

BEFORE THE QUEENSTOWN LAKES DISTRICT COUNCIL

IN THE MATTER OF

the Resource Management Act 1991

AND

IN THE MATTER OF

of proposed Private Plan Change 51
to the Queenstown Lakes District
Plan

STATEMENT OF REBUTTAL EVIDENCE OF DR GARY BRAMLEY

Dated: 26 August 2016

GREENWOOD ROCHE
LAWYERS
CHRISTCHURCH
Solicitor: L J Semple
(Lauren@greenwoodroche.com)

Level 5
83 Victoria Street
P O Box 139
Christchurch
Phone: 03 353 0570

INTRODUCTION

- 1 My name is Gary Bramley. I am an ecologist and director of The Ecology Company. My qualifications and experience are set out in my statement of evidence dated 1 August 2016.
- 2 I have read the supplemental evidence of Dawn Palmer on behalf of the Queenstown Lakes District Council and wish to address matters raised in that supplemental evidence.

Historical Vegetation

- 3 Ms Palmer addressed the historical vegetation which she considered likely existed at the site (i.e. scrub, shrubland and tussock grassland) in paragraph 16 of her Statement of Evidence dated 19 July 2016. In paragraphs 21 - 39 of her supplemental evidence, Ms Palmer discusses this same issue in more detail.
- 4 I stated in my evidence dated 1 August 2016¹ that in my opinion, the vegetation which likely existed at the site historically comprised a mosaic of shrubland and forest with patches of tussock vegetation limited to the drier or higher sites. Ms Palmer and I effectively reach the same conclusion however it appears that what I consider forest, she has referred to as 'scrub'. In my view, it is more appropriate to call the vegetation that was likely present at the plan change site 'forest' because the diameter of most of the trees would have exceeded 10 cm (making them trees rather than shrubs) and since the proportion of shrub and tree cover in the canopy would have exceeded 80%, it would technically have been forest rather than scrub (canopy dominated by shrubs with diameters less than 10 cm) or shrubland (canopy cover 20 – 80% shrubs).
- 5 It is clear, from paragraph 25 of her supplemental evidence, that Ms Palmer has focussed on paragraph 22(d) of my Statement of Evidence dated 1 August 2016 where I discuss forest in the area. Her focus on that paragraph of my evidence results in her being of the mistaken opinion that I consider that beech forest (i.e. forest dominated by beech species) would have been present at the plan change site, and that the proposed planting intends to re-create this (see paragraphs

¹ At paragraph 21

25, 52, 54, 57, 76 and 79 of Ms Palmer's supplemental evidence which all contain references to creating beech forest on this site). Ms Palmer describes this as the "primary crux of the difference in opinion between (us)"².

- 6 To be very clear, I have not stated that beech forest (i.e. forest dominated by beech species) was historically present at the site and have never intended or stated that beech forest will be created there as a result of the proposed plantings. I refer to paragraphs 21 and 22 (and particularly paragraph 22(e)) of my evidence dated 1 August 2016 where I describe a mosaic of vegetation which is similar to that described by Ms Palmer. I consider it likely that both mountain and silver beech were minor components of the dry forest/shrubland occurring in the wider area, dependent on local conditions, but that the forest/shrubland at the plan change site was dominated by species adapted to drier sites such as kanuka and kowhai as I have discussed in paragraph 22 of my evidence dated 1 August 2016.
- 7 The proposed planting is intended to create a shrubland dominated by kanuka, but with more diversity than occurs there currently as described in my original report (p 14). In particular, I have proposed including species that provide seasonal food for birds (to assist in seed dispersal in the wider area) and species that are not bird or wind dispersed (including beech)³. I have proposed beech as a minor component of the plantings because I believe there are some microsites (primarily damper and more sheltered sites at the southern end of the site) where beech, particularly mountain beech, would be suitable. I understand that Ms Palmer confirmed in response to questions from the Commissioners at the hearing that she does not have any issue with the use of beech trees as a minor component of the landscape planting.
- 8 I have discussed, in paragraph 17(b) of my evidence dated 1 August 2016, that a possible source of Ms Palmer's concerns (and her misunderstanding in relation to the proposed use of beech) is that the Landscape Concept Plan does not include the proportions of each species proposed to be used and Ms Palmer has assumed (incorrectly) that kanuka would be a minor component. A high proportion of

² Supplemental Evidence of Dawn Palmer at paragraph 55

³ Paragraph 53(b)

kanuka is in fact likely because it is a species likely to establish well at the site and because it is not particularly palatable to rabbits. Ms Palmer has suggested in her supplemental evidence at paragraph 78 that shrubland plantings should comprise 80 to 90% kanuka. My intention was to use 75 – 85% kanuka in the new shrubland plantings so as to allow for extra diversity to be added. Within existing kanuka stands, the amount of kanuka to be planted would necessarily be less.

- 9 Ms Palmer and I are agreed that the existing vegetation is significant at the local scale according to the criteria in the operative District Plan. Now that Ms Palmer's misunderstanding in relation to the use of beech in enhancement planting has been made clear within her supplemental evidence, it appears to me that the difference in opinion between us in relation to historical vegetation (and the relevance of this to the planting proposed) has been overstated.

Sustainability of the Tussock Grassland, Absent the Plan Change

- 10 Ms Palmer describes, at paragraphs 32 and 33 of her supplemental evidence, exactly the process I expect to happen at the site in the absence of the plan change proposal and in the absence of rabbits. However, there are two factors which I believe would affect the outcome of the vegetation trajectory over time. They are the presence of wilding plants (as noted by Ms Palmer) and the competing uses of the land which have the potential to degrade vegetation (particularly cycling). The presence of rabbits is also a key factor as Ms Palmer acknowledged in her answers to questions from the Commissioners. Without ongoing effective management, the trajectory described by Ms Palmer is unlikely to occur and ongoing degradation of the tussocks due to browsing and invasion of wildings will continue. The open area north of Lots 11 and 12, where vegetation is dominated by hawkweeds and there is a high proportion of bare soil, is the most likely outcome at some of the tussock areas, whilst at others, the existing browntop and other exotic grasses are likely to come to dominate in the medium term, with conifers taking over in the longer term.
- 11 Again, Ms Palmer asserts in paragraph 40 of her supplemental evidence that I am suggesting the existing community be replaced with beech forest. That is incorrect. The Landscape Concept Plan

provides for 7,480m² of tussock grassland and 17,315m² of shrubland/forest, which as I have already described, I expect to be dominated by kanuka. Nowhere does the plan provide for beech forest. Section 4.1 of my 2015 report includes a suggested list of species to be included “where appropriate microsites can be found to suit their growth habits” (p 14). Ms Palmer seems to have assumed the whole area will be planted with beech, when in fact the places suited to beech trees are naturally limited.

Costs of Maintenance

- 12 In paragraphs 41 – 69 of her supplementary evidence, Ms Palmer addresses costs of maintenance (presumably of existing vegetation) and the ‘costs of replacing the existing community with a larger, different community’.
- 13 As I stated in my report and my evidence dated 1 August 2016⁴, there are multiple threats which reduce the potential viability of such a small area of grassland without considerable management input. These include the small size, isolation, the presence of exotic plant species, the presence of exotic animal species and regular disturbance. The costs of carrying out such management would be significant and the examples of costs of planting and maintenance which Ms Palmer gives in her evidence support this. In this case, the management would likely be required in perpetuity. The cost burden of carrying out such management would likely fall on the Queenstown Lakes District Council.
- 14 Ms Palmer refers to the costs of other planting projects to support her view that “it is easier to protect, enhance and maintain the existing vegetation than re-create or replace it”⁵. She states that in her view, the best management of the site is ‘protection, release from infestations of conifer and rabbits and enhanced with supplementary planting to support the existing diversity or to plant additional seral shrubland species to support the kanuka shrubland’⁶. These actions are proposed in the plan change.

⁴ At paragraph 69

⁵ Supplemental Evidence of Dawn Palmer at paragraph 51

⁶ Supplemental Evidence of Dawn Palmer at paragraph 52

- 15 Ms Galavazi states in her evidence that 'the area would likely be classified under QLDC's Levels of Service programme as M6 – which is weed and fire suppression with no or minimal mowing requirements. Any mowing would be for fire suppression only (once per year) although this method may not be compatible with protection of ecological values'⁷.
- 16 If this level of service were adopted, I expect that there would be no rabbit control, no weed removal, no additional plantings. Given this and the effects of recreational use on the tussock grassland, it is likely that ecological values would continue to decline.
- 17 Ms Palmer has not estimated the costs of the status quo, which is a relevant consideration. I note that there is currently no proposal for ecological restoration at the site, no management plan to guide that restoration and no budget to implement it, nor is there a demonstrated appetite from the Queenstown Lakes District Council or the community for ecological restoration there. It is clear from Ms Palmer's evidence that for any ecological gains to occur, there needs to be the status quo plus improved custodial management.
- 18 It is my firm view that the status quo will lead to a decline in ecological value, while the plan change will result in an increased area of indigenous vegetation and will have a positive effect on the terrestrial ecology of the site and reflect the pre-human vegetation of the site, as well as the natural successional outcome which I expect will occur there. The ecological functioning, diversity and resilience of the site will be improved, as will the local connection between patches of shrubland/forest habitat.
- 19 In paragraph 57 of her supplemental evidence, Ms Palmer states that I consider that trying to reinstate grassland and kanuka at the site would be very difficult. That is not correct. My experience of revegetation is that all sites bring particular challenges, but that provided those challenges are effectively addressed prior to commencing the planting and maintained throughout, as is proposed with the plan change, revegetation itself is not difficult. For those plants which are not commercially available, transplantation or small

⁷ Supplementary Report of Jeannie Galavazi dated 9 August 2016, page 2

scale propagation (of cuttings, divisions or seeds depending on the species) is a realistic way of achieving their survival.

- 20 In paragraph 77 of her supplemental evidence, Ms Palmer accepts there is a gain in the vegetated areas at the site under the proposed plan change. The substantial areas of new planting proposed at the north of the site (between proposed Lots 4 – 12 and the lake) do not replace native communities, they are replacing exotic grassland (comprising primarily browntop (*Agrostis capillaris*) and sweet vernal (*Anthoxanthum odoratum*)). It is, in fact, replacement of an exotic community with a more natural one, which must have ecological benefits, given the dearth of native species there currently. There is no real loss of natural values in Lots 1-12 and the proposed plantings in that area are all of benefit.
- 21 The plantings within the wider area of the proposed Lots 13, 14 and 20 – 24) would be supplemental in nature and intended to augment the immediately adjoining communities. This is the area where the loss of particularly tussock grassland vegetation occurs (mostly within proposed Lots 13, 20, 21 and 22 and to a lesser extent within proposed Lots 17 – 19).
- 22 It is important to note that throughout the site, the quality of the tussock grassland vegetation varies substantially. For example, near proposed Lot 22 the felled wilding pine trees which have been left *in situ* have damaged the grassland and killed underlying plants and in proposed Lots 13 – 16, typical tussock grassland species are very sparse.
- 23 I consider that the best quality example of the tussock grassland is located north east of Lot 21 (outside the area affected by the proposal), but as you move south west (towards proposed Lot 21) the quality decreases and the proportion of bare soil and weeds increases. There is some relatively good quality grassland in the area encompassed by proposed Lot 20 (some of which would be removed by the proposal) and also in the area affected by the proposed cul de sac north of Lots 17 and 18. There is also an area of very low quality north of Lots 11 and 12 (again outside the affected area) which is mostly bare soil and hawkweeds and removal of rabbits is unlikely to improve that situation in the short – medium term without additional

management. My point in relation to quality is that if protection and enhancement of the existing vegetation throughout the public area was proposed, there are substantial areas which would effectively require starting from scratch in terms of planting.

- 24 In Paragraph 50 of her supplemental evidence, Ms Palmer describes transplantation as requiring particular attention. The success of tussock transplantation depends on several factors. At the plan change site, it will primarily depend on pest control and irrigation but weed control will also be important. My most recent experience with tussock transplanting was at Stockton Mine, and particularly the Cypress mining area where 12 ha of red tussock has been transplanted to an intermediate tussock storage pad for later use in rehabilitation. Pest control combined with attention to creating site drainage on the storage pad which resembles the natural site drainage has resulted in a very good outcome in that case. The examples Ms. Palmer has provided where transplanting of tussock communities has not worked are not good examples of the likely outcome at the plan change site since they were limited to only two of the species within the community, and as she acknowledges, they have failed in large part due to rabbits. Furthermore they were not irrigated nor was any weed control applied. Rabbit control, irrigation and weed control over a prolonged period of time (five years) are all proposed as part of this plan change

Estimates – Vegetation Clearance

- 25 I visited the site and had the vegetation to be removed (including for fence and track clearance), and the enhancement areas surveyed. The results of that work were included in my Table 1 which I presented at the hearing.
- 26 The reserve fenceline would be constructed as part of the subdivision and therefore established before private ownership so that the construction and clearance can be controlled. In terms of paragraph 74 of Ms Palmer's supplementary evidence, the fencing within the kanuka and tussock areas is approximately the same as the original proposal, and has not increased. A 2 metre wide clearance for fencing is unnecessary. A clearance of 0.5 metre is more than sufficient and combined with selective branch trimming, the actual kanuka loss is

likely to be less than estimated. This fence is a combination of waratahs and posts, most of which can be threaded through the kanuka. The spacing of the mature kanuka is quite wide (3 – 4 metres), therefore the fence will be under the canopy. As a result, I expect that with branch trimming the fenceline will minimise kanuka removal. These measures are reflected in my calculations in Table 1.

Ms Palmer's Summary and Final Points of Clarification

- 27 Ms Palmer accepts, in paragraph 77 of her supplementary evidence, that there is a net gain in the revegetated areas versus areas to be cleared, but she considers that the net gain is not a replacement of like for like. That was true of the original proposal, since I proposed a higher proportion of shrubland than grassland, but with the recent amendments and the inclusion of more grassland plantings intended to replace grassland removed, I consider that the proposal is like for like, although I note that the shrubland plantings include a higher diversity of species than occurs currently. On that basis, it could be considered better than like for like. Ms Palmer may have reached the conclusion it was not like for like because beech forest is unlike kanuka forest/shrubland, but as I discuss above, vegetation dominated by kanuka is the intended outcome.
- 28 In paragraph 78 of her supplemental evidence, Ms Palmer suggests grassland plantings should be dominated by hard tussock (*Festuca novae-zelandiae*) and blue tussock (*Poa colensoi*). I agree and note that both species are included in the Landscape Concept Plan. Since both these species are readily available commercially, that outcome is likely to be easily achievable.
- 29 Ms Palmer has provided a revised Table 1 (after paragraph 86 in her supplemental evidence) which includes species recommended for inclusion in the revegetation. Her table includes mountain beech. Unfortunately the annotations are not explained except to note that "risky" means that species would be difficult to establish. I presume that (F) is a carryover from Table 1 of her evidence in chief and refers to Fogarty's flammability assessment, but the significance of "W" or "sparse" is not explained, nor is the shading of cells in the table. Ms Palmer does not include proportions of species she considers

appropriate, presumably because she considers, as I do, that such detail is best left to a specific planting plan

- 30 I note that the species of conservation concern present at the site (cushion pimelea (*Pimelea sericeovillosa* subsp. *pulvinaris*), prostrate bluegrass (*Connorochloa tenuis*) and Beauverd's scabweed (*Raoulia beauverdii*) and the possibly present *Coprosma brunnea* have not been included within Ms Palmer's revised Table 1. Notwithstanding their lack of commercial availability, I consider that they should be included in the species list in the Landscape Concept Plan, if only to ensure that the options with respect to maximising the useful ecological value of any individuals removed is considered and provided for.
- 31 I remain of the view that the detailed proportions of the species to be used should be dealt with in the planting plan which will be submitted to Council for approval at the time of subdivision consent application. This plan would include details such as proportion of species, specific location of particular species, density of planting, specifics of after care and maintenance and the like. A degree of certainty around those matters may address many of Ms Palmer's concerns and such certainty would come from the details provided in the plan.
- 32 To summarise, I remain of the view that the proposal to establish shrubland dominated by kanuka, but with a more diverse range of species than currently occurs at the site, is an appropriate outcome. Ms Palmer also reaches this conclusion in paragraphs 53 and 82 of her supplementary evidence. I agree with Ms Palmer at paragraph 85 of her supplementary evidence that there is ecological benefit in enhancing the diversity of the kanuka and tussock grassland. That is what I have recommended.
- 33 I have already noted and recommended correction of the following minor errors in the Landscape Concept Plan:
- (a) Inclusion of the species of conservation concern known to be present at the site (Beauverd's scabweed).
 - (b) Correction of the spelling of *Coprosma intertexta* in the list of species for 'Revegetation Sections S'.

- 34 I also recommend the following further amendments to the Landscape Concept Plan to address some of the matters raised by Ms Palmer:
- (a) Inclusion of *Coprosma brunnea* to the species list for grassland plantings.
 - (b) Removal of *Fuscospora fusca* (red beech) from the list for sheltered sites.
 - (c) Inclusion of provision for transplantation of tussock grassland community from lots where it is to be removed to the grassland planting areas and supplementary planting within those communities.
 - (d) Removal of *Chionochloa macra* from the list for grassland revegetation.
 - (e) Replacement of *Hoheria glabrata* with *H. lyallii*.
 - (f) Replacement of *Olearia avicennifolia* with *O. nummulariifolia* and *Olearia odorata*.
- 35 These amendments to the Landscape Concept Plan should be carried through to the Structure Plan.

Dr Gary Bramley

26 August 2016