

**Before the Hearings Panel  
At Waimakariri District Council**

**Under**                      the Resource Management Act 1991

**In the matter of**        the Proposed Waimakariri District Plan

---

**Joint Witness Statement – NOISE-R16 and associated matters (Planning)**

**Date: 16 November 2023**

---

**INTRODUCTION:**

- 1 This Joint Witness Statement (JWS) relates to expert conferencing on NOISE-R16 and related matters on road and rail noise and vibration mitigation.
- 2 The following participants were involved in this conferencing and authored this JWS:
  - (a) Jessica Manhire for Waimakariri District Council,
  - (b) Matthew Lindenberg for Kainga Ora,
  - (c) Catherine Heppelthwaite for KiwiRail and Waka Kotahi NZ Transport Agency (Waka Kotahi),
  - (d) Stuart Pearson for Waka Kotahi.
- 3 A meeting between the above parties was held on 18 October 2023 and 13 November 2023 via MSTeams. This JWS has resulted from the meeting and discussions.
- 4 In preparing this statement, the experts have read and understand the Code of Conduct for Expert Witnesses as included in the Environment Court of New Zealand Practice Note 2023<sup>1</sup>.

**PURPOSE AND SCOPE OF CONFERENCING:**

- 5 The conferencing was focused on matters relating to NOISE-R16 and identified in Minute 9, dated 4 September 2023. This JWS also responds to matters included in the Joint Witness Statement – NOISE-R16, prepared by the acoustic experts (dated 24 October 2023).
- 6 The experts have considered the Port Otago Limited vs Environmental Defence Society Inc et al SC6/2022 while undertaking conferencing.

---

<sup>1</sup> <https://www.environmentcourt.govt.nz/assets/Practice-Note-2023-.pdf>

**ACTIONS TAKEN:**

- 7 All experts have read the Joint Witness Statement – NOISE-R16, prepared by the acoustic experts (dated 24 October 2023) and accept their expert opinion on:
- a. preference for modelled contours and where modelling is not available, setbacks;
  - b. noise provisions should apply to designated (but not yet constructed) State highways;
  - c. inclusion of internal sound levels, consequential deletion of Fixed Sound Insulation Approach and addition of an 'Approved Construction Methods' schedule;
  - d. use of 3dB as a perception threshold to forecast future road noise levels; and
  - e. providing for rail noise modelling (NOISE-R16(4)).

**MATTERS THAT THE EXPERTS AGREE ON:**

***Contours vs setbacks***

- 8 All planners agree with the acoustic experts recommendation that the use of contours is the preferred approach and that a 100-metre assessment distance from the centre of rail lines is an appropriate alternative (in the absence of a modelled contour for rail).
- 9 Mr Pearson has provided modelled contours for the roading network that is under the jurisdiction of Waka Kotahi, being the state highway network, during the caucusing. These will be provided to the panel at the same time as this JWS.
- 10 Ms Heppelthwaite confirmed KiwiRail does not have modelled contours but that she supports a fixed (100m) setback (mapped) for rail noise.

***The applicability of the rule framework to designated state highways***

- 11 We accepted the acoustic experts JWS that NOISE-R16 should apply to any designated state highway. We discussed if existing designation conditions managed effects on adjoining site and noted that they only apply to the road, and not the receiving environment. Including designated state highways ensures houses that will be built near the Woodend Bypass would be protected from noise effects.

***Ventilation***

- 12 The notified NOISE-R16 included a ventilation standard. The KiwiRail/Waka Kotahi and Kainga Ora's evidence sought different ventilation standards. We discussed the need for a ventilation standard to be simple and easy to use and have recommended a ventilation standard which we consider achieves this.

***Vibration***

- 13 All experts agree there would be no cost to mitigate vibration effects as the alert layer would not be associated with any rules but would alert landowners to the potential for adverse vibration effects.

***Should the rule be expanded to include all noise sensitive activities?***

- 14 All experts agree that NOISE-R16 should be expanded to include all noise sensitive activities.

***Should the rule be expanded to apply to alterations of noise sensitive activities?***

- 15 All experts agree rules should apply to additions and alterations of noise sensitive activities but did not agree whether there should be a threshold of extension/addition for where this would apply. This is discussed further in matters that the experts disagree on section below.

***Definition of noise sensitive activities – marae and places of worship***

- 16 We agree with the inclusion of 'marae' and 'places of worship' but note that this may have implications for other rules in the plan for noise sensitive activities. This includes the Noise Chapter rules for noise contours for Rangiora Airfield, the CIAL airport noise contours, frost fans, and the HIZ processing noise contour. There were no further submissions received on KiwiRail's submission seeking the addition of 'marae' and 'places of assembly'.
- 17 Ms Manhire advised that CIAL supported the definition and sought it be retained as notified and recommend it is amended but revisited as part of the Airport hearing as CIAL submitted on the definition.

***Is the wording of matters of discretion appropriate?***

- 18 We agree with the addition of a new matter of discretion to enable the consideration of any outcomes of consultation with Waka Kotahi and KiwiRail in the right-hand column of NOISE-R16. The specific wording is included in Ms Heppelthwaite's evidence on behalf of KiwiRail and Waka Kotahi and the Memorandum of Counsel on behalf of KiwiRail Holdings Limited.
- 19 We consider that if ventilation is included as a separate standard, that reference to ventilation should be included in NOISE-MD3 to align with the content of NOISE-R16.
- 20 We disagree with the acoustic experts that the clauses in NOISE-MD3 are redundant for NOISE-R16. Our view is that the matter of discretion is relevant only where NOISE-R16 is not complied with.

**MATTERS THAT THE EXPERTS DISAGREE ON:**

***Alterations and additions***

- 21 There was disagreement regarding whether NOISE-R16 should apply to all alterations or whether it should only apply to additions over a certain

threshold. We all do not support a threshold being a percentage increase as this would not be appropriate for all types of noise sensitive activities.

- 22 Ms Heppelthwaite gave an example (which other experts acknowledged as relevant) is a large preschool where a percentage increase would be a large area to accommodate additional children that would be impacted by noise effects.
- 23 Ms Heppelthwaite considered if the rule applied to all alterations that it would not add significantly (1% to 2% based on Waka Kotahi research) to the build cost and there would be no resource consent requirement (cost) if the rule is complied with. Ms Heppelthwaite agrees that acoustic advice / reporting would be a cost and may be required to confirm compliance in some circumstances.
- 24 Mr Lindenberg prefers a 10m<sup>2</sup> or 15m<sup>2</sup> threshold which would allow for the addition of a bedroom. Another option, rather than a threshold, is to apply the rule where a new habitable room is created.
- 25 Mr Lindenberg and Ms Heppelthwaite provided examples (Waikato and Whangarei) where previous agreement between Kainga Ora, KiwiRail and Waka Kotahi had been reached on this matter.

***Noise sensitive activity definition – removal of exclusion in clause a***

- 26 We discussed the exclusion of residential activities undertaken in conjunction with rural activities. Ms Manhire advised that the wording came from the definition of noise sensitive activities in the RPS.
- 27 Ms Manhire asked the regional council for background information on the reasoning for the wording in clause a and was advised that the date of 23 August 2008 likely came from Variation 1 that was notified to Plan Change 1 to the RPS.
- 28 Ms Manhire asked the regional council for information for how the exclusion is to be interpreted. The regional council advised that it

exempts residential activities that are in conjunction with the rural activities that complied with the district plan at that date and applies to existing or new residential activities, not one or the other. Ms Manhire considers that removing this part of the definition, as well as the exemption in (c) mentioned in the acoustic JWS, was not an amendment specified in submissions and would be inconsistent with the RPS.

- 29 Ms Heppelthwaite acknowledges the change to definition was not in the KiwiRail or Waka Kotahi submission. Ms Heppelthwaite, Mr Lindenberg and Mr Pearson consider it would be poor planning practice to exclude dwellings simply because they are associated with a rural activity.

***Strategic and arterial roads (excluding State highways)***

- 30 Ms Manhire supports all other strategic and arterial roads being mapped as they are regionally significant infrastructure under the RPS. Ms Manhire proposes mapping on the following basis:
- a. 100-metre distance from “edge of seal” for roads with speed limits of greater than or equal to 70km/hr; and
  - b. 50 metres distance from “edge of seal” for roads with a posted speed limit of less than 50km/hr.
- 31 Mr Lindenberg does not support the mapped outcome / rules proposed by Ms Manhire in relation to strategic and arterial roads.

**Date:** 16 November 2023

**Signatories**



**Jessica Manhire**  
**Planner Waimakariri District Council**



**Matthew Lindenberg**  
**Consultant Planner (Kainga Ora)**



**Stuart Pearson**  
**Planner, Waka Kotahi NZ Transport**  
**Agency**



**Cath Heppelthwaite**  
**Consultant Planner (Waka Kotahi NZ**  
**Transport and KiwiRail)**



## APPENDIX A –Planners joint witness statement on NOISE-R16 and associated matters: agreed amendments

In order to distinguish between the recommendations made in the s42A report, the Initial Reply Report (28 September 2023), and the recommendations that arise from this Joint Witness Statement (16 November 2023).

- s42A recommendations are shown in black text (with underline and ~~strike-out~~ as appropriate);
- Recommendations from the initial September 2023 Reply Report in response to evidence or corrections noted above are shown in blue text (with underline and ~~strike-out~~ as appropriate); and
- Recommendations from this Joint Witness Statement are shown in purple text (with underline and ~~strike-out~~ as appropriate).

### Noise sensitive activity definition

Amend the definition of noise sensitive activities by adding marae and places of worship.

a. [...]

d. hospitals, healthcare facilities and any elderly persons housing or complex;

e. marae and places of worship.

**Commented [CH1]:** Ms Manhire notes this change would need to be considered in future hearing streams regarding designations and airport noise..

### How to interpret and apply the rules

1. ...

3. A Rail Vibration Alert Overlay has been applied which identifies the vibration-sensitive area within 60 metres each side of the railway designation boundary as properties within this area may experience rail vibration effects. No specific district plan provisions apply in relation to vibration controls as a result of this Rail

**Commented [CH2]:** Refer JWS paragraph 13.

Vibration Alert Area. The Rail Vibration Alert Overlay is to advise property owners of the potential vibration effects but leaves the site owner to determine an appropriate response.

...

NOISE-R16	<b>Residential units and minor residential units, Noise sensitive activities within 80m of an arterial road, strategic road or rail designation</b> <b>the road and rail noise overlays</b>	
All Zones within the road and rail noise overlays	<b>Activity status: PER</b> Where: 1. any new residential unit or minor residential unit building, intended for a noise sensitive activity <sup>2</sup> , within 80m measured from the boundary of a site adjoining the road or rail designation <sup>3</sup> , shall a. be designed and constructed and maintained to achieve a minimum external and internal noise reduction of 30 dB Dtr,2m,nT,w + Ctr to any habitable room; or 2. not exceed the maximum values for meet the following maximum indoor design sound levels: i. road traffic noise within any habitable room – 40 dB LAeq(24hr); ii. rail noise inside bedrooms between 10:00pm	<b>Activity status when compliance not achieved: RDIS</b> <b>Matters of discretion are restricted to:</b> NOISE-MC <sup>4</sup> D1 - Noise NOISE-MD2 - Management of noise effects NOISE-MD3 - Acoustic insulation The outcome of any consultation with Waka Kotahi NZ Transport Agency (for state highways) or KiwiRail (for rail).

**Commented [CH3]:** Mr Lindenberg considers this should refer specifically to State highways rather than roads more generally (JWS paragraph 31)

**Commented [CH4]:** Ms Heppelthwaite considers that building alterations / additions (which increase the building footprint or change the use to a noise sensitive activity) should be included in NOISE-R16 (JWS paragraphs 21-23)

<sup>2</sup> KiwiRail [373.74]  
<sup>3</sup> Waka Kotahi [275.55], KiwiRail [373.74]  
<sup>4</sup> Minor amendment

	<p>and 7:00am – 35 dB LAeq(1h); and rail noise inside any habitable room excluding bedrooms – 40 dB LAeq(1h); <u>or</u></p> <p>b. <u>be constructed in accordance with using the list of approved constructions given in the Construction Schedule NOISE-SCHED1;</u></p> <p>2. <u>Design Report</u>  <u>Where 1(a) applies, a report is submitted to the council demonstrating compliance with clauses (1)(a) above prior to the construction or alteration of any building containing an activity sensitive to noise. In the design:</u></p> <p>a. the design for road traffic noise shall take into account future permitted use of the road, either by the addition of <u>23</u> dB to predicted sound levels or based on forecast traffic in 20 years' time;</p> <p>b. rail noise shall be deemed to be 70 dB LAeq(1h) at 12m from the edge of the track, and shall be deemed to reduce at a rate of <u>either:</u></p> <p>i. 3 dB per doubling of distance up to 40m and 6 dB per doubling of distance beyond 40m; <u>or</u></p> <p>ii. <u>as modelled by a Suitably Qualified and Experienced Acoustic Consultant using a recognised</u></p>	
--	--	--

**Commented [CH5]:** Rule 1(a) was not conferenced by acousticians. Planners refer the Panel to their evidence / s42A report for position on these provisions given the lack of additional acoustic commentary.

	<p><u>computer modelling method for freight trains with diesel locomotives, having regard to factors such as barrier attenuation, the location of the residential unit relative to the orientation of the track, topographical features and any intervening structures;</u></p> <p>3. <u>If windows must be closed to achieve the maximum indoor design sound levels in clause 1a, or if a building is constructed in accordance with NOISE-SCHED1, the building must be designed, constructed and maintained with a mechanical ventilation system that meets the requirements in NOISE-S1.</u></p> <p><u>b. the external to internal noise reduction shall be assessed in accordance with ISO 16283-3:2016 Acoustics — Field measurement of sound insulation in buildings and of building elements — Part 3: Façade sound insulation and ISO 717-1:2020 Acoustics — Rating of sound insulation in buildings and of building elements — Part 1: Airborne sound insulation.</u></p>	
	<p><b>Advisory Note</b></p> <ul style="list-style-type: none"><li>• <u>Dtr,2m,nT,w + Ctr means the weighted standardised level difference of the external building envelope (including windows, walls, roof/ceilings and floors where relevant)</u></li></ul>	

	and is a measure of the reduction in sound level from outside to inside a building. $D_{tr,2m,nT,w}+C_{tr}$ is also known as the external sound insulation level.	
<u>NOISE-S1</u>	<u>Ventilation</u>	
	<div><div><div>1. <u>Habitable rooms for a residential activity achieves the following requirements:</u><div><div>a. <u>provides mechanical ventilation which can operate continuously to satisfy clause G4 of the New Zealand Building Code; and</u></div><div>b. <u>provides at least 1 air change per hour, but no less than 7.5L/s per occupant; and</u></div><div>c. <u>provides cooling and heating that is controllable by the occupant and can maintain the inside temperature between 18°C and 25°C; and</u></div><div>d. <u>must not generate more than 35 dB LAeq(30s) when measured 1 metre away from any grille or diffuser. The noise level must be measured after the system</u></div></div></div></div></div>	<div><u>Activity status when compliance not achieved: N/A</u></div>

	<p><u>has cooled the rooms to the temperatures in (c.), or after a period of 30 minutes from the commencement of cooling (whichever is the lesser).</u></p> <p>2. <u>Alternatively, in lieu of NOISE-S1(1) above, a design verified by a suitably qualified and experienced person stating the design proposed will provide ventilation and internal space temperature controls to meet or exceed the outcomes described in NOISE-S1(1) a-d.</u></p>	
--	--	--

...

Matters of Control/Discretion

<b>NOISE-MC<sup>5</sup>D1</b>	<p><b>Noise</b></p> <ol style="list-style-type: none"><li>1. Noise duration, timing, noise level and characteristics, and potential adverse effects in the receiving environment.</li><li>2. Any effects on the health or well-being of persons living or working in the receiving environment, including effects on sleep, and the use and enjoyment of outdoor living areas.</li><li>3. The location of the noise generating activity and the degree to which the amenity values of any residential activity may be adversely affected.</li><li>4. The extent to which noise effects are received at upper levels of multi-level buildings.</li><li>5. Any proposals to reduce or modify the characteristics of noise generation, including:<ol style="list-style-type: none"><li>a. reduction of noise at source;</li></ol></li></ol>
-------------------------------	--

<sup>5</sup> Minor amendment

	<ul style="list-style-type: none"> <li>b. alternative techniques or machinery which may be available;</li> <li>c. insulation or enclosure of machinery;</li> <li>d. mounding, screen fencing/walls or landscape characteristics; and</li> <li>e. hours of operation.</li> </ul> <ol style="list-style-type: none"> <li>6. The adequacy of measures to address the adverse effects of noise on the natural character values of the coastal environment.</li> <li>7. Any adverse effects of noise on ecological values.</li> <li>8. The characteristics of the existing noise environment, and the character the objectives and policies of the zone are seeking to achieve.</li> <li>9. Any relevant standards, codes of practice or assessment methods based on recognised acoustic principles, including those which address the reasonableness of the noise in terms of community health and amenity values and/or sleep protection.</li> <li>10. <del>For temporary military training activities, the extent to which compliance with noise standards has been demonstrated by a report prepared by a suitably qualified and experienced acoustic consultant.<sup>6</sup></del></li> </ol>
<b>NOISE-MD2</b>	<b>Management of noise effects</b> <ol style="list-style-type: none"> <li>1. The extent to which effects, as a result of the sensitivity of activities to current and future noise generation from aircraft, are proposed to be managed, including avoidance of any effect that may limit the operation, maintenance or upgrade of Christchurch International Airport.</li> <li>2. The extent and effectiveness of any indoor noise insulation.</li> <li>3. The extent to which a reduced level of acoustic insulation may be acceptable due to mitigation of adverse noise effects through other means, e.g. screening by other structures, or distance from noise sources.</li> <li>4. The ability to meet acoustic insulation requirements through alternative technologies or materials.</li> <li>5. The extent to which the provision of a report from an acoustic specialist provides evidence that the level of acoustic insulation ensures the amenity values, health and safety of present and future residents or occupiers.</li> <li>6. The reasonableness and effectiveness of any legal instrument to be registered against the title that is binding on the owner and the owner's successors in title, containing a 'no complaint' clause relating to the noise of aircraft using Christchurch International Airport.</li> </ol>
<b>NOISE-MD3</b>	<b>Acoustic insulation <u>and ventilation</u></b>

<sup>6</sup> NZDF [166.21]

	<ol style="list-style-type: none"><li>1. The extent to which a reduced level of acoustic <u>and ventilation</u> insulation may be acceptable due to mitigation of adverse noise effects through other means.</li><li>2. The ability to provide effective acoustic <u>and ventilation</u> insulation through alternative technologies or materials.</li><li>3. The extent to which the provision of a report from an acoustic <u>or ventilation</u> specialist <del>which</del><sup>7</sup> provides evidence that the level of acoustic <u>or ventilation</u> insulation ensures the amenity values, health and safety of present and future occupants or residents of the site.</li><li>4. Any potential reverse sensitivity effects on other activities that may arise from residential accommodation or other noise sensitive activities that do not meet acoustic <u>or ventilation</u> insulation requirements necessary to mitigate any adverse effects of noise.</li><li>5. The location of any nearby business or infrastructure activities and the degree to which any sensitive activities may be adversely affected.</li></ol>
<b>NOISE-MD4</b>	<b>Helicopter noise</b> <ol style="list-style-type: none"><li>1. Assessment of noise in accordance with NZS 6807:1994 Noise Management and Land Use Planning for Helicopter Landing Areas and the findings of that assessment.</li></ol>

...

<sup>7</sup> CIAL [254.64]