

**BEFORE THE HEARING COMMISSIONERS  
AT PALMERSTON NORTH**

**IN THE MATTER** of the Resource Management Act 1991  
(the Act)

**AND**

**IN THE MATTER** of a review by **PALMERSTON NORTH CITY  
COUNCIL** of the conditions of consent for  
Te Rere Hau Windfarm under section 128  
of the Act

---

**STATEMENT OF EVIDENCE OF ADRIAN DAVID LOW ON BEHALF OF NZ  
WINDFARMS LIMITED**

**DATED 25 August 2017**

---



**ATKINS | HOLM | MAJUREY**

Vicki Morrison-Shaw  
PO Box 1585  
Shortland Street  
AUCKLAND 1140

## SUMMARY

1. I have been engaged by New Zealand Windfarms Limited ("**NZ Windfarms**") to provide planning evidence in relation to the Palmerston North City Council ("**PNCC**") review under section 128 of the Resource Management Act 1991 ("**RMA**") of the conditions of consent for the Te Rere Hau Windfarm ("**TRH**") in Palmerston North.
2. The s42A reports of Mr Maassen and Mr Auckram identify the relevant statutory matters for this process as set out in sections 131 and 132 of the RMA, including the requirement that when conducting this review, the consent authority shall have regard to the matters in s104.
3. The consent authority would have the discretion through this process to cancel the TRH consent under s132(3) of the RMA if there are significant adverse effects on the environment resulting from its exercise. However, no acoustic expert has concluded TRH is having significant adverse effects. I also note that all the acoustic evidence suggests that TRH noise effects are capable of being appropriately controlled using consent conditions. Therefore, I consider it appropriate that the focus of this review process be on establishing appropriate consent conditions for the future operation of TRH.
4. Mr Worth outlines the positive effects of TRH noting that combined output from NZ Windfarms' two sites – Te Rere Hau and Te Rere Hau Eastern Extension – is approximately 130GWh per annum which supplies the power needs of around 18,000 households. The planning documents attribute TRH and the renewable electricity it generates, regional and national significance, and direct that regard is to be had to the benefits of enabling its increased generation capacity and efficiency.
5. With respect to adverse effects, I consider it is the actual effects of TRH operation which are in addition to those predicted in the original TRH application documentation that should be the focus of this process, noting that it is those effects that are the reason for this review.
6. It is clear from the submissions received that some nearby residences are experiencing periodic adverse effects because of TRH noise emissions. The issue is whether those

adverse effects are avoided, remedied or mitigated to an acceptable level.

7. With respect to those effects, in my view the planning documents require "maintenance" of amenities at nearby residences, but do not require a management response that goes beyond that and which leans more toward "protection" of amenities where doing so would constrain the efficient use and development of the wind resource (contrasting for example, the way the values and characteristics of Outstanding Natural Features and Landscapes are addressed). There is also clear direction in the District Plan<sup>1</sup> that noise from windfarms be assessed, controlled and measured in accordance with the relevant New Zealand Standard.
8. Against that planning background, Mr Halstead and Dr Chiles assertions that the acoustic environment at TRH is typical of many rural areas and not unusually low, and their assertions that NZS6808:2010 adequately addresses the intermittent tonality and amplitude modulation present in TRH noise, I consider the appropriate method of enabling TRH operation while maintaining adequate amenity at nearby residences would be to use the widely accepted method for doing so that is NZS6808:2010.
9. I understand that the PNCC s42A report writers agree, however, that they consider reference to additional international standards is required to appropriately address the intermittent presence of tonality and amplitude modulation in TRH noise as NZS6808:2010 does not adequately cover this matter. In my view whether this is the case or not is an acoustic and not a planning matter.
10. Based on a review of the evidence of the acoustic experts it is clear to me that the adverse noise effects of TRH operating can be avoided, remedied or mitigated through appropriate conditions such that the activity aligns comfortably with the planning framework. However, there is disagreement between the acoustic experts on what restrictions are required to achieve this.
11. The main points of contention between the acoustic witnesses in terms of acceptable noise effects, are in respect

---

<sup>1</sup> Rule R.6.2.6.2 of the Operative Plan. Rule 9.8.6 Assessment Criteria (d) and the Determination Clause of Rule 9.9.3. of PC15.

of when the new secondary noise limit in proposed condition 4 should apply, and the detail of proposed condition 8 which specifies how tonality and amplitude modulation should be measured and how penalties should be applied to measured sound levels at adjacent residences where these characteristics are present.

12. PNCCs acoustic experts are of the view that a secondary noise limit is required to appropriately control noise during the evening and night time periods when windspeed and background sound levels are low (see proposed condition 4). NZ Windfarms acoustic experts disagree that a secondary noise limit is needed at all to provide reasonable protection of health and amenity at adjacent residences, however, if one is applied, they do not consider it should apply at wind speeds above 6 m/s (rather than the 8 m/s proposed by PNCC).
13. PNCCs acoustic experts are also of the view that the intermittent presence of tonality and amplitude modulation in TRH noise means a bespoke condition for measuring those characteristics and applying penalties due to their presence is needed. NZ Windfarms acoustic experts consider that NZS6808:2010 adequately addresses this matter, and that PNCCs methodology is overly conservative. Mr Halstead and Dr Chiles have suggested an amendment to Mr Evan's condition to address this.
14. In Attachment 1 of my evidence I have included a redline version of conditions that I support having considered the PNCC s42A reports, the evidence of NZ Windfarms and submissions ("**my strikethrough version**"). To assist the commissioners, I have used the version contained in Appendix 1 of Mr Auckram's s42A report ("**Council's strikethrough version**") as the base document.
15. I explain the changes relative to Council's strikethrough version and the rationale for them in my evidence. They include several changes to address matters raised by submitters.
16. In respect of the two main points of contention between PNCC and NZ Windfarms (the wind speed below which condition 4 applies, and condition 8 addressing tonality and amplitude modulation) I have preferred the conditions supported by Mr Halstead and Dr Chiles. I do so based on their professional opinion that their version of those

conditions would provide reasonable protection of amenity at nearby residences, and Mr Worth's view that their version of conditions would have less impact on generation.

## **INTRODUCTION**

### **Qualifications and experience**

1. My full name is Adrian David Low.
2. I hold the degrees of Bachelor of Science and Master of Science, both from the University of Otago, and a Post-Graduate Diploma in Planning from Massey University. I am a senior consultant with Mitchell Daysh Limited, an environmental consulting practice with offices nationwide, a position I have held for the past nine years. Previously I was a Senior Resource Officer at the Otago Regional Council where I worked for three years.
3. I am a member of the Resource Management Law Association, and an Associate Member of the New Zealand Planning Institute.

### **Expert Witness Code of Conduct**

4. Although this is a Council hearing I confirm that I have read and agree to comply with the Code of Conduct for Expert Witnesses set out in the Environment Court's Practice Note. This evidence is within my area of expertise except where I have stated that I am relying on the evidence of another person. I have not omitted to consider material facts known to me that might alter or detract from my expressed opinions.

### **Involvement in project**

5. I am familiar with the TRH site and its surrounds.
6. I have been involved in providing advice to NZ Windfarms in respect of TRH noise effects since my firm was first engaged to provide planning advice in 2012.
7. In addition to matters associated with this section 128 process, I have more recently provided planning advice to NZ Windfarms in respect of Proposed Plan Change 15A and 15B of the PNCC District Plan.

### **Purpose and scope of evidence**

8. I have been engaged by NZ Windfarms to provide planning evidence in relation to the PNCC review under section 128 of the RMA of the conditions of consent for TRH in Palmerston North.
9. In preparing my evidence I have read the Council Expert Reports of Mr Maassen, Mr Auckram, Mr Evans and Mr Lloyd and the associated Council Bundle of material.
10. I have also read the other evidence lodged by NZ Windfarms by Mr Worth, Mr Radich, Mr Wallace, Mr Halstead and Dr Chiles.
11. In this evidence, I will:
  - (a) Address the history of the TRH resource consent and TRH noise effects;
  - (b) Identify the relevant statutory matters that apply to this s128 process;
  - (c) Provide an overview of the existing environment for this process and the actual and potential effects TRH has on that environment;
  - (d) Identify the relevant provisions of the statutory planning documents and assess the operation of TRH against those provisions;
  - (e) Respond to issues raised in submissions;
  - (f) Respond to the s42A reports;
  - (g) Address conditions; and
  - (h) Provide concluding comments.

### **THE TE RERE HAU WINDFARM**

12. Background information on TRH, its noise issues, and the extensive further monitoring and litigation that preceded and ultimately led to this s128 process has been canvassed in the s42A reports produced by PNCC and will be addressed in legal submissions by NZ Windfarms legal counsel.
13. I do not repeat that information here.

## THE PNCC S128 PROPOSAL

14. On 2 May 2017 PNCC notified NZ Windfarms that the conditions of the TRH land use consent were being reviewed with the purpose of better managing and monitoring TRH wind turbine ("**WTG**") noise emissions.
15. Of the proposed new conditions, I understand conditions 4, 5 and 8 establish the new allowable noise envelope for TRH. It is the detail of these conditions, and particularly conditions 4 and 8 that I understand is the main point of contention between PNCC and NZ Windfarms.
16. As the commissioners will be aware, proposed condition 4 specifies a new secondary limit which applies at nearby residences in the evening and night time during periods of light winds and low background noise levels. This is also often referred to as a High Amenity limit in evidence to this hearing due to its basis being in the high amenity provisions of *The New Zealand Standard NZS6808:2010 Acoustics - The Assessment and Measurement of Sound From Wind Turbine Generators* ("**NZS6808:2010**").
17. PNCC's proposed condition 4 states:
  4. *For residences in existence at the time this consent was granted on 30 May 2005 that are within the Rural Residential Overlay mapped in the Palmerston North District Plan as notified in Plan Change 15, the wind farm shall operate such that wind farm noise does not exceed the greater of:*
    - 4.1 35 dB(A); OR
    - 4.2 *The background noise level plus 5 dB(A).*

*This condition only applies twelve months after the conditions have been amended pursuant to PNCC's review under RMA, s 128(1)(c), during evening and night-time, up to a hub height wind speed of 8 m/s and where the difference between operational and background noise levels is greater than 8 dB(A) in accordance with Section C5.3.1 of NZS 6808:2010, otherwise condition 5 applies.*
18. PNCC's proposed condition 5 is, in effect, the noise limit on the existing consent, and it would apply whenever the new secondary noise limit does not.
19. PNCC's proposed condition 8 specifies a new process for assessing tonality and amplitude modulation in the noise experienced at residences, and for specifying when a penalty is to be applied to the measured sound level to account for the presence of those characteristics.

20. The main points of contention between PNCC and NZ Windfarms in respect of these conditions are in my view technical ones, namely:
- (a) Whether the hub height windspeed below which condition 4 should apply is 6 m/s or 8 m/s; and
  - (b) How tonality and amplitude modulation should be measured and how penalties should be applied to measured sound levels at adjacent residences where these characteristics are present.
21. PNCC's acoustic advisors (Mr Evans and Mr Lloyd) and NZ Windfarms acoustic advisors (Mr Halstead and Dr Chiles) hold different views on what is required in these conditions and address the matter in detail in their respective s42A reports and evidence. I also note that while Mr Halstead and Dr Chiles are of the view that the neighbouring residences are not a high amenity area, and that the secondary noise limit contained in condition 4 is not necessary, NZ Windfarms has accepted it as a means of reducing noise effects at those residences. The starting point for Mr Halstead and Dr Chiles evidence is therefore how and when the secondary noise limit in condition 4 should apply.
22. In addition, the PNCC notice of review also proposes the following changes to how TRH is required to confirm compliance with the above noise limits:
- (a) New condition 6, 7, 8 and 9 which specify how TRH noise is to be measured and assessed.
  - (b) New conditions 10 and 11 which specify requirements for a post s128 review noise compliance assessment against the revised noise conditions, including specifying the six locations where noise monitoring is to be conducted.
  - (c) New condition 12 which specifies assessment requirements in respect of the 32 consented but not yet constructed TRH WTG.
  - (d) New conditions 13, 14 and 15 which specify ongoing management and reporting requirements.
23. The PNCC notice of review also proposes:
- (a) New condition 16 which specifies how the consent holder is required to engage with neighbours;

- (b) New conditions 17, 18, 19 and 20 which specify how the consent holder is to respond to complaints;
- (c) New condition 21 which specifies in what circumstances PNCC may in the future review the conditions of the TRH consent.
- (d) A change to condition 44 addressing the consent holder's obligations to pay actual and reasonable costs in relation to the administration, monitoring and inspection of the TRH consents.

#### **RELEVANT STATUTORY MATTERS**

- 24. The s42A reports of Mr Maassen and Mr Auckram identify the relevant statutory matters for this process as set out in sections 131 and 132 of the RMA.
- 25. It is clear from those provisions that when conducting this review, the consent authority:
  - (a) shall have regard to the matters in s104 and whether the activity will continue to be viable after the change; and
  - (b) may have regard to the manner in which the consent has been used.
- 26. With respect to the matters the consent authority is required to have regard under s104:
  - (a) I agree with Mr Auckram that the relevant effects under s104(1)(a) include both the positive effects of TRH operation, and its noise effects.
  - (b) With respect to those noise effects, I also agree with Mr Auckram it is the actual effects of TRH operation which are in addition to those predicted in the original TRH application documentation that should be the focus of this process, noting that it is those effects that are the reason for this review.
  - (c) I agree with the Mr Auckram that the planning documents containing relevant provisions under s104(1)(b) are:
    - i. The National Policy Statement on Renewable Electricity Generation 2011 ("**NPSREG**")

- ii. The Manawatu-Wanganui Regional Council One Plan ("**One Plan**");
- iii. The Operative Palmerston North City District Plan ("**Operative District Plan**"); and
- iv. The Operative Palmerston North City District Plan as amended by the Decisions Version of Plan Change 15A-G ("**PC15**").

(d) I also consider in terms of s104(1)(c) that s16 of the RMA is a relevant matter.

27. I address each of these matters below.
28. With respect to the s131(1)(b) discretion to have regard to the manner in which the consent has been used, I consider the commentary provided by Mr Worth and Mr Radich on the contribution TRH has made to renewable energy and the recent changes that have been made to the operation of TRH over the past year are relevant.
29. As outlined by Mr Maassen and Mr Auckram the consent authority would have the discretion through this process to cancel the TRH consent under s132(3) of the RMA if there are significant adverse effects on the environment resulting from the exercise of the consent.
30. While there may be disagreement between the acoustic experts on the appropriate conditions to manage TRH noise effects, I am not aware that any of the acoustic experts has concluded TRH is having significant adverse effects. I also note that all the acoustic evidence suggests that TRH noise effects are capable of being appropriately controlled using consent conditions. Therefore, I consider it appropriate that the focus of this review process be on establishing appropriate consent conditions for the future operation of TRH, rather than whether the TRH consent should be cancelled.
31. In that regard, I note that decisions on this review can be made with the same scope as decisions on resource consents, on the basis that ss106 to 116 apply with all necessary modifications as if:
- (a) The review were an application for a resource consent; and

- (b) NZ Windfarms were an applicant for the resource consent.

## **ACTUAL AND POTENTIAL EFFECTS**

### **The Existing Environment**

32. Mr Auckram has described the existing environment in detail in paragraph 36 – 45 of his s42A report. That includes:
- (a) The rural location of TRH on the Tararua Ranges approximately 12.5 km from Palmerston North.<sup>2</sup>
  - (b) The presence of other existing and consented windfarms in the vicinity.
  - (c) The undulating and complex topography of the site, with its gullies, ridges, terraces and patchwork of vegetation, scrub and grassed areas.<sup>3</sup>
  - (d) The rural residential development in proximity to TRH, including the dwellings that predate TRH on Pahiatua-Aokautere Road, Ridgeview Road and Harrison Hill Road approximately 1.5 km to the east (where most of the noise complaints have originated) and those immediately below TRH on Forest Hill Road.<sup>4</sup>
  - (e) That the notional receiving environment for TRH noise should assume no new sensitive development within 1.5 km of TRH as any such development would need to be authorised by a non-complying activity resource consent.<sup>5</sup>
33. In addition to the matters described by Mr Auckram I also consider it important to note that:
- (a) Pahiatua-Aokautere Road which is near the residences on Harrison Hill Road and Ridgeview Road

---

<sup>2</sup> Mr Auckram paragraphs 36, 37 45.

<sup>3</sup> Mr Auckram paragraph 37 and 40.

<sup>4</sup> Mr Auckram paragraph 41, 42, 44.

<sup>5</sup> Mr Auckram paragraph 43.

is identified in the District Plan as a major arterial road.<sup>6</sup>

- (b) Background sound levels in the area are typical of rural areas in New Zealand and are not as quiet as the more remote rural area where windfarms are often located.<sup>7</sup> They have been measured at several properties around TRH, and typically sit between 22 and 35 decibels under calm wind conditions. As wind speeds increase, noise from vegetation around the wind farm increases.
- (c) Both the Operative Plan and PC15 exempt inherently noisy rural activities from compliance with the District Plan noise standards, and it is therefore reasonable to assume those activities could occur in the area.<sup>8</sup>

34. I also note that PC15 identifies the land some 1.5 km to the east of TRH (but no closer) as being in the rural residential overlay. By including the following definition PC15, categorises that rural residential overlay area as a high amenity area in the context of NZS6808:2010:

**High Amenity Area** means for the purposes of NZS 6808:2010, any area identified in the District Plan as a Rural Residential Area or within the Rural Residential Overlay (as shown on the Planning Maps).

35. This definition is subject to appeal by NZ Windfarms and Mr Poff and is therefore not operative.
36. The rural residential overlay was located closer to TRH in some areas in the notified version of PC15, but was moved away from TRH in the Decisions Version. I understand its revised location is not subject to appeal.
37. Council's proposed conditions have used its notified location to define which dwellings should receive additional protection from TRH noise via the secondary noise limit contained in condition 4. Many of the dwellings subject to the effect of that condition are no longer located in the rural residential overlay. Nor are they now attributed high

---

<sup>6</sup> On page 44 of Section 20 of the Operative Plan and page 20-46 of PC15.

<sup>7</sup> Mr Halstead paragraph 11 and 29; Dr Chiles paragraph 34.

<sup>8</sup> Refer rules 6.2.6.2(d), 9.5.1 and 9.5.2.

amenity area status by PC15 by inclusion of the above definition.

38. For these reasons, I consider the decision on whether area near TRH is a high amenity area in a NZS6808:2010 context should be made on acoustic grounds and not because of the new High Amenity Area definition in PC15. I note in that Mr Evans and Mr Lloyd consider the dwellings captured by condition 4 qualify as high amenity areas irrespective of the new PC15 definition. I also note that Mr Halstead and Dr Chiles disagree.

### **Assessment of Effects**

39. As foreshadowed in paragraph 26 I agree with Mr Auckram that the relevant effects for consideration in this s128 process are the positive effects, and noise effects, of TRH continuing to operate.
40. Mr Worth outlines the positive effects of TRH, noting that combined output from NZ Windfarms' two sites – Te Rere Hau and Te Rere Hau Eastern Extension – is approximately 130GWh per annum which supplies the power needs of around 18,000 households based on average New Zealand residential electricity demand.
41. As Mr Halstead stated, the noise effects of TRH were outlined in detail in the 2014 Marshall Day Acoustics Report<sup>9</sup> ("**MDA 2014**"). I understand there is general agreement between the acoustic experts in respect of the MDA 2014 information that:
- (a) It accurately records the actual measured TRH noise levels in the receiving environment during different conditions.
  - (b) Noise emitted by TRH noise contains intermittent tonality and amplitude modulation near the turbines, but the magnitude of those characteristics is reduced at relevant sensitive receivers.
  - (c) With no penalty imposed to account for that tonality or amplitude modulation noise levels at all relevant sensitive receivers meet the normal 40 dBA or

---

<sup>9</sup> Rp 008 R03 20-11095W.

Background + 5dBA limit prescribed in NZS6808:1999 and NZS6808:2010.<sup>10</sup>

- (d) In certain conditions, the noise experienced (and amenity values protected) at some nearby residences does not accord with residents' expectations.
42. Based on a review of the evidence of the acoustic experts for NZ Windfarms and PNCC it is clear to me that the adverse noise effects of TRH operating can be appropriately avoided, remedied or mitigated through appropriate conditions. However, there is disagreement between the acoustic experts on what restrictions are required to achieve this outcome.
43. Mr Evans and Mr Lloyd are of the view that a secondary noise limit is required to appropriately control noise during the evening and night time periods when windspeed and background sound levels are low(see proposed condition 4). Mr Halstead and Dr Chiles disagree that a secondary noise limit is needed at all to provide reasonable protection of health and amenity at adjacent residences, however, if one is applied, they do not consider it should apply at wind speeds above 6 m/s.
44. Mr Evans and Mr Lloyd are also of the view that the intermittent presence of tonality and amplitude modulation in TRH noise means a bespoke condition for measuring those characteristics and applying penalties due to their presence is needed.
45. Mr Halstead and Dr Chiles consider that NZS6808:2010 adequately addresses this matter, and that Mr Evan's methodology is overly conservative. Mr Halstead and Dr Chiles have suggested amendments to Mr Evan's condition to address this.
46. Mr Evans' and Mr Lloyd's recommendations are implemented in the Council's strikethrough version of the conditions. The amendments to those conditions recommended by Mr Halstead and Dr Chiles are included in my strikethrough version attached as Attachment 1 of my evidence.

---

<sup>10</sup> Mr Halstead, paragraph 13.

47. Mr Worth has confirmed that complying with both the PNCC's and my strikethrough version of conditions will result in lost generation at TRH, but that under the PNCC version that loss would be greater.

### **THE RELEVANT PROVISIONS OF THE STATUTORY PLANNING DOCUMENTS**

48. I have set out in Attachment 2 of my evidence a list of all the planning provisions I consider relevant to this process.
49. In the following paragraphs I discuss those provisions, and their significance when considering how the noise effects of TRH should be appropriately managed. To assist the Commissioners, I provide commentary on where I agree and disagree with Mr Auckram.

### **NPSREG**

50. I agree with Mr Auckram that the Objective, Policy B and Policy C1 are the most relevant provisions for this process.
51. In my view, the national significance NPSREG attributes to the renewable electricity generated by TRH is particularly relevant when considering the extent that generation should be restricted to protect the amenity values of neighbouring residences.
52. I note Mr Auckram expresses a similar view when he states the following in respect of the NPSREG provisions:<sup>11</sup>

*... [these provisions] support the view that TRH is an important facility and that limitations on operation should be no greater than are reasonably justified.*

*...it is relevant when assessing the extent to which control should be placed on the wind farm to recognise the importance of optimising, as far as reasonably practicable, the operation of the wind farm*

### **One Plan**

53. I agree with Mr Auckram that the most relevant One Plan provisions are Objective 3-1, Policy 3-1, Policy 3-3 and Policy 3-6. In my view, the key direction in those provisions in respect of this process is:
- (a) PNCC must recognise TRH as being a physical resource of regional or national importance.<sup>12</sup>

---

<sup>11</sup> Mr Auckram at paragraphs 102 & 103.

- (b) PNCC must have regard to the benefits derived from the operation of TRH<sup>13</sup>, and to the benefits of enabling its increased generation capacity and efficiency;<sup>14</sup>
- (c) As an established wind farm PNCC must recognise and provide for the operation and maintenance of TRH;<sup>15</sup> and
- (d) PNCC must have particular regard to the need for TRH to locate where the renewable energy resource is located,<sup>16</sup> and to the logistical or technical practicalities associated with operating or maintaining TRH.<sup>17</sup>

### **The District Plan**

- 54. Both the Operative Plan and PC15 are relevant when considering this review.
- 55. As the TRH site and surrounding land is in the Rural Zone of both the Operative Plan and PC15, I consider the most relevant provisions of those documents are contained in:
  - (a) Chapter 2 City View Objectives;
  - (b) Chapter 6 Noise; and
  - (c) Chapter 9 Rural Zone.

#### *City View Objectives*

- 56. The city view objectives are not subject to change under PC15.
- 57. The city view objectives provide the *overall broad direction*<sup>18</sup> to the District Plan. In my view, the key outcomes sought by the city view objectives that are of relevance to this process

---

<sup>12</sup> Policy 3-1(a)(i).

<sup>13</sup> Policy 3-1(c).

<sup>14</sup> Policy 3-6(a)(v).

<sup>15</sup> Policy 3-3.

<sup>16</sup> Policy 3-6(a)(iii).

<sup>17</sup> Policy 3-6(a)(v).

<sup>18</sup> Section 2.1 of the District Plan.

are (noting that TRH meets the District Plan definition of infrastructure):

- (a) Subdivisions, buildings and infrastructure are designed and constructed to promote a coordinated, healthy and safe environment;<sup>19</sup>
- (b) The benefits of renewable electricity generation are recognised, while adequately managing the potential effects of such activities.<sup>20</sup>
- (c) Appropriate noise standards are in place to protect noise sensitive activities;<sup>21</sup>
- (d) Infrastructure operates in a safe and efficient manner, and the effects of activities which could impact on the safe and efficient operation of this infrastructure are avoided, remedied or mitigated;<sup>22</sup> and
- (e) Infrastructure and physical resources of regional or national importance are recognised and provided for by enabling their establishment, operation, maintenance, upgrading and protection from the effects of other activities.<sup>23</sup>

#### Chapter 6 – Noise

- 58. Chapter 6 addresses the District Plan use of noise standards. It outlines in some detail how the principles of the relevant New Zealand Standards have been followed in setting those noise standards.
- 59. Of relevance to windfarms is R6.2.6.2 of the Operative Plan which states:

*Sounds generated by wind farm activities in the Rural Zone shall be assessed, predicted, measured and controlled by reference to New Zealand Standard NZS6808: 1998 Acoustics - The Assessment and Measurement of Sound from Wind Turbine Generators.*

---

<sup>19</sup> City View Objective 9.

<sup>20</sup> City View Objective 20.

<sup>21</sup> City View Objective 22.

<sup>22</sup> City View Objective 23.

<sup>23</sup> City View Objective 25.

60. I note that PC15 proposes to delete this provision, but has included reference to the 2010 version of the standard as an assessment criterion in its new wind farm rules.<sup>24</sup> The deletion of R6.2.6.2 is subject to appeals, including by NZ Windfarms, which seek it instead be replaced with reference to the 2010 version of the standard.
61. The acoustic witnesses for NZ Windfarms and PNCC discuss in detail the relative protection NZS6808:2010 affords noise sensitive locations, how it should be applied to TRH noise, whether the adjacent area qualifies as a high amenity area, and whether it adequately covers all relevant matters in respect of TRH noise because of the tonality and amplitude modulation present.
62. In my view, these are technical matters and the only planning observation I make is that several dwellings that would be captured by condition 4 (and some others that Mr Auckram has suggested should be considered for inclusion in condition 4)<sup>25</sup> are not located in an area PC15 defines as a high amenity area. For those dwellings, I consider an effects based approach should be taken to determine whether the secondary noise limit is appropriate. As outlined earlier, Mr Evans and Mr Lloyd, and Mr Halstead and Dr Chiles differ on what they consider the appropriate effects based approach to be.

#### *Chapter 9 – Rural Zone Objectives and Policies*

63. The relevant provisions of chapter 9 can be split into three parts:
- (a) Those contained in the Operative Plan and PC15 which address the rural environment generally (Objectives 1 – 4 and their associated policies);
  - (b) The objectives and policies contained in PC15 which specifically address renewable electricity generation (Objectives 8 and 9 and their associated policies and);
  - (c) The assessment criteria contained in the wind farm rules of the Operative Plan and PC15.

---

<sup>24</sup> Rule 9.8.6 – Assessment Criteria (d).

<sup>25</sup> Mr Auckram paragraph 79.

64. The most relevant general provisions to this process are contained in Objectives 2 and 3 and their associated policies.
65. The relevant provisions state [amendments proposed in PC15 shown in underline and grey highlight]:

**Objective 2**

*To encourage the effective and efficient use and development of the natural and physical resources of the rural area.*

**Policies**

...

*2.2 To ensure that the adverse effects of activities in the rural area are avoided, remedied or mitigated such that the amenities of the area and nearby urban areas are maintained.*

*2.3 To control the actual or potential environmentally adverse effects of activities in the rural area, including the adverse effects of:*

- *odour;*
- *noise;*
- *traffic;*
- *visual impact.*

*2.4 To encourage the maintenance of sustainable land-uses in the rural area*

**Objective 3**

*To maintain and enhance the quality and natural character of the rural environment.*

**Policies**

*3.1 To provide for the health and safety of rural dwellers by establishing specific noise limits for the rural area.*

*3.2 To encourage the adoption of sustainable land use practices.*

66. I note that Policy 3.1 – which contains specific direction on managing noise effects on rural dwellers, focusses on providing for their “health and safety” rather than amenity. Likewise, Policy 2.3 directs noise effects be controlled.
67. I observe that Policy 2.2 directs activities in the rural area to avoid, remedy or mitigate their adverse effects such that “*the amenities of the area ... are maintained*”. However, this needs to be read in the context of Objective 2 which it is intended to implement, and which focuses on “*the efficient and effective use and development*” of resources in the rural area. The reference to amenities being maintained is also preceded by text which contemplates mitigation (the policy is not solely focussed on avoiding effects). In that context, I do not consider the reference to maintaining amenities in Policy 2.3 needs to be interpreted as requiring a

management response that goes beyond “maintenance” and which leans more towards “protection” of those amenities where doing so would constrain the efficient use and development of the wind resource. In contrast, I note the way PC15 promotes a high level of protection for the characteristics and values of Outstanding Natural Features and Landscapes (“**ONFL**”), and directs that effects on the values of those features be avoided.

68. The specific renewable electricity specific provisions contained in Objective 8 and 9 and their associated policies of PC15 are all subject to appeal, including by NZ Windfarms. These provisions are intended to give effect to the very directive electricity generation provisions in the One Plan and NPSREG. In turn, the outstanding appeals predominantly focus on how that is done, including the detailed wording of the provisions, how they address repowering and so on.
69. Against that background, I consider it reasonable to assume the general thrust of Objective 8 and 9 and their associated policies will remain, however, that when considering their detailed wording it is appropriate to look back to the One Plan and NPSREG provisions which they are intended to give effect to.
70. Of relevance in that context is Policy 8.1 which directs that “appropriate” renewable electricity generation activities be provided for. In my view, the reference to providing for “appropriate” activities in Policy 8.1 is uncertain in terms of the context in which “appropriateness” is to be determined. It is subject to appeal for that reason.
71. However, when Policy 8.1 is considered in this process, in my view it should simply be as a policy intended to give effect to One Plan provisions that direct PNCC to provide for the establishment and operation of renewable electricity generation,<sup>26</sup> while acknowledging there are effects to be managed and other relevant plan provisions which provide guidance on how that should be done.
72. Finally, I observe that Objective 9 simply seeks that the effects of renewable electricity generation activities such as

---

<sup>26</sup> Objective 3-1 and Policy 3-3(a).

TRH avoid, remedy or mitigate their adverse effects, and puts no particular emphasis on how that should be done.

*Wind Farm Assessment Criteria*

73. The wind farm rules contained in the Operative Plan and PC15 also contain assessment criteria. Those rules direct that *“in determining whether to grant consent and what conditions to impose, if any, Council will in addition to the City View objectives in section 2 and the Rural Zone objectives and policies, assess any application in terms of”* those assessment criteria.<sup>27</sup>
74. I have set out the assessment criteria in Attachment 2 of my evidence, and most reflect similar themes to those contained in the One Plan and District Plan objectives and policies outlined above.
75. The notable addition is PC15 Assessment Criteria (g) which states:
- (g) The provisions for safeguards and contingencies, particularly concerning:*
    - (i) The model and proposed location of the wind turbine;*
    - (ii) Specifying compliance with turbine manufacturer's noise emission levels stated in the application;*
    - (iii) The early identification and remediation of any special audible characteristics that arise during operation of the Wind Farm;*
    - (iv) Effective noise monitoring programmes to demonstrate compliance beyond the commissioning stage;*
    - (v) Procedures for addressing turbine malfunctions;*
    - (vi) Community liaison and methods for dealing with complaints;*
    - (vii) Reporting these matters to Council.*
76. Assessment criteria (g) is relevant when considering the proposed new conditions 6 – 20 which address how TRH is required to demonstrate compliance with its noise limits, engage with the community, address complaints and report to council. However, I note Assessment Criteria (g)(ii) remains subject to appeals, including by NZ Windfarms, and this should be acknowledged when considering proposed

---

<sup>27</sup> PC15 Rule R.8.9.6 / Operative Plan Rule R.9.9.2 (noting that the Operative Plan refers to them as further policies rather than assessment criteria.

condition 12.4 which requires that when installed TRH WTG not exceed the sound power levels stated in the pre-construction acoustic assessment. I return to this later in my evidence.

### **Evaluation of the Relevant Plan Provisions**

77. The planning documents attribute TRH and the renewable electricity it generates regional and national significance. They direct that its continued operation be provided for, and that regard is to be had to the benefits of enabling its increased generation capacity and efficiency.
78. The planning documents also clearly contemplate this type of infrastructure activity locating in PNCC's rural environment.
79. In my view, the planning documents require "maintenance" of amenities, but do not require a management response that goes beyond that and which leans more towards "protection" of amenities where doing so would constrain the efficient use and development of the wind resource (contrasting for example, the way the values and characteristics of ONFL are addressed).
80. There is also clear direction in the Operative Plan<sup>28</sup> and PC15<sup>29</sup> that noise from windfarms be assessed, controlled and measured in accordance with the relevant New Zealand Standard. The outcome statement for that standard being:
- This Standard provides suitable methods for the prediction, measurement, and assessment of sound from wind turbines. In the context of the Resource Management Act, application of this Standard will provide reasonable protection of health and amenity at noise sensitive locations.*
81. Against that planning background, Mr Halstead and Dr Chiles assertions that the acoustic environment at TRH is typical of many rural areas and not unusually low, and their assertions that NZS6808:2010 adequately addresses the intermittent tonality and amplitude modulation present in TRH noise, I consider the appropriate method of enabling TRH operation while maintaining adequate amenity at

---

<sup>28</sup> Rule R.6.2.6.2.

<sup>29</sup> Rule 9.8.6 Assessment Criteria (d) and the Determination Clause of Rule 9.9.3.

nearby residences would be to use the widely accepted method for doing so that is NZS6808:2010.

#### **OTHER MATTERS**

82. As foreshadowed in paragraph 26 of my evidence I consider s16 of the RMA to be a relevant “other matter” under s104(1)(c).
83. Mr Halstead has outlined why, after considering the nature of TRH noise emissions, and the acoustic environment in which TRH is located, conditions which meet the requirements of NZS6808:2010 would ensure noise emitted from TRH would not exceed a reasonable level as required by s16.<sup>30</sup>

#### **RESPONSE TO SUBMISSIONS**

84. It is clear from the submissions received that some nearby residences are experiencing periodic adverse effects because of TRH noise emissions.
85. The issue is whether those adverse effects are avoided, remedied or mitigated to an acceptable level. Various submissions have outlined measures they consider should be implemented to ensure that is the case.
86. I note many of the changes sought are technical in nature and are addressed in the evidence of Mr Halstead<sup>31</sup>. Mr Evans addresses a number of these also.<sup>32</sup>
87. Where Mr Halstead has recommended a change to conditions to address the submission point I have included that change in my strikethrough version, and discuss it in paragraphs 97 – 140 of my evidence which address conditions. Mr Evans’ suggested changes are also contained in my strikethrough version as it uses Council’s strikethrough version as a base document.
88. The only matters raised in submissions on which I think it would be helpful to provide some comment from a planning perspective, are the requests for additional shutdown periods.

---

<sup>30</sup> Mr Halstead, paragraph 96.

<sup>31</sup> Mr Halstead, paragraph 66-92.

<sup>32</sup> Mr Evans, paragraph 52-73.

89. They include the request by submitter 12 (Wallace) for additional restrictions to “*provide an operational framework for the windfarm, and yet also meet the residents’ expectations of a quiet environment*”<sup>33</sup>. Two options are suggested to do this, the general thrust of each being:
- (a) Should noise from TRH cause annoyance to residents within 2.25 km of TRH, consent conditions provide them the ability to call NZ Windfarms and have the half of TRH located closest to them turned off for 3 -4 hours; or
  - (b) Consent conditions require NZ Windfarms to turn the closest half the wind farm off during environmental conditions which have been shown to cause annoyance to neighbouring residences and generate complaints.
90. In my view for any such condition to be viable and enforceable it would need to specify the exact meteorological and noise conditions when TRH would be required to shut down. The discretion to shut down TRH cannot be afforded a third party. Therefore, the first option cannot be included as a consent condition.
91. In my view, when considering the second option, it is important to consider the planning framework that applies here. Renewable electricity generation is recognised as being of national significance, and the scheme of the plan is that an appropriate maintenance of amenity values should be achieved, not absolute protection of a quiet environment if that is what the submitter seeks. For reasons outlined in paragraph 81 of my evidence, I consider conditions set in accordance with NZS6808:2010 would be sufficient in that context.
92. Various submitters have also sought the voluntary curtailment measures Mr Worth has described that NZ Windfarms has been exploring be hardwired into the conditions, so there is certainty they will continue to be implemented.
93. I note that NZ Windfarms do not volunteer conditions to require those measures, and based on the evidence of the acoustic witnesses and my review of the planning framework

---

<sup>33</sup> Submission 12, paragraph 39.

I do not consider them necessary to adequately manage TRH noise effects.

### **RESPONSE TO THE OFFICERS REPORT**

94. I have reviewed the s42A report by Mr Auckram (and the accompanying legal and acoustic reports by Mr Maassen, Mr Evan and Mr Lloyd).
95. I note that many of the matters that remain in contention between PNCC and NZ Windfarms, are technical in nature, and have been addressed by Mr Halstead and Dr Chiles.
96. I have already made comment on where I agree and disagree with Mr Auckram's analysis of the effects and relevant planning instruments. The remaining matters on which I will comment relate to conditions, and I do so in the next section.

### **CONDITIONS**

97. In Attachment 1 of my evidence I have included a redline version of conditions that I support having considered the PNCC s42A reports, the evidence of NZ Windfarms and submissions. To assist the commissioners, I have used the version contained in Appendix 1 of Mr Auckram's s42A report as the base document.
98. I explain the changes relative to Council's strikethrough version and the rationale for them below.
99. In respect of the two main points of contention between PNCC and NZ Windfarms on allowable noise effects (the wind speed below which condition 4 applies, and condition 8 addressing tonality and amplitude modulation) I have preferred the conditions supported by Mr Halstead and Dr Chiles. I do so based on their professional opinion that their version of those conditions would provide reasonable protection of amenity at nearby residences, and Mr Worth's view that their version of conditions would have less impact on generation.

### **Condition 4**

100. Condition 4 contains the new secondary noise limit.
101. I note the despite the advice of Mr Halstead and Dr Chiles that the area does not meet the criteria for being a high amenity area, NZ Windfarms has accepted the secondary

limit contained in condition 4 as a means of providing an additional level of protection to its neighbours. However, it seeks some changes to this condition. The most notable being a change to the windspeed below which it applies. I describe this and the other changes contained in my strikethrough version below.

#### *Hub Height Wind Speed*

102. In my view, this is a technical matter. On the recommendation of Mr Halstead and Dr Chiles my strikethrough version specifies that the secondary noise limit in condition 4 applies up to hub height wind speeds of 6 m/s rather than the 8 m/s proposed by PNCC.

#### *Relevant Hours*

103. Council's strikethrough version has inserted new text to specify the secondary noise limit applies between the hours of 7pm and 7am. On the advice of Mr Halstead, I have accepted this change in my strikethrough version. However, I have deleted the subsequent reference to "during evening and night time" to avoid any unnecessary confusion as to whether that additional text fetters the clear 7pm – 7am period the condition is applicable.

#### *Notional Boundary*

104. Condition 4 does not specify where at the residences compliance with noise standards is required. Mr Halstead<sup>34</sup> and Dr Chiles<sup>35</sup> have advised that "within the notional boundary" is the appropriate location and my strikethrough version has added text to this effect.

#### *Residences vs Residential Dwelling*

105. One submitter is concerned that condition 4 would not apply to them as they purchased their property after TRH was granted consent (i.e. they were not in residence at that time). To avoid any confusion that the noise limits apply to residential dwellings in existence at that time my strikethrough version has amended the condition so it applies to "residential dwellings" in existence when TRH was granted consent, rather than "residences".

---

<sup>34</sup> Mr Halstead paragraph 4(a).

<sup>35</sup> Dr Chiles paragraph 47.

### *Residences Owned by NZ Windfarms*

106. Condition 4 contains no exemption from noise limits for a residence that is owned now, or in the future by NZ Windfarms, or with whom NZ Windfarms has a private agreement that TRH does not need to meet noise conditions at the property.
107. To address this, I have suggested adding the following text to condition 4:

*This condition does not apply to any property owned by the Consent Holder, or which has a covenant in favour of the Consent Holder, or is owned by a home owner who has confirmed in writing that they consent to this condition not applying to their dwelling.*

### *Relevant Residences*

108. My strikethrough version does not change the residences at which Council's strikethrough version would require compliance with condition 4. However, I consider the identification of those residences is somewhat confusing because of its reference to the Notified PC15 Version of the Rural Residential Overlay which has already been superseded and is difficult to locate. It would seem sensible to me if the relevant residences were identified using a map or by street number to avoid any confusion. However, I have not attempted to do so in my strikethrough version.

### **Condition 5**

109. Condition 5 contains the standard noise limit that applies at all times and locations that condition 4 does not.
110. Unlike condition 4, Council's strikethrough version of condition 5 does not confine compliance to residences existing at the time TRH was granted consent. Without this, TRH would need to comply with the limit at any new dwelling constructed in the future. My strikethrough version includes text to address this. It also changes the point of compliance from "at" to "within" the notional boundary on the recommendation of Mr Halstead<sup>36</sup> and Dr Chiles<sup>37</sup>, and includes additional text so NZ Windfarms is not obliged to comply with the noise limits at a dwelling they own or have an agreement with as per condition 4 above.

---

<sup>36</sup> Mr Halstead paragraph 4(a).

<sup>37</sup> Dr Chiles paragraph 47.

### Condition 7

111. Condition 7 specifies the process for measuring and assessing TRH WTG noise.
112. My strikethrough version:
- (a) Contains a minor grammatical change to the first sentence of condition 7 which does not affect its meaning.
  - (b) Amends condition 7.4.3 so that if either T03 or T104 are not online and available for generation any data point collected at 428 Pahiatua-Aokautere Road is excluded from the TRH compliance assessment. This is recommended by Mr Halstead in response to address a concern raised by submitter 12.<sup>38</sup>
  - (c) Amends condition 7.5.2 so that at least 150 data points must come from each of the SSE and ESE sectors when confirming TRH compliance with its noise limits. This change is accepted by Mr Halstead in response to a concern raised by submitter 12 that without this amendment, as little as 50 of the data points could come from one of those sectors.<sup>39</sup>

### Condition 8

113. Condition 8 specifies a new process for assessing tonality and amplitude modulation in the noise experienced at residences, and for specifying when a penalty is to be applied to the measured sound level to account for the presence of those characteristics
114. My strikethrough version includes a revised version of condition 8.2 and has deleted condition 8.5 in accordance with the recommendations of Mr Halstead<sup>40</sup> and Dr Chiles<sup>41</sup>. I stated my reason for this in paragraph 99.

---

<sup>38</sup> Mr Halstead paragraph 74.

<sup>39</sup> Mr Halstead paragraph 82.

<sup>40</sup> Mr Halstead paragraph 38-49.

<sup>41</sup> Dr Chiles paragraph 10 – 26.

**Condition 10**

115. Condition 10 specifies requirements for a post s128 review noise compliance assessment against the revised noise conditions.
116. My strikethrough version includes amendments to the introductory text of condition 10 to:
- (a) clarify that the compliance monitoring report relates only to the existing TRH WTGs;
  - (b) clarify the purpose of the report is to demonstrate compliance with the amended conditions;
  - (c) confirm that the report can make use of existing monitoring data where it would be in accordance with NZS6808:2010 to do so; and
  - (d) confirm that on/off testing or any other method provided for in NZS6808:2010 can be used to determine compliance.
117. I understand there to be no disagreement as between NZ Windfarms and PNCC that the above principles should apply to the post compliance noise assessment, however, to avoid any unnecessary uncertainty I consider they should be set out explicitly in the condition.
118. To address the concern raised by Tararua Windpower Limited (now TILT) that condition 10 may require it to turn off its windfarm to allow TRH noise monitoring to occur, my strikethrough version also includes an advice note below condition 10.2 to clarify this is not the case. Dr Chiles addressed this in paragraph 44-45 of his evidence.
119. My strikethrough version also includes:
- (a) Some additional text in condition 10.2 to clarify that the absence of “unimpeded and safe access” is the reason why an alternative representative monitoring location may be used. This is already implicit in the wording of condition 10.2.3.
  - (b) A change to the wording of condition 10.4 so it is clear what the purpose of the near field tonality assessments are. This change is recommended by Mr Halstead in paragraph 54-58 of this evidence.

**Condition 12**

120. Condition 12 specifies assessment requirements in respect of the 32 consented but not yet constructed TRH WTGs.
121. Prior to installation of any additional turbine onsite (over and above the 65 already constructed), Condition 12 requires NZ Windfarms to provide an acoustic assessment which demonstrates the predicted noise levels will comply with the TRH consent conditions.
122. Condition 12.5 then requires a comprehensive post construction noise assessment to be completed to confirm that actual noise levels experienced at the neighbouring residences comply with the noise levels specified in conditions 4 and 5. However, Condition 12.4 also requires that when installed, any new WTG shall not exceed the WTG sound power levels used in the acoustic assessment to predict noise effects in the receiving environment, and in turn compliance.
123. Mr Halstead<sup>42</sup> has recommended deleting this condition because it is the noise level received at nearby residences that is important, not the sound power emitted by a turbine because the latter has no adverse effects on sensitive receptors (in this case the neighbouring residences).
124. Mr Halstead<sup>43</sup> has also outlined why the comprehensive post installation noise assessment of noise levels at the nearby residences required by condition 12.5 and condition 10 will provide robust confirmation that the noise experienced at those residences meets the TRH noise conditions.
125. I agree with Mr Halstead on the basis that it is the actual effects on sensitive receptors that are important (as determined by the level and character of the sound they receive). Proposed Conditions 4, 5 and 8 will specify what those acceptable effects are, and in my view, it is not important how NZ Windfarms manages TRH to achieve compliance with those limits. Therefore, I have deleted condition 12.4 from my strikethrough version.
126. I note that Assessment Criteria (g)(ii) in PC15 states that any application is to be assessed in terms of "*the provisions for*

---

<sup>42</sup> Mr Halstead paragraphs 63-65.

<sup>43</sup> Mr Halstead paragraph 63.

*safeguards and contingencies, particularly concerning ... specifying compliance with turbine manufacturer's noise emission levels stated in the application". I note that Assessment Criteria (g)(ii) remains subject to appeal, and in turn should be afforded limited weight when considering whether condition 12.4 should be retained. However, irrespective of that, I note that Assessment Criteria (g)(ii) is not a rule or mandatory requirement, and in my view the post compliance noise assessment required at the neighbouring residences specified in condition 10.1 provides sufficient safeguard and contingency in this case.*

127. My strikethrough version also includes:
- (a) Correction of a minor typographical area on condition 12.3.1.
  - (b) A new condition 12.5A to clarify when the post installation Stage 4 noise compliance assessment must be provided to PNCC, and to confirm it is subject to the same peer review requirement as the post s128 review compliance assessment.

### **Conditions 16**

128. Condition 16 specifies how NZ Windfarms is required to engage with neighbours.
129. Submitter 12 (Wallace) seeks a range of changes to the conditions which address this matter. They include conditions be included that require:
- (a) A mail drop to all owners and occupiers within 3 km of TRH informing them of information sources and points of contact should they wish to raise issues;
  - (b) The NZ Windfarms website to be updated at three monthly intervals; and
  - (c) NZ Windfarms to facilitate a new community liaison group to facilitate information flow between NZ Windfarms, neighbours and PNCC.
130. NZ Windfarms has accepted the above suggestions in principle and requested that I draft appropriately certain conditions for their inclusion in the consent.
131. My strikethrough version contains an amended condition 16 and new condition 16A which set out NZ Windfarms

obligations to provide the public with information on TRH operation.

132. In my view, a condition requiring the NZ Windfarms website to be "updated at three monthly intervals" as sought by the submitter is not very useful. An alternative, and in my view more useful condition would be to require NZ Windfarms to make certain information available on their website, and for that information to always be up to date. My strikethrough version of condition 16 does this, and stipulates the NZ Windfarms website should always include the following information:
- (a) A specified point of contact and local telephone number for the public to contact in respect of wind farm operations; and
  - (b) Any compliance noise monitoring reports which the consent holder has provided to PNCC in accordance with the conditions of this consent.
133. Condition 16A specifies the details for the mail drop requested by the submitter. The main change in this condition relative to that sought by the submitter, is it requires written notification be provided to all properties that PNCC provided direct service of this notice of review, rather than all properties within 3 km of the wind farm. This is done by reference to a new Schedule 1 which I have included at the back of the consent.
134. I have also included a new Condition 16B which requires NZ Windfarms to establish and facilitate a community liaison group. My suggested condition contains relatively standard wording for this type of condition, and it should ensure that the flow of information between NZ Windfarms and its neighbours is maintained in the future. Membership of the group would be open to the owners and occupiers of all properties where condition 10.1 requires noise monitoring to be conducted, along with all properties PNCC provided direct service of this notice of review.

### **Condition 21**

135. Proposed condition 21 states that PNCC may, in accordance with s128 and s129, serve notice of its intention to review the conditions of the TRH consent relating to noise effects on 31 May of any calendar year in order to:

- (a) Address environmental effects relating to noise emissions not anticipated by the consent; and
  - (b) To better monitor and manage noise emissions and effects.
136. I understand Mr Auckram supports the provision to review on an annual basis because:
- (a) Changes to noise effects may occur that are other or further than those anticipated; and
  - (b) There is a risk the conditions will not be effective in avoiding undue annoyance to neighbours.
137. In my view, it is important the conditions imposed through this s128 process provide certainty to residents, the Council and NZ Windfarms on what the acceptable noise is from this wind farm.
138. This certainty is undermined if the conditions contemplate the s128 review process being used as a means of covering off the scenario where despite compliance being achieved with the noise conditions set through this process, neighbours continue to be annoyed by TRH noise.
139. To the extent there is uncertainty present at the time the conditions are set, I consider that could be appropriately addressed by allowing a review to be considered following receipt of the post s128 noise compliance report required by condition 10. Otherwise, I see no reason to depart from the periodic 5-year review period I understand is set on other wind farm consents in the Palmerston North District.

#### **Condition 44**

140. My strikethrough version of condition 44 has deleted the reference to s690A of the Local Government Act on the basis that this section has been repealed. This is addressed in NZ Windfarms legal submissions.

#### **CONCLUSION**

141. Overall, I consider there to be no planning related reason why TRH should not be authorised to continue to operate subject to revised and appropriate consent conditions.
142. TRH and the renewable electricity it generates is of regional and national significance, and in my view its adverse noise effects on neighbouring residences can be adequately

avoided, remedied or mitigated in a manner so the activity and its effects aligns comfortably with the expectations of the relevant RMA planning framework.

A handwritten signature in black ink, consisting of a stylized, cursive 'A' followed by a horizontal line extending to the right.

**Adrian David Low**

25 August 2017

## ATTACHMENT 1

### MY STRIKETHROUGH VERSION OF CONSENT CONDITIONS

**Note:**

- Conditions included in the PNCC notice of review is used as the base document.
- **Blue highlighted text** are changes suggested by council on 18 August 2017 in s 42A report (I refer to this as Councils' strikethrough version in my evidence).
- My suggested amendments to that document are shown in **red underlined** or **strikethrough text**.

1. The proposed Te Rere Hau Wind Farm must be constructed and operated generally in accordance with all the information, site plans and drawings accompanying the application or submitted as additional information, except the noise predictions accompanying the original application. The relevant noise standards for the Te Rere Hau windfarm are set out in conditions 4-12 of this consent. Each turbine shall be located within a 20m radius of its nominated coordinates as outlined in the Application (contained on File No: N21/PLN – Plans drawn by Connell Wagner drawing number 101E, 3A).

Advice Note: (a) the ability to alter the specific location of each turbine within a 20m radius is to provide for likely movement related to detailed design layout and the recommendations made in the Applicant's ecologist's report; and (b) non-reflective finishes shall be used and be maintained in such a manner to prevent blade glint and to assist in reducing the prominence of the turbines when viewed from a distance.

#### Noise (General)

2. Noise from all construction and decommissioning work including (but not limited to):
  - (a) site works;
  - (b) wind turbine generator (WTG) foundation construction;
  - (c) WTG assembly and placement;
  - (d) WTG removal;
  - (e) foundation demolition and removal; and
  - (f) land reinstatement

shall be measured, assessed and controlled using NZS 6803:1999 Acoustics – Construction Noise. The noise limits shall be those set out in Table 2 of NZS 6803:1999 for works of a “long term” duration.

3. Noise from all other activities (other than WTG operation and construction activities) shall not exceed the following limits at or within the boundary of any land (other than the wind farm site or a road):

7:00am to 10:00pm 50dBA L10

10:00pm to 7:00am 40dBA L10 and 70dBA Lmax

Sound levels shall be measured in accordance with New Zealand Standard NZS 6801:1999 *Acoustics – Measurement of Environmental Sound* and assessed in accordance with NZS 6802:1991 – *Assessment of Environmental Sound*.

## WTG Noise Management

### Operating limits

4. ~~The wind farm shall operate such that when measured within the notional boundary of any residential dwelling~~ For residences in existence at the time this consent was granted on 30 May 2005 that ~~is are~~ within the Rural Residential Overlay mapped in the Palmerston North District Plan as notified in Plan Change 15, ~~the wind farm shall operate such that~~ wind farm noise does not exceed the greater of:

4.1 35 dB(A); OR

4.2 The background noise level plus 5 dB(A).

This condition only applies twelve months after the conditions have been amended pursuant to PNCC's review under RMA, s 128(1)(c), ~~from 7pm to 7am during evening and night-time~~, up to a hub height wind speed of ~~6 8~~ m/s and where the difference between operational and background noise levels is greater than 8 dB(A) in accordance with Section C5.3.1 of NZS 6808:2010, otherwise condition 5 applies.

~~This condition does not apply to any property owned by the Consent Holder, or which has a covenant in favour of the Consent Holder, or is owned by a home owner who has confirmed in writing that they consent to this condition not applying to their dwelling.~~

5. Subject to condition 4, the wind farm shall operate such that when measured ~~at~~ within the notional boundary of any residential dwelling in existence at the time this consent was granted on 30 May 2005, the wind farm noise does not exceed the greater of:

5.1 40 dB(A); OR

5.2 The background noise level plus 5 dB(A).

~~This condition does not apply to any property owned by the Consent Holder, or which has a covenant in favour of the Consent Holder, or is owned by a home owner who has confirmed in writing that they consent to this condition not applying to their dwelling.~~

6. For the purposes of Condition 4 and Condition 5, the background noise level used to establish noise limits should not be influenced by noise from the Te Rere Hau Extension or any other wind farm.

Windfarm noise, assessment and measurement

7. Wind farm noise is to be measured and assessed in accordance with NZS 6808:2010 subject to the specific requirements ~~and~~ set out below that prevail in the event of conflict:

- 7.1 Noise levels are to be assessed over the 30m height wind speed range from 5.5 m/s to 15.5 m/s;

- 7.2 The operational and background noise levels are to be assessed for ~~the night time period only. Night time is defined as~~ the period ~~from~~ 1 hour after sunset to 1 hour before sunrise ~~only~~;

- 7.3 The operational and background noise levels are to be individually assessed for each of the following wind sectors:

- 7.3.1. WNW – 270° to 315° relative to true north;

- 7.3.2. NNW - 315° to 360° relative to true north;

- 7.3.3. SSE - 135° to 180° relative to true north;

- 7.3.4. ESE - 90° to 135° relative to true north.

- 7.4 Any data points collected under any of the following circumstances are to be excluded from the assessment:

- 7.4.1. Less than 95% of the WTGs are online and available for generation. That is, more than 5% are offline for maintenance or due to failure;

- 7.4.2. Less than 9 of the nearest 10 WTGs to a measurement location are online and available for generation;

7.4.3. Either T103 or T104 (or both) are not online and available for generation (for Harrison Hill Road, 428 Pahiatua-Aokautere Road and Ridgeview Road measurement locations only).

Any WTGs that are not operating, or have been curtailed, as a noise reduction measure for particular wind conditions shall be considered to be online and available for generation for those conditions. However which WTGs are not operating and which are curtailed must be reported in the post compliance assessment under condition 10.6.

7.5 At least:

7.5.1. 200 valid data points are to be collected for each WNW and NNW wind direction sectors; and

7.5.2. 350 valid data points are to be collected cumulatively across the SSE and ESE wind direction sectors and at least 150 data points must come from across each of these sectors;

unless this is not reasonably practical, at the discretion of PNCC, due to the wind characteristics of the site.

8. The following procedure shall be assessed separately for each wind direction sector and only for the night time period (1 hour after sunset to 1 hour before sunrise).

8.1 If a tone that attracts a penalty in accordance with NZS 6808:2010 and is attributable to the wind farm is detected in any two-minute period at a residence, then the penalty shall be applied to the 10-minute data point in which that period occurs. If multiple tones that attract a penalty are detected for a 10-minute data point, then the highest penalty shall be applied;

8.2 "If the AM threshold described in NZS6808:2010 B3.2 Interim Test Method are exceeded on a regular basis, an adjustment of +5 dB shall be applied to the wind farm sound level at that location for the wind conditions under which the modulation occurs." ~~If average amplitude modulation exceeding 3 dB is detected for any 10-minute period in accordance with the UK Institute of Acoustics amplitude modulation metric, then a penalty shall be applied to that 10-minute period in accordance with the penalty scheme detailed in the UK Department of Environment and Climate Change Wind Turbine AM Review – Phase 2 Report dated August 2016;~~

- 8.3 The total penalty for any 10-minute **data point** shall not exceed 6 dB in accordance with NZS 6808:2010;
- 8.4 If less than 10% of the data points within a 1 m/s-wind speed bin attract a penalty, then the 10-minute data points, including penalty, shall be included in the data for the assessment of the overall noise level;
- 8.5 ~~If 10% or more of the data points within a 1 m/s-wide wind speed bin attract a penalty, then the arithmetic average penalty for those penalised data points shall be determined and applied to the overall measured wind farm noise level for that wind speed.~~
9. For the purposes of any background or operational noise monitoring, all noise data is to be referenced to 30 m height wind speeds, and 28 m height wind directions, as measured at the Te Rere Hau Wind Farm western meteorological mast.

Post amendment noise compliance assessment

10. A compliance noise monitoring report for the existing 65 Te Rere Hau WIG's shall be submitted to PNCC within twelve months of the conditions being amended pursuant to PNCC's review under RMA, s 128(1)(c) to demonstrate compliance with those amended conditions. The report shall be prepared in accordance with NZS6808:2010 and may use existing monitoring data collected before PNCC's review, and any further monitoring data which has been collected following the review using the on/off method or any other method provided for in NZS6808:2010. The report must ~~that~~ details:
- 10.1 The results of the noise monitoring conducted at, as a minimum, the following 6 locations:
- 10.1.1. 104 Harrison Hill Road;
  - 10.1.2. 428 Pahiatua-Aokautere Road;
  - 10.1.3. 48 Ridgeview Road;
  - 10.1.4. 38 Ridgeview Road;
  - 10.1.5. 367 Forest Hill Road;
  - 10.1.6. 662 Pahiatua-Aokautere Road.

Advice Note: For the purposes of condition 10 above, where further background sound measurement is required, this consent does not require that any other existing windfarms need be turned off. Clause

C5.6.3 in NZS6808:2010 provides an accepted method for calculating the background sound level excluding noise from other existing windfarms.

10.2 Alternative representative monitoring locations to those listed in 10.1.1 – 10.1.6 may be used if for any reasons unimpeded and safe access is not provided to one or more of the above locations and the alternative location is approved by PNCC. If an alternative representative monitoring location is to be used the consent holder shall provide the consent authority with written notice of the alternative representative location for approval in a technical certification capacity. The written notice shall contain:

10.2.1. the location of the alternative representative location;

10.2.2. the reason for using the alternative representative location;  
and

10.2.3. a statement from a suitably qualified and experienced acoustic expert which outlines why the alternative representative location is a suitable replacement for the site(s) in condition 10.1 to which the consent holder is unable to obtain unimpeded and safe access.

10.3 Objective tonality and amplitude modulation assessments conducted over the range of wind speeds and wind directions defined in Condition 7.

10.4 Where near field tonality assessments are used to support the tonality assessment at the residence, the consent holder shall ensure that the relevant tones are considered at the residence. ~~near field tonality assessments shall also consider the wind speeds and wind directions defined in Condition 7.~~

10.5 A conclusion as to the compliance, or otherwise, of the wind farm.

10.6 The identification of any mitigation measures required to achieve compliance (including keeping turbines curtailed or off line) and:

10.6.1. Evidence that these measures have been implemented;

10.6.2. Demonstration to the satisfaction of the Council of the steps taken to ensure that these measures will continue to be implemented during operation of the windfarm; and

10.6.3. All other information as required by NZS 6808:2010.

10.7 If any mitigation measures are identified within the compliance noise monitoring report, then evidence shall be provided that these measures have been applied at all times of day, unless justification is provided within the compliance noise monitoring report as to why the mitigation measures should be limited to specific times of day.

11. The post-amendment noise compliance assessment is to be independently peer reviewed by an acoustic expert acceptable to PNCC.

#### Stage 4

12. Prior to the installation of any new WTG at the site beyond the 65 already constructed as at 1 November 2016:

12.1 Compliance must have been demonstrated to have been achieved for the 65 installed WTGs at the site in accordance with Conditions 4 to 8, or if an existing WTG is relocated to an existing vacant site it must be demonstrated there is compliance after reconfiguration with Conditions 4 to 8;

12.2 An acoustic assessment of the proposed additional WTGs must be submitted to PNCC for approval prior to construction demonstrating that predicted noise levels for all stages, including the extension, will achieve compliance with the consent conditions;

12.3 The acoustic assessment should, as a minimum:

12.3.1. Provide predicted wind farm noise levels from all WTGs at the site, including the Extension WTGs. The predictions should be validated on the basis of measurements taken from the currently installed WTG's ~~of~~ on Te Rere Hau;

12.3.2. Provide evidence supporting the assumed sound power levels for the new WTGs. This should include sound power test data for the WTGs;

12.3.3. Provide justification as to why the addition of the new WTGs would not result in Special Audible Characteristics at residences that would attract a penalty. This should have reference to measurement results from the currently

installed WTGs at Te Rere Hau.

~~12.4 When installed, the new WTGs must not exceed (allowing for measurement uncertainty) the sound power levels stated in the acoustic assessment at 12.3. Sound power levels are to be measured and measurement uncertainty is to be quantified in accordance with IEC 61400-11 Edition 3.~~

12.5 Following the installation of the additional WTGs, compliance monitoring should be conducted again **to demonstrate compliance with conditions 4 – 8** ~~and the compliance monitoring report referred to in condition 10 should be re-submitted to PNCC.~~

12.5A A Stage 4 compliance monitoring report shall be provided to PNCC within 12 months of installation of the additional WTGs which addresses all the matters required of the post review compliance monitoring report in Condition 10. The Stage 4 compliance monitoring report is to be independently peer reviewed by an acoustic expert acceptable to PNCC

12.6 Should the additional WTGs be installed in multiple stages, then compliance monitoring must be undertaken following each stage.

#### General management and reporting

13. The consent holder shall submit an annual report for the year ending 31 December to the PNCC Environmental Compliance Manager by 28 February the following year which:

13.1 Identifies all alterations made to turbines during the year which may have the potential to either increase the noise levels from any WTG, or change / introduce special audible characteristics from any WTG in an adverse way, including replacement of gearboxes and / or generators, replacement of blades, new blade profiles, and changes to the isolation between gearboxes and / or generators and the turbine structure; and

13.2 Includes a statement from a suitably qualified and experienced acoustic consultant that identifies, and characterises any of those changes.

14. The Consent Holder shall maintain the turbines in good condition at all times and shall undertake appropriate regular servicing in accordance with industry practice.

15. The Consent Holder shall advise PNCC if there is any material change to

the noise emissions from the WTGs from the emissions existing at the time these conditions were amended by a review under s 128(1)(c) as a result of wear and tear.

### Contact and Complaints Procedure

16. At all times the Consent Holder shall maintain a dedicated and up to date website which makes the following information available to the public:

16.1 a specified point of contact and local telephone number for the public to contact in respect of Te Rere Hau wind farm operations;

16.2 any compliance noise monitoring reports required under this consent which have been provided to the Council.

~~16A Within six weeks of of the conditions being amended pursuant to PNCC's review under RMA, s 128(1)(c), the Consent Holder shall establish and publicise in the local newspaper, and via written notification to all occupiers and/or owners of the houses listed in Schedule 1 of this consent, details of the website established in accordance with condition 16, and a local telephone number and dedicated website so that members of the public have a specified point of contact during construction, operation and maintenance of the wind farm, and are able to be kept regularly informed of for the public to contact in respect of wind farm operations, particular activities or events at the wind farm site.~~

### Community Liaison Group

16B Within 3 months of the completion of the PNCC review, the Consent Holder shall establish a Community Liaison Group (Group) for the Te Rere Hau windfarm.

16B.1 Membership of the Group shall include representatives of the Consent Holder and shall be open to:

16B.1.1 the occupiers and owners of the 6 properties noted as monitoring locations in condition 10.1; and

16B.1.2 the occupiers and owners of properties listed in Schedule 1 of this consent.

16B.2 The purpose of the Group shall be to:

16B.2.1 provide a means for receiving regular updates on Te Rere Hau windfarm activities;

16B.2.2 provide a regular forum through which information and monitoring data about the windfarm can be provided to the neighbours; and

16B.2.3 enable opportunities for concerns and issues to be

reported to and responded to by the Consent Holder.

16B.3 The Consent Holder will use its best endeavours to ensure that the Group meets at least annually for the first five years following the review. After that five year period, the Consent Holder shall only be required to organise a meeting following a specific request by a Group member and provided it has been at least 12 months since the last Group meeting.

Advice note: The Consent Holder can opt to hold Group meetings more frequently but is not required by these conditions to do so.

16B.4 The Consent Holder shall provide reasonable administrative support for the Group including organising meetings at a local venue, inviting all members of the Group as well as the taking and dissemination of meeting minutes.

17. The Consent Holder shall maintain a Complaints Register to record complaints from the public in respect to adverse off-site environmental impact that may arise during construction, operation and maintenance of the wind farm. This Register is to include the name and address of the complainant (if provided), the date and time of the complaint, the nature of the complaint, wind and weather at the time, activity occurring on the site at the time, details of whether the complaint was or was not able to be verified, and any remedial measures undertaken by the Consent Holder.
18. A copy of the Complaints Register shall be made available within 5 working days to PNCC's Environmental Compliance Manager upon request.
19. The Consent Holder shall also forward an annual summary of the Complaints Register for the year ending 31 December to PNCC's Environmental Compliance Managers by 30 January the following year.
20. The report in condition 19 shall assess and consider potential causes for any complaints about noise and whether they are attributable to changes in noise emissions from the WTGs.

### Review

21. PNCC may, in accordance with the Resource Management Act 1991, ss 128 and 129 serve notice of its intention to review the conditions of consent relating to noise emissions and effects of WTGs following receipt of a compliance noise monitoring report required by condition 10 or condition 12.5A, and at 5 yearly intervals thereafter (whichever occurs

~~first) on 31 May of any calendar year~~ in order to:

21.1 Address environmental effects relating to noise emissions not anticipated by this consent; and

21.2 To better monitor and manage noise emissions and effects.

### **Roading and Traffic**

22. Prior to any construction works commencing, the Consent Holder shall submit and have approved by Council's Roading Manager, a Traffic Management Plan including a construction timetable, detailing vehicle movements to and from the site and which includes consideration of traffic management practices at times that the Manawatu Gorge Road is closed.

Advice Note: The Plan is to be prepared in accordance with the PNCC Traffic Management Guidelines (2000) and should provide for safe and practical access to and from the site during the construction phase of the wind farm.

23. The Consent Holder shall submit engineering plans for approval by Council's Roading Manager, for the required upgrading of North Range Road in accordance with ARRB Unsealed Roads Manual, Guidelines to Good Practices (August 2000) or similar standard. Such plans shall include a minimum carriageway width of 4 metres, appropriate passing opportunities and a sealed ingress/egress area at the intersection of Pahiatua-Aokautere Road for a length of no less than 30 metres to prevent gravel overspill onto the adjoining carriageway.

24. The Consent Holder shall complete the roading works required and specified in the approved engineering plans (condition 23) prior to the commencement of the construction works on the wind farm.

25. Following the completion of the required roading upgrade works (Condition 9) the Consent Holder shall regularly carry out sufficient roading maintenance works to maintain the length of North Range Road from Pahiatua-Aokautere Road to the wind farm site to the same standard (or better). The maintenance works are to be carried out until all construction works for the wind farm have been completed, at which time the maintenance liability will revert back to the Council.

### **Ecological**

26. The Consent Holder shall record any birds found killed or injured resulting from the operation of the wind farm. This record shall include the time, location, date and species of any birds found dead on the site. This recording should include coverage of all turbine areas and shall be undertaken as part of the regular duties of the staff. This recording shall be undertaken from the installation of the first turbine and continued for a

period of five years. Once every 12 months for the duration of the specified period of recording, the information shall be forwarded to the Head of Planning, Customer Services Unit, Palmerston North City Council. A copy of the record is also to be forwarded to the Department of Conservation Area Office in Palmerston North.

Advice Note: In developing the recording approach it is understood that the Consent Holder will consult with the Department of Conservation. The Consent Holder will cooperate with any other party that may want to undertake a monitoring strategy of bird life. If any dead native bird species are found on the site, then these birds shall be placed in a freezer as soon as practicable and the Department of Conservation informed. Where injured birds are found the Veterinary Department at Massey University should be contacted.

27. The Consent Holder or its nominated agent shall ensure that there is ongoing pest control of magpies, rabbit and hare within the application site; and of cats, possums and mustelids within the QEII covenanted area.

Advice Note: The Consent Holder should contact horizons – Regional Council for advice on appropriate methods of pest control.

### **Landscaping and Earthworks**

28. The Consent Holder shall submit for approval to Council's Senior Landscape Architect detailed landscape contour plans for all cut and fill earthworks. These plans must identify the disposal sites for fill.

Explanation Note: Approval of these plans is based on the integration of the cut and fill earthworks that are visually prominent with the surrounding landforms, and on disposal sites for fill not being in visually prominent locations.

29. The Consent Holder must ensure that all cut and fill earthworks and disposal of fill is undertaken in accordance with the approved landscape and contour plans required by Condition 28.
30. The horizons – Regional Council shall be notified prior to any on-site earthworks being undertaken to ensure compliance with the relevant regional plan provisions.
31. The consent holder shall ensure that the proposed development of the access tracks and rehabilitation of this system after construction is completed (within the first planting season following each stage of the construction works) including topsoiling and appropriate hydro-seeding of the same areas around all concrete foundations flush to all outer edges of the concrete foundations, and the topsoiling and grassing of the secondary tracks, farm tracks and temporary tracks be undertaken in accordance with the detail outlined in the application.

32. The Consent Holder shall submit for approval to Council's Senior Landscape Architect a landscape plan detailing proposed landscaping around the site office buildings and associated outdoor yards to provide visual screening such that the works integrate the buildings with the site when viewed from the west and south west of the site.
33. The Consent Holder shall complete the landscaping works proposed in plans certified pursuant to Condition 32 within the first planting season after initial occupation and use of the buildings.

#### **Ballance Radar Station**

34. The Consent Holder shall prepare a report which:
  - (a) Takes into account the experimental work done by New Zealand Windfarms Ltd and Airways Corporation of NZ Ltd (Airways) on 10 November 2004 and involves further experimental work following the installation and operation of the first turbine situated on the skyline in the line of site of the Ballance Radar Station.
  - (b) Identifies and assesses potential and actual adverse effects of the wind farm development on the operation of Airways' Ballance Radar Station and any other navigational sites and facilities which are deemed by Airways to be potentially affected by the wind farm, as defined at the time the report is prepared.
  - (c) Includes measures as necessary to avoid, remedy and/or mitigate any such adverse effects to ensure the safe and efficient operation of the air transport network other than remove or relocate any turbine which is 500m (or more) away from the Ballance Radar Station or not in direct line of sight of the flight path into Palmerston North Airport when viewed from the Ballance Radar Station.
35. The report required under Condition 19 shall be prepared by Airways or a company expert in radar systems and shall be provided to the Head of Planning, Customer Services Unit, Palmerston North City Council for approval within 6 months from the date of installation of the first turbine in line of sight of the Ballance Radar Station.
36. The Consent Holder shall as a precaution install the first six turbines in such a way that the towers are either clearly separate or completely aligned radially (ie fully overlapping) as seen by the Ballance Radar Station.
37. The Consent Holder shall implement the mitigation measures detailed in the report prepared in accordance with Condition 34 within 1 month of the report being provided to the Head of Planning, Customer Services Unit, Palmerston North City Council. Turbine numbers 1 to 6 may have been installed prior to the completion of the report in which case the Consent Holder shall not be required to remove or relocate any of these 6 turbines, unless there is evidence to indicate that their operation is

resulting in actual adverse effects to the safe and efficient operation of the air transport network and other mitigation measures have not proved to be effective.

38. Within 12 months of the date of commencement of this consent and within 3 months of the first, second, fifth and eighth anniversary of the commencement of this consent, the Palmerston North City Council may, in accordance with sections 128 and 129 of the Resource Management Act 1991, serve notice of its intention to review the conditions of consent if there is documented evidence that adverse effects on the safe and efficient operation of the air transport network beyond the limits contemplated by the granting of this consent have been generated by the activities on the site, or that the measures implemented to avoid, remedy and/or mitigate any such adverse effects have not been effective (see Note 1 below).

Note 1: The operation of this consent relies on the adoption of measures to ensure any adverse effects on the Ballance Radar Station and any other navigational sites and facilities which are deemed by Airways (as defined at the time the report required by Condition 34 is prepared) to be potentially affected by the wind farm are avoided, remedied, and/or mitigated. As the timing of the commissioning of the entire wind farm is to be progressive, actual effects may not be identified until some time after the granting of the consent.

Consent has been granted on the basis that the potential effects of the wind farm on the Ballance Radar Station will be able to be identified and avoided, remedied, and/or mitigated. In the event that the actual effects differ from those contemplated by the granting of this consent, adjustments in the conditions to address such adverse effects could include, amongst other things, a requirement for the removal of any turbines that are within 500m of the Ballance Radar Station to ensure that those adverse effects are adequately avoided, remedied or mitigated.

## **Cultural**

39. If at any time during the site excavations authorised by this Consent potential historic artefacts or cultural remains or koiwi items are discovered, then all work shall stop and the Consent Holder shall immediately advise the Palmerston North City Council's Head of Planning and Tanenuiarangi Manawatu Inc. The Consent Holder shall also call its archaeological advisor to the site to verify whether or not the objects form archaeological evidence. Further excavation work at the site shall be suspended should Tanenuiarangi Manawatu Inc wish to carry out their procedures and tikanga for removing taonga. Work at the site shall not recommence until approval to do so has been given by the Palmerston North City Council's Head of Planning.

Advice Note: The Consent Holder is reminded of its obligations under the Historic Places Act 1993.

In the event that any artefact or any object which may be of Maori or

historic significance is uncovered or disturbed during the course of the earthworks, the contractor, supervising engineer, or Consent Holder shall immediately cease work and inform the Palmerston North City Council's Head of Planning and contact the New Zealand Historic Places Trust to determine whether an archaeological authority is required. In the interim the contractor, supervising engineer or Consent Holder shall secure the site until approval to proceed has been granted. If an archaeological authority is required, work may only recommence once the written approval of the New Zealand Historic Places Trust has been obtained and a copy provided to the Head of Planning.

40. Where Rangitane o Manawatu have nominated that sites of significance exist in relation to this site, the Consent Holder shall invite Rangitane o Manawatu as represented by Tanenuirangi Manawatu Inc, Ngati Hineaute Hapu Authority and Te Rangimarie Marae to be present at times excavations are being undertaken in these nominated sites, in order that they may observe the excavations to identify if any historical artefacts or cultural remains or koiwi are uncovered.

Note: Any discussion regarding reimbursement for representatives of Rangitane o Manawatu being present on site is a matter that is between the Applicant and Rangitane o Manawatu.

### **Lapse Date**

41. This consent shall lapse eight years after the date of commencement, unless the consent is either given effect to before that lapsing date, or unless the Palmerston North City Council fixes a longer period pursuant to section 125 of the Resource Management Act 1991.

### **Wind Farm Decommissioning**

42. Within 12 months of the wind farm ceasing to operate all structures associated with the operation of the wind farm (including all turbine structures, and accessory buildings) shall be removed completely from the site by the Consent Holder.

### **Charges**

43. A monitoring fee of \$430.00 (GST inclusive) shall be paid at the time the resource consent is granted to cover the cost of monitoring compliance with the above conditions. This fee covers four monitoring visits.
  - (i) A fee will be payable by the Consent Holder if any non-compliance with the conditions of this consent are discovered as a result of monitoring. This fee is set in accordance with Section 36(1)(c) of the Resource Management Act 1991 ~~and Section 690A of the Local Government Act 1974.~~
44. The consent holder shall pay PNCC all actual and reasonable costs pursuant to RMA, s 36, in relation to any administration, monitoring and

inspection relating to these consents, and charges fixed by regulation.

**Schedule 1 – List of properties to which condition 16A and 16B apply.**

| <u>Address</u>                     |                                    |
|------------------------------------|------------------------------------|
| <u>84 Harrison Hill Road</u>       | <u>48 Ridgeview Road</u>           |
| <u>19 Ridgeview Road</u>           | <u>621 Pahiatua Aokautere Road</u> |
| <u>15 Ridgeview Road</u>           | <u>631 Pahiatua Aokautere Road</u> |
| <u>208 Forest Hill Road</u>        | <u>265 Forest Hill Road</u>        |
| <u>96 Harrison Hill Road</u>       | <u>102 Harrison Hill Road</u>      |
| <u>24 Ridgeview Road</u>           | <u>662 Pahiatua Aokautere Road</u> |
| <u>20 Ridgeview Road</u>           | <u>319 Forest Hill Road</u>        |
| <u>41 Ridgeview Road</u>           | <u>696 Pahiatua Aokautere Road</u> |
| <u>47 Ridgeview Road</u>           | <u>239 Forest Hill Road</u>        |
| <u>38 Ridgeview Road</u>           | <u>148 Harrison Hill Road</u>      |
| <u>21 Ridgeview Road</u>           | <u>140 Harrison Hill Road</u>      |
| <u>153 Harrison Hill Road</u>      | <u>276 Forest Hill Road</u>        |
| <u>658 Pahiatua Aokautere Road</u> | <u>104 Harrison Hill Road</u>      |
| <u>349 Forest Hill Road</u>        | <u>186 Harrison Hill Road</u>      |
| <u>16 Harrison Hill Road</u>       |                                    |



## ATTACHEMENT 2

### SCHEDULE OF RELEVANT PROVISIONS

#### National Policy Statement for Renewable Energy Generation

##### **Objective**

To recognise the national significance of renewable electricity generation activities by providing for the development, operation, maintenance and upgrading of new and existing renewable electricity generation activities, such that the proportion of New Zealand's electricity generated from renewable energy sources increases to a level that meets or exceeds the New Zealand Government's national target for renewable electricity generation.

##### **POLICY A**

Decision-makers shall recognise and provide for the national significance of renewable electricity generation activities, including the national, regional and local benefits relevant to renewable electricity generation activities...

##### **POLICY B**

Decision-makers shall have particular regard to the following matters:

- a) maintenance of the generation output of existing renewable electricity generation activities can require protection of the assets, operational capacity and continued availability of the renewable energy resource; and
- b) even minor reductions in the generation output of existing renewable electricity generation activities can cumulatively have significant adverse effects on national, regional and local renewable electricity generation output; and
- c) meeting or exceeding the New Zealand Government's national target for the generation of electricity from renewable resources will require the significant development of renewable electricity generation activities.

##### **POLICY C1**

Decision-makers shall have particular regard to the following matters:

- a) the need to locate the renewable electricity generation activity where the renewable energy resource is available;
- b) logistical or technical practicalities associated with developing, upgrading, operating or maintaining the renewable electricity generation activity;
- c) the location of existing structures and infrastructure including, but not limited to, roads, navigation and telecommunication structures and facilities, the distribution network and the national grid in relation to the renewable electricity generation activity, and the need to connect renewable electricity generation activity to the national grid;
- d) designing measures which allow operational requirements to complement and provide for mitigation opportunities; and
- e) adaptive management measures.

##### **POLICY C2**

When considering any residual environmental effects of renewable electricity generation activities that cannot be avoided, remedied or mitigated, decision-makers shall have regard to offsetting measures or environmental compensation including measures or compensation which benefit the local environment and community affected.

**POLICY D**

Decision-makers shall, to the extent reasonably possible, manage activities to avoid reverse sensitivity effects on consented and on existing renewable electricity generation activities.

## The Manawatu-Wanganui Region One Plan

### **Objective 3-1: Infrastructure<sup>^</sup> and other physical resources of regional or national importance**

Have regard to the benefits of infrastructure<sup>^</sup> and other physical resources of regional or national importance by recognising and providing for their establishment, operation\*, maintenance\* and upgrading.

### **Policy 3-1: Benefits of infrastructure and other physical resources of regional or national importance**

- (a) The Regional Council and Territorial Authorities must recognise the following infrastructure as being physical resources of regional or national importance:
- (i) facilities for the generation of more than 1 MW of electricity and its supporting infrastructure where the electricity generated is supplied to the electricity distribution and transmission networks..
  - ...
- (c) The Regional Council and Territorial Authorities must, in relation to the establishment, operation, maintenance, or upgrading of infrastructure and other physical resources of regional or national importance, listed in (a) and (b), have regard to the benefits derived from those activities.
- (d) The Regional Council and Territorial Authorities must achieve as much consistency across local authority boundaries as is reasonably possible with respect to policy and plan provisions and decision-making for existing and future infrastructure.

### **Policy 3-2: Adverse effects of other activities on infrastructure and other physical resources of regional or national importance**

The Regional Council and Territorial Authorities must ensure that adverse effects on infrastructure and other physical resources of regional or national importance from other activities are avoided as far as reasonably practicable, including by using the following mechanisms:

- (a) ensuring that current infrastructure, infrastructure corridors and other physical resources of regional or national importance, are identified and had regard to in all resource management decision-making, and any development that would adversely affect the operation, maintenance or upgrading of those activities is avoided as far as reasonably practicable,
- (b) ensuring that any new activities that would adversely affect the operation, maintenance or upgrading of infrastructure and other physical resources of regional or national importance are not located near existing such resources or such resources allowed by unimplemented resource consents or other RMA authorisations,
- (c) ensuring that there is no change to existing activities that increases their incompatibility with existing infrastructure and other physical resources of regional or national importance, or such resources allowed by unimplemented resource consents or other RMA authorisations,
- (d) notifying the owners or managers of infrastructure<sup>^</sup> and other physical resources of regional or national importance of consent applications that may adversely affect the resources that they own or manage,

**Policy 3-3: Adverse effects of infrastructure and other physical resources of regional or national importance on the environment**

In managing any adverse environmental effects arising from the establishment, operation, maintenance and upgrading of infrastructure or other physical resources of regional or national importance, the Regional Council and Territorial Authorities must:

- (a) recognise and provide for the operation, maintenance and upgrading of all such activities once they have been established,
- (b) allow minor adverse effects arising from the establishment of new infrastructure and physical resources of regional or national importance, and
- (c) avoid, remedy or mitigate more than minor adverse effects arising from the establishment of new infrastructure and other physical resources of regional or national importance, taking into account:
  - (i) the need for the infrastructure or other physical resources of regional or national importance,
  - (ii) any functional, operational or technical constraints that require infrastructure or other physical resources of regional or national importance to be located or designed in the manner proposed,
  - (iii) whether there are any reasonably practicable alternative locations or designs, and
  - (iv) whether any more than minor adverse effects that cannot be adequately avoided, remedied or mitigated by services or works can be appropriately offset, including through the use of financial contributions.

**Policy 3-6: Renewable energy**

- (a) The Regional Council and Territorial Authorities must have particular regard to:
  - (i) the benefits of the use and development of renewable energy resources including:
    - (A) contributing to reduction in greenhouse gases,
    - (B) reduced dependency on imported energy sources,
    - (C) reduced exposure to fossil fuel price volatility, and
    - (D) security of supply for current and future generations,
  - (ii) the Regions potential for the use and development of renewable energy resources, and
  - (iii) the need for renewable energy activities to locate where the renewable energy resource is located, and
  - (iv) the benefits of enabling the increased generation capacity and efficiency of existing renewable electricity generation facilities, and
  - (v) the logistical or technical practicalities associated with developing, upgrading, operating or maintaining an established renewable electricity generation activity.



## Palmerston North City Council District Plan

| OPERATIVE PLAN   | PC15 DECISIONS VERSION   |
|--|--|
| CITY VIEW OBJECTIVES   |  |
| 9. Subdivisions, buildings and infrastructure are designed and constructed to promote a coordinated, healthy and safe environment.   | No change  |
| 20. The benefits of renewable electricity generation are recognised, and barriers to the provision of small and community-scale renewable electricity generation are reduced, while adequately managing the potential effects of such activities.  | No change.   |
| 22. Appropriate noise standards are in place to protect noise sensitive activities.  | No change  |
| 23. Infrastructure operates in a safe and efficient manner, and the effects of activities which could impact on the safe and efficient operation of this infrastructure are avoided, remedied or mitigated.  | No change  |
| 25. Infrastructure and physical resources of regional or national importance are recognised and provided for by enabling their establishment, operation, maintenance, upgrading and protection from the effects of other activities.   | No change  |
| CHAPTER 9 – RURAL ZONE   |  |
| <p>Objective 1<br/>To protect rural land from the adverse effects of unnecessary and unplanned urban expansion.</p> <p>Policy 1.1<br/>To protect rural land that has been identified in Council strategies as potentially suitable for future urban growth.</p> <p>Policy 1.2<br/>To ensure, as far as possible, that existing urban land is fully utilised before the rural land is released for urban purposes.</p> <p>Policy 1.3<br/>To ensure that the urban conversion of the land proceeds in an orderly manner.</p> <p>Policy 1.4<br/>To avoid, where possible, the fragmentation of rural land that has been identified in Council strategies as potentially suitable for future urban growth into small blocks.</p> | <p>Objective 1<br/>To protect rural land from the adverse effects of unnecessary and unplanned urban expansion.</p> <p>Policy 1.1<br/>To protect rural land that has been identified in Council strategies as potentially suitable for future urban growth, <u>including the potential for future residential growth at City West (as shown on Map 9.2) where future development is subject to:</u></p> <ul style="list-style-type: none"> <li>• <u>The provision of greater certainty regarding the need, cost and effectiveness of liquefaction mitigation measures within the City West area.</u></li> <li>• <u>The availability of secure funding for network infrastructure to support the integrated development of the total City West area.</u></li> </ul> <p>Policy 1.2<br/>To ensure, as far as possible, that existing urban land is fully utilised before the rural land is released for urban purposes.</p> <p>Policy 1.3<br/>To ensure that the urban conversion of the land proceeds in an orderly manner.</p> <p>Policy 1.4<br/>To avoid, where possible, the fragmentation of</p> |

| OPERATIVE PLAN  | PC15 DECISIONS VERSION   |
|---|--|
|   | <p>rural land that has been identified in Council strategies as potentially suitable for future urban growth into small blocks.</p> <p><u>Policy 1.5</u><br/> <u>To provide for rural residential subdivision and development in identified areas.</u></p>   |
| <p>Objective 2<br/> To encourage the effective and efficient use and development of the natural and physical resources of the rural area.</p> <p>Policy 2.1<br/> To avoid, remedy or mitigate the adverse effects of activities on land of high productive capability.</p> <p>Policy 2.2<br/> To ensure that the adverse effects of activities in the rural area are avoided, remedied or mitigated such that the amenities of the area and nearby urban areas are maintained.</p> <p>Policy 2.3<br/> To control the actual or potential environmentally adverse effects of activities in the rural area, including the adverse effects of:</p> <ul style="list-style-type: none"> <li>• odour;</li> <li>• noise;</li> <li>• traffic;</li> <li>• visual impact.</li> </ul> <p>Policy 2.4<br/> To encourage the maintenance of sustainable land-uses in the rural area.</p> <p>Policy 2.5<br/> To identify areas subject to natural hazards, and to ensure the adverse effects of the natural hazard are avoided, remedied or mitigated and, where appropriate, prohibit use and development of hazard prone areas</p> | <p>Objective 2<br/> To encourage the effective and efficient use and development of the natural and physical resources of the rural area.</p> <p>Policy 2.1<br/> To avoid, remedy or mitigate the adverse effects of activities on land of high productive capability <u>and versatile soils.</u></p> <p>Policy 2.2<br/> To ensure that the adverse effects of activities in the rural area are avoided, remedied or mitigated such that the amenities of the area and nearby urban areas are maintained.</p> <p>Policy 2.3<br/> To control the actual or potential environmentally adverse effects of activities in the rural area, including the adverse effects of:</p> <ul style="list-style-type: none"> <li>• odour;</li> <li>• noise;</li> <li>• traffic;</li> <li>• visual impact.</li> </ul> <p>Policy 2.4<br/> To encourage the maintenance of sustainable land-uses in the rural area.</p> <p>Policy 2.5<br/> To identify areas subject to natural hazards, and to ensure the adverse effects of the natural hazard are avoided, remedied or mitigated and, where appropriate, prohibit use and development of hazard prone areas</p> |
| <p>Objective 3<br/> To enhance the quality and natural character of the rural environment.</p> <p>Policy 3.1<br/> To provide for the health and safety of rural dwellers by establishing specific noise limits for the rural area.</p> <p>Policy 3.2</p>  | <p>Objective 3<br/> To <u>maintain and</u> enhance the quality and natural character of the rural environment.</p> <p>Policy 3.1<br/> To provide for the health and safety of rural dwellers by establishing specific noise limits for the rural area.</p> <p>Policy 3.2</p>   |

| OPERATIVE PLAN  | PC15 DECISIONS VERSION   |
|---|--|
| <p>To encourage the adoption of sustainable land use practices.</p> <p>Policy 3.3<br/>To control the adverse visual effects on the rural environment (including effects on rural dwellers) of activities that disturb the land surface, introduce buildings, remove and/or process natural material.</p> <p>Policy 3.4<br/>To encourage the protection of the in-stream values of spawning rivers and streams.</p>                                  | <p>To encourage the adoption of sustainable land use practices.</p> <p>Policy 3.3<br/>To control the adverse visual effects on the rural environment (including effects on rural dwellers) of activities that disturb the land surface, introduce buildings, remove and/or process natural material.</p> <p><del>Policy 3.4<br/>To encourage the protection of the in-stream values of spawning rivers and streams.</del></p> <p>Policy 3.5<br/>To avoid significant adverse visual effects of activities, including renewable energy electricity generation activities, on the values and characteristics of regionally Outstanding Natural Features and Landscapes in accordance with Policy 7.1 and 7.2.</p> <p>Policy 3.5A<br/><del>and</del> To control adverse visual effects of renewable electricity generation activities on the remainder of the Skyline of the Tararua Ranges and on the significant amenity landscapes in the Tararua Ranges and its foothills, which include in particular and the landmark features of Te Mata Peak and Te Mata-Kaihinu Ridgeline above the 400m contour</p> |
| <p>Objective 4<br/>To recognise and enhance the diversity of the rural community.</p> <p>Policy 4.1<br/>To permit a variety of land-based activities subject to control of their adverse environmental effects.</p> <p>Policy 4.2<br/>To provide for community and leisure facilities to serve rural and urban communities.</p> <p>Policy 4.3<br/>To allow a range of other activities where their adverse effects can be avoided or mitigated.</p> | <p>Objective 4<br/>To recognise and enhance the diversity of the rural community.</p> <p>Policy 4.1<br/>To permit a variety of land-based activities subject to control of their adverse environmental effects.</p> <p>Policy 4.2<br/>To provide for community and leisure facilities to serve rural and urban communities.</p> <p>Policy 4.3<br/>To allow a range of other activities where their adverse effects can be avoided, remedied or mitigated.</p>  |
| <p>Objective 5<br/>To avoid, remedy or mitigate the adverse effects of aircraft noise on noise sensitive activities in the vicinity of the Palmerston North Airport.</p> <p>Objective 6<br/>To avoid, remedy or mitigate the potential adverse effects of noise sensitive activities in the vicinity of Palmerston North Airport on efficient aircraft</p>  |  |

| OPERATIVE PLAN  | PC15 DECISIONS VERSION   |
|---|--|
| <p>operations.</p> <p>Policy 6.1.<br/>To prohibit any new dwelling, school, hospital or other building to be used for regular living accommodation in the Air Noise Zone.</p> <p>Policy 6.2.<br/>To mitigate the adverse effects of aircraft noise on any new dwelling, school, hospital or other building to be used for regular living accommodation in the Inner and Outer Control Zone</p> <p>Policy 6.3.<br/>To require every application for a resource consent lodged within the Inner and Outer Control Zones to be accompanied by details of the method of construction for the purpose of noise attenuation, and sufficient information to satisfy Council that this method will achieve the requisite insulation rating.</p> |  |
| <p>No equivalent provision in Operative Plan.</p>   | <p><u>Objective 8</u><br/>To recognise the benefits of renewable energy electricity development and the importance of the City's renewable energy resources to long term sustainability.</p> <p><u>Policy 8.1</u><br/>To provide for the investigation, development, operation, maintenance and upgrade of appropriate new and existing renewable energy electricity generation activities.</p> <p><u>Policy 8.2</u><br/>To protect existing and consented renewable electricity generation activities from reverse sensitivity effects arising from the establishment of noise sensitive activities in close proximity.</p> <p><u>Policy 8.3</u><br/>To provide for domestic wind turbines.</p> <p><u>Policy 8.4</u><br/>To recognise the locational, logistical and technical constraints associated with the development, operation, maintenance and upgrade of renewable electricity generation activities</p> |
| <p>No equivalent provision in Operative Plan.</p>   | <p><u>Objective 9</u><br/>To avoid, remedy or mitigate the adverse effects of renewable energy electricity generation activities on the natural and physical resources of the rural environment</p>  |

| OPERATIVE PLAN  | PC15 DECISIONS VERSION   |
|---|--|
|   | <p>Policy 9.1<br/>To facilitate appropriate and well-designed upgrades of existing and consented renewable electricity generation activities recognising their existing effects on the existing environment.</p> <p>Policy 9.2<br/>To ensure that new renewable electricity generation activities are located, designed, constructed and operated to avoid, remedy or mitigate adverse effects and where this is not possible to take into account proposed offsetting measures or environmental compensation that are more than minor on the rural environment and natural features and landscapes</p>  |
| <b>RULE AND ASSESSMENT CRITERIA FOR WINDFARMS</b>   |  |
| <p>Rule 9.9.2 Sawmills, Rural Industries and Windfarms</p> <p>Sawmills, Rural Industries and Wind Farms are Discretionary Activities.</p> <p>In determining whether to grant consent and what conditions to impose, if any, Council will in addition to the City View objectives in Section 2 and the Rural Zone objectives and policies, assess any application in terms of the following further policies:</p> <p>...</p> <p>b. To avoid, remedy or mitigate the effects of noise and other environmental disturbance, on the amenity of the surrounding area</p> | <p>R 9.8.6 Wind Farms</p> <p>Wind Farms are Discretionary Activities.</p> <p>Wind Farms under Rule 9.8.6 must comply with the following Performance Standards:</p> <p>Performance Standards</p> <p>(i) The Wind Farm site must not be inside the Tararua Ranges Landscape Protection Area (Map 9.1).</p> <p>(ii) No wind turbine may be located within 700 m of the boundary of the Wind Farm site with an adjacent property, unless the application is lodged with a consent form signed by the owner and occupier.</p> <p>Determination Clause</p> <p>In determining whether to grant consent and what conditions to impose, if any, Council will in addition to the City View objectives in section 2 and the Rural Zone objectives and policies, assess any application in terms of the following assessment criteria:</p> |
|   | (a) The contribution of the Wind Farm to achieving renewable energy electricity targets.   |
|   | (b) The locational requirements of the Wind Farm and any logistical or technical practicalities associated with Wind Farm development, upgrade, operation or maintenance.  |
|   | (c) The availability of offsetting measures or environmental compensation to address adverse effects of the Wind Farm that cannot be avoided, remedied or mitigated.   |
|   | (d) The assessment, measurement and control of noise in accordance with New Zealand Wind Farm Noise Standard (NZS 6808:2010  |

| OPERATIVE PLAN | PC15 DECISIONS VERSION   |
|----------------|--|
|                | <u>Acoustics – Wind Farm Noise).</u>   |
|                | (e) <u>The management and control of construction noise using the provisions of NZS 6803: 1999 Acoustics – Construction Noise</u>  |
|                | (f) <u>The ability to control noise resulting from any on-site manufacture of concrete and any quarrying, by reference to the noise limits in Rule 9.11.1.</u>   |
|                | (g) <u>The provisions for safeguards and contingencies, particularly concerning:</u><br><ul style="list-style-type: none"> <li>(i) <u>The model and proposed location of the wind turbine;</u></li> <li>(ii) <u>Specifying compliance with turbine manufacturer’s noise emission levels stated in the application;</u></li> <li>(iii) <u>The early identification and remediation of any special audible characteristics that arise during operation of the Wind Farm;</u></li> <li>(iv) <u>Effective noise monitoring programmes to demonstrate compliance beyond the commissioning stage;</u></li> <li>(v) <u>Procedures for addressing turbine malfunctions;</u></li> <li>(vi) <u>Community liaison and methods for dealing with complaints;</u></li> <li>(vii) <u>Reporting these matters to Council.</u></li> </ul> |
|                | (n) <u>Impacts on the amenity values of the surrounding environment, including a consideration of any environmental disturbances, aviation navigation lighting, and turbine shadow glare or flicker.</u>   |
|                | (r) <u>The management of decommissioning and removal of structures when the wind farm is no longer in operation</u>  |