

assessed in accordance with NZS 6802:1991 – *Assessment of Environmental Sound*.

WTG Noise Management

Operating limits

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), from 7 pm to 7 am 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.

5. Subject to condition 4, the wind farm shall operate such that when measured at the notional boundary of residences, 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).

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 period 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 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;

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 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 shall be submitted to PNCC within twelve months of the conditions being amended pursuant to PNCC's review under RMA, s 128(1)(c) 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.
 - 10.2 Alternative representative monitoring locations to those listed in 10.1.1 – 10.1.6 may be used if for any reasons 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 Z.
- 10.4 Where near field tonality assessments are used to support the tonality assessment at the residence, the near field tonality assessments shall also consider the wind speeds and wind directions defined in Condition Z.
- 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 or Te Rere Hau;
 - 12.3.2 Provide evidence supporting the assumed sound power levels for the 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.
- 12.6 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. The Consent Holder shall establish and publicise in the local newspaper 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 particular activities or events at the wind farm site.
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 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 Roding 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 Roding 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 affective.
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.

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.