

## 4 NOISE IMPACT

### 4.1 Introduction

4.1.1.1 This section presents an assessment of potential noise impacts associated with the construction and operation of the Project. The noise impact assessment has been conducted in accordance with the requirements of Annex 5 and Annex 13 of the Technical Memorandum on Environmental Impact Assessment Process (EIAO-TM) as well as the requirements set out under Clause 3.4.5 of the Environmental Impact Assessment (EIA) Study Brief (No. ESB-315/2019) (hereinafter “the Study Brief”).

4.1.1.2 A study brief of “Improvement of Lion Rock Tunnel” (No. ESB-323/2019) was issued in November 2019. Based on the latest available information, the tentative construction work of the entire Improvement of LRT project will be commenced in 2025 for completion by 2035. As the road widening works of LRT Road at the section near Sun Tin Wai Estate/Fung Shing Court undertaken by LRT Project will commence in December 2028 while the construction of the Project will be completed in September 2028, no potential cumulative impact due to the construction of the Improvement of LRT project will be anticipated in this EIA Study. Furthermore, as the forecast traffic flow data adopted has already included the effect of the Improvement of LRT Project, the cumulative impact during the operation phase of the Project in association with the Improvement of LRT project is considered.

4.1.1.3 Two other potentially concurrent projects, namely Widening of Tai Po Road (TPR) (Sha Tin Section) and Revitalisation of Tai Wai Nullah, have been identified. According to the latest information from Project Proponent, the Widening of TPR (Sha Tin Section) Project would be completed by Q1 2023. With reference to the construction programme of the Project presented in [Appendix 2.1](#), construction works will commence in October 2023 and as such, no cumulative construction noise impact is anticipated during construction phase of the Project. For the Revitalisation of Tai Wai Nullah Project, it is expected that the work site of “Revitalisation of Tai Wai Nullah” (hereafter called “the Nullah Project”) will be within 300 m assessment area of this Project. Solid information on the construction programme of the Nullah Project was not available at this stage. In view that the most noisy construction works of the Project within the site area overlapping with the Nullah Project would be the foundation works for the T4 viaducts, the tentative construction programme and works at the interface area between the two projects could be arranged efficiently, e.g. scheduling works to be carried out during dry season, through close liaison between DSD’s and CEDD’s contractors of the Nullah Project and the Project respectively, in order to avoid construction works of respective works contracts to be carried out concurrently at the same interfacing areas. With this arrangement in place, cumulative construction noise impact is expected to be minimised. The cumulative construction noise impact of this Project and the Nullah Project will be addressed in the “Revitalisation of Tai Wai Nullah” EIA Report.

### 4.2 Environmental Legislation, Standards and Criteria

#### 4.2.1 General

4.2.1.1 Noise impacts have been assessed in accordance with the criteria and methodology given in the Technical Memorandum on Environmental Impact Assessment Process (EIAO-TM) and the Technical Memoranda made under the Noise Control Ordinance (NCO).

4.2.1.2 The NCO and EIAO provide the statutory framework for noise control. Assessment procedures and standards are set out in the following TMs:

- Technical Memorandum on Environmental Impact Assessment Process (EIAO-TM);
- Technical Memorandum for the Assessment of Noise from Places other than Domestic Premises, Public Places or Construction Sites (IND-TM);

- Technical Memorandum on Noise from Construction Work in Designated Areas (DA-TM);
- Technical Memorandum on Noise from Construction Work other than Percussive Piling (GW-TM); and
- Technical Memorandum on Noise from Percussive Piling (PP-TM).

4.2.1.3 With regard to the assessments of the construction noise impact during restricted hours (i.e. between 19:00 and 07:00 hours and at any time on Sundays and general holidays), the NCO designates Acceptable Noise Levels (ANLs) for Noise Sensitive Receivers (NSRs) on the basis of an Area Sensitivity Rating (ASR), based on the characteristics of the area within which they are located such as rural, village, low-density residential, or urban (see **Table 4.1**). Within these areas, the presence of "influencing factors" (such as the presence of industrial area or major roads) can further affect the ASR and hence the acceptable noise levels.

**Table 4.1 Area Sensitivity Ratings (ASRs)**

Type of Area Containing NSR	Degree to which NSR is affected by Influencing Factor		
	Not Affected	Indirectly Affected	Directly Affected
Rural area, including country parks or village type developments	A	B	B
Low density residential area consisting of low-rise or isolated high-rise developments	A	B	C
Urban area	B	C	C
Area other than those above	B	B	C

Note:

- "Country park" means an area that is designated as a country park pursuant to section 14 of the Country Parks Ordinance;
- "Directly affected" means that the NSR is at such a location that noise generated by the IF is readily noticeable at the NSR and is a dominant feature of the noise climate of the NSR;
- "Indirectly affected" means that the NSR is at such a location that noise generated by the IF, whilst noticeable at the NSR, is not a dominant feature of the noise climate of the NSR;
- "Not affected" means that the NSR is at such a location that noise generated by the IF is not noticeable at the NSR; and
- "Urban area" means an area of high density, diverse development including a mixture of such elements as industrial activities, major trade or commercial activities and residential premises.

## 4.2.2 Construction Noise

### General Construction Works

4.2.2.1 The NCO provides the statutory framework for noise control of construction works, other than percussive piling, using powered mechanical equipment (PME) between the hours of 1900 and 0700 hours or at any time on Sundays and general holiday (that is, restricted hours). Noise from construction activities taking place at 0700 – 1900 hours on any day not being a Sunday or general holiday is subject to the Noise Standards for Daytime Construction Activities stated in Table 1B of Annex 5 in the EIAO-TM. The noise limit is  $L_{eq(30 \text{ minutes})}$  75 dB(A) at 1m from the external façades of domestic premises, hotels and hostels which rely on opened window for ventilation, and  $L_{eq(30 \text{ minutes})}$  70 dB(A) at 1m from the external façade of educational institutions which rely on opened window for ventilation ( $L_{eq(30 \text{ minutes})}$  65 dB(A) during examinations).

### Construction Works during Restricted Hours

4.2.2.2 On all days between 1900 and 0700 hours and at any time on Sundays and general holidays, the use of PME for the purpose of carrying out construction works is prohibited unless a Construction Noise Permit (CNP) has been obtained. A CNP may be granted

provided that the ANL for the NSRs can be complied with. ANLs are assigned depending upon the ASR and are given in **Table 4.2**.

**Table 4.2 Acceptable Noise Levels under the Technical Memorandum on Noise from Construction Work other than Percussive Piling**

Time Period	Acceptable Noise Level (ANLs), dB(A)		
	ASR A	ASR B	ASR C
All days during the evening (1900 to 2300 hours), and general holidays (including Sundays) during the daytime and evening (0700 to 2300 hours)	60	65	70
All days during the night-time (2300 to 0700 hours)	45	50	55

- 4.2.2.3 The Noise Control Authority will consider a well-justified CNP application, for construction works within restricted hours as guided by the relevant Technical Memoranda issued under the Noise Control Ordinance. The Noise Control Authority will take into account of contemporary conditions / situations of adjoining land uses and any previous complaints against construction activities at the site before making his decision in granting a CNP. Nothing in this EIA shall bind the Noise Control Authority in making his decision. If a CNP is to be issued, the Noise Control Authority shall include in it any condition he thinks fit. Failure to comply with any such conditions will lead to cancellation of the CNP and prosecution action under the NCO.
- 4.2.2.4 Under the DA-TM, the use of five types of Specified Powered Mechanical Equipment (SPME) and three types of Prescribed Construction Work (PCW) within a designated area during restricted hours would require a valid CNP. The SPME includes hand-held breaker, bulldozer, concrete lorry mixer, dump truck and hand-held vibratory poker. The PCW are:
- Erecting or dismantling of formwork or scaffolding.
  - Loading, unloading or handling of rubble, wooden boards, steel bars, wood or scaffolding material.
  - Hammering.
- 4.2.2.5 In general, it should not be presumed that a CNP may be granted for carrying out PCW within a designated area during restricted hours only if the location of work being carried out is screened by solid barriers, such as purpose-designed acoustic screens, buildings or topographical features. The CNP may be granted for the execution of construction works during restricted hours involving the use of PME and/ or SPME if the relevant Acceptable Noise Levels and criteria stipulated in the GW-TM and DA-TM can be met. The ANLs for the use of SPME within a designated area (i.e. those listed in DA-TM) are more stringent (i.e. 15 dB(A) lower than those listed in the GW-TM) to offer additional protection to the population.
- 4.2.2.6 Percussive piling is prohibited between 1900 and 0700 hours on any weekday not being a general holiday and at any time on Sunday or general holiday. A CNP is required for the carrying out of percussive piling between 0700 and 1900 hours on any day not being a general holiday. PP-TM sets out the requirements for working and determination of the permitted hours of operations for the CNP applications. The permitted hours of operations would be 3, 5 or 12 hours per day depending on the types of percussive piling and the predicted noise impact at NSRs.

### 4.2.3 Operation Noise

4.2.3.1 For road traffic noise, the following  $L_{10(1 \text{ hour})}$  criteria stipulated in Annex 5, Table 1A of EIAO-TM are adopted for different types of noise sensitive receivers (NSRs) which rely on opened windows for ventilation:

- 70 dB(A) at 1 m from the external façades of residential dwellings, hotels, offices;
- 65 dB(A) at 1 m from the external façades of educational institutions including kindergartens, nurseries and all others where unaided voice communication is required, places of public worship and courts of law;
- 55 dB(A) at 1 m from the external façades of hospital and clinics.

4.2.3.2 No fixed plant will be installed under the Project, hence fixed noise sources impact is not anticipated.

### 4.3 Description of Environment

4.3.1.1 The location of the proposed Trunk Road T4 is shown in [Figure 1.1](#). It is a trunk road connecting Shing Mun Tunnel Road and Tsing Sha Highway in the northwest with Sha Tin Road in the southeast. Surrounding area is a mixture of mid to high-rise residential developments, villages, schools and industrial uses. Other facilities such as Sha Tin (Tai Wai) Clinic, Hong Kong Heritage Museum and churches are also located in the study area. The prevailing noise climate of the assessment area is dominated by the existing traffic noise from Shing Mun Tunnel Road, Tsing Sha Highway, Tai Po Road – Tai Wai Section, Tai Po Road – Shatin section, Tai Chung Kiu Road, Che Kung Miu Road, Lion Rock Tunnel Road and Sha Tin Road.

### 4.4 Noise Sensitive Receivers

4.4.1.1 In accordance with Annex 13 of the EIAO-TM, any domestic premises including temporary housing, school, educational institution, hospitals, medical clinics, homes for the aged, convalescent homes, places of public worship, libraries, courts of law, country parks, performing arts centres, auditoria and amphitheatres are identified as NSRs.

4.4.1.2 The assessment area for noise impact assessment of the Project is defined as 300 m away from the Project works boundary in accordance with Clause 2.2.1(a) and 3.2.1(a), Appendix C of the EIA Study Brief and is presented in [Figure 4.1](#). The representative NSRs within the assessment area for noise impact assessments of the construction and operation phases have been identified based on review of latest information from Planning Department, Lands Department, as well as the latest statutory Outline Zoning Plan (OZP) No. S/ST/34 – Sha Tin (gazetted under Town Planning Ordinance in June 2018) and findings from the site visits conducted.

4.4.1.3 In order to evaluate the noise impacts during construction and operation phases associated with the Project, representative existing/committed/planned NSRs located within the assessment area have been identified for assessment. Only the first layer of NSRs has been identified for assessment because it would provide acoustic shielding to those receivers at further distance behind. In accordance with Annex 13 of the EIAO-TM, country park is also classified as NSRs. However, there would be no noise sensitive uses in Lion Rock Country Park that rely on opened windows for ventilation. Therefore, noise criteria listed in Annex 5 of EIAO-TM is not applicable to Lion Rock Country Park. The EIAO-TM however does not stipulate specific noise limits for this type of NSRs. Given that visitors using hiking trails in the Country Park are of transient nature, no adverse construction noise impact and road traffic noise impact is anticipated.

4.4.1.4 All NSRs identified within 300m from the Project boundary as well as the representative NSRs selected for construction noise and traffic noise impact assessments are presented in [Table 4.3](#). Locations of the representative NSRs are shown in [Figure 4.1.1](#) & [Figure 4.1.2](#), and photographs of the existing representative NSRs are provided in [Appendix 4.1](#).

- 4.4.1.5 With reference to **Table 4.3**, based on review of the available information, the Hong Kong Heritage Museum was found to be provided with central air-conditioning and not rely on opened windows for ventilation, and as such, would not be considered in the noise impact assessment.
- 4.4.1.6 The ex-Harmony Lodge was a residential development located at Hang Lok Lane which has been demolished. With reference to the latest Sha Tin OZP (S/ST/34) and Town Planning Board's website, no planning application was found for this site during the course of this EIA study. With consideration that the land use for this site is zoned as Residential (Group B), it is assumed that any future development would be of similar nature to the ex-harmony Lodge and noise assessment points have been conservatively selected at site boundary for operation phase traffic noise impact assessment. The planning parameters of the noise assessment points adhere to that adopted in the previously approved Trunk Road T4 in Sha Tin EIA (AEIAR-084/2005).
- 4.4.1.7 With reference to the latest Sha Tin OZP (S/ST/34), Area 39 is zoned as Residential (Group B) area and intended for medium-density residential development. During the course of the EIA study, there were no available building layout plans of the potential residential development. Therefore, some assessment points have been conservatively selected at the boundary of potential residential development area for the operation phase traffic noise impact assessment. In the absence of information on the potential future development at this area, it was assumed that the planned NSR has up to 15 floors for the purpose of the operation phase noise impact assessment, as adopted in previously approved Trunk Road T4 in Sha Tin EIA(AEIAR-084/2005).

**Table 4.3 Noise Sensitive Receivers**

NSR ID	NSR Description	Land Use <sup>[1]</sup>	No. of Storeys	Noise Assessment Point (NAP) ID	NAP Description	No. of Storeys	Construction Noise Impact Assessment <sup>[4]</sup>	Road Traffic Noise Impact Assessment <sup>[4]</sup>
PTV	Pak Tin Village	R	2	PTV	Pak Tin Village	2	No	Yes
PT	Puguangming Temple	WP	2	PT	Puguangming Temple	2	No	Yes
HCH	Mei Chung Court	R	27-35	HCH	Hing Chung House, Mei Chung Court	27	Yes	Yes
FMMLPS	Free Methodist Mei Lam Primary School	EI	7	-	-	-	No	No
LTSC	Lock Tao Secondary School	EI	6	LTSC	Lock Tao Secondary School	6	No	Yes
SMGC	St. Margaret's Girls' College	EI	6	SMGC	St. Margaret's Girls' College	6	Yes	Yes
MSC	May Shing Court	R	34	MSC1	Fai Shing House, May Shing Court	34	Yes	Yes
MWH	Mei Lam Estate	R	18-34	MWH1	Mei Wai House, Mei Lam Estate	34	No	Yes
				MWH2			Yes	Yes
				MWH3			No	Yes
MYH				MYH1	Mei Yeung House, Mei Lam Estate	18	No	Yes
				MYH2			No	Yes
MTH				MTH1	Mei Tao House, Mei Lam Estate	25	Yes	Yes
				MTH2			No	Yes
				MTH3			No	Yes
				MTH4			No	Yes
				MTH5			No	Yes
SCPS	TWGHs Tsoi Wing Sing Primary School	EI	7	SCPS1	TWGHs Tsoi Wing Sing Primary School	7	Yes	Yes
				SCPS2			No	Yes
WWTC	Buddhist Wong Wan Tin College	EI	6	WWTC1	Buddhist Wong Wan Tin College	6	No	Yes
				WWTC2			Yes	Yes
TWNV	Tai Wai New Village	R	3	-	-	-	No	No
SPC	Shatin Public School	EI	2	-	-	-	No	No

NSR ID	NSR Description	Land Use <sup>[1]</sup>	No. of Storeys	Noise Assessment Point (NAP) ID	NAP Description	No. of Storeys	Construction Noise Impact Assessment <sup>[4]</sup>	Road Traffic Noise Impact Assessment <sup>[4]</sup>
TG	The Garrison	R	18	-	-	-	No	No
GG	Glamour Garden	R	24	-	-	-	No	No
TWR	Residential along Tai Wai Road	R	10	-	-	-	No	No
CSS	Residential along Chik Shun Street	R	2-5	-	-	-	No	No
CFAS	Residential along Chik Fai Street	R	5	-	-	-	No	No
GDN	Grandeur Garden	R	16	-	-	-	No	No
CFUS	Residential along Chik Fu Street	R	3-5	-	-	-	No	No
VHTW	Village Houses at Tai Wai	R	2-3	-	-	-	No	No
CFKS	Residential along Chik Fuk Street	R	4-5	-	-	-	No	No
KWB	Kwai Wai Building at Chik Chuen Street	R	5	KWB1	Kwai Wai Building at Chik Chuen Street	5	No	Yes
CCS	Residential along Chik Chuen Street	R	3-5	CCS1	Residential along Chik Chuen Street	3	Yes	Yes
				CCS2		5	No	Yes
SHR	Residential along Shing Ho Road	R	3	SHR1	Residential along Shing Ho Road	3	No	Yes
SHB	Shing Ho Building	R	3	SHB1	Shing Ho Building	3	No	Yes
SCWPS	Sin Chiu Wan Primary School	EI	7	SCWPS	Sin Chiu Wan Primary School	7	Yes	Yes
YOT	Yau Oi Tsuen	R	1-3	-	-	-	No	No
PO	Peak One	R	14-16	PO1	Block 7, Peak One	15	No	Yes
				PO2	Block 9, Peak One	16	Yes	Yes
PH	Peak House	R	3	PH1	Peak House	3	Yes	Yes
POP2	Peak One Phase 2	R	1-5	-	-	-	No	No
PV	Pristine Villa	R	8-10	-	-	-	No	No
TLWE		R	3	TLWE1		3	No	Yes

NSR ID	NSR Description	Land Use <sup>[1]</sup>	No. of Storeys	Noise Assessment Point (NAP) ID	NAP Description	No. of Storeys	Construction Noise Impact Assessment <sup>[4]</sup>	Road Traffic Noise Impact Assessment <sup>[4]</sup>
	Tung Lo Wan Village Extension			TLWE2	Tung Lo Wan Village Extension	3	No	Yes
BHOLK	The Salvation Army Bradbury Home of Loving Kindness	C	3	BHOLK	The Salvation Army Bradbury Home of Loving Kindness	3	No	Yes
GH	The Great Hill	R	2-13	GH1	The Great Hill	13	No	Yes
				GH2		2	No	Yes
COLS	ELCHK Living Spirit Lutheran Church	WP	3	COLS	ELCHK Living Spirit Lutheran Church	3	No	Yes
LK	Lutheran Kindergarten	EI	2	LK	Lutheran Kindergarten	2	No	Yes
TLWV	Tung Lo Wan Village	R	2-4	TLWV1	Tung Lo Wan Village	2	No	Yes
				TLWV2		2	No	Yes
				TLWV3		2	No	Yes
				TLWV4		3	No	Yes
				TLWV5		3	No	Yes
				TLWV6		2	Yes	Yes
				TLWV7		3	No	Yes
				TLWV8		4	No	Yes
				TLWV9		3	Yes	Yes
OTT	On Ting Terrace	R	3	OTT1	On Ting Terrace	3	Yes	Yes
				OTT2		3	No	Yes
				OTT3		3	No	Yes
				OTT4		3	No	Yes
MV	Mantex Villa	R	3	MV1	Mantex Villa	3	No	Yes
OLV	On Lok Villa	R	5	OLV1	On Lok Villa	5	No	Yes
VV	Vermont Villa	R	3	-	-	-	No	No
MLV	Man Lin Villa	R	4	MLV1	Man Lin Villa	4	No	Yes



NSR ID	NSR Description	Land Use <sup>[1]</sup>	No. of Storeys	Noise Assessment Point (NAP) ID	NAP Description	No. of Storeys	Construction Noise Impact Assessment <sup>[4]</sup>	Road Traffic Noise Impact Assessment <sup>[4]</sup>
CV	Canberra Villa	R	3	-	-	-	No	No
FV	Fairview Villa	R	4	-	-	-	No	No
VM	Villa Maria	R	4	VM	Villa Maria	4	No	Yes
TFSR	18 To Fung Shan Road	R	3-4	TFSR1	18 To Fung Shan Road	3	No	Yes
				TFSR2		4	Yes	Yes
				TFSR3		3	No	Yes
	3 To Fung Shan Road	R	3	TFSR4	3 To Fung Shan Road	3	No	Yes
PRC	Pine Ridge Church	WP	2	PRC1	Pine Ridge Church	2	No	Yes
LDSC	The Church of Jesus Christ of the Latter-days Saints	WP	2	LDSC1	The Church of Jesus Christ of the Latter-days Saints	2	Yes	Yes
VLP	Villa Le Parc	R	4	VLP1	Villa Le Parc	4	No	Yes
				VLP2			No	Yes
LCY	Hing Yuen Terrace	R	2	LCY1	Hing Yuen Terrace	2	No	Yes
PTUV	Pai Tau Village	R	2-3	-	-	-	No	No
PYCS	Pah Yea Ching She	WP	2	-	-	-	No	No
MLC	Man Lai Court	R	20	-	-	-	No	No
CLJS	Caritas Lok Jun School	EI	5	-	-	-	No	No
CLJSH	Caritas Lok Jun School Hostel	R	3	-	-	-	No	No
IHMS	Immaculate Heart of Mary School	EI	4	-	-	-	No	No
SAC	St. Alfred's Church	WP	3	-	-	-	No	No
STGSS	Sha Tin Government Secondary School	EI	5	-	-	-	No	No
STC	Sha Tin Clinic	C	1-2	STC1	Sha Tin Clinic	1	Yes	Yes
				STC2		2	No	Yes
				STC3		2	No	Yes

NSR ID	NSR Description	Land Use <sup>[1]</sup>	No. of Storeys	Noise Assessment Point (NAP) ID	NAP Description	No. of Storeys	Construction Noise Impact Assessment <sup>[4]</sup>	Road Traffic Noise Impact Assessment <sup>[4]</sup>
STAGC	Sha Tin Assembly of God Church	WP	5	-	-	-	No	No
CICE	Caritas Institute of Community Education	EI	7	CICE1	Caritas Institute of Community Education	7	Yes	Yes
HKHM	Hong Kong Heritage Museum	G/IC	3	--	Hong Kong Heritage Museum	3	No [2]	No [2]
SC	Scenery Court	R	23	SC1	Block 1, Scenery Court	23	Yes	Yes
				SC2			No	Yes
				SC3	Block 2, Scenery Court		No	Yes
HP	Hilton Plaza	R	29	HP1	Block A, Hilton Plaza	29	No	Yes
				HP2			No	Yes
				HP3	Block D, Hilton Plaza		No	Yes
IC	New Town Plaza (Phase 3)	R	22	IC1	Ivy Court (Block 2), New Town Plaza (Phase 3)	22	No	Yes
				IC2			No	Yes
WWC	Wai Wah Centre	R	26	-	-	-	No	No
RP	The Riverpark (incl. Zenith Kindergarten)	R	36-38	RP1	The Riverpark	36	Yes	Yes
				RP2		36	No	Yes
				RP3		38	No	Yes
				RP4		38	Yes	Yes
				RP5		38	Yes	Yes
	EI	1	-	-	-	No [2]	No [2]	
EBI	Hong Kong Bible Research and Education Centre	EI	1-2	EBI1	Hong Kong Bible Research and Education Centre	2	Yes	Yes
				EBI2		2	No	Yes
				EBI3		1	No	Yes
GV	Garden Villa	R	2	GV	Garden Villa	2	No	Yes
STT	Sha Tin Tau	R	3	STT1	Sha Tin Tau	3	No	Yes

NSR ID	NSR Description	Land Use <sup>[1]</sup>	No. of Storeys	Noise Assessment Point (NAP) ID	NAP Description	No. of Storeys	Construction Noise Impact Assessment <sup>[4]</sup>	Road Traffic Noise Impact Assessment <sup>[4]</sup>
STTV	Sha Tin Tau Village	R	1-3	STTV1	Sha Tin Tau Village	3	No	Yes
				STTV2		3	Yes	Yes
				STTV3		3	Yes	Yes
				STTV4		1	No	Yes
				STTV5		3	No	Yes
				STTV6		2	No	Yes
				STTV7		3	No	Yes
				STTV8		3	Yes	Yes
				STTV9		3	No	Yes
LUT	Lei Uk Tsuen	R	2-3	-	-	-	No	No
RV	Richmond Villa	R	3	-	-	-	No	No
ESLC	E.L.C.H.K. Salvation Lutheran Church	WP	1	-	-	-	No	No
HRCC	High Rock Christian Camp	A	2	HRCC1	High Rock Christian Camp	2	No	Yes
				HRCC2			No	Yes
SYH	Chun Shek Estate	R	17-27	SYH1	Shek Yuk House, Chun Shek Estate	17	No	Yes
				SYH2			No	Yes
STMC	Sha Tin Methodist College (Ample Campus)	EI	3-7	STMC1	Sha Tin Methodist College (Ample Campus)	7	No	Yes
				STMC2		3	No	Yes
				STMC3		3	No	Yes
KTSCSS	Kwok Tak Seng Catholic Secondary School	EI	6	-	-	-	No	No
CAHCCPS	Christian Alliance H. C. Chan Primary School	EI	7	-	-	-	No	No
STMCE	Sha Tin Methodist College	EI	6	-	-	-	No	No
FSH	Fung Shing Court	R	34	FSH1	Fu Shing House, Fung Shing Court	34	No	Yes

NSR ID	NSR Description	Land Use <sup>[1]</sup>	No. of Storeys	Noise Assessment Point (NAP) ID	NAP Description	No. of Storeys	Construction Noise Impact Assessment <sup>[4]</sup>	Road Traffic Noise Impact Assessment <sup>[4]</sup>
WSH				FSH2	Fu Shing House, Fung Shing Court		No	Yes
				FSH3	Fu Shing House, Fung Shing Court		No	Yes
				WSH1	Wah Shing House, Fung Shing Court		No	Yes
				WSH2	Wah Shing House, Fung Shing Court		No	Yes
TTU	Tsang Tai Uk	R	2-3	TTU1	Tsang Tai Uk	3	No	Yes
				TTU2		2	Yes	Yes
				TTU3		2	No	Yes
				TTU4		2	No	Yes
				TTU5		3	Yes	Yes
				TTU6		3	No	Yes
TTUN	Tsang Tai Uk New Village	R	3	TTUN	Tsang Tai Uk New Village	3	No	Yes
MSL	Jat Min Chuen	R	7-32	MSL1	Ming Shun Lau, Jat Min Chuen	32	No	Yes
DCMS	Sha Tin Wai Dr. Catherine F.Woo Memorial School	EI	7	DCMS1	Sha Tin Wai Dr. Catherine F.Woo Memorial School	7	No	Yes
PMH	Pok Hong Estate	R	18-34	PMH1	Pok Man House, Pok Hong Estate	25	No	Yes
				PMH2		25	No	Yes
				PMH3		27	No	Yes
				PMH4		27	No	Yes
				PMH5		27	No	Yes
POH				POH1	Pok On House, Pok Hong Estate	27	No	Yes
				POH2		27	Yes	Yes
				POH3		27	No	Yes
				POH4		25	No	Yes

NSR ID	NSR Description	Land Use <sup>[1]</sup>	No. of Storeys	Noise Assessment Point (NAP) ID	NAP Description	No. of Storeys	Construction Noise Impact Assessment <sup>[4]</sup>	Road Traffic Noise Impact Assessment <sup>[4]</sup>
PTH				PTH1	Pok Tat House, Pok Hong Estate	25	No	Yes
				PTH2		27	Yes	Yes
				PTH3		27	No	Yes
PWH				PWH1	Pok Wah House, Pok Hong Estate	18	No	Yes
PYH				PYH1	Pok Yat House, Pok Hong Estate	34	No	Yes
PCH				PCH1	Pok Chi House, Pok Hong Estate	34	No	Yes
IHMC	Immaculate Heart of Mary College	EI	5	-	-	-	No	No
IS	ESF Island School Sha Tin Wai	EI	7	IS1	ESF Island School Sha Tin Wai	7	No	Yes
CC	Christ College	EI	6	CC1	Christ College	6	Yes	Yes
				CC2			No	Yes
TUV	Tse Uk Village	R	2-3	TUV1	Tse Uk Village	3	Yes	Yes
				TUV2			No	Yes
				TUV3			No	Yes
TSATKPS	The Salvation Army Tin Ka Ping Kindergarten	EI	2	-	-	-	No	No
	The Salvation Army Jat Min Nursery School		1	-	-	-	No	No
PLKCJYPS	Po Leung Kuk Chee Jing Yin Primary School	EI	7	-	-	-	No	No
FYHN	Fui Yiu Ha New Village	R	2-3	FYHN1	Fui Yiu Ha New Village	3	Yes	Yes
				FYHN2		3	No	Yes
STWNW	Sha Tin Wai New Village	R	2-3	-	-	-	No	No
STW	Sha Tin Wai	R	2-3	-	-	-	No	No
LRCP	Lion Rock Country Park	CP	N/A	-	-	-	No[3]	No[3]
TPHS	Tsok Pok Hang San Tsuen	R	2-3	TPHS1	Tsok Pok Hang San Tsuen	3	No	Yes
				TPHS2		3	No	Yes

NSR ID	NSR Description	Land Use <sup>[1]</sup>	No. of Storeys	Noise Assessment Point (NAP) ID	NAP Description	No. of Storeys	Construction Noise Impact Assessment <sup>[4]</sup>	Road Traffic Noise Impact Assessment <sup>[4]</sup>
				TPHS3		3	Yes	Yes
				TPHS4		3	No	Yes
SCOE	Shui Chuen O Estate	R	26-30	SCOE1	Shui Chuen O Estate	28	Yes	Yes
				SCOE2		26	Yes	Yes
TS	To Shek	R	2-3	-	-	-	No	No
<b>Committed / Planned NSRs</b>								
HL	Ex-Harmony Lodge	R	2	HL1	Ex-Harmony Lodge	2	No	Yes
				HL2			No	Yes
				HL3			No	Yes
39P	Planned Residential Development at Area 39	R	15	39P1	Planned Residential Development at Area 39	15	No	Yes
				39P2			No	Yes
				39P3			No	Yes
SM	St. Michel (Phase 1)	R	24	-	-	-	No	No

## Notes:

- [1] Residential-R; Educational Institution-EI; Place of Public Worship-WP; Temporary Accommodation / hostels-A; Performance Art Centre-G/IC; Clinic / Home for the aged -C; Country Park-CP
- [2] The use is provided with central air-conditioning and does not rely on openable window for ventilation. Adverse noise impact is not expected. Therefore, no assessment point is proposed for the airborne noise impact assessment.
- [3] In accordance with Annex 13 of the EIAO-TM, country parks are considered to be an NSR. However, no specific noise standards for country parks are provided in the EIAO-TM.
- [4] "Yes" indicates NSR selected for quantitative noise impact assessment "No" indicates NSR not selected for quantitative noise impact assessment.

## 4.5 Identification of Environmental Impacts

### 4.5.1 Construction Phase

- 4.5.1.1 Potential source of noise impact during construction phase of the Project would be the use of PME for various construction activities. Major construction works of the Project include site clearance, removal or demolition of existing facilities, piling and foundation of the proposed road works within the Project boundary. Details of the proposed construction methods and schedule of works are described in **Chapter 2** of this EIA report.
- 4.5.1.2 As described in **Chapter 2** of this EIA report, piling works would be carried out for the foundation works and pile caps and piers. No percussive piling works will be required within the project boundary. Alternative piling method has been considered and adopted in lieu of percussive piling method.
- 4.5.1.3 Based on the proposed construction method presented in **Chapter 2**, most of the Project construction activities are expected to be carried out during non-restricted hours (0700 to 1900, Monday to Saturday). There will be some construction activities to be undertaken during restricted hours (1900 to 0700 or at any time on a general holiday). These works include use of launching gantry for bridge deck and noise barriers at locations directly above the MTRCL East Rail Line and within the site of Caltex – Tai Wai petrol filling station (Lot. No. STT2211).
- 4.5.1.4 The construction of the Project is anticipated to commence in October 2023 and be completed in September 2028. The tentative construction programme for the Project is provided in [Appendix 2.1](#). As mentioned in **Chapter 1**, three potential concurrent projects have been identified in the vicinity of the Study Area during construction phase of the Project (refer to [Figure 1.2](#)):
- Widening of Tai Po Road (TPR) (Sha Tin Section);
  - Improvement of Lion Rock Tunnel (LRT); and
  - Revitalisation of Tai Wai Nullah.
- 4.5.1.5 As noted from the CEDD website, the Widening of TPR project would be completed by 2023. According to the latest information from Project Proponent, the Widening of TPR (Sha Tin Section) Project would be completed by Q1 2023. With reference to the construction programme of the Project presented in [Appendix 4.2](#), cumulative construction noise impact is not anticipated during the construction phase of this project.
- 4.5.1.6 Based on the latest available information, the tentative construction work of the entire Improvement of LRT project will be commenced in 2025 for completion by 2035. As the road widening works of LRT Road at the section near Sun Tin Wai Estate/Fung Shing Court undertaken by LRT Project will commence in December 2028 while the construction of the Project will be completed in September 2028, no potential cumulative impact due to the construction of the Improvement of LRT project will be anticipated in this EIA Study. Furthermore, as the forecast traffic flow data adopted has already included the effect of the Improvement of LRT Project, the cumulative impact during the operation phase of the Project in association with the Improvement of LRT project is considered.
- 4.5.1.7 The works site of the Nullah Project will be within 300 m assessment area of this Project. Solid information on the construction programme of the Nullah Project was not available at this stage. In view that the most noisy construction works of the Project within the site area overlapping with the Nullah project would be the foundation works for the T4 viaducts, the tentative construction programme and works at the interface area between the two projects could be arranged efficiently, e.g. scheduling works to be carried out during dry season, through close liaison between DSD's and CEDD's contractors of the Nullah project and the Project respectively, in order to avoid construction works of respective works contracts to be carried out concurrently at the same interfacing areas. With this arrangement in place, cumulative construction noise impact is expected to be minimised. The cumulative

construction noise impact of this Project and the Nullah Project will be addressed in the “Revitalization of Tai Wai Nullah” EIA Report.

#### 4.5.2 Operation Phase

##### Road Traffic Noise

4.5.2.1 Road traffic noise from the road network within the Study Area, including both the “Project roads” and the “Existing roads”, would be the major noise source during the operation phase. “Project roads” refers to the roads that are completely new or are substantially altered by the proposed project. All road sections other than the “Project roads” as defined above are regarded as “Existing roads” in this assessment. The extent of “Project roads” is presented in [Figure 4.2](#).

4.5.2.2 As mentioned in **Section 4.5.1.4**, three potential concurrent projects have been identified. Cumulative operation noise impact from Widening of TPR project and Improvement to LRT project would be taken into account in this study. As the operation phase of the Revitalisation of Tai Wai Nullah project will not involve any road traffic noise source, no cumulative noise impact is anticipated.

##### Fixed Noise

4.5.2.3 There are no proposed fixed noise sources associated with the Project. No adverse fixed noise impact is expected.

#### 4.6 Assessment Methodology

##### 4.6.1 Construction Phase

##### Construction Works during Non-Restricted Hours

4.6.1.1 The construction noise impact assessment was undertaken based on standard acoustic principles and followed the procedures given in the GW-TM. The sound pressure level of each construction activity has been calculated, depending on the type and number of plant items and the distance from NSR. The general approach is summarized below:

- Locate the NSRs which would most likely be affected by noise from the construction work;
- Determine the items of PME for each discrete construction activity, based on available information or agreed plant inventories;
- Assign sound power levels (SWLs) to the proposed PME according to the GW-TM or other recognized sources of reference, where appropriate;
- Calculate distance attenuation and screening effects to NSRs from notional noise source;
- Apply corrections in the calculations such as potential screening effects and acoustic reflection, if any;
- Predict construction noise levels at NSRs in the absence of any mitigation measures;
- Consider cumulative impact from concurrent projects within 300m of the NSRs, if any; and
- Compare the cumulative construction noise level against the corresponding noise criterion and propose suitable mitigation measures where necessary.

4.6.1.2 The construction programme and zoning arrangement of construction activities are presented in [Appendix 4.2](#) and the plant inventory (including type and quantity of the PME used as well as percentage on time utilization), which has been confirmed by the Project Engineer to be practical and suitable for the proposed works, is presented in [Appendix 4.3](#).



The sound power level (SWL) of plant in Table 3 of GW-TM or "Sound power levels of other commonly used PME" (Other PME) published by EPD have been referred to. The SWL of each construction activity has been calculated based on types and quantity of the plant, SWL of plant and percentage on-time utilization.

- 4.6.1.3 To calculate the sound pressure level of each construction activity, distance attenuation correction has been applied. The distance attenuation was determined by using the following formula:

$$\text{Distance Attenuation in dB(A)} = 20 \log D + 8$$

where D is horizontal distance between notional source position of work-front and NSR in metres

- 4.6.1.4 The following assumptions have been applied as well:

- A +3 dB(A) façade correction was added to the predicted noise levels to account for the facade effect at each identified representative NSR;
- All PME items required for a particular construction activity was assumed to be located at the notional source position, a position mid-way between the approximate geographical centre of the construction site and its boundary nearest to the NSR, of the work-front where such activity is to be performed in accordance with the GW-TM;
- Only the dominant portion of the linear site closest to the NSR with a length to width ratio of 5:1 was considered for the purpose of determining the notional source position, when the construction site is linear in shape with a length to width ratio exceeding 5:1 in accordance with the GW-TM;
- As a worst-case assumption, noise impact at the nearest sensitive facades of the residential buildings to the sources position was assessed; and
- As a worst-case assumption, noise assessment points of all NSRs were assumed at the same height as the work-fronts.

- 4.6.1.5 The noise levels at the NSRs are then predicted by adding up the SPLs of all concurrent construction tasks within the Study Area of the Project.

- 4.6.1.6 The predicted construction noise impact would be compared with the noise standards mentioned in **Section 4.2.2**. Where exceedance of relevant noise standards is predicted, practicable direct noise mitigation measures including the use of quieter PME, movable noise barriers, noise barriers, enclosures and quieter alternative construction methods would be considered. Appropriate correction factors for barrier effect would be adopted in accordance with Section 2.10 of the GW-TM. In cases where the mitigated noise levels still exceed the relevant criteria, the duration of noise exceedance would be estimated.

#### Construction Works during Restricted Hours

- 4.6.1.7 Construction works involving use of launching gantry for prefabricated bridge structures (bridge deck and noise barriers) at locations directly above the MTRC East Rail Line and within the site of Caltex – Tai Wai petrol filling station (Lot. No. STT2211) will need to be carried out during restricted hours to avoid operation impacts to the East Rail Line and the petrol filling station (for location of restricted hours works, please refer to [Appendix 4.2](#)). The construction works above East Rail Line would be carried out outside MTRC operation hours (i.e. tentatively assumed to be between 1:30am and 4:30am, subject to further liaison with and approval by MTRC during construction phase). The construction works near the petrol filling station would be restricted to between 12:00am and 7:00am in order to minimize operation impacts during its daytime and peak usage hours.
- 4.6.1.8 No Specified Powered Mechanical Equipment (SPME) and Prescribed Construction Work (PCW) as stipulated in DA-TM for restricted hour work is expected.

4.6.1.9 With reference to the works to be conducted during restricted hours described above, it will be the responsibility of the Contractor to ensure compliance with the NCO and the relevant TMs. In order to avoid potential adverse noise impacts and to evaluate whether construction works during restricted hours are feasible or not in the context of programming construction work, an assessment for construction noise during restricted hours has been undertaken. Regardless of the results of the assessment, the Noise Control Authority will process the CNP application, if necessary, based on the NCO, the relevant TMs issued under the NCO, and the actual site conditions at the time of the application. Nothing in this report shall bind EPD in making its decision to issue a CNP. If a CNP is to be issued, EPD will include any conditions considered appropriate and such conditions need to be strictly adhered to while works covered by the CNP is carried out. Failure to comply with the conditions stated in the CNP will lead to its cancellation and prosecution action under the NCO.

4.6.1.10 The construction noise impact assessment in restricted hours is conducted to evaluate whether the construction works in restricted hours are feasible or not in the context of programming construction work. The assessment methodologies have been stated in **Section 4.6.1.1 to 4.6.1.5**. It should be noted that educational use, clinic and places of public worship have been excluded in the assessment during restricted hours as they are not expected to be used for their intended purposes at those times.

#### 4.6.2 Operation Phase

4.6.2.1 Road traffic noise was predicted based on the traffic flows, following strictly the procedures stipulated in the "Calculation of Road Traffic Noise (CRTN)" (1988) published by Department of Transport, UK. Road traffic noise was presented in terms of noise levels exceeded for 10% of the one-hour period having the peak traffic flow (i.e.  $L_{10, 1\text{hour}}$ , dB(A)). A 2.5 dB(A) façade reflection and correction factors for effects due to gradient, distance, view angle, road surface and barriers was included in the assessment.

4.6.2.2 Traffic noise was predicted based on the worst-case year traffic forecast within 15 years upon commencement of operation of the proposed roadworks according to Appendix C of the EIA Study Brief and Section 5.1 in Annex 13 of the EIAO-TM. Based on the latest project programme, the proposed road network is expected to be in operation in Year 2028. The assessment year for road traffic noise was taken as Year 2043 which is the maximum traffic projection within 15 years after full operation of the proposed roadwork. The peak traffic flow of "with Project" scenario in Year 2043 and prevailing scenario in Year 2023 are given in [Appendix 4.5](#). Transport Department has no comment on the use of the traffic forecast for this Study and the endorsement letter is also presented in [Appendix 4.5](#).

4.6.2.3 The following scenarios are studied in the assessment:

- Unmitigated scenario in Year 2043;
- Mitigated scenario in Year 2043;
- Prevailing scenario in Year 2023 for indirect technical remedies eligibility assessment; and
- Interim scenario in Year 2028 for interim period assessment of modification/temporary removal and reprovision of existing noise barriers of Tsing Sha Highway.

4.6.2.4 With consideration of the scope of this Project, road sections were classified as the following categories for the purpose of the road traffic noise assessment:

- "Project" roads which in the context of this report describe all roads that are completely new or are substantially altered by the proposed project. In this Project, proposed Revised Trunk Road T4 and the sections of the Sha Tin Road to be widened are identified as new roads. All road sections defined in the scope of designated project defined in EIAO are considered as "Project Roads".

- “Existing” Roads which are unchanged or without significant traffic noise impact (i.e. the traffic noise level with the road project would be less than that without the road project at the design year by 1.0 dB(A).
- 4.6.2.5 For the purpose of the traffic noise assessment in the EIA study, the roads within 300m from the proposed Project boundary were included in the assessment. Road sections included in the assessment and the extent of Project roads are presented in [Figure 4.2](#). Agreement on the road sections has been obtained from EPD in accordance with Appendix C, Clause 3.2.2(a) of the EIA Study Brief. The characteristics of the road network such as road width, surface type and traffic flow and the use of LNRS, the existing and committed noise mitigation measures have been considered in the assessment. The locations of existing and committed noise mitigation measures (including noise barriers and enclosures) are presented in [Appendix 4.6](#). Locations of existing and committed LNRS (including LNRS to be implemented at existing Lion Rock Tunnel Road by government departments prior to commencement of this Project, tentatively by Q4 2028) are presented in [Figure 4.5.1](#) & [Figure 4.5.2](#).
- 4.6.2.6 In accordance with HyD Guidance Notes on Road Surface Requirements for Expressways and High Speed Road (RD/GN/032), polymer modified friction course (PMFC) is proposed as the standard surfacing material on the road sections with design speed of 70km/h or above without traffic lights and classified as trunk road/high speed road. PMFC would therefore be provided on the Project Road with the design speed of 70km/h or above. The extent of road section with PMFC is presented in [Appendix 4.6](#). The latest available noise mitigation measures proposed for the Improvement of LRT Project were also included in the models for all assessment scenarios, except the Prevailing scenario.
- 4.6.2.7 According to the committed project for retrofitting of noise barriers and enclosure on existing Tai Po Road (Sha Tin Section) as shown in CEDD’s website “<https://www.cedd.gov.hk/eng/our-projects/major-projects/index-id-71.html>”, its tentative completion year for the retrofitting project is 2023. As such, the retrofitting noise barriers and enclosures have been considered under without Project and with Project scenarios of Year 2028 and Year 2043.
- 4.6.2.8 Direct mitigation measures would be proposed for Project roads if adverse environmental impact is predicted. If the NSRs are affected by noise from existing roads, direct mitigation measures are required to reduce the noise from the Project roads to a level that it:
- is not higher than the noise standard; and
  - has no significant contribution (less than 1.0 dB(A)) to the cumulative noise level, if the overall noise level (i.e. noise from the new roads together with other existing roads) exceeds the noise standard.
- 4.6.2.9 If any façades of NSRs are still exposed to predicted noise levels exceeding the relevant noise criteria after the implementation of all direct mitigation measures, provision of indirect technical remedies in the form of acoustic insulation and air conditioning should be considered under the EIAO-TM. The eligibility for indirect technical remedies would be tested against the following three criteria:
- the predicted overall noise level, L10 (1hour), from the Project Roads, together with other traffic noise in the vicinity must be above a respective noise level (for example, 70 dB(A) for domestic premises and 65 dB(A) for educational institutions.);
  - the predicted overall noise level is at least 1.0 dB(A) more than the prevailing traffic noise level; and
  - the contribution to the increase in the predicted overall noise level from the Project Roads must be at least 1.0 dB(A).

## 4.7 Prediction and Evaluation of Environmental Impacts

### 4.7.1 Construction Noise

#### Construction Works during Non-Restricted Hours

4.7.1.1 Potential construction noise impacts of the Project during the normal daytime working hours have been assessed at the representative floors of representative NSRs based on the construction programme as shown in [Appendix 4.2](#) and the construction plant inventory presented in [Appendix 4.3](#) during non-restricted hours. The unmitigated noise assessment results are summarized in [Table 4.4](#). Details of the unmitigated construction noise assessment are presented in [Appendix 4.7](#).

**Table 4.4 Summary of Unmitigated Construction Noise Assessment Results at Representative NSRs (non-restricted hours)**

NSR ID	NSR Description	NAP ID	Floor of NAP <sup>[1]</sup>	Noise Criteria, L <sub>eq</sub> (30-mins), dB(A) <sup>[2]</sup>	Predicted Unmitigated Construction Noise Level L <sub>eq</sub> (30-mins), dB(A)
HCH	Mei Chung Court	HCH	1/F, <b>9/F</b> , 27/F	75	63 - 69
SMGC	St. Margaret's Girls' College	SMGC	1/F, 3/F, <b>6/F</b>	65/70	66 - <b>71</b>
MSC	May Shing Court	MSC1	1/F, <b>11/F</b> , 34/F	75	66 - 73
MWH	Mei Lam Estate	MWH2	1/F, <b>7/F</b> , 34/F	75	59 - 74
SCPS	TWGHs Tsoi Wing Sing Primary School	SCPS1	1/F, 4/F, <b>7/F</b>	65/70	58 - <b>76</b>
MTH	Mei Lam Estate	MTH1	1/F, <b>4/F</b> , 25/F	75	58 - <b>76</b>
WWTC	Buddhist Wong Wan Tin College	WWTC2	1/F, 3/F, <b>6/F</b>	65/70	61 - <b>83</b>
CCS	Residential along Chik Chuen Street	CCS1	<b>1/F</b> , 2/F, 3/F	75	63 - <b>86</b>
SCWPS	Sin Chui Wan Primary School	SCWPS	1/F, <b>6/F</b> , 7/F	65/70	60 - <b>74</b>
PO	Peak One	PO2	<b>1/F</b> , 8/F, 16/F	75	58 - 75
PH	Peak House	PH1	1/F, 2/F, <b>3/F</b>	75	64 - <b>81</b>
TLWV	Tung Lo Wan Village	TLWV6	1/F, <b>2/F</b>	75	63 - <b>91</b>
TLWV	Tung Lo Wan Village	TLWV9	1/F, 2/F, <b>3/F</b>	75	62 - <b>86</b>
OTT	On Ting Terrace	OTT1	1/F, <b>2/F</b> , 3/F	75	65 - <b>87</b>
LDSC	The Church of Jesus Christ of the Latter-days Saints	LDSC1	1/F, <b>2/F</b>	75	71 - <b>86</b>
TFSR	18 To Fung Shan Road	TFSR2	<b>1/F</b> , 3/F, 4/F	75	66 - <b>78</b>
CICE	Caritas Institute of Community Education	CICE1	1/F, 4/F, <b>7/F</b>	65/70	61 - <b>80</b>
STC	Sha Tin Clinic	STC1	<b>1/F</b>	75	61 - <b>91</b>
SC	Scenery Court	SC1	<b>1/F</b> , 12/F, 23/F	75	61 - <b>79</b>
RP	The Riverpark	RP1	<b>1/F</b> , 18/F, 36/F	75	69 - <b>89</b>
RP	The Riverpark	RP4	<b>1/F</b> , 19/F, 38/F	75	70 - <b>89</b>
RP	The Riverpark	RP5	<b>1/F</b> , 19/F, 38/F	75	67 - <b>85</b>
EBI	Hong Kong Bible Research and Education Centre	EBI1	<b>1/F</b> , 2/F	65/70	70 - <b>88</b>
STTV	Sha Tin Tau Village	STTV2	<b>1/F</b> , 2/F, 3/F	75	68 - <b>94</b>
STTV	Sha Tin Tau Village	STTV3	<b>1/F</b> , 2/F, 3/F	75	71 - <b>86</b>
STTV	Sha Tin Tau Village	STTV8	<b>1/F</b> , 2/F, 3/F	75	64 - <b>99</b>

NSR ID	NSR Description	NAP ID	Floor of NAP <sup>[1]</sup>	Noise Criteria, L <sub>eq</sub> (30-mins), dB(A) <sup>[2]</sup>	Predicted Unmitigated Construction Noise Level L <sub>eq</sub> (30-mins), dB(A)
TTU	Tsang Tai Uk	TTU2	<b>1/F</b> , 2/F	75	68 - <b><u>98</u></b>
TTU	Tsang Tai Uk	TTU5	<b>1/F</b> , 2/F, 3/F	75	65 - <b><u>94</u></b>
POH	Pok On House, Pok Hong Estate	POH2	1/F, <b>5/F</b> , 27/F	75	67 - <b><u>86</u></b>
PTH	Pok Tat House, Pok Hong Estate	PTH2	1/F, <b>5/F</b> , 27/F	75	62 - <b><u>92</u></b>
CC	Christ College	CC1	1/F, <b>6/F</b> , 7/F	65/70	70 - <b><u>91</u></b>
TPHS	Tsok Pok Hang San Tsuen	TPHS3	<b>1/F</b> , 2/F, 3/F	75	61 - <b><u>90</u></b>
TUV	Tse Uk Village	TUV1	1/F, 2/F, <b>3/F</b>	75	68 - <b><u>86</u></b>
FYHN	Fui Yiu Ha New Village	FYHN1	<b>1/F</b> , 2/F, 3/F	75	61 - <b><u>86</u></b>
SCOE	Shui Chuen O Estate	SCOE1	<b>1/F</b> , 14/F, 28/F	75	65 - <b><u>76</u></b>
SCOE	Shui Chuen O Estate	SCOE2	<b>1/F</b> , 13/F, 26/F	75	67

## Notes:

Boldface and underlined values indicate exceedance of noise criteria.

[1] Bolded floor levels indicate the floor closest to the construction work zones. The selected floors are considered as representative floors for the NSR in the assessment.

[2] 75 dB(A) for all domestic premises (including temporary housing accommodation) hotels and hostels, 70 dB(A) for educational institution, whereas 65 dB(A) for examination period.

4.7.1.2 Referring to **Table 4.4**, in the absence of noise mitigation measures, the predicted noise levels at the representative NSRs would be in the range of 58 dB(A) to 99 dB(A). Non-compliance of the construction noise criteria is predicted at some of the representative NSRs. Hence, direct mitigation measures would be required to alleviate the potential noise impact on the affected NSRs during construction phase.

4.7.1.3 For Lion Rock Country Park (LRCP), which has been identified as an NSR in accordance with Annex 13 of the EIAO-TM and GW-TM, there is no applicable noise limit for Country Park. With reference to information from Agriculture, Fisheries and Conservation Department (AFCD), there are no official hiking trails identified within the 300m Noise Study Area at LRCP and only walking paths identified from review of available plans/maps. It is not expected that there will be frequent users of these paths and furthermore, users expected to be limited to transient hikers passing through. With consideration of the minor scale of works proposed within the LRCP (construction of a flexible barrier) and with the adoption of proposed mitigation measures and good site practices detailed in **Section 4.8.1**, adverse noise impacts are not anticipated.

#### Construction Works during Restricted Hours

4.7.1.4 As mentioned in **Section 4.6.1.7**, construction works at locations directly above the MTRC East Rail Line and within the site of Caltex – Tai Wai petrol filling station will need to be carried out during restricted hours to avoid operation impacts to the East Rail Line and the petrol filling station. As such, construction noise assessment during restricted hours has been conducted to evaluate whether the construction works in restricted hours are feasible or not in the context of programming construction work. In order to not pre-empt the Noise Control Authority for issuing a CNP, it should be noted that the assessment results are only indicative.

4.7.1.5 Potential construction noise impacts of the Project during restricted hours have been assessed at the representative floors of representative NSRs based on the construction programme and works areas as presented in [Appendix 4.2](#) and the construction plant inventory presented in [Appendix 4.4](#). It should be noted that the construction programme and plant inventory adopted are only indicative, as the actual construction works during

restricted hours will be subject to the detailed design and construction method proposed by the Contractor.

- 4.7.1.6 The unmitigated noise assessment results for restricted hours at representative NSRs are summarized in **Table 4.5**. Detailed assessment results for restricted hours are presented in [Appendix 4.8](#). The selected NSRs for this assessment are located in either an “Urban Area” or “Area other than above”. These NSRs would have direct line of sight to either Shing Mun Tunnel Road / Tai Po Road (Shatin Section) and would be directly affected by these roads. Based on the Annual Traffic Census published by TD, the annual average daily traffic (AADT) of those roads are more than 30,000 and is considered as an Influencing Factor (IF) according to the TM. Therefore, the ASR for these NSRs is classified as “C”. Referring to **Table 4.5**, in the absence of noise mitigation measures, the predicted noise levels at the representative NSRs would be in the range of 45 dB(A) to 69 dB(A). Non-compliance of the construction noise criteria is predicted at some of the representative NSRs. Hence, direct mitigation measures would be required to alleviate the potential noise impact on the affected NSRs during construction phase at restricted hours.

**Table 4.5 Summary of Unmitigated Construction Noise Assessment Results at Representative NSRs (restricted hours)**

NSR ID	NSR Description	NAP ID	Floors of NAPs <sup>[1]</sup>	Unmitigated Construction Noise Levels, dB(A)
OTT	On Ting Terrace	OTT1	1/F, <b>2/F</b> , 3/F	49 - <b>67</b>
VM	Villa Maria	VM	1/F, 2/F, <b>4/F</b>	51 - <b>69</b>
TFSR	To Fung Shan Road	TFSR2	<b>1/F</b> , 3/F, 4/F	49 - <b>65</b>
		TFSR4	<b>1/F</b> , 2/F, 3/F	50 - <b>65</b>
SC	Scenery Court	SC1	<b>1/F</b> , 12/F, 23/F	45 - <b>62</b>

Note:

[1] Bolded floor levels indicate the floor closest to the construction work zones. The selected floors are considered as representative floors for the NSR in the assessment.

## 4.7.2 Operation Phase Road Traffic Noise

- 4.7.2.1 Road traffic noise assessment has been conducted for the representative NSRs in the worst-case year 2043. The predicted traffic noise levels at the representative NSRs under the unmitigated scenario are presented in **Table 4.6**. The predicted noise levels are described in the table in accordance with the locations and properties of the representative NSRs. [Appendix 4.9](#) shows the details of the noise assessment results of each assessment points of the NSRs at different assessment levels under unmitigated scenario.

**Table 4.6 Summary of Predicted Road Traffic Noise Assessment Results under Unmitigated Scenario (Year 2043)**

NSR ID	NSR Description	Land Use [1]	NAP ID [2]	Noise Criteria, L <sub>10(1-hr)</sub> , dB(A)	Predicted Noise Level, L <sub>10(1-hr)</sub> dB(A) <sup>[3] [4]</sup>				Whether Noise Mitigation Measures on "Project Roads" are required (Y/N)
					Overall	Project Roads	Existing Roads	Max. "Project Roads" Contribution when Overall Noise Level Exceed Criteria [6] [7]	
PTV	Pak Tin Village	R	PTV	70	66-67	25-27	66-67	-	N
PT	Puguangming Temple	WP	PT	65	62	37	62	-	N
HCH	Hing Chung House, Mei Chung Court	R	HCH	70	67-69	41-56	67-69	-	N
LTSC	Lock Tao Secondary School	EI	LTSC	65	<b>70</b>	0	<b>70</b>	0.0	N
SMGC	St. Margaret's Girls' College	EI	SMGC	65	<b>67-69</b>	44-48	<b>67-69</b>	0.0	N
MSC	Fai Shing House, May Shing Court	R	MSC1	70	<b>70-72</b>	47-63	<b>70-72</b>	0.6	N
MWH	Mei Wai House, Mei Lam Estate	R	MWH1 MWH2 MWH3	70	<b>58-72</b>	47-64	<b>51-71</b>	<b>1.0</b>	Y
MYH	Mei Yeung House, Mei Lam Estate	R	MYH1 MYH2	70	<b>64-71</b>	49-62	<b>64-71</b>	0.6	N
SCPS	TWGHs Shui Chuen O Primary School	EI	SCPS1 SCPS2	65	<b>63-68</b>	50-58	<b>62-68</b>	0.5	N
WWTC	Buddhist Wong Wan Tin College	EI	WWTC1 WWTC2	65	<b>65-75</b>	53-58	<b>65-75</b>	0.4	N
MTH	Mei Tao House, Mei Lam Estate	R	MTH1 MTH2 MTH3 MTH4 MTH5	70	<b>63-74</b>	44-62	<b>63-74</b>	0.3	N
KWB	Kwai Wai Building at Chik Chuen Street	R	KWB1	70	<b>75-76</b>	47-53	<b>75-76</b>	0.1	N

NSR ID	NSR Description	Land Use [1]	NAP ID [2]	Noise Criteria, L <sub>10(1-hr)</sub> , dB(A)	Predicted Noise Level, L <sub>10(1-hr)</sub> dB(A) <sup>[3] [4]</sup>				Whether Noise Mitigation Measures on "Project Roads" are required (Y/N)
					Overall	Project Roads	Existing Roads	Max. "Project Roads" Contribution when Overall Noise Level Exceed Criteria [6] [7]	
CCS	Residential along Chik Chuen Street	R	CCS1 CCS2	70	<b><u>75-76</u></b>	51-58	<b><u>75-76</u></b>	0.1	N
SHR	Residential along Shing Ho Road	R	SHR1	70	<b><u>73</u></b>	58	<b><u>73</u></b>	0.2	N
SHB	Shing Ho Building	R	SHB1	70	70	57	70	-	N
SCWPS	Sin Chiu Wan Primary School	EI	SCWPS	65	61- <b><u>67</u></b>	50-54	61- <b><u>66</u></b>	0.3	N
PO	Peak One	R	PO1 PO2	70	62- <b><u>74</u></b>	54-61	62- <b><u>74</u></b>	0.4	N
PH	Peak House	R	PH1	70	64- <b><u>71</u></b>	56-61	64- <b><u>71</u></b>	0.4	N
TLWE	Tung Lo Wan Village Extension	R	TLWE1 TLWE2	70	65-69	53-56	65-69	-	N
BHOLK	The Salvation Army Bradbury Home of Loving Kindness	C	BHOLK	55	<b><u>61-68</u></b>	44-47	<b><u>61-68</u></b>	0.1	N
GH	The Great Hill	R	GH1 GH2	70	64- <b><u>74</u></b>	55-62	63- <b><u>73</u></b>	0.5	N
COLS	ELCHK Living Spirit Lutheran Church	WP	COLS	65	<b><u>71-72</u></b>	55-58	<b><u>71-72</u></b>	0.2	N
LK	Lutheran Kindergarten	EI	LK	65	68- <b><u>70</u></b>	54-55	<b><u>67-69</u></b>	0.2	N
TLWV	Tung Lo Wan Village	R	TLWV1 TLWV2 TLWV3 TLWV4 TLWV5	70	59- <b><u>76</u></b>	51-63	58- <b><u>75</u></b>	0.4	N



NSR ID	NSR Description	Land Use [1]	NAP ID [2]	Noise Criteria, L <sub>10(1-hr)</sub> , dB(A)	Predicted Noise Level, L <sub>10(1-hr)</sub> dB(A) <sup>[3] [4]</sup>				Whether Noise Mitigation Measures on "Project Roads" are required (Y/N)
					Overall	Project Roads	Existing Roads	Max. "Project Roads" Contribution when Overall Noise Level Exceed Criteria [6] [7]	
			TLWV6 TLWV7 TLWV8 TLWV9						
OTT	On Ting Terrace	R	OTT1 OTT2 OTT3 OTT4	70	<b>72-76</b>	63-69	<b>71-75</b>	<b>1.0</b>	Y
MV	Mantex Villa	R	MV1	70	68-70	61-62	67-69	-	N
OLV	On Lok Villa	R	OLV1	70	<b>68-71</b>	60-63	<b>67-71</b>	0.7	N
MLV	Man Lin Villa	R	MLV1	70	68-70	59-61	68-69	-	N
VM	Villa Maria	R	VM	70	<b>69-71</b>	60-63	<b>69-71</b>	0.7	N
TFSR	18 To Fung Shan Road	R	TFSR1 TFSR2 TFSR3 TFSR4	70	<b>68-76</b>	59-64	<b>67-76</b>	0.4	N
PRC	Pine Ridge Church	WP	PRC1	65	<b>70-71</b>	62-63	<b>70-71</b>	0.6	N
LDSC	The Church of Jesus Christ of the Latter-days Saints	WP	LDSC1	65	<b>68-69</b>	56-57	<b>68-69</b>	0.3	N
VLP	Villa Le Parc	R	VLP1 VLP2	70	<b>72-74</b>	58-59	<b>72-74</b>	0.2	N
LCY	Hing Yuen Terrace	R	LCY1	70	<b>70-71</b>	52-54	70	0.1	N
STC	Sha Tin Clinic	C	STC1 STC2 STC3	55 <sup>[5]</sup>	<b>70-72</b>	<b>56-58</b>	<b>69-72</b>	0.3	Y

NSR ID	NSR Description	Land Use [1]	NAP ID [2]	Noise Criteria, L <sub>10(1-hr)</sub> , dB(A)	Predicted Noise Level, L <sub>10(1-hr)</sub> dB(A) <sup>[3] [4]</sup>				Whether Noise Mitigation Measures on "Project Roads" are required (Y/N)
					Overall	Project Roads	Existing Roads	Max. "Project Roads" Contribution when Overall Noise Level Exceed Criteria [6] [7]	
CICE	Caritas Institute of Community Education	EI	CICE1	65	<u>67-71</u>	57-62	<u>67-70</u>	0.6	N
SC	Block 1, Scenery Court	R	SC1 SC2 SC3	70	<u>73-78</u>	56-66	<u>72-77</u>	0.8	N
HP	Block A, Hilton Plaza	R	HP1 HP2 HP3	70	70- <u>76</u>	55-65	70- <u>76</u>	0.9	N
IC	Ivy Court (Block 2), New Town Plaza (Phase 3)	R	IC1 IC2	70	67- <u>76</u>	57-63	67- <u>76</u>	0.6	N
RP	The Riverpark	R	RP1 RP2 RP3 RP4 RP5	70	69- <u>75</u>	67- <u>73</u>	65- <u>73</u>	<u>4.6</u>	Y
EBI	Hong Kong Bible Research and Education Centre	EI	EBI1 EBI2 EBI3	65	<u>72-74</u>	60-65	<u>72-73</u>	0.6	N
GV	Garden Villa	R	GV	70	69-70	55-56	69	-	N
STT	Sha Tin Tau	R	STT1	70	66- <u>71</u>	54-61	66-70	0.4	N
STTV	Sha Tin Tau Village	R	STTV1 STTV2 STTV3 STTV4 STTV5 STTV6	70	64- <u>72</u>	55-67	62- <u>72</u>	<u>2.4</u>	Y

NSR ID	NSR Description	Land Use [1]	NAP ID [2]	Noise Criteria, L <sub>10(1-hr)</sub> , dB(A)	Predicted Noise Level, L <sub>10(1-hr)</sub> dB(A) <sup>[3] [4]</sup>				Whether Noise Mitigation Measures on "Project Roads" are required (Y/N)
					Overall	Project Roads	Existing Roads	Max. "Project Roads" Contribution when Overall Noise Level Exceed Criteria [6] [7]	
			STTV7 STTV8 STTV9						
HRCC	High Rock Christian Camp	A	HRCC1 HRCC2	70	70- <b>72</b>	62	69- <b>71</b>	0.4	N
SYH	Shek Yuk House, Chun Shek Estate	R	SYH1 SYH2	70	66-70	48-61	66-70	-	N
STMC	Sha Tin Methodist College	EI	STMC1 STMC2 STMC3	65	45-62	40-47	44-62	-	N
FSH	Fu Shing House, Fung Shing Court	R	FSH1 FSH2 FSH3	70	62- <b>73</b>	50-64	61- <b>73</b>	0.9	N
WSH	Wah Shing House, Fung Shing Court	R	WSH1 WSH2	70	60- <b>76</b>	46-62	60- <b>76</b>	0.6	N
TTU	Tsang Tai Uk	R	TTU1 TTU2 TTU3 TTU4 TTU5 TTU6	70	59-68	52-64	52-66	-	N
TTUN	Tsang Tai Uk New Village	R	TTUN	70	61-64	60-64	51-54	-	N
MSL	Ming Shun Lau, Jat Min Chuen	R	MSL1	70	<b>72-75</b>	56-62	<b>71-75</b>	0.5	N
DCMS	Sha Tin Wai Dr. Catherine F.Woo Memorial School	EI	DCMS1	65	<b>74-75</b>	59-62	<b>73-75</b>	0.3	N

NSR ID	NSR Description	Land Use [1]	NAP ID [2]	Noise Criteria, L <sub>10(1-hr)</sub> , dB(A)	Predicted Noise Level, L <sub>10(1-hr)</sub> dB(A) <sup>[3] [4]</sup>				Whether Noise Mitigation Measures on "Project Roads" are required (Y/N)
					Overall	Project Roads	Existing Roads	Max. "Project Roads" Contribution when Overall Noise Level Exceed Criteria [6] [7]	
PMH	Pok Man House, Pok Hong Estate	R	PMH1 PMH2 PMH3 PMH4 PMH5	70	63- <b>74</b>	61- <b>74</b>	49-68	<b>14.3</b>	Y
POH	Pok On House, Pok Hong Estate	R	POH1 POH2 POH3 POH4	70	63- <b>78</b>	63- <b>78</b>	36-62	<b>34.4</b>	Y
PTH	Pok Tat House, Pok Hong Estate	R	PTH1 PTH2 PTH3	70	65- <b>80</b>	63- <b>80</b>	41-68	<b>28.6</b>	Y
PWH	Pok Wah House, Pok Hong Estate	R	PWH1	70	58- <b>71</b>	56-69	53-66	<b>4.8</b>	Y
IS	ESF Island School Sha Tin Wai	EI	IS1	65	62- <b>71</b>	62- <b>71</b>	49-58	<b>13.4</b>	Y
PYH	Pok Yat House, Pok Hong Estate	R	PYH1	70	62- <b>71</b>	52-69	62-67	<b>4.4</b>	Y
PCH	Pok Chi House, Pok Hong Estate	R	PCH1	70	<b>73-78</b>	62- <b>73</b>	<b>72-76</b>	<b>1.9</b>	Y
CC	Christ College	EI	CC1 CC2	65	<b>66-75</b>	61- <b>71</b>	64- <b>73</b>	<b>4.7</b>	Y
TUV	Tse Uk Village	R	TUV1 TUV2 TUV3	70	<b>73-78</b>	60-68	<b>71-78</b>	<b>1.5</b>	Y
FYHN	Fui Yiu Ha New Village	R	FYHN1 FYHN2	70	<b>76-82</b>	49-65	<b>76-82</b>	0.1	N

NSR ID	NSR Description	Land Use [1]	NAP ID [2]	Noise Criteria, L <sub>10(1-hr)</sub> , dB(A)	Predicted Noise Level, L <sub>10(1-hr)</sub> dB(A) <sup>[3] [4]</sup>				Whether Noise Mitigation Measures on "Project Roads" are required (Y/N)
					Overall	Project Roads	Existing Roads	Max. "Project Roads" Contribution when Overall Noise Level Exceed Criteria [6] [7]	
TPHS	Tsok Pok Hang San Tsuen	R	TPHS1 TPHS2 TPHS3 TPHS4	70	<b><u>71-78</u></b>	<b><u>71-78</u></b>	51-70	<b><u>20.4</u></b>	Y
SCOE	Shui Chuen O Estate	R	SCOE1 SCOE2	70	70- <b><u>76</u></b>	46-70	70- <b><u>75</u></b>	<b><u>2.6</u></b>	Y
HL	Ex-Harmony Lodge	R	HL1 HL2 HL3	70	67- <b><u>73</u></b>	60-65	66- <b><u>72</u></b>	0.9	N
39P	Planned Residential Development at Area 39	R	39P1 39P2 39P3	70	59- <b><u>73</u></b>	51-64	58- <b><u>73</u></b>	0.7	N

## Notes:

[1] Residential-R; Educational Institution-EI; Place of Public Worship-WP; Temporary Accommodation / hostels -A; Performance Art Centre-G/IC; Clinic / Home for the aged -C

[2] The assessment only includes NSRs which rely on opened windows for ventilation.

[3] Boldfaced and underline values indicate exceedance to relevant noise criteria.

[4] Noise levels would be rounded up to nearest integer to determine the compliance of the criteria.

[5] Noise standard applies to parts of the clinic with noise sensitive uses, such as diagnostic rooms and wards, which rely on openable windows for ventilation.

[6] "-": Predicted overall noise level complied with noise criteria under unmitigated scenario.

[7] Maximum Project Road contribution for NSRs with overall noise level exceeding relevant criteria.

- 4.7.2.2 Referring to **Table 4.6** and [Appendix 4.9](#), the predicted noise levels at the representative NSRs are in the range of 45dB(A) to 82dB(A) respectively. Representative NSRs exceed the noise criteria by up to 17 dB(A). Hence, direct mitigation measures should be considered to alleviate the adverse traffic noise impact according to S4.6.2.8.

#### Traffic Noise Impact during Interim Period

- 4.7.2.3 Referencing the Environmental Permit (EP) of Sha Tin New Town – Stage II, Trunk Road T3 (Tai Wai) (EP-135/2002/J), there are four locations (refer to works ID 1A, 2, 3 and 4 in 60579757/R04/419 of [Appendix 4.2](#) for location and **Table 4.7** below for details) where existing noise mitigation measure covered in the EP will need to be temporarily modified and reprovisioned due to proposed works for the Project. This is due to insufficient headroom for the construction of proposed slip road SR2-1, SR3-1, SR4-1 and insufficient works area for the proposed road widening works for Shing Mun Tunnel Road (SMTR) (EB) near reserved T4 connection point CP-A. There is one location (refer to Works ID 1B in **Table 4.7** for details) where existing noise mitigation measure covered in the EP will be permanently removed. This is due to conflict at location of connection of proposed slip road SR3-1 to Tsing Sha Highway with the existing noise mitigation measure.
- 4.7.2.4 An assessment has been conducted for the interim period during the modification/temporary removal of existing noise mitigation measures of Trunk Road T3 (Tsing Sha Highway) in order to assess potential traffic noise impact on representative NSRs. A summary of the tentative schedule for modification/temporary removal and reprovision of existing noise mitigation measures is presented in **Table 4.7** (for details of the construction programme, refer to [Appendix 4.2](#)).

**Table 4.7 Tentative Schedule for Modification/Temporary Removal and Reprovision of Existing Noise Mitigation Measures**

Works ID	Location of Works	Existing Noise Mitigation Measures	Tentative Date for Modification/Removal	Tentative Date for Reprovision	Approximate Extent, m	Duration without Measure, months
1A	Works Area A2	Semi-enclosure <sup>[1]</sup>	Sep 2026	Jan 2027 – Feb 2027	55m	6
1B	Works Area A2	3m Vertical Noise Barrier <sup>[2]</sup>	Oct 2026	Permanently removed for the construction of T4 (EB) Slip Road SR3-1	60m	N/A
2	Works Area A2	5m Vertical Noise Barrier <sup>[3]</sup>	Oct 2026	Feb 2027 – Mar 2027	10m	6
3	Works Area A3 (CP-A)	6m Vertical Noise Barrier <sup>[4]</sup>	Jun 2027 – Jul 2027	Sep 2027 – Nov 2027	5m	6
4	Works Area A3 (T4(WB) SR4-1)	5.8m (H) with 3m cantilever <sup>[5]</sup>	Nov 2026	Jan 2027 – Feb 2027	20m	4

Notes:

[1] Existing Noise Mitigation Measure ID “SE2” in Appendix 4.6. Only the horizontal top panels of the semi-enclosure SE2 will be temporarily removed and the vertical barriers on the sides of SE2 will be retained for Works ID 1A.

[2] Existing Noise Mitigation Measure ID “E17” in Appendix 4.6

[3] Existing Noise Mitigation Measure ID “E15” in Appendix 4.6

[4] Existing Noise Mitigation Measure ID “E16” in Appendix 4.6

[5] Existing Noise Mitigation Measure ID “E24” in Appendix 4.6

- 4.7.2.5 With consideration of the tentative dates for the above works, road traffic noise assessment has been conducted for the representative NSRs for the below 2 scenarios, adopting traffic data for Year 2028 (as the highest traffic flow occurs between Year 2026 to Year 2028) for conservative assessment:

- Interim Scenario 1: Works ID 1A, 1B, 2 & 4; and
- Interim Scenario 2: Works ID 3.

4.7.2.6 The predicted noise levels at the representative NSRs nearest to the works (detailed in **Table 4.7**) with the existing noise mitigation measures has been compared with that during their modification/removal and is presented in [Appendix 4.18](#).

4.7.2.7 The detailed results indicate that the change in predicted noise levels at the representative NSRs during modification/temporary removal of the stated extent of mitigation measures (presented in **Table 4.7**) will be less than 1.0 dB(A) and considered to be insignificant. Furthermore, for both Interim Scenarios, except Works ID 1B in Interim Scenario 1, duration of absence of the noise mitigation measures is estimated to be 4 - 6 months before being reprovisioned, and the actual duration is subject to Contractor's arrangement during later construction phase.

## 4.8 Mitigation of Environmental Impacts

### 4.8.1 Construction Noise

#### Construction Noise during non-restricted working hours

4.8.1.1 In order to reduce the excessive noise impact at the affected NSRs during non-restricted working hours, mitigation measures such as adopting quiet PME, movable noise barriers and temporary noise barriers is recommended. The Contractor(s) may be able to obtain particular models of plant that are quieter than the PMEs given in GW-TM. It is considered too restrictive to specify that a Contractor has to use specific items of plant for the construction operations. It is practical to specify the total SWL of all plant to be used on site so that the Contractor has the flexibility to select plant to suit his needs.

4.8.1.2 The use of quality PME associated with the construction works is prescribed in EPD's Quality Powered Mechanical Equipment (QPME) database, which contains the SWLs for quality/quiet PME of various types, brands and models. The SWLs for quality PMEs adopted for construction noise assessment during non-restricted hours are detailed in [Appendix 4.10](#).

4.8.1.3 To alleviate the construction noise impact on the affected NSRs, movable noise barriers have been proposed for excavator, mobile crane, loader, backhoe, dump truck, dump truck with grab, piling (large diameter bored, RCD), piling (large diameter bored, oscillator), crawler crane (mobile, diesel), roller (vibratory), paint line marker, cherry picker, crane lorry, crane, welding set, lorry, breaker (hand-held, mass >10kg and <20kg), poker (vibratory, hand-held), concrete lorry mixer, concrete mixer, bar bender and cutter (electric), saw (circular, wood), water pump (submersible, electric), breaker (hand-held, mass ≤ 10kg), piling (vibrating hammer), chisel, drill rig (rotary type (diesel)), asphalt paver, cutter (circular, steel), drilling rig, etc. Movable temporary noise barriers that can be located close to noisy plant and be moved iteratively with the plant along a worksite can be very effective for screening noise from NSRs. A typical design which has been used locally is a wooden framed barrier with a small cantilevered upper portion of superficial density no less than 14kg/m<sup>2</sup> on a skid footing with 25mm thick internal sound absorptive lining. A typical configuration of noise barrier and portable noise enclosure is shown in [Appendix 4.12](#). This measure is particularly effective for low level zone of NSRs. A cantilevered top cover would be required to achieve screening benefits at upper floors of NSRs. It is anticipated that suitably designed barriers could achieve at least 5 - 10 dB(A) reduction.

4.8.1.4 The use of full enclosure has been considered in this assessment to shelter relatively static plant including concrete pump, air compressor, grout mixer, grout pump, and generator. This type of enclosure is expected to provide approximately 15 dB(A) noise reduction.

4.8.1.5 Quieter construction method such as silent piling by Press-in method is adopted as an alternative of traditional sheet piling. A sheet pile is clipped and pressed under the ground. Noise can be minimized by press-in sheet piles with drilling simultaneously for piling works

at harder ground. The noise impact can also be further reduced as the piling works can be completed within the shorter duration by using this method.

- 4.8.1.6 The use of hydraulic breaker for rock or concrete breaking would inevitably generate high level of noise as operation principle of hydraulic breaker is by percussive striking actions of its chisels. As confirmed by Project Engineer, it is feasible to adopt quieter rock or concrete breaking equipment (e.g. hydraulic crusher or hand-held breaker with QPME label) in some activities as a mitigation measure. These quieter rock breaking equipment would create less noise impact to the NSRs. The Contractor should, subject to the actual site conditions, proactively adopt quieter rock breaking equipment, hydraulic crusher or non-mechanical breaking method (e.g. use of chemical expansion agent) to carry out the demolition / excavation works, where practicable.
- 4.8.1.7 Noise reduction from the use of mitigation measures such as quiet plant, temporary noise barrier and enclosure for construction plant as described above have been applied in the assessment. The mitigation measures have been confirmed with the Project Engineer to be practicable and suitable for the construction programme. The construction plant inventory adopted is presented in [Appendix 4.10](#) while detailed construction noise calculations and results for the mitigated scenario are presented in [Appendix 4.13](#). A summary of the predicted cumulative noise levels at the representative floor of representative NSRs is presented in **Table 4.8**.

**Table 4.8 Summary of Mitigated Construction Noise Assessment Results at Representative NSRs (non-restricted hours)**

NSR ID	NSR Description	NAP ID	Floor of NAP <sup>21</sup>	Noise Criteria, $L_{eq}$ (30-mins), dB(A)	Predicted Mitigated Construction Noise Level, $L_{eq}$ (30-mins), dB(A)
HCH	Mei Chung Court	HCH	1/F, <b>9/F</b> , 27/F	75	42 - 51
SMGC	St. Margaret's Girls' College	SMGC	1/F, 3/F, <b>6/F</b>	65/70	45 - 54
MSC	May Shing Court	MSC1	1/F, <b>11/F</b> , 34/F	75	44 - 54
MWH	Mei Lam Estate	MWH2	1/F, <b>7/F</b> , 34/F	75	37 - 56
SCPS	TWGHs Tsoi Wing Sing Primary School	SCPS1	1/F, 4/F, <b>7/F</b>	65/70	37 - 59
MTH	Mei Lam Estate	MTH1	1/F, <b>4/F</b> , 25/F	75	37 - 56
WWTC	Buddhist Wong Wan Tin College	WWTC2	1/F, 3/F, <b>6/F</b>	65/70	40 - 62
CCS	Residential along Chik Chuen Street	CCS1	<b>1/F</b> , 2/F, 3/F	75	42 - 64
SCWPS	Sin Chui Wan Primary School	SCWPS	1/F, <b>6/F</b> , 7/F	65/70	39 - 54
PO	Peak One	PO2	<b>1/F</b> , 8/F, 16/F	75	36 - 57
PH	Peak House	PH1	1/F, 2/F, <b>3/F</b>	75	41 - 64
TLWV	Tung Lo Wan Village	TLWV6	1/F, <b>2/F</b>	75	42 - 68
TLWV	Tung Lo Wan Village	TLWV9	1/F, 2/F, <b>3/F</b>	75	42 - 63
OTT	On Ting Terrace	OTT1	1/F, <b>2/F</b> , 3/F	75	44 - 65
LDSC	The Church of Jesus Christ of the Latter-days Saints	LDSC1	1/F, <b>2/F</b>	75	51 - 65
TFSR	18 To Fung Shan Road	TFSR2	<b>1/F</b> , 3/F, 4/F	75	47 - 57



NSR ID	NSR Description	NAP ID	Floor of NAP <sup>[2]</sup>	Noise Criteria, L <sub>eq</sub> (30-mins), dB(A)	Predicted Mitigated Construction Noise Level, L <sub>eq</sub> (30-mins), dB(A)
CICE	Caritas Institute of Community Education	CICE1	1/F, 4/F, <b>7/F</b>	65/70	37 - 61
STC	Sha Tin Clinic	STC1	<b>1/F</b>	75	38 - 71
SC	Scenery Court	SC1	<b>1/F</b> , 12/F, 23/F	75	38 - 58
RP	The Riverpark	RP1	<b>1/F</b> , 18/F, 36/F	75	47 - 71
RP	The Riverpark	RP4	<b>1/F</b> , 19/F, 38/F	75	53 - 70
RP	The Riverpark	RP5	<b>1/F</b> , 19/F, 38/F	75	51 - 64
EBI	Hong Kong Bible Research and Education Centre	EBI1	<b>1/F</b> , 2/F	65/70	53 - <b>69</b> <sup>[3]</sup>
STTV	Sha Tin Tau Village	STTV2	<b>1/F</b> , 2/F, 3/F	75	52 - 71
STTV	Sha Tin Tau Village	STTV3	<b>1/F</b> , 2/F, 3/F	75	56 - 65
STTV	Sha Tin Tau Village	STTV8	<b>1/F</b> , 2/F, 3/F	75	42 - 75
TTU	Tsang Tai Uk	TTU2	<b>1/F</b> , 2/F	75	51 - 75
TTU	Tsang Tai Uk	TTU5	<b>1/F</b> , 2/F, 3/F	75	47 - 71
POH	Pok On House, Pok Hong Estate	POH2	1/F, <b>5/F</b> , 27/F	75	47 - 65
PTH	Pok Tat House, Pok Hong Estate	PTH2	1/F, <b>5/F</b> , 27/F	75	43 - 71
CC	Christ College	CC1	1/F, <b>6/F</b> , 7/F	65/70	49 - <b>70</b> <sup>[3]</sup>
TPHS	Tsok Pok Hang San Tsuen	TPHS3	<b>1/F</b> , 2/F, 3/F	75	41 - 72
TUV	Tse Uk Tsuen	TUV1	1/F, 2/F, <b>3/F</b>	75	46 - 65
FYHN	Fui Yiu Ha New Village	FYHN1	<b>1/F</b> , 2/F, 3/F	75	39 - 65
SCOE	Shui Chuen O Estate	SCOE1	<b>1/F</b> , 14/F, 28/F	75	42 - 51
SCOE	Shui Chuen O Estate	SCOE2	<b>1/F</b> , 13/F, 26/F	75	46

Notes:

[1] 75 dB(A) for all domestic premises (including temporary housing accommodation) hotels and hostels, 70 dB(A) for educational institution, whereas 65 dB(A) for examination period.

[2] Bolded floor levels indicate the floor closest to the construction work zones. The selected floors are considered as representative floors for the NSR in the assessment.

[3] Exceedance would be observed during examination period.

[4] Boldface and underlined values indicate exceedance of noise criteria.

- 4.8.1.8 As shown in [Appendix 4.13](#), with the adoption of quiet plant, movable noise barriers, temporary noise barriers and enclosure, the overall noise levels at NSRs would be able to be reduced by 16 to 24 dB(A) Leq (30-mins), depending on the type of construction activity. The predicted construction noise levels arising from the Project at all NSRs selected for construction noise impact assessment would comply with the EIAO-TM construction noise criteria, except during examination period of Hong Kong Bible Research and Education Centre (EBI1) and Christ College (CC1).
- 4.8.1.9 The critical construction activities causing the exceedance at EBI1 and CC1 are summarised in **Table 4.9**. It is recommended that the works area of these critical construction activities shall be restricted during the examination period of these schools. The recommended minimum separation distance between these critical construction activities and the schools during examination period has been confirmed by the Project Engineer to be suitable and practical for the construction program and is shown in **Table 4.9**.

**Table 4.9 Recommended Minimum Separation Distance between Schools and Critical Works Area during School Examination Period**

NSR Description (NSR ID)	NAP ID	Critical Construction Activities lead to the Exceedance		Minimum Separation between Schools and Critical Works Area during Examination Period, m
Hong Kong Bible Research and Education Centre (EBI)	EBI1	(B1.3.3)	Structures for Depressed Roads	68
		(B1.4.3)	Bridge Deck	58
		(B1a.1)	Site Clearance / Set-up / Plant Mobilization / Tree Felling and Transplanting Works	29
		(B1a.2)	Utilities Protection and Diversion Works	32
		(B1a.3.3)	Bridge Deck	36
		(B1a.3.4)	Associated Structures (Stairs & Lifts)	58
		(B1a.3.5)	Associated Structures for Cycle Track and Footpath	68
Christ College (CC)	CC1	(B4.1)	Site Clearance / Set-up / Plant Mobilization / Tree Felling and Transplanting Works	34
		(B4.4.1)	Removal of Existing Noise Barrier along Sha Tin Road	29
		(B4.4.6)	Pavement	32
		(B4.4.7)	Reinstatement of Slope	46
		(B4.5.5)	Pavement	39
		(B4.6.1)	Retaining Structures for At-grade Road	55
		(B4.6.2)	Slopework	27
		(B4.7.1)	Frame	48

4.8.1.10 With the implementation of the aforementioned mitigation measures and maintaining a minimum separation distance between the critical construction activities and schools during their examination period, no adverse construction noise impact is anticipated at the affected schools due to the Project. The predicted construction noise levels at the affected schools during examination period are presented in [Appendix 4.14](#). The Contractor shall liaise with the affected schools to confirm their examination period when planning their work sequence. Noisy construction activities should be avoided during school examination period and the Contractor should schedule the construction activities in the vicinity of schools and kindergartens during summer recess as much as possible. This consideration has been incorporated into the construction programme adopted in the assessment. A summary of the predicted cumulative noise levels is presented in **Table 4.10**. A construction noise management plan, which to verify the inventory of noise sources, and to assess the effectiveness and practicality of all identified measures for mitigating the construction noise impact of the project, would be prepared during the design / tendering and implementation stage of the construction works.

**Table 4.10 Summary of Mitigated Construction Noise Assessment Results at Representative NSRs during Examination Period**

NSR ID	NSR Description	NAP ID	Noise Criteria, $L_{eq}$ (30-mins), dB(A)	Predicted Mitigated Construction Noise Level, $L_{eq}$ (30-mins), dB(A)
EBI	Hong Kong Bible Research and Education Centre	EBI1	65	53 - 65
CC	Christ College	CC1	65	49 - 65

### Construction noise during restricted working hours

- 4.8.1.11 Adoption of quiet PMEs and movable noise barriers and temporary noise barriers are recommended to alleviate the excessive noise impact at the affected NSRs during restricted working hours. The Contractor(s) may be able to obtain particular models of plant that are quieter than the PMEs given in GW-TM. It is considered too restrictive to specify that a Contractor has to use specific items of plant for the construction operations. It is practical to specify the total SWL of all plant to be used on site so that the Contractor has the flexibility to select plant to suit his needs.
- 4.8.1.12 The use of quality PME associated with the construction works is prescribed in EPD's Quality Powered Mechanical Equipment (QPME) database, which contains the SWLs for quality/quiet PME of various types, brands and models. The SWLs for quality PMEs adopted for the construction noise assessment during restricted hours are detailed in [Appendix 4.11](#).
- 4.8.1.13 To alleviate the construction noise impact on the affected NSRs, movable noise barriers have been proposed for mobile crane. Movable temporary noise barriers that can be located close to noisy plant and be moved iteratively with the plant along a worksite can be very effective for screening noise from NSRs. A typical design which has been used locally is a wooden framed barrier with a small cantilevered upper portion of superficial density no less than 14kg/m<sup>2</sup> on a skid footing with 25mm thick internal sound absorptive lining. A typical configuration of noise barrier and portable noise enclosure is shown in [Appendix 4.12](#). This measure is particularly effective for low level zone of NSRs. A cantilevered top cover would be required to achieve screening benefits at upper floors of NSRs. It is anticipated that suitably designed barriers could achieve at least 5 - 10 dB(A) reduction.
- 4.8.1.14 Noise reduction from the use of mitigation measures such as quiet plant, temporary noise barrier and enclosure for construction plant as described above have been applied in the assessment. The mitigation measures have been confirmed with the Project Engineer to be practicable and suitable for the construction programme. The construction plant inventory adopted is presented in [Appendix 4.11](#) while detailed construction noise calculations and results for the mitigated scenario during restricted hours are presented in [Appendix 4.15](#). A summary of the predicted cumulative noise levels at the representative floor of representative NSRs is presented in **Table 4.11**.

**Table 4.11 Summary of Mitigated Construction Noise Assessment Results at Representative NSRs (restricted hours)**

NSR ID	NSR Description	NAP ID	Floors of NAPs <sup>[1]</sup>	Mitigated Construction Noise Levels, dB(A)
OTT	On Ting Terrace	OTT1	1/F, <b>2/F</b> , 3/F	35 - 53
VM	Villa Maria	VM	1/F, 2/F, <b>4/F</b>	37 - 55
TFSR	To Fung Shan Road	TFSR2	<b>1/F</b> , 3/F, 4/F	35 - 51
		TFSR4	<b>1/F</b> , 2/F, 3/F	36 - 51
SC	Scenery Court	SC1	<b>1/F</b> , 12/F, 23/F	31 - 49

Note:

[1] Bolded floor levels indicate the floor closest to the construction work zones. The selected floors are considered as representative floors for the NSR in the assessment.

- 4.8.1.15 With the implementation of the aforementioned mitigation measures, no adverse construction noise impact during restricted hours is anticipated at the NSRs due to the Project.
- 4.8.1.16 The total number of dwellings, classrooms, and other existing NSRs which are subject to exceedance of relevant construction noise criteria under unmitigated and mitigated scenarios are presented in [Appendix 4.16](#).

## 4.8.2 Operation Phase Road Traffic Noise

4.8.2.1 With reference to Annex 13 of the EIAO-TM, where the predicted noise impacts exceed the applicable noise criteria, direct mitigation measures such as alternative land use, alternative siting, screening by noise tolerant buildings etc. shall be considered and evaluated in appropriate manner. As the Project will not include land use planning or development, alternative land use arrangement and orientation of buildings are not appropriate. As mentioned in Section 1.2.5 of the Project Profile of the Project in March 2019, an alternative alignment is proposed, under which the proposed eastbound viaducts have been shifted away from the Scenery Court and the proposed viaducts near Sha Tin Tau Village are revised to depressed roads and underpass.

4.8.2.2 As stated in S4.6.2.6, in accordance with HyD's *Guidance Notes on Road Surface Requirements for Expressways and High Speed Road* (RD/GN/032), PMFC is proposed as the standard surfacing material on road sections with design speed of 70km/h or above without traffic lights and classified as trunk road/high speed road. PMFC would therefore be provided on Project Roads with design speed of 70km/h or above. The extent of road section with PMFC provided in accordance with RD/GN/032 is presented in [Appendix 4.6](#) and [Figure 4.3.1](#), [Figure 4.3.2](#), [Figure 4.3.3](#) & [Figure 4.3.4](#).

4.8.2.3 Direct noise mitigation measures would be provided as far as practicable until the mitigated overall noise levels comply with the relevant standards or the mitigated noise levels from the Project roads does not exceed the relevant standards and does not contribute to the overall noise levels by 1.0 dB(A) or more. Hence, direct noise mitigation measures as listed below are proposed to alleviate adverse traffic noise impact on the affected NSRs.

- LNRS on some Project road sections;
- Vertical noise barriers and cantilevered noise barriers;
- Semi-Enclosures; and
- Full Enclosures

4.8.2.4 The details of proposed LNRS, noise barriers and enclosures are summarized in below **Table 4.12** and **Table 4.13** with total length of mitigation measures rounded off to the nearest 10 m. The locations of the noise barriers, enclosures and extent of LNRS are shown in [Figure 4.3.1](#), [Figure 4.3.2](#), [Figure 4.3.3](#) & [Figure 4.3.4](#). Cross sections of the proposed mitigation measures are presented in [Figure 4.4.1](#), [Figure 4.4.2](#) & [Figure 4.4.3](#). All the proposed barriers shall be designed and constructed to comply with the "Guidelines on Design of Noise Barriers" which is published by the Environmental Protection Department and Highways Department.

**Table 4.12 Extent and Locations of Proposed Low Noise Road Surfacing**

ID	Location	Approximate Length, m	Concerned NSRs with their IDs	Figure
LNRS1	Proposed slip road SR1-1	180	MWH	<a href="#">Figure 4.3.1</a>
LNRS2	Proposed T4(westbound) slip road	210	RP	<a href="#">Figure 4.3.3</a>

**Table 4.13 Extent and Locations of Proposed Noise Barriers and Enclosures**

ID	Barrier Type <sup>[1]</sup>	Height, m	Approximate Length <sup>[3]</sup> , m	Concerned NSRs with their IDs	Figure
N1	Vertical barrier	2	60	OTT	<a href="#">Figure 4.3.2</a>
N2	Vertical barrier	5	130	STC	<a href="#">Figure 4.3.2</a>
N3	Cantilever barrier	5.5m(H) with 1.5m cantilever at 45 °	100	STC	<a href="#">Figure 4.3.2</a>
N4	Cantilever barrier	2.7m(H) with 3.7m cantilever at 20 ° from ground level	50	STTV	<a href="#">Figure 4.3.3</a>
SE1	Semi-enclosure	at least 6 <sup>[2]</sup>	170	RP	<a href="#">Figure 4.3.3</a>
FE1	Full enclosure	at least 6 <sup>[2]</sup>	390	PMH, POH, PTH, PWH, PYH, PCH, IS, CC, TUV, SCOE, TPHS	<a href="#">Figure 4.3.4</a>

Note:

[1] Noise barriers with absorptive panels will be adopted.

[2] Height of the semi/ full enclosures are indicative and will be confirmed in detail design stage.

[3] The length has been rounded off to the nearest 10m

4.8.2.5 With the implementation of the recommended noise mitigation measures, including LNRS, noise barriers, semi and full enclosure, the noise levels at some of the representative NSRs would comply with the traffic noise criteria. However, exceedance of the traffic noise would still be predicted at some of the representative NSRs due to existing roads. The predicted overall noise levels of all the NSRs are summarized in **Table 4.14** and presented in [Appendix 4.17](#).

**Table 4.14 Summary of Predicted Road Traffic Noise Assessment Results under Mitigated Scenario (Year 2043)**

NSR ID	NSR Description	Land Use <sup>[1]</sup>	NAP ID <sup>[2]</sup>	Noise Criteria, L10(1 hr), dB(A)	Predicted Noise Level, L10(1-hr) dB(A) <sup>[3] [4]</sup>				Whether Additional Mitigation Measures on "Project Roads" are Required [Y/N]
					Overall	Project Roads	Existing Roads	Max. "Project Roads" Contribution when Overall Noise Level Exceed Criteria <sup>[6] [7]</sup>	
PTV	Pak Tin Village	R	PTV	70	66-67	23-25	66-67	-	N
PT	Puguangming Temple	WP	PT	65	62	35-36	62	-	N
HCH	Hing Chung House, Mei Chung Court	R	HCH	70	67-69	41-55	67-69	-	N
LTSC	Lock Tao Secondary School	EI	LTSC	65	<u>70</u>	0	<u>70</u>	0.0	N
SMGC	St. Margaret's Girls' College	EI	SMGC	65	<u>67-69</u>	44-47	<u>67-69</u>	0.0	N
MSC	Fai Shing House, May Shing Court	R	MSC1	70	<u>70-72</u>	46-62	<u>70-72</u>	0.5	N
MWH	Mei Wai House, Mei Lam Estate	R	MWH1 MWH2 MWH3	70	<u>58-72</u>	47-63	<u>57-71</u>	0.8	N
MYH	Mei Yeung House, Mei Lam Estate	R	MYH1 MYH2	70	<u>64-71</u>	48-62	<u>64-71</u>	0.5	N
SCPS	TWGHs Shui Chuen O Primary School	EI	SCPS1 SCPS2	65	<u>63-68</u>	50-58	<u>62-68</u>	0.4	N
WWTC	Buddhist Wong Wan Tin College	EI	WWTC1 WWTC2	65	<u>65-75</u>	53-58	<u>65-75</u>	0.4	N
MTH	Mei Tao House, Mei Lam Estate	R	MTH1 MTH2 MTH3 MTH4 MTH5	70	<u>63-74</u>	44-62	<u>63-74</u>	0.3	N
KWB	Kwai Wai Building at Chik Chuen Street	R	KWB1	70	<u>75-76</u>	47-53	<u>75-76</u>	0.1	N
CCS	Residential along Chik Chuen Street	R	CCS1 CCS2	70	<u>75-76</u>	51-58	<u>75-76</u>	0.1	N
SHR	Residential along Shing Ho Road	R	SHR1	70	<u>73</u>	58	<u>73</u>	0.2	N

NSR ID	NSR Description	Land Use <sup>[1]</sup>	NAP ID <sup>[2]</sup>	Noise Criteria, L10(1 hr), dB(A)	Predicted Noise Level, L10(1-hr) dB(A) <sup>[3] [4]</sup>				Whether Additional Mitigation Measures on "Project Roads" are Required [Y/N]
					Overall	Project Roads	Existing Roads	Max. "Project Roads" Contribution when Overall Noise Level Exceed Criteria <sup>[6] [7]</sup>	
SHB	Shing Ho Building	R	SHB1	70	70	57-58	70	-	N
SCWPS	Sin Chiu Wan Primary School	EI	SCWPS	65	61- <u>67</u>	50-54	61- <u>66</u>	0.3	N
PO	Peak One	R	PO1 PO2	70	62- <u>74</u>	53-61	62- <u>74</u>	0.3	N
PH	Peak House	R	PH1	70	64- <u>71</u>	55-61	64- <u>71</u>	0.4	N
TLWE	Tung Lo Wan Village Extension	R	TLWE1 TLWE2	70	65-69	53-56	65-69	-	N
BHOLK	The Salvation Army Bradbury Home of Loving Kindness	C	BHOLK	55	<u>61-68</u>	44-47	<u>61-68</u>	0.1	N
GH	The Great Hill	R	GH1 GH2	70	64- <u>74</u>	55-61	63- <u>73</u>	0.5	N
COLS	ELCHK Living Spirit Lutheran Church	WP	COLS	65	<u>71-72</u>	55-58	<u>71-72</u>	0.2	N
LK	Lutheran Kindergarten	EI	LK	65	<u>68-70</u>	54-55	<u>67-69</u>	0.2	N
TLWV	Tung Lo Wan Village	R	TLWV1 TLWV2 TLWV3 TLWV4 TLWV5 TLWV6 TLWV7 TLWV8 TLWV9	70	59- <u>75</u>	51-63	58- <u>75</u>	0.3	N
OTT	On Ting Terrace	R	OTT1 OTT2 OTT3 OTT4	70	<u>71-75</u>	61-67	<u>71-75</u>	0.8	N
MV	Mantex Villa	R	MV1	70	68-70	60-62	67-69	-	N
OLV	On Lok Villa	R	OLV1	70	68- <u>71</u>	60-63	67-70	0.7	N

NSR ID	NSR Description	Land Use <sup>[1]</sup>	NAP ID <sup>[2]</sup>	Noise Criteria, L10(1 hr), dB(A)	Predicted Noise Level, L <sub>10</sub> (1-hr) dB(A) <sup>[3]</sup> <sup>[4]</sup>				Whether Additional Mitigation Measures on "Project Roads" are Required [Y/N]
					Overall	Project Roads	Existing Roads	Max. "Project Roads" Contribution when Overall Noise Level Exceed Criteria <sup>[6]</sup> <sup>[7]</sup>	
MLV	Man Lin Villa	R	MLV1	70	68-70	59-61	67-69	-	N
VM	Villa Maria	R	VM	70	<u>69-71</u>	60-63	<u>69-71</u>	0.7	N
TFSR	18 To Fung Shan Road	R	TFSR1 TFSR2 TFSR3 TFSR4	70	<u>67-76</u>	59-64	<u>67-76</u>	0.4	N
PRC	Pine Ridge Church	WP	PRC1	65	<u>70-71</u>	62-63	<u>70-71</u>	0.7	N
LDSC	The Church of Jesus Christ of the Latter-days Saints	WP	LDSC1	65	<u>68-69</u>	56-58	<u>68-69</u>	0.3	N
VLP	Villa Le Parc	R	VLP1 VLP2	70	<u>72-74</u>	58-59	<u>72-74</u>	0.2	N
LCY	Hing Yuen Terrace	R	LCY1	70	<u>70-71</u>	52-54	70	0.1	N
STC	Sha Tin Clinic	C	STC1 STC2 STC3	55 <sup>[5]</sup>	<u>70-72</u>	53-55	<u>69-72</u>	0.2	N
CICE	Caritas Institute of Community Education	EI	CICE1	65	<u>67-71</u>	55-61	<u>67-70</u>	0.5	N
SC	Block 1, Scenery Court	R	SC1 SC2 SC3	70	<u>73-78</u>	57-66	<u>73-77</u>	0.8	N
HP	Block A, Hilton Plaza	R	HP1 HP2 HP3	70	<u>70-77</u>	55-65	<u>70-76</u>	0.9	N
IC	Ivy Court (Block 2), New Town Plaza (Phase 3)	R	IC1 IC2	70	<u>67-76</u>	57-63	<u>67-76</u>	0.6	N
RP	The Riverpark	R	RP1 RP2 RP3 RP4 RP5	70	<u>66-73</u>	59-64	<u>63-73</u>	0.8	N



NSR ID	NSR Description	Land Use <sup>[1]</sup>	NAP ID <sup>[2]</sup>	Noise Criteria, L10(1 hr), dB(A)	Predicted Noise Level, L <sub>10</sub> (1-hr) dB(A) <sup>[3] [4]</sup>				Whether Additional Mitigation Measures on "Project Roads" are Required [Y/N]
					Overall	Project Roads	Existing Roads	Max. "Project Roads" Contribution when Overall Noise Level Exceed Criteria <sup>[6] [7]</sup>	
EBI	Hong Kong Bible Research and Education Centre	EI	EBI1 EBI2 EBI3	65	<u>71-72</u>	60-65	<u>71</u>	0.9	N
GV	Garden Villa	R	GV	70	69	55-56	69	-	N
STT	Sha Tin Tau	R	STT1	70	<u>66-71</u>	54-61	66-70	0.5	N
STTV	Sha Tin Tau Village	R	STTV1 STTV2 STTV3 STTV4 STTV5 STTV6 STTV7 STTV8 STTV9	70	<u>64-72</u>	55-65	<u>62-72</u>	0.9	N
HRCC	High Rock Christian Camp	A	HRCC1 HRCC2	70	<u>69-71</u>	56-61	<u>69-71</u>	0.2	N
SYH	Shek Yuk House, Chun Shek Estate	R	SYH1 SYH2	70	66-70	42-60	66-70	-	N
STMC	Sha Tin Methodist College	EI	STMC1 STMC2 STMC3	65	45-62	38-46	44-62	-	N
FSH	Fu Shing House, Fung Shing Court	R	FSH1 FSH2 FSH3	70	<u>62-73</u>	50-64	<u>61-73</u>	0.9	N
WSH	Wah Shing House, Fung Shing Court	R	WSH1 WSH2	70	<u>60-76</u>	44-59	<u>60-76</u>	0.3	N
TTU	Tsang Tai Uk	R	TTU1 TTU2 TTU3 TTU4 TTU5	70	59-68	52-64	52-66	-	N

NSR ID	NSR Description	Land Use <sup>[1]</sup>	NAP ID <sup>[2]</sup>	Noise Criteria, L10(1 hr), dB(A)	Predicted Noise Level, L10(1-hr) dB(A) <sup>[3]</sup> <sup>[4]</sup>				Whether Additional Mitigation Measures on "Project Roads" are Required [Y/N]
					Overall	Project Roads	Existing Roads	Max. "Project Roads" Contribution when Overall Noise Level Exceed Criteria <sup>[6]</sup> <sup>[7]</sup>	
			TTU6						
TTUN	Tsang Tai Uk New Village	R	TTUN	70	60-63	59-63	51-54	-	N
MSL	Ming Shun Lau, Jat Min Chuen	R	MSL1	70	<b>71-75</b>	56-61	<b>71-75</b>	0.5	N
DCMS	Sha Tin Wai Dr. Catherine F.Woo Memorial School	EI	DCMS1	65	<b>74-75</b>	57-60	<b>73-75</b>	0.2	N
PMH	Pok Man House, Pok Hong Estate	R	PMH1 PMH2 PMH3 PMH4 PMH5	70	59-70	58-69	49-68	-	N
POH	Pok On House, Pok Hong Estate	R	POH1 POH2 POH3 POH4	70	42-69	41-68	36-62	-	N
PTH	Pok Tat House, Pok Hong Estate	R	PTH1 PTH2 PTH3	70	50-69	40-62	41-68	-	N
PWH	Pok Wah House, Pok Hong Estate	R	PWH1	70	54-66	49-57	53-66	-	N
IS	ESF Island School Sha Tin Wai	EI	IS1	65	45-51	37-40	45-51	-	N
PYH	Pok Yat House, Pok Hong Estate	R	PYH1	70	62-67	32-39	62-67	-	N
PCH	Pok Chi House, Pok Hong Estate	R	PCH1	70	<b>72-76</b>	29-49	<b>72-76</b>	0.0	N
CC	Christ College	EI	CC1 CC2	65	64- <b>73</b>	32-39	64- <b>73</b>	0.0	N
TUV	Tse Uk Village	R	TUV1 TUV2 TUV3	70	<b>71-78</b>	28-33	<b>71-78</b>	0.0	N

NSR ID	NSR Description	Land Use <sup>[1]</sup>	NAP ID <sup>[2]</sup>	Noise Criteria, L10(1 hr), dB(A)	Predicted Noise Level, L10(1-hr) dB(A) <sup>[3]</sup> <sup>[4]</sup>				Whether Additional Mitigation Measures on "Project Roads" are Required [Y/N]
					Overall	Project Roads	Existing Roads	Max. "Project Roads" Contribution when Overall Noise Level Exceed Criteria <sup>[6]</sup> <sup>[7]</sup>	
FYHN	Fui Yiu Ha New Village	R	FYHN1 FYHN2	70	<b><u>76-82</u></b>	9-23	<b><u>76-82</u></b>	0.0	N
TPHS	Tsok Pok Hang San Tsuen	R	TPHS1 TPHS2 TPHS3 TPHS4	70	65-70	54-65	51-69	-	N
SCOE	Shui Chuen O Estate	R	SCOE1 SCOE2	70	<b><u>70-75</u></b>	28-55	<b><u>70-75</u></b>	0.1	N
HL	Ex-Harmony Lodge	R	HL1 HL2 HL3	70	<b><u>67-73</u></b>	60-65	<b><u>66-72</u></b>	0.9	N
39P	Planned Residential Development at Area 39	R	39P1 39P2 39P3	70	<b><u>59-73</u></b>	51-64	<b><u>58-73</u></b>	0.8	N

## Notes:

[1] Residential-R; Educational Institution-EI; Place of Public Worship-WP; Temporary Accommodation / hostels -A; Performance Art Centre-G/IC; Clinic / Home for the aged -C

[2] The assessment only includes NSRs which rely on opened windows for ventilation.

[3] Boldfaced and underline values indicate exceedance to relevant noise criteria.

[4] Noise levels would be rounded up to nearest integer to determine the compliance of the criteria.

[5] Noise standard applies to parts of the clinic with noise sensitive uses, such as diagnostic rooms and wards, which rely on openable windows for ventilation.

[6] "-": Predicted overall noise level complied with noise criteria under mitigated scenario.

[7] Maximum Project Road contribution for NSRs with overall noise level exceeding relevant criteria.

- 4.8.2.6 With reference to Clause 3.4.1(b) of Appendix C of the EIA Study Brief, the estimated total number of dwellings and other existing NSRs that will be benefited and protected are summarized in **Table 4.15**.

**Table 4.15 Number of residential dwellings/ rooms benefited and protected under Mitigated Scenario**

Description	No. of Existing Residential Dwellings	No. of Existing Classrooms	No. of Other Existing NSRs (Place of Public Worship, Accommodation / Hostel, Clinic / Home for the aged)	Total
Benefited	1446	82	0	1528
Protected	961	37	0	998

Notes:

- [1] No planned Place of Public Worship, Accommodation / hostel & Educational Institution under this study.  
 [2] Benefited – Noise reduction of 1.0 dB(A) or greater in overall noise level with the noise mitigation measures in place  
 [3] Protected – Overall noise level not greater than relevant noise criteria with the noise mitigation measures in place

- 4.8.2.7 With reference to Clause 3.3.2(c), Appendix C of the EIA Study Brief, the estimated total number of dwellings, classrooms and other noise sensitive receivers that will be exposed to noise impact exceeding the respective criteria are presented in **Table 4.16**.

**Table 4.16 Estimated number of dwellings, classrooms and other NSRs exposed to exceedance**

Scenario	Estimated Number Exposed to Exceedance			
	No. of Existing Residential Dwellings	No. of Existing Classrooms	No. of Other Existing NSRs (Place of Public Worship, Accommodation / Hostel, Clinic / Home for the aged)	Total
Prevailing in 2023	3060	309	82	3451
Unmitigated in 2043	3227	343	82	3652
Mitigated in 2043	2266	306	82	2654

- 4.8.2.8 Prior to the commencement of the Project, it is estimated that 3,451 existing dwellings, classroom and other NSRs have already been subject to traffic noise impact due to the existing roads. The proposed project without any noise mitigation measures will slightly increase the number of existing dwellings, classroom and other NSRs along the Project to be exposed to the excessive traffic noise by 201, i.e. 3,652 dwellings, classroom and other NSRs exposed to exceedance. Upon exhausting all practicable direct noise mitigation measures, it is estimated that the number of dwellings, classroom and other NSRs exposed to exceedance will be 2,654, which is less than that prior to the commencement of the Project. These NSRs exposed to exceedance are due to the traffic noise from other existing roads.

## 4.9 Evaluation of Residual Impacts

### 4.9.1 Construction Noise

#### Construction Works during Non-Restricted Hours

- 4.9.1.1 The construction noise levels at all NSRs would comply with the noise standards stipulated in EIAO-TM with the implementation of the mitigation measures as mentioned in **Section**

**4.8.1.** EBI1 and CC1 would exceed the noise criterion of 65 dB(A) during their respective examination period.

4.9.1.2 The daytime construction noise criterion during school examination periods is 65dB(A) which is lower than the normal daytime school criterion of 70dB(A). Scheduling of construction works outside school examination period to less intrusive periods or restricting critical works area would reduce the overall construction noise impacts at the NSRs and ensuring compliance with the construction noise criterion. The Contractor shall liaise with the school representative(s) to obtain the examination schedule so as to avoid noisy construction activities during school examination period and to schedule the construction activities in the vicinity of schools and kindergartens during summer recess as much as possible. This consideration has already been incorporated into the construction programme adopted in the assessment. A construction noise management plan, which to verify the inventory of noise sources, and to assess the effectiveness and practicality of all identified measures for mitigating the construction noise impact of the project, would be prepared during the design / tendering and implementation stage of the construction works.

4.9.1.3 With the implementation of the proposed mitigation measures described above, the predicted construction noise levels at the representative NSRs would comply with the relevant criteria. Therefore, residual noise impacts are not anticipated.

#### Construction works during Restricted hours

4.9.1.4 The construction noise impact assessment in restricted hours is conducted to evaluate whether the construction works in restricted hours are feasible or not in the context of programming construction work. With reference to the unmitigated noise assessment results for restricted hours, the results show that the predicted noise level at all representative NSRs comply with the relevant construction noise criteria during restricted hours. Adverse construction noise impact during restricted hours is not anticipated and residual noise impact is not expected.

### **4.9.2 Operation Phase Road Traffic Noise**

4.9.2.1 With the implementation of all the proposed direct noise mitigation measures, the Project road noise contributions to the overall noise levels at all NSRs would be less than 1.0 dB(A) and the Project road noise levels would all be below the relevant noise criteria. Adverse road traffic noise impact on existing and planned NSRs is not anticipated.

4.9.2.2 Results of the eligibility assessment for indirect technical remedies is presented in [Appendix 4.19](#). Due to high prevailing noise levels and/or dominant noise contribution from existing roads, none of the NSRs are eligible for consideration for indirect technical remedies under the EIAO-TM.

## **4.10 Environmental Monitoring and Audit**

### **4.10.1 Construction Phase**

4.10.1.1 An EM&A programme during construction phase is recommended to be established. With reference to [Appendix 4.7](#), construction noise exceedances at the representative NSRs are predicted during construction of the Project under unmitigated scenario. Thus, construction noise monitoring is recommended. A construction noise management plan, which to verify the inventory of noise sources, and to assess the effectiveness and practicality of all identified measures for mitigating the construction noise impact of the project, would be prepared during the design / tendering and implementation stage of the construction works. Regular site environmental audit during construction phase is recommended to ensure proper implementation of mitigation measures and good site practices. Details of the EM&A programme are provided in a stand-alone EM&A Manual.

#### **4.10.2 Operation Phase**

- 4.10.2.1 No adverse traffic noise impact is anticipated from Project contribution with the proposed mitigation measures in place. Road traffic noise levels should be monitored at representative NSR, which are in the vicinity of the recommended direct mitigation measures, during the first year after road opening. The purpose of the monitoring is to ascertain that the recommended mitigation measures are effective in reducing the noise levels.

#### **4.11 Conclusion**

##### **4.11.1 Construction Phase**

- 4.11.1.1 The assessment for the potential construction noise impact of the Project has been conducted. The assessment results indicate that the mitigated noise levels at all NSRs would comply with the noise criteria set out in the EIAO-TM with the implementation of the proposed noise mitigation measures, including good site practices, use of QPME, deployment of construction noise barriers and enclosure, and provision of minimum separation between the affected school and the critical construction activity during examination period. Thus, no adverse construction noise impact arising from the Project would be anticipated. A construction noise management plan, which to verify the inventory of noise sources, and to assess the effectiveness and practicality of all identified measures for mitigating the construction noise impact of the project, would be prepared during the design / tendering and implementation stage of the construction works. Regular site environmental audit during construction phase is recommended to ensure proper implementation of mitigation measures and good site practices.

##### **4.11.2 Operation Phase**

- 4.11.2.1 The assessment for the potential road traffic noise impact from operation of the Project has been conducted. The assessment results indicate that the predicted road traffic noise levels at some of the representative NSRs would exceed the noise criteria under unmitigated scenario.
- 4.11.2.2 Although some of the NSRs still exceed the noise criteria under mitigated scenario, with the implementation of noise mitigation measures including LNRS, vertical noise barriers/cantilever noise barriers and semi/ full enclosures on some Project roads, the exceedances were dominantly contributed by the other existing roads. The contributions from the Project roads to the overall noise levels at all NSRs are all less than 1.0 dB(A) and all the predicted noise levels of the Project roads would comply with the noise criteria. Thus, no adverse road traffic noise impacts arising from the Project would be anticipated.