

Construction Noise Assessment – Rural Setting

Receptor	Sound power levels at meter located at distance d_m (m)	Single Measured Power Level	Calculated Multiple power level	Calculated Sound Power Levels at Receptor from Point Source								Recommended Maximum (Industrial Noise Policy)								Remarks
				Distance to Receptor	Sound Attenuation				Predicted Operational Noise Level at Facade of Receptor	Adjustment due to Attenuation of Dwelling Facade ²	Difference	Rural-Day	Predicted Operational Noise Level within Receptor	Rural-Evening	Difference	Predicted Operational Noise Level within Receptor				
					A_{div} dB	A_{atm} dB	A_{ground} dB	A_{ref} dB									$L_{w,eq,Tot}$ dB(A)	$L_{w,eq,Tot}$ dB(A)	$L_{w,eq,Tot}$ dB(A)	
Receptor 1 - 97a Warren Road (northwest of site)																				
Scenario A - Site excavation																				
Tracked Excavator	7	85.0		300	43.6	4.6	0.8	49.1	36.9	10	26.9	55	0.0	50	0.0	0.0				
Grader	7	85.0		300	43.6	4.6	0.8	49.1	36.9	10	26.9	55	0.0	50	0.0	0.0				
50 tonne Dump truck	7	85.0		300	43.6	4.6	0.8	49.1	36.9	10	26.9	55	0.0	50	0.0	0.0				
Light vehicles 4WD	7	78.0		300	43.6	4.6	0.8	49.1	28.9	10	18.9	55	0.0	50	0.0	0.0				
Light vehicles 4WD	7	78.0		300	43.6	4.6	0.8	49.1	28.9	10	18.9	55	0.0	50	0.0	0.0				
Light vehicles 4WD	7	78.0		300	43.6	4.6	0.8	49.1	28.9	10	18.9	55	0.0	50	0.0	0.0				
All six in aggregate	7	78.0	90.6	300	43.6	4.6	0.8	49.1	41.5	10	31.5	55	0.0	50	0.0	0.0				
Scenario B - Concrete slab																				
Concrete truck	7	84.0		300	43.6	4.6	0.8	49.1	34.9	10	24.9	55	0.0	50	0.0	0.0				
Concrete pump	7	84.0		300	43.6	4.6	0.8	49.1	34.9	10	24.9	55	0.0	50	0.0	0.0				
Concrete vibrator	7	78.0		300	43.6	4.6	0.8	49.1	28.9	10	18.9	55	0.0	50	0.0	0.0				
Light vehicles 4WD	7	78.0		300	43.6	4.6	0.8	49.1	28.9	10	18.9	55	0.0	50	0.0	0.0				
Light vehicles 4WD	7	78.0		300	43.6	4.6	0.8	49.1	28.9	10	18.9	55	0.0	50	0.0	0.0				
Light vehicles 4WD	7	78.0		300	43.6	4.6	0.8	49.1	28.9	10	18.9	55	0.0	50	0.0	0.0				
All seven in aggregate	7	78.0	88.8	300	43.6	4.6	0.8	49.1	39.7	10	29.7	55	0.0	50	0.0	0.0				
Scenario C - Steel Erection																				
Crane truck	7	83.0		300	43.6	4.6	0.8	49.1	33.9	10	23.9	55	0.0	50	0.0	0.0				
Delivery Truck (+50t)	7	81.0		300	43.6	4.6	0.8	49.1	31.9	10	21.9	55	0.0	50	0.0	0.0				
Front end loader	7	80.0		300	43.6	4.6	0.8	49.1	30.9	10	20.9	55	0.0	50	0.0	0.0				
Delivery Truck (+50t)	7	80.0		300	43.6	4.6	0.8	49.1	30.9	10	20.9	55	0.0	50	0.0	0.0				
Light vehicles 4WD	7	78.0		300	43.6	4.6	0.8	49.1	28.9	10	18.9	55	0.0	50	0.0	0.0				
Light vehicles 4WD	7	78.0		300	43.6	4.6	0.8	49.1	28.9	10	18.9	55	0.0	50	0.0	0.0				
Light vehicles 4WD	7	78.0		300	43.6	4.6	0.8	49.1	28.9	10	18.9	55	0.0	50	0.0	0.0				
All seven in aggregate	7	78.0	90.6	300	43.6	4.6	0.8	49.1	28.9	10	18.9	55	0.0	50	0.0	0.0				
Scenario D - General Building Work																				
People talking	7	71.0		300	43.6	4.6	0.8	49.1	21.9	10	11.9	55	0.0	50	0.0	0.0				
Delivery Truck (+50t)	7	81.0		300	43.6	4.6	0.8	49.1	31.9	10	21.9	55	0.0	50	0.0	0.0				
Diamond grinding	7	103.0		300	43.6	4.6	0.8	49.1	33.9	10	23.9	55	0.0	50	0.0	0.0				
Mobile Crane	7	88.0		300	43.6	4.6	0.8	49.1	38.9	10	28.9	55	0.0	50	0.0	0.0				
Power generator	7	78.0		300	43.6	4.6	0.8	49.1	28.9	10	18.9	55	0.0	50	0.0	0.0				
Light vehicles 4WD	7	78.0		300	43.6	4.6	0.8	49.1	28.9	10	18.9	55	0.0	50	0.0	0.0				
Light vehicles 4WD	7	78.0		300	43.6	4.6	0.8	49.1	28.9	10	18.9	55	0.0	50	0.0	0.0				
Light vehicles 4WD	7	78.0		300	43.6	4.6	0.8	49.1	28.9	10	18.9	55	0.0	50	0.0	0.0				
All eight in aggregate	7	78.0	103.2	300	43.6	4.6	0.8	49.1	54.1	10	44.1	55	0.0	50	0.0	0.0				
Scenario E - Car park & storage area																				
Grader	7	85.0		300	43.6	4.6	0.8	49.1	35.9	10	25.9	55	0.0	50	0.0	0.0				
Delivery Truck (+50t)	7	85.0		300	43.6	4.6	0.8	49.1	35.9	10	25.9	55	0.0	50	0.0	0.0				
Vibratory Roller	7	84.0		300	43.6	4.6	0.8	49.1	34.9	10	24.9	55	0.0	50	0.0	0.0				
Light vehicles 4WD	7	78.0		300	43.6	4.6	0.8	49.1	28.9	10	18.9	55	0.0	50	0.0	0.0				
Light vehicles 4WD	7	78.0		300	43.6	4.6	0.8	49.1	28.9	10	18.9	55	0.0	50	0.0	0.0				
Light vehicles 4WD	7	78.0		300	43.6	4.6	0.8	49.1	28.9	10	18.9	55	0.0	50	0.0	0.0				
All six in aggregate	7	78.0	90.3	300	43.6	4.6	0.8	49.1	41.2	10	31.2	55	0.0	50	0.0	0.0				
Scenario F - Roadworks near receptor																				
Grader	7	85.0		50	28.1	3.7	0.1	31.9	53.1	10	43.1	55	0.0	50	0.0	0.0				
Delivery Truck (+50t)	7	85.0		50	28.1	3.7	0.1	31.9	53.1	10	43.1	55	0.0	50	0.0	0.0				
Vibratory Roller	7	84.0		50	28.1	3.7	0.1	31.9	52.1	10	42.1	55	0.0	50	0.0	0.0				
Light vehicles 4WD	7	78.0		50	28.1	3.7	0.1	31.9	46.1	10	36.1	55	0.0	50	0.0	0.0				
Light vehicles 4WD	7	78.0		50	28.1	3.7	0.1	31.9	46.1	10	36.1	55	0.0	50	0.0	0.0				
Light vehicles 4WD	7	78.0		50	28.1	3.7	0.1	31.9	46.1	10	36.1	55	0.0	50	0.0	0.0				
All six in aggregate	7	78.0	90.3	50	28.1	3.7	0.1	31.9	56.4	10	46.4	55	0.0	50	0.0	0.0				
Receptor 2 - 4367 Mitchell Highway (southwest of site)																				
Scenario A - Site excavation																				
Tracked Excavator	7	85.0		500	48.1	4.7	1.4	54.1	30.9	10	20.9	55	0.0	50	0.0	0.0				
Grader	7	85.0		500	48.1	4.7	1.4	54.1	30.9	10	20.9	55	0.0	50	0.0	0.0				
50 tonne Dump truck	7	85.0		500	48.1	4.7	1.4	54.1	30.9	10	20.9	55	0.0	50	0.0	0.0				
Light vehicles 4WD	7	78.0		500	48.1	4.7	1.4	54.1	23.9	10	13.9	55	0.0	50	0.0	0.0				
Light vehicles 4WD	7	78.0		500	48.1	4.7	1.4	54.1	23.9	10	13.9	55	0.0	50	0.0	0.0				
Light vehicles 4WD	7	78.0		500	48.1	4.7	1.4	54.1	23.9	10	13.9	55	0.0	50	0.0	0.0				
All six in aggregate	7	78.0	90.6	500	48.1	4.7	1.4	54.1	36.4	10	26.4	55	0.0	50	0.0	0.0				
Scenario B - Concrete slab																				
Concrete truck	7	84.0		500	48.1	4.7	1.4	54.1	29.9	10	19.9	55	0.0	50	0.0	0.0				
Concrete pump	7	84.0		500	48.1	4.7	1.4	54.1	29.9	10	19.9	55	0.0	50	0.0	0.0				
Concrete vibrator	7	78.0		500	48.1	4.7	1.4	54.1	23.9	10	13.9	55	0.0	50	0.0	0.0				
Light vehicles 4WD	7	78.0		500	48.1	4.7	1.4	54.1	23.9	10	13.9	55	0.0	50	0.0	0.0				
Light vehicles 4WD	7	78.0		500	48.1	4.7	1.4	54.1	23.9	10	13.9	55	0.0	50	0.0	0.0				
Light vehicles 4WD	7	78.0		500	48.1	4.7	1.4	54.1	23.9	10	13.9	55	0.0	50	0.0	0.0				
All six in aggregate	7	78.0	88.8	500	48.1	4.7	1.4	54.1	34.6	10	24.6	55	0.0	50	0.0	0.0				
Scenario C - Steel Erection																				
Crane truck	7	83.0		500	48.1	4.7	1.4	54.1	28.9	10	18.9	55	0.0	50	0.0	0.0				
Delivery Truck (+50t)	7	81.0		500	48.1	4.7	1.4	54.1	26.9	10	16.9	55	0.0	50	0.0	0.0				
Front end loader	7	80.0		500	48.1	4.7	1.4	54.1	25.9	10	15.9	55	0.0	50	0.0	0.0				
Delivery Truck (+50t)	7	80.0		500	48.1	4.7	1.4	54.1	25.9	10	15.9	55	0.0	50	0.0	0.0				
Light vehicles 4WD	7	78.0		500	48.1	4.7	1.4	54.1	23.9	10	13.9	55	0.0	50	0.0	0.0				
Light vehicles 4WD	7	78.0		500	48.1	4.7	1.4	54.1	23.9	10	13.9	55	0.0	50	0.0	0.0				
Light vehicles 4WD	7	78.0		500	48.1	4.7	1.4	54.1	23.9	10	13.9	55	0.0	50	0.0	0.0				
All seven in aggregate	7	78.0	90.6	500	48.1	4.7	1.4	54.1	36.4	10	26.4	55	0.0	50	0.0	0.0				
Scenario D - General Building Work																				
People talking	7	71.0		500	48.1	4.7	1.4	54.1	16.9	10	6.9	55	0.0	50	0.0	0.0				
Delivery Truck (+50t)	7	81.0		500	48.1	4.7	1.4	54.1	26.9	10	16.9	55	0.0	50	0.0	0.0				
Diamond grinding	7	103.0		500	48.1	4.7	1.4	54.1	28.9	10	18.9	55	0.0	50	0.0	0.0				
Mobile Crane	7	88.0		500	48.1	4.7	1.4	54.1	33.9	10	23.9	55	0.0	50	0.0	0.0				
Power generator	7	78.0		500	48.1	4.7	1.4	54.1	23.9	10	13.9	55	0.0	50	0.0	0.0				
Light vehicles 4WD	7	78.0		500	48.1	4.7	1.4	54.1	23.9	10	13.9	55	0.0	50	0.0	0.0				
Light vehicles 4WD	7	78.0		500	48.1	4.7	1.4	54.1	23.9	10	13.9	55	0.0	50	0.0	0.0				
Light vehicles 4WD	7	78.0		500	48.1	4.7	1.4	54.1	23.9	10	13.9	55	0.0	50	0.0	0.0				
All eight in aggregate	7	78.0	103.2	500	48.1	4.7	1.4	54.1	36.1	10	26.1	55	0.0	50	0.0	0.0				
Scenario E - Car park & storage area																				
Grader	7	85.0		500	48.1	4.7	1.4	54.1	30.9	10	20.9	55	0.0	50	0.0	0.0				
Delivery Truck (+50t)	7	85.0		500	48.1	4.7	1.4	54.1	30.9	10	20.9	55	0.0	50	0.0	0.0				
Vibratory Roller	7	84.0		500	48.1	4.7	1.4	54.1	29.9	10	19.9	55	0.0	50	0.0	0.0				
Light vehicles 4WD	7	78.0		500	48.1	4.7	1.4	54.1	23.9	10	13.9	55	0.0	50	0.0	0.0				
Light vehicles 4WD	7	78.0		500	48.1	4.7	1.4	54.1	23.9	10	13.9	55	0.0	50	0.0	0.0				
Light vehicles 4WD	7	78.0		500	48.1	4.7	1.4	54.1	23.9	10	13.9	55	0.0	50	0.0	0.0				
All six in aggregate	7	78.0	90.3	500	48.1	4.7	1.4	54.1	36.2	10	26.2	55	0.0	50	0.0	0.0				
Scenario F - Roadworks near receptor																				
Grader	7	85.0		50	28.1	3.7	0.1	31.9	53.1	10	43.1	55	0.0	50	0.0	0.0				
Delivery Truck (+50t)	7	85.0		50	28.1	3.7	0.1	31.9	53.1	10	43.1									

Operational Noise Assessment – Rural Setting

Receptor	Sound power levels at meter located at distance d_{m1}	Single Measured Power Level	Calculated Multiple power level	Calculated Sound Power Levels at Receptor from Point Source								Recommended Maximum (Industrial Noise Policy)								Remarks
				Distance to Receptor	Sound Attenuation				Predicted Operational Noise Level at Facade of Receptor	Adjustment due to Attenuation of Dwelling Facade	Difference	Rural-Day	Predicted Operational Noise Level within Receptor	Rural-Evening	Difference	Predicted Operational Noise Level within Receptor				
					$A_{divergence}$ dB	A_{ground} dB	$A_{atmosphere}$ dB	A_{total} dB									$L_{eq,TOT}$ dB(A)	L_{eq} dB(A)	L_{eq} dB(A)	
	d_{m1} (m)	L_{w1} dB(A)	L_{w2} dB(A)	d (m)					$L_{eq,TOT}$ dB(A)	L_{eq} dB(A)	L_{eq} dB(A)	L_{eq} dB(A)	L_{eq} dB(A)	L_{eq} dB(A)	L_{eq} dB(A)	L_{eq} dB(A)				
Receptor 1 - 97a Warren Road (northwest of site)																				
Scenario A - Operation																				
Delivery Truck (200)	7	81.0		300	43.6	4.6	0.8	49.1	31.9	10	21.9	55	0.0	50	0.0	0.0				
Diamond grinding	7	103.0		300	43.6	4.6	0.8	49.1	53.9	10	43.9	55	0.0	50	0.0	0.0				
Front end loader	7	86.0		300	43.6	4.6	0.8	49.1	29.9	10	20.9	55	0.0	50	0.0	0.0				
Light vehicles 4WD	7	76.0		300	43.6	4.6	0.8	49.1	26.9	10	16.9	55	0.0	50	0.0	0.0				
Light vehicles 4WD	7	76.0		300	43.6	4.6	0.8	49.1	28.9	10	18.9	55	0.0	50	0.0	0.0				
Light vehicles 4WD	7	76.0		300	43.6	4.6	0.8	49.1	28.9	10	18.9	55	0.0	50	0.0	0.0				
All six in aggregate	7		103.1	300	43.6	4.6	0.8	49.1	54.0	10	44.0	55	0.0	50	0.0	0.0				
Receptor 2 - 4367 Mitchell Highway (southwest of site)																				
Scenario A - Site enclosure																				
Delivery Truck (200)	7	81.0		500	48.1	4.7	1.4	54.1	26.9	10	16.9	55	0.0	50	0.0	0.0				
Diamond grinding	7	103.0		500	48.1	4.7	1.4	54.1	48.9	10	38.9	55	0.0	50	0.0	0.0				
Front end loader	7	86.0		500	48.1	4.7	1.4	54.1	20.9	10	10.9	55	0.0	50	0.0	0.0				
Light vehicles 4WD	7	76.0		500	48.1	4.7	1.4	54.1	23.9	10	13.9	55	0.0	50	0.0	0.0				
Light vehicles 4WD	7	76.0		500	48.1	4.7	1.4	54.1	23.9	10	13.9	55	0.0	50	0.0	0.0				
Light vehicles 4WD	7	76.0		500	48.1	4.7	1.4	54.1	23.9	10	13.9	55	0.0	50	0.0	0.0				
All six in aggregate	7		103.1	500	48.1	4.7	1.4	54.1	49.0	10	39.0	55	0.0	50	0.0	0.0				