MTR Corporation Limited

# Siu Ho Wan Station and Siu Ho Wan Depot Replanning Works

**Construction Noise Mitigation Plan** 

(December 2021)

Verified by:	James Choi
J	

Position: Independent Environmental Checker

Date: \_\_\_\_\_ 13 December 2021

MTR Corporation Limited

# Siu Ho Wan Station and Siu Ho Wan Depot Replanning Works

**Construction Noise Mitigation Plan** 

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Certified by:	Lisa Poon	H	

Position: <u>Environmental Team Leader</u>

Date: \_\_\_\_\_13 December 2021

# AECOM

# **MTR Corporation Limited**

# **Consultancy Agreement No. NEX/1062**

# Siu Ho Wan Station and Siu Ho Wan Depot Replanning Works

# Construction Noise Mitigation Plan – Advance Works

# **December 21**

	Name	Signature
Prepared & Checked:	Scarlet Lau	(NY
Reviewed & Approved:	Y T Tang	Tanketin

Version:	A	Date:	2 December 2021	

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AECOM Asia Co. Ltd. 12/F, Grand Central Plaza, Tower 2, 138 Shatin Rural Committee Road, Shatin, NT, Hong Kong Tel: (852) 3922 9000 Fax: (852) 3922 9797 www.aecom.com



# **Table of Content**

Page

1	INT	RODUCTION	1
	1.1	Background	1
2	CO	NSTRUCTION WORKS AND METHODOLOGY OF THE PROJECT	2
	2.1	Construction Works	2
3	ASS	SESSMENT CRITERIA AND METHODOLOGY	3
	3.1	Assessment Criteria	3
	3.2	Assessment Methodology	3
4	Noi	se Sensitive receiver	4
5	ASS	SESSMENT OF CONSTRUCTION NOISE IMPACT	5
	5.1	Construction Noise Assessment Result	5
6	CO	NCLUSION	6

## LIST OF TABLES

Table 2.1	Summary of Construction Tasks for the Works

- Table 3.1Daytime Construction Noise Criteria
- Table 4.1
   Description of Representative Noise Sensitive Receiver
- Table 5.1
   Summary of Unmigrated Construction Noise Assessment
- Table 5.2Cumulative Construction Noise Levels

## LIST OF FIGURES

Figure 1 Works Areas and Location of Representative Noise Sensitive Receiver

# LIST OF APPENDICES

- Appendix 2.1 Construction Programme
- Appendix 2.2 Plant Inventory
- Appendix 3.1 SWL of PME
- Appendix 5.1 Calculation of Cumulative Construction Impact
- Appendix 5.2 Implementation Schedule



# 1 INTRODUCTION

# 1.1 Background

- 1.1.1 MTR Corporation Limited (MTRCL) had commenced a study to formulate a technically feasible development scheme for the Proposed Comprehensive Residential and Commercial Development atop Siu Ho Wan Depot (hereinafter referred to the "SHD Topside Development") to optimise housing supply. To facilitate the construction of the SHD Topside Development, railway related works would be required. The existing Siu Ho Wan Depot (SHD) will undergo replanning works to make room for the phased construction of the SHD Topside Development, while maintenance and supporting services to the existing Tung Chung Line (TCL), Airport Express Line (AEL) and Disneyland Resort Line (DRL) should be maintained without causing disruption to the normal operation. A new Siu Ho Wan Station (SHO) has also been proposed along the TCL tracks to meet transport needs of the SHD Topside Development and enable building of a sustainable community.
- 1.1.2 The Environmental Impact Assessment (EIA) Report (Register No.: AEIAR-214/2017) for the SHO and SHD Replanning Works (hereafter referred to as the "Project") was approved on 29 November 2017 under the Environmental Impact Assessment Ordinance (EIAO). Following the approval of the EIA Report, an Environmental Permit (EP) was granted on 22 March 2021 (EP No: EP-588/2021) for the construction and operation of the Project.
- 1.1.3 According to the Condition 2.10 of the EP-588/2021, the Permit Holder shall, no later than one month before the commencement of the construction of the Project, deposit a Construction Noise Mitigation Plan (CNMP) to the Director of Environmental Protection (DEP). The CNMP shall, cover both the design / tendering and implementation stage of the construction works, verify the noise source inventory and assess the effectiveness and practicality of the noise mitigation measures recommended in the EIA Report (Register No. AEIAR-214/2017) with a view to formulate the noise mitigation measures including the use of quiet powered mechanical equipment (PME), noise barriers and noise enclosures for mitigating noise impact arising from the construction activities of the Project taking into account the phased population intake of the SHD Topside Development. The CNMP shall include an implementation schedule in table form to clearly list out the mitigation measures to be implemented, and the implementation party, location, timing, and environmental performance required for implementation of the mitigation measures.
- 1.1.4 Since the construction of the Project would be undertaken in stages, the CNMP(s) under EP Condition 2.10 would be prepared and deposited to DEP no later than one month before the commencement of each stage of the Project.
- 1.1.5 This CNMP covers the advance works of the Project only. The advance works will be conducted under three works contracts and the corresponding tentative construction programme is detailed in **Table 1.1**.

Contract	Description of Construction Works	Tentative Construction Programme		
NO.		From	То	
1731	Trial Piling for SHD Phase 1	Q2 2022	Q3 2022	
1732	<ul> <li>Construction of cable bridges and associated civil works for cable diversion</li> </ul>	Q4 2021	Q4 2022	
1733	<ul> <li>Construction of vehicular access bridge</li> <li>Demolition of paint shop</li> <li>Construction of engineering vehicle (EV) stabling tracks</li> </ul>	Q2 2022	Q2 2023	

Table 1.1 Tentative Works Programme of Advance Works



## 2 CONSTRUCTION ACTIVITIES OF ADVANCE WORKS

### 2.1 Construction Activities

2.1.1 The overall construction programme of advance works would be about 18 months tentatively, commencing in Q4 2021 for completion in Q2 2023. The major construction activities to be carried out are summarised in **Table 2.1**, while the programme of each task is provided in **Appendix 2.1**.

Table 2.1	Summary	of	Construction	Tasks	for the	Works
		-				

Item	Major Construction Activities
Contract 1731 – T	rial Piles for SHD Phase 1
3.1	Site Clearance & Hoarding
3.2	Bored Pile Works
Contract 1732 – C	Cable Bridges and Associated Civil Works for Cable Diversion
1.1	Site Clearance & Hoarding/UU/Cable Trenches
1.2	H-piling
1.3	Excavation (Soil)
1.4	Substructure (footings, pile caps, columns)
1.5	Backfilling
1.6	Superstructure (Cable Bridges)
Contract 1733 – V	ehicular Access Bridge, Demolition of Paint Shop and Construction of
E	V Stabling Tracks
2.1	Site Clearance & Hoarding/UU/Cable Trenches
2.2	Paint Shop Demolition
2.3	Excavation (Soil)
2.4	Substructure (footings, pile caps, columns, abutments)
2.5	Backfilling
2.6	Superstructure (Vehicle Bridge Spans)
2.7	EV Tracks – Formation and Track Installation

- 2.1.2 According to the construction programme in **Appendix 2.1**, the construction activities would be divided into various sub-tasks and would be conducted simultaneously within the period from 2021 to 2023.
- 2.1.3 The plant inventory for each construction task has been verified by the Engineer and is shown in **Appendix 2.2**. The locations of works areas for advance works are shown in **Figure 1**<sup>1</sup>.

<sup>&</sup>lt;sup>1</sup> The figure is extracted from the approved EIA Report (Register No. AEIAR-214/2017). Design and extent of decking are subject to the detailed design development for each stage.



### 3 ASSESSMENT CRITERIA AND METHODOLOGY

#### 3.1 Assessment Criteria

3.1.1 Noise impacts generated by the construction of the Project were assessed in accordance with the noise criteria given in the Technical Memorandum on Environmental Impact Assessment Process (EIAO-TM). The construction noise criteria are presented in **Table 3.1**.

Table 3.1	Construction Noise Criteria during Non-Restricted Hours
-----------	---

Use	Noise Level in Leq (30min), dB(A)
Residential	75
Country Park	N/A <sup>[1]</sup>
lata.	

Note:

[1] N/A – Not Applicable. In accordance with Annex 13 of the TM-EIAO, country parks are considered to be an NSR. However, the TM-EIAO and TM-IND do not provide a specific noise limits for Country Parks. Given that the transient nature of visitor using hiking trails in the Country Park, no adverse construction noise impact is anticipated.

#### 3.2 Assessment Methodology

- 3.2.1 Noise impacts were assessed in accordance with the methodology given in the Technical Memorandum on Noise from Construction Work Other Than Percussive Piling (GW-TM) under the Noise Control Ordinance (NCO).
- 3.2.2 SWLs of the equipment are made reference from Table 3 of TM-GW and "Sound power levels of other commonly used Powered Mechanical Equipment" (Other PME) published by EPD. Where no relevant SWL to be found in the TM-GW and other PME, reference is made to Quality PME (QPME) available in EPD web site<sup>2</sup>. The SWL of PME as adopted in the construction noise assessment is presented in **Appendix 3.1**.
- 3.2.3 It is assumed that all PME items required for a particular construction activity would be located at the notional source position which is a position mid-way between the approximate geographical centre of each phase construction work site and its boundary nearest to the noise sensitive receiver.
- 3.2.4 In addition, PME items are divided into groups required for each discrete construction task. The objective is to identify the worst-case scenario representing those items of PME that would be in use concurrently at any given time. The sound pressure level (SPL) of each construction task at representative noise sensitive receivers (NSRs) was calculated based on the number of plant and the distance from the noise assessment points. If there are concurrent construction activities, the noise levels at representative noise assessment points are predicted by adding up the sound pressure levels of all concurrent construction tasks.
- 3.2.5 According to Section 4.5.24 of the approved EIA Report, there are concurrent projects that may cause cumulative construction noise impact to the NSR. Cumulative construction noise impact assessment has been conducted with reference to the information presented in Appendix 4.7 of the approved EIA Report.

<sup>&</sup>lt;sup>2</sup> <u>http://www.epd.gov.hk/epd/english/environmentinhk/noise/qpme/index.html</u>



# 4 NOISE SENSITIVE RECEIVER

4.1.1 In accordance with the approved EIA Report, the study area is defined as the area within 300 m from the boundary of the works of the Project. Within the study area, only Lantau North (Extension) Country Park is identified as the existing Representative Noise Sensitive Receiver (NSR) / Noise Assessment Point (NAP) for advanced works of the Project. The planned NSR (i.e. SHD Topside Development) are yet to be constructed during the advance works period and thus this NSR would not be included in the assessment. The location of the representative NSR is shown in Figure 1, while description of the representative NSR is presented Table 4.1.

Table 4.4	Decerintien	of Downson toting	Naina Comaiti	Dessiver
1 able 4.1	Description	or Representative	Noise Sensitiv	e Receiver

NAP	NSR Description	Uses	Noise Criteria, Leq (30 min), dB(A)
N01	Lantau North (Extension) Country Park	Country Park	N/A

Note:

<sup>[1]</sup> N/A – Not Applicable. In accordance with Annex 13 of the TM-EIAO, country parks are considered to be an NSR. However, the TM-EIAO and TM-IND do not provide a specific noise limits for Country Parks. Given that the transient nature of visitor using hiking trails in the Country Park, no adverse construction noise impact is anticipated.



### 5 ASSESSMENT OF CONSTRUCTION NOISE IMPACT

#### 5.1 Construction Noise Assessment Result

5.1.1 The predicted construction noise levels under unmitigated scenario and the cumulative construction noise levels at the existing NSR (i.e. Lantau North (Extension) Country Park) are detailed in **Appendix 5.1** and summarised in **Table 5.1** and **Table 5.2** below.

#### Table 5.1 Summary of Unmitigated Construction Noise Assessment

NAP	NSR Description	Predicted Noise Level, Leq (30min), dB(A)
N01	Lantau North (Extension) Country Park	49 – 70

#### Table 5.2 Cumulative Construction Noise Levels

NAP	Max. Predicted Noise	Max. Predicted Noise	Max. Cumulative
	Level,	Level,	Construction Noise
	Leq (30min), dB(A)	Leq (30min), dB(A)	Impact, Leq (30min),
	(Advanced Works)	(Concurrent Projects)	dB(A)
N01	70	42	70

5.1.2 Based on the assessment results, the maximum cumulative construction noise level at the representative NSR was predicted to be 70 dB(A). Given that the transient nature of visitor using hiking trails in the Country Park, no adverse construction noise impact is anticipated. Hence, further noise mitigation measures are considered unnecessary. Nevertheless, good site practices as stipulated in the approved EIA Report, should be adopted to minimise construction noise impact at the representative NSR. Detailed descriptions of these mitigation measures are given in the following sections. The implementation schedule is presented in **Appendix 5.2**.

#### Good Site Practice

- 5.1.3 Although the noise mitigation effects are not easily quantifiable and the benefits may vary with site conditions and operating conditions, good site practices are easy to implement and do not impact upon the works schedule. The site practices listed below should be followed during the advanced works of the Project:
  - Only well-maintained plant should be operated on-site and plant should be serviced regularly throughout the construction period;
  - Silencers or mufflers on construction equipment should be utilised and should be properly maintained;
  - Mobile plant, is any, should be sited as far from NSRs as possible;
  - Machines and plant (such as trucks) 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 direction should, wherever possible, be orientated so that the noise is directed away from the nearby NSRs; and
  - Material stockpiles and other structures should be effectively utilised, wherever practicable, in screening noise from on-site construction activities.



# 6 CONCLUSION

- 6.1.1 The construction noise impact arising from the advanced works of the Project has been predicted. This CNMP has taken into account the updated information on PMEs and works programme verified by the Engineer. No adverse impact is predicted at the representative NSR (i.e. Lantau North (Extension) Country Park) under unmitigated scenario, and thus no specific mitigation measures (e.g. noise barrier / enclosure adoption) are required. Good site practice is however to be adopted during the advance works period.
- 6.1.2 Given that the construction of the Project would be undertaken in stages, the CNMP(s) under EP Condition 2.10 would be prepared and deposited to DEP no later than one month before the commencement of each stage of the Project.

FIGURE



**APPENDIX 2.1** 

**Construction Programme** 

# Appendix 2.1 Construction Programme

Construction Activities	п					2021									2022	2								20	23				
oonstruction Activities		J	F I	M A	Μ	J.	JA	S	0	NE	J	F	M A	М	J,	JA	S	0	NC	J	F	M	AN	ΛJ	J	A S	<i>i</i> 0	Ν	D
Contract 1731 – Trial Piles for SHD Phase 1	1																												
Site Clearance & Hoarding	1.1																												
Bored Pile Works	1.2																												
Contrct 1732 – Cable Bridges and Associated Civil Works for Cable Diversion	2																												
Site Clearance & Hoarding/UU/Cable Trenches	2.1																												
H-piling	2.2																												
Excavation (Soil)	2.3																												
Substructure (footings, pile caps, columns)	2.4																												
Backfilling	2.5																												
Superstructure (Cable Bridges)	2.6																												
Contract 1733 – Vehicular Access Bridge, Demolition of Paint Shop and Construction of EV Stabling Tracks	3																												
Site Clearance & Hoarding /UU / Cable Trenches	3.1																												
Paint Shop Demolition	3.2																												
Excavation (Soil)	3.3																												
Substructure (footings, pile caps, columns, abutments)	3.4																												
Backfilling	3.5																												
Superstructure (Vehicle Bridge Spans)	3.6																												
EV Tracks - Formation and Track Installation	3.7																												

**APPENDIX 2.2** 

Plant Inventory

#### Appendix 2.2 Plant Inventory

1	Contract 1731 – Trial Piles for SHD Phase 1																																									
ID	Activity Plant Inventory	Plant No	Ident Code	Unit SPL						20	21												2022													202	23					
	,			dB(A)	J	F	М	А	М	J	J	Α	S	0	N	D	J	F	M	A	M	J	Ι,	J	A	S	0	N	D	J	F	: 1	И.	Ą	М	J	J	A	S	0	N	D
1.1	Site Clearance & Hoarding																																									
	Excavator/loader, wheeled/tracked	1	CNP 081	112																100	% 100	%																		1		1
	Lorry, with crane/grab, 5.5 tonne < gross vehicle weight ≦ 38 tonne	1	[1]	105																50%	6 50%	6																		1	, – ,	
	Dump truck , 5.5 tonne < gross vehicle weight ≦ 38 tonne	1	[1]	105																100	% 100	%													_						,	1
	Crane, mobile/barge mounted (diesel)	1	CNP 048	112																50%	6																	_				
1.2	Bored Pile Works																																									
	Generator, super silenced, 70dB(A) at 7m	1	CNP 103	95																100	% 100	% 100	0% 50	% 5	0%											_	-					1
	Crane, mobile/barge mounted (diesel)	2	CNP 048	112									1								100	% 50	% 25	% 2	5%											_						(
	Air Compressor, air flow > 30m3/min	2	CNP 003	104																	100	% 50	%																			ſ
	Piling, large diameter bored, reverse circulation drill	2	CNP 166	100																	100	% 50	%													_						
	Dump truck , 5.5 tonne < gross vehicle weight ≦ 38 tonne	2	[1]	105																	100	% 50	% 50	% 5	0%																	
	Lorry, 5.5 tonne < gross vehicle weight ≦38 tonne	2	[1]	105																50%	6 100	% 50	% 50	% 5	0%											_		_				ſ
	Concrete lorry mixer	2	CNP 044	109																	100	%														_					, <u> </u>	
		1 1		1																																						

2	Contrct 1732 - Cable Bridges and Associated Civil Works for Cable D	iversion																													
ID	Activity	Plant	Ident Code	Unit SPL			202	1								20	)22										2023	3			
	Thank inventory	No		dB(A)	J F M	A N	1 J	J A	S	0 N	D	J	F M	Α	М	J	J	Α	S	0	N D	J	F	М	Α	М	J	J	A S	0	N D
2.1	Site Clearance & Hearding/III/Cable Transher																														
2.1	Excavator/loader_wheeled/tracked	1	CNP 081	112			<u>г</u> г	1	1 1	-	100%	100% 1	0.0% 10.0%	6 50%	50%	50%	50%	1	T	1	-			<u>г</u> г	1	1	1	T	<u> </u>	1	
	Lorry with crane/grab 5.5 toppe < gross vehicle weight $\leq$ 38 toppe	1	[1]	105							50%	50%	50% 50%	50%	50%	50%	50%												_		
	Dump truck 5.5 toppe < gross vehicle weight $\leq$ 38 toppe	2	[1]	105							100%	100% 1	00% 100%	6 50%	50%	50%	50%					-	-						_	-	
	Crane mobile/barge mounted (diesel)	1	CNP 048	112							50%	50%	50% 50%	50%	50%	50%	50%					_	-							-	
	orane, mobile/barge mounted (diesel)		0141 040	112							3070	5070	50 /0 50 /0	5 3070	5070	3070	5070														L
2.2	H-piling																														
	Crane, mobile/barge mounted (diesel)	1	CNP 048	112							1 1			100%	6 100%	100%		I	T			I	I	ГТ	Т	1			<u> </u>	T	
	Drill rig, rotary type (diesel)	2	[1]	110										100%	6 100%	100%															
	Generator, super silenced, 70dB(A) at 7m	2	CNP 103	95										50%	50%	50%								1 1							
	Air Compressor, air flow > 30m3/min	2	CNP 003	104										50%	50%	50%															
	Dump truck , 5.5 tonne < gross vehicle weight ≦ 38 tonne	1	[1]	105										100%	6 100%	100%															
	Lorry, 5.5 tonne < gross vehicle weight ≦38 tonne	1	[1]	105										50%	50%	50%															
	Grout mixer	1	[1]	90										50%	50%	50%								1 1							
																										l					1
2.3	Excavation (Soil)																														
	Excavator/loader, wheeled/tracked	2	CNP 081	112								100% 1	00% 100%	6 50%																	
	Dump truck , 5.5 tonne < gross vehicle weight ≦ 38 tonne	2	[1]	105								100% 1	00% 100%	6 50%																	
	Crane, mobile/barge mounted (diesel)	2	CNP 048	112								50%	50% 50%	25%	0																
2.4	Substructure (footings, pile caps, columns)																														
	Bar bender and cutter (electric)	1	CNP 021	90					_					50%	50%	50%							_								
	Poker, vibratory, hand-held (electric)	4	[1]	102										100%	6 100%	100%															
	Air Compressor, air flow > 30m3/min	1	CNP 003	104										100%	6 100%	100%															
	Concrete lorry mixer	2	CNP 044	109			_							100%	6 100%	100%							_							_	
	Concrete pump, stationary/lorry mounted	1	CNP 047	109					_					100%	6 100%	100%						_	-						—	_	
	Crane, mobile/barge mounted (diesel)	1	CNP 048	112										50%	50%	50%															
25	Backfilling																														
2.0	Excavator/loader, wheeled/tracked	1	CNP 081	112							1 1				100%	100%	1 1	1	1					1 1	1			1			
	Compactor, vibratory	2	CNP 050	105											100%	100%								1 1							
I																															
2.6	Superstructure (Cable Bridges)																														
	Crane, mobile/barge mounted (diesel)	3	CNP 048	112												50%	50%	25%	25%	25%	5%										
I	Lorry, 5.5 tonne < gross vehicle weight ≦38 tonne	2	[1]	105												50%	50%	25%	25%	25%	5%										
1	Generator, standard	1	CNP 101	108												25%	25%	25%	25%	25%	5%										
	1		1																												

#### Appendix 2.2 Plant Inventory

3 Contract 1733 – Vehicular Access Bridge, Demolition of Paint Shop and Construction of EV Stabling Tracks

ID	Activity Plant Inventory	Plant	Ident Code	Unit SPL						2021											202	22											203	23					
	Thank inventory	110		dB(A)	J	F	М	A M	۸ J	J J	Α	S	0	Ν	D	J	F	М	Α	М	J	J	Α	S	0	Ν	D	J	F	M	Α	М	J	J	Α	S	0	N	D
3.1	Site Clearance & Hoarding /UU / Cable Trenches		(4)							-	-		-																							<u> </u>		-	
	Lorry, with crane/grab, 5.5 tonne < gross vehicle weight ≥ 38 tonne	1	[1]	105							_		_	_					100%	100%	100%	100%		-															
	Dump truck , 5.5 tonne < gross vehicle weight ≦ 38 tonne	1	[1]	105															50%	50%	50%	50%																	
	Crane, mobile/barge mounted (diesel)	2	CNP 048	112							_	_							100%	100%	50%	50%																	
	Crane, mobile/barge mounted (diesel)	1	CNP 048	112												1			50%	50%	50%	50%		1	1	1						1	1	1	l				
2.2	Daint Shan Domalition																																						
3.2	Crane mehile/barge mounted (discel)	2	CNID 049	112		1	-		1		-	- T	-	-	-	1		-	1	100%	100%	100%	E0%/	Т	I	I				<u> </u>	-	T	I	T	- r	<u> </u>			
	Dump truck $ = 5 \text{ frame} + a  received which the state of the sta$	1	(1)	105			_		_	-	-	-	-	-						100%	100%	100%	50%													$\rightarrow$			
	During ridex , 5.5 tornie < gross venicle weight = 56 tornie		(1)	105								-	_	-						100 %	100%	100 %	050/	+								-							
	Cutter, circular, steel (electric)	2	[1]	112							_		_	_						50%	50%	50%	25%	-															
	Excavator/loader, wheeled/tracked	2	CNP 081	112																50%	50%	50%	25%																
22	Execution (Soil)																																						
3.3	Excavator/loader_wbeeled/tracked	2	CNP 081	112		1	- 1	1	Т		1	T	1	1		1		1	100%	100%	100%		1	Т	I	I				I I	1	T	I	T	T	r			
	Dump truck 5.5 toppe $< \operatorname{gross}$ vehicle weight $\leq 38$ toppe	2	[1]	105			-				-	-	-						100%	100%	100%														-	$\rightarrow$			
	Lans 5 5 tenne - areas vehicle weight ≤ 20 tenne	4	[1]	105			_		_	-	-	-	-	-					500/	500/	500/															$\rightarrow$			
	Lony, 5.5 tonne < gross vehicle weight as tonne		CND 049	105							-	_	_	_					50%	50%	50%															$\rightarrow$			
	crane, mobile/barge mounted (diesel)		CINP 046	112															50%	50%	50%																		
3.4	Substructure (footings nile cans columns abutments)																																						
	Bar bender and cutter (electric)	2	CNP 021	90					T			1				1			50%	100%	100%	100%		T	I	I						1	I	1	T				
	Poker, vibratory, hand-held (electric)	4		102			-												50%	100%	100%	100%																	
	Air Compressor, air flow > 30m3/min	2	CNP 003	104			-				-	-	-						50%	100%	100%	100%													-	$\rightarrow$			
	Concrete lorry mixer	5	CNP 044	109			-												20%	50%	50%	50%																	
	Concrete pump, stationary/lorry mounted	2	CNP 047	109															20%	50%	50%	50%																	
	Crane, mobile/barge mounted (diesel)	2	CNP 048	112															20%	50%	50%	50%																	
3.5	Backfilling																																						
	Excavator/loader, wheeled/tracked	2	CNP 081	112															50%	50%	50%	50%																	
	Compactor, vibratory	1	CNP 050	105															50%	50%	50%	50%																	
3.6	Superstructure (Vehicle Bridge Spans)			440			-		-	-		-	-	-	1					500/	500/	1000/	1000/	1000/	1000/	1000/	1000/	1000/								<del></del>		-	
	Crane, mobile/barge mounted (diesel)	4	CNP 048	112								-	_	-						50%	50%	100%	100%	100%	100%	100%	100%	100%				-							
	Lorry, 5.5 tonne < gross venicle weight ≥38 tonne	10	[1]	105							_		_	_						50%	50%	100%	100%	100%	100%	100%	100%	100%											
	Generator, standard	4	CNP 101	108																50%	50%	100%	100%	100%	100%	100%	100%	100%											
27	EV Tracks - Formation and Track Installation				1																																		
3.1	Evenuetor/loader_wheeled/tracked	2	CNP 081	112		1	- 1	1	Т		1	T	1	1		1		1	100%	100%	100%	100%	50%	Т	I	I			100%	100%	50%	T	I	1	T	r			
	Lorp 5.5 toppe < gross vehicle weight <38 toppe	2	[1]	105					-		-	1	+	1					25%	25%	25%	25%	25%						25%	25%	25%					$\rightarrow$			
		2	[1]	105	<u> </u>						-			+					1000/	1000/	2070	1000/	500/						4000/	1000/	2070								
	Durnp truck , 5.5 tonne < gross venicle weight ≥ 38 tonne	2	CND 049	105	L						_	_				l			100%	100%	100%	100%	50%						100%	100%	50%								
	crane, mobile/barge mounted (diesel)		GINP 048	112					1					1	1	I			10%	10%	10%	10%	10%	1					10%	10%	10%								

Note: <sup>[1]</sup> Referece is made to https://www.epd.gov.hk/epd/sites/default/files/epd/english/application\_for\_licences/guidance/files/OtherSWLe.pdf.

**APPENDIX 3.1** 

SWL of PME

# Appendix 3.1 SWL of PME

Reference	Identification Code	Description	Unit Sound Power Level, dB(A)
	CNP 003	Air Compressor, air flow > 30m3/min	104
	CNP 021	Bar bender and cutter (electric)	90
	CNP 044	Concrete lorry mixer	109
	CNP 047	Concrete pump, stationary/lorry mounted	109
GW/-TM	CNP 048	Crane, mobile/barge mounted (diesel)	112
Gvv-11vi	CNP 050	Compactor, vibratory	105
	CNP 081	Excavator/loader, wheeled/tracked	112
	CNP 101	Generator, standard	108
	CNP 103	Generator, super silenced, 70dB(A) at 7m	95
	CNP 166	Piling, large diameter bored, reverse circulation drill	100
		Cutter, circular, steel (electric)	112
0 10		Drill rig, rotary type (diesel)	110
Sound Power		Grout mixer	90
Commonly Used		Poker, vibratory, hand-held (electric)	102
PMEs from EPD <sup>[1]</sup>		Lorry, 5.5 tonne < gross vehicle weight ≦38 tonne	105
		Lorry, with crane/grab, 5.5 tonne < gross vehicle weight ≦ 38 tonne	105
		Dump truck , 5.5 tonne < gross vehicle weight $\leq$ 38 tonne	105

Note:

<sup>[1]</sup> Referece is made to https://www.epd.gov.hk/epd/sites/default/files/epd/english/application\_for\_licences/guidance/files/OtherSWLe.pdf.

**APPENDIX 5.1** 

Calculation of Cumulative Construction Noise Impact



. USTATION\_PLOT\_DRIVER\A3.BM\_COL\_SYSTEM\_STO.PLT 2021/6/9 EA\_STUDY\NEXI062\_S\_SHD\_ACM\_7/0\_401A.Amn LVP LVP 7798\01\_CAD\_ADM PRINTED BY: P:\Projec Default DRV: NAME:

#### Appendix 5.1 Calculation of Cumulative Construction Noise Impact

NSR: N01 - Lantau North (Extnsion) Country Park<sup>[1]</sup>

Contract Work Zoi Notional Distance	1731 – Trial Piles for SHD Phase 1 ne : Distance, m : Correction, dB(A) :	1 266.79 -56.523																																		
ID	Activity	Plant	Ident Code						;	2021										202	2										202	23				
	riant inventory	NO		UD(A)	J	F	М	Α	M J	J	Α	S	0	Ν	D	J F	M	Α	М	J	J	Α	S	0 1	1 D	J	F	М	Α	M	J	J	A	S	0	N D
	O're Olassena A Hasadian																																			-
1.1	Site Clearance & Hoarding			110		— T	<u>     т</u>	<u> </u>		-	T	-		<u>г</u>	-	-	-	55	55				- T			1	<del>.                                    </del>		<b>—</b>		<u> </u>	— T	<u> </u>	<u> </u>		
	Excavator/loader, wheeled/tracked		CINP 061	112						-	-						_	55	55							_	+		+	$\vdash$	+					
	Lorry, with crane/grab, 5.5 tonne < gross vehicle weight $\ge$ 38 tonne	1	[2]	105		<b>⊢</b>			$\rightarrow$	_								45	45					$\rightarrow$	_				+	$\square$	<b></b>					_
	Dump truck , 5.5 tonne < gross vehicle weight ≦ 38 tonne	1	[2]	105		$\square$												48	48																	
	Crane, mobile/barge mounted (diesel)	1	CNP 048	112		-												52																		
12	Bored Pile Works																																			
	Generator super silenced 70dB(A) at 7m	1	CNP 103	95		<u> </u>	<u> </u>	<u> </u>	<u> </u>	1	T	1		r r	1	1	1	38	38	38	35	35	1	<u> </u>		1	<b>—</b>	<b>—</b>	T	<u> </u>	iπ Τ	<u> </u>	<u> </u>	<b>—</b>	<b>—</b>	<u> </u>
	Crane, mobile/barge mounted (diesel)	2	CNP 048	112		-+												00	58	55	52	52					+		+	$\vdash$						
	Air Compressor, air flow > 30m3/min	2	CNP 003	104					_										50	47							-	-	-							
	Piling, large diameter bored, reverse circulation drill	2	CNP 166	100															46	43					-			1	-							
	Dump truck . 5.5 tonne < gross vehicle weight ≤ 38 tonne	2	[2]	105															51	48	48	48						-	1							
	Lorry 5.5 toppe < gross vehicle weight $\leq$ 38 toppe	2	[2]	105		-+			_									48	51	48	48	48		_	-		-	-	-	$\vdash$						_
	Concrete lorny mixer	2	CNP 044	109		+					-						_	.0	55	.0	.0	.0					+		+	$\vdash$	<del></del> +					
		-	0 044	.00		L								í – I				1	00									<u> </u>		۰ <u> </u>						

#### Appendix 5.1 Calculation of Cumulative Construction Noise Impact

NSR: N01 - Lantau North (Extnsion) Country Park<sup>[1]</sup>

Contrct 1732 – Cable Bridges and Associated Civil Works for Cable Diversion 2 850.61

/ork Zone :	
otional Distance, m :	
Internet Commention (D(A)	

Distance	e Correction, dB(A) :	-66.595																																				
ID	Activity Plant Inventory	Plant	Ident Code	Unit SPL					2	021										20	22											2023	3					
	T lant inventory	No		ub(н)	J	F	М	A N	ΛJ	J	Α	S	0	N D	) J	F	М	Α	М	J	J	Α	S	0	Ν	D	J	F	М	Α	М	J	J	A 5	3 (	N C	í C	D
21	Site Clearance & Hoarding/IIII/Cable Trenches																																					
2	Excavator/loader, wheeled/tracked	1	CNP 081	112		ТТ						T	T	4	5 45	45	45	42	42	42	42								1	Т	1			<b>—</b>	<b>—</b>	T		
	Lorry, with crane/grab, 5.5 tonne < gross vehicle weight ≦ 38 tonne	1	[2]	105										3	5 35	i 35	35	35	35	35	35																	
	Dump truck . 5.5 tonne < gross vehicle weight $\leq$ 38 tonne	2	[2]	105										4	1 41	41	41	38	38	38	38																-	
	Crane, mobile/barge mounted (diesel)	1	CNP 048	112	-									4	2 42	42	42	42	42	42	42		-		-	-	-								+		-	
2.2	H-piling																	_																				
	Crane, mobile/barge mounted (diesel)	1	CNP 048	112		_												45	45	45																	_	
	Drill rig, rotary type (diesel)	2	[2]	110														46	46	46																		
	Generator, super silenced, 70dB(A) at 7m	2	CNP 103	95											_		_	28	28	28															$\rightarrow$		_	
	Air Compressor, air flow > 30m3/min	2	CNP 003	104											_	_	_	37	37	37														—	-+	_		
	Dump truck , 5.5 tonne < gross vehicle weight ≦ 38 tonne	1	[2]	105					_						_	_	_	38	38	38																	_	
	Lorry, 5.5 tonne < gross vehicle weight ≦38 tonne	1	[2]	105		_												35	35	35																	_	
	Grout mixer	1	[2]	90														20	20	20																		
	Evenuetien (Cail)																																					
2.3	Excavation (Soll)	2	CND 091	112		T T	-		1	1		-	-		40	10	10	45	r –					1	-			1		T	-	1	1	<u> </u>	<u> </u>	-	—	
	Excavator/loader, wheeled/tracked	2	[2]	105		+ +				-		-	-		40	40	40	40	1																			
	Crane, mobile/barge mounted (diesel)	2	CNP 048	112											4	41	41	42																-+	+		+	
	Chane, mobile/baige mounted (diesel)	2	CINI 040	112	-										4.	43	43	42																<u>_</u>	<u> </u>			-
2.4	Substructure (footings, pile caps, columns)																																					
	Bar bender and cutter (electric)	1	CNP 021	90														20	20	20																		
	Poker, vibratory, hand-held (electric)	4	[2]	102														41	41	41																		
	Air Compressor, air flow > 30m3/min	1	CNP 003	104														37	37	37																		_
	Concrete lorry mixer	2	CNP 044	109														45	45	45																		
	Concrete pump, stationary/lorry mounted	1	CNP 047	109														42	42	42																		
	Crane, mobile/barge mounted (diesel)	1	CNP 048	112														42	42	42																	⊥	
25	Backfilling																																					
2.5	Excavator/loader, wheeled/tracked	1	CNP 081	112		1									1				45	45		1		1					1	T		1		<u> </u>	<u> </u>		T	
	Compactor vibratory	2	CNP 050	105															43	43								-									+	
		~	0.11 000														_																					
2.6	Superstructure (Cable Bridges)																																					
	Crane, mobile/barge mounted (diesel)	3	CNP 048	112																47	47	44	44	44	44													
	Lorry, 5.5 tonne < gross vehicle weight ≦38 tonne	2	[2]	105																38	38	35	35	35	35													
	Generator, standard	1	CNP 101	108																35	35	35	35	35	35													

#### Appendix 5.1 Calculation of Cumulative Construction Noise Impact

#### NSR: N01 - Lantau North (Extnsion) Country Park<sup>[1]</sup>

Contract 1733 – Vehicular Access Bridge, Demolition of Paint Shop and Construction of EV Stabling Tracks Work Zone : 3 274.35

Notional Distance, m :

Distance	Correction, dB(A):	-30.700																																		
ID	Activity Plant Inventory	Plant No	Ident Code	Unit SPL dB(A)					2	2021										2022	2			-							2023					
	· · · · · · · · · · · · · · · · · · ·				J	F	М	A N	1 J	J	A	S	0	Ν	D J	F	М	A	М	J	J	A	S C	N	D	J	F	М	A	М	J,	A	S	0	Ν	D
31	Site Clearance & Hoarding /IIII / Cable Trenches																																			
0.1	Lorry with crane/grap 5.5 toppe < gross vehicle weight $\leq$ 38 toppe	1	[2]	105		<u>г</u>	Г		I						1	1	1	48	48	48	48					1							<b>—</b>	Τ	I I	
	Dump truck 5.5 toppe < gross vehicle weight $\leq$ 38 toppe	1	[2]	105						-								45	45	45	45			-										+		
	Crane, mobile/barge mounted (diesel)	2	CNP 048	112														58	58	55	55												+			
	Crane, mobile/barge mounted (diesel)	1	CNP 048	112														52	52	52	52												-	-		
3.2	Paint Shop Demolition									_																										
	Crane, mobile/barge mounted (diesel)	2	CNP 048	112						_						_			58	58	58	55			-							_	<u> </u>	'		
	Dump truck , 5.5 tonne < gross vehicle weight ≥ 38 tonne	1	[2]	105					_	_							-		48	48	48	45		_	-								<u> </u>	'		
	Cutter, circular, steel (electric)	2	[2]	112						_									55	55	55	52			_							_				
	Excavator/loader, wheeled/tracked	2	CNP 081	112															55	55	55	52												<u> </u>		
33	Excavation (Soil)																																			
0.0	Excavator/loader. wheeled/tracked	2	CNP 081	112		<u>г</u>	Г		I						1	1	1	58	58	58						1							<b>—</b>	T	I I	
	Dump truck . 5.5 tonne < aross vehicle weight ≤ 38 tonne	2	[2]	105														51	51	51														-		
	Lorry, 5.5 tonne < gross vehicle weight ≦38 tonne	1	[2]	105														45	45	45													+			
	Crane, mobile/barge mounted (diesel)	1	CNP 048	112														52	52	52													<u> </u>	+		
3.4	Substructure (footings, pile caps, columns, abutments)																																			
	Bar bender and cutter (electric)	2	CNP 021	90						_						_		33	36	36	36															
	Poker, vibratory, hand-held (electric)	4	[2]	102														48	51	51	51															
	Air Compressor, air flow > 30m3/min	2	CNP 003	104						_						_		47	50	50	50													'		
	Concrete lorry mixer	5	CNP 044	109					_	_					_	-		52	56	56	56			_	_					_		_	<u> </u>	'		
	Crane mobile/barge mounted (diesel)	2	CNP 047	112					-	_					_	-		40 51	55	55	55				-							_	<u> </u>			
	orane, mobile barge mounted (diesel)	2	0111 040	112		I						I.				- I		01	00	00	00											-		- <b>-</b>	1 1	
3.5	Backfilling																																			
	Excavator/loader, wheeled/tracked	2	CNP 081	112														55	55	55	55															
	Compactor, vibratory	1	CNP 050	105														45	45	45	45					1								_		
26	Superatructure (Vahiala Pridga Spana)																																			
3.0	Crane mobile/barge mounted (diesel)	4	CNP 048	112		1 1	T	1	T						T	1	1	r r	58	58	61	61 6	1 6	1 61	61	61		1		T		T	<u> </u>	<u>т                                    </u>	r r	
	Lorry 5.5 toppe < gross vehicle weight $\leq$ 38 toppe	10	[2]	105						-									55	55	58	58 5	58 59	3 58	58	58								+		
	Generator, standard	4	CNP 101	108															54	54	57	57 5	57 5	7 57	57	57							+			
3.7	EV Tracks - Formation and Track Installation			1													r							-								-				
	Excavator/loader, wheeled/tracked	2	CNP 081	112	<u> </u>					_						-	<u> </u>	58	58	58	58	55			-	<u> </u>	58	58	55				<del> </del>	<b></b> '		
	Lorry, 5.5 tonne < gross vehicle weight ≦38 tonne	2	[2]	105													I	45	45	45	45	45			_	I	45	45	45					_		
	Dump truck , 5.5 tonne < gross vehicle weight $\leq$ 38 tonne	2	[2]	105														51	51	51	51	48					51	51	48				$\rightarrow$	<b></b> '		
	Crane, mobile/barge mounted (diesel)	1	CNP 048	112							1						I	45	45	45	45	45					45	45	45							

Predicted Noise Level, Leq (30mins), dB(A) :	-	-	-	-	-	-	-	-	-	-	-	48	53	53	53	67	70	69	69	66	64	64	64	64	64	59	59	57	-	-	-	-	-	-	- 1	-
Predicted Noise Level from SHD Topside Development and Concurrent Projects*, Leq (30mins), dB(A) :	-	-	-	-	-	-	-	-	-	-	-	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	-	-	-	-	-	-	- 1	
Predicted Cumulative Noise Level, Leg (30mins), dB(A) :	-	-	-	-		-		-	-		-	49	53	53	53	67	70	69	69	66	64	64	64	64	64	59	59	57	-	-	-	-	-	-	(	

Note:

\* Extracted from the approved EIA Report (Register No.: AEIAR-214/2017)

<sup>[1]</sup> Given that Lantau North (Extension) Country Park is a noise sensitive receiver without any facades (i.e. free-field), and hence, no façade correction (i.e. +3 dB(A)) is included in the construction noise calculation.

<sup>[2]</sup> Referece is made to https://www.epd.gov.hk/epd/sites/default/files/epd/english/application\_for\_licences/guidance/files/OtherSWLe.pdf.

**APPENDIX 5.2** 

Implementation Schedule

Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concern to Address	Who to implement the measures?	Location of the measures	When to implement the measures?	Requirements
S.5.1.3	Implement the following good site practices as far as practicable:	To minimise impacts to surrounding habitats	Contractor	All works area	Construction phase	TM-EIAO
	<ul> <li>Only well-maintained plant should be operated on-site and plant should be serviced regularly during the construction program;</li> </ul>					
	<ul> <li>Silencers or mufflers on construction equipment should be utilised and should be properly maintained during the construction program;</li> </ul>					
	<ul> <li>Mobile plant, is any, should be sited as far from NSRs as possible;</li> </ul>					
	<ul> <li>Machine and plant (such as trucks) that may be in intermittent use should be shut down between work periods or should be throttled down to a minimum;</li> </ul>					
	<ul> <li>Plant known to emit noise strongly in one direction should, wherever possible, be orientated so that the noise is directed away from the nearby NSRs; and</li> </ul>					
	<ul> <li>Material stockpiles and other structures should be effectively utilised, wherever practicable, in screening noise from on-site construction activities.</li> </ul>					

# Appendix 5.2 Implementation Schedule for Noise Impact during Construction Phase