4 March 2022

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Aurizon Operations Facility
Ground Floor, 121 Woodstock Street
Mayfield, NSW 2304

Attention: Harry Egan

Dear Harry

Hexham Long Term Train Support Facility
Ancillary Depot and Wagon Storage
Noise Impact Assessment

1 Introduction

This Noise Impact Assessment (NIA) report has been prepared for the development of a depot, warehouse, and wagon storage (the Modification Proposal) to support the ongoing operations of the Hexham Long Term Train Support Facility (Hexham LTTSF Project), Hexham (the Hexham LTTSF Site). The Modification Proposal is to be undertaken as a modification (under Part 5, Section 5.2 of the Environmental Planning and Assessment Act 1979 (EP&A Act)) to the Hexham LTTSF Approval (MP07_0171).

This report has been prepared in accordance with the following, identified within the DPIE letter (dated 17/09/2021):

- The Secretary's Environmental Assessment Requirements (SEARs) issued for SSI-6090 Mod 1 (previously MP 07_0117 MOD 1)
- The relevant industry specific SEARs applicable to warehouse development.

This report has been prepared by SLR Consulting Australia Pty Ltd (SLR) on behalf of Aurizon.

1.1 Key Terms

Table 1 identifies the key terms which are relevant to this report.

Table 1 Key Terms

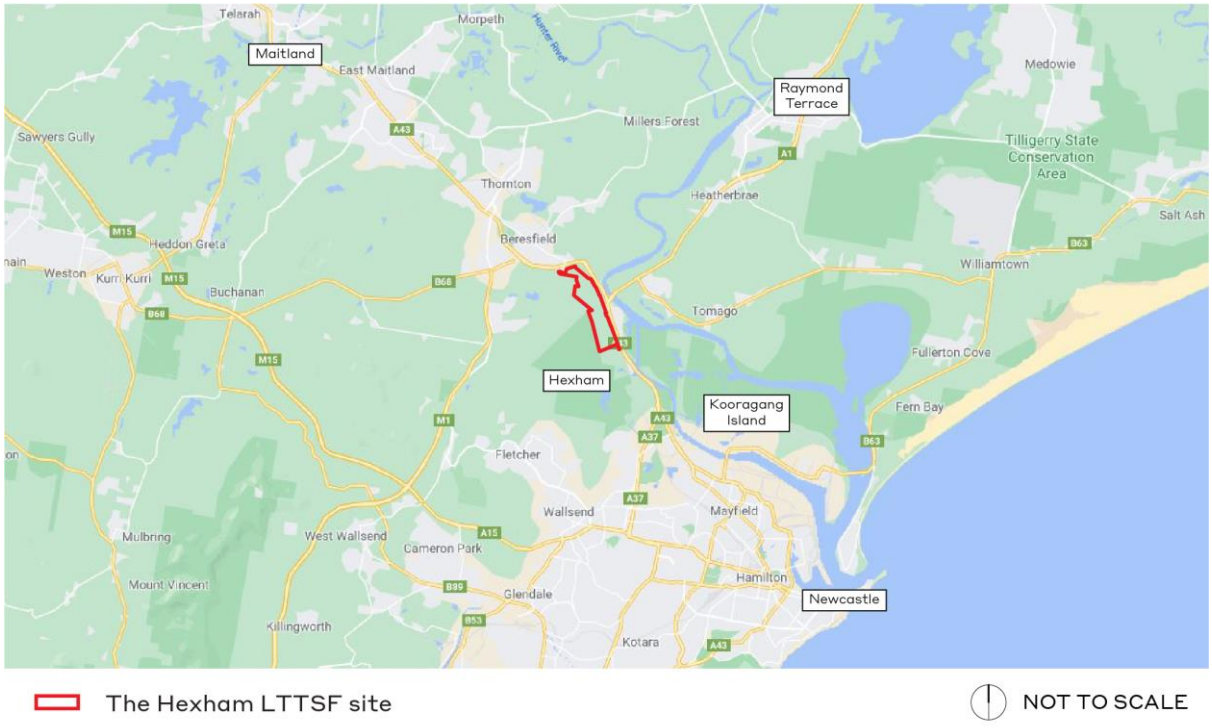
Term	Description
The Modification Proposal	The depot, warehouse, wagon storage and associated development for which apppoval is sought, as SSI-6090 – Mod 2.
Hexham LTTSF Project	The Hexham Long Term Train Stabling Facility (and associated development) approved under MP 07_0117, now SSI 6090 (inc. Mod 1).
The Hexham LTTSF Project Site	Area on which the Hexham LTTSF is located and the surrounds assessed under the MP 07_0117, now SSI 6090 (inc. Mod 1).

Term	Description
The Site	The area where the Modification Proposal works are to be undertaken. This area signifies the area to be directly impacted/disturbed by the Modification Proposal.

1.2 Site Description

The LTTSF site is located at Maitland Road, Hexham within the Newcastle Local Government Area approximately 16km north-west of Newcastle CBD. The Hexham LTTSF site has a total area of 255 ha with the LTTSF Project developed on a 38 ha portion of the site parallel to (and to the west of) the Great Northern Railway (GNR). The LTTSF site is located within an industrial setting with only a small number of dwellings within the local vicinity of the site. The site's locational context is shown at **Figure 1**.

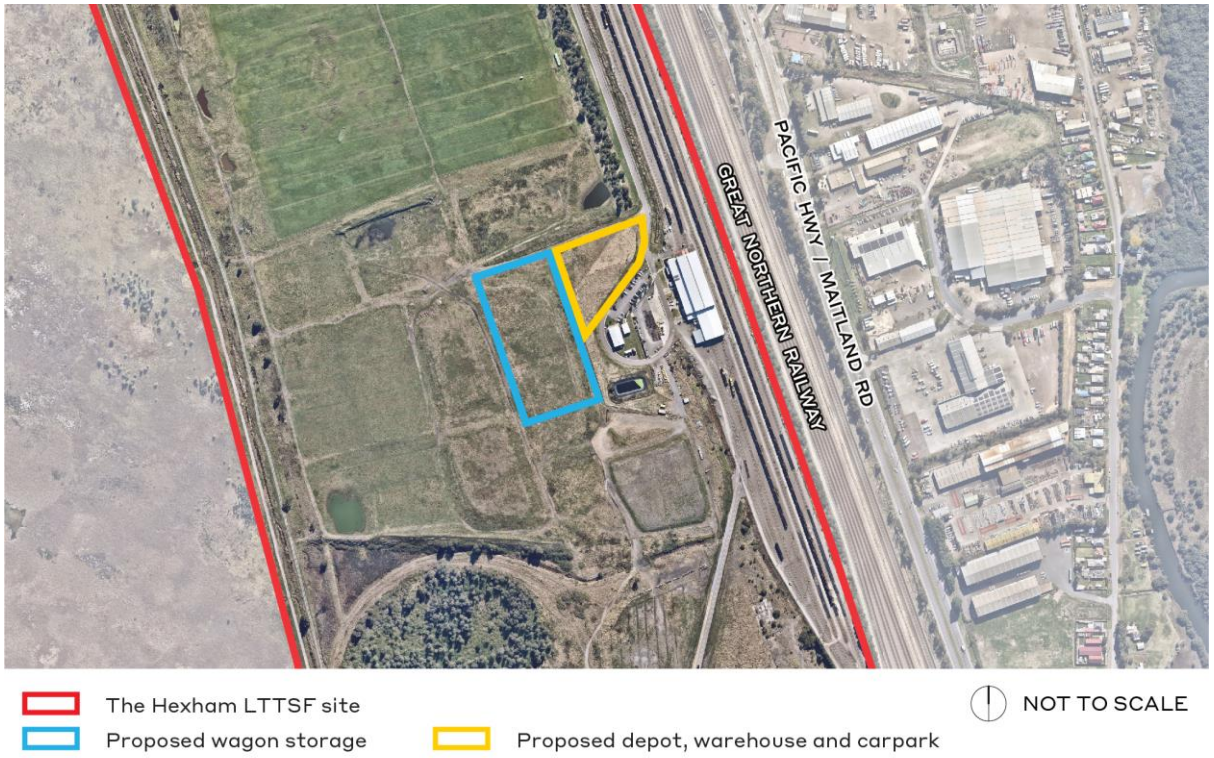
Figure 1 The Hexham LTTSF is located north-west of Newcastle



The Modification Proposal are fully contained within Lot 104 DP1189565 which is owned by Aurizon. The Hexham LTTSF Project Site covers multiple lots which are not affected by the Modification Proposal. The location of the Site in the context of the Hexham LTTSF Project Site is provided within **Figure 2** and **Figure 3**.

Figure 2 Site Context (consideration of previous approvals)

Figure 3 Site Location



1.3 Modification Proposal Description

The Modification Proposal is to be located within the Hexham LTTSF site (identified within the Hexham LTTSF Project) at a location previously cleared and disturbed by historical coal handling activities and the LTTSF Project construction.

The Modification Proposal includes the development of a depot, warehouse, wagon storage and associated development to support the ongoing operations of the Hexham LTTSF Project.

An overview of the Modification Proposal is as follows:

- Site preparation and earthworks
- Construction of the following elements:
  - A warehouse for the storage of rail maintenance equipment.
  - A depot for office staff and train crew.
  - Ancillary staff and visitor car park connected to the private roadway (existing main access road).
- Rail wagon storage area located on the western portion of the Site
- Ancillary infrastructure (hardstand, water management, landscaping, lighting etc).

The depot and warehouse would be operated 24 hours per day, 7 days a week.

2 Relevant Criteria

2.1 Operational Noise Criteria

SLR prepared the Environmental Impact Statement – Noise Impact Assessment (EIS NIA) for the Hexham LTTSF Project (refer to SLR report Hexham Train Support Facility 30-1858-R2 dated 16 April 2013) as well as a noise impact assessment for the MOD1 – Turning Angle (MOD1 NIA) in 2019 (refer to SLR report 630.12696-L01-v1.1 *Hexham Train Support Facility – Turning Angle – Noise Impact Assessment* dated 9 August 2019). The Project Trigger Noise Levels (PTNLs) for the Modification Proposal have been set in accordance with the EPA's *NSW Noise Policy for Industry* (NPfI). The assessment also includes the Project Approval (PA), as modified, (application number MP07_1071) operational noise limits.

The measured background noise levels (RBLs) contained in **Table 2** were taken from the EIS NIA in March 2008. Given the existing industry and increase in traffic counts in the area it is likely background noise levels have increased. Therefore, the use of measured 2008 RBLs are considered to provide a conservative assessment.

The Project Trigger Noise Levels (PTNLs) have been developed in accordance with the NPfI and are provided in **Table 2** along with PA MP07_1071 criteria. Receiver location are shown in **Figure 4**.

Table 2 Project Trigger Noise Levels and PA MP07_1071 Criteria

Receiver ID	Location	Period	Adopted RBL[1]	Project Intrusiveness Criteria **LAeq(15minute)**[2]	Project Amenity LAeq(15minute)[3]	Project Approval Noise Limits **LAeq(15minute)**	Project Trigger Noise Level **LAeq(15minute)**
R1	Hain Property	Day	41 dBA	46 dBA	58 dBA	46 dBA	46 dBA
		Evening	41 dBA	46 dBA	48 dBA	46 dBA	46 dBA
		Night	41 dBA	46 dBA	43 dBA	45 dBA	43 dBA
R2	Lynch Property	Day	56 dBA	61 dBA	58 dBA	60 dBA	58 dBA
		Evening	53 dBA	58 dBA	48 dBA	50 dBA	48 dBA
		Night	47 dBA	52 dBA	43 dBA	45 dBA	43 dBA
R3	New England Highway	Day	56 dBA	61 dBA	58 dBA	60 dBA	58 dBA
		Evening	53 dBA	58 dBA	48 dBA	50 dBA	48 dBA
		Night	47 dBA	52 dBA	43 dBA	45 dBA	43 dBA
R4	Old Maitland Road (North)	Day	40 dBA	45 dBA	58 dBA	45 dBA	45 dBA
		Evening	40 dBA	45 dBA	48 dBA	45 dBA	45 dBA
		Night	39 dBA	44 dBA	43 dBA	44 dBA	43 dBA
R5	Old Maitland Road	Day	40 dBA	45 dBA	58 dBA	45 dBA	45 dBA
		Evening	40 dBA	45 dBA	48 dBA	45 dBA	45 dBA
		Night	39 dBA	44 dBA	43 dBA	44 dBA	43 dBA
R6	Old Maitland Road (South)	Day	40 dBA	45 dBA	58 dBA	45 dBA	45 dBA
		Evening	40 dBA	45 dBA	48 dBA	45 dBA	45 dBA
		Night	39 dBA	44 dBA	43 dBA	44 dBA	43 dBA
R7	Maitland Road	Day	56 dBA	61 dBA	58 dBA	60 dBA	58 dBA

Receiver ID	Location	Period	Adopted RBL[1]	Project Intrusiveness Criteria **LAeq(15minute)**[2]	Project Amenity LAeq(15minute)[3]	Project Approval Noise Limits **LAeq(15minute)**	Project Trigger Noise Level **LAeq(15minute)**
		Evening	53 dBA	58 dBA	48 dBA	50 dBA	48 dBA
		Night	47 dBA	52 dBA	43 dBA	45 dBA	43 dBA
R8	Church Old Maitland Road	When in use	-	-	Internal when in use 40 dBA		**Internal when in use 40 dBA**
R9	Tarro Primary School	When in use		-	Internal Classroom Noisiest 1 hour period when in use 35 dBA		**Internal Classroom 35 dBA**
-	Hexham Swamp Nature Reserve	When in use		-	When in use		**50 dBA**

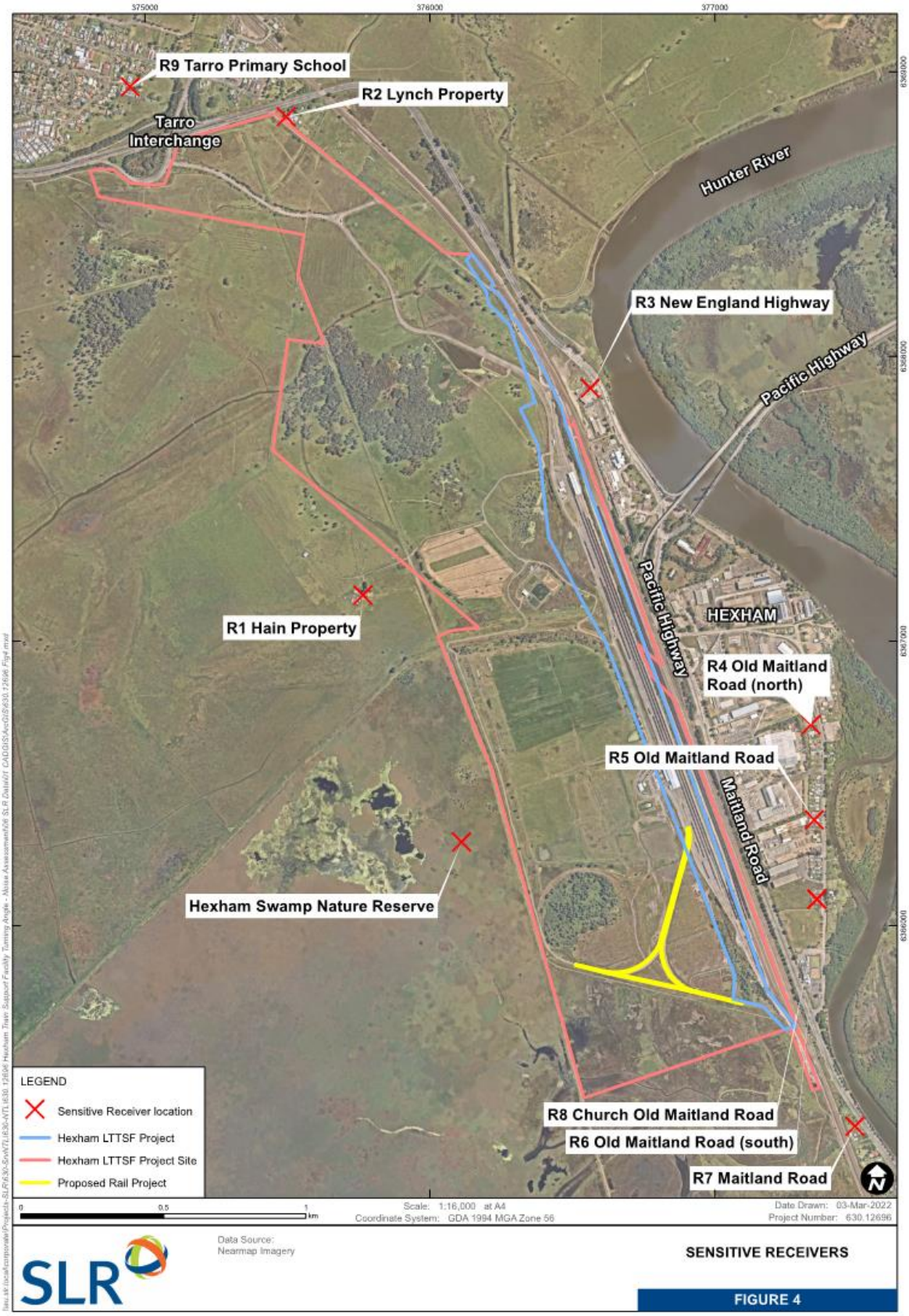
Note: 1. RBL noise levels taken from the EIS NIA.

2. Intrusive criteria is the RBL plus 5 dB.

3. Project amenity (15 minute) noise level is the Project Amenity (period) noise level plus 3 dBA

4. Resulting PTNL is the lower of the project intrusive and the project amenity (15 minute) noise levels.

Figure 4 Receiver Locations



2.2 Sleep Disturbance

In addition to the PTNLs, NPfI provides guidance in relation to the assessment of sleep disturbance.

The Sleep Disturbance Noise Levels (SDNLs) have been developed in accordance with the NPfI and are provided in **Table 3**, along with PA MP07_1071 criteria.

Table 3 Sleep Disturbance Noise Levels and PA MP07_1071 Criteria

Receiver ID	Location	Adopted RBL[1]	NPfI Sleep Disturbance $L_{Aeq(15minute)}$[2]	NPfI Sleep Disturbance L_{Amax}	Project Approval Noise Limits $L_{A1(1minute)}$
R1	Hain Property	41 dBA	46 dBA	56 dBA	56 dBA
R2	Lynch Property	47 dBA	52 dBA	62 dBA	62 dBA
R3	New England Highway	47 dBA	52 dBA	62 dBA	62 dBA
R4	Old Maitland Road (North)	39 dBA	44 dBA	54 dBA	54 dBA
R5	Old Maitland Road	39 dBA	44 dBA	54 dBA	54 dBA
R6	Old Maitland Road (South)	39 dBA	44 dBA	54 dBA	54 dBA
R7	Maitland Road	47 dBA	52 dBA	62 dBA	62 dBA

2.3 Construction Noise

The Interim Construction Noise Guideline (ICNG) sets out ways to assess and manage the impacts of construction noise on residences and other sensitive land uses. It does this by presenting assessment approaches that are tailored to the scale of the construction works.

The ICNG requires project specific Noise Management Levels (NMLs) to be established for noise affected receivers. In the event construction noise levels are predicted to be above the NMLs, feasible and reasonable work practices are to be investigated to minimise noise emissions.

2.3.1 Residential Receivers

The ICNG provides an approach for determining $L_{Aeq(15minute)}$ NMLs at adjacent residential receivers based on measured $L_{A90(15minute)}$ rating background noise levels (RBL), as described in **Table 4**.

Table 4 Determination of NMLs for Residential Receivers

Time of Day	NML $L_{Aeq(15minute)}$	How to Apply
Standard hours Monday to Friday 7:00 am to 6:00 pm Saturday 8:00 am to 1:00 pm No work on Sundays or public holidays	RBL + 10 dBA	The noise affected level represents the point above which there may be some community reaction to noise. Where the predicted or measured LAeq(15minute) is greater than the noise affected level, the proponent should apply all feasible and reasonable work practises to meet the noise affected level. The proponent should also inform all potentially impacted residents of the nature of works to be carried out, the expected noise levels and duration, as well as contact details.
	Highly Noise Affected 75 dBA	The Highly Noise Affected (HNA) level represents the point above which there may be strong community reaction to noise. Where noise is above this level, the relevant authority (consent, determining or regulatory) may require respite periods by restructuring the hours that the very noisy activities can occur, taking into account: Times identified by the community when they are less sensitive to noise (such as before and after school for works near schools or mid-morning or mid-afternoon for works near residences. If the community is prepared to accept a longer period of construction in exchange for restrictions on construction times.
Outside recommended standard hours	RBL + 5 dBA	A strong justification would typically be required for works outside the recommended standard hours. The proponent should apply all feasible and reasonable work practices to meet the noise affected level. Where all feasible and reasonable practises have been applied and noise is more than 5 dBA above the noise affected level, the proponent should negotiate with the community.

Note 1 The RBL is the overall single-figure background noise level measured in each relevant assessment period (during or outside the recommended standard hours). The term RBL is described in detail in the NSW *Noise Policy for Industry*.

Note 2: Proposed construction works are planned for the Standard Construction Hours stipulated in the ICNG. Therefore, out of hours works and sleep disturbance have not been considered.

2.3.2 Commercial and Industrial Premises

The ICNG NMLs for industrial and commercial premises are:

- Industrial premises: external $L_{Aeq(15minute)}$ 75 dBA
- Offices, retail outlets: external $L_{Aeq(15minute)}$ 70 dBA

2.3.3 NML Summary

Using the EIS NIA background noise levels NMLs derived for the Modification Proposal are detailed in **Table 5**.

Table 5 Receiver NMLs for Construction

Receiver ID	Receiver Category	Noise Management Level (NML) Standard Construction[1]	Highly Noise Affected
R01	Residential	51	75

Receiver ID	Receiver Category	Noise Management Level (NML) Standard Construction[1]	Highly Noise Affected
R02	Residential	66	75
R03	Residential	66	75
R04	Residential	50	75
R05	Residential	50	75
R06	Residential	50	75
R07	Residential	66	75
R8	Place of Worship	45[2]	N/A
R9	Educational	45[2]	N/A
Hexham Swamp Nature Reserve	Nature Reserve	60[2]	N/A

Note 1: ICNG recommended standard hours are 7.00 am to 6.00 pm Mon-Fri; 8.00 am to 1.00 pm Sat.

Note 2: Criteria is only applicable when receiver is in use.

2.4 Road Traffic Noise

Table 6 presents the RNP criteria for residential land uses affected by additional traffic on public roads as a result of a development. Noise levels provided in **Table 6** are external noise levels and refer only to road traffic noise; they do not include ambient noise from other sources.

Table 6 Road Traffic Noise Assessment Noise Criteria for Residential Land Uses

Road Category	Type of project/land use	Assessment criteria – dBA	
		Day (7 am–10 pm)	Night (10 pm–7 am)
Freeway/ arterial/ sub-arterial roads	Existing residences affected by additional traffic on existing freeways/arterial/sub-arterial roads generated by land use developments	$L_{Aeq, (15\ hour)}$ 60 (external)	$L_{Aeq, (9\ hour)}$ 55 (external)

Note: 1. Land use developers must meet internal noise goals in the Infrastructure SEPP (Department of Planning NSW 2007) for sensitive developments near busy roads (see **Appendix C10** of the RNP for details).

In addition to the assessment criteria presented in **Table 6** any increase in the traffic noise level at a location due to a traffic generating development must be considered. Residences experiencing increases in total traffic noise level above the relative increase criteria should also be considered for mitigation. **Table 7** shows relative increase criteria for residential land uses.

Table 7 Relative Increase Criteria for Residential Land Uses

Road Category	Type of project/land use	Assessment criteria – dBA	
		Day (7 am–10 pm)	Night (10 pm–7 am)
Freeway/arterial/ sub-arterial roads and transitways	New road corridor/redevelopment of existing road/land use development with the potential to generate additional traffic on existing road	Existing traffic LAeq, (15 hour) + 12 dB (external)	Existing traffic LAeq, (9 hour) + 12 dB (external)

In **Table 7** the 'existing' traffic noise level refers to the level from all road categories which would occur for the relevant 'no build' option.

Section 3.4 of the RNP also states:

Where existing traffic noise levels are above the noise assessment criteria, the primary objective is to reduce these through feasible and reasonable measures to meet the assessment criteria. A secondary objective is to protect against excessive decreases in amenity as the result of a project by applying the relative increase criteria.

In assessing feasible and reasonable mitigation measures, an increase of up to 2 dB represents a minor impact that is considered barely perceptible to the average person.

For existing residences and other sensitive land uses affected by additional traffic on existing roads generated by land use developments, any increase in the total traffic noise level should be limited to 2 dB above that of the corresponding 'no build option'.

3 Noise Impact Assessment

A computer model was used to predict noise emissions from the operation of the Modification Proposal. The noise modelling was undertaken using SoundPLAN v8.1 software. Noise source data together with, ground cover, shielding by barriers and/or adjacent buildings and meteorological affects (see **Section 3.1.2** below) were used to predict noise levels at the nearest potentially affected receivers.

3.1 Operational Noise

3.1.1 Source Noise Levels

The sound power levels of acoustically significant plant and equipment associated with the Modification Proposal are presented in **Table 8.** Sound power levels of relevant plant and equipment have been obtained from an SLR Consulting database of similar equipment.

Table 8 Operational Sound Power Levels – Modification Proposal

Plant and Equipment	Sound Power Level dBA (each)	Number of Plant/Equipment Operational in 15 minute period		
		Day	Evening	Night
Truck	102 dBA	2	2	1
Car	85 dBA	51	51	51

Plant and Equipment	Sound Power Level dBA (each)	Number of Plant/Equipment Operational in 15 minute period		
		Day	Evening	Night
Mobile Crane	98 dBA	1	1	1
Forklift	99 dBA	1	1	1
Rooftop Fans	85 dBA	4	4	4
Condenser Units	96 dBA	6	6	6
Air Conditioner Equipment	85 dBA	4	4	4

3.1.2 Existing Meteorological and Noise Environment

The EIS NIA identifies prevailing winds and temperature inversion to not be a feature of the area and therefore noise predictions were carried out under NPfI standard meteorological conditions. Atmospheric parameters which noise predictions were made are given in **Table 9**.

Table 9 Meteorological Parameters for Noise Predictions

Descriptor	Temperature	Humidity	Wind Speed	Wind Direction (degrees from North)	Stability Class
Standard Meteorological conditions	20°C	65%	0.5 m/s	Source to Receiver	D

3.1.3 Operational Results

The predicted operational noise levels at the identified sensitive receivers are provided in **Table 10**. Results shown are from the Modification Proposal and the cumulative noise levels of the existing Hexham LTTSF and operation of the Modification Proposal.

Table 10 Predicted Operational Noise –Hexham LTTSF and Modification Proposal

Location	Period	PTNL (dBA)	Project Approval Noise Limits (dBA)	Predicted Noise Level – Modification Proposal Only (dBA)	Hexham LTTSF Project Predicted Noise Level including Modification Proposal (dBA)
R1	Day	46	46	<30	35
	Evening	46	46	<30	35
	Night	43	45	<30	35
R2	Day	58	60	<30	36
	Evening	48	50	<30	36
	Night	43	45	<30	36
R3	Day	58	60	34	45
	Evening	48	50	34	45
	Night	43	45	33	45

Location	Period	PTNL (dBA)	Project Approval Noise Limits (dBA)	Predicted Noise Level – Modification Proposal Only (dBA)	Hexham LTTSF Project Predicted Noise Level including Modification Proposal (dBA)
R4	Day	45	45	30	44
	Evening	45	45	30	44
	Night	43	44	<30	44
R5	Day	45	45	<30	43
	Evening	45	45	<30	43
	Night	43	44	<30	43
R6	Day	45	45	<30	42
	Evening	45	45	<30	42
	Night	43	44	<30	42
R7	Day	58	60	<30	37
	Evening	48	50	<30	37
	Night	43	45	<30	37
R8	Day	Internal when in use 40 dBA		<30[1]	42[1]
	Evening			<30[1]	42[1]
	Night			<30[1]	42[1]
R9	Day	Internal Classroom 35 dBA		<30[1]	36[1]
	Evening			<30[1]	36[1]
	Night			<30[1]	36[1]
Hexham Swamp Nature Reserve	Day	When in use 50 dBA		30	43
	Evening			30	43
	Night			30	43

Note 1: These are external noise levels. As a conservative estimate the difference between external to internal noise levels for a building comprising of standard construction and windows open for adequate ventilation is 10 dB. As a result, the internal noise level for receivers R8 and R9 are less than 40 dBA and 35 dBA, respectively. These internal noise levels comply with the internal operational noise criteria presented in **Table 2**.

Table 10 shows that predicted noise levels from the Hexham LTTSF Project including the Modification Proposal are predicted to exceed the PTNLs by 2 dB at R3 and 1 dBA at R4. Predicted noise levels from the Hexham LTTSF Project including the Modification Proposal are predicted to achieve compliance with the PA noise limits at all receivers.

Section 6.1 of the NPfI states:

> *The project noise trigger levels should not be applied as mandatory noise limits. The project noise trigger level is the level used to assess noise impacts and drive the process of assessing all feasible and reasonable control measures.*

And;

Where noise emissions from the site exceed the project noise trigger levels, the regulatory authorities and the noise-source manager will determine achievable noise limits for the site.

As the Modification Proposal is predicted to be 10 dBA or more below the PTNLs at all receivers, the predicted exceedance of the PTNLs is driven by existing Hexham LTTSF Project operations. Given that compliance with existing approval conditions for the Hexham LTTSF Project including the Modificaiton Proposal would be met, the Modifcation Proposal is not likely to cause noise impacts.

Notwithstanding it is receomended that Aurizon continue to implement noise and vibration management strategies in accordance with the Hexham LTTSF Project Environment Management Plan to minimise noise offsite noise emissions.

3.1.4 Sleep Disturbance

In assessing sleep disturbance, typical L_{Amax} noise levels of acoustically significant plant and equipment to be used during the night-time period associated with the Modification Proposal were used as input to the computer model and are presented in **Table 11**.

Table 11 Maximum Noise Events

Source	L_{Amax}
Truck	111 dBA
Mobile crane	114 dBA
Forklift	107 dBA

Predicted maximum noise levels during the night-time period from the Modification Proposal are provided in **Table 12**.

Table 12 Maximum Noise Predictions

Receiver ID	Location	Predicted Noise Level LAmax	NPfI Sleep Disturbance LAmax	Project Approval Noise Limits LA1(1minute)
R1	Hain Property	36	56 dBA	56 dBA
R2	Lynch Property	47	62 dBA	62 dBA
R3	New England Highway	55	62 dBA	62 dBA
R4	Old Maitland Road (North)	44	54 dBA	54 dBA
R5	Old Maitland Road	39	54 dBA	54 dBA
R6	Old Maitland Road (South)	36	54 dBA	54 dBA
R7	Maitland Road	32	62 dBA	62 dBA

Results of maximum noise predictions indicate that the sleep disturbance screening criteria will be achieved at all receiver locations during night-time operations of the Modification Proposal.

3.2 Construction Noise

3.2.1.1 Construction Stages

The activities likely to be required to construct the project would involve conventional construction equipment such as earth moving equipment, concreting equipment, piling plant, demolition equipment and cranes.

The proposed construction work scenarios with high noise impacts identified are detailed in **Table 13**. Exact construction timeframes are not known at this stage; however, it is assumed that all works will occur during the Standard Construction Hours of the ICNG.

Table 13 Construction Work Scenarios

Activity	Scenario	Activities/Equipment Proposed	Sound Power Level (SWL dBA)	Cumulative Sound Power Level (SWL)
Earthworks	1	Trucks	102 dBA	118
		Excavator	104 dBA	
		Dozer	111 dBA	
		Grader	111 dBA	
		Compactor	110 dBA	
		Backhoe	103 dBA	
		Frontend loader	106 dBA	
		Excavator with hammer	112 dBA	
Pouring concrete and structure works	2	Concrete pump truck	104	110
		Concrete agitator truck	102	
		Concrete pencil vibrator	97	
		Generator	93	
		Powered hand tools	98	
		Crane	104	
		Mobile crane	98	
		Hoist	95	
		Road truck and dog	102	
Building Envelope and carpark	3	Crane	104	115
		Powered hand tools	98	
		Hoist	95	
		Generator	93	
		Welder equipment	93	
		Rattle gun	107	
		Road truck and dog	102	
		Hot asphalt pavers	112	
		Vibratory roller	102	
		Hot bitumen equipment	104	

Activity	Scenario	Activities/Equipment Proposed	Sound Power Level (SWL dBA)	Cumulative Sound Power Level (SWL)
		Mobile Crane	98	

3.2.2 Construction Results

Predicted construction noise levels for each scenario at the identified noise sensitive receivers are shown in **Table 14**

Table 14 Predicted Construction Noise Levels

Location	Construction Hours	NML $L_{Aeq(15minute)}$ **dBA**	Highly Noise Affected NML $L_{Aeq(15minute)}$ **dBA**	Predicted Construction Noise Level $L_{Aeq(15minute)}$ **dBA**
Scenario 1 - Earthworks				
R1	Standard	51	75	39
R2	Standard	66	75	<30
R3	Standard	66	75	36
R4	Standard	50	75	45
R5	Standard	50	75	39
R6	Standard	50	75	34
R7	Standard	66	75	35
R8	Standard	45 (Internal)	N/A	34
R9	Standard	45 (Internal)	N/A	<30
Hexham Swamp Nature Reserve		50 (when in use)	N/A	39
Scenario 2 – Pouring concrete and structure works				
R1	Standard	51	75	30
R2	Standard	66	75	<30
R3	Standard	66	75	<30
R4	Standard	50	75	39
R5	Standard	50	75	<30
R6	Standard	50	75	<30
R7	Standard	66	75	<30
R8	Standard	45 (Internal)	N/A	<30
R9	Standard	45 (Internal)	N/A	<30
Hexham Swamp Nature Reserve	Standard	50 (when in use)	N/A	<30
Scenario 3 - Building Envelope and carpark				
R1	Standard	51	75	35
R2	Standard	66	75	<30

Location	Construction Hours	NML LAeq(15minute) dBA	Highly Noise Affected NML LAeq(15minute) dBA	Predicted Construction Noise Level LAeq(15minute) dBA
R3	Standard	66	75	33
R4	Standard	50	75	44
R5	Standard	50	75	<30
R6	Standard	50	75	<30
R7	Standard	66	75	31
R8	Standard	45 (Internal)	N/A	<30
R9	Standard	45 (Internal)	N/A	<30
Hexham Swamp Nature Reserve	Standard	60 (when in use)	N/A	31

As indicated in **Table 14** the Modification Proposal is predicted to be within NMLs at all noise sensitive receiver locations.

3.3 Road Traffic Noise

The Modification Proposal is proposed to increase inbound and outbound staff traffic movements to the Hexham LTTSF Project by up to 118 per day. In addition to existing approved Hexham LTTSF Project traffic this would result in approximately 250 additional movements per day on the New England Highway.

Existing traffic volumes on the New England highway in the vicinity of the Modification Proposal are more than 50,000 vehicles per day. The corresponding increase in road traffic noise due to additional traffic generated by the Modification Proposal would be negligible and significantly less than 2 dB which, according to the RNP, is unlikely to be discernible and would not trigger the consideration of mitigation.

4 Conclusion

SLR has conducted a noise impact assessment for the Modification Proposal at the Hexham LTTSF Project. The aim of this assessment was to assess the potential noise impacts associated with the Modification Proposal on surrounding noise sensitive receptors.

Predicted operational noise levels from the Hexham LTTSF Project including the Modification Proposal are predicted to exceed PTNLs by up to PTNLs by 2 dB at R3 and 1 dBA at R4, however are predicted to achieve compliance with the PA noise limits at all receivers.

Given that compliance with existing approval conditions for the Hexham LTTSF Project including the Modification Proposal would be met, the Modifcaiton Proposal is not likely to cause noise impacts.

Notwithstanding it is receomended that Aurizon continue to implement noise and vibration management strategies in accordance with the Hexham LTTSF Project Environment Management Plan to minimise noise offsite noise emissions.

Construction noise impacts are predicted to be below the relevant NMLs at all receivers.

Road traffic noise impact associated with the Hexham LTTSF Project including the Modification Proposal is expected to be minimal given the relatively small increase in proposed traffic volumes compared to existing volumes on the New England Highway.

I trust the preceding meets your current requirements. If you have any questions or would like any further information, please do not hesitate to contact me on 02 4037 3200 or email ktmurphy@slrconsulting.com.

Yours sincerely

KIERAN MURPHY
Senior Project Consultant

Checked/
Authorised by: MD