

REBUTTAL EVIDENCE OF GAVIN LISTER– INDEX

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BOARD OF INQUIRY
HAUĀURU MĀ RAKI WIND FARM PROPOSAL

In the matter of the Resource Management Act 1991

And

In the matter of resource consent applications by Contact Wind Limited in respect of the Hauāuru mā raki Wind Farm Proposal

And

In the matter of notices of requirement and a resource consent application by Contact Energy Limited for transmission infrastructure related to the Hauāuru mā raki Wind Farm Proposal

REBUTTAL EVIDENCE OF GAVIN CRAIG LISTER

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Introduction

1. My name is Gavin Craig Lister. I am a landscape architect with Isthmus Group Ltd based in Auckland.
2. I refer the Board of Inquiry to the statement of my qualifications and experience in my evidence in chief. I reaffirm my commitment to comply with the code of conduct for expert witnesses in the Environment Court.
3. The purpose of this brief of evidence is to respond in turn to the evidence of Sally Peake, John Van Der Leden, Bernard Brown, Reuben Brown, Elizabeth Wright and Eric Allan, Julian Austin and Seamus Kiernan, Joseph Partridge and Gillian Cockerell.

EVIDENCE OF SALLY PEAKE

4. Ms Peake's evidence is restricted to the Sunset Farm property (also referred to as Sunset Views) and its surrounding area. Her evidence (paragraph 9) is that *"this property and area should be protected from the effects of the proposed wind farm"*. The main reasons given in her evidence are that she considers the area is a 'Special Amenity Landscape', and there will be adverse effects on the biophysical landscape, landscape amenity, natural character of the coastal environment, and visual effects on the farm and dwellings.

Categorisation as a 'Special Amenity Landscape'

5. Ms Peake (paragraph 14) says that:

"categorising the landscape of a district into outstanding landscapes and other landscapes ...is a difficult exercise and one that needs to be undertaken at a large scale. This does not appear to have been undertaken for this project..."

In paragraph 20 Ms Peake goes on to claim that:

"the differences between Mr Lister's and my own interpretation of the landscape value lies in Mr Lister's analysis of each landscape unit or landscape fragment, independently of the whole".

6. In fact I assessed the whole area as a set of nested landscapes, working from the broad scale down to the fine scale:
 - i) At a broad scale I identified the sub-regional landscape from Port Waikato to Raglan as a distinct landscape with a relatively coherent character.
 - ii) Within this landscape I identified a distinction between the landscape north and south of the Kaawa Valley as shown in **Exhibit GCL 2a** (the heavy line follows a fault line that defines a change in landscape character).
 - iii) At a closer scale I identified each of the valleys and dividing blocks of hills as distinct landscape units. Each of the valleys I consider a landscape.

- iv) At a finer scale again I identified the parts within each of the hills or valleys. For instance a distinction can be made within the Waikawau Valley between the coastal parts, and the enclosed landscape inland of the road.
 - v) At the finest scale, reference was made to features such as rim-rock cliffs and stands of bush.
7. The use of different line weights and the binary numbering system (numbers and letters) on **Exhibit GCL 2a & b** indicates the finer scale landscape units nested within broader landscapes. While scores were applied to each unit, they were given in the context of nested landscapes. I agree with Ms Peake (paragraph 14 of her evidence) that *“in relation to the Act, it is important to differentiate between landscapes and parts of landscapes or areas within landscapes...”*
 8. I accept that landscapes do not suddenly end at the boundaries between one unit and the next. The potential effects of turbines on neighbouring landscapes or landscape units were taken into account in the layout and assessment of effects of the turbines.
 9. By contrast, despite her criticism in paragraph 14, Ms Peake’s assessment is limited to the area in the vicinity of Sunset Farm. She claims this area as a whole is a ‘Special Amenity Landscape’ without assessing it within a wider context.
 10. Ms Peake (paragraph 19, 5th bullet) refers to limestone features and stands of bush she says have been overlooked in classifying the Waikawau Hills. The main limestone rim-rock features and bush are acknowledged in my assessment of the Waikawau Valley which I classify as a landscape with special amenity. Similarly I assessed the bush and limestone Umukaraka Valley and the prominent bush-clad Te Tehe hill/headland as having special amenity.

Effects on Biophysical Aspects of Landscape

11. Ms Peake’s evidence (paragraph 58) is that the Group A turbines create *“particular difficulties in respect of earthworks, which will result in adverse landscape and visual effects that cannot be mitigated”*. In paragraph 88 Ms Peake maintains the effects associated with Group A turbines, and to a lesser degree Group D turbines, *“are shown to be greater than on other areas of the wind farm”*.
12. Ms Peake’s appears to rely on selecting parts of my evidence that support her conclusions, but overlooks my overall assessment and conclusions. Table 2 (page 18) of my evidence in chief summarises my assessment of effects arising from earthworks (including associated vegetation clearance) that is set out in Appendix H. **Table 1** below compares my summary findings from that table for Group A017-A031 and D001-D012 turbines with the findings for the remaining groups of turbines in the Wind Farm. It demonstrates that the effects for the former groups of turbines are not greater than the other areas of the Wind Farm.

**Table 1. Effects Arising From Earthworks:
Comparison of Groups A017-A031 and D001-D012 Turbines with Whole Wind Farm**

	<i>Wind Farm Landscape Units Categorisation Distribution</i>	<i>Group A017-A031</i>	<i>Group D001-D012</i>
Sensitivity	2 'Moderate-High' 6 'Moderate' 3 'Low Moderate' 3 'Low'	'Moderate'	'Moderate'
Degree of effect	4 'Moderate' 5 'Low-Moderate' 5 'Low'	'Low-Moderate'	'Low'
Significance	2 'Moderate-High' 1 'Moderate' 7 'Low-Moderate' 4 'Low'	'Low-Moderate'	'Low-Moderate'

13. Similarly in paragraph 83 Ms Peake notes that:

*“while no separate assessment of the Group C turbines has been undertaken [i.e. by Ms Peake] I note that those closest to Sunset Farms are located on narrow strips between large vegetation patches, so that earthworks and construction **could** have adverse impacts on the ecology and landscape character of this part of the landscape.”* (emphasis added).

14. This is the only evidence Ms Peake gives for supporting the request to remove eight Group C turbines within 1km of Sunset Farms boundary (paragraph 83). In Table 2 (page 18) of my evidence in chief I summarised the significance of effects for this group of turbines as 'low'.

Effects on Landscape Amenity

15. Ms Peake’s evidence is that the Wind Farm will have adverse effects on landscape and visual amenity of the area. In paragraph 62 Ms Peake quotes from my evidence that the Wind Farm will result in “*significant change to landscape character*” and that it will “*diminish the relatively natural rural character of the area*” and then goes on to paraphrase me as concluding the Wind Farm is “*appropriate in this setting partly due to these very attributes.*”
16. Paragraphs 79-83 of my evidence in chief set out a list of factors including the landscape’s characteristics, the nature of wind turbines, the figure-ground relationship between wind turbines and landscape, the layout of the Wind Farm in relation to landform, and the positive and adverse associations with wind turbines, which together led me to the conclusion that the landscape is an appropriate one for a wind farm, and that the adverse effects of this Wind Farm will be acceptable.

17. In paragraph 63 Ms Peake says that she “*accepts some of the justification for the conclusion that the Wind Farm is generally appropriate within the rural and coastal landscape*”, although she does not identify which factors she accepts. The only factor she raises where she does not agree is the scale of the wind turbines in relation to land form.

Scale of Wind Turbines in Relation to Land Form

18. In paragraphs 64 Ms Peake says:

“...the hills where Group A turbines are to be accommodated are 100m-140m high, which is smaller than the height of the turbines. I consider that the contrast between the two will diminish the scale and pattern of the landscape features and have adverse effects on landscape and visual amenity (aesthetic coherence).”

19. Landscape scale is a function of both horizontal and vertical dimensions. In this case the whole sub-regional landscape is created by tectonic uplift of what was once a flat surface so that the broad ridges and plateau-like areas on the hills have generally concordant heights (slightly tilted toward the west and south). It is an expansive and coherent landscape at this level.
20. I acknowledge that incised stream valleys within the hills form small-scale landscapes and include small-scale features such as rock outcrops. These are relevant considerations in locating individual turbines. But in the broader context the scale of the wind turbines will be seen in juxtaposition to long ranges of hills that together form a coherent block of hill country extending for approximately 50km by 30km. Therefore, as stated in my evidence in chief (paragraph 79 (c)), I consider the landscape has a scale that is sufficiently expansive to accommodate the Wind Farm.

Gateway Experience

21. In paragraph 84 Ms Peake states that the area forms a ‘gateway’ to the ‘Tasman coast’. In paragraph 19 she refers to Te Tehe hills forming a gateway to the coastal valleys. In paragraph 76 Ms Peake claims “*...views of the turbines along this stretch of road will affect the gateway experience upon entering the Sunset Valley from Port Waikato...*”
22. It is unclear which stretch of road is being referred to. The Wind Farm will not be visible from the valley leading south from Port Waikato, apart from glimpses as one climbs to the ridge separating that valley from that of the Huriwai River on Sunset Farm. A panoramic view of the northern part of the Wind Farm will be revealed from the ridge adjacent to the gateway to Sunset Farm approximately 4km south of Port Waikato.

House Numbering Errors

23. In paragraph 81 Ms Peake notes that “*there appears to be some confusion in the (house) numbering on Mr Lister’s assessment...*”
24. There are errors in the house numbers referred to in paragraph 128 of my evidence in chief. Number ‘N047’ in the first line should be replaced with ‘N049’; and ‘N042’ in the second and last lines should be replaced with ‘N046’. The distance ‘2.9km’ in the fourth

line should be replaced with '2.4km'. Similarly the degree of effects rating given to N042 and N046 in Appendix H should be transposed.

Visual Effects on Houses on Sunset Farm

25. In paragraphs 73-82 Ms Peake maintains there will be significant visual amenity effects on three houses on Sunset Farm and on farmland within that property. She recommends refusal of consent for the 15 Group A turbines, 'potentially' turbines D001-D008, and 'supports the request' to remove the eight Group C turbines within 1km of the boundary of Sunset Farm. Her assessment includes reference to photomontages prepared from each of the houses (**Viewpoints 51 –53, Exhibit GCL59-61**)
26. Ms Peake assesses the effects as high on each of the three houses on Sunset Farm. I assessed them as high on one house (N049), and moderate on the other two: (N047 and N046). As a starting point I use a 'rule of thumb' threshold of 2km within which effects may be potentially 'high', although a range of other factors influence the assessment. I acknowledge that others have used 3km as a 'rule of thumb' distance threshold. I also took into account the orientation of N046 to views to the north-west while accepting that the house also has views to the south-west toward the Wind Farm illustrated by photomontage (**Viewpoint 52, Exhibit GCL60b**), and the fact that house N047 has panoramic views that also extend toward the north-west as well as the view represented in the photomontage (**Viewpoint 51, Exhibit GCL 59c&d**) While Ms Peake and I might disagree on the category of effects, I agree there will be significant adverse visual amenity effects from dwellings and other places on the farm.
27. However, any wind farm is likely to have such effects on some neighbouring properties. Ms Peake's evidence based on the effects from this property would result in the deletion of up to 31 turbines¹. To put that in context, the nearest of the Group D turbines that Ms Peake recommends might possibly be deleted will be 5.3km from the nearest house on Sunset Farms² and 3km from the farm boundary. Turbine D008 will be 6.4km from the nearest house and 4km from the boundary. If one were to apply these constraints to other properties it would not be possible to construct a wind farm anywhere in this landscape despite the attributes that make it, in my opinion, an appropriate area for a wind farm. When assessing whether a landscape is appropriate for a wind farm there is an inherent balancing between landscapes that are, on the one hand, sparsely settled enough to reduce potential visual amenity effects, but on the other hand are not so remote and unsettled that they are valued for natural wilderness values. In my view the western Waikato hills satisfy this equation.

Numbers of Affected Properties

28. Ms Peake's evidence (paragraph 65) says that I claim "*affected properties are on sites where owners have agreed to turbines.*"

¹ This number is based on the 15 turbines in Group A that Ms Peake **recommends removing** (paragraphs 9 & 83), the 8 turbines (D001-D008) that Ms Peake recommends the **possibility of removing** (paragraph 9 and 83), and the 8 turbines within 1km of Sunset Farms boundary that Ms Peake **supports the request to remove** (paragraph 83).

² Excluding N049 which is closer but will be screened by topography.

29. Paragraph 136 of my evidence in chief is that “*of those properties most affected the majority are associated with the Wind Farm...*” (emphasis added). I quantify the proportions for each category of affected properties in Table 5 of my evidence in chief.

Mitigation

30. In paragraph 69 Ms Peake maintains that “*opportunities to mitigate effects of wind turbines are extremely limited...*”
31. This is true in some circumstances, such as the Sunset Farm owner’s house (N047) where any screening would block the view the house is designed for. However, there are other circumstances where mitigation can be effective, for instance where screen planting can be carried out behind a house and where it can be used in conjunction with topography to screen views or increase the complexity of the intervening landscape.

Effects on Natural Character of the Coastal Environment

32. Ms Peake’s evidence (paragraph 20) is that:

“...while I agree with Mr Lister in principle that wind farms are appropriate in the coastal environment, I consider that the natural character and amenity values of the landscape in this location are not adequately protected and there will be adverse effects on science, recreation and historic area.”

33. While Ms Peake accepts that wind farms may be appropriate in the coastal environment, her view appears to be that they are inappropriate in the area west of Sunset Farms because it has higher natural character than other areas and the turbines are too close to the coast. In paragraph 18 she claims this area “*may be differentiated from other landscapes within the wind farm by its large area of high and moderately-high coastal natural character*”, and in paragraph 27 she maintains “*that the setback of the turbines or avoidance of bush areas is insufficient to preserve the natural character of the coastal environment*”. She considers “*that this is not achieved especially as a large number of turbines are located within Coastal Zone B and areas of High Natural Character*”.
34. **Table 2** below summarises the natural character assessments from Appendix F of my evidence. While the Group A turbine area is among those areas rated more highly for natural character it is not exceptional compared to other parts of the Wind Farm. The Group D turbine area is amongst the less natural parts of the Wind Farm.

**Table 2. Degree of Natural Character:
Comparison of Group A and D Turbine Landscape Areas with Whole Wind Farm**

	<i>Wind Farm Landscape Units Categorisation Distribution</i>	<i>Group A turbine area (Landscape Unit 3)</i>	<i>Group D turbine area (Landscape Unit 5)</i>
Coastal Escarpment (Zone B)	13 'High' 4 'Moderate-High'	'High'	'Moderate-High'
Coastal Hills (Zone C)	2 'High' 4 'Moderate-High'	'Moderate-High'	'Moderate'

	11 'Moderate'		
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35. All the turbines will be located outside Coastal Zone B³, although I acknowledge some are located near the boundary with Zone B. The row of turbines closest to the coast in Group A is between 280m and 1060m from MHWS, and those in Group D between 400m and 1100m. The turbines are not located in areas that I assessed as having high natural character.
36. Ms Peake does not analyse the nature of the effects in relation to the natural character qualities of the coastal environment in order to come to a conclusion about whether the Wind Farm will be “appropriate” or “inappropriate” in terms of s6(a) as part of a broader assessment subject to Part 2 of the RMA. In my evidence in chief I undertook such an assessment and concluded that the Wind Farm is appropriate.

Biophysical and Visual Aspects of Natural Character

37. In paragraph 26 Ms Peake states that she:

*“is concerned with the degree to which the wind farm will affect the visual character of the coastal environment and its perceived naturalness (and wildness) so that the effects on the coastal environment become confounded by the meaning of natural and landscape. By this I mean that natural landscape is **not restricted to native vegetation** but includes perceived naturalness...”* Likewise in paragraph 33 Ms Peake says *“I consider that the policies (of the NZCPS) are not complied with when the wider values are taken into account (values that include perceptual and experiential aspects, **not just biophysical and ecological processes**)”.* (emphasis added)

38. Paragraph 146 of my evidence in chief (and the glossary attached as Appendix B) already states that natural character includes both biophysical aspects and perceptual/visual aspects (as Ms Peake acknowledges in paragraph 24) and identifies that the wind turbines will have significant effects on visual aspects of natural character. My evidence in chief then goes on to assess the nature of these effects and the reasons why they may be considered acceptable in landscape terms and the Wind Farm considered appropriate as part of a broader assessment under Part 2 of the RMA.

EVIDENCE OF JOHN VAN DER LEDEN

39. Mr Van Der Leden’s evidence is a technical explanation of how the K2Vi digital terrain model was created. In my view some commentary is also required on the usefulness and drawbacks of such a model.
40. In my view a digital terrain model is a useful tool to understand the potential visibility from nominated viewpoints; to understand sequential views; and to understand the relative

³ It is proposed to remove Turbine D013 from the location indicated in the application which is in Coastal Zone B.

scale of wind turbines in relation to landform. It can generate large numbers of 'views' quickly compared with photomontages. For these reasons I and my team made use of a digital terrain model to help estimate views from private property (for instance for the purpose of compiling the Inventory of Affected Houses), for understanding sequential views from roads, and as the base for preparing the photomontages.

41. However, a significant drawback with the model is that it represents the landscape as a smooth surface. This ignores the effect that vegetation might have in restricting visibility, in creating foreground scale, and the influence that texture and complexity of the land surface has in creating a sense of distance and separation.
42. Mr Van Der Leden (paragraph 7 (c)) states that the software shows a view angle equivalent to the use of a 35mm camera with a 50mm lens "*which is understood to be consistent with the guidelines for the use of photographs in evidence.*" This convention has been challenged and in my view the model should not be used uncritically. Human sight has a much wider field of view than is captured by a 50mm lens. The most relevant parameter is that images are presented at a correct scale for a nominated reading distance. In this regard a digital terrain model on the screen or as a printed 'screen capture' is still essentially a 2-dimensional image that has the same inherent shortcomings of photos.

EVIDENCE OF BERNARD BROWN

43. Bernard Brown's evidence criticises my landscape assessment methodology. He maintains there is an intimate perceptual and natural character relationship between Karioi/Te Whaanga Coast and the Wind Farm site that is not acknowledged in my evidence in chief, and that the assessment of the existing landscape should have considered management opportunities. His evidence is also that there will be significant visual effects from his house and from other places on Te Whaanga Coast.

Landscape Assessment Methodology

44. Bernard Brown's evidence is that the landscape assessment methodology was deficient and that the site is not appropriate for a wind farm. He maintains (paragraph 14) that the Pigeon Bay criteria are "*not comprehensive*" and "*fail to identify ways in which the landscape can be better managed*". He goes on to say (paragraph 15) that:

"If our landscape amenity values had been properly considered, the analysis would have identified the inappropriate location of the development requiring potential large scaled offset mitigation (in a like for like manner) that could enhance the coastal environment".

45. Mr Brown's claims that my landscape assessment is deficient and the area is an inappropriate landscape for a wind farm are contrary to his own assessment carried out in 1989 for the Department of Conservation Coastal Resource Inventory that he attaches to his evidence. As I understand it, that assessment divided the coastal hills within the Wind

Farm area into northern and southern units, Kaawa and Wainui. Mr Brown described 'Kaawa' as *"barren/desolate, heavily farmed, lack of natural vegetation, low vulnerability, low importance"*. Similarly he described 'Wainui' as *"barren/low interest, rugged coastline, limestone cliffs, lack of natural vegetation, low vulnerability, low importance"*.

46. Those assessments are backed up by the landscape assessment of Waikato District carried out by Boffa Miskell Partners in 1992 that Mr Brown also attaches to his evidence. That assessment gave a landscape quality of 2 out of 5 to the coastal hills on which the wind turbines are located. The assessment also gave a rating of 3 out of 5 to the Waikorea and Tauterei valleys, and a rating of 4 out of 5 for the Waimai and Mangati (Te Akau) valleys.
47. In general my assessment in fact attributes greater value to the area's landscape.
48. My methodology is also more comprehensive. The Pigeon Bay criteria are factors to take into account when assessing **existing** landscape. Identifying management opportunities to enhance landscape qualities, such as restoring natural systems, are a subsequent exercise.

Relationship of Wind Farm area to Te Whaanga Coast

49. Mr Brown's evidence (paragraph 18 (b)) is that people *"perceive some degree of 'shared value' of the southern portions of the subject Wind Farm site despite this not being acknowledged in the Landscape and Visual Assessment Report"*. Similarly Mr Brown says (paragraph 18(e)) *"The Landscape and Visual Assessment fails to identify that the existing and potential natural character connection of the two coastal environments is of an intimate nature."*
50. The Wind Farm area and Karioi/Te Whaanga Coast are visible from each other, and because Karioi protrudes from the coast, they form part of a wide embayment. However, while there is a visual relationship, it is incorrect to say there is an "intimate connection". While all landscapes are interconnected, there are conceptual and practical reasons to draw boundaries and make distinctions. The Wind Farm site is 10km north of Karioi, it is separated by the intervening Raglan Heads and Harbour, it is a different landform type with a different land-use and character. The Wind Farm will not affect the integrity of Karioi or Te Whaanga Coast. It will not affect Karioi's status as an outstanding natural feature or landscape, for instance.

Visual Effects from Te Whaanga Coast

51. Mr Brown's evidence is that there will be significant visual effects from his property at Whale Bay, and from Te Whaanga Coast in general. He maintains (paragraph 20) that the Figures 24-27 from Te Whaanga Coast are the only photomontages *"that depict a portion of the Proposed Wind Farm in its entirety. Still we fail to register in the 'Worse Case Effects' listing despite overall effects being more than minor"*. Mr Reuben Brown's evidence raises similar concerns. He raises a rhetorical question (page 11, 3rd paragraph) *"...why was Te Whaanga Coast originally discarded as being unaffected by the Proposed*

Wind Farm”, and questions why only one photomontage (from Te Toto Gorge) from Te Whaanga Coast was included in the original assessment.

52. Houses in the area were not included in the Inventory because they were outside the 5km scope we set for listing individual houses. However, visual effects from Te Whaanga Coast were considered in the Landscape and Visual Assessment (page 34) and in my evidence (paragraphs 114 and 287-290). In my opinion the effects will be acceptable for reasons set out in paragraph 289 of my evidence. The viewpoint from Te Toto Gorge was selected because it is a recognised scenic lookout, because of its elevation and angle of view back toward the Wind Farm site across the CMA. Photomontages from three other representative viewpoints on Te Whaanga Coast (**Exhibits GCL 31-34 of my evidence in chief**) were included in my evidence in response to requests, and in my view confirm my assessment included in the Landscape and Visual Assessment.

Influence of Atmospheric Conditions on Prominence of Wind Farm

53. In paragraph 20(b) Bernard Brown disputes my statements about the extent to which light, weather and atmospheric conditions will affect visibility of the wind farm. He notes that he *“considers Otehe Point is visible 80% of the time, and therefore the southern groups of turbines will be visible.”*
54. Paragraph 289 of my evidence is that *“the **prominence** of wind turbines will be influenced by light and atmospheric conditions. At 10km the nearest turbines will be clearly visible in clear conditions, at other times haze cast by surf is likely to reduce their **prominence and visibility**, particularly those that are further away.”* (emphasis added). ‘Aerial perspective’ or ‘atmospheric perspective’ affects all long distance views. It is caused by the scattering of light by atmospheric molecules and aerosols (such as water vapour) so that objects increasingly lose their contrast with their backdrop (e.g. the sky), lose their clarity, and lose colour saturation so that they fade to a blue-grey colour. As distance and/or haze increases the wind turbines will appear increasingly faint and become more difficult to make out from the backdrop sky. I made specific mention of these effects in this case because of the angle of view (almost parallel to the coast) and the extent of coastal haze that often exists on an exposed surf coast. However, my evidence acknowledges there will be times when light and atmospheric conditions combine to make the turbines more prominent.

Relationship of turbine height to landform

55. Mr Brown maintains (paragraph 18(d)) that *“Serious discord exists where the height of the turbine structures, in some cases, exceed the height of the receiving landform (i.e. from sea level to skyline)”*. Mr Rueben Brown (page 10, 1st paragraph) makes a similar assessment. He says *“the southern turbine groups will ...exceed in scale in places the height of the receiving landscape.”*
56. As discussed above in response to Ms Peake, scale is a function of both horizontal and vertical dimensions. For instance wind turbines may appear in scale with a completely flat landscape. From the viewpoint of Te Whaanga Coast the wind turbines will be seen as thin vertical and rotating structures in counterpoint to a low, horizontal band of hills

stretching over 40km. In my opinion the wind turbines will not appear out of scale in that setting.

EVIDENCE OF REUBEN BROWN

Effects on Surfing at Raglan

57. Reuben Brown's evidence is that the Wind Farm will have significant adverse effects on the surfing experience at Raglan. He establishes that the surf breaks on Te Whaanga Coast are of international significance. He maintains the surfing experience relies on a natural sensation to which the natural landscape backdrop contributes, and that insufficient attention has been given to this in the landscape and visual assessment.
58. In my view Mr Brown overstates the relative importance of the Wind Farm area compared with Te Whaanga Coast itself (in relation to the surf breaks), and overstates the degree of visual effects likely to be experienced as a result of the Wind Farm.
59. The main landscape context for the world famous surf breaks is Te Whaanga Coast around which the breaks form. The backdrop is dramatic and close. Surfers in effect ride parallel to the curving coastline, often close to the shore. While Te Whaanga Coast has a high degree of natural character, it is not completely without development. Houses at Whale Bay, for instance, look down from close proximity over surf break and board riders. The Wind Farm area, by comparison, is part of a more distant background.
60. In the first paragraph on page 9, Mr Reuben Brown says *"questions must be asked about whether these massive structures so densely situated will compromise landscape legibility and reduce the appeal of the natural landscape as seen from Te Whaanga Coast"*. I consider this to be overstated, and the turbines to be acceptable, because:
- The nearest turbines will be 10km away. While clearly visible at this distance, they will nevertheless be part of the background landscape. The effects of 'atmospheric perspective' or 'aerial perspective' discussed above will come into play at this distance, reducing prominence, particularly when there is any coastal haze.
 - The turbines will not be densely situated in actual spacing. Within each group the turbines are typically spaced 450m x 750m apart -approximately 3 turbines per square kilometre. At a wider scale there are gaps ranging between 1.5km and 5km between the groups along the coast. While the turbines will appear more closely spaced from Te Whaanga coast because the angle of sight is along the length of the Wind Farm, one would also need to factor in the effects of distance. Those turbines at the northern end of the wind farm will be more than 40km away.
 - Legibility in the sense referred to here is influenced by the figure-ground relationship between the wind turbines and the landscape. As discussed in my evidence, the wind turbines will be thin, rotating vertical structures in counterpoint to the solid, static, horizontal massing of the underlying landscape.

Night-Time Effects from Te Whaanga Coast

61. Mr Brown's evidence raises concerns (page 11, 5th paragraph) about *the "visual impact of the beacon lights on each turbine"* and states that in his opinion *"Te Whaanga Coast residents will be visually affected day and night"*.
62. I carried out observations of the Te Apiti Wind Farm comparing the intensity of existing navigation lights against the intensity of stars. I conceptually categorised the stars into three groups from brightest to faintest. In my observation the navigation lights were the same intensity as the brightest category stars at a distance of 3km. At 9km they were still visible if one searched for them, but had the same intensity as the faintest category of the stars. These observations were carried out when conditions were particularly clear.
63. The navigation lights will not be located on each turbine but will be spaced out strategically around the perimeter of the Wind Farm in accordance with CAA regulations. The lights may also be ground-shielded so that light is not visible below a horizontal plane from the top of the nacelle. In my opinion therefore the visual effects of the aviation navigation lights will be acceptable.

EVIDENCE OF ELIZABETH WRIGHT AND ERIC ALLAN

Visual Effects on Property at 1441 SH2

64. Elizabeth Wright and Eric Allan state in their evidence that the transmission line will have significant visual effects on their property at 1441 SH2. Ms Wright maintains that I have underestimated the effect on their property.
65. I assessed the effects from the house on this property in the 'high' category. At their request a photomontage was prepared for the owners to illustrate the scale and location of the line. **(Viewpoint 54, GCL Exhibit 62c&d)** I acknowledge the house has panoramic views in several directions, and is built to enjoy views to the south-east that will be affected by the proposed line. The house is also oriented to views to the north-east. The nearest towers will be approximately 290m away, at a ground elevation approximately 25m lower than the house. In my view the 'high' category is consistent with how I have assessed the degree of visual effect in other situations. I accept that others may have a different view.

Likely Effectiveness of Mitigation

66. Ms Wright and Mr Allan state that mitigation is not possible. Ms Wright says:

"it is difficult to see how screen planting would mitigate the views of the pylons. To do so trees would need to be planted directly outside our sitting room and main bedroom windows. Extensive planting would in fact take away the view the house was built for, would be unsightly and could de-stabilise the bank below the house."

67. I acknowledge that mitigation opportunities are limited in this instance because of the relative elevation of the house, the dropping foreground land, and the fact the transmission line crosses through one of the outlooks from the house. However it may be possible to screen, or partially screen, the two closest and most prominent towers to the south-west of the house, for instance by planting re-vegetation style planting on the south-facing bank below the house. While bank stability issues are outside my area of expertise, it is common practice to use re-vegetation to help stabilise banks. I agree that planting across the view to the south-east would be undesirable, although the two towers in this direction will be less prominent because they are at lower elevations (approximately 50m and 60m ground level below the house respectively), further away at 500m and 720m respectively, the nearer tower will have a landscape backdrop, and the further tower will be partially screened behind a middle-ground ridge. Therefore, I consider that mitigation planting, if accepted by Ms Wright and Mr Allan, could provide some reduction in the visual effects.

EVIDENCE OF JULIAN AUSTIN AND SEAMUS KIERNAN

Effects of Transmission Line Deviation

68. Julian Austin and Seamus Kiernan provide evidence that the proposed deviation of the HLY-OTA transmission line will create significant adverse visual effects on their neighbouring properties at 1113 and 1107 Churchill Road respectively. They maintain the effects will arise because the nearest existing tower will be replaced with an angle tower, and that it will be in a more prominent location relative to the houses on their properties.
69. My assessment already notes that there will be 'moderate' visual amenity effects on these properties, and lists the replacement angle tower as one of the factors taken into account. Messrs Austin and Kiernan's evidence omits several relevant points as follows:
- The properties are already significantly affected by the existing line HLY-OTA line which is aligned along the western boundary of both properties with existing towers on each property. The deviation will result in those towers being removed and the line moved further to the west. The deviation will run at an oblique angle to the properties so that the separation from the line will increase by approximately 45m at the front (north) of the properties to approximately 300m at the back (south).
 - The nearest existing tower to both houses is tower 65 which is on the Austin property, approximately 100m and 150m from the Austin and Kiernan houses respectively. From the distances provided by Beca the replacement tower will be approximately 150m and 240m from the Austin and Kiernan houses respectively. While the angle of view will be a little further to the north compared to the existing tower, the tower will also be located beyond wetland willow trees rather than on the open grassed foreground, which will increase the sense of separation.
 - While the new tower will be an angle tower, the degree of difference from the existing tower may be overstated. When I wrote my evidence I assumed the angle would

require a strain tower. Such towers are usually more prominent than suspension towers because of their heavier construction, although they are typically shorter (all other things being equal). I now understand the angle may be accommodated by a suspension tower. The existing tower 65 is in fact an angle suspension tower.

Effects of the Switching Station

70. Julian Austin and Seamus Kiernan also provide evidence that the switching station will have visual amenity effects on their properties. Mr Kiernan acknowledges that the switching station may not be visible from his house because of an intervening hill on his property, but notes that it will be visible from the hill. He proposes the switching station be moved further back against the hill and a 5m planted bund around the switching station. Mr Kiernan also comments on possible night light effects from the switching station light towers.
71. Apart from the tops of transmission towers and light standards, the switching station will be screened from the Kiernan house by the hill on that property. The switching station will be visible from the top of the hill, but it is relevant to note that there is an existing transmission tower on the hill that will be removed as a result of the deviation. The switching station will be approximately 300m south-west from the Kiernan property boundary and beyond approximately 250m of wetland colonised by willows.
72. The switching station will be theoretically visible from the house on the Austin property. However, it will be approximately 600m south of the house beyond approximately 350m of wetland willows.
73. Further mitigation planting proposed on the fill batter on the eastern side of the switching station will increase screening of the lower parts of the switching station. In my view the suggested 5m bund will add little to such screening and is not warranted. The most prominent features will be the transmission towers connecting with the switching station. More effective mitigation with regards these would be planting on the hill on the Kiernan property and along the western boundary of the Austin property, made feasible by the removal of the existing line. If such mitigation were to be carried out there will be a net improvement in visual amenity for both properties.
74. As noted in Ms Yorke's rebuttal evidence, the switching station lighting towers will only be used for emergency maintenance. In addition, the lighting will be focused into the switching station and shielded as much as possible to reduce light spill. I therefore consider the effects of these lights to be acceptable.

EVIDENCE OF JOSEPH PARTRIDGE

Effects on 1127 Churchill Road

75. Joseph Partridge provides evidence that the switching station and HLY-OTA deviation will have significant visual and amenity effects on the property at 1127 Churchill Road. He

maintains the property was omitted from reports because assessments relied on aerial photos that predated the development of the property.

76. I was aware of the house on this property, even though it is not recorded on earlier aerial photos used for the Tatuk GIS viewer. It was included in the Inventory and assessment report. Paragraph 249 of my evidence in chief states that “the adverse visual amenity effects on this house and property would obviously be ‘very high’”. I understood that Contact were in the process of seeking a settlement with Mr Partridge as noted in paragraph 249 of my evidence.

EVIDENCE OF GILLIAN COCKERELL

Extent of Coastal Environment

77. Gillian Cockerell provides evidence (paragraphs 73-94) on the extent of the Coastal Environment as outlined in the Franklin and Waikato District Plans. She notes (paragraph 93) that I have “*not referred to the coastal environment as more recently assessed by the (Franklin District) Council and defined in Plan Change 14 to the OFDP*”. She also notes (paragraph 94) that “*no comparative mapping has been provided by Mr Lister to show the extent of the coastal environment as defined in the WPDP (i.e. ‘Coastal Zone’) and Plan Change 14 to the OFDP with his own assessment.*”
78. While I acknowledged the relevant District Plans, I made my own assessment based on my observations and analysis of the landscape, partly because I considered the extent of the coastal environment as defined in the Operative Franklin District Plan to be inadequate. However, I overlooked the proposed new delineation of the ‘Tasman Coast Management Area’ (TCMA) in Plan Change 14. In my view there are still shortcomings of this new delineation:
- There is inconsistency how the inland boundary of the TCMA is defined. On the one hand, north of Kaawa Valley the TCMA extends approximately 400m-700m inland, coinciding roughly with my Zone B which follows the coastal escarpment and first ridge. On the other hand, south of Kaawa Valley it extends approximately 1.4km-2km inland, coinciding more closely with my Zone C, which follows the main watershed ridge (although my Zone C is somewhat further inland and more accurately follows the topography). I can see no landscape justification for the different approaches.
 - The TCMA boundary follows straight lines and, in some instances, property boundaries, rather than closely following topography.
79. My assessment and evidence generally takes a broader view of what constitutes the coastal environment, although within this area I delineate ‘zones’ in order to identify those parts of the coastal environment that have higher natural character and where coastal patterns and processes are more dominant, and to distinguish them from areas with less coastal influence and lower natural character.

Habitat Aspects of Natural Character

80. In paragraph 131 Ms Cockerell refers to the fact that I have not assessed habitats, particularly air habitat in relation to migratory birds, in my assessment of natural character.
81. This is outside my area of expertise. My assessment is based on landscape aspects of natural character. Other aspects will require to be factored in separately.

G C Lister