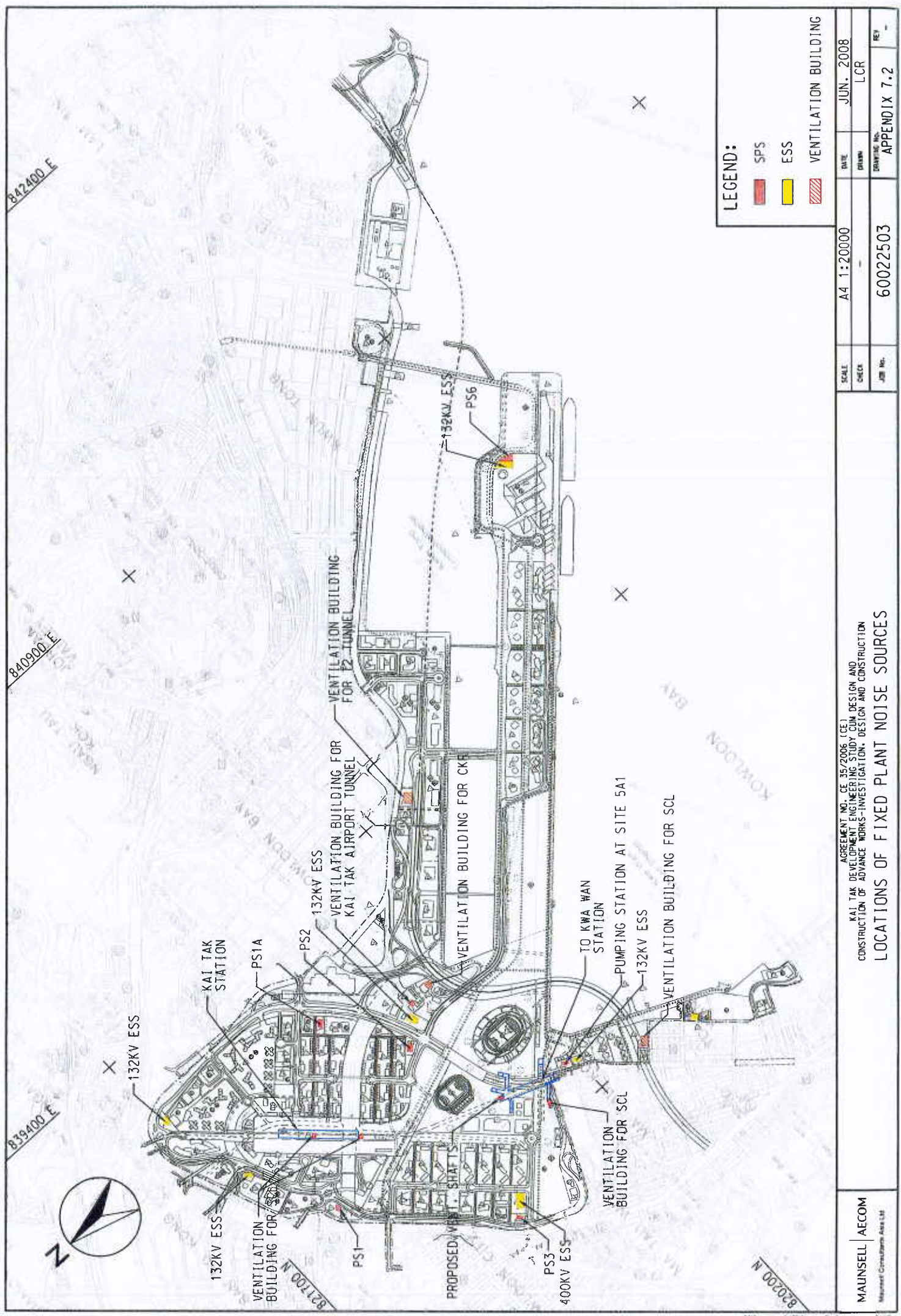


## ***Appendix 7.2***

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### ***Calculation of Maximum Sound Power Levels***



LEGEND:		
<span style="display:inline-block; width:10px; height:10px; background-color:red; border:1px solid black;"></span>	SPS	
<span style="display:inline-block; width:10px; height:10px; background-color:yellow; border:1px solid black;"></span>	ESS	
<span style="display:inline-block; width:10px; height:10px; background: repeating-linear-gradient(45deg, transparent, transparent 2px, black 2px, black 4px); border:1px solid black;"></span>	VENTILATION BUILDING	

MAUNSELL   AECOM  Maunsel Consultants Asia Ltd	AGREEMENT NO. CE 35/2006 (CE) KAI TAK DEVELOPMENT ENGINEERING STUDY CIVIL DESIGN AND CONSTRUCTION OF ADVANCE WORKS- INVESTIGATION, DESIGN AND CONSTRUCTION  LOCATIONS OF FIXED PLANT NOISE SOURCES				
	SCALE	A4 1:20000		DATE	JUN. 2008
	CHECK	—		DRAWN	LCR
	JOB No.	60022503		DRAWING No.	APPENDIX 7.2
				REV	—



NSR	Noise Source	Max. SWL dB(A)		Distance	Correction, dB(A)			Noise level at NSR		Total noise level at NSRs	
		Daytime	Nighttime		Facade	Distance	Tonality	Daytime	Nighttime	Daytime	Nighttime
N12	SPS PS1	108	98	111	3	-49	3	65	55	65	55
PN94	Ventilation Shaft - SCL TKW Station (South)	93	83	35	3	-39	3	60	50	60	50
N18	SPS at Site 5A1	96	84	49	3	-42	3	60	48	60	49
	ESS at Site 5A2	75	75	50	3	-42	3	39	39		
N19	SPS at Site 5A1	96	85	49	3	-42	3	60	49	60	50
	ESS at Site 5A2	75	75	44	3	-41	3	40	40		
N20B	Ventilation Shaft - CKR at Site 5B1	93	83	51	3	-42	3	57	47	60	50
	SCL Ventilation Building at Site 5B6	93	83	51	3	-42	3	57	47		
N21	Ventilation Shaft - CKR at Site 5B1	86	76	22	3	-35	3	57	47	60	50
	SCL Ventilation Building at Site 5B6	86	76	22	3	-35	3	57	47		
N24 <sup>(1)</sup>	ESS at Site 5C2	76	N/A	5	3	-22	3	60	N/A	60	N/A
PN2	ESS at Site 1D1	108	98	209	3	-54	3	60	50	60	50
PN18 <sup>(1)</sup>	ESS at Site 1A5	86	N/A	15	3	-32	3	60	N/A	60	N/A
PN41	SPS PS1A	90	80	25	3	-36	3	60	50	60	50
PN52 <sup>(2)</sup>	Ventilation Shaft - CKR at Site 1P3	103	89	215	3	-55	3	54	40	56	50
	Ventilation Shaft - Kai Tak Airport	93	83	124	3	-50	3	49	49		
	SPS PS2	66	61	9	3	-27	3	45	40		
	ESS at Site 1P4	80	80	83	3	-46	3	40	40		
PN61	SPS PS3	105	94	135	3	-51	3	60	49	60	50
	ESS at Site 2A7	76	76	49	3	-42	3	40	40		
PN62	Ventilation Shaft - SCL TKW Station (South)	93	83	209	3	-54	3	45	35	59	49
	Ventilation Shaft - SCL TKW Station (North)	108	98	232	3	-55	3	59	49		
PN63	Ventilation Shaft - T2	106	96	445	3	-61	3	51	41	51	41
PN64	ESS at Site 4D5	94	89	404	3	-50	3	40	35	60	50
	SPS at Site 4D6	94	89	440	3	-61	3	39	34		
	Cruise ship 2nd Berth <sup>(3)(4)</sup>	111	98	230	3	-55	0	59	46		
	Cruise ship 1st Berth <sup>(3)(4)</sup>	111	98	570	3	-63	0	51	38		
	Cruise Terminal Ventilation System	95	90	165	3	-52	3	49	44		
	Ventilation System of PTI at Site 4D2	95	90	130	3	-50	3	51	46		
PN45	Ventilation Shaft - SCL Kai Tai Station (South)	96	86	77	3	-46	3	56	46	57	47
	Ventilation Shaft - SCL Kai Tai Station (North)	95	85	180	3	-53	3	48	38		
	Ventilation system of PTI at Site 1F2	88	78	206	3	-54	3	40	30		
PN46	Ventilation Shaft - SCL Kai Tai Station (South)	96	86	190	3	-54	3	48	38	56	46
	Ventilation Shaft - SCL Kai Tai Station (North)	95	85	74	3	-45	3	56	46		
	Ventilation system of PTI at Site 1F2	88	78	185	3	-53	3	41	31		
PN73	Ventilation Shaft - SCL Kai Tai Station (South)	96	86	280	3	-57	3	45	35	56	46
	Ventilation Shaft - SCL Kai Tai Station (North)	95	85	118	3	-49	3	52	42		
	Ventilation system of PTI at Site 1F2	88	78	47	3	-41	3	53	43		
PN107 <sup>(1)</sup>	Cruise ship 2nd Berth <sup>(3)</sup>	111	N/A	150	3	-52	0	62	N/A	63	N/A
	Cruise ship 1st Berth <sup>(3)</sup>	111	N/A	550	3	-63	0	51	N/A		
	Cruise Terminal Ventilation System	95	N/A	160	3	-52	0	49	N/A		
	Ventilation System of PTI at Site 4D2	95	N/A	160	3	-52	3	49	N/A		
PN80	Ventilation Shaft - T2	106	96	90	3	-47	3	65	55	65	55
PN34	DCSP at Site 1N2	99	89	75	3	-46	3	59	49	59	49
PN38	DCSP at Site 1N2	99	89	70	3	-45	3	60	50	60	50
PN103	DCSP at Site 4C1	76	66	5	3	-22	3	60	50	60	50

Notes:

- (1) N24, PN18 & PN107 are not a NSR during nighttime.
- (2) The predicted noise level for PN52 are not including the noise from Stadium Complex. The cumulative noise level are presented in Appendix 7.3.
- (3) Sound Power level (111 dB(A)) of Cruise Ship is based on the Head Technical Report, Airborne Noise. The measured value does not include facade reflection and correction for tonality. The cruise ship noise level is relatively neutral and does not exhibit any significant noise characteristics such as tonal. Furthermore, the concerned NSRs are located far away from cruise ship, tonal characteristics for cruise ship are not expected. Therefore, tonality correction will not applied in the assessment.
- (4) Only auxiliary engine will operate and maintain cruise ship basic operation (eg. air conditioning, lighting for corridor, etc) during nighttime (2300 to 0700 of next day). The sound power level of 108 dB(A) for auxiliary engine is reference to Table 3 of GW-TM (CNP101). As the auxiliary engine is installed inside the cruise ship, 10dB(A) noise reduction was applied. Therefore, the sound power level of 98dB(A) was adopted in this assessment. Furthermore, the nearest residential NSR, Site 4B5 of 45mPD, will be partially screened from the cruise vessels by the cruise terminal building of 35mPD.

Project: Kai Tak Development  
Title: Maximum allowable SWL from Ventilation System of PTI

NSR	Noise Criteria ANL-5	Contributing Noise Sources	Propagation Dist, m	Corrections, dB(A)					Permissible SWL, dB(A)
				Facade	Dist	Dist	Ton	Int	
PN107 Daytime	60	Cruise Ship 1st berth	150	3	-52	-52	3	0	111
		Cruise Ship 2nd berth	550	3	-63	-63	3	0	111
		Ventilation system from Cruise terminal	160	3	-52	-52	3	0	95
		Ventilation System of PTI (Site 4D2)	160		-52	-52	3	0	98
PN64 Daytime	60	ESS at Site 4D5	404	3	-60	-60	3	0	94
		SPS at Site 4D6	440	3	-61	-61	3	0	94
		Cruise Ship 1st berth	230	3	-55	-55	3	0	111
		Cruise Ship 2nd berth	570	3	-63	-63	3	0	111
		Ventilation system from Cruise terminal	165	3	-52	-52	3	0	95
		Ventilation System of PTI (Site 4D2)	130	3	-50	-50	3	0	93
	50	ESS at Site 4D5	404	3	-60	-60	3	0	94
		SPS at Site 4D6	440	3	-61	-61	3	0	94
		Ventilation system from Cruise terminal	165	3	-52	-52	3	0	95
		Ventilation System of PTI (Site 4D2)	130	3	-50	-50	3	0	90
PN45 Daytime	60	SCL Ventilation Shaft - South (Kai Tak Station)	77	3	-46	-46	3	0	96
		SCL Ventilation Shaft - North (Kai Tak Station)	180	3	-53	-53	3	0	103
		Ventilating System for PTI (Site 1F2)	206	3	-54	-54	3	0	101
	50	SCL Ventilation Shaft - South (Kai Tak Station)	77	3	-46	-46	3	0	86
		SCL Ventilation Shaft - North (Kai Tak Station)	180	3	-53	-53	3	0	93
		Ventilating System for PTI (Site 1F2)	206	3	-54	-54	3	0	92
PN46 Daytime	60	SCL Ventilation Shaft - South (Kai Tak Station)	190	3	-54	-54	3	0	104
		SCL Ventilation Shaft - North (Kai Tak Station)	74	3	-45	-46	3	0	95
		Ventilating System for PTI (Site 1F2)	185	3	-53	-53	3	0	100
	50	SCL Ventilation Shaft - South (Kai Tak Station)	190	3	-54	-54	3	0	94
		SCL Ventilation Shaft - North (Kai Tak Station)	74	3	-45	-46	3	0	85
		Ventilating System for PTI (Site 1F2)	185	3	-53	-53	3	0	91
PN73 Daytime	60	SCL Ventilation Shaft - South (Kai Tak Station)	280	3	-57	-57	3	0	107
		SCL Ventilation Shaft - North (Kai Tak Station)	118	3	-49	-50	3	0	99
		Ventilating System for PTI (Site 1F2)	47	3	-41	-42	3	0	88
	50	SCL Ventilation Shaft - South (Kai Tak Station)	280	3	-57	-57	3	0	97
		SCL Ventilation Shaft - North (Kai Tak Station)	118	3	-49	-50	3	0	89
		Ventilating System for PTI (Site 1F2)	47	3	-41	-42	3	0	78

Project: Kai Tak Development  
Title: Maximum allowable SWL at Cruise Terminal

NSR	Noise Criteria ANL-5	Contributing Noise Sources	Propagation Dist, m	Corrections, dB(A)					Permissible SWL, dB(A)
				Facade	Dist	Dist	Ton	Int	
PN107 Daytime	60	Cruise Ship 1st berth	150	3	-52	-52	3	0	111
		Cruise Ship 2nd berth	550	3	-63	-63	3	0	111
		Ventilation system from Cruise terminal	160	3	-52	-52	3	0	95
		Ventilation System of PTI (Site 4D2)	160		-52	-52	3	0	98
PN64	Daytime 60	ESS at Site 4D5	404	3	-60	-60	3	0	94
		SPS at Site 4D6	440	3	-61	-61	3	0	94
		Cruise Ship 1st berth	230	3	-55	-55	3	0	111
		Cruise Ship 2nd berth	570	3	-63	-63	3	0	111
		Ventilation system from Cruise terminal	165	3	-52	-52	3	0	95
		Ventilation System of PTI (Site 4D2)	130	3	-50	-50	3	0	93
	Night-time 50	ESS at Site 4D5	404	3	-60	-60	3	0	94
		SPS at Site 4D6	440	3	-61	-61	3	0	94
		Ventilation system from Cruise terminal	165	3	-52	-52	3	0	95
		Ventilation System of PTI (Site 4D2)	130	3	-50	-50	3	0	95

Project: Kai Tak Development  
 Title: Maximum allowable SWL at EFTS Depot

NSR	Noise Criteria ANL-5	Contributing Noise Sources	Propagation Dist, m	Corrections, dB(A)					Permissible SWL, dB(A)
				Facade	Dist	Dist	Ton	Int	
PN108 Daytime	60	ESS at Site 1A5	55	3	-43	-43	3	0	97
Night-time	50	ESS at Site 1A5	55	3	-43	-43	3	0	87



Project: Kai Tak Development  
Title: Maximum allowable SWL at Ventilation Building

NSR	Noise Criteria ANL-5	Contributing Noise Sources	Propagation Dist, m	Corrections, dB(A)					Permissible SWL, dB(A)	
				Facade	Dist	Dist	Ton	Int		
PN63	Daytime	60	Road T2 (South façade)	445	3	-61	-61	3	0	115
	Night-time	50	Road T2 (South façade)	445	3	-61	-61	3	0	105
N20B	Daytime	60	CKR (North façade)	51	3	-42	-42	3	0	93
			SCL Vent. Shaft (North façade)	51	3	-42	-42	3	0	93
	Night-time	50	CKR (North façade)	51	3	-42	-42	3	0	83
			SCL Vent. Shaft (North façade)	51	3	-42	-42	3	0	83
N21	Daytime	60	CKR (South façade)	22	3	-35	-36	3	0	86
			SCL Vent. Shaft (South façade)	22	3	-35	-36	3	0	86
	Night-time	50	CKR (South façade)	22	3	-35	-36	3	0	76
			SCL Vent. Shaft (South façade)	22	3	-35	-36	3	0	76
PN52	Daytime	60	CKR (North façade)	215	3	-55	-55	3	0	103
			SPS PS2	9	3	-27	-29	3	0	61
			ESS at Site 1P4	83	3	-46	-47	3	0	80
			Exsiting KT Tunnel	124	3	-50	-50	3	0	93
	Night-time	50	CKR (North façade)	215	3	-55	-55	3	0	89
			SPS PS2	9	3	-27	-29	3	0	61
			ESS at Site 1P4	83	3	-46	-47	3	0	80
			Exsiting KT Tunnel	124	3	-50	-50	3	0	93
PN94	Daytime	60	SCL Ventilation Shaft - South (TKW Station)	35	3	-39	-39	3	0	93
	Night-time	50	SCL Ventilation Shaft - South (TKW Station)	35	3	-39	-39	3	0	83
PN62	Daytime	60	SCL Ventilation Shaft-South	209	3	-54	-54	3	0	103
			SCL Ventilation Shaft-North (TKW Station)	230	3	-55	-55	3	0	108
	Night-time	50	SCL Ventilation Shaft-South	209	3	-54	-54	3	0	93
			SCL Ventilation Shaft-North (TKW Station)	230	3	-55	-55	3	0	98
PN45	Daytime	60	SCL Ventilation Shaft - South (Kai Tak Station)	77	3	-46	-46	3	0	96
			SCL Ventilation Shaft - North (Kai Tak Station)	180	3	-53	-53	3	0	103
			Ventilating System for PTI (Site 1F2)	206	3	-54	-54	3	0	101
	Night-time	50	SCL Ventilation Shaft - South (Kai Tak Station)	77	3	-46	-46	3	0	86
			SCL Ventilation Shaft - North (Kai Tak Station)	180	3	-53	-53	3	0	93
			Ventilating System for PTI (Site 1F2)	206	3	-54	-54	3	0	92

Project: Kai Tak Development  
Title: Maximum allowable SWL at Ventilation Building

NSR	Noise Criteria ANL-5	Contributing Noise Sources	Propagation Dist, m	Corrections, dB(A)					Permissible SWL, dB(A)
				Facade	Dist	Dist	Ton	Int	
PN46	Daytime	SCL Ventilation Shaft - South (Kai Tak Station) SCL Ventilation Shaft - North (Kai Tak Station) Ventilating System for PTI (Site 1F2)	190	3	-54	-54	3	0	104
			74	3	-45	-46	3	0	95
			185	3	-53	-53	3	0	100
	Night-time	SCL Ventilation Shaft - South (Kai Tak Station) SCL Ventilation Shaft - North (Kai Tak Station) Ventilating System for PTI (Site 1F2)	190	3	-54	-54	3	0	94
			74	3	-45	-46	3	0	85
			185	3	-53	-53	3	0	91
PN80	Daytime	Road T2 (South façade)	90	3	-47	-47	3	0	106
	Night-time	Road T2 (South façade)	90	3	-47	-47	3	0	96
PN73	Daytime	SCL Ventilation Shaft - South (Kai Tak Station) SCL Ventilation Shaft - North (Kai Tak Station) Ventilating System for PTI (Site 1F2)	280	3	-57	-57	3	0	107
			118	3	-49	-50	3	0	99
			47	3	-41	-42	3	0	88
	Night-time	SCL Ventilation Shaft - South (Kai Tak Station) SCL Ventilation Shaft - North (Kai Tak Station) Ventilating System for PTI (Site 1F2)	280	3	-57	-57	3	0	97
			118	3	-49	-50	3	0	89
			47	3	-41	-42	3	0	78



Project: Kai Tak Development  
 Title: Maximum allowable SWL at DCSP

NSR	Noise Criteria ANL-5	Contributing Noise Sources	Propagation Dist, m	Corrections, dB(A)					Permissible SWL, dB(A)
				Facade	Dist	Dist	Ton	Int	
PN34									
Daytime	60	DCSP at Site 1N2	75	3	-46	-46	3	0	100
Night-time	50	DCSP at Site 1N2	75	3	-46	-46	3	0	90
PN38									
Daytime	60	DCSP at Site 1N2	70	3	-45	-45	3	0	99
Night-time	-	DCSP at Site 1N2	70	3	-45	-45	3	0	89
PN103									
Daytime	60	DCSP at Site 4C2	5	3	-22	-25	3	0	76
Night-time	50	DCSP at Site 4C2	5	3	-22	-25	3	0	66

Project: Kai Tak Development  
Title: Maximum allowable SWL at ESS

NSR	Noise Criteria ANL-5	Contributing Noise Sources	Propagation Dist, m	Corrections, dB(A)					Permissible SWL, dB(A)
				Facade	Dist	Dist	Ton	Int	
PN18 Daytime	60	ESS at Site 1A5	15	3	-32	-32	3	0	86
PN2 Daytime	65	ESS at Site 1D1	209	3	-54	-54	3	0	108
Night-time	55	ESS at Site 1D1	209	3	-54	-54	3	0	98
PN52 Daytime	60	CKR (North façade) SPS PS2 ESS at Site 1P4 Exsiting KT Tunnel	215 9 83 124	3 3 3 3	-55 -27 -46 -50	-55 -29 -47 -50	3 3 3 3	0 0 0 0	109 86 80 93
Night-time	50	CKR (North façade) SPS PS2 ESS at Site 1P4 Exsiting KT Tunnel	215 9 83 124	3 3 3 3	-55 -27 -46 -50	-55 -29 -47 -50	3 3 3 3	0 0 0 0	90 61 80 93
PN61 Daytime	60	SPS PS3 ESS at Site 2A7	135 49	3 3	-51 -42	-51 -42	3 3	0 0	105 76
Night-time	50	SPS PS3 ESS at Site 2A7	135 49	3 3	-51 -42	-51 -42	3 3	0 0	94 76
N24 Daytime	60	ESS at Site 5C2	5	3	-22	-25	3	0	76
N18 Daytime	60	SPS at Site 5A1 ESS at Site 5A2	45 50	3 3	-41 -42	-42 -42	3 3	0 0	95 76
Night-time	50	SPS at Site 5A1 ESS at Site 5A2	45 50	3 3	-41 -42	-42 -42	3 3	0 0	84 76
N19 Daytime	60	SPS at Site 5A1 ESS at Site 5A2	48 44	3 3	-42 -41	-42 -41	3 3	0 0	96 75
Night-time	50	SPS at Site 5A1 ESS at Site 5A2	48 44	3 3	-42 -41	-42 -41	3 3	0 0	85 75
PN64 Daytime	60	ESS at Site 4D5 SPS at Site 4D6 Cruise Ship 1st berth Cruise Ship 2nd berth Ventilation system from Cruise terminal Ventilation System of PTI (Site 4D2)	404 440 230 570 145 140	3 3 3 3 3 3	-60 -61 -55 -63 -51 -51	-60 -61 -55 -63 -51 -51	3 3 3 3 3 3	0 0 0 0 0 0	94 94 111 111 94 94
Night-time	50	ESS at Site 4D5 SPS at Site 4D6 Ventilation system from Cruise terminal Ventilation System of PTI (Site 4D2)	404 440 145 140	3 3 3 3	-60 -61 -51 -51	-60 -61 -51 -51	3 3 3 3	0 0 0 0	89 89 94 94

Project: Kai Tak Development  
Title: Maximum allowable SWL at SPS

NSR	Noise Criteria ANL-5	Contributing Noise Sources	Propagation Dist, m	Corrections, dB(A)					Permissible SWL, dB(A)
				Facade	Dist	Dist	Ton	Int	
PN41									
Daytime	60	SPS PS1A	25	3	-36	-36	3	0	90
Night-time	50	SPS PS1A	25	3	-36	-36	3	0	80
N12									
Daytime	65	SPS PS1	111	3	-49	-49	3	0	108
Night-time	55	SPS PS1	111	3	-49	-49	3	0	98
PN52									
Daytime	60	CKR (North façade) SPS PS2 ESS at Site 1P4 Exsiting KT Tunnel	215 9 83 124	3 3 3 3	-55 -27 -46 -50	-55 -29 -47 -50	3 3 3 3	0 0 0 0	104 66 80 93
Night-time	50	CKR (North façade) SPS PS2 ESS at Site 1P4 Exsiting KT Tunnel	215 9 83 124	3 3 3 3	-55 -27 -46 -50	-55 -29 -47 -50	3 3 3 3	0 0 0 0	89 61 80 93
PN61									
Daytime	60	SPS PS3 ESS at Site 2A7	135 49	3 3	-51 -42	-51 -42	3 3	0 0	105 76
Night-time	50	SPS PS3 ESS at Site 2A7	135 49	3 3	-51 -42	-51 -42	3 3	0 0	94 76
N17									
Daytime	60	SPS PS4 SCL Ventilation Shaft - South	88 237	3 3	-47 -55	-47 -56	3 3	0 0	100 104
Night-time	50	SPS PS4 SCL Ventilation Shaft - South	88 237	3 3	-47 -55	-47 -56	3 3	0 0	90 94
N18									
Daytime	60	SPS at Site 5A1 ESS at Site 5A2	45 50	3 3	-41 -42	-42 -42	3 3	0 0	95 76
Night-time	50	SPS at Site 5A1 ESS at Site 5A2	45 50	3 3	-41 -42	-42 -42	3 3	0 0	84 76
N19									
Daytime	60	SPS at Site 5A1 ESS at Site 5A2	48 44	3 3	-42 -41	-42 -41	3 3	0 0	96 75
Night-time	50	SPS at Site 5A1 ESS at Site 5A2	48 44	3 3	-42 -41	-42 -41	3 3	0 0	85 75
PN62									
Daytime	60	SPS PS4 SCL Ventilation Shaft-South SCL Ventilation Shaft-North	130 208 215	3 3 3	-50 -54 -55	-50 -54 -55	3 3 3	0 0 0	103 103 103
Night-time	50	SPS PS4 SCL Ventilation Shaft-South SCL Ventilation Shaft-North	130 208 215	3 3 3	-50 -54 -55	-50 -54 -55	3 3 3	0 0 0	93 93 93
PN64									
Daytime	60	ESS at Site 4D5 SPS at Site 4D6 Cruise Ship 1st berth Cruise Ship 2nd berth Ventilation system from Cruise terminal Ventilation System of PTI (Site 4D2)	404 440 230 570 145 140	3 3 3 3 3 3	-60 -61 -55 -63 -51 -51	-60 -61 -55 -63 -51 -51	3 3 3 3 3 3	0 0 0 0 0 0	94 94 111 111 94 94
Night-time	50	ESS at Site 4D5 SPS at Site 4D6 Ventilation system from Cruise terminal Ventilation System of PTI (Site 4D2)	404 440 145 140	3 3 3 3	-60 -61 -51 -51	-60 -61 -51 -51	3 3 3 3	0 0 0 0	89 89 94 94