

BEFORE THE QUEENSTOWN LAKES DISTRICT COUNCIL HEARINGS PANEL

UNDER

the Resource Management Act 1991

IN THE MATTER

of the review of parts of the Queenstown Lakes District Council's District Plan under the First Schedule of the Act

AND

IN THE MATTER

of submissions and further submissions by
REMARKABLES PARK LIMITED AND
QUEENSTOWN PARK LIMITED

**STATEMENT OF EVIDENCE OF ALISON MARY DEWES ON BEHALF OF
REMARKABLES PARK LIMITED AND QUEENSTOWN PARK LIMITED**

(FARM SYSTEMS AND ECOLOGY)

STREAM 13 REZONING HEARINGS

9 June 2017

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1. QUALIFICATIONS AND EXPERIENCE

- 1.1 My name is Alison Mary Dewes. I am a director of Tipu Whenua covering One World One Health issues at governance, policy and farm level advising on land use strategy, farm systems, business health and agro - ecological improvement to corporate, owner operators and Maori trusts. I am on the New Zealand Veterinary Board and am on the National Environmental Reference Group for Landcorp which is reviewing how to diversify their income and farming systems across their entire portfolio.
- 1.2 I was a finalist for the NZI sustainability champion in 2014, received a commendation for community impact for my work with farmers, and a finalist in the 2015 Women of Influence Awards in Public Policy.
- 1.3 I am familiar with the analysis and strategy planning for farms using system modelling and an experienced and qualified user of Overseer¹. Tipu whenua advises on whole farm planning services for agriculture in sensitive catchments.
- 1.4 I have been a registered veterinarian for 29 years. I hold a BVSc from Massey University (1987). I hold a Masters in Biological Science (Ecology) from Waikato University (2015). I am also a certified adult trainer (Melb Uni).
- 1.5 My higher education in the past decade has included the following courses: A) Intermediate Nutrient Management (Massey 2009); B) Advanced Nutrient Management Course (Massey 2009); C) Farm Dairy Effluent System Design and Management (Massey 2012); E) Business Lending Fundamentals: Developing Client Relationships and Negotiate Client Solutions: Tier 111 registration for Agribusiness, Commonwealth Bank of Australia 2007; F) In Calf Training, Certified 2006; G) Certified Adult Trainer, Melbourne 2004; H) Dairy Leadership Course Melbourne 2004; I) Advanced Dairy Nutrition, Australia 1999; J) Dairy Nutrition Course, Lean, Massey 1990; K) Soils and Pastures Course, Massey 1993; L) Milking Machine Testers Course, Flockhouse, 1992.
- 1.6 I was Director of Hamilton Analytical Laboratories (Consultants in Animal Nutrition and Applied Science) 1990-1997.

¹ Overseer is a nutrient budgeting tool used by 60% of NZ regional councils to assess risk of nutrient loss from farms, in an effort to manage water quality. It is a model that assess the farm system for risk of nitrogen and phosphorus loss to the receiving environment. Otago Regional Plan allows farming to continue if it is under 30 kg N leached per hectare per year.

- 1.7 I am a fifth-generation farmer and have over 25 years farming experience in New Zealand and Australia, on both irrigated intensive, and extensive dryland systems.
- 1.8 In the period from 1997 to 2001, I held a position in Milk Procurement, for Nestle, in Warrnambool, Western Victoria, Australia. I was involved in the development of the “on farm quality assurance programme” for Nestle Australia.
- 1.9 Business Development Manager for Intelact Agribusiness Consultancy in Australia. Businesses were faced with major constraints on their surface and ground water allocations meaning reconfiguration of farming systems to adapt within tighter resource limits and climate volatility.
- 1.10 2006-2008: Agribusiness Lender for the Commonwealth Bank of Australia and involved in the appraisal and risk assessment of new farm businesses.
- 1.11 In 2009, I undertook the Upper Waikato Nutrient Efficiency Study and analysed more than 380 farm system overseer files for eco efficiencies for MPI 2010. From 2010-2013: I was Sustainable Land Use Advisor to Raukawa Charitable Trust in the Upper Waikato
- 1.12 From 2011 to 2017, I have been expert witness on agricultural ecological and health matters for Horizons One Plan, Proposed Canterbury Land and Water Plan (2013), Tukituki River Catchment Plan Change 6 (2013), Variation 1(Selwyn - Waihora), Variation 2 (Hinds Hekeo Plains), Variation 5 for CLWP, Fonterra Studholme Consent Application, South Waikato District Plan Change and Havelock North Drinking Water Inquiry.
- 1.13 I am a professional member and sustainability spokesperson for the NZ Veterinary Association on One World One Health and Sustainability Issues. I am a member of NZFWSS & NZVA.

2. CODE OF CONDUCT

- 2.1 I have read and am familiar with the Code of Conduct for Expert Witnesses in the current Environment Court Practice Note (2014), have complied with it, and will follow the Code when presenting evidence to the Council. I also confirm that the matters addressed in this statement of evidence are within my area of expertise, except when

relying on the opinion or evidence of other witnesses. I have not omitted to consider material facts known to me that might alter or detract from the opinions expressed.

3. EXECUTIVE SUMMARY

- 3.1 New Zealand's pastoral farming sector is facing a myriad of challenges threatening "business as usual." Challenges include declining and volatile profits, lack of diversification, loss of social licence, disruptive technologies and environmental limits.
- 3.2 In my opinion to be limited to only a traditional rural use (predominately farming and other agricultural uses) in a way that inhibits system reconfiguration, economic resilience and diversification is an unsound use of such a valuable and sensitive land asset.
- 3.3 Ecological impacts resulting from pressure on pastoral land to intensify use includes pathogen, nutrient and sediment runoff, degradation of soils, and heavier demands on limited water resources leading to declining ecosystem health.
- 3.4 Should Queenstown Park (**QPL**) be limited in its ability to generate alternative revenue streams, it would be forced to intensify its farming system resulting in greater ecological damage.

4. BACKGROUND

- 4.1 QPL is comprised of approximately 2000 ha, of which, 1800 ha is on the south side of the Remarkables. There is 200 ha on the western face, which is not the subject of the proposed Queenstown Park Special Zone (**QPSZ**). The property is dominated by high country tussock lands that traverse to more sensitive and fragile alpine environments. The upper and main body of the park is dominated by rolling to steep slopes, with shallow slightly stony loam that have rapid permeability, while the 194 ha of lower hill, terraces flats are typically more gently undulating and are predominately a Tarras soil, which is a moderately deep silt loam, which is slightly stony and moderately permeable in nature.



Figure 1: Contour on upper terraces



Figure 2: Lower terraces adjacent to Kawerau River.



Figure 3: Mixed Age Hinds with lower hills in background.

4.2 Annual rainfall is around 745 mm on average.

5. FARMING ACTIVITY

- 5.1 Around 44 ha of the lower flats may be irrigated in time, with low rate application, efficient water use technology and precision fertilising and well-suited forage species (i.e: Lucerne).
- 5.2 It is important to note that there is a further 70 Ha that is potentially irrigable and able to be cropped within and adjacent to proposed development areas. If the higher terraces are included this area increases to 114 hectares. Conceivably, without diversification of activities intensification of farming activity would need to occur. In an effort to maintain viability and enable intensification, this area could be irrigated and cropped. This would lead to a significant additional and detrimental load of sediment, pathogens, phosphorus and nitrogen losses to the Kawarau River. However, with a more flexible zoning such as the QPSZ, this would not be necessary. In my opinion, the QPSZ would be a better use of these areas.
- 5.3 The NZ Red Meat sector is facing a myriad of challenges to business as usual, not the least being volatile prices and uncertain trading terms. The Beef and Lamb Economic report² notes that Farm Profit before Tax for the “All Classes Sheep and Beef Farm” for 2016–17 is forecast at \$67,000 per farm, down 13 per cent on the previous year. Real (i.e. inflation adjusted) Farm Profit before Tax is down 14 per cent on 2015–16 to \$52,300 per farm, the lowest since 2010-11.
- 5.4 In addition to this, NZ pastoral farming systems are also facing challenges that are both cumulative and rapid in onset. Some were predictable, others less so.
- 5.5 The future viability and resilience of the pastoral sector as we know it is challenged, due to a “rapidly changing world of food production”:
- (a) Minimal and declining profitability with increasing land costs and land values as competition for other uses compete with the sector;
 - (b) Disruptive technologies such as “meat free” burgers, “cow free” milk and “hen free” eggs, replacing the traditional commodities with the use of alternatives such as plant proteins, and culture of stem cells;

² BLNZ-New-Season-Outlook-2016-17.pdf

- (c) The advent of vertical farming systems offering new ways to produce food in urban environments;
 - (d) Ecological limits are tightening for the pastoral sector. Increased awareness of degrading waterways, over allocation of water, soil loss, erosion, and pathogen enrichment of recreational and drinking water supplies have sensitised the public and resulted in tighter limits being imposed on farming;
 - (e) The challenges of maintaining a social licence to operate (SLO³); and
 - (f) Traditional farming methods of farming are now being challenged as a result of increased awareness of ecological limits, food production footprints and associated resource use and spill over effects impact on an increasingly urban population.
- 5.6 To be limited to only a traditional rural use (zone; predominately farming and other agricultural uses) in a way that inhibits system reconfiguration economic resilience and future diversification is an unsound use of such a valuable and sensitive land asset in my opinion.
- 5.7 Examples of ecological impacts of pastoral agriculture include:
- (a) Effluent/pathogen runoff from the land, which contributes to the contamination of waterbodies (both surface and ground);
 - (b) Erosion and soil loss from the land leading to increased sediment loads to surface waterbodies;
 - (c) Loss of aquatic ecosystems, though loss of wetland habitats and riparian vegetation;
 - (d) Erosion of stream banks, leading to stream bank instability;

³ Social licence to operate within the context of corporate responsibility, competitive advantage and growth is an emerging paradigm for agriculture. Once camouflaged by terms such as sustainable development and sustainability, SLO is now the language of choice by industry and stakeholders and represents a set of concepts, values and tools and practices that represent a way of viewing reality for industry and stakeholders. SLO is a means to earn accountability, credibility, flexibility and capacity for both stakeholders and industry, as to what is acceptable and what is not.

- (e) Phosphate loss (effluent run off, soil loss and connectivity points);
 - (f) Nitrate loss through the land and via run off (i.e. affecting both surface and ground water quality); and
 - (g) Abstraction of water for irrigation, shed wash down, and stock drinking water also has adverse environmental effects.
- 5.8 Externalities contribute to declining aquatic ecosystem health (water quality and habitat) and issues of public health. Coliforms, campylobacter, cyanobacteria, and salmonella are among the potential pathogens. The increase pathogenic loads to surface and ground waters from agricultural land uses result in high rates of zoonotic and enteric disease and loss of public amenity.⁴
- ## 6. IMPLICATIONS OF INTENSIFICATION OF FARMING ON TERRACE LAND
- 6.1 As already noted, In an effort to try to remain viable as a livestock farming enterprise-QPL would need to intensify farming operation. This would result in increased stock numbers, 260 % more irrigation than is proposed, (of 114 ha vs 44 proposed – see paragraphs 5.1 and 5.2 above), an increased use of supplementary feeds, increased cropping and increased fertiliser use to support the higher stock numbers.
 - 6.2 The expansion of the irrigation area would lead to increased nitrogen, phosphorus, pathogen and sediment losses to the receiving water bodies, and abstraction of water from the sub catchment resulting in potentially significant and cumulative adverse effects to the Kawerau River and local environment.
 - 6.3 In my view, constraining land use in a manner that disallows alternative income streams to support a lower footprint agricultural system, is short sighted, and will result in continued and cumulative degradation of highly valued water bodies.
 - 6.4 More stock would result in increased pressure on the hill country, which traditionally has run high summer stocking rates, including cattle. This would need to occur again,

⁴ **Mc Bride, et al.** (2011). Campylobacter in Food and the Environment: Examining the link with public health. MAF; and
Larned, S. S. (2004). Water Quality in low elevation streams and rivers in NZ, recent state and trends in contrasting land cover classes. Journal of Marine and Freshwater Research, Vol 38 pp 347 -366.

in an effort to gain any sort of viability. This would be likely to result in cumulative negative effects on the identified SNA areas.

- 6.5 Under the QPSZ, cattle grazing will be excluded from the SNAs, and there will only be light grazing by sheep and deer at < 1 SU/ha equivalent annually with stock policy being managed in accordance with seasonal patterns and as appropriate to assist with weed management. Light grazing is an efficient means of managing weeds.
- 6.6 In between the SNA and above 600 m, the maximum sticking policy will average less than 3 stock units per hectare (calculating over a full year). Grazing management will be in line with best management practice over the seasonal fluctuations.
- 6.7 A lower stocking rate, with smaller animals will ensure less pressure on the SNAs while providing for a degree of weed control under browsing.
- 6.8 Intensification of this landscape in an attempt to increase productive output for farming purposes only, in an effort to remain viable would have detrimental and wider negative effects on the environment, such as overgrazing, soil compaction and loss of topsoil, sediment, pathogens and nutrients to receiving waterways, resultant from more fertiliser use, more fodder cropping, increased irrigation and heavier stocking policies.
- 6.9 The property is bounded by farmland near to Queenstown to the western border, by a ski field and DOC land to the south, by the Kawerau River which is a major tourist attraction for recreational activities on its northern border, and by wineries, bungy, cycle tracks and horticultural activities to the east.
- 6.10 Being constrained to farming only activities in this location and landscape is a poor use of the lands assets and unique values and is more appropriately positioned, particularly given its unique Queenstown location, to realise the combined opportunities for wilderness tourism, limited horticultural, education, recreation and agricultural underpinned by sound agro ecological practices, to manage different areas, that will protect and enhance sensitive receiving environments.

7. GOOD WORK BEING DONE

- 7.1 The current owners of this farm are already taking a significant pathway to reducing environmental effects.

- 7.2 The stock policy on the SNAs is significantly less than in the past. While there is no fencing around the SNAs at this stage, it is proposed that the stocking policy for this area will exclude cattle, only be very light, and significantly less than previous owners stocking rates.
- 7.3 This change in stocking policy over time, is trending in the right direction if SNAs are to be preserved resulting in replenishment of ecosystems in a way that is opposite to the historical patterns and effects of intensification which have served to diminish ecosystems in the past.
- 7.4 Reduced soil damage, erosion from overgrazing, nutrient and sediment runoff, and climate emissions are all-important results.
- 7.5 All areas where QP cattle will be grazed will be fenced from the Kawarau River. This is a significant investment.
- 7.6 Riparian areas that are under crown ownership (LINZ) currently lack weed and noxious plant management and together with more distant areas represent an ongoing source of weeds and wilding pines that will keep reseeding the farm (see Figures 4 and 5 below).
- 7.7 Weeds include a mix of wing and scots thistle gorse, broom, buddleja, hawthorn, willows, wilding pines and rosehip. Weed control to date includes wildling pine removal of buddleia dieback from likely weed infestation, old man's beard removal and extensive removal of wing and scots thistle infestation on the lower terraces.
- 7.8 In the absence of a riparian margin weed control it is unreasonable to expect the property owners to invest substantially to manage weeds that will keep reseeding from the publicly owned land.
- 7.9 This is not being managed to any degree, apart from gorse spraying and wilding pine.



Figure 4: Significant weed invasion in riparian zones.



Figure 5: Gorse in DOC riparian zone.

- 7.10 Wilding pines are being managed in collaboration with a NGO.
- 7.11 Light grazing by stock also helps keep many weeds under control at certain times of year, especially that of broom and to a degree, hawthorn.
- 7.12 Without stock grazing lightly over the upper hill areas, there would be more of a problem, and increased requirement for chemical use. As noted, weeds invade from adjacent areas, such as the riparian zone, and neighbouring land.

- 7.13 The property has a number of SNAs on the upper area of 1600 ha, notable for areas of grey shrubbery. These areas will be managed in a sensitive manner, with a significantly reduced stocking rate, no cattle will graze this area, and there will only be light grazing by sheep and some deer at suitable times of year, with a stocking rate of less than 1.5 SU per hectare. Buddleja (Figure 5) is already widespread in the area and SNAs, amongst the matagouri, but is succumbing to the leaf weevil introduced for biological control, so this will be self-limiting.



Figure 6: Buddleja and biological control.

With the proposal and opportunity sought to diversify the farm income sources outside rural use, to that of tourism and rural residential, both the long-term preservation and resilience of the asset will be better preserved by the reduction in farming activity.

- 7.14 Given the ecological pressures faced by current systems (e.g food production) in the face of climate change, resource overallocation, pollution effects and population growth, it is essential that the public gain improved understanding and awareness on how to tread more lightly and protect and enhance the environment. This could be facilitated by public engagement and education provided by QPL if they gain their rural visitor zoning.
- 7.15 An environmental museum and research facility would be an opportunity to bring cutting edge independent agro - ecological, social and cultural sciences to the local

community, enhancing both scientific integrity, public engagement with associated knock on benefits to the economy and the environment.

- 7.16 Improved public awareness and improved environmental wellbeing is not readily quantified by metrics such as GDP, but are of significant importance to NZ as a whole, where science has become increasingly commercialised and dislocated from that of the “public good”. It would be desirable for this type of property to be providing, if not, showcasing a better understanding of the interdependence of the environment, biodiversity and agriculture. No better place to do this than Queenstown.

8. CONCLUSION

- 8.1 In my opinion, constraining land use versatility on this property may result in wider and adverse effects. If income and diversification opportunities are limited to farming only, it is likely that farming will be forced into more intensive systems resulting in increased contaminant (nutrients, sediment, pathogens) spill over to the receiving environment.

A M Dewes

9 June 2017