

Activity		Period	Powered Mechanical Equipment (PME)										Predicted CNL		Statutory Noise Limit		
			Item	Classification	Identification Code	Description	Quantity	SWL, dB(A)	Combined SWL, dB(A)	PME % On time	Correction (Noise Mitigation Measures)	Distance R (Source to Critical NSR), m	Individual	Overall	Non-restricted Hours (0700-1900)	Compliance (CNL ≤ Noise Limit)	
1.1	Site Clearance (Tree Felling)	1/2022-1/2022	1	PME	CNP 202	Petrol tree cutter (Saw, chain, hand-held)	2	114	117	20	0	225	58	58	75	Complied	
1.2	Site Preparation	1/2022-3/2022	1	PME	QPME EPD-06284 or equivalent	Backhoe	1	99	99	100	0	225	47	48	75	Complied	
			2	PME	CNP 103	Generator (super silenced, 70 dB(A) at 7m)	1	95	95	100	0	225	43				
2	Excavation and Lateral Support (ELS)	2/2022-9/2022	1	PME	QPME EPD-06284 or equivalent	Backhoe	2	99	102	30	-5	**	225	40	59	75	Complied
			2	SPME	QPME EPD-07425 or equivalent	Breaker (hand-held, mass > 35 kg)	1	103	103	30	-10	**	225	36			
			3	SPME	OCNP *	Dump truck with grab (5.5 tonnes < G.V.W. ≤ 38 tonnes)	1	105	105	50	-5	**	225	45			
			4	PME	CNP 282	Water pump (petrol)	2	103	106	80	-10	**	225	43			
			5	PME	CNP 283	Water pump (submersible, electric)	4	85	91	80	-10	**	225	28			
			6	PME	OCNP *	Drill rig (rotary type, diesel)	2	110	113	70	-10	**	225	49			
			7	PME	CNP 182	DTH hammer drill [Rock drill (crawler mounted, hydraulic)]	2	123	126	20	-10	**	225	57			
			8	PME	QPME EPD-05808 or equivalent	Mobile crane	3	92	97	80	0		225	44			
			9	PME	CNP 065	Drill / grinder (hand-held, electric)	1	98	98	40	-10	**	225	32			
			10	PME	OCNP *	Lorry with crane / grab (5.5 tonnes < G.V.W. ≤ 38 tonnes)	1	105	105	30	-5	**	225	43			
			11	PME	QPME EPD-05791 or equivalent	Air compressor (10m³/min < air flow ≤ 30m³/min)	6	98	106	100	-10	**	225	44			
			12	PME	OCNP *	Grout mixer	2	90	93	100	0		225	41			
			13	PME	CNP 103	Generator (super silenced, 70 dB(A) at 7m)	2	95	98	100	-10	**	225	36			
		2/2022-9/2022 (Reduced plant operations during Examination period in May 2022 at N2)	1	PME	QPME EPD-06284 or equivalent	Backhoe	2	99	102	30	-5	**	225	40	53	75	Complied
			2	SPME	QPME EPD-07425 or equivalent	Breaker (hand-held, mass > 35 kg)	1	103	103	30	-10	**	225	36			
			3	SPME	OCNP *	Dump truck with grab (5.5 tonnes < G.V.W. ≤ 38 tonnes)	1	105	105	50	-5	**	225	45			
			4	PME	CNP 282	Water pump (petrol)	2	103	106	80	-10	**	225	43			
			5	PME	CNP 283	Water pump (submersible, electric)	4	85	91	80	-10	**	225	28			
			6	PME	OCNP *	Drill rig (rotary type, diesel)	2	110	113	70	-10	**	225	49			
			7	PME	CNP 182	DTH hammer drill [Rock drill (crawler mounted, hydraulic)]	Suspended during Examination				**	225	-				
			8	PME	QPME EPD-05808 or equivalent	Mobile crane	3	92	97	80	0		225	44			
			9	PME	CNP 065	Drill / grinder (hand-held, electric)	1	98	98	40	-10	**	225	32			
			10	PME	OCNP *	Lorry with crane / grab (5.5 tonnes < G.V.W. ≤ 38 tonnes)	1	105	105	30	-5	**	225	43			
			11	PME	QPME EPD-05791 or equivalent	Air compressor (10m³/min < air flow ≤ 30m³/min)	Suspended during Examination				**	225	-				
			12	PME	OCNP *	Grout mixer	2	90	93	100	0		225	41			
			13	PME	CNP 103	Generator (super silenced, 70 dB(A) at 7m)	2	95	98	100	-10	**	225	36			
3	Bulk Excavation	6/2022-12/2022	1	PME	QPME EPD-06284 or equivalent	Backhoe	4	99	105	100	-5	**	225	48	55	75	Complied
			2	SPME	QPME EPD-07425 or equivalent	Breaker (hand-held, mass > 35 kg)	1	103	103	70	-10	**	225	39			
			3	PME	OCNP *	Lorry with crane / grab (5.5 tonnes < G.V.W. ≤ 38 tonnes)	1	105	105	30	-5	**	225	43			
			4	SPME	OCNP *	Dump truck with grab (5.5 tonnes < G.V.W. ≤ 38 tonnes)	6	105	113	50	-5	**	225	53			
			5	PME	QPME EPD-07283 or equivalent	Roller (vibratory)	1	103	103	70	-5	**	225	44			
			6	PME	CNP 049	Tower crane (electric)	1	95	95	100	0		225	43			
			7	PME	CNP 283	Water pump (submersible, electric)	10	85	95	100	-10	**	225	33			
			8	PME	CNP 103	Generator (super silenced, 70 dB(A) at 7m)	1	95	95	100	-10	**	225	33			
4	Steel Fixing and Concreting of Structure	10/2022-9/2023	1	PME	CNP 049	Tower crane (electric)	1	95	95	90	0		225	42	59	75	Complied
			2	PME	CNP 103	Generator (400A)	1	95	95	90	-10	**	225	32			
			3	PME	CNP 047	Concrete pump (stationary / lorry mounted)	1	109	109	100	-5	**	225	52			
			4	PME	OCNP *	Lorry with crane / grab (5.5 tonnes < G.V.W. ≤ 38 tonnes)	1	105	105	30	-5	**	225	43			
			5	PME	CNP 021	Bar bender and cutter (electric)	1	90	90	70	-10	**	225	26			
			6	SPME	OCNP *	Poker (vibratory, hand-held, electric)	3	102	107	80	0		225	54			
			7	PME	CNP 283	Water pump (submersible, electric)	10	85	95	100	-10	**	225	33			
			8	SPME	CNP 044	Concrete lorry mixer	4	109	115	60	-5	**	225	56			
			9	PME	CNP 103	Generator (super silenced, 70 dB(A) at 7m)	1	95	95	100	-10	**	225	33			
		10/2022-9/2023 (Reduced plant operations during Examination period (to be advised) at N2)	1	PME	CNP 049	Tower crane (electric)	1	95	95	90	0		225	42	46	75	Complied
			2	PME	CNP 103	Generator (400A)	1	95	95	90	-10	**	225	32			
			3	PME	CNP 047	Concrete pump (stationary / lorry mounted)	Suspended during Examination				**	225	-				
			4	PME	OCNP *	Lorry with crane / grab (5.5 tonnes < G.V.W. ≤ 38 tonnes)	1	105	105	30	-5	**	225	43			
			5	PME	CNP 021	Bar bender and cutter (electric)	1	90	90	70	-10	**	225	26			
			6	SPME	OCNP *	Poker (vibratory, hand-held, electric)	Suspended during Examination				**	225	-				
			7	PME	CNP 283	Water pump (submersible, electric)	10	85	95	100	-10	**	225	33			
			8	SPME	CNP 044	Concrete lorry mixer	Suspended during Examination				**	225	-				
			9	PME	CNP 103	Generator (super silenced, 70 dB(A) at 7m)	1	95	95	100	-10	**	225	33			
5	Backfilling	1/2023-6/2023	1	PME	QPME EPD-06284 or equivalent	Backhoe	2	99	102	30	-5	**	225	40	48	75	Complied
			2	SPME	OCNP *	Dump truck with grab (5.5 tonnes < G.V.W. ≤ 38 tonnes)	1	105	105	50	-5	**	225	45			
			3	PME	QPME EPD-07283 or equivalent	Roller (vibratory)	1	103	103	30	-5	**	225	41			
			4	PME	CNP 283	Water pump (submersible, electric)	10	85	95	100	-10	**	225	33			
			5	PME	CNP 103	Generator (super silenced, 70 dB(A) at 7m)	1	95	95	100	-10	**	225	33			
6	E&M Installations & Pipeworks	4/2023-6/2024	1	PME	QPME EPD-05808 or equivalent	Mobile crane	1	92	92	30	0		225	35	51	75	Complied
			2	PME	OCNP *	Lorry with crane / grab (5.5 tonnes < G.V.W. ≤ 38 tonnes)	1	105	105	30	-5	**	225	43			
			3	PME	CNP 065	Drill / grinder (hand-held, electric)	1	98	98	80	-10	**	225	35			
			4	PME	OCNP *	Cherry picker [Aerial work platform (working height ≤ 13m)]	4	95	101	70	0		225	47			
			5	PME	OCNP *	Scissor lift [Aerial work platform (working height ≤ 13m)]	4	95	101	70	0		225	47			
			6	PME	CNP 103	Generator (super silenced, 70 dB(A) at 7m)	1	95	95	100	-10	**	225	33			
7	Finishing and Landscape Works	10/2023-6/2024	1	PME	QPME EPD-06284 or equivalent	Backhoe	2	99	102	30	-5	**	225	40	55	75	Complied
			2	PME	QPME EPD-05808 or equivalent	Mobile crane	1	92	92	30	0		225	35			
			3	SPME	OCNP *	Poker (vibratory, hand-held, electric)	1	102	102	60	0		225	48			
			4	SPME	CNP 044	Concrete lorry mixer	1	109	109	60	-5	**	225	50			
			5	SPME	QPME EPD-07425 or equivalent	Breaker (hand-held, mass > 35 kg)	1	103	103	50	-10	**	225	38			
			6	PME	OCNP *	Cherry picker [Aerial work platform (working height ≤ 13m)]	4	95	101	70	0		225	47			
			7	PME	OCNP *	Scissor lift [Aerial work platform (working height ≤ 13m)]	4	95	101	70	0		225	47			
			8	PME	CNP 103	Generator (super silenced, 70 dB(A) at 7m)	1	95	95	100	-10	**	225	33			
		10/2023-6/2024 (Reduced plant operations during Examination period (to be advised) at N2)	1	PME	QPME EPD-06284 or equivalent	Backhoe	2	99	102	30	-5	**	225	40	51	75	Complied
			2	PME	QPME EPD-05808 or equivalent	Mobile crane	1	92	92	30	0		225	35			
			3	SPME	OCNP *	Poker (vibratory, hand-held, electric)	Suspended during Examination				**	225	-				
			4	SPME	CNP 044	Concrete lorry mixer	Suspended during Examination				**	225	-				
			5	SPME	QPME EPD-07425 or equivalent	Breaker (hand-held, mass > 35 kg)	1	103	103	50	-10	**	225	38			
			6	PME	OCNP *	Cherry picker [Aerial work platform (working height ≤ 13m)]	4	95	101	70	0		225	47			
7	PME	OCNP *	Scissor lift [Aerial work platform (working height ≤ 13m)]	4	95	101	70	0		225	47						
				8	PME	CNP 103	Generator (super silenced, 70 dB(A) at 7m)	1	95	95	100	-10	**	225	33		
Notes : 1. SPME = Specified Powered Mechanical Equipment ; SWL = Sound Power Level ; CNL = Corrected Noise Level ; * SWLs of other commonly used PME [https://www.epd.gov.hk/epd/sites/default/files/cpd/english/application_for_licenses/guidance/files/OtherSWLE.pdf]																	
2. Combined SWL = SWL + 10 log (Quantity) ; Predicted CNL (Individual) = Combined SWL + 10 log (PME % On-time) + Correction (Measures) - 20 log (R) + 8 + Facade Reflection [where Facade Reflection = 3] ; Predicted CNL (Overall) = 10 log [Σ 10 ^{Predicted CNL (Individual) / 10}]																	
3. Noise Mitigation Measures = Noise barrier [with geometrical coverage blocking the line of sight to the subject NSR - offering ** 5 dB(A) noise reduction for mobile plant & 10 dB(A) noise reduction for stationary plant]																	

Sai O Truck Sewer Sewage Pumping Station – Construction Noise Management Plan

NSR : N5 (Zessa Vista) (Mitigated)

Activity		Period	Powered Mechanical Equipment (PME)										Predicted CNL		Statutory Noise Limit		
			Item	Classification	Identification Code	Description	Quantity	SWL, dB(A)	Combined SWL, dB(A)	PME % On-time	Correction (Noise Mitigation Measures)	Distance R (Source to Critical NSR), m	Individual	Overall	Non-restricted Hours (07:00-19:00)	Compliance (CNL ≤ Noise Limit)	
1.1	Site Clearance (Tree Felling)	1/2022-1/2022	1	PME	CNP 202	Petrol tree cutter (Saw, chain, hand-held)	2	114	117	20	0		244	57	57	75	Complied
1.2	Site Preparation	1/2022-3/2022	1	PME	QPME EPD-06284 or equivalent	Backhoe	1	99	99	100	0		244	46	48	75	Complied
			2	PME	CNP 103	Generator (super silenced, 70 dB(A) at 7m)	1	95	95	100	0		244	42			
2	Excavation and Lateral Support (ELS)	2/2022-9/2022	1	PME	QPME EPD-06284 or equivalent	Backhoe	2	99	102	30	-5	**	244	39	58	75	Complied
			2	SPME	QPME EPD-07425 or equivalent	Breaker (hand-held, mass > 35 kg)	1	103	103	30	-10	**	244	35			
			3	SPME	OCNP *	Dump truck with grab (5.5 tonnes < G.V.W. ≤ 38 tonnes)	1	105	105	50	-5	**	244	44			
			4	PME	CNP 282	Water pump (petrol)	2	103	106	80	-10	**	244	42			
			5	PME	CNP 283	Water pump (submersible, electric)	4	85	91	80	-10	**	244	27			
			6	PME	OCNP *	Drill rig (rotary type, diesel)	2	110	113	70	-10	**	244	49			
			7	PME	CNP 182	DTH hammer drill [Rock drill (crawler mounted, hydraulic)]	2	123	126	20	-10	**	244	56			
			8	PME	QPME EPD-05808 or equivalent	Mobile crane	3	92	97	80	0		244	43			
			9	PME	CNP 065	Drill / grinder (hand-held, electric)	1	98	98	40	-10	**	244	31			
			10	PME	OCNP *	Lorry with crane / grab (5.5 tonnes < G.V.W. ≤ 38 tonnes)	1	105	105	30	-5	**	244	42			
			11	PME	QPME EPD-05791 or equivalent	Air compressor (10m³/min < air flow ≤ 30m³/min)	6	98	106	100	-10	**	244	43			
			12	PME	OCNP *	Grout mixer	2	90	93	100	0		244	40			
			13	PME	CNP 103	Generator (super silenced, 70 dB(A) at 7m)	2	95	98	100	-10	**	244	35			
		2/2022-9/2022 (Reduced plant operations during Examination period in May 2022 at N2)	1	PME	QPME EPD-06284 or equivalent	Backhoe	2	99	102	30	-5	**	244	39	53	75	Complied
			2	SPME	QPME EPD-07425 or equivalent	Breaker (hand-held, mass > 35 kg)	1	103	103	30	-10	**	244	35			
			3	SPME	OCNP *	Dump truck with grab (5.5 tonnes < G.V.W. ≤ 38 tonnes)	1	105	105	50	-5	**	244	44			
			4	PME	CNP 282	Water pump (petrol)	2	103	106	80	-10	**	244	42			
			5	PME	CNP 283	Water pump (submersible, electric)	4	85	91	80	-10	**	244	27			
			6	PME	OCNP *	Drill rig (rotary type, diesel)	2	110	113	70	-10	**	244	49			
			7	PME	CNP 182	DTH hammer drill [Rock drill (crawler mounted, hydraulic)]	Suspended during Examination				**	244	-				
			8	PME	QPME EPD-05808 or equivalent	Mobile crane	3	92	97	80	0		244	43			
			9	PME	CNP 065	Drill / grinder (hand-held, electric)	1	98	98	40	-10	**	244	31			
			10	PME	OCNP *	Lorry with crane / grab (5.5 tonnes < G.V.W. ≤ 38 tonnes)	1	105	105	30	-5	**	244	42			
			11	PME	QPME EPD-05791 or equivalent	Air compressor (10m³/min < air flow ≤ 30m³/min)	Suspended during Examination				**	244	-				
			12	PME	OCNP *	Grout mixer	2	90	93	100	0		244	40			
			13	PME	CNP 103	Generator (super silenced, 70 dB(A) at 7m)	2	95	98	100	-10	**	244	35			
			3	Bulk Excavation	6/2022-12/2022	1	PME	QPME EPD-06284 or equivalent	Backhoe	4	99	105	100	-5			
2	SPME	QPME EPD-07425 or equivalent				Breaker (hand-held, mass > 35 kg)	1	103	103	70	-10	**	244	39			
3	PME	OCNP *				Lorry with crane / grab (5.5 tonnes < G.V.W. ≤ 38 tonnes)	1	105	105	30	-5	**	244	42			
4	SPME	OCNP *				Dump truck with grab (5.5 tonnes < G.V.W. ≤ 38 tonnes)	6	105	113	50	-5	**	244	52			
5	PME	QPME EPD-07283 or equivalent				Roller (vibratory)	1	103	103	70	-5	**	244	44			
6	PME	CNP 049				Tower crane (electric)	1	95	95	100	0		244	42			
7	PME	CNP 283				Water pump (submersible, electric)	10	85	95	100	-10	**	244	32			
8	PME	CNP 103				Generator (super silenced, 70 dB(A) at 7m)	1	95	95	100	-10	**	244	32			
4	Steel Fixing and Concreting of Structure	10/2022-9/2023	1	PME	CNP 049	Tower crane (electric)	1	95	95	90	0		244	42	58	75	Complied
			2	PME	CNP 103	Generator (400A)	1	95	95	90	-10	**	244	32			
			3	PME	CNP 047	Concrete pump (stationary / lorry mounted)	1	109	109	100	-5	**	244	51			
			4	PME	OCNP *	Lorry with crane / grab (5.5 tonnes < G.V.W. ≤ 38 tonnes)	1	105	105	30	-5	**	244	42			
			5	PME	CNP 021	Bar bender and cutter (electric)	1	90	90	70	-10	**	244	26			
			6	SPME	OCNP *	Poker (vibratory, hand-held, electric)	3	102	107	80	0		244	53			
			7	PME	CNP 283	Water pump (submersible, electric)	10	85	95	100	-10	**	244	32			
			8	SPME	CNP 044	Concrete lorry mixer	4	109	115	60	-5	**	244	55			
			9	PME	CNP 103	Generator (super silenced, 70 dB(A) at 7m)	1	95	95	100	-10	**	244	32			
		10/2022-9/2023 (Reduced plant operations during Examination period (to be advised) at N2)	1	PME	CNP 049	Tower crane (electric)	1	95	95	90	0		244	42	46	75	Complied
			2	PME	CNP 103	Generator (400A)	1	95	95	90	-10	**	244	32			
			3	PME	CNP 047	Concrete pump (stationary / lorry mounted)	Suspended during Examination				**	244	-				
			4	PME	OCNP *	Lorry with crane / grab (5.5 tonnes < G.V.W. ≤ 38 tonnes)	1	105	105	30	-5	**	244	42			
			5	PME	CNP 021	Bar bender and cutter (electric)	1	90	90	70	-10	**	244	26			
			6	SPME	OCNP *	Poker (vibratory, hand-held, electric)	Suspended during Examination				**	244	-				
			7	PME	CNP 283	Water pump (submersible, electric)	10	85	95	100	-10	**	244	32			
			8	SPME	CNP 044	Concrete lorry mixer	Suspended during Examination				**	244	-				
			9	PME	CNP 103	Generator (super silenced, 70 dB(A) at 7m)	1	95	95	100	-10	**	244	32			
5	Backfilling	1/2023-6/2023	1	PME	QPME EPD-06284 or equivalent	Backhoe	2	99	102	30	-5	**	244	39	47	75	Complied
			2	SPME	OCNP *	Dump truck with grab (5.5 tonnes < G.V.W. ≤ 38 tonnes)	1	105	105	50	-5	**	244	44			
			3	PME	QPME EPD-07283 or equivalent	Roller (vibratory)	1	103	103	30	-5	**	244	40			
			4	PME	CNP 283	Water pump (submersible, electric)	10	85	95	100	-10	**	244	32			
			5	PME	CNP 103	Generator (super silenced, 70 dB(A) at 7m)	1	95	95	100	-10	**	244	32			
6	E&M Installations & Pipeworks	4/2023-6/2024	1	PME	QPME EPD-05808 or equivalent	Mobile crane	1	92	92	30	0		244	34	51	75	Complied
			2	PME	OCNP *	Lorry with crane / grab (5.5 tonnes < G.V.W. ≤ 38 tonnes)	1	105	105	30	-5	**	244	42			
			3	PME	CNP 065	Drill / grinder (hand-held, electric)	1	98	98	80	-10	**	244	34			
			4	PME	OCNP *	Cherry picker [Aerial work platform (working height ≤ 13m)]	4	95	101	70	0		244	47			
			5	PME	OCNP *	Scissor lift [Aerial work platform (working height ≤ 13m)]	4	95	101	70	0		244	47			
			6	PME	CNP 103	Generator (super silenced, 70 dB(A) at 7m)	1	95	95	100	-10	**	244	32			
7	Finishing and Landscape Works	10/2023-6/2024	1	PME	QPME EPD-06284 or equivalent	Backhoe	2	99	102	30	-5	**	244	39	54	75	Complied
			2	PME	QPME EPD-05808 or equivalent	Mobile crane	1	92	92	30	0		244	34			
			3	SPME	OCNP *	Poker (vibratory, hand-held, electric)	1	102	102	60	0		244	47			
			4	SPME	CNP 044	Concrete lorry mixer	1	109	109	60	-5	**	244	49			
			5	SPME	QPME EPD-07425 or equivalent	Breaker (hand-held, mass > 35 kg)	1	103	103	50	-10	**	244	37			
			6	PME	OCNP *	Cherry picker [Aerial work platform (working height ≤ 13m)]	4	95	101	70	0		244	47			
			7	PME	OCNP *	Scissor lift [Aerial work platform (working height ≤ 13m)]	4	95	101	70	0		244	47			
			8	PME	CNP 103	Generator (super silenced, 70 dB(A) at 7m)	1	95	95	100	-10	**	244	32			
		10/2023-6/2024 (Reduced plant operations during Examination period (to be advised) at N2)	1	PME	QPME EPD-06284 or equivalent	Backhoe	2	99	102	30	-5	**	244	39	50	75	Complied
			2	PME	QPME EPD-05808 or equivalent	Mobile crane	1	92	92	30	0		244	34			
			3	SPME	OCNP *	Poker (vibratory, hand-held, electric)	Suspended during Examination				**	244	-				
			4	SPME	CNP 044	Concrete lorry mixer	Suspended during Examination				**	244	-				
5	SPME	QPME EPD-07425 or equivalent	Breaker (hand-held, mass > 35 kg)	1	103	103	50	-10	**	244	37						
6	PME	OCNP *	Cherry picker [Aerial work platform (working height ≤ 13m)]	4	95	101	70	0		244	47						
7	PME	OCNP *	Scissor lift [Aerial work platform (working height ≤ 13m)]	4	95	101	70	0		244	47						
8	PME	CNP 103	Generator (super silenced, 70 dB(A) at 7m)	1	95	95	100	-10	**	244	32						

Notes : 1. SPME = Specified Powered Mechanical Equipment ; SWL = Sound Power Level ; CNL = Corrected Noise Level ; * SWLs of other commonly used PME [https://www.epd.gov.hk/epd/sites/default/files/english/application_for_licenses/guidance/files/OtherSWLE.pdf]

2. Combined SWL = SWL + 10 kg (Quantity) ; Predicted CNL (Individual) = Combined SWL + 10 kg (PME % On-time) + Correction (Measures) - 20 kg (R) - 8 + Facade Reflection [where Facade Reflection = 3] ; Predicted CNL (Overall) = 10 kg [Σ 10^{Predicted CNL (Individual) (dB)}]

3. Noise Mitigation Measures = Noise barrier [with geometrical coverage blocking the line of sight to the subject NSR - offering ** 5 dB(A) noise reduction for mobile plant & 10 dB(A) noise reduction for stationary plant]

NSR : N2 (Hong Kong Baptist Theological Seminary - Administration & Education Block)													Predicted CNL Allocation, dB(A)																								
Construction Activity		Predicted CNL (Mitigated), dB(A)	Noise Mitigation Measures	2022												2023												2024									
No.	Description			Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun				
1.1	Site Clearance (Tree Felling)	68	-	68	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
1.2	Site Preparation	58	QPME	58	58	58	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
2	Excavation and Lateral Support (ELS)	68	QPME + NB *	0	68	68	68	63	68	68	68	68	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
3	Bulk Excavation	65	QPME + NB	0	0	0	0	0	65	65	65	65	65	65	65	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
4	Steel Fixing and Concreting of Structure	69	NB *	0	0	0	0	0	0	0	0	69	69	69	69	69	69	69	69	69	69	69	69	0	0	0	0	0	0	0	0	0	0	0			
5	Backfilling	57	QPME + NB	0	0	0	0	0	0	0	0	0	0	0	0	57	57	57	57	57	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
6	E&M Installations & Pipeworks	61	QPME + NB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61	61			
7	Finishing and Landscape Works	64	QPME + NB *	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
Sai O Trunk Sewer Sewage Pumping Station		Combined CNL, dB(A)		68	68	68	68	63	70	70	70	70	70	70	70	69	69	69	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70			
Statutory Noise Limit (07:00-19:00), dB(A)				70	70	70	70	65	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70			
Compliance (Combined CNL ≤ Statutory Noise Limit)				C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C			
Contract :	Sai Sha Road Widening Project (Appendix 4.10, EIA Report)	Maximum CNL, dB(A)		56	56	56	56	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
Contract :	Sai O Trunk Sewer Sewage Pumping Station Project	Cumulative CNL, dB(A)		68	68	68	68	63	70	70	70	70	70	70	70	69	69	69	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70			
		Compliance (Cumulative CNL ≤ Statutory Noise Limit)		C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C			
Notes : 1. QPME = Quality Powered Mechanical Equipment ; CNL = Corrected Noise Level ; C = Complied ; E = Exceeded 2. NB = Noise barrier (with geometrical coverage blocking the line of sight to the subject NSR - offering 5 dB(A) noise reduction for mobile plant & 10 dB(A) noise reduction for stationary plant) 3. * Like the reduced noisy plant operations in May 2022 during the examination period at NSR 'N2', similar arrangement (concreting operations to be suspended) shall be exercised for Activities 4 and 7 above once the timetables for the 2023 and 2024 semesters are known.																																					

Examination Timetable at NSR 'N2' in 2022 known but unavailable in 2023 and 2024		Updated : 08-02-2024																																					
NSR : N4 (Block 11, Symphony Bay Villa Concerto)				Predicted CNL Allocation, dB(A)																																			
Construction Activity		Predicted CNL (Mitigated), dB(A)	Noise Mitigation Measures	2022												2023												2024											
No.	Description			Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun						
1.1	Site Clearance (Tree Felling)	58	-	58	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0				
1.2	Site Preparation	48	QPME	48	48	48	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
2	Excavation and Lateral Support (ELS)	59	QPME + NB *	0	59	59	59	53	59	59	59	59	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
3	Bulk Excavation	55	QPME + NB	0	0	0	0	0	55	55	55	55	55	55	55	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
4	Steel Fixing and Concreting of Structure	59	NB *	0	0	0	0	0	0	0	0	0	0	0	59	59	59	59	59	59	59	59	59	59	0	0	0	0	0	0	0	0	0	0	0	0			
5	Backfilling	48	QPME + NB	0	0	0	0	0	0	0	0	0	0	0	48	48	48	48	48	48	48	48	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
6	E&M Installations & Pipeworks	51	QPME + NB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51			
7	Finishing and Landscape Works	55	QPME + NB *	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
Sai O Trunk Sewer Sewage Pumping Station		Combined CNL, dB(A)		58	59	59	59	53	60	60	60	60	60	60	59	59	59	60	60	60	60	60	60	56	56	56	56	56	56	56	56	56	56	56	56	56			
Statutory Noise Limit (07:00-19:00), dB(A)				75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75			
Compliance (Combined CNL ≤ Statutory Noise Limit)				C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C			
Contract :	Sai Sha Road Widening Project (Appendix 4.10, EIA Report)	Maximum CNL, dB(A)		56	56	56	56	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
		Cumulative CNL, dB(A)		60	61	61	61	53	60	60	60	60	60	60	59	59	59	60	60	60	60	60	56	56	56	56	56	56	56	56	56	56	56	56	56	56			
Contract :	Sai O Trunk Sewer Sewage Pumping Station Project	Compliance (Cumulative CNL ≤ Statutory Noise Limit)		C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C				

Notes : 1. QPME = Quality Powered Mechanical Equipment ; CNL = Corrected Noise Level ; C = Complied ; E = Exceeded
2. NB = Noise barrier (with geometrical coverage blocking the line of sight to the subject NSR - offering 5 dB(A) noise reduction for mobile plant & 10 dB(A) noise reduction for stationary plant)
3. * Like the reduced noise plant operations in May 2022 during the examination period at NSR 'N2', similar arrangement (concreting operations to be suspended) shall be exercised for **Activities 4 and 7** above once the timetables for the 2023 and 2024 semesters are known. With the statutory noise limit unchanged, noise compliance status for the cumulative CNLs above shall stand even if the examination periods fall into any of the months in 2023 and 2024.

9

2.4 Noise Mitigation Measures

Detailed selection and design of the engineering noise mitigation measures (e.g. screening structures like noise barriers or noise enclosures etc.) are to be finalized upon further refinement of the plants and site constraints with the project team. Other than these engineering noise mitigation measures, some practicable but administrative means can be like rescheduling the works program to suspend noisy construction activities / plants during the examination periods as well as the adoption of Quality Powered Mechanical Equipments (QPMEs). The proposed suspension of noisy plant operations during the upcoming examination periods at the neighbouring Hong Kong Baptist Theological Seminary (HKBTS) [currently only with examination timetable (Appendix III) in May 2022 updated upon liaison with the HKBTS] is in fulfilment of Environmental Permit No. EP-597/2021, Part C, Condition 2.9.

A summary of the proposed noise mitigation measures (administrative and engineering) within the site is shown in **Table 5** below. All the movable noise barriers (NB) are to be positioned close to and/or moving along and in line with the PME during the construction stage with schematic arrangement (Figure 4) such that the lines of sight from the NSRs to the PMEs are substantially blocked. Detailed assignment of the movable noise barriers to particular PMEs is listed in **Table 3** above. Apart from them, the site boundary hoarding (i.e. Type 1 hoarding, to be made of typical corrugated G.I. sheets up to some 2.4m height) shall act as fixed noise barrier (noise mitigation measures) to offer additional noise protection particularly for the NSRs “N1a, N1b and N2” to the south. Details of its alignment are as shown in Figure 3. An implementation schedule of the noise mitigation measures (both administrative and engineering) is given in **Table 6**.

Table 5 Summary of Proposed Noise Mitigation Measures

Construction Activity		Noise Mitigation Measures				
No.	Description	N1a	N1b	N2	N4	N5
		Hong Kong Baptist Theological Seminary			Block 11, Symphony Bay Villa Concerto	Zessa Vista
		Staff & Students' Quarters	Staff & Students' Quarters	Administration & Education Block		
1.1	Site Clearance (Tree Felling)	-				
1.2	Site Preparation	QPME				
2	Excavation and Lateral Support (ELS)	NB + QPME + Reduced noisy plant operations (DTH hammer drill & Air compressor) **				
3	Bulk Excavation	NB + QPME				
4	Steel Fixing and Concreting of Structure	NB + Reduced noisy plant operations (Concreter lorry mixer, poker & concrete pump) **				
5	Backfilling	NB + QPME				
6	E&M Installations & Pipeworks	NB + QPME				
7	Finishing and Landscape Works	NB + QPME + Reduced noisy plant operations (Concreter lorry mixer, poker) **				
Statutory Noise Limit (07:00-19:00), dB(A)		75	75	70 or 65 (Exam)	75	75
Notes : 1. QPME = Quality Powered Mechanical Equipment 2. NB = Noise barrier [Typical construction is made of vertical with top cantilever wooden panel (density ≥ 10kg/m ²) + 25mm thick source side sound absorptive lining & supported on skid footing (with geometrical coverage blocking the line of sight to the subject NSR, offering 5 dB(A) noise reduction for mobile plant ; 10 dB(A) noise reduction for stationary plant)] 3. ** During examination periods at NSR 'N2'						

Table 6 Implementation Schedule of Noise Mitigation Measures

EIA Report Ref.	Noise Mitigation Measures	Environmental Performance *				Location	Party	Implementation																								References (Legislations & Guidelines)																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																							
		Noise Reduction at Source	Noise Suppression at Source	Noise Reduction along Transmission Path	Reduced Noise Exposure Time			2022												2023						2024																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																													
								Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec		Jan	Feb	Mar	Apr	May	Jun																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																	
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2.5 Construction Noise Levels & Compliance Status

A summary of the predicted combined CNLs and their noise compliance status is given in **Table 7** below.

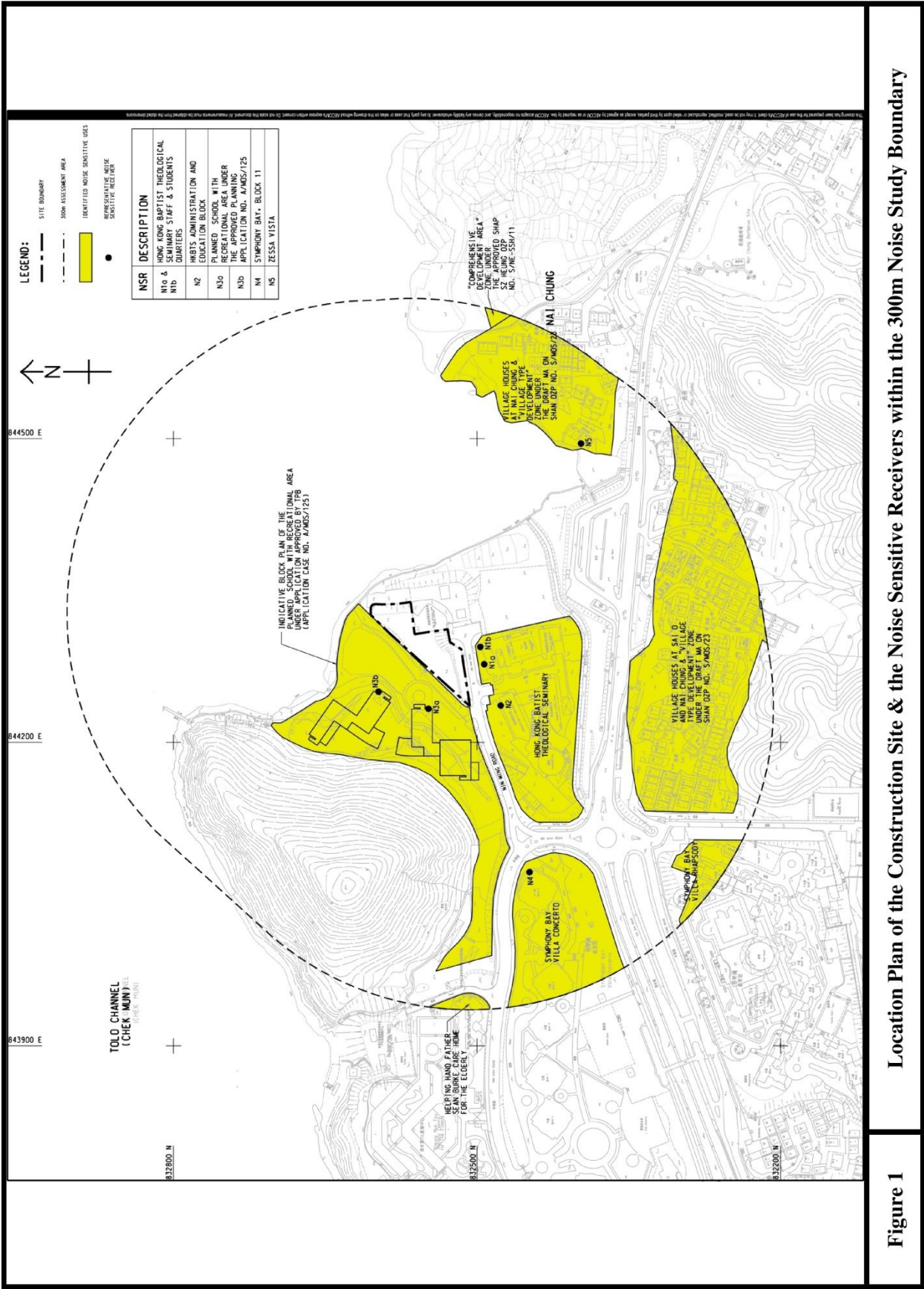
Table 7 Summary of Predicted Construction Noise Levels

Noise Sensitive Receivers	N1a	N1b	N2	N4	N5
	Hong Kong Baptist Theological Seminary			Block 11,	Zessa Vista
	Staff & Students' Quarters	Staff & Students' Quarters	Administration & Education Block	Symphony Bay Villa Concerto	
Combined CNL Range, dB(A)	68 to 75	69 to 75	63 to 70	53 to 60	53 to 59
Statutory Noise Limit (07:00-19:00), dB(A)	75	75	70 or 65 * (Exam)	75	75
Compliance (Combined CNL ≤ Statutory Noise Limit)	Complied	Complied	Complied	Complied	Complied
* In particular, compliance with the 65 dB(A) limit stands with a Combined CNL of 63 dB(A) in Table 4 above during the Exam. Period in May 2022.					

3.0 Conclusion

This Construction Noise Management Plan is prepared with respect to a number of stages involving some critical construction activities throughout the whole construction period such as the site clearance, excavation, foundation and superstructure work, E&M installations as well as the subsequent landscaping works.

Some practicable noise mitigation measures, both engineering and administrative, have been proposed and included into the construction noise level estimation. Results indicate that noise compliance (mitigated) with the statutory noise limit(s) has been struck at the selected NSR positions (i.e. Combined CNLs at N1a to N5 in compliance with the respective noise limits in Table 1 above as well as compliance of the Cumulative CNLs with the noise contribution from the neighbouring Sai Sha Road Widening Project). Any excessive noise, if occurred, can be tackled by program rescheduling (e.g. during examination periods), further limiting the operation time (PME % On-time) and setbacks as well as installing screening covers (e.g. acoustic mats) onto major engine noise sources wherever appropriate.



Location Plan of the Construction Site & the Noise Sensitive Receivers within the 300m Noise Study Boundary

Figure 1

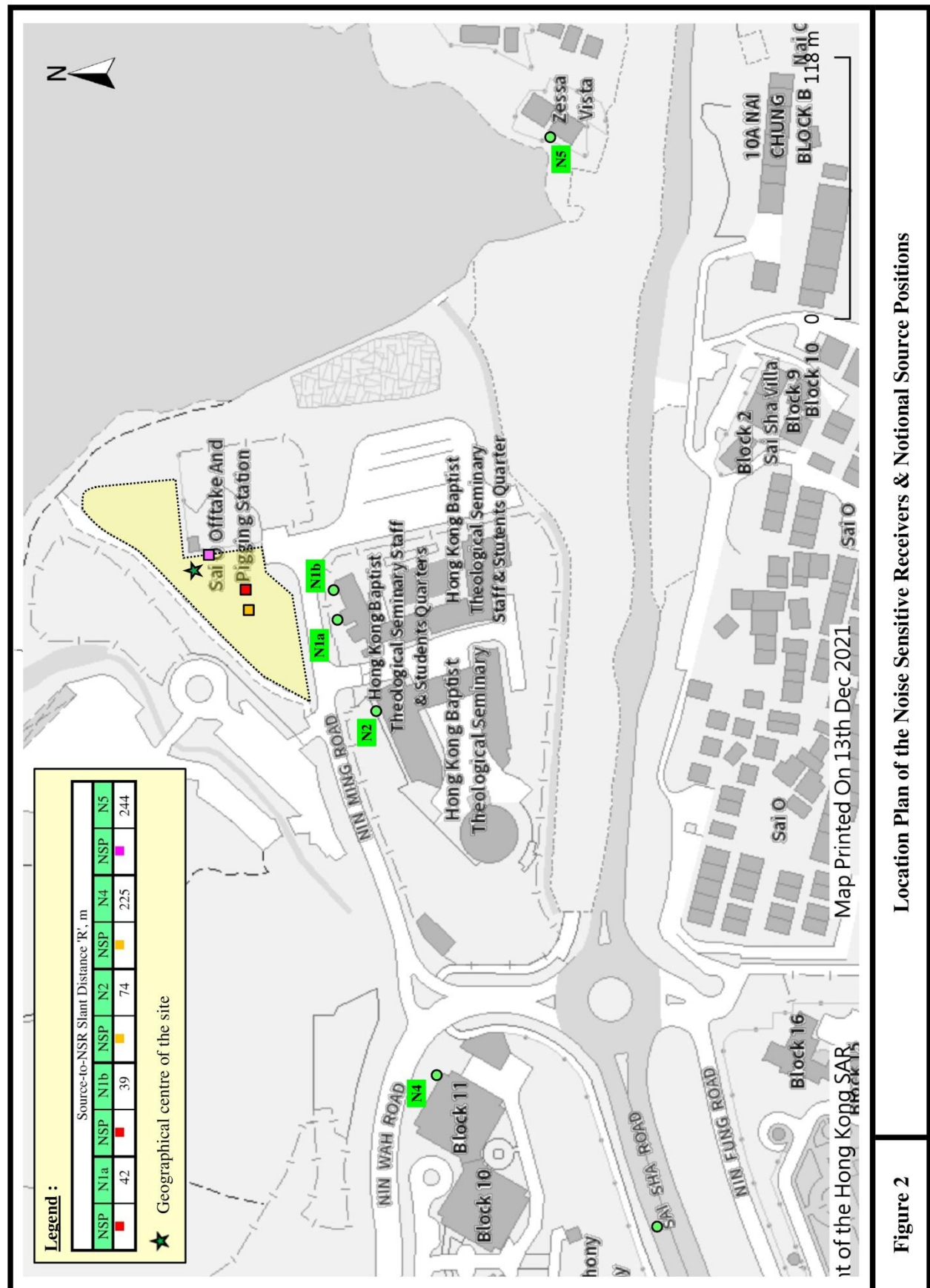
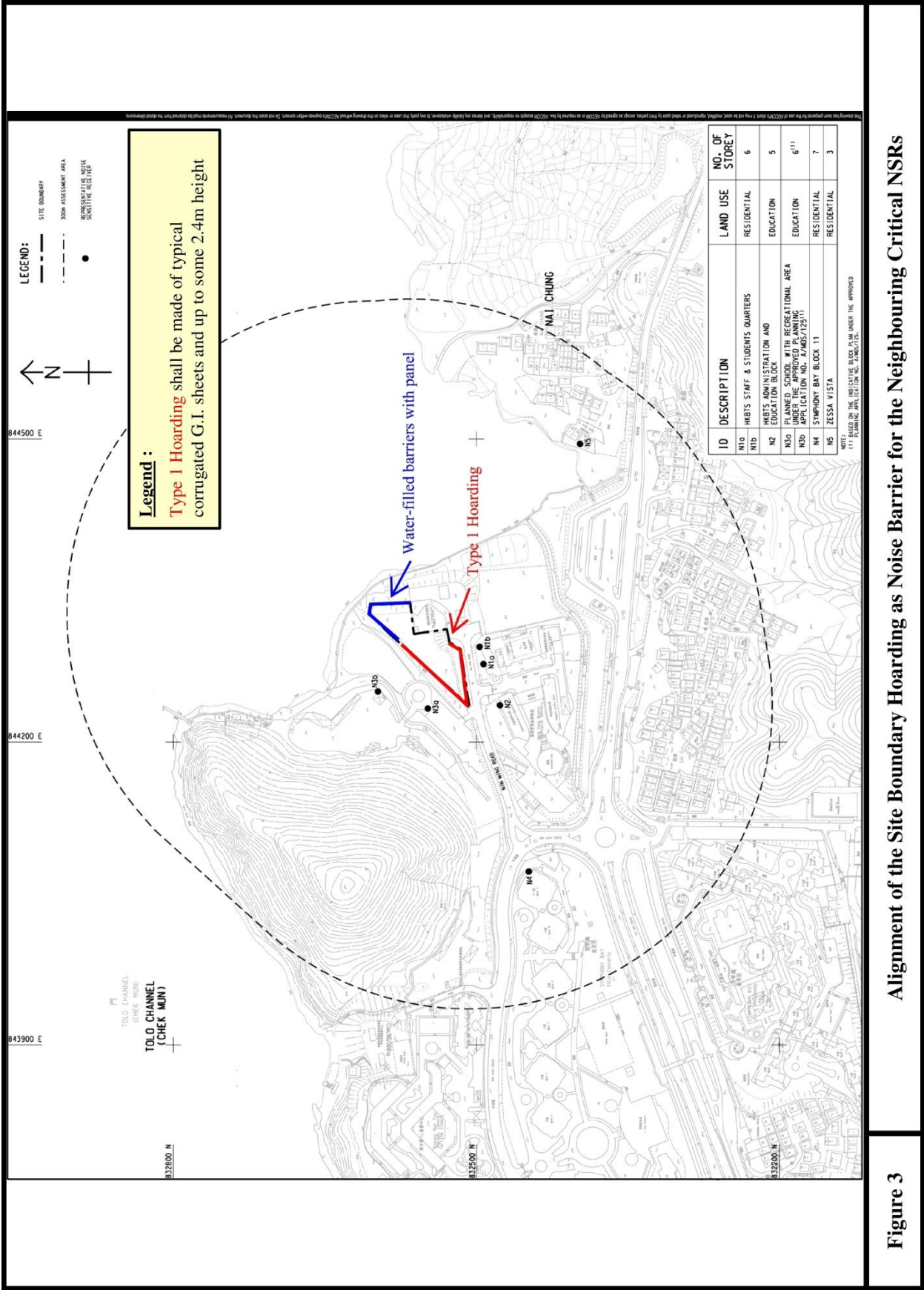
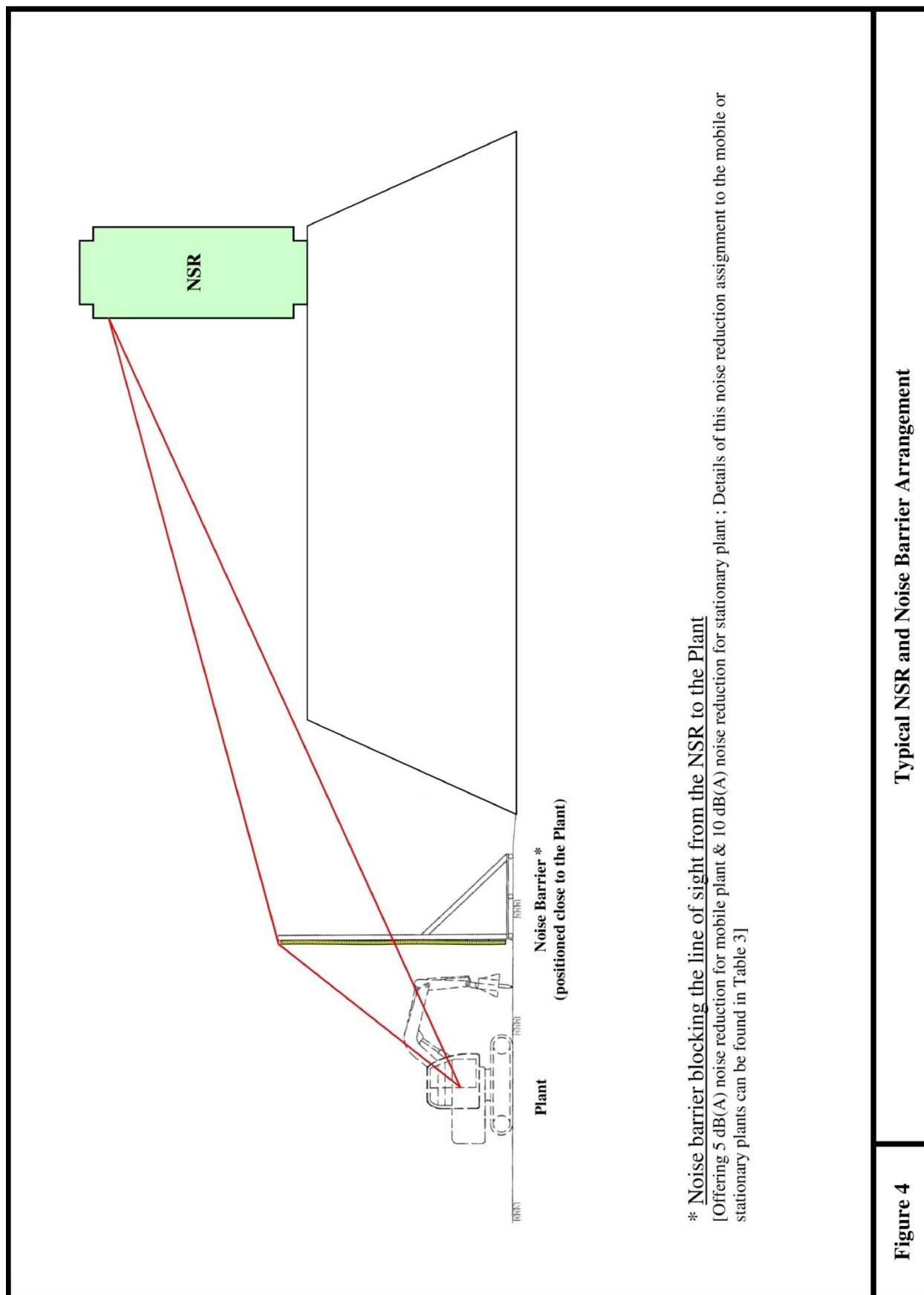


Figure 2

Location Plan of the Noise Sensitive Receivers & Notional Source Positions





Appendix I

Confirmation on the Practicality of the Plant Inventory by the Resident Engineer (Mr. C.K. Man)

Zero Jane Heung Chun Ling

From: Man, Chi Kwong <ck.man@aecom.com>
Sent: 2022年1月19日星期三 16:06
To: Alan Chun Tai Ho
Cc: Yung, Colin; Wong, Chi Fai; Man, Cheuk Yin; Leung, Shu Wing Desmond; Leung, Francis; hlyuen@shkp.com; irenelai@shkp.com; Zero Jane Heung Chun Ling; Tam, Janice; Jerry Ka Chun Yuen; Michael Chung Kwong Wong; Yuen, Ming Chung; Ray Wai Man Lo; Pun, Pak Wing Vic; Wai Ho Pang; Wong, Wayne; sunnycheung@shkp.com; Jacky Chu; Theo Chan; Eddie Chi Hin Tse; Leung, Min Pong Calvin; Y H Hui; hng@ramboll.com
Subject: [E] Re: Sai O Pumping Station EP (No. EP-597/2021) - CNMP
Attachments: Table 2,3,4_20220119_r1.pdf; Activity 5_r03.pdf

▶ This email is from **EXTERNAL** – be cautious with any link and attachment ◀

Dear Alan,

We have no comment on the proposed equipment, the numbers of equipment, the percentage on-time in the Section 2.3 and Table 3 in the CNMP.

Please including the control mechanism/ system in the submission of the Method Statement of the construction of the Sai O Pumping Station to ensure the operation on site could comply with the Section 2.3 and Table 3 in the CNMP. A documentary mechanism/ system is also required to record the operation time, types, the nos. and the percentage on-time of the equipment used.

Regards,
CK Man

From: Alan Chun Tai Ho <Alan.CT.Ho@gammonconstruction.com>
Sent: Wednesday, 19 January 2022 2:05 pm
To: Man, Chi Kwong <ck.man@aecom.com>
Cc: Yung, Colin <c.yung@fugro.com>; Wong, Chi Fai <ChiFai.Wong@aecom.com>; Man, Cheuk Yin <cy.man@fugro.com>; Leung, Shu Wing Desmond <desmond.leung@aecom.com>; Leung, Francis <Francis.hp.Leung@aecom.com>; hlyuen@shkp.com <hlyuen@shkp.com>; irenelai@shkp.com <irenelai@shkp.com>; Zero Jane Heung Chun Ling <jane.ling@gammonconstruction.com>; Tam, Janice <janice.tam@aecom.com>; Jerry Ka Chun Yuen <Jerry.Yuen@gammonconstruction.com>; Michael Chung Kwong Wong <Michael.Wong@gammonconstruction.com>; Yuen, Ming Chung <ming.yuen@aecom.com>; Ray Wai Man Lo <Ray.Lo@gammonconstruction.com>; Pun, Pak Wing Vic <vic.pun@aecom.com>; Wai Ho Pang <WaiHo.Pang@gammonconstruction.com>; Wong, Wayne <Wayne.Wong1@aecom.com>; sunnycheung@shkp.com <sunnycheung@shkp.com>; Jacky Chu <JACKYCHU@ramboll.com>; Theo Chan <THEOCHAN@ramboll.com>; Eddie Chi Hin Tse <Eddie.Tse@gammonconstruction.com>; Leung, Min Pong Calvin <c.leung@fugro.com>; Y H Hui <yhhui@ramboll.com>; hng@ramboll.com <hng@ramboll.com>
Subject: [EXTERNAL] RE: Sai O Pumping Station EP (No. EP-597/2021) - CNMP

Dear Man sir,

Attached is a table for the program and productivity check and the advanced copy of the revised construction noise calculation for your review. The table summarizes the productivity, plants and their on-time % required to achieve our target program from the site clearance stage to backfilling stage.

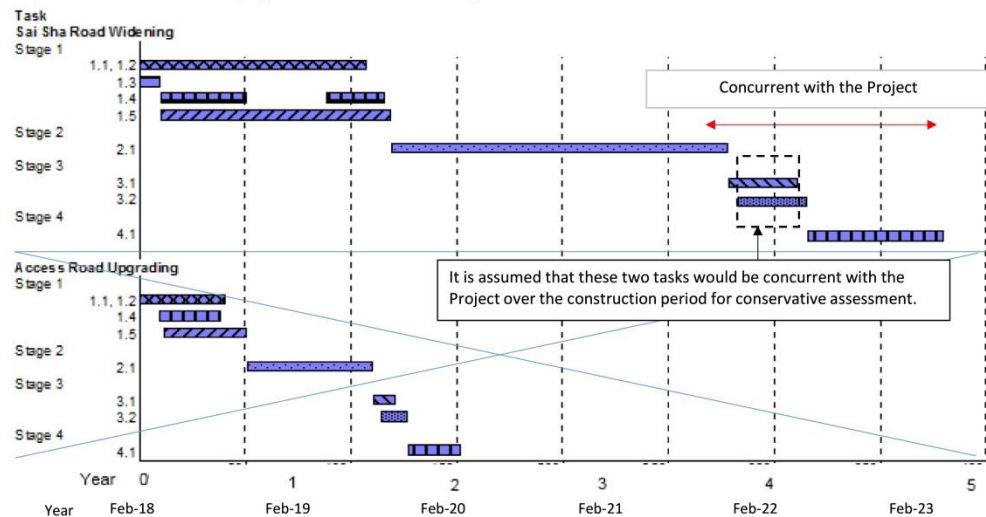
Appendix II

Cumulative Construction Noise Impact from the EIA Report

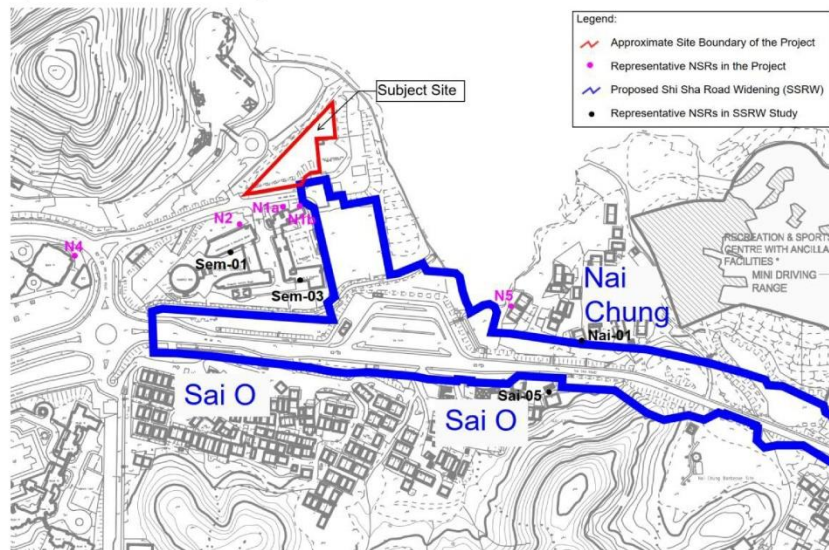
Appendix 4.10 Cumulative Construction Noise Impact

Concurrent works - Sai Sha Road Widening

According to latest information obtained, only Sai Sha Road Widening has potential of concurrent works with the Proposed Project. The tentative construction programme of the proposed Project is from Q4 2021 to Q2 2024, while the Sai Sha Road Widening was commenced in Feb 2018 and expected would be completed in Q4 2023. Therefore, construction activities "2.1 - Installation of drainage and utilities", "3.1 - Levelling", "3.2 - Formation of road sub-base" and "4.1 - Surfacing and finishing" would likely be concurrent with the Project. Provided construction program of Sai Sha Road Widening is extracted in below.



The extent of Sai Sha Road Widening near the Project Site is captured in below. The location of the Subject Site and Representative NSRs of the Project were sketched in the same figure for ease of reference.



For conservative assessment, it is assumed that construction works Tasks 3.1 and 3.2 of Sai Sha Road Widening as mentioned above would be concurrent with the proposed Project over the construction period. In view of uncertainties of notional points under the Sai Sha Road Widening, the predicted result for task "3.1 & 3.2" at assessment points Sem-01, Sem-03, Nai-01 and Sai-05 were directly adopted for calculating the cumulative construction noise impact considering the similar distance between the assessment points and works boundary as illustrated above.

Calculation of Cumulative Impact

Referring to **Appendix 4.6** and **Appendix 4.9**, the lowest assessed level is the worst case scenario, therefore, calculation of cumulative impact on middle level and highest level is considered not necessary.

NSR ID	Predicted Maximum Noise Level with Mitigation Measures, dB(A)		Cumulative Noise Level dB(A)	Noise Criteria dB(A)
	From the Project	From Sai Sha Road Widening		
N1a	70	59 (Sem-03)	70	75
N1b	72	69 (Nai-01)	74	75
N2	66	56 (Sem-01)	66	70 *
N2	65 (duration exam)	56 (Sem-01)	65	65 *
N4	56	56 (Sem-01)	59	75
N5	54	65 (Sai-05)	65	75

Remark:

* 70 dB(A) for normal school day; 65dB(A) during examination period.

As shown in above table, with considering cumulative impact from Sai Sha Road Widening, the predicted overall noise level would still comply with noise criteria for all representative NSRs.

Appendix III

Examination Timetable in May 2022 at HKBTS

Zero Jane Heung Chun Ling

From: Yiu Keung Lui
Sent: 2021年12月13日星期一 13:56
To: Zero Jane Heung Chun Ling
Subject: FW: [E] Re: 香港浸信會神學院_學生上課時間表(2nd revised)

FYI

From: Mocha Ka Yee Mok <Mocha.Mok@gammonconstruction.com>
Sent: Tuesday, December 7, 2021 9:56 AM
To: Jerry Ka Chun Yuen <Jerry.Yuen@gammonconstruction.com>
Cc: Michael Chung Kwong Wong <Michael.Wong@gammonconstruction.com>; Wai Ho Pang <WaiHo.Pang@gammonconstruction.com>; Yiu Keung Lui <YiuKeung.Lui@gammonconstruction.com>
Subject: FW: [E] Re: 香港浸信會神學院_學生上課時間表(2nd revised)

FYI

From: Emily Chung <emily@hkbts.edu.hk>
Sent: Tuesday, December 7, 2021 9:19 AM
To: Mocha Ka Yee Mok <Mocha.Mok@gammonconstruction.com>
Cc: patrick@hkbts.edu.hk; Yiu Keung Lui <YiuKeung.Lui@gammonconstruction.com>; celia juergens <celia@hkbts.edu.hk>
Subject: [E] Re: 香港浸信會神學院_學生上課時間表(2nd revised)

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Dear Mocha,

補充: 考試期

香港浸信會神學院

學生上課時間表

學季	第1天	最後1天	考試期	提交功課限期
2021秋季	23/08/2021	20/12/2021	13-17/12/2021	07/01/2022
2021冬季	28/12/2021	14/01/2022		
2022春季	17/01/2022	20/05/2022	16-20/5/2022	10/06/2022
2022夏季	23/05/2022	10/06/2022		

Emily