

BEFORE THE BOARD OF INQUIRY

IN THE MATTER

of the Resource
Management Act 1991

AND

IN THE MATTER

of applications for
resource consent and
Notices of Requirement
by Transpower New
Zealand Limited for the
North Island Grid
Upgrade Project

**STATEMENT OF EVIDENCE OF DENNIS JOHN SCOTT
LANDSCAPE ARCHITECT**



March 2008

EXPERIENCE AND QUALIFICATIONS

1. My name is Dennis John Scott. I am a landscape architect and resource management consultant, specialising in landscape assessment, land use management, planning and design. I hold the qualifications of a Diploma of Urban Valuation (1969) and postgraduate Diploma of Landscape Architecture (1974). I am a Fellow of the New Zealand Institute of Landscape Architects. My career as a landscape architect dates back to 1974 when I began working in the public sector on a range of specific landscape planning and resource management projects. Since 1987 I have been the principal director of D.J. Scott Associates Ltd, implementing similar projects for both private and public sector clients.
2. I confirm that I have read the Code of Conduct for Expert Witnesses contained in the Environment Court Practise Note and I have complied with it when preparing my statement of evidence. I agree to comply with it in the same way as if I were presenting this evidence before the Environment Court.
3. My expertise is based on my experience of continued involvement in a wide range of landscape issues. These include; the interpretation of community aspirations, national, regional and local authority plans, policy documents and instruments, private landowner interests, and landscape and environmental analysis at a range of integrated spatial and temporal scales. My work has ranged from the site specific to sub-regional and regional landscape scales, and from site-specific landscape management plans to district plans and structure plans.
4. I have also had substantial experience in a wide range of national regional and district infrastructure projects; including hydroelectric projects, highway and motorway projects, irrigation schemes, government and private housing schemes and subdivision developments.
5. I regularly appear as an expert witness before district and regional councils and the Environment Court.

6. In addition to my specific career experience in landscape architectural practice I have an ongoing involvement in landscape theory and education. I was a part time lecturer in Rural Land Management at Auckland University Town Planning School for three years (1987 – 1989) and a part time tutor for the Diploma of Horticulture at Northland Polytechnic. I have also tutored at seminars / field days at the Northland Polytechnic in Sustainable Agriculture for farmers and small rural property owners. I currently lecture at UNITEC, Auckland for the Bachelor of Landscape Architecture degree on Rural Landscape and Landscape Ecology; a role I have had involvement in since the inception of the UNITEC Bachelor of Landscape Architecture in 1995.
7. Having been a local resident in Whitford, indeed in Brownhill Road (Dwelling No 1014, 232 Brownhill Road, Appendix Mr G Lister for site evidence) for many years. I have both a personal and a professional knowledge, of the proposed Transpower grid upgrade route within the Manukau and Franklin districts specifically, the character of the surrounding area and current and ongoing local issues. I have had over 12 years of direct community involvement in the Whitford rural planning matters, including the Proposed Plan Change No. 8, Whitford Rural, to the Manukau Operative District Plan 2002.
8. I do not own any property in Whitford. I have not been a submitter to the Transpower Grid Upgrade project.
9. In addition to myself, D J Scott Associates Limited staff landscape architects have also made site visits and investigations of the proposed transmission line from Hunua to the Pakuranga Substation; in order to assist in particular with the preparation of the exhibits attached to this evidence. I am familiar with the proposed route of the transmission line, and with the route of the Pakuranga to Brownhill underground cable. I am familiar with the proposed Brownhill Substation site and with the proposed extensions to the Pakuranga and Otahuhu Substations.
10. I have been engaged by Manukau City Council to:

- Review the landscape assessment material provided with the Notice of Requirement.
 - Comment on the landscape effects of the 220kV line (30m height pylons) versus the 400kV line (50 – 70m height pylons).
 - Assess the effects of the proposed upgrade of the Pakuranga Substation.
 - Assess the landscape and visual effects of the proposed transmission lines in the Whitford/Brownhill Road (including the proposed Brownhill Road switching/substation), Brookby valley and Clevedon/ Ardmore areas.
11. In relation to the above matters, I also represent the Whitford Residents and Ratepayers Association Inc (Underground in Manukau) and two Brownhill Road residents, Mr Mark Spring and Mr Randal McKenzie.
12. I have been engaged by the Hunua Residents Association to consider the potential landscape effects of the proposed transmission line on the Hunua area.

SCOPE OF EVIDENCE

13. The scope of my evidence will therefore address the landscape effects of the Transpower proposal in regard to the above matters in the following order:
- Introduction
 - Overview of Transpower Proposal and Affected Areas
 - Review of Landscape Assessment Material Produced for Transpower
 - Review of Route Sections 1 – 4
 - Assessment of Pakuranga Substation Extension
 - Conclusions
14. I am in support of the relief sought by Manukau City Council and Underground In Manukau, with regard to this Board of Inquiry (BOI). This is in relation to the Notice of Requirements (NOR) affecting Manukau City and part of Franklin District Council, for undergrounding of the proposed

Transpower 220 kV Grid Proposal (in Route Sections 1-4 – Whitford, Brookby, Ardmore and Hunua).

15. The relief sought is that if the application cannot be undergrounded in part, or preferably in its entirety, or at the most, that the 220 kV option be approved with conditions. Failing this I recommend that the application be declined.
16. I also support the recommendation of converting the Pakuranga Substation upgrade from AIS to GIS.

INTRODUCTION

17. The proposal involves an upgrade to the national grid, for the support of 400kV capacity lines.
18. However, there is no certainty that the 400 kV rating is required. In the interim, only 220 kV is necessary, and the line and substation upgrades will provide for this capacity by 2011. Therefore the necessity of the higher rated lines is somewhat unclear and does not allow for the use or consideration of alternative technology that may be developed over the next 25 years, to cope with increased demand by 2033.
19. The 220 kV capacity lines require a reduced scale of surface infrastructure, and are able to be put underground (apparently current technology does not exist to go higher than 220 kV underground). On a landscape visual and environmental basis it would be preferable for the proposed upgrade to be undergrounded.
20. In my opinion, some of the potential relationships and possible tradeoffs that would have secured environmental and visual matters ahead of operational cost matters seem to have remained subservient to economic factors.
21. As I will discuss in my review of the landscape documentation produced to date, I provide a caution in terms of the environmental, social and

landscape effects of the proposal, and recommend that further detailed assessments of effects are undertaken and a more in depth exploration into alternative transmission options be done.

OVERVIEW OF TRANSPOWER PROPOSAL AND AFFECTED AREAS

22. In my opinion, the Transpower proposal, by its nature, brings its own unique landscape and visual issues. The overriding landscape and visual effects relate to four dominant factors:
- The sheer scale of the proposed upgrade
 - The range of landscape types traversed by the proposal
 - The effect on a number of diverse communities
 - The permanency of the landscape change

Scale of Proposal

23. In my opinion scale is an extremely significant consideration in spatial and temporal terms in any realistic discussion of landscape and visual matters associated with a project of this nature.
24. The sheer extent of the “aerial” space that is compromised by the Transpower upgrade is enormous, and therefore an extremely serious and significant landscape matter to be assessed.
25. The proposed Grid upgrade, in order to facilitate a 400 kV capacity, comprises 420 towers, situated at approximately 437m intervals, which range from 46 - 70m in height, with 6 single circuit towers ranging from 25 – 39m in height. As noted by Mr Gavin Lister in his evidence, *“the towers will be taller, heavier in appearance and more visually dominant than towers in any existing lines in New Zealand”* (Page 5). 60 of these proposed structures fall within my area of study (Exhibit 01).
26. These structures will occupy a physical area of up to 1920 hectares and approximately 100 million cubic metres, which takes into account the height and width of the towers, the width of the proposed easement and the length

and area of the transmission lines. These estimated calculations are based on the line running from Brownhill to the Auckland region boundary. In addition to the physical volume of the pylons and lines, the proposal extends for over 185km dissecting an extremely diverse range of landscapes, catchments and communities. Within my area of study there are three substations – two existing at Pakuranga and Otahuhu, and one proposed at Brownhill Road.

27. Alternatively, if the line is built to accommodate 220 kV, the scale and bulk of the above ground features – towers and lines – will be reduced by an average of 15m (the average height of the 220 kV towers would be approximately 45m). While this would constitute a reduction in height, these are very large structure, and in my opinion still represent an inevitable and significant visual change.
28. In my opinion, the scale of the proposal, including the effect of the lines, will create a definite physical ‘volumetric’ effect in the landscape. The corridor of elements will create an effect disproportionate to the scale of individual constructed to natural landscape elements. In some areas, for example the Whitford and Brookby catchments, which are physically contained ‘small scale’ landscapes, the idea of disproportionate effect becomes extreme.

Range of Landscape Types Traversed

29. The scale and lineal nature of the proposal as a “corridor” extends and affects a wide range of landuse and settlement types: urban, suburban, peri-urban, rural and natural landscapes. The corridor extends the spatial effects continuously across these landscapes, and increases the complexity of assessment. It is noted that the effects of this project are apparent at both regional and local scales.
30. In my opinion it is inevitable that the southern Auckland basin adjacent and in proximity to the greater urban area and metropolitan area will be the receiving environment to accommodate future urban growth. In addition the landscape quality and amenity values are going to be critical elements to recognise and enhance. The southern Auckland catchments of Whitford, Brookby, Ardmore / Clevedon and Hunua collectively comprise a suite of

complimentary landscape types that are ideally placed to accommodate environmentally responsible future settlement opportunities.

31. Whitford, Brookby, Clevedon/Ardmore and Hunua are part of a regional landscape continuum but display different physical characteristics at a finer-grained landscape scale. These landscape types are summarised as follows:

- Whitford is contained within a discrete upper catchment valley, essentially forming a dissected and enclosed basin formation with numerous perennial and ephemeral freshwater hydrological patterns. The vegetation patterns form quite powerful contrasting elements comprising areas of open pasture, large remnant forest areas, large plantations of exotic forestry currently undergoing conversion to native afforestation and integrated indigenous revegetation planting. Integrated into this landscape is a new emerging development pattern which has been consciously planned and designed to respect and enhance the above described patterns.
- Brookby is a relatively small lineal valley system enclosed by the Clevedon-Maraetai Hills and the Whitford catchment ridgeline. The downlands comprise rolling hill country and flat river valley systems. Brookby is a predominantly pastured landscape with fragmented mixed native and exotic patch vegetation together with shelterbelts and rural domestic specimen trees. The cultural settlement pattern is a mixture of heritage well-kempt pastoral estates, horse studs and some rural residential / lifestyle properties. It also contains broader community activities such as the Brookby school and the recently developed Papatoetoe equestrian facility.
- Clevedon/Ardmore is a broad-scaled plain and river valley landscape bounded by the Clevedon-Maraetai Hills and the Hunua Ranges. The vegetation patterns and cultural/settlement patterns are interlinked in the sense that both the cadastral boundaries and internal paddock or landuses are geometric in form. This area is characterised by numerous shelterbelts interspersed with some indigenous patches (e.g. kahikatea) and a diversity of activities including pastoral and horticulture/viticulture.

Cultural elements also include Ardmore aerodrome and the Auckland Polo Club.

- Hunua is distinctly contrasting. It is a true foothill environment associated with the Hunua Ranges. The landcover is varied and consists of large areas of open pasture, exotic pine woodlots and indigenous vegetation. The hydrology is very important, it is a primary catchment area in relation to the Hunua river and also the harvested water supply for Auckland. For a distant peri-urban area of Auckland it is relatively highly populated and also has a village centre. In addition it has a long history of providing for both day-use recreation and also for extended community and educational purposes based on its natural environmental and landscape qualities.
32. Both Whitford and Clevedon are centred on what remains of two of Auckland's true rural villages. Both of which are situated on old river based transport systems and present day primary vehicle routes through the area. Brookby also has a focus as it has a presence due to its connective relationship between Clevedon and Whitford. All of these areas including Hunua, have an individual and collective quality, and all exhibit very high amenity values.
33. In my opinion the Whitford, Brookby, Clevedon/Ardmore and Hunua areas are not rural landscapes in the traditional working landscape sense. They are not consistent with the broad scale pastoral landscape imagery one associates with the concept of 'rural character'. These landscapes are more complex in their settlement patterns and land use activities and are very much part of a mixed land use regime which is currently changing to new land use management regimes (eg vineyards, nurseries, horse studs, farm stays etc). These elements contribute to an intrinsic quality of character that is quite specific to the individual landscapes through which the route alignment passes.
34. In my opinion these landscapes have a special "Arcadian" quality that is relatively unique in the peri-urban areas of Auckland City. This apparent and emerging character is certainly reflected in the attractiveness and market demand (also reflected in land value) of these particular areas. In

my opinion, land value is more often than not underpinned by the attractiveness and aesthetics of the wider environment in which any particular site is located.

Range of Communities Affected

35. There is a diverse range of communities traversed by the proposal. The character, form and culture of these communities is directly related to their landscape setting. These communities value their specific landscape for its inherent qualities; it is not a value relative to 'naturalness'.
36. These areas are rural areas in transition - in effect, communities in transition. In my opinion, a culture is emerging, which is directly related to the character of the landscape setting. In turn this is creating a new character of landscape and community identity.
37. In addition, these individual communities all have a collective but different vision specific to their place. These are summarised as follows:
 - Whitford - the establishment of countryside living that maintains and enhances landscape character, rural amenity values and environmental quality of the area, in accordance with Plan Change 8.
 - Brookby – the maintenance of a high quality carefully patterned and designed future urban development set within the enclosing hillside environments; together with hamlet style settlement set amongst enhanced natural elements and low-density rural and bush living.
 - Ardmore and Clevedon – envisaged to remain predominantly rural, with a boutique style of alternative rural productive options. While there is currently no provision for rural subdivision, (and in my opinion an urban future is not envisaged or likely to occur), there will be significant emerging opportunities for additional settlement intensification, purely in response to the increased diversity of both the support and servicing requirements associated with more intensive and innovative productive land uses.

- Hunua – a foothill village, and rural bush residential living, set in a more natural landscape where the future settlement attraction rests in the natural values and recreational opportunities associated with the Hunua Ranges.
38. These are not theoretical ideas. There is a perceptible change occurring in these landscapes which I have witnessed and, which has been transforming these traditional productive rural landscapes for the past 15 - 20 years. I believe these changes are leading towards the realisation of the visions outlined above.
 39. Due to this, there is certainly an issue with this proposal in relation to the devastating landscape, visual and amenity effect it will have on the ability for these communities to achieve or realise their vision[s].
 40. As a landscape architect, a designer (and a futurist), working in the wider metropolitan Auckland area, it is my opinion that irrespective of whether the current planning instruments (eg ARPS, ARCPS and OMCCDP) or any other strategic growth documents currently contemplate, recognise, provide, or even vision growth in the southern sector Whitford, Brookby, Clevedon, Ardmore and Hunua areas, these areas are destined for closer settlement or urban development.
 41. This southern sector landscape represents, in my opinion, one of the most favourable and critical locational opportunities to create unique, high quality and attractive long-term living environments for “semi urban” or “urban” style settlement in the greater Auckland Region. In my view the southern sector alignment completely compromises future growth opportunities.
 42. The Transpower proposal forecloses future opportunities and options, and in my opinion conflicts with s5 Part II of the RMA (2) “... *managing the use, development, and protection of natural and physical resources in a way or at a rate, which enables people and communities to provide for their social, economic, and cultural wellbeing and for their health and safety*”

Permanency of Proposal

43. Whichever of the aboveground capacity options (220 kV vs 400 kV) is decided upon, once constructed they will essentially be a permanent and imposing fixture in the landscape.
44. This proposal will become the dominant feature that all future land use and settlement planning and design will have to respond to. In my opinion, this approach will conflict with the contemporary direction of landscape planning, which responds to the importance of the underpinning landscape framework of landscape elements, patterns and processes to determine settlement areas, productive opportunities and ecological linkages.
45. The scale and permanency of the Transpower proposal will dissect and impair the ability to deal with the above-mentioned complex and organic patterns and systems. It will permanently prevent a cohesive response to future landuse and settlement needs, and irreversibly change the character of these areas.
46. In my opinion, the landscape evidence of Mr Gavin Lister, and the peer review from Dr Michael Steven have downplayed the magnitude of these effects, in light of the discussed fundamental landscape change inherent in the proposal.
47. In my opinion, one of the most important planning and sustainable design principles that any future society needs to embrace is that infrastructural assets and requirements should not drive settlement patterning. Instead fundamental landscape spatial, biophysical and landuse capability factors should drive the location and detailed settlement outcomes. In my opinion, any other approach is short-term and automatically compromised.

REVIEW OF LANDSCAPE ASSESSMENT MATERIAL

48. There are three fundamental aspects of the landscape assessment and peer review by Mr Gavin Lister and Dr Michael Steven that I challenge;

- Application of assessment methodology, related to landscape scale and location,
- The measure of landscape sensitivity in terms of degrees of naturalness,
- The visual assessment methodologies, in relation to proximity and degree of effect,
- And the proposed mitigation measures.

Application of assessment methodology, related to landscape scale and location

49. Mr Gavin Lister was commissioned by Transpower New Zealand Limited to provide landscape and visual input to the upgrade project. The scope of work comprised landscape and visual analysis leading to route identification for the proposed line. Subsequent work entailed input to detailed alignment of the line, preparation of an assessment of landscape and visual effects, and preparation of recommended mitigation measures.
50. At a synoptic level I accept that the ACRE Route Selection Process (utilised by the Transpower multi-disciplinary route selection team) seems to present a rigorous methodology for the route alignment at the strategic landscape scale. In addition, I do not believe that I can critique the ACRE Route Selection Process, as I have not had the time or capacity to undertake my own thorough or rigorous analysis and assessment of the entire route. My focus is on the peri-urban Auckland areas, and in particular those landscapes and communities mentioned earlier in my evidence. I am not totally satisfied that the landscape and visual issues have been investigated and represented accurately in terms of the scale of the affected landscapes, and in relation to these I believe the assessment methodology and mitigation measures need some comment.
51. I have concerns in terms of the applicability of the landscape methodology at finer grained landscape scale, where the Transpower proposal affects specific communities and individuals. In my opinion, the application of the methodology utilised at the wider scale, particularly the landscape attributes in relation to natural character and naturalness, does not have relevance at a more specific community level.

52. To support my critique of the landscape assessment methodology, I will present four case-studies assessing the visual effects of the proposal upon particular properties within the Whitford catchment. I will cover this in paragraphs further in my evidence.

The measure of landscape sensitivity in terms of degrees of naturalness

53. Stevens and Lister have acknowledged that there will be an adverse effect arising from the construction of the transmission line. They have assessed the degree of sensitivity against a baseline test of 'Natural Character' and 'Naturalness'. This has, I believe, inadvertently led them to undervalue the intrinsic nature of the varied landscape types, that the Transpower proposal traverses and has led them to interpret the balance of the entire landscape continuum as a single type of rural landscape.
54. In addition, the reliance on the comparative 'Naturalness' test leads to the assumption that modified landscapes have a lower value, and are less susceptible to further landscape change. This assumption has resulted in the omission of a more in-depth sensitivity analysis of the different landscape types related to the effected rural landscape continuum. In short, this approach does not recognise intrinsic local community landscape qualities, and how communities themselves value these landscapes.
55. In other words, to infer that the alignment should not be put through high natural character, and that other landscape types that don't "rank" in the naturalness attribute category are the appropriate receiving environments for transmission line belies other fundamental values which may be attributable to these particular landscapes.
56. In my opinion, if Lister and Steven had acknowledged the intrinsic landscape quality and community values of these specific rural and peri-urban landscapes, they may have recognised different scales and thresholds of sensitivity, aside from degrees of naturalness. This may have resulted in different conclusions in terms of the anticipated effects of the Transpower proposal, and led to the rigorous exploration of mitigation

through design alternatives or to a more compelling recommendation towards undergrounding - avoidance in landscape terms.

The visual assessment methodologies, in relation to proximity and degree of effect

57. There is general consensus amongst all parties that the proposed transmission line will have adverse visual effects and be an undesirable feature on the landscape.
58. I agree with Ms Sylvia Allen, at Para 28 p9 where she admits that the visual effects are the most pervasive of the numerous of effects of the line.
59. In the evidence of Mr Gavin Lister (para 19 p6, to para 32 p1), and the Isthmus Visual Impact Assessment he cites factors influencing visual prominence. These include various factors such as tower height, tower weight, tower form, line alignment and other issues such as angle of view relative to alignment, alignment relative to landscape patterns. I also agree with Mr Lister (para 9) that the proposed transmission line, utilising taller towers of heavier construction, will tend to be more visually intrusive and dominant than existing towers.
60. However, having read the evidence of Mr Lister and peer review evidence of Dr Michael Steven together with the various other reports in relation to the proposed alignment, I am not totally satisfied that the landscape and visual issues have been investigated and represented fully, specifically in terms of the proximity scale used in measuring visual effect.
61. Both Mr Lister and Dr Steven's peer review of Mr Lister's evidence discuss at some length the five point scale of the degree of visual effect - "*Relationship of Prominence to Distance from Line – Rule of Thumb*" - in which the potential visual effects of the line on individual residents and communities is assessed according to distance categories presented in Mr Lister's table 1. I concur with Dr Steven that at the closest distance category of 0 – 150 metres, the effect may have been underestimated.
62. This simplification of effects based on proximity partly reinforces the difficulty of conducting accurate and rigorous visual assessment of such

complex lineal and corridor projects of the scale of the Transpower proposal. I acknowledge that other factors have been taken into consideration in the assessment of effects, and the proximity table is not applied in isolation. As noted by Mr Lister “*other factors influence the prominence of transmission lines in different contexts*”. In my opinion, the reliance on distance as a key indicator may have served to skew the results of the visual assessment.

- 63. Although terrain modelling and photomontages have been used, they were produced as a static exercise, and in my opinion an interactive model would have been more effective and appropriate. I will cover this in more detail further in my evidence.
- 64. In my opinion, both Mr Lister and Dr Steven may well have underestimated the relationship between viewing distance and perceived impact. I concur with Dr Steven where he states that “*In recognition of the likelihood of complex perceptual responses at close distances, I consider it may be necessary to re-calibrate the scale of degrees of visual effect, such that at the closest distances (0-150m) the effects are potentially Extreme.*’
- 65. However, Dr Steven does not identify a Very High Effect, between the High and Extreme ratings. In my view perceived impact of the Transpower proposal from many viewpoints is going to include Extreme, Very High, or High categories of effects, even when viewed from some distance from the proposed alignment.
- 66. I anticipate that the above statement is particularly accurate in relation to the assessment of effects at a local community and individual site basis. The point is, that these effects are real and have ended up as a source of serious consternation for the people whose properties are both financially and physically directly affected by the proximity of the Transpower proposal.
- 67. I propose that the following re-calibration of proximity based effects as a more accurate reflection of the visual effects of the towers:

Distance	Effect
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0 – 150m	Extreme
150m - 500m	Very High
500m – 1km	High
1km – 3km	Moderate
3km +	Low

68. In my opinion, the above table reinforces that the effects of the towers will be, for the majority, in the range of High to Extreme. This is largely derived from my familiarity with the bulk and dominance of the existing transmission lines. In addition, the effect of the proposed 400 kV lines and towers is demonstrated in the investigation of the effects utilising accurate K2Vi terrain modelling from selected locations.
69. At this point I note I would have expected to view some extremely sophisticated GIS and spatial and three-dimensional modelling techniques of the entire route alignment and countryside as part of the alignment and route selection process and assessment of effects.
70. I am aware as outlined in the statement of evidence of Mr Noble for Transpower (para 5 page 10), Transpower used a PLS-CADD programme, which according to Mr Noble is an internationally accepted transmission line software programme, to design the proposed line. In addition, the use of the Truescape three-dimensional photomontage and modelling process is an accepted accurate and defensible three-dimensional modelling tool. However, it is my opinion that these modelling techniques are limited in terms of assessment of landscape and environmental effects in projects of this scale, as they remain relatively static in the production of framed views or remain as a predetermined flight path.
71. In my opinion the route alignment, selection and associated effects could have been more accurately and flexibly assessed, particularly at a community consultation level, by the use of an interactive three-dimensional fly-through modelling package similar to K2Vi. This would have complemented the other two technology packages and allowed a much more iterative dialogue for all parties in relation to assessing the potential

effects of not only the route alignment, but the various options between the 220kV line and the 400kV line and the different tower configurations, poles and heights within any particular locality.

72. At this point, I would like to present my own assessment of the proposal from 232 Brownhill Road (Exhibit 6), using example photographs and a K2Vi model that has been produced for the Whitford area. I will discuss my visual assessment methodology, and present further individual case studies, along with general visual assessments of the effects on the Whitford, Clevedon/Ardmore, Brookby and Hunua areas, later in my evidence.
73. This address is identified as Dwelling No. 1014 in the Isthmus table, contained within Appendix 2 "Inventory of Houses". The table presents the address, visual comments, estimated visual effects and distance to the nearest span for a number of houses in the affected areas. As the nearest span to the subject dwelling is at a distance of 676m, the estimated visual effect falls into the "Moderate" effects category (500 – 1000m), in accordance with the 5-point proximity scale. However, the final rating in the Inventory of Houses has been assessed as "Low" due to the reliance on an intervening ridgeline to "screen most views".
74. In my opinion, this is not an accurate reflection of the visual effects from this location, as demonstrated by the K2Vi model, and my supporting visual assessment photographs. Exhibit 7 shows clearly that at least five of the proposed towers will in fact be visible from this location. In addition, this Exhibit highlights the fact that the Isthmus assessment only addresses a limited portion of the overall view, and therefore only a small section of the proposal. Looking at the broader contextual view, three towers will be visible in their entirety, and two will be partially screened by the "intervening" topography. The K2Vi model does not include three-dimensional vegetation, however my supporting photographs demonstrate that, as the towers are situated in areas of open pasture, the surrounding patches of vegetation will have no screening effect. In addition, the elevated position of the viewing location reduces the effect of intervening topography and vegetation.

75. The scale of the proposed towers will be, in my opinion, incongruent with the scale of the existing built form, the scale of the topographical elevation and the extent of the viewing catchment. Therefore the proposal will have a High Visual Change from this viewing location. In my opinion, this effect equates to a Very High rating in terms of my recalibrated 5-point proximity scale. This contrasts markedly with the “Low” assessment given in the Isthmus Inventory.
76. In my opinion, this single example casts doubt into the accuracy of the assessments methodology, and the estimated visual effects in the “Inventory of Houses”.
77. The Transpower proposal in my opinion is of a significant scale, and of a scale yet to be experienced in New Zealand, and therefore brings about its own significance in terms of potential doubt and apprehension as to the efficacy of the assessment outcomes and recommendations throughout the landscape assessment documentation and methodology.

Mitigation Proposals

78. The effect of scale and impact of this proposal, as discussed above, is of a magnitude not yet experienced in this country. In my opinion the adverse effects go well beyond the extent of the visible corridor and therefore the resulting visual effects will be difficult, if not impossible in many situations, to mitigate.
79. The proposed mitigation for the transmission lines predominantly takes the form of a range of planting suggestions, which include replacement of removed vegetation, screen planting from roads, individual houses and of specific facilities. However, screen planting on roadsides and individual properties would require agreement from outside parties, and therefore is not guaranteed and difficult to control. Offsite mitigation cannot be considered in terms of assessment of effects when it is not able to be enforced. Mr Lister has acknowledged that this mitigation technique is dependent on landowner approval.

80. I concur with Mr Lister that the proposal presents difficulty in terms of the options to mitigate effects. However, in my opinion the options of avoidance through undergrounding or remedy through alternative design options have not been explored thoroughly, and instead mitigation has become the focus.
81. Furthermore, I have concerns with the arbitrary and superficial screening concepts proposed, as I believe they will never be completely successful. In addition I strongly believe that the plantings patterns promoted by the mitigation guidelines will almost always remain inappropriate to this landscape, and will require 15 – 20 years minimum until they gain a reasonable scale in comparison to the proposal.
82. The overall community vision for these areas, and more specifically the Plan Change 8 area, is a catchment based land management approach (Exhibit 2), which involves biophysical repair of critical landscape elements and patterns. These landscape patterns will be disturbed and fragmented by the proposed transmission lines and associated mitigation measures (Exhibit 3).
83. The photomontages presented by Mr Lister graphically demonstrate that screening is simply ineffective, and could cause quite discordant patterns in the landscape, thereby potentially exacerbating the adverse visual effects of the proposal. In this respect the use of vegetation as mitigation technique should have considered landuse management and biophysical repair, thus reinforcing planting more congruent with natural landscape patterns.
84. However, even if these principles were followed and revegetation and screening planting contributed positively to the future community and Council vision for these landscapes, the proposal would still have a high visual dominance. This mitigation technique is unlikely to significantly address the visual effects but would provide a much broader outcome associated with the biophysical repair of critical landscape elements and patterns that improves overall visual cohesion of the entire landscape form and context.
85. When considering the purpose of the RMA, and in particular of s5 (c) to avoid, remedy or mitigate adverse effects, contextual landscape and

community aspirations must be taken into consideration. In my opinion, through consideration of the above factors, undergrounding is the best option in this situation; failing this consideration of redesign for the entire line is recommended.

86. Alternative options have been considered by Transpower, in limited areas, with the proposal to use 'monopoles', a change from AIS to GIS substations, and undergrounding of the line in the urban areas to the edge of the MUL. I acknowledge that these offer a significant reduction in effect, however the changes only provide improvement to a limited extent of the proposed route. In my opinion, there is scope for further exploration of other structural and elemental design options throughout the rest of the area.
87. Although undergrounding is preferred through all areas outside of the MUL, if it came to an economic hiatus then more elegantly designed structures such as the monopoles should be proposed. Monopoles present are far less visually dominant, and present a reduction in bulk when compared to the traditional towers proposed, however in my opinion they will still cause a significant visual effect.
88. Ultimately avoidance through undergrounding is the preferred option, as this will enable the continuation of the vision for these settlements and landscapes to be realised.

REVIEW OF ROUTE SECTIONS 1 – 4

89. In my opinion, this section of the route alignment, covering Whitford, Brookby, Clevedon/Ardmore and Hunua (Exhibit 1), is very important in landscape terms, as it is these sections of the route that have the highest concentration of significantly affected existing and proposed communities throughout the length of the proposed line. In addition, and as I have discussed earlier, these landscapes have special significance in terms of their fine grained landscape patterns, their proximity to Auckland, and their future settlement opportunity.

90. In the following section I will present a series of visual and landscape assessments, addressing the effects of the proposal on the four areas mentioned. This will take the form of a series of case studies in the Whitford catchment and an analysis of the effects of the siting of the proposed Brownhill substation, and a series of more general overview assessments within the other three affected areas.

Visual Assessment Methodology

91. The following methodology describes how I approach the assessment of visual effects for the individual case studies and the overall route assessments.
92. The visibility of any proposal is considered in the context of the receiving environment, the absorption capacity of the receiving environment and the ability of the proposal to fit appropriately into this landscape.
93. Absorption capacity refers to the landscapes ability to absorb changes and is determined by factors such as:
- The existing features of the site
 - The existing character / context of the site
 - The topography and the vegetative cover of the site and the surrounding area
 - The proposed degree of modification to the landscape associated with the proposal
94. The visibility of a proposal can be assessed from the visual catchment from which the proposal can be seen. The visual catchment is the area into which views of the proposal can be afforded and is defined by factors including:
- The topography of the local and greater site area
 - The bulk and coverage of built form within the area
 - The context of the activities within the visual catchment
 - The distance from which the proposal is viewed
95. The following scale has been adopted to categorise the potential change in view from each of the selected viewpoints.

Very High Visual Change Where the proposal causes more than a significant landscape change to the existing view

High Visual Change Where the proposal causes a significant landscape change to the existing view

Moderate Visual Change Where the proposal causes a noticeable landscape change to the existing view

Low Visual Change Where the proposal causes a limited landscape change to the existing view

No Visual Change Where the proposal causes no discernable landscape change to the existing view

96. The viewing audience of the proposal will vary based on individual vantage points. The availability of views will be dependent on:

- The location and context of the viewpoint
- The expectation of the viewers
- The importance of the view (which may be determined based on its popularity and the number of people affected).
- Whether the view is transient or one of a sequence of views as from a moving vehicle or footpath.

97. The viewing audience is highly variable in this situation, and includes factors such as population density, alignment of the route, roading hierarchies in proximity to the transmission line and underlying landscape form and landcover.

98. In addition to utilising the above rating methodology, I will also relate the findings of my assessment to the findings of the assessment undertaken by Mr Lister.

99. For the purposes of assessment, I present a series of panoramic photographs, taken with a Canon 400D SLR camera, using a 50mm lens, at standing eye level of approximately 1.6m from ground level. These photographs were taken on the 19th and the 22nd of February 2008 in overcast conditions. The photos were taken with a 50mm lens, which is accepted by the NZILA as the lens suitable for visual assessments. Variations occur when the images are imported into computers as the size and scale adjusts, which can result in inconsistencies. This should be taken into consideration when viewing these viewpoint images, and if necessary onsite inspection is recommended.
100. In addition to the photography, I present images taken from a K2Vi model of the proposal within the Whitford catchment. This model was produced before I was aware of the change to a monopole design around the Brownhill station site. However the model is an accurate representation of terrain and the scale and positioning of the proposed towers and GIS stations. This model is not designed to be photorealistic because it is utilised as an interactive tool, to investigate the proposal within the entire landscape context. In addition, vegetation modelling was not included, however the viewpoint photographs enable a comparison and assessment of the effect of any potential intervening elements and are assessed in conjunction with the model.
101. The K2Vi model was created based upon the geopositioned data for the transmission line elements provided by Transpower. These are depicted as the numbered tower locations provided on the Transpower alignment plans. There maybe additional elements associated with the substations that are not represented on the alignment plan. These numbered tower locations have been transferred onto the detailed terrain model based upon accurate LiDAR contour information at 0.5 m intervals.

Whitford – Route Section 1

102. Currently the Whitford Valley (Turanga Creek Catchment) is traversed by the existing ARI-PAK A transmission lines. This current alignment traverses the central portion of the valley. The proposed Transpower transmission line is to be rerouted to the western subcatchment of the Turanga Creek,

the Brownhill Road Catchment where a switching station/substation is to be located, together with six transmission towers (towers, 5, 6, 7, 7a, 8 and 9). The removal of the ARI-PAK A line provides some visual effect relief in the wider central Whitford/Turanga Creek Catchment area, however although the selected route alignment skirts the perimeter of the Whitford area, I still have some concerns that the viewing audience may in fact be somewhat under estimated.

103. In my opinion, the relevance of Plan Change 8 (Exhibit 2) needs some further discussion in terms of the future potential settlement of the Whitford area.
104. Both Mr Gavin Lister (para 116 pp 37) of his evidence and Ms Allen (paras 86 through to 92 pp 28, 29 and 30), discuss the effect of Plan Change 8. Both acknowledge that Plan Change 8 Whitford Rural does provide for more intensive and comprehensively designed rural residential subdivision in the area. However, Ms Allen in particular implies that the future opportunities will be of an extremely limited nature, subject to discretionary control with overall densities of 1 per ten hectares to 1 per 4 hectares.
105. Ms Allen in para 89 goes on to reinforce that subdivision and development is at a relatively low intensity and is subject to discretionary control (para 89). She further states that “it is unlikely that the presence of the line will frustrate subdivision opportunities as, at the densities indicated, it should be possible to set any future dwellings in locations that do not impinge on the designated area, and to plan then so that they do not face the line structures. Any effects on future subdivisions in terms of the current zoning (including Plan Change 8) will, in my opinion, be minor or less”.
106. In my opinion these statements tend to underplay both the significance and the spirit and intent of Plan Change 8 and its relevance and meaning to the Turanga Catchment and wider Whitford areas. The community vision process that has lead to the notification and subsequent processing of Plan Change 8 Whitford Rural is subject to a substantial historical timetable, and has been some 12 years in formulation.

107. The purpose of the Plan Change is “... *for the establishment of countryside living and development that maintains and enhances landscape character, rural amenity values and environmental quality of the area*”. In my opinion, it is concerned with effecting land use change in order to achieve enhanced environmental outcomes for the area, while providing for appropriately located and designed subdivision and development. Other broad objectives relevant, in my opinion, to the Transpower proposal include:

- Enhancing ecological systems through appropriate land development (Exhibit 3)
- Reducing and/or eliminating conflicts between existing and new land use activities
- Ensuring the efficient and effective use of the soil resource
- Enhancing landscape character and rural amenity values through adequate and appropriate provision of public open space
- Avoiding adverse effects on the natural environment through having land subdivision, use and development associated with adequate and coordinated physical infrastructure.

108. In my opinion, the proposed features of the Transpower project planned through the Whitford area are somewhat at odds with the above objectives. In effect Plan Change 8 is aimed at encouraging land use change through incentive based subdivision development opportunity. In fact, in the Whitford Rural A zone of Plan Change 8, it is possible to get down to a 1 to 2 hectare density average. The route of the proposed transmission line is subject to this zoning (Exhibit 4).

109. Exhibit 5 demonstrates the significance of the development opportunities in the immediate vicinity of the proposed Brownhill station and transmission line alignment. This Exhibit demonstrates a number of examples of the range of densities that may well result from the innovative planning opportunities contained within Plan Change 8. These are not yet firm proposals lodged in the formal resource consent process, however, they represent preliminary development feasibility studies, showing the form and density of development that in my opinion that Plan Change enables and encourages. As can be seen in the Exhibit there is potentially a significant

number of dwellings which can be potentially affected by the Brownhill station and transmission line in this portion of the Whitford Catchment.

110. It is important to note that the already implemented subdivisions on Brownhill Road, together with the existing subdivision on Redoubt Road ridge, and further consented approvals for subdivision on the northern side of Redoubt Road and Regis Lane (Regis Park Stage II Approval), contributes to an already considerable number of developed sections which are yet to be built upon, plus approved consented sections which are yet to be built on, together with some planned development yet to be processed within the provisions of the Plan Change 8 plan.

Visual Landscape Assessment Case Studies In The Whitford Catchment – Route Section 1

McKenzie Property

111. This viewpoint is located at 122 Brownhill Road, within the Whitford catchment (Exhibit 8).
112. This address is identified as Dwelling No. 1009 in the Isthmus table, contained within Appendix 2 “Inventory of Houses”. As the nearest span to the subject dwelling is at a distance of 487m, the estimated visual effect falls into the “High” effects category (150 - 500m), in accordance with the 5-point proximity scale. The final rating in the Inventory of Houses has been assessed as “High” due to the elevated nature of the dwelling and the open intervening landscape (Exhibit 12).
113. The view encompasses an area of moderately undulating and relatively dissected terrain within an enclosed valley system. There are patches of native and exotic vegetation located for the most part on hillslopes, amongst extensive areas of pasture and cleared forestry land.
114. The viewing audience from this location includes the residents of the McKenzie property, in addition to numerous dwellings (both existing and proposed) in the encompassing terrain. From this location the subject

dwelling has panoramic views that extend from the west to southwest. There is a low density of built form contained in the view, and the combination of landscape elements combines to form a more typical productive rural farming outlook. However this is a landscape of transition undergoing intensification of settlement – for example the area of cleared forestry land has part approval for a lifestyle block subdivision for 20 lots, with a further 20 lots being sought. In addition to this particular property, I have knowledge of several consented but not built subdivisions, and further developments currently seeking approval.

115. With reference to both the Isthmus photomontages and the K2Vi model, a number of transmission towers, their associated wirescape and the proposed Brownhill substation will form a major part of the view. Three options have been presented, showing double circuit towers and an AIS substation, double circuit towers and a GIS substation, and double circuit monopoles with a GIS substation. As I understand, the latter option has been confirmed as the preferred solution by Transpower, and has been assessed in the Inventory and estimated as having High visual effects.
116. Although the proposed redesign presents a significant reduction of scale and visual presence, it is my opinion that the change to the view will still cause a High landscape change to the existing view. In my opinion, this effect equates to a Very High rating in terms of my recalibrated 5-point proximity scale.
117. In my opinion, the range of view is wider than what is depicted in the Isthmus photomontages. This range of view encompasses a diverse and intensive array of elements, including 1 monopole and 5 double circuit towers to the southwest, and the Brownhill station. The closest span is within 500m of the subject dwelling. The existing foreground vegetation will not provide any significant screening for any of these elements, and the proposed towers are out of scale with the relatively gentle undulating topography and landform. The towers will extend above the viewable ridge and horizon line within most of the visual catchment. Therefore, in my opinion it is almost impossible to mitigate the effects of the proposal to a satisfactory degree.

118. In my opinion the mitigation planting, proposed in the Part X Section 8: Visual Impact Assessment prepared by Isthmus, will not be sufficient to address the effects of the proposal. The proposed mitigation will never achieve a sufficient scale to screen the towers, because of their location on elevated terrain and their sheer scale. Although it may afford screening of the station, it is not guaranteed due to the required third party agreement.
119. The proposed tower and station elements are situated within a very contained landscape, and are overlooked by the surrounding dwellings scattered around the surrounding ridgelines, thus the visual effect of the transmission line is exacerbated visually by its scale within this discreet enclosed valley system.

Spring Property

120. This viewpoint is located at 130 Brownhill Road, within the Whitford catchment (Exhibit 9).
121. This address is identified as Dwelling No. 1011 in the Isthmus table, contained within Appendix 2 "Inventory of Houses". However, the description of the site within the table describes a white house with a flat roof, which does not accurately describe the actual dwelling located on this site. Furthermore, the nearest span to the subject dwelling is described as being at a distance of 591m, however in my opinion the distance is closer to 500m (Exhibit 12). These inconsistencies cast doubt onto the accuracy of the "inventory of houses" table. As such I have undertaken my own assessment of the estimated visual effects exclusive of the findings in the Inventory table. I will still refer to the Isthmus photomontage in my assessment comparison.
122. This viewpoint is located in close proximity, to the west, of the McKenzie property. As such, this viewpoint shares a relatively similar visual catchment and surrounding viewing audience. The subject dwelling is at a slightly lower elevation, and is surrounded by areas of relatively young planted native and exotic vegetation.

123. The proposed Brownhill station and transmission line is situated to the southwest of the viewpoint location. From this viewpoint location the proposal forms a significant part of the midground field of view and protrudes above the visible horizon line.
124. In addition to the proposed Brownhill station, a single monopole tower and the associated collection of six conjoined monopoles are evident, with two double circuit towers also visible traversing a series of spurlines to the east of the view. This collection of elements in my opinion, dominates the scale of the discrete enclosed valley system.
125. As mentioned above in the assessment from the McKenzie property, the proposed mitigation will never achieve a sufficient scale to screen the towers. This is because of their location on elevated terrain and their sheer scale.
126. In my opinion the proposal represents a significant landscape change when viewed from this location and I therefore consider that it causes a High Visual Change. This effect equates to a Very High rating in terms of my recalibrated 5-point proximity scale.

Redoubt Road

127. This viewpoint is located on the Redoubt Road ridgeline to the north of Sovereign Street, Whitford. This elevated viewpoint location is oriented to the east and has expansive views over the Whitford catchment toward the Hunua Ranges (Exhibits 10a and 10b).
128. This viewpoint is not identified in the Isthmus table, Appendix 2 "Inventory of houses". However, Isthmus Group has produced a photomontage for this location and I consider it useful to assess the visual effects of the proposal from this location to present a publicly accessible viewpoint within the Whitford Catchment. In addition this assessment provides a comparison between the K2Vi terrain model and the Isthmus Group photomontage.
129. The viewing audience from this location consists of local residents and visitors either walking or driving along Redoubt Road. It must be noted that

Redoubt Road has been recently extended to ultimately connect through to Ormiston Road and is a notated scenic route within the Manukau City Council Operative District Plan.

130. The viewing audience is currently relatively low, however it is anticipated that the viewing audience will increase overtime both due to the new road link and to a number of consented subdivisions currently under construction.
131. This viewing catchment encompasses an extremely diverse landscape, comprising undulating and dissected pastureland, and pockets of remnant and regenerating native bush and exotic forestry. The Brookby Ridge, the Clevedon/Maraetai hill complex and the Hunua Ranges form an extensive backdrop to the view.
132. From this viewpoint location, views are afforded of a large portion of the proposed transmission line route. The visible elements of the proposal include the Brownhill station, a single monopole tower and the associated collection of six conjoined monopoles, with up to 11 double circuit towers both in their entirety and in part. These towers traverse the central ridge system within the centre of view as they extend towards the east.
133. Due to the elevated viewing location and the positioning of the transmission line, the K2Vi model and viewpoint photographs demonstrate that the towers will not be screened by any existing vegetation. Over time and due to the distance of the viewer from a number of towers, there is potential for ridgeline vegetation to provide a level of screening in selected locations. However, this planting pattern is not consistent with a catchment-based outcome that promotes revegetating drainage patterns and steep terrain (Exhibit 3).
134. In this visual catchment there is a very low level of built form, which will increase over time, but in my opinion will remain subservient to the wider landscape context. In contrast, the scale of the towers and wirescape is disproportionate and dominating in this landscape. Even though the patchwork nature of this landscape and the expanse of the view contribute to a relatively high visual absorption capacity, the scale of the proposal, and

particularly the transmission towers, is of a magnitude that cannot be readily absorbed. The scale and form of the proposal is in contrast to the scale and form of the natural and built elements in this view.

135. In my opinion, the scale and extent of the proposal within this finely patterned landscape will cause a High visual change to the existing view. As this viewing location is approximately 1km from the Brownhill station, this equates to a Moderate/High rating in terms of my recalibrated proximity scale.
136. There is a variance in terms of the number of visible elements within the visual catchment when comparing the K2Vi model to the Isthmus Group photomontage. The Isthmus photomontage only seems to display the first two towers and the Brownhill station leading toward the east. However, the K2Vi model shows the full extent of the proposal running through the field of view (Exhibit 10a).

Umbria Lane

137. This viewpoint is located at the end of Umbria Lane, to the southwest of the subject proposed transmission line. This elevated viewpoint is located to the southwest of the proposed Brownhill station and also has expansive views over the Whitford catchment toward the Brookby Ridge and the Clevedon/Maraetai hill complex (Exhibits 11a and 11b).
138. As with Redoubt Road, this viewpoint is not identified in the Isthmus table, Appendix 2 "Inventory of houses". However, Isthmus Group has produced a photomontage for this location and I consider it useful to assess the visual effects of the proposal from this location to present a publicly accessible viewpoint within the Whitford Catchment.
139. This viewpoint location is situated within an area that is currently undergoing significant residential growth and development. This future development, in conjunction with the existing settlement in the midground of the view combine to create a high viewing audience.

140. The landscape encompassed by this view is similar to the finely grained and patchwork landscapes described in other views. In addition, I note that catchment based enhancement planting has been undertaken and that a more cohesive landscape pattern is beginning to emerge. A point of difference in this situation is the level of existing built form situated off Brownhill Road. The proposal in this situation is not as dominating as in other areas, but still presents a visible landscape change.
141. From this location, the visible elements include the Brownhill station, a single monopole tower and the associated collection of six conjoined monopoles. These elements are all partially screened by the intervening topography and the positioning of the station is such that the proposed mitigation screen planting will likely have a positive effect.
142. In my opinion, I consider this to have a Moderate visual change from this location. As this viewing location is 1km from the Brownhill station, this equates to a Moderate rating in terms of my recalibrated proximity scale.

Brownhill Substation

143. In my opinion the siting of the Brownhill station is contrary to the catchment management philosophy that underpins Plan Change 8. The intent of Plan Change 8 is to promote environmentally sensitive design strategies that produce low impact outcomes, for example the avoidance of modification to waterways.
144. The plan presented by Transpower (Exhibit 13) shows the station located directly on the Turanga Creek alignment at the top of the catchment. I understand that the siting may have been chosen to visually integrate the station, however this approach fundamentally conflicts with the intent of Plan Change 8, as it proposes to modify and fill the stream to form a large level building platform for the station.
145. In this sense, the attempt to visually integrate the proposed station will in effect destroy the very elements that the community are actively protecting and enhancing.

146. In conclusion the case study assessments demonstrate that the scale generated effects of the proposed transmission line within this small, discrete, enclosed Whitford valley system will completely dominate the integrity of this landscape. The enclosed basin nature of the Whitford valley will mean that the effect of the transmission line is exacerbated by the elevated position of the viewing audience, where the existing and potential viewers virtually encircle the proposed route alignment.

Brookby Valley – Route Section 2

147. Towers 11 – 17 pass through the Brookby area to the Clevedon-Maraetai Hills, in close proximity to areas of clustered settlement, dissecting what is in my opinion one of the highest quality landscape areas in the mid Brookby Valley. This portion of the Brookby Valley is an extremely attractive picturesque area, comprising a gentle river valley and enclosing rolling catchment slopes. Intensive and mixed vegetation integrate with catchment-based patterns, areas of pasture and a relatively clustered settlement of houses.

148. In my opinion, the proposal will have significant adverse effect on the recreation areas within Brookby, including the Papatoetoe Pony Club and the Brookby School. In addition the scenic route of Twilight Road, which is an alternative route through Clevedon to Brookby, will be affected. Haunui Farm is in my opinion, one of the “trophy” properties of the area, and contributes enormously to the character of this portion of the Brookby Valley. Although the ARI-PAK-A line traverses the property at the moment, the proposed line will cause an increase in the scale of effect, because it is of a much more significant scale.

149. The proposed alignment bisects the topography, vegetation and the housing areas, and in fact the latter is in very close proximity to the alignment. This area contains, as noted in the Isthmus report “*8.7 houses per km of line, compared to an average of 2.7 houses per km of line over the total length of the transmission line*”.

150. My Exhibits 14a to 14b demonstrate the quality of the environment, and that the transmission lines cross a high quality, cultural area in relation to a community and recreational focus e.g. the Pony Club and School. In my opinion the Isthmus photomontages show the significance of the scale of the proposal in this location.
151. I consider that the proposed clearance and trimming on the fringe of an area of secondary kahikatea bush between spans 12-13 is of concern, because of the age and significance of this remnant area, and its position at the head of an important gully system.
152. The adverse visual effects of the proposed line, determined to be experienced from existing houses and roads, will also impact adversely on the future growth areas. Therefore, premature fixing of the form and alignment of the proposed transmission line without planning the future growth area options - in order to avoid conflicts or incompatibilities between the adjoining land uses would severely constrain comprehensively managed and planned development.
153. In my opinion, the proposed transmission line should not be allowed to dominate and predetermine future land use patterns without further route alignment planning and undergrounding options being considered, taking into account planned future settlement and development needs.
154. Mr Freke (para. 112) provides a number of what he considers are valid planning reasons as to why Brookby Valley is to be considered as a prime candidate for future expansion i.e. current rural zoning will continue to limit small lot rural-residential leaving larger land holdings for easier urbanisation; visually and topographically contained by distinct ridges allowing urban development on flats between; in transport terms in close proximity to major north south and east west arterials; with some constraints, can be readily serviced and developed and in close proximity to the adjoining MUL. In addition the area has been identified within Council's draft Rural Strategy as being distinct from Council's remaining rural areas to the west (Whitford), or east (Clevedon/Hunuas to Coast). (Freke para. 113).

155. I concur with Mr Freke, that this area is a prime candidate for future urban expansion and that well-planned growth should not be responding to infrastructural constraints, but rather integrating with an environmental and spatially driven urban future.

Clevedon/Ardmore – Route section 3

156. *In reference to my description of the Clevedon landscape, covered previously in my evidence, the area comprises an extensive and relatively level ‘plains’ river valley landscape. In my opinion the scale of the proposed transmission line represents a significant departure from the dominant visual influence of the small scale, productive landscape ‘subdivision’ pattern – e.g. paddocks and shelterbelt systems (Exhibits 15a – 15c).*

157. *The flat topographical nature of this landscape has an effect which goes beyond immediate proximity matters, and influences the visual experience at quite extensive distances. This effect is felt from both elevated areas overlooking the Clevedon Valley e.g. High Ridge Road and West Road, or within the Valley floor itself.*

158. *This opinion can be reinforced by a comparison with the existing ARI-PAK line and its visual influence in the Clevedon Ardmore valley landscape, and the expectation of the increased effect that will result from the proposed Transpower 400kV line .*

159. Mr Lister considers that the Route Section 3 has a moderate capability to accommodate the proposed line. On the one hand he refers to the alignment along the existing ARI-PAK A line as one of the factors that will reduce potential landscape effects (para. 208) and on the other hand acknowledges that:

‘the close pattern of settlement will increase the direct visual effects on individual properties, and its visibility from roads.’

160. In my opinion, the replacement of the existing line with the proposed 400kV line represents a significant change in the scale of effect. It is acknowledged by Mr Lister (para. 208) that the close pattern of settlement

will increase the direct visual effects on individual properties, and its visibility from roads. I agree with this conclusion.

Ardmore Undergrounding

161. In my opinion, where the Transpower line approaches Ardmore Aerodrome from the southeast, the line should be under grounded at a suitable location no less than 500 metres from the Ardmore Aerodrome outer conical surface edge.
162. This action would eliminate the adverse visual effects of the proposed line planned from southeast of Ardmore through to Brownhill Road.
163. This undergrounding would eliminate the adverse visual disruption to existing properties, future residential expansion areas, flight path effects at Ardmore and greatly assist other urban amenity considerations. This approach is also the preferred option (ii) for Manukau City Council as stated in Mr Freke's evidence:

'The Council's initial position was that undergrounding should commence where the line enters the Clevedon Valley.' (para. 81) *That position has been subsequently refined, and the position of the Council now is that Transpower should commence the underground component of the project at either:*

- (i) where the line enters the Brookby Valley in the vicinity of tower site 14; or*
- (ii) if justified based on air safety issues (or the impacts of lighting or marking of lines), a point just south of the flight path to the Ardmore Aerodrome.'*

164. Undoubtedly such a high occurrence of residential properties experiencing such significant visual effects would be likely to increase with future growth within the future expansion areas. In addition such levels of visual effect would make these areas less desirable and discourage individuals from settling in the area and taking up settlement opportunities.

165. Undergrounding would undoubtedly enhance landscape character and rural amenity values through Ardmore, Clevedon and Brookby. In addition the 'transmission shadow' along the transmission route over the future expansion areas, would result in extensive unusable areas each side of the pylon based transmission corridor – for both perceived health and amenity reasons, and further well beyond the outer zone of the corridor space for visual and amenity reasons. Undergrounding, whilst still having a defined no-development corridor zone would result in no loss of landscape character or visual effect beyond the immediate route zone.

Hunua – Route Section 4

166. The small foothill village of Hunua is currently affected by the presence of the existing OTA-WKM A and B lines passing overhead through the settlement. While the proposed new transmission line is to replace the existing ARI-PAK A line, this new line will have significantly larger towers and hence greatly increased visual effect (Exhibit 16a).

167. Mr Lister (para. 224) states: *'The line will be a prominent feature across the basin, crossing a relatively closely settled lifestyle area and passing between Hunua village and the Hunua backdrop'*. Following my own analysis of the route I concur with this statement.

168. I have referred in **my evidence** above, in the context of the range of communities affected by the proposal, that I consider Hunua as a foothill village, comprising rural bush residential living, set in a more natural landscape where the future settlement attraction rests in the natural values and recreational opportunities associated with the Hunua Ranges (Exhibits 16a – 16a). It is these natural values and recreational opportunities therefore that sets Hunua apart from the Whitford, Brookby, Ardmore and Clevedon communities, and as I have stated in **my evidence** above, the proposal will become the dominant feature that all future land use and settlement planning and design will have to respond to.

169. In terms of landscape absorption capability, and the ability of Hunua to accommodate the specific transmission line proposal within that landscape, Mr Lister in his evidence (para. 37) refers to factors relating to *"Landscape*

Absorption Capability” under three groups: physical, perceptual and associational. In regard to associational factors Mr Lister (para. 37) states: *‘The third group of factors was measured against criteria such as the anticipated sensitivity of people to transmission lines in different landscape settings.’* In regard to this anticipated sensitivity Mr Lister (para. 37) states:

‘In this case, the following assumptions made in relation to transmission lines:

1. Transmission lines are almost universally regarded as unattractive features that intrude on the character of natural, rural and urban landscapes.’

2. Transmission lines will generally be regarded as more obtrusive in natural areas and those areas valued for scenic qualities, and less obtrusive in ‘working landscapes’ such as ordinary farmland, plantation forests, and industrial areas.’ (my emphasis)

3. Residents are a more sensitive audience than people who see transmission lines in passing.’

4. At the same time, transmission lines will generally be regarded as more obtrusive by the wider community when they impact on public viewpoints, such as main roads, important intersections, and settlements.’

170. As I have covered previously in my description of the Hunua landscape, and my comments on the ‘naturalness’ rating scale, the perception that the rural working landscape has a low value and high absorption capability is not, in my opinion, a valid construct. The above statements are not cognisant of the special value held by the local community, and shared by the wider community, as instanced by the popularity of the use of the area as a recreational venue by residents of the wider Auckland area.

171. Because of the existing lines, and the way they traverse the landscape, there are significant effects on the Hunua settlement and surrounding area. I consider that Hunua warrants some further and serious investigation into the method of transmission. While the ARI-PAK line is being removed, other existing lines are remaining, and therefore there is the outcome of

potential cumulative effect associated with the proposal. In addition, other matters include removal of a significant stand of trees - *'The alignment requires removal of a kahikatea stand near Downs Road. This is a relatively rare stand of natural vegetation within a largely modified landscape.'* (Lister, para. 240).

172. My Exhibits 16a to 16c demonstrate the nature of the landscape, the prominence of the exiting transmission lines, and the significance of effect, portrayed by the Isthmus photomontages.
173. These matters collectively reinforce my recommendation that further investigation of design and/or alignment options and/or pole design and/or undergrounding be explored in relation to the Hunua community. In addition, I believe that the Hunua area should be the subject of further rigorous landscape and visual assessment and analysis.
174. The small service settlement of Hunua is currently dominated by the OTA-WKM A and B lines which pass over the properties within the settlement. The replacement of the existing ARI-PAK A line with the proposed larger scale transmission line will significantly increase the scale of the adverse visual effects.
175. The proposed upgraded transmission line will be a prominent feature across the basin, crossing a relatively closely settled lifestyle area and passing between Hunua village and the Hunua backdrop. This area has a reasonably close pattern of subdivision and houses, which will result in significant visual effects on a number of properties. In my opinion, the addition of the new larger scale line will contribute to cumulative adverse effect for the area.
176. While the larger scale 'replacement' transmission towers and connecting lines may be hidden from the village by a ridge and trees, the fact remains that the residents will observe them every time they travel around the village environs on for example, Hunua, Falls and White Roads. In addition, the larger scale line system will be observed from the school.

177. My recommendation is that there is meaningful renegotiation with the Hunua community, based on informed outcomes of the further assessment and analysis, in order to derive a transmission route with significantly reduced landscape, ecological and visual effects. Such a route, based on more detailed local study, needs to explore the greater use of for example, monopoles, compact line design and under grounding as well as relocation of selected tower locations such as 54A and 55 to achieve a community appraised outcome.

PAKURANGA SUBSTATION

178. The existing Pakuranga Substation currently consists of an outdoor switchyard, overhead transmission lines and control and relay buildings, along with associated containment, access and security infrastructure.

179. The proposed new substation 220kV switchyard is intended to be built by approximately 2011 and will involve the removal of the existing 110kV switchyard including transformers. An Air Insulated Switchgear (AIS) system is Transpower's preferred option for the proposed Pakuranga Substation (Exhibit 17).

180. The new AIS substation at Pakuranga will be larger in area, and in my opinion of greater impact than the existing station.

181. The substation site is located on a terrace above a headwater of the Pakuranga Creek, and surrounded by mixed urban activities that have developed around the substation during the last two decades.

182. While it is an established substation and is currently set back from adjacent activities, it is my understanding that the AIS switchgear extension significantly encroaches into the open space buffer surrounding the existing station. While there are significant opportunities for screen planting these tend to be in the lower gully and stream bed and riparian portions of the site, the elevation of the higher superstructures will render them highly visible.

183. In order to gauge the potential visual effects of the proposed new AIS Pakuranga substation, I have undertaken a visual assessment of the site from a number of viewpoints in the vicinity of the substation site (Exhibit 18).

Viewpoint 1

184. This viewpoint location is situated at the intersection of Ti Rakau and Greenmount Drives. From this viewpoint location open uninterrupted views directly into the substation are afforded to the northeast. The foreground consists of a modified drainage pattern which is a tributary of the Pakuranga Creek, with a low level of weedy vegetation. To the right of the view a bus depot is visible, along with Ti Rakau Drive and associated traffic streetlights also within view.

185. The viewing audience from this location is significant due to its position on a busy main thoroughfare. The majority of the viewers from this location will be in motion, either travelling in a motor vehicle, or on foot.

186. The existing substation is very apparent in the midground of the view, and therefore in my opinion, the extended area, and greater height of the proposed substation will encroach further into this view. This effect is reinforced by the Isthmus photomontage showing the extent, bulk and height of the proposed AIS station. There is no background topography or vegetation and as such the towers are viewed entirely against the skyline.

187. In my opinion, due to the proximity of the viewer to the proposed new AIS structure, the increase in size and scale, and the increased clutter of vertical aerial elements, the proposal would cause a High Visual Change in this existing view (Exhibit 19). Although there is an existing substation, this does not mean that the change will be visually insignificant or expected. Also the proposed mitigation planting on the Isthmus plan does not entirely screen views of the proposal from this viewpoint, and in fact creates a channelling effect that draws the eye to the proposal.

Viewpoint 2

188. This viewpoint is located in an area of currently undeveloped terrain adjacent to Burswood Drive, and is at a very similar elevation as the substation. From this viewpoint location uninterrupted open views are afforded of the existing substation across a broad area of manicured grassland devoid of any other vegetation. A minor tributary of the Pakuranga creek is evident in the aerial photograph but due to the lack of riparian vegetation the view appears as a seamless expanse of grassland and the creek is not readily apparent. There is no background topography or vegetation and as such the towers are viewed entirely against the skyline.
189. The viewing audience from this location comprises local residents in the Burswood Drive area, users of Burswood Drive, and users of the reserve.
190. The residential area to the left of the view and the manicured grassy bund to the right of the view, serve to funnel the view towards the station.
191. The existing substation and associated towers form a significant component of the centre of the view. The wirescape dominates the skyline in the entire field of view. With reference to the plans provided by Transpower it is evident that the proposed substation will encroach a further 60m towards the viewing location and therefore the dominance of the substation in this location will be significantly increased.
192. On the Isthmus concept plan mitigation planting is proposed directly in front of this viewpoint on the edge of the Transpower property. In my opinion this mitigation will offer a level of screening over time and it is likely that longer term only the upper portion of the proposed structures and associated wirescape will remain visible.
193. Therefore I conclude that the proposed new AIS structure would cause a High Visual Change. (Exhibit 19)

Viewpoint 3

194. This viewpoint location is situated to the east of the substation location along Ti Rakau Drive. Relatively distant views towards the substation are afforded from this location in a northwest direction, and are intercepted by a large portion of Ti Rakau Drive in the foreground. The view encompasses an area of high-density multiplex dwellings to the centre-right of the view, with the existing sub-station visible at a relatively small scale on the skyline in the centre of view. The associated wirescape and pylons dominate the skyline to the left of the view.
195. In my opinion the existing substation forms a minor part of the overall view, however it is noted that the existing lineal planting elements to the fore of the substation do not obscure it from view.
196. Therefore in my opinion, the increase in scale from the proposed substation upgrade will not be noticeable from this viewpoint location as an intensification of structures on the skyline. There is no mitigation planting proposed however I would recommend that planting could be implemented consistent with my Exhibit 20 to provide planting closer to the viewing location which may achieve a scale sufficient to partially screen the proposed structures. It is noted however, that the upper portion of the proposed structures will remain visible.
197. In my opinion the proposed substation upgrade from this location will have a Moderate Visual Change on the existing view.

Viewpoint 4

198. This viewpoint is located on Huntington Drive, and looks across Ti Rakau Drive towards the eastern edge of the substation property. The viewing audience is anticipated to be high, comprising users of Ti Rakau and Huntington Drives (Exhibit 20).
199. The view encompasses the Ti Rakau Drive/Huntington intersection in the centre foreground, and an area of high-density residential dwellings are

visible to the left of the midground view. The existing substation forms a relatively large part of the central portion of the view, with the majority of the structures and associated tower elements visible. In addition, a high number of vertical street elements and street trees are prominent in the foreground. From this location, the existing station is viewed against a backdrop of existing vegetation, and only partial elements are viewed against the skyline.

200. In my opinion the proposed substation upgrade will cause an increase in the elements visible above the horizon line, which will not be viewed against the existing low vegetated backdrop. The topography is relatively level, and there is no intervening topography. The proposed mitigation planting takes the form of 'Kahikatea mixed revegetation at the edge of the terrace, with 'Kanuka mixed revegetation' further down into the stream gully. In my opinion, this planting will not afford screening of the entire form of the proposed substation upgrade, and elements will still be visible against the skyline.

201. Due to the above factors, I consider that there will be a Moderate Visual Change to the existing view.

Viewpoint 5

202. This viewpoint is located at the entry to the substation, adjacent to Golflands Drive, and shows the existing substation right of the centre view. The view encompasses an area of open space reserve in the foreground, with single storey residential dwellings to the centre left (Exhibit 21).

203. The views to the existing substation are partially screened by existing boundary planting with the Transpower property. The upper portion of the towers and substation vertical elements are visible against the skyline. There are clear views into the northern portion of the substation complex.

204. The upgrade will, result in the current extent of structures moving approximately 60m further away from this viewing location, and the upper portion of the proposed station will remain partially visible above the existing boundary planting .

205. In my opinion, the proposal will have a Moderate Visual Change from this location. There is no further mitigation planting proposed, and in my opinion it is unlikely that further planting will have any screening effect to mitigate the visual change.

Viewpoint 6

206. Viewpoint 6 is located on Amera Place, viewing north across Ti Rakau Drive. The Howick and Eastern Buses Ltd building is in the foreground left of the view. In addition, a large parking area for buses and workers cars is evident in the centre right of the midground view (Exhibit 21).

207. The viewpoint is located at a similar elevation to the substation site, and there is no intervening vegetation and topography, however the foreground view is dominated by the building and roading infrastructure. The towers and associated wirescape dominate the skyline.

208. Views are afforded of the entire existing substation. The proposed upgrade will occupy a greater part of the view, and will encroach further into the midground, across the area of open space in front of the existing station. Proposed mitigation planting is again focused throughout the stream gully system, and extends to the crest of the gully slope. It will, over time offer some mitigation of effects, but the upper portion of the station will remain visible against the skyline.

209. In my opinion, the proposal will have a High Visual Change in this location.

Visual Assessment Conclusion

210. In my opinion, an analysis of the viewpoints indicates that both the significant (High) change and noticeable (Moderate) change will be adverse in visual terms due to the larger area, higher superstructure, increased scale and intrinsic unnaturalness of the open air arrangement of the cluster of exposed structural and electrical elements of the AIS substation structure.

211. The overall visual effects of the large scale AIS substation will be more than minor, with the high visual effect views of the proposed facility being from the residential areas of: Burswood and Greenmount Drives; from Huntington Drive; from Golfland Drive in the vicinity of the proposed entrance widening to the substation.
212. Given the High Visual Effects that the larger scale AIS substation will have on the public space viewpoints described above, the adverse visual effects will also be more acute for private residences both facing and backing onto the Transpower substation property.
213. In my opinion, the only alternative to the highly visible outcome on the adjacent residential neighbourhood and recreational area, would be to house the substation within a GIS substation, and adjust the proposed access to better conform to the reserve area requirements.
214. My analysis of the viewpoint photos indicates that a GIS building is the more appropriate approach for the Pakuranga substation in this locality for visual effects reasons. Such a GIS building should be designed to reduce visual dominance through the appropriate design of building form, architectural detailing of walls and roof elements to 'break down' visual scale and through the appropriate selection of building claddings, external materials and colour.
215. In addition to the proposed AIS substation, there are adverse visual effects associated with the lines – and towers – from in and out of the substation. With Transpower considering options for the location to start undergrounding, there is an opportunity to further reduce visual effects by undergrounding up to a GIS building.
216. Substantially more planting should be added to the boundary areas to provide a suitable and more extensive vegetative context for the GIS building. In addition to the existing plantings proposed on the Isthmus planting plan, new plantings should be located along the southeast, eastern, and northern boundaries inside the Transpower property.

CONCLUSION

217. In my view, in relation to future settlement opportunities it is important to avoid foreclosing on planning and spatial design options that would be severely constrained by the presence of the 400 kv Transpower Grid Upgrade alignment.
218. Because of the time lapse between 2011 and 2033, I consider it more prudent that, if undergrounding is not a forthcoming option, the 220kV be constructed due purely to the significant reduction in landscape scale effects.
219. However, it is also extremely important to recognise that the best form of landscape mitigation in a project of this nature, is total avoidance; particularly across these the special landscapes of the southern peri-urban areas of Auckland. I therefore strongly support an undergrounding option throughout the Whitford, Brookby, Clevedon/Ardmore and Hunua communities.
220. In addition, in relation to the Pakuranga substation, due to the significant potential visual effect of the extension of an AIS substation option on the surrounding urban community, I recommend consideration be given to the conversion of this facility to a GIS option.

Dennis John Scott

Landscape Architect

March 2008