Proposed Plan Change 55:
District Wide Rules

Hearing Report

Appendix 4
IN THE MATTER OF The Resource Management Act 1991
A N D
IN THE MATTER OF Manawatu Sectional Plan Review:

Proposed Plan Change 55

STATEMENT OF EVIDENCE OF NIGEL ROBERT LLOYD

Introduction

1. My name is Nigel Robert Lloyd. I am an acoustical consultant with Acousafe Consulting & Engineering Limited, a position I have held for over 30 years.
2. I have a degree in mechanical engineering gained at the University of Wales, University College Cardiff in 1976.
3. Prior to my current position, I was employed by the Industrial Acoustics Company in the UK as an acoustical consultant between 1977 and 1980 and then spent five years as the Department of Labour noise control engineer in New Zealand, advising the safety inspectorates on occupational noise management and control. I have a total of 39 years’ experience as a noise control engineer/acoustical consultant.
4. I am a Member of the Acoustical Society of New Zealand and I have completed a ‘Making Good Decisions’ course.
5. I have advised Manawatu District Council on the District Plan noise reviews since 2013. I have reviewed the District Plan noise issues in two parts. Part 1 dated 29 April 2016 reviewed the Operative District Plan noise rules and made recommendation for updating the rules to reflect the latest New Zealand Standards and the appropriate limits that should apply. Part 1 is most relevant to PC 55.
6. Part 2 is still in draft form and deals with Special Rural Activities such as future wind farms, quarrying, and noisy rural activities such as frost fans, helicopters and audible bird scaring devices. These aspects will be more relevant to the review of the Rural Zone, which will take place separately.
7. I have advised a number of Councils during District Plan reviews going back to the early 1990s.
8. I confirm that I have read the ‘Code of Conduct for Expert Witnesses’ contained in the Environment Court Practice Note 2014. My evidence has been prepared to comply with that Code and I have not omitted to consider material facts known to me that might alter or detract from the opinions I express.

The Scope of My Evidence

9. I have been instructed by Council to only review and address specific submissions on noise for PC55. The objective, policies and rules that are of relevance are:

Chapter 3C – Noise

- Overall chapter
- New Policy
- Policy 1.1
- Rule 3C.4.1
- Rule 3C.4.2

Chapter 3F – Temporary Activities

- Policy 1.2

10. The submissions deal with the following matters:

a. Reverse Sensitivity for State Highway noise (NZTA - S7/003) and generally (Oil Companies\(^1\) - S21/006),
b. Provision for rural production activities in the Rural area (Horticulture New Zealand - S23/012, 013 & 14) & (Federated Farmers - S1/011),
c. Apply Rural noise limits at the notional boundary rather than the site boundary (New Zealand Defence Force - NZDF – S8/010),
d. Relax the Residential/Village Zone noise limits (Spark - S17/028 & Chorus New Zealand Limited - S18/029),
e. Allow temporary activity noise to have greater impacts (Powerco - S16/057), (Oil Companies - S21/014),
f. Provide for Temporary Military Training Activity (New Zealand Defence Force - S8/012)

\(^1\) Z Energy Ltd, BP Oil NZ Ltd, Mobile Oil NZ Ltd
Reverse Sensitivity (State Highway Noise)

Submission S7/003- NZTA

11. The submission requests that reverse sensitivity provisions for noise are included in Section (3C) of the District Plan. This provision would apply where the State Highway speed environment is 70km or greater.

12. I considered the NZTA submission in Acousafe’s report dated 29 April 2016. I agree that sensible reverse sensitivity controls are appropriate in the Rural Zone of the District but not in the Residential and Village Zones. The issue with these Zones is that significant development has already taken place alongside roads where the speed limit equals or exceeds 70 km/hr, where the reverse sensitivity controls would apply.

13. The NZTA submission follows the latest guidelines for controlling reverse sensitivity impacts on State Highways. These guidelines seek to ensure that reverse sensitivity is efficiently managed by local authorities by:
   • imposing separation and setback distances between sensitive activities and the road edge;
   • encouraging non-sensitive land use to separate residential or other sensitive activities from major transport corridors;
   • adopting effective urban design principles and acoustic treatment performance standards within district plans;
   • requiring design and construction standards to achieve appropriate internal noise and vibration levels within effects areas.

14. The Transport Agency policy has two main elements: setbacks and acoustic treatment of buildings, which are addressed in a Buffer Area and Effects Area respectively. These two areas are defined by distances from the edge of the carriageway.

15. The recommended Rules from the Guide are:

   A. New buildings or alterations to existing buildings containing noise sensitive activities must be at least 40 metres from the edge of the state highway carriageway and there is an existing solid and continuous building, fence, wall or landform that blocks the line of sight from all parts of all windows and doors to the new or altered habitable spaces to any part of the road surface of the state highway. This excludes unaltered existing spaces.

B. New buildings or alterations to existing buildings containing noise sensitive activities, in or partly in the state highway buffer area must be designed, constructed and maintained to achieve road-traffic vibration levels complying with class C of NS 8176E:2005.

C. New buildings or alterations to existing buildings containing noise sensitive activities, in or partly in the state highway buffer area or effects area must be designed, constructed and maintained to achieve the indoor design noise levels from road-traffic set out in the table below (which is copied from the NZTA Guide).

<table>
<thead>
<tr>
<th>BUILDING TYPE</th>
<th>OCCUPANCY/ACTIVITY</th>
<th>MAXIMUM INDOOR DESIGN NOISE LEVEL L_Aeq(24h)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Residential</td>
<td>Living spaces, sleeping spaces (including visitor accommodation and retirement accommodation)</td>
<td>40 dB</td>
</tr>
<tr>
<td>Education</td>
<td>Assembly halls</td>
<td>35 dB</td>
</tr>
<tr>
<td></td>
<td>Conference rooms, drama studios</td>
<td>40 dB</td>
</tr>
<tr>
<td></td>
<td>Lecture rooms and theatres, music studios</td>
<td>35 dB</td>
</tr>
<tr>
<td></td>
<td>Libraries</td>
<td>45 dB</td>
</tr>
<tr>
<td></td>
<td>Sleeping areas in educational facilities</td>
<td>40 dB</td>
</tr>
<tr>
<td></td>
<td>Teaching areas</td>
<td>40 dB</td>
</tr>
<tr>
<td>Health</td>
<td>Overnight medical care, wards</td>
<td>40 dB</td>
</tr>
<tr>
<td></td>
<td>Clinics, consulting rooms, theatres, nurses' stations</td>
<td>45 dB</td>
</tr>
<tr>
<td>Cultural buildings</td>
<td>Places of worship, inare</td>
<td>35 dB</td>
</tr>
</tbody>
</table>

16. The NZTA Guide is more applicable to busier state highway gateways into larger cities, for example, where continuous fencing along the route can help to mitigate the noise. These rules are less appropriate for state highways in the Manawatu, such as beside Kimbolton Road.

The following plan shows a 200 metre set-back along the 70-80km/hr section of Kimbolton Road and illustrates the level of residential development that has already occurred.
17. The reverse sensitivity controls cannot apply to existing dwellings and treating any new dwellings and alterations to existing dwellings will not provide NZTA with the protection against reverse sensitivity impacts they desire for this section of road. This impact already exists for Kimbolton Road because the sections are
all well-developed relatively close to the highway and there are few (if any) empty sections. With access driveways and the variation in ownership along the route there is no chance of having a ‘continuous building, fence, wall or landform that blocks the line of sight’ as provided for in the NZTA recommended rules.

18. Council has studied the proliferation of different ‘valuations’ within 200 metres of State Highways. There are three residential areas; one in Feilding on Kimbolton Rd, one at Cheltenham and another at the Himatangi Beach Rd / SH1 Junction.

19. There are nearly 100 residential units in these three areas and 9 empty sections, of which only a few are likely to be developed for new dwellings.

20. While I support the protection of state highways from reverse sensitivity effects, it is clearly not worthwhile to provide for noise insulation and ventilation of new dwellings in residential/township zones in the Manawatu District given that there are so few empty sections.

21. With respect to requiring that additions to existing dwellings in the Residential/Village Zone be noise insulated, I do not consider that this will make a significant difference to the protection of the state highway from reverse sensitivity effects. Noise insulating the additions makes no difference to the existing buildings and there are practical difficulties in constructing and ventilating new parts of each dwelling in a different manner to the existing dwelling.

22. I agree that a provision for noise insulation and ventilation should be made in the Rural Zone but I have concerns about what the buffer distance should be (as I discussed in Acousafe’s Part 1 report).

23. My recommendation is that the NZTA reverse sensitivity rules only be placed within the Rural Zone and not in the Residential/Village Zones. As such, these rules should be considered at the time the Rural Zone is reviewed.

24. The NZTA guide also sets out recommendations for ventilation which include a requirement for the need to meet clause G4 of the New Zealand Building Code, a sound limit for the ventilation, minimum air change rates, and the need to provide cooling that is able to be controlled by the occupant to ensure that the temperature does not get to more than 25°C.
25. I have no specific expertise in mechanical ventilation (other than controlling the noise from it), but rather than providing for a suite of ventilation requirements that would not normally be within the jurisdiction of Council e.g. internal sound levels from the system, temperature requirements and the ability to incrementally control the airflow, I suggest that consideration be given to a basic ventilation design provision (limited to the number of air changes) that has been successful in other District Plans. The ventilation is only required to substitute for (not) opening a window.

26. I included a simplified version of the NZTA rule for inclusion in the Rural Zone Section of the District Plan which can be considered at the appropriate time.

27. This suggested Rule would only apply to the Rural Zone where the speed limit is 70 km/hr or more and is as follows:

**Acoustic Insulation and Setbacks for State Highways**

(i) All dwellings constructed within 80 metres of the carriageway edge of a State Highway shall be designed, constructed and maintained in accordance with a design report prepared by a suitably qualified and experienced acoustical engineer stating that the design as proposed will achieve compliance with an internal noise level of 40dB L_{Aeq(24hr)} in habitable rooms.

Provided that no residential building is constructed within 40 metres of the carriageway edge of the State Highway.

(ii) Where bedrooms with openable windows are proposed in buildings requiring acoustic insulation, a positive supplementary source of fresh air ducted from outside is required at the time of fit-out. For the purposes of this requirement, a bedroom is any room intended to be used for sleeping. The supplementary source of air is to achieve a minimum of 7.5 litres per second per person.

(iii) For all other developments, compliance shall be achieved with the satisfactory design guidelines given in AS/NZS 2107:2000: Acoustics – recommended design sound level and reverberation times for building interiors.

28. The provisions above will be further reviewed and updated during the preparation of the Rural Plan Change.
29. I recommend that the NZTA submission is declined as it seeks to apply reverse sensitivity controls to State Highways in the Residential and Village Zones.

**Reverse Sensitivity (General)**

*Submission S21/006 - Z Energy Ltd, BP Oil NZ Ltd, Mobile Oil NZ Ltd*

30. The submission seeks to make it clear that, in accordance with the policy approach in the Industrial Zone, there will be higher noise levels in some zones and, in those zones, noise level standards will not be set to protect noise sensitive activities. The submission points out that industries can operate during night time hours (in some cases 24 hours a day) and at higher levels than would otherwise be allowed in other zones where noise sensitive activities are anticipated. Amendment to Policy 1.1 is sought to clarify that noise sensitive activities should not expect to be protected from night-time noise in those zones where noise sensitive activities are not anticipated.

31. While I agree with the sentiment of this submission, I consider that the change sought by the submitter would be too far ranging in its impact if it was to be included in the general noise section (3C.3 Objectives and Policies (Policy 1.1)). The main issue with such a policy is that there is no definition of which zones the policy would be referring to. If such a change was to occur then it would be best inserted in the Zone for which it is intended i.e. the Industrial Zone. It should not apply to the Rural Zone for example and could be misinterpreted in relation to that Zone.

32. The Industrial Zone already actively discourages noise sensitive activities from establishing (dwellings are non-complying activities) and the policy change sought by this submission would not be appropriate in any other zone where noise sensitive activities are permitted.

33. The draft Industrial Zone policy (16.3.1.2) is to avoid the establishment of non-industrial activities within the Industrial Zone.

34. I recommend that this submission be declined in respect to the inclusion of a general provision policy to require noise sensitive activities to avoid locating in zones where higher noise levels are anticipated unless they provide adequate noise insulation. The District Plan specifically controls activities in Zones through the permitted activity list i.e. does not permit dwellings in the Industrial Zone.
Zone. The general nature of such an addition would add a layer of complexity for other Zones (such as Rural) that is unnecessary.

**Noise in the Rural Zone**

**Submission S23/012 - Horticulture New Zealand**

35. This submitter seeks that there be a policy that ensures that noise generated by rural production activities is accepted as part of the rural environment. This will provide a policy framework for the exemption for rural production activities from the noise limits.

36. There is provision under 3C.4.1(c) for rural production activities (except for intensive farming) to not be controlled by the noise limits in Table 3C.1 and I agree that it would be appropriate to provide for a policy framework for this.

37. The submitter seeks for the words “To provide for noise associated with rural production activities in the rural zone” to be included as a policy and I consider it appropriate that this be included as a new policy under 3C.3 Objectives and Policies (Objective 1).

38. I recommend that the submission be accepted in this respect.

**Submission S1/011 - Federated Farmers**

39. This submitter seeks to amend the times associated with noise limits in Table 3C.1 to provide for intensive farming activities. It is common for intensive farming activities to begin outside of 'normal business or activity hours'. Federated Farmers submits that the permitted time period provided for in Table 3C.1 be amended to enable these activities.

40. The submitter seeks that the time period 10pm to 7am be amended to 10pm to 5am for the Rural Zone and that therefore the daytime zone is consequently amended to start at 5am (5am to 7pm).

41. The issue with applying the daytime noise limit at 5am is the noise limit of 55 dB $L_{Aeq(15\ mins)}$ does not protect against sleep disturbance. In addition, the night-time $L_{Amax}$ provision would cease at this time.

42. The submitter refers to intensive farming activities as being required to meet the noise limits. While that is true, the limits also form the permitted baseline against which all other activities that might establish in the Rural Zone would be judged.
This might be anything from contractors’ depots to factories to distribution centres.

43. By changing the night-time hours to cease at 5am provides for sleep protection to cease at that time. This only allows 7 hours sleep protection (10pm to 5am) which, in my opinion, is unacceptable. The time of 7am is a reasonable hour (some would say too early) to protect the rural community against the start-up of a noisy neighbouring activity.

44. For that reason, I recommend that this submission be declined in this respect and that the night-time period be retained up until 7am.

Submission S23/013 - Horticulture New Zealand

45. This submitter considers that the wording of 3C.4.2 Standards for Permitted Activities (d - iv) would be better to state that the activities are exempt from the requirements, rather than not controlled by.

46. Horticulture NZ also seeks that it be made clear that helicopter landing areas and rural airstrips are part of rural production activities and so are included in 3C.4.2(d – iv) and would not therefore be controlled by the limits in Table 3C.4.2.

47. With respect to the use of the word “exempt” rather than “not controlled by” the words “not controlled by” have been carefully selected. The use of the word “exempt” has previously been interpreted as meaning that there are no controls on the activities which are identified i.e. they are completely exempt. Therefore, rural production activity could operate at any time of the day or night with no limit on the noise or no requirement to control the noise.

48. This is not however the case because there are sections of the RMA that control unreasonable (s16) and/or excessive noise (s327). Section 16 of the RMA requires that the best practicable option (BPO) must be adopted to ensure that noise does not exceed a reasonable level.

49. While the noise is not controlled by the limits in Table C3.1, rural production activity is not exempt from being controlled if the noise is unreasonable or if it can be reduced using the BPO.

50. With respect to the helicopter landing areas and rural airstrips these can cause a significant noise nuisance and are appropriately controlled by reference to
NZS 6805\textsuperscript{3} and NZS 6807\textsuperscript{4}. The difference here is between the occasional use of a paddock purely for agricultural use and the establishment of a rural airstrip for regular use by aircraft and helicopters. The latter could have a significant impact on residential neighbours and the noise needs to be controlled.

51. I therefore recommend that the submission be declined in these respects.

\textit{Submission S23/014 - Horticulture New Zealand}

40. This submission seeks that 3C.4.2 Standards for Permitted Activities (Guidance Note 2) should also clarify that intermittent use for rural production activities is included in the “exemptions”. Rural production activities are not controlled by the District Plan noise rules and this already includes intermittent use if it can be shown that it is for rural production activities, including use by top dressing planes and helicopters. As stated above, I disagree that helicopter landing areas and rural airstrips \textit{per se} should be given exemption from the need to be assessed using the relevant New Zealand Standards and as such I recommend that this part of the submission is declined.

\textbf{Noise in the Rural Zone – The Notional Boundary}

\textit{Submission S8/010 NZDF}

52. This part of the NZDF submission identifies that Table 3C.1 states that the potentially affected zone is to be measured at any point within the boundary of any other site in the zone. However, the notional boundary is the generally accepted approach to applying the relevant noise limits and there is no robust rationale provided to deviate from this.

53. In my Part 1 report dated 29 April 2016 I explained why the use of notional boundary concept is poor as a future planning tool because it does not protect land in a situation where an owner has the existing right to build a new noise sensitive activity, such as a dwelling.

54. The notional boundary is defined in NZS 6801:2008\textsuperscript{5} as “\textit{a line 20 metres from any side of a dwelling or the legal boundary where this is closer to the dwelling}”.

\textsuperscript{3} NZS 6805:1992 \textit{Airport Noise Management and Land Use Planning}

\textsuperscript{4} NZS 6807:1994 \textit{Noise Management and Land Use Planning for Helicopter Landing Areas}

\textsuperscript{5} NZS 6801:2008 \textit{Acoustics – Measurement of Environmental Sound}
55. It is a common law principal⁶ that there is no defence that the plaintiff has come to the nuisance. The simple reason for this common law rule is that an owner should not be able to permanently diminish the value of neighbouring land, without providing compensation simply by establishing his or her use first.

56. Section 8.4.4 of NZS 6802:2008 discusses the locations at which noise emissions from a site are required to comply with a noise limit and states “whether rural land not used for human habitation deserves protection against noise may depend on the suitability of the land for future residential development and the existing or future potential recreational amenity of the land”.

57. By applying the noise limits at the site boundary this protects the land itself from external noise and, if necessary, allows a further assessment to be made of the future use of neighbouring land to determine whether there are any conflicts between a neighbour’s right to construct a noise sensitive activity against the need, if any, to exceed District Plan noise limits on that land.

58. There are a number of Councils that apply the noise limits at the site boundary in Rural Zones including Palmerston North City, South Taranaki District, and Hutt City. Ashburton District Council only applies the “notional boundary” concept to large rural blocks, not small scale rural/residential areas. In Wellington, the City District Plan applies the least strict residential noise limits at the rural site boundary while applying strict noise limits at the ‘Notional Boundary’ (which is called the conceptual boundary in that case).

59. It is recognised that there is a tension with respect to where the noise limit should apply in rural areas, and NZS 6802:2008 recommends that the notional boundary be used. However, to avoid uncertainty with respect to future planning provisions, then I recommend that the rural noise limits apply at the neighbouring land site boundary rather than at the notional boundary of dwellings.

60. I therefore recommend that the submission be declined in this respect and that the Rural Noise limits apply at any point within the boundary of any other site.

Noise in the Residential/Village Zones

Submission S17/028 - Spark

61. This submitter reasons that the noise standards for cabinets in the National Environmental Standards for Telecommunications Facilities (NESTF) should be applied to all noise emitting activities in the Residential/Village Zone (3C.4.1 Permitted Activities (b) – Table 3C.1 Noise Levels – Residential/Village). Their argument is that because the standards in the NESTF are deemed quiet enough on a national basis for telecommunications cabinets then all activities in these zones in the Manawatu District should be standardized to the same limits as telecommunications cabinets.

62. I strongly disagree with this reasoning. It is the prerogative of the local community to establish what their local noise environment should be. This might be stricter than the NESTF standards or less strict. The NESTF applies to telecommunications units which are specifically located and have their own noise propagation characteristics.

63. The noise limits in the Residential/Village Zone are deliberately strict. These zones form a very small part of the Manawatu District (the Rural Zone represents 96% of the District) and the strict noise limits are purposely designed to provide for a quiet and peaceful community with noisy activities encouraged to go elsewhere.

64. Telecommunication cabinets do not need to meet the District Plan noise limits because of the NESTF and this is appropriate given their likely location in residential streets (and the difficulty in meeting local noise limits) but also the fact that cabinet noise sources are comparatively small and the noise will reduce quickly with distance. Larger noise generating activities (such as a factory) will tend to cause noise levels to be greater further from the source. This means that telecommunication cabinets can establish closer to site boundaries than other sources and generate high local noise that is less likely to cause a nuisance further afield.

65. The NESTF noise limits are appropriate for telecommunication cabinets and reflect the importance of these devices as telecommunications infrastructure with the restriction on where they can be positioned (in residential areas). It is, however, not reasonable to apply the same standard to all types of activities.
These other activities may not have the same importance as the telecommunication cabinets and would be able to be located elsewhere.

66. It is also entirely appropriate for the Manawatu community to identify residential/village areas to be quiet and to be protected against future noise generating activities.

67. I therefore recommend that this submission be rejected in this respect, for the above reasons, and that the noise limits recommended for Table 3C.1 for Residential/Village should remain unchanged.

Submission S18/029 - Chorus

68. This submission is the same as the one above and my recommendation is the same.

Temporary Activity Noise

Submission S16/057 - Powerco

69. The submission seeks to add the word “significant” before “adverse effects” in 3F.3 Objectives and Policies (Policy 1.2). This would ensure that less than minor or minor effects are not considered alongside significant adverse effects. It should be noted that sometimes short term effects are acceptable when temporary (e.g. for emergency works).

70. I agree that short term effects may have a lesser impact than effects of permanent activities but this is because the temporary nature of the activity makes it less significant. In other words, the activity could generate higher noise levels but the impact could still be minor or less than minor.

71. For example, an entertainment event might occur on one afternoon for 2-3 hours which could generate quite high levels of noise and still be reasonable. The overall assessment of that single event might be that the noise effects are minor or less than minor.

72. However other temporary activities might locate at a single location for, say, a month at a time. It is not difficult to imagine that a noise source (say a portable generator) could create noise during that period that would cause a nuisance to nearby residential neighbours. This effect would be significant and would not be acceptable.
73. While I accept therefore that short term temporary activities could reasonably generate noise that exceeds the District Plan noise limits, the key to the assessment would be that the noise effects would need to be, at least, minor and, at best, less than minor. Such an activity would be Discretionary and would be assessed on its merits in terms of the Resource Management Act.

74. I do not consider that it is appropriate to provide for temporary activities that have “significant” effects.

75. The submission mentions emergency work and this is dealt with by the application of the construction noise standard\(^7\) or by the separate provisions in the RMA for emergency work\(^8\).

76. I therefore recommend that this submission be declined insofar as it seeks to insert the word “significant” before “adverse effects” in 3F.3 Objectives and Policies (Policy 1.2).

**Submission S21/014 - Z Energy Ltd, BP Oil NZ Ltd, Mobile Oil NZ Ltd**

77. This submission seeks the same outcome as the submission above and I recommend that it be declined for the same reasons.

**Temporary Military Training Activities (TMTA)**

**Submission S8/12 - NZDF**

78. NZDF seeks to provide for temporary military training activities under Chapter 3 as it is inappropriate to confine these to a particular zone due to the varied nature of the activities.

79. I considered the issue of TMTA in my Part 1 Report dated 29 April 2016.

80. I disagree with the NZDF position. NZDF seeks to install a standardised approach for TMTA across the country using set-backs from activities such as weapons firing, battle simulations and explosives as the prime control mechanism. This includes night-time battle simulations.

81. I consider that such activities should not be provided for as Permitted Activities throughout the District. Noisier TMTA activities would be more appropriate in the Rural Zone, for example, than in the Residential/Village Zone and I

---

\(^7\) NZS 6803:1999 *Acoustics – Construction Noise*

\(^8\) Sections 330 and 330B.
recommend that provision for TMTA is not included in Chapter 3 but that it be considered in each zone section as it is reviewed. On that basis I recommend that the submission be declined.

Conclusions

82. I have considered various submissions regarding noise in Chapter 3 of the Proposed District Plan as part of the PC 55 considerations and made recommendations accordingly.

Nigel Lloyd
Acousafe Consulting & Engineering Limited
17 November 2016