Appendix 3.2
Calculation of Construction Noise - Mitigated Scenario

Construction Plant Inventory

Site Clearance

Powered Mechanical Equipment (PME)			TM Ref./ other Ref.	No.of Items	SWL/Item dB(A)	On-time %	Barrier dB	Total SWL dB(A)	Total SWL dB(A)
Excavator / Loader	[1]	[2]	C3/97	1	105	70%	5	98	
Dump Truck	[1]		C9/39	1	103	30%	0		98
							Total	98	98
							Max SWL	98	

Box Culvert

Excavation and Concreting

Powered Mechanical Equipment (PME)			TM Ref./ other Ref.	No.of Items	SWL/Item dB(A)	On-time %	Barrier dB	Total SWL dB(A)	Total SWL dB(A)	Total SWL dB(A)	Total SWL dB(A)	Total SWL dB(A)
Excavator / Loader	[1]	[2]	C3/97	1	105	70%	5	98				
Concrete Lorry Mixer	[1]	[2]	C6/23	1	100	50%	5		92			
Vibratory Poker	[1]	[2]	C6/32	1	100	70%	10		88			
Bar Bender / Cutter		[2]	CNP021	1	90	70%	10		78			
Dump Truck	[1]		C9/39	1	103	30%	0					98
Silent Piling Machine			Other EIA Ref	1	100	70%	0			98		
Breaker, excavator mounted (hydraulic)	[1]	[2]	C8/12	1	106	70%	10				94	
							Total	98	94	98	94	98
							Max SWL	98				

Backfilling and Road Restatement

Powered Mechanical Equipment (PME)			TM Ref./ other Ref.	No.of Items	SWL/Item dB(A)	On-time %	Barrier dB	Total SWL dB(A)	Total SWL dB(A)	Total SWL dB(A)	Total SWL dB(A)
Excavator / Loader	[1]	[2]	C3/97	1	105	70%	5	98			
Dump Truck	[1]		C9/39	1	103	30%	0				98
Concrete Lorry Mixer	[1]	[2]	C6/23	1	100	50%	5		92		
Vibratory Poker	[1]	[2]	C6/32	1	100	70%	10		88		
Vibratory Roller	[1]		EPD Website	1	101	50%	0			98	
							Total	98	94	98	98
							Max SWL	98			

Pumping Station Construction

Excavation

Powered Mechanical Equipment (PME)			TM Ref./ other Ref.	No.of Items	SWL/Item dB(A)	On-time %	Barrier dB	Total SWL dB(A)
Excavator / Loader	[1]		C3/97	1	105	70%	0	103
Dump Truck	[1]		C9/39	1	103	30%	0	98
Power Rammer			CNP169	1	108	70%	0	106
Breaker, excavator mounted (hydraulic)	[1]		C8/12	1	106	70%	0	104
							Total	110

Construction of Pumping Station

Powered Mechanical Equipment (PME)			TM Ref./ other Ref.	No.of Items	SWL/Item dB(A)	On-time %	Barrier dB	Total SWL dB(A)
Concrete Lorry Mixer	[1]		C6/23	1	100	50%	0	97
Vibratory Poker	[1]		C6/32	1	100	70%	0	98
Bar Bender / Cutter			CNP021	1	90	70%	0	88
Air Compressor			CNP003	1	104	50%	0	101
Submersible Pump			CNP283	2	85	100%	0	88
							Total	104

Backfilling

Powered Mechanical Equipment (PME)			TM Ref./ other Ref.	No.of Items	SWL/Item dB(A)	On-time %	Barrier dB	Total SWL dB(A)
Excavator / Loader	[1]		C3/97	1	105	70%	0	103
Dump Truck	[1]		C9/39	1	103	30%	0	98
							Total	104

Pipe Laying at Wai Ha (Conventional Method)

Excavation

Powered Mechanical Equipment (PME)			TM Ref./ other Ref.	No.of Items	SWL/Item dB(A)	On-time %	Barrier dB	Total SWL dB(A)	Total SWL dB(A)	Total SWL dB(A)
Excavator / Loader	[1]		C3/97	1	105	70%	0	103		
Dump Truck	[1]		C9/39	1	103	30%	0	98		
Power Rammer			CNP169	1	108	70%	0		106	
Breaker, excavator mounted (hydraulic)	[1]		C8/12	1	106	70%	0			104
							Total	104	106	104
							Max SWL	106		

Laying Pipe

Powered Mechanical Equipment (PME)			TM Ref./ other Ref.	No.of Items	SWL/Item dB(A)	On-time %	Barrier dB	Total SWL dB(A)	Total SWL dB(A)
Excavator / Loader	[1]		C3/97	1	105	70%	0	103	
Concrete Lorry Mixer	[1]		C6/23	1	100	50%	0		97
Vibratory Poker	[1]		C6/32	1	100	70%	0		98
							Total	103	101
							Max SWL	103	

Backfilling

Powered Mechanical Equipment (PME)			TM Ref./ other Ref.	No.of Items	SWL/Item dB(A)	On-time %	Barrier dB	Total SWL dB(A)	Total SWL dB(A)	Total SWL dB(A)
Excavator / Loader	[1]		C3/97	1	105	70%	0	103		
Dump Truck	[1]		C9/39	1	103	30%	0			98
Concrete Lorry Mixer	[1]		C6/23	1	100	50%	0		97	
Vibratory Poker	[1]		C6/32	1	100	70%	0		98	
							Total	103	101	98
							Max SWL	103		

Pipe Laying at Ting Kok Road

Excavation

Powered Mechanical Equipment (PME)			TM Ref./ other Ref.	No.of Items	SWL/Item dB(A)	On-time %	Barrier dB	Total SWL dB(A)	Total SWL dB(A)	Total SWL dB(A)
Excavator / Loader	[1]		C3/97	1	105	70%	0	103		
Dump Truck	[1]		C9/39	1	103	30%	0	98		
Power Rammer			CNP169	1	108	70%	0		106	
Breaker, excavator mounted (hydraulic)	[1]		C8/12	1	106	70%	0			104
							Total	104	106	104
							Max SWL	106		

Laying Pipe

Powered Mechanical Equipment (PME)			TM Ref./ other Ref.	No.of Items	SWL/Item dB(A)	On-time %	Barrier dB	Total SWL dB(A)
Excavator / Loader	[1]		C3/97	1	105	70%	0	103
Concrete Lorry Mixer	[1]		C6/23	1	100	50%	0	97
Vibratory Poker	[1]		C6/32	1	100	70%	0	98
							Total	105

Backfilling

Powered Mechanical Equipment (PME)			TM Ref./ other Ref.	No.of Items	SWL/Item dB(A)	On-time %	Barrier dB	Total SWL dB(A)
Excavator / Loader	[1]		C3/97	1	105	70%	0	103
Dump Truck	[1]		C9/39	1	103	30%	0	98
Concrete Lorry Mixer	[1]		C6/23	1	100	50%	0	97
Vibratory Poker	[1]		C6/32	1	100	70%	0	98
							Total	106

Mechanical Gate Installation

Powered Mechanical Equipment (PME)			TM Ref./ other Ref.	No.of Items	SWL/Item dB(A)	On-time %	Barrier dB	Total SWL dB(A)	Total SWL dB(A)	Total SWL dB(A)	Total SWL dB(A)
Excavator / Loader	[1]		C3/97	1	105	70%	0			103	
Dump Truck	[1]		C9/39	1	103	30%	0		98		
Concrete Lorry Mixer	[1]		C6/23	1	100	50%	0		97		
Power Rammer			CNP169	1	108	70%	0	106			
Breaker, excavator mounted (hydraulic)	[1]		C8/12	1	106	70%	0				104
Vibratory Poker	[1]		C6/32	1	100	70%	0			98	
							Total	106	100	105	104
							Max SWL	106			

Note:
[1] Use of Quieter PME
[2] Use of Temporary Noise Barrier
[3] Use of Acoustic Shed
Other Ref:
Noise data of Quality Powered Mecahnical Equipment (QPME) from EPD Website: http://www.epd.gov.hk/cgi-bin/npg/qpme/search_gen.pl
Other EIA Ref:
Application of Variation of Environmental Permit Conditins for "Prince Edward Station Pedestrian Subway Extension and Entrance Modification Works" project

Pipe Laying at Wai Ha (Low Impact Method)

Excavation

Powered Mechanical Equipment (PME)			TM Ref./ other Ref.	No.of Items	SWL/Item dB(A)	On-time %	Barrier dB	Total SWL dB(A)	Total SWL dB(A)
Hand held breaker		[3]	CNP024	1	108	30%	15	88	
Air compressor		[3]	CNP002	1	102	70%	15	85	
Mini backhoe			CNP082	1	94	40%	0		90
							Total	90	90
							Max SWL	90	

Laying Pipe

Powered Mechanical Equipment (PME)			TM Ref./ other Ref.	No.of Items	SWL/Item dB(A)	On-time %	Barrier dB	Total SWL dB(A)	Total SWL dB(A)
Mini backhoe		[2]	CNP082	1	94	50%	5	86	
Vibtratory poker	[1]	[3]	BSC6/32	1	100	30%	15		80
							Total	86	80
							Max SWL-1 (Backhoe w/ noise barrier)	86	
							Max SWL-2 (Backhoe w/o noise barrier)	91	

Backfilling

Powered Mechanical Equipment (PME)			TM Ref./ other Ref.	No.of Items	SWL/Item dB(A)	On-time %	Barrier dB	Total SWL dB(A)	Total SWL dB(A)
Vibratory Poker	[1]	[3]	BSC6/32	1	100	50%	15	82	
Vibratory Roller	[1]	[3]	EPD Website	1	101	60%	15		84
							Total	82	84
							Max SWL	84	

Note:
[1] Use of Quieter PME
[2] Use of Temporary Movable Barrier
[3] Use of Acoustic Shed
Other Ref:
Noise data of Quality Powered Mecahnical Equipment (QPME) from EPD Website: http://www.epd.gov.hk/cgi-bin/npg/qpme/search_gen.pl
Other EIA Ref:
Application of Variation of Environmental Permit Conditins for "Prince Edward Station Pedestrian Subway Extension and Entrance Modification Works" project

Appendix 3.2
Calculation of Construction Noise - Mitigated Scenario

Predicted Construction Noise Levels

NSR - SW1

Construction Task	SWL	Dist	SPL	Durations (from mth to mth)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
Site Clearance	98	22	66	0-3	66	66	66																											
Box culvert																																		
Excavation, Concreting (Ch 0 - 350)	98	>300	--	4-9				--	--	--	--	--	--																					
Backfilling, Road Restatement (Ch 0 - 350)	98	>300	--	10-12										--	--	--																		
Excavation, Concreting (Ch 350 - 700)	98	>300	--	13-18													--	--	--	--	--	--												
Backfilling, Road Reinstatement (Ch 350 - 700)	98	>300	--	19-21																			--	--	--									
Excavation, Concreting (Ch 700 - 1013)	98	223	46	22-27																						46	46	46	46	46	46			
Backfilling, Road Reinstatement (Ch 700 - 1013)	98	223	46	28-30																												46	46	46
Pumping Station																																		
Excavation	110	275	56	4-7				56	56	56	56																							
Constrcution of Pumping Station	104	275	50	8-19								50	50	50	50	50	50	50	50	50	50	50	50											
Backfilling	104	275	50	20-22																				50	50	50								
Pipe Laying at Wai Ha (Conventional Method)																																		
Excavation	106	>300	--	4-7				--	--	--	--																							
Laying pipe	103	>300	--	8-10								--	--	--																				
Backfilling	103	>300	--	11-14											--	--	--	--																
Pipe Laying along Ting Kok Road																																		
Excavation	106	58	66	4-7				66	66	66	66																							
Laying pipe	105	58	65	8-10								65	65	65																				
Backfilling	106	58	66	11-14											66	66	66	66																
Installation of Mechanical Gate	106	22	74	15-20															74	74	74	74	74	74										
Overall Noise Level					66	66	66	66	66	66	66	65	65	65	66	66	66	66	74	74	74	74	74	74	50	52	46	46	46	46	46	46	46	46

Appendix 3.2
Calculation of Construction Noise - Mitigated Scenario
NSR - SW2

Construction Task	SWL	Dist	SPL	Durations (from mth to mth)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
Site Clearance	98	105	53	0-3	53	53	53																											
Box culvert																																		
Excavation, Concreting (Ch 0 - 350)	98	>300	--	4-9				--	--	--	--	--	--																					
Backfilling, Road Restatement (Ch 0 - 350)	98	>300	--	10-12										--	--	--																		
Excavation, Concreting (Ch 350 - 700)	98	170	48	13-18													48	48	48	48	48	48												
Backfilling, Road Reinstatement (Ch 350 - 700)	98	170	48	19-21																			48	48	48									
Excavation, Concreting (Ch 700 - 1013)	98	138	50	22-27																						50	50	50	50	50	50			
Backfilling, Road Reinstatement (Ch 700 - 1013)	98	138	50	28-30																												50	50	50
Pumping Station																																		
Excavation	110	105	65	4-7				65	65	65	65																							
Constrcution of Pumping Station	104	105	59	8-19								59	59	59	59	59	59	59	59	59	59	59	59											
Backfilling	104	105	59	20-22																				59	59	59								
Pipe Laying at Wai Ha (Conventional Method)																																		
Excavation	106	>300	--	4-7				--	--	--	--																							
Laying pipe	103	>300	--	8-10								--	--	--																				
Backfilling	103	>300	--	11-14											--	--	--	--																
Pipe Laying along Ting Kok Road																																		
Excavation	106	125	59	4-7				59	59	59	59																							
Laying pipe	105	125	58	8-10								58	58	58																				
Backfilling	106	125	59	11-14											59	59	59	59																
Installation of Mechanical Gate	106	>300	--	15-20															--	--	--	--	--	--										
Overall Noise Level					53	53	53	66	66	66	66	61	61	61	62	62	62	62	59	59	59	59	59	59	59	59	50	50	50	50	50	50	50	50

Appendix 3.2
Calculation of Construction Noise - Mitigated Scenario
NSR - SW3

Construction Task	SWL	Dist	SPL	Durations (from mth to mth)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
Site Clearance	98	53	59	0-3	59	59	59																											
Box culvert																																		
Excavation, Concreting (Ch 0 - 350)	98	>300	--	4-9				--	--	--	--	--	--																					
Backfilling, Road Restatement (Ch 0 - 350)	98	>300	--	10-12										--	--	--																		
Excavation, Concreting (Ch 350 - 700)	98	58	58	13-18													58	58	58	58	58	58												
Backfilling, Road Reinstatement (Ch 350 - 700)	98	58	58	19-21																			58	58	58									
Excavation, Concreting (Ch 700 - 1013)	98	53	59	22-27																						59	59	59	59	59	59			
Backfilling, Road Reinstatement (Ch 700 - 1013)	98	53	59	28-30																												59	59	59
Pumping Station																																		
Excavation	110	215	58	4-7				58	58	58	58																							
Constrcution of Pumping Station	104	215	52	8-19								52	52	52	52	52	52	52	52	52	52	52	52											
Backfilling	104	215	52	20-22																				52	52	52								
Pipe Laying at Wai Ha (Conventional Method)																																		
Excavation	106	270	52	4-7				52	52	52	52																							
Laying pipe	103	270	49	8-10								49	49	49																				
Backfilling	103	270	49	11-14											49	49	49	49																
Pipe Laying along Ting Kok Road																																		
Excavation	106	225	54	4-7				54	54	54	54																							
Laying pipe	105	225	53	8-10								53	53	53																				
Backfilling	106	225	54	11-14											54	54	54	54																
Installation of Mechanical Gate	106	>300	--	15-20															--	--	--	--	--	--										
Overall Noise Level					59	59	59	60	60	60	60	57	57	57	57	57	60	60	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59

Appendix 3.2
Calculation of Construction Noise - Mitigated Scenario
NSR - SW4

Construction Task	SWL	Dist	SPL	Durations (from mth to mth)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
Site Clearance	98	35	62	0-3	62	62	62																											
Box culvert																																		
Excavation, Concreting (Ch 0 - 350)	98	>300	--	4-9				--	--	--	--	--	--																					
Backfilling, Road Restatement (Ch 0 - 350)	98	>300	--	10-12										--	--	--																		
Excavation, Concreting (Ch 350 - 700)	98	35	62	13-18													62	62	62	62	62	62												
Backfilling, Road Reinstatement (Ch 350 - 700)	98	35	62	19-21																			62	62	62									
Excavation, Concreting (Ch 700 - 1013)	98	55	58	22-27																						58	58	58	58	58	58			
Backfilling, Road Reinstatement (Ch 700 - 1013)	98	55	58	28-30																												58	58	58
Pumping Station																																		
Excavation	110	260	57	4-7				57	57	57	57																							
Constrcution of Pumping Station	104	260	51	8-19								51	51	51	51	51	51	51	51	51	51	51	51											
Backfilling	104	260	51	20-22																				51	51	51								
Pipe Laying at Wai Ha (Conventional Method)																																		
Excavation	106	238	53	4-7				53	53	53	53																							
Laying pipe	103	238	50	8-10								50	50	50																				
Backfilling	103	238	50	11-14											50	50	50	50																
Pipe Laying along Ting Kok Road																																		
Excavation	106	275	52	4-7				52	52	52	52																							
Laying pipe	105	275	51	8-10								51	51	51																				
Backfilling	106	275	52	11-14											52	52	52	52																
Installation of Mechanical Gate	106	>300	--	15-20															--	--	--	--	--	--										
Overall Noise Level					62	62	62	59	59	59	59	56	56	56	56	56	63	63	62	62	62	62	62	62	62	59	58	58	58	58	58	58	58	58

Appendix 3.2
Calculation of Construction Noise - Mitigated Scenario
NSR - SW5

Construction Task	SWL	Dist	SPL	Durations (from mth to mth)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
Site Clearance	98	20	67	0-3	67	67	67																											
Box culvert																																		
Excavation, Concreting (Ch 0 - 350)	98	238	45	4-9				45	45	45	45	45	45																					
Backfilling, Road Restatement (Ch 0 - 350)	98	238	45	10-12										45	45	45																		
Excavation, Concreting (Ch 350 - 700)	98	20	67	13-18													67	67	67	67	67	67												
Backfilling, Road Reinstatement (Ch 350 - 700)	98	20	67	19-21																			67	67	67									
Excavation, Concreting (Ch 700 - 1013)	98	138	50	22-27																						50	50	50	50	50	50			
Backfilling, Road Reinstatement (Ch 700 - 1013)	98	138	50	28-30																												50	50	50
Pumping Station																																		
Excavation	110	>300	--	4-7				--	--	--	--																							
Constrcution of Pumping Station	104	>300	--	8-19								--	--	--	--	--	--	--	--	--	--	--	--											
Backfilling	104	>300	--	20-22																				--	--	--								
Pipe Laying at Wai Ha (Conventional Method)																																		
Excavation	106	138	58	4-7				58	58	58	58																							
Laying pipe	103	138	55	8-10								55	55	55																				
Backfilling	103	138	55	11-14											55	55	55	55																
Pipe Laying along Ting Kok Road																																		
Excavation	106	>300	--	4-7				--	--	--	--																							
Laying pipe	105	>300	--	8-10								--	--	--																				
Backfilling	106	>300	--	11-14											--	--	--	--																
Installation of Mechanical Gate	106	>300	--	15-20															--	--	--	--	--	--										
Overall Noise Level					67	67	67	58	58	58	58	56	56	56	56	56	67	67	67	67	67	67	67	67	67	50	50	50	50	50	50	50	50	50

Appendix 3.2
Calculation of Construction Noise - Mitigated Scenario
NSR - SW6

Construction Task	SWL	Dist	SPL	Durations (from mth to mth)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
Site Clearance	98	20	67	0-3	67	67	67																											
Box culvert																																		
Excavation, Concreting (Ch 0 - 350)	98	158	49	4-9				49	49	49	49	49	49																					
Backfilling, Road Restatement (Ch 0 - 350)	98	158	49	10-12										49	49	49																		
Excavation, Concreting (Ch 350 - 700)	98	20	67	13-18													67	67	67	67	67	67												
Backfilling, Road Reinstatement (Ch 350 - 700)	98	20	67	19-21																			67	67	67									
Excavation, Concreting (Ch 700 - 1013)	98	200	47	22-27																						47	47	47	47	47	47			
Backfilling, Road Reinstatement (Ch 700 - 1013)	98	200	47	28-30																												47	47	47
Pumping Station																																		
Excavation	110	>300	--	4-7				--	--	--	--																							
Constrcution of Pumping Station	104	>300	--	8-19								--	--	--	--	--	--	--	--	--	--	--	--											
Backfilling	104	>300	--	20-22																				--	--	--								
Pipe Laying at Wai Ha (Conventional Method)																																		
Excavation	106	65	65	4-7				65	65	65	65																							
Laying pipe	103	65	62	8-10								62	62	62																				
Backfilling	103	65	62	11-14											62	62	62	62																
Pipe Laying along Ting Kok Road																																		
Excavation	106	>300	--	4-7				--	--	--	--																							
Laying pipe	105	>300	--	8-10								--	--	--																				
Backfilling	106	>300	--	11-14											--	--	--	--																
Installation of Mechanical Gate	106	>300	--	15-20															--	--	--	--	--	--										
Overall Noise Level					67	67	67	65	65	65	65	62	62	62	62	62	68	68	67	67	67	67	67	67	67	47	47	47	47	47	47	47	47	47

Appendix 3.2
Calculation of Construction Noise - Mitigated Scenario
NSR - SW7

Construction Task	SWL	Dist	SPL	Durations (from mth to mth)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
Site Clearance	98	30	63	0-3	63	63	63																											
Box culvert																																		
Excavation, Concreting (Ch 0 - 350)	98	30	63	4-9				63	63	63	63	63	63																					
Backfilling, Road Restatement (Ch 0 - 350)	98	30	63	10-12										63	63	63																		
Excavation, Concreting (Ch 350 - 700)	98	130	51	13-18													51	51	51	51	51	51												
Backfilling, Road Reinstatement (Ch 350 - 700)	98	130	51	19-21																			51	51	51									
Excavation, Concreting (Ch 700 - 1013)	98	>300	--	22-27																						--	--	--	--	--	--			
Backfilling, Road Reinstatement (Ch 700 - 1013)	98	>300	--	28-30																												--	--	--
Pumping Station																																		
Excavation	110	>300	--	4-7				--	--	--	--																							
Constrcution of Pumping Station	104	>300	--	8-19								--	--	--	--	--	--	--	--	--	--	--	--											
Backfilling	104	>300	--	20-22																				--	--	--								
Pipe Laying at Wai Ha (Conventional Method)																																		
Excavation	106	120	59	4-7				59	59	59	59																							
Laying pipe	103	120	56	8-10								56	56	56																				
Backfilling	103	120	56	11-14											56	56	56	56																
Pipe Laying along Ting Kok Road																																		
Excavation	106	>300	--	4-7				--	--	--	--																							
Laying pipe	105	>300	--	8-10								--	--	--																				
Backfilling	106	>300	--	11-14											--	--	--	--																
Installation of Mechanical Gate	106	>300	--	15-20															--	--	--	--	--	--										
Overall Noise Level					63	63	63	65	65	65	65	64	64	64	64	64	57	57	51	51	51	51	51	51	51	--	--	--	--	--	--	--	--	--

Appendix 3.2
Calculation of Construction Noise - Mitigated Scenario
NSR - SW8 (1/F)

Construction Task	SWL	Dist	SPL	Durations (from mth to mth)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
Site Clearance (Ch 0 - 1013)	98	130	51	0-3	51	51	51																											
Box culvert																																		
Excavation, Concreting (Ch 0 - 350)	98	130	51	4-9				51	51	51	51	51	51																					
Backfilling, Road Restatement (Ch 0 - 350)	98	130	51	10-12										51	51	51																		
Excavation, Concreting (Ch 350 - 700)	98	148	50	13-18													50	50	50	50	50	50												
Backfilling, Road Reinstatement (Ch 350 - 700)	98	148	50	19-21																			50	50	50									
Excavation, Concreting (Ch 700 - 1013)	98	>300	--	22-27																						--	--	--	--	--	--			
Backfilling, Road Reinstatement (Ch 700 - 1013)	98	>300	--	28-30																												--	--	--
Pumping Station																																		
Excavation	110	>300	--	4-7				--	--	--	--																							
Constrcution of Pumping Station	104	>300	--	8-19								--	--	--	--	--	--	--	--	--	--	--	--											
Backfilling	104	>300	--	20-22																				--	--	--								
Pipe Laying at Wai Ha (Low Impact Method)																																		
Excavation	90	5	71	4-7				71	71	71	71																							
Laying pipe	86	5	67	8-10								67	67	67																				
Backfilling	84	5	65	11-14											65	65	65	65																
Pipe Laying along Ting Kok Road																																		
Excavation	106	>300	--	4-7				--	--	--	--																							
Laying pipe	105	>300	--	8-10								--	--	--																				
Backfilling	106	>300	--	11-14											--	--	--	--																
Installation of Mechanical Gate	106	>300	--	15-20															--	--	--	--	--	--										
Overall Noise Level					51	51	51	71	71	71	71	67	67	67	65	65	65	65	50	50	50	50	50	50	50	--	--	--	--	--	--	--	--	--

Appendix 3.2
Calculation of Construction Noise - Mitigated Scenario
NSR - SW8 (2/F)

Construction Task	SWL	Dist	SPL	Durations (from mth to mth)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
Site Clearance (Ch 0 - 1013)	98	130	51	0-3	51	51	51																											
Box culvert																																		
Excavation, Concreting (Ch 0 - 350)	98	130	51	4-9				51	51	51	51	51	51																					
Backfilling, Road Restatement (Ch 0 - 350)	98	130	51	10-12										51	51	51																		
Excavation, Concreting (Ch 350 - 700)	98	148	50	13-18													50	50	50	50	50	50												
Backfilling, Road Reinstatement (Ch 350 - 700)	98	148	50	19-21																			50	50	50									
Excavation, Concreting (Ch 700 - 1013)	98	>300	--	22-27																						--	--	--	--	--	--			
Backfilling, Road Reinstatement (Ch 700 - 1013)	98	>300	--	28-30																												--	--	--
Pumping Station																																		
Excavation	110	>300	--	4-7				--	--	--	--																							
Constrcution of Pumping Station	104	>300	--	8-19								--	--	--	--	--	--	--	--	--	--	--	--											
Backfilling	104	>300	--	20-22																				--	--	--								
Pipe Laying at Wai Ha (Low Impact Method)																																		
Excavation	90	6	70	4-7				70	70	70	70																							
Laying pipe	86	6	66	8-10								66	66	66																				
Backfilling	84	6	64	11-14											64	64	64	64																
Pipe Laying along Ting Kok Road																																		
Excavation	106	>300	--	4-7				--	--	--	--																							
Laying pipe	105	>300	--	8-10								--	--	--																				
Backfilling	106	>300	--	11-14											--	--	--	--																
Installation of Mechanical Gate	106	>300	--	15-20															--	--	--	--	--	--										
Overall Noise Level					51	51	51	70	70	70	70	66	66	66	64	64	64	64	50	50	50	50	50	50	50	--	--	--	--	--	--	--	--	--

Appendix 3.2
Calculation of Construction Noise - Mitigated Scenario
NSR - SW8 (3/F)

Construction Task	SWL	Dist	SPL	Durations (from mth to mth)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
Site Clearance (Ch 0 - 1013)	98	130	51	0-3	51	51	51																											
Box culvert																																		
Excavation, Concreting (Ch 0 - 350)	98	130	51	4-9				51	51	51	51	51	51																					
Backfilling, Road Restatement (Ch 0 - 350)	98	130	51	10-12										51	51	51																		
Excavation, Concreting (Ch 350 - 700)	98	148	50	13-18													50	50	50	50	50	50												
Backfilling, Road Reinstatement (Ch 350 - 700)	98	148	50	19-21																			50	50	50									
Excavation, Concreting (Ch 700 - 1013)	98	>300	--	22-27																						--	--	--	--	--	--			
Backfilling, Road Reinstatement (Ch 700 - 1013)	98	>300	--	28-30																												--	--	--
Pumping Station																																		
Excavation	110	>300	--	4-7				--	--	--	--																							
Constrcution of Pumping Station	104	>300	--	8-19								--	--	--	--	--	--	--	--	--	--	--	--											
Backfilling	104	>300	--	20-22																				--	--	--								
Pipe Laying at Wai Ha (Low Impact Method)																																		
Excavation	90	7	68	4-7				68	68	68	68																							
Laying pipe	91	7	69	8-10								69	69	69																				
Backfilling	84	7	62	11-14											62	62	62	62																
Pipe Laying along Ting Kok Road																																		
Excavation	106	>300	--	4-7				--	--	--	--																							
Laying pipe	105	>300	--	8-10								--	--	--																				
Backfilling	106	>300	--	11-14											--	--	--	--																
Installation of Mechanical Gate	106	>300	--	15-20															--	--	--	--	--	--										
Overall Noise Level					51	51	51	68	68	68	68	69	69	69	62	62	62	62	50	50	50	50	50	50	50	--	--	--	--	--	--	--	--	--

Appendix 3.2
Calculation of Construction Noise - Mitigated Scenario
NSR - SW8 (1-3/F)

Construction Task	SWL	Dist	Barr	SPL	Durations (from mth to mth)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
Site Clearance (Ch 0 - 1013)	98	130		51	0-3	51	51	51																											
Box culvert																																			
Excavation, Concreting (Ch 0 - 350)	98	130		51	4-9				51	51	51	51	51	51																					
Backfilling, Road Restatement (Ch 0 - 350)	98	130		51	10-12										51	51	51																		
Excavation, Concreting (Ch 350 - 700)	98	148		50	13-18													50	50	50	50	50	50												
Backfilling, Road Reinstatement (Ch 350 - 700)	98	148		50	19-21																			50	50	50									
Excavation, Concreting (Ch 700 - 1013)	98	>300		--	22-27																						--	--	--	--	--	--			
Backfilling, Road Reinstatement (Ch 700 - 1013)	98	>300		--	28-30																												--	--	--
Pumping Station																																			
Excavation	110	>300		--	4-7				--	--	--	--																							
Constrcution of Pumping Station	104	>300		--	8-19								--	--	--	--	--	--	--	--	--	--	--	--											
Backfilling	104	>300		--	20-22																				--	--	--								
Pipe Laying at Wai Ha (Conventional Method)																																			
Excavation	106	30		71	4-7				71	71	71	71																							
Laying pipe	103	30		68	8-10								68	68	68																				
Backfilling	103	30		68	11-14											68	68	68	68																
Pipe Laying along Ting Kok Road																																			
Excavation	106	>300		--	4-7				--	--	--	--																							
Laying pipe	105	>300		--	8-10								--	--	--																				
Backfilling	106	>300		--	11-14											--	--	--	--																
Installation of Mechanical Gate	106	>300		--	15-20															--	--	--	--	--	--										
Overall Noise Level						51	51	51	71	71	71	71	69	69	69	69	69	69	69	50	50	50	50	50	50	50	--	--	--	--	--	--	--	--	--

Appendix 3.2
Calculation of Construction Noise - Mitigated Scenario
NSR - SW9 (1/F)

Construction Task	SWL	Dist	SPL	Durations (from mth to mth)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
Site Clearance (Ch 0 - 1013)	98	135	50	0-3	50	50	50																											
Box culvert																																		
Excavation, Concreting (Ch 0 - 350)	98	135	50	4-9				50	50	50	50	50	50																					
Backfilling, Road Restatement (Ch 0 - 350)	98	135	50	10-12										50	50	50																		
Excavation, Concreting (Ch 350 - 700)	98	185	48	13-18													48	48	48	48	48	48												
Backfilling, Road Reinstatement (Ch 350 - 700)	98	185	48	19-21																			48	48	48									
Excavation, Concreting (Ch 700 - 1013)	98	>300	--	22-27																						--	--	--	--	--	--			
Backfilling, Road Reinstatement (Ch 700 - 1013)	98	>300	--	28-30																												--	--	--
Pumping Station																																		
Excavation	110	>300	--	4-7				--	--	--	--																							
Constrcution of Pumping Station	104	>300	--	8-19								--	--	--	--	--	--	--	--	--	--	--	--											
Backfilling	104	>300	--	20-22																				--	--	--								
Pipe Laying at Wai Ha (Low Impact Method)																																		
Excavation	90	3	75	4-7				75	75	75	75																							
Laying pipe	86	3	71	8-10								71	71	71																				
Backfilling	84	3	69	11-14											69	69	69	69																
Pipe Laying along Ting Kok Road																																		
Excavation	106	>300	--	4-7				--	--	--	--																							
Laying pipe	105	>300	--	8-10								--	--	--																				
Backfilling	106	>300	--	11-14											--	--	--	--																
Installation of Mechanical Gate	106	>300	--	15-20															--	--	--	--	--	--										
Overall Noise Level					50	50	50	75	75	75	75	71	71	71	70	70	69	69	48	48	48	48	48	48	48	--	--	--	--	--	--	--	--	--

Appendix 3.2
Calculation of Construction Noise - Mitigated Scenario
NSR - SW9 (2/F)

Construction Task	SWL	Dist	SPL	Durations (from mth to mth)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
Site Clearance (Ch 0 - 1013)	98	135	50	0-3	50	50	50																											
Box culvert																																		
Excavation, Concreting (Ch 0 - 350)	98	135	50	4-9				50	50	50	50	50	50																					
Backfilling, Road Restatement (Ch 0 - 350)	98	135	50	10-12										50	50	50																		
Excavation, Concreting (Ch 350 - 700)	98	185	48	13-18													48	48	48	48	48	48												
Backfilling, Road Reinstatement (Ch 350 - 700)	98	185	48	19-21																			48	48	48									
Excavation, Concreting (Ch 700 - 1013)	98	>300	--	22-27																						--	--	--	--	--	--			
Backfilling, Road Reinstatement (Ch 700 - 1013)	98	>300	--	28-30																												--	--	--
Pumping Station																																		
Excavation	110	>300	--	4-7				--	--	--	--																							
Constrcution of Pumping Station	104	>300	--	8-19								--	--	--	--	--	--	--	--	--	--	--	--											
Backfilling	104	>300	--	20-22																				--	--	--								
Pipe Laying at Wai Ha (Low Impact Method)																																		
Excavation	90	4	73	4-7				73	73	73	73																							
Laying pipe	86	4	69	8-10								69	69	69																				
Backfilling	84	4	67	11-14											67	67	67	67																
Pipe Laying along Ting Kok Road																																		
Excavation	106	>300	--	4-7				--	--	--	--																							
Laying pipe	105	>300	--	8-10								--	--	--																				
Backfilling	106	>300	--	11-14											--	--	--	--																
Installation of Mechanical Gate	106	>300	--	15-20															--	--	--	--	--	--										
Overall Noise Level					50	50	50	73	73	73	73	69	69	69	67	67	67	67	48	48	48	48	48	48	48	--	--	--	--	--	--	--	--	--

Appendix 3.2
Calculation of Construction Noise - Mitigated Scenario
NSR - SW9 (3/F)

Construction Task	SWL	Dist	SPL	Durations (from mth to mth)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
Site Clearance (Ch 0 - 1013)	98	135	50	0-3	50	50	50																											
Box culvert																																		
Excavation, Concreting (Ch 0 - 350)	98	135	50	4-9				50	50	50	50	50	50																					
Backfilling, Road Restatement (Ch 0 - 350)	98	135	50	10-12										50	50	50																		
Excavation, Concreting (Ch 350 - 700)	98	185	48	13-18													48	48	48	48	48	48												
Backfilling, Road Reinstatement (Ch 350 - 700)	98	185	48	19-21																			48	48	48									
Excavation, Concreting (Ch 700 - 1013)	98	>300	--	22-27																						--	--	--	--	--	--			
Backfilling, Road Reinstatement (Ch 700 - 1013)	98	>300	--	28-30																												--	--	--
Pumping Station																																		
Excavation	110	>300	--	4-7				--	--	--	--																							
Constrcution of Pumping Station	104	>300	--	8-19								--	--	--	--	--	--	--	--	--	--	--	--											
Backfilling	104	>300	--	20-22																				--	--	--								
Pipe Laying at Wai Ha (Low Impact Method)																																		
Excavation	90	6	70	4-7				70	70	70	70																							
Laying pipe	91	6	71	8-10								71	71	71																				
Backfilling	84	6	64	11-14											64	64	64	64																
Pipe Laying along Ting Kok Road																																		
Excavation	106	>300	--	4-7				--	--	--	--																							
Laying pipe	105	>300	--	8-10								--	--	--																				
Backfilling	106	>300	--	11-14											--	--	--	--																
Installation of Mechanical Gate	106	>300	--	15-20															--	--	--	--	--	--										
Overall Noise Level					50	50	50	70	70	70	70	71	71	71	64	64	64	64	48	48	48	48	48	48	48	--	--	--	--	--	--	--	--	--

Appendix 3.2
Calculation of Construction Noise - Mitigated Scenario
NSR - SW9 (1-3/F)

Construction Task	SWL	Dist	Barr	SPL	Durations (from mth to mth)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
Site Clearance (Ch 0 - 1013)	98	135		50	0-3	50	50	50																											
Box culvert																																			
Excavation, Concreting (Ch 0 - 350)	98	135		50	4-9				50	50	50	50	50	50																					
Backfilling, Road Restatement (Ch 0 - 350)	98	135		50	10-12										50	50	50																		
Excavation, Concreting (Ch 350 - 700)	98	185		48	13-18													48	48	48	48	48	48												
Backfilling, Road Reinstatement (Ch 350 - 700)	98	185		48	19-21																			48	48	48									
Excavation, Concreting (Ch 700 - 1013)	98	>300		--	22-27																						--	--	--	--	--	--			
Backfilling, Road Reinstatement (Ch 700 - 1013)	98	>300		--	28-30																												--	--	--
Pumping Station																																			
Excavation	110	>300		--	4-7				--	--	--	--																							
Constrcution of Pumping Station	104	>300		--	8-19								--	--	--	--	--	--	--	--	--	--	--	--											
Backfilling	104	>300		--	20-22																				--	--	--								
Pipe Laying at Wai Ha (Conventional Method)																																			
Excavation	106	55		66	4-7				66	66	66	66																							
Laying pipe	103	55		63	8-10								63	63	63																				
Backfilling	103	55		63	11-14											63	63	63	63																
Pipe Laying along Ting Kok Road																																			
Excavation	106	>300		--	4-7				--	--	--	--																							
Laying pipe	105	>300		--	8-10								--	--	--																				
Backfilling	106	>300		--	11-14											--	--	--	--																
Installation of Mechanical Gate	106	>300		--	15-20															--	--	--	--	--	--										
Overall Noise Level						50	50	50	66	66	66	66	63	63	63	63	63	63	63	48	48	48	48	48	48	48	--	--	--	--	--	--	--	--	--

Appendix 3.2
Calculation of Construction Noise - Mitigated Scenario
NSR - SW10

Construction Task	SWL	Dist	SPL	Durations (from mth to mth)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
Site Clearance	98	9	74	0-3	74	74	74																											
Box culvert																																		
Excavation, Concreting (Ch 0 - 350)	98	9	74	4-9				74	74	74	74	74	74																					
Backfilling, Road Restatement (Ch 0 - 350)	98	9	74	10-12										74	74	74																		
Excavation, Concreting (Ch 350 - 700)	98	288	44	13-18													44	44	44	44	44	44												
Backfilling, Road Reinstatement (Ch 350 - 700)	98	288	44	19-21																			44	44	44									
Excavation, Concreting (Ch 700 - 1013)	98	>300	--	22-27																						--	--	--	--	--	--			
Backfilling, Road Reinstatement (Ch 700 - 1013)	98	>300	--	28-30																												--	--	--
Pumping Station																																		
Excavation	110	>300	--	4-7				--	--	--	--																							
Constrcution of Pumping Station	104	>300	--	8-19								--	--	--	--	--	--	--	--	--	--	--	--											
Backfilling	104	>300	--	20-22																				--	--	--								
Pipe Laying at Wai Ha (Conventional Method)																																		
Excavation	106	138	58	4-7				58	58	58	58																							
Laying pipe	103	138	55	8-10								55	55	55																				
Backfilling	103	138	55	11-14											55	55	55	55																
Pipe Laying along Ting Kok Road																																		
Excavation	106	>300	--	4-7				--	--	--	--																							
Laying pipe	105	>300	--	8-10								--	--	--																				
Backfilling	106	>300	--	11-14											--	--	--	--																
Installation of Mechanical Gate	106	>300	--	15-20															--	--	--	--	--	--										
Overall Noise Level					74	74	74	74	74	74	74	74	74	74	74	74	56	56	44	44	44	44	44	44	44	--	--	--	--	--	--	--	--	--

Appendix 3.2
Calculation of Construction Noise - Mitigated Scenario
NSR - SWA1

Construction Task	SWL	Dist	SPL	Durations (from mth to mth)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
Site Clearance	98	13	71	0-3	71	71	71																											
Box culvert																																		
Excavation, Concreting (Ch 0 - 350)	98	298	44	4-9				44	44	44	44	44	44																					
Backfilling, Road Restatement (Ch 0 - 350)	98	298	44	10-12										44	44	44																		
Excavation, Concreting (Ch 350 - 700)	98	13	71	13-18													71	71	71	71	71	71												
Backfilling, Road Reinstatement (Ch 350 - 700)	98	13	71	19-21																			71	71	71									
Excavation, Concreting (Ch 700 - 1013)	98	43	60	22-27																						60	60	60	60	60	60			
Backfilling, Road Reinstatement (Ch 700 - 1013)	98	43	60	28-30																												60	60	60
Pumping Station																																		
Excavation	110	275	56	4-7				56	56	56	56																							
Constrcution of Pumping Station	104	275	50	8-19								50	50	50	50	50	50	50	50	50	50	50	50											
Backfilling	104	275	50	20-22																				50	50	50								
Pipe Laying at Wai Ha (Conventional Method)																																		
Excavation	106	200	55	4-7				55	55	55	55																							
Laying pipe	103	200	52	8-10								52	52	52																				
Backfilling	103	200	52	11-14											52	52	52	52																
Pipe Laying along Ting Kok Road																																		
Excavation	106	288	52	4-7				52	52	52	52																							
Laying pipe	105	288	51	8-10								51	51	51																				
Backfilling	106	288	52	11-14											52	52	52	52																
Installation of Mechanical Gate	106	>300	--	15-20															--	--	--	--	--	--										
Overall Noise Level					71	71	71	60	60	60	60	56	56	56	56	56	71	71	71	71	71	71	71	71	71	61	60	60	60	60	60	60	60	60

Appendix 3.2
Calculation of Construction Noise - Mitigated Scenario
NSR - SWA2

Construction Task	SWL	Dist	SPL	Durations (from mth to mth)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
Site Clearance	98	15	69	0-3	69	69	69																											
Box culvert																																		
Excavation, Concreting (Ch 0 - 350)	98	15	69	4-9				69	69	69	69	69	69																					
Backfilling, Road Restatement (Ch 0 - 350)	98	15	69	10-12										69	69	69																		
Excavation, Concreting (Ch 350 - 700)	98	100	53	13-18													53	53	53	53	53	53												
Backfilling, Road Reinstatement (Ch 350 - 700)	98	100	53	19-21																			53	53	53									
Excavation, Concreting (Ch 700 - 1013)	98	>300	--	22-27																						--	--	--	--	--	--			
Backfilling, Road Reinstatement (Ch 700 - 1013)	98	>300	--	28-30																												--	--	--
Pumping Station																																		
Excavation	110	>300	--	4-7				--	--	--	--																							
Constrcution of Pumping Station	104	>300	--	8-19								--	--	--	--	--	--	--	--	--	--	--	--											
Backfilling	104	>300	--	20-22																				--	--	--								
Pipe Laying at Wai Ha (Conventional Method)																																		
Excavation	106	110	60	4-7				60	60	60	60																							
Laying pipe	103	110	57	8-10								57	57	57																				
Backfilling	103	110	57	11-14											57	57	57	57																
Pipe Laying along Ting Kok Road																																		
Excavation	106	>300	--	4-7				--	--	--	--																							
Laying pipe	105	>300	--	8-10								--	--	--																				
Backfilling	106	>300	--	11-14											--	--	--	--																
Installation of Mechanical Gate	106	>300	--	15-20															--	--	--	--	--	--										
Overall Noise Level					69	69	69	70	70	70	70	69	69	69	69	69	58	58	53	53	53	53	53	53	53	--	--	--	--	--	--	--	--	--