

**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 **Mike
Greer Homes NZ Limited**

**EVIDENCE OF GEOFFREY DUNHAM ON BEHALF OF MIKE GREER HOMES NZ
LIMITED REGARDING STREAM 12E**

DATED: 5 March 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 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 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 property located at 144 & 170 Main North Road, Kaiapoi for primary production purposes.

- 11 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

- 12 In my evidence I address the following issues:
- (a) The land use capability (LUC) of the site
 - (b) Classification of LUC Classes 1 and 3 as Highly Productive Soils (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
 - (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.

CONTEXT

- 13 The purpose of this evidence is in support of the application by Mike Greer Home NZ Limited, to change the current zoning to allow use of the site for residential purposes.
- 14 My evidence assesses land located at 144 and 170 Main North Road, Kaiapoi (**site**).
- 15 The site is legally described as Pt RS 37428 (CB701/7) limited to the land west of the Main Trunk Railway Line; RS 39673; and Lot 1 DP 19366
- 16 The site contains 14.2 hectares in an approximate rectangle shape with a long history of agricultural use, primarily grazing sheep, cattle, and some arable cropping.
- 17 The site is zoned *Rural* in the Waimakariri District Council Operative District Plan. Under the Waimakariri Proposed District Plan the Site is zoned *Rural Lifestyle Zone*.
- 18 The site includes land classified as Highly Productive Land (NPS-HPL)
- 19 The proposed zoning is to Medium Density Residential.
- 20 I am familiar with the locality and the farming policies and practises being used.
- 21 I have earlier prepared a comprehensive report that considers the suitability of the above property for farming purposes "Agricultural Use Report South Kaiapoi Mike Greer Homes NZ Limited 20.2.24". My report is attached as **Appendix A**.
- 22 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

- 23 The Site is located east of Main North Road, south of and adjacent to Kaiapoi township, and west of Main Trunk Railway Line, and sits between Kaikainui Stream running west-east along the northern boundary and Courtenay Stream running west-east along the southern boundary.

PHYSICAL SITE ATTRIBUTES

- 24 The site comprises of two low lying (0.5m to 3.3m above sea level) flat terraces that lie parallel with Main North Road, with the lower terrace to the east of the site.
- 25 Access to the site is from Main North Road onto a formed metalled west-east track, running through the middle of the site. This serves as primary access to the site and to neighbouring land users further to the east.
- 26 There is one residence in the southwest corner (0.4ha), cattle yards and sheep yards, one hay/implement shed, and a pump shed.
- 27 Stock water is primarily supplied from a shallow bore located at the western end of the access track, with electricity metered from an overhead power line that runs along the access track to the eastern neighbours.
- 28 There is one open drain running west-east across the site, before emptying into the Courtenay Stream in the southeast corner of the site.
- 29 The site is stock fenced with the two steams fenced off from the farming area; and subdivided into two larger paddocks (4.6 ha each) and five small paddocks (0.9 ha each). Net effective farming area is 12.35 ha.
- 30 Approximately 9.1 ha is gun irrigated with water supplied from the Courtenay Stream east of the site.

CURRENT LAND USE

- 31 Approximately 9.2ha is farmed with one paddock in barley grain production for four consecutive years and the other paddock used for spring baleage production and then grazing dairy heifers through to late autumn before destocking for winter while the soils are waterlogged. The paddock rotation is swapped around after four years.
- 32 Historically, before about 2000, a wider range of arable crops were grown in a mixed cropping livestock rotation including wheat, peas, barley, small seeds, and sometime potatoes. The simplifying of the rotation coincided with the problems of bird predation, bird protection noise pollution on neighbours, seed certification risks from neighbourhood cross contamination, and insect-

borne (aphids) diseases. 2011 Christchurch earthquake liquefaction affects also materially increased crop yield variability and reduced yield averages.

- 33 The remaining 3.1 ha has been dryland sheep since at least 1960's.
- 34 The site is too wet to grow winter green feed crops, or winter-graze livestock heavier than sheep.

NEIGHBOURS

- 35 Land use to the north, east, south & west of the site are, respectively: residential housing (Kaiapoi), pastoral farming, and a mix of light industrial & rural.
- 36 The potential impact of noise & dust pollution and spray drift on neighbours is primarily on the northern located residential housing, with 40-50m (direct line) separating the site and the closest housing.
- 37 Reverse sensitivity applies with potential dog harassment of livestock and disease transfer (from cats), as well as theft and vandalism typically experienced close to rural housing.

RAINFALL AND SOIL MOISTURE DEFICIT

- 38 Site annual rainfall is 568 mm evenly spread throughout the year.
- 39 Annual evapotranspiration is 853 mm, resulting in 294 mm soil moisture deficit (52%), primarily mid-January to late March but can be to mid-April.
- 40 Although the soils have high Profile Available Water, the days-to-wilting-point range between 15 and 24 days without rainfall or irrigation.

LAND USE CAPABILITY (LUC) CLASSIFICATION

- 41 The Site contains 5.2 hectares of Class 1 land and 9.0 hectares of Class 3 land.
- 42 The Class 1 & 3 land is classified by the National Environmental Standard as Highly Productive Land (NES-HPL)
- 43 The Class *1w 1* land versatility is primarily limited by excessive winter and early spring soil wetness (*w*).
- 44 The Class *3s 5* land versatility is primarily limited by high summer and early autumn soil (*s*) moisture deficits.

- 45 Both Class 1 and Class 2 land also have secondary limitations of soil moisture limitations and wet winter soils respectively.

SOILS

- 46 The upper terrace Kaiapoi (mottled) soils, and the lower terrace Matapihi (gley) soils are deep and fertile; and imperfectly and poorly drained respectively.
- 47 Slow subsoil permeability means high water tables and excessively wet soils from typically early June to mid/late September, leading to very limited to no livestock and machinery trafficability, with very high risk of pugging and soil structure damage.
- 48 Cultivation activity in spring is delayed until soils start to drain, consequently barley drilling is in mid-October, about 5-6 week later than Canterbury average. Taking early spring growth pasture for baleage allows soils to dry sufficiently before grazing heifers are introduced in early November.

PRODUCTIVITY

- 49 Weighted average stocking rates are 11.3 stock units per hectare (140 su) and top farmers at 14.3 su/ha (177 su).
- 50 The potential loss of Class 1 and 3 HPL soils is assessed at 177 su.

ASSUMPTIONS FOR USEAGE AS HPL SITE

Access

- 51 Agriculture contractors and suppliers have two access routes to the site by crossing SH1 from the west and north-west or along SH1 from south or north; and travel between 1.5 km and 2.1 km of speed controlled 60 km/hr and 50 km/hr urban roads.
- 52 Careful contractor management of peak traffic flows (primarily commuters between Kaiapoi and Christchurch, and schools (Kaiapoi Area Secondary School), along with time-bound and climate-sensitive activities (e.g. spraying, harvesting), and minimising road pollution (mud and plant trash).

- 53 Full availability of contractors is assumed but the small job size (paddocks <4.6ha), access restrictions and complications mean few willing contractors and higher per-unit costs.

Irrigation

- 54 The site will lose its irrigation supply. To replace the water source (bore), pumps & electrics, guns, and transformer, is estimated at \$180,000 - \$200,000, with annual operating costs of \$5,000 - \$7,000/yr.
- 55 It is considered that the likelihood of successful consent is low to very low, and the applicant will need to take a loss of \$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.
- 56 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.

Stock water, yards, sheds, electricity

- 57 Apart from a small amount of maintenance the existing infrastructure - stock water, cattle yards and sheep yards, and general-purpose shed - are all adequate for livestock farming and simple arable crop rotations (barley).
- 58 Annual land and council rates are approximately \$4,253/yr.

FARMING LAND USE OPTIONS

- 59 Technically feasible options include dry stock sheep, dry stock cattle, dairy heifer grazing, mixed farming (arable crop and livestock), and making & selling of supplementary feed (hay & baleage)
- 60 While dairy heifer contract grazing is currently practised between early November and end-May, the removal of heifers (June to October) only works on the site because they are grazed on other land owned by the current landowner, and not returned to the cattle owner. The grazing window is not consistent with typically available grazing contracts and the low numbers able

to be grazed (about 60 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 and at the restricted grazing window which limits back-to-back contracts with other graziers. Consequently, dairy heifer grazing has been excluded as a technically viable option.

Dry stock sheep

- 61 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.
- 62 Stocking rates used have been further increased to 10% higher than the benchmarks as small blocks typically run higher stocking rates than larger properties with the same resources.
- 63 At 15.7 su/ha, 195 stock units or 169 breeding ewes would be run.

Dry stock beef cattle

- 64 The usual small block cattle policy is to purchase yearling cattle and graze for approximately 12-14 months before kill but purchase of calves at weaning (March/April) and sale forward-store prior to the second winter as 21-month-olds is a better fit to soil conditions. Including +10% higher small block stocking rate, this site would be expected to carry 48 head.

Mixed Farming

- 65 Dryland arable cropping is assumed to be similar to the current rotation of four-year barley and four years grass, grazing ewes (169 breeding ewes); with good dryland yields (7.0 t/ha) of feed barley grain production, sold off the harvester (no silo storage).

Supplementary feed hay or baleage

- 66 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 496 bales of hay or baleage (144+144+104+104).

- 67 The third cut is the most variable being somewhat dependant on summer rainfall while also at high soil moisture deficits, with the fourth cut, variable to a lesser extent.
- 68 Baled crop is stored on farm until prices peak, typically wintertime.

ECONOMIC VIABILITY

- 69 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.
- 70 It is assumed the land is debt free and no principle or interest payment are attached to the land, and no return on investment is sought.
- 71 Infrastructure costs only apply to permanent improvements specific and essential to the proposed land use.
- 72 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.
- 73 A nominal contribution is allowed for fuel and vehicle servicing operating expenses.
- 74 Although dairy heifer grazing is ruled out primarily due to market requirements, the economic viability is included for comparative purposes.
- 75 All five land use options produce enough gross income to cover direct operating expenses averaging an operating surplus of +\$4,800/yr. (range +\$3,300 to \$7,100/yr.)
- 76 Infrastructure development costs average \$2,800 (\$0 to \$3,500) and livestock capital purchases average \$14,400 (\$0 to \$36,400).
- 77 Net annual cash result after allowance for interest on capital at 5% and principle payments (5-years for livestock and 10-years for infrastructure), for all options, averages +\$320/yr.

	Capital Improvements	Capital Livestock	Net Annual Cash Result*
Dry-stock Sheep	\$3,500	\$21,960	\$1,000
Dry-stock Cattle	\$3,500	\$36,425	-\$4,800
Mixed Cropping	\$3,500	\$13,781	\$600
Sale hay/baleage	\$0	\$0	\$2,000
Dairy calves/baleage	\$3,500	\$0	\$2,800
Average	\$2,800	\$14,433	\$320
* rounded			

- 78 Only the dry-stock cattle policy is unable to generate sufficient income to cover direct expenses, cost of livestock and cost of infrastructure improvements (interest & principle).
- 79 The remaining options, including the comparative dairy heifer grazing average Net Cash Result of +\$1,600 per year which is considered to be very small with low profit resilience; future combinations of input cost increases and normal seasonal variations in yield or animal growth rates or reproductive rates resulting from poor climatic conditions (primarily late spring and longer summer-autumn dry periods) would easily result in a breakeven or below breakeven position.
- 80 In summary, even using higher stocking rates (+10% above 'top farmers') and given that there is no provision for owner's labour, no return on the assumed debt-free Site land purchase, no replacement provision on an assumed in-place vehicles & machinery suite, the Net Cash Result is very low, and no prudent farmer would view any of these options as economically viable on this site.

MATTERS RAISED BY SUBMITTERS

- 81 There are no matters raised by submitters that are relevant to my statement of evidence.

KEY ISSUES AND SUMMARY OF CONCLUSIONS

- 82 All the effective area (12.35ha) is classified as Highly Productive Soil (Land Use Classes *1w 1* and *3s 5*)
- 83 Land use choices are limited by wet soils over winter and early spring, and by high evapotranspiration late summer to early autumn.

- 84 The site has a summer soil moisture deficit of -294mm typically experienced mid-January to late March, which without irrigation excludes horticulture land use options and intensive arable crop options.
- 85 The site has excessive soil moisture June to mid-September which prevents grazing of heavy livestock and machinery use to avoid heavy pugging and soil structure damage.
- 86 The site has good existing infrastructure (stock water, yards, shed, power) for dry livestock and basic grain cropping.
- 87 Access to the site by contractors is constrained which limits availability and increases contract costs.
- 88 High potential north-neighbour (residential housing) conflict with site land use activity pollution (noise, dust, spray drift)
- 89 Land use options that require irrigation (horticulture, viticulture, vegetables, high performance arable crops) are excluded as the likelihood of obtaining irrigation consent is very low, and the cost is very high at estimated at up to \$200,000, with a potential cost barrier of \$60,000 if consent is not granted. The likelihood of gaining consent is low to very low.
- 90 After allowance for costs of livestock purchase capital, dry stock sheep, mixed crop & livestock, supplementary feed, and dairy heifer grazing, achieve on average a breakeven Net Cash Result of (+\$1,600/yr.). Dry stock beef cattle, make a loss (-\$4,800).
- 91 The average Net Cash Result of all options is +\$320/yr.
- 92 There is no financial return on capital for purchase of the land, and no remuneration for owner's time and management of the farming activities, and no depreciation or replacement allowance on machinery and vehicles assumed to be on hand.
- 93 No prudent farmer would view any of these options as economically viable on this site.

94 There are no long-term viable land use options that can be operated on the site.

Geoffrey Charles Dunham

Date: 5 March 2024

APPENDIX A

Agricultural Use Report South Kaiapoi Mike Greer Homes NZ Limited 20.2.24