Assessment of economic viability

Caland Holdings Limited

Report prepared by
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1 Executive Summary

1.1 Caland Holdings are proposing a subdivision of Lot 8 DP 392696 (Lot 8), Lot 7 DP 392696 (Lot 7) and Lot 2 DP 558193 (Lot 2) into 94 lots at 70 McFertridge Drive, Rotorua. The proposal has been submitted under the COVID-19 Recovery (Fast-track Consenting) Act 2020.

1.2 Further information has been requested by the regulator to identify whether the application meets the exemption criteria under clause 3.10(1)(a) of the NPS HPL. Specifically, for exemption this clause requires that:

> *(a) there are permanent or long-term constraints on the land that mean the use of the highly productive land for land-based primary production is not able to be economically viable for at least 30 years.*

1.3 The current highest and best use of the land has been assessed as intensive pastoral dairy farming. However, after considering the scale of the farm system, the regulatory constraints limiting the productive capacity of the farm and the opportunities to expand the farm beyond the current envelope, dairy production is not considered to be economically viable on this site.

1.4 Operation as an intensive drystock finishing property is economically viable when the grazing area is expanded through lease or purchase opportunities however the likely resulting erosion in land value is economically unviable for the existing landowner or a potential purchaser.

1.5 Even where there are significant constraints on the economic viability of HPL land, the significance of the loss of HPL land must be considered. In the context of the nitrogen reduction targets and the likely 7000 ha of land retirement necessary to achieve these water quality goals, the 14 ha of HPL land, out of a 14,959 ha with similar production capacity, is insignificant.

2 Context and approach

2.1 Proposal

2.2 Caland Holdings are proposing a subdivision of Lot 8 DP 392696 (Lot 8), Lot 7 DP 392696 (Lot 7) and Lot 2 DP 558193 (Lot 2) into 94 lots at 70 McFertridge Drive, Rotorua. The proposal has been submitted under the COVID-19 Recovery (Fast-track Consenting) Act 2020.

2.3 On 17th October 2022 the National Policy Statement for Highly Productive Land (2022) ("NPS HPL") came into force. This aims to protect highly productive land for use in primary production. Until defined in regional plans, highly productive land is rural zoned land of land use capability (LUC) class 1,2 or 3.

2.4 Further information has been requested by the regulator to identify whether the application meets the exemption criteria under clause 3.10(1)(a) of the NPS HPL. Specifically, for exemption this clause requires that:

> *(b) there are permanent or long-term constraints on the land that mean the use of the highly productive land for land-based primary production is not able to be economically viable for at least 30 years.*

2.5 We understand such constraints to be physical features or regulatory constructs that pertain specifically to the land in and of itself. Under such a definition, the current or expected lack of supporting infrastructure (such as the absence of post-harvest facilities or processing capacity) is not relevant to this economic test.

2.6 Perrin Ag has been engaged to undertake an independent assessment to determine if the land is subject to constraints such that the highly productive land within the parcel is not able to be economically viable for at least 30 years.

2.7 Regulatory context

2.8 Rural land in the Lake Rotorua catchment is subject to a suite of rules under Plan Change 10 (Lake Rotorua Nutrient Management) to the Regional Natural Resources Plan (PC10). These rules aim to reduce the nitrogen (N) load to Lake Rotorua by 140 tonnes per year.

2.9 Under PC10 farms must operate to farm plans which are required to meet a property's nitrogen discharge allocation (NDA). The allocation reduces every 5 years until 2032 when on average the allocation to dairy land will have reduced by 35.3% and drystock land will have reduced by 17.2%. A property's N reductions depend on the proportions of dairy land, drystock land and other land uses (e.g., trees) on the property. Lot 8 has an N reduction requirement of 32.1% from an average of the property's 2001-2004 discharges.

2.10 The regulated nitrogen reductions are predicted to achieve a 140 t reduction in N load to Lake Rotorua. This is only part of the reductions required to meet the lake's sustainable load of 435 t N prescribed in the Bay of Plenty Regional Policy Statement (RPS). To achieve the 435 t N sustainable load, three non-regulated programmes aim to reduce the nitrogen load by a further 180 t N through nitrogen purchases, engineering solutions, and the removal of gorse. The Bay of Plenty Regional Council (BOPRC) have signalled that should these programmes be unsuccessful, further reductions in N allocations will be required from the rural sector.

2.11 Nitrogen can be "shifted" within a property. This means that the nitrogen allocated to a hectare of land does not need to be used on that hectare – it can be used anywhere within the property to which it is allocated. In practice this means that land on one side of the catchment can use N allocated to land on the other side of the catchment, provided the two areas of land meet the definition of a property under PC10.

2.12 In addition to N "shifts" NDA can be traded between properties. As of 1 July 2022, nitrogen discharge allocations became tradeable under rule LR R10 of PC10. In addition to consenting requirements, trades are required to be secured through a legally binding agreement between the parties. To date, we are not aware of any trades between farms taking place.

2.13 The RPS contains policy UG 18B aimed at managing the subdivision of rural land and protecting the productive capacity of versatile land. This policy notes that in the Rotorua Lakes area land use change to achieve reduced nutrient losses may justify over-riding this policy.

2.14 Notwithstanding the aforementioned regulations, the NPS HPL requires that any exemptions granted due to permanent or long-term constraints that impact the economic viability of the land consider the following options as potential strategies to overcome the apparent constraints:

i. alternate forms of land-based primary production:
ii. improved land-management strategies:
iii. alternative production strategies:
iv. water efficiency or storage methods:
v. reallocation or transfer of water and nutrient allocations:
vi. boundary adjustments (including amalgamations):
vii. lease arrangements.

2.15 In relation to the subject property, we do not consider ii, iii and iv relevant due to:

- the extent of the regulated N loss reductions required within the Rotorua catchment are beyond the scope of practice and management change (ii and iii) to overcome
- the adequacy of water availability makes (iv) irrelevant.

2.16 The balance of the options have been considered in the following assessment.

3 Site description

3.1 Lot 8 is 49.8 ha of largely pastoral land on the north-western side of Lake Rotorua. Based on the 1:50,000 scale LUC mapping there is 18.6 ha of LUC class 3e6 (3e2 in earlier publications) land designated within the parcel. There is no LUC 1, 2 or 3 land mapped on Lots 2 and 7.

3.2 LUC 3 class land is broadly considered suitable for arable cropping and having; *moderate limitations, restricting crop types and intensity of cultivation, suitable for cropping, viticulture, berry fruit, pastoralism, tree crops and forestry.* LUC unit 3e2 near Lake Rotorua is described as having slightly lower arable potential (compared with LUC 3e2 in other areas) due to winter frosts but is still considered well suited to some horticultural crops such as pip fruit[1].

3.3 In the Rotorua catchment, with the dominance of pumice soils, a key driver of LUC class is slope. A GIS analysis of the property using the Bay of Plenty Regional Council's LIDAR based digital elevation model, highlights the likely limitations of the 1:50,000 LUC mapping in this region. Figures 1 and 2 show the 1:50,000 mapped LUC 3 area (purple outline) against the topography and slope of the site. The blue outline indicates a more likely representation of LUC 3 land based on a desktop analysis. Based on this, the likely area of LUC 3 land is approximately 14 ha rather than the 18.6 ha indicated by the 1:50,000 national dataset.

[1] Water and Soil Miscellaneous Publication No.89. Land Use Capability Classification and land Resources of the Bay of plenty-Volcanic Plateau Region. P.M. Blascke, 1985.

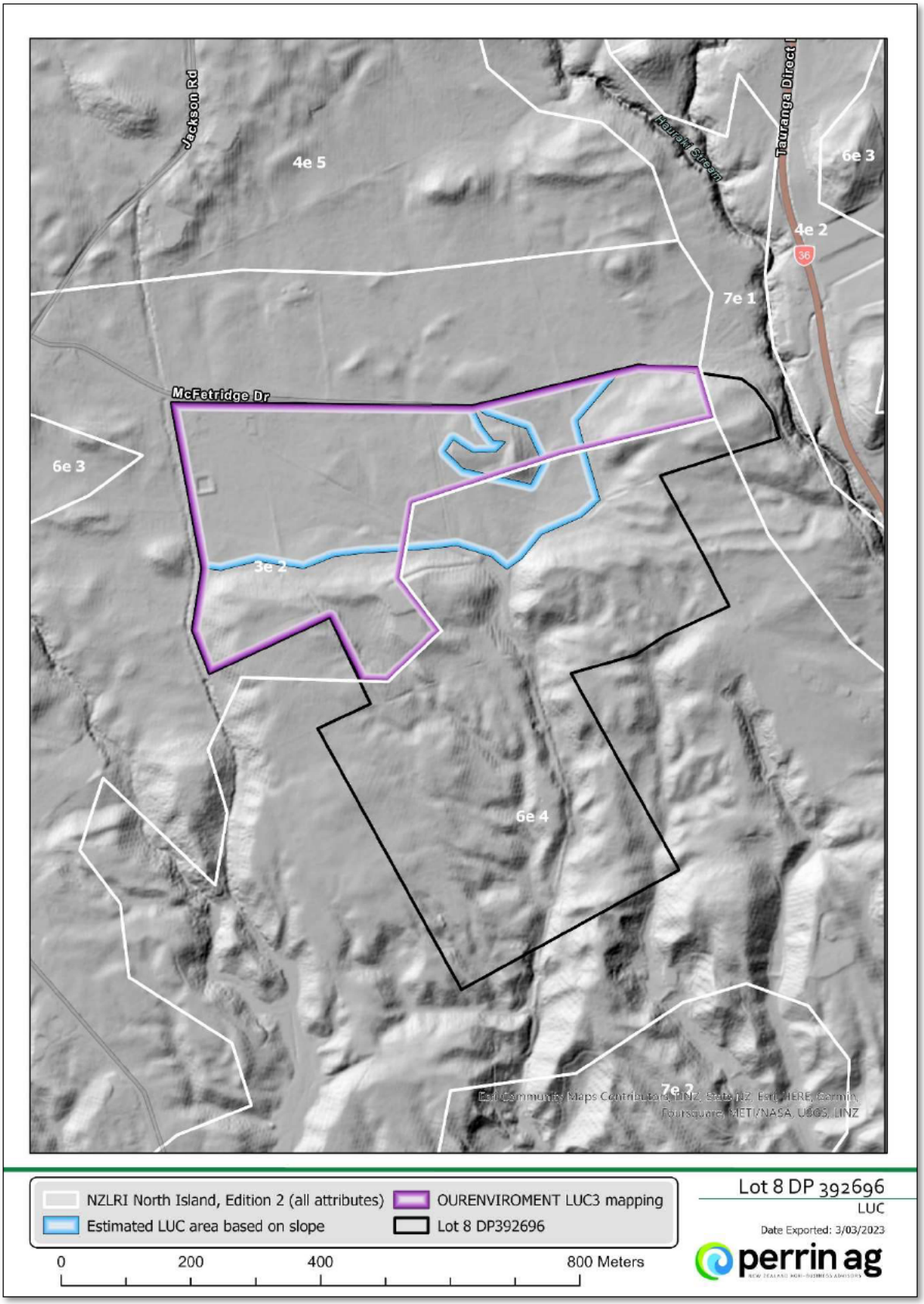

Figure 1: Comparison of the 1:50,000 scale LUC 3 area as shown on the OURENVIRONMENT website (purple) with a likely area of LUC3 when compared to the topography.

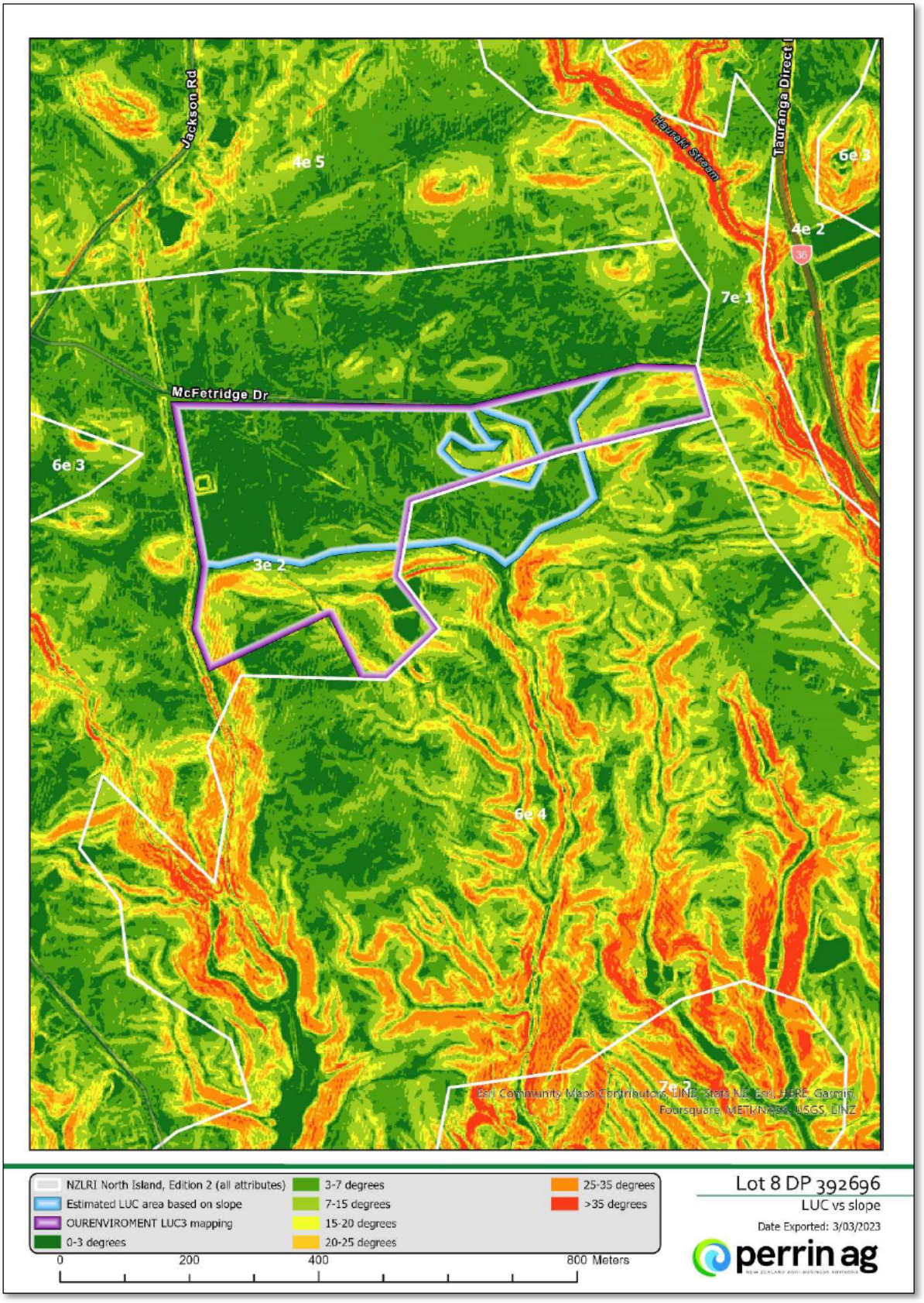

Figure 2: Comparison of the 1:50,000 scale LUC 3 area as shown on the OURENVIRONMENT website (purple) with a likely area of LUC 3 when compared to the LUC slope categories.

4 Assessment of economic viability

4.1 Current farm system

4.2 The parent property proposed to be subdivided is currently farmed as a 92.3 ha dairy farm comprising Lot 8 DP 392696 (49.79 ha, owned), Lot 7 DP 392696 (5.99 ha, owned) and Lot 2 DP 558193 (27.48 ha, owned). Current land use consists of 76.9 ha of productive dairy platform with the remaining being 14.7 ha of steeper retired areas and o.6 ha under farm housing. Other than the identified area of LUC 3 land in Lot 8 (Figures 1 and 2), there is no additional LUC 1, 2, or 3 land identified in the 1:50,000 scale mapping within the property.

4.3 The farm milks 210 cows at peak and produces around 96,000 kg MS/y or 1,248 kg MS/ha. Average milk production for a farm this size is between 931 and 1,090 kg MS/ha[2].

4.4 The farm operates a 22 a side herringbone shed built prior to 2000. There is a lined effluent pond and a consent to discharge effluent through to 2038.

4.5 Potential use of HPL within Lot 8

4.6 The current highest and best use of the land has been assessed as intensive pastoral dairy farming (including the production of forage crops). While the 14 ha of LUC 3 land is potentially suitable for cropping, viticulture, berry fruit, and pip fruit the current climate, altitude (as it relates to growing degree days), and underlying soil type (pumice) makes the growing of grapes, berry fruit and pip fruit problematic, because of typical rainfall distribution (high summer rainfall) and no recognised terroir. While the land is capable of such production (albeit with compromised yields), a lack of comparative advantage with other locations mean that horticultural production of these crops is not economically viable. The almost complete absence of these crops from the Rotorua district other than at "cottage" scale underlines this lack of economic viability.

4.7 By mid-century the impact of embedded climate change is expected to marginally improve growing conditions in the Central Plateau through increased growing degree days (GDD) and reduced frost risk, while areas like coastal Bay of Plenty will be negatively impacted by reduced winter chill. However, the suitability of the Rotorua area for crops such as apples, blueberries and kiwifruit is largely unchanged from current suitability assessments[3].

4.8 As a result, we remain of the view that from a geophysical perspective, the highest and best use of the LUC 3 land within the subject parcel is intensive dairying or livestock finishing and other alternative forms of land-based primary production that optimise the use of the highly productive land on the subject property are not applicable over the next 30 years.

4.9 Permanent or long-term constraints

4.10 As mentioned above, the property is subject to a reducing nitrogen discharge allowance.

4.11 Under PC10 the property's nitrogen allocation reduces by 9.87% by 2022, 20.65% by 2027 and 32.11% by 2032. To comply with the 2027-2032 N allocation, it is currently planned to reduce MS from 96,000/yearto 80,500/year. Planning for post 2032 has not been completed however further reductions in production are likely to be required.

4.12 At the current size and production levels we consider the farm's economic viability to be marginal at average debt levels for the sector. Under the additional nitrogen reductions required by PC10 the farm will not be economically viable without expansion of the dairy platform. Furthermore, the farm will require a significant investment in a dairy shed if it is to continue as a dairy farm over the next 30 years.

4.13 Nitrogen trading could be used to maintain the property's N allocation and current production levels. Although the true value of nitrogen on the free market has not been determined, the BOPRC's programme to purchase N out of the catchment has approximately $230/kg N available. However, in our assessment this value is insufficient to offset the change in land value resulting from a nitrogen trade or the capitalised value of the loss in productive capacity. This assessment would appear to be confirmed by the programme being well short of its 100 t N reduction target.

4.14 Conservatively assuming the value of N is $230/kg, the property will need to purchase N to the value of $354,890 to maintain current production levels out to 2032 and beyond. Although there may be some gains through mitigations it is likely that the effects of these will be offset by more realistic free market N pricing.

4.15 As a result, while the reallocation of nutrient discharge allocation is legally possible, it is unlikely to be economically viable.

4.16 The farm's viability might be improved through the expansion of the dairy platform. However, as the property has no neighbouring dairy farms, any expansion beyond the current platform will likely require an investment in N in order provide sufficient allocation to support a viable dairy system. Given the scale of investment likely to be required, there would need to be a significant shift in land values to make this option viable.

4.17 An alternative option would be to be combine the property with another within the catchment. In this situation N could be shifted around between the relevant properties as required and economic viability achieved through expansion of the farm system. However, under this scenario the property, as indicated in 4.16 above, would likely not remain under dairy land use and would likely be converted to a run-off or drystock finishing. The associated significant reduction in operating profit and the likely impact on the property's value makes this option economically unviable for the current landowner.

On balance considering the current and future regulatory constraints, even with the legal possibility of nutrient loss reallocation, and the limited potential to expand the dairy platform beyond its current footprint through boundary adjustments or lease arrangements, we consider the operation of a dairy production system on these parcels, and specifically the 14 ha of designated highly productive land, not to be economically viable.

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[2] Sourced from DairyBase® farm profitability reports for the 20-21 year and herd sizes of 0-200 cows and 200-400 cows.

[3] Whitiwhiti Ora: Land Use Opportunities (November 2021); Climate Change Impacts on Blueberry [Fact sheet]. Plant and Food Research.
Whitiwhiti Ora: Land Use Opportunities (November 2021); Climate Change Impacts on Apples [Fact sheet]. Plant and Food Research.
Whitiwhiti Ora: Land Use Opportunities (November 2021); Climate Change Impacts on Kiwifruit [Fact sheet]. Plant and Food Research.

4.18 **Drystock and forestry production systems**

4.19 In the Rotorua catchment good drystock land is valued at approximately half to two thirds the value per hectare of dairy land. Similarly, forestry land is valued at around a quarter that of dairy land.

4.20 A permanent change of the production system on the parent parcel from dairy to drystock or forestry is therefore likely to have a significant impact on the property's value. This is driven in part by the potential returns offered by these production systems and by the reduction in future land use versatility associated with the cost to re-convert land back to dairying (root removal, restoration of dairy shed and effluent assets). Any reduction in value outside general market movements is likely to be unpalatable to parties holding security over the property. While this does not affect the properties agronomic viability it is likely to significantly impact the properties economic viability for the current landowner.

4.21 To some extent the reduction in value can be offset through the sale of nitrogen allocation. However, for the majority of properties the price offered by the sole purchaser of NDA, the BOPRC, has been insufficient to fully offset the change in property value resulting from de-intensifying the land use. To be an economically viable option the free market value of NDA would need to be 3-5 times the price currently offered through the BOPRC buy back scheme.

4.22 Over a thirty-year time-period one might assume the free market price of NDA adjusts to be in equilibrium with property values once nitrogen discharge allocations become a trusted unit of currency. In practice the science behind N discharges from pastoral systems is constantly evolving and as a result lends itself to a degree of mistrust amongst the farming community. In addition, the potential for the regulatory framework to change creates uncertainty and regulatory processes introduce frictions impacting the markets' ability to function. Consequently, it is unlikely than NDA becomes a trusted currency that can be reliably linked to property value.

4.23 Changing the production system to from dairy to drystock or forestry would be highly likely to reduce the value of the land to a greater degree than offset by the change in N allocation requirements. In doing so these systems are economically unviable for the existing owner under the long-term constraint of the significant reducing nitrogen discharge allowance. Once the adjustment in the property's value has occurred, the potential does exist to increase the grazing footprint through combination with other properties and make a drystock or forestry production system economically viable, but only after significant capital erosion.

4.24 **Other considerations**

4.25 Even where there are significant constraints to economic viability of HPL land, under 3.10 (1) (b) (i) any significant loss of productive capacity of HPL must still be avoided. As discussed, we consider the highest and best use of the land to be intensive drystock finishing. Our view is that the evaluation of "significant" is relative to the available area for this land use in the district or in this case, given the regulatory constraints, the Rotorua catchment.

4.26 The land available in the Rotorua catchment for intensive drystock finishing comprises all LUC 4-6 land that is subject to PC10 rules and not otherwise unavailable due to legal covenants or being under existing long-term infrastructure such as roads and houses. This area sums to 21,863 ha. Of this 6,904 ha is under bush or forestry leaving 14,959 ha available for pastoral farming. The assessment of "significant" must also consider drivers for land use change in the catchment. The PC10 rules aim to de-intensify farming thereby removing 140 t N from entering Lake Rotorua. There is a further 180 t N non-regulated reduction target. While a portion of this may be achieved through engineered solutions such as additional sewage reticulation, the majority must come from land use change. Assuming 150 t N comes from land use change something like 7,000 ha will need to be converted from pastoral land use to a significantly lower intensity land use if the catchment targets are to be met.

4.27 We consider a reduction of 14 ha of land out of 14,959 ha with similar production capacity, in a regulatory environment where cumulative reductions in the order of 7,000 ha are being actively sought, to be insignificant.

5 Conclusions

After examination of the geospatial data for the site we estimate that there is 14 ha of LUC 3 land under the proposed subdivision rather than the 18.6 ha indicated by the 1:50,000 national dataset.

The highest and best land use for the property is assessed as dairy production however the scale of the property, required infrastructure investment and regulatory constraints result in this land use being economically unviable.

Options to expand the productive capacity of the dairy farm through increasing the dairy platform and nitrogen trading are evaluated but not considered to be economically viable.

Operation as an intensive drystock finishing property is economically viable when the grazing area is expanded through lease or purchase opportunities however the likely resulting erosion in land value is economically unviable for the existing landowner or a potential purchaser.

Even where there are significant constraints on the economic viability of HPL land, the significance of the loss of HPL land must be considered. In the context of the nitrogen reduction targets and the likely 7000 ha of land retirement necessary to achieve these water quality goals, the 14 ha of HPL land, out of a 14,959 ha with similar production capacity, is insignificant.