

10 December 2018

Mr Graeme Tindall  
Managed Investments Director  
Forest Enterprises Limited  
5 Papawai Place  
Masterton 5810

Dear Graeme

## **Discount rate for Collective Harvest Approach**

Forest Enterprises Limited (**FEL**) is the manager for a number of 'forest blocks', each of which is a separate Managed Investment Scheme (**MIS**) with its own group of investors. Some of these forest blocks are geographically co-located. We understand that you have proposed to investors that one or more MIS/forest blocks are harvested together under a collective harvest joint venture arrangement (**Collective Harvest**).

## **Collective Harvest Approach - Background**

The initial investment documentation for each MIS assumed that each forest block is harvested once it reaches a target 28 years maturity. In practical terms, it was always intended that a number of adjacent forest blocks would be harvested together. However, in some cases the age profile of trees in each forest block differs and there are practical issues in achieving an individual harvest profile (eg. the need to access adjoining land from other forest block(s), which may not yet be mature). In some cases, the size of each mature forest block may not be cost effective to harvest individually (eg. the need for additional road infrastructure that may not be needed if harvested sequentially).

FEL has set out details of the proposed Collective Harvest arrangements in various papers to investors, including:

- '*Collective Harvest by Joint Venture for Forest Enterprises Managed Investment Schemes*'; and
- '*Te Karaka Group Allocation of Share of Collective Harvest*' (as an example).

FEL believes that harvesting forest blocks collectively is likely to improve the overall return for each forestry block through an optimally sequenced harvest profile, efficient harvest costs through appropriately phased harvest profiles and efficiently sequenced construction of access roads.

The Collective Harvest approach derives a calculated harvest share of the net harvest proceeds of all forest blocks, with a one-time adjustment for differences in: age class mix, stumpage, log type and logging costs. All investors agree to share in the net harvest proceeds, which has the effect of sharing risks from changes in log prices or harvesting costs across all investors in the collective.

Most collective forests will be of a size that will need to be harvested over multiple years. Under the Collective Harvest approach, investors receive their share of returns profiled over the harvest period, which is likely to occur over a longer period than set out in the original investment documentation as an individual MIS. It is also possible that some trees may be harvested earlier or later than 28 years, although the intention would be to target an overall average harvest age profile of approximately 28 years.

Where there is a difference in age classes between individual forest blocks held within a Collective Harvest arrangement, investors in forest blocks that are older on average, are likely to receive their returns (on average) later than anticipated; and vice versa for investors in forest blocks that are younger on average. This is because all investors receive a proportionate share of the total net harvest proceeds, profiled over the collective harvest period.

The proposed Collective Harvest methodology sets the calculated harvest percentage shares based on the net present value of returns to each MIS. The discount rate compensates investors for the earlier or later receipt of their investment returns than otherwise anticipated.

Please refer to the papers above for further details on the Collective Harvest proposal.

## Scope of Work

FEL has engaged Deloitte to provide the following services:

- Comment on the FEL narrative that explains the Collective Harvest approach;
- Comment on the reasonableness of the Collective Harvest approach; and
- Comment on the reasonableness of the discount rate ranges adopted.

Our advice is addressed to FEL for the purpose of assisting it to develop its proposal to investors to explain the Collective Harvest approach (the **Purpose**) under the terms set out in our engagement letter and in accordance with the restrictions and limitations set out in Appendix 1.

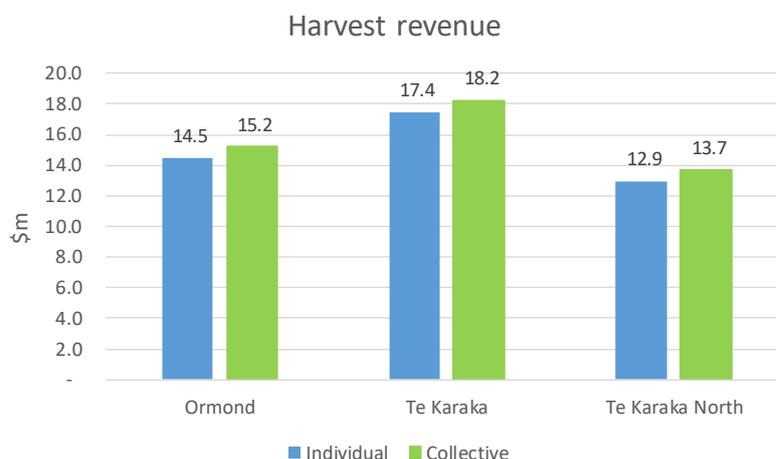
Our advice is not addressed to investors and is not a recommendation to investors to accept or reject the proposal. Deloitte disclaims liability to any third party who is not a party to an engagement letter with Deloitte.

## Collective Harvest Narrative

Based on cost estimates provided by its forestry advisors, FEL has estimated individual harvest costs are likely to be higher than collective harvest costs, with its base case assumptions:

- Loggings costs likely to be 5% higher;
- Roothing costs likely to be 2.5% higher; and
- Cartage costs being 1% higher.

Based on these assumptions, FEL estimates that investors in the Te Karaka Group are likely to be \$2.3m better off under a Collective Harvest approach, on an undiscounted basis, compared to an individual approach.



The potential savings will differ across each affected collective group. Furthermore, the Collective Harvest approach resolves a number of practical considerations that are described in the narrative; and also smooth out potential volatility in log prices over the harvest period. While a range of cost savings for Collective Harvest are possible, FEL considers that there is likely to be an improvement in financial returns of adopting a Collective Harvest Approach.

We consider that it would be useful for the narrative to investors to set out an estimate of the potential cost savings for each proposed Collective Harvest arrangement. Uncertainty over the boundaries of particular cost assumptions can be addressed through sensitivity analysis.

## Collective Harvest Methodology

FEL uses a discounted cash flow (DCF) methodology to compare the effect of applying a Collective Harvest with individual harvest approach. A discount rate is used to compensate investors for any time value of money effect of receiving income based on a harvest profile, rather than after an expected fixed 28 year maturity date.

We have set out below our understanding of the process that FEL uses to calculate the share of collective harvest of each investment partnership:

1. The projected harvest revenue for each MIS is calculated based on the net stocked area multiplied by the projected stumpage. The projected stumpage takes into account differences in log type, location specific harvest costs for each MIS, including the cost savings resulting from adopting a collective harvest approach. Forecast log prices are held constant.
2. The net forest cash flow calculated based on the projected harvest revenue profile for each MIS, less that MIS's share of any forecast expenditure.
3. A forest crop fair value is calculated based on the net present value (NPV) of the net forest cash flow for each MIS and in aggregate. The discount rate is applied to the forecast collective harvest date for each forest block under Collective Harvest to the present date.
4. The percentage share of each MIS is calculated based on the NPV accruable to each MIS divided by the aggregate NPV of the total forest crop

FEL's paper '*Collective Harvest by Joint Venture for Forest Enterprises Managed Investment Schemes*' sets out a worked example of this formula:

MIS Name	Forest Crop Value	Calculation of % share	Calculated % share of Collective Harvest
MIS 1	\$10.5m	\$10.5 / \$43.0	24.42%
MIS 2	\$15.0m	\$15.0 / \$43.0	34.88%
MIS 3	\$17.5m	\$17.5 / \$43.0	40.70%
<b>Total Forest Crop Value</b>	<b>\$43.0m</b>		<b>100.00%</b>

We consider that it is appropriate to adopt a discounted cashflow based methodology for the purpose of compensating MIS's for the time value of money effect where the age profile of their forest block is materially different from other MIS's in the collective.

We note that the DCF methodology only has a practical effect where the age profile of forests held in individual forest blocks materially differs across all blocks that comprise a Collective Harvest JV. This only occurs in some of the proposed Collective Harvest JVs.

## Reasonableness of the Discount Rate Assumption

In general terms, a higher (lower) discount rate benefits (penalises) forest blocks that are older and closer to harvest date.

While the quantum of the discount rate affects each MIS's share of the collective harvest proceeds, we note that:

- the total harvest proceeds are expected to be materially higher under Collective Harvest, compared with individual harvest on an undiscounted basis.
- The risk profile (but also the opportunity for windfall gains) in relation to volatility in log prices is lower under Collective Harvest, as log prices are averaged over multiple years, rather than a spot price.
- Individual harvest imposes a number of practical constraints such as higher costs due to reduced economies of scale, inefficient sequencing, requirements to access adjoining land and real capacity constraints in terms of harvest gangs, road/transport constraints and port capacity constraints. The need to manage these constraints may affect the relative risk profile of the individual harvest return profile relative to Collective Harvest and adopting a Collective Harvest approach may further limit the investment risk through mitigating these constraints.

In practical terms, the discount rate will need to balance the needs of all MIS investors, acknowledging that all MIS investors need to agree to the Collective Harvest approach in order to access the cost savings and risk mitigation benefits.

Under the Collective Harvest proposal, all MIS investors continue to have exposure to forest investment risk for the entire duration of the collective harvest period and we consider that the *incremental risk* of entering into the Collective Harvest arrangement is a change in the length of the investment holding period (which could be shorter or longer) than the originally anticipated 28 years.

Any change in risk profile of the underlying forestry investment, including profiling returns over time or mitigation of the qualitative risks set out above are spread across all investors, and while this may have the impact of lowering the overall risk profile (and therefore required rate of return) of the underlying forestry investment, this applies collectively rather than affecting any individual MIS.

By adopting a 'first principles' approach, we consider that there are two possible 'book ends' to an appropriate discount rate range:

- At the lower end is a rate based on holding '**cash**', on the basis that any incremental risk premium over cash returns are held in the underlying MIS investment. The effect of the Collective Harvest approach is to create a derivative instrument which changes the underlying investment duration, and which may reduce the overall risk profile of the investment. This approach is consistent with an assumption that the typical MIS investor may be at or approaching retirement age and with a marginal investment risk profile that is on average lower than the forestry asset class, referencing a preference to 'cash out' these types of investments for cash/fixed interest.
- The upper end of the range is based on **market rates for forestry investments**. This approach assumes that a MIS investor's preferred marginal investment risk profile includes forestry investments and that their risk profile remains unchanged. Under this approach, any delay in receiving an investment return would delay their ability to invest in further forestry assets.

An appropriate discount rate for 'cash' could variously include: 'risk free' government bond rates, three month interbank swap rates (BKBM), or retail 'term deposit rates'. Given that MIS investments are

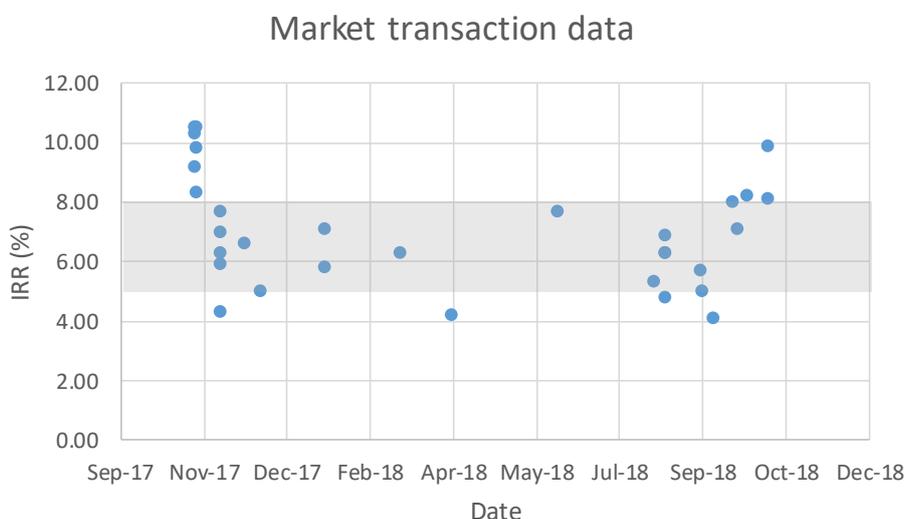
held as personal investments, we have used retail bank term deposit rates based on the average of ANZ, ASB, BNZ, Kiwibank and Westpac, published on interest.co.nz for various maturities. This is relatively easy to calculate from publicly available information and is summarised in the following table:

Opportunity cost-based discount rate	1 year	2 year	3 year	4 year	5 year
Bank swap rate <sup>1</sup>	1.94%	2.02%	2.12%	2.24%	2.37%
Term deposit rate <sup>2</sup>	3.44%	3.49%	3.61%	3.68%	3.74%

Source: (1) RBNZ October monthly rates; (2) average of ANZ, ASB, BNZ, Kiwibank, Westpac from interest.co.nz (21 November 2018)

We consider that it would be appropriate to use the weighted average difference in anticipated harvest profile for each forest block, relative to the 28 year target average, using the absolute value of differences, and weighted based on net stocked hectares. For example, if there were two forest blocks of equal size in a collective harvest arrangement, with half of the hectares expected to be harvested at age 26 years and the other half expected to be harvested at age 30 years, the target average forest age would remain 28 years, with a two year absolute value weighted average difference. In this case, it would be appropriate to apply the two year term deposit rate as the discount rate.

In terms of a 'market estimate' for forestry investments, FEL has provided 31 data points that shows the implied yield based on actual closed transactions involving forest blocks involving FEL managed MIS investments over the previous year. This data is summarised in the table and chart below:



	Minimum	Q1	Median	Q3	Maximum
Market-based forestry yields <sup>3</sup>	4.10%	5.75%	6.90%	8.15%	10.50%

Source: (3) FEL transaction data for last twelve months (n=31)

While the range of implied IRRs range from 4.1% to 10.5%, the majority of data points lie within the 5% to 8% range. FEL considers that some of the data points in the 8% to 10% range may include 'distressed sale' situations rather than fair market considerations. Nevertheless, we consider that the median figure of 6.9% represents a reasonable figure for a 'market based' estimate of discount rate.

We consider that a discount rate range in between these two book ends (ie. In the 3.5% to 6.9% range) would be reasonable to apply to the Collective Harvest calculation, where the average change in investment duration is about two years. A small adjustment of 5-10 basis points per annum might be

necessary for Collective Harvest arrangements where the investment duration differs from this. A discount rate based on the midpoint of the range is 5.2% would be reasonable.

The implied market yields are likely to contain some outliers and it is likely that adopting a Collective Harvest approach may help to reduce the overall risk profile of the underlying forestry investment. Ultimately, the choice of discount rate requires the balancing of interests of all MIS investors, but also a consensus and pragmatic approach, given that the Collective Harvest proposal is intended to unlock material cost savings and risk mitigation.

Yours sincerely

A handwritten signature in black ink, appearing to read 'John Tan', with a long horizontal flourish extending to the right.

**John Tan**  
Partner  
For Deloitte Limited (as trustee for the Deloitte Trading Trust)

## **Appendix 1: Report Limitations & Restrictions**

This report is addressed to FEL for the Purpose set out in this report under the terms set out in our engagement letter and in accordance with this report.

This report is not addressed to investors and is not a recommendation to investors to accept or reject the proposal. Investors should undertake their own enquiries with respect to the proposal. Deloitte disclaims liability to any third party who relies on this report who is not a party to an engagement letter with Deloitte.

Our work did not constitute an assurance engagement in accordance with New Zealand standards for assurance engagements, nor do they represent any form of audit under New Zealand standards on auditing (International Standards on Auditing (New Zealand)), and consequently, no assurance conclusion nor audit opinion is provided, including for example, on the merits of or whether investors should approve the Collective Harvest proposal. We do not warrant that our enquiries will identify or reveal any matter which an assurance engagement or audit might disclose.

In no way do we guarantee or otherwise warrant that any forecasts of future profits, cash flows or financial position of any MIS or Collective Harvest entity will be achieved. Forecasts are inherently uncertain. They are predictions of future events which cannot be assured. They are based upon assumptions, many of which are beyond the control of FEL and its management team. Actual results will vary from the forecasts and these variations may be significantly more or less favourable.

It is outside of our scope of work to review any of the calculations contained within any financial model developed in relation to any MIS, or the Collective Harvest proposal, or to undertake scenario or sensitivity analysis with respect to the same.