
Appendix E

Noise and Vibration Worksheets

Appendix E1

Construction Noise Prediction Model Worksheets

MCC VIC Project

Appendix E-1 -- Construction Noise Prediction Model Worksheets

Notes to User: Analysis Type
Source to base
Receiver to base
Receiver height

Nearest

magnitude of threshold (dBA) = 85
allowable hours over which Leq is to be averaged = 8

850 = total length (feet) of project feature alignment (over which construction equipment make daily progress).

Days of Activity		Construction Activity	Predecessor (P) or Interference (I) Sound Path	Equipment	Total Equipment Qty	Reference Level (L) Linear (ft) or Level (ft) from PWB RDM 1 Meter	As-Qualified Client Equipment Description, Qty, Source and/or RDM 1 Meter	Source to RDR Distance (ft)	Distance Adjusted (ft)	Total Daily Operation Time (hours)	Linear Operation Time (hours)	Linear Operation Time (minutes)	Predicted Hour Level	Source Receiver Barrier Height (ft)	Receiver Elevation (ft)	Source to RDR Distance (ft)	Rev. to Bar. (ft) Noise (ft)	Source to RDR (ft) Noise (ft)	"A" (ft)	"B" (ft)	"C" (ft)	Path Length From "C" (ft)	Abn (dB)	Half (dB)	Half (dB)	G (dB)	G (without barrier)	L (dB)	L (dB)
1	Grading (Access Road Rehabilitation)	P Grader (operator)	1	78.5 GRADER 100 AWD	1	78.5 GRADER 100 AWD	216.219367	40.4	4	0.8	48	70	6.5	5.5	0	35	5	40	36.5	7.1	40.0	0.00	0.1	5.5	5.5	0.7	0.7	0.1	
		Q Grader (operator)	1	78.5 GRADER 100 AWD	1	78.5 GRADER 100 AWD	428.870208	55.1	1	1.6	96	48	6.0	5.5	0	35	5	427	36.5	391.9	426.9	0.00	0.1	5.5	5.5	0.7	0.7	0.1	
		H Grader (operator)	1	88.3 TELESCOPIC HANDLER (F+still)	1	88.3 SKID STEER & FORKS	40	90.1	0	1.6	48	80	3.0	5.5	0	35	5	40	36.1	7.1	40.0	0.00	0.1	4.0	4.0	0.7	0.7	0.1	
		P Telescopic Handler (F+still)	1	88.3 SKID STEER & FORKS	1	88.3 SKID STEER & FORKS	216.219367	71.3	1	1.6	96	48	6.0	5.5	0	35	5	427	36.1	391.9	426.9	0.00	0.1	4.0	4.0	0.7	0.7	0.1	
		H Telescopic Handler (F+still)	1	88.3 SKID STEER & FORKS	1	88.3 SKID STEER & FORKS	428.870208	64.8	1	1.6	96	96	3.0	5.5	0	35	5	427	36.1	391.9	426.9	0.00	0.1	4.0	4.0	0.7	0.7	0.1	
										Total for Grading (Access Road Rehabilitation) Phase																			
Yard Operation		P Telescopic Handler (F+still)	1	88.3 RT Forklift	1	88.3 RT Forklift	641.234166	61.9	2	0.8	24	48	3.0	5.5	0	600	5	605	600.0	7.1	605.0	0.00	0.1	4.0	4.0	0.7	0.7	0.1	
		Q Telescopic Handler (F+still)	1	88.3 RT Forklift	1	88.3 RT Forklift	739.303296	68.5	2	0.8	48	96	3.0	5.5	0	600	5	641	600.0	41.5	641.2	0.00	0.1	4.0	4.0	0.7	0.7	0.1	
		H Generator	1	67.1 Generator	1	67.1 Generator	605	40.3	2	0.2	120	34	4.5	5.5	0	600	5	605	600.0	7.1	605.0	0.00	0.1	4.8	4.8	0.7	0.7	0.1	
										Total for Yard Operation Phase																			
Grading Laydown/Storage (Site Grading)		- Grader (operator)	0	78.5 GRADER 100 AWD	0	78.5 GRADER 100 AWD	30	82.9	4	4	240	0	6.0	5.5	0	25	5	30	25.7	7.1	30.0	0.00	0.1	5.5	5.5	0.7	0.7	0.1	
		- Dozer	0	80.0 DOZER D6	0	80.0 DOZER D6	30	84.0	4	4	240	0	6.0	5.5	0	25	5	30	25.6	7.1	30.0	0.00	0.1	5.2	5.2	0.7	0.7	0.1	
		Q Compactor (Roller)	1	82.4 ROLLER	1	82.4 ROLLER	214.607180	68.6	4	1.6	96	96	4.4	5.5	0	25	5	215	25.4	189.7	214.6	0.00	0.1	4.7	4.7	0.7	0.7	0.1	
		H Compactor (Roller)	1	82.4 ROLLER	1	82.4 ROLLER	428.870208	58.9	4	1.6	96	96	4.4	5.5	0	25	5	426	25.4	189.7	426.1	0.00	0.1	4.7	4.7	0.7	0.7	0.1	
		Q Excavator	0	75.9 EXCAVATOR-100,000 LBS	0	75.9 EXCAVATOR-100,000 LBS	30	80.2	4	4	240	0	6.2	5.5	0	25	5	30	25.8	7.1	30.0	0.00	0.1	5.6	5.6	0.7	0.7	0.1	
		P Telescopic Handler (F+still)	0	88.3 SKID STEER & FORKS	0	88.3 SKID STEER & FORKS	30	80.9	4	4	240	0	6.0	5.5	0	25	5	30	25.7	7.1	30.0	0.00	0.1	5.6	5.6	0.7	0.7	0.1	
		Q Telescopic Handler (F+still)	0	88.3 SKID STEER & FORKS	0	88.3 SKID STEER & FORKS	2	80.9	4	1.6	96	64	3.0	5.5	0	25	5	215	25.2	189.7	214.6	0.00	0.1	4.0	4.0	0.7	0.7	0.1	
		H Telescopic Handler (F+still)	1	88.3 SKID STEER & FORKS	1	88.3 SKID STEER & FORKS	428.870208	64.8	1	1.6	96	96	3.0	5.5	0	25	5	426	25.2	189.7	426.1	0.00	0.1	4.0	4.0	0.7	0.7	0.1	
										Total for Grading Laydown/Storage (Site Grading) Phase																			
Building Construction (Line 1)		- Dozer	0	80.0 DOZER D6 TRIPLE BUNDLE S	0	80.0 DOZER D6 TRIPLE BUNDLE S	75	79.6	2	2	120	0	6.3	5.5	0	70	5	75	70.2	7.1	75.0	0.00	0.1	5.2	5.2	0.7	0.7	0.1	
		- Dozer	0	80.0 DOZER D6 SINGLE TOW WING	0	80.0 DOZER D6 SINGLE TOW WING	75	79.6	1	1	60	0	6.3	5.5	0	70	5	75	70.2	7.1	75.0	0.00	0.1	5.2	5.2	0.7	0.7	0.1	
		- Dozer	0	80.0 HARDOUSE PULLER	1	80.0 HARDOUSE PULLER	1	60	0	5.3	5.5	0	70	5	75	70.2	7.1	75.0	70.2	7.1	75.0	0.00	0.1	5.2	5.2	0.7	0.7	0.1	
		- Dozer	0	80.0 TRIPLE DRUM PULLER 3B	1	80.0 TRIPLE DRUM PULLER 3B	75	79.6	8	8	480	0	6.5	5.5	0	70	5	75	70.2	7.1	75.0	0.00	0.1	5.2	5.2	0.7	0.7	0.1	
		- Generator	0	67.1 TENSIONER - 52"	1	67.1 TENSIONER - 52"	75	62.4	1	1	60	0	4.5	5.5	0	70	5	75	70.2	7.1	75.0	0.00	0.1	4.8	4.8	0.7	0.7	0.1	
		- Generator	0	67.1 TENSIONER 2" BNOL TRK MM	1	67.1 TENSIONER 2" BNOL TRK MM	75	62.4	1	1	60	0	4.5	5.5	0	70	5	75	70.1	7.1	75.0	0.00	0.1	4.8	4.8	0.7	0.7	0.1	
		- Telescopic Handler (F+still)	0	88.3 FORKLIFT 12K	1	88.3 FORKLIFT 12K	75	83.1	2	2	120	0	3.0	5.5	0	70	5	75	70.1	7.1	75.0	0.00	0.1	4.0	4.0	0.7	0.7	0.1	
		- Crane	0	74.2 CRANE 6T	1	74.2 CRANE 6T	75	70.5	2	2	120	0	7.7	7.7	0	70	7.1	75	70.1	7.1	75.0	0.00	0.1	6.4	6.4	0.6	0.6	0.1	
		- P Telescopic Handler (F+still)	1	88.3 SKID STEER & FORKS	1	88.3 SKID STEER & FORKS	75	83.1	8	1.6	96	76	3.0	5.5	0	70	5	75	70.1	7.1	75.0	0.00	0.1	4.0	4.0	0.7	0.7	0.1	
		- Q Telescopic Handler (F+still)	1	88.3 SKID STEER & FORKS	1	88.3 SKID STEER & FORKS	255.348947	719.9	8	3.2	192	67	3.0	5.5	0	70	5	225	70.1	156.4	225.4	0.00	0.1	4.0	4.0	0.7	0.7	0.1	
		- H Telescopic Handler (F+still)	1	88.3 SKID STEER & FORKS	1	88.3 SKID STEER & FORKS	421.568925	64.8	1	1.6	96	96	3.0	5.5	0	70	5	426	25.2	189.7	426.1	0.00	0.1	4.0	4.0	0.7	0.7	0.1	
		- Excavator	0	75.9 EXCAVATOR-100,000 LBS	0	75.9 EXCAVATOR-100,000 LBS	75	719.9	2	2	120	0	6.2	5.5	0	70	5	75	70.3	7.1	75.0	0.00	0.1	5.6	5.6	0.7	0.7	0.1	
		- Dozer	0	80.0 3DRUM PULLER	1	80.0 3DRUM PULLER	75	79.6	1	1	60	0	6.3	5.5	0	70	5	75	70.2	7.1	75.0	0.00	0.1	5.2	5.2	0.7	0.7	0.1	
		- Dozer	0	80.0 V-Crane	1	80.0 V-Crane	75	69.6	1	1	60	0	6.3	5.5	0	70	5	75	70.2	7.1	75.0	0.00	0.1	5.2	5.2	0.7	0.7	0.1	
		- Crane	0	74.2 Crane 100 TonRT	1	74.2 Crane 100 TonRT	75	70.5	2	2	120	0	7.7	7.7	0	70	7.1	75	70.4	7.1	75.0	0.00	0.1	6.4	6.4	0.6	0.6	0.1	
		- Rock Drill	0	91.6 MT Drill	1	91.6 MT Drill	75	86.6	2	2	120	0	3.7	5.5	0	70	5	75	70.1	7.1	75.0	0.00	0.1	4.4	4.4	0.7	0.7	0.1	
		- P Rock Drill	1	91.6 Luchi	1	91.6 Luchi	255.348947	74.3	2	0.8	48	64	3.7	5.5	0	70	5	225	70.1	156.4	225.4	0.00	0.1	4.4	4.4	0.7	0.7	0.1	
		- H Rock Drill	1	91.6 Luchi	1	91.6 Luchi	421.568925	67.8	2	0.8	48	96	3.7	5.5	0	70	5	432	70.1	156.4	431.6	0.00	0.1	4.4	4.4	0.7	0.7	0.1	
		- Backhoe	0	75.9 Backhoe	1	75.9 Backhoe	75	71.2	2	2	120	0	4.5	5.5	0	70	5	75	70.1	7.1	75.0	0.00	0.1	4.8	4.8	0.7	0.7	0.1	
		- Telescopic Handler (F+still)	0	88.3 Material Handler	1	88.3 Material Handler	75	83.1	2	2	120	0	3.0	5.5	0	70	5	75	70.1	7.1	75.0	0.00	0.1	4.0	4.0	0.7	0.7	0.1	
		- Crane	0	74.2 Crane 100 ton RT	1	74.2 Crane 100 ton RT	75	70.5	1	1	60	0	7.7	7.7	0	70	5	75	70.4	7.1	75.0	0.00	0.1	6.4	6.4	0.6	0.6	0.1	
										Total for Building Construction (Line 1) Phase																			
Building Construction (Line 1 & 2) Overlap		- Dozer	0	80.0 DOZER D6 TRIPLE BUNDLE S	0	80.0 DOZER D6 TRIPLE BUNDLE S	105	71.1	1	1	60	0	6.3	5.5	0	100	5	105	100.1	7.1	105.0	0.00	0.1	5.2	5.2	0.7	0.7	0.1	
		- Dozer	0	80.0 DOZER D6 SINGLE TOW WING	0	80.0 DOZER D6 SINGLE TOW WING	105	71.1	1	1	60	0	6.3	5.5	0	100	5	105	100.1	7.1	105.0	0.00	0.1	5.2	5.2	0.7	0.7	0.1	
		- Dozer	0	80.0 HARDOUSE PULLER	1	80.0 HARDOUSE PULLER	105	71.1	1	1	60	0	6.3	5.5	0	100	5	105	100.1	7.1	105.0	0.00	0.1	5.2	5.2	0.7	0.7	0.1	
		- Dozer	0	80.0 TRIPLE DRUM PULLER 3B	1	80.0 TRIPLE DRUM PULLER 3B	105	71.1	1	1	60	0	6.5	5.5	0	100	5	105	100.1	7.1	105.0	0.00	0.1	5.2	5.2	0.7	0.7	0.1	
		- Generator	0	67.1 TENSIONER - 52"	1	67.1 TENSIONER - 52"	105	68.1	1	1	60	0	4.5	5.5	0	100	5	105	100.1	7.1	105.0	0.00	0.1	4.8	4.8	0.7	0.7	0.1	
		- Generator	0	67.1 TENSIONER 2" BNOL TRK MM	1	67.1 TENSIONER 2" BNOL TRK MM	105	68.1	1	1	60	0	4.5	5.5	0	100	5	105	100.1	7.1	105.0	0.00	0.1	4.8	4.8	0.7	0.7	0.1	
		- P Telescopic Handler (F+still)	0	88.3 FORKLIFT 12K	1	88.3 FORKLIFT 12K	105	78.9	2	2	120	0	3.0	5.5	0	100	5	105	100.0	7.1	105.0	0.00	0.1	4.0	4.0	0.7	0.7	0.1	
		Q Telescopic Handler (F+still)	1	88.3 FORKLIFT 12K	1	88.3 FORKLIFT 12K	237.028645	70.4	2	0.8	48	60	3.0	5.5	0	100	5	237	100.0	137.1	237.9	0.00	0.1	4.0	4.0	0.7	0.7	0.1	
		H Telescopic Handler (F+still)	1	88.3 FORKLIFT 12K	1	88.3 FORKLIFT 12K	421.779608	64.8	1	1.6	96	96	3.0	5.5	0	100	5	428	100.0	437.8	428.8	0.00	0.1	4.0	4.0	0.7	0.7	0.1	
		- Crane	0	74.2 CRANE 6T	1	74.2 CRANE 6T	105	78.9	2	2	120	0	7.7	7.7	0	100	5	105	100.3	7.1	105.0	0.00	0.1	6.4	6.4	0.6	0.6	0.1	
		- Telescopic Handler (F+still)	0	88.3 SKID STEER & FORKS	1	88.3 SKID STEER & FORKS	105	68.0	2	2	120	0	3.0	5.5	0	100	5	105	100.0	7.1	105.0	0.00	0.1	4.0	4.0	0.7	0.7	0.1	
		- Excavator	0	75.9 EXCAVATOR-100,000 LBS	0	75.9 EXCAVATOR-100,000 LBS	105	71.																					

Construction Schedule

Year	2026												2027												2028												2029				
Month	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May			

Construction Phase

Grading (Access Road Rehabilitation)						✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓</
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Combined Construction Noise at Nearest Offsite Receptor:

Grading (Access Road Rehabilitation)	0	0	0	0	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	81	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Yard Operation	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	
Grading (Laydown/Staging/Site Grading)	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	
Building Construction (Line 1)	0	0	0	0	0	0	79	79	79	79	79	79	79	79	79	79	79	79	79	79	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Building Construction (Line 1 & 2) Overlap	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	72	72	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Building Construction (Line 2)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	
Grading (Line 1)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	
Grading (Line 2)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	61	61	61	61		

Concurrent Total (dBA) 84 84 84 84 85 85 86 86 86 86 86 86 86 86 86 86 86 86 85

[illegible]

Year	2026												2027												2028												2029				
Month	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May			

[illegible][illegible]

Concurrent Total (dBA)	70	70	70	70	72	72	73	73	73	73	73	73	73	73	73	73	73	73	75	75	73	73	73	73	73	73	73	73	73	71	71	71	71	71	71
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MCC VIC Project

Appendix E-1 -- Construction Noise Prediction Model Worksheets

Notes to User: Analysis Type

Analysis Type

Source to barrier distance
Receiver to barrier distance

Receiver height

Nearest

5

magnitude of threshold (dBA) =	85
allowable hours over which Leq is to be averaged =	1

850 = total length (feet) of project feature alignment (over which construction equipment make daily progress)

[illegible]

Year	2026												2027												2028												2029				
Month	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May			

[illegible][illegible]

Concurrent Total (dBA)	74	74	74	74	74	74	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	75	74	74	74	74	74	74
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Appendix E2

Blasting Noise/Vibration Calculation Worksheet

Dyno Nobel Reference Guide (2010)

To User: bordered cells are inputs, unbordered cells have formulae

https://www.leg.state.mn.us/docs/2015/other/150681/PFEISref_1/Dyno%20Nobel%202010.pdf

description	symbol	value	units	notes		
peak particle velocity (PPV)	V	0.07	mm/s		0.003	ips <-- to compare w/ relevant criterion
site and rock factor constant	K	5000		considered typical for "heavily confined", per Dyno-Nobel		
max. instantaneous charge	Q	25	kg		55	lbs
constant related to rock and site	B	-1.6		per Dyno-Nobel		
distance from charge	R	5210	m	based on understood nearest receptor	17089	feet
airblast pressure	P	0.000	kPa	61.2 dBA Lmax	86.2 dBL	5.93441E-05 psi
state of confinement	K	3.3		"fully confined"		
max. instantaneous charge	Q	25	kg			
distance from charge	R	5210	m	nearest sensitive receptor		
				25.7 dBA	= hourly Leq (assumes a single, one-second blast)	
				kg per blast =	2676.1	5000 cubic yards of material removed per blast
				lbs. per blast =	5887.4	3823 cubic meters
				number of charge detonations per blast, using above charge weight =	107.0	0.7 assumed powder factor (see "Rules of Thumb" in Dyno-Nobel guide)
				hourly Leq, if all charges detonated [w/ delays] within the same hour =	46.0	
				CNEL from the hourly value above =	32.2	
				Leq energy-averaged over 8 hours	36.9	8 hours over which to average the Leq

