

Appendix 5.10 GBN Calculation for TBM Operation

NSR	Location	Lowest Floor	Horizontal Distance, m		Vertical Distance, m		Slant Distance, m		Distance Attenuation, dB ⁽¹⁾		Vibration Velocity, dB (V) ⁽²⁾	Building Coupling Loss, dB	Floor to Floor Attenuation, dB	Conversion from Vibration to Noise, dB	Conversion to A-Weighted Noise Level, dB	Predicted GBN Level Leq 30min, dB(A)			EIAO-TM Criteria (Daytime), dB(A) ⁽³⁾	Compliance
			Up Track	Down Track	Up Track	Down Track	Up Track	Down Track	Up Track	Down Track						Up Track	Down Track	Total		
KSR-G01	No.110 Cheung Chun San Tsuen	0	53	4	19	19	56.3	19.4	-20.2	-11.0	115.9	0	0	-27	-20	48.7	57.9	58	65	Yes
KSR-G02	Blk 77, Sam Yuen	0	135	94	19	19	136.3	95.9	-27.9	-24.8	115.9	0	0	-27	-20	41.0	44.1	46	65	Yes
KSR-G03	Kam Tin Mung Yeung Public School	0	97	62	19	18	98.8	64.6	-25.1	-21.4	115.9	0	0	-27	-20	43.8	47.5	49	60 (55)	Yes
KSR-G04	No.297-298 Kut Hing Wai	0	63	24	17	17	65.3	29.4	-21.5	-14.6	115.9	0	0	-27	-20	47.4	54.3	55	65	Yes
KSR-G05	Kat Hing Garden	0	55	5	11	12	56.1	13.0	-20.2	-7.5	115.9	0	0	-27	-20	48.7	61.4	62	65	Yes
AUT-G01	No. 173, Mo Fan Heung	0	50	0	15	15	52.2	19	-19.5	-10.8	115.9	0	0	-27	-20	49.4	58.1	59	65	Yes
AUT-G02	No. 137, Mo Fan Heung	0	0	50	11	12	11.0	51.4	-6.0	-19.4	115.9	0	0	-27	-20	62.9	49.5	63	65	Yes
AUT-G03	No. 80, Mo Fan Heung	0	50	0	10	12	51.0	12.0	-19.3	-6.8	115.9	0	0	-27	-20	49.6	62.1	62	65	Yes
AUT-G06	Tower 2B, Park Yoho Silica	1	26	65	0	0	26.0	65.0	-13.5	-21.5	115.9	0	-1	-27	-20	54.4	46.4	55	65	Yes
AUT-G07	Tower 9B, Park Vista	1	65	24	0	0	65.0	24.0	-21.5	-12.8	115.9	0	-1	-27	-20	46.4	55.1	56	65	Yes
AUT-G08	Tower 8B, Park Yoho	1	69	27	0	0	69.0	27.0	-22.0	-13.8	115.9	0	-1	-27	-20	45.9	54.1	55	65	Yes
AUT-G09	In Keen Garden Phase 1	0	96	56	20	20	98.1	59.5	-25.0	-20.7	115.9	0	0	-27	-20	43.9	48.2	50	65	Yes
AUT-G10	York International Kindergarten	0	17	67	0	0	17.0	67.0	-9.8	-21.7	115.9	0	0	-27	-20	59.1	47.2	59	60	Yes
NTM-G01	The Vineyard	0	22	62	26	26	34.1	67.2	-15.8	-21.7	115.9	0	0	-27	-20	53.1	47.2	54	65	Yes
NTM-G02	China Bible Seminary	0	25	67	15	17	29.2	69.1	-14.5	-22.0	115.9	0	0	-27	-20	54.4	46.9	55	60 (55)	Yes
NTM-G03	House A, Greenacres Villa	0	61	16	12	12	62.2	20.0	-21.1	-11.2	115.9	0	0	-27	-20	47.8	57.7	58	65	Yes
NTM-G04	Hongtai Home for the Aged Limited	0	19	62	12	13	22.5	63.3	-12.2	-21.2	115.9	0	0	-27	-20	56.7	47.7	57	65	Yes
NTM-G04a	Temporary Structure near Ching Yau Road	0	57	10	26	13	62.6	16.4	-21.1	-9.5	115.9	0	0	-27	-20	47.8	59.4	60	65	Yes
NTM-G06	Village House near Fuk Hing Lei	0	50	0	17	20	52.8	20.0	-19.6	-11.2	115.9	0	0	-27	-20	49.3	57.7	58	65	Yes
NTM-G07	Village House near Wang Ping Shan South Road	0	51	0	16	17	53.5	17.0	-19.8	-9.8	115.9	0	0	-27	-20	49.1	59.1	60	65	Yes
NTM-G08	Village House near Wang Ping Shan South Road	0	108	73	16	17	109.2	75.0	-26.0	-22.7	115.9	0	0	-27	-20	42.9	46.2	48	65	Yes
SAT-G03	Temporary Structure near Shek Wu Wai	0	16	61	8	9	17.9	61.7	-10.2	-21.0	115.9	0	0	-27	-20	58.7	47.9	59	65	Yes
KTU-G01	Village House in Chau Tau Tsuen	0	68	107	8	12	68.5	107.7	-21.9	-25.8	115.9	0	0	-27	-20	47.0	43.1	48	65	Yes
KTU-G02	Village House in Chau Tau Tsuen	0	60	15	7	7	60.4	16.6	-20.8	-9.6	115.9	0	0	-27	-20	48.1	59.3	60	65	Yes
KSR-PG01a	Planned School in Park Yoho Phase 3	0	65	24	0	0	65.0	24.0	-21.5	-12.8	115.9	0	0	-27	-20	47.4	56.1	57	60 (55)	No (During Exams)
KSR-PG01b	Proposed Residential Development in Park Yoho Phase 3	1	63	22	0	0	63.0	22.0	-21.2	-12.0	115.9	0	-1	-27	-20	46.7	55.9	56	65	Yes
KSR-PG01c	Proposed Residential Development Park Yoho Phase 2	1	65	21	0	0	65.0	21.0	-21.5	-11.6	115.9	0	-1	-27	-20	46.4	56.3	57	65	Yes
KSR-PG01d	Planned School in Park Yoho Phase 3	0	61	15	0	0	61.0	15.0	-20.9	-8.7	115.9	0	0	-27	-20	48.0	60.2	60	60 (55)	No (During Exams)
KSR-PG02	Kam Tai Road Residential Development	0	54	10	0	0	54.0	10.0	-19.8	-5.2	115.9	0	0	-27	-20	49.1	63.7	64	65	Yes
AUT-PG01	Planned Residential Block at Sha Po Public Housing DevelopmentProposed	1	58	15	0	0	58.0	15.0	-20.5	-8.7	115.9	0	-1	-27	-20	47.4	59.2	59	65	Yes
AUT-PG03	Planned Residential Block at Sha Po Public Housing DevelopmentProposed	1	60	20	0	0	60.0	20.0	-20.8	-11.2	115.9	0	-1	-27	-20	47.1	56.7	57	65	Yes
KTU-PG01	Planned Housing Development at Kwu Tung North NDA	1	111	90	0	0	111	90	-26.1	-24.3	115.9	0	-1	-27	-20	41.8	43.6	46	65	Yes
KTU-PG01a	Planned Housing Development at Kwu Tung North NDA	1	26	62	0	0	26.0	62.0	-13.5	-21.0	115.9	0	-1	-27	-20	54.4	46.9	55	65	Yes

Remarks:
(1) Distance attenuation = 20 *log (R/R0), where R0=5.5m
(2) r.m.s vibration velocity (mm/s) = PPV/Crest Factor, Crest Factor = 4. Vibration velocity (dB(V))= 20*log (vibration velocity / reference vibration velocity), where r.m.s. vibration velocity of TBM is 0.625mm/s and reference vibration velocity is 10^-6 mm/s.Reference was made to Appendix 7.2 of the approved KSL EIA report (Register No.: AEIAR-083/2005)
(3) Value in parentheses indicate the noise criterion during examination period for educational institution.