

IN THE MATTER of the Resource Management Act
1991

AND

IN THE MATTER of applications to the **WAIKATO
DISTRICT COUNCIL** and
WAIKATO REGIONAL COUNCIL
by **WEL NETWORKS LTD** for
resource consents to authorise the
establishment, operation and
maintenance of 28 wind turbines for
the generation of electricity and
associated activities on the
Wharauoroa Plateau near Te Uku

STATEMENT OF EVIDENCE OF DAVID MANSERGH

1. INTRODUCTION

Qualifications and experience

- 1.1 My name is David Mansergh. I am a qualified Landscape Architect and Recreation Planner. I am an Associate of the New Zealand Institute of Landscape Architects and a Director of Mansergh Graham Landscape Architects Ltd. My qualifications include a Dip P&RM (Diploma in Parks and Recreation Management with Distinction) completed in 1988, BLA Hons (Bachelor of Landscape Architecture with Honours) completed in 1990 and an MLA (Master of Landscape Architecture) completed in 1992, from Lincoln University, Canterbury.
- 1.2 I have been a Director of Mansergh Graham Landscape Architects Ltd since 1996. Prior to that, I was employed by the company as a landscape architect (1992 - 1996). I have also worked for the Department of Conservation and before that, the Department of Lands and Survey.
- 1.3 During my career I have been involved in the preparation of a large number of visual and landscape assessments and peer reviews of landscape assessments for a range of activities in the rural landscape, including wind farms, commercial developments, dairy factory developments, poultry farm developments, rural-residential subdivisions, marina applications, canal housing developments, major port developments, coastal infrastructure developments, industrial developments,

quarry applications and telecommunication facilities. I have prepared several district-wide landscape studies, and have provided advice to various councils on the preservation of landscape character, urban design and growth strategies for both rural and urban areas.

- 1.4 I have presented evidence at Resource Management hearings before Council, the (then) Planning Tribunal and the Environment Court.

Involvement in the Project

- 1.5 I am highly familiar with the application site and the surrounding area, having visited it on numerous occasions over the past two years in association with both this application and other projects in a professional capacity.

- 1.6 I was engaged by WEL Networks to undertake an assessment of the landscape and visual effects of the proposal. My role included providing advice to the wind park design team as to likely effects of various layout scenarios'. I was responsible for the preparation of the Visual and Landscape Assessment, which forms part of the assessment of environmental effects submitted with the application. I have drawn heavily on that assessment in preparing this evidence and understand that it is available to the Hearing Committee.

Purpose and scope of evidence

- 1.7 The purpose of my evidence is to identify and address the landscape, visual and amenity effects that are likely to arise from the construction of the proposed wind park, and, in particular, outline the findings of my assessment of landscape visual and amenity effects, which form part of the assessment of environmental effects.

- 1.8 At the outset, I conclude that the proposed WEL Wind Park will result in a significant change to the existing landscape character and identify its effect on rural amenity values, for residents and visitors to the area. I will also discuss the relationship between the proposed wind farm and surrounding natural landscapes and explain how the proposed wind farm will affect the district's 'Outstanding Natural Features or Landscapes' and influence perceptions of them and affect the existing natural character of the Wharaurua Plateau.

- 1.9 Against that background, my evidence will:

- (a) Provide a summary of my evidence (part 2);
- (b) Identify key elements of the proposal relevant to an assessment of landscape and visual effects (part 3);

- (c) The design approach taken in the development of the proposal in order to minimise potential adverse visual and landscape effects (part 4);
- (d) Discuss the background research, consultation and methodology used in undertaking the assessment of visual and landscape effects (part 5);
- (e) Discuss aesthetic values, background research, public consultation and the public perception of wind farms (part 6);
- (f) Identify the landscape context and status of the site (part 7);
- (g) Identify potential landscape effects including those on the District's outstanding natural landscapes (part 8);
- (h) Identify potential visual effects from view locations surrounding the site (part 9);
- (i) Discuss the potential cumulative effects that may arise with other consented and proposed wind farms in the region (part 10);
- (j) Discuss Resource Management Act considerations (part 11);
- (k) Discuss the relevant planning provisions of the Waikato Regional Policy Statement (RPS), the Waikato Proposed Regional Plan (PRP) and the Waikato District Plans – Operative District Plan (ODP) and Proposed District Plan (PDP) (part 12);
- (l) Discuss the review of my analysis which forms part of the Waikato District Council Planners Report (part 13)
- (m) Discuss key issues raised by submissions (part 14);
- (n) Comment on the recommended conditions (part 15); and
- (o) Provide a concluding statement.

Expert Witness Code of Conduct

- 1.10 I have read and agree to comply with the Code of Conduct for Expert Witnesses from the Environment Court Practice Note 2006. This evidence is within my area of expertise, except where I state that I am relying upon the specified evidence of another person. I have not omitted to consider material facts known to me that might alter or detract from the opinions I have formed and presented in my evidence.
- 1.11 I appear as a witness for the applicant, WEL Networks Ltd.

2. SUMMARY

Key elements of the proposal

- 2.1 WEL Networks seeks to construct and operate a wind farm on the Wharaurua Plateau, on elevated terrain approximately 25km west of Hamilton and 3.5km south of Te Uku.
- 2.2 The proposed *WEL Wind Park, Te Hauhiko O Wharaurua* will comprise up to twenty eight turbines, to a maximum height of 137m and will occupy much of the Wharaurua Plateau and its northern ridge lines, covering an area extending approximately 5.5 kilometres north to south axis and 2.5 kilometres east to west.
- 2.3 Other elements of the application include an access road from Kawhia Road and internal access roads between the turbines, hard stand areas beside each turbine, localised borrow areas, an operations and maintenance building, and on site (underground) power reticulation.

Design approach

- 2.4 Avoidance and mitigation measures were identified during the design phase of the wind park. These included locating turbines as far away from dwellings as practicable, retaining pockets of native vegetation where practicable, locating ancillary structures in areas out of site from the public, and avoiding unnecessary appendages on the turbines. Consideration of these factors helped influence the final layout of the wind park.
- 2.5 A number of alternate turbine layouts were considered. Viewshed analysis was used to determine that there would be little difference between the relative visibility of alternative layouts or turbine types.

Methodology

- 2.6 A defined methodological approach was used in the preparation of the visual and landscape assessment, including the comprehensive assessment and analysis of the site and its surroundings. The *Modified Pigeon Bay Landscape Assessment Criteria* was used to determine the status of the site in terms of section 6(b) of the Resource Management Act (RMA). A visual assessment methodology that draws on the identification of the visual catchment and interprets potential effects, within the context of an understanding of viewer preferences, was used to identify potential visual effects was used to determine visual effects in regard to section 7(c) of the RMA. This approach is supported by research in the field of environmental psychology.

- 2.7 A combination of GIS, CAD and Photoshop software was used to create photomontages and computer generated images of the proposed wind park from key surrounding view locations. These were used to graphically communicate the potential changes to the rural landscape.
- 2.8 A design envelope of 127m, representing a representative turbine, was used for the visual assessment. Analysis of the potential visibility of a 125 and a 150m high design develop determined that there would be little difference in the visibility between the representative turbine tested, the consent envelope being applied for (137m) and the 150m envelope.

Aesthetic values

- 2.9 The assessment of landscape and visual effects is a subjective process. Changes in the landscape that may be acceptable to one person may not be acceptable to another. This is supported by the research reviewed and the analysis of informal responses from members of the public at the two public consultation open days held in Te Uku.
- 2.10 The *Scenic Model of Aesthetic Appreciation* was determined to be the appropriate theoretical model for use in the assessment of effects on visual amenity. This is because it assumes that rural or agrarian landscapes are highly valued and that modification to the key attributes that contribute to “ruralness” can affect the amenity values derived from views across the countryside.
- 2.11 Review of national and international research into public perceptions of wind farms found that, in general there is broad public support for renewable energy, in particular wind farms, however, this support is influenced by viewer distance. In general, the further one is away from a wind farm, the greater the support.
- 2.12 These findings are paralleled by the more recent research undertaken by Campbell Consulting Ltd into the potential effect of the wind park on tourism in the Raglan area
- 2.13 Other key findings from my review include:
- (a) That public acceptance seems to increase in the local area, after the installation of the wind turbines;
 - (b) Opposition to wind farms arise in part from exaggerated perceptions of likely impact, and that the experience of living near a wind farm frequently dispels these;

- (c) That opinion is formed not by experience, but rather by ignorance of the effects of wind farms, misinformation, prejudice, and fashion;
- (d) Wind farms with small numbers of large turbines are generally preferred to those with large numbers of smaller turbines.

Landscape context and status

- 2.14 The site is characterised by a combination of topography, vegetation, existing land use and cultural features. The formative processes associated with past volcanic, and past and present fluvial activity within the region, has resulted in a landscape that is dynamic, diverse and vivid. The juxtaposition of land forms in and around the site represent some of the more memorable and recognisable landscapes in the area and contribute to its amenity. There is a high degree of modification to original land cover, with the predominant land use being pastoral grazing.

Landscape effects

- 2.15 The introduction of the turbines into the landscape will result in a shift in landscape character, from a predominantly rural environment to that including greater levels of utilities and infrastructure. This results from the introduction of a number of large scale man-made elements into a rural environment, where limited built form currently exists.
- 2.16 The turbines will affect perceptions of the naturalness and, to some extent, remoteness of the adjacent rural areas through the introduction of man-made structures of a significant size into an otherwise undeveloped landscape. This can be attributed to the incongruity in the scale of the proposed turbines with the surrounding natural and built environment, and the juxtaposition of the proposed wind park when considered within the context of the surrounding rural landscape and the dominant forms of Mount Karioi and Mount Pirongia.
- 2.17 The wind park will be highly visible within views towards the outstanding natural landscape's of Mount Pirongia and Mount Karioi. The presence of the wind park within these views will affect perception of naturalness associated with each mountain, however, the key attributes of each feature will not be affected by the proposal. Views from within these areas will be severely restricted by existing vegetation. Effects on other ONL's in the district will be small to insignificant.
- 2.18 Although not contained within a landscape that is identified as part of the coastal zone, the wind park will also affect perceptions of the naturalness and, to some extent, remoteness of the adjacent coastal environment areas. At its closest point

the wind park is 4.5 kilometres from the coastal zone, however, it is recognised that its presence on the skyline ridge when viewed for areas such as Horea or Rangitoto Point will affect perceptions of naturalness and isolation. This can be attributed to the scale of the proposed turbines, and their visibility in juxtaposition with the surrounding natural environment. This effect will decrease when viewed in context of other development on the coast such as Raglan township.

- 2.19 Transient values comprise meteorological effects, the presence of wildlife in the area and seasonal change in vegetation states. These will not be affected by the proposed wind park.

Visual effects

- 2.20 The visual absorption capability of the landscape, that is the landscape's ability to hide the wind park, is *low* to *moderate* for nearly all view locations investigated within ten kilometres of the site. This means that turbines within the proposed wind farm will either be clearly or highly visible from surrounding locations. This is largely due to the scale of the turbines and their location on the ridge lines. In addition, the turbines have the potential to draw attention to their presence, due to their significant scale and the rotation of the turbine blades. Their introduction into the landscape will be highly visible and will change the existing rural characteristics of the skyline ridge. This will affect the existing rural character of the area, and the amenity values derived from it.
- 2.21 Views of the proposed wind park can be classified into close, middle distance, distant and outer views. From close proximity, while fewer turbines would be visible, the resultant visual effect will be greater due to their apparent scale in relation to surrounding landscape features. The converse also results in a similar level of effect, where from more distant view locations, a greater number of turbines will be visible. From closer proximity view locations, the effects of the wind park will range between significant and minor.
- 2.22 Sixty three view locations were investigated and assessed as part of the preparation of the landscape and visual assessment report contained in the AEE. From these locations visual effects range between indiscernible and significant.
- 2.23 From close proximity, while fewer turbines would be visible, the resultant visual effect will be greater due to their apparent scale in relation to surrounding landscape features. This means that, while viewers in locations such as Te Uku and Waitetuna will not be able to see the entire wind park, the components that they will see will dominate views of the skyline, appearing out of context with other man

made structures in the area. The effects viewed from these locations will range between more than minor and significant.

- 2.24 From beyond ten kilometres, effects on visual amenity will begin to decrease quickly to being no more than minor. While an increased number of turbines would be visible from more distant view locations, these would be seen within the context of the wider landscape, and therefore are considered to have a smaller effect on landscape character and visual amenity values.
- 2.25 A combination of screening, afforded by existing topography, lower population densities and general inaccessibility results in fewer viewing opportunities existing between eight and fifteen kilometres from the site.
- 2.26 Aviation lighting will not be visible from populated areas below the site due to shielding, but will be visible from the summits of Mount Pirongia and Mount Karioi. The effects of the aviation lighting will be minor.
- 2.27 Shadow flicker, that is the “flashing” effect caused by turbine blade passing between the sun and a viewer, will not affect any dwellings because the turbines are beyond the distance within which this phenomenon is likely to occur. Shadow flicker generally occurs within a distance of 10 times the swept area diameter of the turbine. In this case that is 900m. The closest dwelling is 2.34km away.
- 2.28 Blade glint may occur on rare occasions. Blade glint is glare from the sun reflecting off a turbine blade. This effect is likely to be temporary in nature and will only result in a very minor transient visual effect.

Potential cumulative effects

- 2.29 Potential cumulative effects that may arise from the previously consented wind farms at Taharoa C and Taumatotara will be small. These wind farms will be difficult to see on all but the very clearest of days due to the distance between the sites.
- 2.30 It is likely that the upper sections of more southern turbines contained within the proposed Contact Energy wind farm, to be located between Port Waikato and Raglan Harbour, will be visible from Te Uku, Okete Road, Maungatawhiri Road, Mount Pirongia, Mount Karioi and parts of Raglan. Due to the distances between the wind farms, the effect on landscape character is considered to be relatively small. The two wind farms will rarely be seen within the same vista.

Resource Management Act considerations

- 2.31 In terms of section 6(a) of the RMA, the application will not affect the natural character of the coastal edge. This is because it is not contained within a landscape that is obviously characterised by coastal or marine formative processes. The site is located 4.5km from the coastal marine area.
- 2.32 Application of the *Modified Pigeon Bay Landscape Assessment Criteria* has led me to conclude that the site is not an *Outstanding Natural Feature or Landscape* in terms of section 6(b) of the RMA. The site is, however, located adjacent to an ONL, as defined by the PDP (Decisions version).
- 2.33 In terms of section 7(c) of the RMA, the introduction of the proposed turbines onto a significant skyline ridge, adjacent to the outstanding natural landscape of Mount Pirongia, and within the visual catchment containing a number of other such landscapes, will likely affect the perception of naturalness in these areas in a variety of ways.
- 2.34 This is because the scale and vertical forms of the wind farm will appear incongruent with the horizontal form of the skyline ridge and will introduce an intensity of development of a size that is not currently experienced within the District. Other components of the development are not likely to affect amenity values provided recommended mitigation and rehabilitation works are adopted.
- 2.35 Such a change is likely to conflict with the values of aesthetic appreciation, held by members of the community who appreciate the picturesque qualities of the surrounding rural environment. Others may view the turbines as a point of interest or consider them to add to the visual amenity of the area.

Relevant planning provisions

- 2.36 Neither the RPS nor the Waikato Regional Plan address issues relevant to the protection of landscape character or amenity values within the subject site.
- 2.37 The WEL wind park does not meet the provisions of the Operative or Proposed District Plans with regard to maintenance of rural character and amenity values within the Ridgeline (Protection) Policy Area. The significant scale of the wind turbines in relation to other existing elements within the surrounding landscape, means it is impractical to utilise screening measures typically adopted to reduce visual, landscape and amenity effects. However, the effects on visual amenity values of all other aspects of the development including construction roads,

earthworks, and the operations and maintenance buildings can be avoided or mitigated and the rural landscape will remain intact beneath the turbines.

Response to Review of Landscape, Amenity & Natural Character Effects contained in the Council Planners Report.

2.38 I have read relevant sections of the Council Planner's report and considered Mr Stephen Brown's review of my Visual and Landscape Assessment Report and the additional information supplied in response to the section 92 Request. In general I note that while Mr Brown and I differ with regard the extent of specific effects anticipated, this tends to be a matter of degree and our overall conclusions are aligned. I consider that our differences in regard to specific effect is likely a reflection of our differing methodological approaches to visual and landscape assessment. That we draw many of the same general conclusions concerning the effects, however, reflects on the robustness of the report and the review process.

2.39 I also have taken note of Mr Brown's comments in regard to Outstanding Natural Landscapes, the Natural Character of the coastal environment, and the cumulative effects of this wind park in relation to the two other wind farms that have been consented within the District. I will address these specific points, drawing strands of my report together to expand on and clarify these matters, as part of my evidence.

Key issues raised in submissions

2.40 Most submissions are general in nature, with few making comments in relation to specific effects identified.

2.41 Submissions can be categorised as follows:

- (a) Significant adverse visual effect;
- (b) Degradation/loss of existing rural character;
- (c) Degradation/loss of existing landscape values;
- (d) Degradation/loss of existing amenity values;
- (e) Degradation/loss of natural character values;
- (f) Contrary to section 5, section 6, section 7 and/or issues, objectives and policies of the District Plan. (generic);
- (g) Contrary to the Ridgeline Policy of the District Plan;

- (h) Concern regarding location of the viewing platform;
- (i) Concern regarding landscape restoration;
- (j) Significant adverse effects (non specific);
- (k) Cumulative effects.

2.42 Analysis of the submissions indicates that submitters have a high level of concern regarding the visual impact of the wind farm. All issues raised in submissions have been commented on in the AEE.

Recommended conditions

2.43 The following mitigation measures are recommended to help avoid, remedy of mitigate and adverse effect arising from the proposed wind park on landscape and visual, landscape amenity:

- (a) Painting the turbines a non reflective, 'off white' colour to reduce blade glint, and assist with integration into the sky backdrop during cloudy or overcast conditions.
- (b) Restricting the number of aircraft obstruction lights to the minimum required for safety purposes as determined by the Civil Aviation Authority (CAA).
- (c) The introduction of localised screen planting on private property (if requested and where appropriate) to assist in mitigating visual effects for potentially affected parties.
- (d) Turbine foundation pads and associated hard stand areas will be covered with topsoil and re-grassed so these areas visually integrate with the surrounding natural landscape.
- (e) Cut and fill batters associated with the access tracks, borrow areas, and turbine (and associated hard stand) pads will be re-contoured to reintegrate into the natural land form.
- (f) All exposed earthworks, with the exception of the construction roads that will be reduced to five metres following commissioning of the turbines, will be shaped to integrate with surrounding natural landforms and sown in pasture. This includes the borrow area located on the side of the main access track to the site.

- 2.44 I have read the proposed conditions put forward by Council's planner and consider that they meet the intent and requirements of my own recommendations above.
- 2.45 The large size of the turbines in relation to other existing elements within the surrounding landscape, means it is impractical to utilise on-site screening measures typically adopted to reduce visual, landscape and amenity effects associated with other types of structure.

Conclusion

- 2.46 The construction of a twenty eight turbine wind farm on the Wharaurua Plateau will result in a significant change in the rural character of the site. The proposed wind park will be highly visible in the landscape and will result in significant changes to existing views and the rural character of the site. This is predominantly because the turbines will appear incongruous with the size and form the skyline ridge and will introduce a type and level of development that is not currently found within the District.
- 2.47 The proposed wind park is not located within an *Outstanding Natural Feature or Landscape* in terms of section 6 of the RMA.
- 2.48 The proposed wind park is not located within the *coastal environment* in terms of section 6 of the RMA, however, its presence is anticipated to have an effect on the perception of naturalness and isolation from some areas of the coastal environment.
- 2.49 The potential effects of the proposal cannot be avoided, remedied or mitigated. The nature and scale of the wind park is such that it would have such an effect from virtually any site selected.
- 2.50 However, while the effects of the proposed development may be considered by some to be detrimental to the maintenance of existing landscape character and adversely affect the amenity derived from the rural environment, both national and international research indicates that in many cases, wind farms can become valued features in their own right and a source of interest for many.

3. KEY ELEMENTS OF THE PROPOSAL

Proposed Location and Activity

- 3.1 The location and a detailed description of the various elements and activities that comprise the proposed wind farm are outlined in the evidence of Mr Burchett.

Proposed Development

- 3.2 The key components of the wind farm that have the potential to affect visual and landscape values are described as follows.

Wind Turbine Design

- 3.3 The indicative turbine type being considered is a 3MW turbine, with an 80 metre nacelle (or hub) height. Each turbine will consist of the following:

- (a) A buried foundation pad;
- (b) A tubular tower with a diameter of 4 metres at ground level tapering to 3 metres at the nacelle;
- (c) The nacelle, housing the turbine, hub and gearing; and
- (d) Three blades supported by the hub, each approximately 45 metres in length.

- 3.4 A dimensioned diagram of a turbine is appended to my written evidence as attachment (a).

- 3.5 The key features of the turbines within the *WEL Wind Park* are as follows:

- (a) Off white in colour, with a non reflective surface finish;
- (b) Not have any ancillary components or appendages on the outside of the tower;
- (c) No signage on their exterior;
- (d) All blades will spin in the same direction;
- (e) Power reticulation (33KV) to the proposed substation will be underground;
- (f) A hard stand or lay down area beside each turbine; and
- (g) Aircraft obstruction lights on the nacelle of eight turbines.

- 3.6 The turbines will be located on a subsurface foundation pad within a larger hard stand area. A typical footprint for the entire area will be in the order of 37 x 59 metres. Each pad will be contoured to integrate into the surrounding land form, and pasture re-established over the foundation following installation and commissioning of each turbine.

Configuration

- 3.7 The proposed *WEL Wind Park* has been designed utilising one size and type of turbine arranged in two broad clusters, one being on the Wharauoa Plateau, and the other on adjacent northern ridge line. A single row of three turbines is located between those two clusters. Turbines within the clusters have a relatively even distribution. The single row of three turbines visually link these clusters resulting in an apparently continuous visual band from many locations.

Operations and Maintenance Building

- 3.8 On-site operations and maintenance facilities required for storage, staff facilities and a workshop comprise the following:
- (a) A 30m x 10m maintenance facilities building;
 - (b) Parking area; and
 - (c) A hard stand area.
- 3.9 These ancillary buildings have been located in a topographical depression on site.

Access Roads

- 3.10 A new road will be formed to provide construction access to the sites. It will link the wind park site with Kawhia Road, through Te Mata Quarry and along an unformed section of Plateau Road. The site access road will be five metres wide and will require the filling of a gully head and the easing of corners along the Plateau Road alignment. The roads will have a crushed rock surface, with rock sourced from localised borrow areas or Te Mata Quarry.
- 3.11 Internal access will comprise of a combination of existing and proposed roads branching off the main 'spine road' along the ridge top.
- 3.12 Initially, internal roads will be formed to a width of ten to twelve metres wide, to allow for construction traffic and crane movements within the site. At some corners the road will be up to 16m wide. Following construction the internal roads will be reduced to five to six metres and rehabilitated to integrate with the surrounding landscape.
- 3.13 There will be no public motor vehicle access along the site access road.
- 3.14 Plans depicting the layout of the wind turbines, the access roads and the existing telecommunication tower are appended to my graphical evidence in attachment (1).

4. **DESIGN APPROACH**

4.1 In this section I will discuss the process adopted to consider and address potentially adverse visual and landscape effects during the design phase.

4.2 A combination of avoidance and mitigation measures were identified during the design phase of the project. A number of such measures were factored into the ultimate design of the proposal, influencing the final layout of the turbines. Such measures included:

- (a) Locating turbines are located in excess of 900 metres from dwellings and public roadways, outside the zone where shadow flicker may occur. The nearest dwelling, outside the site, is located approximately 2.34km away;
- (b) Avoiding the unnecessary clearance of native;
- (c) The siting of ancillary structures, including the substation (not subject to this application), operations and maintenance buildings within areas not visible from outside the site;
- (d) The use of 'clean' turbine structures, with no signage or unnecessary appendages attached to the outside;
- (e) Burying the power cables between each turbine and the substation; and
- (f) Avoidance of excessive soil compaction that may limit vegetative rehabilitation.

4.3 These measures will all assist to maintain the visual amenity of the site by reducing the visibility of the ancillary components within the wind park.

Public Feedback

4.4 Feedback from the public open days and community consultation was considered throughout the design process. One of the key messages received in that process was that the location of Turbine 22 was particularly unacceptable to the residents of Te Uku. Turbine 22, which would have been visually dominant in Te Uku and areas to the north of the site, has been removed from the proposal completely.

Alternatives Considered

4.5 I have considered the visual and landscape amenity effects likely to arise from alternative layout options including:

- (a) Preliminary turbine layouts for the site;
- (b) Proposed turbine layouts for the site;
- (c) Minor adjustments to the proposed layout including the deletion, relocation and inclusion of individual turbines.
- (d) A comparative analysis of an alternative layout option using different turbine envelopes.

4.6 Preliminary feedback relating to likely visual effects was taken into consideration by the wind park design team during the siting of turbines.

4.7 In general, I found that the difference between the visibility of various layout configurations within the proposed site was quite small, with a high degree of overlap between the zones of theoretical visibility. In my opinion, a significant change the internal configuration of the turbines would be needed to affect the general visibility of the wind park. Movement of the turbines within the 150 metre flexibility envelope which forms part of the resource consent application would therefore have no perceptible effects from a landscape / visual point of view.

5. **METHODOLOGY**

5.1 In this section I will discuss the methodology I adopted to assess visual and landscape effects associated with the wind park proposal.

Study Area

5.2 I have assessed a study area comprising the landscape within a 40k radius of the site. This is because of the potential for the proposed turbines to be visible from up to this distance. I have assessed the landscape in greater detail within a 20km radius of the site. This is because of the increased potential for adverse effect on landscape and visual amenity values within this distance.

Landscape Assessment Methodology

5.3 An assessment of landscape effects examines the overall landscape in terms of changes to landscape character and the amenity derived from it. It considers the interrelationships between different aspects and patterns detectable within the landscape including: geomorphology, vegetation, land use, existing value, landscape dynamics, and human modifications that have occurred. These factors have been evaluated against the base line of the existing landscape.

- 5.4 A landscape assessment may identify potential changes to a landscape, not dependent on the visibility. For example, the siting of a turbine in an area out of sight from a dwelling would have no visual effect for its residents, but may have a definable effect on the wider landscape character in respect to its intactness or character.
- 5.5 I have considered the landscape surrounding the site in terms of the *“Modified Pigeon Bay Landscape Assessment Criteria”*. This has enabled me to determine the status of the subject site under section 6(b) of the RMA. This approach has been determined by the Environment Court as an appropriate assessment methodology.
- 5.6 Factors considered under the *“Modified Pigeon Bay Landscape Assessment Criteria”* include:
- (a) The natural science factors - the geology, topography, ecology and dynamic components of the landscape;
 - (b) Its aesthetic values including memorability and naturalness;
 - (c) Its expressiveness (legibility): how obvious the landscape demonstrates the formative processes leading to it;
 - (d) Transient values: occasional presence of wildlife; or its values at certain times of the day or year;
 - (e) Whether the values are shared and recognised;
 - (f) Its value to tangata whenua; and
 - (g) Its historical associations.
- 5.7 As part of my assessment, I have considered the empirical processes associated with the identification and description of physical features, with the subjective process of describing how the various arrangement of such features combine, to create landscapes that are valued. I have undertaken a comprehensive assessment and analysis of the site and its surroundings, and drawn upon information gained through background research, site inspection and the analysis of a GIS data and a digital terrain model to help identify areas that maybe potentially affected by this proposal.
- 5.8 I have also considered the interrelationships between different aspects and patterns detectable within the landscape, including geomorphology, vegetation, land use,

existing value, landscape dynamics and human modifications. These factors collectively influence landscape character. Maps identifying the topographical features and the land cover and land use patterns associated with the site and its surroundings are appended to my graphical evidence as attachment (2).

- 5.9 I have relied on the heritage assessment prepared by Mr Warren Gumbley in determining Iwi and heritage values associated with the site.

Visual Assessment Methodology

- 5.10 I have used a visual assessment methodology that draws on the *Scenic Model of Aesthetic Appreciation* and the identification of view control points, representative of a range of views and viewer types to address the requirements of section 7(c) of the RMA. The methodology that I have used has been accepted by the Environment Court on previous occasions including *Tairua Marina Limited v Waikato Regional Council* (A 108/05). It is appropriate as it can be used to identify the nature of a change in the landscape and allow analytical consideration of how such a change will affect the landscape perception of those who experience the landscape.

Visual Absorption Capability

- 5.11 One of the main factors influencing the potential visual effect of the proposed wind park is the visual absorption capability of the surrounding landscape. This is the ability of the landscape to visually integrate the proposed turbines without resulting in a significant change in character.
- 5.12 I have selected a number of view locations in order to assess visual effects. Each view location has been rated in terms of its visual absorption capability (VAC). The assessment criteria I used to determine the sites VAC rating included:
- (a) The degree to which a development is visible;
 - (b) Visual and physical links with other similar elements or activities in the landscape;
 - (c) The level of modification to the surrounding landscape (short and long term);
 - (d) Appropriateness of scale;
 - (e) Distance;
 - (f) Existing screening;
 - (g) Backdrop; and

- (h) Atmospheric conditions.

Visual Catchment

- 5.13 As part of my initial investigation into the potential visibility of the proposed wind park, I mapped the theoretical zone of visual influence (ZVI) using GIS software. This allowed me to identify areas in the surrounding landscape, from which the proposed wind turbines would potentially be visible. This is also known as the visual catchment.
- 5.14 Analysis of the ZVI map identified that views of the wind farm, may be obtained by observers up to 40 kilometres from the site depending on favourable atmospheric conditions. I verified the ZVI map by field inspection and used it to help identify view locations for assessment.
- 5.15 During the preliminary planning stages, a ZVI mapping was also carried out for a range of different consenting envelopes. From this exercise I determined that the zone of visual influence for a 150m high turbine was only marginally greater than for a 127m high turbine. The application consent envelope is for a 137m high turbine, which is within the range tested.
- 5.16 The ZVI for the proposed wind farm is contained in my graphical evidence as attachment (3).

Viewing Audience

- 5.17 The potential viewing audience includes those residing in the surrounding area or travelling through it.
- 5.18 The turbines will potentially be seen from within a number of townships or settlements within 20km of the wind park site including:
 - (a) Te Uku (approximately 3.5 kilometres to the north);
 - (b) Whatawhata (approximately 17 kilometres to the north east);
 - (c) Waitetuna (approximately 5 kilometres to the east);
 - (d) Te Pahu (approximately 14 kilometres to the east);
 - (e) Raglan (approximately 10 kilometres to the north west); and
 - (f) Aotea (approximately 17 kilometres to the south west).

- 5.19 Although Te Mata is within 20km of the proposed wind park, it is located in a topographical depression from which no views to the wind farm site will be obtained.
- 5.20 My analysis of the ZVI map also found that the wind park is also potentially visible from parts of the following urban areas:
- (a) Hamilton City (approximately 25 kilometres to the north east);
 - (b) Ohaupo (approximately 29 kilometres to the east);
 - (c) Te Awamutu (approximately 32 kilometres to the south east);
 - (d) Pirongia (approximately 22 kilometres to the south east); and
 - (e) Kawhia (approximately 22 kilometres to the south west).
- 5.21 A number of recreational areas are found within the visual catchment of the proposed wind park, potentially attracting a transient viewing audience. These include:
- (a) The northern slopes of Pirongia Forest Park (approximately 1km to the south east);
 - (b) The western slopes of Te Hutewai Forest Park (approximately 12 kilometres to the east);
 - (c) The south western slopes of Karakariki Forest Park (approximately 9 kilometres to the north east);
 - (d) Elevated areas at the edge of Bridal Veil Scenic Reserve (approximately 5 kilometres to the south west);
 - (e) Raglan Harbour (approximately 6 kilometres to the north);
 - (f) Aotea Harbour (approximately 9 kilometres to the south west); and
 - (g) Kawhia Harbour (approximately 17 kilometres to the south south west).
- 5.22 My field investigations indicate that, although theoretically visible, views of the wind park from these locations is often restricted by vegetation. For instance, while theoretically visible from parts of Bridal Veil Scenic reserve, extensive bush cover within the reserve limits views of the surrounding landscape from most areas.

Viewer Distance

- 5.23 While the visual catchment is generally defined by the surrounding topography, views from within a 20 kilometre radius of the site are considered to be the most relevant. Views in excess of 30 kilometres from this site are less frequent, or at such a distance that the potential effect is considered negligible. These views have not been assessed. Theoretically, from distances in excess of 40km, the turbine towers would generally be indiscernible to the human eye in all but optimum atmospheric conditions.

Typical View Locations

- 5.24 During the preparation of the visual assessment report that forms part of the AEE for this application, I undertook extremely detailed site investigations and analysis from sixty-three identified view location points. These have been documented and described in detail in the landscape and visual assessment report that accompanied the application.
- 5.25 View locations are described from a series of fixed points surrounding the site. In some cases, only subtle differences exist between adjacent view locations, however, each has been selected to represent either a key view of the site, the view from adjacent dwellings, a dominant view from the road, or represents the view from a location identified during preliminary public consultation.

Photographs, Photomontages and Digital Models

- 5.26 I have prepared a number of photomontages and a 3D digital model of the proposed wind park in order to communicate the visual nature of the changes that are likely to occur. These were used during public open days and formed part of the consent application.
- 5.27 Montages were only prepared for representative view locations within ten kilometres of the wind park. Beyond this distance, the turbines are too small within the image to accurately depict.
- 5.28 In addition, the Computer Generated Images (CGI) were produced using the 3D computer generated model. These are identified by a greyed out photograph with the wind farm and terrain model overlaid in colour. These CGI photomontages were intended to demonstrate the relative orientation and effect of the wind park from a location that was near or similar to a full photomontage that had been created. These images although technically correct in terms of scale location and orientation were not corrected to accommodate foreground landforms or vegetation that were

not part of the original terrain model. They were undertaken with the explicit intent of showing the skyline ridge effect and are intended as an addition to the range of traditional photomontages contained in the VLA, rather than a replacement.

- 5.29 It is important to understand that the montages and the CGI's are essentially only a tool used to communicate and aid in the understanding of the visual changes that are likely to occur and are interpreted within the context of the site. This is because we perceive the 'actual world around us' and 'images of the world' in a different way. Further explanation is appended to my written evidence as attachment (b).
- 5.30 It is also important to note that the assessment and ratings stated in my evidence are based on the findings of field observations, aided by the photomontages, rather than the interpretation of photographs or photomontages alone. This is because the visual effect of a structure or activity can appear diminished within a photograph or montage when compared to the real world

Turbine Visual Analysis Parameters

- 5.31 For the purposes of the visual assessment, I used the design parameters of a Vestas V90 turbine on an 80 metre high tower (127 metres to the blade tip), to determine potential visibility. The V90 is representative of the type and size of turbine being considered for the site.

6. AESTHETIC VALUES

Models of Aesthetic Appreciation

- 6.1 Section 7(c) of the RMA requires particular regard to the maintenance and enhancement of amenity values. The RMA defines amenity value as: *'Those natural or physical qualities and characteristics of an area that contribute to peoples appreciation of its pleasantness, aesthetic cohesion, and cultural and recreational attributes.'*
- 6.2 A number of models of aesthetic appreciation exist. The most appropriate include:
- (a) The Scenic Model of Aesthetic Appreciation; and
 - (b) The Ecological Model of Aesthetic Appreciation.
- 6.3 Such models offer an explanation as to why different people make certain choices in terms of landscape preference and amenity values. Their practical application is in the field of impact assessment and they provide the methodological support for the assessment of landscape and visual amenity effects in terms of section 7(c).

- 6.4 I have used the *Scenic Model of Aesthetic Appreciation* to help predict how the community may react to a proposed wind park, and how it may affect the pleasantness and aesthetic cohesion of the surrounding environment.
- 6.5 In my opinion, the scenic model of aesthetic appreciation is relevant because it is based on the presumption that landscape aesthetic and amenity values are, in part derived from the rural or agrarian landscape. In other words, it assumes that we value what we think the rural country side should look like.
- 6.6 An overview of each model is appended to my written evidence in Attachment (c).

Public Perception and Visual Amenity

- 6.7 The measurement of landscape and visual amenity effects is a subjective process because it involves individuals who have differing perceptions, aesthetic tastes and visual comprehension. A feature that may be considered detrimental to visual amenity values by one individual, might be considered to be acceptable by another. During my work on this and other wind farm projects, I have spoken with different parties who hold alternate views.
- 6.8 As previously mentioned, people generally have certain expectations as to what a rural landscape should look like, and the type of activities that should occur within it. Anything falling outside these expectations can affect amenity values. The threshold, past which any new activity in the landscape is deemed to degrade existing landscape and visual amenity values, is called the “limit of acceptable change’ or *LAC*.
- 6.9 As part of my assessment, I determined the *LAC* for the proposed wind farm by the following means:
- (a) Review of relevant research into public perceptions of wind farms, both local and overseas;
 - (b) Visual and landscape assessment reports for other windfarm applications;
 - (c) Consultation meetings with potentially affected parties;
 - (d) Public consultation meetings and “one on one” discussions.

Research into Public Perceptions of Windfarms

- 6.10 Research which has been undertaken into public perception of landscape and amenity values, represents an important analytical tool because it provides a baseline against which expert assessment can be validated.

6.11 I do not intend to review the background research in detail in my evidence, but rather to provide an overview of key findings.

New Zealand Research into Public Perception of Wind farms

6.12 In 2004, UMR Research carried out research into New Zealanders' perceptions of windfarms in the rural landscape.

6.13 The following questions were asked:

- (a) How would you feel about a wind farm build built in your local area?;
- (b) How would you feel about a wind farm build built in your local area if you could not see or hear the windmills from your house?;
- (c) How would you feel about a wind farm build built in your local area if you could not hear, but could see them as distant windmills on the skyline from your house?;
- (d) How would you feel about a wind farm build built in your local area if you could not hear the windmills, but could see them across the road from your house?;

6.14 Key findings are as follows:

Summary of Results for Rural Respondents							
		Strongly in favour of -----Strongly Against					
Question	Sample	1	2	3	4	5	Unsure
	121	38%	21%	22%	7%	9%	3%
	76	55%	17%	13%	6%	6%	3%
	121	33%	27%	22%	8%	8%	2%
	76	14%	24%	23%	21%	17%	1%

6.15 In general, there appears to be broad public support for renewable energy, and typically about 80% for wind power, however support appears to diminish with close proximity

6.16 A more detailed assessment is contained within the visual assessment that forms part of the AEE. A summary of findings the UMR study is appended to my written evidence as attachment (d).

6.17 Research undertaken into the effects of the proposed wind park on tourism in Raglan, undertaken by Campbell Associates since I prepared my original assessment report, also supports these findings. Mr Campbell, in his research has considered visitor perceptions of wind farms and undertaken an independent review of the overseas literature. In my opinion a correlation exists between Mr Campbell's findings and my own. Mr Campbell addresses this in greater detail in his evidence.

Analysis of Overseas Research into Public Perception of Wind Farms

- 6.18 Key findings from my review of the international and national research include:
- (a) That public acceptance seems to increase in the local area, after the installation of the wind turbines;
 - (b) Opposition to wind farms arise in part from exaggerated perceptions of likely impact, and that the experience of living near a wind farm frequently dispels these;
 - (c) That opinion is formed not by experience, but rather by a lack of information, wrong information, prejudice, and fashion;
 - (d) Wind farms with small numbers of large turbines are generally preferred to those with large numbers of smaller turbines.
- 6.19 There are a number of elements in a wind farm development that may be considered by some to result in adverse effects on the existing landscape and visual amenity. These include the turbines and ancillary structures. Opinions as to the visual quality of the turbines themselves are varied. While some view them as interesting structures, or even structural elements that add to the landscape, others believe them to adversely affect visual amenity value.
- 6.20 The effect of wind turbines on landscape character is often exacerbated by the fact that the best wind resource, generally aligns with upland areas including ridge lines and plateaus, which are often valued for their scenic qualities. These areas are considered to be more sensitive to change in respect to visual, landscape and amenity values, as a result of development.
- 6.21 Public opinion and acceptance is recognised to change over the course of a wind farm project's development. A common finding in many research studies is that communities seem to favour wind power as an abstract concept, but oppose wind power projects in their own area.

- 6.22 During the initial planning stages, it is typical for public acceptance to decrease. This may be a result of a number of reasons, including lack of experience with wind farm developments and subsequently an inability to identify the likely effects.
- 6.23 Public acceptance also appears to decrease when a wind farm is proposed in the immediate vicinity. Communities often oppose wind power projects in their own area or wish to maintain the status quo in relation to their locality.
- 6.24 The research indicates that this often occurs when a wind farm is to be located within close proximity. In my opinion, this helps to explain why higher numbers of submissions were received from residents in close proximity to the proposed wind farm than from outer lying areas.
- 6.25 During the construction period, the public acceptance level is expected to decrease as a result of the visual, landscape and amenity effects arising from earthworks and general construction activities. Post construction, when the wind farm is in operation, it is typical for public acceptance to increase beyond initial levels. This appears to have occurred in the communities living around the wind farms in the Manawatu and Wellington.

Public Consultation

- 6.26 Mr Chris Dawson will address public consultation in detail in his evidence. In addition to that I will discuss the consultation undertaken that specifically related to the potential landscape and visual effects of the proposal.

Te Uku Public Open Days

- 6.27 The first public open day was held on 24 May 2006 at the Te Uku Hall. Limited field investigation had been carried out at this time and the visual and landscape assessment had not been prepared. Myself and another landscape architect from my firm were present to discuss potential visual, landscape and amenity issues. The following information was available for public perusal at the open day:
- (a) A ZVI (zone of visual influence) map indicating where the turbines would be visible from, and how many at each location;
 - (b) A broad explanation as to how the visual, landscape and amenity effects would be assessed, and an explanation as to the function of a ZVI map;
 - (c) Photographs of the Te Apiti Wind Farm. This included a scale comparison of an indicative turbine for the *WEL Wind Park* superimposed into a Te Apiti Wind Farm photograph.

- 6.28 During the open day, my colleague and I spoke with 26 members of the public of which 14 had negative responses, 4 positive and 8 had neutral responses to the proposed wind park. Of those who responded negatively to the development
- (a) Four appeared to be highly concerned about the visual effects from Turbine 22; and
 - (b) Six either did not want turbines in the general vicinity or wanted some of the turbines relocated out of sight.
- 6.29 The second open day was held on 27 November 2006 at the Te Uku Hall. Site investigations had been carried out by this time and the visual, landscape and amenity assessment was substantially complete. The purpose of this meeting was to inform the public of the preliminary findings of investigatory work undertaken by the applicant.
- 6.30 The following was available for perusal at the second open day:
- (a) A ZVI map and photographs of the Te Apiti Wind Farm (as presented at the first open day);
 - (b) A summary of the visual, landscape and amenity findings to date;
 - (c) A number of photo montages from representative view locations.
- 6.31 In addition, the 3D computer generated model was utilised to identify and display the number and extent of turbines potentially visible from properties near the site. This allowed interested parties to gain an impression of what the wind park would look like from surrounding populated areas.
- 6.32 Of the 32 respondents at the second open day, 12 had negative responses, 6 positive, and 14 neutral responses to the *WEL Wind Park* application. Some respondents appeared to be concerned that the number of turbines had increased by 4 since the first open day, despite the removal of Turbine 22.
- 6.33 Overall, there was a greater degree of public interest in the second open day than the first. In general, the feedback received at the open days, and at varying stages through the initial planning process, was consistent with the findings of the aforementioned research, where the greatest degree of concern was from those who perceived themselves as being highly affected. In my opinion, this validates the use of national and international perceptual studies in helping to determine likely affects on landscape and visual amenity values.

6.34 The level of negative responses dropped during this time as the public became more informed, which is also consistent with previous research. All responses received at the open days were recorded and included as part of the visual assessment report.

7. **LANDSCAPE CONTEXT AND STATUS**

7.1 In this section of my evidence I will identify the landscape context, within which the wind park will be placed.

Existing Landscape

7.2 The site is characterised by a combination of topography, vegetation, existing land use and cultural features. The formative processes associated with past volcanic, and past and present fluvial processes within the region, have resulted in a landscape that is dynamic, diverse and vivid. The juxtaposition of these landforms represents some of the more memorable and recognisable landscapes in the area and contribute to its amenity. There is a high degree of modification to original land cover, with the predominant land use being pastoral grazing.

7.3 The main topographical elements include:

- (a) The west coast, with three harbours being Raglan (Whaingaroa), Aotea and Kawhia.
- (b) The western uplands comprising a relatively wide block of highlands running parallel to the coast. This includes two of the most recent and least eroded volcanoes in the Waikato, namely Mount Pirongia, the highest mountain in the Waikato at 959m, and Mount Karioi at 756m, and the Wharauora ridgeline and plateau which contain the wind park site.
- (c) The lower lying alluvial plains of the Hamilton Basin, through which the Waipa and Waikato River flow.

7.4 The predominant land use is pastoral. The effect of the deforestation process, required to develop the land in order to accommodate such activities, has been significant on the original land cover. The flatter areas, which are typically more fertile and easier to work, contain only discrete patches of remnant vegetation, whereas the steeply elevated land forms contain more extensive areas of native bush.

7.5 The functional requirement of fencing the grazed areas has resulted in defined linear edges to most remaining bush. This influences the character of the

landscape and indicates the degree of human intervention with respect to the original land cover.

- 7.6 There are a number of distinct nodes of development, ranging from clustered dwellings, rural settlements (such as Te Uku, Te Mata and Waitetuna) and ultimately Hamilton City to the east within the study area. However, in general, built form is limited, which is typical of a rural-pastoral land use and is of a scale and nature that integrates with surrounding landscape elements. This includes single or double storey dwellings and associated buildings such as farm implement sheds, hay barns, milking sheds and woolsheds. As a consequence there is a degree of remoteness in the landscape surrounding the site, particularly to the south west, where there is minimal built development.
- 7.7 This combination of topography, land cover and built form represents some of the more memorable and recognisable landscapes within the region. For example, Mount Pirongia as viewed from the east in the Hamilton Basin (particularly with the sun setting beyond), Mount Karioi as viewed from the west coast, and associated harbours. This is evidenced by the frequency with which these landscape elements are depicted in local art.

8. LANDSCAPE EFFECTS

- 8.1 The wind farm represents the introduction of a large scale development into a rural setting. Although elements of the development have been located to avoid landscape features such as rock outcrops, and areas of native vegetation, the turbines will affect the existing landscape character of the site. The introduction of the turbines into the landscape will result in a shift in landscape character, from a predominantly rural pastoral environment to one that includes a number of large scale man-made elements.
- 8.2 The presence of the turbines is likely to affect the perception of the landscape from more remote locations. This is due to the relative absence of development in these locations which would otherwise provide context for the proposed wind park. This will likely result in a perceived incongruity between the scale of the proposed turbines and the surrounding natural and built environment. It will also likely affect perceptions of naturalness when the proposed wind park is considered within the context of the surrounding rural landscape and the dominant forms of Mount Karioi and Mount Pirongia.

Potential Effects on Mount Pirongia and Mount Karioi

- 8.3 I consider that the most potentially affected 'Outstanding Natural Landscapes' (ONL's) identified by the PDP will be Mount Karioi and Mount Pirongia. This is due to their high visual prominence, in contrast to the surrounding rural areas in terms of their distinctive land form, scale, elevation and vegetation.
- 8.4 The wind park is located on the Wharaurua ridgelines, which extends in a north south orientation, north-northwest of Mount Pirongia. Although these ridgelines terminate in relative proximity to the Mount Pirongia, their orientation, form and vegetative cover is distinctly different from that of Mount Pirongia and are read as a separate landform. Mount Karioi is similar in many respects in terms of landform and vegetation cover, however, it is also separated by greater distance from the Wharaurua ridgelines.
- 8.5 In my opinion, the key attributes of the two dominant outstanding natural landscapes of Mount Pirongia and Mount Karioi will not be greatly affected by the proposal, the introduction of the proposed wind park will affect the overall perception of naturalness, and therefore may affect the amenity values associated with these features. This is because the wind park will be visible within the same view as either or both mountains from many surrounding locations and, unlike the smaller scale development on the flanks of each mountain, the wind park is likely to be perceived as a visually distinct feature in its own right.
- 8.6 Assessment of the inter-visibility between Mount Karioi and Mount Pirongia shows that, while the wind park will be within the field of vision, when viewing one mountain from the other, the wind park will not be directly between the two outstanding natural landscapes.
- 8.7 Views between these areas are generally restricted to each summit, although brief views of the wind park site may be attainable from some of the tracks along the leading ridge lines. This is seen on the ZVI analysis maps appended to my evidence. However, such views are often obscured by vegetation within each of the DoC administered reserves.
- 8.8 I consider therefore that the proposed wind park will have little effect on the valued attributes associated with the visually dominant ONL's within the study area due to location, visibility and connectedness between the relevant landforms.
- 8.9 Other ONL's such as Karakariki Forest, Bridal Veil Falls, Matakotako and Potahi Point will be affected by the wind park to a much lesser extent due to their

juxtaposition, lower elevation and, in the case of the latter two, distance from the site.

- 8.10 During the construction period, a number of smaller scale landscape effects will arise. Earthworks will be required for the formation of turbine pads, hard stand areas, and the installation of the underground cables between the turbines and substation. Although there will be localised modification to the existing land form, the appearance of the skyline will not be significantly altered.
- 8.11 The formation of the construction roads will also be visible during this time. The works associated with the construction roads and the construction of the various pads (turbine pads, crane pads) will be of a scale, form and density that are not typical in this landscape. However, these effects will be temporary in nature.
- 8.12 Following installation and commissioning of the turbines, the construction roads being reduced to a width more akin to farm access tracks. This will reduce their overall visibility within the site. While the construction roads will still link structures of significant scale, the recommended rehabilitation will assist in reducing the overall potential effect on landscape character.
- 8.13 The turbines will result in a significant change to existing landscape and rural character. For some people the effect on amenity values will be adverse and unacceptable. For others, the effects will be acceptable.

Potential Effects on the Coastal environment, including Raglan Harbour, Aotea Harbour and Kawhia Harbour

- 8.14 To address a specific concern raised in the peer review, I will now outline the findings contained in my report regarding potential landscape effects of the wind park on the natural character of the coastal environment, including Raglan Harbour, Aotea Harbour and Kawhia Harbour. These matters were considered and addressed in my report as part of the relevant requirements of Part 2 of the RMA, in regard to Matters of National Importance, section 6(a), which requires the preservation of the natural character of the coastal environment (including the coastal marine area) from inappropriate subdivision, use and development.
- 8.15 While the wind park site forms part of the visual catchment from many parts of the coastal marine area, including Raglan Harbour, Aotea Harbour, Kawhia Harbour and various locations along the west coast beaches, it is not in my view contained within a landscape that is obviously characterised by coastal or marine formative processes. The PDP identified the extent of the coastal marine area (CMA) as the Coastal Zone. At its closest point, the Coastal Zone is 4.5 kilometres from the

nearest turbine. (I refer you to attachment 8 of my graphic evidence, the Outstanding Natural Features and Landscapes plan which clearly identifies the relative spatial relationships between the coastal edge and the wind park). Due to the separation distance between the wind park and the CMA, significant differences exist between the landscape character associated with the CMA, variously described as a series of bays, and the Whararua ridgeline.

- 8.16 However, although physically located between 4.5 kilometres to in excess of 16 kilometres, from the terrestrial boundary of the coastal zone, I consider that the presence of the wind park will affect perceptions within the coastal zone. Within the context of the coastal zone, the turbines will be visible on the skyline ridge, and when observed from more isolated locations, along the west coast beaches and from within the three harbours, will affect perceptions of the natural character relating to naturalness and isolation. This is more likely to occur where evidence of human occupation or development cannot be readily seen.
- 8.17 In my opinion, the effect of the wind park on natural character of the three harbours is considered to be *insignificant* due to the extent of existing development within these areas, providing a degree of context for the visible presence of the turbines. Generally within the coastal zone, the effect of natural character is considered to vary from *de minimis* to *insignificant* due to the varying degree of visual presence of the wind park as a result of screening by topography and vegetation, and the varying extent of development within the coastal zone.
- 8.18 My findings are consistent with the findings contained with Mr Browns report, although I note that our methodological approach may differ in detail.
- 8.19 I note also that the wind park presents a slightly unusual situation in that although landscape effects are distinct from visual effects, in this instance, due to the scale of the turbines, it is their visual presence, albeit relatively minor in context of the CMA, that results in the landscape effect. As this particular aspect demonstrates, the wind park's landscape effects and visual effects present an unusually high correlation.

Transient Landscape Values

- 8.20 Transient values are values that affect landscape and visual amenity that are temporary in nature. These may include the following (but are not limited to):
- (a) Meteorological effects (such as the presence of rainbows);
 - (b) The presence of wild-life or animals in the landscape;
 - (c) Seasonal change in vegetation states and leaf colours;

8.21 In my opinion, these features will not be affected by the proposed wind park as the wind park does not change the fundamental use or land cover patterns associated with the underlying landscape.

9. VISUAL EFFECTS

9.1 In this section of my evidence I will address the potential visual effects of the proposed wind park.

Visual Absorption Capability of the Site

9.2 The visual absorption capability of the landscape surrounding the site is *low to very low* for nearly all view locations investigated within ten kilometres of the site. This means that turbines within the proposed wind farm will be clearly visible from surrounding locations. This is largely due to the scale of the turbines, which are incongruent with the scale of other man made object in the region, and their location on the ridge lines within the Wharauroa Plateau.

9.3 As viewer distance from the site increases, in general, so do the VAC ratings. This is due to a combination of increased screening of parts of the site from foreground topography and vegetation, distance and apparent scale. The VAC rating from the various view locations assessed are contained in the summary table in the following pages of my evidence. The definitions for the ratings and the visual absorption ratings for all view locations are appended to my written evidence as attachment (e).

Potential Visual Effects

9.4 The scale of perceived effects on visual amenity values caused by the proposed wind park are likely to be influenced by the following factors:

- (a) A contrast between the turbines and their surroundings in terms of size, form, and colour, thereby creating incongruity in the landscape.
- (b) Perceived negative associations with such utilities.

9.5 Effects can be classified as:

- (a) Long term effects;
- (b) Temporary effects; and
- (c) Transitory effects.

9.6 I will address each category of potential effects in turn.

Long Term Effects

- 9.7 The turbines represent the most long term, and significant visual effect likely to arise from the wind farm development. This is largely due to:
- (a) The functional requirement of the turbines being located on a ridge line, with limited ability to screen them;
 - (b) The significant scale of the turbines, when compared to surrounding landscape elements; and
 - (c) The movement of the rotating blades.
- 9.8 With the exception of the required aviation lighting, it is not anticipated that the night time landscape would be affected by the wind farm development, as no additional exterior lighting is proposed.
- 9.9 The introduction of aviation lights will result in a very small change in the night time characteristics of the ridge line, introducing a series of light sources into the otherwise dark environment. Aviation lights will be located on top of the nacelle and will be shielded so they are not visible below the horizontal plane.
- 9.10 The majority of observers within this catchment are at a lower elevation than the nacelle of the lowest turbine and therefore will not see the lights. The only exception to this are occasional observers located in the upper reaches of Mount Pirongia, Mount Karioi and Pirongia West Road who will be able to observe the flashing light at night. When the blades of the turbine are between the observer and the aviation light, the light may appear to flash irregularly as the blades pass in front of it. This may draw greater attention to the lights, but will not alter the overall visual effect of the development. The lights will not be visible from any dwellings.
- 9.11 A diagram showing the 'general' position of the hazard light on the nacelle and a zone of visual influence (ZVI) plan showing the extent of aviation light visibility, is appended to my graphic evidence as attachment (4).

Temporary Effects

- 9.12 The wind farm will be constructed over an eighteen-month period. Temporary visual effects likely to arise during this time, include:
- (a) Exposed earth associated with the formation of turbine pads, hard stand areas, access tracks, and the installation of the underground cable between the turbines and the substation; and

- (b) Movement of vehicles transporting components to the site, and machinery associated with installing the turbines, drawing attention to the site.

9.13 The proposed earthworks will only be noticeable from close viewing locations. While there will be localised modification to the existing land form to accommodate the turbine pads and hard stand areas, there will only be a relatively small change to natural land form associated with the plateau and ridgeline.

9.14 The movement of vehicles during the construction phase may draw attention to the site. The extent to which this aspect of the proposal will effect visual amenity is dependent on proximity. As previously stated, the closest dwelling to the site is approximately 2.34km away. I therefore consider that although the machinery utilised are likely to be of a large scale, in the context of the overall development the likely increase in visual effect will be negligible.

Transient Visual Effects

9.15 These are visual effects that may occur occasionally during the regular operation of the wind farm. They are subject to the coincidence of a number of environmental conditions. These include:

- (a) Meteorological, atmospheric conditions and light affecting the conspicuousness of the proposed wind park—;
- (b) Shadow flicker; and
- (c) Blade glint.

9.16 The visibility and conspicuousness of the wind farm are dependent on ambient light levels, and atmospheric conditions. For example, in hazy or rainy conditions, the wind turbines may be difficult to see, but on clear days with direct sunlight shining on the turbines, they may be readily discernible. In general, atmospheric conditions will have a greater influence on the visibility of the site from distant view locations than for those at close proximity.

9.17 Shadow flicker occurs when a turbine blade passes between a viewer and the sun, causing a “flashing” effect. The phenomenon only occurs when the observer is located generally no further than 10 times the diameter of swept area of the turbine blades from a turbine and is in an enclosed space such as a vehicle or building. The swept area of the proposed turbine blades is 90 metres. All view locations and dwellings in this catchment are in excess of the critical distance of 900 metres, and therefore this phenomenon is not considered likely to result in adverse visual effects. A shadow flicker assessment has been carried out by Hydro Tasmania Ltd,

which determined that this phenomenon will have no effect on the closest houses. I rely on the findings of the Hydro Tasmania report in this regard.

- 9.18 Blade glint occurs when the sun reflects of a turbine blade, causing glare. It is a relatively rare phenomenon. A number of variables are required to coincide for blade glint to occur. These include the time of the day, and the location and orientation of the viewer in relation to the turbine. With regard to the turbine itself, the profile of the blade, pitch angle, age, colour and surface finish will all influence the potential for blade glint. Therefore while mitigation measures have been proposed, such as the colour and surface finish of the blade, under certain environmental conditions the phenomenon of blade glint may occur resulting in a very minor transient adverse visual effect.
- 9.19 Although the aviation lights themselves constitute a minor long term effect, a transitory effect may be discernible at night if they reflect off low cloud. This effect is anticipated to be visible from below the 400 m horizontal plane the extent and distribution of this potential effect will be highly variable subject to the ceiling of the cloud cover. In my opinion, this would be a localised effect which would be of negligible consequence to the overall visual effect of the development.

Views from the Main Roads

- 9.20 With regard to transient views associated with travelling along the district's road network, the proposed wind park is likely to draw viewer attention and become a "way-finding node" against which people determine their relative location in the wider landscape. The existing Te Aroha television transmitter tower and the Te Uku telecommunications tower can be considered to have a similar function at present.
- 9.21 While direct views of the wind park will not always be available from the road, due to a combination of screening afforded by foreground elements, or the orientation of the road, the wind park will nevertheless form a dominant visual feature on the skyline for road users on the western side of the "Raglan Deviation".
- 9.22 To demonstrate the nature of transient views, I have prepared three CGI animations to show the effect of the windfarm when driving between:
- (a) The "deviation" and Raglan;
 - (b) Along Te Mata Road; and
 - (c) Along Waitetuna Valley Road.

9.23 These were made available to the public through the various Council offices during the submissions period. I have also taken transient views into consideration during the selection of view locations on the main road network.

View Location Points

9.24 The following table summarises the findings of my assessment of the 63 view location points identified in the visual assessment report. Each view location is assessed in terms of its potential to change existing landscape character and given an effects rating. A ratings definitions table is appended to my written evidence as attachment (f).

VISUAL ASSESSMENT SUMMARY TABLE								
VL	Location	VL Elevation	Distance Range	Closest Turbine	No. of Turbines Visible	VAC	Potential Change to Existing Character	Visual Effects
West to North West Views								
1	Pond Rd	72 m	0-5km	2.3km	10	Very Low	Significant	Significant
2	Pond Rd	65 m	0-5km	3.4km	23	Very Low	Significant	Significant
3	Te Mata Rd	62 m	0-5km	4.1km	26	Very Low	Significant	Significant
4	Maungatawhiri Rd	152 m	5-10km	6.3km	28	Low	High	High
5	Te Mata Rd	142 m	5-10km	6.6km	26	Low	High	High
6	Te Hutewai Rd	188 m	10-20km	10.0km	28	Neutral	More than Minor	More than Minor
7	Te Hutewai Rd	182 m	10-20km	9.6km	28	Neutral	More than Minor	More than Minor
8	Ruapuke Rd	182 m	10-20km	10.7km	28	Neutral	More than Minor	More than Minor
9	Wainui Rd	62 m	10-20km	11.5km	25	Moderate	No More than Minor	No More than Minor
10	Upper Wainui Rd	142 m	10-20km	11.7km	28	Moderate	No More than Minor	No More than Minor
56	Mount Karioi	756 m	10-20km	12.9km	28	Neutral	More than Minor	More than Minor
North West to North East Views								
11	Wrights Road	56 m	0-5km	3.9km	21	Very Low	Significant	Significant

VISUAL ASSESSMENT SUMMARY TABLE

VL	Location	VL Elevation	Distance Range	Closest Turbine	No. of Turbines Visible	VAC	Potential Change to Existing Character	Visual Effects
12	SH 23	62 m	0-5km	3.4km	13	Very Low	Significant	Significant
13	Huroto Bay Rd	62 m	0-5km	4.6km	12	Very Low	Significant	Significant
14	SH 23	32 m	0-5km	3.4km	12	Very Low	Significant	Significant
15	SH 23	32 m	0-5km	3.5km	12	Very Low	Significant	Significant
16	Matakotea Rd	47 m	0-5km	2.6km	9	Very Low	Significant	Significant
17	SH 23	32 m	0-5km	3.6km	11	Very Low	Significant	Significant
18	SH 23	33 m	0-5km	3.5km	8	Very Low	Significant	Significant
19	Mangakino Rd	32 m	0-5km	2.6km	6	Very Low	Significant	Significant
20	SH 23	32 m	0-5km	3.8km	15	Very Low	Significant	Significant
21	SH 23	43 m	0-5km	4.2km	19	Very Low	Significant	Significant
22	Wainui Rd	22 m	5-10km	10.0km	28	Moderate	No More than Minor	No More than Minor
23	Maungatawhiri Rd	135 m	5-10km	6.7km	28	Low	High	High
24	SH 23	63 m	5-10km	7.6km	28	Neutral	More than Minor	More than Minor
25	Okete Rd	52 m	5-10km	6.2km	28	Low	High	High
26	Okete Rd	60 m	5-10km	5.5km	18	Low	High	High
27	Ohautira Road	22 m	5-10km	7.8km	23	Neutral	More than Minor	More than Minor
57	Greenslade Road	40 m	5-10km	8.3km	28	Neutral	More than Minor	More than Minor
58	Manukau Road	30 m	5-10km	8.9km	28	Neutral	More than Minor	More than Minor
59	Rangitoto Point	5 m	10-20km	11.0km	28	Neutral	More than Minor	More than Minor
60	Rothery Road	88 m	10-20km	13.2km	28	Neutral	More than Minor	More than Minor
61	Mangiti Road	35 m	10-20km	14.5km	28	Neutral	More than Minor	More than Minor
North East To East Views								
28	Waitetuna Valley Rd	42 m	0-5km	4.9km	15	Very Low	Significant	Significant

VISUAL ASSESSMENT SUMMARY TABLE

VL	Location	VL Elevation	Distance Range	Closest Turbine	No. of Turbines Visible	VAC	Potential Change to Existing Character	Visual Effects
29	Parker Access Rd	46 m	5-10km	5.0km	19	Very Low	Significant	Significant
30	Waitetuna Rd	42 m	5-10km	5.2km	11	Very Low	Significant	Significant
31	Old Mountain Rd	62 m	5-10km	6.6km	22	Low	High	High
32	State Highway 23	48 m	5-10km	5.6km	21	Low	High	High
33	State Highway 23	199 m	5-10km	9.4km	26	Neutral	More than Minor	More than Minor
34	Kakaramea Rd	40 m	10-20km	17.4km	11	Moderate	No More than Minor	No More than Minor
35	Cemetery Rd	42 m	10-20km	19.2km	21	Moderate	No More than Minor	No More than Minor
36	Frankton	50 m	20+km	26.3km	27	High	Insignificant	Insignificant
37	Horotiu Rd	40 m	20+km	19.3km	25	Moderate	No More than Minor	No More than Minor
East to South East Views								
38	Oronga Rd	62 m	0-5km	4.6km	18	Very Low	Significant	Significant
39	Fillery Rd	127 m	5-10km	6.0km	20	Low	High	High
40	Rolley Rd	138m	10-20km	10.2km	22	Moderate	No More than Minor	No More than Minor
41	Martelletti Rd	40m	10-20km	15.1km	24	Moderate	No More than Minor	No More than Minor
42	Corcoran Rd	148 m	10-20km	13.6km	26	Moderate	No More than Minor	No More than Minor
43	Pirongia	24m	20+km	21.6km	25	High	Insignificant	Insignificant
44	Frontier Rd	62 m	20+km	30.5km	26	High	Insignificant	Insignificant
45	Pirongia Rd	43 m	20+km	30.1km	26	High	Insignificant	Insignificant
46	SH 3	82 m	20+km	30.5km	27	High	Insignificant	Insignificant
47	SH 3	62 m	20+km	29.0km	26	High	Insignificant	Insignificant

VISUAL ASSESSMENT SUMMARY TABLE

VL	Location	VL Elevation	Distance Range	Closest Turbine	No. of Turbines Visible	VAC	Potential Change to Existing Character	Visual Effects
South East to South South West Views								
62	Ruapane Peak	723 m	10-20km	14.6km	28	Very Low	High	High
63	Pirongia Peak	959 m	10-20km	14.5km	28	Very Low	High	High
South South West to West Views								
48	Plateau Rd	272 m	0-5km	2.5km	28	Very Low	Significant	Significant
49	Kawhia Rd	211 m	0-5km	4.6km	27	Very Low	Significant	Significant
50	Kawhia Rd	222 m	0-5km	4.4km	28	Very Low	Significant	Significant
51	Moerangi Rd	302 m	5-10km	9.4km	18	Neutral	More than minor	More than minor
52	Phillips Rd	122 m	10-20km	11.4km	27	Neutral	More than minor	More than minor
53	Aotea	22 m	10-20km	16.4km	18	Moderate	No More than Minor	No More than Minor
54	Raglan Rd	118 m	10-20km	12.9km	22	Moderate	No More than Minor	No More than Minor
55	Kawhia	22 m	20+km	22.1km	27	High	Insignificant	Insignificant

9.25 Photomontages, CGI images and/or photographs from each location are appended to my graphical evidence as attachment (5).

Key Findings and Analysis

9.26 The key findings from my analysis can be summarised as follows:

- (a) The *low to very low* visual absorption capability of the landscape means that turbines within the proposed wind farm will either be clearly or highly visible from surrounding locations.
- (b) The turbines have significant potential to draw attention to their presence, due to their significant scale and the rotation of the turbine the blades. Their introduction into the landscape will be obvious and will change the existing rural characteristics of the skyline ridge. This will likely affect existing rural amenity values for some people.

- (c) From close proximity, while fewer turbines would be visible, the resultant visual effect will be greater due to their apparent scale in relation to surrounding landscape features. This means that, while viewers in locations such as Te Uku and Waitetuna will not be able to see the entire wind park, the components that they will see will dominate views of the skyline, appearing out of context with other man made structures in the area. The effects viewed from these locations will range from *more than minor* to *significant*.
- (d) The significant scale of the wind turbines in relation to other existing elements within the surrounding landscape, means it is not feasible to utilise screening measures typically adopted to reduce visual, landscape and amenity effects. However, the effects of all other aspects of the development, including construction roads, earthworks, and the operations and maintenance buildings, on visual amenity can be avoided or mitigated and appropriate measure are contained in the conditions proposed to ensure that adequate mitigation is achieved. In my opinion, the effects on landscape and visual amenity from these activities will be *more than minor* during the construction period, and *no more than minor* post-rehabilitation.
- (e) Disturbance to the natural land form of the Wharaurua Plateau and associated ridge line will be *insignificant*, meaning that if the wind farm should be de-commissioned in the future, the skyline ridge can be fully restored to its current natural appearance.

9.27 In general, I found that, the closer the viewer was to the proposed wind park, the greater the likely effect on visual and landscape amenity values. As distance from the proposed wind park increases, potential effects diminish. This is largely due to two factors. Firstly, that the apparent scale of the turbines will appear to diminish within the context of views of the wider landscape, and secondly, intervening topography often prevents continuous views of the site during the transition from near to far.

9.28 In my opinion, viewers located between Te Uku and the site, and at elevated locations on the western side of “the deviation”, will be the most affected. This is due to their proximity to the site and the relative juxtaposition between them and the turbines on the slopes above, or in the case of dwellings to the east, direct elevated views of the site.

9.29 The converse also results in a similar level of effect, where from more distant view locations, a greater number of turbines will be visible. From outer lying locations

such as elevated parts of Raglan Harbour, Aotea, Te Awamutu, and Hamilton, the diminished effect of scale is partially countered by more turbines being visible. It is not until viewer distances exceed ten kilometres that effects on visual amenity will be classified as *no more than minor*. The exception to this is where views of the wind park are seen within the context of the coastal environment or an outstanding natural feature or landscape. From these locations effects are slightly greater, particularly where the perception of natural character or remoteness is diminished.

9.30 While an increased number of turbines would be visible from more distant view locations, these would be seen within the context of the wider landscape. I therefore consider the potential effects of the proposed wind park on landscape and visual amenity to be lower from these outer locations.

9.31 I found that a combination of screening afforded by existing topography, lower population densities and general inaccessibility means that fewer viewing opportunities exist between eight and fifteen kilometres from the site than close in or outer lying locations.

10. **POTENTIAL CUMULATIVE EFFECTS**

10.1 In this part of my evidence I will discuss the potential cumulative effects that may arise for other consented and proposed wind farms in the Region.

Cumulative Effects of Previously Consented Windfarms

10.2 While no other wind farms have been constructed in the Waikato Region, two have been consented. These are:

- (a) A 42 turbine windfarm within the coastal landscape south of Kawhia Harbour at Taharoa, approximately 34 kilometres from the subject site; and
- (b) A 22 turbine windfarm, on a well defined ridge at Taumatotara, approximately 38 kilometres from the subject site.

10.3 I am thoroughly familiar with both applications, having assessed each application and provided expert advice to Waitomo District Council for the peer review of both applications.

10.4 I have analysed the theoretical viewsheds predicted for the two consented wind farms and the proposed WEL Wind Park and determined that views of all three wind farms will be limited to the following locations:

- (a) Elevated locations on the south eastern flanks of Mount Karioi including Waimaunga and Ruapuke Roads;
- (b) Potaki Point, the northern head of Aotea Harbour; and
- (c) Te Punia Springs at Ocean Beach;
- (d) Elevated parts of Kawhia Township;
- (e) A very small portion of both Aotea and Kawhia Harbours; and:
- (f) One or two locations along Kawhia Harbour Road and Okupata Road, to the north of SH31.

10.5 Locations from where two of the three wind farms may be visible from, subject to intervening vegetation and/or buildings, include:

- (a) The southern flanks of Mount Karioi;
- (b) Parts of Aotea Harbour;
- (c) The southern parts of Aotea Harbour;
- (d) Ocean Beach, north of Te Punia Springs; and
- (e) Limited elevated locations within Kawhia Township.

10.6 I have ascertained that with the exception of Kawhia township, population levels within the area of visual overlap of all three wind farms are low. While it will be theoretically possible to see all three wind farms from these locations in good meteorological conditions, they will be difficult to discern all three wind farms from any one location.

10.7 Relative distances between the wind farms and the above locations are as follow:

LOCATION	DISTANCE TO WIND FARM (km)		
	WEL Wind Park	Taharoa C Wind Farm	Taumatotara Wind Farm
Mount Karioi (Intersection of Ruapuke and Waimaunga Roads)	11.0	29.8	36.2
Potaki Point	16.8	18.2	26.7
Aotea Harbour	12.1	22.3	27.6
Te Punia Springs	23.7	10.1	15.7
Kawhia Township	22.5	11.6	15.7
Kawhia Harbour	22.9	13.8	14.8

- 10.8 From my field observations, undertaken over a range of different climatic conditions, I found that views of the southern wind farms sites were often affected by haze or cloud cover and therefore difficult to see.
- 10.9 While the construction of the proposed *WEL Wind Park*, and the two consented wind farms to the south of Kawhia Harbour, will result in a cumulative effect on surrounding landscape character, when considered at a regional level and within the context of one another, this change will be indiscernible from a static view location perspective.
- 10.10 From the perspective of a transitory viewer using the scenic route between Raglan and Marokopa, the various wind farms will appear to increase and decrease in apparent dominance with proximity at different stages of the journey through the landscape. I have considered the juxtaposition of the previously consented wind farms in relation to the proposed WEL wind park, surrounding roading patterns, the nature of the topography and landscape character. As a result I have reached the conclusion that, while a traveller may experience views of the various windfarms while travelling through the regions, these will be highly restricted by topography and screening. What this means is that views of more than one windfarm at a time will be rare from prominent locations along the main roading network or “tourist routes”. In my opinion, the degree of visual exposure, and therefore the likelihood of the cumulative effect of the wind farms adversely affecting the quality of scenic or landscape experience is quite low.
11. I therefore consider that the cumulative effects will be indiscernible. A ZVI map, identified where common views of each wind farm can be attained is appended to my graphic evidence as attachment (6).

12. **RESOURCE MANAGEMENT ACT CONSIDERATIONS**

- 12.1 In this section of my evidence I will address the provisions of Part 2 of the RMA which may be considered relevant to the current proposal.

Section 6 Matters

- 12.2 Section 6(a) lists as a matter of national importance the preservation of the natural character of the coastal environment (including the coastal marine area) And its protection from inappropriate subdivision, use and development.
- 12.3 While the wind park site forms part of the visual catchment from many parts of the coastal marine area, including Raglan Harbour, Aotea Harbour, Kawhia Harbour and various locations along the west coast beaches, it is not, in my opinion,

contained within a landscape that is obviously characterised by coastal or marine formative processes.

12.4 The PDP identifies the extent of the coastal marine area (CMA) as *Coastal Zone*. At its closest point, the *Coastal Zone* is 4.5km from the nearest turbine.

12.5 I consider that a significant difference in character exists between the landscape associated with various parts of the CMA and the subject site. However, when observed from the more isolated locations along the west coast beaches, and from within the three harbours, the proposed wind park may affect perceptions relating to naturalness and isolation from of some parts of the coast. This is more likely to occur where evidence of human occupation or development cannot be readily seen. This includes areas such as Horea and Rangitoto Point (north head of Raglan Harbour) where direct views of Raglan township are hidden from view, and Potaki Point at Aotea Harbour. This is because the wind park will introduce an obviously man made element into the background of context of the natural character of these more isolated areas within the CMA.

12.6 Section 6(b) requires the protection of outstanding natural features and landscapes from inappropriate subdivision, use and development. As part of the application process, it is therefore required that:

- (a) Outstanding natural features and landscapes within the subject area are identified; and
- (b) A decision is made as to whether the proposed application would be an appropriate development for this landscape.

12.7 I have evaluated the subject site in terms of section 6(b) of the Resource Management act using the “*Modified Pigeon Bay Landscape Assessment Criteria*”. The following table summarises my findings:

Modified Pigeon Bay Landscape Assessment Criteria	Findings
(a) The natural science factors - the geology, topography, ecology and dynamic components of the landscape;	Steep upland topography. Ecologically modified (pastoral land use with remnant bush patches).
(b) Its aesthetic values including memorability and naturalness;	Plateau and main ridge visually dominant feature due to scale and juxtaposition with Mount Pirongia. Site natural in appearance (pastoral). Neutral memorability in comparison to other major ridge lines in the region.

(c) Its expressiveness (legibility): how obvious the landscape demonstrates the formative processes leading to it;	Formative processes not highly legible (by comparison to the adjacent volcanoes). Steep sided eroded gullies below the plateau
(d) Transient values: occasional presence of wildlife; or its values at certain times of the day or year;	Domesticated landscape. Few transient wildlife values other than bird life. Little seasonal change due to lack of deciduous trees.
(e) Whether the values are shared and recognised;	Natural appearance of the site valued by local community.
(f) Its value to tangata whenua; and	Contains some sites of value to tangata whenua. Plateau of historical significance to Iwi. (Refer Cultural Heritage Report in AEE)
(g) Its historical associations.	Historical Iwi and pakeha use of the site and its surroundings. Historical access way.

12.8 From my assessment, I concluded that while the site is situated adjacent to an “*Outstanding Natural Landscape*”, as determined by the PDP, and is natural in appearance, it is not in its own right an “*Outstanding Natural Landscape*”.

12.9 Further, the PDP has identified the district’s outstanding natural features and landscapes and makes provisions for them in the objectives, policies and rules. These landscape have been assessed by Boffa Miskell Ltd on behalf of the Council and are the subject of three separate reports associated with the PDP. I will discuss the issue of outstanding natural landscapes in more detail shortly.

Section 7 Matters

12.10 Section 7 of the RMA requires that particular regard be had to:

- “(c) *the maintenance and enhancement of amenity values...*
- “(f) *maintenance and enhancement of the quality of the environment...*”.

12.11 In addition to the land use, elements that add to the perceived quality and amenity values of the landscape include the volcanic landforms of Mount Pirongia and Mount Karioi, extensive areas of native bush; and the west coast with its three harbours. In particular, a combination of low levels of development within the site, or on the elevated flanks of the Wharauora Plateau, its position as the dominant skyline ridge and its juxtaposition with the bush clad massifs of Mounts Pirongia and Karioi result in a landscape that highly visible from surrounding low lying areas and contribute to the existing landscape amenity values of the district.

- 12.12 I considered that wind turbines, introduced into this landscape, will be highly visible and will change the existing rural characteristics of the skyline ridge. The introduction of the proposed turbines onto a significant skyline ridge, adjacent to the outstanding natural landscape of Mount Pirongia, and within the visual catchment containing a number of other such landscapes, will likely affect the perception of naturalness in these areas in a variety of ways.
- 12.13 This is because the scale and vertical forms of the wind farm will appear incongruent with the horizontal form of the skyline ridge and will introduce an intensity of development of a size that is not currently experienced within the District. Other components of the development are not likely to affect amenity values provided recommended mitigation and rehabilitation works are adopted.
- 12.14 Such a change is likely to conflict with the values of aesthetic appreciation, held by members of the community who appreciate the picturesque qualities of the surrounding rural environment. Others may view the turbines as a point of interest or consider them to add to the visual amenity of the area. I note that, where wind farms or turbines have been previously established, communities sometimes appear to favour views towards a site or take pride in the fact that the wind farm is located in their district. For example, in the Manawatu, real estate is often advertised as having views of the wind farm. Brooklyn, in Wellington, has adopted streetscape detailing that references the turbine located within the suburb.

13. **RELEVANT PLANNING PROVISIONS**

- 13.1 In this part of my evidence I will address the relevant planning provisions applicable to the site.
- 13.2 As part of my assessment of the proposed development I have reviewed relevant sections of the PRP and the RPS and the Proposed Waikato District Plan (Decisions Version). I will comment only on the relevant landscape, visual and amenity provisions. I will leave other evidence to address the broader objectives and policies which may also have application and I express no view about weighting or overall broad judgement.

Waikato Regional Policy Statement and Waikato Proposed Regional Plan

- 13.3 Neither the RPS nor the PRP (which is now operative in part) address issues relevant to the protection of landscape character or amenity values within the subject site. While the RPS addresses the issues of “natural character”, and “outstanding landforms and landscapes”, in section 3.5.4 Policy One: Protection of Significant Areas, this is restricted to the coastal environment.

Operative Waikato District Plan

- 13.4 The WEL Wind Park development is classified as a non-complying activity within the Rural Zone of the District Plan. The site is partially contained within a Ridge Line Protection Policy Area which covers an area within 20 vertical metres of the identified ridge lines on the planning maps.
- 13.5 The ODP contains a number of objectives, policies and rules that place restrictions and controls on the development of rural land. These rules effectively govern the extent to which a development can affect the landscape, visual and amenity character within the site and its surroundings. Matters pertaining to rural amenity, landscape and visual issues in the District Plan have been appended to my written evidence as (g).

Section 9-Rural Zone

- 13.6 Relevant objectives and policies within this section of the District Plan relate to the maintenance and enhancement of rural amenity character and amenity values, by avoiding, remedying or mitigating the visual and physical effects of tall or large buildings on the landscape, and the overshadowing effect of trees on existing residences on adjacent properties in Rural Zones and on urban zoned land.
- 13.7 The proposed wind park can not comply with this section of the plan.

Section 21- Ridge line Protection Policy Area

- 13.8 The objective of this policy area is to maintain the natural appearance of significant ridge lines. The WEL Wind Park application is not consistent with this objective due to the introduction of large scale man-made objects onto ridge lines, which will alter their natural appearance.
- 13.9 '21.5.4 Assessment Criteria for Discretionary Activities' requires that regard shall be had to:
- (i) *The reasons why the building, structure, access or tacks cannot be located elsewhere.*
 - (ii) *Alternative sites including sites which have existing structures on them.*
 - (iii) *The conspicuousness of the building or structure from different viewpoints*
 - (iv) *The existence of trees which may screen a building or structure.*

13.10 The functional and operational requirements mean that wind parks are often located on ridge lines which typically have a higher wind resource than surrounding areas.

13.11 At a maximum of 137 metres high, the turbines will be visually prominent over a large visual catchment. There is limited ability to screen the turbines on the site, due to their size and operational requirements. However, where practicable, some localised planting (off site) may assist in mitigating the view from some locations.

Section 45-Excavations and Fill

13.12 Section 45 is directed towards addressing the potential effects on the visual amenity of the District through uncontrolled excavation and placement of fill.

13.13 The application includes the realigning and resurfacing of the access road to accommodate long haulage vehicles. The works associated with this will include the quarrying of rock resource from borrow areas (as identified on the plans contained within the main AEE document) and the partial in-filling of a gully head.

13.14 I consider that the WEL Wind Park is consistent with the requirements of this section of the ODP.

Section 53-Conservation and Natural Resources

13.15 The objectives in this part of the plan aim to conserve and enhance those qualities which contribute to the natural character and amenity values of the rural, urban and coastal areas of the District', and 'to protect significant areas of indigenous bush...'

13.16 There are 11 methods for achieving the objectives and policies including:

Method 3 Policy Areas of the District Plan

Landscape Policy Area,

Coastal Policy Area and

Ridge Line Protection Policy Area

13.17 Part of the site is within a Ridge Line Protection Policy Area, as discussed under the review of section 21 of the PDP. The WEL Wind Park development does not include the removal of any indigenous bush.

13.18 In my view, the WEL Wind Park is inconsistent with the provisions of the ODP with regard to maintenance of rural character and amenity values within the Ridge line Protection Policy Area. This is primarily due to the large size of the turbines. It is

also noted that the effects of wind farms on the landscape were not anticipated when the ODP was prepared.

Proposed Waikato District Plan (Decisions Version)

13.19 I express no view on objectives and policies other than those referred to above.

13.20 The Decisions Version of the PDP contains a number of objectives, policies and rules that place restrictions and controls on the development of rural land. These rules effectively govern the extent to which a development can affect the landscape, visual and amenity character within the site and its surroundings.

Chapter 3: Natural Features and Landscapes

13.21 Relevant issues within Chapter 3 relate to Outstanding Features and Landscapes, Landscape and Visual Amenity Values, and Natural Character.

13.22 As required by section 6(b) of the RMA, 'Outstanding Features or Landscapes' have been identified within the Waikato District and have been included in the PDP. The WEL Wind Park site is not within any of these areas. 'Outstanding Features or Landscapes' in the vicinity of the wind park site include:

- (a) Mount Karioi;
- (b) Bridal Veil Falls;
- (c) Motakotako;
- (d) Horea;
- (e) Karakariki Forest; and
- (f) Mount Pirongia.

13.23 A map identifying these features, within the context of the wind park site is appended to my graphic evidence as attachment (3).

13.24 The objectives in this section of the Proposed Plan require adverse effects on these outstanding features, landscape and prominent ridge lines to be avoided; and the retention and enhancement of landscapes and visual amenity values as viewed from public places. This includes views of outstanding natural landscapes. Policy 3.2.6 requires:

Views of outstanding natural features and landscapes from public places should be protected from the adverse effects of inappropriate subdivision, use and development [312.16]

13.25 In my opinion, this is not readily achievable where the wind park is located between public views locations and outstanding natural features or landscapes, for example views of Mount Pirongia from Raglan Harbour, across the wind farm. However, as previously stated, while the wind park will be within the field of vision, when viewing one mountain from the other, it will not be directly between the two outstanding natural landscapes. Views from the other ONL's are often screened by vegetation.

13.26 Policy 3.4.2 is particularly relevant to this application. It states:

3.4.2 Natural features and landscapes, including locally distinctive landforms and prominent ridge lines, and general visual amenity values should be protected from inappropriate subdivision, use and development, in particular by:

- (a) avoiding or mitigating adverse effects on natural features such as indigenous vegetation, lakes, rivers and mountains*
- (b) ensuring that the visual effects of buildings can be absorbed without adverse effects on the landscape*
- (c) locating buildings and development so as to integrate them with the surrounding landscape and backdrops, to avoid dominating the landscape*
- (d) designing subdivision so that potential development, including building platforms, fences and vehicle accesses, are located sympathetically in the landscape*
- (e) avoiding, remedying or mitigating as soon as practicable, the adverse visual effects of earthworks and vegetation clearance, by:*
 - (i) retaining vegetation, and [306.28, 718.2]*
 - (ii) restoring natural contours and replanting with appropriate species and restoring natural contours, and [303.12]*
 - (iii) limiting the area of soil exposed by earthworks and the length of time it is exposed, and*
 - (iv) locating and constructing roads, tracks and vehicle accesses to minimise their visual impacts.*
- (f) avoiding or mitigating the adverse effects on visual amenity from noxious, dangerous, offensive or objectionable materials.*
- (fa) considering the effects of activities on the relationship of Maori with their ancestral lands and waahi tapu. [194.10]*

13.27 Policy 3.4.2 is of broad application insofar as it applies to all natural features and landscapes, including locally distinctive landforms, prominent ridge lines and general amenity values as viewed from public places. There is no differentiation between the sensitivities one would associate with outstanding natural features and landscapes, and the rest of the district.

13.28 It would be extremely difficult for any wind farm, using existing or foreseeable available technologies, to be consistent with this policy, which effectively requires that no adverse effects result from its construction.

13.29 The proposed rehabilitation strategy is to re-contour any cut and fill batters to integrate with surrounding contours, and re-grass the site as soon as practicable following the construction of the wind park. This is consistent with Policy 3.4.2 (e) which aims to remedy or mitigate as soon as possible the adverse visual effects of earthworks and vegetation clearance.

13.30 Policy 3.5.1 states:

Prominent ridge lines identified for particular amenity and landscape value are shown on the Planning Maps as Ridge line Policy Areas. Effects on other ridge lines should not be ignored.

13.31 Anticipated environmental results for this section of the PDP include the protection and enhancement of significant ridge lines.

13.32 While this provision does not appear to have anticipated the likelihood of wind farms within the district, in my opinion, the potential adverse effects of the proposed wind park on land forms and natural features can be avoided or mitigated as required by 3.10.1 (b) below.

Avoidance or mitigation of effects of development that will result in irreversibly changing or destroying landforms and natural features:

(a) *significant ridge lines and*

(b) *locally significant natural features.*

13.33 Following the decommissioning of the wind park, including the removal of the turbines and re-establishment of pastoral land cover, the site can be returned to a land use and land cover that is consistent with the surrounding landscape. I therefore consider that the effects of the WEL Wind Park are reversible. This means that if new technologies emerge which render the existing turbine technologies redundant, the site could be restored to its current state with relative ease.

Chapter 13: Amenity Values

- 13.34 Issues within Chapter 13 relate to the adverse effects of land use, subdivision building and development, and rural character on amenity values.
- 13.35 As previously discussed, lighting within the wind park will be limited to the aviation hazard lights. The nature of these lights is such that they will be screened below the horizontal plane and will not result in adverse effects on amenity values to the majority of observers.
- 13.36 No signage is proposed for the WEL Wind Park development.
- 13.37 Where it is not practical to contain the adverse effects on the site, there is a requirement to remedy or mitigate cross boundary effects. The scale, of the turbines, their location on top of a ridge line, and their significant visual catchment means that this is also not achievable.
- 13.38 *Objective 13.2.6* and relevant policies aim to maintain or enhance amenity values of localities. The WEL Wind Park proposal represents a change in that the turbines' nature, bulk and location are significantly different to buildings in the locality and are of a scale that is likely to dominate adjoining land. Policy 13.4.2 (a), (b) or (c) does not appear to have anticipated this type of proposal and are at odds with other relevant policies relating to wind farm developments within the plan. Other evidence will cover polices such as Policy 7.4.3 which promotes recognition of the District's renewable energy resource, including wind, for national energy production.
- 13.39 *Policy 13.4.2(b)*, requires buildings to have a bulk and location that is consistent with buildings in the neighbouring locality. This is unachievable as the turbines are significantly different in scale and bulk to surrounding elements in the landscape.
- 13.40 Issue 13.6 relates to the preservation of rural character. The District Plan recognises that rural character throughout the district varies from one locality to another. However, policy 13.6.2 attempts to generically identify what constitutes rural character, and seeks to retain or enhance those values. The identification of amenity and character issues is subjective, however, many studies have been undertaken which seek to link people's perception of the environment, with various arrangements of identifiable physical elements. The policy appears to advocate the preservation of the districts existing landscape which does not comprise wind park developments.

Chapter 25: Rural Zone Rules

- 13.41 Rules relating to the 'Ridge line Policy Area' in this zone require earthworks, formation of tracks and accesses to be at least 20 metres vertically below the level of a ridge. In addition, a building is only permitted if the highest part is at least 20 metres vertically and horizontally from the ridge. Due to the operational requirements of the wind park, this cannot be achieved as the turbines and access tracks are located along the ridge line. Discretion is restricted to effects on landscape and amenity values; effects on skylines and ridge lines; effects on views and revegetation of bare earth.
- 13.42 The introduction of the turbines into the landscape will result in a change in landscape character, from that dominated by rural pastoral environment to a more "utility infra-structural" landscape. The development of the internal access tracks will not affect existing landscape character. The mitigation and rehabilitation strategy prepared for the WEL Wind Park aims to restore all earth exposed during the construction period to pasture. This is consistent with the surrounding land use.

Apparent Inconsistency between the Operative and Proposed District Plans and between the objectives, policies and rules within the Proposed District Plan

- 13.43 The ODP does not contemplate the potential effects of wind farms within the district. However, the Proposed Plan does anticipate the development of wind farms within the district and allows for their development within the objectives and policies, and some rules.
- 13.44 In my opinion, the provisions relating to landscape and amenity are not in line with the other sections of the proposed plan that address such matters. This results in an apparent conflict in terms of meeting the apparent intent of the plan and achieving the outcomes required by the provisions relating to landscape and amenity. Other evidence will refer to Policy 7.4.3 which anticipates wind farms within the district, as does Rule 25.20, which sets limits on turbine noise and Rule 25.69 which deals with the establishments of wind measurement instrumentation. The provisions relating to landscape issues do not appear to consider the development of wind farms in the rural environment to the same extent.

14. RESPONSE TO REVIEW OF LANDSCAPE, AMENITY & NATURAL CHARACTER EFFECTS CONTAINED IN THE COUNCIL PLANNERS REPORT

- 14.1 I have read and considered the Council Planner's report and Mr Stephen Brown's review of my Visual and Landscape Assessment Report and the additional

information supplied in response to the section 92 Request. Because the planner's report is drawn from Mr Brown's report, I will only address key issues in Mr Brown's report.

- 14.2 Mr Brown has reviewed my assessment and commented on the methodologies and outcomes in great detail. In general, Mr Brown's comments, found at the end of each section of discussion, confirm the approach that I have used as being "acceptable". In his review, he also notes areas where he considers that different assessment weighting or resulting ratings should be applied.
- 14.3 In particular Mr Brown places emphasis on analysis in respect to sections 6a and section 6b of the RMA. While I consider that an appropriate level of analysis was undertaken in the original report and s92 response, given the juxtaposition between the proposed wind park and those Outstanding Natural Landscapes that I considered to be potentially affected to any great extent, I have taken note of Mr Browns comments in regard to Outstanding Natural Landscapes, the Natural Character of the coastal environment, and the cumulative effects of this wind park in relation to the two other wind farms that have been consented within the District. In my evidence I have addressed these specific points, drawing strands of my report together to expand on and clarify these matters.
- 14.4 Other areas of concern raised by Mr Brown have also been clarified in my evidence.
- 14.5 In my opinion, Mr Brown's report reflects the fact that when two different assessment approaches are used to assess the same activity, differences in ratings are likely to occur. Because of this I have included rating definitions for the various analytical tools used in consideration of potential effects in the appendices of the original report and my evidence. This should aid in comparison between different methodologies and ratings to occur.
- 14.6 Mr Brown has also undertaken an independent assessment of the proposal and, in general I note that Mr Brown's assessment parallels my own. I consider that while he and I differ with regard the extent of specific effects anticipated, this tends to be a matter of degree and our overall conclusions are aligned. I consider that our differences in regard to specific effect is likely a reflection of our varying methodological approaches to visual and landscape assessment. That we draw many of the same general conclusions concerning the effects however reflects on the robustness of the report and the review process.
- 14.7 Mr Boyden Evans has also undertaken an independent peer review of my work. Although he concurs with Mr Brown's comments in relation to my report, he notes that the conclusions reached are broadly the same and, in particular, that Mr

Brown’s conclusions in relation to “strategic” (i.e., section 6) issues are consistent with my findings, as addressed in more detail in this evidence.

14.8 I also note that Mr Brown has not recommended any additional conditions with regard to mitigation measures.

15. **KEY ISSUES RAISED BY SUBMISSIONS**

15.1 I have reviewed the submissions relating to the landscape, visual and amenity effects of the proposed wind park. Many submissions oppose the wind park proposal on landscape and visual grounds. From the submissions I have identified eleven distinct categories of issues relating to landscape and visual amenity issues. These are identified and summarized in the following table.

Code	<i>Issue Identified in Submission</i>
1	Significant adverse visual effect.
2	Degradation/loss of existing rural character.
3	Degradation/loss of existing landscape values.
4	Degradation/loss of existing amenity values.
5	Degradation/loss of natural character values
6	Contrary to S5, S6, S7 and/or issues, objectives and policies of the District Plan. (Generic)
7	Contrary to the Ridge line Policy of the District Plan.
8	Concern regarding location of viewing the platform.
9	Concern regarding landscape restoration.
10	Significant adverse effects (non specific)
11	Cumulative effects.

15.2 Most submissions are general in nature, with few making comments in relation to specific effects identified. My analysis of the submissions indicates that submitters have a high level of concern regarding the visual impact of the wind farm. More than 85% of submitters stated that the turbines would have a significant adverse visual effect. Submitters also have a high level of concern for the effect of the wind farm on existing rural character, landscape, amenity and natural character values.

- 15.3 Over 15 % of submitters expressed concern that the wind farm would have a adverse effect on the ridge line of the Wharaurua Plateau contrary to the ridge line policy of the District plan.
- 15.4 A small number of submitters expressed concern regarding the location of the viewing platform. Concerns related to the potential for the platform to create increased traffic near the school and the lack of community consultation regarding the platform location.
- 15.5 Concerns were also expressed regarding landscape restoration following the development. These included:
- (a) The impact of the deposit of overburden onto the land;
 - (b) Diverting a stream around gully fill; and
 - (c) The need for revegetation following the development.
- 15.6 Two submitters expressed concern at the adverse cumulative effect of wind farms on landscape amenity values. These submitters requested that turbine 29 be moved because it would be too close to houses and would stand alone from the other turbines, making it visually prominent.
- 15.7 Turbine 29 is located at the northern edge of the proposed wind park and, when viewed from some locations, will appear to be set apart from the balance of the turbines, however, from other locations it will be viewed as an integral part of the development. In my opinion, Turbine 29 will be no more visually prominent than the other surrounding turbines when viewed from the wider landscape. While still a visually dominant feature, when viewed from Te Uku, it will be less dominant than turbine 22, which it effectively replaced.
- 15.8 With the exception of issues surrounding the location of the viewing platform, I have addressed the issues raised in submissions in by assessment of visual effects and my evidence. Submissions did not raise any issues that had not been previously identified or considered.
- 15.9 A summary of submissions relating to landscape and visual matters is appended to my written evidence as attachment (g).
16. **RECOMMENDED CONDITIONS**
- 16.1 In this section of my evidence I will discuss my recommendations with regards to mitigation measures and address the proposed conditions.

Recommended mitigation measures

- 16.2 Where effects cannot be avoided, I recommend the following mitigation measures to reduce potential visual, landscape and amenity effects:
- (a) Painting the turbines a non reflective, 'off white' colour to reduce blade glint, and assist with integration into the sky backdrop during cloudy or overcast conditions.
 - (b) Restricting the number of aircraft obstruction lights to the minimum required for safety purposes as determined by the Civil Aviation Authority (CAA).
 - (c) The introduction of localised screen planting on private property (if requested and where appropriate) to assist in mitigating visual effects for potentially affected parties.
- 16.3 In addition to the mitigation measures proposed, I recommend the following be undertaken to ensure that on site rehabilitation will be undertaken in order to ensure minimum disturbance to the existing landscape:
- (a) Turbine foundation pads and associated hard stand areas will be covered with topsoil and re-grassing so these areas visually integrate with the surrounding natural landscape.
 - (b) Cut and fill batters associated with the access tracks, borrow areas, and turbine (and associated hard stand) pads will be re-contoured to reintegrate into the natural land form.
 - (c) All exposed earthworks, with the exception of the construction roads that will be reduced to five metres following commissioning of the turbines, will be shaped to integrate with surrounding natural landforms and sown in pasture. This includes the borrow area located on the side of the main access track to the site.
- 16.4 I also recommend that a second phase of rehabilitation works is implemented following the decommissioning of the wind farm. This would include returning the subject site to a similar land form, land cover and land use, as existed prior to the development of the wind farm.
- 16.5 The intent of the rehabilitation strategy is to integrate the disturbed land form, including cut and fill batters, back into the surrounding landscape, with appropriate revegetation, so the turbines appear to 'grow' out of the rural landscape.

- 16.6 The large size of the turbines in relation to other existing elements within the surrounding landscape, means it is impractical to utilise on-site screening measures typically adopted to reduce visual, landscape and amenity effects.

Proposed consent conditions

- 16.7 I have read the proposed conditions put forward by Council's planner and consider that they meet the intent and requirements of my own recommendations. I note that Mr Brown, in his peer review, appears to concur with my recommended conditions and has not added any additional recommendations of his own.

17. CONCLUSION

- 17.1 The construction of a twenty eight turbine wind farm on the Wharauoa Plateau will result in a significant change in the rural character of the site. The proposed wind park development will be highly visible in the landscape and will result in significant changes to existing views by introducing new elements that have the potential to attraction viewer attention towards the site. This is predominantly because the scale and vertical forms of the wind farm will appear incongruent with the horizontal form of the skyline ridge and will introduce an intensity of development of a size that is not currently experienced within the District. This cannot be avoided, remedies or mitigation.
- 17.2 I consider that the nature and scale of the development is such that it would have such an effect on virtually any site selected.
- 17.3 In terms of section 6(a) of the RMA, the application will not affect the natural character of the coastal edge. This is because it is not contained within a landscape that is obviously characterised by coastal or marine formative processes. The site is located 4.5km from the coastal marine area.
- 17.4 In terms of section 6(b) of the RMA, the site is not an *Outstanding Natural Feature or Landscape*. The site is however, located adjacent to an ONL, as defined by the PDP (Decisions version). Perceptions of the naturalness of these feature will be affected by the proposal but not, in my opinion, to an unacceptable degree.
- 17.5 In terms of section 7(c) of the RMA and the relevant provisions of the District, the proposed wind park is likely to have a *significant* effect on landscape and visual amenity for nearby residents and visitors, particularly those who do not consider the turbines to be aesthetically acceptable. For others, who do find the turbines aesthetically acceptable or are not concerned about the a change in landscape character, effects on amenity will not be as great. For out lying locations, the effect

of the wind farm on landscape and visual amenity will diminish to ratings between *more than minor* and imperceptible.

- 17.6 In terms of the Operative and Proposed District Plans, the ODP does not contemplated the potential effects of wind farms within the district. However, the Proposed Plan does anticipate the development of wind farms within the district and allows for their development in the objectives and policies. Unfortunately, the provisions relating to landscape and amenity do not reflect the policies relating to wind arms found elsewhere in the plan, creating apparent conflict.
- 17.7 In my opinion, while the wind park does not necessarily meet the specifics of the rules relating to landscape issues, it does comply with the apparent intent of the plan in relation to such activities.
- 17.8 While the effects of the proposed development may be considered by some to be detrimental to the maintenance of existing landscape character and adversely affect the amenity derived from the rural environment, both national and international research indicates that in many cases, wind farms can become values features in their own right and a source of interest for many.