

**BEFORE INDEPENDENT HEARING COMMISSIONERS APPOINTED BY THE
WAIMAKARIRI DISTRICT COUNCIL**

IN THE MATTER OF

The Resource Management Act 1991 (**RMA** or
the Act)

AND

IN THE MATTER OF

Hearing of Submissions and Further
Submissions on the Proposed Waimakariri
District Plan (**PWDP** or **the Proposed Plan**)

AND

IN THE MATTER OF

Hearing of Submissions and Further
Submissions on Variations 1 and 2 to the
Proposed Waimakariri District Plan

AND

IN THE MATTER OF

Submissions and Further Submissions on the
Proposed Waimakariri District Plan by
Bellgrove Rangiora Limited

**EVIDENCE OF GEOFFREY DUNHAM
ON BEHALF OF BELLGROVE RANGIORA LIMITED
REGARDING HEARING STREAM 12E**

Dated: 30 April 2024

Presented for filing by:
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INTRODUCTION

- 1 My name is Geoffrey Charles Dunham.
- 2 I am a self-employed Registered (NZIPIM) Farm Management Consultant primarily working in Canterbury but with client base between Central Otago and Nelson, and including the Central Plateau, with specialisation in pastoral and arable land use systems and development.
- 3 I hold the qualifications of Bachelor Agricultural Science, Lincoln University
- 4 I work with farmers, local and central government organisations, and industry interest groups.
- 5 I specialise in advising in farm and agribusiness management with particular expertise in grazing and stock management systems, arable farming, irrigation & farm development, financial management, and supervise and contract-manage development projects.
- 6 I am familiar and experienced with all the farming practises, soils, and climate of the Waimakariri and North Canterbury area in general including the site in question.
- 7 I have worked for MAF Advisory Services Division based in Nelson and North Canterbury prior to forming my own consultancy practice, Dunham Consulting Ltd, in 2002
- 8 I regularly research and undertake feasibility and financial viability analysis for potential farming options. This has included analysis of soil resources, land development strategy options for unimproved and irrigated land and intensification of land use through conversion to more intensive land use policies. This work has been over a full range of land types and farming systems.
- 9 I have acted as an expert witness in relation to various issues including land use planning, land development disputes, farm machinery development disputes and animal welfare prosecutions.
- 10 My evidence considers the suitability of the Site for primary production purposes.

- 11 My role in relation to the Waimakariri Proposed District Plan and Variation 1 is as an independent expert witness to Bellgrove Rangiora Limited on agricultural land use matters.
- 12 Although this is not an Environment Court proceeding, I have read the Environment Court's Code of Conduct and agree to comply with it. My qualifications as an expert are set out above. The matters addressed in my evidence are within my area of expertise, however where I make statements on issues that are not in my area of expertise, I will state whose evidence I have relied upon. I have not omitted to consider material facts known to me that might alter or detract from the opinions expressed in my evidence.

SCOPE OF EVIDENCE

- 13 In my evidence I address the following issues:
- (a) The land use capability (LUC) of the Site;
 - (b) Classification of LUC Classes 2 and 3 as Highly Productive Lands (National Environmental Standards);
 - (c) The range of pastoral, arable and horticultural options that could be physically operated sustainably on a long-term, 30-year, basis on the Site;
 - (d) Consideration of the climate, soils, and water environments of the Site;
 - (e) The type and extent and availability of support industries and resources, contractors, and expertise required for a sustainable and viable farming operation;
 - (f) The infrastructure on Site or required on Site to support a viable farming business;
 - (g) The potential impact of viable land use activities onto neighbouring land, and reverse sensitivities;
 - (h) The economic viability of operating a business or use of the land compatible with the Site's rural zoning under Waimakariri District

Council Operative Plan or retained Rural Lifestyle Zoning under the proposed Waimakariri District Plan (**pWDP**); and

- (i) Consideration of the effects of only a 3.3 ha area of land located in the eastern edge of the Site remaining for rural land use as a standalone block.

SUMMARY OF MY EVIDENCE

- 14 The whole Site is Highly Productive Land (LUC 2 & 3), with an effective grazing area of 28.5 hectares. See Appendix **Section 2.3j** for calculations of net effective hectares.
- 15 The site is dryland, without infrastructure apart from small pump shed, stock water, and fencing; lying adjacent to residential housing (west & north) and rural land (east & south), with a long history of dairy farming and dry cattle grazing.
- 16 The topography is flat, tilting to the south, and low lying, with many open permanently flowing drains feeding off underground drains and numerous springs, exiting in the southeast corner.
- 17 The soils are either imperfectly or poorly drained and are waterlogged winter and early spring (north end), or winter to mid-summer (south end), with small areas permanently waterlogged all year round.
- 18 The soils are limited being physically structurally vulnerable, easily damaged by pugging and machinery when wet, and productivity limited by a marked summer soil moisture deficit (-262mm, 40% of annual rainfall).
- 19 Loss of HPL land from long term production is calculated at 300 stock units (28.5ha at 10.5 su/ha).
- 20 The Site is not suitable for horticulture purposes because of lack of irrigation and long periods of waterlogged soils.
- 21 Dry stock sheep, dry stock cattle, simple arable crops such as barley, and growing supplements (silage, hay) for sale are all potential land use options on Site.
- 22 Stock yards are required (\$13,000). The likelihood of obtaining an irrigation consent is very low and has been discounted as viable with the cost estimated at \$200,000.

- 23 Livestock purchase costs average \$39,000 and annual interest & principal costs average \$12,000 per year.
- 24 Three options are able to make an operating surplus to cover direct expenses (average +\$6,200) and one a loss -\$1,900 (supplementary feed)
- 25 After interest & principal costs all options make a Net Cash Loss averaging - \$7,700 (-\$4,200 to -\$11,800) per year.
- 26 No provision is made for owner's labour, no return on the assumed debt-free Site land purchase, and no replacement provision on the assumed in-place vehicles & machinery suite.
- 27 The Net Cash Result is untenable, and no prudent farmer would view any of these options as economically viable long term on this Site.
- 28 The Additional Land (3.3 hectares gross, 3.20 ha net effective) included in the eastern edge of the Site but considered as a standalone block, is effectively a mirror-image of the whole Site in respect of the Land Use Classes, soil vulnerabilities, general infrastructure (but requiring stock water), and with shorter periods of water logging.
- 29 The Additional Land considered on its own, is landlocked, with only potential viable access from the west via creation of a legal access easement, or via the establishment of access from the new roading network established as part of development of the wider Site to medium density residential development.
- 30 If the Additional Land on its own was removed from long term production, the primary production loss is calculated as 43 stock units (3.2 ha at 13.5 su/ha).
- 31 Dry stock sheep, dry stock cattle, and growing supplements (silage, hay) for sale are all potential land use options on the Additional Land.
- 32 Net Cash Results average -\$4,200 (-\$500 to -\$6,100).
- 33 No prudent farmer would view any of these options as economically viable long term on the Additional Land.

CONTEXT

- 34 The purpose of this evidence is in support of the application by Bellgrove Rangiora Limited, to change the current zoning to allow use of the site for residential purposes.

- 35 My evidence assesses land located at 15 Kippenberger Avenue and 78 Northbrook Road, Rangiora, legally described as Lot 2 DP 394868 (8.79 ha) and Lot 2 DP 4521196 (14.2 ha), and Lot 2 DP 12090 (8.2 ha) (the **Site**).
- 36 The Site contains 31.2089 hectares in a generally rectangular shape with a long history of agricultural use, dairy cow milking platform, dairy replacement heifer grazing and dry cattle grazing.
- 37 The site is zoned Rural in the Operative Waimakariri District Plan (**WDP**). The Site (except for the Additional Land) is proposed to be zoned Rural Lifestyle Zone (**RLZ**) subject to a certification process to enable the release land for residential development in the proposed Waimakariri District Plan (**pWDP**).
- 38 The site includes land classified as Highly Productive Land (NPS-HPL) under clause 3.4(1) given it contains Land Use Capability (LUC) Class 2 or 3 land.
- 39 I am familiar with the locality and the farming policies and practises being used.
- 40 I have earlier prepared a comprehensive report that considers the suitability of the above property for farming purposes "Agricultural Use Report Bellgrove South – Rangiora 22.4.24". My report is attached as **Appendix 1**.
- 41 The discussion that follows is informed by the Agricultural Use Report and provides a summary of the key findings contained within that document.

SITE LOCATION

- 42 The Site is located in eastern Rangiora between Kippenberger Avenue (north boundary), and Northbrook Road (south boundary), and east of Devlin Avenue on the northern half of the west boundary. The Cam River/Ruataniwha forms the eastern site boundary for approximately 135m.

PHYSICAL SITE ATTRIBUTES

- 43 The Site is a flat plain, tilted from north (24.0 m.a.s.l) to south (16.5 m.a.s.l), but level west-east, with an overall fall of approximately 7.5m.
- 44 Access to the site is from Kippenberger Avenue (north of Site) and from Northbrook Road (south) onto a formed metalled north-south track, running full length along the western side of the Site.
- 45 The only building is a pump shed in the southwest corner.

- 46 Stock water is supplied from a shallow bore located at the southwest corner, with electricity metered at the pump shed.
- 47 There are eleven open deep drains (6,150m) running north-south down the Site, connected to extensive clay tile subsoil drains plus 3,500m of slotted coil pipe in the southern third of the Site, draining into Northbrook Road main drain.
- 48 The Site is stock fenced into fourteen paddocks (average 2.0 ha each). Net effective farming area is 28.5 ha.

CURRENT LAND USE

- 49 The Site is used as a dry-cattle grazing block between about early September through to about end May if the soils are dry enough, with cattle relocated to other land parcels owned and used in conjunction with the Site. Supplementary baleage is made in mid-November and fed out as required during summer dry periods typically between January and March.
- 50 The Site is too wet to grow and use winter green feed crops, and pasture renewal is typically grass to grass.
- 51 Historically dairy cow milking, dryland for many decades before irrigation installed in early 1970's. Since 1990, the land use has been a mixture of about equal periods of milking cows, dairy heifer support grazing, and dry cattle grazing. The irrigation consent was terminated in December 2023

NEIGHBOURS

- 52 Land use to the north and north-west of the Site is residential housing, and east, south & southwest of the site is pastoral farming.
- 53 The potential impact of noise & dust pollution and spray drift on neighbours is primarily on the western located residential housing, with 40m (direct line) separating the Site and the closest housing.
- 54 Reverse sensitivity applies with potential dog harassment of livestock and disease transfer (from cats), as well as potential for theft and vandalism risk experienced close to residential housing.

RAINFALL AND SOIL MOISTURE DEFICIT

- 55 Site annual rainfall is 655 mm evenly spread throughout the year.

56 Annual evapotranspiration is 917 mm, resulting in -262 mm soil moisture deficit (40% of rainfall), primarily January to late March but can be to mid-April.

57 Although the soils have high Profile Available Water, the days-to-wilting-point range between 12 and 18 days without rainfall or irrigation.

LAND USE CAPABILITY (LUC) CLASSIFICATION

58 The Site contains 12.6 hectares (40%) of Class 2 land and 18.6 hectares (60%) of Class 3 land.

59 The Class 2 & 3 land is classified by clause 3.4 (1) of the National Policy Statement as Highly Productive Land (NPS-HPL).

60 The Class '2s 2' land versatility is primarily limited by high summer and early autumn soil (s) moisture deficits.

61 The Class 3w 1 land versatility is primarily limited by excessive winter and early spring soil wetness (w), with some areas into mid-summer or all year round.



62 Both Class 2 and Class 3 land also have secondary limitations of wet winter soils and summer moisture limitations respectively.

SOILS

63 The higher lying soils to the north are Kaiapoi and Pahau (mottled) soils, and the lower lying Temuka and Flaxton (gley) soils are deep and fertile; and imperfectly and poorly drained respectively resulting from slowly permeable subsoils.

64 Slow subsoil permeability means high water tables and excessively wet soils from typically early June to early September (sometimes to late September), on the Kaiapoi & Pahau soils; the Temuka and Flaxton soils are excessively wet to between late September to early summer and on about 4.4 hectares are wet all year round. When soils are waterlogged, there is very limited to no livestock and machinery trafficability, with very high risk of pugging and soil structure damage.

- 65 Where required, harvesting of early & mid spring pasture growth for baleage in mid-November allows soils to dry enough to harvest, before introducing dry stock grazing in early January.

PRODUCTIVITY

- 66 Weighted average stocking rates are 10.5 stock units per hectare (300 su) and top farmers at 13.5 su/ha (385 su).
- 67 The potential loss of Class 2 and 3 HPL soils is assessed at 300 su.

ASSUMPTIONS FOR POTENTIAL LANDUSE OPTIONS ON HPL SITE

Access

- 68 While the full range of contractors and suppliers are expected to be available from the North Canterbury west and south hinterland, the Site's urban fringe location significantly limits (through urban Rangiora) the ability of contractors to reliably deliver time-critical work for weather condition-specific activities such as spraying & harvesting, and consequently when combined with the small size of the Site, contractor costs are expected to be higher per-hectare than normal.

Irrigation

- 69 The cost to upgrade the water source (deeper bore), change transformer, pumps & electrics, add guns etc, is estimated at \$180,000 - \$200,000, with annual operating and consent management costs of \$7,000 - \$9,500/yr.
- 70 It is considered that the likelihood of successful consent is low to very low in the Nutrient Red Zone of the Ashley-Waimakariri Nutrient Allocation Zone, and the applicant will need to take a loss of approximately \$60,000 - \$70,000 (test well, consultant cost of consent application, Ecan fees, etc) if not successful. Successful consenting will require proof that existing irrigation users and stream requirements are not compromised in an already over allocated groundwater zone and consideration of baseline nitrogen losses.
- 71 Primary production land use activities that require irrigation have been ruled out, which excludes viticulture and horticulture and market gardening activities; while these could be pursued as dryland ventures, in my opinion no prudent land user would undertake investment with the levels of summer and autumn drought risk involved, and extended periods of high-water tables.

Infrastructure

- 72 Installing a new set of stock yards required for livestock farming and simple arable crop rotations (barley).
- 73 Annual District Council and Regional rates are approximately \$16,950/yr. (\$595/ha).

FARMING LAND USE OPTIONS

- 74 Technically feasible options include dry stock sheep, dry stock cattle, dairy heifer grazing, mixed farming (arable cereal crop and livestock), and making & selling of supplementary feed (hay & baleage)
- 75 Dairy heifer grazing has been excluded as an option, because while dairy heifers can be grazed on the land (calves December to April) the grazing window is not consistent with typically available grazing contracts and the low numbers able to be grazed (about 85 head) are much lower than the parcels generally available (125 – 150 calves or more). It is unlikely that a dairy farmer would be willing to supply the low number of heifers with the restricted grazing window which limits back-to-back contracts with other graziers.
- 76 All sheep and cattle livestock policies analysed are financially pressure-tested by using stocking rates equivalent to Top Farmers at 13.5 su/ha.

Dry stock sheep

- 77 District practise dry stock sheep policy is grazing breeding ewes, selling the progeny finished to a processor or store to other farmers to finish, purchasing replacement ewes.
- 78 At 13.5 su/ha, 385 stock units or 335 breeding ewes would be run.

Dry stock beef cattle

- 79 The usual small block cattle policy is to purchase yearling cattle and graze for approximately 12-14 months before kill, but the wet winter soils requires that heavy yearlings are purchased in spring (October) and then slaughtered at end of autumn just before winter destocking is required. This Site is expected to carry 77 head.

Mixed Farming

80 A rotation of four or five years in grass and then a spring crop of barley grain (about 5.7ha of barley each year), and grazing ewes (335 breeding ewes); with slightly higher (+15%) dryland yields than average of feed barley grain production, sold off the harvester (no silo storage).

Supplementary feed hay or baleage

81 Harvesting permanent perennial pasture commonly includes two spring & early summer cuts, followed by two late summer & mid-late autumn cuts provided there has been sufficient autumn rainfall. Harvest is approximately 900 bales of hay or baleage (270+295+185+150).

82 The Class 3 land yields and timing will be the most variable with wetter spring-early summers, while Class 2 yields are more influenced by the severity of summer soil moisture deficits, making the third and fourth cuts the most variable.

83 Baled crop is stored on farm until prices peak, typically wintertime.

ECONOMIC VIABILITY

84 No allowance is included for owner's wages or time to shift stock or animal health etc, or for administrative or regulatory requirements related to the farming activity.

85 It is assumed the land is debt free and no principal or interest payment are attached to the land, and no return on investment is sought.

86 Infrastructure costs only apply to permanent improvements specific and essential to the proposed land use.

87 General machinery and vehicles (e.g. motorbikes, tractors, mowers) are all assumed to be on hand and no allowance is made for depreciation or replacement costs.

88 A nominal contribution is allowed for fuel and vehicle servicing operating expenses.

89 Three land use options produce enough gross income to cover direct operating expenses averaging an operating surplus of +\$6,200/yr. (range +\$3,800 to +\$9,800/yr.), and supplement sales makes a -\$1,900 loss.

- 90 Infrastructure development costs average \$9,750 (\$0 to \$13,000) and livestock capital purchases average \$39,200 (\$0 to \$78,500).
- 91 Net Annual Cash Result after allowance for interest on capital at 5% and principal payments (5-years for livestock and 10-years for infrastructure), for all options, averages -\$7,700/yr.

	Capital for Improvements	Capital for Livestock	Interest & Principle p.a	Net Annual Cash Result*
Dry-stock Sheep	\$13,000	\$43,493	-\$12,823	-\$7,800
Dry-stock Cattle	\$13,000	\$78,489	-\$21,572	-\$11,800
Mixed Cropping	\$13,000	\$34,795	-\$10,649	-\$6,900
Sale hay/baleage	\$0	\$0	-\$2,263	-\$4,200
* rounded Average	\$9,750	\$39,194	-\$11,827	-\$7,675

- 92 No land use policies are able to generate sufficient income to cover direct expenses, cost of livestock and cost of infrastructure improvements (interest & principle) and make a cash surplus.
- 93 The financial result is considered to have moderate-low profit resilience; future combinations of input cost increases and normal seasonal variations (yields or animal growth rates or reproductive rates resulting from poor climatic conditions particularly late spring growth after very wet winters and from longer summer-autumn dry periods) would easily result in an increase in Net Cash Loss of up to 100% to 200%.
- 94 Given that there is no provision for owner's labour, no return on the assumed debt-free Site land purchase, no replacement provision on the assumed in-place vehicles & machinery suite, the Net Cash loss is untenable, no prudent farmer would view any of these options as economically viable long term on this Site.

"ADDITIONAL LAND"

- 95 Given a 3.3 hectares piece of land at the eastern edge of the Site is excluded from within the South East Rangiora Development Area (SER-DA) of the pWDP I have provided an assessment on this as a standalone block (referred to as the **Additional Land**).
- 96 This block is close to a mirror image in most respects to the wider Site.

- 97 The Additional Land is landlocked and would require a legal access easement through the 27.9 ha of the remainder of the Site to the west, or access from a newly established residential development/subdivision.
- 98 The LUC rating is approximately 50% LUC 2 and 50% LUC 3, with 4.0m altitude range falling from north to south.
- 99 Soil permeability and soil drainage is better with the Additional Land being almost all imperfectly drained compared to 42% for the Site.
- 100 Root aeration is relatively better, and a shorter period of waterlogged soils means more consistent grass growth in early spring and slightly earlier start to grazing.
- 101 Profile Available Water is +31mm more than the whole Site, but this only translates to three days longer before start of soil moisture deficits on average.
- 102 Net effective area is 3.2 hectares. Stocking rates per hectare are the same as assessed for the whole Site. Loss of the Additional Land from primary production is assessed as 34 stock units (3.2ha at 10.50 su/ha).
- 103 The smaller area of effective land with slightly less time waterlogged is likely to run higher effective stocking rates; equivalent to Top Farmers at 13.5 su, or 43 stock units (3.2ha at 13.5 su/ha).
- 104 Infrastructure is the same as the whole Site except that a source of stock water is required. Cost \$18,000.
- 105 Land use options include dry sheep, dry cattle, and supplement sales. The mixed cropping option is not viable on this sized Site.
- 106 Cattle produces an operating surplus (+\$750), sheep are breakeven (\$0), and supplementary feed sales makes a loss (-\$230).
- 107 After allowance for interest & principal, the Net Cash Surplus is a loss for all options (-\$5,900, -\$6,100, -\$500 for sheep, cattle, and supplements respectively).
- 108 No prudent land user would consider these to be viable in the long term.

MATTERS RAISED BY SUBMITTERS

109 There are no matters raised by submitters that are relevant to my evidence.

CONCLUSION

110 In considering the primary production options for the whole, the models that I have used to test the commercial viability of the block show the highest and best possible land use options taking into account factors including long periods of soil winter excessive wetness, marked summer soil moisture deficits, lack of size, no irrigation capability, the limitations of servicing an agricultural business at this location, the nutrient leaching management requirements if the site was irrigated, and potential for pollution impacts on neighbours including reverse sensitivity impacts.

111 The economic models used are above the average performance of the benchmark models.

112 The economic analysis shows that all options produce a Net Cash Loss and are not viable in the long term even without allowing for returns on investment in the land, or replacement costs of plant & machinery or owner's labour.

113 In addressing Clause 3.10 of the National Policy Statement for Highly Productive lands (NPS-HPL): Exemption for highly productive land subject to permanent or long-term constraints, it is my opinion that the use of Highly Productive Land on this site for primary production is not able to be economically viable for at least 30 years and that in coming to that conclusion I have evaluated all of the reasonably practical options.

114 Thank you for the opportunity to present my evidence.

Geoffrey Dunham
Dated 30 April 2024