Limerick WWTP Upgrade and Bioresource Centre Project

EIAR Appendix 10.1 – Predicted Noise Levels

04 July 2025

Formerly JB Barry Partners who became part of Egis in 2023

APPENDIX 10.1 – PREDICTED NOISE LEVELS

PREDICTED CONSTRUCTION NOISE AT NSR 1 DUE TO CONSTRUCTION WORKS AT LIMERICK WWTP

Prediction of noise from quasi stationary plant (Activity L_{AEQ} Method)

PLANT TYPE / NOISE SOURCE	L_{Aeq}, AT 10m, dB	DISTANCE, m	ADJUSTMENTS (dB)		SCREENING	REFLECTION	RESULTANT LAeq, dB	FRACTION ON TIME	CORRECTIONS TO LAeq, 1 HR		ACTIVITY $L_{Aeq,\ 1\ HR}$
			DISTANCE								
List all noise sources		*Distance to receptor, m*	*K_h = $20log_{10}$ (R/10)*	*K_s = ($25log_{10}$ (R/10) - 2*	*0, 5, 10, calculate*	*0, 3*	*L_{WA} - adjustments*	*(Activity duration / working period)*	*$t_c = T_t$ x F*	*$(t_c)(10^{0.1Li})$*	*$L_{Aeq,1hr} = 10log_{10}[1/1S(t_c)(10\ 0.1Li)$*
Works Area 1	85	585	*35.3*	*42.2*	5	3	40.8	0.75	0.75	9060.9	
Works Area 2	85	625	*35.9*	*42.9*	5	3	40.1	0.5	0.5	5120	
Works Area 3	85	775	*37.8*	*45.2*	5	3	*45.2*	1	1	33219.8	
Note 1 - 5 dB(A) partial attenuation between receptor and source										*SIGMA (t c)(10 0.1Li)*	*L Aeq,1hr = 10log10 [1/1S(t c)(10 0.1Li)*
										47400.7	**47**

PREDICTED CONSTRUCTION NOISE AT NSR 2 DUE TO CONSTRUCTION WORKS AT LIMERICK WWTP

Prediction of noise from quasi stationary plant (Activity L_{AEQ} Method)

PLANT TYPE / NOISE SOURCE	L_{Aeq}, AT 10m, dB	DISTANCE, m	ADJUSTMENTS (dB)		SCREENING	REFLECTION	RESULTANT LAeq, dB	FRACTION ON TIME	CORRECTIONS TO LAeq, 1 HR		ACTIVITY $L_{Aeq,\ 1\ HR}$
			DISTANCE								
List all noise sources		*Distance to receptor, m*	*K_h = $20log_{10}$ (R/10)*	*K_s = ($25log_{10}$ (R/10) - 2*	*0, 5, 10, calculate*	*0, 3*	*L_{WA} - adjustments*	*(Activity duration / working period)*	*$t_c = T_t$ x F*	*$(t_c)(10^{0.1Li})$*	*$L_{Aeq,1hr} = 10log_{10}[1/1S(t_c)(10\ 0.1Li)$*
Works Area 1	85	1050	*40.4*	*48.5*	5	3	34.5	0.75	0.75	2099.4	

Works Area 2	85	1150	*41.2*	*49.5*	5	3	33.5	0.5	0.5	1114.9	
Works Area 3	85	1250	*41.9*	*50.4*	5	3	*41.1*	1	1	12769.7	
Note 1 - 5 dB(A) partial attenuation between receptor and source										*SIGMA (t c)(10 0.1Li)*	*L Aeq,1hr = 10log10 [1/1S(t c)(10 0.1Li)*
										15983.9	**42**

PREDICTED CONSTRUCTION NOISE AT NSR 2 DUE TO CONSTRUCTION WORKS AT CORCANREE PS

Prediction of noise from quasi stationary plant (Activity L_{AEQ} Method)

PLANT TYPE / NOISE SOURCE	**L_{Aeq}, AT 10m, dB**	**DISTANCE, m**	**ADJUSTMENTS (dB)**		**SCREENING**	**REFLECTION**	**RESULTANT LAeq, dB**	**FRACTION ON TIME**	**CORRECTIONS TO LAeq, 1 HR**		**ACTIVITY $L_{Aeq,1\ HR}$**
			DISTANCE								
List all noise sources		*Distance to receptor, m*	*K_h = $20log_{10}$ (R/10)*	*K_s = ($25log_{10}$ (R/10) - 2*	*0, 5, 10, calculate*	*0, 3*	*L_{WA} - adjustments*	*(Activity duration / working period)*	*$t_c = T_t$ x F*	*$(t_c)(10^{0.1Li})$*	*$L_{Aeq,1hr} = 10log_{10}[1/1S(t_c)(10\ 0.1Li)$*
Works Area 1	85	780	*37.8*	*45.3*	5	3	37.7	0.75	0.75	4413.9	
Works Area 2	85	810	*38.2*	*45.7*	5	3	37.3	0.5	0.5	2677.7	
Works Area 3	85	840	*38.5*	*46.1*	5	3	*44.5*	1	1	28277.5	
Note 1 - 5 dB(A) partial attenuation between receptor and source										*SIGMA (t c)(10 0.1Li)*	*L Aeq,1hr = 10log10 [1/1S(t c)(10 0.1Li)*
										35369.1	**45**

PREDICTED CONSTRUCTION NOISE AT NSR 3 DUE TO CONSTRUCTION WORKS AT CORCANREE PS

Prediction of noise from quasi stationary plant (Activity L_{AEQ} Method)

PLANT TYPE / NOISE SOURCE	L_{Aeq}, AT 10m, dB	DISTANCE, m	ADJUSTMENTS (dB)		SCREENING	REFLECTION	RESULTANT LAeq, dB	FRACTION ON TIME	CORRECTIONS TO LAeq, 1 HR		ACTIVITY $L_{Aeq,1\ HR}$
			DISTANCE								
List all noise sources		*Distance to receptor, m*	*K_h = $20\log_{10}$ (R/10)*	*K_s = $(25\log_{10}(R/10) - 2$*	*0, 5, 10, calculate*	*0, 3*	*L_{WA} - adjustments*	*(Activity duration / working period)*	*$t_c = T_t \times F$*	*$(t_c)(10^{0.1Li})$*	*$L_{Aeq,1hr} = 10\log_{10}[1/1S(t_c)(10\ 0.1Li)$*
Works Area 1	85	510	*34.2*	*40.7*	5	3	42.3	0.75	0.75	12768.4	
Works Area 2	85	530	*34.5*	*41.1*	5	3	41.9	0.5	0.5	7731.8	
Works Area 3	85	550	*34.8*	*41.5*	5	3	*48.2*	1	1	65959.1	
Note 1 - 5 dB(A) partial attenuation between receptor and source										*SIGMA (t c)(10 0.1Li)*	*L Aeq,1hr = 10log10 [1/1S(t c)(10 0.1Li)*
										86459.3	**49**

PREDICTED LIMERICK WWTP OPERATION NOISE AT NSR 1.

Prediction of noise from quasi stationary plant (Activity L_{AEQ} Method)

PLANT TYPE / NOISE SOURCE	L_{Aeq}, AT 10m, dB	DISTANCE, m	ADJUSTMENTS (dB)		SCREENING	REFLECTION	RESULTANT LAeq, dB	FRACTION ON TIME	CORRECTIONS TO LAeq, 1 HR		ACTIVITY $L_{Aeq,1\ HR}$
			DISTANCE								
List all noise sources		*Distance to receptor, m*	*K_h = $20\log_{10}$ (R/10)*	*K_s = $(25\log_{10}(R/10) - 2$*	*0, 5, 10, calculate*	*0, 3*	*L_{WA} - adjustments*	*(Activity duration / working period)*	*$t_c = T_t \times F$*	*$(t_c)(10^{0.1Li})$*	*$L_{Aeq,1hr} = 10\log_{10}[1/1S(t_c)(10\ 0.1Li)$*

Sludge Treatment	72	465	*53.3*	*39.7*	5	3	30.3	0.75	0.75	806.2	
At Tanks	76	640	*56.1*	*43.2*	5	3	30.8	0.5	0.5	607.5	
Inlet Works Area	76	555	*54.9*	*41.6*	5	3	*19.1*	1	1	81.5	
Note 1 - 5 dB(A) partial attenuation between receptor and source										*SIGMA (t c)(10 0.1Li)*	*L Aeq,1hr = 10log10 [1/1S(t c)(10 0.1Li)*
										1495.2	**32**

PREDICTED LIMERICK WWTP OPERATION NOISE AT NSR 2.

Prediction of noise from quasi stationary plant (Activity L_{AEQ} Method)

PLANT TYPE / NOISE SOURCE	L_{Aeq}, AT 10m, dB	DISTANCE, m	ADJUSTMENTS (dB)		SCREENING	REFLECTION	RESULTANT LAeq, dB	FRACTION ON TIME	CORRECTIONS TO LAeq, 1 HR		ACTIVITY $L_{Aeq, 1\ HR}$
			DISTANCE								
List all noise sources		*Distance to receptor, m*	*K_h = $20log_{10}$ (R/10)*	*K_s = $(25log_{10}(R/10) - 2$*	*0, 5, 10, calculate*	*0, 3*	*L_{WA} - adjustments*	*(Activity duration / working period)*	*$t_c = T_t \times F$*	*$(t_c)(10^{0.1Li})$*	*$L_{Aeq,1hr} = 10log_{10}[1/1S(t_c)(10\ 0.1Li)$*
Sludge Treatment	72	1370	*62.7*	*51.4*	5	3	18.6	0.75	0.75	54.1	
At Tanks	76	1175	*61.4*	*49.8*	5	3	24.2	0.5	0.5	133	
Inlet Works Area	76	1250	*61.9*	*50.4*	5	3	*12.1*	1	1	16.1	
Note 1 - 5 dB(A) partial attenuation between receptor and source										*SIGMA (t c)(10 0.1Li)*	*L Aeq,1hr = 10log10 [1/1S(t c)(10 0.1Li)*
										203.2	**23**

PREDICTED LIMERICK WWTP OPERATION NOISE AT NSR 3.

Prediction of noise from quasi stationary plant (Activity L_{AEQ} Method)

PLANT TYPE / NOISE SOURCE	L_{Aeq}, AT 10m, dB	DISTANCE, m	ADJUSTMENTS (dB)		SCREENING	REFLECTION	RESULTANT LAeq, dB	FRACTION ON TIME	CORRECTIONS TO LAeq, 1 HR		ACTIVITY $L_{Aeq,\ 1\ HR}$
			DISTANCE								
List all noise sources		*Distance to receptor, m*	*K_h = $20log_{10}$ (R/10)*	*K_s = $(25log_{10}(R/10) - 2$*	*0, 5, 10, calculate*	*0, 3*	*L_{WA} - adjustments*	*(Activity duration / working period)*	*$t_c = T_t \times F$*	*$(t_c)(10^{0.1Li})$*	*$L_{Aeq,1hr} = 10log_{10}[1/1S(t_c)(10\ 0.1Li)$*
Sludge Treatment	72	1500	*63.5*	*52.4*	5	3	17.6	0.75	0.75	43.1	
At Tanks	76	1340	*62.5*	*51.2*	5	3	22.8	0.5	0.5	95.8	
Inlet Works Area	76	1390	*62.9*	*51.6*	5	3	*11.1*	1	1	13	
Note 1 - 5 dB(A) partial attenuation between receptor and source										*SIGMA (t c)(10 0.1Li)*	*L Aeq,1hr = 10log10 [1/1S(t c)(10 0.1Li)*
										151.9	**22**

PREDICTED LIMERICK WWTP OPERATION NOISE AT NSR 4.

Prediction of noise from quasi stationary plant (Activity L_{AEQ} Method)

PLANT TYPE / NOISE SOURCE	L_{Aeq}, AT 10m, dB	DISTANCE, m	ADJUSTMENTS (dB)		SCREENING	REFLECTION	RESULTANT LAeq, dB	FRACTION ON TIME	CORRECTIONS TO LAeq, 1 HR		ACTIVITY $L_{Aeq,\ 1\ HR}$
			DISTANCE								
List all noise sources		*Distance to receptor, m*	*K_h = $20log_{10}$ (R/10)*	*K_s = $(25log_{10}(R/10) - 2$*	*0, 5, 10, calculate*	*0, 3*	*L_{WA} - adjustments*	*(Activity duration / working period)*	*$t_c = T_t \times F$*	*$(t_c)(10^{0.1Li})$*	*$L_{Aeq,1hr} = 10log_{10}[1/1S(t_c)(10\ 0.1Li)$*
Sludge Treatment	72	1640	*64.3*	*53.4*	5	3	16.6	0.75	0.75	34.5	

At Tanks	76	1500	*63.5*	*52.4*	5	3	21.6	0.5	0.5	72.2	
Inlet Works Area	76	1540	*63.8*	*52.7*	5	3	*10.2*	1	1	10.6	
Note 1 - 5 dB(A) partial attenuation between receptor and source										*SIGMA (t c)(10 0.1Li)*	*L Aeq,1hr = 10log10 [1/1S(t c)(10 0.1Li)*
										117.3	**21**

PREDICTED LIMERICK WWTP OPERATION NOISE AT NSR 5.

Prediction of noise from quasi stationary plant (Activity L_{AEQ} Method)

PLANT TYPE / NOISE SOURCE	**L_{Aeq}, AT 10m, dB**	**DISTANCE, m**	**ADJUSTMENTS (dB)**		**SCREENING**	**REFLECTION**	**RESULTANT LAeq, dB**	**FRACTION ON TIME**	**CORRECTIONS TO LAeq, 1 HR**		**ACTIVITY $L_{Aeq,\ 1\ HR}$**
			DISTANCE								
List all noise sources		*Distance to receptor, m*	*K_h = $20log_{10}$ (R/10)*	*K_s = $(25log_{10}$ (R/10) - 2*	*0, 5, 10, calculate*	*0, 3*	*L_{WA} - adjustments*	*(Activity duration / working period)*	*$t_c = T_t$ x F*	*$(t_c)(10^{0.1Li})$*	*$L_{Aeq,1hr} = 10log_{10} [1/1S(t_c)(10 0.1Li)$*
Sludge Treatment	72	1450	*63.2*	*52*	5	3	18	0.75	0.75	47	
At Tanks	76	1300	*62.3*	*50.8*	5	3	23.2	0.5	0.5	103.3	
Inlet Works Area	76	1350	*62.6*	*51.3*	5	3	*11.4*	1	1	13.8	
Note 1 - 5 dB(A) partial attenuation between receptor and source										*SIGMA (t c)(10 0.1Li)*	*L Aeq,1hr = 10log10 [1/1S(t c)(10 0.1Li)*
										164	**22**

PREDICTED LIMERICK WWTP OPERATION NOISE AT NSR 6.

Prediction of noise from quasi stationary plant (Activity L_{AEQ} Method)

PLANT TYPE / NOISE SOURCE	L_{Aeq}, AT 10m, dB	DISTANCE, m	ADJUSTMENTS (dB)		SCREENING	REFLECTION	RESULTANT LAeq, dB	FRACTION ON TIME	CORRECTIONS TO LAeq, 1 HR		ACTIVITY $L_{Aeq,\ 1\ HR}$
			DISTANCE								
List all noise sources		*Distance to receptor, m*	*K_h = $20log_{10}$ (R/10)*	*K_s = $(25log_{10}$ (R/10) - 2*	*0, 5, 10, calculate*	*0, 3*	*L_{WA} - adjustments*	*(Activity duration / working period)*	*$t_c = T_t \times F$*	*$(t_c)(10^{0.1Li})$*	*$L_{Aeq,1hr} = 10log_{10}$ [1/1S(t_c)(10 0.1Li)*
Sludge Treatment	72	400	*52*	*38.1*	5	3	31.9	0.75	0.75	1174.7	
At Tanks	76	555	*54.9*	*41.6*	5	3	32.4	0.5	0.5	867.4	
Inlet Works Area	76	475	*53.5*	*39.9*	5	3	*20.5*	1	1	111.3	
Note 1 - 5 dB(A) partial attenuation between receptor and source										*SIGMA (t c)(10 0.1Li)*	*L Aeq,1hr = 10log10 [1/1S(t c)(10 0.1Li)*
										2153.4	**33**

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