

## **Ecological Consent Conditions for the Turitea Wind Farm Discussed During Expert Caucusing by William Shaw, Paul Blaschke, and Isobel Gabites, March 2010**

Attached below is a revised set of ecological conditions, provided by Mighty River Power (MRP) on 8 March 2010, incorporating the changes we previously agreed in caucusing, comments from the Department of Conservation, comments from Phillip Hindrup of Horizons Regional Council, and structural changes so that they align more closely with the revised conditions included in the revised full set of conditions circulated on 1 February 2010. In respect of condition 30 there has been scope left for additional input from Brian Coffey (and others?) as to the details of this condition. PB notes that he has not been able to review any detail provided by Brian Coffey or other experts in respect of condition 30. Content for contingency plans had been addressed by the caucus in conditions 4.5 - 4.7 of their draft of 19 February 2010, viz:

4.5 Riparian zone restoration and de-silting of the Palmerston North City Council water supply reservoirs in the event of significant erosion / washout events occurring during the construction phase for the Wind Farm;

4.6 Early notification of downstream users and monitoring of a cleanup response in the event of significant spillage of hydrocarbons / concrete products to watercourses occurring during the construction phase of the Wind Farm; and

4.7 The removal and disposal of cleared vegetation offsite in the event of significant release of nutrients / BOD from moribund vegetation bunds at turbine sites occurring during the construction phase of the Wind Farm.

Various queries were raised in consideration of the latest draft conditions and some of these were referred back to MRP for clarification. Our comments on the revised conditions are set out below. With the exception of Condition 34, we agree with the latest set of conditions.

### Eco-Sourcing – Condition 34

"or from the wider Manawatu Gorge South Ecological District or from similar altitudes in equivalent LENZ Level 2 environments".

Comment: IG and PB consider that eco-sourcing should be from LENZ Level IV environments, while WS considers that the current condition is appropriate (this view is based on examination of the LENZ Level 2 and Level 4 maps for Turitea, and consideration of the requirement to also undertake sourcing at "similar altitudes").

### Use of Browntop – Condition 36

"In the Turitea Reserve, the use of exotic species shall be restricted to the grass browntop".

Comment: We had specifically included the DOC land in this condition and the response from MRP indicates that it had been *missed inadvertently when updating the conditions and that there was no specific intention behind its removal and it can be re-introduced without issue*. We agree with this approach. IG notes that although she continues to be opposed to the introduction of large amounts of browntop through the site (Condition 36) she agrees in principle with the need for a condition to limit the number of exotic species deliberately introduced.

### Pre-Construction Survey and Monitoring – Condition 45

"The survey methodologies . . . Shall be developed . . . And submitted . . . Within one year of the date of commencement of these consents."

Comment: The MRP response indicates that the conditions require pre-construction monitoring and that construction can't begin until this has been completed, and we agree with this approach.

Community Liaison Group (CLG)

The condition we had proposed (regarding involvement of ecologists in community liaison groups) does not appear but is now included in the relevant CLG condition:

The function of the CLG shall be to:

Discuss the performance of the Consent Holder in terms of the following matters:

- Noise control; and
- Construction traffic impact.
- Consider the results of all ecological monitoring and research required in accordance with these consent conditions.

Comment: We agree with this approach.

Electrical Safety for Avifauna

The condition we had proposed (regarding insulation of electrical equipment to prevent electrocution of birds) does not appear but is included in the relevant electrical safety condition:


Electrical Safety

All transmission lines shall be designed and constructed to comply with the New Zealand Electrical Code of Practice for Electrical Safe Distances (NZECP 34:2001).

As far as possible, all electrical infrastructure installed in the wind farm shall be covered or insulated to prevent ready access by or electrocution of birds.

Comment: We agree with this approach.

Signed by:



\_\_\_\_\_  
William Shaw

12 March 2010

\_\_\_\_\_  
Date



\_\_\_\_\_  
Paul Blaschke

12 March 2010

\_\_\_\_\_  
Date



\_\_\_\_\_  
Isobel Gabites

12 March 2010

\_\_\_\_\_  
Date

## Aquatic Ecology

### *Monitoring*

27. The Consent Holder shall engage a suitably qualified and experienced ecologist to prepare a monitoring programme to measure the effects of construction activities on the Turitea Stream, Kahuterawa Stream, Otangane Stream, Tainui Stream and Southern Matarua Creek. The monitoring programme shall be submitted to the Manawatu-Wanganui Regional Council's Environmental Compliance Manager for review, acting in a technical certification capacity, prior to the commencement of any construction works. Should a response not be received within 30 working days of receipt, the Consent Holder shall be entitled to proceed in accordance with the conditions of consent.
28. The monitoring programme shall include a requirement to obtain pre-construction data for a period of not less than six months on water quality and in-stream community structure (including the presence, if any, of *Namalycastis tiriteae*) in order to establish baseline data. The monitoring programme shall be reviewed two years after the completion of all construction works, and the Consent Holder shall engage a suitably qualified and experienced ecologist to determine the need to continue the monitoring programme at that time. The ecologist shall make this determination in consultation with the Manawatu-Wanganui Regional Council's Environmental Compliance Manager.
29. The monitoring programme shall include the following matters:
  - 29.1 Identification of a selection of sampling sites (which add to the established Palmerston North City Council monitoring sites identified in Appendix **(2)** to this Schedule);
  - 29.2 Detail of the parameters to be monitored (including water quality, sediment transport and deposition, and instream community structure, including *Namalycastis tiriteae*);
  - 29.3 Nomination of thresholds for parameters that are to be monitored and establishing the required response in the event of non-compliance;
  - 29.4 Details of the on-site weather stations that are to be installed and utilised as part of this monitoring programme; and
  - 29.5 An outline of the monitoring strategy to be followed in response to specified rainfall/meteorological events.

### *Adaptive Management Response to Findings of Aquatic Ecology Monitoring*

30. The Consent Holder shall prepare an AEMRP, to be submitted to Manawatu-Wanganui Regional Council's Environmental Compliance Manager, which specifies responses to

the findings of the monitoring to be undertaken in accordance with condition **(27)** as developed in consultation with the Manawatu-Wanganui Regional Council's Compliance Manager. The AEMRP shall also include provisions for monitoring vegetation and topsoil storage sites. **(Brian Coffey to provide further detail regarding this – in what circumstances AEMRP has to be prepared etc)**

## Terrestrial Ecology

### *General*

31. The Consent Holder shall engage a suitably qualified and experienced ecologist to advise on the final detailed design for siting of the wind farm infrastructure, including the final placement of turbines and associated infrastructure within the turbine zones, and transmission, roading, erosion and sediment control and other infrastructure across the site. In undertaking the final detailed design, the Consent Holder shall, in addition to the advice from the ecologist, also take into account:
  - 31.1 The Rehabilitation/Revegetation Plan prepared in accordance with condition **(34)**.
  - 31.2 The Weed Monitoring and Control Plan and prepared in accordance with condition **(40)**.
  - 31.3 The findings of the pre-construction surveys undertaken in accordance with conditions **(44, 50 and 58)**.
  - 31.4 The relevant Transpower Regulations, including (but not limited to) *Electricity (Hazards from Trees) Regulations (2003)* and the *New Zealand Code of Practice for Electrical Safe Distances*.
32. Final placement of wind farm infrastructure shall avoid the existing wetlands within Browns Flat, as shown on the plan attached as Appendix **(X)** to this Schedule.
33. The trimming of vegetation post-construction shall be limited to that required for mitigation of edge effects (as outlined in the Rehabilitation/Revegetation Plan prepared in accordance with these consent conditions), and the maintenance of road access.

### *Rehabilitation/Revegetation Plan*

34. The Consent Holder shall engage a suitably qualified and experienced ecologist to prepare a Rehabilitation/Revegetation Plan for the site to achieve the revegetation of at least 75 hectares of existing and former pine plantation within the area shown in Appendix **(3)** to this Schedule (final area to be determined in consultation with Palmerston North City Council (as landowner)), or another area of equitable size, and those areas disturbed by the construction of roads, crane working platforms, and turbine platforms, where possible (approximately 8 ha). This revegetation shall use a combination of indigenous planting and management of natural revegetation (specifically the control of wildling conifers and other invasive weeds).
35. The Rehabilitation/Revegetation Plan shall include details of the following matters:
  - 35.1 The aims of the revegetation programme.
  - 35.2 The areas to be treated.
  - 35.3 The types of techniques to be used and the places they will be used.

- 35.4 A requirement for indigenous species selection and eco-sourcing (i.e. sourcing local seeds/plants for local use preferably from within the Reserve, or from the wider Manawatu Gorge South Ecological District or from similar altitudes in equivalent LENZ Level 2 environments, if material from the Reserve is not available) in consultation with local iwi, to ensure that the revegetation uses a combination of indigenous planting and management of natural revegetation.
- 35.5 Details of the monitoring and maintenance techniques to be adopted, including weed control, pest control, infill planting, and operational timing.
36. The Consent Holder shall undertake all rehabilitation/revegetation works in accordance with the Rehabilitation/Revegetation Plan. The Rehabilitation/Revegetation Plan shall provide for:
- 36.1 The rehabilitation of construction areas, through the rapid establishment of cover on open sites not required for operation of the wind farm. This will be achieved using techniques such as hydro-seeding, planting, and direct transfer. Non-invasive exotic grasses may be used to establish rapid initial cover, followed by planting of locally-sourced indigenous species matched to the characteristics of the sites being rehabilitated. In the Turitea Reserve, the use of exotic species shall be restricted to the grass browntop (*Agrostis capillaris*), and if used for hydro-seeding or direct sowing, it shall preferably be mixed with seeds of locally-sourced native species. In pasture areas, revegetation will be undertaken using a combination of appropriate pastoral grasses.
- 36.2 The revegetation of the areas of pine forest (or recently-harvested pine forest) within the area shown on the figure included as Appendix **(3)** to this Schedule. This will be achieved through the re-establishment of indigenous vegetation matched to the landforms and habitats present, using planting of locally-sourced indigenous species or managed natural regeneration. The aim will be to achieve canopy closure as rapidly as reasonably possible.
- 36.3 The riparian revegetation of 20,000 m<sup>2</sup> (2ha) of riparian margins on low gradient streams at Browns Flat, starting at the lowest part of the stream network, to a minimum width of 5 metres on both sides the stream. The width of the planted riparian margins may vary (down to 5 metres) subject to terrain, and should include clusters of larger tree species.
37. The Rehabilitation/Revegetation Plan shall be submitted to the Manawatu-Wanganui Regional Council's Environmental Compliance Manager for review, acting in a technical certification capacity, no later than 6 months prior to the commencement of any construction works. Should a response not be received within 30 working days of receipt, the Consent Holder shall be entitled to proceed in accordance with the conditions of consent.
38. The Consent holder shall submit an annual report to the Manawatu-Wanganui Regional Council's Environmental Compliance Manager by 1 July each year for 10 years following the commencement of construction works, outlining the results of the revegetation works and reporting on compliance with the Rehabilitation/Revegetation Plan.

#### *Weed Monitoring and Control*

39. The Consent Holder shall undertake weed monitoring and control over the areas disturbed by construction and those areas adjacent to the disturbed areas that may, as a result of construction, be adversely affected by weeds.

40. For the purposes of condition **(39)**, the Consent Holder shall engage a suitably qualified and experienced ecologist to prepare a Weed Monitoring and Control Plan that shall include details of the following matters:
- 40.1 The species to be monitored and controlled (by reference to their status in relevant plans such as the Regional Plant Pest Management Strategy), including provision to review those species should a new species be identified within the weed monitoring and control areas (identified above) once construction has commenced. The list of weeds to be monitored is to include ecologically-threatening species and shall also take account weeds of concern to the Manawatu-Wanganui Regional, Palmerston North City and Tararua District Councils, and that are listed in the National Pest Plant Accord.
  - 40.2 The frequency of weed monitoring inspections across the entire wind farm layout, and adjacent habitats that could be affected, to be undertaken by a suitably qualified and experienced person or persons. These shall occur at 3-monthly intervals from the start of construction until one year after the completion of construction. At the one year post construction anniversary, weed monitoring shall be undertaken annually, or more frequently as required.
  - 40.3 The specification of control intensity requirements and control measures for particular types of weeds.
  - 40.4 Details of weed hygiene controls, including equipment wash-down sites and facilities, the sources and hygiene requirements for quarried material, and preventative measures to prevent weeds being transported to and from the site from and to other locations.
41. The Weed Monitoring and Control Plan shall be integrated with the Rehabilitation/Revegetation Plan to the extent that both plans relate to the same areas.
42. The Weed Monitoring and Control Plan shall be submitted to the Manawatu-Wanganui Regional Council's Environmental Compliance Manager for review, acting in a technical certification capacity, no later than 6 months prior to the commencement of any construction works. Should a response not be received within 30 working days of receipt, the Consent Holder shall be entitled to proceed in accordance with the conditions of consent.
43. The Consent Holder shall undertake the weed monitoring and control in accordance with the Weed Monitoring and Control Plan and shall submit an annual report to the Manawatu-Wanganui Regional Council's Environmental Compliance Manager by 1 July each year for 10 years following the commencement of construction works, outlining the results of the weed monitoring and control works and reporting on compliance with the Weed Monitoring and Control Plan.

*Pre-construction Avian and Bat Utilisation Surveys*

44. The Consent Holder shall engage suitably qualified and experienced avian and bat experts to undertake a Pre-construction Avian Survey and Pre-construction Bat Utilisation Survey of (as a minimum) the site as shown in the figure included as Appendix **(4)** to this Schedule.
45. The survey methodologies and reporting mechanisms for the Pre-construction Avian Survey and Pre-construction Bat Utilisation Surveys shall be developed in consultation with the Department of Conservation and shall be submitted to the Manawatu-Wanganui Regional Council's Environmental Compliance Manager for review, acting in

a technical certification capacity, within one year of the date of commencement of these consents. Should a response not be received within 30 working days of receipt, the Consent Holder shall be entitled to proceed in accordance with the conditions of consent.

46. The surveys must each be undertaken for a minimum of 4 consecutive seasons over 1 year including a period in late February-early March and shall as a minimum:
  - 46.1 Document seasonal species presence and relative abundance;
  - 46.2 Record seasonal habitat use patterns and flight pathways;
  - 46.3 Record seasonal variation for indigenous species that the avian and bat experts determine are at particular risk from wind turbines; and
  - 46.4 Analyse relative risk for bird species.
47. If no bats are identified as present in the survey area, the Consent Holder shall engage a suitably qualified and experienced bat expert to determine, in consultation with the Department of Conservation, a procedure to be followed in the event bats are later identified during construction.
48. The results of the Pre-construction Avian and Bat Utilisation Surveys shall be provided in writing to the Manawatu-Wanganui Regional Council's Environmental Compliance Manager and the Department of Conservation within twenty working days of the completion of the surveys.
49. Final reports detailing the outcomes of the Pre-construction Avian and Bat Utilisation Surveys shall also be provided to the Manawatu-Wanganui Regional Council's Environmental Compliance Manager and the Department of Conservation within two months of completion of the surveys. These final reports shall identify methods to avoid, remedy, or mitigate any adverse effects of the wind farm on threatened avifauna species and/or threatened bat species.

*Pre-construction Herpetofauna and Powelliphanta Snail Surveys*

50. The Consent Holder shall engage a suitably qualified and experienced ecologist (or ecologists) to undertake pre-construction surveys for herpetofauna and Powelliphanta snails within the areas proposed to be disturbed by construction activities.
51. The survey methodologies and reporting mechanisms for the pre-construction herpetofauna and Powelliphanta snails surveys shall be developed in consultation with the Department of Conservation and shall be submitted to the Manawatu-Wanganui Regional Council's Environmental Compliance Manager for review, acting in a technical certification capacity, within one year of the date of commencement of these consents. Should a response not be received within 30 working days of receipt, the Consent Holder shall be entitled to proceed in accordance with the conditions of consent.
52. The results of the herpetofauna and Powelliphanta snail surveys shall be provided in writing to the Manawatu-Wanganui Regional Council's Environmental Compliance Manager and the Department of Conservation within twenty working days of the completion of the surveys. Final reports detailing the outcomes of the surveys shall also be provided to the Manawatu-Wanganui Regional Council's Environmental Compliance Manager and the Department of Conservation within two months of the completion of the surveys.

53. If any threatened herpetofauna species or Powelliphanta snails are identified during the surveys as being present within the surveyed area, the Consent Holder shall develop a Protection Plan for such species in consultation with the Department of Conservation. The Protection Plan shall identify methods to avoid, remedy, and mitigate any adverse effects of the wind farm on threatened herpetofauna species and/or Powelliphanta snails and shall include details of the following matters:
- 53.1 ongoing monitoring and population assessment including distribution and habitat description;
  - 53.2 identification and development of options for species protection and enhancement such as:
    - a. translocation; and
    - b. in-situ protection (including options such as enhanced pest control and amendment to wind farm design and operation).
54. The Protection Plan (if required in accordance with condition **(53)**) shall be submitted to the Manawatu-Wanganui Regional Council's Environmental Compliance Manager for review, acting in a technical certification capacity, no later than 2 months prior to the commencement of any construction works. Should a response not be received within 30 working days of receipt, the Consent Holder shall be entitled to proceed in accordance with the conditions of consent.
55. The Consent Holder shall undertake all works in accordance with the Protection Plan and shall submit an annual report to the Manawatu-Wanganui Regional Council's Environmental Compliance Manager and the Department of Conservation by 1 July each year for 10 years following the commencement of construction works, outlining the results of the protection works and reporting on compliance with the Protection Plan.
56. If no threatened herpetofauna species or Powelliphanta snails are identified as being present in the survey area, the Consent Holder shall, in consultation with the Department of Conservation, develop a procedure to be followed in the event that threatened herpetofauna species or Powelliphanta snails are found during construction. The procedure shall identify methods to avoid, remedy, and mitigate any adverse effects of the wind farm on the threatened herpetofauna species or Powelliphanta snails.
57. The procedure shall be submitted to the Manawatu-Wanganui Regional Council's Environmental Compliance Manager for review, acting in a technical certification capacity, no later than 2 months prior to commencement of any construction works. Should a response not be received within 30 working days of receipt, the Consent Holder shall be entitled to proceed in accordance with the conditions of consent.

#### *Post Construction Avian and Bat Strike Monitoring*

58. The Consent Holder shall engage suitably qualified and experienced avian and bat experts to undertake Post-Construction Avian and Bat Strike monitoring for a minimum of 12 consecutive seasons (3 years) after commissioning of the wind farm.
59. The monitoring methodology and reporting mechanisms shall be developed in consultation with the Department of Conservation and shall as a minimum set out:
- 59.1 the framework of the collision fatality monitoring;

- 59.2 the procedures for recording observed avoidance behaviour; and
- 59.3 any other measures required to accurately assess the strike / collision effects of the wind farm on avifauna and bats.
60. The outcomes of the Pre-construction Avian and Bat Utilisation Studies undertaken in accordance with condition **(44)** shall be taken into account when identifying which species, if any, require further post-construction monitoring.
61. The monitoring and reporting mechanisms for the Post-Construction Avian and Bat monitoring programmes shall be submitted to the Manawatu-Wanganui Regional Council's Environmental Compliance Manager for review, acting in a technical certification capacity, no later than 2 months after the commencement of any construction works. Should a response not be received within 30 working days of receipt, the Consent Holder shall be entitled to proceed in accordance with the conditions of consent.
62. The results of the Post-Construction Avian and Bat Strike monitoring shall be provided in writing annually to the Manawatu-Wanganui Regional Council's Environmental Compliance Manager and the Department of Conservation for a minimum of 12 consecutive seasons (3 years) after commissioning of the wind farm.
63. A final report shall also be provided to the Manawatu-Wanganui Regional Council's Environmental Compliance Manager and the Department of Conservation within three months of the completion of the monitoring period. This final report shall include recommendations as to any measures that should be undertaken to avoid, remedy, or mitigate any adverse effects of the wind farm on threatened avifauna species and/or threatened bat species.

*Review of ecological conditions*

64. In accordance with section 128 of the Act, the Manawatu-Wanganui Regional Council may:
- 64.1 within six months of every two year interval from the date of commencement of this consent, serve notice on the Consent Holder of its intention to review the ecological conditions of this consent for any of the following purposes:
- a. To consider adverse effects of the wind farm on threatened avifauna species, threatened bat species and/or threatened herpetofauna species that may arise from the exercise of the consent and which are appropriate to deal with at a later stage;
  - b. To consider adverse effects of individual turbines on threatened avifauna species, any threatened bat species and/or any threatened herpetofauna species and whether there are any particular factors influencing the adverse effects caused by individual turbines; and
  - c. To require the Consent Holder to adopt measures to avoid, remedy or mitigate such adverse effects.
- 64.2 within 30 days of receiving an annual or final report in accordance with conditions **(49, 52 and 63)**, serve notice on the Consent Holder of its intention to review the conditions of this consent for the purpose of making any amendments to these conditions which the reports recommend may be required to avoid, remedy or mitigate an identified adverse effect on threatened avifauna species and/or any threatened bat species.

