
NOISE - Te orooro - Noise

Introduction

Noise effects require management because they can affect the health of people, natural values, and amenity values. The character, level and duration of sound, and the time at which it occurs are all factors affecting the perception of noise and how tolerable it is. This chapter contains objectives, policies and rules to manage the effects of noise for different receiving environments and activities.

This chapter does not control noise from aircraft in flight, however aircraft noise contours are used to control land uses where they may be subject to noise from aircraft using Christchurch International Airport and Rangiora Airfield. Noise from main transport routes can adversely affect residential amenity for people living nearby. Acoustic design for residential development near identified main roads and rail corridors is required to ensure noise levels within residential units do not adversely affect the health and wellbeing of occupants.

Residential Zones anticipate quiet night time conditions, as noise can disturb relaxation and sleep. Commercial and Mixed Use Zones and Industrial Zones normally have a greater tolerance for noise that reflects the working environment. The working nature of the rural environment may result in seasonal, short term or intermittent noise effects but the rural environment generally comprises low levels of noise.¹

Noise limits for the Open Space and Recreation Zones recognise the use of these areas for relaxation, and enjoyment of nature, as well as activities, such as sports, that can generate noise.

The provisions in this chapter are consistent with the matters in Part 2 - District Wide Matters - Strategic Directions and give effect to matters in Part 2 - District Wide Matters - Urban Form and Development.

Other potentially relevant District Plan provisions

As well as the provisions in this chapter, other District Plan chapters that contain provisions that may also be relevant to noise include:

- Temporary Activities: this chapter contains provisions for activities that may generate noise on a short term basis.
- Special Purpose Zone (Kāinga Nohoanga): how the Noise provisions apply in the Special Purpose Zone (Kāinga Nohoanga) is set out in SPZ(KN)-APP1 to SPZ(KN)-APP5 of that chapter.
- Any other District wide matter that may affect or relate to the site.
- Zones: the zone chapters contain provisions about what activities are anticipated to occur in the zones.

<h2>Objectives</h2>

¹ NZPork [169.29], HortNZ [295.109]. Noise s42A report.

NOISE-O1	Adverse noise effects Noise does not adversely affect human health, communities, natural values and the anticipated amenity values of the receiving environment.
NOISE-O2	Reverse sensitivity The operation of regionally significant infrastructure and strategic infrastructure, activities within Commercial and Mixed Use Zones and Industrial Zones, and/or identified-existing <u>noise generating</u> activities <u>protected by any noise control overlay</u> ² are not adversely affected by reverse sensitivity effects from noise sensitive activities.
NOISE-O3	Rangiora Airfield The avoidance of noise sensitive activities within the 65dBA and 55dBA Ldn Noise Contours for Rangiora Airfield.
Policies	
NOISE-P1	Minimising adverse noise effects Minimise adverse noise effects by: <ol style="list-style-type: none"> 1. limiting the noise level, location, duration, time, intensity and any special characteristics of noise generating activities, to reflect the function, character and amenity values of each zone; 2. requiring lower noise levels during night hours compared to day time noise levels to protect human health, natural values and <u>maintain the</u>³amenity values of sensitive environments; and 3. requiring sound insulation, or limiting the location of noise sensitive activities where they may be exposed to noise from existing activities.
NOISE-P2	Limited duration noise generating activities Enable specific noise generating activities of limited duration that are: <ol style="list-style-type: none"> 1. required for anticipated activities within zones or the District, including construction noise, audible bird scaring devices, frost control fans, temporary activities, <u>temporary military training activities</u>,⁴ and emergency services, and 2. where noise levels and characteristics are consistent with the character and amenity values of the receiving environment.
NOISE-P3	Rail and roads Protect the operation of rail and road infrastructure by identifying locations where acoustic mitigation measures for any new noise sensitive activities are required.
NOISE-P4	Airport Noise Contour Protect Christchurch International Airport from reverse sensitivity effects by: <ol style="list-style-type: none"> 1. avoiding noise sensitive activities within the 50 dBA Ldn Noise Contour by limiting the density of any residential unit or minor residential unit to a maximum of 1 residential unit or minor residential unit per 4ha, except within existing Kaiapoi Residential Zones, greenfield priority areas

² North Canterbury Clay Target Association [61.3], Daiken [145.24]. Noise s42A report/Initial Reply Report.

³ Kainga Ora [325.149]. Initial Reply Report.

⁴ NZDF [166.17]. Noise s42A report.

	<p>identified in Chapter 6 - Map A of the RPS (gazetted 6 December 2013) or any residential Development Area; and</p> <p>2. requiring noise insulation within the 50 dBA Ldn and 55 dBA Ldn Noise Contour for Christchurch International Airport.</p>
NOISE-P5	<p>Rangiora Airfield</p> <p>Avoid the development of noise sensitive activities in the Rural Lifestyle Zone within the 55dBA Ldn Noise Contour for Rangiora Airfield and prohibit noise sensitive activities within the 65 dBA Ldn Noise Contour for Rangiora Airfield.</p>
NOISE-P6	<p><u>Existing HIZ processing activity</u></p> <p><u>Protect the existing processing plant located between Upper and Lower Sefton Roads from noise sensitive activities in the Rural Lifestyle Zone within the HIZ Processing noise contour.</u>⁵</p>

Activity Rules

How to interpret and apply the rules

1. Noise standards apply to the zone or zones where noise is received. Noise from the use of public roads or railways is exempt from the provisions of the Noise Chapter.
2. Unless otherwise specified:
 - a. sound levels shall be measured in accordance with NZS 6801:2008 Acoustics - Measurement of Environmental Sound and assessed in accordance with NZS 6802:2008 Acoustics - Environmental Noise where the source of noise is within the scope of these standards; and
 - b. for the purposes of compliance with these noise standards, public roads shall not be considered as a site receiving noise.
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 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.⁶

NOISE-R1	TimberHIZ processing and ancillary activities	
Heavy Industrial Zone <u>located between Upper and</u>	<p>Activity status: PER</p> <p>Where:</p> <ol style="list-style-type: none"> 1. noise generated within the <u>TimberHIZ Processing Noise Contour</u>, as shown on the planning map, shall <u>not exceed the following standards at or</u> 	<p>Activity status when compliance not achieved: RDIS</p> <p>Matters of discretion are restricted to:</p>

⁵ Daiken [145.25]. Noise Initial Reply Report.

⁶ KiwiRail [373.74]. Joint Witness Statement – NOISE-R16 and associated matters (Planning).

<p><u>Lower Sefton Roads</u></p>	<p><u>beyond the noise control boundary:</u></p> <p>a. not exceed 45 dB LAeq outside the Timber Processing Noise Contour and shall otherwise comply with Table NOISE-2; and</p> <p>b. not exceed the following standards at or within the notional boundary of the residential unit located at 126 Beatties Road:</p> <p>i. <u>a.</u> 7:00am-7:00pm Monday to Saturday 55 dB LAeq.</p> <p>ii. <u>b.</u> 9:00am-7:00pm Sundays and Public Holidays 55 dB LAeq.</p> <p>iii. <u>c.</u> All other times 45 dB LAeq.</p> <p>iv. <u>d.</u> ⁷10:00pm-7:00am on any day 75 dB LAF(max).</p>	<p>NOISE-MC⁸D1 - Noise</p> <p>NOISE-MD2 - Management of noise effects</p> <p>NOISE-MD3 - Acoustic insulation</p>
<p>NOISE-R2</p>	<p>Temporary military training activity</p>	
<p><i>This rule does not apply to helicopter movements provided for under NOISE-R4.</i></p>		
<p>All Zones</p>	<p>Activity status: PER Where:</p> <p><u>1. Any temporary military training activity that does not involve any weapons firing and use of explosives that:</u></p> <p><u>a. do not exceed the noise limits in Table NOISE-2 by more than 5 dB. written notice shall be</u></p>	<p>Activity status when compliance with NOISE-R2 (1a), (2a) or (32c⁹) not achieved: CON</p> <p>Matters of control are restricted to: NOISE-MC¹⁰D1 - Noise</p> <p>Activity status when compliance with NOISE-R2 (2) not achieved: RDIS</p> <p>Matters of discretion are restricted to: NOISE-MD1 - Noise</p>

⁷ Daiken [145.26]. Noise s42A report.

⁸ RMA Schedule 1 clause 16(2).

⁹ NZDF [166.18]. Noise Initial Reply Report.

¹⁰ RMA Schedule 1 clause 16(2).

	<p>provided to the District Council's Manager, Planning and Regulation at least 10 working days prior to the commencement of the activity;</p> <p>2. firing of weapons and explosive events shall be undertaken no closer than 1500m to the notional boundary of any noise sensitive activity during the hours of 7:00am-7:00pm, nor within 4500m during the hours of 7:00pm-7:00am;</p> <p>3. firing of weapons and explosive events shall not exceed a noise level of 65 dB LAF(max) during the hours of 7:00am-7:00pm, nor a level of 50 dB LAF(max) during the hours of 7:00pm-7:00am;</p> <p>4. helicopter movements shall comply with NOISE-R4;</p> <p>5. noise from all other sources other than those specified in activity standards (3) to (5) shall comply with the noise limits in NOISE-R19.</p>	<p>Activity status when compliance with NOISE-R2 (4) not achieved: (Refer to NOISE-R4)</p> <p>Activity status when compliance with NOISE-R2 (5) not achieved: (Refer to NOISE-R19)</p>
	<p><u>Activity status: CON</u> <u>Where:</u></p> <p><u>2. Any temporary military training activity where there is weapons firing and/or use of explosives:</u></p> <p><u>a. that provide written notice to the District</u></p>	<p><u>Activity status when compliance with NOISE-R2 (2b¹¹) not achieved: RDIS</u> <u>Matters of discretion are restricted to:</u> <u>NOISE-MC¹²D1 - Noise¹³</u></p>

¹¹ NZDF [166.18]. Noise Initial Reply Report.

¹² RMA Schedule 1 clause 16(2).

¹³ NZDF [166.18]. Noise Initial Reply Report.

	<p><u>Council's Manager, Planning and Regulation at least 10 working days prior to the commencement of the activity including any details of separation distances and predicted sound levels; and</u></p> <p>b. <u>where firing of weapons and explosive events are undertaken no closer than 500m to the notional boundary of any noise sensitive activity during the hours of 7:00am-7:00pm, nor within 1250m during the hours of 7:00pm-7:00am; or</u></p> <p>c. <u>where the minimum separation distances specified in b. above are not met, then the activity shall comply with the following peak sound pressure level when measured at the notional boundary of any building for a noise</u></p>	
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	<p><u>sensitive activity:</u> <u>7:00am to 7:00pm: 95 dBC</u> <u>7:00pm to 7:00am: 85 dBC.</u></p>	
<p><u>Advisory Note</u></p> <ul style="list-style-type: none"> • <u>See also TEMP-R5 Temporary military training activity.</u>¹⁴ 		
<p>NOISE-R3</p>	<p>Construction work</p>	
<p>All Zones</p>	<p>Activity status: PER</p> <p>Where:</p> <ol style="list-style-type: none"> 1. noise from construction shall comply with the following maximum noise limits when assessed in accordance with NZS 6803:1999 Acoustics - Construction Noise: <ol style="list-style-type: none"> a. when received in any Residential Zones, or within the notional boundary of any Rural <u>zz</u>¹⁵ones: <ol style="list-style-type: none"> i. 7:30am - 6:00pm Monday to Saturday: 70 dB LAeq; ii. all other times: 45 dB LAeq; b. when received in any Commercial and Mixed Use Zones and Industrial Zones: <ol style="list-style-type: none"> i. at all times: 70 dB LAeq; 	<p>Activity status when compliance not achieved: RDIS</p> <p>Matters of discretion are restricted to:</p> <p>NOISE-MC¹⁶D1 - Noise</p>

¹⁴ NZDF [166.17]. Noise s42A report.

¹⁵ RMA Schedule 1 clause 16(2).

¹⁶ RMA Schedule 1 clause 16(2).

	<p>2. vibration from construction shall be assessed in accordance with DIN 4150-3:2016, Vibration in Buildings – Part 3: Effects on Structures, and shall comply with the relevant limits in Tables 1 and 4 of that standard.</p>	
<p>NOISE-R4</p>	<p>Helicopter movements</p>	
<p><i>This rule does not apply to helicopter movements at Rangiora Airfield or for emergency purposes provided for under NOISE-R5, <u>or to intermittent helicopter movements for agricultural aviation activities provided for under NOISE-R7</u>¹⁷.</i></p>		
<p>All Zones</p>	<p>Activity status: PER Where:</p> <ol style="list-style-type: none"> 1. helicopter movements shall only occur between 8:00am and 6:00pm, unless further than 450m from any residential unit or minor residential unit; 2. within 25m of any residential unit or minor residential unit, no helicopter movement shall take place, unless that residential unit or minor residential unit is on the site on which the landing or take-off occurs; 3. between 25m and 450m from a residential unit or minor residential unit not located on the same site as the activity, the number of helicopter movements on a site shall not exceed 24 in any 12 month period within which there may be a maximum of 10 in any month, or six in any week, unless that 	<p>Activity status when compliance not achieved: RDIS</p> <p>Matters of discretion are restricted to: NOISE-MC¹⁸D1 - Noise NOISE-MD4 - Helicopter noise</p>

¹⁷ NZAAA [310.1]. Noise initial Reply Report.

¹⁸ RMA Schedule 1 clause 16(2).

	residential unit or minor residential unit is on the site on which the landing or take-off occurs.	
NOISE-R5	Helicopter movements for emergency purposes	
All Zones	Activity status: PER	Activity status when compliance not achieved: N/A
NOISE-R6	Audible bird scaring devices	

<p>All Zones</p>	<p>Activity status: PER</p> <p>Where:</p> <ol style="list-style-type: none"> 1. audible bird scaring devices shall: <ol style="list-style-type: none"> a. only operate between 30 minutes before sunrise to 30 minutes after sunset; b. not exceed a maximum of six events per device per hour, where each event has a maximum of three clustered shots; c. not be used within 200m of a notional boundary of any residential unit or minor residential unit on any other site of different ownership; and d. not exceed 65 dB LAE from any one noise emission event, when assessed at any point within the notional boundary of any residential unit or minor residential unit on any site of different ownership; and e. <u>not exceed one device per 1ha of land in any single land holding.</u>¹⁹ 	<p>Activity status when compliance not achieved: RDIS</p> <p>Matters of discretion are restricted to: NOISE-MC²⁰D1 - Noise</p>
	<p>Advisory Note</p> <ul style="list-style-type: none"> • Audible bird scaring devices should have a legible notice securely fixed to the road frontage of the site in which the device is to operate stating the name, address and phone number of the person(s) responsible for 	

¹⁹ Michael John Baynes [357.1]. Noise s42A report.

²⁰ RMA Schedule 1 clause 16(2).

	the operation of the device and identify the site on which the device will operate. ²¹	
NOISE-R7	Temporary, mobile or intermittent agriculture activities emitting noise for cultivation, application of fertiliser, planting, harvesting, use of agricultural vehicles or equipment, and movement, handling and transport of livestock	
Rural Zones Special Purpose Zone (Kāinga Nohoanga) Special Purpose Zone (Pines Beach and Kairaki Regeneration)	Activity status: PER	Activity status when compliance not achieved: N/A
NOISE-R8	Operation of an emergency service facility warning device	
All Zones	Activity status: PER	Activity status when compliance not achieved: N/A
NOISE-R9	Temporary activities	
	<i>This rule does not apply to recreational jet boating activity.</i> ²²	
All Zones	Activity status: PER Where: <ol style="list-style-type: none"> between 10:00pm and 8:00am the noise limits in NOISE-R19 are met; sound amplified activities shall be restricted to a total duration not exceeding four hours per day on any site on which the 	Activity status when compliance with NOISE-R9 (1 to 3) not achieved: CON Matters of control are restricted to: NOISE-MC ²³ D1 - Noise Activity status when compliance with NOISE-R9 (4) not achieved: RDIS Matters of discretion are restricted to: NOISE-MC ²⁴ D1 - Noise

²¹ HortNZ [295.114]. Noise s42A report.

²² Jet Boating New Zealand [358.6]. Noise s42A report.

²³ RMA Schedule 1 clause 16(2).

²⁴ RMA Schedule 1 clause 16(2).

	<p>temporary activity is located, including all sound checks;</p> <p>3. sound amplified activities shall have a maximum total amplified power of 500 Watts RMS;</p> <p>4. noise from any temporary activity shall not exceed 65 dB LAeq at the notional boundary of any residential unit or minor residential unit, except fireworks displays that are limited to the hours between:</p> <ul style="list-style-type: none"> a. 9:00am to 10:00pm on any day; b. 9:00am to 11:00pm on Guy Fawkes Night or Matariki; or c. 9:00am to 01:00am on New Year's Eve/Day. 	
	<p>Advisory Note</p> <ul style="list-style-type: none"> • It is recommended that residents adjacent to an event involving amplified sound or fireworks, are notified at least 48 hours before the temporary activity commences, including: <ul style="list-style-type: none"> ○ the nature of the activity; ○ proposed dates, start and finish time and the expected times of any sound testing or practice; ○ any alternative dates in the event of postponement and; contact details of the event organiser. 	
<p>NOISE- R10</p>	<p>Wind turbine operation</p>	
<p>All Zones</p>	<p>Activity status: PER Where:</p> <ul style="list-style-type: none"> 1. the turbine has a rated generation capacity of no greater than 15kW; 2. the turbine is located no closer than 500m to the notional boundary of any residential unit or minor residential unit on any other site of different ownership; 	<p>Activity status when compliance not achieved: DIS</p>

	3. where there is more than one wind turbine, noise shall be assessed in accordance with NZS 6808:2010 Acoustics - Wind Farm Noise and comply with the limits given in that standard.	
NOISE-R11	Use of generators for emergency purposes	
All Zones	<p>Activity status: PER Where:</p> <ol style="list-style-type: none"> 1. routine testing is only undertaken between the hours of 9:00am and 5:00pm; 2. noise from the generator does not exceed the NOISE-R19 daytime (7:00am-10:00pm) noise limit at any site receiving noise. 	<p>Activity status when compliance not achieved: RDIS Matters of discretion are restricted to: NOISE-MC²⁵D1 - Noise</p>
NOISE-R12	Speedway Activities - 39 Doubledays Road, Kaiapoi	
Speedway Overlay	<p>Activity status: PER Where:</p> <ol style="list-style-type: none"> 1. a maximum of 25 events may be held in the period from 1 October to 30 April in any year; 2. a maximum of three practices may occur on the site each calendar year (that will not be assessed as an event under (1)); 3. events, except for Speedway New Zealand Allocated Championships, shall conclude by 10:30pm and have a maximum duration of 4.5 hours, not including event preparation and clean-up; 4. where a medical emergency or similar circumstance causes delay to an event, the hours of operation may be extended by up to one hour; 5. activities other than the use of the track by motor racing 	<p>Activity status when compliance with NOISE-R12 (1) to (4) not achieved: RDIS Matters of discretion are restricted to: NOISE-MC²⁶D1 - Noise Activity status when compliance with NOISE-R12 (5) not achieved: as set out in NOISE-R19</p>

²⁵ RMA Schedule 1 clause 16(2).

²⁶ RMA Schedule 1 clause 16(2).

	<p>vehicles shall comply with NOISE-R19.</p>	
<p>NOISE-R13</p>	<p>Aircraft operations at Rangiora Airfield</p>	
<p>Rural Lifestyle Zone</p>	<p>Activity status: PER Where: 1. the aircraft operation is for one of the following purposes: a. emergency medical or for national/civil defence reasons, air shows, military operations; b. aircraft using the airfield as a necessary alternative to an airfield elsewhere; c. aircraft taxiing; d. engine run-ups for each 50 hour check;²⁷ 2. for all other aircraft operations: a. noise from the aircraft operations shall not exceed 65 dBA Ldn outside the 65 dBA Ldn Airport Noise Contour, shown on the planning map; b. measurement and assessment of noise from aircraft operations at Rangiora Airfield shall be carried out in accordance with NZS 6805:1992 Airport Noise Management and Land Use Planning; c. when recorded aircraft movements at Rangiora Airfield exceed 70,000 movements per year, compliance with (1) shall be determined by calculations of noise from airfield operations and shall be based on noise data from the Rangiora Airfield Noise Model. Records of actual aircraft operations at Rangiora Airfield and the results shall be reported to the District Council's</p>	<p>Activity status when compliance not achieved: NC</p>

²⁷ RMA Schedule 1 clause 16(2).

	<p>Manager, Planning and Regulation;</p> <p>d. measurement of the noise levels at the site shall commence once aircraft operations at Rangiora Airfield reach 88,000 movements per year and shall be calculated over the busiest three-month period of the year. The measurements shall be undertaken annually while aircraft operations are at 88,000 movements or higher and the results shall be reported to the District Council's Manager, Planning and Regulation.</p>	
<p>NOISE-R14 Buildings in the 55 dBA Ldn Noise Contour for Christchurch International Airport</p>		
<p>55 dBA Ldn Noise Contour for Christchurch International Airport</p>	<p>Activity status: PER Where:</p> <ol style="list-style-type: none"> 1. any new building or any addition to an existing building for an activity listed in Table NOISE-1 within the 55 dBA Ldn Noise Contour for Christchurch International Airport, shown on the planning map, shall be insulated from aircraft noise to ensure indoor sound levels stated in Table NOISE-1 are not exceeded, when windows and doors are closed, and: <ol style="list-style-type: none"> a. noise insulation calculations and verification shall be as follows: <ol style="list-style-type: none"> i. building consent applications shall be accompanied by a report detailing calculations that show how the required sound insulation and construction methods have been determined; 	<p>Activity status when compliance not achieved: NC</p>

	<p>b. for the purpose of sound insulation calculations, the external noise levels for a site shall be determined by application of the air noise contours Ldn and LAE. Where a site falls within the contours the calculations shall be determined by linear interpolation between the contours;</p> <p>c. if required by the District Council, in conjunction with the final building inspection the sound transmission of the façade shall be tested in accordance with ISO 16283-3:2016 to demonstrate that the required façade sound insulation performance has been achieved, and a test report is to be submitted to the District Council’s Manager, Planning and Regulation. Should the façade fail to achieve the required standard then it shall be improved to the required standard and re-tested prior to occupation.</p>	
NOISE-R15	Buildings in the 55 dBA Ldn Noise Contour for Rangiora Airfield	
	This rule applies to any new residential unit, or minor residential unit addition to an existing residential unit, minor residential unit or building, or part of a building, for a noise sensitive activity.	
55 dBA Ldn Noise Contour for Rangiora Airfield	<p>Activity status: PER Where:</p> <ol style="list-style-type: none"> 1. the building shall be insulated from aircraft noise to achieve the indoor sound levels in Table NOISE-1. 	<p>Activity status when compliance not achieved: NC</p>

Table NOISE-1: Noise Contour Indoor Design Levels

		Indoor Design and Sound Level	
Building Type and Activity		dB LAE	dB Ldn
Residential Units or Minor Residential units			
Bedrooms		65	40
Other habitable room		75	50
Visitor Accommodation			
Bedrooms, living rooms		65	40
Conference meeting rooms		65	40
Service activities		75	60
Education Facilities			
Libraries, study areas, teaching areas, assembly areas		65	40
Workshops, gymnasiums		85	60
Retail Activities, Retail Services and Offices			
Conference rooms		65	40
Private offices		70	45
Open plan offices, exhibition spaces		75	50
Data processing		80	55
Shops, supermarkets, showrooms		85	60
NOISE-R16	<u>Residential units and minor residential units Noise sensitive activities within 80m of an arterial road, strategic road or rail designation the road and rail noise overlays</u> ²⁸		
All Zones Road and rail	Activity status: PER Where: <u>1. any new residential unit or minor residential unit building, intended for a noise sensitive activity,</u> ²⁹ shall	Activity status when compliance not achieved: RDIS Matters of discretion are restricted to: NOISE-MC ³⁴ D1 - Noise NOISE-MD2 -Management of noise effects	

²⁸ KiwiRail [373.74], Waka Kotahi [275.55]. Noise s42A report/ Joint Witness Statement – NOISE-R16 and associated matters (Planning).

²⁹ KiwiRail [373.74]. Noise s42A report report/Joint Witness Statement – NOISE-R16 and associated matters (Planning).

³⁴ RMA Schedule 1 clause 16(2).

<p><u>noise overlays</u></p>	<p>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 be designed and constructed to meet the following maximum³⁰ indoor design sound levels:</p> <p>i. road traffic noise within any habitable room – 40 dB LAeq(24hr);</p> <p>ii. rail noise inside bedrooms between 10:00pm and 7:00am – 35 dB LAeq(1h); and</p> <p>iii. rail noise inside any habitable room excluding bedrooms – 40 dB LAeq(1h);</p> <p>b. be constructed in accordance with the Construction Schedule NOISE-SCHED1;³¹</p> <p><u>2. 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 a noise sensitive activity. In the design:³²</u></p> <p><u>a. the design for road traffic noise shall take into account future permitted use of the road, either by the</u></p>	<p>NOISE-MD3 - Acoustic insulation <u>The outcome of any consultation with Waka Kotahi NZ Transport Agency (for state highways) or KiwiRail (for rail).³⁵</u></p>
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³⁰ KiwiRail [373.74]. Joint Witness Statement – NOISE-R16 and associated matters (Planning).

³¹ BRL [408.27]. Joint Witness Statement – NOISE-R16 and associated matters (Planning).

³² KiwiRail [373.74]. Recommendation from Joint Witness Statement – NOISE-R16 and associated matters (Planning)/Final noise Reply Report.

³⁵ KiwiRail [373.101]. Joint Witness Statement – NOISE-R16 and associated matters (Planning).

	<p>addition of 23³³ 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 either:</p> <ul style="list-style-type: none"> i. 3 dB per doubling of distance up to 40m and 6 dB per doubling of distance beyond 40m; or ii. <u>As modelled by a Suitably Qualified and Experienced Acoustic Consultant using a recognised 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</u> 	
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³³ KiwiRail [373.74]. Recommendation from Joint Witness Statement – NOISE-R16 and associated matters (Planning).

	<p style="text-align: center;"><u>any intervening structures:</u></p> <p><u>3. 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>5. the indoor design sound level shall be achieved at the same time as the ventilation requirements of the New Zealand Building Code. If windows are required to be closed to achieve the indoor design sound levels then an alternative means of ventilation shall be required within bedrooms;</p> <p>6. 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.</p>	
	<p>Advisory Note</p> <ul style="list-style-type: none"> • 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) and is a measure of the reduction in sound level from outside to inside a building. Dtr,2m,nT,w+Ctr is also known as the external sound insulation level.³⁶ 	
<p>NOISE-R17</p>	<p>Noise sensitive activities</p>	

³⁶ KiwiRail [373.74]. Joint Witness Statement – NOISE-R16 and associated matters (Planning).

<p>50dBA Ldn Noise Contour for Christchurch International Airport Limited</p>	<p>Activity status: PER Where:</p> <ol style="list-style-type: none"> 1. the activity is located within Residential Zones; or 2. any activity meets the indoor sound levels stated in Table NOISE 1, when windows and doors are closed. 	<p>Activity status when compliance not achieved: RDIS Matters of discretion are restricted to: NOISE-MD2 - Management of noise effects NOISE-MD3 - Acoustic insulation Notification An application for a restricted discretionary activity under this rule where compliance is not achieved with NOISE-R17 (1), shall be limited notified only to Christchurch International Airport Limited.</p>
	<p>Advisory Note</p> <ul style="list-style-type: none"> • Noise insulation calculations and verification shall be as follows: <ul style="list-style-type: none"> ○ Building consent applications shall be accompanied with a report detailing the calculations showing how the required sound insulation and construction methods have been determined. ○ For the purpose of sound insulation calculations, the external noise levels for a site shall be determined by application of the air noise contours Ldn and LAE. Where a site falls within the contours the calculations shall be determined by linear interpolation between the contours. <ul style="list-style-type: none"> ▪ If required by the District Council, in conjunction with the final building inspection the sound transmission of the façade shall be tested in accordance with ISO 16283-3:2016 to demonstrate that the required façade sound insulation performance has been achieved, and a test report is to be submitted to the District Council’s Manager, Planning and Regulation. Should the façade fail to achieve the required standard then it shall be improved to the required standard and re-tested prior to occupation. 	
<p>NOISE-R18</p>	<p>Bedrooms in Town Centre Zone, Local Centre Zone, Neighbourhood Centre Zone or Mixed Use Zone</p>	
<p>Town Centre Zone Local Centre Zone Neighbourhood Centre Zone Mixed Use Zone</p>	<p>Activity status: PER Where:</p> <ol style="list-style-type: none"> 1. any bedroom that forms part of residential activity or visitor accommodation must achieve an external to internal noise reduction of not less than 35 dB D tr,2m,nT,w+Ctr; 	<p>Activity status when compliance not achieved: RDIS Matters of discretion are restricted to: NOISE-MC³⁷D1 - Noise NOISE-MD2 - Management of noise effects NOISE-MD3 - Acoustic insulation Notification An application for a restricted discretionary activity under this rule where compliance is not achieved with NOISE-R18 (1) to NOISE-</p>

³⁷ RMA Schedule 1 clause 16(2).

	<p>2. 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;</p> <p>3. the indoor design sound level should be achieved at the same time as the ventilation requirements of the New Zealand Building Code. If windows are required to be closed to achieve the indoor design sound levels then an alternative means of ventilation shall be required within bedrooms that meets the ventilation requirements of the New Zealand Building Code.</p>	<p>R18 (3) is precluded from being publicly or limited notified.</p>
	<p>Advisory Note</p> <ul style="list-style-type: none"> • 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) and is a measure of the reduction in sound level from outside to inside a building. Dtr,2m,nT,w+Ctr is also known as the external sound insulation level. 	

<p>NOISE-R19</p>	<p>Activities emitting noise not otherwise covered in NOISE-R1 to NOISE-R13</p>	
<p><i><u>This rule does not apply to recreational jet boating activity.</u></i>³⁸</p>		
<p>All Zones</p>	<p>Activity status: PER Where: 1. the noise limits in Table NOISE-2 are met.</p>	<p>Activity status when compliance not achieved (where the activity exceeds the noise standards given in Table NOISE-2: Noise limits by less than 10 dB LAeq): RDIS Matters of discretion are restricted to: NOISE-MC³⁹D1 - Noise Activity status when compliance not achieved (where the activity exceeds the noise standards given in Table NOISE-2: Noise limits by 10 dB LAeq or more): NC</p>
<p>NOISE-R20</p>	<p>Operation of frost control fans</p>	
<p>Rural Zones</p>	<p>Activity status: CON Where: 1. noise from frost control fans measured at or within the notional boundary of any residential unit or minor residential unit, on a site of different ownership, shall not exceed 55 dB LAeq (10min), where: a. the noise level applies both to individual and cumulative noise from all frost control fans within 1km of the residential unit, and</p>	<p>Activity status when compliance not achieved: RDIS Matters of discretion are restricted to: NOISE-MC⁴¹D1 - Noise</p>

³⁸ Jet Boating New Zealand [358.6]. Noise s42A report.

³⁹ RMA Schedule 1 clause 16(2).

⁴¹ RMA Schedule 1 clause 16(2).

	<p>b. noise compliance shall be demonstrated by an acoustic report from a suitably qualified and experienced acoustic consultant;</p> <p>2. frost control fans shall not be located within:</p> <p>a. 300m of a residential unit or minor residential unit on a site of different ownership; or</p> <p>b. 1km of any Residential Zones;</p> <p>3. frost control fan use is limited to the period between bud burst and harvest;</p> <p>4. frost control fans shall only be operated in wind speeds up to 8km/hr and when the local air temperature is 2°C or less;</p> <p>5. operation for testing shall only take place between 7:30am and 6:00pm, Monday-Friday.</p> <p>Matters of control are restricted to: NOISE-MC⁴⁰D1 – Noise</p>	
<p><u>NOISE-RX</u></p>	<p><u>Noise sensitive activities near frost fans</u></p>	

⁴⁰ RMA Schedule 1 clause 16(2).

<p><u>General</u> <u>Rural</u> <u>Zone</u></p> <p><u>Rural</u> <u>Lifestyle</u> <u>Zone</u></p>	<p><u>Activity status: CON</u></p> <p><u>Where:</u></p> <p><u>1.Any new noise sensitive activity located on a separate site of different ownership within 1000m of any frost control fan must be designed and constructed to ensure that the noise level inside any bedroom of the dwelling will not exceed 30 dB LAeq with all fans operating at normal duty.</u></p> <p><u>2.Compliance with this standard must be demonstrated by the production of a design certificate from an appropriately qualified and experienced acoustic engineer. The design certificate must be based either on actual noise measurements with all fans operating at normal duty, or on an assumed noise level from any one frost fan,</u></p>	<p><u>Activity status when not achieved: RDIS</u></p> <p><u>Matters of discretion are restricted to:</u></p> <p><u>NOISE-M⁴²C⁴³D1 - Noise</u></p> <p><u>NOISE-MD3 - Acoustic insulation⁴⁴</u></p>
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⁴² HortNZ [295.115]. Noise s42A report.

⁴³ RMA Schedule 1 clause 16(2).

⁴⁴ HortNZ [295.115]. Noise s42A report.

	<p><u>corrected for the number of fans present at the time.</u></p> <p><u>Matters of control are restricted to:</u></p> <p><u>NOISE-MCD1 - Noise</u></p> <p><u>NOISE-MD3 - Acoustic insulation</u></p>	
NOISE-R21	Noise sensitive activities	
Timber HIZ ⁴⁵Processing Noise Contour	<p>Activity status: RDIS Matters of discretion are restricted to: NOISE-MC⁴⁶D1 - Noise NOISE-MD3 - Acoustic insulation</p>	Activity status when compliance not achieved: N/A
NOISE-R22	Residential unit or minor residential unit	
Speedway Noise Contour	<p>Activity status: NC</p> <p>Where:</p> <p>1. the activity is located in the Speedway Noise Contour.</p>	Activity status when compliance not achieved: N/A
NOISE-R23	Residential units, minor residential units or noise sensitive activities	

⁴⁵ Daiken [145.66]. Noise s42A report.

⁴⁶ RMA Schedule 1 clause 16(2).

65 dBA Ldn Noise Contour for Rangiora Airfield	Activity status: PR Where: 1. the activity is located in the 65 dBA Ldn Noise Contour for Rangiora Airfield.	Activity status when compliance not achieved: N/A
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Table NOISE-2 Noise limits

	Maximum noise level at or within the boundary ¹ of any site receiving noise from the activity, where the site receiving noise is zoned		
	Daytime 7:00am-10:00pm	Night-time 10:00pm-7:00am ⁴⁷	
Residential Zones	50 dB LAeq	40 dB LAeq	70 dB LAF(max)
Special Purpose Zone (Hospital), Special Purpose Zone (Pines Beach and Kairaki Regeneration), Special Purpose Zone (Kāinga Nohoanga)	50 dB LAeq	40 dB LAeq	70 dB LAF(max)
Local Centre Zone, Neighbourhood Centre Zone	60 dB LAeq	40 dB LAeq	70 dB LAF(max)
Open Space Zone, Sport and Active Recreation Zone, Special Purpose Zone (Kaiapoi Regeneration), Special Purpose Zone (Pegasus Resort)	55 dB LAeq	45 dB LAeq	75 dB LAF(max)
Town Centre Zone, Mixed Use Zone	60 dB LAeq	50 dB LAeq	80 dB LAF(max)
Light Industrial Zone	65 dB LAeq	55 dB LAeq	
Large Format Retail Zone, General Industrial Zone	60 ⁵ dB LAeq	50 ⁵ dB LAeq	

⁴⁷ RMA Schedule 1 clause 16(2).

⁴⁸ Woolworths [282.142]. Noise s42A report.

Heavy Industrial Zone, <u>except as provided for in NOISE-R1</u> ⁴⁹	65 dB LAeq	55 dB LAeq	
Special Purpose Zone (Museum and Conference Centre)	65 dB LAeq	55 dB LAeq	
Rural Zones, Natural Open Space Zone ¹ For sites in Rural Zones the boundary is the notional boundary	50 dB LAeq	40 dB LAeq	65 dB LAF(max)

Noise standards

<u>NOISE-S1</u>	<u>Ventilation</u>	
	<p><u>1. Habitable rooms for a residential activity, achieves the following requirements:</u></p> <ul style="list-style-type: none"> a. <u>provides mechanical ventilation which can operate continuously to satisfy clause G4 of the New Zealand Building Code; and</u> b. <u>provides at least 1 air change per hour, but no less than 7.5L/s per occupant; and</u> 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> 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 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><u>2. 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</u></p>	<p><u>Activity status when compliance not achieved: N/A</u></p>

⁴⁹ Daiken [145.27]. Noise s42A report.

meet or exceed the outcomes described in NOISES1(1) a-d.⁵⁰

Advice Notes

NOISE-AN1	<ol style="list-style-type: none"> 1. Activities and structures may also be subject to controls outside the District Plan. Reference should also be made to any other applicable rules or constraints within other legislation or ownership requirements including excessive noise provisions of the RMA. 2. National Environmental Standards operate in parallel to or in conjunction with the District Plan, including the NESPF. Section 98 of the NESPF regulates noise and vibration for forests greater than 1ha that has been planted specifically for commercial purposes and will be harvested.
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Matters of Control/Discretion

NOISE-MC⁵¹D1	<p>Noise</p> <ol style="list-style-type: none"> 1. Noise duration, timing, noise level and characteristics, and potential adverse effects in the receiving environment. 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. 3. The location of the noise generating activity and the degree to which the amenity values of any residential activity may be adversely affected. 4. The extent to which noise effects are received at upper levels of multi-level buildings. 5. Any proposals to reduce or modify the characteristics of noise generation, including: <ol style="list-style-type: none"> a. reduction of noise at source; b. alternative techniques or machinery which may be available; c. insulation or enclosure of machinery; d. mounding, screen fencing/walls or landscape characteristics; and e. hours of operation. 6. The adequacy of measures to address the adverse effects of noise on the natural character values of the coastal environment. 7. Any adverse effects of noise on ecological values. 8. The characteristics of the existing noise environment, and the character the objectives and policies of the zone are seeking to achieve. 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. 10. 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.⁵²
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⁵⁰ KiwiRail [373.74]. Joint Witness Statement – NOISE-R16 and associated matters (Planning)/Final Reply Report.

⁵¹ RMA Schedule 1 clause 16(2).

⁵² NZDF [166.21]. Noise s42A report.

<p>NOISE-MD2</p>	<p>Management of noise effects</p> <ol style="list-style-type: none"> 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. 2. The extent and effectiveness of any indoor noise insulation. 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. 4. The ability to meet acoustic insulation requirements through alternative technologies or materials. 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. 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.⁵³
<p>NOISE-MD3</p>	<p>Acoustic insulation</p> <ol style="list-style-type: none"> 1. The extent to which a reduced level of acoustic insulation may be acceptable due to mitigation of adverse noise effects through other means. 2. The ability to provide effective acoustic insulation through alternative technologies or materials. 3. The extent to which the provision of a report from an acoustic specialist which⁵⁴ provides evidence that the level of acoustic insulation ensures the amenity values, health and safety of present and future occupants or residents of the site. 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 insulation requirements necessary to mitigate any adverse effects of noise. 5. The location of any nearby business or infrastructure activities and the degree to which any sensitive activities may be adversely affected.
<p>NOISE-MD4</p>	<p>Helicopter noise</p> <ul style="list-style-type: none"> • 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.

Schedules

NOISE-SCHED1 – Construction Schedule

<p><u>Applicability</u></p>	
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⁵³ CIAL submission point [254.63]. Airport Noise Contours and Bird Strike s42A report.

⁵⁴ CIAL [254.64]. Noise s42A report/ Airport Noise Contours and Bird Strike s42A report.

	<p><u>Construction requirements detailed in this appendix are only applicable where:</u></p> <ol style="list-style-type: none"> 1. <u>The road(s) passing the building containing the noise sensitive activity has/have a posted speed limit of less than or equal to 60 km/hr,</u> 2. <u>The building is a single level construction,</u> 3. <u>The floor of the building is a reinforced concrete slab,</u> 4. <u>No habitable room of the building is located less than 4.5 metres from the road boundary,</u> 5. <u>The total area of glazing in any habitable room is no greater than 20% of the total area of external walls of that room.</u> 6. <u>The roof of the building is a standard timber truss design, with a pitch of not less than 15 degrees and horizontal ceiling. Ventilation of the roof space must only be via casual ventilation typical of the jointing, capping and guttering detail used in normal construction.</u> <p><u>In all other situations, a design report from a suitably qualified acoustics specialist is required.</u></p>
<u>Construction Options</u>	
<u>Exterior Walls Option 1</u>	<p><u>Exterior cladding of brick, Aerated Concrete or similar, with a surface mass not less than 27 kg/m².</u></p> <ul style="list-style-type: none"> • <u>Timber or steel framing of not less than 90 mm, with studs at 600 mm centres. A ventilated cavity is not required for noise control purposes under this option but is permissible, with or without a rigid air barrier,</u> • <u>Fibrous insulation of minimum R2.6. This includes fibreglass, polyester and wool, but does not include polystyrene or other foam sheet insulation products,</u> • <u>1 layer of 10 mm thick Standard Gib board or alternative gypsum board having a surface mass not less than 6 kg/m².</u>
<u>Exterior Walls Option 2</u>	<p><u>Exterior cladding of Profiled sheet steel not less than 0.4 mm thick, or profiled aluminium not less than 1.3 mm thick, or treated pine weatherboards not less than 19mm thick.</u></p> <ul style="list-style-type: none"> • <u>Battens forming a ventilated cavity not less than 18mm deep,</u>

	<ul style="list-style-type: none"> • <u>Rigid air barrier consisting of Plywood not less than 9 mm thick or Fibre Cement not less than 4 mm thick, or alternative sheet product having a surface mass not less than 5 kg/m².</u> • <u>Timber or steel framing of not less than 90 mm, with studs at 600 mm centres.</u> • <u>Fibrous insulation of minimum R2.6. This includes fibreglass, polyester and wool, but does not include polystyrene or other foam sheet insulation products.</u> • <u>2 layers of 10 mm thick Standard Gib board or alternative gypsum board, each layer having a surface mass not less than 6 kg/m².</u>
<p><u>Exterior Walls</u> <u>Option 3</u></p>	<p><u>Exterior cladding of Fibre Cement weatherboards, with a surface mass not less than 18 kg/m².</u></p> <ul style="list-style-type: none"> • <u>Battens forming a ventilated cavity not less than 18 mm deep.</u> • <u>Rigid air barrier consisting of Plywood not less than 7 mm thick or Fibre Cement not less than 4 mm thick, or alternative sheet product having a surface mass not less than 3.8 kg/m².</u> • <u>Timber or steel framing of not less than 90 mm, with studs at 600 mm centres.</u> • <u>Fibrous insulation of minimum R2.6. This includes fibreglass, polyester and wool, but does not include polystyrene or other foam sheet insulation products.</u> • <u>2 layers of 10 mm thick Standard Gib board or alternative gypsum board, each layer having a surface mass not less than 6 kg/m².</u>
<p><u>Glazing and Exterior doors - All options</u></p>	<ul style="list-style-type: none"> • <u>Windows to consist of double glazing consisting of 2 layers of glass not less than 4 mm thick, separated by an airgap of not less than 12 mm, with full perimeter seals.</u> • <u>External doors to be either double glazed to the same standard as windows, or be a solid panel construction with a surface mass not less than 24 kg/m² and incorporating full perimeter seals.</u>

<u>Roof – All Options</u>	<ul style="list-style-type: none">• <u>Profiled metal roofing not less than 0.4 mm thick, in either sheet or tile form,</u>• <u>Fibrous insulation of minimum R6 within the ceiling cavity. This includes fibreglass, polyester and wool, but does not include polystyrene or other foam sheet insulation products.</u>• <u>2 layers of 13 mm Standard Gib board or alternative gypsum board, with each layer having a surface mass not less than 8 kg/m².</u>⁵⁵
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⁵⁵ BRL [408.27]. Noise Final Reply Report.