11 February 2019

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Aurizon Operations Limited
Ground floor, 121 Woodstock Street, Mayfield, NSW 2304

Attention: Harry Egan

Dear Harry

Hexham Train Support Facility - Turning Angle Noise Impact Assessment

1 Introduction

SLR Consulting Australia Pty Ltd (SLR) has been engaged by Aurizon Operations Limited (Aurizon) to prepare a Noise Impact Assessment (NIA) for the proposed Turning Angle (the Project) to be constructed at the Aurizon Hexham Train Support Facility (TSF) NSW.

SLR conducted the Environmental Impact Statement – Noise Impact Assessment (EIS NIA) for the TSF site in 2013 (refer to SLR report *Hexham Train Support Facility 30-1858-R2* dated 16 April 2013).

2 Project Description

The Project will provide a means to turn locomotives. Operations will typically consist of two locomotives being shunted by a third locomotive (i.e. only one locomotive will be operational). No wagons will be attached during turning manoeuvres. It is understood the Project only expects one movement per day.

The layout of the Project is shown in **Figure 1.** The Projects location in relation to the nearest noise sensitive receiver is shown in **Figure 2** and noise sensitive receivers assessed in the EIS NIA are shown in **Figure 3**.

Figure 1 Project Layout

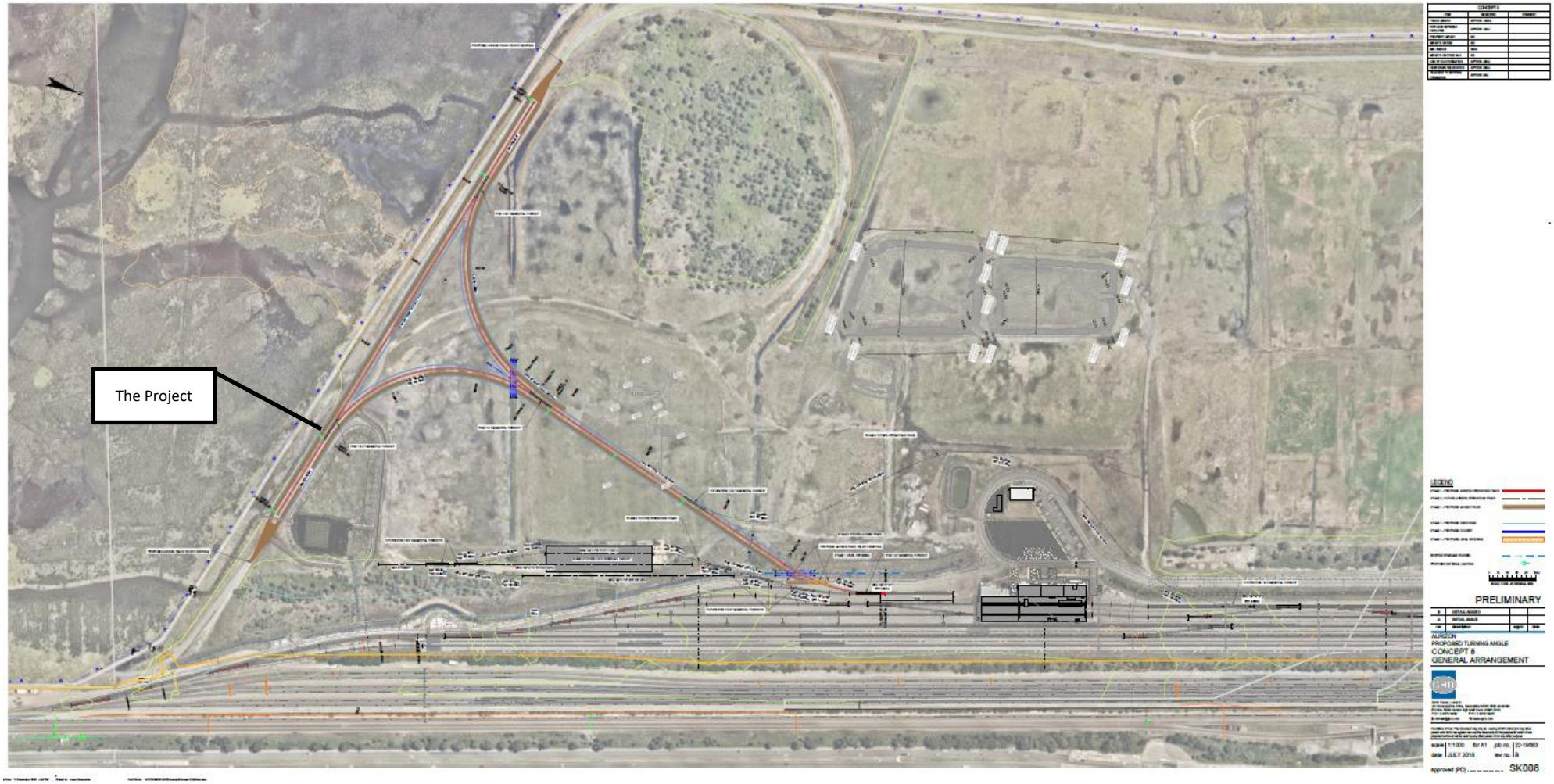
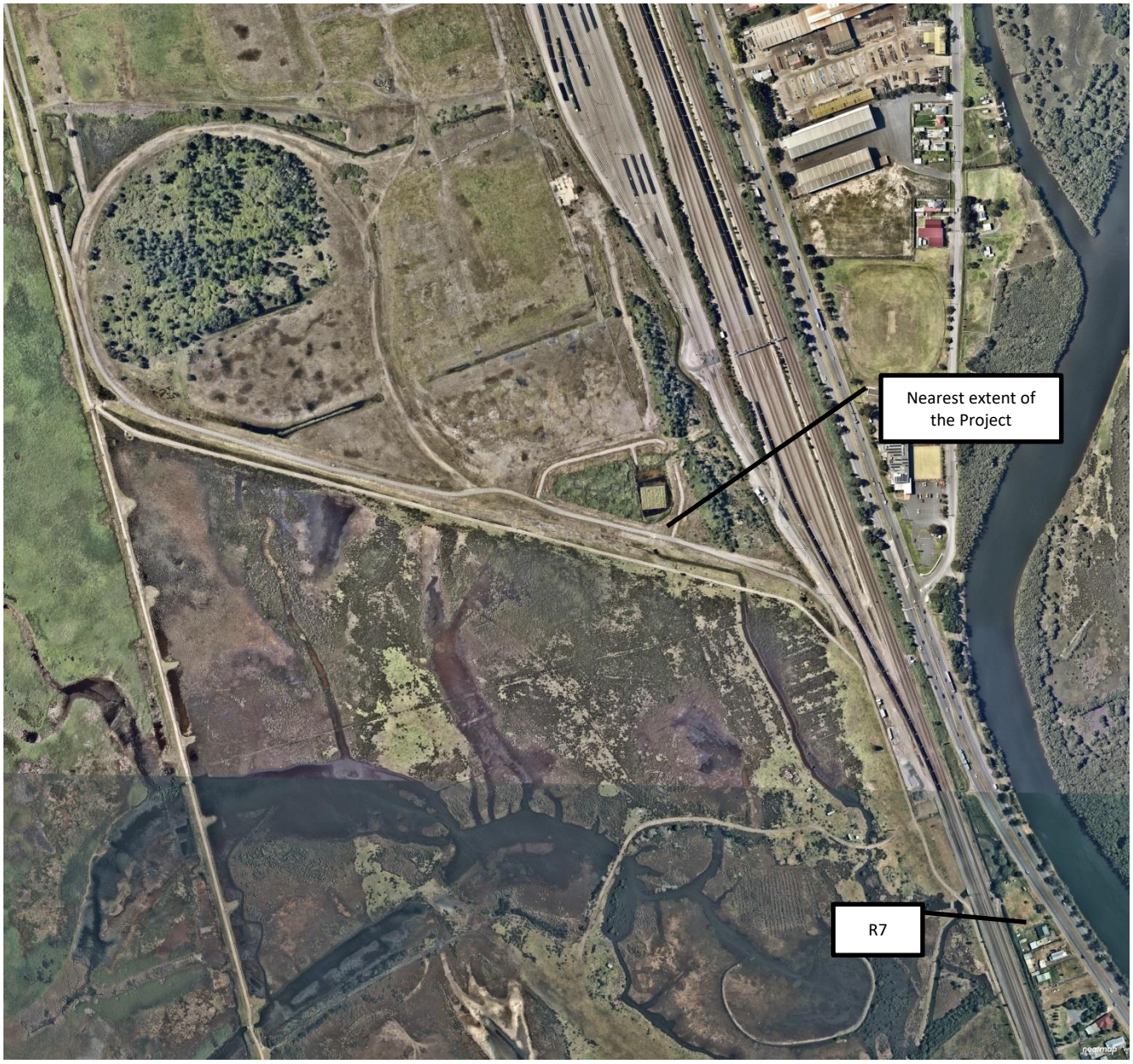


Figure 2 Project Location and Nearest Noise Sensitive Receiver



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SITE LOCALITY AND SENSITIVE RECEIVERS

FIGURE 3

3 Relevant Criteria

3.1 Operational Noise Criteria

The EIS NIA was assessed in accordance with the EPA's NSW *Industrial Noise Policy* (INP). The INP was superseded by the NSW *Noise Policy for Industry* (NPfI) in 2017 therefore the operational criteria for the Project have been set in accordance with the NPfI.

The measured background noise levels (RBLs) contained in **Table 1** were taken for 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 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 1**.

Table 1 Operational Project Trigger Noise Levels

Receiver ID	Location	Period	Adopted RBL[1]	Project Intrusiveness Criteria **$L_{Aeq(15minute)}$**[2]	Project Amenity $L_{Aeq(15minute)}$[3]	Project Trigger Noise Level
R1	Hain Property	Day	41 dBA	46 dBA	58 dBA	**46 dBA**
		Evening	41 dBA	46 dBA	48 dBA	**46 dBA**
		Night	41 dBA	46 dBA	43 dBA	**43 dBA**
R2	Lynch Property	Day	56 dBA	61 dBA	58 dBA	**58 dBA**
		Evening	53 dBA	58 dBA	48 dBA	**48 dBA**
		Night	47 dBA	52 dBA	43 dBA	**43 dBA**
R3	New England Highway	Day	56 dBA	61 dBA	58 dBA	**58 dBA**
		Evening	53 dBA	58 dBA	48 dBA	**48 dBA**
		Night	47 dBA	52 dBA	43 dBA	**43 dBA**
R4	Old Maitland Road (North)	Day	40 dBA	45 dBA	58 dBA	**45 dBA**
		Evening	40 dBA	45 dBA	48 dBA	**45 dBA**
		Night	39 dBA	44 dBA	43 dBA	**43 dBA**
R5	Old Maitland Road	Day	40 dBA	45 dBA	58 dBA	**45 dBA**
		Evening	40 dBA	45 dBA	48 dBA	**45 dBA**
		Night	39 dBA	44 dBA	43 dBA	**43 dBA**
R6	Old Maitland Road (South)	Day	40 dBA	45 dBA	58 dBA	**45 dBA**
		Evening	40 dBA	45 dBA	48 dBA	**45 dBA**
		Night	39 dBA	44 dBA	43 dBA	**43 dBA**
R7	Maitland Road	Day	56 dBA	61 dBA	58 dBA	**58 dBA**
		Evening	53 dBA	58 dBA	48 dBA	**48 dBA**
		Night	47 dBA	52 dBA	43 dBA	**43 dBA**
R8	Church Old Maitland Road	Day	40 dBA	45 dBA	Internal when in use 40 dBA	**Internal when in use 40 dBA**
		Evening	40 dBA	45 dBA		
		Night	39 dBA	44 dBA		

Receiver ID	Location	Period	Adopted RBL[1]	Project Intrusiveness Criteria **LAeq(15minute)**[2]	Project Amenity LAeq(15minute)[3]	Project Trigger Noise Level
R9	Tarro Primary School	Day	56 dBA	61 dBA	Internal Classroom Noisiest 1 hour period when in use 35 dBA	**Internal Classroom 35 dBA**
		Evening	53 dBA	58 dBA		
		Night	47 dBA	52 dBA		

Note: 1. RBL noise levels taken from the EIS NIA.
2. Intrusive criteria is the RBL plus 5dB.
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.

4 Noise Impact Assessment

4.1 Operational Noise

A desktop assessment was completed considering the operation of the Project in addition to the wider operations of the Hexham TSF. A SWL of 106 dBA, taken from the SLR database of similar operations, was assumed for the operation of the Project.

For completeness, the assessment has included a night-time movement at the closest location to the nearest sensitive receiver (R7). Therefore compliance with the conservative scenario at R7 would correspond to compliance for the Project.

The operational noise impacts at the nearest most potentially affected residential receiver, R7, are provided in **Table 2**.

Table 2 Predicted Operational Noise

Location	Period	PTNL	Predicted Noise Level
R7	Day	58 dBA	43 dBA
	Evening	48 dBA	43 dBA
	Night	43 dBA	43 dBA

As indicated in **Table 2** the Project has been predicted to comply with the PTNLs.

As noted, these predictions consider a locomotive active for a full 15 minute period at the closest extent of the Project to R7 in addition to regular TSF site operations. This is therefore a conservative assessment as the Project is unlikely to remain operational at the nearest point to the receiver over a 15 minute period.

It is also understood that the Project will not result in a net increase of rail movements on the site, i.e. no additional trains will access the Hexham TSF.

Given the receiver at R7 is the closest residential receiver to the Project the change in noise levels at other noise sensitive receivers would be lower than indicated at R7.

4.2 Construction Noise

Construction activities required for the Project are considered similar to those assessed in the EIS NIA for the Hexham TSF. Therefore mitigation and management measures are consistent with the previous assessment and should be undertaken in accordance with the site Noise Management Plan.

4.3 Traffic Noise

No additional traffic is expected to be generated by the Project.

4.4 Vibration

Due to the separation distance between the Project and the nearest relevant receivers, vibration levels generated by the Project are likely to fall below the threshold of human perception. The Project is therefore also expected to fall below the criteria for "minimal risk of cosmetic damage" at surrounding residential and commercial premises.

5 Conclusion

SLR has assessed the predicted noise impacts of the proposed Turning Angle as a conservative operating scenario. The operational noise of the proposed Turning Angle was assessed in addition to the existing TSF operations considered in the EIS NIA and found to comply with the PTNLs outlined in **Table 1.** No additional noise mitigation is therefore indicated.

Yours sincerely

JORDAN MURRAY
Project Consultant - Noise and Vibration

Checked/
Authorised by: RH