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Approved Rail Line Extension – MOD25

Operational Noise Management Plan
Shoalhaven Starches, Bolong Road, Bomaderry, NSW

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7425-20.1R Rev A

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Prepared For:
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MOD25 – Operational Noise Management Plan**Revision History**

	Date	Prepared	Checked	Comment
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MOD25 – Operational Noise Management Plan**PREAMBLE**

This revised Operational Noise Management Plan (ONMP) has been prepared to address comments provided via email to Manildra by the Department of Planning, Housing and Infrastructure following their review of the initial ONMP dated 29 August 2025.

The email from the Department states the following:

“The ONMP does not appear to address condition 14S (b) and (d).

‘14S. The Applicant must prepare an Operational Noise Management Plan for the operation of the rail line extension approved under MOD 25 to the satisfaction of the Planning Secretary. The Operational Noise Management Plan must:

(a) be prepared by a suitably qualified and experienced noise expert;

(b) describe all noise sources from the development;

(c) identify the measures that will be implemented to minimise noise emissions and to achieve the noise limits in conditions 12, Table 2, including scheduling of rail receipt and dispatch and maintenance;

(d) describe a program to monitor compliance with the noise limits specified in conditions 12, Table 2; and

(e) include a complaints management system that would be implemented for the duration of the development.’

With respect to (b), the ONMP currently refers broadly to noise from “train movements” and “maintenance activities” rather than identifying specific noise sources associated with the development. Where it is not feasible to identify all noise sources, the ONMP should, at a minimum, identify the key sources with potential to approach or exceed the applicable noise limits (eg wheel squeal, locomotive engines, horns, shunting). This information should ideally be presented in a table that includes the source, likely location, timing, frequency of occurrence, and corresponding mitigation measures. Where mitigation measures are detailed elsewhere in the ONMP, the table should provide cross-references to the relevant sections.”

Appendix D includes a table summarising key noise sources. The table includes the origin of noise sources, likely location, timing, frequency of occurrence, and corresponding mitigation measures. Cross references to relevant sections in this document are also shown for clarity.

“With respect to (d), the current section 5.5 of the ONMP outlines timing and frequency of monitoring but does not adequately describe a program to monitor compliance with the noise limits, as required. To address this, the plan should include:

- *Clear Methodology: Specify the measurement standards and procedures to be used (eg EPA Approved Methods for the Measurement and Analysis of Environmental Noise in NSW, AS 1055:2018), including noise descriptors ($L_{Aeq,T}$, L_{AFmax} , etc.), calibration requirements, and meteorological considerations.”*

A noise compliance monitoring procedure has been included and is shown attached as Appendix C. This procedure can be adapted and incorporated into existing Shoalhaven Starches procedural documentation as required.



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- *Monitoring Locations and Justification: Identify all assessment locations, explain why they are representative, and include a map.*

Further information has been included into Section 3 and identifies all assessment locations, reasoning behind the selection of these locations and several Figures and a Table that show the location of each assessment location.

- *Measurement Techniques: State whether measurements will be taken directly at compliance locations or at alternative/intermediate locations, and outline the approach for applying corrections or calculations when direct measurement is not feasible.*

Further information has been included into Section 3 regarding assessment locations and alternative locations.

Section 5.1.3 outlines an approach to corrections or calculations when direct measurement is not feasible.

- *Operating Conditions: Define what constitutes “typical operations” and how monitoring will capture worst-case scenarios*

Section 5.1.2 outlines typical and worst case operational scenarios during which noise measurements are to be conducted. The noise compliance procedure shown in Appendix C, reflects this information

- *Data Recording and Reporting: Outline record-keeping requirements (instrument details, contemporaneous notes, meteorology, source operating conditions) and reporting format.*

Section 5.1.1 outlines requirements for noise compliance measurement data recording and reporting.

- *Compliance Assessment and Response: Describe how results will be compared to limits, how exceedances will be managed, and timelines for implementing and verifying mitigation.*

Section 5.1.1 and Section *g. iii* of the noise compliance monitoring procedure describes how results will be compared to noise limits and criteria.

- *Independence: Identify a list of independent acoustic consultant that may be called upon to undertake noise verification monitoring.*

Section 5.1.1 provides requirements for acoustic consultants/engineers that may conduct noise compliance measurements and website addresses for the AAS and AAAC where suitable individuals and companies can be found. This is reiterated in the noise compliance monitoring procedure.

The noise compliance monitoring procedure shown in Appendix C, reflects the information above to ensure consistency when extracted and adapted into Shoalhaven Starches procedural documentation.



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1.0 EXECUTIVE SUMMARY

In 2009 Shoalhaven Starches received Project Approval from the Minister for Planning for the Shoalhaven Starches Expansion Project (SSEP), reference MP06_0228. This approval also encapsulated previous approvals for the site into one overall approval (at that time).

Modification Application 25 (MOD25) included the construction of a 1.28 km extension to the existing rail line that serves the Manildra site. MOD25 was approved 5 June 2025 by the Department of Planning, Housing and Infrastructure subject to Conditions specified in the Modified Development Consent (MP06_0228-Mod-25).

Item 5 of the Consent includes several new and updated Conditions that are to be implemented in addition to the existing Project Approval. Condition 14S requires that an Operational Noise Management Plan for the general operation of the rail line extension be prepared and submitted to the Planning Secretary.

This Operational Noise Management Plan has been prepared to satisfy Condition 14S of MP06_0228-Mod-25. For full context and background information, it should be read in conjunction with the MOD25 Environmental Noise Impact Assessment (ENIA), prepared by Day Design Pty Ltd, Rev E, dated 7 February 2025.



MOD25 – Operational Noise Management Plan

2.0 CONSULTING BRIEF

Day Design Pty Ltd was engaged by Manildra Group to prepare an Operational Noise Management Plan for the approved MOD25 Rail Line Extension.

This commission involves the following:

Scope of Work:

- Prepare a site plan identifying the development and nearby noise sensitive locations
- Determine the background noise levels at critical locations and times
- Review existing Development Consents and Approvals and determine Conditions applicable to the MOD25
- Establish the acceptable noise level criterion
- Describe sources of noise emission from the general operation of the MOD25 rail extension
- Prepare an Operational Noise Management Plan.



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3.0 SITE AND DEVELOPMENT DESCRIPTION**3.1 Site Description**

The Shoalhaven Starches complex is located on the southern side of Bolong Road across the Shoalhaven River from Nowra.

The surrounding area is a mix of industrial and residential premises.

The approved MOD25 rail line extension is located on the eastern side of the Shoalhaven Starches site and will originate from the present rail line terminus at the eastern boundary of Lot 1 DP 544730 and will extend across a corridor of land, Lot A DP 384559, and terminate within the northeast corner of the former Australian Paper Mill site, Lot 102 DP 1283484.

3.2 Development Description

The existing rail line within the Shoalhaven Starches site is too short to accommodate freight trains and wagons with a length of more than 900 metres. The approved MOD25 works will extend the existing rail line by constructing a dual rail line to the east of its existing terminus for a distance of 1,280 metres, including an 850 metre loop for the purposes of enabling container trains to reverse, run locomotives around incoming and outbound services and outbound product movements.

The works will also include a 180 metre rail maintenance spur to be situated at the eastern end of the MOD25 extension. The dual line will allow locomotives to be decoupled and then returned to the western end of the new line to be able to move the train in a westerly direction.

The existing rail line crosses Bolong Road on the western end of the site which passes through the North Packing Plant site on the north side of Bolong Road. The packing plant site includes a noise wall which runs along the southwestern side of the existing rail line. The height of the noise wall varies in height between approximately 9 and 11 metres above ground level and provides significant noise attenuation of rail noise in this location. The rail line then joins the South Coast mainline to the northwest of the north packing plant site.

The location of the north packing plant site, noise wall and mainline is shown in context with the surrounding area in Figure 1.



MOD25 – Operational Noise Management Plan**3.3 Noise Assessment Locations**

Section L5.1 of EPL 883 indicates only general areas where noise levels are to be assessed with no specific addresses or coordinates given. However, for noise compliance purposes, specific noise assessment locations within each EPL883 assessment area have been provided in this ONMP.

The selection of these locations has been referenced from previous noise compliance sessions and have been conducted within the same general area each time. As such, by continuing to conduct noise compliance measurements in these locations, this allows for comparison with previous and future compliance measurements.

In addition to the EPL883 assessment locations, additional assessment locations in Bolong and Pig Island have been selected for inclusion in noise compliance sessions.

The general EPL883 assessment areas and additional locations in Bolong and Pig Island, are shown in Figures 1 and Table 1. Specific assessment locations are shown in Figures 2 and 3 and described in Table 2.

Specific assessment locations have been adopted as they are representative of the nearest residential areas and dwellings which are likely to be most exposed to noise generation from the MOD25 rail line extension and/or cumulative noise emissions from the main site.

Table 1 Noise Assessment Areas

Receptor	Location	Direction From Train Line	Building type
<i>EPL883 Representative Areas</i>			
R1	Nobblers Lane, Terara	South	Residential Dwellings
R2	Ferry Lane, Nowra	South	Residential Dwellings
R3	Meroo Street, Bomaderry	Northwest	Residential Dwellings
R4	Coomea Street, Bomaderry	Northwest	Residential Dwellings
<i>Additional Assessment Areas</i>			
A1	Bolong	East	Single Storey Residential
A2	Pig Island	South	Single Storey Residential



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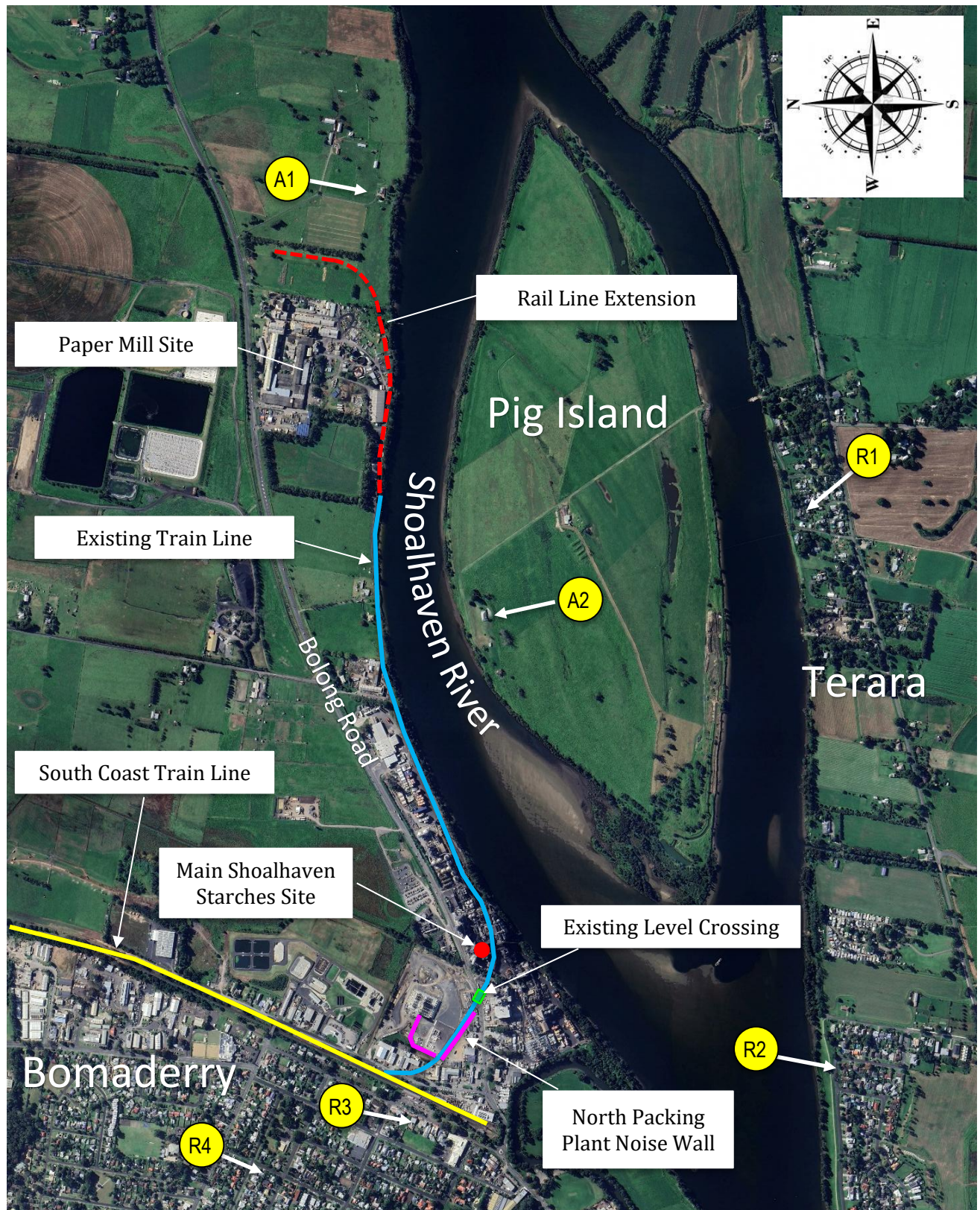


Figure 1 *Location Plan – Shoalhaven Starches, Bolong Road, Bomaderry, NSW.*



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The location of the site and representative EPL883 noise measurement locations are shown in Figure 2 below:

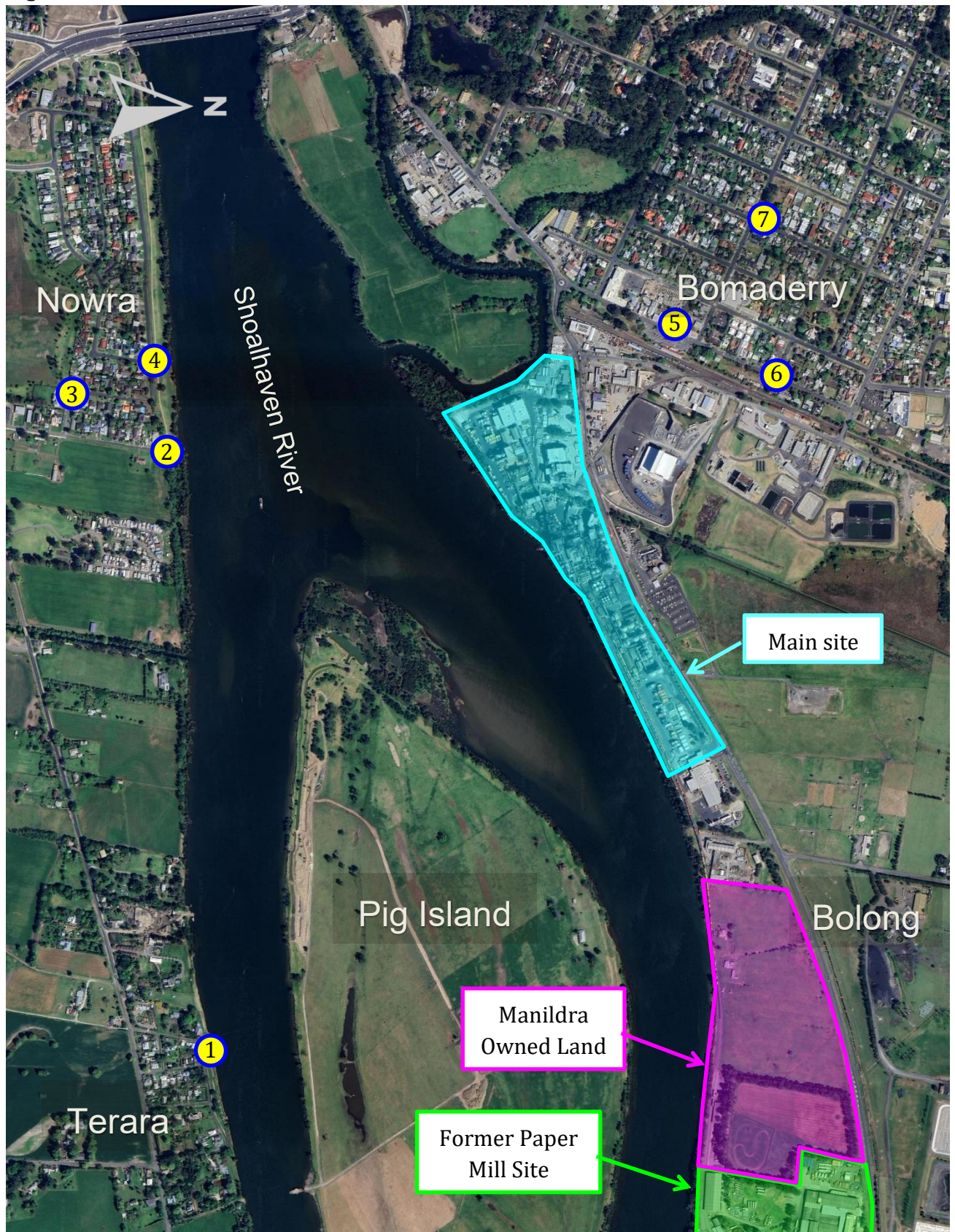


Figure 2

EPL883 – Specific Noise Monitoring Locations



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The location of the additional noise measurement locations in Bolong and Pig Island is shown in Figures 3 and 4.

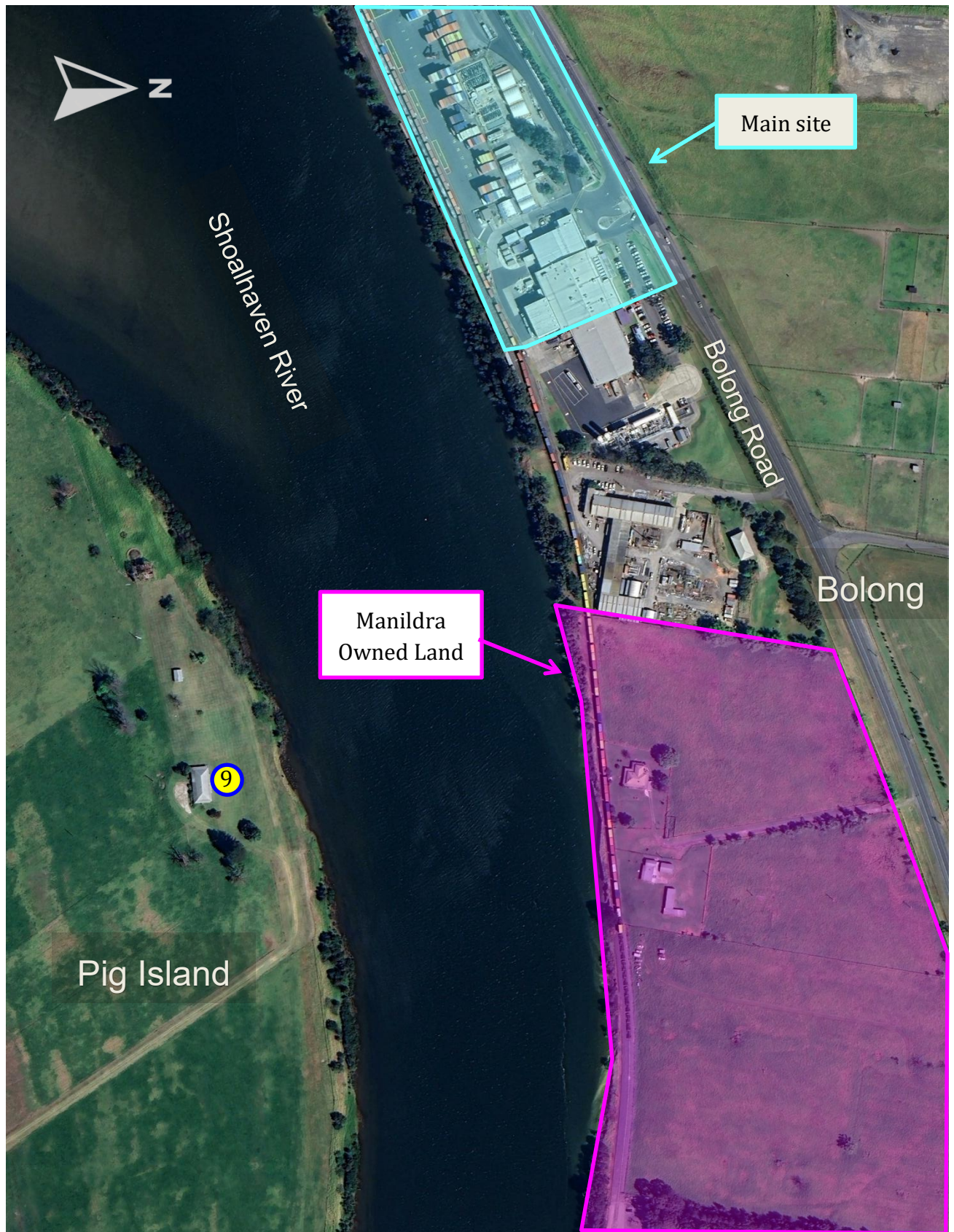


Figure 3

Additional Noise Monitoring Locations – Bolong



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**Figure 4*****Additional Noise Monitoring Locations – Pig Island***

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The locations shown in Figures 1-4 above are specified in Table 2. Noise measurement, monitoring and assessments shall be conducted at these locations to determine compliance with the noise limits and criteria established in Section 4.4.

Table 2 Representative Noise Monitoring Locations

Location Reference	Representative Area	Location	Coordinates (Geographic DMS)
<i>EPL883 Assessment Locations</i>			
1	Terara	Cnr Nobblers Lane & W Berry St	Lat -34° 51' 49.61" Long 150° 37' 40.36"
2	Nowra	Ferry Lane (Northern Cul de Sac)	Lat -34° 51' 52.62" Long 150° 36' 44.34"
3	Nowra	83 Riverview Rd	Lat -34° 51' 59.29" Long 150° 36' 39.28"
4	Nowra	Cnr. Riverview Rd & Lyrebird Dr	Lat -34° 51' 54.21" Long 150° 36' 35.89"
5	Bomaderry	49 Meroo St	Lat -34° 51' 13.41" Long 150° 36' 33.25"
6	Bomaderry	Cnr Meroo St & Birriley St	Lat -34° 51' 5.88" Long 150° 36' 37.23"
7	Bomaderry (Other)	Cnr Karowa St & Bunberra St	Lat -34° 51' 7.06" Long 150° 36' 22.66"
<i>Additional Noise Compliance Monitoring Locations</i>			
8	Bolong	'Glenalbas' 390 Bolong Rd, Bolong	Lat -34° 51' 10.52" Long 150° 38' 16.85"
9	Pig Island	Isolated Residential Dwelling	Lat -34° 51' 20.16" Long 150° 37' 29.98"

Condition L5.1 and L5.3 of the EPL states that noise measurements are to be conducted at the most affected point on or within the residential boundary, or at the most affected point within 30m of a dwelling where the dwelling is more than 30m from the boundary.

For Location 1-7, this may be curbside, outside the particular dwelling or building for locations within residential areas. Noise measurement for Location 8 and 9 should be conducted at the most affected point within 30m of these dwellings where the dwelling is more than 30m from the boundary.



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3.3.1 *Alternative Assessment Locations*

In the event that any of the locations specified in Table 2 cannot be accessed or are otherwise not appropriate for noise measurement and assessment, alternative locations may be adopted. The alternate location shall be similarly representative for the area, ie distance to noise sources, shielding from buildings or other structures, ambient and/or other unrelated noise sources etc.



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4.0 NOISE CRITERIA**4.1 Rating Background Levels**

The L_{90} background noise level is a statistical measure of the sound pressure level that is exceeded for 90% of the measurement period (typically 15 minutes).

The Rating Background Level (RBL) is defined by the NSW EPA as the median value of the (lower) tenth percentile of L_{90} ambient background noise levels for day, evening or night periods, measured over a number of days during days and times of operation.

Long-term noise monitoring was conducted by Day Design between 13 and 20 April 2023 at 4 locations in Bomaderry, Bolong, Terara and Nowra. Long term monitoring was also conducted at Bolong between 1 and 10 October 2024. Refer Section 4 of the ENIA.

It should be noted that between 17 April and 19 April 2023, the entire site was offline for approximately 3 days. Ambient noise levels during this period were notably lower than when the site was online and operating at nominal capacity. As such, the RBL's are considered to be conservative for each area.



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Noise criteria for the assessment of construction noise have been established for residential areas based on the RBL's for each assessment areas as shown in Table 3.

Table 3 Ambient Background Noise Levels

Location	Time Period	L ₉₀ Rating Background Level		
		Plant Off Only	Plant On Only	Total Survey
April 2023				
DD1 – Bomaderry	Day (7 am to 6 pm)	49 dBA	49 dBA	49 dBA
	Evening (6 pm to 10 pm)	42 dBA	48 dBA	46 dBA
	Night (10 pm to 7 am)	38 dBA	46 dBA	45 dBA
DD11 – Bolong	Day (7 am to 6 pm)	36 dBA	41 dBA	39 dBA
	Evening (6 pm to 10 pm)	40 dBA	45 dBA	43 dBA
	Night (10 pm to 7 am)	37 dBA	44 dBA	42 dBA
DD17 – Terara	Day (7 am to 6 pm)	32 dBA	36 dBA	34 dBA
	Evening (6 pm to 10 pm)	34 dBA	42 dBA	40 dBA
	Night (10 pm to 7 am)	n/a ¹	40 dBA	40 dBA
DD20 – Nowra	Day (7 am to 6 pm)	40 dBA	42 dBA	41 dBA
	Evening (6 pm to 10 pm)	40 dBA	44 dBA	43 dBA
	Night (10 pm to 7 am)	33 dBA	40 dBA	39 dBA
October 2024				
DD8 – Bolong	Day (7 am to 6 pm)	n/a ²	37 dBA	37 dBA
	Evening (6 pm to 10 pm)		34 dBA	34 dBA
	Night (10 pm to 7 am)		36 dBA	36 dBA ³

¹ Data for night time during plant shutdown unavailable due to logger power failure.

² Noise monitoring conducted in October 2024 whilst plant was operating.

³ Night time RBL's were higher due to increased insect activity.



MOD25 – Operational Noise Management Plan**4.2 Department of Planning and Environment****4.2.1 Project Approval 06-0228**

Project Approval for Application No. 06_0228, provided by the Minister for Planning, dated January 2009, Schedule 2, Condition 2, 'Terms of Approval' states:

"The proponent shall carry out the project generally in accordance with the:

- a) EA and associated site plans (see Appendix 2);*
- b) Statement of commitments; and*
- c) Conditions of this approval."*

The original Project Approval incorporates noise mitigation measures recommended in the 'Acoustical Assessment, Proposed Ethanol Upgrade, Shoalhaven Starches' – prepared by The Acoustic Group Pty Ltd, ref 38.3849.R52:ZJM, dated 26 June 2008. This document forms part of the Environmental Assessment (EA) and statement of commitments. It is implicit that the noise control recommendations within this document are required to be implemented as part of the Project Approval.

Within the Project Approval, Schedule 3, *Specific Environmental Conditions*, Conditions 12 and 14, refer to noise emission during general operations of the site and are summarised as follows:

- Condition 12, Table 2 reiterates the noise limits contained with Environment Protection Licence 883. Refer Section 4.3 below.
- Condition 14 requires the preparation of a noise management plan (NMP).

4.2.2 Modification Application MP06_0228-Mod-25

Modification of Development Consent for MOD25 expands on Condition 14 above to include specific items for the rail line extension, as follows:

14R. Prior to the commencement of operation of the rail line extension approved under MOD 25, the Applicant must provide evidence to the satisfaction of the Planning Secretary to confirm the design specification detailed in the Modification Application and Environmental Noise Impact Assessment, prepared by Day Design Pty Ltd, Rev E, dated 7 February 2025 and supporting technical document prepared by Day Design Pty Ltd, dated 11 April 2025 for MOD 25 have been implemented.

14S. The Applicant must prepare an Operational Noise Management Plan for the operation of the rail line extension approved under MOD 25 to the satisfaction of the Planning Secretary. The Operational Noise Management Plan must:

- a) be prepared by a suitably qualified and experienced noise expert;*
- b) describe all noise sources from the development;*
- c) identify the measures that will be implemented to minimise noise emissions and to achieve the noise limits in conditions 12, Table 2, including scheduling of rail receipt and dispatch and maintenance;*



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- d) describe a program to monitor compliance with the noise limits specified in conditions 12, Table 2; and*
- e) include a complaints management system that would be implemented for the duration of the development.*

14T. The Applicant must:

- a) not commence operation of the MOD 25 rail line extension until the Operational Noise Management Plan required by condition 14R is approved by the Planning Secretary; and*
- b) implement the most recent version of the Operational Noise Management Plan approved by the Planning Secretary for the duration of the development.*

14U. Prior to the commencement of operation of the MOD 25 rail line extension and every subsequent year for a total period of three years, the Applicant must:

- a) offer to enter into an agreement with the owners of 390 Bolong Road for the purposes of providing at-receiver noise mitigation measures; and*
- b) provide evidence to the Planning Secretary of the offer required by condition 14U(a).*

14V. Where an owner specified in condition 14U(a) elects to take up the offer required by condition 14U(a), the Applicant is to provide evidence of the establishment of the agreement, to the Planning Secretary, within one month of the agreement being reached.

14W. For a period of three years from the commencement of operation of the MOD 25 rail line extension, the owners of 390 Bolong Road, may, on one occasion, ask the Applicant to enter into an agreement for the purposes of providing at-receiver noise mitigation measures. Upon receiving a written request from any of the owners of 390 Bolong Road, under condition 14U of this consent, the Applicant must offer an agreement in consultation with the owner within six months of receiving the written request. The agreement must be reasonable, for the purposes of providing at-receiver noise mitigation measures, and be commensurate with the level of noise impact on the dwelling.

14X. At the following stages of the operation of the rail line extension approved under MOD 25 (or as otherwise directed by the Planning Secretary), the Applicant must prepare and submit a Noise Verification Report to the satisfaction of the Planning Secretary within three months of each of the following:

- a) commencement of operation; and*
- b) implementation of mitigation measures identified through the noise Pollution Reduction Program (PRP) required by EPL 883.*



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14Y. Each Noise Verification Report required by condition 14X must:

- a) be prepared to the satisfaction of the Planning Secretary;*
- b) demonstrate that noise verification has been carried out by a suitably qualified, experienced and independent acoustic consultant in accordance with:*
 - (i) the Australian Standard AS 1055:2018 Acoustics – Description and measurement of environmental noise (Standards Australia, 2018); and*
 - (ii) the EPA Approved Methods for the Measurement and Analysis of Environmental Noise in NSW (EPA, 2022);*
 - (iii) the monitoring and reporting requirements detailed in Section 7 of the Noise Policy for Industry (EPA, 2017);*
- c) include:*
 - (i) an analysis of compliance with noise limits specified in condition 12, Table 2;*
 - (ii) an outline of management actions to be taken to address any exceedances of the limits specified in conditions 12, Table 2; and*
 - (iii) a description of contingency measures in the event management actions are not effective in reducing noise levels to an acceptable level and a timetable for the implementation of any required actions.*

4.3 Environment Protection Authority Licence 883

Shoalhaven Starches operates under Environment Protection Licence 883 (EPL 883) issued by the NSW Environment Protection Authority.

Section L5 ‘Noise Limits’ of the licence states:

“L5.1 the L_{Aeq} (15min) sound pressure level contribution generated from the premises must not exceed the following levels when measured at or near the boundary of any residential premises:

- a) 38 dBA at locations in Terara on the south side of the Shoalhaven River;*
- b) 38 dBA at locations in Nowra on the south side of the Shoalhaven River;*
- c) 42 dBA at locations in Meroo Street, Bomaderry;*
- d) 40 dBA at other locations in Bomaderry.”*

These noise limits apply to the overall operation of the Shoalhaven Starches complex.

4.3.1 Noise Limits for Bolong

Bolong (Receptor ‘A1’) is not included in the noise limits specified in EPL 883.

Long term noise logging has been conducted in Bolong for ‘R1’ as part of the most recent noise monitoring survey conducted in October 2024. Refer Section 4.1.



MOD25 – Operational Noise Management Plan**4.3.2 Noise Limits for Pig Island**

Pig Island (Receptor 'R2') is not included in the noise limits specified in EPL 883. While Pig Island is located within the suburb of Terara, it is located within an entirely different acoustic environment. Specifically, the isolated dwelling on Pig Island is located approximately 450 metres from the Shoalhaven Starches site with direct line of sight to both the main site and rail line, including the MOD25 extension.

By contrast, the general assessment location in Terara (as specified in the EPL) is located approximately 1.4 km from the Shoalhaven Starches site and rail line, on the south side of the Shoalhaven River. Pig Island is located within the intervening distance partially blocking line of sight.

As such, we have used long term logging data collected at DD11 within Bolong (refer to Section 4.13.1 and Figure 12 in the ENIA) to establish noise criteria for the isolated dwelling on Pig Island, 'R2'. DD11 is within the same distance as 'R2', has line of sight to the Shoalhaven Site and is better representative of the acoustic environment for the dwelling.

4.4 Project Specific Noise Criteria

Based on measurements of the existing acoustic environment and the relevant planning instruments and legislation, the noise criteria at each receptor location have been extracted from Section 4.13 of the ENIA as follows:

4.4.1 Residential Receptors – Residential Locations Most Affected by Train Line**R1 – Bolong**

- **39 dBA** $L_{eq, 15 \text{ min}}$ for the assessment of noise emission at residential receptors at 'R1' from the cumulative noise emission of the existing site, existing rail line and MOD25 works at any time during the day, evening or night time periods.
- **47 dBA** $L_{eq, 15 \text{ min}}$ for the assessment of noise emitted during construction activity at residential receptor 'R1' during standard construction hours.

R2 – Pig Island

- **44 dBA** $L_{eq, 15 \text{ min}}$ for the assessment of noise emission at residential receptors at 'R2' from the cumulative noise emission of the existing site, existing rail line and MOD25 works at any time during the day, evening or night time periods.
- **49 dBA** $L_{eq, 15 \text{ min}}$ for the assessment of noise emitted during construction activity at residential receptor 'R2' during standard construction hours.



MOD25 – Operational Noise Management Plan**4.4.2 Residential Receptors – EPA License Assessment Locations**

The EPL 883 and Shoalhaven Starches Noise Management Plan (SSNMP) specify noise criteria at four assessment locations in Terara, Nowra and Bomaderry. Noise emission from rail traffic has been calculated at these four assessment locations and shown in comparison with the existing EPL 883 $L_{eq, 15 \text{ min}}$ noise limits.

R3 – Terara

- **38 dBA** $L_{eq, 15 \text{ min}}$ for the assessment of noise emission for residential receptors in Terara - 'R3' from the cumulative noise emission of the existing site, existing rail line and MOD25 works at any time during the day, evening or night time periods.
- **44 dBA** $L_{eq, 15 \text{ min}}$ for the assessment of noise emitted during construction activity at residential receptor 'R3' during standard construction hours.

R4 – Nowra

- **38 dBA** $L_{eq, 15 \text{ min}}$ for the assessment of noise emission for residential receptors in Nowra - 'R4' from the cumulative noise emission of the existing site, existing rail line and MOD25 works at any time during the day, evening or night time periods.
- **51 dBA** $L_{eq, 15 \text{ min}}$ for the assessment of noise emitted during construction activity at residential receptor 'R4' during standard construction hours.

R5 – Meroo Street, Bomaderry

- **42 dBA** $L_{eq, 15 \text{ min}}$ for the assessment of noise emission for residential receptors on Meroo Street, Bomaderry - 'R5' from the cumulative noise emission of the existing site, existing rail line and MOD25 works at any time during the day, evening or night time periods.
- **59 dBA** $L_{eq, 15 \text{ min}}$ for the assessment of noise emitted during construction activity at residential receptor 'R5' during standard construction hours.

R6 – 'Other Locations' in Bomaderry

- **40 dBA** $L_{eq, 15 \text{ min}}$ for the assessment of noise emission for residential receptors on Coomea Street, Bomaderry - 'R6' from the cumulative noise emission of the existing site, existing rail line and MOD25 works at any time during the day, evening or night time periods.
- **59 dBA** $L_{eq, 15 \text{ min}}$ for the assessment of noise emitted during construction activity at residential receptor 'R6' during standard construction hours.

Compliance with the EPL 883 noise limits and construction noise criteria are assessed at the reasonably most-affected point on or within the residential property boundary or, if that is more than 30 metres from the residence, at the most reasonably most-affected point within 30 metres of the residence, but not closer than 3 metres to a reflective surface and at a height of 1.2 – 1.5 metres above ground level.



MOD25 – Operational Noise Management Plan**4.4.3 Sleep Disturbance**

During the night time period (10 pm – 7 am), sleep disturbance events may be generated from train movements or other activity occurring along the MOD25 extension. In order to minimise potential for sleep disturbance of occupants within nearby residential dwellings, the following noise criteria have been adopted for the nearest affected residential receptors, 'R1' and 'R2', based the lowest $L_{\max}$ criterion, as described in Section 2.5 of the NPI.

For the EPA assessment locations, 'R3' – 'R6', an L_{A1} descriptor is specified for the assessment of sleep disturbance. The $L_{\max}$ descriptor has been adopted in this report for the assessment of sleep disturbance to be consistent with the methodology described in Section 2.5 of the NPI and is considered to be an equivalent descriptor to quantify maximum noise levels. Compliance with the equivalent $L_{\max}$ criterion will ensure compliance with the L_{A1} criterion specified in Section L5.1 of the EPA License.

- **52 dBA $L_{\max}$** between 10 pm and 7 am at residential facades for 'R1'.⁴
- **57 dBA $L_{\max}$** between 10 pm and 7 am at residential facades for 'R2'.⁵
- **48 dBA $L_{\max}$** between 10 pm and 7 am at residential facades in Terara for 'R3'.
- **48 dBA $L_{\max}$** between 10 pm and 7 am at residential facades in Nowra for 'R4'.
- **52 dBA $L_{\max}$** between 10 pm and 7 am at residential facades on Meroo Street, Bomaderry for 'R5'.
- **50 dBA $L_{\max}$** between 10 pm and 7 am at residential facades on Coomea Street, Bomaderry for 'R6'.
- **45–50 dBA $L_{\max}$** internal level between 10 pm and 7 am for all residential dwellings.

4.4.4 On-Road Construction Vehicle Traffic**For residential areas along Bolong Road**

- **60 dBA $L_{eq, 15 \text{ hr}}$** during the day and evening 7 am – 10 pm;
- **55 dBA $L_{eq, 9 \text{ hr}}$** during the night 10 pm – 7 am.

Noise levels from on-road traffic are to be assessed at external residential facades. It should be noted that the majority of premises likely to be affected by noise emission from any additional construction vehicles are commercial/industrial which are significantly less sensitive to noise impacts. Noise criteria applicable to residential premises, specified above, will also ensure acoustic impacts on commercial/industrial premises are minimised.

⁴ Derived from long term RBL's at DD8 in Bolong. Minimum criterion applied as specified in the NPI.

⁵ Derived from long term RBL's at DD11 in Bolong.



MOD25 – Operational Noise Management Plan

4.4.5 Acceptable Vibration Criteria**4.4.5.1 Vibration Generated by Rail Traffic**

Based on the above documents and policies, the acceptable Vibration Dose Values for residential dwellings exposed to vibration from rail traffic are:

- $0.2 \text{ m/s}^{1.75}$ for all habitable areas during the day (15 hour); and
- $0.13 \text{ m/s}^{1.75}$ for all habitable areas during the night (9 hour).

The acceptable Vibration Dose Values for commercial and industrial buildings are:

- $0.8 \text{ m/s}^{1.75}$ for all habitable areas during the day (15 hour); and
- $0.8 \text{ m/s}^{1.75}$ for all habitable areas during the night (9 hour).

4.4.5.2 Vibration Generated by Construction Activity

It is our opinion, the most relevant vibration management levels for the construction of the rail line extension are summarised as follows:

- A Vibration Dose Value (VDV) between **0.2 – 0.4 $\text{m/s}^{1.75}$** for human annoyance within residential buildings;
- Peak Particle Velocity values for residential buildings, as measured at the foundations of the structure for structural damage of: 5 mm/s below 10Hz, 5-15 mm/s between 10-50 Hz, 40-0 mm/s between 50-100Hz.

These vibration management levels are applicable where an assessment of vibration from specific processes or activities occurring on site is required, ie in the event of a complaint or where specified by geotechnical engineers.



MOD25 – Operational Noise Management Plan**5.0 NOISE MEASUREMENT AND ASSESSMENT****5.1.1 Requirements, Procedures and Methodologies**

Noise measurements are to be conducted according to the relevant requirements, procedures and methodologies outlined in Australian Standard AS1055:2018 - *Acoustics – Description and measurement of environmental noise*, NSW EPA Noise Policy for Industry and Approved Methods for the Measurement and Analysis of Environmental Noise in NSW.

Noise measurements, monitoring and assessment are to be conducted by a suitably qualified and experienced acoustic consultant or engineer who holds a current membership with the Australian Acoustical Society (AAS - www.acoustics.org.au/membership/find-a-member) and employed by a member firm of the Association of Australasian Acoustical Consultants (AAAC - aaac.org.au/member-firms).

A noise compliance report is to be submitted to Shoalhaven Starches within 4 weeks of noise monitoring being completed. The report must include, but not limited to, the following components:

- i. Location map identifying each noise monitoring location;*
- ii. Dates and times of noise measurements and calibration information;*
- iii. Summary table of noise monitoring results including measurement location, time of measurement, $L_{eq,t}$, L_{90} and L_{max} noise levels, and statement of compliance against EPL883 noise limits/NPI criteria for each location;*
- iv. Where it is determined that noise limits are exceeded, either by direct measurement or calculation, further analysis and discussion is to be provided to identify the potential source/s of the non-compliance. The report is to provide recommendations to mitigate noise emission for any identified noise sources;*
- v. Weather conditions observed at each monitoring location during noise measurement session. Additional weather data can be sourced from the Manildra AWS and/or Nowra RAN AWS via BOM;*
- vi. Statement of compliance with EPL883 noise limits and ENIA criteria;*
- vii. Statement as to recognised protocol that monitoring occurred;*
- viii. Evidence of AAAC membership;*
- ix. Serial numbers and copies of most recent calibration certificates for noise monitoring equipment used including sound level meters, microphone capsules and preamps etc.*



MOD25 – Operational Noise Management Plan**5.1.2 Noise Emission Scenarios for Noise Assessment**

To retain consistency with previous noise assessment data, noise compliance measurements of the main site (including North Packing Plant and Waste Water Treatment Plant) shall be conducted during the night time period (10 pm – 7 am) under typical operations when ambient noise is low.

Separate noise compliance measurements shall also be conducted during the night time under a worst case noise emission scenario.

Typical and worst case noise assessment scenarios defined as follows;

- i. **Typical operations** - *All plant and equipment on the main site being in operation simultaneously at nominal capacity and all general maintenance activities as would typically comprise the day-to-day operation of the site.*
- ii. **Worst case scenario** - *Cumulative noise emission of i. as described above, and a freight train movement, fully laden, either arriving to or departing from the site, taking place on the train line within the main site including the MOD25 extension.*

As a freight train passes by or through different assessment areas at different times during the course of an arrival or departure, worst case noise compliance measurements shall include a freight train movement that is passing by the nearest point from the rail line to each assessment location.

5.1.3 Alternative Noise Assessment & Measurement Methods

Where noise from the site cannot be directly measured, is affected by noise sources unrelated to the site or is inaudible due to masking by existing ambient noise, the consultant/engineer shall adopt an alternative method to calculate the level of noise emission from the site at the assessment location.

This process shall be at the discretion of the consultant/engineer based on the specific circumstances or inhibiting factors that arise during the measurement session. This may include (but not be limited to) adjusting the total noise level by removing background noise, measuring spectral noise data in 1/3 octave resolution or high resolution FFT, measuring audible site noise levels at intermediate locations between the source and assessment location and calculating back to the assessment location, or any combination of these approaches.

The method/s employed to indirectly determine site noise emissions shall be clearly documented with all assumptions and intermediate steps and data disclosed. Guidance may be taken from NSW EPA *Noise Policy for Industry and Approved Methods for the Measurement and Analysis of Environmental Noise in NSW*.



MOD25 – Operational Noise Management Plan**6.0 OPERATIONAL NOISE MANAGEMENT PLAN AND CONTROLS****6.1 MOD25 – Operational Noise Sources**

Generally, sources of noise emissions from the use of the MOD25 extension can be broadly placed into two categories; train movements on the rail line and maintenance activities. Approaches to mitigation and management of noise emissions from these two categories will vary from permanent and temporary physical measures, management of activities or a combination of both.

Where feasible, specific noise management controls, (physical and/or managerial) are provided in the following sections. It is noted that there are many potential noise generating situations that may take place during general operations on the MOD25 extension. It is impractical to provide specific noise management recommendations for every possible noise source and activity. However, specific noise mitigation strategies are presented in the following sections. Section 6.9 includes generalised approaches to noise mitigation that will be effective for the reduction of noise during all noise emission situations. With the adoption of these strategies, where applicable to each noise emission situation, the noise limits/criteria can be achieved.

A summary of noise mitigation strategies is tabulated in Appendix D.

6.2 Operational Management Plan – Rail Line

Shoalhaven Starches Work Instructions document WI-40 – ‘*Mitigation of Noise in Yards*’, contains controls for noise control in relation to rail activity on the existing line. Section 7 – ‘*General Procedures*’, states the following:

‘7. General Procedures – Noise Mitigation in Yards

7.1.1 All Rail Safety Workers and including the Rail Operator Train crews must ensure that the following requirements are carried out whilst operating in the Manildra Group Yards and Sidings to ensure noise is kept to a minimum so far as practically possible at all times whilst trains are arriving, wagons are being shunted, wagons are being loaded and unloaded and trains are being moved and formed for departing services:

- *All rail movements MUST be conducted at a speed of no more than 8kmh and in some sign posted areas at the lower indicted speed to ensure train bunching noise is kept at a minimal level;*
- *All shunting is to be performed safely and at very slow speed ensuring a gentle impact when wagons or locomotives are being attached;*
- *Locomotives MUST be switched off when not in use;*
- *Locomotives MUST not be stabled near any residential property;*
- *When train brakes are being performed for outgoing services, the locomotives MUST be positioned well away from local resident properties to minimize noise impact;*
- *When wagons are being loaded and unloaded onto rail wagons noise MUST be kept to a minimum to minimize noise impact’.*



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The MOD25 ENIA recommends that Shoalhaven Starches update WI-40 and/or implement a new Noise Management Plan for the MOD25 extension that should include, but not be limited to, the following:

- Locomotives should not be left to idle for extended periods at any point along the extension.
- The rail line extension should be regularly inspected for defects with preventative maintenance work conducted, such as grinding, repair or replacement of damaged or worn components, to prevent unnecessary noise being generated along the extension.
- Braking systems and other components on locomotives and wagons should be maintained such that any faults and defects, such as locked wagon brake shoes, do not induce excessive noise and vibration during movements along the extension.
- Operators should minimise the use of train horns on the existing line and extension, avoiding unnecessary use, particularly at night. The use of 'City' horns is preferable at night, where safe to do so.

Shoalhaven Starches has incorporated these changes into a revised WI-40 which is shown attached as Appendix B to this Plan.

6.3 Scheduling

Currently, there are 14 time slots for incoming and outgoing trains with arrivals and departures totaling 28 services per week with the existing line. Arrival and departure times are constrained due to the South Coast/Illawarra metro shared passenger lines and their associated peak passenger periods. As such, the arrival and departure times cannot be changed due to this restriction.

However, with the ability to accommodate longer trains, Manildra will reduce the number of services, where reasonable and feasible to do so, with particular emphasis on scheduling train movements outside of the night time period (10 pm – 7 am).

6.4 Management Plan – Maintenance Activities

Maintenance, inspections and other associated activities will be conducted on a regular basis. The terminus at the northeastern end of the extension includes dedicated spurs and areas for these activities, however, it is acknowledged that maintenance works may take place at any point along the extension as required.

Section 6.9 of this document includes outlines numerous practical, physical and managerial noise mitigation measures derived from AS2436:2010. These measures in this Standard are prescribed for the reduction of noise emitted from general activities taking place on construction sites, however, implementation of these measures will also be effective for any maintenance activities on the rail line extension.

In order to minimise noise impacts from maintenance works and associated activities, we recommend the following is also included into WI-40:

- Prior to commencing work, the potential for excessive noise generation should be considered. All reasonable and feasible noise mitigation measures should be implemented as necessary for the duration of any maintenance activities.



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- Maintenance activities that are likely to generate noise with one or more of the following characteristics should be conducted during day time hours only (7 am – 6 pm):
 - High levels of sustained noise emission, eg $L_{eq, 15 \text{ min}} > 85 \text{ dBA}$ at 3 metres;
 - Contains tonal components, ie generates distinct pitches, squeals or hum;
 - Contains significant low frequency noise, eg $> 100 \text{ dBC}$ at 3 metres;
 - Generates significant impulsive/impact noise and/or vibration such as pneumatic hammering or piling.
- Where maintenance activities cannot be scheduled during daytime hours, eg for plant that cannot be moved, time critical or emergency works, additional noise mitigation measures should be implemented on a case by case basis to reduce noise impacts upon nearby residential areas which may include:
 - Maximising distance between noise sources and residential areas;
 - Constructing enclosures for noise items of plant, equipment and processes;
 - Screening between noise sources and residential areas;
 - Selecting low noise models of plant and equipment, eg with silencing or mufflers;
 - Scheduling periods of respite;
 - Providing training to contractors in work practices that minimise noise emission;
 - Optimising vehicle routes, site entrances/exits, scheduling and consolidation of deliveries to minimise noise impacts upon residential areas;
 - Providing contact details and information to occupants in nearby residential areas to facilitate open communication.
- For complex or ongoing works, further advice should be sought from a reputable acoustic engineer.



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6.5 MOD25 – Noise Compliance Monitoring**6.5.1 Noise Verification Reports – Condition 14X**

Within 3 months of commencement of general operations along the MOD25 extension, noise level compliance monitoring shall be undertaken to verify that noise levels emitted from the rail line and other associated activities, are below the noise limits established in the ENIA at each assessment location as stipulated in the ENIA and EPL 883.

In the event that non-compliance is determined at any assessment location, an acoustic investigation shall be conducted to determine the source/cause of the non-compliance and documented in an acoustic compliance report. The report shall include recommendations to reduce noise emissions such that compliance with the noise limits is achieved at all assessment locations.

Further noise compliance monitoring shall be conducted within 3 months following the implementation of the noise control recommendations specified in the acoustic compliance report. The findings shall be documented in a secondary acoustic compliance report to verify compliance with the noise limits.

Additionally, a Noise Verification Report shall be prepared for any noise mitigation measures implemented through the Pollution Reduction Program (PRP) required by EPL 883.

All Noise Verification reports are to be prepared by a suitably qualified, experienced and independent acoustic consultant in accordance with Condition 14Y of the MOD25 Consent.

6.5.2 On-going Noise Compliance Monitoring

Manildra Group is required to conduct bi-annual noise monitoring to determine compliance with the noise limits at each of the EPL assessment locations. As EPL 883 does not include receptors in Bolong, following the commencement of general operations of the MOD25 extension, we recommend that the bi-annual noise compliance audits should include an additional noise compliance assessment at 'A1', or a location that is suitably representative of 'A1' to determine compliance with the noise limits specified in the ENIA for residential locations in Bolong.

The compliance measurements during a worst case noise emission scenario shall include rail activity taking place on the extension which is representative of activity typically occurring on the line such as freight train arrivals and/or departures.

Currently Pig Island is uninhabited, however a residential dwelling is located on the island (designated as 'A2'). In the event that a permanent resident inhabits the island, the bi-annual noise monitoring shall be further extended to the island in a similar manner as described above for 'A1' in Bolong.



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Locations 'A1' and 'A2', within Bolong and Pig Island respectively, are identified within this report as specific dwellings (Locations 8 and 9) and are most exposed to noise emission from the train line extension and the existing site in general. However, the assessment locations specified in EPL883 are general and do not identify individual monitoring locations or dwellings within each area. Thus, there is flexibility in conducting noise monitoring within Bomaderry, Terara and Nowra and compliance with the noise limits are applicable throughout these areas.

Refer Appendix C for a Noise Compliance Monitoring Procedure.

6.5.3 Complaints Management System

In the event of a noise complaint, it may be necessary to engage the services of an acoustic engineer to conduct noise measurements in response. As such, it is imperative that accurate and detailed information regarding the nature of the noise issue is recorded and can be easily disseminated to relevant professionals to facilitate a satisfactory resolution.

All complaints will be recorded in Shoalhaven Starches existing complaints management system database. All complaints entered into the database shall include pertinent information about the complainant, the nature of the complaint, times, locations, the person responsible for managing the complaint and any remedial actions necessary to resolve the situation.

An example Noise Complaint Register template is shown in Appendix A which may be adopted and modified as necessary.

6.6 Rolling Stock Noise Mitigation Measures

From the commencement of the extension, we recommend the following noise reducing components are incorporated into rolling stock using the rail line.

6.6.1 Electronically Controlled Pneumatic Braking

We recommend that older pneumatic braking systems are upgraded to Electronically Controlled Pneumatic (ECP) braking systems or rolling stock using these systems are replaced with newer stock that has ECP systems already installed.

6.6.2 Wired Distributed Power

We recommend that older power distribution systems are upgraded to Wired Distributed Power (WDP) systems or that rolling stock using these systems is replaced with newer stock that has WDP systems already installed.

6.6.3 Steerable Bogies

We recommend that older wagons are either upgraded to include steerable bogie systems or replaced with newer stock that has steerable bogie systems already installed.



MOD25 – Operational Noise Management Plan**6.6.4 Train Horns**

Locomotives should have both 'City' and 'Country' horns installed. We recommend that only City horns should be used at night when arriving or leaving the Shoalhaven Starches facility in order to minimise sleep disturbance in nearby residential areas. However, other relevant non-acoustic regulations and operational procedures pertaining to the use of train horns should take precedence where applicable to ensure compliance with any safety requirements.

6.7 Rail Line Noise Mitigation Measures**6.7.1 Noise Wall - MOD25 Extension**

The noise wall recommended in Section 10.2.4 of the ENIA will provide significant reduction of noise emissions generated by rolling stock moving along the extension, in particular, for the residential dwelling at 'R1', 390 Bolong Road, Bolong.

To satisfy Condition 14R, an acoustic review of the final noise wall design shall be conducted prior to construction. Certification documentation is to be obtained from a suitably qualified acoustic engineer to verify that the specifications are in general accordance with the recommendations in the ENIA (7425-1 Rev E, dated 7 February 2025).

It is recommended that the noise wall is constructed in sections with the initial section being installed on the southeast curve to provide protection for 'R1'; the residential area most affected by noise emission from the extension (Refer Figure 4). An inspection and verification report shall be completed for the noise wall prior to commencement of general rail operations along the MOD25 extension, in accordance with Conditions 14R and 14X of the MOD25 Consent.

Additional sections of noise wall can be installed if and where required, upon review of noise monitoring data and noise compliance reports at all assessment locations.

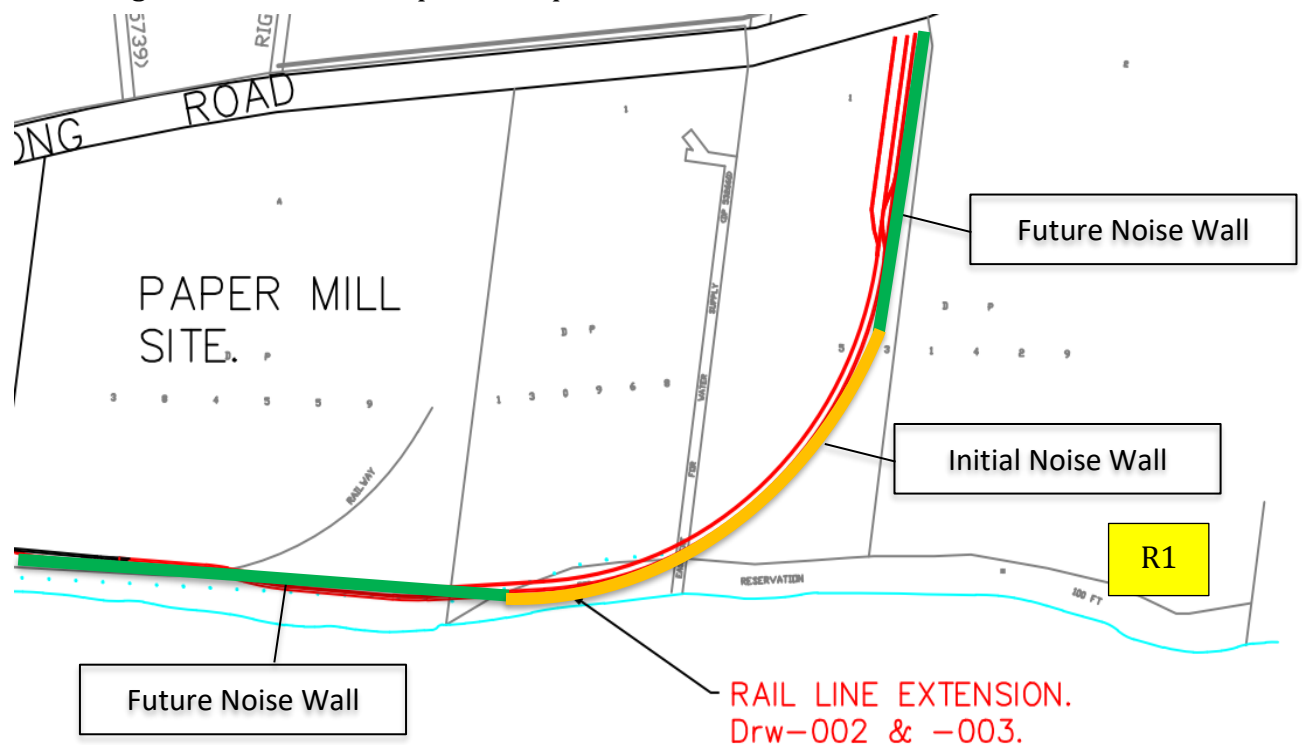


Figure 5 Location of R1 MSW 730 Mini Noise Wall



MOD25 – Operational Noise Management Plan**6.7.2 Track Lubrication System**

If noise compliance monitoring data demonstrates that wheel squeal noise is responsible for, or significantly contributing to, non-compliance with noise limits, automated track lubrication systems can be installed at key points along the line, such as the southeast curved section where squeal noise is more likely to occur.

6.7.3 Rail Dampers

In addition to track lubrication, rail line track dampers can be installed at key points along the line (refer Appendix 44 of the ENIA), in a similar manner as outlined in Section 5.7.2, where noise compliance monitoring indicates that non-compliances are still present following the installation of the noise wall and track lubrication.

6.8 At Receiver Noise Mitigation Measures

Conditions 14U, 14V and 14 W of the MOD25 Consent makes provisions for the owners of 390 Bolong Road ('R1') to enter into an agreement with Shoalhaven Starches Pty Ltd to provide at-receiver noise mitigation measures if required.

Condition 14W includes the following detail:

'The agreement must be reasonable, for the purposes of providing at-receiver noise mitigation measures, and be commensurate with the level of noise impact on the dwelling.'

In the event that an agreement is reached between parties, a specific noise impact assessment shall be conducted by a reputable acoustic engineer for the dwelling at 'R1' to determine the level of residual noise impact within the dwelling.

Specifications for upgraded façade elements such as windows, external doors, roof insulation or mechanical ventilation systems etc. shall be provided in the assessment report such that the noise criteria established in the ENIA for 'R1' are achieved.

6.9 General Noise Controls for Associated Works and Construction Activities

In order to simplify approaches to noise control, given the broad range of activities, the following suite of noise control options are provided such they may be adopted in full, or in part, to minimise the noise impacts on a case by case basis, where reasonable and feasible. The following is not meant to infer that all controls should be implemented for every situation.

Tasks shall be assessed by project managers, or whomever is responsible for conducting works, for potential noise generating potential. Noise controls can then be selected from the items below as needed. For complex or ongoing works, further advice should be sought from a suitably qualified and experienced acoustic engineer.



MOD25 – Operational Noise Management Plan**6.9.1 Engineering and Practical Noise Controls**

The relative effectiveness and a description of practical noise controls, as derived from Australian Standard AS2436:2010, are shown below.

Table 4 Relative Effectiveness of Various Forms of Noise Control

Control Method	Nominal Noise Reduction Possible
Distance	Approximately 6 dB for each doubling of distance
Screening	Normally 5 dB to 10 dB maximum 15 dB
Enclosure	Normally 5 dB to 25 dB maximum 50 dB
Silencing	Normally 5 dB to 10 dB maximum 20 dB

6.9.1.1 Distance

Where applicable and practical, we recommend locating mechanical plant and equipment at locations that provide maximum distance to all potentially affected residences.

6.9.1.2 Enclosure

Constructing acoustical enclosures around items of mobile plant, such as generators or pumps, is recommended where extended use for long periods of time is expected.

6.9.1.3 Screening

Erecting temporary sound barrier screens on the construction site boundaries is recommended particularly where the external windows of nearby residential dwellings have a direct line of sight to the construction area.

Sound barrier screens should be erected to a minimum height of 1.8 m and constructed from a solid material, such as 19 mm plywood, on steel posts or attached to temporary construction fencing. All sound barriers should be designed by a structural engineer to resist wind loads.

Alternatively flexible sound absorptive barriers that can be installed onto temporary fencing can be hired from suppliers such as www.echobarrier.com.au, www.hushtecsolutions.com or www.flexshield.com.au.

6.9.1.4 Silencing

Consideration should be given to any mobile plant already acoustically silenced and/or treated when assessing tenders. All plant and machinery should be selected with consideration to low noise options where practicable and available.

Care should be taken to ensure that no more than one item of plant is operating simultaneously within close proximity of any given residence as far as reasonably practicable, to minimise cumulative noise impacts.



MOD25 – Operational Noise Management Plan**6.9.2 Noise Management Controls**

The following noise management controls are derived from recommendations given in Australian Standard AS2436:2010 and the EPA's *Interim Construction Noise Guideline*.

6.9.2.1 Periods of Respite

We recommend that particularly noisy activities operate for 2 to 3 hours at a time. Such activities include those including one or more of the following characteristics:

- High levels of sustained noise emission, eg $L_{eq, 15 \text{ min}} > 85 \text{ dBA}$ at 3 metres;
- Contains tonal components, ie generates distinct pitches, squeals or hum;
- Contains significant low frequency noise, eg $> 100 \text{ dBC}$ at 3 metres;
- Generates significant impulsive/impact noise and/or vibration such as pneumatic hammering or piling.

Ensure these kinds of activities taking place in any one location are staggered. For instance, if tonal or impact noise is being generated near a residential receptor, all other activities will cease in the same location so as to minimise cumulative noise impacts.

6.9.2.2 Work Practices

We recommend that workers and contractors be trained in work practices that minimise noise emission such as the following:

- Avoid dropping materials from a height;
- Avoid shouting and talking loudly outdoors;
- Avoid the use of radios outdoors that can be heard at the boundary of residences;
- Turn off equipment when not being used;
- Carry out work only within permitted hours of operation and locations.

6.9.2.3 Heavy Vehicles and Staff Vehicles

- Keep drivers informed of designated vehicle routes, parking locations, acceptable delivery hours or other relevant practices (for example, minimising the use of engine brakes, and no extended periods of engine idling).
- Locate site vehicle entrances away from residences where practicable.
- Optimise the number of vehicle trips to and from the site – movements can be organised to amalgamate loads rather than using a number of vehicles with smaller loads.
- Staff parking areas should be located as far from residential receiver locations as practicable.



MOD25 – Operational Noise Management Plan**6.9.2.4 Community Relations**

- Prior to the commencement of any noise activities, particularly those taking place at night, nearby residents shall be informed via letterbox drops and/or direct consultation, of these works. Information shall include the anticipated time frame for commencement and completion and time of day where work will be undertaken. Contact numbers for Community Liaisons shall also be provided to address any complaints or concerns.
- An appropriate person or people shall be appointed to act as Community Liaisons during all stages of the works.
- The Community Liaisons shall explain the project to any concerned parties, including the anticipated duration of works, potentially noisy periods as well as determine any particularly sensitive receivers or sensitive time periods and schedule works accordingly, as far as reasonably practical.
- A contact number shall be clearly displayed on the front fencing for any residents or interested parties to call with complaints or queries.

Once works commence, communication with the community shall be maintained by the Community Liaisons. Consultation and cooperation with neighbours will mitigate uncertainty and rumour and can help to reduce adverse reaction to noise.

6.9.2.5 Managing a Noise Complaint

Community Liaisons shall receive and manage noise complaints.

All complaints shall be treated promptly and with courtesy.

Should a justified noise complaint not be resolved, noise monitoring may be carried out at the affected receptor location and appropriate measures be taken to reduce the noise emission as far as reasonably practicable.

Where it is not practicable to stop the noise, or reduce the noise, a full explanation of the event taking place, the reason for the noise and times when it will stop shall be given to the complainant.

The following guidelines are derived from Section 6 of the *Interim Construction Noise Guideline* to manage noise complaints and may be adopted for use during ongoing operations of the MOD25 extension:

- Provide a readily accessible contact point, for example, through a 24 hour toll-free information and complaints line.
- Give complaints a fair hearing.
- Have a documented complaints process, including an escalation procedure so that if a complainant is not satisfied there is a clear path to follow.
- Call back as soon as possible to keep people informed of action to be taken to address noise problems. Call back at night-time only if requested by the complainant to avoid further disturbance.



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- Provide a quick response to complaints, with complaint handling staff having both a good knowledge of the project and ready access to information.
- Implement all feasible and reasonable measures to address the source of complaint.
- Keep a register of any complaints, including details of the complaint such as date, time, person receiving complaint, complainant's contact number, person referred to, description of the complaint, work area (for larger projects), time of verbal response and timeframe for written response where appropriate.



MOD25 – Operational Noise Management Plan

7.0 CONCLUSION

Day Design Pty Ltd was engaged by the Manildra Group to prepare an Operational Noise Management Plan for the approved MOD25 Rail Line Extension (MP06_0228-Mod-25, dated June 5, 2025).

Condition 14S of the Modification of Development Consent requires that an Operational Noise Management Plan is prepared prior to commencing operations on the rail line extension.

When satisfactorily implemented for relevant activity on the rail line, the operational and managerial noise controls provided in this document will ensure noise emissions from general operations taking place on the approved MOD25 rail line extension, will meet the noise limits established in the Environmental Noise Impact Assessment, 7425-1 Rev E, dated 7 February 2025, prepared by Day Design Pty Ltd.

This document satisfies Condition 14S of the Modification of Development Consent, MP06_0228-Mod-25.



Alexander Mendoza, MDesSc (Audio and Acoustics), MAAS

Acoustical Consultant

for and on behalf of Day Design Pty Ltd

AAAC MEMBERSHIP

Day Design Pty Ltd is a member company of the Association of Australasian Acoustical Consultants, and the work herein reported has been performed in accordance with the terms of membership.

APPENDICES

Appendix A – Example Noise Complaint Register

Appendix B – Revised Rail Safety Manual WI-40 - *‘Mitigation of Noise in Yards’*

Appendix C – Noise Compliance Procedure Template

Appendix D – Summary of Noise Mitigation Strategies



NOISE COMPLAINT REGISTER

Initial Complaint Recording

Date & Time of record: _____

Name of Complainant (if given): _____

Complainant Telephone Number: _____

Address of complainant (if given):

Identification and description of noise source (eg noisy equipment):

Time of day noise is occurring: _____

Number of days the noise has occurred: _____

Complaint Investigation & Remediation

Recommended control (eg fit new muffler):

Verification that noise controls have been implemented:

Follow-up Complainant

Contact date: _____

Complainant comment (eg is noise still annoying? – if yes, refer to Note below):

NOTE

If complainant is still affected after all reasonable steps have been taken to ameliorate the noise, specialist advice should be sought from a qualified acoustical consultant.



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	Section Work Instructions	Work Instruction Title Mitigation of Noise in Yards

MITIGATION OF NOISE IN YARDS

	MANUAL TYPE MANILDRA GROUP RAIL SAFETY MANUAL	Document Number WI-40
	Section Work Instructions	Work Instruction Title Mitigation of Noise in Yards

Revisions

REVISION NO	REVISION DATE	APPROVED BY	COMMENTS/REASONS FOR REVISION
1.0.	November 2019	Mark Owens	Final
2.0	August 2025	Mark Owens	Additional requirements to satisfy noise limitations at Bomaderry.

	MANUAL TYPE MANILDRA GROUP RAIL SAFETY MANUAL	Document Number WI-40
	Section Work Instructions	Work Instruction Title Mitigation of Noise in Yards

1. PURPOSE

The purpose of this Work Instruction is to establish the controls to mitigate noise whilst operating rail functions in the Manildra Group Yards.

2. SCOPE

This Work Instruction applies to the Manildra Group Employees involved in, or with, Train/Rolling Stock Movements and the Raw Material (Grain) loading Operations at the Manildra Group owned loading facilities.

3. REFERENCES

External

- ❖ Manildra Group Safety Interface Agreement – ARTC/Manildra Group 2019
- ❖ Manildra Group Safety Interface Agreement Pacific National/Manildra Group 2019
- ❖ Manildra Group Safety Interface Agreement Manildra Group/Taylor Rail 2019
- ❖ Manildra Group Safety Interface Agreement Manildra Group/Pacific Rail Engineering 2018
- ❖ The Rail Safety National Law Act/Regulations
- ❖ State Government Environment Legislation and Act
- ❖ ARTC Rules/Procedures/LAU's

Internal

- ❖ Manildra Group Management Plan Number MP-01 - Rail Safety
- ❖ Manildra Group Management Plan Number MP-02 - Security
- ❖ Manildra Group Management Plan Number MP-04 Rail Emergency and Incident
- ❖ Policy Number POL-4 - Environmental Policy
- ❖ Procedure Number PCE-10 - Incident Reporting & Investigation Requirements
- ❖ Procedure Number PCE-12 - Drugs & Alcohol Management
- ❖ Procedure Number PCE-20 - Hazard Identification
- ❖ Work Instruction Number WI-4 – Shunting & Marshalling
- ❖ Safety Notice Number SN-2 - Responsibilities of Rail Safety Workers
- ❖ Safety Notice Number SN-3 - Rail Safety Workers Responsibility when Propelling Wagons
- ❖ Safety Notice Number SN-5 - Rail Safety Worker Communication 2 Way Radio Protocols When Shunting
- ❖ Form Number FM-10 - Corrective Action Request
- ❖ Form Number FM-17 - Initial Incident Report Form
- ❖ Form Number FM-22 - Employee Induction
- ❖ Form Number FM-127 - Shunting Compliance Checklist
- ❖ Form Number FM-147 – Pre-Work Briefing

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4. DEFINITIONS

TERMS	DEFINITIONS
Manildra Group	Manildra Flour Mills Pty Ltd.
SMS	Manildra Group Rail Safety Management System.
Rail/Loading Employee	The Manildra Group Grain load employee.
Rail Safety Worker	Competent Worker for Train/Rolling Stock Movements.
Manager	Manildra Group Site Manager.
Railway Network Owner	John Holland - NSW Country CRN
System of Safe Working	Train Order Working on the Main Line Network and Yard working on the Manildra Group Track.

5. RESPONSIBILITIES & AUTHORITIES

- ❖ All Manildra Group Rail Safety Workers/Main Line Operator Train Crew employees when working into/out of the Manildra Group owned yards and sidings MUST comply with these Procedures.

6. GENERAL PROCEDURES – Train Movements and Shunting in Manildra Group Yards and Sidings

Note: All employees and personnel onsite must wear the required PPE, including safety footwear, Orange Safety Vest (if uniform is not provided or worn). Refer to Procedure Number PCE-36 (Personal Protective Equipment) for Information on required Uniform.

All Train Crew Personnel must be inducted into the Manildra Group Grain loading facilities, otherwise they must be escorted by a Manildra Group Terminal Site Employee.

7. GENERAL PROCEDURES – Noise Mitigation Controls

7.1.1 All Rail Safety Workers and including the Rail Operator Train crews must ensure that the following requirements are carried out whilst operating in the Manildra Group Yards and Sidings to ensure noise is kept to a minimum so far as practically possible at all times whilst trains are arriving, wagons are being shunted, wagons are being loaded and unloaded and trains are being moved and formed for departing services:

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- All rail movements **MUST** be conducted at a speed of no more than 8kmh and in some sign posted areas at the lower indicted speed to ensure train bunching noise is kept at a minimal level.
- All shunting is to be performed safely and at very slow speed ensuring a gentle impact when wagons or locomotives are being attached.
- Locomotives **MUST** be switched off when not in use.
- Locomotives **MUST** not be stabled near any residential property.
- When train brakes are being performed for outgoing services, the locomotives **MUST** be positioned well away from local resident properties to minimize noise impact.
- When wagons are being loaded and unloaded onto rail wagons noise **MUST** be kept to a minimum to minimize noise impact

7.1.2 Additional Requirements Specific to Bomaderry in the new Rail Siding Extension area as follows:

- For the new track construction area which interfaces at the Paper Mill site to the end of line the speed of all rail services must be operated at no more than 5kmh
- Locomotives must not be left to idle for extended periods at any point along the extension.
- The rail line extension must be regularly inspected in the monthly maintenance schedule for defects with preventative maintenance work conducted, such as grinding, repair or replacement of damaged or worn components, to prevent unnecessary noise being generated along the extension area.
- Braking systems and other components on locomotives and wagons must be maintained such that any faults and defects, such as brake shoes do not induce excessive noise and vibration during movements in accordance with the rollingstock maintenance standards and minor and major maintenance schedules.
- Rail Crews must minimise the use of train horns on both the existing line and the rail extension area avoiding unnecessary use, particularly at night and using the city horn at night and where safe to do so.

7.1.3 Maintenance Activities for both Track and Rollingstock activities are as follows:

- Prior to commencing work, the potential for excessive noise generation must be considered. All reasonable and feasible noise mitigation measures must be implemented as necessary for the duration of any maintenance activities.

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- Maintenance activities that are likely to generate noise with one or more of the following characteristics must be conducted during daytime hours only (7am to 6pm):
 1. High levels of sustained noise e.g. greater than 85dba at 3 metres
 2. Contains tonal components such as distinct high pitches, squeals, or hum.
 3. Contains significant low frequency noise e.g. greater than 100dBC at 3 metres.
 4. Generates significant impulsive/impact noise and/or vibration such as pneumatic hammering or piling.

Where maintenance activities cannot be scheduled during daytime hours such as time critical or emergency works, additional noise mitigation measures should be implemented on a case-by-case basis to reduce noise impacts upon nearby residential areas which may include:

1. Maximising distance between noise sources and residential areas.
2. Constructing enclosures for noise items of plant, equipment, and processes.
3. Screening between noise sources.
4. Selecting low noise models of plant and equipment e.g. with silencing or mufflers.
5. Scheduling periods of respite.
6. Providing training to contractors in work practices that minimise noise emission.
7. Optimising vehicle routes, site entrances/exits, scheduling and consolidation of deliveries to minimise noise impacts.
8. Providing contact details and information to occupants in nearby residential areas to facilitate open communication.

8 GENERAL PROCEDURES - Reporting of Noise Incidents

- 8.1.1 All Rail Safety Workers and all other employees must report any noise matters must advise their manager and the incident must be reported through the company incident reporting system to ensure the incident can be investigated and corrective actions and/or controls are implemented to avoid any future recurrences.
- 8.1.2 In the case of Bomaderry, any noise incidents MUST be reported to both the Site Manager and the Site Environment and Sustainability Leader.

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SHOALHAVEN STARCHES

ENVIRONMENTAL PROCEDURE

TITLE	BI-ANNUAL NOISE COMPLIANCE MONITORING PROCEDURE
PURPOSE:	This document details the company's noise compliance monitoring procedure to ensure compliance with the sites Environment Protection Licence (EPL883). This procedure shall be read in conjunction with the Reference documents listed below.
SCOPE:	This procedure applies to Shoalhaven Starches entire operations (including new developments).
SPECIFICATION:	Compliance with noise limits stipulated in Condition L5.1 and L5.3 of EPL883 and noise criteria established in the <i>Environmental Noise Impact Assessment</i> (report № 7425-1.1R Rev E, dated 7 February 2025) and <i>Operational Noise Management Plan</i> (report № 7425-20.1R Rev A, dated October 2025)
ACTION ON NON-COMPLIANCE	• Compliance Manager to meet with Plant Manager and any other appropriate personnel to implement corrective action. • Corrective action/s shall be appropriately documented to include, at a minimum, a description of each action, location, times and dates any corrective actions were implemented. • Once corrective actions have been satisfactorily implemented, further noise measurement and/or monitoring shall be conducted at each location an exceedance was measured, to ensure compliance.
FREQUENCY	Noise compliance measurements to be conducted during the months of January and July each year.
REFERENCES:	• Environmental Protection Licence 883 • Shoalhaven Starches Development Consent 06_0228 • NSW EPA <i>Noise Policy for Industry 2017</i> • NSW EPA <i>Approved Methods for the Measurement and Analysis of Environmental Noise in NSW</i> • Australian Standard AS1055:2018 <i>Acoustics – Description and measurement of environmental noise</i> • Environmental Noise Impact Assessment (ENIA) – <i>Proposed Extension of Existing Rail Line and Extension to Product Dryer Building 3 & 4</i> – prepared by Day Design Pty Ltd, report № 7425-1.1R Rev E, dated 7 February 2025. • <i>Operational Noise Management Plan</i> – prepared by Day Design Pty Ltd, report № 7425-20.1R Rev A, dated October 2025.

EPL883 NOISE LIMITS

The sound pressure levels generated from the premises must not exceed the levels shown in Table 1 when measured at the most affected point on or within the residential boundary, or at the most affected point within 30m of a dwelling where the dwelling is more than 30m from the boundary (Condition L5.1 and L5.3 of the EPL).

Table 1 EPL883 Locations & Noise Limits

Location	Day (7am–6pm) Leq (15 min)	Evening (6pm–10pm) Leq (15 min)	Night (10pm–7am) Leq (15 min)	Night (10pm–7am) L1 (1 min)
At locations in Terara on the south side of the Shoalhaven River	38 dBA	38 dBA	38 dBA	48 dBA
At locations in Nowra on the south side of the Shoalhaven River	38 dBA	38 dBA	38 dBA	48 dBA
At locations in Meroo Street, Bomaderry	42 dBA	42 dBA	42 dBA	52 dBA
At other residential locations in Bomaderry	40 dBA	40 dBA	40 dBA	50 dBA

NOISE CRITERIA – BOLONG & PIG ISLAND

Table 2 specifies noise level criteria for additional locations within Bolong and Pig Island. Noise criteria are to be assessed at the most affected point on or within the residential boundary, or at the most affected point within 30m of a dwelling where the dwelling is more than 30m from the boundary.

Table 2 Additional Monitoring Locations & Noise Criteria

Location	Day (7am–6pm) Leq (15 min)	Evening (6pm–10pm) Leq (15 min)	Night (10pm–7am) Leq (15 min)	Night (10pm–7am) Lmax
390 Bolong Rd	39 dBA	39 dBA	39 dBA	52 dBA
Pig Island	44 dBA	44 dBA	44 dBA	57 dBA

The location of the site and representative EPL883 noise measurement locations are shown in Figure 1 below:



Figure 1 *EPL883 - Noise Monitoring Locations*

The location of the site and additional noise measurement locations in Bolong and Pig Island is shown in Figures 2 and 3 below:



Figure 2 Additional Noise Monitoring Locations – Bolong



Figure 3

Additional Noise Monitoring Locations – Pig Island

The locations shown in Figures 1-3 above are specified in Table 1.

Table 3 Representative Noise Monitoring Locations

Location Reference	Representative Area	Location	Coordinates (Geographic DMS)
<i>EPL883 Assessment Locations</i>			
1	Terara	Cnr. Nobblers Lane & W. Berry St	Lat -34° 51' 49.61" Long 150° 37' 40.36"
2	Nowra	Ferry Lane (Northern Cul de Sac)	Lat -34° 51' 52.62" Long 150° 36' 44.34"
3	Nowra	83 Riverview Rd	Lat -34° 51' 59.29" Long 150° 36' 39.28"
4	Nowra	Cnr. Riverview Rd & Lyrebird Dr	Lat -34° 51' 54.21" Long 150° 36' 35.89"
5	Bomaderry	49 Meroo St	Lat -34° 51' 13.41" Long 150° 36' 33.25"
6	Bomaderry	Cnr. Meroo St & Birriley St	Lat -34° 51' 5.88" Long 150° 36' 37.23"
7	Bomaderry (Other)	Cnr. Karowa St & Bunberra St	Lat -34° 51' 7.06" Long 150° 36' 22.66"
<i>Additional Noise Compliance Monitoring Locations</i>			
8	Bolong	'Glenalbas' 390 Bolong Rd, Bolong	Lat -34° 51' 10.52" Long 150° 38' 16.85"
9	Pig Island	Isolated Residential Dwelling	Lat -34° 51' 20.16" Long 150° 37' 29.98"

NOISE COMPLIANCE PROCEDURE

Within the months of January and July each year, an acoustic consultant or engineer who is either a member of the AAS (*Australian Acoustical Society*) or an employee of a AAAC (*Association of Australasian Acoustical Consultants*) company and obtain a quote to conduct noise monitoring and measurement at EPL883 representative locations in Nowra, Terara and Bomaderry. The purpose of the noise monitoring is to determine compliance with noise limits stipulated in Condition L5.1 and L5.3 of the Environmental Protection Licence 883.

Additional noise monitoring should also be conducted at Location 8 in Bolong.

Prior to each monitoring session, enquiries shall be made to confirm the presence of a permanent resident on Pig Island (Location 9). It is not necessary to conduct noise monitoring on Pig Island for compliance purposes until a permanent resident begins occupation.

Compliance may be determined via direct measurement or alternative methods where direct measurement is impractical.

Include in scope of work:

- (a) Noise compliance monitoring shall be carried out in the months of January and July during calm weather conditions.
- (b) Noise monitoring is to be carried out at the same representative locations (Locations 1 – 9), or within 30 metres of that location, for comparative analysis with previous or future noise compliance data.
- (c) In the event that any of the locations specified in Table 2 cannot be accessed or are otherwise not appropriate for noise measurement and assessment, alternative locations may be adopted. The alternate location shall be similarly representative for the area, i.e., distance to noise sources, shielding from buildings or other structures, ambient and/or other unrelated noise sources etc.
- (d) To retain consistency with previous noise assessment data, noise compliance measurements of the main site (including North Packing Plant and Waste Water Treatment Plant) shall be conducted during the night time period (10 pm – 7 am) under typical operations when ambient noise is low.

Separate noise compliance measurements shall also be conducted during the night time under a worst case noise emission scenario.

Noise assessment scenarios defined as follows;

- i. **Typical operations** - *All plant and equipment on the main site being in operation simultaneously at nominal capacity and all general maintenance activities as would typically comprise the day-to-day operation of the site*
- ii. **Worst case scenario** - *Cumulative noise emission of i. as described above, and a freight train movement, fully laden, either arriving to or departing from the site, taking place on the train line within the main site including the MOD25 extension.*

As a freight train passes by or through different assessment areas at different times during the course of an arrival or departure, worst case noise compliance measurements shall include a freight train movement that is passing by the nearest point from the rail line to each assessment location.

- (e) Where noise from the site cannot be directly measured, is affected by noise sources unrelated to the site or is inaudible, the consultant/engineer shall adopt an alternative method to calculate the level of noise emission from the site at the assessment location.

This process shall be at the discretion of the consultant/engineer based on the specific circumstances or inhibiting factors that arise during the measurement session. This may include (but not be limited to) adjusting the total noise level by removing background noise, measuring spectral noise data in 1/3 octave resolution or high resolution FFT, measuring audible site noise levels at intermediate locations between the source and assessment location and calculating back to the assessment location, or any combination of these approaches.

The method/s shall be clearly documented with all assumptions and intermediate steps and data disclosed. Guidance may be taken from NSW EPA *Noise Policy for Industry and Approved Methods for the Measurement and Analysis of Environmental Noise in NSW*.

- (f) Noise measurements are to be conducted according to the relevant requirements, procedures and methodologies outlined in AS1055:2018, NSW EPA *Noise Policy for Industry and Approved Methods for the Measurement and Analysis of Environmental Noise in NSW*.
- (g) A noise compliance report is to be submitted to Shoalhaven Starches within 4 weeks of noise monitoring being completed. Report must include, but not limited to, the following components:
- i. *Location map identifying each noise monitoring location;*
 - ii. *Dates and times of noise measurements and calibration information;*
 - iii. *Summary table of noise monitoring results including measurement location, time of measurement, $L_{eq,t}$, L_{90} and L_{max} noise levels, and statement of compliance against EPL883 noise limits/NPI criteria for each location;*
 - iv. *Where it is determined that noise limits are exceeded, either by direct measurement or calculation, further analysis and discussion is to be provided to identify the potential source/s of the non-compliance. The report is to provide recommendations to mitigate noise emission for any identified noise sources;*
 - v. *Weather conditions observed at each monitoring location during noise measurement session. Additional weather data can be sourced from the Manildra AWS and/or Nowra RAN AWS via BOM;*
 - vi. *Statement of compliance with EPL883 noise limits and ENIA criteria;*
 - vii. *Statement as to recognised protocol that monitoring occurred*
 - viii. *Evidence of AAAC membership, i.e., statement and membership number*
 - ix. *Serial numbers and copies of most recent calibration certificates for noise monitoring equipment used including sound level meters, microphone capsules and preamps etc.*
- (h) Noise monitoring is to be carried out in accordance with the following Conditions stipulated in L5 of EPL883 as follows:

L5.2 - Noise from the premises is to be measured at the most affected point or within the residential boundary, or at the most affected point within 30m of a dwelling where the dwelling is more than 30m from the boundary, to determine compliance with condition L5.1.

The modification factors in Fact Sheet C of the Noise Policy for Industry shall also be applied to the measured noise levels where applicable.

L5.3 - Noise from the premises is to be measured at 1 metre from the dwelling facade to determine compliance with the $L_{A1(1 \text{ minute})}$ noise limit in condition L5.1.

L5.4 - Where it can be demonstrated that direct measurement of noise from the premises is impractical, the EPA may accept alternative means of determining compliance (see Chapter 7 of the Noise Policy for Industry).

L5.5 - The noise limits identified in condition L5.1 apply under the following meteorological conditions:

- a) Wind speeds up to 3 m / s at 10 metres above the ground level; or
- b) Temperature inversion conditions of up to 3°C/100m and wind speeds up to 2 m/s at 10 metres above ground level.

Noise compliance monitoring reports are to be submitted to the Compliance Manager for review and filing. If a non-compliance is recorded, the Compliance Manager shall notify the Plant Manager immediately and instigate corrective action.

SUMMARY OF NOISE MITIGATION STRATEGIES

Noise Source	Origin/Location	Timing	Frequency of Occurrence	Mitigation Measure	ONMP Reference
Wheel squeal	Predominantly curved sections of track	Short bursts of squeal as bogie travels through curved section	Train arrivals and departures. Up to 2 x train movements per day	Perform regular inspections and maintenance of wagons and bogies	Section 5.2
				Utilise wagons with steerable bogie technology	Section 5.6.3
				Installation of noise wall	Section 5.7.1
				Lubrication of curved track	Section 5.7.2
				Installation of rail dampers on curved sections	Section 5.7.3
Locomotive engines	Along entire length of track with worst case noise impacts at idling locations particularly at the eastern terminus	After train arrivals, before departures and shunting movements. Shuttling locos to and from terminus and other locations along the line.	Locomotives may move at any time During the day, evening and night	Locomotives are not to be left to idle for extended periods	Section 5.2
				Installation of noise wall	Section 5.7.1
Train horn	Level crossing at Bolong Road	As train arrives or leaves the site	Up to 4 x per 24 hour period	Use only ‘City’ horns during the Night time period (10 pm – 7 am)	Section 5.6.4
Shunting	Along entire length of line	When splitting/manoeuvring a rake of wagons is required	During the day, evening and night as required	Utilise ECP braking systems	Section 5.6.1
				Utilise WDP power distribution systems	Section 5.6.2
				Installation of noise wall	Section 5.7.1
Rail line and rolling stock maintenance activities	Along entire length of line	As required and/or as stipulated in maintenance schedule	During the day, evening and night as required	Installation of noise wall	Section 5.7.1
	Within maintenance sheds at eastern terminus and main site			General engineering and practical noise controls	Section 5.9

NB - This table shall be read in conjunction with the ONMP and Noise Compliance Monitoring Procedure (refer Appendix C).

