Appendix 15: Marshall Day Acoustics Report



MARSHALL DAY Acoustics

TULLOCH PLAN CHANGE
NOISE ASSESSMENT

Rp 001 20241149 | 18 February 2025

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1.0 SUMMARY

We have assessed the potential noise effects of the proposed rezoning of a rural site near Lorneville, north of Invercargill. The site, located at 805-819 North Road, is currently zoned 'Rural' in the Invercargill City Council (ICC) District Plan. The proposal includes rezoning the site as 'Industrial 1'.

The noise limits in the District Plan relate to the zone of the receiving property. Rezoning the application site would not change the noise limits at any of the surrounding noise sensitive receivers i.e. the protections offered by the Rural zone noise limits would still apply.

The District Plan includes example activities that are permitted in the Rural and Industrial 1 zones. There are some similarities in the type of noisy equipment that is likely from these activities, though it is likely that activity would be more intensive once the site is rezoned.

While the future usage of the site has not been confirmed, we have assessed noise from some of the likely activities. These could comply with the relevant noise limits with typical mitigation and management measures in place.

We have not conducted site noise measurements of the existing ambient noise environment. However, we anticipate that noise from State Highway 6 (SH6) will be the dominant noise source. We have predicted noise from road traffic at the nearby receivers. The predicted traffic noise levels are similar or greater than the daytime noise limits at all nearby receivers.

Based on these factors, we consider that any noise effects resulting from the rezoning of the site would be reasonable.

2.0 SITE DETAILS

The proposed rezoning site is located at 805-819 North Road, Invercargill. Figure 1 shows the location of the site.

Figure 1: Site location



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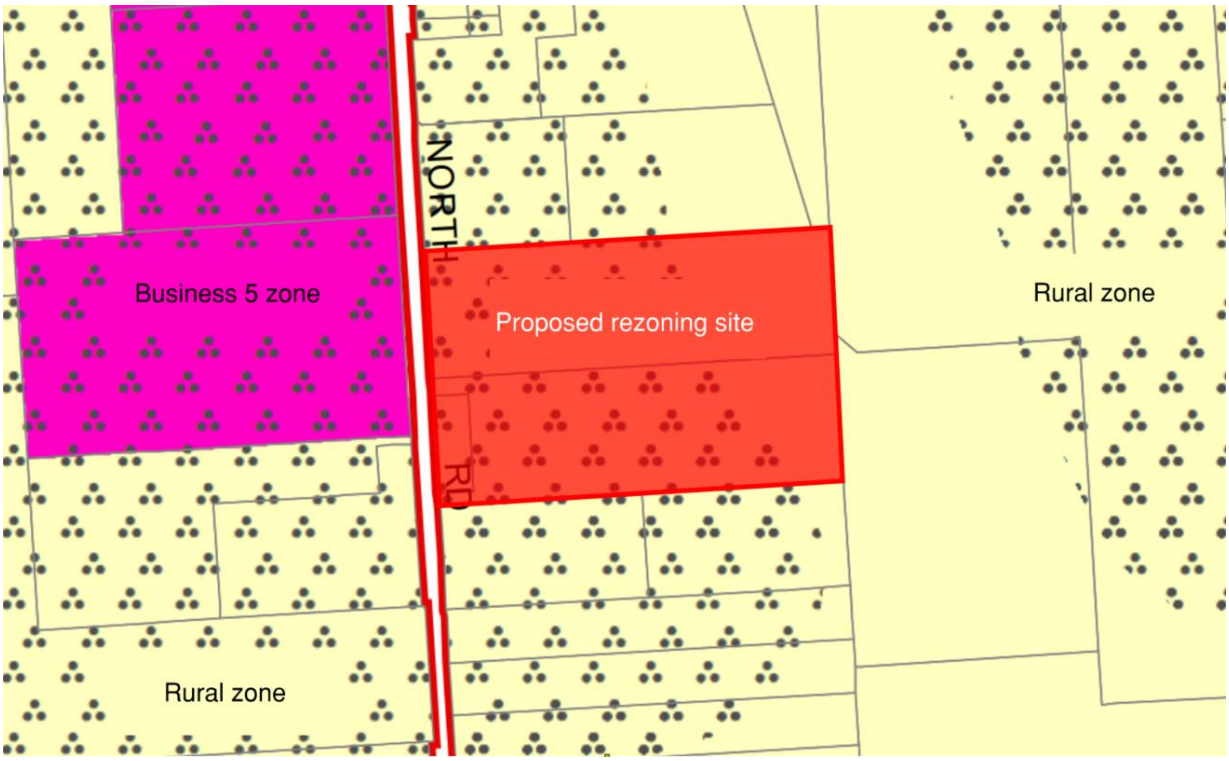
2.1 The site is currently zoned Rural

The site is zoned Rural in the ICC District Plan. The explanation of the policies for the Rural zone state that the zone is to provide for rural activities such as agriculture, horticultural, and forestry.

The existing site use includes farm activity, dwellings and a large wool store facility.

Figure 2 shows the existing site and surrounding area.

Figure 2: Proposed rezoning site – ICC District Plan zones



2.2 Proposed use and zone

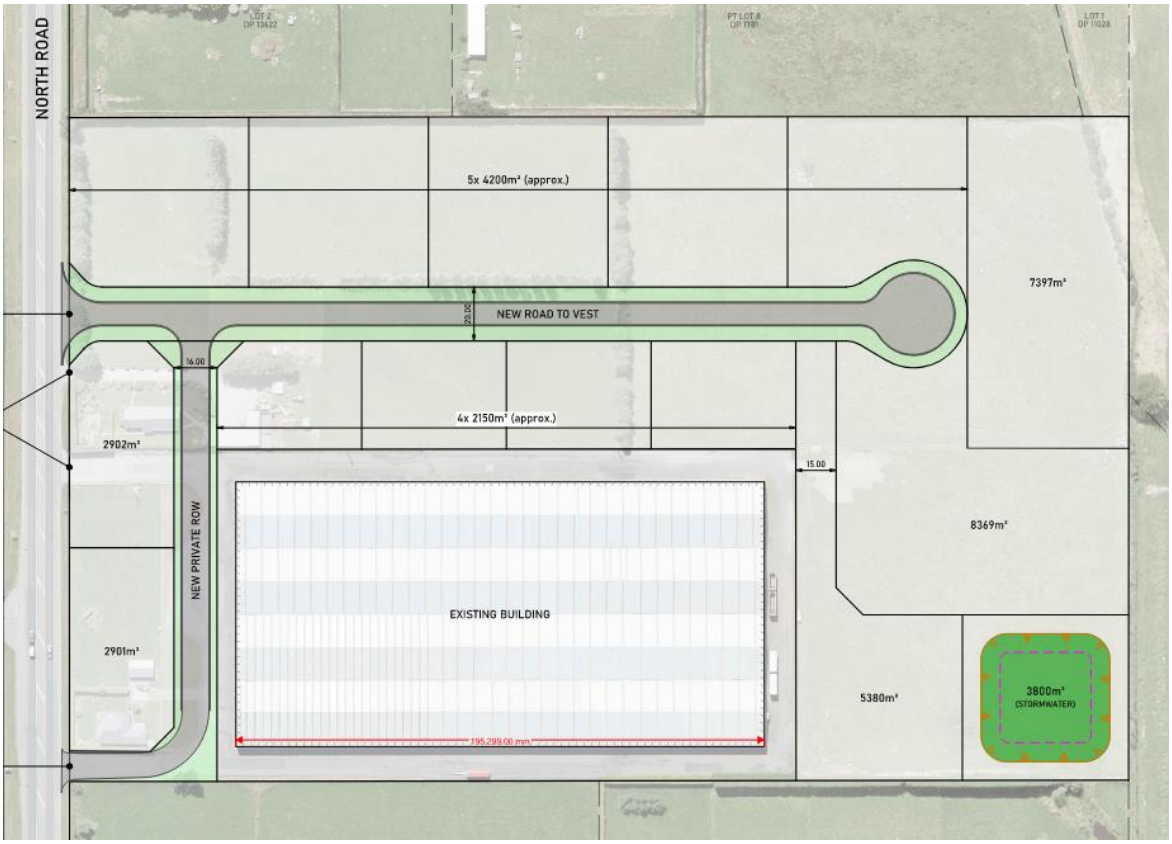
The proposal is to change the zone of the site to Industrial 1 zone. The ICC District Plan policies state that this zone is to provide a range of light industrial, wholesaling, warehousing and service activities of a nature, size and scale appropriate near residential areas.

Whilst specific businesses have not yet been confirmed on the proposed site, we understand that the intention is that these are likely to be related to the rural sector e.g. machinery suppliers, agri-technology suppliers.

A concept masterplan for the site is shown in Figure 3. This shows that the proposal includes dividing the site into industrial lots. As a result, activity from the area is likely to be more intensive than the existing farmland and wool store activities.

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Figure 3: Concept masterplan



2.3 Nearby receivers

The immediately adjacent sites are zoned Rural, while some sites on the opposite side of North Road are zoned Business 5. The nearby noise sensitive receivers are dwellings on the adjacent Rural zoned sites. The nearby dwellings are shown in Figure 1. The buildings to the west of the site, on the opposite side of North Road, are a butchery and an adventure park. These are not considered a "noise sensitive activity" in the ICC District Plan (see definition in Appendix A).

3.0 POTENTIAL NOISE EFFECTS

We have assessed the noise effects based on the controls of the District Plan, existing activity on the site, and the likely activity on the site if a change of zone occurs.

3.1 Noise limits at receivers remain the same

In applying the noise limits from the ICC District Plan, the plan clarifies that:

> *"Noise from any site shall comply with the relevant limits for all surrounding sites. Hence, at the boundaries of Zones, measurements of noise emissions will be assessed based on the zoning of the site affected by the noise, not of the site generating the noise"*

The proposed rezoning would not change the zone of any of the surrounding properties. Therefore, the noise limits at the nearby receivers will not change as a result of the rezoning of the site. The protections offered by the Rural zone noise limits would still apply at the nearby dwellings.

The noise limits for the surrounding sites are presented in Table 1.

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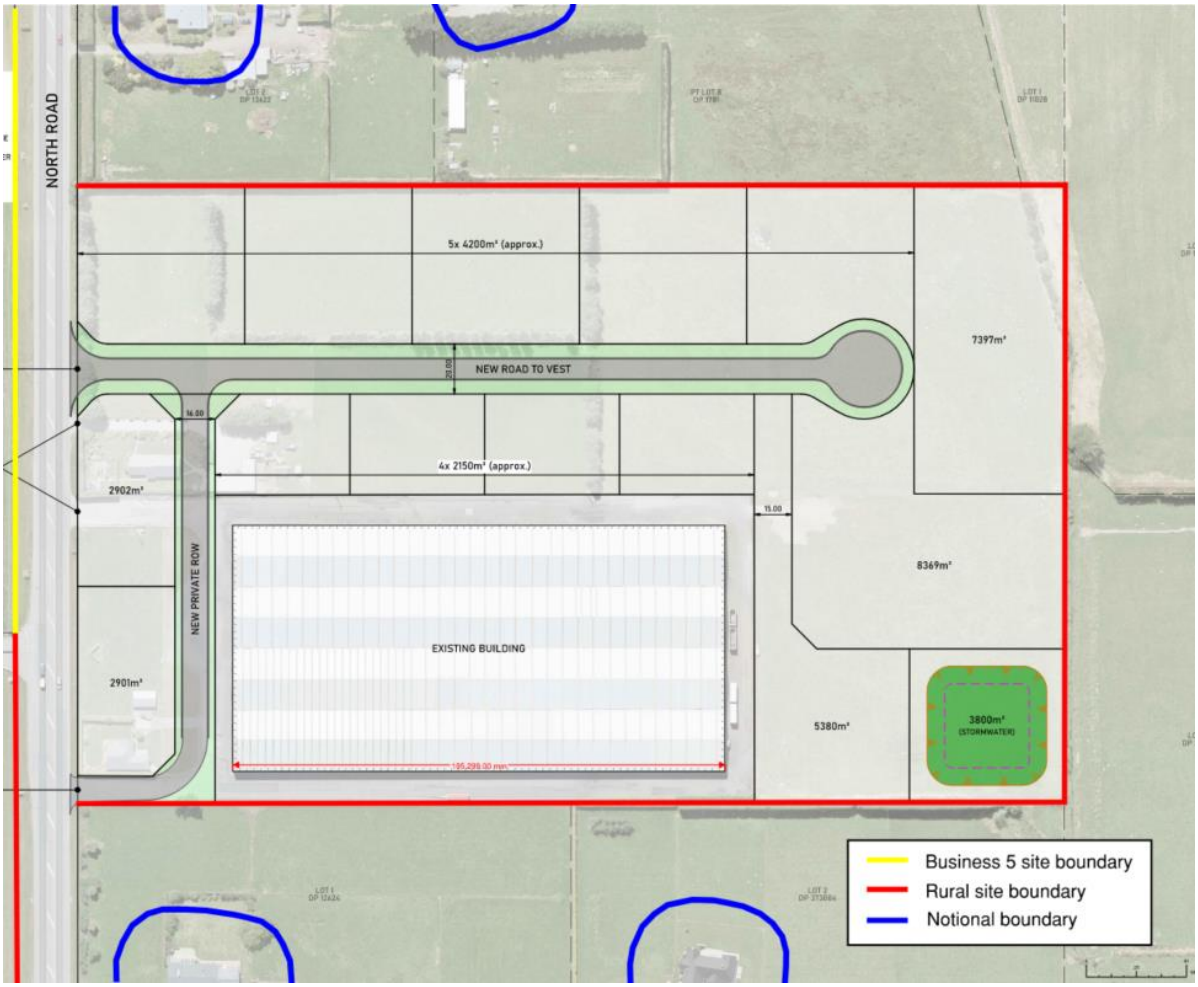
Table 1: ICC District Plan noise limits for surrounding sites

Receiving zone	Daytime 0700 - 2200		Night-time 2200 - 0700	
	L_{Aeq}	L_{Amax}	L_{Aeq}	L_{Amax}
Rural (at or within the site boundary)	65 dB	85 dB	45 dB	70 dB
Rural (at the notional boundary of a noise sensitive activity)	50 dB	80 dB	45 dB	65 dB
Business 5	65 dB	85 dB	50 dB	70 dB
Industrial 1	65 dB	85 dB	50 dB	70 dB

The rural noise zone includes noise limits at the boundary of a rural site and at the notional boundary of a noise sensitive receiver (in this case 20m from the façade of a dwelling).

Figure 4 shows the relevant assessment positions, with the notional boundaries of the nearby dwellings indicated in blue.

Figure 4: Noise limit assessment locations



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3.2 Anticipated activities can comply with the noise limits

We have considered some typical activities that may occur on the site once it is developed, to assess if compliance with the noise limits is achievable. We have considered the following potential noise sources:

- Farm machinery (John Deere tractor)
- Forklift
- Heavy vehicle movements
- Mechanical cooling plant

Any of these noise sources can comply with the relevant noise limit with typical mitigation measures, such as moderate set-backs and/or noise barriers.

The site would be subdivided, so there is potential for cumulative effects from multiple sites (i.e. each site must comply with the noise limits individually). However, the noise limits require compliance at the immediate site boundary of each site/lot (at the Rural boundary and at the boundary with other Industrial 1 lots). As a result, we consider that the likelihood for significant cumulative effects is low.

3.3 Character of noise is likely to be similar to the existing activities

There are differences between intended uses for Rural zone and Industrial 1 zone as outlined in the District Plan policies. However, the typical types of noise sources involved in each activity are likely to be similar e.g. farm machinery, vehicle movements etc.

We understand that the wool store facility is to remain. Therefore, for a large area of the site the use would remain unchanged. In other parts of the site, the development may result in more intensive activity than the existing situation. However, as stated in the District Plan policies, these would be of a nature, size and scale appropriate near residential areas

3.4 Noise from the Industrial 1 zone would be similar or less than road traffic noise

We have not measured the existing ambient noise levels at the nearby receivers. However, we anticipate that noise from State Highway 6 (SH6) is the dominant noise source in the area.

Therefore, we have calculated the road traffic noise level at the closest dwellings to provide an indication of the existing noise levels. We have used the Calculation of Road-Traffic Noise (CRTN) method, based on the characteristics of SH6 (e.g. road surface, traffic flow data, speed limit etc) and the distance from the road to the dwellings.

The predicted noise level at the closest dwelling (839 North Rd) is 60 dB L_{Aeq} during the daytime period. Of the nearby dwellings, the furthest from SH6 is 795 North Rd. The predicted daytime noise level at this dwelling is 49 dB L_{Aeq}.

As detailed above, the daytime noise limit at the notional boundary of a dwelling in the Rural zone is 50 dB L_{Aeq}. Therefore, noise from the rezoned site at the nearby receivers would be at a similar level or less than the existing level of road traffic noise.

3.5 Construction noise can comply with the relevant noise limits

As with the operational noise from the site, the specific activities are not yet confirmed. However, we understand that development of the sites is likely to include some earth works activity (minor cut/fill for foundations, trenching for services etc.), and construction of light industrial buildings (warehouses, workshops etc).

The ICC District Plan includes the following noise limits for construction activities.

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Table 2: Construction noise limits from ICC District Plan

Days and Time	Noise limit[1]
Monday to Saturday 0730 – 1800	70 dB L_{Aeq} and 85 dB L_{Amax}
At other times	45 dB L_{Aeq} and 75 dB L_{Amax}

[1] Construction noise is assessed at 1m from the façade of an occupied building

We have assessed the likely noise levels at nearby receivers based on the typical construction activities detailed above. We anticipate that construction activities could readily comply with the construction daytime noise limits with appropriate management measures in place.

Noisy night-time construction activity is not recommended on the site.

4.0 CONCLUSION

We have assessed the potential noise effects from the proposed rezoning of a Rural site to Industrial 1 zone. We anticipate that the intensity of activity on the site may increase as a result of development under the proposed new zoning.

However, the noise limits at the nearby receivers would not change as a result of the proposed rezoning and the character of noise sources on the rezoned sites is expected to be similar to the existing use. Activities would be of a nature, size and scale appropriate for nearby residential receivers.

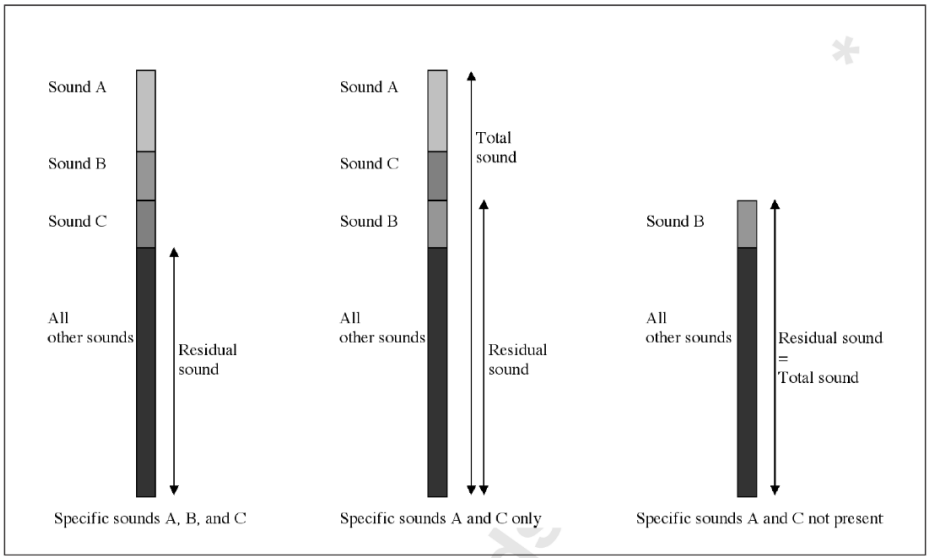
Furthermore, the nearby dwellings are currently exposed to road traffic noise levels from SH6 that are similar or greater than the daytime noise limit from the proposed site.

Therefore, we consider that the existing noise limits would offer adequate protection against adverse noise effects at the nearby receivers and any noise effects as a result of the rezoning would be reasonable for the area.

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APPENDIX A GLOSSARY OF TERMINOLOGY

A-weighting	A set of frequency-dependent sound level adjustments that are used to better represent how humans hear sounds. Humans are less sensitive to low and very high frequency sounds. Sound levels using an "A" frequency weighting are expressed as dB LA. Alternative ways of expressing A-weighted decibels are dBA or dB(A).
dB	Decibel. The unit of sound level.
LAeq	The equivalent continuous A-weighted sound level. Commonly referred to as the average sound level and is measured in dB.
LAmax	The A-weighted maximum sound level. The highest sound level which occurs during the measurement period. Usually measured with a fast time–weighting i.e. LAFmax
Noise	A subjective term used to describe sound that is unwanted by, or distracting to, the receiver.
Noise Sensitive Activity	As defined in the Invercargill City District Plan (Part One, page 24) Means buildings or parts of buildings used for, or able to be used for the following purposes: 1. Residential Activity 2. Visitor Accommodation 3. Residential Care Activity 4. Educational Activity, except training related to Airport and aircraft operations 5. Hospital Activity 6. Healthcare Activity 7. Early Childhood Education and Care Centre 8. Marae Activity 9. Caretaker Accommodation.
Notional boundary	A line 20 metres from any side of a dwelling, or the legal boundary where this is closer to the dwelling. This definition is from NZS 6802:2008.
Total sound **Or** **Ambient sound**	The totally encompassing sound in a given situation at a given time, from all sources near and far.



This definition is from NZS 6802:2008.

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