

Our Ref: MA20024/Corres/Out/LL230818

Gammon Construction Limited
22/F, Tower 1 and 2, The Quayside
77 Hoi Bun Road,
Kuwun Tong, Hong Kong

Attn: Mr. Harry Lam

By E-Mail

18 August 2023

Dear Mr. Lam,

Contract No. HY/2019/13
Central Kowloon Route Buildings, Electrical and Mechanical Works
(Environmental Permit (EP) No. EP-457/2013/D)
Certification of Construction Noise Mitigation Measures Plan (Rev.F)

We refer to the Construction Noise Mitigation Measures Plan Rev. F received on 18 August 2023 via email.

We have no comment on the plan and hereby certify it in accordance with Condition 2.9 of the Environmental Permit (EP No.: EP-457/2013/D).

Should you have any queries, please contact Mr. Leo Leung through 2151 2098 or the undersigned through 2151 2072.

Yours faithfully,

For and on behalf of
Cinotech Consultants Limited

BC.

Ms. Betty Choi
Environmental Team Leader

Environmental Permit No. EP-457/2013/D

Central Kowloon Route

Independent Environmental Checker Verification

Works Contract:	Buildings, Electrical and Mechanical Works (HY/2019/13)
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Reference Document/Plan

Document/Plan to be Certified/ Verified:	Construction Noise Mitigation Measure Plan
Date of Report:	13 July 2023 (Rev. F)
Date received by IEC:	17 August 2023

Reference EP Condition

Environmental Permit Condition:	2.9
<p>To further reduce the air-borne construction noise impacts on Yau Ma Tei Catholic Primary School (Hoi Wang Road), Tak Cheong Building, Prosperous Garden Block 1, The Coronation Tower 1, Ko Fai House of Kwun Fat Court, Grand Waterfront Tower 3 and Hang Chien Court Block J, the Permit Holder shall, no later than one month before the commencement of construction of the corresponding component(s) of the Project, submit to the Director for approval four hard copies and one electronic copy of an updated Construction Noise Mitigation Measure Plan (CNMMP). The plan shall include:-</p> <ul style="list-style-type: none">(a) a schedule of construction works to be carried out at the works areas of the Project within 300m from the NSRs;(b) an updated construction methodology of the construction works;(c) an updated powered mechanical equipment (PME) list for the construction works;(d) an updated proposal of air-borne construction noise mitigation measures for the Noise Sensitive Receivers as mentioned above, including the provision of noise barriers, enclosures;(e) other initiatives proposed by the Permit Holder; and(f) an updated prediction of noise levels in accordance with the above updated information and mitigation proposals in place. <p>Before submission to the Director, the CNMMP shall be certified by the ET and verified by the IEC as conforming to the relevant information and recommendations contained in the EIA Report. The approved CNMMP shall be fully and properly implemented.</p>	

IEC Verification

<p>I hereby verify that the above referenced document/plan complies with the above referenced condition of EP-457/2013/D.</p> <p></p>	
Ms Mandy To Independent Environmental Checker	Date: 17 August 2023

Construction Noise Mitigation Measure Plan

for

Contract No. HY/2019/13

CENTRAL KOWLOON ROUTE - BUILDINGS, ELECTRICAL AND MECHANICAL WORKS

Rev. No. : F

Effective Date: 13 July 2023

Prepared by :



Harry LAM
Environmental Officer


Approved by :



Frankie HO
Site Agent


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REVISION STATUS SHEET

No.	Effective Date	Summary of Revision	Prepared	Approved
0	27 Aug 2020	First Issue	AL	FH
A	5 Sep 2020	Incorporation comments from ET & IEC	AL	FH
B	30 Nov 2020	Response to comments from EPD: Section 1.2, 3.1, 5, 6.3, Table 3.1, 5.2, 6.4.1 & 6.3.2, Appendix B, C & D	AL	FH
C	16 Sep 2021	Response to comments from EPD Section 5, Table 5.2, Appendix B, C & D	SHL	FH
E	27 Feb 2023	Response to comments from EPD: Sections 1.2, 2, 4, 6.2, 6.3 & 7, Appendices B, C & D	SHL	FH
F	13 Jul 2023	Response to comments from EPD Section 6.3, Tables 6.3.1 & 6.3.2 and Appendices B, C, D have been revised.	SHL	FH

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1 INTRODUCTION

1.1 Project Description

Central Kowloon Route (CKR) is a proposed dual 3-lane trunk road across central Kowloon linking the West Kowloon in the west and the proposed Kai Tak Development (KTD) in the east. The CKR will be about 4.7km long with an underground tunnel section of about 3.9km long, in particular, there will be an underwater tunnel of about 370m long in Kowloon Bay to the north of the To Kwa Wan Typhoon Shelter. It will connect the West Kowloon Highway at Yau Ma Tei Interchange with the road network at Kowloon Bay and the future Trunk Road T2 at KTD which will connect to the future Tseung Kwan O – Lam Tin Tunnel (TKO-LTT) and Cross Bay Link (CBL). CKR, Trunk Road T2 and TKO-LTT will form a strategic highway link, namely Route 6, connecting West Kowloon and Tseung Kwan O.

Gammon Construction Limited (GCL) was awarded the Contract No. HY/2019/13 – *Central Kowloon Route – Buildings, Electrical and Mechanical Works currently selected* (the Works) from the Highways Department (HyD) of the Government of the Hong Kong Special Administrative Region (HKSAR), which is a part of the CKR. The objective of the Works is to construct the buildings, electrical and mechanical works for the CKR. Main Works items cover:

- (1) Yau Ma Tei Ventilation Building (YVB), Ho Man Tin Ventilation Building (HVB), Kai Tak Ventilation Building (KVB) and Central Kowloon Route Administration Building (ADB), including architectural work, civil and structural works and external cladding, but excluding piling work at HVB;
- (2) Structure of the portion of E&M adit, Ventilation Adit and Ring Road Underpass within the building sites of YVB, KVB and ADB;
- (3) Associated ancillary facilities including weighbridge, petrol filling station, recovery and maintenance vehicle parking and compound area;
- (4) Landscaping works within the building site and at an area next to future Kai Tak River Walk;
- (5) Tunnel cladding works, including the sub-frame of the cladding system, fire doors and niche cabinet;
- (6) Tunnel Ventilation System (TVS), Air Purification System (APS), Electrical and Mechanical (E&M) Works and Building Services Works in and serving the tunnel and approach road, cross passages, ancillary plant rooms, administration building, ventilation buildings and ventilation adit and other locations required;
- (7) Central Control and Monitoring System (CCMS), Extra Low Voltage (ELV) Traffic Control and Surveillance System (TCSS), Government Optical Fiber System (GOFS) for the CKR;
- (8) Implementation of all necessary Environmental Monitoring and Audit (EM&A) measures as required under the Environmental Permit (EP-457/2013/D)

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In accordance to the CKR's Environmental Permit (EP-457/2013/D) Condition 2.9, this Construction Noise Mitigation Measure Plan (CNMMP) serves as the required submittal before the commencement of the construction of the captioned contract No. HY/2019/13.

1.2 Scope of this Submission

To further reduce the air-borne construction noise impacts on the Noise Sensitive Receivers (NSRs) at Yau Ma Tei Catholic Primary School (Hoi Wang Road) (ID: W-N1A), Tak Cheong Building (ID: W-N8A), Prosperous Garden Block 1 (ID: W-N25A), The Coronation Tower 1 (ID: W-P11), Ko Fai House of Kwun Fat Court (ID: M-N6), Grand Waterfront Tower 3 (E-N12) and Hang Chien Court Block J (E-N21), this CNMMP will stipulate the construction noise assessment and the associated construction noise mitigation with regard to the NSRs (the "concerned NSRs" thereafter) to be implemented in the Contract. This plan will include:-


- Extend of Construction Noise Assessment Area;
- Updated Schedule of Construction Works with the Construction Methodology at the Works Areas within 300m from the NSRs;
- Updated list of Powered Mechanical Equipment (PME) used for the construction works, with Proposal of Mitigation Measures as mentioned above, including the provision of noise barriers, enclosures, or other initiatives;
- Updated Construction Noise Assessment of air-borne construction noise with prediction of the noise levels at the NSRs

The approved CNMMP shall be fully and properly implemented. This CNMMP covers for the area of *Yau Ma Tei Ventilation Building (YVB) Works Area and Ho Man Tin Ventilation Building (HVB) Area*, in which shall be classified as "**Yau Ma Tei West**" Area and "**Ho Man Tin**" Area respectively.

Reference is made with the latest approved CNMMP of other CKR contract, "Yau Ma Tei East" (YMTE; Contract no. HY/2014/08), "Yau Ma Tei West" (YMTW; Contract no. HY/2014/20), and "Central Tunnel - Ho Man Tin Shaft Worksite & Yau Ma Tei Shaft Worksite" (CT; Contract no. HY/2018/08) in which those CNMMPs are available in the CKR-EIA website. The noise assessment in this CNMMP has incorporated the combined noise impact from the YMTE, YMTW and CT 's assessment. The assessment is stipulated in **Appendix D**.

2 REFERENCE

- Approved Environmental Impact Assessment (EIA) Report, and Environmental Monitoring & Audit (EM&A) Manual (Register no. AEIAR-171/2013)
- Environmental Permit (EP-457/2013/C)
- Technical Memorandum on Noise from Construction Work Other than Percussive Pilling (GW-TM), EPD
- Annex 5 and Annex 13 of Technical Memorandum of EIA Ordinance
- Practice Note for Professional Persons, EPD:

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- Noise from Construction Activities - Statutory (ProPECC PN 1/93);
- Noise from Construction Activities - Non-statutory Controls (ProPECC PN 2/93);
- o General Specification for Civil Engineering Works (GS) & Contract Particular Specification (PS)
- o Construction Noise Mitigation Measure Plan of other CKR Contracts – Yau Ma Tei East (YMTE), Yau Ma Tei West (YMTW) and Central Tunnel (CT)
- o Site Plans at YVB Site Area, and at HVB Site Area

3 EXTEND OF CONSTRUCTION NOISE ASSESSMENT AREA


3.1 Noise Sensitive Receivers in the Assessment Area

In view of this CNMMP by Gammon, the works at Yau Ma Tei Ventilation Building (YVB) Site and Ho Man Tin Ventilation Building (HVB) Site will be in focus. Construction works in Kai Tak Ventilation Building, Administration Building are not within 300m from any of the concerned NSRs.

Within 300m of the main activities related to YVB site and HVB site, and associated E&M works at nearby areas, the following concerned NSRs are involved, as stipulated in the below Table 3.1:

Table 3.1 Summary of Involved concerned NSRs 300m of the Works Areas

Works Area	Involved NSRs, within 300m of the site area	Type of NSR	Distance of the NSR from the Site
“Yau Ma Tei” Area			
YVB	W-N1A: Yau Ma Tei Catholic Primary School (Hoi Wang Road)	Education	255m (“S23” Site in AEIAR-171/2013, Appendix 5.5B)
Yau Ma Tei East Tunnel & Central Tunnel	W-N8A: Tak Cheong Building	Residential	75m (“S57” Site for Assessment in AEIAR-171/2013, Appendix 5.5B) #
	W-N25A: Prosperous Garden Block 1	Residential	205m (“S57” Site for Assessment in AEIAR-171/2013, Appendix 5.5B) #
Yau Ma Tei West Landscape Deck Area	W-N1A: Yau Ma Tei Catholic Primary School (Hoi Wang Road)	Education	290m (“S13” Site in AEIAR-171/2013, Appendix 5.5B) #
	W-N8A: Tak Cheong Building	Residential	290m (“S13” Site in AEIAR-171/2013, Appendix 5.5B) #
	W-N25A:	Residential	160m (“S13” Site for Assessment in AEIAR-171/2013, Appendix 5.5B) #

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Works Area	Involved NSRs, within 300m of the site area	Type of NSR	Distance of the NSR from the Site
	Prosperous Garden Block 1	Residential	100m (“S13” Site for Assessment in AEIAR-171/2013, Appendix 5.5B) #
	W-P11: The Coronation Tower 1		
“Ho Man Tin” Area			
HVB	M-N6: Ko Fai House of Kwun Fat Court	Residential	50m (“S1” Site in AEIAR-171/2013, Appendix 5.6B)

Note #: Construction activities will be underground / inside landscape deck / barrier

The distance described in Table 3.1 shall refer to the Notional Distance, which shall be distance between the nearest façade of the NSR facing to the Works Area and the Notional Source at the Works Area. The assessment area plans with the involved NSRs locations are presented in **Appendix A**. Whereas the Notional Distance will be utilized in the Construction Noise Assessment in later Section 6.


Other concerned NSRs (E-N12 & E-N21) are outside 300m of the concerned main works activity areas (i.e. outside 300m from “Yau Ma Tei Area” and “Ho Man Tin Area”) and thus this CNMMP would not assess in details for these NSRs.

4 SCHEDULE OF CONSTRUCTION WORKS WITH CONSTRUCTION METHODOLOGY

Updated Works Program, showing the major works of this Contract, is presented in **Appendix B**. A breakdown of the major construction activities in this Contract that would within the vicinity of the NSRs are listed in the Construction Noise Assessment with Construction Tasks in **Appendix C**.

In view of the works of E&M works and tunnel cladding works in 2023 to 2025 (ID: LoE 1330 – 1365, 1400 – 1415, 1420 - 1440), the extend of those works are inside tunnel. In accordance to the Construction Noise Assessment Appendix in the approved EIA Report AEIAR-171/2013, the attenuation for assessing of these Powered Mechanical Equipment (PME) used would be 20dB(A) adopted.

Moreover, there are concurrent projects by others in the vicinity of the NSRs. The major construction works in this Contract affecting NSRs W-N1A, W-N8A, W-N25A, W-P11 located at the Yau Ma Tei District and NSR M-N6 located at Ho Man Tin District would be concurrently affected by other CKR-projects (YMTE, YMTW & CT) during the period of Jul 2020 to Nov 2024. The cumulative noise assessment in the Section 6 below will also include the combined noise impact from these concurrent projects.

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5 USE OF POWERED MECHANICAL EQUIPMENT (PME) AND PROPOSED MITIGATIONS


The noise mitigation measures proposed in the Approved CKR EIA Report (AEIAR-171/2013) have been considered and reviewed in this CNMMP.

Table 5.1 Summary of Construction Noise Mitigations adopted

Construction Noise Mitigation Measures in EIA Report	Incorporated in BEM's CNMMP
Good site practices to limit noise emissions at the source	Yes Descriptive measures as below
Use of quiet plant and working methods	Yes SWL of quiet plants in Table 5.2
Use of site hoarding as noise barrier to screen noise at ground level of NSRs	Yes In Table 5.3
Use of shrouds / temporary noise barriers to screen noise from relatively static PMEs	Yes In Table 5.3
Use of large full enclosure to screen all the plant, wherever practicable	No practicable in this project
Large full enclosure for mucking out points	No muck out in BEM scope
Scheduling of construction works outside school examination periods in critical area	Yes Sequencing works shown in Appendix B & D
Alternative use of plant items within one worksite, wherever practicable	Yes Consideration of time usage of plants as in Appendix D

Good site practice and noise management techniques could considerably reduce the noise impact from construction site activities on nearby NSRs. The following measures will be implemented in this CNMMP:

- Plant will be well operated on-site and will be kept regular maintenance
- Idling plants will be shut down between works breaks or throttled down to a minimum when not in peak use.
- Situated plants that known to emit noise strongly in one direction away from nearby NSRs as far as practical on site;
- Silencers or mufflers on construction equipment will be properly fitted and maintained;
- Material stockpiles, site office and other structures will be effectively utilized as noise barrier on site to screen noise.


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The environmental noise climate would certainly be improved through these control practices, although the improvement can only be quantified during implementation when specific site parameters are known. The assessment has therefore not taken into account the effectiveness of “Good Site Practices and Noise Management Techniques”.

The use of quiet PME's is summarised in Table 5.2. The Sound Power Levels (SWL) for the PME's have been adopted from EPD's Technical Memorandum on Noise from Construction Work Other than Percussive Piling (GW-TM), list of SWLs of other commonly used PME or British Standard 5228 - Part 1:2009 Code of Practice for Noise and Vibration Control on Construction and Open Sites, recommended SWLs stipulated in the Approved CKR EIA Report. However, if the listed exact model specified in below PME are not available, the selected model with SWL not higher than the listed SWL shall be adopted.

Table 5.2 Summary of PME involved and SWL adopted

PME	Reference	Quiet PME's SWL dB(A)
Drill rig, rotary type (diesel)	EIAR: Others	110
Water pump (petrol)	CNP282	103
Dump Truck / Grab Dump Truck	CNP069	105
Excavator/Loader, Wheeled/Tracked	EPD-03416	99
Generator, super silenced, 70dB(A) at 7m	CNP103	95
Wastewater Treatment Facility	EPD Commonly adopted SWL value	95
Water Pump, Submersible (Electric)	CNP283	85
Lorry / Crane lorry (≤ 38 tonne)	CNP142	105
Piling Rig	CNP167	114
Air Compressor, air flow > 10m ³ /min and < 30m ³ /min	CNP002	102
Grout Mixer and Pump	EIAR: Others	105
Crane Mobile	EIAR: BS D7-114	101
Air blower (electric)	CNP006	95
Road Roller	EPD-01183	97
Asphalt Paver	EPD-01226	104
Paint line marker (low pressure)	CNP176	87
Breaker, Excavator Mounted (Hydraulic)	EIAR: BS D8-13	110
Concrete Lorry Mixer	CNP044	109
Concrete pump	CNP047	109
Poker, Vibratory, Hand Held (electric)	CNP173	102
Bar Bender and Cutter	CNP021	90
Hoist, Passenger / Material	CNP122	95
Drill/grinder, hand-held (electric)	CNP065	98


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PME	Reference	Quiet PME's SWL dB(A)
Electric Winch	CNP262	95
Hand Held Breaker	EIAR: BS D8-12	106
Saw, Circular Wood	EIAR: BS D7-79	103
Wire Saw	CNP205	101
Concrete Corer	CNP042	117
Ventilation Fan	CNP241	108

In addition to the selection of the quiet PME as stipulated in Table 5.2 above, the mitigation measures in the Approved CKR EIA Report (AEIAR-171/2013) have been reviewed, and in generally adopted, which includes using site hoarding as noise barriers, movable barriers with acoustic mat and silencer for ventilation fan. The proposed mitigation measures for this CNMMP are summarized in the Table 5.3 below.

Table 5.3 Proposed Mitigation Measures for the PMEs

PME	Mitigation Proposed Measures	Noise Reduction, dB(A)
Ventilation Fan	Silencer	-5
Water pump (petrol)	Shielded by additional movable noise barriers	-10
Piling Rig and Drilling Rig	Shielded by additional movable noise barriers	-10
Grout Mixer and Pump	Shielded by designated shed with acoustic mat	-10
Other PMEs, except lorry / crane lorry, mobile crane, dump truck / grab dump truck	Either: Shielding, by site hoarding with acoustic mat as noise barrier / inside concrete building structure / behind sustainable building structure, not being viewed by NSRs	-5
PMEs for E&M installation and Tunnel Cladding works (ID: LoE 1330 – 1365, 1400 – 1415), except for lorry / crane lorry, dump truck / grab dump truck and ventilation fan	Screening Effect of Underground Works Ref.: Appendix 5.5F, 5.6F of Approved EIAR (AEIAR-171/2013)	-20

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In general, except for dump truck / grab dump truck, lorry / crane lorry, mobile crane, other PME's would be mitigated in general by site hoarding as noise barriers, or being operated within or behind buildings / structure such that no parts of the PME would be viewed by the NSRs. Thus 5 dB(A) noise barrier effect would be applied based on the acoustic path difference principle. Silencer of at least achieving 5dB(A) noise attenuation effect shall be adopted to the ventilation fan.

Moreover, additional barriers or shed with acoustic mat will be utilized as enhanced shielding to the Piling Rigs, Grout Mixer and Pump set and Water Pumps. 10 dB(A) noise reduction, following the adopted value in the Approved CKR EIA Report would be anticipated. The barrier material used shall be with surface mass at least 7kg/m² as recommended in the Approved CKR EIA Report, or equivalent materials that can have same or better noise attenuation effect. Furthermore, the use of enclosure (with sufficient ventilation) for sheltering static plants shall be consisted with surface mass at least 10 kg/m² and with 25mm – 50mm thick of internal sound absorptive lining, or equivalent materials that can same or better noise attenuation effect. The schematic drawing, photos, and reference acoustic materials for the acoustic barriers / shed are presented in **Appendix E**.

6 CONSTRUCTION NOISE ASSESSMENT

6.1 Assessment Criteria

Noise impacts generated by the construction of this Project have been assessed in accordance with the criteria given in the Annex 5 of the Technical Memorandum on EIA Ordinance (EIAO-TM). The construction noise standards are presented as follows:


Table 6.1.1 Construction Noise Level Standard Criteria

NSR Type	Noise Level in Leq (30-min), dB(A)
Residential	75
Education	70 (65 – during examination period)

Incorporating with the assessment in the approved CKR EIA Report (Register No. AEIAR-171/2013), the predicted noise level in the approved CKR EIA Report of the concerned NSRs are summarized in below tables.

Table 6.1.2 Summary of Construction Noise Level in EIA Report

NSR ID	NSR Description	NSR Type	Noise Criteria	Max. Construction Noise Levels	
				Unmitigated	Mitigated
“Yau Ma Tei” Area					
W-N1A	Yau Ma Tei Catholic Primary School (Hoi Wang Road)	Education	70 / (65 during exam)	82	70 / (69)
W-N8A	Tak Cheong Building	Residential	75	95	82
W-N25A	Prosperous Garden Block 1	Residential	75	93	81

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NSR ID	NSR Description	NSR Type	Noise Criteria	Max. Construction Noise Levels	
				Unmitigated	Mitigated
W-P11	The Coronation Tower 1	Residential	75	88	77
“Ho Man Tin” Area					
M-N6	Ko Fai House of Kwun Fat Court	Residential	75	86	73

Table 6.1.3 Summary of Duration for Noise Exceedance in EIA Report

NSR ID	Impact Duration (Month) for Noise Exceedance			
	1 –4 dB(A)	5 dB(A)	6 dB(A)	7 dB(A)
“Yau Ma Tei” Area				
W-N1A (Normal Period)	0	0	0	0
W-N1A (Exam Period)	6	0	0	0
W-N8A	26	5	4	2
W-N25A	6	0	3	0
W-P11	4	0	0	0
“Ho Man Tin” Area				
M-N6	0	0	0	0


It is noted that even in the mitigated scenario in the Approved CKR EIA Report, daytime construction noise exceedance in the concerned NSRs is still anticipated, and is shown the above tables.

6.2 Assessment Methodology

The construction noise assessment has been conducted following the same methodology used in the Approved CKR EIA Report based on the updated construction programme and plant inventory provided by Gammon Construction Limited.

Noise impacts generated by the construction of this Project are assessed in accordance with the methodology given in the EPD's Technical Memorandum on Noise from Construction Work Other Than Percussive Piling (GW-TM) under the Noise Control Ordinance. Sound power levels (SWLs) of the equipment have been made reference from various technical guidelines as stipulated in Section 5 above.

It is assumed that all PME items required for a particular construction activity would be located at the notional source position, as defined in GW-TM.

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The sound pressure levels (SPL) of each construction tasks at the NSRs are calculated based on the number of plants, time usage of the plants, the notional distance and the noise reduction effect of the particular PMEs. The notional distances of the works area to the NSR are presented in Table 3.1 above. If there are concurrent construction tasks, the noise levels at representative noise assessment points are predicted by adding up the SPLs of all concurrent construction tasks. Also, a positive 3 dB(A) façade correction has been added to the predicted noise levels in order to account for the façade effect at each NSRs. Noise impact at the worst affected sensitive façade of the NSRs to the noise source is assessed.

Combined noise impact of the SPLs calculated in the BEM's construction tasks and the other concurrent projects would be used to compare with the noise criteria and the EIA's result as listed in Table 6.1.1, 6.1.2 and 6.1.3 above. The potential concurrent projects would be CKR-YMTE, CKR-YMTW, & CKR-CT (Yau Ma Tei Shaft) at the NSRs in Yau Ma Tei District; In the Ho Man Tin area, having checked with latest available CNMMP of other projects and the latest works program, concurrent project would be CKR-Ct (Ho Man Tin Shaft). Cumulative noise level associated with implementation of concurrent projects will be assessed at NSRs.

6.3 Assessment Results

The potential noise impact from the BEM works within 300m of each representative NSRs and the cumulative impact accounting for the concurrent CKR project works, including CKR-YMTE, CKR-YMTW and Central Tunnel are assessed respectively. The predicted cumulative construction noise levels and the exceedance record are summarized in Table 6.3.1 and 6.3.2 respectively below. The detailed noise assessment at the NSRs is enclosed in **Appendix D**.


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Table 6.3.1 Summary of Predicted Cumulative Construction Noise Level


NSR ID	NSR Description	NSR Type	Noise Criteria	Max. Predicted Cumulative Construction Noise Levels*
“Yau Ma Tei” Area				
W-N1A	Yau Ma Tei Catholic Primary School (Hoi Wang Road)	Education	70 / (65 during exam)	68 / (68)
W-N8A	Tak Cheong Building	Residential	75	80
W-N25A	Prosperous Garden Block 1	Residential	75	75
W-P11	The Coronation Tower 1	Residential	75	70
“Ho Man Tin” Area				
M-N6	Ko Fai House of Kwun Fat Court	Residential	75	75
* When BEM works are within 300m of each representative NSRs.				

Table 6.3.2 Summary of Predicted Duration for Noise Exceedance

NSR ID	Predicted Impact Duration (Month) for Noise Exceedance *:			
	1 –4 dB(A)	5 dB(A)	6 dB(A)	7 dB(A)
“Yau Ma Tei” Area				
W-N1A (Normal Period)	0	0	0	0
W-N1A (Exam Period)	5	0	0	0
W-N8A	10	1	0	0
W-N25A	0	0	0	0
W-P11	0	0	0	0
“Ho Man Tin” Area				
M-N6	0	0	0	0
* When BEM works are within 300m of each representative NSRs.				

In respect with the NSRs W-N1A, W-N8A, W-N25A and W-P11 in Yau Ma Tei District, the predicted residual impacts reduced in respect of both exceedances and duration with the implementation of mitigation measures proposed in this CNMMP.

Number of months of Examination periods for Yau Ma Tei Catholic Primary School (Hoi Wang Road) predicted to exceed the criterion for school examination periods was reduced from 6 as resulted in the EIA report to 5 from this CNMMP. In respect to the adverse noise impact in the examination period of the Yau Ma Tei Catholic Primary School (Hoi Wang Road), GCL will well plan the working programme for those work sites close to this NSR, and try the best to shorten the working hours at weekdays or

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avoid to carry out noisy activities at sensitive hours (i.e. minimize noisy activities during exam time period).

For NSR W-N8A, exceedance has been identified for 11 months with highest predicted construction noise level up to 80dB(A). Nevertheless, the construction noise impact associated with the construction activities (as shown in **Appendix B**) for W-N8A should be minimal as the construction activities is carried out inside the tunnel. Major noise sources contributing to the exceedance are the concurrent works at YMTE and YMTW, while the contribution of the construction activities under CKR-BEM to the cumulative construction noise level for W-N8A (as shown in **Appendix D**) is less than 1 dB(A). With reference to the CNMMP of YMTE, measures have been taken at the work sites at YMTE and YMTW to reduce the duration of carrying out noisy activities at sensitive hours (0700 – 0900 & 1700 – 1900).


In respect of the NSR M-N6 in Ho Man Tin Area, although the Predicted Maximum Construction Noise is found higher than that of in EIA Report, **there is still no exceedance of the daytime construction noise criteria**. Potential quiet plants and PMEs have been adopted, the number and time usage of PMEs used have been kept to a minimum, and mitigation measures including using site hoarding as noise barriers, movable barriers with acoustic mat have been proposed to be implemented for the PMEs. Therefore, by adopting sufficient mitigation measures proposed in this CNMMP and planning the work programme well, the noise level will be minimized as much as possible to reduce noise nuisance to the public while completing the construction works within schedule practically.

7 CONCLUSION

This CNMMP has proposed the mitigation measures on the use of Powered Mechanical Equipment (PMEs) and predicted the construction noise impact from major construction tasks from this Contract No. HY/2019/13 at *Yau Ma Tei Ventilation Building (YVB) Site, Ho Man Tin Ventilation Building (HVB) Site, associated nearby E&M works activities* and central tunnel to the NSRs at Yau Ma Tei Catholic Primary School (Hoi Wang Road) (ID: W-N1A), Tak Cheong Building (ID: W-N8A), Prosperous Garden Block 1 (ID: W-N25A), The Coronation Tower 1 (ID: W-P11), and Ko Fai House of Kwun Fat Court (ID: M-N6).


This plan has taken into account the updated information on PME and works programme which would be adopted by Gammon. The maximum predicted noise level at NSRs (Yau Ma Tei Catholic Primary School (Hoi Wang Road) (ID: W-N1A), Tak Cheong Building (ID: W-N8A), Prosperous Garden Block 1 (ID: W-N25A), The Coronation Tower 1 (ID: W-P11)) has been predicted to have reduction against with EIA Report, in respect of both exceedances and duration with the implementation of mitigation measures proposed in this CNMMP. Number of months of Examination periods for Yau Ma Tei Catholic Primary School (Hoi Wang Road) predicted to exceed the criterion during the school examination periods was also reduced.

Moreover, with the implementation of mitigation measures in form of Quiet Plants, Site Hoarding as Noise Barriers, Movable Barriers/ Shed with acoustic mat and Silencer for Ventilation Fans, the maximum predicted noise level at Ko Fai House of Kwun Fat


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Court (M-N6) confines at 75 dB(A), which is considered as complying with the daytime construction noise criteria.

Where necessary, further review and update will be performed during the construction phase and liaison with affected parties is recommended to minimise the construction noise impacts as far as practicable.

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APPENDIX A – SITE PLANS AND NSRS LOCATIONS

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APPENDIX B – CONSTRUCTION MASTER PROGRAM

HY/2019/13 Central Kowloon Route - Buildings, Electrical and Mechanical Works (CKR-BEM)
Major Construction Works

Rev	F
Update	8-Jun-23

[illegible]

Note: The number in the program refers to the % during of the activity in the month

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APPENDIX C – CONSTRUCTION NOISE ASSESSMENT WITH CONSTRUCTION TASKS

Note #1: Construction activities will be underground, -20dB(A) screening effect has adopted, except ventilation fan, lorry and dump truck.
 (Ref. AEIAR-171/2013)

ID	Activity	Period	PME	TM Ref. / other Ref.	Unit Quiet Plant SWL	On-time, %	Time Factor	Quiet Plant SWL with on-time %	No. of plants	Total SWL	Distance from Notional Sources,	Distance Attenuation	Façade Correction, dB(A)	Barrier Correction, dB(A)	Predicted Noise Level, dB(A)	Total Predicted Noise Level for each group, dB(A)
LoE-1110	Foundation Works - Piling in "S23" Site	Jan 2021 - Jun 2022	Drill rig, rotary type (diesel)	CNP072	110	30	-5	105	1	105	255	-56	3	-5	47	56
			Water pump (petrol)	CNP282	103	30	-5	98	1	98	255	-56	3	-5	40	
			Piling Rig	CNP167	114	50	-3	111	2	114	255	-56	3	-10	51	
			Air Compressor, air flow > 10m3/min and < 30m3/min	CNP002	102	50	-3	99	3	104	255	-56	3	-5	46	
			Dump Truck / Grab dump truck	CNP069	105	50	-3	102	1	102	255	-56	3	0	49	
			Excavator/Loader, Wheeled/Tracked	EPD-03416	99	50	-3	96	2	99	255	-56	3	-5	41	
			Crane Mobile	BS D7-114	101	40	-4	97	1	97	255	-56	3	0	44	
			Grout Mixer and Pump		105	30	-5	100	2	103	255	-56	3	-10	40	
			Generator, super silenced, 70dB(A) at 7m	CNP103	95	100	0	95	2	98	255	-56	3	-5	40	
			Wastewater Treatment Facility		95	100	0	95	1	95	255	-56	3	-5	37	
LoE-1115	Excavation & ELS in "S23" Site	Apr 2022 - Dec 2022	Water Pump, Submersible (Electric)	CNP283	85	100	0	85	3	90	255	-56	3	-5	32	55
			Lorry / Crane lorry	CNP142	105	20	-7	98	1	98	255	-56	3	0	45	
			Crane Mobile	BS D7-114	101	70	-2	99	1	99	255	-56	3	0	46	
			Air blower (electric)	CNP006	95	100	0	95	3	100	255	-56	3	-5	42	
			Generator, super silenced, 70dB(A) at 7m	CNP103	95	100	0	95	2	98	255	-56	3	-5	40	
			Wastewater Treatment Facility		95	100	0	95	1	95	255	-56	3	-5	37	
			Water Pump, Submersible (Electric)	CNP283	85	100	0	85	6	93	255	-56	3	-5	35	
			Grout Mixer and Pump		105	30	-5	100	3	105	255	-56	3	-10	41	
			Dump Truck	CNP069	105	80	-1	104	1	104	255	-56	3	0	51	
			Excavator/Loader, Wheeled/Tracked	EPD-03416	99	80	-1	98	2	101	255	-56	3	-5	43	
LoE-1120	Sub-structure Works in "S23" Site	Nov 2022 - Mar 2023	Lorry / Crane lorry	CNP142	105	50	-3	102	1	102	255	-56	3	0	49	57
			Breaker, Excavator Mounted (Hydraulic)	BS D8-13	110	30	-5	105	1	105	255	-56	3	-5	47	
			Bar Bender and Cutter	CNP021	90	70	-2	88	1	88	255	-56	3	-5	30	
			Crane Mobile	BS D7-114	101	70	-2	99	1	99	255	-56	3	0	46	
			Concrete Lorry Mixer	CNP044	109	60	-2	107	1	107	255	-56	3	-5	49	
			Concrete pump	CNP047	109	60	-2	107	1	107	255	-56	3	-5	49	
			Poker, Vibratory, Hand Held	CNP173	102	60	-2	100	1	100	255	-56	3	-5	42	
			Air blower (electric)	CNP006	95	100	0	95	3	100	255	-56	3	-5	42	
			Generator, super silenced, 70dB(A) at 7m	CNP103	95	100	0	95	2	98	255	-56	3	-5	40	
			Wastewater Treatment Facility		95	100	0	95	1	95	255	-56	3	-5	37	
LoE-1130	Super-structure Works in "S23" Site	Mar 2023 - Oct 2023	Water Pump, Submersible (Electric)	CNP283	85	100	0	85	6	93	255	-56	3	-5	35	56
			Dump Truck / Grab dump truck	CNP069	105	70	-2	103	1	103	255	-56	3	0	50	
			Excavator/Loader, Wheeled/Tracked	EPD-03416	99	70	-2	97	2	100	255	-56	3	-5	42	
			Lorry / Crane lorry	CNP142	105	60	-2	103	1	103	255	-56	3	0	50	
			Breaker, Excavator Mounted (Hydraulic)	BS D8-13	110	30	-5	105	1	105	255	-56	3	-5	47	
			Bar Bender and Cutter	CNP021	90	70	-2	88	1	88	255	-56	3	-5	30	
			Crane Mobile	BS D7-114	101	80	-1	100	1	100	255	-56	3	0	47	
			Concrete Lorry Mixer	CNP044	109	60	-2	107	1	107	255	-56	3	-5	49	
			Concrete pump	CNP047	109	60	-2	107	1	107	255	-56	3	-5	49	
			Poker, Vibratory, Hand Held	CNP173	102	60	-2	100	1	100	255	-56	3	-5	42	
LoE-1140	ABWF Works in "S23" Site	Jun 2023 - Jun 2024	Air blower (electric)	CNP006	95	100	0	95	3	100	255	-56	3	-5	42	55
			Generator, super silenced, 70dB(A) at 7m	CNP103	95	100	0	95	3	100	255	-56	3	-5	42	
			Wastewater Treatment Facility		95	100	0	95	1	95	255	-56	3	-5	37	
			Water Pump, Submersible (Electric)	CNP283	85	100	0	85	6	93	255	-56	3	-5	35	
			Dump Truck / Grab dump truck	CNP069	105	50	-3	102	1	102	255	-56	3	0	49	
			Excavator/Loader, Wheeled/Tracked	EPD-03416	99	50	-3	96	1	96	255	-56	3	-5	38	
			Lorry / Crane lorry	CNP142	105	60	-2	103	1	103	255	-56	3	0	50	
			Hoist, Passenger / Material	CNP122	95	60	-2	93	1	93	255	-56	3	-5	35	
			Bar Bender and Cutter	CNP021	90	20	-7	83	1	83	255	-56	3	0	30	
			Concrete Lorry Mixer	CNP044	109	25	-6	103	1	103	255	-56	3	-5	45	
LoE-1150	E&M Works, T&C and Statutory Inspection in "S23" Site	Aug 2023 - Aug 2024	Poker, Vibratory, Hand Held	CNP173	102	30	-5	97	1	97	255	-56	3	-5	39	57
			Crane Mobile	BS D7-114	101	80	-1	100	1	100	255	-56	3	0	47	
			Hoist, Passenger / Material	CNP122	95	60	-2	93	1	93	255	-56	3	-5	35	
			Lorry / Crane lorry	CNP142	105	40	-4	101	1	101	255	-56	3	0	48	
			Generator, super silenced, 70dB(A) at 7m	CNP103	95	100	0	95	1	95	255	-56	3	-5	37	
			Drill/grinder, hand-held (electric)	CNP065	98	30	-5	93	3	98	255	-56	3	-5	39	
			Electric Winch	CNP262	95	30	-5	90	3	95	255	-56	3	-5	36	
			Hand Held Breaker	BS D8-12	106	30	-5	101	1	101	255	-56	3	-5	43	
			Saw, Circular Wood	BS D7-79	103	30	-5	98	2	101	255	-56	3	-5	43	
			Air blower (electric)	CNP006	95	100	0	95	3	100	255	-56	3	-5	42	
LoE-1160	E&M Works, T&C and Statutory Inspection in "S23" Site	Aug 2023 - Aug 2024	Dump Truck / Grab dump truck	CNP069	105	40	-4	101	1	101	255	-56	3	0	48	57
			Generator, super silenced, 70dB(A) at 7m	CNP103	95	100	0	95	2	98	255	-56	3	-5	40	
			Water Pump, Submersible (Electric)	CNP283	85	100	0	85	3	90	255	-56	3	-5	32	
			Hoist, Passenger / Material	CNP122	95	80	-1	94	2	97	255	-56	3	-5	39	
			Lorry / Crane lorry	CNP142	105	80	-1	104	1	104	255	-56	3	0	51	
			Excavator/Loader, Wheeled/Tracked	EPD-03416	99	40	-4	95	1	95	255	-56	3	-5	37	
			Dump Truck / Grab dump truck	CNP069	105	40	-4	101	1	101	255	-56	3	0	48	
			Drill/grinder, hand-held (electric)	CNP065	98	40	-4	94	3	99	255	-56	3	-5	41	
			Electric Winch	CNP262	95	40	-4	91	3	96	255	-56	3	-5	38	
			Hand Held Breaker	BS D8-12	106	40	-4	102	1	102	255	-56	3	-5	44	
LoE-1550	Landscape Works in "S23" Site	Dec 2023 - Nov 2024	Concrete Corer	CNP042	117	20	-7	110	1	110	255	-56	3	-5	52	54
			Saw, Circular Wood	BS D7-79	103	40	-4	99	2	102	255	-56	3	-5	44	
			Air blower (electric)	CNP006	95	100	0	95	3	100	255	-56	3	-5	42	
			Hand Held Breaker	BS D7-114	101	70	-2	99	1	99	255	-56	3	0	46	
			Crane Mobile	BS D7-114	101	60	-2	99	1	99	255	-56	3	0	46	
			Generator, super silenced, 70dB(A) at 7m	CNP103	95	100	0	95	2	98	255	-56	3	-5	40	
			Hoist, Passenger / Material	CNP122	95	70	-2	93	1	93	255	-56	3	-5	35	
			Excavator/Loader, Wheeled/Tracked	EPD-03416	99	50	-3	96	1	96	255	-56	3	-5	38	
			Dump Truck / Grab dump truck	CNP069	105	40	-4	101	1	101	255	-56	3	0	48	
			Lorry / Crane lorry	CNP142	105	50	-3	102	1	102	255	-56	3	0	49	
LoE-1330,1340 &1365	Landscape Deck & Approach Road E&M Installation in "S13" Site	Nov 2023 - Nov 2024	Water Pump, Submersible (Electric) #	CNP283	85	100	0	85	3	90	290	-57	3	-20	17	54
			Drill/grinder, hand-held (electric)	CNP065	98	30	-5	93	2	96	290	-57	3	-5	38	
			Electric Winch	CNP262	95	30	-5	90	2	93	290	-57	3	-5	35	
			Saw, Circular Wood	BS D7-79	103	30	-5	98	1	98	290	-57	3	-5	40	
			Air blower (electric)	CNP006	95	100	0	95	1	95	290	-57	3	-5	37	
			Hand Held Breaker	BS D8-12	106	30	-5	101	1	101	290	-57	3	-5	43	
			Drill/grinder, hand-held (electric) #	CNP065	98	80	-1	97	3	102	290	-57	3	-20	28	
			Electric Winch #	CNP262	95	80	-1	94	3	99	290	-57	3	-20	25	
			Hand Held Breaker #	BS D8-12	106	80	-1	105	1	105	290	-57	3	-20	31	
			Saw, Circular Wood #	BS D7-79	103	60	-2	101	1	101	290	-57	3	-20	27	
LoE-1350	YMT Ventilation Adit E&M Installation Using "S13" Site as Portal	Nov 2023 - Nov 2024	Concrete Corer #	CNP042	117	20	-7	110	1	110	290	-57	3	-20	36	49
			Air blower (electric)	CNP006	95	100	0	95	3	100	290	-57	3	-5	41	
			Water Pump, Submersible (Electric) #	CNP283	85	100	0	85	3	90	290	-57	3	-20	16	
			Lorry / Crane lorry	CNP142	105	50	-3	102	1	102	290	-57	3	0	48	
			Hoist, Passenger / Material #	CNP122	95	80	-1	94	2	97	290	-57	3	-20	23	
			Drill/grinder, hand-held (electric) #	CNP065	98	80	-1	97	3	102	290	-57	3	-20	28	
			Electric Winch #	CNP262	95	80	-1	94	3	99	290	-57	3	-20	25	
			Hand Held Breaker #	BS D8-12	106	80	-1	105	1	105	290	-57	3	-20	31	
			Saw, Circular Wood #	BS D7-79	103	60	-2	101	1	101	290	-57	3	-20	27	

Noise Criteria: 75dB(A)

Note #: Construction activities will be underground, ~20dB(A) screening effect has adopted, except ventilation fan, lorry and dump truck.
(Ref. AEIAR-171/2013)

ID	Activity	Period	PME	TM Ref./ other Ref.	Unit Quiet Plant SWL	On-time, %	Time Factor	Quiet Plant SWL with on- time %	No. of plants	Total SWL	Distance from Notional Sources, m	Distance Attenuation	Façade Correction, dB(A)	Barrier Correction, dB(A)	Predicted Noise Level, dB(A)	Total Predicted Noise Level for each group, dB(A)
LoE-1400 - 1415	YMT Tunnel Thermal Barrier, VE Panel and E&M Installation Using "S57" Site for Assessment	Feb 2024 - Oct 2024	Water Pump, Submersible (Electric) #	CNP283	85	80	-1	84	3	89	75	-46	3	-20	26	65
			Dump Truck / Grab dump truck	CNP069	105	50	-3	102	1	102	75	-46	3	0	59	
			Generator, super silenced, 70dB(A) at 7m #	CNP103	95	80	-1	94	3	99	75	-46	3	-20	36	
			Ventilation Fan	CNP241	108	100	0	108	1	108	75	-46	3	-5	60	
			Lorry / Crane lorry	CNP142	105	60	-2	103	1	103	75	-46	3	0	60	
			Hoist, Passenger / Material #	CNP122	95	80	-1	94	3	99	75	-46	3	-20	36	
			Drill/grinder, hand-held (electric) #	CNP065	98	80	-1	97	6	105	75	-46	3	-20	42	
			Electric Winch #	CNP262	95	80	-1	94	6	102	75	-46	3	-20	39	
			Hand Held Breaker #	BS D8-12	106	80	-1	105	2	108	75	-46	3	-20	46	
			Saw, Circular Wood #	BS D7-79	103	60	-2	101	2	104	75	-46	3	-20	41	
			Concrete Corer #	CNP042	117	20	-7	110	1	110	75	-46	3	-20	48	
			Excavator/Loader, Wheeled/Tracked #	EPD-03416	99	70	-2	97	2	100	75	-46	3	-20	38	
			Generator, super silenced, 70dB(A) at 7m #	CNP103	95	80	-1	94	3	99	75	-46	3	-20	36	
			Ventilation Fan	CNP241	108	100	0	108	1	108	75	-46	3	-5	60	
LoE-1430 - 1435	Central Tunnel Thermal Barrier, VE Panel and E&M Installation Using "S57" Site for Assessment	Nov 2023 - Aug 2024	Water Pump, Submersible (Electric) #	CNP283	85	80	-1	84	3	89	75	-46	3	-20	26	65
			Dump Truck / Grab dump truck	CNP069	105	40	-4	101	1	101	75	-46	3	0	59	
			Generator, super silenced, 70dB(A) at 7m #	CNP103	95	80	-1	94	3	99	75	-46	3	-20	36	
			Ventilation Fan	CNP241	108	100	0	108	1	108	75	-46	3	-5	60	
			Lorry / Crane lorry	CNP142	105	60	-2	103	1	103	75	-46	3	0	60	
			Hoist, Passenger / Material #	CNP122	95	80	-1	94	3	99	75	-46	3	-20	36	
			Drill/grinder, hand-held (electric) #	CNP065	98	80	-1	97	6	105	75	-46	3	-20	42	
			Electric Winch #	CNP262	95	80	-1	94	6	102	75	-46	3	-20	39	
			Hand Held Breaker #	BS D8-12	106	80	-1	105	2	108	75	-46	3	-20	46	
			Saw, Circular Wood #	BS D7-79	103	60	-2	101	2	104	75	-46	3	-20	41	
			Concrete Corer #	CNP042	117	20	-7	110	1	110	75	-46	3	-20	48	
			Excavator/Loader, Wheeled/Tracked #	EPD-03416	99	70	-2	97	2	100	75	-46	3	-20	38	
			Generator, super silenced, 70dB(A) at 7m #	CNP103	95	80	-1	94	3	99	75	-46	3	-20	36	
			Ventilation Fan	CNP241	108	100	0	108	1	108	75	-46	3	-5	60	
LoE-1440	Central Tunnel Road Paving & Marking Using "S57" Site for Assessment	Aug 2024 - Nov 2024	Water Pump, Submersible (Electric) #	CNP283	85	70	-2	83	2	86	75	-46	3	-20	24	66
			Concrete Corer #	CNP042	117	20	-7	110	1	110	75	-46	3	-20	48	
			Road Roller #	EPD-01183	97	60	-2	95	1	95	75	-46	3	-20	32	
			Paint line marker (low pressure) #	CNP176	87	60	-2	85	2	88	75	-46	3	-20	25	
			Asphalt Paver #	EPD-01226	104	60	-2	102	1	102	75	-46	3	-20	39	
			Drill/grinder, hand-held (electric) #	CNP065	98	80	-1	97	3	102	290	-57	3	-20	28	
			Electric Winch #	CNP262	95	80	-1	94	3	99	290	-57	3	-20	25	
			Hand Held Breaker #	BS D8-12	106	80	-1	105	1	105	290	-57	3	-20	31	
			Saw, Circular Wood #	BS D7-79	103	60	-2	101	1	101	290	-57	3	-20	27	
			Concrete Corer #	CNP042	117	20	-7	110	1	110	290	-57	3	-20	36	
			Air blower (electric)	CNP006	95	100	0	95	3	100	290	-57	3	-5	41	
			Water Pump, Submersible (Electric) #	CNP283	85	100	0	85	3	90	290	-57	3	-20	16	
			Lorry / Crane lorry	CNP142	105	50	-3	102	1	102	290	-57	3	0	48	
			Hoist, Passenger / Material #	CNP122	95	80	-1	94	2	97	290	-57	3	-20	23	
LoE-1330,1340 &1365	Landscape Deck & Approach Road E&M Installation in "S13" Site	Nov 2023 - Nov 2024	Drill/grinder, hand-held (electric) #	CNP065	98	80	-1	97	3	102	290	-57	3	-20	28	49
			Electric Winch #	CNP262	95	80	-1	94	3	99	290	-57	3	-20	25	
			Hand Held Breaker #	BS D8-12	106	80	-1	105	1	105	290	-57	3	-20	31	
			Saw, Circular Wood #	BS D7-79	103	60	-2	101	1	101	290	-57	3	-20	27	
			Concrete Corer #	CNP042	117	20	-7	110	1	110	290	-57	3	-20	36	
			Air blower (electric)	CNP006	95	100	0	95	3	100	290	-57	3	-5	41	
			Water Pump, Submersible (Electric) #	CNP283	85	100	0	85	3	90	290	-57	3	-20	16	
			Lorry / Crane lorry	CNP142	105	50	-3	102	1	102	290	-57	3	0	48	
			Hoist, Passenger / Material #	CNP122	95	80	-1	94	2	97	290	-57	3	-20	23	
			Drill/grinder, hand-held (electric) #	CNP065	98	80	-1	97	3	102	290	-57	3	-20	28	
			Electric Winch #	CNP262	95	80	-1	94	3	99	290	-57	3	-20	25	
			Hand Held Breaker #	BS D8-12	106	80	-1	105	1	105	290	-57	3	-20	31	
			Saw, Circular Wood #	BS D7-79	103	60	-2	101	1	101	290	-57	3	-20	27	
			Concrete Corer #	CNP042	117	20	-7	110	1	110	290	-57	3	-20	36	
LoE-1350	YMT Ventilation Adit E&M Installation Using "S13" Site as Portal	Nov 2023 - Nov 2024	Air blower (electric)	CNP006	95	100	0	95	3	100	290	-57	3	-5	41	49
			Water Pump, Submersible (Electric) #	CNP283	85	100	0	85	3	90	290	-57	3	-20	16	
			Lorry / Crane lorry	CNP142	105	50	-3	102	1	102	290	-57	3	0	48	
			Hoist, Passenger / Material #	CNP122	95	80	-1	94	2	97	290	-57	3	-20	23	
			Drill/grinder, hand-held (electric) #	CNP065	98	80	-1	97	3	102	290	-57	3	-20	28	
			Electric Winch #	CNP262	95	80	-1	94	3	99	290	-57	3	-20	25	
			Hand Held Breaker #	BS D8-12	106	80	-1	105	1	105	290	-57	3	-20	31	
			Saw, Circular Wood #	BS D7-79	103	60	-2	101	1	101	290	-57	3	-20	27	
			Concrete Corer #	CNP042	117	20	-7	110	1	110	290	-57	3	-20	36	
			Air blower (electric)	CNP006	95	100	0	95	3	100	290	-57	3	-5	41	
			Water Pump, Submersible (Electric) #	CNP283	85	100	0	85	3	90	290	-57	3	-20	16	
			Lorry / Crane lorry	CNP142	105	50	-3	102	1	102	290	-57	3	0	48	
			Hoist, Passenger / Material #	CNP122	95	80	-1	94	2	97	290	-57	3	-20	23	
			Drill/grinder, hand-held (electric) #	CNP065	98	80	-1	97	3	102	290	-57	3	-20	28	
			Electric Winch #	CNP262	95	80	-1	94	3	99	290	-57	3	-20	25	

Noise Criteria: 75dB(A)

Note #:
Construction activities will be underground, -20dB(A) screening effect has adopted, except ventilation fan, lorry and dump truck.
(Ref. AEIAR-171/2013)

ID	Activity	Period	PME	TM Ref. / other Ref.	Unit Quiet Plant SWL	On-time, %	Time Factor	Quiet Plant SWL with on- time %	No. of plants	Total SWL	Distance from Nearest Sources, m	Distance Attenuation	Façade Correction, dB(A)	Barrier Correction, dB(A)	Predicted Noise Level, dB(A)	Total Predicted Noise Level for each group, dB(A)
LoE-1400 - 1415	YMT Tunnel Thermal Barrier, VE Panel and E&M Installation Using 'S57' Site for Assessment	Feb 2024 - Oct 2024	Water Pump, Submersible (Electric) #	CNP283	85	80	-1	84	3	89	205	-54	3	-20	18	56
			Dump Truck / Grab dump truck	CNP069	105	50	-3	102	1	102	205	-54	3	0	51	
			Generator, super silenced, 70MB(A) at 7m #	CNP103	95	80	-1	94	3	99	205	-54	3	-20	28	
			Ventilation Fan	CNP241	108	100	0	108	1	108	205	-54	3	-5	52	
			Lorry / Crane lorry	CNP142	105	60	-2	103	1	103	205	-54	3	0	52	
			Hoist, Passenger / Material #	CNP122	95	80	-1	94	3	99	205	-54	3	-20	28	
			Drill/grinder, hand-held (electric) #	CNP065	98	80	-1	97	6	105	205	-54	3	-20	34	
			Electric Winch #	CNP262	95	80	-1	94	6	102	205	-54	3	-20	31	
			Hand Held Breaker #	BS D8-12	106	80	-1	105	2	108	205	-54	3	-20	37	
			Saw, Circular Wood #	BS D7-79	103	60	-2	101	2	104	205	-54	3	-20	33	
			Concrete Corer #	CNP042	117	20	-7	110	1	110	205	-54	3	-20	39	
			Excavator/Loader, Wheeled/Tracked #	EPD-03416	99	70	-2	97	2	100	205	-54	3	-20	29	
			Water Pump, Submersible (Electric) #	CNP283	85	80	-1	84	3	89	205	-54	3	-20	18	
			Dump Truck / Grab dump truck	CNP069	105	50	-3	102	1	102	205	-54	3	0	51	
LoE-1430	Central Tunnel Thermal Barrier, VE Panel and E&M Installation Using 'S57' Site for Assessment	Nov 2023 - Aug 2024	Generator, super silenced, 70MB(A) at 7m #	CNP103	95	80	-1	94	3	99	205	-54	3	-20	28	56
			Ventilation Fan	CNP241	108	100	0	108	1	108	205	-54	3	-5	52	
			Lorry / Crane lorry	CNP142	105	60	-2	103	1	103	205	-54	3	0	52	
			Hoist, Passenger / Material #	CNP122	95	80	-1	94	3	99	205	-54	3	-20	28	
			Drill/grinder, hand-held (electric) #	CNP065	98	80	-1	97	6	105	205	-54	3	-20	34	
			Electric Winch #	CNP262	95	80	-1	94	6	102	205	-54	3	-20	31	
			Hand Held Breaker #	BS D8-12	106	80	-1	105	2	108	205	-54	3	-20	37	
			Saw, Circular Wood #	BS D7-79	103	60	-2	101	2	104	205	-54	3	-20	33	
			Concrete Corer #	CNP042	117	20	-7	110	1	110	205	-54	3	-20	39	
			Excavator/Loader, Wheeled/Tracked #	EPD-03416	99	70	-2	97	2	100	205	-54	3	-20	29	
			Water Pump, Submersible (Electric) #	CNP283	85	80	-1	84	3	89	205	-54	3	-20	18	
			Dump Truck / Grab dump truck	CNP069	105	50	-3	102	1	102	205	-54	3	0	51	
			Generator, super silenced, 70MB(A) at 7m #	CNP103	95	70	-2	93	1	93	205	-54	3	-20	22	
			Lorry / Crane lorry	CNP142	105	60	-2	103	1	103	205	-54	3	0	52	
LoE-1440	Central Tunnel Road Paving & Marking Using 'S57' Site for Assessment	Aug 2024 - Nov 2024	Hoist, Passenger / Material #	CNP122	95	60	-2	93	2	96	205	-54	3	-20	25	58
			Dump Truck / Grab dump truck	CNP069	105	60	-2	103	2	106	205	-54	3	0	55	
			Excavator/Loader, Wheeled/Tracked #	EPD-03416	99	70	-2	97	2	100	205	-54	3	-20	29	
			Ventilation Fan	CNP241	108	100	0	108	1	108	205	-54	3	-5	52	
			Water Pump, Submersible (Electric) #	CNP283	85	70	-2	83	2	86	205	-54	3	-20	15	
			Concrete Corer #	CNP042	117	20	-7	110	1	110	205	-54	3	-20	39	
			Road Roller #	EPD-01183	97	60	-2	95	1	95	205	-54	3	-20	24	
			Paint line marker (low pressure) #	CNP176	87	60	-2	85	2	88	205	-54	3	-20	17	
			Asphalt Paver #	EPD-01226	104	60	-2	102	1	102	205	-54	3	-20	31	
			Drill/grinder, hand-held (electric) #	CNP065	98	80	-1	97	3	102	160	-52	3	-20	33	
			Electric Winch #	CNP262	98	80	-1	97	3	102	160	-52	3	-20	33	
			Hand Held Breaker #	BS D8-12	106	80	-1	105	1	105	160	-52	3	-20	36	
			Saw, Circular Wood #	BS D7-79	103	60	-2	101	1	101	160	-52	3	-20	32	
			Concrete Corer #	CNP042	117	20	-7	110	1	110	160	-52	3	-20	41	
LoE-1330,1340 &1365	Landscape Deck & Approach Road E&M Installation in 'S13' Site	Nov 2023 - Nov 2024	Air blower (electric)	CNP006	95	100	0	95	3	100	160	-52	3	-5	46	54
			Water Pump, Submersible (Electric) #	CNP283	85	100	0	85	3	90	160	-52	3	-20	21	
			Lorry / Crane lorry	CNP142	105	50	-3	102	1	102	160	-52	3	0	53	
			Hoist, Passenger / Material #	CNP122	95	80	-1	94	2	97	160	-52	3	-20	28	
			Drill/grinder, hand-held (electric) #	CNP065	98	80	-1	97	3	102	160	-52	3	-20	33	
			Electric Winch #	CNP262	95	80	-1	94	3	99	160	-52	3	-20	30	
			Hand Held Breaker #	BS D8-12	106	80	-1	105	1	105	160	-52	3	-20	36	
			Saw, Circular Wood #	BS D7-79	103	60	-2	101	1	101	160	-52	3	-20	32	
			Concrete Corer #	CNP042	117	20	-7	110	1	110	160	-52	3	-20	41	
			Air blower (electric)	CNP006	95	100	0	95	3	100	160	-52	3	-5	46	
			Water Pump, Submersible (Electric) #	CNP283	85	100	0	85	3	90	160	-52	3	-20	21	
			Lorry / Crane lorry	CNP142	105	50	-3	102	1	102	160	-52	3	0	53	
			Hoist, Passenger / Material #	CNP122	95	80	-1	94	2	97	160	-52	3	-20	28	
LoE-1350	YMT Ventilation Adit E&M Installation Using 'S13' Site as Portal	Nov 2023 - Nov 2024	Drill/grinder, hand-held (electric) #	CNP065	98	80	-1	97	3	102	160	-52	3	-20	33	54
			Electric Winch #	CNP262	95	80	-1	94	3	99	160	-52	3	-20	30	
			Hand Held Breaker #	BS D8-12	106	80	-1	105	1	105	160	-52	3	-20	36	
			Saw, Circular Wood #	BS D7-79	103	60	-2	101	1	101	160	-52	3	-20	32	
			Concrete Corer #	CNP042	117	20	-7	110	1	110	160	-52	3	-20	41	
			Air blower (electric)	CNP006	95	100	0	95	3	100	160	-52	3	-5	46	
			Water Pump, Submersible (Electric) #	CNP283	85	100	0	85	3	90	160	-52	3	-20	21	
			Lorry / Crane lorry	CNP142	105	50	-3	102	1	102	160	-52	3	0	53	
			Hoist, Passenger / Material #	CNP122	95	80	-1	94	2	97	160	-52	3	-20	28	
			Drill/grinder, hand-held (electric) #	CNP065	98	80	-1	97	3	102	160	-52	3	-20	33	
			Electric Winch #	CNP262	95	80	-1	94	3	99	160	-52	3	-20	30	
			Hand Held Breaker #	BS D8-12	106	80	-1	105	1	105	160	-52	3	-20	36	
			Saw, Circular Wood #	BS D7-79	103	60	-2	101	1	101	160	-52	3	-20	32	
			Concrete Corer #	CNP042	117	20	-7	110	1	110	160	-52	3	-20	41	

Noise Criteria: 75dB(A)


Note #: Construction activities will be underground, ~20dB(A) screening effect has adopted, except ventilation fan, lorry and dump truck.
(Ref. AEIAR-171/2013)

ID	Activity	Period	PME	TM Ref./ other Ref.	Unit Quiet Plant SWL	On-time, %	Time Factor	Quiet Plant SWL with on- time %	No. of plants	Total SWL	Distance from Notional Sources, m	Distance Attenuation	Façade Correction, dB(A)	Barrier Correction, dB(A)	Predicted Noise Level, dB(A)	Total Predicted Noise Level for each group, dB(A)
LoE-1330,1340 &1365	Landscape Deck & Approach Road E&M Installation in "S13" Site	Nov 2023 - Nov 2024	Drill/grinder, hand-held (electric) #	CNP065	98	80	-1	97	3	102	100	-48	3	-20	37	58
			Electric Winch #	CNP262	95	80	-1	94	3	99	100	-48	3	-20	34	
			Hand Held Breaker #	BS D8-12	106	80	-1	105	1	105	100	-48	3	-20	40	
			Saw, Circular Wood #	BS D7-79	103	60	-2	101	1	101	100	-48	3	-20	36	
			Concrete Corer #	CNP042	117	20	-7	110	1	110	100	-48	3	-20	45	
			Air blower (electric)	CNP006	95	100	0	95	3	100	100	-48	3	-5	50	
			Water Pump, Submersible (Electric) #	CNP283	85	100	0	85	3	90	100	-48	3	-20	25	
			Lorry / Crane lorry	CNP142	105	50	-3	102	1	102	100	-48	3	0	57	
			Hoist, Passenger / Material #	CNP122	95	80	-1	94	2	97	100	-48	3	-20	32	
			Drill/grinder, hand-held (electric) #	CNP065	98	80	-1	97	3	102	100	-48	3	-20	37	
			Electric Winch #	CNP262	95	80	-1	94	3	99	100	-48	3	-20	34	
			Hand Held Breaker #	BS D8-12	106	80	-1	105	1	105	100	-48	3	-20	40	
LoE-1350	YMT Ventilation Adit E&M Installation Using "S13" Site as Portal	Nov 2023 - Nov 2024	Saw, Circular Wood #	BS D7-79	103	60	-2	101	1	101	100	-48	3	-20	36	58
			Concrete Corer #	CNP042	117	20	-7	110	1	110	100	-48	3	-20	45	
			Air blower (electric)	CNP006	95	100	0	95	3	100	100	-48	3	-5	50	
			Water Pump, Submersible (Electric) #	CNP283	85	100	0	85	3	90	100	-48	3	-20	25	
			Lorry / Crane lorry	CNP142	105	50	-3	102	1	102	100	-48	3	0	57	
			Hoist, Passenger / Material #	CNP122	95	80	-1	94	2	97	100	-48	3	-20	32	
			Drill/grinder, hand-held (electric) #	CNP065	98	80	-1	97	3	102	100	-48	3	-20	37	
			Electric Winch #	CNP262	95	80	-1	94	3	99	100	-48	3	-20	34	
			Hand Held Breaker #	BS D8-12	106	80	-1	105	1	105	100	-48	3	-20	40	
			Saw, Circular Wood #	BS D7-79	103	60	-2	101	1	101	100	-48	3	-20	36	
			Concrete Corer #	CNP042	117	20	-7	110	1	110	100	-48	3	-20	45	
			Air blower (electric)	CNP006	95	100	0	95	3	100	100	-48	3	-5	50	

Noise Criteria: 75dB(A)

Note #: Construction activities will be underground, -20dB(A) screening effect has adopted, except ventilation fan, lorry and dump truck.
(Ref. AEIAR-171/2013)

(Ref. AEIAR-171/2013)																
ID	Activity	Period	PME	TM Ref. / other Ref.	Unit Quiet Plant SWL	On-time, %	Time Factor	Quiet Plant SWL with on- time %	No. of plants	Total SWL	Distance from Notional Source, m	Distance Attenuation	Faade Correction, dB(A)	Barrier Correction, dB(A)	Predicted Noise Level, dB(A)	Total Predicted Noise Level for each group, dB(A)
LoE-1170	Excavation & ELS with D-wall trimming in 'S1' Site	Dec 2023 Jul 2023	Wire Saw	CNP205	101	50	-3	98	1	98	50	-42	3	-5	54	70
			Crane Mobile	BS D7-114	101	70	-2	99	1	99	50	-42	3	0	60	
			Air Compressor, air flow > 10m3/min and < 30m3/min	CNP002	102	50	-3	99	2	102	50	-42	3	-5	58	
			Air blower (electric)	CNP006	95	100	0	95	2	98	50	-42	3	-5	54	
			Generator, super silenced, 70dB(A) at 7m	CNP103	95	100	0	95	2	98	50	-42	3	-5	54	
			Wastewater Treatment Facility		95	100	0	95	1	95	50	-42	3	-5	51	
			Water Pump, Submersible (Electric)	CNP283	85	100	0	85	6	93	50	-42	3	-5	49	
			Dump Truck / Grab dump truck	CNP069	105	60	-2	103	1	103	50	-42	3	0	64	
			Excavator/Loader, Wheeled/Tracked	EPD-03416	99	60	-2	97	1	97	50	-42	3	-5	53	
			Lorry / Crane lorry	CNP142	105	60	-2	103	1	103	50	-42	3	0	64	
LoE-1175	Sub-structure Works in 'S1' Site	Jul 2023 - Nov 2023	Grout Mixer and Pump		105	30	-5	100	3	105	50	-42	3	-10	56	71
			Breaker, Excavator Mounted (Hydraulic)	BS D8-13	110	40	-4	106	1	106	50	-42	3	-5	62	
			Bar Bender and Cutter	CNP021	90	60	-2	88	1	88	50	-42	3	-5	44	
			Crane Mobile	BS D7-114	101	80	-1	100	1	100	50	-42	3	0	61	
			Concrete Lorry Mixer	CNP044	109	50	-3	106	1	106	50	-42	3	-5	62	
			Concrete pump	CNP047	109	50	-3	106	1	106	50	-42	3	-5	62	
			Poker, Vibratory, Hand Held	CNP173	102	50	-3	99	1	99	50	-42	3	-5	55	
			Air blower (electric)	CNP006	95	100	0	95	3	100	50	-42	3	-5	56	
			Generator, super silenced, 70dB(A) at 7m	CNP103	95	100	0	95	2	98	50	-42	3	-5	54	
			Wastewater Treatment Facility		95	100	0	95	1	95	50	-42	3	-5	51	
LoE-1180	Super-structure Works in 'S1' Site	Nov 2023 Jan 2024	Water Pump, Submersible (Electric)	CNP283	85	100	0	85	6	93	50	-42	3	-5	49	70
			Dump Truck / Grab dump truck	CNP069	105	70	-2	103	1	103	50	-42	3	0	64	
			Excavator/Loader, Wheeled/Tracked	EPD-03416	99	70	-2	97	2	100	50	-42	3	-5	56	
			Lorry / Crane lorry	CNP142	105	60	-2	103	1	103	50	-42	3	0	64	
			Breaker, Excavator Mounted (Hydraulic)	BS D8-13	110	30	-5	105	1	105	50	-42	3	-5	61	
			Bar Bender and Cutter	CNP021	90	70	-2	88	1	88	50	-42	3	-5	44	
			Crane Mobile	BS D7-114	101	80	-1	100	1	100	50	-42	3	0	61	
			Concrete Lorry Mixer	CNP044	109	60	-2	107	1	107	50	-42	3	-5	63	
			Concrete pump	CNP047	109	60	-2	107	1	107	50	-42	3	-5	63	
			Poker, Vibratory, Hand Held	CNP173	102	60	-2	100	1	100	50	-42	3	-5	56	
LoE-1190	ABWF Works in 'S1' Site	Oct 2023 May 2024	Air blower (electric)	CNP006	95	100	0	95	3	100	50	-42	3	-5	56	69
			Generator, super silenced, 70dB(A) at 7m	CNP103	95	100	0	95	3	100	50	-42	3	-5	56	
			Wastewater Treatment Facility		95	100	0	95	1	95	50	-42	3	-5	51	
			Water Pump, Submersible (Electric)	CNP283	85	100	0	85	6	93	50	-42	3	-5	49	
			Dump Truck / Grab dump truck	CNP069	105	50	-3	102	1	102	50	-42	3	0	63	
			Excavator/Loader, Wheeled/Tracked	EPD-03416	99	50	-3	96	1	96	50	-42	3	-5	52	
			Lorry / Crane lorry	CNP142	105	60	-2	103	1	103	50	-42	3	0	64	
			Hoist, Passenger / Material	CNP122	95	60	-2	93	1	93	50	-42	3	-5	49	
			Bar Bender and Cutter	CNP021	90	20	-7	83	1	83	50	-42	3	-5	39	
			Concrete Lorry Mixer	CNP044	109	30	-5	104	1	104	50	-42	3	-5	60	
LoE-1200 -LoE- 1210	E&M Works, T&C and Statutory Inspection in 'S1' Site	Nov 2023 Jul 2024	Poker, Vibratory, Hand Held	CNP173	102	30	-5	97	1	97	50	-42	3	-5	53	71
			Crane Mobile	BS D7-114	101	80	-1	100	1	100	50	-42	3	0	61	
			Hoist, Passenger / Material	CNP122	95	60	-2	93	1	93	50	-42	3	-5	49	
			Lorry / Crane lorry	CNP142	105	40	-4	101	1	101	50	-42	3	0	62	
			Generator, super silenced, 70dB(A) at 7m	CNP103	95	100	0	95	1	95	50	-42	3	-5	51	
			Drill/riander, hand-held (electric)	CNP065	98	30	-5	93	3	98	50	-42	3	-5	54	
			Electric Winch	CNP262	95	30	-5	90	3	95	50	-42	3	-5	52	
			Hand Held Breaker	BS D8-12	106	30	-5	101	1	101	50	-42	3	-5	57	
			Saw, Circular Wood	BS D7-79	103	30	-5	98	2	101	50	-42	3	-5	57	
			Air blower (electric)	CNP006	95	100	0	95	3	100	50	-42	3	-5	56	
LoE-1200 -LoE- 1210	E&M Works, T&C and Statutory Inspection in 'S1' Site	Nov 2023 Jul 2024	Dump Truck / Grab dump truck	CNP069	105	40	-4	101	1	101	50	-42	3	0	62	71
			Generator, super silenced, 70dB(A) at 7m	CNP103	95	100	0	95	2	98	50	-42	3	-5	54	
			Water Pump, Submersible (Electric)	CNP283	85	100	0	85	3	90	50	-42	3	-5	46	
			Hoist, Passenger / Material	CNP122	95	70	-2	93	2	96	50	-42	3	-5	52	
			Lorry / Crane lorry	CNP142	105	70	-2	103	1	103	50	-42	3	0	62	
			Excavator/Loader, Wheeled/Tracked	EPD-03416	99	40	-4	91	1	95	50	-42	3	-5	51	
			Dump Truck / Grab dump truck	CNP069	105	40	-4	101	1	101	50	-42	3	0	62	
			Drill/riander, hand-held (electric)	CNP065	98	40	-4	94	3	99	50	-42	3	-5	55	
			Electric Winch	CNP262	95	40	-4	91	3	96	50	-42	3	-5	52	
			Hand Held Breaker	BS D8-12	106	40	-4	103	1	103	50	-42	3	-5	58	
LoE-1540	Landscape Works in 'S1' Site	Mar 2024 - Nov 2024	Hand Held Breaker	BS D8-12	106	30	-5	101	1	110	50	-42	3	-5	57	68
			Saw, Circular Wood	BS D7-79	103	30	-5	98	2	101	50	-42	3	-5	57	
			Air blower (electric)	CNP006	95	100	0	95	3	100	50	-42	3	-5	56	
			Crane Mobile	BS D7-114	101	70	-2	99	1	99	50	-42	3	0	60	
			Crane Mobile	BS D7-114	101	60	-2	99	1	99	50	-42	3	0	60	
			Generator, super silenced, 70dB(A) at 7m	CNP103	95	100	0	95	2	98	50	-42	3	-5	54	
			Hoist, Passenger / Material	CNP122	95	70	-2	93	1	93	50	-42	3	-5	49	
			Excavator/Loader, Wheeled/Tracked	EPD-03416	99	50	-3	96	1	96	50	-42	3	-5	52	
			Dump Truck / Grab dump truck	CNP069	105	40	-4	101	1	101	50	-42	3	0	62	
			Lorry / Crane lorry	CNP142	105	40	-4	101	1	101	50	-42	3	0	62	
LoE-1420	HMT Ventilation Adit E&M Installation Using 'S1' Site as Portal	Jan 2024 Aug 2024	Water Pump, Submersible (Electric)	CNP283	85	100	0	85	3	90	50	-42	3	-5	46	64
			Concrete Corer #	CNP042	117	20	-7	110	1	110	50	-42	3	-20	51	
			Lorry / Crane lorry	CNP142	105	30	-3	102	1	102	50	-42	3	-5	63	
			Lorry / Passenger / Material #	CNP122	95	30	-1	94	2	97	50	-42	3	-20	38	
			Electric Winch	CNP262	95	30	-5	90	2	93	50	-42	3	-5	52	
			Saw, Circular Wood #	BS D7-79	103	60	-2	101	1	101	50	-42	3	-20	42	
			Air blower (electric)	CNP006	95	100	0	95	3	100	50	-42	3	-5	56	
			Water Pump, Submersible (Electric) #	CNP283	85	80	-1	84	3	89	50	-42	3	-20	30	
			Concrete Corer #	CNP042	117	20	-7	110	1	110	50	-42	3	-20	51	
			Lorry / Crane lorry	CNP142	105	30	-3	102	1	102	50	-42	3	-5	63	

	Contract No. HY/2019/13 CENTRAL KOWLOON ROUTE - BUILDINGS, ELECTRICAL AND MECHANICAL WORKS	Rev. No. : F
		Effective Date : 13 Jul 2022
J3883	Construction Noise Mitigation Measure Plan	Appendix

**APPENDIX D – COMBINED CONSTRUCTION NOISE ASSESSMENT
FOR NSRS**

Note:

[1]: The noise impact from non-overlapping activities will not be contributed in assessing the Maximum Total Noise Level of the particular month

[2]: Reference from other valid CKR- CNMMP - in YMTE & YMTW

[3]: Referring from the Approved EIA Report, typical examination period in May, June, November and December

Gammon Construction Limited

HY/2019/13 Central Kowloon Route - Buildings, Electrical and Mechanical Works (CKR-BEM)

Associated Cumulative Noise Levels

Noise Sensitive Receiver: W-N8A Tak Cheong Building

RevF

Update08-Jun-23

ID	Activity	Start	Finish	2023		2024										
				Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov
Yau Ma Tei East - (Inside Tunnel - Use “S57” Site in AEIAR-171/2013, Appendix 5.5B for Assessment))																
LoE-1400 - 1415	YMT Tunnel Thermal Barrier, VE Panel and E&M Installation	19-Feb-24	30-Oct-24				65	65	65	65	65	65	65	65	65	
Central Tunnel - (Inside Tunnel - Use “S57” Site in AEIAR-171/2013, Appendix 5.5B for Assessment)																
LoE-1430	Central Tunnel Thermal Barrier, VE Panel and E&M Installation	01-Nov-23	08-Aug-24	65	65	65	65	65	65	65	65	65				
LoE-1440	Central Tunnel Road Paving & Marking	12-Aug-24	18-Nov-24										66	66	66	66
Yau Ma Tei West - (Inside Tunnel Adit - Use "S13" Site as Portal)																
LoE-1330,1340&1365	Landscape Deck & Approach Road E&M Installation ("S13" Site in EIAR - Appendix 5.5f)	01-Nov-23	16-Nov-24	49	49	49	49	49	49	49	49	49	49	49	49	49
LoE-1350	YMT Ventilation Adit E&M Installation	01-Nov-23	16-Nov-24	49	49	49	49	49	49	49	49	49	49	49	49	49
Maximum Total Noise Level dB(A) (CKR-BEM only) [1]:				65	65	65	68	68	68	68	68	68	70	69	69	67
Cumulative Noise Impact dB(A) [2] [YMTE + CT]:				75	75	80	78	78	78	77	77	77	77	77	77	75
Total Noise Impact dB(A):				75	75	80	78	78	78	78	78	78	78	78	78	76
Noise Criteria dB(A):				75	75	75	75	75	75	75	75	75	75	75	75	75
Overall Exceedance dB(A):				-	-	5	3	3	3	3	3	3	3	3	3	1
Exceedance dB(A) (CKR-BEM related period only):				-	-	5	3	3	3	3	3	3	3	3	3	1

Note:

[1]: The noise impact from non-overlapping activities will not be contributed in assessing the Maximum Total Noise Level of the particular month

[2]: Reference from other valid CKR- CNMMP - in YMTE & CT

[3]: Underlined traffic noise levels indicate the exceedance.

Gammon Construction Limited

HY/2019/13 Central Kowloon Route - Buildings, Electrical and Mechanical Works (CKR-BEM)

Associated Cumulative Noise Levels

Noise Sensitive Receiver: W-N25A Prosperous Garden Block 1

RevF

Update8-Jun-23

ID	Activity	Start	Finish	2023		2024											
				Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	
<u>Yau Ma Tei East - (Inside Tunnel - Use “S57” Site in AEIAR-171/2013, Appendix 5.5B for Assessment))</u>																	
LoE-1400 - 1415	YMT Tunnel Thermal Barrier, VE Panel and E&M Installation	19-Feb-24	30-Oct-24				56	56	56	56	56	56	56	56	56		
<u>Central Tunnel - (Inside Tunnel - Use “S57” Site in AEIAR-171/2013, Appendix 5.5B for Assessment)</u>																	
LoE-1430	Central Tunnel Thermal Barrier, VE Panel and E&M Installation	1-Nov-23	8-Aug-24	56	56	56	56	56	56	56	56	56	56				
LoE-1440	Central Tunnel Road Paving & Marking	12-Aug-24	18-Nov-24										58	58	58	58	
<u>Yau Ma Tei West - (Inside Tunnel Adit - Use "S13" Site as Portal)</u>																	
LoE-1330,1340&1365	Landscape Deck & Approach Road E&M Installation ("S13" Site in EIAR - Appendix 5.5f)	1-Nov-23	16-Nov-24	54	54	54	54	54	54	54	54	54	54	54	54	54	
LoE-1350	YMT Ventilation Adit E&M Installation	1-Nov-23	16-Nov-24	54	54	54	54	54	54	54	54	54	54	54	54	54	
Maximum Total Noise Level dB(A) (CKR-BEM only) [1]:				60	60	60	61	61	61	61	61	61	61	63	62	62	60
Cumulative Noise Impact dB(A) [2] [<u>YMTE + YMTW + CT</u>]:				72	66	68	75	75	75	69	69	69	69	68	67	65	
Total Noise Impact dB(A):				72	67	69	75	75	75	70	70	70	70	69	68	66	
Noise Criteria dB(A):				75	75	75	75	75	75	75	75	75	75	75	75	75	
Overall Exceedance dB(A):				-	-	-	-	-	-	-	-	-	-	-	-	-	
Exceedance dB(A) (CKR-BEM related period only):				-	-	-	-	-	-	-	-	-	-	-	-	-	

Note:

[1]: The noise impact from non-overlapping activities will not be contributed in assessing the Maximum Total Noise Level of the particular month

[2]: Reference from other valid CKR- CNMMP - in YMTE ,YMTW & CT

Gammon Construction Limited

HY/2019/13 Central Kowloon Route - Buildings, Electrical and Mechanical Works (CKR-BEM)

Associated Cumulative Noise Levels

Noise Sensitive Receiver: W-P11 Prosperous Garden Block 1

RevF

Update8-Jun-23

ID	Activity	Start	Finish	2023		2024											
				Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	
<u>Yau Ma Tei West - (Inside Tunnel Adit - Use "S13" Site as Portal)</u>																	
LoE-1330,1340&1365	Landscape Deck & Approach Road E&M Installation ("S13" Site in EIAR - Appendix 5.5f)	1-Nov-23	16-Nov-24	58	58	58	58	58	58	58	58	58	58	58	58	58	
LoE-1350	YMT Ventilation Adit E&M Installation	1-Nov-23	16-Nov-24	58	58	58	58	58	58	58	58	58	58	58	58	58	
Maximum Total Noise Level dB(A) (CKR-BEM only) [1]:				61	61	61	61	61	61	61	61	61	61	61	61	61	
Cumulative Noise Impact dB(A) [2] <u>[YMTE + YMTW + CT]:</u>				69	69	69	69	69	69	69	69	69	69	69	69	-	
Total Noise Impact dB(A):				70	70	70	70	70	70	70	70	70	70	70	70	61	
Noise Criteria dB(A):				75	75	75	75	75	75	75	75	75	75	75	75	75	
Overall Exceedance dB(A):				-	-	-	-	-	-	-	-	-	-	-	-	-	
Exceedance dB(A) (CKR-BEM related period only):				-	-	-	-	-	-	-	-	-	-	-	-	-	

Note:

[1]: The noise impact from non-overlapping activities will not be contributed in assessing the Maximum Total Noise Level of the particular month

[2]: Reference from other valid CKR- CNMMP - in YMTE ,YMTW & CT

Gammon Construction Limited

HY/2019/13 Central Kowloon Route - Buildings, Electrical and Mechanical Works (CKR-BEM)

Associated Cumulative Noise Levels

Noise Sensitive Receiver: M-N6 Ko Fai House of Kwun Fat Court

RevF


Update8-Jun-23

ID	Activity	Start	Finish	2023												2024										
				Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov
Ho Man Tin Ventilation Building (HVB - “S1” Site in AEIAR-171/2013, Appendix 5.5B))																										
LoE-1170	Excavation & ELS with D-wall trimming	29-Dec-22	10-Jul-23	70	70	70	70	70	70	70																
LoE-1175	Sub-structure Works	11-Jul-23	17-Nov-23							71	71	71	71	71												
LoE-1180	Super-structure Works	18-Nov-23	20-Jan-24											70	70	70										
LoE-1190	ABWF Works	11-Oct-23	17-May-24										69	69	69	69	69	69	69							
LoE-1200 - 1210	E&M Works, T&C and Statutory Inspection	17-Nov-23	4-Jul-24												71	71	71	71	71	71						
LoE-1540	Landscape Works	4-Mar-24	23-Nov-24															68	68	68	68	68	68	68	68	
LoE-1420	HMT Ventilation Adit E&M Installation	17-Jan-24	21-Aug-24														64	64	64	64	64	64				
Maximum Total Noise Level dB(A) (CKR-BEM only) [1]:				70	70	70	70	70	70	73	71	71	73	75	75	75	73	74	74	74	73	69	69	68	68	68
Cumulative Noise Impact dB(A) [2] [NIL]:				64	64	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Total Noise Impact dB(A):				71	71	70	70	70	70	73	71	71	73	75	75	75	73	74	74	74	73	69	69	68	68	68
Noise Criteria dB(A):				75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75
Overall Exceedance dB(A):				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Exceedance dB(A) (CKR-BEM related period only):				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	

Note:

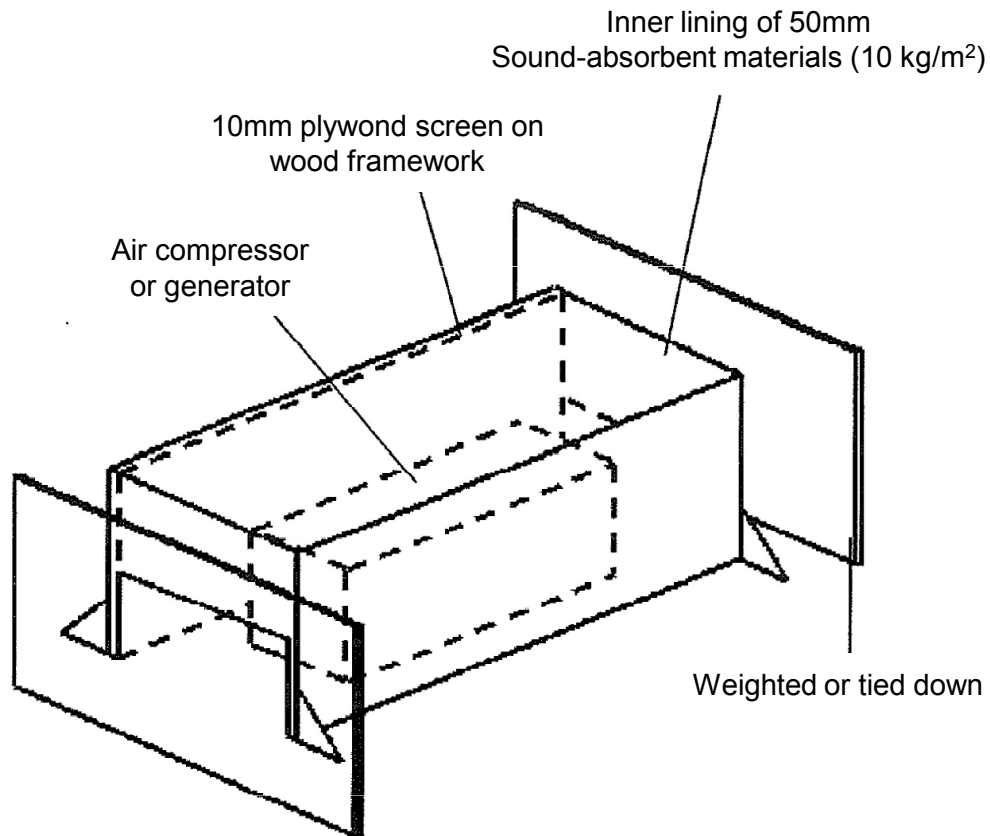
[1]: The noise impact from non-overlapping activities will not be contributed in assessing the Maximum Total Noise Level of the particular month

[2]: Reference from other valid CKR- CNMMP - in CT

	Contract No. HY/2019/13 CENTRAL KOWLOON ROUTE - BUILDINGS, ELECTRICAL AND MECHANICAL WORKS	Rev. No. : F
		Effective Date : 13 Jul 2022
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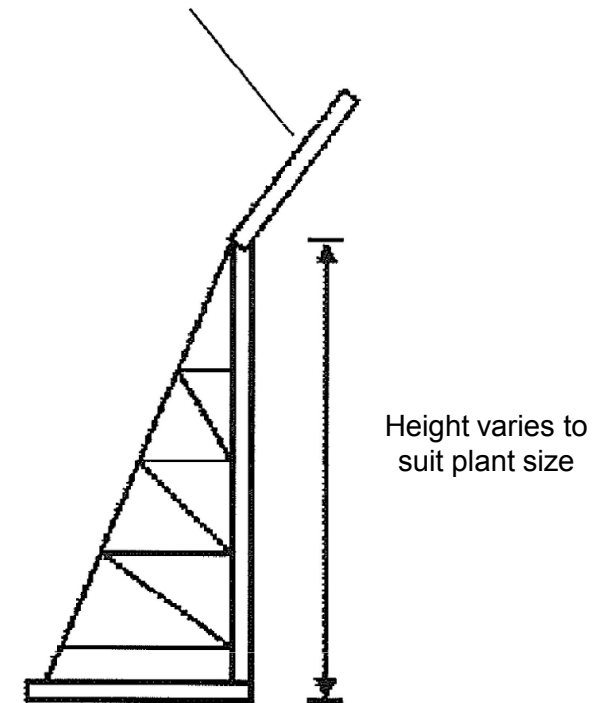
APPENDIX E – ACOUSTIC NOISE BARRIERS REFERENCE

Extraction from Approved EIA (AEIAR-171/2013) - Appendix 5.4B
Sketch of Typical Temporary Noise Barrier and Enclosure



Typical Noise Enclosure for Static Plant (e.g. Air
Compressors, Generators etc.)
~3-4m wall

Minimum surface density of 7 kg/m²



Typical Section of Temporary Movable Noise Barrier
(3-5m tall)

Reference photos for temporary movable noise barriers

At least 3m high (suit with PMEs)



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RAD Division of **Wilson**
Acoustics Limited

Test Report

No. SDHG1408012625RP

Date: Aug.19, 2014

Page 1 of 3

CHEUNG KEE CANVAS LTD.
G/F, 352, RECLAMATION ST, KLN. HK

The following sample(s) was / were submitted and identified on behalf of the client as:

Sample Description : PVC TARPAULIN
Item : CK 2009 SOUND PROOF CANVAS(1.6M)
Sample Receiving Date : Aug.13, 2014
Test Performing Date : Aug.13, 2014 to Aug.19, 2014
Test Required : In accordance with ISO 10140-2-2010 Acoustics -- Laboratory measurement of sound insulation of building elements -- Part 2: Measurement of airborne sound insulation
Test Result(s) : For further details, please refer to the following page(s)

Signed for and on behalf of
SGS-CSTC Co., Ltd.



Irvette Zhang
Approved signatory



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SDHG 072326

SGS-CSTC Standards Technical Services Co., Ltd.
Guangzhou Branch

1/F, 1st Building, European Industrial Park, No.1 Shunhe Road, Wusha Section, Daliang Town, Shunde Foshan, Guangdong, China 528333 t (86-757)22805888 f (86-757)22805858 www.sgs.com.cn
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Test Report

No. SDHG1408012625RP

Date: Aug.19, 2014

Page 2 of 3

I. Test conducted

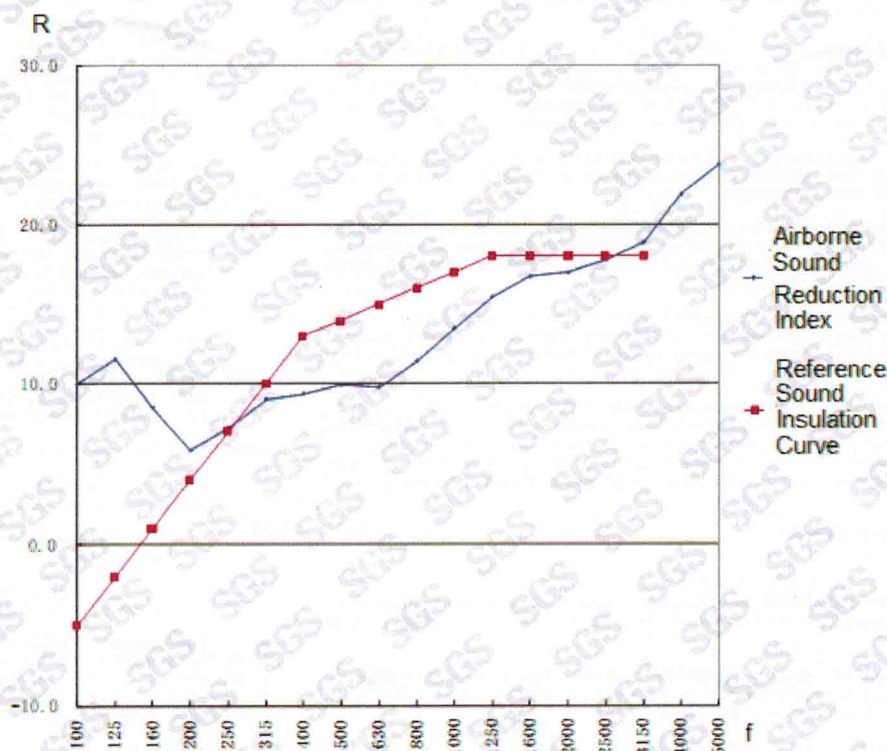
The test is performed in accordance with ISO 10140-2-2010 Acoustics -- Laboratory measurement of sound insulation of building elements -- Part 2: Measurement of airborne sound insulation
The evaluation of the single-number rating from the results in one-third octave bands is done in accordance with ISO 717-1:1996 Acoustics - Rating of sound insulation in buildings and of building elements - Part 1: Airborne sound insulation

II. Sample Description and Conditioning

Sample name(provided by sponsor): PVC Tarpaulin
Color: Gray
Mass per unit area : 958 g/m²
Area, S, of test element : 3.8 m²
Air temp. in the test rooms : 27°C
Relative humidity in the test rooms : 58%
Receiving room volume : 67.9 m³

III. Test results

f Hz	R dB
100	10.1
125	11.6
160	8.6
200	5.9
250	7.3
315	9.1
400	9.4
500	10.0
630	9.9
800	11.5
1000	13.5
1250	15.5
1600	16.7
2000	17.0
2500	17.8
3150	18.9
4000	21.9
5000	23.9
Rw (C;Ctr)	14(-1;-2)



Key
R-- sound reduction index, in dB
f--frequency, in Hz

To be continued...



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