Te Karaka Group

Allocation of Shares in *Te Karaka Group Land LP*

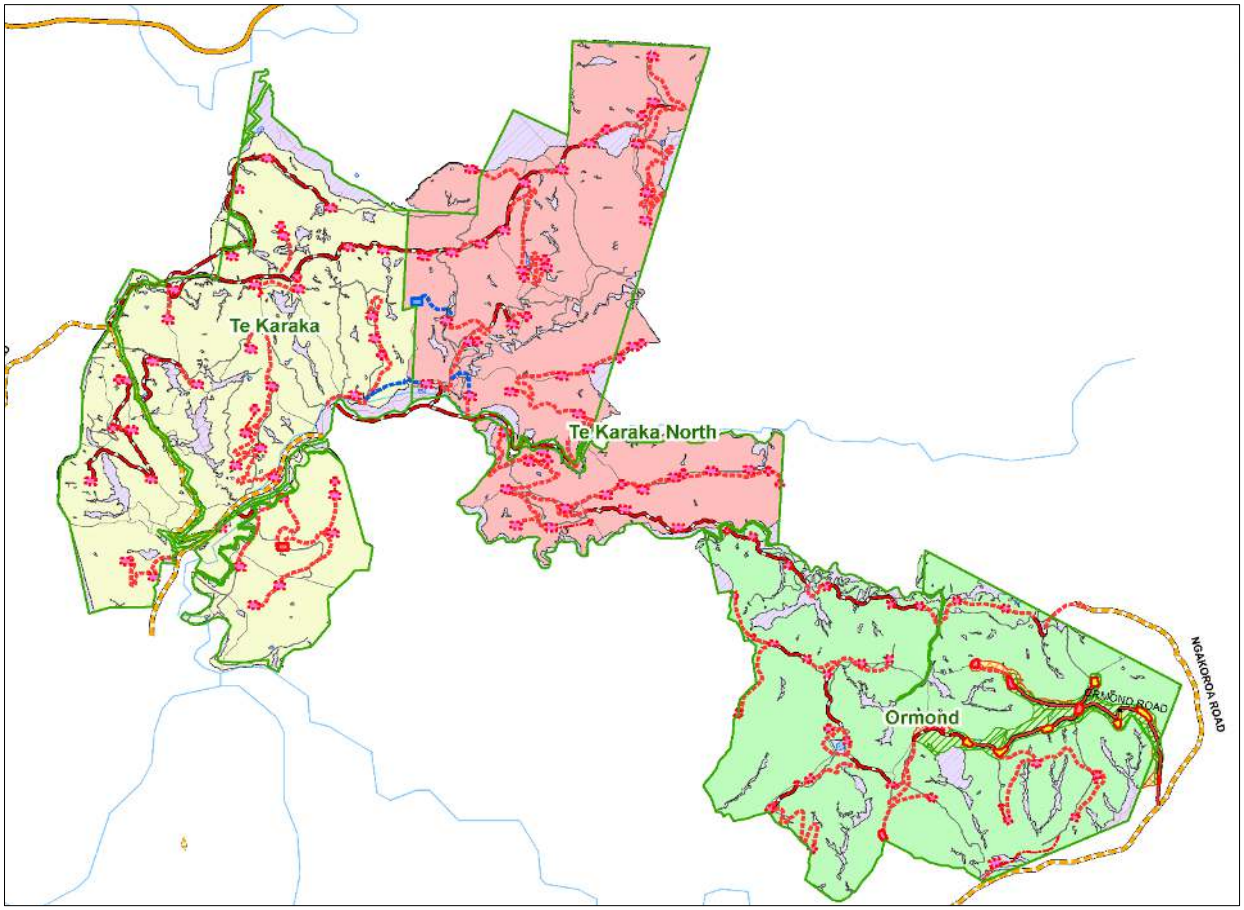

Table of Contents

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Investments in the Te Karaka Group (for Te Karaka Group Land LP)

- Ormond Forest Investment
- Te Karaka Forest Investment
- Te Karaka North Forest Investment

Background

The Te Karaka Group of investments will be voting on a proposal to implement collective harvest by joint venture of their mature forest. The underlying rationale of the proposal is that each investment is better off receiving a percentage share of the total revenue from the collective harvest of the forests owned by each investment in the joint venture than 100% of the revenue from the harvest of their forest.

Details of the allocation methodology chosen is set out in *Appendix 1 – Notes on Land LP Share Methodology* on page 6. These notes are the relevant sections extracted from the comprehensive report entitled *Collective Harvest by Joint Venture – for Forest Enterprises Managed Investment Schemes*.

The purpose of this document is to report to the Investors in the Te Karaka Group investments –

1. the calculated shares for each investment in the Te Karaka Group Land LP (Land LP); and
2. to identify and discuss the differences in the Participant Forest's land impacting on their relative value and consequentially their calculated share of the Te Karaka Group Land LP.

Calculated Te Karaka Group Land LP Shares

The comparative land and improvements values assessed by Mark Morice, the Registered Valuer commissioned to undertake this valuation assignment, are set out in his June 2018 Report (separately available). The resulting calculated percentage shares in the Te Karaka Group Land LP for each Investment is set out in the table below –

Investment Name	September 2018 Mark Morice Land & Improvements Value	Calculation of Land LP Shares	Calculated Land LP Shares %
Ormond	**$1,433,000**	**$1,433,000/$4,335,000**	33.1%
Te Karaka	**$1,584,000**	**$1,584,000/$4,335,000**	36.5%
Te Karaka North	**$1,318,000**	**$1,318,000/$4,335,000**	30.4%
	$4,335,000		100.0%

Differences in Land Impacting on Calculated Share of Land LP

Overview

The component elements of the values assessed by Mark Morice are set out in the Valuation Summary in his report which is included as Appendix 2 on page 8. All the differences in land value impacting on the calculated share of Land LP are to be found in this summary. The key component elements are analysed and commented upon in the remainder of this report.

The balance of this report discusses these land differences under the following headings –

1. Pre-1990 and Post-1989 Land
2. Ground-Based Logging and Hauler-Based Logging Land
3. Non-Productive Land
4. Other Forest Statistics
5. Roads

Pre-1990 and Post-1989 Land

The value (market) of *Pre-1990 Land* is less than *Post-1989 Land*. This is because of the impact of the Climate Change Response Act 2002 (Emissions Trading Scheme) which had the effect of nationalising *Pre-1990 Land* as forest land, unless the carbon consequences of land use change are accounted for; and passing through the carbon profile (and therefore value) to the owners[1] of *Post-1989 Land*.

The table below analyses each Investment's forest land type relative to the average and shows as positive variance those investments which have more higher value Post-1989 Land than the average, and as negative variance those which have more lower value Pre-1990 Land than the average.

Land Type	Average %	Ormond		Te Karaka		Te Karaka North	
	Split	Split	Var	Split	Var	Split	Var
Post-1989	92%	95%	3%	89%	-3%	92%	0%
Pre-1990	8%	5%	-3%	11%	3%	8%	0%

Those investments with positive variance highlight have a relative value shift arising from this characteristic from those investments with a negative variance.

Note, the government released a discussion document on proposed changes to the ETS for forestry in August 2018. Submissions closed in September 2018. Any future changes are unlikely to have a material impact between the Te Karaka Group forests.

Ground-Based Logging and Hauler-Based Logging Land

Ground based logging is cheaper than hauler-based logging therefore land which can be harvested using ground-based equipment has a higher value than land which must be harvested using the more expensive hauler-based logging equipment.

The table below analyses each Investment's land relative to the average for ground-based and hauler-based logging and shows as a positive variance those investments which have more lower cost ground-based logging land than the average, and as a negative variance those which have more higher cost hauler-based logging land than the average.

[1] **Owner** for the purpose of the Emissions Trading Scheme can also be a lessee under a lease or grantee under a Forestry Right.

Harvest Type	Average	Ormond		Te Karaka		Te Karaka North	
	Split	Split	Var	Split	Var	Split	Var
Ground	21%	16%	-5%	31%	10%	16%	-5%
Hauler	79%	84%	5%	69%	-10%	84%	5%

Those investments with a positive variance have a relative value shift arising from this characteristic from those investments with a negative variance.

Non-Productive Land

Non-productive land is of two types –

1. Post-1989 Non-Stocked Land; and
2. Non-Productive Land

The table in Appendix 2 quantifies these areas for each Investment.

Post-1989 Non-Stocked Land

Post-1989 Non-Stocked Land is land that is currently registered as Post-1989 Land and counting for the area used to calculate the carbon rental being paid. The areas noted for each Investment are however not part of the presently mapped Net Stocked Area due to forest loss attrition, and also to mapping differences.

These land areas have been attributed an assessed value of $1,000 per hectare which is materially less than productive Post-1989 Land but still recognises that these areas may have a future Post-1989 productive value. There is none of this land in any of the Investment's.

Non-Productive Land

The balance of the title area is classified as Non-Productive Land. These areas include reserves and other land, some of which may become productive for the second rotation, but in the meantime has been an assessed value of just $100 per hectare.

Impact on Comparative Value

Given the relatively low value attributed to these land areas, regardless of the hectares this factor does not have a material impact on the comparative land values for the Investments.

Other Forest Statistics

The *Other Forest Statistics* include terrain, altitude, land productivity, and lead distances (proximity to public road), all of which impact on the comparative values used for the four land categories –

- Post-1989 Land with Ground-Based Logging
- Post-1989 Land with Hauler-Based Logging
- Pre-1990 Land with Ground-Based Logging
- Pre-1990 Land with Hauler-Based Logging

The table below analyses each Investment's land value component relative to the average and shows as a positive variance those investments which have a value above this average, and as a negative variance those which have a value less than the average.

Land Value Component	Average Value	Ormond		Te Karaka		Te Karaka North	
		LV	Var	LV	Var	LV	Var
Post-1989 Land Ground-Based	$5,116	$3,800	-$1,316	$4,000	-$1,116	$3,800	-$1,316
Post-1989 Land Hauler-Based	$4,633	$3,040	-$1,593	$3,200	-$1,433	$3,040	-$1,593
Pre-1990 Land Ground-Based	$2,812	$2,300	-$512	$2,500	-$312	$2,300	-$512
Pre-1990 Land Hauler-Based	$2,450	$1,840	-$610	$2,000	-$450	$1,840	-$610

Those investments with a positive variance have a relative value shift arising from this characteristic from those investments with a negative variance.

Roads

The roading infrastructure built has been valued using $275 per hectare of Potentially Productive Area (PPA), consequentially the roading element of the values has no impact on the comparative values for each investment. The rationale for using a $275 per hectare (without regard to the kms of roads per hectare) is that each property requires whatever roads must be built to service the PPA. Without the roads to service the PPA land with this classification, these areas could not be counted as productive at the value assessed.

Potentially Productive Hectares Comparison

All other factors being equal, the calculated Land LP share percentage for each forest would be the same percentage as the Potentially Productive Area (PPA) percentage. Any differences in the calculated Land LP share percentages must be explained and rationalised with reference to actual differences between each participant forest.

PPA is the total area assessed as able to be productive (a planted forest) and is different from the area that is currently productive due to the inclusion of any areas not part of the collective harvest, and because it includes areas that are used for the harvest infrastructure (roads and landings) during harvest.

Actual net stocked area for the second rotation forest may be more or less than the PPA due to –

1. Land area used for infrastructure not replanted; and
2. Non-Productive Area (NPA) able to be made productive for the next rotation

The table below compares the calculated Land LP share percentage with the potentially productive hectares percentage.

Investment Name	Calculated Land LP Shares %	Potentially Productive Area (ha)	Calculated Potentially Productive Area %	Difference
Ormond	**33.1%**	**417.2**	**33.6%**	**-0.5%**
Te Karaka	**36.5%**	**435.0**	**35.0%**	**1.5%**
Te Karaka North	**30.4%**	**390.2**	**31.4%**	**-1.0%**
	100.0%	**1242.4**	**100.0%**	**0.0%**

The *Difference* column in the table above shows the small difference between the different valuation methods and provides broad support to the Register Valuer assessment.

Appendix 1 – Notes on Land LP Share Methodology

Calculation of Each MIS's Equitable Allocation of Shares in Land LP

Overview of Land LP Share Calculation

The methodology that is chosen to allocate shares in Land LP to each MIS must result in an equitable allocation reflecting each MIS's contribution to Land LP. The number of shares allocated is both -

1. A proxy for each MIS owning their own land.
2. A responsibility and payment obligation sharing mechanism for the costs of land ownership including replanting, forest insurance, rates etc.
3. A responsibility and revenue sharing mechanism for the carbon leases.

As a proxy for continuing to own their own land, each MIS is interested to ensure they receive an equitable share of any increase in value of all the land to be held by Land LP.

As a responsibility and payment obligation/revenue sharing mechanism, each MIS is interested to ensure it pays a fair share of the land ownership costs and receive a fair share of the carbon lease revenue.

One methodology considered for allocation of shares in Land LP was to use the same percentages calculated for share of collective harvest. This was discounted because the Forest Crop Value Methodology used for collective harvest shares reflects all variables relevant to the current crop and its harvest, however the allocation calculation for Land LP must accommodate different variables generally, and specifically in each MIS, including -

1. The emissions trading scheme land classification as Pre-1990 and Post-1989 and the consequential major difference in the treatment of the carbon sequestration asset - Post-1989 Land has a carbon asset during the rotation whereas Pre-1990 land does not.
2. Significantly reduced harvest infrastructure costs arising from re-using the infrastructure built and paid for by the first rotation which increases the net stumpage as a percentage of total sales revenue balanced against higher maintenance costs arising from maintaining the infrastructure which are a drag on the investment return.
3. Higher crop yields due to improved genetics which increases the net stumpage as a percentage of total sales revenue, plus starting net stocked areas and crop yields without the impacts of the unique events during the first rotation that impacted upon these areas now being harvested e.g. any wind, fire and disease events.
4. Sensible age class locations relative to the built infrastructure and ability to harvest sequentially at a selected age, which increases harvest volume and therefore stumpage as a percentage of total sales revenue.

From a first principles perspective, the contributed asset by each MIS to Land LP is their cutover land and the infrastructure built on that land during harvest. This perspective suggests that the current value of each MIS's cutover land and infrastructure is the value contributed and therefore should be the input into the following formula to determine the percentage shares allocated in Land LP to each MIS -

Percentage Shares = **The percentage of each MIS current land value to the total of the current land values for all MISs in Land LP**

Worked example of formula -

MIS Name	Land Value	Calculation of % Share	Calculated % Share of Land LP
MIS 1	$1.5 million	$1.5/$6.0	25.00%
MIS 2	$2.0 Million	$2.0/$6.0	33.33%
MIS 3	$2.5 million	$2.5/$6.0	41.67%
Total Land Value	**$6.0 million**		**100.00%**

The relevance of current land value is reinforced by the knowledge that generally current value of cutover forestry land reflects the following -

- Location relative to market.
- Distance in forest to public road.
- Terrain -
  - percentage hauler and ground-based harvesting; and
  - District Scheme classifications relating to erosion susceptibility.

- Climate Change Response Act 2002 land classification as either Pre-1990 Forest Land or Post-1989 Forest Land.
- Site index (300 Index) as a measure of forest crop quality and quantity.
- Aspect relative to the sun and also the prevailing wind.

Allocation of shares in Land LP is not about the absolute determination of the value of the land owned by each MIS, it is about identification of equitable relative value between the multiple MIS in Land LP. Market value is not necessarily a perfect input into determining equitable relative value for forestry land, another relevant input is the Land Expectation Value.

Land Expectation Value is a standard discounted cashflow technique used to calculate the value of bare land planted in a forest. The calculated value is the net present value of the cashflow using as the discount rate the targeted return from the forest use of that land.

Land Market Value plus Land Expectation Value Combination Used

After discussion with Mark Morice, one of the most experienced valuers of forestry land in New Zealand, it has been agreed that using a Market valuation with cross check using the Income Approach inclusive of Land Expectation Value will produce values fit for the unique purpose they are required.

It has been made clear in his briefing that the value inputs are required specifically for the allocation of shares in Land LP, and that the resulting allocation must reflect the comparative differences between the contributed cutover land and infrastructure being built on the land.

The process to be followed includes a physical or aerial inspection of each MIS, plus desk work. A short form report has been specified as the relevant supporting commentary is only required on anything which creates a material comparative value difference in the value of the land of each MIS.

Although it is important to equitably allocate shares in Land LP, the financial consequences of material differences in share allocation percentage are relatively immaterial at the Investor level, compared with the more material consequences of relatively immaterial differences in allocation of collective harvest shares.

The materiality difference between the collective harvest and land value allocations arise from –

- The quantum of investment return from the harvest being a factor 60 to 70 times the quantum of the return from land value.
- The costs arising in Land LP being shared in the same percentage as the shares allocated.

Reporting Land LP Share Allocations to Investors

Forest Enterprises reports to Investors the input values provided by Mark Morice and the resulting share allocations arising from the formula. Unlike the collective harvest share allocations, no independent review of this reporting by the auditors is needed as the input data is independently sourced from the registered valuer engaged.

Appendix 2 – Valuation Summary

Appendix 1 - Valuation Summary	Total All Properties	Ormond	Te Karaka	Te Karaka North
Area Allocation				
Post 89 Productive Land	1,146.7	398.4	388.9	359.4
Pre 90 productive Land	63.7	18.5	32.5	12.7
Post 1989 Non Eligible stocked	31.9	0.3	13.5	18.1
PPA (Potentially Productive Area)	1,242.4	417.2	435.0	390.2
Post 1989 Eligible unstocked	0.0	0.0	0.0	0.0
Non Productive	125.2	45.5	50.1	29.6
NPA (Non Productive Area)	125.2	45.5	50.1	29.6
Adopted CT/Legal Area	1,367.6	462.7	485.1	419.8
Post 1989 Area % ppa	92%	95%	89%	92%
PPA %	91%	90%	90%	93%
Lead Distances (km)				
Includes internal		*3.0*	*3.0*	*3.0*
Export	43.6	39.0	46.0	46.0
Forest Statistics				
Terrain (Ground Based)	21%	16.0%	31.0%	16.0%
Terrain (Hauler Based)	79%	84.0%	69.0%	84.0%
PPA Over 600m altitude est	0.0	-	-	-
Avg. Altitude m	205	220	160	240
Min Altitude m	40	60	40	60
Max Altitude m	440	340	300	440
PPA by Terrain/ETS Class				
Post 1989 GB	184.3	63.7	120.6	57.5
Post 1989 HB	603.0	334.7	268.4	301.9
Pre 1990 GB	13.0	3.0	10.1	2.0
Pre 1990 HB	38.0	15.5	22.5	10.6
Post 1989 Non Eligible GB	4.2	0.0	4.2	2.9
Post 1989 Non Eligible HB	9.6	0.2	9.3	15.2
PPA	1,242.4	417.2	435.0	390.2
Land Value Adopted ($/ha)				
Post 1989 GBe	5,116	3,800	4,000	3,800
Post 1989 HBe	4,633	3,040	3,200	3,040
Pre 1990 GBe	2,812	2,300	2,500	2,300
Pre 1990 HBe	2,450	1,840	2,000	1,840
Post 1989 Non Eligible GB	3,229	1,800	2,000	1,800
Post 1989 Non Eligible HB	3,885	1,440	1,600	1,440
Post 1989 Eligible unstocked	1,000	1,000	1,000	1,000
Non Productive	100	100	100	100
Land Value				
Post 1989 GBe	943,017	242,241	482,261	218,515
Post 1989 HBe	2,793,911	1,017,411	858,735	917,764
Pre 1990 GBe	36,692	6,805	25,223	4,664
Pre 1990 HBe	93,086	28,583	44,912	19,590
Post 1989 Non Eligible stocked	50,904	426	23,334	27,144
Post 1989 Eligible unstocked	-	-	-	-
Non Productive	12,519	4,551	5,010	2,958
Total Land	3,930,129	1,300,017	1,439,475	1,190,636
Average productive LV/ha	*3,153*	*3,105*	*3,298*	*3,044*
Improvement Value Adopted				
Fencing (km)	21	6.0	8.5	6.5
Fencing ($m)	3,000	3.0	3.0	3.0
Fencing Value	63,000	18,000	25,500	19,500
Roads				
Ha	1,242	417.2	435.0	390.2
$Ha	275	275	275	275
Roading Value	341,660	114,730	119,625	107,305
Improvements Value	404,660	132,730	145,125	126,805
Valuation Summary	**Total**	**Ormond**	**Te Karaka**	**Te Karaka North**
Improvement Value	405,000	133,000	145,000	127,000
Land Value	3,930,000	1,300,000	1,439,000	1,191,000
Total Land & Impts Value	**4,335,000**	**1,433,000**	**1,584,000**	**1,318,000**
Share	*100%*	*33.1%*	*36.5%*	*30.4%*

Pre 1990 Value Analysis				
Improvement Value	405,000	133,000	145,000	127,000
Land Value	2,431,000	803,000	913,000	715,000
Total Land & Impts Value	**2,836,000**	**936,000**	**1,058,000**	**842,000**
Share	*100%*	*33.0%*	*37.3%*	*29.7%*

Difference	0%	0.1%	-0.8%	0.7%