

Before the Independent Hearings Panel
at Timaru

under: the Resource Management Act 1991

in the matter of: Submissions and further submissions in relation to
Timaru Proposed District Plan – Hearing B

and: **Fonterra Limited**
Submitter 165

Statement of evidence of Rob Lachlan Hay

Dated: 5 July 2024

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STATEMENT OF EVIDENCE OF ROB LACHLAN HAY

INTRODUCTION

- 1 My full name is Rob Lachlan Hay.
- 2 I am an Associate and Director in the international acoustical consulting firm of Marshall Day Acoustics (*MDA*). I hold a Bachelor of Science and Masters of Science degree from the University of Canterbury, majoring in Chemistry.
- 3 I have worked in the field of acoustics for over 20 years. I joined MDA in 2006, and I have been involved in a number of significant large scale environmental noise assessment projects throughout New Zealand including manufacturing, transportation and retailing activities.
- 4 In recent years I have been involved in or supervised the annual noise surveys for the majority of Fonterra's manufacturing and warehousing sites nationally. I have also carried out, and more recently led the MDA team responsible for the acoustic design, consenting and commissioning of a number of large brown field and green field dairy factory developments. These include the Fonterra manufacturing sites at Edendale, Darfield and Pahiatua. I have also had oversight of MDA teams working with Fonterra on extensions and large-scale modifications of sites nationally, for projects ranging from introduction of new processing lines at existing sites, conversion of coal boilers to biomass, extension or modification of wastewater treatment plants, and noise control initiatives on older plant and equipment.
- 5 I have advised Fonterra during the review of a number of district plans with respect to appropriate noise limits, reverse sensitivity and appropriate noise rules. These Districts include Southland, Clutha, Dunedin, Waimate, Selwyn, Hurunui, Kaikoura, Marlborough, Tasman, South Taranaki and Whangarei. Much of this advice has centred on balancing the needs of what can be achieved in terms of noise control at both existing and possible new dairy factories and distribution centres, against the needs of local communities to have acceptable levels of acoustic amenity. In this context the primary focus of my work for Fonterra has been assisting in the development of a more uniform noise criteria and rules to apply nationally to their production and distribution facilities.
- 6 I am familiar with the Clandeboye site and its surrounds, having visited the site numerous times since 2004, conducted annual noise monitoring, and worked on numerous projects development and noise control projects.

CODE OF CONDUCT

- 7 Although this is a council hearing, I confirm I have read the Expert Witness Code of Conduct set out in the Environment Court's Practice Note 2023. I have complied with the Code of Conduct in preparing this evidence and I agree to comply with it while giving oral evidence before the hearing committee. Except where I state that I am relying on the evidence of

another person, this written evidence is within my area of expertise. I have not omitted to consider material facts known to me that might alter or detract from the opinions expressed in this evidence.

SCOPE OF EVIDENCE

- 8 I have been asked by Fonterra to prepare this brief of evidence to assist the Hearing Panel in relation to noise issues associated with its Clandeboye site, for the purposes of informing proposed plan provisions that, amongst other matters, are intended to address reverse sensitivity effects.
- 9 In preparing my evidence I have reviewed:
 - 9.1 Fonterra's submission in relation to the notified proposed Timaru District Plan (*PDP*).
 - 9.2 The noise provisions of the proposed Timaru District Plan.
- 10 In my evidence, I set out:
 - 10.1 A summary of my conclusions;
 - 10.2 The potential for reverse sensitivity effects in relation to noise;
 - 10.3 The existing noise environment;
 - 10.4 The relevant noise standards; and
 - 10.5 The proposed noise control boundary.

SUMMARY OF FINDINGS

- 11 My findings can be summarised as:
 - 11.1 Fonterra Clandeboye currently operates under a resource consent that permits stipulated noise levels at the notional boundary of existing dwellings. These noise levels are essentially 5 dB greater than the proposed Timaru District Plan limits.
 - 11.2 It is not possible for Fonterra to internalise its noise levels within the proposed Clandeboye Dairy Manufacturing Zone (CDMZ).
 - 11.3 Should a new or altered dwelling lawfully establish near the site, Fonterra would be unable to comply with the proposed District Plan noise standards at that dwelling's notional boundary.
 - 11.4 To prevent this reverse sensitivity effect, it would be appropriate to establish a Noise Control Boundary (NCB) around the site, along with a set of appropriate controls over noise emissions and building controls (such as sound insulation rules) on new or altered buildings (that include sensitive activities) seeking to establish within the NCB.

- 11.5 This framework would protect Fonterra's ability to operate on its established and mature site, while providing certainty to Council and the local community as to where future noise effects lie and how these will be responded to.
- 11.6 A NCB gives effect (in part) to proposed CDMZ-O2 and CDMZ-P3, which recognise that reverse sensitivity effects on the Clandeboye site must be avoided.

REVERSE SENSITIVITY

- 12 In some large scale industrial and infrastructure environments it is anticipated that activities may produce noise effects that extend beyond their own site boundary, but which are acceptable. These often necessitate appropriate land use controls at dwellings or proposed dwellings on adjoining sites.
- 13 Examples of this include ports and airports, road and rail corridors, very large industrial activities, and entertainment venues such as outdoors music, sports and motorsport venues.
- 14 The location of such activities is often selected, at least in part, to minimise the number and proximity of noise sensitive activities nearby.
- 15 A lawfully established and well-run industrial activity would be disadvantaged should a new dwelling be constructed too close to the activity or should subdivision of rural land create a higher density of dwellings where they may similarly be exposed to unacceptable noise levels. This is because of the potential for complaints arising from these new dwellings in close proximity to an existing source of noise; and a possible rise in objections for future development. Reverse sensitivity has been acknowledged as an effect by the Environment Court.
- 16 It is common practice to provide some degree of protection from this scenario by the use of building setbacks, noise control boundaries and/or sound insulation criteria. Such controls do not necessarily prevent development or subdivision on neighbouring land, but they do require certain standards (e.g. sound insulation) to be met.
- 17 As I will outline below, the existing consent for the Clandeboye site already permits noise at a level greater than the relevant District Plan performance standards beyond the zone boundaries that align with the Clandeboye site. Fonterra does not own all of this land.
- 18 For these reasons, it is appropriate to identify an area (the NCB) around the Clandeboye site that requires the relevant developer/property owner to provide appropriate sound insulation for any new noise sensitive activities to manage potentially adverse noise effects and minimise the potential for reverse sensitivity effects.

EXISTING NOISE ENVIRONMENT

- 19 The noise environment in the vicinity of the Fonterra Clandeboye site is dominated by the existing dairy factory operation and traffic on local roads – a significant proportion of which is associated with Fonterra staff and contractor vehicles, milk tankers, and incoming and outgoing freight.
- 20 MDA has conducted regular noise surveys at Fonterra Clandeboye for many years. Over this time some production lines have been permanently closed, while others have been built. Internal site layout (such as tanker parking) or site infrastructure (such as the wastewater treatment plant) has been modified. In each case Fonterra, with MDA input, has ensured that appropriate design and mitigation approaches have been used to comply with the requirements of the consent. Where major expansions have made this impracticable, affected dwellings have been purchased, and in some cases removed.
- 21 There are currently two properties at which Fonterra's noise emissions are consistently close to, or on, the night-time noise limit under the consent.
- 22 At both of these locations the dominant noise from the Clandeboye site is from the combined dryer towers (up to four operating) and energy centre. Occasional tanker movements are perceptible and at times contribute to noise experienced at one of these dwellings.

NOISE STANDARDS

- 23 In this section I will discuss the following:
 - 23.1 The consented noise limits for the Clandeboye site; and
 - 23.2 The Proposed District Plan's noise limits.
- 24 The Clandeboye site currently operates 24 hours per day for the production season. There is little difference between the daytime and night-time operating state other than a generally greater level of maintenance, contractor, export product handling, and administration activity during the daytime.
- 25 The primary purpose of daytime noise limits is to protect general community amenity by preventing significant annoyance and associated adverse health effects. The primary purpose of night-time noise limits is to preserve adequate sleep amenity. The requirement to protect both general and sleep amenity must be balanced against the needs of the community to provide for its economic wellbeing, enabling necessary businesses and services to operate, and allowing for an appropriate level of night-time activity to take place.
- 26 Where dwellings are situated within rural areas, close to transport infrastructure or industrial zones, it is normal to allow a slightly more relaxed noise standard than would be expected in areas of higher amenity, such as quiet suburbs or remote countryside locations.

Consented noise standards

- 27 The Fonterra Clandeboye site operates under resource consent 3145 which refers to the older 1991 versions of standards NZS 6801 and 6802.
- 28 The noise limits that apply under this consent are consistent with the maximum guidance limits suggested in NZS 6802:2008, other than that they are expressed using the L_{10} rather than L_{eq} parameter. For plant noise, which on dairy factories is largely constant, the resulting noise level can be considered as being the same. In close proximity to vehicle access points the L_{10} result is typically 3 dB greater than the L_{eq} result.

Proposed District Plan Noise Standards

- 29 The proposed Timaru District Plan (PDP) sets the following noise limits at the notional boundary of dwellings within the General Rural Zone (GRZ):
- (i) Daytime, 0700 to 1900 50 dB L_{Aeq} (15 min)
 - (ii) Evening, 1900 to 2200 45 dB L_{Aeq} (15 min)
 - (iii) Night-time, 2200 to 0700 40 dB L_{Aeq} (15 min) and 70 dB L_{AFmax} .
- 30 Noise is to be measured in accordance with NZS 6801:2008 and assessed in accordance with NZS 6802:2008.
- 31 The PDP requires acoustic insulation of noise sensitive activities under a range of circumstances – such as for dwellings in a residential zone within 20m of the boundary with an industrial zone.
- 32 However, no such allowance is made for dwellings in the GRUZ in proximity to the Fonterra Clandeboye site.
- 33 Should new or altered dwellings be established within the Clandeboye site's current noise emission contours, Fonterra would be unable to meet its consented noise standards.

Summary of Noise Standards

- 34 Time averaging and parameter differences aside, the degree of amenity protection afforded by all of these performance standards is very similar.
- 35 The noise limits in consent 3145 are functionally 5 dB greater than those applying in the PDP, which also includes an evening limit that is not present in the existing consent conditions.
- 36 The level of amenity provided in the consent can be considered the same as the maximum guidance in NZS 6802:2008, but not as conservative as that provided by the PDP noise standard.

FONTERRA CLANDEBOYE NOISE CONTROL BOUNDARY

- 37 MDA has built and maintained a detailed noise prediction model for the Fonterra Clandeboye site over several years. This has been used to predict the changes in noise emissions arising from proposed changes on site, and

to test the various noise mitigation strategies that have been proposed. The model has been kept current and calibrated against measurements conducted both on and around the site at critical locations by MDA staff.

- 38 The key assumptions underpinning the model are that all aspects of the plant are operating normally and that the worst-case 15-minute scenario for heavy vehicle movements (i.e. a tanker shift-change) are in progress.
- 39 This model has been used to inform the location and extent of the proposed noise control boundary (NCB).

Operational Noise

- 41 In **Figure 1** (attached), the operational peak noise scenario, I wish to draw attention to three properties close to, or within, the proposed NCB (**Figure 2**).
- 42 Firstly, the Clandeboye kindergarten to the immediate northwest of the site is only operative during daytime hours, and therefore only the 55 dB L_{A10} consented noise limit currently applies at this property. In the future the proposed 55 dB $L_{Aeq (15 \text{ min})}$ noise rating limit would apply.
- 43 Secondly, the measured noise level at 62 Clandeboye Settlement Road is in practice generally below 45 dB $L_{Aeq (15 \text{ min})}$, suggesting that our assumptions regarding intensity of tanker movements in the parking area to the north of this property are somewhat conservative.
- 44 Finally, our experience has shown that the measured noise level at 110 Donehue Road is consistently on, or very close to, the consented noise limit, as this is controlled largely by the dryer towers and energy centre, both of which generate a constant level of noise.
- 45 No existing property that is not owned by Fonterra consistently receives noise in excess of the existing 45 dB L_{A10} consented night-time noise limit, or the proposed 45 dB $L_{Aeq (15 \text{ min})}$ night-time limit at the NCB.
- 46 Other non-Fonterra dwellings that are more distant from the Clandeboye site receive noise levels consistently below the consented night-time noise limits and lie outside the proposed NCB.

Proposed NCB

- 47 In **Figure 2** (attached), the proposed regularised NCB is shown. The reasons for preferring a regularised NCB can be summarised as enhancing the practicality of enforcement, compliance monitoring, and certainty for all parties.
- 48 The proposed NCB also extends to the north-east to cover a large area of land owned by Fonterra.
- 49 At this boundary I propose a daytime noise limit of 55 dB $L_{Aeq (15 \text{ min})}$ and a night-time noise limit of 45 dB $L_{Aeq (15 \text{ min})}$ / 70 dB L_{AFmax} . These noise limits will ensure that all existing dwellings will receive noise levels that are the same as present or permitted by the current resource consent.

- 50 Should any new or altered dwellings be constructed within the NCB, I propose a sound insulation rule to prevent reverse sensitivity.
- 51 The proposed NCB supports proposed CDMZ-O2 and CDMZ-P3 which seek to avoid reverse sensitivity effects on the Clandeboye site.

CONCLUSION

- 40 Overall, I consider that the implementation of a NCB and associated reverse sensitivity controls is the most effective and appropriate method for protecting Fonterra's ability to operate and develop the Clandeboye site, while at the same time providing a transparent and robust means for accountability to the community and Council. My experience over the last decade working with sites where NCB have been established has been that outcomes have been positive for all parties.

Rob Lachlan Hay

5 July 2024

Figure 1. Predicted operational noise contour

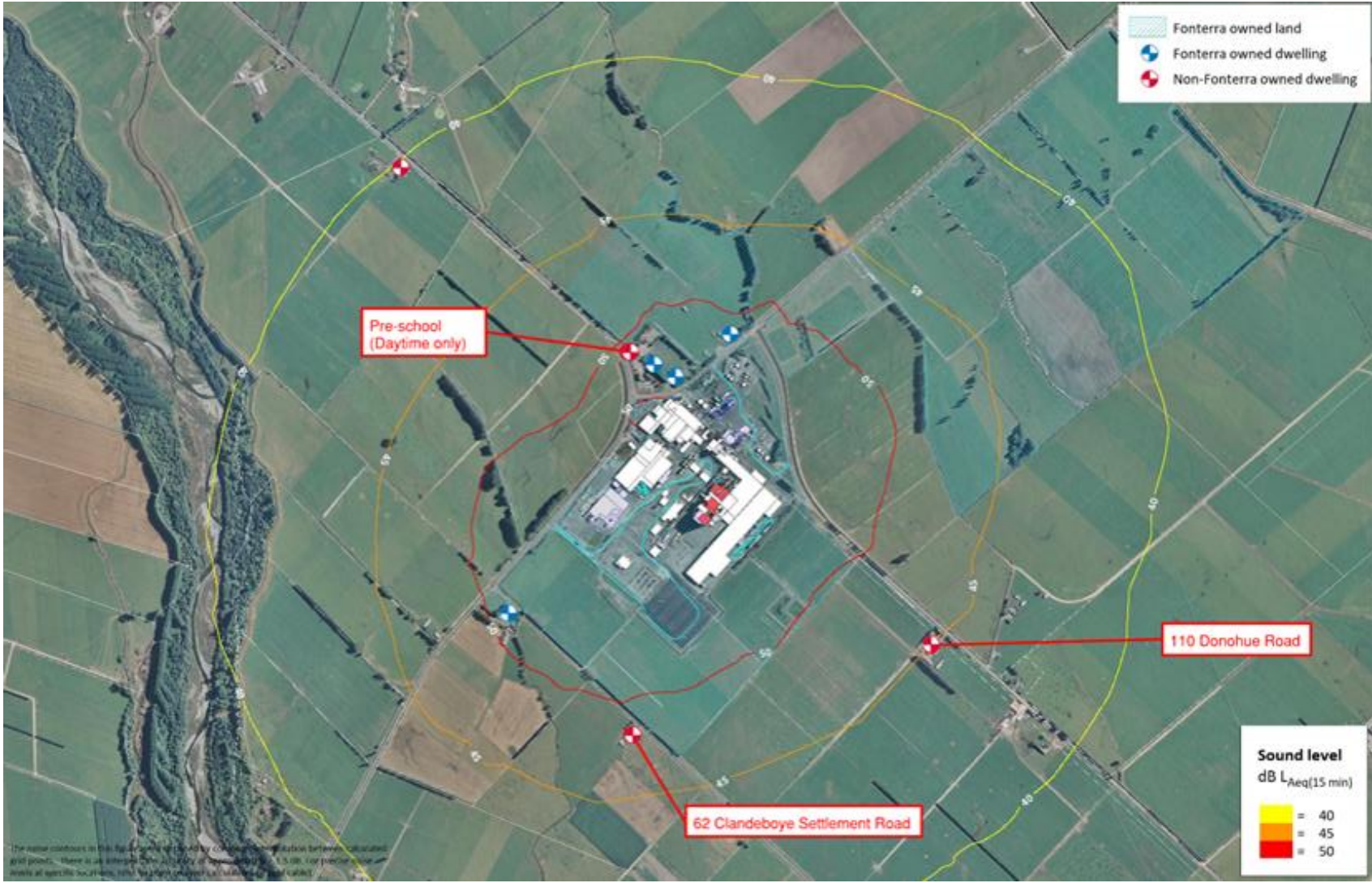


Figure 2. Proposed noise control boundary

