

## South Block Farming Assessment

310 Beach Road Kaiapoi [the 'site']

Legal Description LOT 2 DP 83191

### **Purpose**

This report considers the suitability of the above property, zoned Rural in the Waimakariri District Council Operative District Plan, and zoned Rural Lifestyle under the Proposed District Plan, for both rural use and rural lifestyle use.

### Rural Farming Uses

Farming land use found in the district include

- Dairy
- Dry stock sheep, beef, and deer
- Arable
- Dairy support grazing
- Horticulture – vegetables and flowers
- Horticulture – shrub and tree crop

Factors to consider in assessing the attributes and suitability of the site for these potential uses.

- Land resources
  - Soils
  - Drainage
  - Water – livestock
  - Water – plants
  - Physical attributes – topography, aspect, altitude
  - Shelter
  - Size
- Infrastructure
  - Fencing and boundary security
  - Stock water
  - Irrigation
  - Stock handling facilities
  - Machinery, plant, supplementary feed storage & security
- Climate
  - Rainfall
  - Sunshine (thermal heat units)
  - Wind
  - Evapotranspiration
- Environmental

- Environment Canterbury – Land & Water Regional Plan
  - National Environment Standards – Freshwater
- Other
  - Health & Safety – land user, neighbours and other activities that intersect with any part of land activity or support activities.
  - Support services and suppliers’ availability
- Financial viability
  - Capital investment.
  - Cashflow requirements
  - Net Cash Surplus / Return on Investment
  - Risk mitigation

## Topography of site and surrounds

The site and its broader surrounds lie in a flat low-altitude (about 2.5 metres above sea level) strip of land that lies behind the coastal dunes and inland dunes. There is no difference in elevation between the site and the surrounding land.

The variation in height within the site is very small being estimated at no more than 20-30cm between higher areas and lower areas, the former being remnants of old sand dunes, now much flattened and modified by agricultural activity, and the latter being man-made very-broad swales created through seeking to improve surface drainage. The differences in height are not immediately apparent across the site but is evident in a gentle rise across the site from east and south-east to west and north-west.

All the site has been cultivated repeatedly over decades since at least the 1940’s (aerial photographs), which has further smoothed out the landscape.

Using farming definitions the site is flat and is suitable for all farming options, but its low elevation relative to surrounding land means that natural and artificial drainage systems are ineffective and significantly limit viable farming options. See Soils section below.

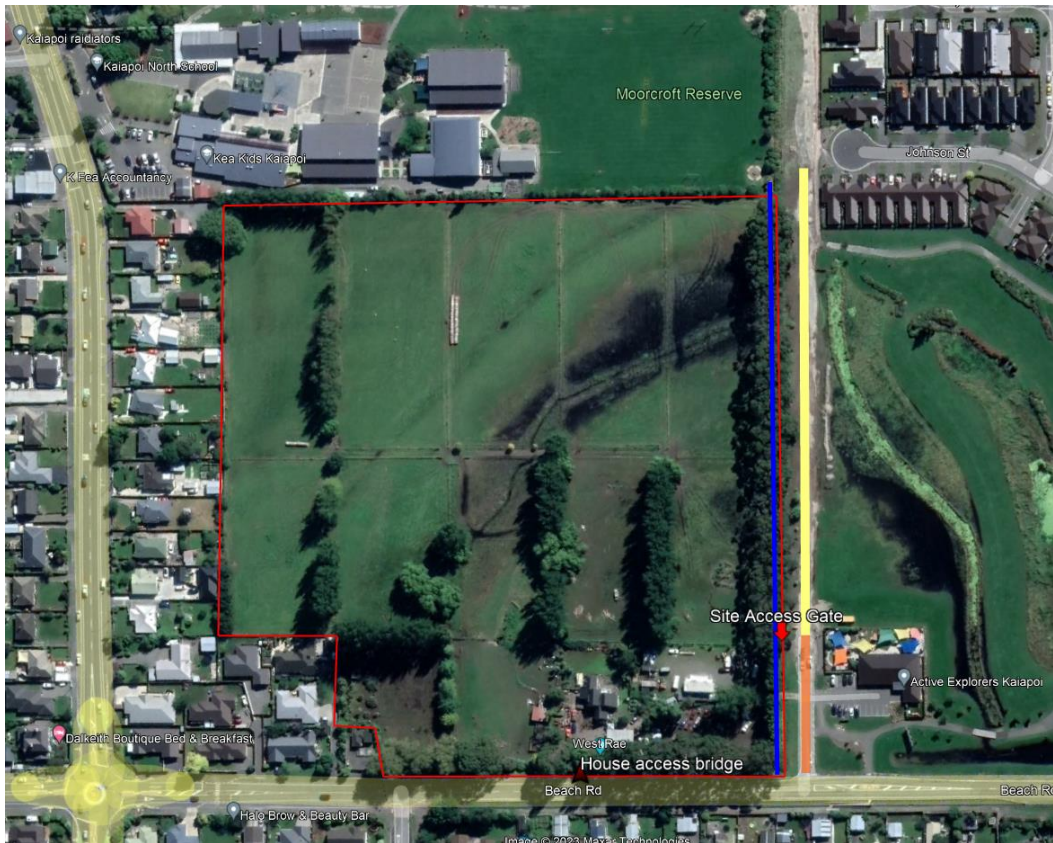
## Site Neighbours

**West** Site backs directly on to residential houses

**North** Site directly bounds Kaiapoi North School and Moorcroft Reserve

**East** A drainage ditch and legal ‘Paper Road’ runs parallel with the site boundary. The Paper Road is unformed for approximately 194m (yellow line in map) running from north to south, then becomes a sealed vehicle access lane for a further approximately 67m (pink line in map) down to Beach Road. East of the unformed Paper Road is a Waimakariri District Council Utility Reserve and a 3,500m<sup>2</sup> private title. East of the sealed vehicle lane is a day-care centre (Active Explorers Kaiapoi) with its only vehicle access directly off the lane. West of the sealed access lane is vehicle access to the private residences in the south-east corner of the site

**South** Between the site and Beach Road is a deep storm water drain and road safety wire barriers. There is one light vehicle access bridge directly from Beach Road onto the site to the western-most house in approximately the centre of the Beach Road site frontage. This access point is not currently suitable for agricultural machinery as it turns directly into the house parking and garaging area. More residential housing is located across Beach Road from the site.



### Direct access onto site

The only current access point for farming activities (e.g., tractor, stock trucks, cultivation & harvesting machinery) is in the southeast corner of the site off the sealed access lane past the day-care centre at approximately 61m off Beach Road (red arrow in map).

Direct access onto the site for farming purposes will require extreme care and planning in relation to other users (the day care centre, and potentially pedestrians if the Paper Road is formed and sealed)

This access configuration is a significant limitation and disincentive to current and potential site land users.



## Discussion

Any land user considering undertaking agricultural activities at very close proximity to residential housing must consider a number of potential conflicts that will vary in degree according to the activities. Assuming farming activities meet the Environment Canterbury Land and Water Regional Plan requirements, and land user and contractors are qualified (such as Registered Agricultural Chemical Applicators), the areas of potential conflict will include

- Noise from machinery and heavy vehicle activity potentially early in the day (agricultural spraying while wind run is low) or late in day (evening depending on wind drying conditions for making supplement or harvesting)
- Agricultural chemical application will almost inevitably raise complaints from neighbours even when applied by accredited applicators using best practise conditions
- Dust from soil cultivation, harvesting activities, and from making of supplements
- Mud on access lane and on Beach Road from agricultural vehicles leaving the site.

Long experience with farming activities on the peripheries of Christchurch City and surrounding towns, suggest that there will be complaints no matter how careful the land user and contractors are. A prudent farmer operating an agricultural business would be very unlikely to place the business in a situation of high direct potential conflict unless the site had particular merits that would justify the risks and potential impact.

Any prudent land user considering grazing livestock particularly sheep, but also young cattle and horses, will also take into account the high probability of neighbourhood dog harassment of livestock and impact from injury and deaths through to reduced productivity. Further, cats are recognised as vectors for spreading disease (e.g. toxoplasmosis), affecting sheep lambing percentages.

Vandalism and theft are also more frequent in locations close to residential areas. Livestock and machinery security will need to be at higher levels than more rural located farms with similar farm policies.

## Service providers and suppliers

Road access to the site off Beach Road is approximately 320m from intersection of Beach Road and Williams Street in urban Kaiapoi.

Access to the site by rural contractors and suppliers for purposes such as cultivation, making supplementary feed (silage and hay), chemical application, fertiliser application, etc, will be from the western and northern rural farming hinterland areas of Ohoka, Cust, Rangiora, and Amberley.



The most direct route to the site is from the west along approximately 1.72 kilometres of urban road along Smith Street (red line) from State Highway 71 (Lineside Road). The next most likely route is from the north off State Highway 1, along 3.52 kilometres of urban Williams Street (green-yellow line) to the site, or off SH1 at the Smith Street off ramp. There is no access from the east; southern access also along Williams Street passes through Kaiapoi CBD and is highly unlikely to be used.

Contractors servicing the site will in all cases be hesitant about transporting large machinery through urban areas. Access timing window will also be restricted by high urban traffic volumes during the day especially school hours (Kaiapoi North School is on the immediate northern boundary of the site) and noting that Williams Street is the main access route through Kaiapoi north-south.

To minimise access difficulties and work within urban traffic flows, the majority of contractors will try to access the site early in the morning or in the evening and will also be conscious of mud being transferred onto urban roads.

Given that the paddocks on site are small, and each job is not likely to be more than 2 or 3 paddocks (so no more than 1-3 hectares in total) almost all contracting jobs will by definition be small and only take a short time to complete. Therefore, it is most likely that contractors will not be able to avoid site access for at least one journey during the high urban use times of the day (7.30am to 6.30pm).

From experience of similar situations, many contractors will not want to take on work opportunities at the site because firstly the jobs will be small and relatively low margin, and secondly have the additional problems of traveling urban streets during the day and trying to minimise mud transfer

onto roads. Contractors will prioritise larger clients without the high potential site access problems. This means that there is high potential for time-sensitive activities to be delayed which will affect outcomes (e.g. late spraying of chemical applications, missing ideal weather and soil cultivation or harvesting conditions, etc).

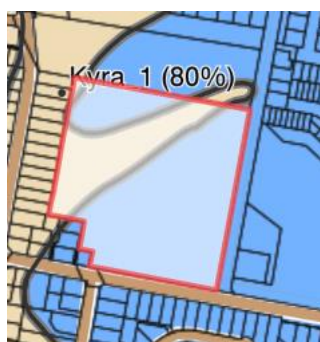
In summary, the range of experienced contractors available to the site user is highly likely to be less than normally available and will be dearer than normal to remunerate the contractors sufficiently to put up with traffic and mud problems.

A prudent potential land user will be very unlikely to establish a business where critical inputs and activities are compromised in availability and timing for the majority of agricultural machinery activities required to make the business a success.

## Soils, Natural Soil Water Table, Drainage

The soils are predominantly (83%) deep heavy clay soils with a variable layer of silt loam on top. These clay soils (marked as blue on the site plan below) are gley soils in that they are strongly affected by being waterlogged for prolonged periods of time, typically remaining saturated from early winter until late spring/early summer, or occasionally such as this year, into late summer/early autumn. These are highly structurally vulnerable soils, very easily damaged by pugging or ill-timed vehicle or machinery activities; both pugging and vehicle tracks being widely visually evident across these areas.

There are approximately 5.0 hectares of Temuka and Flaxton soils.



While the silt loams overlying the clay are 20-40cm deep, and have potential to drain naturally, the natural drainage of the underlying clay layers is impeded and very slow, effectively resulting in excess water lying on top of the clay layers and leaving the silt loams saturated for excessive periods.

Man-made drains and ditches are of limited value as the site is very flat and very low lying, so it is difficult to get off-site drains with a water table low enough to create fall from the site into the ditches.

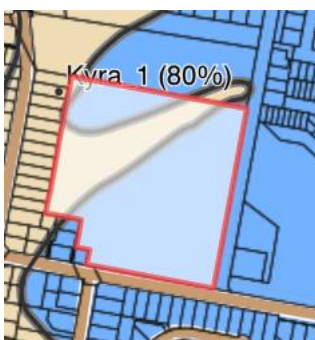
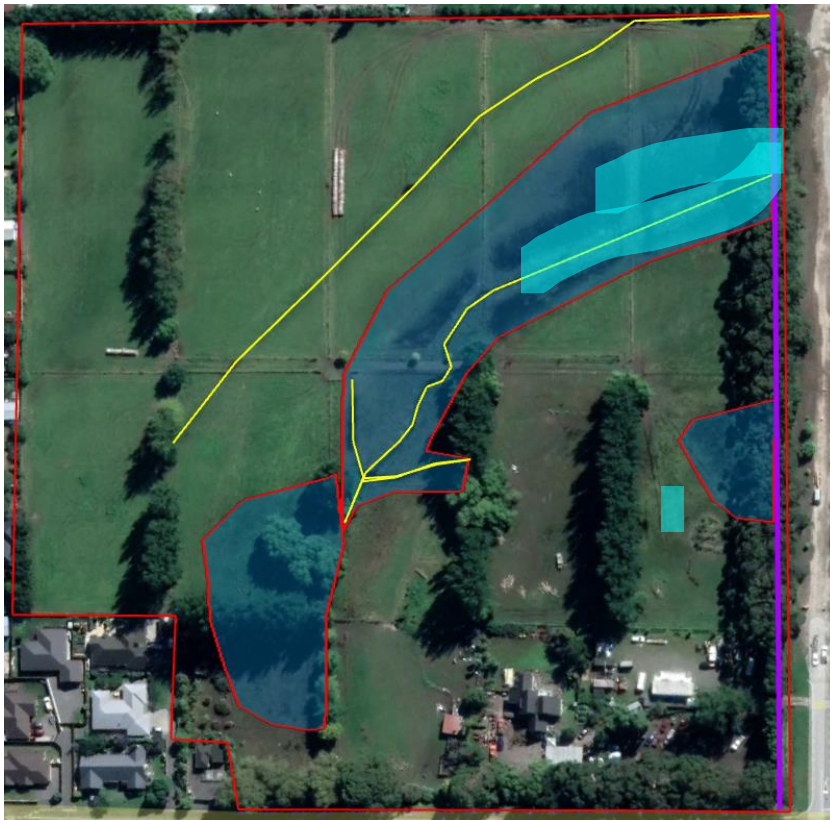
This was evident at my inspection where the water level in the drainage ditch (purple line on right in image below) running along the eastern boundary was at the same level or only very slightly below the water in drainage channels on the site. Shallow open ditches (yellow line) on the land leading into the ditches were also at the same water level and there was no flow occurring. Surface water (blue shading) is lying over the land alongside the ditches and drains confirming that neither the shallow ditches or adjacent drainage ditches are operating effectively.

There is still visual evidence of many old surface drains now grassed over across much of the site where previous land users have attempted to improve surface water drainage.

Inspection and analysis of the herbage species and animal pugging frequency and depth in the blue shaded areas and beyond (covering up to approximately 60% of the eastern half of the site), shows low levels of desirable pasture species and high proportions of grass weeds, and much soil pugging, revealing that poor drainage is an ongoing problem.

To be effective at draining soil surface water, the off-site drain water table levels would need to be 30+ cm lower than the site drain exit levels, which it is not.

Even if the land had sufficiently higher elevation than the eastern boundary drain, the upper soil layers would still be waterlogged because of the slow to moderately-slow permeability of the clay layer 20 cm – 130cm down the soil profile, which results in very poor lateral soil drainage. This significantly limits survival and productivity of desirable pasture species and exposes roots and growing shoots to physical damage. The result is predominance of weeds and species of low suitability for livestock grazing. There is scattered evidence of modern legumes (white clover) and grasses (perennial high endophyte ryegrasses) in these areas and very little rush or reed, indicating that the land has been cultivated on a regular if infrequent basis and new pastures started.



There is a small area (17%, light brown area in image) that is close to raw sand being geologically very young, formed from wind-blown and deposited sandstone parent materials. They have very little organic matter and no to extremely weak topsoil structure. Consequently, they drain rapidly, hold very little plant available soil moisture, and pasture plants are short lived and plants that do survive are not suitable for farming purposes.

These are Kairaki & Burwood soils, comprising approximately 1.0 ha.

### Soil management implications

Crop or pasture cannot be drilled with any confidence until the top 10-15cm of soil is sufficiently dry to cultivate and create a fine firm seed bed and soils are warm enough to strike the drilled species.

Typically these water logged soils will not be sufficiently dry to cultivate until early summer and in some years including this year, well into December or even January. This leaves insufficient growing days after drilling to allow arable or seed crops to get to maturity before either moist autumn weather causes crops to deteriorate (sprouting before harvest) or soil conditions become wet again so that mechanical harvest cannot be reliably undertaken.

If in the unlikely situation that a viable yield could be harvested, there would be insufficient time post-harvest to establish a follow-up pasture or crop that could be grazed, or survive long periods of saturated soil, severely limiting the range of viable crop rotation option, and land sitting idle for long periods of time is uneconomic.

Soils waterlogged from winter through to and including early summer means that heavy livestock cannot be grazed without deep pugging occurring, resulting in very poor utilisation of green feed crops (e.g. kale, rape, fodder beet), or destruction of target pasture grasses and legumes to a degree that they require replacement after every winter.

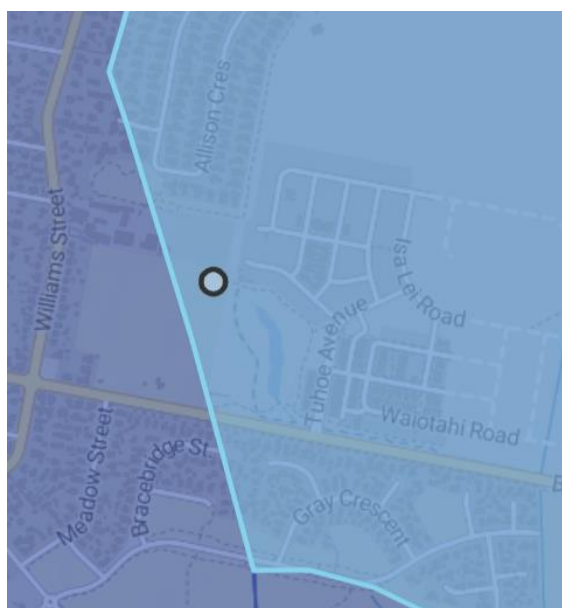
Heavy livestock include all cattle over one year old (in winter), and horses.

Water-logged soils or even the high chance of becoming waterlogged also means that any perennial horticultural crops or root vegetable crop are not a viable proposition.

In summary, the combination of difficult to manage soil types, and low-lying flat topography on the site and surrounding land resulting in ineffective artificial drainage means that arable cropping, dairy farming, growing of winter green feed crops (dairy support or beef), horse agistment, and perennial horticulture crops are not feasible.

Sheep grazing and young light cattle could be considered.

## Land Use Capability



[Map: LRIS Portal: NZLRI Land Use Capability 2021]

The South block in the LUC mapping falls into two categories with the site divided on the left into a non-classified 'Town' area, and on the right into a LUC classified area. The line location broadly delineates the urban/non-urban location rather than specifically defining this particular block of land. Therefore, the whole of the South block can be defined by information available for the right-hand side.

The LUC rating is '2w1'.



## Interpretation

Land Class	2	[versatility class]
Land Class Unit	2w	[restrictions to versatility]
Land Class Units	2w1	[degree of versatility restriction compared to other 2w polygons]

## Discussion

The South block is '2w' land with slight limitations for arable use and suitable for cultivated crops, pasture, or forestry *but where soil wetness resulting from poor drainage or a high-water table, or from frequent overflow from streams or coastal waters first limits production.*

The key point here is that the wetness limitations override that broad versatility that the Land Class 2 implies.

The third numeral can be disregarded as it simply allows location of land polygons with similar restriction characteristics and ranks them according to increasing degree of limitation to use.

## Specific site data

43.3778°S 172.6665°E	
<input type="checkbox"/> NZLRI Land Use Capability 2010	wln_legend
<input type="checkbox"/> 0.0m	tmu_legend
	si_legend      2w1
	marf_legend
nzcu_description	Flat to gently undulating floodplains and low-lying alluvial terraces below 150 m with winter wet Gley, Recent Gley, and imperfectly drained Pallic (gley and yellow grey earth) soils in low to moderate (<800 -1600 mm) rainfall areas in seasonally moisture-deficient districts.
orig_ni_si_unit_descr	Floodplains and low-lying parts of terraces, with wet soils in winter, in seasonally moisture-deficient districts.

## Infrastructure

### Subdivision & fencing

The site has been sheep & beef fenced (wood post, HT wire and electric outriggers) into twelve paddocks. Five paddocks approximately 0.58ha each running across the northern end; five at approximately 0.4ha below a short stock lane, and two at approximately 0.2 ha on the southern boundary. See map below.



The fencing is of two vintages; one of an earlier post and wire type forming four paddocks including the boundaries, and a second newer post and wire (combination of dead & live-wire) increasing subdivision and fencing off shelter plantings.

The fencing is currently not stock proof with broken wires, wires lying on the ground, no power in electric outriggers, broken or missing gates, and miss-aligned posts.

There is evidence of sheep and cattle moving freely through fences. This implies that the stock are set stocked and graze where they want, rather than rotationally grazed which would encourage higher pasture productivity and quality, and

improve animal productivity (reproductive rates and liveweight gains) by feeding for performance.

The fencing could be restored but it is more than minor repairs and maintenance.

### Stock Water

Most but not all paddocks have troughs. There are approximately 5 small round old concrete troughs – mostly broken and not hooked up to water line; and approximately 4 small round black alkathene troughs, mostly without water. The mainline supply pipe is on the soil surface – best practise is to bury it 500-600mm deep, and at inspection had no water pressure, and no water storage tank was found.

The water source is uncertain - there are no Waimakariri District Council supply charges. The water source could be artesian but Consent M35/1810 shows an old 89m bore is unused, so water supplied from house water is more likely.

A complete stock water system would need to be built from scratch if a viable stock grazing land use was to be operated.

### Stock Handling Facilities

There is a small set of cattle yards (brown in map below) that run between a small shed (red in map) to a load out ramp that is accessed from the western house driveway (grey in map). The shed and

yards are directly adjacent to the house and garden, and the loading ramp extends through the fence line into the drive parking area. It is unclear how a stock truck could access the ramp direct from Beach Road, it is more likely to come through from the vehicle access lane on the east boundary. The ramp doesn't appear to have been used for some time.

A small set of sheep yards are located on the north side of the red shed and it is likely the shed has handling pens inside (not inspected at visit). It is assumed that the red shed is also used for sheep shearing.

Any future sheep and or beef land use would require a small set of yards for animal welfare purposes in which to administer animal health products and treat wounds and injuries, and prepare for livestock for sale. The current yards location adjacent to the house would be difficult to continue with if the ownership of land and house were separated.



## Shelter

There is some shelter planted with eucalyptus sp. on the eastern boundary, and poplar sp. shelter planted north-south on five paddock fence lines with many gaps between trees. The poplars are under 20 years old, and eucalyptus older at 30+ years. There are a few scattered willows, and no radiata sp.

It is of note that the trees species are all capable of handling wet soil conditions on the site.

The shelter is of limited value in support of sheep and beef farming given the relatively short distance planted (23% of internal fence lines) and relatively mild winds prevalent at the site. There would be some sunshade value when stock are grazing those paddocks over summer.

## Sheds

There is one small three-bay shed, currently storing small bales of hay, a 4WD ute, and old hay baler. It doesn't appear to have any other current usage.

## Effective Area

Gross area of 6.05 hectares, net area estimated at 5.2 hectares after allowance for houses, curtilage, sheds, yards, shelter plantings.

## Pasture cover

At date of inspection approximately:

- 25% (1.35 ha) of pasture of average quality (adequate legume content, good presence of ryegrass, some invasion of English Grasses, and weeds)
- 15% (0.75 ha) of good clover but poorer ryegrass content
- 15% (0.75 ha) of rhizomatous weeds & grasses (Californian thistle, twitch, bents, Poa sp), no to little legume apart from Lotus sp; heavily pugged, almost permanently wet
- 55% (2.35 ha) of run-out pasture, moderate pugging (low legume content mostly Lotus sp, minimal ryegrass, high English Grass content)

There is no data available on fertiliser nutrient applications, but it is fair to assume there has been little if any phosphate, sulphur, or lime applied in the medium-term history.

The current ryegrass content is an indication that some new pasture has been established in the last approximately five years. In the sandy soils this has reverted rapidly with dry summers, and as rapidly on the very wet low-lying clay soils with constant wet root systems and pugging damage.

This balance of grass, legume and weed species indicates low annual dry matter production, and low pasture quality (averaged through a full year) in turn leads to low animal productivity and economic returns.

Any financially viable animal grazing enterprise would require better pastures on average, and a regular pasture renewal programme.

## Infrastructure Discussion

Upgrading fences to be stock proof, new troughs in each paddock, and small improvement in stock handling facilities is estimated to cost \$20,000 - \$25,000 assuming land user does some of the installation work.

Renovating the pastures in the cheapest way to get reasonable but not ideal pasture improvement (two herbicide sprays, direct drill with cheap generic seed), is estimated at \$3,000, and likely to be repeated every 2-3 years at least on half the area.

Annual maintenance fertiliser is estimated at \$800/year, not including any nitrogenous fertilisers.

## Current Stock Carrying Capacity

At inspection the site was grazing

- 2 horses
- 4 ewes
- 5 young sheep
- 1 Friesian MA cow

- 23 dairy-cross heifer calves including 1 steer calf.

Total approximately sixty stock units using Standard Livestock Unit Conversion Factors, or approximately 11.6 su/ha.

The calves had been bucket-reared and only recently arrived on the site. The most probably grazing policy is that they are grazed until mid-late autumn and then removed from the site leaving the other stock (or some equivalent combination of these stock types). Wintering is therefore about twenty-four stock units or 4.6 su/ha without supplementary feed or green feed crops.

Given the quality of the pastures, poor infrastructure, and predominantly winter-spring wet soils this is a fair representation of the numbers that could be grazed in its current state. Productivity cannot be expected to be very high given the poor pasture species generally available over the site.

## Economic Viability

The most likely enterprise to be run by a land user is sheep & beef grazing. Deer are discounted with the absence of deer fencing.

Assuming that the infrastructure and pastures are improved along the lines discussed, and assuming it results in a high stocking rate (>15.0 su/ha) then the economic return is estimated as follows.

Guideline data is sourced from Beef & Lamb Economic Service: Class 6 Forecast Model FY2022-23.

Effective Hectares	5.20		
SU/ha	15.38		
Total SU	80.00		
Gross Income		\$15,040	
<b>Direct Farming Expenses</b>			
Rates & Insurance	\$3,900		
Animal health	\$555		
Shearing	\$470		
Annual fertiliser	\$800		
Annual Pasture renewal	\$1,500		
R&M	\$300		
Freight IN	\$120		
ACC	\$100		
Administration contribution	\$1,000		
Vehicle Opex Contribution	\$1,000	\$9,745	\$5,295 A
Livestock Loan Interest	\$960		\$19,200
Livestock Loan Principle	\$3,840	\$4,800	5-years \$495 B
Improvements Loan Interest	\$1,250		\$25,000
Improvements Loan Principle	\$5,000	\$6,250	5-years -\$5,755 C

## Discussion

If the land user has own capital and does not require a loan or a return on the initial purchase of stock or land improvement (5%, and repayment over five-years), then the Net Cash Surplus (before tax) is approximately \$5,000 [A]

If start-up funds are required then, depending on how much funding is needed, then the Net Cash Surplus is between breakeven [B] and a \$5,000 - \$6,000 loss [C].

If the stocking rate is closer to the district average of approximately 11.5 su/ha, then the result using the same source data is:

Net Cash Surplus	\$1,800 [A]
NCS after stock loan	-\$1,800 [B]
NCS after stock and improvements loan	-\$8,000 [C]

Financial viability is breakeven or a little above breakeven at best and relies on the land user bringing own capital reserves to set up the site.

It is unlikely a prudent farmer would view this as an adequate return on investment or an adequate return on the risks associated with farming at this site.

## Conclusions

It is very highly unlikely that a prudent farmer would assess the site as a good opportunity to establish and operate a rural farming business operation or for rural lifestyle purposes.

- The soils on the site are predominantly unusable for 5-6 months of the year and up to 7-8 months in some years, being either water logged or at excessive moisture content that prevent grazing and or land management activities without soil or pasture damage. The site elevation in relation to neighbouring land means that the high-water tables are always going to be the predominant situation.
- The infrastructure is poor and requires significant upgrade to allow better management practise to be used and increase productivity.
- The location of the site for agricultural services support and access onto the site are a major disincentive that will restrict the quality and timing of work undertaken. Further the current land use of neighbouring properties (residential housing, day-care centre, school) places the operator under high potential business risk from the very start, no matter how well the farm is run.
- Of all the possible farming enterprises, the most likely is light weight livestock; all the others are precluded because of the wet soils.
- There is no scale or enough land class diversity on the site with which to manage and mitigate farming risk
- Even at high stocking rates the financial returns are likely to be little better than breakeven, and with little chance of recouping any capital invested into land improvement,
- It is difficult to see any prudent land user placing themselves under these kind of risks to farm the land on this site
- While a Rural Lifestyle use has less of the financial imperative, the land use is still restricted to livestock including horses, with plants or orchard of gardening having the same obstacles of water logged soils.

## Soils Appendix

Approx hectares		ratio
1.0	Kairaki_1a.1	80%
	Burwood_1a.1	20%
5.0	Temuka_49a.1	70%
	Flaxton-4a.1	30%

	ratio	Texture	Depth	PAW (60cm)	Structural Vulnerability	N Leaching Vulnerability	Drought Vulnerability	Water Logging Vulnerability
Kairaki_1a.1	80%	sand	deep	40	very high	very high	high	very low
Burwood_1a.1	20%	sand	deep	66	very high	medium	moderate	moderate
Temuka_49a.1	70%	silt over	deep	104	high	very low	low	high
Flaxton-4a.1	30%	clay	deep	104	high	very low	low	high

PAW = Profile Available Water in top 60 cm

*Geoff Dunham*

Geoff Dunham B Agr Sci  
**Agricultural Business Consultant** MNZIPIIM (Reg.) Inst of Dir.

**M** 0274 33 6564 **T** +64 3 313 9458

**Email:** [geoff@dunham-consulting.com](mailto:geoff@dunham-consulting.com) **Web:** [www.dunham-consulting.com](http://www.dunham-consulting.com)

**Post:** PO Box 310 Rangiora 7400



Auckland // Christchurch // Melbourne

## Appendix A

### Land Use Capability Definitions

Land Classes 1 to 4 are suitable for arable cropping (including vegetable cropping), horticultural (including vineyards and berry fields), pastoral grazing, tree crop or production forestry use.

Land Classes 5 to 7 are not suitable for arable cropping but are suitable for pastoral grazing, tree crop or production forestry use, and, in some cases, vineyards and berry fields. The limitations to use reach a maximum with LUC class 8.

Land Class 8 land is unsuitable for grazing or production forestry and is best managed for catchment protection and/or conservation or biodiversity.

LUC 1	Land with virtually no limitations for arable use and suitable for cultivated crops, pasture, or forestry.
LUC 2	Land with slight limitations for arable use and suitable for cultivated crops, pasture, or forestry.
LUC 3	Land with moderate limitations for arable use and suitable for cultivated crops, pasture, or forestry.
LUC 4	Land with moderate limitations for arable use and suitable for occasional cultivated crops, pasture, or forestry
LUC 5	High producing land unsuitable for arable use, but only slight limitations for pastoral or forestry use
LUC 6	Non-arable land with moderate limitations for use under perennial vegetation such as pasture or forestry
LUC 7	Non-arable land with severe limitations for use under perennial vegetation such as pasture or forestry
LUC 8	Land with very severe to extreme limitations or hazards that make it unsuitable for cropping pasture or forestry.

### Land use capability subcategory

Each LUC unit has a subcategory of the LUC class through which the main kind of physical limitation or hazard to use is identified. Four limitations are recognised:

- 'e' erodibility – where erosion susceptibility, deposition, or the effects of past erosion damage *first* limits production
- 'w' wetness – where soil wetness resulting from poor drainage or a high-water table, or from frequent overflow from streams or coastal waters *first* limits production
- 's' soil – where soil physical or chemical properties in the rooting zone such as shallowness, stoniness, low moisture holding capacity, low fertility (which is difficult to correct), salinity, or toxicity *first* limits production.
- 'c' climate – where climatic limitations such as coldness, frost frequency, and salt-laden onshore winds *first* limits production