

10 May 2022

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Clough Projects Australia Pty Ltd
Level 9 58 Mounts Bay Road
Perth WA 6000

Attention: Michael Knez

Dear Michael

**Tallawarra B
Noise Impact Assessment
Out of Hours Construction Works**

1 Introduction

SLR Consulting Australia Pty Ltd (SLR Consulting) has been commissioned by Clough Projects to assess the potential noise emissions associated with the proposed out of hours construction works to be undertaken for the Tallawarra B project (the Project).

2 Work Description

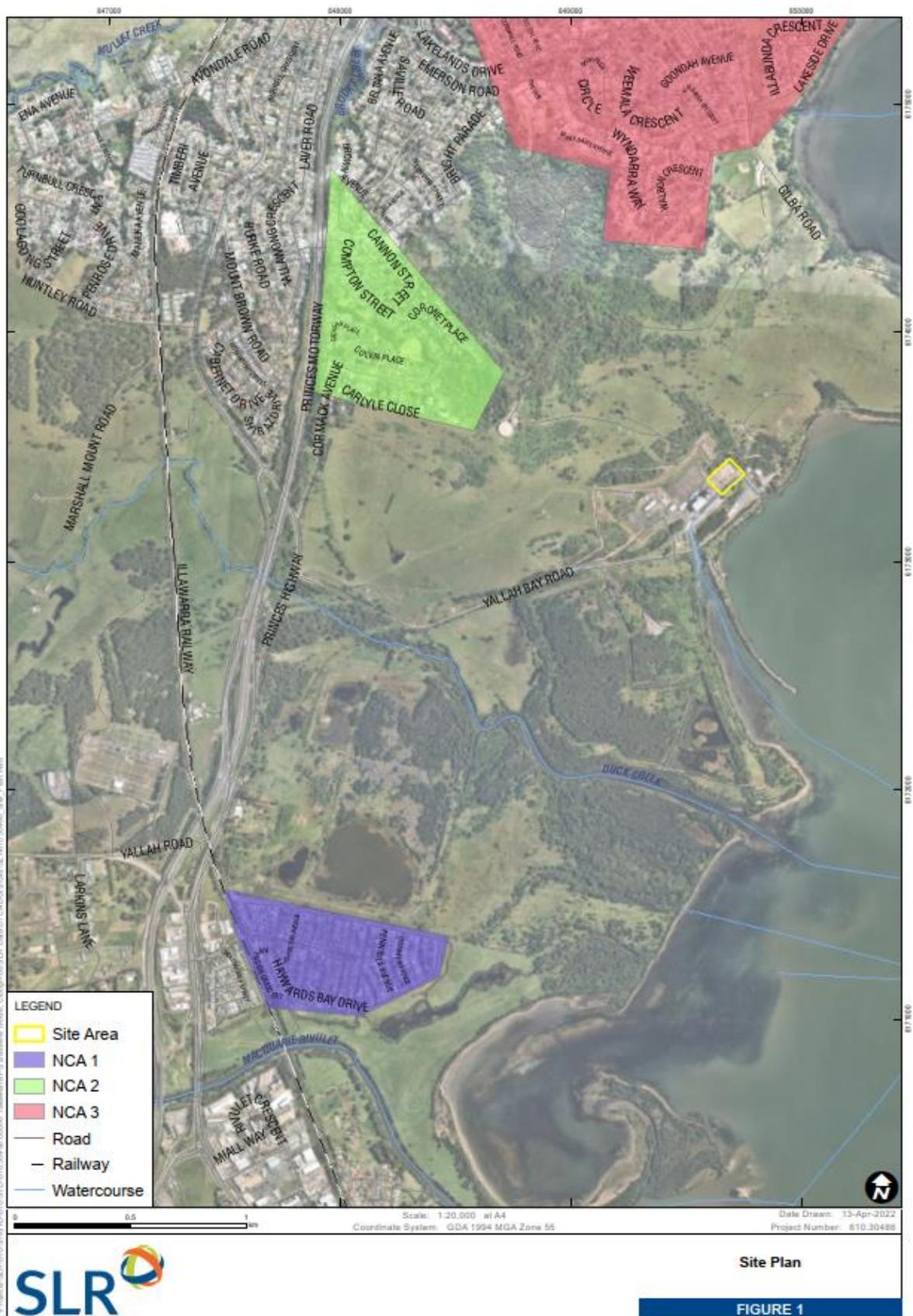
Tallawarra Power Station is located at Tallawarra, New South Wales. The Project is located on Yallah Bay Road, with Energy Australia greenfield land directly to the north and west and Lake Illawarra directly to the south and east.

Noise catchment areas (NCAs) representative of the nearest residential receivers are listed in **Table 1** and presented in **Figure 1** together with the Project location.

Table 1 Nearest Residential Receivers

NCA	Address	Distance (m) from Site Boundary	Direction
NCA1	Haywards Bay Drive, Haywards Bay	2.3km	South
NCA2	Carlisle Cl and Coronet Place, Dapto	1.1km	West
NCA3	Malonga Place, Koonawarra	1.1km	North

Figure 1 Site Location and Surrounding Receivers



2.1 Work Scenarios

The proposed work scenarios and the corresponding working periods are summarised in **Table 2**.

Table 2 Work Scenarios

ID	Work Scenario	Expected Working Periods	Indicative Timing
S1	Refuelling operation	24 hours	As required
S2	Maintenance activities	24 hours	Occasional
S3	Concrete pouring	24 hours	1 st and 2 nd quarter 2022
S4	Hot works (including welding, grinding and steel fabrication)	7 am to 6 pm including weekends	3 rd and 4 th quarter 2022
S5	Line flushing	24 hours	3 rd and 4 th quarter 2022, 1 st quarter 2023
S6	Pipe testing and mechanical works	Saturdays 6 am to 6 pm Sundays 8 am to 5 pm	3 rd and 4 th quarter 2022
S7	Critical lifting (including oversize over mass activities)	7 am to 6 pm Monday to Friday Saturday 6 am to 6 pm Sunday 8 am to 5 pm	3 rd and 4 th quarter 2022, and as required
S8	Electrical works, cable pulling and terminations	7 am to 6 pm including weekends	3 rd and 4 th quarter 2022

3 Noise Management Levels

The noise management levels applicable at the nearest residential receivers as outlined in the Energy Australia's Noise and Air Quality Management Sub-Plan (NAQMSP) No. TALLAB-EA-10111-AQB070-0010 dated 4 February 2022 and reproduced in **Table 3**.

Table 3 Construction Noise Management Levels – out of hours works

NCA	Period	Receiver Category in NAQMSP	Noise Management Level LAeq(15min)	Sleep Disturbance Level LAmax
NCA1	Day	R6-R11	45	-
	Evening		40	-
	Night		39	52
NCA2	Day	R1-R2	46	-
	Evening		41	-
	Night		39	52
NCA3	Day	R3-R5	46	-
	Evening		39	-
	Night		35	52

Note 1: Day: 7 am to 6 pm Mondays to Saturdays, 8 am to 6 pm and public holidays;
Evening: 6 pm to 10 pm on any day;
Night: 10 pm to 7 am Mondays to Saturdays, 10 pm to 8 am Sundays and public holidays.

4 Noise Emission Assessment

4.1 Methodology

The potential noise emissions from the night works have been predicted using ISO 9613:2 algorithm in iNoise V2021. The model includes ground topography and representative noise sources from the proposal. iNoise (V2021) modelling software achieves the requirements of ISO 17534, 2015 as applicable to the ISO9613:2 calculation algorithm.

Meteorological conditions for the noise model included a temperature of 10°C, humidity of 90% and consideration of noise enhancing weather conditions equivalent to a source to receiver wind of 3m/s or temperature inversion.

A conservative ground absorption setting of 50% was applied.

The potential impacts have been determined by comparing the predicted noise levels to the out of hours noise management levels in a 15-minute assessment period for average (L_{Aeq}) and maximum (L_{Amax}) noise emissions.

4.1.1 Noise Sources

The noise levels of equipment during each proposed working scenario are shown in **Table 4**. All noise sources have been assumed to be operating continuously throughout a 15minute assessment period.

Table 4 Equipment Summary

ID	Work Scenario	Equipment	Quantity	Sound Power Level (dBA) L _{Aeq} ^{1,2}
S1	Refuelling operation	Truck	4	105
		Light tower (with diesel generator)	12	80
		Total	-	111
S2	Maintenance activities	Truck	2	105
		Power hand tool	2	99
		Air compressor for hand tool	2	94
		Light tower (with diesel generator)	12	80
		Total	-	109
S3	Concrete pouring	Concrete pump	2	109
		Agitator truck	4	109
		Concrete vibrator	4	103
		Handheld concrete vibrator	1	99
		Light tower (with diesel generator)	12	80
		Total	-	118
S4	Hot works (including welding, grinding and steel fabrication)	Hand-held Welder	2	101
		Generator for Welding	2	102
		Hand-held gas cutter	2	96
		Total	-	108

ID	Work Scenario	Equipment	Quantity	Sound Power Level (dBA) LAeq ^{1,2}
S5	Line flushing	Electric water pump	2	96
		Light tower (with diesel generator)	12	80
		Total	-	99
S6	Pipe testing and mechanical works	Power hand tool	2	99
		Air compressor for hand tool	2	94
		Total	-	103
S7	Critical lifting (including oversize over mass activities)	Mobile Telescopic Crane - 150t	1	113
		Wheeled Mobile Crane - 20t	2	98
		Prime mover/ trailer	4	109
		Total	-	117
S8	Electrical works, cable pulling and terminations	Power hand tool	2	99
		Air compressor for hand tool	2	94
		Total	-	103

Note 1: SWLs adopted from the TfNSW Construction noise guideline and DEFRA noise database.

Note 2: SWL for individual equipment.

A maximum noise event of 125 dBA (L_{Amax}) has also been considered for each assessment scenario. This is representative of worse case impact source such as dropping items or clanging and banging equipment or air brake release.

4.2 Predicted Noise Levels

A summary of the noise assessment at the nearest residential receivers is shown in **Table 5**. Noise emissions from the site were modelled to sensitive receiver locations in each NCA with the highest predicted noise impact presented.

Table 5 Predicted Noise Levels

NCA ID	Work Scenario		Sound Pressure Level LAeq(15min) (dBA)		Sound Pressure Level LAmax (dBA)		Compliance ?
	ID	Description	Out of hours NML D/E/N	Predicted Noise Level LAeq	Sleep Disturbance Level	Predicted LAmax ¹	
NCA1	S1	Refuelling operation	45/40/39	23	52	37	Yes
	S2	Maintenance activities		21			Yes
	S3	Concrete pouring		29			Yes
	S4	Hot works		<20			Yes
	S5	Line flushing		<20			Yes
	S6	Pipe testing and mech works		<20			Yes
	S7	Critical lifting		29			Yes
	S8	Electrical works		<20			Yes
NCA2	S1	Refuelling operation	46/41/39	21	52	35	Yes
	S2	Maintenance activities		<20			Yes
	S3	Concrete pouring		27			Yes
	S4	Hot works		<20			Yes
	S5	Line flushing		<20			Yes
	S6	Pipe testing and mech works		<20			Yes
	S7	Critical lifting		27			Yes
	S8	Electrical works		<20			Yes
NCA3	S1	Refuelling operation	46/39/35	28	52	42	Yes
	S2	Maintenance activities		26			Yes
	S3	Concrete pouring		34			Yes
	S4	Hot works		24			Yes
	S5	Line flushing		<20			Yes
	S6	Pipe testing and mech works		20			Yes
	S7	Critical lifting		34			Yes
	S8	Electrical works		20			Yes

Note 1: A similar result was predicted (within 1 dBA) for all assessment scenarios to each noise catchment area. this is due to the assumed 125 dBA LAmax source being significantly louder than the LAeq noise emissions.

Modelling results for each of the construction scenarios indicate the predicted noise levels would be below the night time noise management levels for average and maximum noise events. The greatest impacts were predicted to occur at receivers in NCA03 to the north of the project area during concrete pouring and critical lifting works with noise levels up to 34dB LAeq and 42dBA LAmax predicted.

5 Conclusion and Recommendations

SLR Consulting has undertaken the noise impact assessment in relevant to the proposed Out of Hours works for the Tallawarra B project. Noise modelling results show that the noise emissions from the site at the nearest residential receivers are expected to be below the noise management levels for average and maximum noise emissions during night-time period.

Notwithstanding, it is recommended to undertake attended noise monitoring at the nearest residential receivers during the work scenarios S3 (concrete pouring) and S7 (critical lifting) to confirm noise levels at receivers.

Yours sincerely



JASON QIAN
Senior Consultant - Acoustics and Vibration

Checked/
Authorised by: AMcK