

BEFORE THE CANTERBURY REGIONAL COUNCIL

IN THE MATTER OF the Resource Management Act 1991

A N D

IN THE MATTER OF Water permit applications by Lone Star Farms Limited

**STATEMENT OF EVIDENCE OF DR MICHAEL LAWRENCE STEVEN (LANDSCAPE
PLANNER) FOR LONE STAR FARMS LIMITED (GODLEY PEAK STATION)
DATED 20 NOVEMBER 2009**

INTRODUCTION

- 1 My name is Michael Lawrence Steven. I am a practicing landscape architect and landscape planner employed by Vivian and Espie Ltd, a specialist resource management and landscape planning consultancy based in Queenstown.

Qualifications and experience

- 2 I hold a Doctor of Philosophy in Architecture (Environment-Behaviour Studies) from the Faculty of Architecture, University of Sydney (Australia), a Master of Landscape Architecture by research from the Faculty of the Built Environment, UNSW (Sydney, Australia), a postgraduate Diploma in Landscape Architecture from Lincoln College (University of Canterbury), and a Diploma in Horticulture (Distinction) from Lincoln College. I am an Associate of the New Zealand Institute of Landscape Architects. I am a member of the International Association for Society and Resource Management (IASRM), and the Environmental Design Research Association (EDRA) and I have presented peer reviewed papers and a poster at international conferences of both organizations. My particular area of expertise is environment-behaviour studies, particularly landscape perception, and human factors in landscape design, planning and management. My research has investigated the dimensions of environmental experience, in particular 'environmental knowing', or the way in which we make sense of the physical environment through our responses to the stimuli we perceive in the environment.
- 3 Prior to December 2004 I was employed as an academic by the University of Western Sydney, Australia, where I taught in the field of landscape studies and landscape management for 12 years. I have some 25 years of experience in the landscape architecture profession, both in New Zealand and Australia. My professional practice experience includes a period spent with the (then) Ministry of Works and Development in the Auckland office, and in the Christchurch and Hamilton offices of the (then) Department of Lands and Survey. A large part of my professional career has focused upon landscape assessment theory and practice. For the past 3 years my work with MWH and Vivian and Espie has involved landscapes assessments and the preparation of expert evidence on landscape issues for a wide range of sites around New Zealand.

AMBIT OF EVIDENCE

- 4 My evidence addresses the assessment of landscape and visual effects associated with the proposed spray irrigation by means of centre pivot irrigators

and hard hose gun irrigators, of some 569 ha of existing, intensively farmed¹ agricultural land on Godley Peaks Station, Lake Tekapo. I consider the likely effects on landscape character, natural character and landscape significance of the applicant's property as an outcome of the proposed irrigation.

5 I also consider the landscape and visual effects associated with the proposal to take water from the Mistake River.

6 This evidence addresses site specific issues and effects on behalf of Godley Peaks Station and complements the general evidence given on the broader issue of landscape and visual effects as it relates to all properties on behalf of which I am giving evidence.

THE IRRIGATION PROPOSAL

7 An indicative irrigation layout for Godley Peaks Station is presented in the irrigation layout plan included as Figure 1. The layout plan shows a combination of pivot irrigators and hard hose gun irrigators covering an area of some 567 ha. Of this total area, 228 ha is proposed to be irrigated by solid hose gun irrigators, while 339 ha is to be irrigated by 4 centre pivot irrigators. My assessment of landscape effects is predicated on the layout shown in Figure 1, or a similar layout. The technical details of the layout are described in the evidence of other experts.

8 The assessment of effects that follows does not assume any particular production regime as a consequence of irrigation. Particular production regimes are a response to a wide range of factors as discussed in my general evidence. Currently the farm is used for fine wool production and beef production. Within the area proposed for irrigation permanent improved pasture and lucerne fields have been established for fodder crop production. Current production systems are expected to continue for the foreseeable future.

9 All areas proposed for irrigation are intensively farmed, improved pastoral farmland, a part of which is already irrigated. No indigenous grasslands are to be converted to improved pasture as a consequence of this application.

THE APPLICATION SITE AND ITS LANDSCAPE CONTEXT

10 Godley Peaks Station, a Pastoral Leasehold property of 14,493 ha, lies at the northern end of the Mackenzie Basin, at the head of Lake Tekapo. The property flanks the north-western extreme of Lake Tekapo and the true right of the Godley River. While the larger part of the property is comprised of steep, rugged country

¹ "Intensively farmed" in this context is used in contrast to the extensive rangeland-like pastoral farming that is conducted on higher elevation, unimproved pastures of the property.

above 900m asl, the area proposed for irrigation is lowland rolling moraine and alluvial flats. The property formally covered an area of 23,600 ha prior to the raising of Lake Tekapo.

- 11 Access is by way of Godley Peaks Road, which becomes a private road a short distance north of the Cass River. No access to the property is available by public road.
- 12 The area proposed for irrigation is predominantly flat to undulating moraine and alluvial fan topography. The area is described in the following terms in the landscape report included within the LINZ Conservation Report on Godley Peaks, undertaken as part of the Tenure Review process:

Landscape Unit 1, Homestead

The Homestead Unit lies between Lake Tekapo, Godley Peaks Road, and the Cass and Mistake rivers. It comprises flat to undulating subdued glacial moraine and low-angle alluvial fan topography between 700 and 800m altitude, and extending right to the lakeshore. The area has been extensively modified through subdivision into geometric paddocks which contain cultivated pasture, fodder crops or degraded short tussockland. Coniferous shelterbelts line paddock boundaries. Swamps and small tarns occur within the area, including Micks Lagoon and Rapuwai Lagoon. This area also contains the Godley Peaks homestead.

- 13 I agree with this description and in particular the reference to the landscape being extensively modified. Despite the relative isolation of the property, the level of farm development and improvements appears no different to that of downlands farmland east of Burkes Pass.
- 14 The area within which irrigation is proposed (Landscape Unit 1, the Homestead Block – see Figure 2, Landscape Units Map) is not identified within the LINZ Landscape Assessment report as having significant inherent landscape values. (see LINZ Values Map, included as Figure 3 to the attachments to this evidence.)
- 15 In Mr Glasson's review of landscape issues for the Canterbury Regional Council (CRC), the site is located within Landscape Unit #1, Tekapo.

Is the application site a natural landscape?

- 16 While high levels of naturalness are evident over much of Godley Peaks Station, the landscape of the application site has undergone a high level of transformation from its original indigenous state to improved farmland. I consider the natural character of the application site is within the range from Moderate-Low—Moderate (or Quasi-natural) as indicated on the scale below.

RAP T-24; SSWI²; WERI³: Montane lake and Carex spp swamp surrounded by tussock grassland. Black stilt, marsh crake, grey teal and New Zealand Scaup breeding and Australasian bittern present. Part Wildlife Management Reserve. Re-assessed in 1996 and boundaries amended.

- 21 Micks lagoon is presently surrounded by developed farmland (Figure 10). The only change will be the permanent installation of hard hose gun irrigators on land between the lagoon and the lake, and a single pivot irrigator on rolling land to the west of the lagoon. Intensive livestock grazing will continue on these pastures much as it has done for many years. The naturalness of the margins of the lagoon as a wetland subject to s6(a) will remain unchanged. The need for any buffering between wetland and pasture within this location would need to be based upon ecological factors on which I am not competent to comment. I note though, the status of the wetland has been determined within its current farming context.

Is the application site an outstanding natural landscape (ONL)?

- 22 Landscape significance within the Mackenzie Basin is understood somewhat differently according to whether the frame of reference is regional (as in the context of the Canterbury Regional Policy Statement), or local, as in the context of the Mackenzie District Plan. At the regional level the Basin is referred to as a landscape of regional significance. At the district level the Basin is regarded as an outstanding natural landscape in a general sense, while acknowledging that parts of the Basin – as yet undefined – are not outstanding.
- 23 It is generally accepted that for a landscape to be deemed to be an outstanding natural landscape, it must first pass the test of being a natural landscape. It is my opinion that in terms of biophysical naturalness, the application site fails the naturalness test for consideration as an outstanding natural landscape. The degree of modification and human intervention apparent within the site places the application site outside the range of naturalness necessary for consideration for s6(b) significance. On the basis of my observations, the application site is atypical of conventional notions of arid, barren Mackenzie Basin landscapes, and can probably be considered one of the more highly developed agricultural landscapes within the entire Basin. Figures 5, 6, 7 and 11 provide some indication of the level of agricultural development within the application site, and the extent to which this development contrasts with adjacent more natural landscapes.

² SSWI: Special Sites of Wildlife Interest identified in "Wildlife and sites of Special Wildlife Interest in the Upper Waitaki and Adjacent Areas" by Liz Jarman (1987), and the SSWI habitat database.

³ WERI: Wetlands of ecological and representative importance'. The WERI database is an inventory of all types of wetlands in New Zealand. It focuses on those wetlands which are ecologically important or significant and which are representative of the natural diversity of the country. The database is administered by the Department of Conservation

- 24 I acknowledge that other landscapes within the property can credibly be regarded as outstanding natural landscapes, and while the application site may be located in close proximity to areas of ONL, I consider that the landscape characteristics and qualities of both farmland and ONL are enhanced by the presence of the other. While Lake Tekapo itself may be regarded as an outstanding 'natural' feature, I do not consider that farm development on Godley Peaks Station and other adjacent properties diminishes this significance in any way.
- 25 The landscape assessment undertaken as part of the LINZ Tenure Review process did not recognise the existence of significant landscape values associated with the landscape of the Homestead Unit (Figure 3).
- 26 The Mackenzie District Plan (MDP) identifies a Lakeside Protection Area (LPA) over a part of the application site bordering Lake Tekapo. Within such areas, the MDP seeks; "to avoid or mitigate the effects on lakeside landscapes by controlling the scale, appearance and location of buildings." Buildings and subdivision within LPAs are Discretionary activities under the MDP. No buildings or subdivision are contemplated as part of the current resource consent application. The only (marginally) noticeable change within the Lakeside Protection Area is that areas currently irrigated by solid hose gun will be irrigated by a centre pivot structure, while the solid hose gun irrigators will be re-deployed to other parts of the application site. Some of these areas will remain within the LPA, but the visual and aesthetic effects will be of no consequence.

ASSESSMENT OF LANDSCAPE AND VISUAL EFFECTS

- 27 In line with the discussion on the CRPS landscape assessment matters included in my general evidence, I restrict my assessment to a consideration of the likely effects on attributes of the application site associated with naturalness (or natural character), the natural science factors and aesthetic factors. As apparent naturalness and the aesthetic appreciation of the landscape are influenced by visibility, I address this first.

Visibility

- 28 There is no public access available to the property. The public road that provides access to the vicinity (Godley Peaks Road) becomes a private road a short distance north of the Cass River bridge. The area proposed for irrigation is not visible from Godley Peaks Road.
- 29 The landscape of the Homestead Unit is probably visible from the lake, to a greater or lesser degree, depending upon proximity to the shoreline and the level of the lake. While it is likely that recreational boaters and fishers use this area of

Effects on natural science factors

- 33 Values associated with natural sciences factors that may be attributed to the application site relate to the status of Macks Lagoon as a significant wetland. As Figure 10 illustrates, the lagoon is presently surrounded by improved farmland. Irrigation within the vicinity of the lagoon will be by solid hose gun irrigators and I do not consider there is any basis for assuming that the presence of such devices will impact on the natural science values of the lagoon in any way.

Effects on aesthetic attributes

- 34 As the aspects of the landscape that determine its aesthetic character and quality are already well established, I do not consider there will be any change to the aesthetic appreciation of the landscape through the implementation of the resource consents that this evidence relates to.
- 35 As I have noted in my general evidence, centre pivot irrigators are low profile semi-transparent structures with little overall visual effect in the landscape. At the distance from which they will be seen on Godley Peaks Station, I consider irrigators will have no material bearing on the aesthetic appreciation of the wider landscape, such as is represented in Figure 12.
- 36 I note again for emphasis my opinion that both natural landscapes and improved agricultural landscapes both gain in their aesthetic quality from the juxtaposition of one with another. It is the element of contrast that accentuates the characteristics and qualities of each landscape, to overall positive effect.

CUMMULATIVE EFFECTS

- 37 Given the relative remoteness of the application site from public viewing areas I do not regard the proposed irrigation of the site as being a contributor to cumulative effects. Apart from locations on the surface of the lake, the site is visible only at a distance. The application site will not be seen sequentially with other irrigation sites, nor will it be seen cumulatively with other irrigation sites in a manner which creates any sense of adverse effects.

MITIGATION OF EFFECTS

- 38 To address the mitigation of effects is to accept the premise underlying both Mr Glasson's report and the Investigating Officer's report that there are adverse landscape and visual effects arising from irrigation that require mitigation. In general terms I do not agree that this is necessarily the case.

- 39 Mr Glasson identifies a number of issues which he represents as adverse effects requiring mitigation. I have addressed these issues in my general evidence, but I reiterate my opinions in the comments that follow on the s42A reports.

INTAKE STRUCTURE

- 40 The proposed intake structure will be buried within the bed of the Mistake River at the location indicated in Figure 4. The steel structure will be buried beneath the riverbed and overlaid with a depth of natural river bed material through which water will filter before entering an underground pipeline for delivery to irrigators.
- 41 Some short term disturbance will occur to the riverbed at the time of construction, including the temporary diversion of the active channel. Upon re-instatement of the river bed it is my opinion that there will be no adverse visual effects arising from its installation and operation.
- 42 In terms of the objective approach to biophysical naturalness which I have adopted for this evidence, the diversion of water from the Mistake River will lead to a minor reduction in naturalness downstream of the intake as a consequence of human intervention in the natural processes of the river. Providing minimum low flow levels are provided for and adhered to, I consider the overall effects on naturalness will be minor or less than minor. I leave the hydrological aspects of the diversion of water for other experts to address.

SECTION 42A OFFICER REPORTS

Mr Christopher Glasson

- 43 Issues raised by Mr Glasson that relate to Godley Peaks Station are:
- 43.1 Given the absence of a natural riparian landscape to Lake Tekapo and the Cass and Mistake Rivers, visibility of irrigated farmland from adjacent to these water bodies will potentially create adverse effects that will be moderate to minor.
- 43.2 Mr Glasson does acknowledge that though a portion of the site is within the Landscape Protection Area of Lake Tekapo, the effects of the proposal are low given that the area is already in pastoral use.
- 43.3 Mr Glasson notes that no mitigation measures have been proposed. The removal of proposed irrigation from riparian land of Lake Tekapo and the Cass and Mistake Rivers by creating a natural buffer of 50m between irrigated land and the water bodies is proposed as suitable mitigation. It is

proposed that these buffer areas be planted in indigenous tussock grassland, shrubland and willow.

43.4 Mr Glasson also proposes that the water intake and delivery structures appear in a recessive manner.

44 I deal with these issues in turn:

44.1 The absence of a natural riparian edge to Lake Tekapo is historical. The lake edge itself is unnatural, in that it is the result of an artificially raised lake level and constant fluctuations in that level. The proximity of improved farmland to the raised lake level and shoreline is an historical artifact that I consider to be an accepted characteristic of the lakeside landscape. I do not regard it as a reasonable expectation that farm development retreat from a rising lake level in order to create what might be regarded by some as a more natural lake margin, particularly when the extent of land lost to flooding is taken into account. As current levels of farm development (which include irrigation) do not require visual buffering, I do not regard the introduction of further irrigation as giving any further cause for visual buffering. There is some acknowledgement of this fact in Mr Glasson's reference to the site already being in pastoral use, despite its location within a LPA.

44.2 I do not consider there is any justification for the creation of a 50 m buffer where areas of separation do not presently occur. As is evident from Figure 1, the only areas where irrigation comes close to the lake are already subject to irrigation by solid hose gun irrigators. In other areas (i.e., the lakeshore area illustrated in my Figure 9) a significant degree of separation between lake edge and improved farmland occurs anyway. I see no justification for withdrawing existing areas of developed farmland further from the lake edge to satisfy what I regard as a contrived need for visual buffering.

44.3 My comments regarding the lack of justification for buffering adjacent to the edge of Lake Tekapo apply equally to existing developed farmland along the margins of the Mistake River and Cass River.

44.4 The intake structure for the irrigation system will be set well below the bed of the Mistake River within the area indicated on Figure 4. The delivery pipe will be located underground also. While some short-term disturbance of the riverbed will occur, the restoration of the riverbed following construction will see the natural character of the riverbed returned to its pre-construction

state. It should be noted that naturally occurring flood events result in significant changes to the cross-sectional profile of the river. Being part of a dynamic system, the river bed morphology is subject to continuous change and disturbance.

- 44.5 A delivery structure, whether centre pivot irrigator or solid hose gun irrigator, is part of the vernacular farm landscape of Canterbury and should be acknowledged and accepted as such. There is no justification in landscape terms for a delivery structure to be rendered “recessive”.

Ms Maria Bartlett

- 45 Ms Bartlett repeats the views of Mr Glasson in calling for buffer zones between irrigated farmland and lakes and waterways (Cass and Mistake River). As I have already noted, this would require Godley Peaks Station to cede areas of developed pasture and permanent fodder crops for the purposes of creating a visual buffer of tussock and shrubs that will serve no practical purpose in terms of visual mitigation.

- 46 There is acknowledgement by both Mr Glasson and Ms Bartlett that there are no adverse effects associated with the proposed intake structure.

SUMMARY AND CONCLUSIONS

Effects on landscape character and naturalness.

- 47 The effects of irrigation on the landscape character and naturalness of the application site will be negligible, given the existing state of agricultural development on those parts of the property subject to the application.

Effects on landscape significance

- 48 The landscape of the Mackenzie Basin is recognised in the Canterbury Regional Policy Statement as a landscape of regional significance. The Commissioners’ decision on Proposed Plan Change 13 to the MDCDP acknowledges that while the landscape of the basin is generally outstanding, not all of the Mackenzie Basin is outstanding. The specific question of which areas are outstanding and which are not remains unresolved. In my opinion the application site is clearly within a landscape that cannot be regarded as outstanding, in that it fails the test for naturalness and for landscape significance.
- 49 While I acknowledge that adjacent landscapes may be regarded as outstanding I do not consider the effects of irrigation on the application site can extend to diminishing the naturalness or landscape significance of adjacent landscapes.

Mitigation of effects

50 In my opinion there are neither localised effects nor cumulative visual and landscape effects arising from this proposal that can be regarded as adverse and requiring mitigation.

Michael L Steven
Landscape Planner
23 November 2009