

# Technical Memorandum

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<b>Project Name</b>	East Coast Gas Project		
<b>Subject</b>	Technical Note: Noise impacts from ORF construction activities		

## 1. Introduction

Australian Industrial Energy (AIE) is developing a liquefied natural gas (LNG) import terminal at Port Kembla, south of Wollongong, NSW (the Project). AIE received approval from the Department of Planning, Industry and Environment (now Department of Planning and Environment) on 20 November 2020, to extend construction hours for certain activities associated with the Project in accordance with Condition 27 of Schedule 3 of SSI 9471.

Furthermore, AIE engaged GHD Pty Ltd (GHD) to undertake an out of hour noise assessment for piling activities for the quay wall construction to support an out of hour works approval for associated activities to be undertaken during the extended construction hours between the hours of 7am and 10pm Monday to Saturday (GHD, 2022). AIE received approval from the Department of Planning and Environment on 7 February 2022, in accordance with Condition 27 of Schedule 3 of SSI 9471. It should be noted that at the time of preparing this technical note, the associated works for this out of hour approval had been completed.

In addition to the above, AIE are now proposing to undertake 24-hour construction activities for the Onshore Receiving Facilities (ORF), scheduled to commence in January 2023. These activities are proposed to be an extension of the existing out of hours works approval obtained in 2020.

### 1.1 Purpose of this Memorandum

This Memorandum has been prepared to quantitatively provide an assessment of potential noise impacts from the proposed ORF construction activities and to confirm that associated noise impacts are consistent or of less impact than the impacts assessed as part of the Port Gas Terminal Environmental Impact Statement, November 2018 (the EIS). The following information was reviewed in the preparation of this Memorandum:

- Spreadsheet *Plant and Equipment forecast*
- PDF *site noise profile*
- Email *ORF plant and equipment – assessment for out of hours work*

### 1.2 Limitations

*This technical memorandum has been prepared by GHD for AIE. It is not prepared as, and is not represented to be, a deliverable suitable for reliance by any person for any purpose. It is not intended for circulation or incorporation into other documents. The matters discussed in this memorandum are limited to those specifically detailed in the memorandum and are subject to any limitations or assumptions specially set out.*

This Technical Memorandum is provided as an interim output under our agreement with AIE. It is provided to foster discussion in relation to technical matters associated with the project and should not be relied upon in any way.

### 1.3 Construction noise management levels

The noise management levels for the Project were derived in the *Port Kembla Gas Terminal Out of hours Noise Assessment* (GHD, 2022) and reproduced below in Table 1, where:

- NCA01 includes residences to the north in Coniston and
- NCA02 includes residences to the west and south in Cringila, Port Kembla and Warrawong.

The NCA (and noise monitoring locations) are shown in Figure 1.

For full details on the existing environment and the background noise monitoring results, the reader is referred to the out of hours noise assessment (GHD, 2022)<sup>1</sup>.

**Table 1** Project specific construction noise management levels

Sensitive receiver type	Construction Noise Management Levels, $L_{Aeq(15min)}$ , dBA				
	Standard construction hours		Outside standard construction hours <sup>1</sup>		
	Noise affected	Highly noise affected	Day	Evening	Night
NCA01	49	75	44	44 <sup>2</sup>	44 <sup>2</sup> 54 $L_{AFmax}$
NCA02	53	75	48	47	47 <sup>3</sup> 57 $L_{AFmax}$

Notes:

- 1) The Noise Policy for Industry defines day, evening and night time periods as:
  - Day: the period from 7 am to 6 pm Monday to Saturday and 8 am to 6 pm on Sundays and public holidays
  - Evening: the period from 6 pm to 10 pm.
  - Night: the remaining periods
- 2) Measured background levels during the day time period were used as the measured evening and night time levels were higher than the measured daytime levels
- 3) Measured background levels during the evening time period were used as the measured night time levels were higher than the measured evening levels.

<sup>1</sup> GHD (2022), Port Kembla Gas Terminal Out of hours Noise Assessment, accessible online at: [https://ausindenergy.com/file/2022/02/Noise-and-vibration-assessment\\_Stage-2A.pdf](https://ausindenergy.com/file/2022/02/Noise-and-vibration-assessment_Stage-2A.pdf)

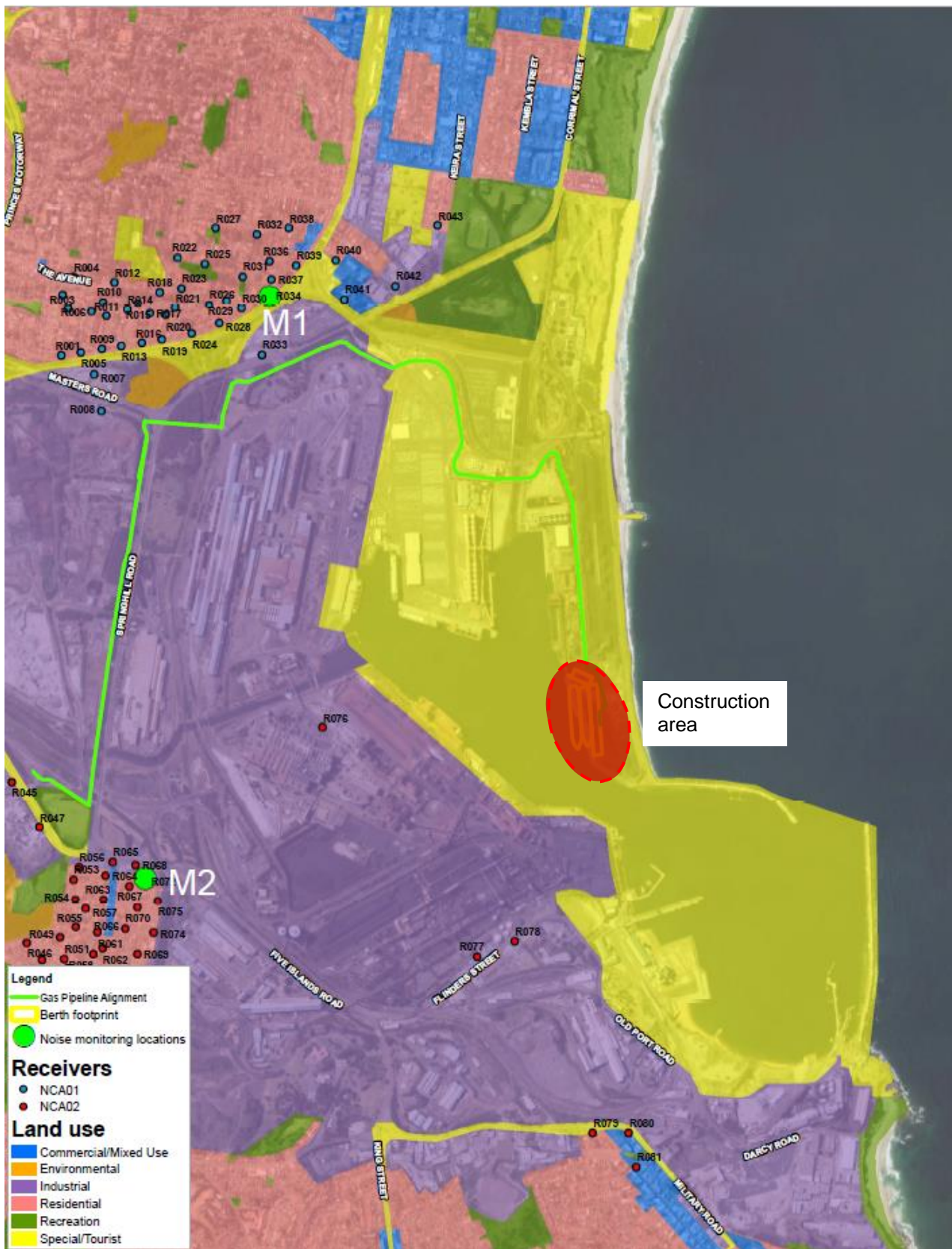


Figure 1 Representative sensitive receivers, noise monitoring locations and land use map with proposed construction area overlaid in red

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## 1.4 Modelling methodology

The construction equipment required for the ORF is shown below in Table 2, with the general construction area overlaid in red on Figure 1. The required construction activities (and equipment) would vary by month, with the worst-case noise generating construction activities proposed in July 2023.

Noise levels for construction equipment have been sourced from *BS 5228-1:2009 Code of practice for noise and vibration control on construction and open sites – Part 1: Noise* and *AS 2436 Guide to noise and vibration control on construction, demolition and maintenance sites* for similar equipment. Noise levels for equipment are also provided in Table 2.

Table 2 Proposed plant and equipment usage by month and anticipated sound power levels, dBA

Plant and equipment	2023												SWL <sup>1</sup> , dBA
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Franna Crane	X	X	X	X	X	X	X	X	X	X	X	X	105
Telehandler	X	X	X	X	X	X	X	X	X	X	X	X	107
500T Crane					X	X	X						105
240T Crane					X	X	X						105
130T Crane					X	X	X	X	X	X			105
80T Crane				X	X	X	X	X	X	X	X		105
Compressor				X	X	X	X	X	X	X	X		101
Mobile Welder (Vantage 475)			X	X	X	X	X	X	X	X	X		105
Excavator	X	X	X	X	X	X	X	X					107
Concrete Pump	X	X	X	X	X	X	X	X	X				108
135' EWP						X	X	X					95
135' EWP						X	X	X					95
85' EWP				X	X	X	X	X	X	X	X	X	95
85' EWP						X	X	X	X	X			95
Scissor Lift					X	X	X	X	X	X	X	X	106
RAD Gun							X	X	X	X			102
Rattle Gun					X	X	X	X	X	X			102
Pipe Cutters and Joint Prep							X	X	X	X			109
Grinders							X	X	X	X			109
Poly Welders			X	X	X	X							105

Note 1: SWL refers to the sound power level.

Noise modelling was undertaken using the acoustic modelling software SoundPLAN version 8.2, consistent with the methodology outlined in *Port Kembla Gas Terminal Out of hours Noise Assessment (GHD, 2022)*. Noise modelling was undertaken for the worst-case construction activities in July 2023, assuming all equipment would be operating concurrently within the nominated construction areas.



## 1.5 Construction noise results

Noise contours from worst-case ORF construction activities during July 2023 are shown in Figure 2.

Predicted noise levels at the nearest representative sensitive receivers (R076 and R078, refer to Figure 1) are 42 and 43 dBA respectively. Predicted noise levels at residential areas are generally lower than 30 dBA and would not be anticipated to be audible when compared to the existing ambient noise environment at these locations. Noise levels during other months with less intensive construction activities would be lower.

Noise levels are predicted to be below the noise management levels for the nearest sensitive receivers in the study area during both standard construction hours and outside standard construction hours. Levels are below the noise management levels due to the distance to the sensitive receivers and the intervening shielding from industrial buildings in the study area.

As the predicted noise levels are below the noise management levels, additional noise management measures are not required for the proposed works.

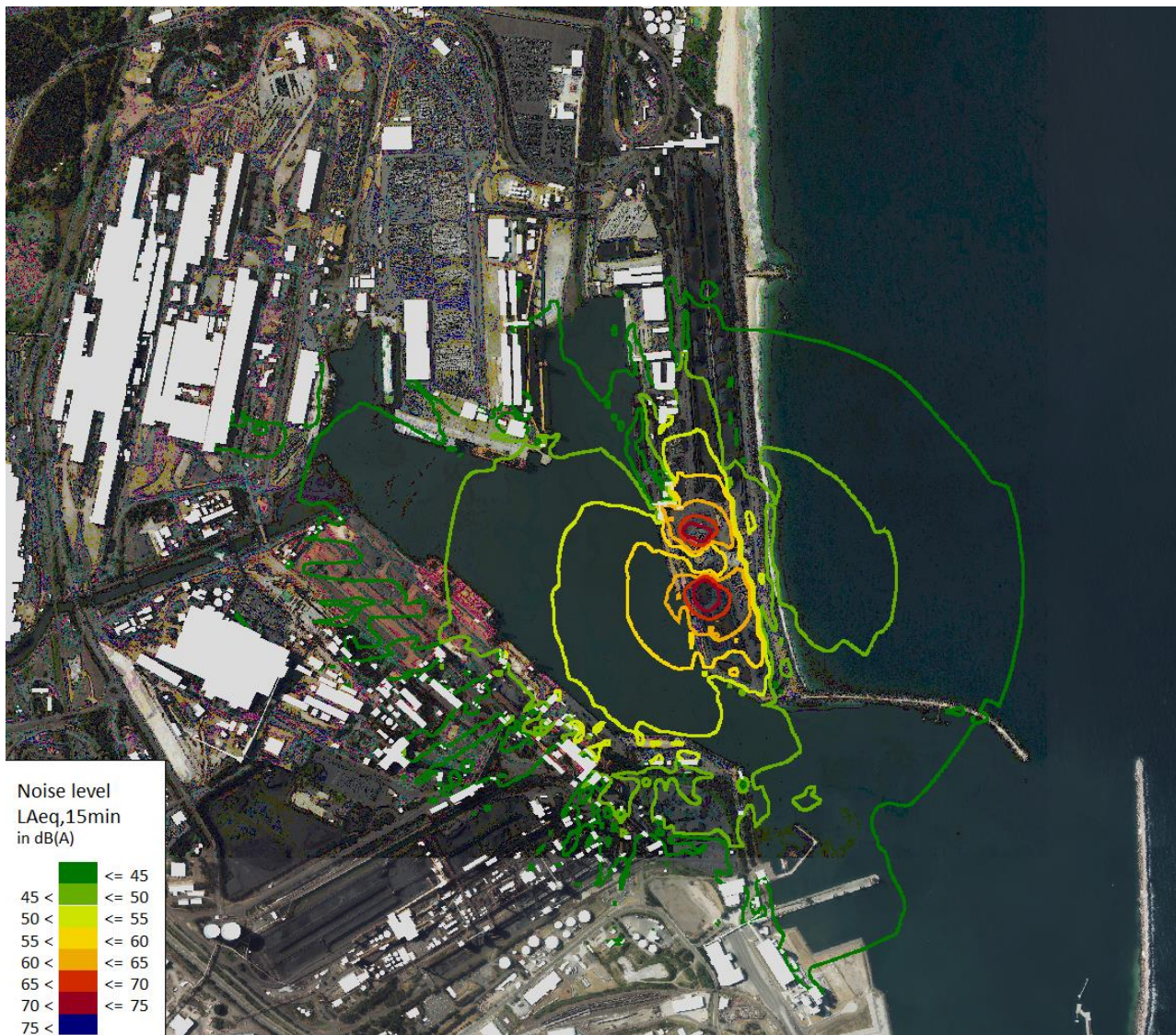


Figure 2 Construction noise contours – ORF construction

## **1.6 Conclusion**

Noise levels have been quantitatively assessed for the proposed ORF construction activities. Noise levels are predicted to be below the noise management levels at the nearest sensitive receivers during both standard and outside of standard construction hours and are therefore considered to be consistent or less of an impact to the impacts identified in the EIS. Additional noise mitigation measures are not required for the proposed works.

Regards

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