MTR Corporation Limited

Northern Link

Contract 1635 NOL Works Package 1

Construction Noise Management Plan

January 2026

Verified by:	Joyce Wong 
Position:	Independent Environmental Checker
Date:	12 January 2026

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Construction Noise Management Plan

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Certified by:	Kenneth Chow	Kenneth Chow
Position:	Environmental Team Leader	
Date:	12 January 2026	

Environmental Permit No. EP-638/2024

Northern Link

Hong Kong Institute of Qualified Environmental Professionals Limited (HKIQEP) Certified Professional – Noise Modelling (CNM)'s Signature

Reference Document

Document Prepared:	Construction Noise Management Plan
Date prepared and checked by CNM:	12 January 2026

Reference EP Condition

Environmental Permit Condition: 2.13
The Permit Holder shall, no later than 2 months before the issuance of the tender invitation of any part of the Project, if any, and before the commencement of any construction work for that part of the Project, deposit with the Director 2 hard copies and 2 electronic copies of a Construction Noise Management Plan (CNMP). Any CNMP deposited before the issuance of the tender invitation shall be included in the tender document unless otherwise agreed by the Director. If there is any change to the construction noise mitigation measures and/or plant inventory in the CNMP, the Permit Holder shall, no later than 1 month before the implementation of any such change, deposit with the Director 2 hard copies and 2 electronic copies of an updated CNMP. The CNMP / updated CNMP shall identify the noise source inventory, assess the effectiveness of construction noise mitigation measures as recommended in the approved EIA Report (Register No. AEIAR-259/2024), and include an implementation schedule in table form to list out the mitigation measures to be implemented as well as the responsible party, location, timing and environmental performance required for the implementation of the mitigation measures. The CNMP / updated CNMP shall be prepared and checked by a Certified Noise Modelling Professional as recognized by the Hong Kong Institute of Qualified Environmental Professionals Limited (HKIQEP), or other professional as agreed by the Director. The CNMP / updated CNMP shall be certified by the ET Leader and verified by the IEC, or other professional as agreed by the Director, as conforming to the relevant information and recommendations of the approved EIA Report (Register No. AEIAR-259/2024). All mitigation measures recommended, and requirements specified in the CNMP / updated CNMP shall be fully implemented.

CNM's Signature

I hereby confirm that I have prepared and checked the above Construction Noise Management Plan according to the above referenced condition of EP-638/2024.

Mr. Chu Sze Shing
HKIQEP CNM

Date: 12 January 2026

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Appendices

1.0 Introduction

1.1 Background

1.1.1 The Northern Link (NOL) (hereinafter referred to as "the Project") is one of the seven railway schemes recommended to be taken under the Railway Development Strategy 2014 ("RDS-2014"). The Project will be a heavy underground railway line with a route length of about 10.7km between Kam Sheung Road (KSR) Station on the Tuen Ma Line (TML) and Kwu Tung (KTU) Station on the Lok Ma Chau Spur Line (LMCSL) of East Rail Line (EAL). The Project connects the EAL and the TML, forming a railway loop in the Northern New Territories.

1.1.2 NOL Works Package 1 (hereinafter referred to as "this Works Contract") will commence in 2025 to enable the timely commencement of the subsequent tunnel construction of NOL Main Line. The Project involves diaphragm wall construction for Shui Mei Road Ancillary Building (SMA) and San Tam Road Temporary CLP 132/11KV Substation (STR).

1.1.3 The Environmental Impact Assessment (EIA) Report (Register No.: AEIAR-259/2024) (hereinafter referred to as "the approved EIA Report") for the Project was approved on 9 February 2024 under the Environmental Impact Assessment Ordinance (EIAO). Following the approval of the EIA Report, an Environmental Permit (EP) was granted on 9 February 2024 (EP No: EP-638/2024) for the construction and operation of the Project.

1.1.4 According to Condition 2.13 of the EP-638/2024, the Permit Holder shall, no later than 2 months before the commencement of any construction works for that part of the Project, deposit with the Director of Environmental Protection (DEP) 2 hard copies and 2 electronic copies of a Construction Noise Management Plan (CNMP).

1.1.5 This Construction Noise Management Plan (CNMP) has been prepared by the Contractor, China Road and Bridge Corporation. The CNMP shall identify the noise source inventory, assess the effectiveness of construction noise mitigation measures as recommended in the approved EIA Report (Register No. AEIAR-259/2024), and include an implementation schedule in table form to list out the mitigation measures to be implemented as well as the responsible party, location, timing, and environmental performance required for the implementation of the mitigation measures.

1.1.6 The tentative date of commencement of the construction works will be 15 October 2025. This CNMP covers all construction works under Contract 1635.

1.2 Contract Details

Contract Name:	NOL Works Package 1
Contract Number:	1635
Contractor Name:	China Road and Bridge Corporation

2.0 Construction Activities of Contract 1635

2.1.1 The major construction activities to be carried out under Contract 1635 are summarised in **Table 2.1**, while the programme of each task is provided in **Appendix A**. The locations of the works areas of Contract 1635 are shown in **Appendix B**.

Table 2.1 – Summary of Construction Activities

Working Area	Construction Activities
SMA-1	Site Formation and Hoarding Erection
	General Site Works
	Construction of the Diaphragm Wall (Phase 1 and Phase 2)
	Construction of the Capping Beam
SMA-2	Site Formation and Hoarding Erection
	General Site Works
SMA-3	Site Formation and Hoarding Erection
	General Site Works
	Bentonite Slurry Preparation
STR-1	Site Formation and Hoarding Erection
	Diversion of Drainage
	Drainage and Sewerage Works
	Construction of Temporary Substation

Remarks: General site works include earthworks, tree removal and materials loading and unloading etc.

2.1.2 According to the construction programme in **Appendix A**, the construction activities would be divided into various sub-tasks and would be conducted simultaneously within the period from Oct 2025 to Sep 2026.The plant inventory for each construction task has been verified by the Contractor of Contract 1635 and is shown in **Appendix C1** and **Appendix C2**.

The PME to be adopted in the construction period are summarised below:

- Aerial work platform, working height ≤ 13m
- Bar bender and cutter (electric)
- Bentonite slurry mixer
- Bentonite slurry pump
- Breaker, electric hand-held, 10kg < mass < 18kg
- Breaker, excavator mounted (hydraulic)
- Concrete lorry mixer
- Concrete pump, stationary
- Crane, mobile/ barge mounted (diesel)
- Diesel Cutter Base Machine
- Dump truck, with grab, 5.5 tonne < gross vehicle weight ≦ 38 tonne
- Drill rig, rotary type (diesel)
- Electric Chain Saw
- Excavator, wheeled/ tracked
- Excavation Crane
- Forklift, LPG, output power ≤ 32kW, speed ≤ 10km/hr
- Generator, super silenced, 70 dB(A) at 7m
- Grab Crane
- Lorry, with crane/grab, 5.5 tonne < gross vehicle weight ≦ 38 tonne
- Piling, diaphragm wall, bentonite filtering plant
- Piling, diaphragm wall, hydraulic extractor
- Poker, vibratory, hand-held
- Road roller
- Slurry Plant with de-sander
- Water pump (electric)
- Water pump, submersible (electric)
- Welding Machine
- Wastewater Treatment System

3.0 Construction Noise Criteria and Assessment Methodology

3.1 Construction Noise Criteria

3.1.1 The relevant legislation and associated guidance applicable to present the construction noise assessment include Environmental Impact Assessment Ordinance (EIAO) (Cap.499) and Noise Control Ordinance (NCO) (Cap.400). The EIAO and NCO provides the statutory framework for noise control in Hong Kong. The Noise Control Ordinance (NCO) enforces statutory controls on construction noise during restricted hours, whereas the Environmental Impact Assessment Ordinance (EIAO) establishes more stringent noise criteria for non-restricted hours, aiming to enhance the overall acoustic environment and safeguard public amenity.

3.1.2 Noise impacts generated by the construction of the Contract 1635 were reviewed in accordance with the noise criteria given in the Technical Memorandum on Environmental Impact Assessment Process (EIAO-TM). The construction noise criteria during non-restricted hours, i.e. 0700 to 1900 hours on weekdays not being a general holiday including Sunday, are presented in **Table 3.1**.

3.1.3 **Table 3.1 – Construction Noise Criteria during Non-Restricted Hours**

Use	Daytime Noise Criteria Leq(30mins), dB(A)
Domestic premises, temporary housing accommodation, hostels, convalescent homes, and homes for the aged	75
Places of public worship, courts of law, and hospitals and medical clinics	70
Educational Institution	70
Educational Institution (during examinations)	65

Note: The above standards apply to uses which rely on opened windows for ventilation and are assessed at 1m from the external façade

3.1.4 During restricted hours, i.e. 1900 to 0700 hours or at any time on a general holiday including Sunday, construction noise is regulated through the Construction Noise Permit (CNP) system administered under the NCO. This system ensures that any construction work involving powered mechanical equipment during these sensitive periods—typically evenings, nights, and public holidays—is subject to strict control. A CNP is only granted after assessing the potential noise impact on nearby noise-sensitive receivers, such as residential buildings, schools, or hospitals. The permit specifies allowable equipment, working hours, and noise mitigation measures, such as the use of quieter equipment, noise barriers, or enclosures, to minimize disturbance.

3.2 Assessment Methodology

3.2.1 Noise impacts were reviewed in accordance with the methodology given in the Technical Memorandum on Noise from Construction Work Other Than Percussive Piling (TM-GW) and Technical Memorandum on Noise from Construction Work in Designated Areas (DA-TM) under the NCO.

3.2.2 No percussive piling will be conducted under Contract 1635 therefore the noise assessment is not required to be reviewed in accordance with the Technical Memorandum on Noise from Percussive Piling (PP-TM).

3.2.3 Sound Power Levels (SWLs) of the equipment are referred to Table 3 of “Technical Memorandum on Noise from Construction Work Other Than Percussive Piling” (TM-GW) and "Sound power levels of other commonly used Powered Mechanical Equipment" (OCUPME) published by EPD. Where no relevant SWL to be found in the TM-GW and OCUPME, reference is made to information of Quieter Construction Methods, previous approved EIA and EP available in EPD web site or the relevant product catalogue. The SWL

of Powered Mechanical Equipment (PME) as adopted in the construction noise assessment is presented in **Appendix D**. The catalogues and SWL measurement result of PME referenced is provided in **Appendix D1** to **Appendix D7**.

3.2.4 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 construction work area and its boundary nearest to the Noise Sensitive Receiver (NSR).

3.2.5 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 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.

3.2.6 Based on latest construction programme, no concurrent construction activities will be conducted during the construction period of this works contract.

4.0 Noise Sensitive Receiver

4.1.1 In accordance with the approved EIA Report, the study area is defined as the area within 300m from the boundary of the works of the Project. Within the study area, the noise assessment point (NAP) for representative NSRs for construction works of the Project in the approved EIA Report are summarized in **Table 4.1**. The location of the representative NSR is shown in **Appendix B**, while description of the representative NSR is presented in **Table 4.1**.

4.1.2 According to EIA Report Figure C1603/C/NOL/ACM/M52/333, there is a proposed school site in the Park Yoho Phase 3 Development (planned NSR PN13b), which is located adjacent to the Shui Mei Road work site. In September 2025, a site inspection revealed that this proposed school has not yet been established, and the Contractor has been reminded to remain aware of its status.

Table 4.1 – Summary of Representative Noise Sensitive Receiver and Noise Criteria

NAP ID	NSR Description	Uses	Noise Criteria, Leq (30mins), dB(A)
SMR-E1	Tower 8B, Park Yoho	Residential	75
SMR-E2	Tower 1A, Park Yoho	Residential	75

5.0 Construction Noise Impact Assessment

5.1 Construction Noise Impact Assessment Results (Unmitigated)

5.1.1 The predicted noise levels (PNL) at the representative NSRs from construction works of Contract 1635 before implementation of noise mitigation measures, are detailed in **Appendix E1** and summarised in **Table 5.1** below.

Table 5.1 – Summary of Predicted Noise Levels at Representative NSRs (Unmitigated)

NAP ID	Description	Uses	Noise Criteria, Leq (30mins), dB(A)	Maximum PNL (unmitigated), dB(A)	Noise Exceedance, dB(A)
SMR-E1	Tower 8B, Park Yoho	Residential	75	88	**13**
SMR-E2	Tower 1A, Park Yoho	Residential	75	75	0

5.2 Noise Mitigation Measures

5.2.1 Based on the assessment results in **Table 5.1**, noise exceedance is predicted at SMR-E1. Noise mitigation measures shall be adopted and proposed as follow.

1) Use of Quality Powered Mechanical Equipment (QPME) and quieter equipment/ model of PME

The use of QPME associated with the construction works is made referenced to the recommendations in the approved EIA report. The summary of typical QPME to be adopted are provided in **Table 5.2**

Table 5.2 – Summary of SWL of QPME adopted for Noise Mitigation

QPME	QPME Reference Number	Brand	Model Number	SWL, dB(A)
Generator	EPD-14177	DENYO	DCA-220LSIE2	94
Crane, mobile	EPD-13966	SANY	SCC1500A-8	103
Excavator, wheel/ tracked	EPD-14677	KOBELCO	SK55SRX-6	92
Hand-held Percussive Breaker	EPD-12553	HILTI	TE 1000-AVR	99
Road roller	EPD-15944	HITACHI	CP220-3	97

Another QPME/ PME with the same or lower SWL will be adopted when more than one item is needed or when the stated equipment model is not available to contractor at specific time periods.

Quieter equipment or model of PME will be adopted. The equipment and models of PME to be adopted are summarized in **Table 5.3.**

Table 5.3 – Summary of Quieter Equipment / Model of PME to be Adopted

PME	SWL Reference	Quieter equipment/ models to be adopted	SWL of quieter equipment/ models	Noise Reduction, dB(A)
Concrete Lorry Mixer	109 dB(A) (CNP 044)	Euro V/ VI concrete lorry mixer	103 dB(A)[1]	6 dB(A)
Lorry with crane, 5.5 tonne <gross vehicle weight ≤ 38 tonne	105 dB(A) (OCUPME)	Euro V/ VI crane lorry	97dB(A)[2]	8 dB(A)

PME	SWL Reference	Quieter equipment/ models to be adopted	SWL of quieter equipment/ models	Noise Reduction, dB(A)
Dump truck, with grab, 5.5 tonne < gross vehicle weight < 38 tonne	105 dB(A) (OCUPME)	Euro V/ VI dump trucks	100 dB(A)[2]	5 dB(A)

Note:
[1] Reference to the sound power levels of other commonly used PME (OCUPME) recently published by the EPD, a concrete lorry mixer with a gross vehicle weight of ≤ 30 tonnes and a mixing drum rotation rate of ≤ 10 rpm has a sound power level (SWL) of 103 dB(A). To verify actual site operation, a site measurement was conducted on a Euro V concrete lorry mixer, with details of the SWL measurement provided in **Appendix D7**. For conservativeness, the higher SWL value of 103 dB(A) stated in OCUPME is adopted as the reference. The Contractor shall coordinate with the concrete plant to ensure that excessively noisy models are not permitted to enter the site area.
[2] Based on on-site noise measurement, lower SWL was achieved with the use of Euro V/VI crane lorry / dump truck. The details of the SWL measurement of Euro V/VI crane lorry and dump truck are provided in **Appendix D5** and **D6** respectively. The Contractor shall coordinate with provider to avoid noisy models entering the site area.

2) Use of Quieter Construction Methods (QCM)

Rubber Head Poker Vibrator will be adopted during concrete compacting of road works in place of conventional vibratory poker where appropriate and practicable throughout the construction period.

The use of hydraulic crusher/splitter was explored but deemed impractical due to material hardness and equipment efficiency, as these methods are ineffective against extremely hard materials such as granite and reinforced concrete. Therefore, the use of hydraulic crusher/ splitter is considered not feasible.

3) Use of Temporary Movable Noise Barrier, Noise Enclosure, Noise Insulating Fabric and Soundproof Hammer Bracket

a) Breaker Hammer Bracket

Quieter equipment models are adopted in the construction processes, installation of Breaker Hammer Bracket provides a significant noise reduction by enclosing main body and chisel of hydraulic breaker with custom-designed acoustic jacket with surface density of 4kg/m2 and application of tuned mass damper. Based on noise measurement conducted at A16 station site on 9 September 2025, noise reduction of 15 dB(A) was achieved with the use of purpose-built barrier on top of Breaker Hammer Bracket. The summary of the measurement is provided in **Appendix G1**.

b) Noise Insulating Fabric

Noise Insulating Fabric will be installed for PME such as trench cutter and bentonite filter plant and the fabric should be lapped such that there will be no openings or gaps on the joints, with reference to MTRC Contract C4420 Tsim Sha Tsui Modification Noise Assessment Report for Variation of Environmental Permit (July 2003), a noise reduction of 10 dB(A) is assumed by application of fabric.

c) Movable Noise Barrier

Movable noise barriers will be utilized to alleviate the noise impact to the affected NSRs. The following types of noise barriers are planned to be provided in the construction processes in the construction period.

The height of movable noise barrier for movable PME at SMA-1 and SMA-2 will be 4m high due to site constraints of limited site area and safety consideration. Due to high-rise NSR and with a short distance with the construction site, cantilever barrier consists of 3m high vertical barrier and 1m cantilever barrier at 30 degrees from vertical, will be adopted. The

noise barrier should screen the major noise source of PME from the NSRs. 5 dB(A) noise reduction to movable PME is assumed with installation of movable noise barrier.

Absorptive panels with a Noise Reduction Coefficient (NRC) of 0.85 and a Sound Transmission Class (STC) rating of 23 will be adopted for the movable noise barrier. For PME such as generators and slurry pumps, either these absorptive panels or an alternative barrier with a minimum STC rating of 22 may be deployed, subject to prevailing site conditions, as both options provide comparable acoustic performance. Gaps and openings at joints in the barrier material should be avoided. The barrier should also be long enough to minimize the degradation caused by the diffraction along the short edges. The technical specification of the noise barrier is provided in **Appendix G**.

4) Good Site Practice

Although the noise mitigation effects are not easily quantifiable and the benefits may vary with site conditions and operating conditions, good site practices should be implemented. The site practices listed below should be followed during the construction works of Contract 1635:

- Only well-maintained plant should be operated on-site and plant should be serviced regularly throughout the construction period;
- 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;
- Silencers or mufflers on construction equipment should be utilised and should be properly maintained;
- Mobile plant, if any, should be sited as far from NSRs as possible;
- Material stockpiles and other structures should be effectively utilised, wherever practicable, in screening noise from on-site construction activities.
- Noise monitoring at selected NSRs should be conducted as far as practicable.

5.3 Construction Noise Impact Assessment Results After Implementation of Mitigation Measures (Mitigated)

5.3.1 With assumption of above noise mitigation measures, the mitigated predicted noise levels (PNL) at NSRs, with consideration of cumulative impact with concurrent project, is summarised in **Table 5.4** below. The noise assessment calculation is detailed in **Appendix E2.**

Table 5.4 – Summary of Predicted Noise Levels at Representative NSRs (Mitigated)

NAP ID	Description	Uses	Noise Criteria, Leq (30mins), dB(A)	Maximum PNL (mitigated), dB(A)	Noise Exceedance, dB(A)
SMR-E1	Tower 8B, Park Yoho	Residential	75	75	0
SMR-E2	Tower 1A, Park Yoho	Residential	75	68	0

5.3.2 From the predicted result in **Table 5.4**, the predicted noise levels at all NSRs throughout the construction period are below the noise criteria. Therefore, no further mitigation measures are recommended.

6.0 Implementation of CNMP

6.1.1 The implementation schedule of noise mitigation measures in the EIA report, EM&A manual and this CNMP are summarized in **Appendix F**.

6.1.2 All the mitigation measures in the CNMP will be implemented by the Contractor, China Road and Bridge Corporation.

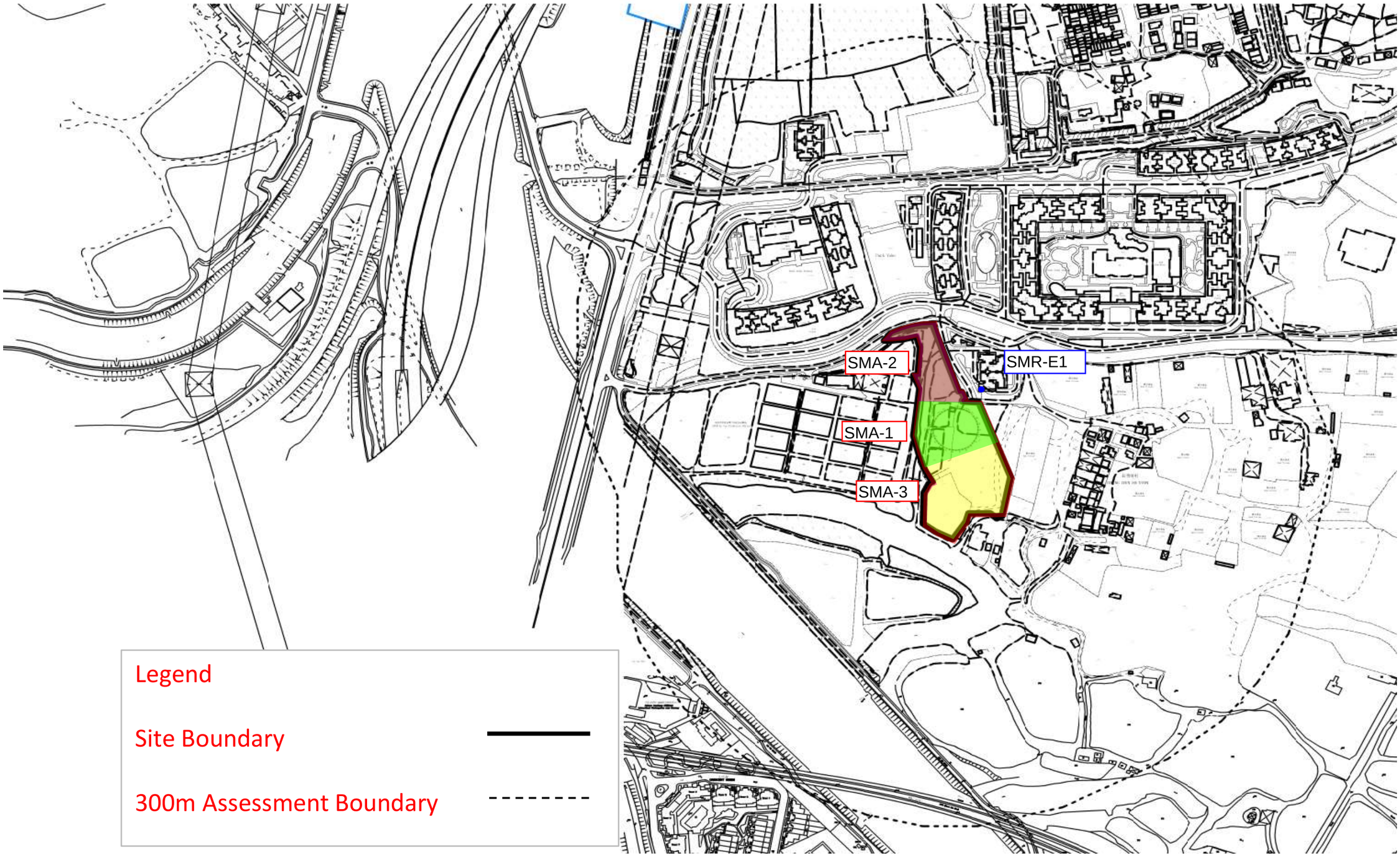
7.0 Conclusion

7.1.1 This CNMP has assessed the noise impact at representative NSRs within 300m of the work site as identified in the EIA, based on the latest information of construction works schedule and plant inventory. Practical noise mitigation measures were planned based on the assessment results. With the implementation of the planned noise mitigation measures, the daytime construction noise criteria are expected to be met. The Contractor shall implement mitigation measures in this CNMP in accordance with the implementation schedule.

Appendix A: Construction Programme

Activity Name	Work Zone	Activity Index	Month		2025			2026										
			Start	Finish	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D
Shui Mei Road Ancillary Building																			
SMA-1																			
Site Formation and Hoarding Erection	SMA-1	SMA-1-1	1	3															
General Site Works	SMA-1	SMA-1-2	4	12															
Construction of the Diaphragm Wall (Phase 1)	SMA-1	SMA-1-3	1	4															
Construction of the Diaphragm Wall (Phase 2)	SMA-1	SMA-1-4	5	9															
Construction of the Capping Beam	SMA-1	SMA-1-5	7	12															
SMA-2																			
Site Formation and Hoarding Erection	SMA-2	SMA-2-1	1	3															
General Site Works	SMA-2	SMA-2-2	4	12															
SMA-3																			
Site Formation and Hoarding Erection	SMA-3	SMA-3-1	1	3															
General Site Works	SMA-3	SMA-3-2	4	12															
Bentonite Slurry Preparation	SMA-3	SMA-3-3	1	6															
San Tam Road Temporary CLP 132/11KV Substation																			
STR-1																			
Site Formation and Hoarding Erection	STR-1	STR-1-1	1	6															
Diversion of Drainage	STR-1	STR-1-2	1	6															
Drainage and Sewerage Works	STR-1	STR-1-3	7	12															
Construction of Temporary Substation	STR-1	STR-1-4	4	12															

Appendix B: Locations of Works Areas and Representative Noise Sensitive Receiver



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Locations of Works Areas and Representative Noise Sensitive Receiver

JOB NO.			
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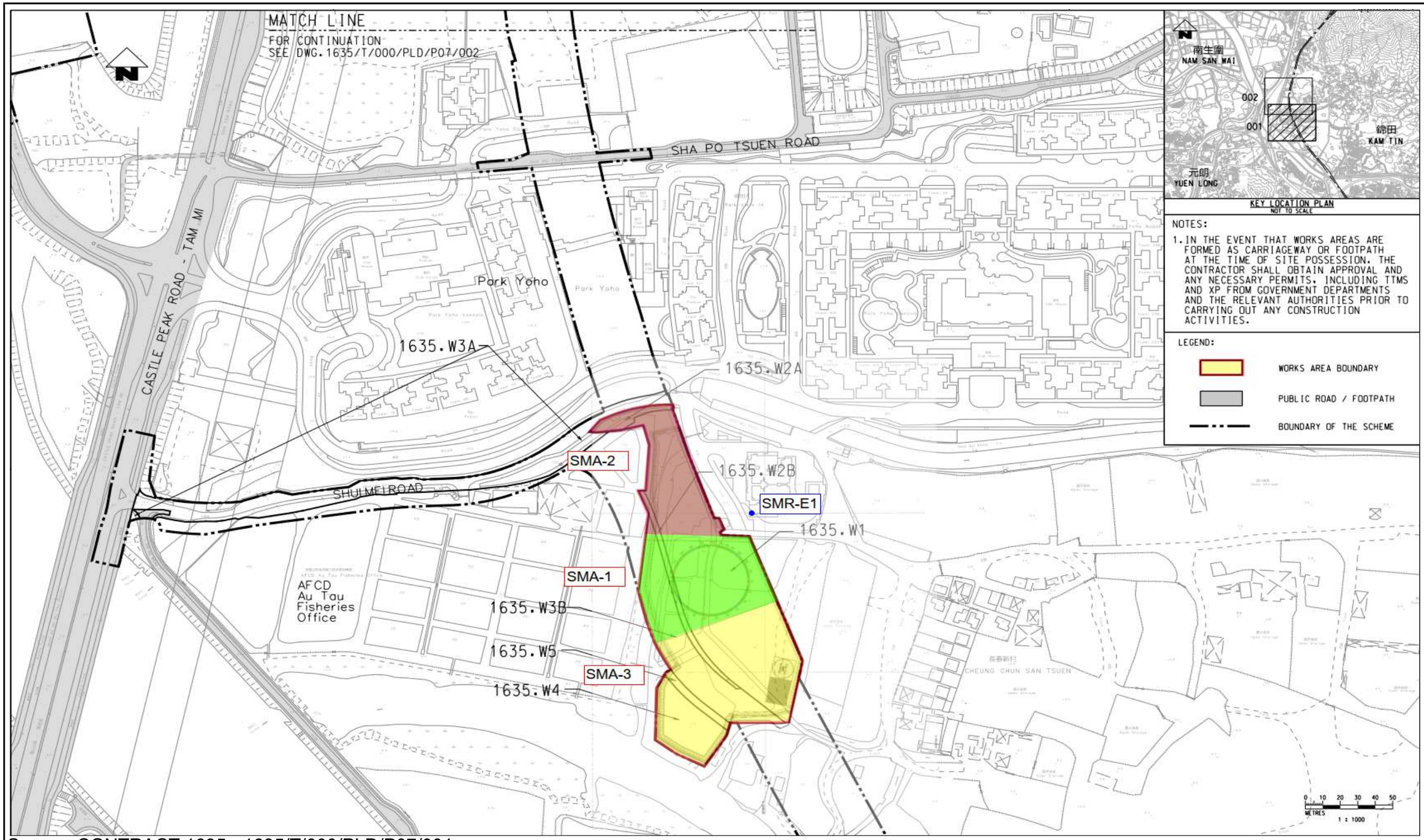
SCALE		Figure no. App B.1	REV -



Source: CONTRACT 1635 - 1635/T/000/PLD/P07/001

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Construction Noise Management Plan

Locations of Works Areas and Representative Noise Sensitive Receiver

JOB NO.			
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Legend

Site Boundary

300m Assessment Boundary

STR-1

SMR-E2

AECOM	Contract 1635 NOL Works Package 1 Construction Noise Management Plan **Locations of Works Areas and Representative Noise Sensitive Receiver**	JOB NO.		
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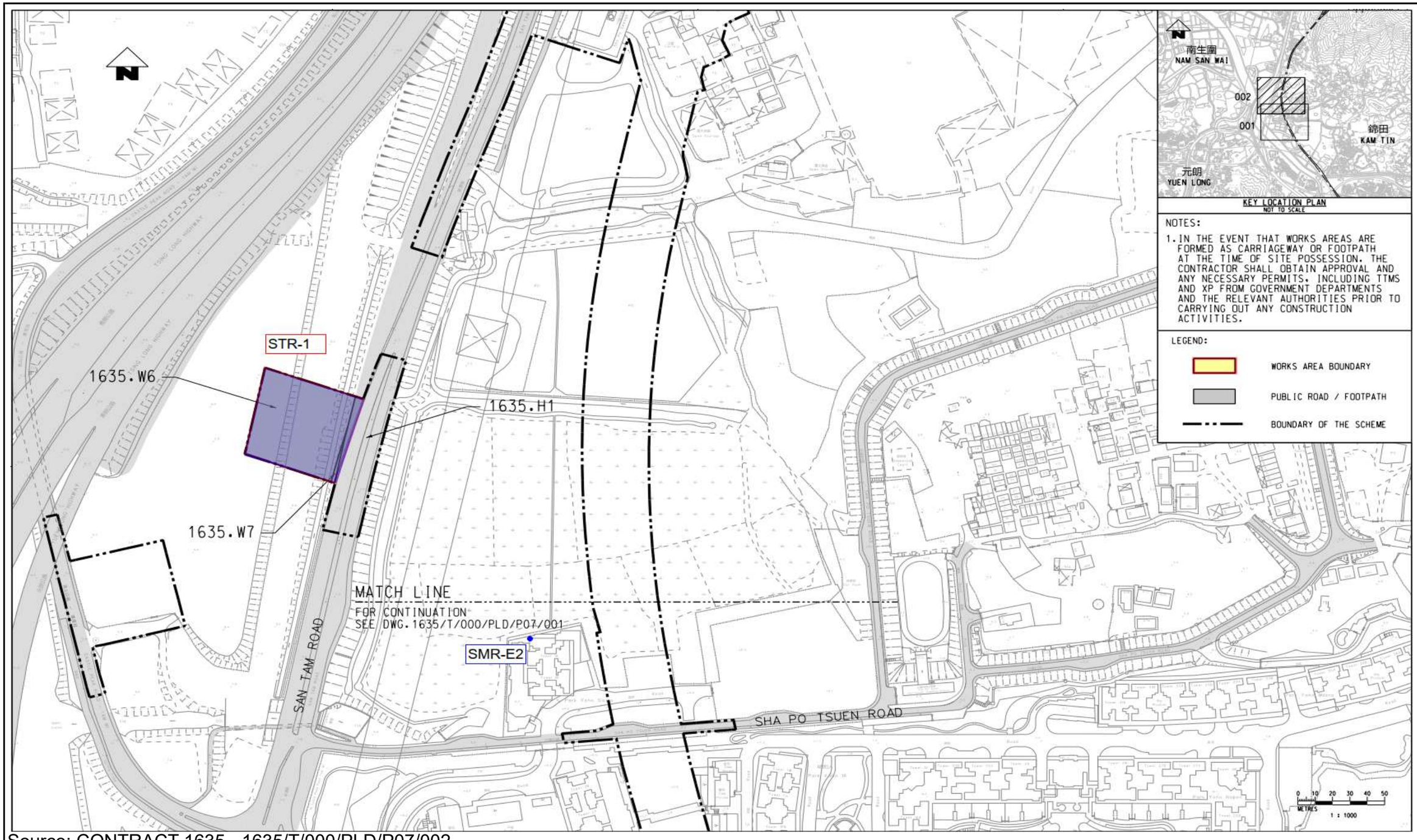

Source: CONTRACT 1635 - 1635/T/000/PLD/P07/002

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Construction Noise Management Plan

Locations of Works Areas and Representative Noise Sensitive Receiver

JOB NO.			
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SCALE		Figure no. App B.4	REV -

Appendix C1: Schedule of Plant Inventory (unmitigated)

Location	Work Zone	Activity Index	Reference Code	Activities	No. of plant item	Utilisation rate	Unit SWL, dB(A)	SWL, dB(A)	Total SWL, dB(A)	Max SWL, dB(A)
Shui Mei Road Ancillary Building	SMA-1	SMA-1-1		**Site Formation and Hoarding Erection**						120
				Group A (Site Formation and Hoarding Erection)						
			OCUPME	Lorry, with crane, 5.5 tonne < gross vehicle weight ≦ 38 tonne	2	50%	105	105		
			OCUPME	Dump truck, with grab , 5.5 tonne < gross vehicle weight ≦ 38 tonne	2	50%	105	105		
			CNP 081	Excavator, wheeled/tracked	1	80%	112	111		
			CNP 103	Generator, super silenced, 70 dB(A) at 7m	5	100%	95	102		
			CNP 281	Water pump (electric)	3	100%	88	93		
			CNP 283	Water pump, submersible (electric)	2	100%	85	88		
			Ref 2	Welding Machine	1	100%	78	78		
			Ref 5	Wastewater Treatment System	1	100%	85	85	113	
				Group B (Rock Breaking)						
			CNP 028	Breaker, excavator mounted (hydraulic)	1	50%	122	119		
			CNP 081	Excavator, wheeled/tracked	1	80%	112	111		
			CNP 281	Water pump (electric)	1	100%	88	88		
			CNP 283	Water pump, submersible (electric)	2	100%	85	88		
			Ref 5	Wastewater Treatment System	1	100%	85	85	120	
Shui Mei Road Ancillary Building	SMA-1	SMA-1-2		**General Site Works**						112
				Group A(General Site Plant)						
			CNP 081	Excavator, wheeled/tracked	1	80%	112	111		
			CNP 103	Generator, super silenced, 70 dB(A) at 7m	1	100%	95	95		
			CNP 281	Water pump (electric)	1	100%	88	88		
			CNP 283	Water pump, submersible (electric)	2	100%	85	88		
			OCUPME	Breaker, electric hand-held, 10kg < mass < 18kg	1	50%	103	100		
			OCUPME	Lorry, with crane, 5.5 tonne < gross vehicle weight ≦ 38 tonne	1	50%	105	102		
			OCUPME	Dump truck, with grab , 5.5 tonne < gross vehicle weight ≦ 38 tonne	1	50%	105	102		
			Ref 5	Wastewater Treatment System	1	100%	85	85		
			Ref 2	Welding Machine	1	100%	78	78	112	
Shui Mei Road Ancillary Building	SMA-1	SMA-1-3		**Construction of the Diaphragm Wall (Phase 1)**						119
				Group A (Construction of Guide Wall)						
			CNP 044	Concrete lorry mixer	1	50%	109	106		
			CNP 047	Concrete pump, stationary	1	50%	109	106		
			CNP 048	Crane, mobile/barge mounted (diesel)	2	50%	112	112		
			CNP 081	Excavator, wheeled/tracked	2	80%	112	114		
			CNP 170	Poker, vibratory, hand-held	2	50%	113	113		
			CNP 021	Bar bender and cutter (electric)	1	60%	90	88		
			CNP 103	Generator, super silenced, 70 dB(A) at 7m	2	100%	95	98		
			CNP 281	Water pump (electric)	1	100%	88	88		
			CNP 283	Water pump, submersible (electric)	2	100%	85	88		
			OCUPME	Dump truck, with grab , 5.5 tonne < gross vehicle weight ≦ 38 tonne	1	50%	105	102		
			Ref 5	Wastewater Treatment System	1	100%	85	85		
			Ref 2	Welding Machine	1	100%	78	78	119	
				Group B (Construction of the Diaphragm Wall)						
			CNP 044	Concrete lorry mixer	1	50%	109	106		
			CNP 047	Concrete pump, stationary	1	50%	109	106		

Location	Work Zone	Activity Index	Reference Code	Activities	No. of plant item	Utilisation rate	Unit SWL, dB(A)	SWL, dB(A)	Total SWL, dB(A)	Max SWL, dB(A)
			CNP 048	Crane, mobile/barge mounted (diesel)	2	50%	112	112		
			CNP 170	Poker, vibratory, hand-held	2	50%	113	113		
			CNP 021	Bar bender and cutter (electric)	1	60%	90	88		
			CNP 103	Generator, super silenced, 70 dB(A) at 7m	2	100%	95	98		
			CNP 163	Piling, diaphragm wall, hydraulic extractor	2	60%	90	91		
			CNP 281	Water pump (electric)	1	100%	88	88		
			CNP 283	Water pump, submersible (electric)	2	100%	85	88		
			OCUPME	Dump truck, with grab , 5.5 tonne < gross vehicle weight ≦ 38 tonne	1	50%	105	102		
			Ref 4	Diesel Cutter Base Machine	1	50%	112	109		
			Ref 5	Wastewater Treatment System	1	100%	85	85		
			Ref 6	Excavation Crane	1	50%	109	106		
			Ref 7	Grab Crane	1	50%	109	106		
			Ref 2	Welding Machine	1	100%	78	78	118	
Shui Mei Road Ancillary Building	SMA-1	SMA-1-4		**Construction of the Diaphragm Wall (Phase 2)**						119
				Group A (Construction of the Diaphragm Wall)						
			CNP 044	Concrete lorry mixer	1	50%	109	106		
			CNP 047	Concrete pump, stationary	1	50%	109	106		
			CNP 048	Crane, mobile/barge mounted (diesel)	2	50%	112	112		
			CNP 081	Excavator, wheeled/tracked	2	80%	112	114		
			CNP 170	Poker, vibratory, hand-held	2	50%	113	113		
			CNP 021	Bar bender and cutter (electric)	1	60%	90	88		
			CNP 103	Generator, super silenced, 70 dB(A) at 7m	2	100%	95	98		
			CNP 163	Piling, diaphragm wall, hydraulic extractor	2	60%	90	91		
			CNP 281	Water pump (electric)	1	100%	88	88		
			CNP 283	Water pump, submersible (electric)	2	100%	85	88		
			OCUPME	Dump truck, with grab , 5.5 tonne < gross vehicle weight ≦ 38 tonne	1	50%	105	102		
			Ref 4	Diesel Cutter Base Machine	1	50%	112	109		
			Ref 5	Wastewater Treatment System	1	100%	85	85		
			Ref 6	Excavation Crane	1	50%	109	106		
			Ref 7	Grab Crane	1	50%	109	106		
			Ref 2	Welding Machine	1	100%	78	78	119	
				Group B (Grouting for the Diaphragm Wall)						
			OCUPME	Lorry, with crane, 5.5 tonne < gross vehicle weight ≦ 38 tonne	2	50%	105	105		
			OCUPME	Dump truck, with grab , 5.5 tonne < gross vehicle weight ≦ 38 tonne	2	50%	105	105		
			CNP 048	Crane, mobile/barge mounted (diesel)	2	50%	112	112		
			CNP 081	Excavator, wheeled/tracked	2	80%	112	114		
			CNP 103	Generator, super silenced, 70 dB(A) at 7m	2	100%	95	98		
			CNP 163	Piling, diaphragm wall, hydraulic extractor	2	60%	90	91		
			CNP 281	Water pump (electric)	1	100%	88	88		
			CNP 283	Water pump, submersible (electric)	2	100%	85	88		
			OCUPME	Grout Mixer (Reference for Bentonite slurry mixer)	1	100%	90	90		
			OCUPME	Grout Pump (Reference for Bentonite slurry pump)	3	100%	105	110		
			Ref 4	Diesel Cutter Base Machine	1	50%	112	109		
			Ref 5	Wastewater Treatment System	1	100%	85	85		
			Ref 6	Excavation Crane	1	50%	109	106		
			Ref 7	Grab Crane	1	50%	109	106		

Location	Work Zone	Activity Index	Reference Code	Activities	No. of plant item	Utilisation rate	Unit SWL, dB(A)	SWL, dB(A)	Total SWL, dB(A)	Max SWL, dB(A)
			Ref 2	Welding Machine	1	100%	78	78	119	
Shui Mei Road Ancillary Building	SMA-1	SMA-1-5		**Construction of the Capping Beam**						116
				Group A (Construction of the Capping Beam)						
			CNP 044	Concrete lorry mixer	1	50%	109	106		
			CNP 047	Concrete pump, stationary	1	50%	109	106		
			CNP 048	Crane, mobile/barge mounted (diesel)	2	50%	112	112		
			CNP 170	Poker, vibratory, hand-held	2	50%	113	113		
			CNP 103	Generator, super silenced, 70 dB(A) at 7m	2	100%	95	98		
			CNP 281	Water pump (electric)	1	100%	88	88		
			CNP 283	Water pump, submersible (electric)	2	100%	85	88		
			Ref 5	Wastewater Treatment System	1	100%	85	85	116	
				Group B (Drilling works and pumping test)						
			CNP 048	Crane, mobile/barge mounted (diesel)	1	50%	112	109		
			OCUPME	Drill rig, rotary type (diesel)	2	50%	110	110		
			CNP 103	Generator, super silenced, 70 dB(A) at 7m	2	100%	95	98		
			CNP 281	Water pump (electric)	1	100%	88	88		
			CNP 283	Water pump, submersible (electric)	2	100%	85	88		
			Ref 5	Wastewater Treatment System	1	100%	85	85		
			Ref 2	Welding Machine	1	100%	78	78	113	
Shui Mei Road Ancillary Building	SMA-2	SMA-2-1		**Site Formation and Hoarding Erection**						120
				Group A (Site Formation and Hoarding Erection)						
			CNP 081	Excavator, wheeled/tracked	2	80%	112	114		
			CNP 103	Generator, super silenced, 70 dB(A) at 7m	2	100%	95	98		
			CNP 281	Water pump (electric)	1	100%	88	88		
			CNP 283	Water pump, submersible (electric)	5	100%	85	92		
			OCUPME	Lorry, with crane, 5.5 tonne < gross vehicle weight ≦ 38 tonne	3	50%	105	107		
			OCUPME	Dump truck, with grab , 5.5 tonne < gross vehicle weight ≦ 38 tonne	2	50%	105	105		
			Ref 5	Wastewater Treatment System	1	100%	85	85		
			Ref 2	Welding Machine	1	100%	78	78	115	
				Group B (Rock Breaking)						
			CNP 028	Breaker, excavator mounted (hydraulic)	1	50%	122	119		
			CNP 081	Excavator, wheeled/tracked	1	80%	112	111		
			CNP 281	Water pump (electric)	1	100%	88	88		
			CNP 283	Water pump, submersible (electric)	2	100%	85	88		
			Ref 5	Wastewater Treatment System	1	100%	85	85	120	
Shui Mei Road Ancillary Building	SMA-2	SMA-2-2		**General Site Works**						113
				Group A(General Site Plant)						
			CNP 044	Concrete lorry mixer	1	50%	109	106		
			CNP 081	Excavator, wheeled/tracked	1	80%	112	111		
			CNP 103	Generator, super silenced, 70 dB(A) at 7m	1	100%	95	95		
			CNP 281	Water pump (electric)	1	100%	88	88		
			CNP 283	Water pump, submersible (electric)	2	100%	85	88		
			OCUPME	Breaker, electric hand-held, 10kg < mass < 18kg	1	50%	103	100		
			OCUPME	Lorry, with crane, 5.5 tonne < gross vehicle weight ≦ 38 tonne	1	50%	105	102		

Location	Work Zone	Activity Index	Reference Code	Activities	No. of plant item	Utilisation rate	Unit SWL, dB(A)	SWL, dB(A)	Total SWL, dB(A)	Max SWL, dB(A)
			OCUPME	Dump truck, with grab , 5.5 tonne < gross vehicle weight ≦ 38 tonne	1	50%	105	102		
			Ref 5	Wastewater Treatment System	1	100%	85	85		
			Ref 2	Welding Machine	1	100%	78	78	113	
Shui Mei Road Ancillary Building	SMA-3	SMA-3-1		**Site Formation and Hoarding Erection**						120
				Group A (Site Formation and Hoarding Erection)						
			CNP 081	Excavator, wheeled/tracked	2	80%	112	114		
			CNP 103	Generator, super silenced, 70 dB(A) at 7m	2	100%	95	98		
			CNP 281	Water pump (electric)	1	100%	88	88		
			CNP 283	Water pump, submersible (electric)	5	100%	85	92		
			OCUPME	Lorry, with crane, 5.5 tonne < gross vehicle weight ≦ 38 tonne	3	50%	105	107		
			OCUPME	Dump truck, with grab , 5.5 tonne < gross vehicle weight ≦ 38 tonne	2	50%	105	105		
			Ref 5	Wastewater Treatment System	1	100%	85	85		
			Ref 2	Welding Machine	1	100%	78	78	115	
				Group B (Rock Breaking)						
			CNP 028	Breaker, excavator mounted (hydraulic)	1	50%	122	119		
			CNP 081	Excavator, wheeled/tracked	1	80%	112	111		
			CNP 281	Water pump (electric)	1	100%	88	88		
			CNP 283	Water pump, submersible (electric)	2	100%	85	88		
			Ref 5	Wastewater Treatment System	1	100%	85	85	120	
Shui Mei Road Ancillary Building	SMA-3	SMA-3-2		**General Site Works**						115
				Group A(General Site Plant)						
			CNP 048	Crane, mobile/barge mounted (diesel)	2	50%	112	112		
			CNP 081	Excavator, wheeled/tracked	1	80%	112	111		
			CNP 103	Generator, super silenced, 70 dB(A) at 7m	1	100%	95	95		
			CNP 281	Water pump (electric)	1	100%	88	88		
			CNP 283	Water pump, submersible (electric)	2	100%	85	88		
			OCUPME	Breaker, electric hand-held, 10kg < mass < 18kg	1	50%	103	100		
			OCUPME	Lorry, with crane, 5.5 tonne < gross vehicle weight ≦ 38 tonne	1	50%	105	102		
			OCUPME	Dump truck, with grab , 5.5 tonne < gross vehicle weight ≦ 38 tonne	1	50%	105	102		
			Ref 5	Wastewater Treatment System	1	100%	85	85		
			Ref 2	Welding Machine	1	100%	78	78	115	
Shui Mei Road Ancillary Building	SMA-3	SMA-3-3		**Bentonite Slurry Preparation**						118
				Group A(Bentonite Slurry Preparation)						
			CNP 021	Bar bender and cutter (electric)	1	60%	90	88		
			CNP 044	Concrete lorry mixer	1	50%	109	106		
			CNP 047	Concrete pump, stationary	1	50%	109	106		
			CNP 048	Crane, mobile/barge mounted (diesel)	1	50%	112	109		
			CNP 081	Excavator, wheeled/tracked	1	80%	112	111		
			CNP 103	Generator, super silenced, 70 dB(A) at 7m	2	100%	95	98		
			CNP 162	Piling, diaphragm wall, bentonite filter plant	1	60%	105	103		
			CNP 281	Water pump (electric)	1	100%	88	88		
			CNP 283	Water pump, submersible (electric)	5	100%	85	92		
			OCUPME	Grout Mixer (Reference for Bentonite slurry mixer)	1	100%	90	90		
			OCUPME	Grout Pump (Reference for Bentonite slurry pump)	5	100%	105	112		

Location	Work Zone	Activity Index	Reference Code	Activities	No. of plant item	Utilisation rate	Unit SWL, dB(A)	SWL, dB(A)	Total SWL, dB(A)	Max SWL, dB(A)
			OCUPME	Forklift, LPG, output power ≤ 32kW, speed ≤ 10km/hr	1	50%	104	101		
			OCUPME	Lorry, with crane, 5.5 tonne < gross vehicle weight ≦ 38 tonne	1	50%	105	102		
			OCUPME	Dump truck, with grab , 5.5 tonne < gross vehicle weight ≦ 38 tonne	1	50%	105	102		
			Ref 2	Welding Machine	1	100%	78	78		
			Ref 5	Wastewater Treatment System	1	100%	85	85		
			Ref 3	Slurry Plant with de-sander	2	60%	110	111	118	
San Tam Road Temporary CLP 132/11KV Substation	STR-1	STR-1-1		**Site Formation and Hoarding Erection**						120
				Group A (General Site Plant)						
			CNP 021	Bar bender and cutter (electric)	1	60%	90	88		
			CNP 048	Crane, mobile/barge mounted (diesel)	1	50%	112	109		
			CNP 081	Excavator, wheeled/tracked	2	80%	112	114		
			CNP 103	Generator, super silenced, 70 dB(A) at 7m	2	100%	95	98		
			CNP 044	Concrete lorry mixer	1	50%	109	106		
			CNP 047	Concrete pump, stationary	1	50%	109	106		
			CNP 170	Poker, vibratory, hand-held	3	50%	113	115		
			CNP 281	Water pump (electric)	1	100%	88	88		
			CNP 283	Water pump, submersible (electric)	5	100%	85	92		
			OCUPME	Aerial work platform, working height ≤ 13m	1	50%	95	92		
			OCUPME	Breaker, electric hand-held, 10kg < mass < 18kg	1	50%	103	100		
			OCUPME	Lorry, with crane, 5.5 tonne < gross vehicle weight ≦ 38 tonne	3	50%	105	107		
			OCUPME	Dump truck, with grab , 5.5 tonne < gross vehicle weight ≦ 38 tonne	2	50%	105	105		
			Ref 1	Electric Chain Saw	2	50%	102	102		
			Ref 2	Welding Machine	1	100%	78	78	119	
				Group B (Rock Breaking)						
			CNP 028	Breaker, excavator mounted (hydraulic)	1	50%	122	119		
			CNP 081	Excavator, wheeled/tracked	1	80%	112	111		
			CNP 281	Water pump (electric)	1	100%	88	88		
			CNP 283	Water pump, submersible (electric)	5	100%	85	92	120	
San Tam Road Temporary CLP 132/11KV Substation	STR-1	STR-1-2		**Diversion of Drainage**						119
				Group A (Diversion of Drainage)						
			CNP 047	Concrete pump, stationary	1	50%	109	106		
			CNP 081	Excavator, wheeled/tracked	2	80%	112	114		
			CNP 103	Generator, super silenced, 70 dB(A) at 7m	2	100%	95	98		
			CNP 044	Concrete lorry mixer	1	50%	109	106		
			CNP 170	Poker, vibratory, hand-held	3	50%	113	115		
			CNP 281	Water pump (electric)	1	100%	88	88		
			CNP 283	Water pump, submersible (electric)	5	100%	85	92		
			OCUPME	Aerial work platform, working height ≤ 13m	1	50%	95	92		
			OCUPME	Lorry, with crane, 5.5 tonne < gross vehicle weight ≦ 38 tonne	3	50%	105	107		
			OCUPME	Dump truck, with grab , 5.5 tonne < gross vehicle weight ≦ 38 tonne	2	50%	105	105		
			Ref 1	Electric Chain Saw	1	50%	102	99		
			Ref 2	Welding Machine	1	100%	78	78	119	
San Tam Road Temporary CLP 132/11KV Substation	STR-1	STR-1-3		**Drainage and Sewerage Works**						119
				Group A (Drainage and Sewerage Works)						

Location	Work Zone	Activity Index	Reference Code	Activities	No. of plant item	Utilisation rate	Unit SWL, dB(A)	SWL, dB(A)	Total SWL, dB(A)	Max SWL, dB(A)
			CNP 047	Concrete pump, stationary	1	50%	109	106		
			CNP 081	Excavator, wheeled/tracked	2	80%	112	114		
			CNP 103	Generator, super silenced, 70 dB(A) at 7m	2	100%	95	98		
			CNP 044	Concrete lorry mixer	1	50%	109	106		
			CNP 170	Poker, vibratory, hand-held	3	50%	113	115		
			CNP 281	Water pump (electric)	1	100%	88	88		
			CNP 283	Water pump, submersible (electric)	5	100%	85	92		
			OCUPME	Aerial work platform, working height ≤ 13m	1	50%	95	92		
			OCUPME	Lorry, with crane, 5.5 tonne < gross vehicle weight ≦ 38 tonne	3	50%	105	107		
			OCUPME	Dump truck, with grab , 5.5 tonne < gross vehicle weight ≦ 38 tonne	2	50%	105	105		
			Ref 1	Electric Chain Saw	1	50%	102	99		
			Ref 2	Welding Machine	1	100%	78	78	119	
San Tam Road Temporary CLP 132/11KV Substation	STR-1	STR-1-4		**Construction of Temporary Substation**						121
				Group A (Foundation and Superstructure)						
			OCUPME	Lorry, with crane, 5.5 tonne < gross vehicle weight ≦ 38 tonne	3	50%	105	107		
			OCUPME	Dump truck, with grab , 5.5 tonne < gross vehicle weight ≦ 38 tonne	4	50%	105	108		
			CNP 021	Bar bender and cutter (electric)	4	60%	90	94		
			CNP 044	Concrete lorry mixer	4	50%	109	112		
			CNP 047	Concrete pump, stationary	1	50%	109	106		
			CNP 048	Crane, mobile/barge mounted (diesel)	1	50%	112	109		
			CNP 081	Excavator, wheeled/tracked	3	80%	112	116		
			CNP 103	Generator, super silenced, 70 dB(A) at 7m	4	100%	95	101		
			CNP 170	Poker, vibratory, hand-held	4	50%	113	116		
			CNP 185	Road Roller	1	50%	108	105		
			CNP 281	Water pump (electric)	8	100%	88	97		
			CNP 283	Water pump, submersible (electric)	2	100%	85	88		
			Ref 5	Wastewater Treatment System	2	100%	85	88		
			Ref 2	Welding Machine	4	100%	78	84	121	

[1] Only 1 group of PME will be operated at the same time. Maximum of sub-SWL is adpoted as conservative approach.
[2] The plant inventory was confirmed by the contractor

Appendix C2: Schedule of Plant Inventory (mitigated)

Location	Work Zone	Activity Index	Reference Code	Activities	No. of plant item	Utilisation rate	Unit SWL, dB(A)	Type of Noise Control (Source)	Source Mitigated Unit SWL, dB(A)	Noise Reduction, dB(A)	Type of Noise Control (Path)	Noise Reduction, dB(A)	Migated SWL, dB(A)	Total SWL, dB(A)	Max SWL, dB(A)
Shui Mei Road Ancillary Building	SMA-1	SMA-1-1		**Site Formation and Hoarding Erection**											104
				Group A (Site Formation and Hoarding Erection)											
			OCUPME	Lorry, with crane, 5.5 tonne < gross vehicle weight ≦ 38 tonne	2	50%	105	Quieter Model: Euro V/VI Crane Lorry	97	-8			97		
			OCUPME	Dump truck, with grab , 5.5 tonne < gross vehicle weight ≦ 38 tonne	2	50%	105	Quieter Model: Euro V/VI Dump Truck	100	-5			100		
			CNP 081	Excavator, wheeled/tracked	1	80%	112	QPME-EPD-14677	92	-20			91		
			CNP 103	Generator, super silenced, 70 dB(A) at 7m	5	100%	95	QPME-EPD-14177	94	-1	Movable Noise Barrier (PME with fixed location)	-10	91		
			CNP 281	Water pump (electric)	3	100%	88						93		
			CNP 283	Water pump, submersible (electric)	2	100%	85						88		
			Ref 2	Welding Machine	1	100%	78						78		
			Ref 5	Wastewater Treatment System	1	100%	85						85	103	
				Group B (Rock Breaking)											
			CNP 028	Breaker, excavator mounted (hydraulic)	1	50%	122				Breaker Hammer Bracket + Barrier	-15	104		
			CNP 081	Excavator, wheeled/tracked	1	80%	112	QPME-EPD-14677	92	-20			91		
			CNP 281	Water pump (electric)	1	100%	88						88		
			CNP 283	Water pump, submersible (electric)	2	100%	85						88		
			Ref 5	Wastewater Treatment System	1	100%	85						85	104	
Shui Mei Road Ancillary Building	SMA-1	SMA-1-2		**General Site Works**											102
				Group A(General Site Plant)											
			CNP 081	Excavator, wheeled/tracked	1	80%	112	QPME-EPD-14677	92	-20			91		
			CNP 103	Generator, super silenced, 70 dB(A) at 7m	1	100%	95	QPME-EPD-14177	94	-1	Movable Noise Barrier (PME with fixed location)	-10	84		
			CNP 281	Water pump (electric)	1	100%	88						88		
			CNP 283	Water pump, submersible (electric)	2	100%	85						88		
			OCUPME	Breaker, electric hand-held, 10kg < mass < 18kg	1	50%	103	QPME-EPD-12553	99	-4			96		
			OCUPME	Lorry, with crane, 5.5 tonne < gross vehicle weight ≦ 38 tonne	1	50%	105	Quieter Model: Euro V/VI Crane Lorry	97	-8			94		
			OCUPME	Dump truck, with grab , 5.5 tonne < gross vehicle weight ≦ 38 tonne	1	50%	105	Quieter Model: Euro V/VI Dump Truck	100	-5			97		
			Ref 5	Wastewater Treatment System	1	100%	85						85		
			Ref 2	Welding Machine	1	100%	78						78	102	
Shui Mei Road Ancillary Building	SMA-1	SMA-1-3		**Construction of the Diaphragm Wall (Phase 1)**											108
				Group A (Construction of Guide Wall)											
			CNP 044	Concrete lorry mixer	1	50%	109	Quieter Model: Euro V/VI Concrete Lorry Mixer	103	-6			100		
			CNP 047	Concrete pump, stationary	1	50%	109				Movable Noise Barrier (PME with fixed location)	-10	96		
			CNP 048	Crane, mobile/barge mounted (diesel)	2	50%	112	QPME-EPD-13966	103	-9			103		
			CNP 081	Excavator, wheeled/tracked	2	80%	112	QPME-EPD-14677	92	-20			94		
			CNP 170	Poker, vibratory, hand-held	2	50%	113	Quieter Type Rubber Head Poker Vibrator	102	-11	Movable Noise Barrier	-5	97		
			CNP 021	Bar bender and cutter (electric)	1	60%	90						88		
			CNP 103	Generator, super silenced, 70 dB(A) at 7m	2	100%	95	QPME-EPD-14177	94	-1	Movable Noise Barrier (PME with fixed location)	-10	87		
			CNP 281	Water pump (electric)	1	100%	88						88		
			CNP 283	Water pump, submersible (electric)	2	100%	85						88		
			OCUPME	Dump truck, with grab , 5.5 tonne < gross vehicle weight ≦ 38 tonne	1	50%	105	Quieter Model: Euro V/VI Dump Truck	100	-5			97		
			Ref 5	Wastewater Treatment System	1	100%	85						85		
			Ref 2	Welding Machine	1	100%	78						78	107	
				Group B (Construction of the Diaphragm Wall)											
			CNP 044	Concrete lorry mixer	1	50%	109	Quieter Model: Euro V/VI Concrete Lorry Mixer	103	-6			100		
			CNP 047	Concrete pump, stationary	1	50%	109				Movable Noise Barrier (PME with fixed location)	-10	96		
			CNP 048	Crane, mobile/barge mounted (diesel)	2	50%	112	QPME-EPD-13966	103	-9			103		
			CNP 170	Poker, vibratory, hand-held	2	50%	113	Quieter Type Rubber Head Poker Vibrator	102	-11	Movable Noise Barrier	-5	97		
			CNP 021	Bar bender and cutter (electric)	1	60%	90						88		
			CNP 103	Generator, super silenced, 70 dB(A) at 7m	2	100%	95	QPME-EPD-14177	94	-1	Movable Noise Barrier (PME with fixed location)	-10	87		
			CNP 163	Piling, diaphragm wall, hydraulic extractor	2	60%	90						91		
			CNP 281	Water pump (electric)	1	100%	88						88		
			CNP 283	Water pump, submersible (electric)	2	100%	85						88		
			OCUPME	Dump truck, with grab , 5.5 tonne < gross vehicle weight ≦ 38 tonne	1	50%	105	Quieter Model: Euro V/VI Dump Truck	100	-5			97		
			Ref 4	Diesel Cutter Base Machine	1	50%	112				Noise Insulating Fabric	-10	99		
			Ref 5	Wastewater Treatment System	1	100%	85						85		
			Ref 6	Excavation Crane	1	50%	109				Noise Insulating Fabric	-10	96		
			Ref 7	Grab Crane	1	50%	109				Noise Insulating Fabric	-10	96		
			Ref 2	Welding Machine	1	100%	78						78	108	
Shui Mei Road Ancillary Building	SMA-1	SMA-1-4		**Construction of the Diaphragm Wall (Phase 2)**											108
				Group A (Construction of the Diaphragm Wall)											
			CNP 044	Concrete lorry mixer	1	50%	109	Quieter Model: Euro V/VI Concrete Lorry Mixer	103	-6			100		
			CNP 047	Concrete pump, stationary	1	50%	109				Movable Noise Barrier (PME with fixed location)	-10	96		
			CNP 048	Crane, mobile/barge mounted (diesel)	2	50%	112	QPME-EPD-13966	103	-9			103		
			CNP 081	Excavator, wheeled/tracked	2	80%	112	QPME-EPD-14677	92	-20			94		
			CNP 170	Poker, vibratory, hand-held	2	50%	113	Quieter Type Rubber Head Poker Vibrator	102	-11	Movable Noise Barrier	-5	97		
			CNP 021	Bar bender and cutter (electric)	1	60%	90						88		
			CNP 103	Generator, super silenced, 70 dB(A) at 7m	2	100%	95	QPME-EPD-14177	94	-1	Movable Noise Barrier (PME with fixed location)	-10	87		
			CNP 163	Piling, diaphragm wall, hydraulic extractor	2	60%	90						91		
			CNP 281	Water pump (electric)	1	100%	88						88		
			CNP 283	Water pump, submersible (electric)	2	100%	85						88		
			OCUPME	Dump truck, with grab , 5.5 tonne < gross vehicle weight ≦ 38 tonne	1	50%	105	Quieter Model: Euro V/VI Dump Truck	100	-5			97		
			Ref 4	Diesel Cutter Base Machine	1	50%	112				Noise Insulating Fabric	-10	99		
			Ref 5	Wastewater Treatment System	1	100%	85						85		
			Ref 6	Excavation Crane	1	50%	109				Noise Insulating Fabric	-10	96		
			Ref 7	Grab Crane	1	50%	109				Noise Insulating Fabric	-10	96		
			Ref 2	Welding Machine	1	100%	78						78	108	
				Group B (Grouting for the Diaphragm Wall)											

Location	Work Zone	Activity Index	Reference Code	Activities	No. of plant item	Utilisation rate	Unit SWL, dB(A)	Type of Noise Control (Source)	Source Mitigated Unit SWL, dB(A)	Noise Reduction, dB(A)	Type of Noise Control (Path)	Noise Reduction, dB(A)	Migated SWL, dB(A)	Total SWL, dB(A)	Max SWL, dB(A)
			OCUPME	Lorry, with crane, 5.5 tonne < gross vehicle weight ≦ 38 tonne	2	50%	105	Quieter Model: Euro V/VI Crane Lorry	97	-8			97		
			OCUPME	Dump truck, with grab , 5.5 tonne < gross vehicle weight ≦ 38 tonne	2	50%	105	Quieter Model: Euro V/VI Dump Truck	100	-5			100		
			CNP 048	Crane, mobile/barge mounted (diesel)	2	50%	112	QPME-EPD-13966	103	-9			103		
			CNP 081	Excavator, wheeled/tracked	2	80%	112	QPME-EPD-14677	92	-20			94		
			CNP 103	Generator, super silenced, 70 dB(A) at 7m	2	100%	95	QPME-EPD-14177	94	-1	Movable Noise Barrier (PME with fixed location)	-10	87		
			CNP 163	Piling, diaphragm wall, hydraulic extractor	2	60%	90						91		
			CNP 281	Water pump (electric)	1	100%	88						88		
			CNP 283	Water pump, submersible (electric)	2	100%	85						88		
			OCUPME	Grout Mixer (Reference for Bentonite slurry mixer)	1	100%	90						90		
			OCUPME	Grout Pump (Reference for Bentonite slurry pump)	3	100%	105				Movable Noise Barrier (PME with fixed location)	-10	100		
			Ref 4	Diesel Cutter Base Machine	1	50%	112				Noise Insulating Fabric	-10	99		
			Ref 5	Wastewater Treatment System	1	100%	85						85		
			Ref 6	Excavation Crane	1	50%	109				Noise Insulating Fabric	-10	96		
			Ref 7	Grab Crane	1	50%	109				Noise Insulating Fabric	-10	96		
			Ref 2	Welding Machine	1	100%	78						78	108	
Shui Mei Road Ancillary Building	SMA-1	SMA-1-5		**Construction of the Capping Beam**											106
				Group A (Construction of the Capping Beam)											
			CNP 044	Concrete lorry mixer	1	50%	109	Quieter Model: Euro V/VI Concrete Lorry Mixer	103	-6			100		
			CNP 047	Concrete pump, stationary	1	50%	109				Movable Noise Barrier (PME with fixed location)	-10	96		
			CNP 048	Crane, mobile/barge mounted (diesel)	2	50%	112	QPME-EPD-13966	103	-9			103		
			CNP 170	Poker, vibratory, hand-held	2	50%	113	Quieter Type Rubber Head Poker Vibrator	102	-11	Movable Noise Barrier	-5	97		
			CNP 103	Generator, super silenced, 70 dB(A) at 7m	2	100%	95	QPME-EPD-14177	94	-1	Movable Noise Barrier (PME with fixed location)	-10	87		
			CNP 281	Water pump (electric)	1	100%	88						88		
			CNP 283	Water pump, submersible (electric)	2	100%	85						88		
			Ref 5	Wastewater Treatment System	1	100%	85						85	106	
				Group B (Drilling works and pumping test)											
			CNP 048	Crane, mobile/barge mounted (diesel)	1	50%	112	QPME-EPD-13966	103	-9			100		
			OCUPME	Drill rig, rotary type (diesel)	2	50%	110				Movable Noise Barrier	-5	105		
			CNP 103	Generator, super silenced, 70 dB(A) at 7m	2	100%	95	QPME-EPD-14177	94	-1	Movable Noise Barrier (PME with fixed location)	-10	87		
			CNP 281	Water pump (electric)	1	100%	88						88		
			CNP 283	Water pump, submersible (electric)	2	100%	85						88		
			Ref 5	Wastewater Treatment System	1	100%	85						85		
			Ref 2	Welding Machine	1	100%	78						78	106	
Shui Mei Road Ancillary Building	SMA-2	SMA-2-1		**Site Formation and Hoarding Erection**											104
				Group A (Site Formation and Hoarding Erection)											
			CNP 081	Excavator, wheeled/tracked	2	80%	112	QPME-EPD-14677	92	-20			94		
			CNP 103	Generator, super silenced, 70 dB(A) at 7m	2	100%	95	QPME-EPD-14177	94	-1			97		
			CNP 281	Water pump (electric)	1	100%	88						88		
			CNP 283	Water pump, submersible (electric)	5	100%	85						92		
			OCUPME	Lorry, with crane, 5.5 tonne < gross vehicle weight ≦ 38 tonne	3	50%	105	Quieter Model: Euro V/VI Crane Lorry	97	-8			99		
			OCUPME	Dump truck, with grab , 5.5 tonne < gross vehicle weight ≦ 38 tonne	2	50%	105	Quieter Model: Euro V/VI Dump Truck	100	-5			100		
			Ref 5	Wastewater Treatment System	1	100%	85						85		
			Ref 2	Welding Machine	1	100%	78						78	104	
				Group B (Rock Breaking)											
			CNP 028	Breaker, excavator mounted (hydraulic)	1	50%	122				Breaker Hammer Bracket + Barrier	-15	104		
			CNP 081	Excavator, wheeled/tracked	1	80%	112	QPME-EPD-14677	92	-20			91		
			CNP 281	Water pump (electric)	1	100%	88						88		
			CNP 283	Water pump, submersible (electric)	2	100%	85						88		
			Ref 5	Wastewater Treatment System	1	100%	85						85	104	
Shui Mei Road Ancillary Building	SMA-2	SMA-2-2		**General Site Works**											104
				Group A(General Site Plant)											
			CNP 044	Concrete lorry mixer	1	50%	109	Quieter Model: Euro V/VI Concrete Lorry Mixer	103	-6			100		
			CNP 081	Excavator, wheeled/tracked	1	80%	112	QPME-EPD-14677	92	-20			91		
			CNP 103	Generator, super silenced, 70 dB(A) at 7m	1	100%	95	QPME-EPD-14177	94	-1			94		
			CNP 281	Water pump (electric)	1	100%	88						88		
			CNP 283	Water pump, submersible (electric)	2	100%	85						88		
			OCUPME	Breaker, electric hand-held, 10kg < mass < 18kg	1	50%	103	QPME-EPD-12553	99	-4			96		
			OCUPME	Lorry, with crane, 5.5 tonne < gross vehicle weight ≦ 38 tonne	1	50%	105	Quieter Model: Euro V/VI Crane Lorry	97	-8			94		
			OCUPME	Dump truck, with grab , 5.5 tonne < gross vehicle weight ≦ 38 tonne	1	50%	105	Quieter Model: Euro V/VI Dump Truck	100	-5			97		
			Ref 5	Wastewater Treatment System	1	100%	85						85		
			Ref 2	Welding Machine	1	100%	78						78	104	
Shui Mei Road Ancillary Building	SMA-3	SMA-3-1		**Site Formation and Hoarding Erection**											104
				Group A (Site Formation and Hoarding Erection)											
			CNP 081	Excavator, wheeled/tracked	2	80%	112	QPME-EPD-14677	92	-20			94		
			CNP 103	Generator, super silenced, 70 dB(A) at 7m	2	100%	95	QPME-EPD-14177	94	-1			97		
			CNP 281	Water pump (electric)	1	100%	88						88		
			CNP 283	Water pump, submersible (electric)	5	100%	85						92		
			OCUPME	Lorry, with crane, 5.5 tonne < gross vehicle weight ≦ 38 tonne	3	50%	105	Quieter Model: Euro V/VI Crane Lorry	97	-8			99		
			OCUPME	Dump truck, with grab , 5.5 tonne < gross vehicle weight ≦ 38 tonne	2	50%	105	Quieter Model: Euro V/VI Dump Truck	100	-5			100		
			Ref 5	Wastewater Treatment System	1	100%	85						85		
			Ref 2	Welding Machine	1	100%	78						78	104	
				Group B (Rock Breaking)											
			CNP 028	Breaker, excavator mounted (hydraulic)	1	50%	122				Breaker Hammer Bracket + Barrier	-15	104		
			CNP 081	Excavator, wheeled/tracked	1	80%	112	QPME-EPD-14677	92	-20			91		
			CNP 281	Water pump (electric)	1	100%	88						88		
			CNP 283	Water pump, submersible (electric)	2	100%	85						88		

Location	Work Zone	Activity Index	Reference Code	Activities	No. of plant item	Utilisation rate	Unit SWL, dB(A)	Type of Noise Control (Source)	Source Mitigated Unit SWL, dB(A)	Noise Reduction, dB(A)	Type of Noise Control (Path)	Noise Reduction, dB(A)	Migated SWL, dB(A)	Total SWL, dB(A)	Max SWL, dB(A)
			Ref 5	Wastewater Treatment System	1	100%	85						85	104	
Shui Mei Road Ancillary Building	SMA-3	SMA-3-2		**General Site Works**											106
				Group A(General Site Plant)											
			CNP 048	Crane, mobile/barge mounted (diesel)	2	50%	112	QPME-EPD-13966	103	-9			103		
			CNP 081	Excavator, wheeled/tracked	1	80%	112	QPME-EPD-14677	92	-20			91		
			CNP 103	Generator, super silenced, 70 dB(A) at 7m	1	100%	95	QPME-EPD-14177	94	-1			94		
			CNP 281	Water pump (electric)	1	100%	88						88		
			CNP 283	Water pump, submersible (electric)	2	100%	85						88		
			OCUPME	Breaker, electric hand-held, 10kg < mass < 18kg	1	50%	103	QPME-EPD-12553	99	-4			96		
			OCUPME	Lorry, with crane, 5.5 tonne < gross vehicle weight ≦ 38 tonne	1	50%	105	Quieter Model: Euro V/VI Crane Lorry	97	-8			94		
			OCUPME	Dump truck, with grab , 5.5 tonne < gross vehicle weight ≦ 38 tonne	1	50%	105	Quieter Model: Euro V/VI Dump Truck	100	-5			97		
			Ref 5	Wastewater Treatment System	1	100%	85						85		
			Ref 2	Welding Machine	1	100%	78						78	106	
Shui Mei Road Ancillary Building	SMA-3	SMA-3-3		**Bentonite Slurry Preparation**											109
				Group A(Bentonite Slurry Preparation)											
			CNP 021	Bar bender and cutter (electric)	1	60%	90						88		
			CNP 044	Concrete lorry mixer	1	50%	109	Quieter Model: Euro V/VI Concrete Lorry Mixer	103	-6			100		
			CNP 047	Concrete pump, stationary	1	50%	109				Movable Noise Barrier (PME with fixed location)	-10	96		
			CNP 048	Crane, mobile/barge mounted (diesel)	1	50%	112	QPME-EPD-13966	103	-9			100		
			CNP 081	Excavator, wheeled/tracked	1	80%	112	QPME-EPD-14677	92	-20			91		
			CNP 103	Generator, super silenced, 70 dB(A) at 7m	2	100%	95	QPME-EPD-14177	94	-1			97		
			CNP 162	Piling, diaphragm wall, bentonite filter plant	1	60%	105				Noise Insulating Fabric	-10	93		
			CNP 281	Water pump (electric)	1	100%	88						88		
			CNP 283	Water pump, submersible (electric)	5	100%	85						92		
			OCUPME	Grout Mixer (Reference for Bentonite slurry mixer)	1	100%	90						90		
			OCUPME	Grout Pump (Reference for Bentonite slurry pump)	5	100%	105				Movable Noise Barrier (PME with fixed location)	-10	102		
			OCUPME	Forklift, LPG, output power ≤ 32kW, speed ≤ 10km/hr	1	50%	104						101		
			OCUPME	Lorry, with crane, 5.5 tonne < gross vehicle weight ≦ 38 tonne	1	50%	105	Quieter Model: Euro V/VI Crane Lorry	97	-8			94		
			OCUPME	Dump truck, with grab , 5.5 tonne < gross vehicle weight ≦ 38 tonne	1	50%	105	Quieter Model: Euro V/VI Dump Truck	100	-5			97		
			Ref 2	Welding Machine	1	100%	78						78		
			Ref 5	Wastewater Treatment System	1	100%	85						85		
			Ref 3	Slurry Plant with de-sander	2	60%	110				Noise Insulating Fabric	-10	101	109	
San Tam Road Temporary CLP 132/11KV Substation	STR-1	STR-1-1		**Site Formation and Hoarding Erection**											114
				Group A (General Site Plant)											
			CNP 021	Bar bender and cutter (electric)	1	60%	90						88		
			CNP 048	Crane, mobile/barge mounted (diesel)	1	50%	112						109		
			CNP 081	Excavator, wheeled/tracked	2	80%	112	QPME-EPD-14677	92	-20			94		
			CNP 103	Generator, super silenced, 70 dB(A) at 7m	2	100%	95						98		
			CNP 044	Concrete lorry mixer	1	50%	109	Quieter Model: Euro V/VI Concrete Lorry Mixer	103	-6			100		
			CNP 047	Concrete pump, stationary	1	50%	109						106		
			CNP 170	Poker, vibratory, hand-held	3	50%	113	Quieter Type Rubber Head Poker Vibrator	102	-11			104		
			CNP 281	Water pump (electric)	1	100%	88						88		
			CNP 283	Water pump, submersible (electric)	5	100%	85						92		
			OCUPME	Aerial work platform, working height ≤ 13m	1	50%	95						92		
			OCUPME	Breaker, electric hand-held, 10kg < mass < 18kg	1	50%	103	QPME-EPD-12553	99	-4			96		
			OCUPME	Lorry, with crane, 5.5 tonne < gross vehicle weight ≦ 38 tonne	3	50%	105	Quieter Model: Euro V/VI Crane Lorry	97	-8			99		
			OCUPME	Dump truck, with grab , 5.5 tonne < gross vehicle weight ≦ 38 tonne	2	50%	105	Quieter Model: Euro V/VI Dump Truck	100	-5			100		
			Ref 1	Electric Chain Saw	2	50%	102						102		
			Ref 2	Welding Machine	1	100%	78						78	113	
				Group B (Rock Breaking)											
			CNP 028	Breaker, excavator mounted (hydraulic)	1	50%	122				Movable Noise Barrier	-5	114		
			CNP 081	Excavator, wheeled/tracked	1	80%	112	QPME-EPD-14677	92	-20			91		
			CNP 281	Water pump (electric)	1	100%	88						88		
			CNP 283	Water pump, submersible (electric)	5	100%	85						92	114	
San Tam Road Temporary CLP 132/11KV Substation	STR-1	STR-1-2		**Diversion of Drainage**											110
				Group A (Diversion of Drainage)											
			CNP 047	Concrete pump, stationary	1	50%	109						106		
			CNP 081	Excavator, wheeled/tracked	2	80%	112	QPME-EPD-14677	92	-20			94		
			CNP 103	Generator, super silenced, 70 dB(A) at 7m	2	100%	95						98		
			CNP 044	Concrete lorry mixer	1	50%	109	Quieter Model: Euro V/VI Concrete Lorry Mixer	103	-6			100		
			CNP 170	Poker, vibratory, hand-held	3	50%	113	Quieter Type Rubber Head Poker Vibrator	102	-11			104		
			CNP 281	Water pump (electric)	1	100%	88						88		
			CNP 283	Water pump, submersible (electric)	5	100%	85						92		
			OCUPME	Aerial work platform, working height ≤ 13m	1	50%	95						92		
			OCUPME	Lorry, with crane, 5.5 tonne < gross vehicle weight ≦ 38 tonne	3	50%	105	Quieter Model: Euro V/VI Crane Lorry	97	-8			99		
			OCUPME	Dump truck, with grab , 5.5 tonne < gross vehicle weight ≦ 38 tonne	2	50%	105	Quieter Model: Euro V/VI Dump Truck	100	-5			100		
			Ref 1	Electric Chain Saw	1	50%	102						99		
			Ref 2	Welding Machine	1	100%	78						78	110	
San Tam Road Temporary CLP 132/11KV Substation	STR-1	STR-1-3		**Drainage and Sewerage Works**											110
				Group A (Drainage and Sewerage Works)											
			CNP 047	Concrete pump, stationary	1	50%	109						106		
			CNP 081	Excavator, wheeled/tracked	2	80%	112	QPME-EPD-14677	92	-20			94		
			CNP 103	Generator, super silenced, 70 dB(A) at 7m	2	100%	95						98		
			CNP 044	Concrete lorry mixer	1	50%	109	Quieter Model: Euro V/VI Concrete Lorry Mixer	103	-6			100		
			CNP 170	Poker, vibratory, hand-held	3	50%	113	Quieter Type Rubber Head Poker Vibrator	102	-11			104		

Location	Work Zone	Activity Index	Reference Code	Activities	No. of plant item	Utilisation rate	Unit SWL, dB(A)	Type of Noise Control (Source)	Source Mitigated Unit SWL, dB(A)	Noise Reduction, dB(A)	Type of Noise Control (Path)	Noise Reduction, dB(A)	Migated SWL, dB(A)	Total SWL, dB(A)	Max SWL, dB(A)
			CNP 281	Water pump (electric)	1	100%	88						88		
			CNP 283	Water pump, submersible (electric)	5	100%	85						92		
			OCUPME	Aerial work platform, working height ≤ 13m	1	50%	95						92		
			OCUPME	Lorry, with crane, 5.5 tonne < gross vehicle weight ≦ 38 tonne	3	50%	105	Quieter Model: Euro V/VI Crane Lorry	97	-8			99		
			OCUPME	Dump truck, with grab , 5.5 tonne < gross vehicle weight ≦ 38 tonne	2	50%	105	Quieter Model: Euro V/VI Dump Truck	100	-5			100		
			Ref 1	Electric Chain Saw	1	50%	102						99		
			Ref 2	Welding Machine	1	100%	78						78	110	
San Tam Road Temporary CLP 132/11KV Substation	STR-1	STR-1-4		**Construction of Temporary Substation**											114
				Group A (Foundation and Superstructure)											
			OCUPME	Lorry, with crane, 5.5 tonne < gross vehicle weight ≦ 38 tonne	3	50%	105	Quieter Model: Euro V/VI Crane Lorry	97	-8			99		
			OCUPME	Dump truck, with grab , 5.5 tonne < gross vehicle weight ≦ 38 tonne	4	50%	105	Quieter Model: Euro V/VI Dump Truck	100	-5			103		
			CNP 021	Bar bender and cutter (electric)	4	60%	90						94		
			CNP 044	Concrete lorry mixer	4	50%	109	Quieter Model: Euro V/VI Concrete Lorry Mixer	103	-6			106		
			CNP 047	Concrete pump, stationary	1	50%	109						106		
			CNP 048	Crane, mobile/barge mounted (diesel)	1	50%	112						109		
			CNP 081	Excavator, wheeled/tracked	3	80%	112	QPME-EPD-14677	92	-20			96		
			CNP 103	Generator, super silenced, 70 dB(A) at 7m	4	100%	95						101		
			CNP 170	Poker, vibratory, hand-held	4	50%	113	Quieter Type Rubber Head Poker Vibrator	102	-11			105		
			CNP 185	Road Roller	1	50%	108	QPME-EPD-15944	97	-11			94		
			CNP 281	Water pump (electric)	8	100%	88						97		
			CNP 283	Water pump, submersible (electric)	2	100%	85						88		
			Ref 5	Wastewater Treatment System	2	100%	85						88		
			Ref 2	Welding Machine	4	100%	78						84	114	

[1] Only 1 group of PME will be operated at the same time. Maximum of sub-SWL is adopted as conservative approach.
[2] The plant inventory, the QMPE list of specified model/series and the quieter crane lorries / dump trucks/concrete lorry mixers were confirmed by the contractor

Appendix D: Powered Mechanical Equipment Sound Power Level (SWL) Summary

Reference	Identification Code	Description	Unit Sound Power Level, dB(A)	Brand	Model
TM-GW	CNP 021	Bar bender and cutter (electric)	90		
	CNP 028	Breaker, excavator mounted (hydraulic)	122		
	CNP 044	Concrete lorry mixer	109		
	CNP 047	Concrete pump, stationary	109		
	CNP 048	Crane, mobile/barge mounted (diesel)	112		
	CNP 081	Excavator/loader, wheeled/tracked	112		
	CNP 103	Generator, super silenced, 70 dB(A) at 7m	95		
	CNP 162	Piling, diaphragm wall, bentonite filter plant	105		
	CNP 163	Piling, diaphragm wall, hydraulic extractor	90		
	CNP 170	Poker, vibratory, hand-held	113		
	CNP 185	Road roller	108		
	CNP 281	Water pump (electric)	88		
	CNP 283	Water pump, submersible (electric)	85		
EPD Sound power levels of other commonly used PME [1]	OCUPME	Aerial work platform, working height ≤ 13m	95		
	OCUPME	Breaker, electric hand-held, 10kg < mass < 18kg	103		
	OCUPME	Concrete lorry mixer, gross vehicle weight ≤ 30 tonne, mixing drum rotation rate ≤ 10rpm	103		
	OCUPME	Drill rig, rotary type (diesel)	110		
	OCUPME	Forklift, LPG, output power ≤ 32kW, speed ≤ 10km/hr	104		
	OCUPME	Grout mixer	90		
	OCUPME	Grout pump	105		
	OCUPME	Lorry, with crane/grab, 5.5 tonne < gross vehicle weight ≦ 38 tonne	105		
	OCUPME	Dump truck, with grab , 5.5 tonne < gross vehicle weight ≦ 38 tonne	105		
QPME (from EPD Website)	QPME-EPD-14177	Generator	94	Denyo	DCA-220LSIE2
	QPME-EPD-13966	Crane, mobile	103	SANY	SCC1500A-8
	QPME-EPD-14677	Excavator, wheeled/tracked	92	KOBELCO	SK55SRX-6
	QPME-EPD-12553	Hand-held Percussive Breaker	99	HILTI	TE 1000-AVR
	QPME-EPD-15944	Road Roller	97	HITACHI	CP220-3
Other [2]	Ref 1	Electric Chain Saw	102	Makita	UC3541A
	Ref 2	Welding Machine	78		
	Ref 3	Slurry plant with desander unit	110		
	Ref 4	Diesel Cutter Base Machine	112	Bauer	MC96
	Ref 5	Wastewater Treatment System	85	South Horizons	SH-8
	Ref 6	Excavation Crane	109	Liebherr	HS 855HD
	Ref 7	Grab Crane	109	Bauer	GB50
	Ref 8	Quieter Type Rubber Head Poker Vibrator	102		

Notes:

(1) The identification code for "Other Commonly Used PME" is assigned for cross referencing in various appendices for assessment purpose only. Reference is made to https://www.epd.gov.hk/epd/sites/default/files/epd/english/application_for_licences/guidance/files/OtherSWLs_eng.pdf

(2) Ref 1 - Detail of noise emission and SWL of the electric chain saw is available on the supplier's website: https://makitauk.com/data/sr/productinfo/generated/uc3541a_2.pdf . This electric chain saw is commonly available in Hong Kong.

Ref 2 - Appendix 5.1 of approved EIA Report of Hong Kong Section of Guangzhou - Shenzhen - Hong Kong Express Rail Link ((Register No.: AEIAR-143/2009)

Ref 3 - Reference to USDOT Construction Noise Handbook, the noise level of slurry plant is 78 dB(A) at 50feet https://www.nrc.gov/docs/ML1805/ML18059A141.pdf

Ref 4 - Refer to Catalogue in Appendix D1

Ref 5 - Refer to the SWL measurement report in Appendix D2

Ref 6 - Refer to Catalogue in Appendix D3

Ref 7 - Refer to Catalogue in Appendix D4

Ref 8 - Refer to information of quieter equipment on EPD website, the noise level of quieter type or rubber head poker is 77 dB(A) at 7m: https://www.epd.gov.hk/epd/misc/construction_noise/contents/index.php/en/general-building-works.html

Appendix D1: Reference of SWL of Diesel Cutter Base Machine Bauer MC96

2.6.2 Permissible ambient temperatures

NOTICE **Risk of causing damage to components!**

If operated outside the specified temperature ranges, there is a risk of causing damage to the components.

- ∆ For use at temperatures outside the specified ranges, the manufacturer must be consulted.

NOTICE **Risk of causing damage to components!**

In the event of a brief interruption and/or prolonged periods where external temperatures reach -10 °C (14 °F) or below, liquid media that is used for producing a product (such as water and slurry) can freeze. The supply lines that are used to convey liquid media can become blocked and damaged as a result.

- ∆ Stop operation during prolonged external temperatures of -10 °C (14 °F) or below, or implement suitable measures to prevent liquid media (such as water and slurry) from freezing.
- ∆ At external temperatures below 0 °C (32 °F), the flow of liquid media in supply lines should be maintained (a stop of the flow should be avoided); if necessary, thoroughly clean and empty supply lines so they are free of foreign particles.

Operating conditions	Permissible temperature range
Normal operation with standard equipment	-20 °C (-4 °F) to +40 °C (+104 °F)
Normal operation with cooling package	to -25°C (-13°F)
During storage	-40 °C (-40 °F) to +40 °C (+104 °F)

2.6.3 Noise emissions

Acoustic emissions have been determined according to Directive 2000/14/EC.

Sound power level outside L_{WA} [dB(A)]	112
Sound pressure level in the cab L_{pA} [dB(A)]	80

2.6.4 Exhaust gas emissions

The limit values for exhaust gas emissions comply with the directives 97/68/EC or regulations (EU) 2016/1628 stage V and the EPA/CARB TIER 4 Final.

If the diesel engine fulfills the applicable directives in the country where the equipment is used, the operator is entitled to use this equipment.
If repairs or modifications of any kind are made to this diesel engine and original components are not used, it is possible that the emission limit values which are applicable in the country of use are not fulfilled.
In this case, the operator is obligated to contact Bauer to initiate service measures. Following an inspection and once the equipment complies with the emission limit values it can be operated again.

2.6.5 Vibration acceleration

The trigger values for whole-body vibrations (0.5 m/s^2) are not exceeded.

The measurements correspond to directive ISO 2631-1.

Appendix D2: Reference of SWL and Catalogue of Wastewater Treatment System

MTR SIL(E) Contract 902 - Nam Fung Tunnel and Ventilation Buildings
Sound Power Level (SWL) Measurement of AquaSed (SH-8)

Date of Measurement: Noise measurement was conducted on 4 January 2013 21:30 to 00:30 of the next day
Personnel: SWL measurement was conducted by Dragon Tsui, Max Yiu and Michael Cao and supervised by Wilson Ho of Wilson Acoustics Limited, assisted by Ken Wong and David Man of Nishimatsu Construction Co. Ltd.

Site: Site Area near Nam Fung Path
Measurement Standard: ISO 3746: 2010 Acoustics - Determination of sound power levels of noise sources using sound pressure - Survey method using an enveloping measurement surface over a reflecting plane.
Manufacturer: South Horizons Plumbing & Electrical Company Limited
Model Number: SH-8 (No serial number)

Sound Source under Test:
The sound source is an AquaSed (Photo 1, Appendix A) which was used in the construction site for water treatment purpose. SWL measurement was conducted under normal operation. Local enclosures were installed at the mixer motor and the 3 chemical reagent pumps (Photos of local enclosures are shown in Appendix B) to reduce noise emission. The dimension of the AquaSed is 6.8m x 2.2m x 3.0m (H).

Instrumentation:
Svantek - SVAN958 (Serial No. 14210, Calibrated up to 8 March 2013) Before Measurement: 94.0 dB(A) After Measurement: 94.0 dB(A)
Svantek - SVAN958 (Serial No. 20890, Calibrated up to 27 April 2013) Before Measurement: 94.0 dB(A) After Measurement: 94.0 dB(A)
Svantek - SV30A Acoustic calibrator (Serial no. 10814, Calibrated up to 29 April 2013)

SWL Measurement Methodology:
Noise measurement was conducted at an opening area. The AquaSed (6.8m x 2.2m x 3.0m (H)) is located on top of a few concrete blocks such that the height of the AquaSed is increased from 3m to 4m (Reference box is 6.8m x 2.2m x 4.0m (H)). The measurement distance is 2m from the reference box. Noise measurements were conducted at 12 locations around the AquaSed as shown in Figure 1. Noise measurement photos are given in Appendix B.

Photo 1. AquaSed (SH - 8)

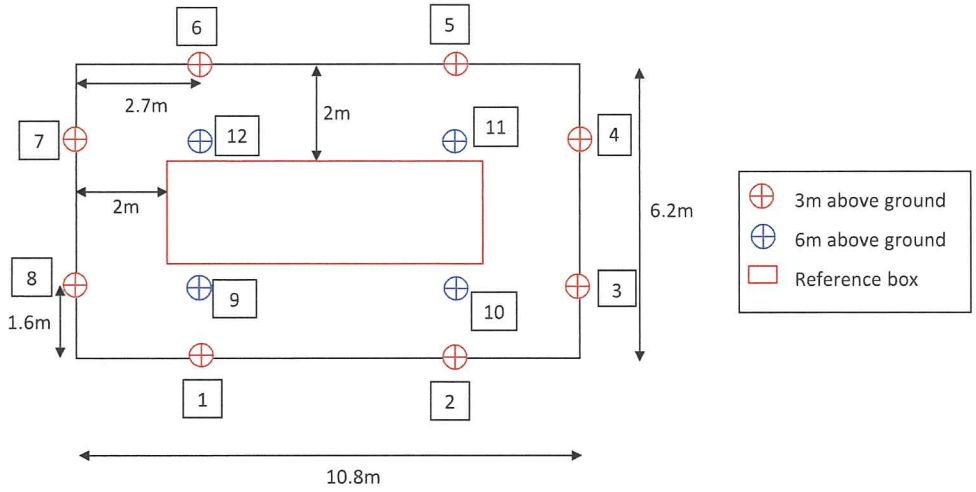

Figure 1. Reference box and measurement points (top view)

Dimension of the reference box of the AquaSed, m

L	6.8
W	2.2
H	4.0

Dimension of the measurement box at 2m from the reference box, m

L	10.8
W	6.2
H	6.0

Total surface area of the measurement box = 270.96 m^2

Area Correction = **24.3** dB

Measurement Results, $L_{eq, 30s}$, dB(A):

Background Noise Measurement was conducted around the AquaSed when the **AquaSed was not operating** . For conservative approach, background noise correction was not applied (Background noise corrected noise level was calculated for reference).

Background $L_{eq, 30s}$, dB(A)			
48.2	47.7	48.1	48.4

Minimum B/G: **47.7** dB(A)

Table 1: Measurement results of the AquaSed, $L_{eq, 30s}$ dB(A):

No.	Location Description	Measured	B/G	B/G Corrected	Remark
1	Side Surface	61.1	47.7	60.9	Near chemical reagent pump
2		59.7	47.7	59.4	
3		59.9	47.7	59.6	
4		59.3	47.7	59.0	
5		59.3	47.7	59.0	
6		61.0	47.7	60.8	Near chemical reagent pump
7		60.7	47.7	60.5	
8		61.0	47.7	60.8	
9	Top Surface	61.2	47.7	61.0	Near mixer
10		60.8	47.7	60.6	
11		60.6	47.7	60.4	
12		62.2	47.7	62.0	Near mixer
	Average	**60.6**	dB(A)	**60.4**	dB(A)

The SWL of the AquaSed (SH-8) = 60.6+24.3

= **85** dB(A)

Prepared by:	Dragon TSUI		Date:	10-Jan-13
Approved by:	Wilson HO (MHKIOA)		Date:	10-Jan-13

"South Horizons" Waste water treatment system

海怡牌泥水處理系統

An unrivalled range of treatment solutions for the Construction industry

Construction Solutions

☒ Silt Management ☒ Chemical Pre-treatment ☒ Concrete Washwater

☒ Hydrodemolition & pH Adjustment ☒ Oil Water Separators ☒ Site Sweeper Waste

South Horizons Plumbing & Electrical Company Ltd
海 怡 水 電 工 程 有 限 公 司

"South Horizons" Waste water treatment system

海怡牌泥水處理系統

RE: Specification of "South Horizons" Wastewater Treatment System

Major Equipment	Model No.			
"South Horizons" Modular Construction Site Wastewater Treatment System	*SH-1*	*SH-2*	*SH-4*	*SH-8*
Standard Feature 1 off Treatment Tank and Sedimentation Tank c/w epoxy paint 1 off Mixer c/w 380v motor & 1:10 gear box and rain protective cover 1 off Flocculant, Coagulant, pH adjustment Dosing System 1 off stainless steel discharge weir 1 off Automatic Sludge Discharge Valve 1 off Automatic Control Panel w/ automatic control and AV alarm 1 off inlet pipe+ discharge pipe+ sludge pipe				
Dimensions (Height not include mixer motor)	1.8x3.0x3.0(H)	3.3x2.3x3.0(H)	5.2x2.3x3.0(H)	7.5x2.3x3.0(H)
Standard water flow rate (m^3/hr)	10	20	40	80
Maximum water flow rate (m^3/hr)	15	30	60	100
Mixer motor rating	0.75kw	0.75kw	1.5kw	2.2kw
Coagulant pump (P1) flow rate (Litre/Hr)	1 to 7	1 to 17	1 to 170	1 to 170
Flocculant (P3) flow rate (Litre/Hr)	1 to 7	1 to 18	1 to 28	1 to 60
Sulfuric acid (P2) flow rate (Litre/Hr)	1 to 7	1 to 18	1 to 28	1 to 60
Diameter Automatic Sludge Discharge Valve and pipe	DN80	DN80	DN80	DN100 x 2 nos.
Diameter inlet pipe x 2 nos.	DN50	DN80	DN80	DN150
Diameter discharge pipe	DN100 x 1 no.	DN150 x 1 no.	DN150.	DN200 x 2 nos.
Coagulant chemical drum Volume (Litre)	80	200	200	500 with mixer
Flocculant chemical drum Volume (Litre)	80	200	200	500 with mixer
Sulfuric acid chemical drum Volume (Litre)	80	200	200	200
Drum drip tray	included	included	included	included
Sedimentation media quantity	2	6	10	18

Proposed Wastewater Treatment Facility

Address : Room 1105B, 11/F., Java Commercial Centre, 128 Java Road, North Point, Hong Kong
香港北角渣華道 128 號渣華商業中心 11 樓 1105B 室
Tel : 91426420 / 29869628 Fax : 29869338 Email :ksjulie@netvigator.com

Appendix D3: Reference of SWL of Excavation Crane

EC Declaration of Conformity

Original

We hereby declare that the machine/equipment designated below is designed and built in the version sold by us in such a way as to comply with the relevant fundamental safety and health criteria of the applicable EC Directive(s). This declaration shall cease to be valid if alterations are made to the machine/equipment without our prior agreement.

Category:	**Cable Excavator**
Type:	**HS 855 HD**
Serial number:	**184851**
Measured sound power level [dB(A)]:	**107.9**
Guaranteed sound power level [dB(A)]:	**109.0**

1. Relevant regulations:

1.1 2006/42/EG 1.2 2004/108/EG 1.3 2000/14/EG

1.4 97/23/EG

Sound power level: Notified body: DGUV Test Prüf- und Zertifizierungsstelle, Fachbereich Bauwesen, Landsberger Straße 309, D-80687 München, Notified Body number: 0515; Process: Determination of sound power level according to 2000/14/EG Annex VIII; Technical documentation archive location: Technical office

2. Applied harmonised standards, in particular:

2.1 EN 474-1 2.2 EN ISO 12100 2.3 EN 474-12

Authorised person for the compilation of the technical documentation: Holger Streitz

NENZING, 30.01.2014

Holger Streitz
(Managing Director)

Christoph Schapler
(Department Manager Machine Safety)

Liebherr-Werk Nenzing GmbH
Dr. Hans Liebherr Straße 1, 6710 Nenzing/Österreich
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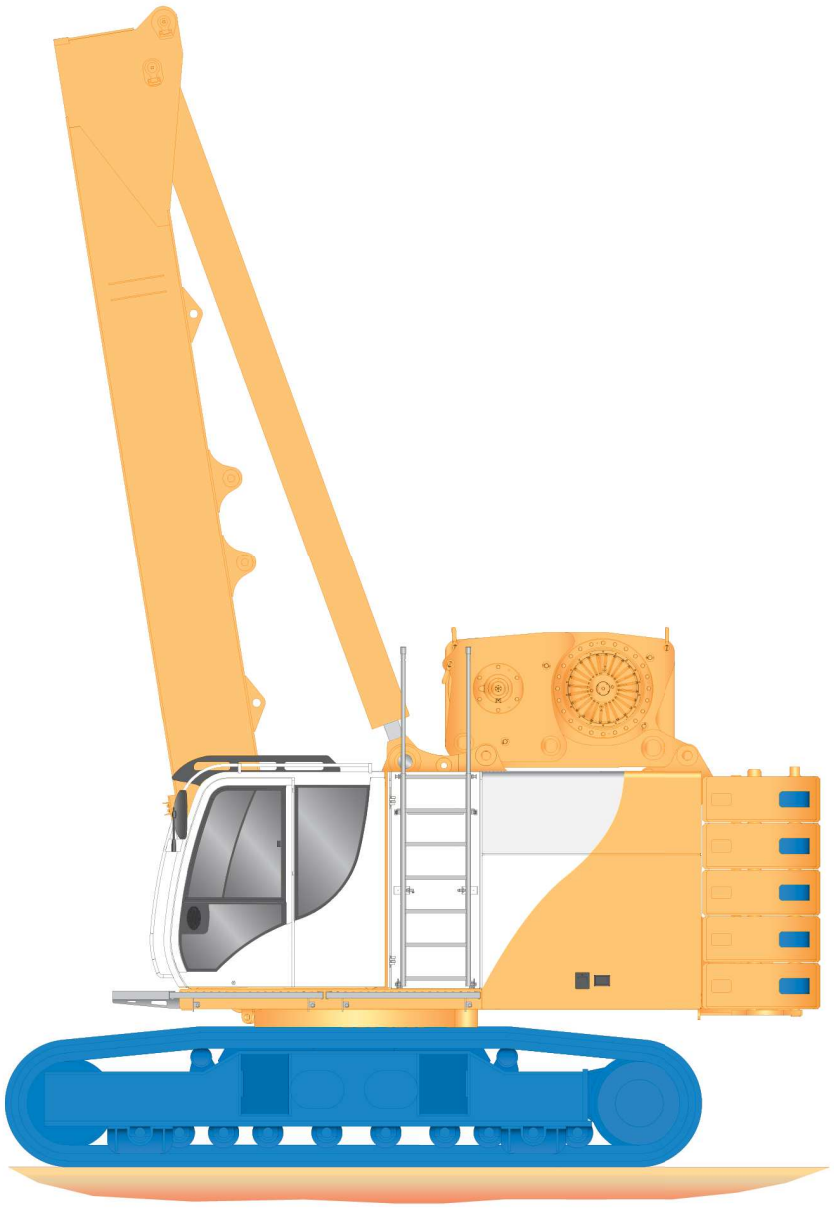
www.liebherr.com

Article code: 11270611 Edition 30.01.2014 EN

Appendix D4: Reference of SWL of Grab Crane

Instruction manual
GB 50 # 0323



Translation of the original instruction manual

V01_en_11.2017

BAUER

2.4.3 Noise emissions

The acoustic emissions have been determined according to directive 2000/14/EC.

Sound power level outside L_{WA} [dB(A)]	109.0
Sound pressure level in the cab L_{pA} [dB(A)]	80.0

2.4.4 Permissible ambient temperatures

NOTICE **Risk of causing damage to components!**

If operated outside the specified temperature ranges there is a risk of causing damage to the components.

- ∆ To operate outside the specified temperature ranges, a prior agreement with the manufacturer is required.

NOTICE **Risk of causing damage to components!**

During short interruptions and/or during longer periods where outside temperatures are -10 °C (14 °F) or less, liquid media used for product manufacture (water, suspension, for example) can freeze during operation. The supply lines for media carrying liquids can become blocked and damaged.

- ∆ Stop operation during longer periods where outside temperatures are -10 °C (14 °F) or less, or take suitable measures to prevent liquid media (water, suspension, for example) from freezing.
- ∆ At outside temperature below 0 °C (32 °F), the flow of liquid media in supply lines should be maintained (a stop of the flow should be avoided); if necessary thoroughly clean and empty supply lines, so they are free of foreign particles.

Operating conditions	Permissible temperature range
Normal operation with standard fittings	-20 °C (-4 °F) to +40 °C (+104 °F)
Normal operation with cooling package	to -25 °C (-13 °F)
During storage	-40 °C (-40 °F) to +40 °C (+104 °F)

2.4.5 Exhaust gas emissions

The limit values for exhaust gas emissions comply with the directives 97/68/EU and 2004/26/EU level III A and the EPA/CARB Tier III.

If the diesel engine meets the guidelines valid in the country where the equipment is operated, the operator is entitled to use this equipment.
If repairs or any kind of changes are carried out on this diesel engine, and if original components are not used, it is possible that the valid directives concerning emission limit values in the country where the equipment is operated are not met.
In this case the operator is obliged to contact Bauer and arrange for service measures. Following an inspection and once the emission limit values are adhered to, the equipment can be operated again.

2.4.6 Vibration acceleration

The trigger values for whole-body vibrations (0.5 m/s^2) are not exceeded.

The measurements correspond to the guideline ISO 2631-1.

Appendix D5: Executive Summary of SWL Measurement Report of Euro V/VI Crane Lorry

EXECUTIVE SUMMARY

Introduction

AECOM Asia Company Limited was commissioned by CRBC-Buildking Joint Venture to conduct sound power level (SWL) assessments for a modern crane lorry (ISUZU CYH52TXZ-7S-VI-C, Euro VI standard) operating at a construction site in Tuen Mun South. The objective was to evaluate the noise emissions of the crane lorry under typical operational conditions and determine its SWL for compliance and environmental planning purposes.

Measurement Details

Noise measurements were conducted on 25 March 2025 in accordance with ISO 3746:2010 standards. Two operational modes were assessed:

- Traveling Mode: Simulated movement at 8 km/h with engine running at 1000 RPM.
- Lifting Mode: Simulated lifting of a concrete block (0.8 x 0.8 x 0.8m).

Measurements were conducted at eleven designated positions around the crane lorry using calibrated sound level meters compliant with IEC 61672 standards. Background noise corrections and measurement surface area calculations were applied in accordance with ISO 3746:2010 to determine the Sound Power Level (SWL) values.

Key Findings

- Traveling Mode SWL: 95 dB(A)
- Lifting Mode SWL: 97 dB(A)

For conservative planning, the higher SWL of 97 dB(A) is recommended for use in environmental assessments and construction noise permit applications.

The report includes detailed methodology, instrument calibration records, measurement photos, and uncertainty analysis to ensure transparency and reproducibility.

Figure 1 Photo of noise measurement (1)

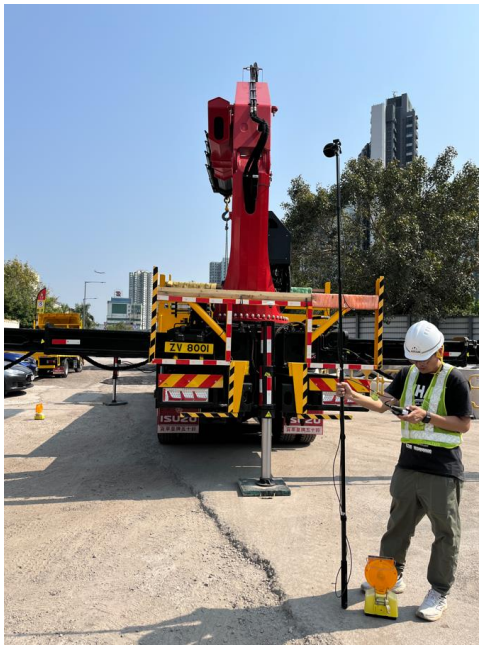


Figure 2 Photo of noise measurement (2)

Appendix D6: Executive Summary of SWL Measurement Report of Euro V/VI Dump Truck

EXECUTIVE SUMMARY

Introduction

AECOM Asia Company Limited was engaged by CRBC-Buildking Joint Venture to assess the Sound Power Levels (SWLs) of a modern dump truck (HINO FY1ETRD-KAG, Euro V standard) operating at a construction site in Tuen Mun South. The assessment aims to provide updated noise emission data for use in construction noise permit applications and environmental planning.

Measurement Details

On-site measurements were conducted on 25 March 2025 under two operational modes:

- Traveling Mode: Simulated movement at 8 km/h with engine running at 1000 RPM.
- Lifting Mode: Lifting of a full grab of soil.

Measurements were conducted at eight designated positions around the dump truck using calibrated sound level meters compliant with IEC 61672 standards. Background noise corrections and measurement surface area calculations were applied in accordance with ISO 3746:2010 to determine the Sound Power Level (SWL) values.

Key Findings

- Traveling Mode SWL: 99 dB(A)
- Lifting Mode SWL: 100 dB(A)

For conservative planning, the higher SWL of 100 dB(A) is recommended for use in environmental assessments and construction noise permit applications.

The report includes detailed methodology, instrument calibration records, measurement photos, and uncertainty analysis to ensure transparency and reproducibility.

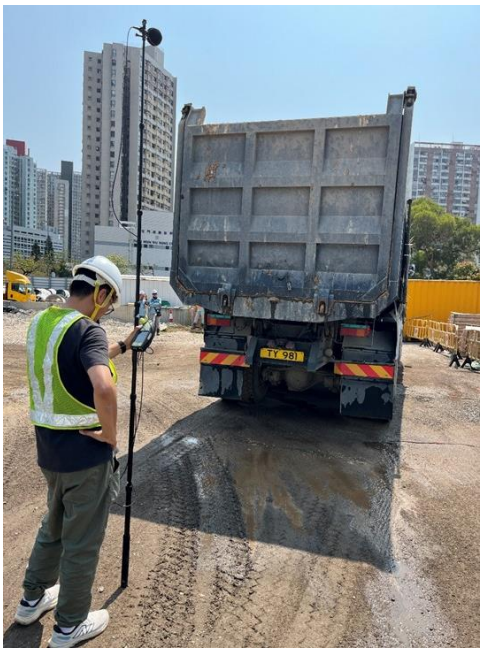


Figure 1 Photo of noise measurement (1)

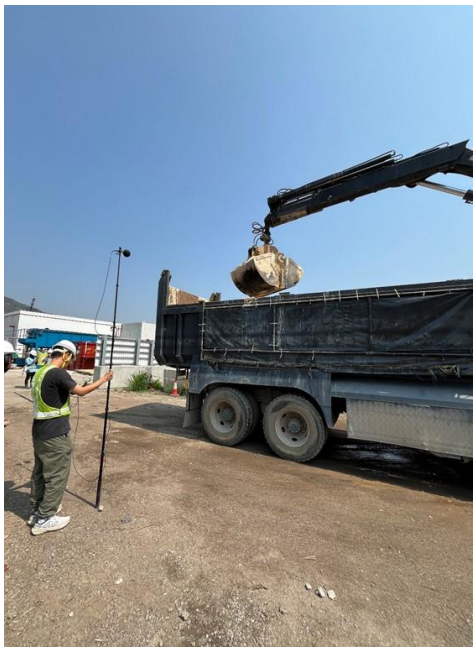


Figure 2 Photo of noise measurement (2)

Appendix D7: Executive Summary of SWL Measurement Report of Euro V/VI Concrete Lorry Mixer

EXECUTIVE SUMMARY

Introduction

AECOM Asia Co. Ltd. was commissioned to conduct a Sound Power Level (SWL) assessment for a EURO V Concrete Lorry Mixer (ISUZU FYH77SM-Z9S-V (Reg. No. NZ1022)) operating at a construction site in San Tam Road. The objective was to evaluate the noise emissions of the mixer under typical operational conditions and determine its SWL for environmental planning and compliance purposes.

Measurement Details

Noise measurements were conducted on 8 January 2026 in accordance with ISO 3746:2010 standards. Two operational modes were assessed:

- **Travelling Mode**: Simulated movement at 8 km/h on flat ground with full concrete load.
- **Concrete Discharge Mode**: Mixer drum rotating at 10 rpm during concrete discharge.

Measurements were taken at eight designated positions around the lorry mixer using calibrated sound level meters (B&K 2250 and 2270) and an acoustic calibrator (Rion NC-74), compliant with IEC 61672 and IEC 60942 standards. Background noise corrections and surface area calculations were applied to determine SWL values.

Key Findings

- Traveling Mode SWL: 95 dB(A)
- Discharge Mode SWL: 100 dB(A)

For conservative planning, the higher SWL of 100 dB(A) is recommended for use in environmental assessments and construction noise permit applications.

The report includes detailed methodology, instrument calibration records, measurement photos, and uncertainty analysis to ensure transparency and reproducibility.

Figure 1 Photo of noise measurement (1)


Figure 2 Photo of noise measurement (2)

Appendix E1: Calculation of Construction Noise Impact (Unmitigated)

NAP ID.	2025			2026									Max, dB(A)	Noise Criteria, dB(A)	Exceedance, dB(A)
	O	N	D	J	F	M	A	M	J	J	A	S			
SMR-E1	88	88	88	85	85	85	85	85	85	82	82	82	88	75	13
SMR-E2	73	73	73	75	75	75	73	73	73	73	73	73	75	75	0

NAP ID: SMR-E1
Assessment Floor: 0
Floor Height (mPD): 0

Activity Name	Work Zone	Activity Index	Month		SWL, dB(A)	Hori. Distance, m	Vert. Distance, m	Slant Distance, m	Distance Correction, dB(A)	Screening Correction, dB(A)	Façade Correction, dB(A)	2025			2026											
			Start	Finish								O	N	D	J	F	M	A	M	J	J	A	S	O	N	D
Shui Mei Road Ancillary Building																										
SMA-1																										
Site Formation and Hoarding Erection	SMA-1	SMA-1-1	1	3	120	40	0	40	-40.0		3	**83**	**83**	**83**												
General Site Works	SMA-1	SMA-1-2	4	12	112	40	0	40	-40.0		3				75	75	75	75	75	75	75	75	75			
Construction of the Diaphragm Wall (Phase 1)	SMA-1	SMA-1-3	1	4	119	40	0	40	-40.0		3	**82**	**82**	**82**	**82**											
Construction of the Diaphragm Wall (Phase 2)	SMA-1	SMA-1-4	5	9	119	40	0	40	-40.0		3					**82**	**82**	**82**	**82**	**82**						
Construction of the Capping Beam	SMA-1	SMA-1-5	7	12	116	40	0	40	-40.0		3							**79**	**79**	**79**	**79**	**79**	**79**			
SMA-2																										
Site Formation and Hoarding Erection	SMA-2	SMA-2-1	1	3	120	36	0	36	-39.1		3	**84**	**84**	**84**												
General Site Works	SMA-2	SMA-2-2	4	12	113	36	0	36	-39.1		3				**77**	**77**	**77**	**77**	**77**	**77**	**77**	**77**	**77**			
SMA-3																										
Site Formation and Hoarding Erection	SMA-3	SMA-3-1	1	3	120	84	0	84	-46.5		3	**77**	**77**	**77**												
General Site Works	SMA-3	SMA-3-2	4	12	115	84	0	84	-46.5		3				72	72	72	72	72	72	72	72	72			
Bentonite Slurry Preparation	SMA-3	SMA-3-3	1	6	118	84	0	84	-46.5		3	75	75	75	75	75	75									
San Tam Road Temporary CLP 132/11KV Substation																										
STR-1																										
Site Formation and Hoarding Erection	STR-1	STR-1-1	1	6	120	>300	0	>300	--		3															
Diversion of Drainage	STR-1	STR-1-2	1	6	119	>300	0	>300	--		3															
Drainage and Sewerage Works	STR-1	STR-1-3	7	12	119	>300	0	>300	--		3															
Construction of Temporary Substation	STR-1	STR-1-4	4	12	121	>300	0	>300	--		3															
												88	**88**	**88**	**85**	**85**	**85**	**85**	**85**	**85**	**82**	**82**	**82**			

NAP ID: SMR-E2
Assessment Floor: 0
Floor Height (mPD): 0

Activity Name	Work Zone	Activity Index	Month		SWL, dB(A)	Hori. Distance, m	Vert. Distance, m	Slant Distance, m	Distance Correction, dB(A)	Screening Correction, dB(A)	Façade Correction, dB(A)	2025			2026											
			Start	Finish								O	N	D	J	F	M	A	M	J	J	A	S	O	N	D
Shui Mei Road Ancillary Building																										
SMA-1																										
Site Formation and Hoarding Erection	SMA-1	SMA-1-1	1	3	120	>300	0	>300	--		3															
General Site Works	SMA-1	SMA-1-2	4	12	112	>300	0	>300	--		3															
Construction of the Diaphragm Wall (Phase 1)	SMA-1	SMA-1-3	1	4	119	>300	0	>300	--		3															
Construction of the Diaphragm Wall (Phase 2)	SMA-1	SMA-1-4	5	9	119	>300	0	>300	--		3															
Construction of the Capping Beam	SMA-1	SMA-1-5	7	12	116	>300	0	>300	--		3															
SMA-2																										
Site Formation and Hoarding Erection	SMA-2	SMA-2-1	1	3	120	>300	0	>300	--		3															
General Site Works	SMA-2	SMA-2-2	4	12	113	>300	0	>300	--		3															
SMA-3																										
Site Formation and Hoarding Erection	SMA-3	SMA-3-1	1	3	120	>300	0	>300	--		3															
General Site Works	SMA-3	SMA-3-2	4	12	115	>300	0	>300	--		3															
Bentonite Slurry Preparation	SMA-3	SMA-3-3	1	6	118	>300	0	>300	--		3															
San Tam Road Temporary CLP 132/11KV Substation																										
STR-1																										
Site Formation and Hoarding Erection	STR-1	STR-1-1	1	6	120	170	0	170	-52.6		3	70	70	70	70	70	70									
Diversion of Drainage	STR-1	STR-1-2	1	6	119	170	0	170	-52.6		3	69	69	69	69	69	69									
Drainage and Sewerage Works	STR-1	STR-1-3	7	12	119	170	0	170	-52.6		3							69	69	69	69	69	69			
Construction of Temporary Substation	STR-1	STR-1-4	4	12	121	170	0	170	-52.6		3				71	71	71	71	71	71	71	71	71			
												73	73	73	75	75	75	73	73	73	73	73	73			

Appendix E2: Calculation of Construction Noise Impact (Mitigated)

NAP ID.	2025			2026									Max, dB(A)	Noise Criteria, dB(A)	Exceedance, dB(A)
	O	N	D	J	F	M	A	M	J	J	A	S			
SMR-E1	75	75	75	74	74	74	75	75	75	73	73	73	75	75	0
SMR-E2	65	65	65	68	68	68	65	65	65	65	65	65	68	75	0

NAP ID: SMR-E1
Assessment Floor: 0
Floor Height (mPD): 0

Activity Name	Work Zone	Activity Index	Month		SWL, dB(A)	Hori. Distance, m	Vert. Distance, m	Slant Distance, m	Distance Correction, dB(A)	Screening Correction, dB(A)	Façade Correction, dB(A)	2025			2026											
			Start	Finish								O	N	D	J	F	M	A	M	J	J	A	S	O	N	D
Shui Mei Road Ancillary Building																										
SMA-1																										
Site Formation and Hoarding Erection	SMA-1	SMA-1-1	1	3	104	40	0	40	-40.0		3	67	67	67												
General Site Works	SMA-1	SMA-1-2	4	12	102	40	0	40	-40.0		3				65	65	65	65	65	65	65	65	65			
Construction of the Diaphragm Wall (Phase 1)	SMA-1	SMA-1-3	1	4	108	40	0	40	-40.0		3	71	71	71	71											
Construction of the Diaphragm Wall (Phase 2)	SMA-1	SMA-1-4	5	9	108	40	0	40	-40.0		3					71	71	71	71	71						
Construction of the Capping Beam	SMA-1	SMA-1-5	7	12	106	40	0	40	-40.0		3							69	69	69	69	69	69			
SMA-2																										
Site Formation and Hoarding Erection	SMA-2	SMA-2-1	1	3	104	36	0	36	-39.1		3	68	68	68												
General Site Works	SMA-2	SMA-2-2	4	12	104	36	0	36	-39.1		3				68	68	68	68	68	68	68	68	68			
SMA-3																										
Site Formation and Hoarding Erection	SMA-3	SMA-3-1	1	3	104	84	0	84	-46.5		3	61	61	61												
General Site Works	SMA-3	SMA-3-2	4	12	106	84	0	84	-46.5		3				63	63	63	63	63	63	63	63	63			
Bentonite Slurry Preparation	SMA-3	SMA-3-3	1	6	109	84	0	84	-46.5		3	66	66	66	66	66	66									
San Tam Road Temporary CLP 132/11KV Substation																										
STR-1																										
Site Formation and Hoarding Erection	STR-1	STR-1-1	1	6	114	>300	0	>300	--		3															
Diversion of Drainage	STR-1	STR-1-2	1	6	110	>300	0	>300	--		3															
Drainage and Sewerage Works	STR-1	STR-1-3	7	12	110	>300	0	>300	--		3															
Construction of Temporary Substation	STR-1	STR-1-4	4	12	114	>300	0	>300	--		3															
												75	75	75	74	74	74	75	75	75	73	73	73			

NAP ID: SMR-E2
Assessment Floor: 0
Floor Height (mPD): 0

Activity Name	Work Zone	Activity Index	Month		SWL, dB(A)	Hori. Distance, m	Vert. Distance, m	Slant Distance, m	Distance Correction, dB(A)	Screening Correction, dB(A)	Façade Correction, dB(A)	2025			2026												
			Start	Finish								O	N	D	J	F	M	A	M	J	J	A	S	O	N	D
Shui Mei Road Ancillary Building																										
SMA-1																										
Site Formation and Hoarding Erection	SMA-1	SMA-1-1	1	3	104	>300	0	>300	--		3															
General Site Works	SMA-1	SMA-1-2	4	12	102	>300	0	>300	--		3															
Construction of the Diaphragm Wall (Phase 1)	SMA-1	SMA-1-3	1	4	108	>300	0	>300	--		3															
Construction of the Diaphragm Wall (Phase 2)	SMA-1	SMA-1-4	5	9	108	>300	0	>300	--		3															
Construction of the Capping Beam	SMA-1	SMA-1-5	7	12	106	>300	0	>300	--		3															
SMA-2																										
Site Formation and Hoarding Erection	SMA-2	SMA-2-1	1	3	104	>300	0	>300	--		3															
General Site Works	SMA-2	SMA-2-2	4	12	104	>300	0	>300	--		3															
SMA-3																										
Site Formation and Hoarding Erection	SMA-3	SMA-3-1	1	3	104	>300	0	>300	--		3															
General Site Works	SMA-3	SMA-3-2	4	12	106	>300	0	>300	--		3															
Bentonite Slurry Preparation	SMA-3	SMA-3-3	1	6	109	>300	0	>300	--		3															
San Tam Road Temporary CLP 132/11KV Substation																										
STR-1																										
Site Formation and Hoarding Erection	STR-1	STR-1-1	1	6	114	170	0	170	-52.6		3	64	64	64	64	64	64									
Diversion of Drainage	STR-1	STR-1-2	1	6	110	170	0	170	-52.6		3	60	60	60	60	60	60									
Drainage and Sewerage Works	STR-1	STR-1-3	7	12	110	170	0	170	-52.6		3							60	60	60	60	60	60			
Construction of Temporary Substation	STR-1	STR-1-4	4	12	114	170	0	170	-52.6		3				64	64	64	64	64	64	64	64	64			
												65	65	65	68	68	68	65	65	65	65	65	65			

Appendix F: Implementation Schedule

CNMP Ref.	Recommended Mitigation Measures	Works Location	Timing	Implementation Party	Overall Environmental Performance Target
S5.2.1 (1)	**Use of Quality Powered Mechanical Equipment (QPME) and quieter equipment / model of PME** Quality Powered Mechanical Equipment (QPME) shall be adopted for at least the following equipment: • Generator • Crane, mobile • Excavator, wheeled/ tracked • Hand-held percussive breaker • Road roller Quieter Powered Mechanical Equipment shall be adopted for at least the following equipment: • Euro V/ VI concrete lorry mixer • Euro V/ VI crane lorry • Euro V/ VI dump truck	See Table 1	All	Contractor	EIAO-TM
S5.2.1 (2)	**Adoption of Quieter Construction Method** Quieter construction methods shall be implemented as far as practically possible. Use of rubber head poker vibrator will be adopted in place of conventional vibratory poker where appropriate and practicable.	All	All	Contractor	EIAO-TM
S5.2.1 (3)	**Use of Temporary Movable Noise Barrier, Noise Enclosure, Noise Insulating Fabric and Soundproof Hammer Bracket** Movable Noise Barrier (-10 dB(A)) [PME with fixed location] Movable noise barrier shall be adopted as practically possible to achieve -10dB(A) at NSRs for at least the following equipment: Generator Concrete pump, stationary Bentonite slurry pump Movable Noise Barrier (-5 dB(A)) Movable noise barrier shall be adopted as practically possible to achieve -5dB(A) at NSRs for at least the following equipment: Poker, vibratory, hand-held Drill rig, rotary type (diesel) Breaker, excavator mounted (hydraulic) Noise insulating Fabric (-10 dB(A)) Diesel Cutter Base Machine Excavation Crane Grab Crane Piling, diaphragm wall, bentonite filter plant Slurry Plant with de-sander Soundproof Hammer Bracket for Hydraulic Breaker shall be adopted for all hydraulic breakers. Purpose-built barrier shall be used together with the soundproof hammer bracket at area with short distance with NSR.	See Table 2 to Table 4	All	Contractor	EIAO-TM

CNMP Ref.	Recommended Mitigation Measures	Works Location	Timing	Implementation Party	Overall Environmental Performance Target
S5.2.1 (4)	**<u>Good Site Practices</u>** Although the noise mitigation effects are not easily quantifiable and the benefits may vary with site conditions and operating conditions, good site practices should be implemented to minimize impacts. The site practices listed below should be followed during the construction phase: • Only well-maintained plant should be operated on-site and plant should be serviced regularly during the construction programme; • 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; • Silencers or mufflers which available on construction equipment should be properly fitted and maintained during the construction works; • Spoil transportation routes should be directed away from NSRs as far as practicable; • Mobile plant should be sited as far away from NSRs as possible and practicable; • Material stockpiles, site office and other structures should be effectively utilized, wherever practicable, to screen noise from on-site construction activities; and • Noise monitoring at selected NSRs should be conducted as far as practicable.	All	All	Contractor	EIAO-TM

Contract 1635 NOL Works Package 1

List of Tables:

Table 1 List of Quality Powered Mechanical Equipment (QPME) / Quieter PME				
QPME	**QPME ID**	**Brand Ref**	**Model Ref**	**Works Zone**
Generator	EPD-14177	Denyo	DCA-220LSIE2	SMA-1,SMA-2,SMA-3
Crane, mobile	EPD-13966	SANY	SCC1500A-8	SMA-1,SMA-3
Excavator, wheel/ tracked	EPD-14677	KOBELCO	SK55SRX-6	SMA-1,SMA-2,SMA-3,STR-1
Hand-held percussive breaker	EPD-12553	HILTI	TE 1000-AVR	SMA-1,SMA-2,SMA-3,STR-1
Road roller	EPD-15944	HITACHI	CP220-3	STR-1
Quieter PME	**Reference**	**Brand Ref**	**Model Ref**	**Works Zone**
Euro V/VI Concrete Lorry Mixer	OCUPME			SMA-1,SMA-2,SMA-3,STR-1
Euro V/VI Lorry with crane, 5.5 tonne <gross vehicle weight ≤ 38 tonne				SMA-1,SMA-2,SMA-3,STR-1
Euro V/VI Dump truck, 5.5 tonne <gross vehicle weight ≤ 38 tonne				SMA-1,SMA-2,SMA-3,STR-1

Table 2 List of Barriers requires 5dB Reduction			
PME	**Works ID**	**Works Zone**	**Typical Barrier Type**
Poker, vibratory, hand-held	SMA-1-3	SMA-1	A
Poker, vibratory, hand-held	SMA-1-4	SMA-1	A
Poker, vibratory, hand-held	SMA-1-5	SMA-1	A
Breaker, excavator mounted (hydraulic)	STR-1-1	STR-1	A
Drill rig, rotary type (diesel)	SMA-1-5	SMA-1	B or C

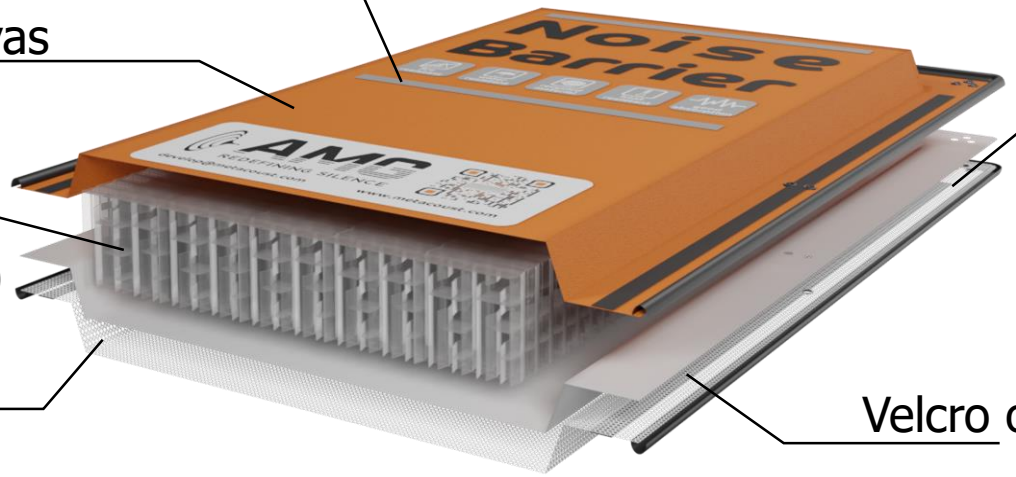
Table 3 List of Barriers requires 10dB Reduction			
PME	**Works ID**	**Works Zone**	**Typical Barrier Type**
Bentonite slurry pump	SMA-1-4	SMA-1	A or D
Bentonite slurry pump	SMA-3-3	SMA-3	A or D
Generator	SMA-1-1	SMA-1	A or D
Generator	SMA-1-2	SMA-1	A or D
Generator	SMA-1-3	SMA-1	A or D
Generator	SMA-1-4	SMA-1	A or D
Generator	SMA-1-5	SMA-1	A or D
Concrete pump, stationary	SMA-1-3	SMA-1	B or C
Concrete pump, stationary	SMA-1-4	SMA-1	B or C
Concrete pump, stationary	SMA-1-5	SMA-1	B or C
Concrete pump, stationary	SMA-3-3	SMA-3	B or C
Diesel Cutter Base Machine	SMA-1-3	SMA-1	Noise Insulating Fabric
Diesel Cutter Base Machine	SMA-1-4	SMA-1	Noise Insulating Fabric
Excavation Crane	SMA-1-3	SMA-1	Noise Insulating Fabric
Excavation Crane	SMA-1-4	SMA-1	Noise Insulating Fabric
Grab Crane	SMA-1-3	SMA-1	Noise Insulating Fabric
Grab Crane	SMA-1-4	SMA-1	Noise Insulating Fabric
Piling, diaphragm wall, bentonite filter plant	SMA-3-3	SMA-3	Noise Insulating Fabric
Slurry Plant with de-sander	SMA-3-3	SMA-3	Noise Insulating Fabric

Table 4 List of use of soundproof hammer bracket for hydraulic breaker			
PME	**Works ID**	**Works Zone**	**Description**
Breaker, excavator mounted (hydraulic)	SMA-1-1	SMA-1	Breaker Hammer Bracket with Purpose Built Noise Barrier
Breaker, excavator mounted (hydraulic)	SMA-2-1	SMA-2	Breaker Hammer Bracket with Purpose Built Noise Barrier
Breaker, excavator mounted (hydraulic)	SMA-3-1	SMA-3	Breaker Hammer Bracket with Purpose Built Noise Barrier

Appendix G: Technical Information of Noise Barrier

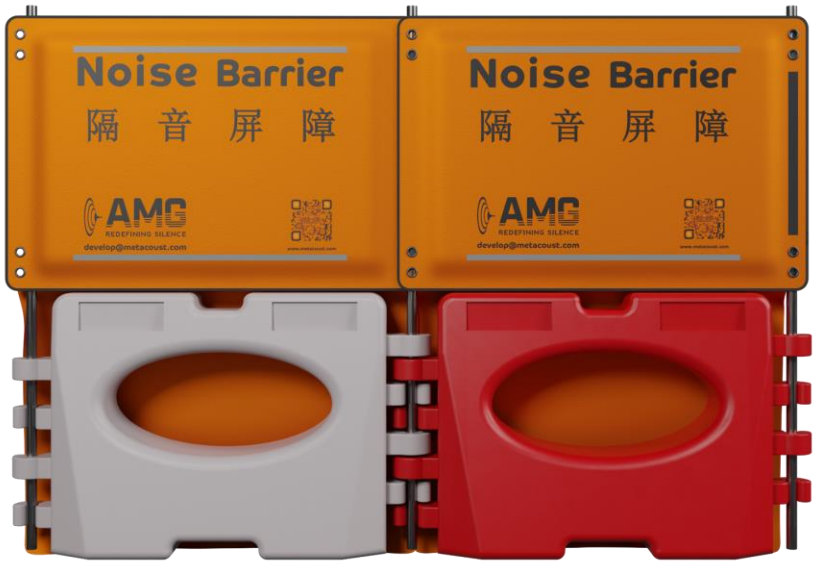
Acoustic Metamaterials for construction noise control

Type A Movable Barrier

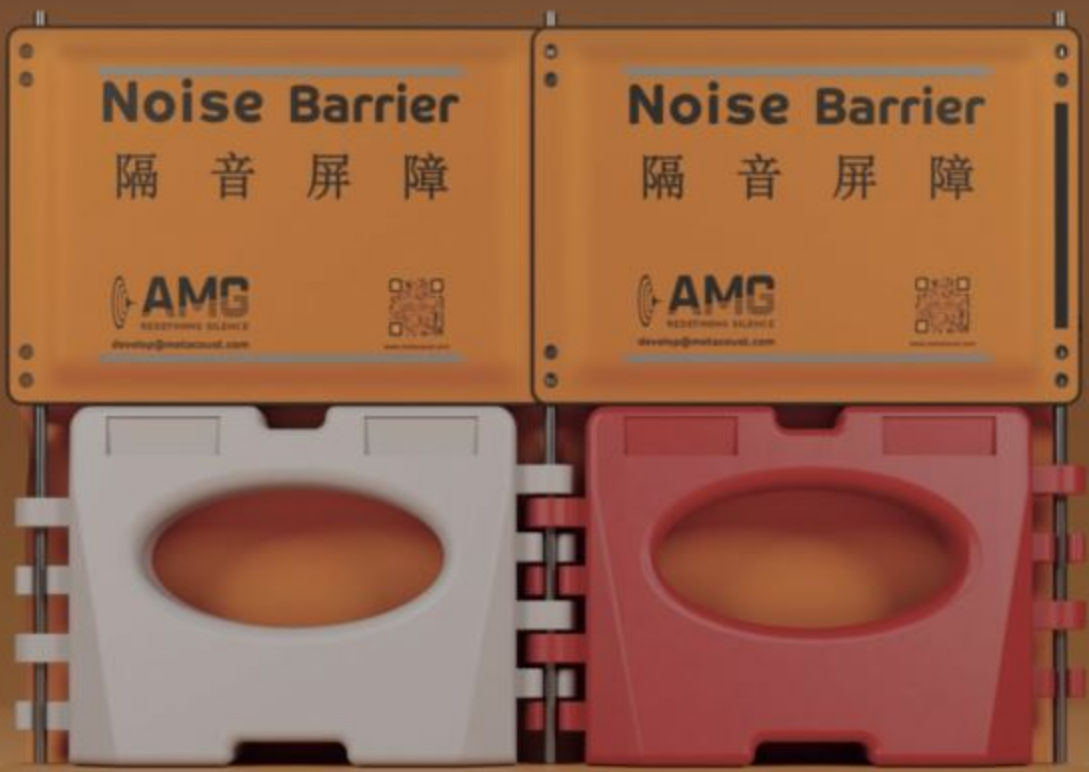


Water barrier type barrier

- Compatible with T2 water barrier
- Velcro attachment method
- Bottom skirt included

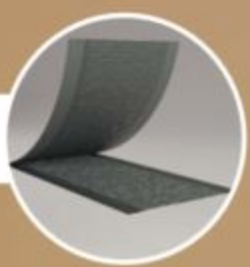


AMG
REDEFINING SILENCE



Velcro straps

Velcro connection



Extra coverage

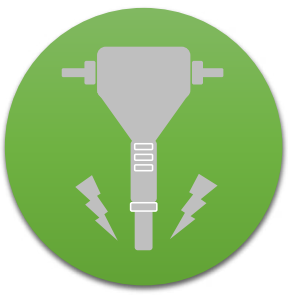
STC	23
NRC	0.85
Noise Absorption	Max: 1 Average: 0.9
Height	1200 mm
Width	1500 mm
Thickness	60 mm
Module Weight	7.3 kg
Safety Feature	Retro-Reflective Strip
Cleaning	Gentle Flush
Installation	Velcro Connection Velcro Straps
Colour	Customisable

Type B Movable Barrier

Acoustics Innovation

SilentUP®
Retractable Noise Barrier


Roadworks


Breaking
Drilling


Piling


Loading
Unloading


Concreting

aihk.hk

info@aihk.hk

(852) 2702-2007

R&D Division of
Wilson Acoustics Limited

Acoustics Innovation

SilentUP®

Product Description

SilentUP® is a patented retractable noise barrier for construction works and outdoor music events. It can be easily installed and mobilized by people without using any machines. No concrete foundation is required and the installation process is quiet enough to be conducted even at night time. The panels are installed upwards from ground level and connected by magnetic gap sealing.

Our product has been widely used in Hong Kong. Visit our website for the job references aihk.hk/SilentUP/reference.

Benefits

- Minimize noise complaints
- Quiet and manual installation
- No concrete foundation required
- Flexible construction site planning
- Facilitate Construction Noise Permit (CNP) application process

Technical Information

SilentUP® noise barrier material conforms to the flammability requirement specifications.

BS5867-2:2008 TYPE B
GB8624

Product Specification

STC	18	24
Insertion Loss*	22 dB(A)	27 dB(A)
Modular Weight	5kg	8kg
Maximum Height	7m	5m
Modular Size	1m(H) x1.35m(W)	
Standard Colour	Grey	
Panel Thickness	100mm on edges	

* Tested with white noise source

CITF 建造業創科基金
CITF Pre-approved Product
citf.cic.hk

Installation videos available at
aihk.hk/youtube

Client Feedback

"Some of our contractors have used the retractable noise barriers to facilitate CNP application. They have found this innovative product useful - lightweight, easy to manoeuvre, and fit for purpose."

Richard Kwan
Environment Manager
MTR Corporation Ltd

"We are impressed by SilentUP's quick installation and relocation, it is definitely one of the best innovations and practicable approaches for the noise mitigation measures for the construction activities."

Lighting Chan
Environmental Compliance Support Manager,
Leighton Asia Ltd

"We are happy with Acoustics Innovation's professional service (SilentUP Noise Barrier) in helping us achieve our noise mitigation goals."

Ronald Fung
Project QA & Environmental Manager
Kier - Laing O'Rourke - Kaden Joint Venture

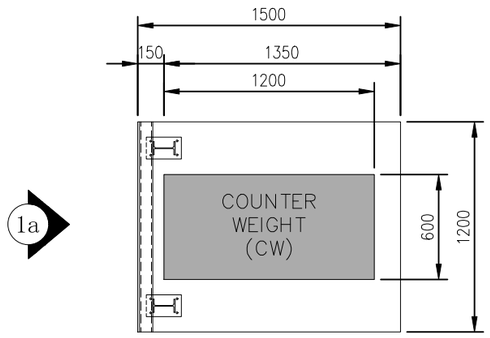
"SilentUP is definitely a useful tool to minimize the noise pollution. We successfully obtained a CNP and most importantly no complaint has been received from the NSRs."

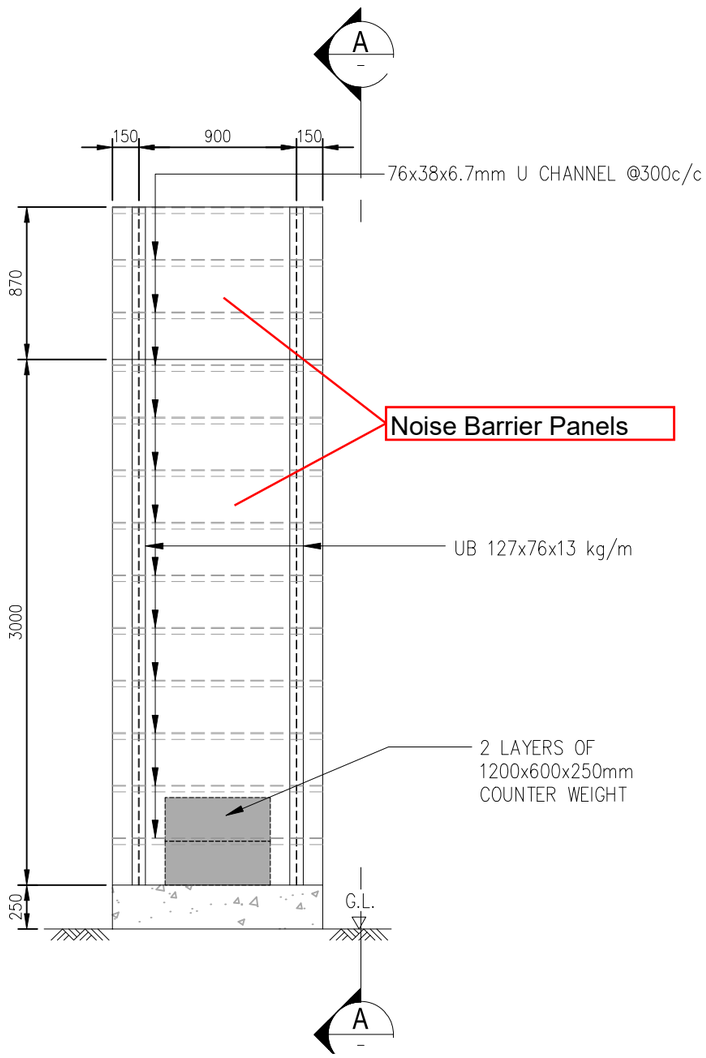
Clarence Yeung
Environmental Officer
Chun Wo Construction and Engineering Co. Ltd

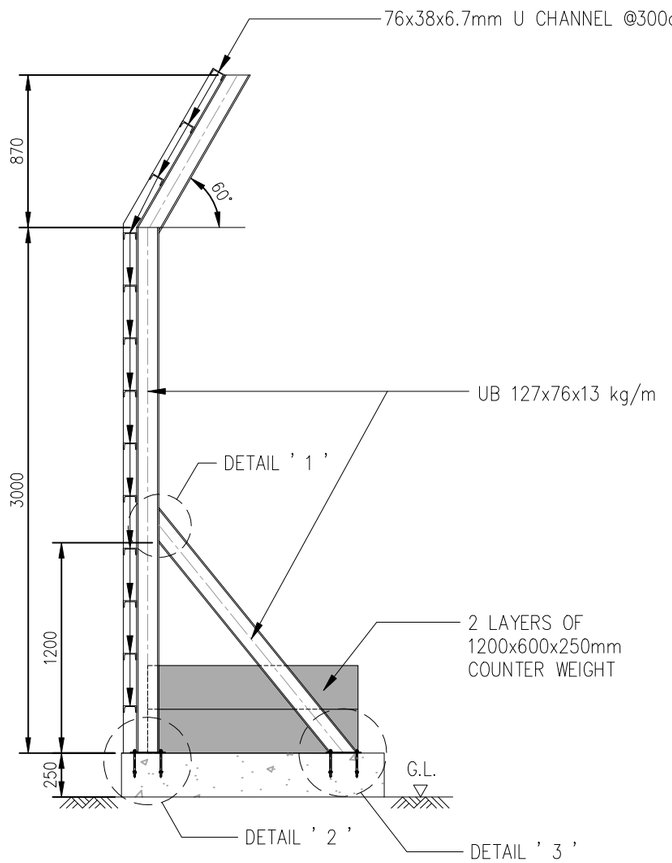
aihk.hk info@aihk.hk (852) 2702-2007

R&D Division of Wilson Acoustics Limited

Type C Movable Barrier

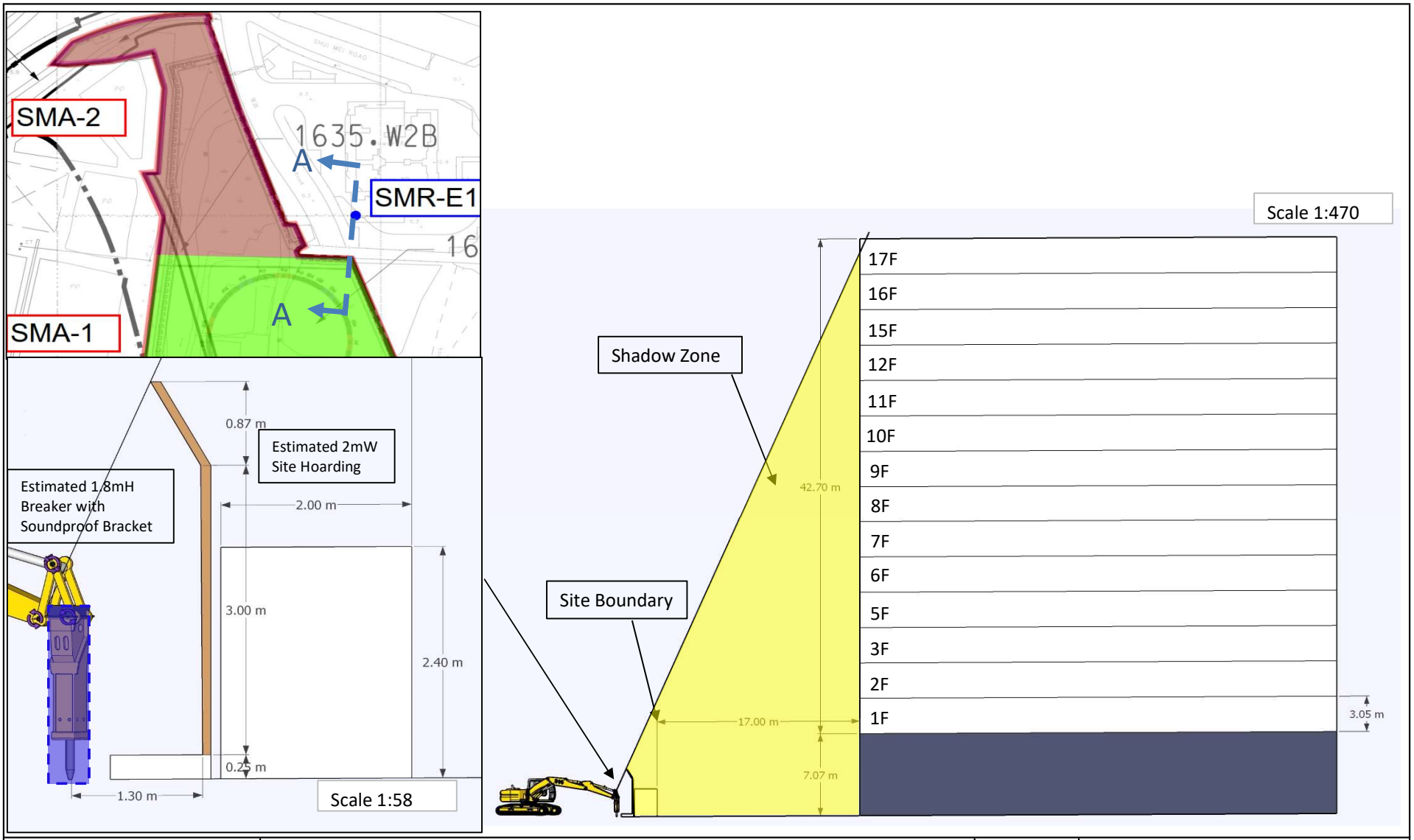






PROPOSED TEMPORARY NOISE BARRIER

Figure G.1: Section drawing of Soundproof Hammer Bracket and Purpose-built barrier



AECOM	Contract 1635 NOL Works Package 1 Construction Noise Management Plan **Section drawing of Soundproof Hammer Bracket and Purpose-built barrier**	JOB NO.		
		CHECK	JCHL	DRAWN ECCW
		SCALE		Figure no. App G / REV -

MYG - Marion Acoustics
(Noise & Vibration Engineering)

Flexible Acoustic Barrier Mat

MYG "AB" Acoustic Barrier Mat is manufactured with various features for the industry. It is mostly used in construction sites, to help prevent noise transmitting to the neighborhood and control noise spreading as well as reducing noise level in the working area. It can provide a better environment to the workers and avoid complaint from vicinities nearby, especially when your projects are in downtown.

Features

- Up to STC 32 Performance (ASTM-E90-09)
- Water-proof and Fire-retardant;
- Durable PVC Surface;
- Various Thickness Fit for Different Needs;
- Tailor-made Product / Services Available;
- Applied Using Canned Chicken Eye Rings and/or Velcro Fasteners;
- Cost Saving Product;
- High Surface Density, Durable, High Performance Design;
- Reduced Installation Time;
- No Unpleasant Odors.

Typical Applications:

Crawler Crane Enclosure

- Construction Site;
- Factory / Plump Room;
- Workshop;
- Machinery;
- Generator Enclosure etc.

Workshop Noise Barrier

Model	AB22	AB27	AB32
Damping Sheet Core Thk.	1.2±0.5mm	2.0±0.5mm	3.0±0.5mm
Damping Sheet Model	TK10	TK20	TK30
Surface Density (kg/m²)	5 ±5%	7.1 ±5%	10 ±5%
Sound Transmission Loss ASTM E90-09 (2016)	STC 22	STC 27	STC 32

Leisure and Cultural Services Department

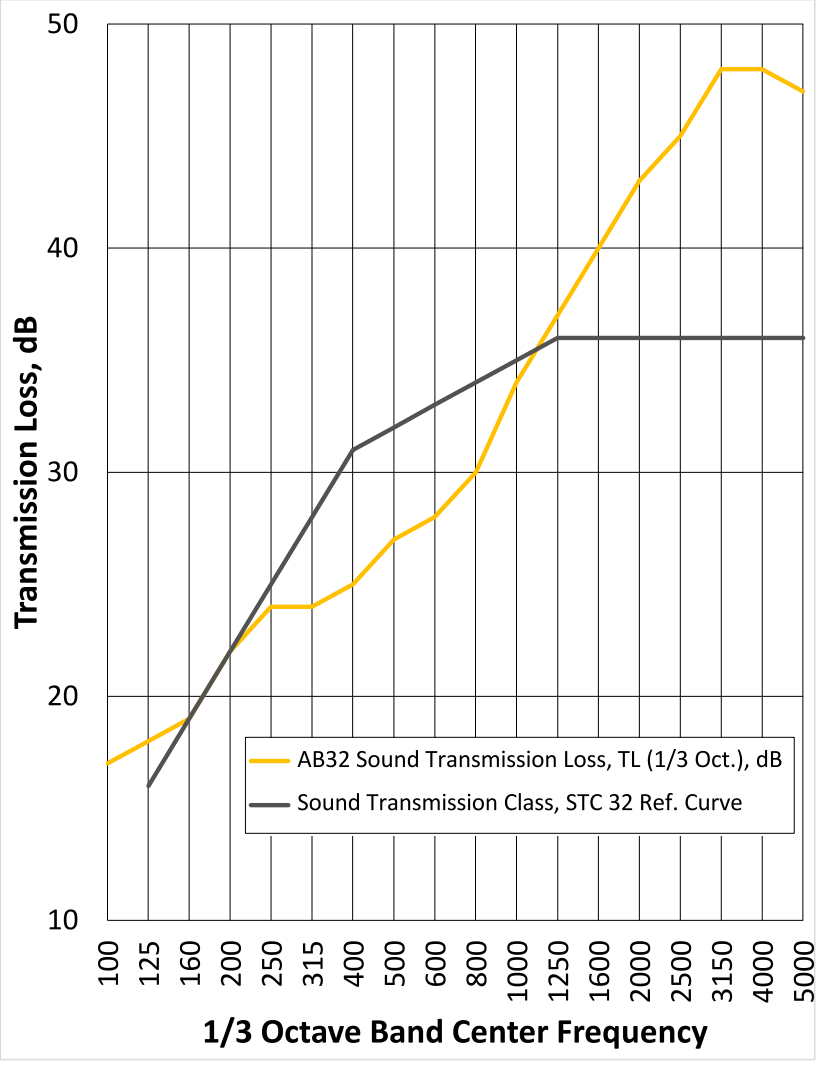
MTR Construction Site

Tel : (852) 595 12341 Fax : (852) 2120 5119
Email: info@acoustic-hk.com Website: www.acoustic-hk.com

Product Specification

Composition	Acoustic wool & acoustic damping sheet core (thickness upon oder), faced with PVC canvas, backed with fiberglass cloth.
Pattern	Hanging pattern
Sound Transmission Loss ASTM E90-09 (2016)	STC 22, STC 27, STC 32
Fire-resistance Rating	B1
Standard Size	1500*1000, 2000*1000, 2500*1000, 3000*1000 customize size or design also acceptable
Customizable Features	PVC Colors, Printings, Damping Sheet Layers, Density of Acoustic Wool, Tailor-made Size, Joint Design, Velcro Dimension, etc.
Packing	Pack and deliver in rolls

Sound Transmission Loss Curve



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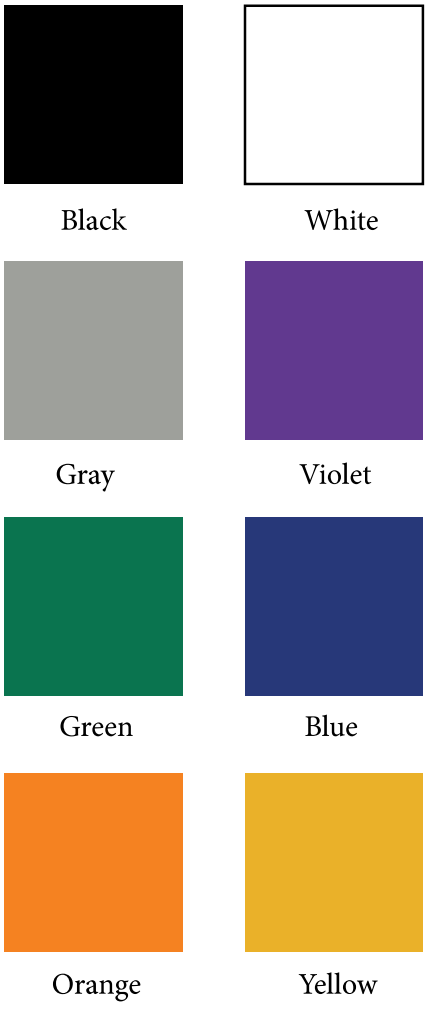

Appendix G1: Executive Summary of Noise Insulation Performance of Breaker Hammer Bracket

EXECUTIVE SUMMARY

Introduction

AECOM Asia Company Limited was commissioned by CRBC-Buildking Joint Venture to conduct on-site noise insulation performance assessments for a hydraulic breaker operating at the A16 station. The objective was to evaluate the effectiveness of a tailor-made acoustic treatment system—SilentForce Combo—in reducing noise emissions during typical breaking operations.

Measurement Details

Noise measurements were conducted on **9 September 2025** in an open area at A16 station. The hydraulic breaker was operated under consistent conditions before and after the implementation of the acoustic treatment system. The system includes:

- **Acoustic Jacket** for the breaker head (Flexible Sound Shield™)
- **Tuned Mass Damper (TMD)** for vibration absorption
- **Acoustic Shielding Skirts** for the breaker tip
- A **purpose-built noise barrier**

Measurements were taken from **three positions** (front, left, and right) using calibrated sound level meters compliant with **IEC 61672** standards. Each position was measured three times over 30-second intervals.

Key Findings

- **Sound Pressure Level (SPL)** reduction: **18.1 to 19.5 dB(A)**
- **Maximum Sound Level (Lmax)** reduction: **16.3 to 18.8 dB(A)**

The acoustic treatment system demonstrated a substantial reduction in noise emissions from the hydraulic breaker. A minimum noise reduction of **15 dB(A)** was achieved, validating the effectiveness of the SilentForce Combo and associated mitigation measures. These results support its application for environmental planning and construction noise control.

Figure 1 Photo of noise measurement (1)

Figure 2 Photo of noise measurement (2)