

Cowal and Trossachs Forest District

Land Management Plan

Letter



Letter Land Management Plan 2018-2028

Cowal and Trossachs Forest District

LETTER

Land Management Plan

Approval date:

Plan Reference No:

Plan Approval Date:

Plan Expiry Date:



Letter Land Management Plan 2018-2028

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CSM 6 Appendix 1b

FOREST ENTERPRISE - Application for Land Management Plan Approvals in Scotland

Forest Enterprise - Property

Forest District:	Cowal & Trossachs
Woodland or property name:	Letter
Nearest town, village or locality:	Port of Menteith
OS Grid reference:	NN602036
Local Authority district/unitary Authority:	LLTNP

Areas for approval

	Conifer	Broadleaf
Clear felling	58.6ha	
Selective felling		
Restocking	33.2ha	64.3ha
New planting (complete appendix 4)		

1. I apply for Land Management Plan approval for the property described above and in the enclosed Land Management Plan.
2. I apply for an opinion under the terms of the Environmental Impact Assessment (Forestry) (Scotland) Regulations 1999 for roads, tracks and quarries as detailed in my application.
3. I confirm that the initial scoping of the plan was carried out with FC staff on 23rd March 2016.
4. I confirm that the proposals contained in this plan comply with the UK Forestry Standard.
5. I confirm that the scoping, carried out and documented in the Consultation Record attached, incorporated those stakeholders which the FC agreed must be included.
6. I confirm that consultation and scoping has been carried out with all relevant stakeholders over the content of the of the land management plan. Consideration of all of the issues raised by stakeholders has been included in the process of plan preparation and the outcome recorded on the attached consultation record. I confirm that we have informed all stakeholders about the extent to which we have been able to address their concerns and, where it has not been possible to fully address their concerns, we have reminded them of the opportunity to make further comment during the public consultation process.
7. I undertake to obtain any permissions necessary for the implementation of the approved Plan.

Signed  Signed.....

Forest District Manager

Conservator

District ...Cowal & Trossachs FD Conservancy.....

Date 14th December 2017 **Date of Approval**.....

Date approval ends

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Forestry Commission Scotland
Coimisean na Coilltearachd Alba

Environmental Impact Assessment Screening Opinion Request Form

Please complete this form to find out if you need consent from Forestry Commission Scotland, under the **Forestry (Environmental Impact Assessment) (Scotland) Regulations 2017**, to carry out your proposed forestry project. Please refer to Schedule 2 Selection Criteria for Screening Forestry Projects under [Applying for an opinion](#). If you are not sure about what information to include on this form please contact your [local Conservancy office](#).

Proposed Work

Please put a cross in the box to indicate the type of work you are proposing to carry out. Give the area in hectares and where appropriate the percentage of conifers and broadleaves

Proposed Work	select	Area in hectares	% Conifer	% Broad-leaves	Proposed work	select	Area in hectares
Afforestation	<input type="checkbox"/>				Forest roads	<input checked="" type="checkbox"/>	1.95
Deforestation	<input type="checkbox"/>				Forest quarry	<input type="checkbox"/>	
Location of work		Letter LMP area					

Description of Forestry Project and Location

Provide details of the forestry project (size, design, use of natural resources such as soil, and the cumulative effect if relevant).

Please attach map(s) showing the boundary of the proposed work and other known details.

See section 5.9 of LMP and relevant map

Provide details on the existing land use and the environmental sensitivity of the area that is likely to be affected by the forestry project.

These are described in section 3 of the LMP.

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Description of Likely Significant Effects

Provide details on any likely significant effects that the project will have on the environment (resulting from the project itself or the use of natural resources) and the extent of the information available to assist you with this assessment.

Roads and tracks will be partially visible from the A81 Glasgow to Callander Road. This confirmed by site visits and assessment in 3D GIS systems.

Include details of any consultees or stakeholders that you have contacted in order to make this assessment. Please include any relevant correspondence you have received from them.

Mitigation of Likely Significant Effects

If you believe there are likely significant effects that the project will have on the environment, provide information on the opportunities you have taken to mitigate these effects.

See section 5.9 and appendix VI of the LMP

Sensitive Areas

Please indicate if any of the proposed forestry project is within a sensitive area. Choose the sensitive area from the drop down below and give the area of the proposal within it.

Sensitive Area	Area
National Park (NP)	1.95
Select...	

Property Details

Property Name:	Letter		
Business Reference Number:		Main Location Code:	
Grid Reference: (e.g. NH 234 567)	NN602036	Nearest town or locality:	Port of Menteith
Local Authority:	LLTNP		

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Owner's Details			
Title:	Mr	Forename:	John
Surname:	Hair		
Organisation:	FES	Position:	Planning Manager
Primary Contact Number:	0300 067 6600	Alternative Contact Number:	
Email:			
Address:	FES		
Aberfoyle			
Postcode:	FK8 3UX	Country:	
Is this the correspondence address?	Yes		

Agent's Details			
Title:		Forename:	
Surname:			
Organisation:		Position:	
Primary Contact Number:		Alternative Contact Number:	
Email:			
Address:			
Postcode:		Country:	
Is this the correspondence address?	Select...		

Office Use Only	
GLS Ref number:	

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Summary of Proposals

The Letter Land Management Plan (LMP) draws on the key themes of the Scottish Forestry Strategy (SFS) (2006), Forest Enterprise Scotland's Strategic Directions and Cowal & Trossachs Forest District's Strategic Plan. The area covers approximately 344ha in a single unit.

The objectives of the new plan, which were developed following internal and external consultation, are summarised below and emphasise the key principals of establishing and maintaining a diverse, resilient forest capable of delivering a wide range of ecosystem services into the future.

1. Create a visually diverse woodland which is in keeping with the landscape character of the area and is integrated, as far as possible, with neighbouring properties.
2. Establish a coupe structure that deals with windblow in a timely manner whilst leaving some mature stands in the medium term. Take into account presence of important bird and mammal species on the site and neighbouring land.
3. Maintain productive potential using a range of native and non-native broadleaved and conifer species. Maximise the use of broadleaved species, particularly in visibly prominent areas.
4. Maintain and expand established native woodland across the site and link with neighbouring properties where feasible.
5. Manage the area around Loch Letter as a diverse wetland habitat and link with Rhynaclach.
6. Allow non-native conifer regeneration to become established in variable densities as part of mixed woodland and habitat management.
7. Examine options for management of woodlands along the public road and existing forest tracks as part of visitor zone management.
8. Protect any known or newly discovered archaeological features.
9. Maintain a deer control programme appropriate to the establishment of broadleaved woodland. Maintain a track network to assist management.
10. Establish a permanent or temporary track/road network to allow efficient felling and restocking operations.
11. Follow all relevant guidelines during operations and take account of the presence of birds and other important wildlife/habitats.

1.0 Introduction:

1.1 Setting and context

The Letter Land Management Plan area lies to the east of the village of Port of Menteith in Stirling. Covering an area of 344ha it is situated on the southern slopes of the Menteith Hills, just to the south of the Highland Boundary Fault. The ridge of the Menteith Hills marks the northern boundary where the highest point is Ben Dearg at 427m above sea level. A deep gully marks the western boundary above Castle Rednock and there is private forestry to the east. To the south the plan area is adjacent to private farmland and a new Forest Enterprise acquisition at Rhynaclach Farm. The Menteith Hills form a distinctive ridge looking over the Forth Valley towards the city of Stirling. Here rough hill grazing merges with the richer arable farming of the flood plain. The block is within Loch Lomond and The Trossachs National Park.

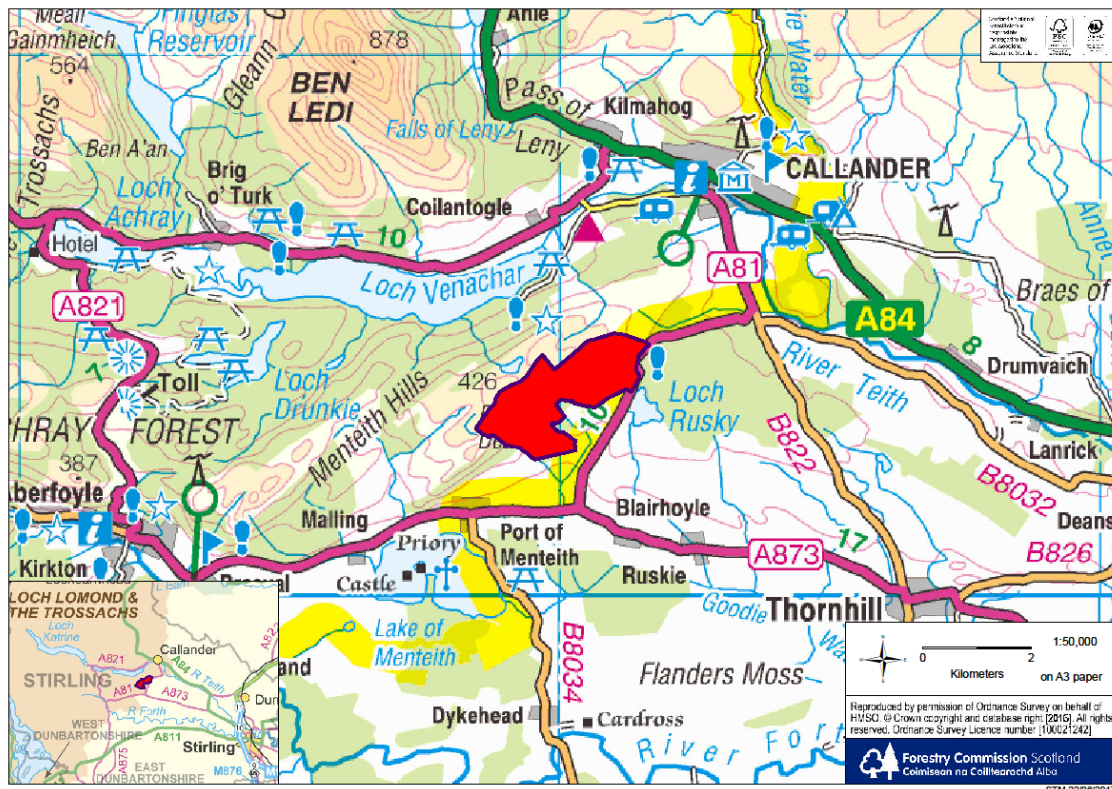


Figure 1.1 Letter: location

1.2 History of the plan

This is the second forest plan for Letter, the first plan having been submitted and approved in 2004. The plan covers an area of 344ha and continues a general aspiration to maintain production whilst improving the environmental and landscape features. There is a small strip of semi natural ancient woodland on the western boundary of the plan area dating back to at least 1860 and the steep ground in the south west is identified as having had woodland in 1750, though it is unclear whether this was semi-natural. Prior to the first commercial conifer planting in the mid 1960s the land would have been mainly rough grazing with some mixed farming at lower elevations. A limited number of different species were planted in the first rotation, including Grand fir, Japanese larch and Lodgepole pine; Sitka spruce was the dominant species. The first plan introduced a programme of restructuring aiming to achieve a more diverse and resilient forest. Following recent felling, about 50% of the first rotation trees have been removed. The eastern part of the block has second rotation stands of three different ages and several areas are now awaiting planting.

2.0 Analysis of previous plan

2.1 Aims of previous plan and achievements

The objectives of the previous plan took account of the new Loch Lomond and The Trossachs National Park Forestry Framework. This recommended that landscape, nature conservation and recreation should sit alongside timber production: i.e. an emphasis on multi-purpose forestry. More specifically restructuring should contribute to habitat networks with positive management for important bird species. Improvement in access was also recommended.

To achieve these aims the forest plan envisaged retention of some older stands in the medium term so that by the mid-2040s about 25% of the woodland would be in the age 60+ class. There would be a deficit in the 40 – 60 age class but this would begin to fill over the next couple of decades. It was envisaged that the tree line would be lowered at restocking stage, benefitting black grouse, and riparian areas left open to improve habitat links; it was hoped native woodland would become established in most of these. Production would be maintained by planting both Sitka spruce and a number of other conifer species. The percentage of Sitka spruce was expected to fall to about 40% by the mid-2040s and the amount of broadleaved species to increase to about 20%. Removal of conifer and

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encouragement of native regeneration around Loch Letter would lead to significant improvements in the wetland habitat. The extension of the forest road was expected to improve visitor access as would the establishment of tracks for forest management purposes.

In general the objectives of the plan have been largely achieved and the process of re-structuring has begun. Some of the felling proposals have yet to be carried out and some coupes have been felled earlier than envisaged – largely because of the occurrence of windblow. Some restocking has been delayed, mainly in the south-western part of the plan area and native natural regeneration has been slow to develop. Elsewhere, where felled ground has not been restocked, non-native regeneration has occurred at variable densities, creating a graduated woodland fringe. The road extension and forest management tracks have provided greater access opportunities.

2.2 How previous plan relates to today's objectives

The broad objectives of the previous plan are relevant to the new land management plan. Sustainable timber production remains a key objective, and there are opportunities to use species other than Sitka spruce. In the new plan potential climate change is taken into account and, where site conditions and future climate are believed to be favourable, alternative species will be considered. There is now more emphasis on productive broadleaved production and opportunities will be sought to establish suitable stands, either through planting or natural regeneration. Using native species will also meet or complement objectives for enhancement and restoration of native woodlands. The principles and objectives of the forest habitat network (FHN) remain key to the plan, with added emphasis on management of open ground and diversification of habitat. Managing sensitively for both conservation and landscape remains a key element of the new plan.

The zones map illustrates the relative importance of the main objectives throughout the area, though there is a degree of overlap.

3.0 Background information

3.1 Physical site factors

3.1.1 Geology Soils and Landform

The Land Management Plan area lies just to the south of the Highland Boundary Fault and is underlain by sedimentary rocks of Devonian age. These rocks are exposed at the surface on the steeper slopes of the area. There are superficial deposits of glacial or fluvio-glacial origin, largely derived from the solid geology on less steep slopes. The rocks have a south west to north east alignment which helps create the distinctive “parallel ridges” of the Menteith Hills. Landform is dictated by the underlying geology and the ridges are steep sided, often rocky, with troughs, of varying width, between them. The southern slopes fall very steeply to the lower ground which, whilst falling steadily, has a more undulating character divided by more or less incised burns. The steepest slopes are in excess of 40% and rocky; the troughs and benches can be flat and wet. Elevation ranges from 85m above Castle Rednock to 427m at the summit of Ben Dearg.

The James Hutton Institute 1:250000 soil survey indicate that podzols dominate the steeper slopes and higher elevations of the plan area. Brown earths and surface water gleys are shown at lower elevations. Field observation suggests that surface water gley is more extensive than brown earth on less steep slopes and that very steep slopes have at best shallow soils of mixed character with frequent rock exposures. At higher elevations podzolic soils occur with iron pan soils, peaty gley and peat, soil types being largely determined by topography.

3.1.2 Water

The ridge of the Menteith Hills marks the watershed between the Rivers Teith and Forth and the burns in the plan area ultimately drain into the latter. In the west the burns arise from the steep upper slopes of the ridge and descend through a series of waterfalls to the lower lying undulating ground. They feed into the Rednock Burn, then the Goodie Water which enters the Forth three miles south east of Thornhill. The eastern burns drain into Loch Rusky then also, via the Rusky Burn, into the Goodie Water. Loch Letter is in a wet basin at a slightly higher elevation than Loch Rusky. Although there has been much encroachment of reeds and willow carr there remains a small area of open water. There are several private water supplies.

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3.1.3 Climate

Using the measures of warmth and wetness defined in the Ecological Site Classification (ESC, see Forestry Commission Bulletin 124) the Letter LMP area is categorized as warm and moist at lower elevations, becoming cool and wet above about 200m. Average annual rainfall is in the region of 1500mm, about 60% of which falls during the winter months. At lower elevations the plan area is considered to be sheltered to slightly exposed, becoming highly exposed, but never “too exposed for forestry” at higher elevations.

3.1.4 Future climate

Predicting the impact of future climate change presents one of the biggest challenges in forest planning. Analysis carried out by Forest Research indicates an overall increase in average temperatures with warmer summers and milder winters. There will be regional variation in the future rainfall pattern and distribution, with a predicted decrease in summer rainfall in the east but a predicted increase in the west of the country. This will lead to more frequent drought in the east but a reduction in moisture deficit in the west.

There is less confidence in predicting changes in other climatic parameters such as windiness and extreme winter cold or summer heat. However, there is a general belief that the number of frost days will decrease and that the incidence and severity of extreme events (e.g. gales and heavy rain) will increase.

Data for the Letter area suggest an increase in accumulated temperature of almost 50% by 2050, compared to baseline 1960 – 1990 data, and about 60% by 2080. Relative increase is even greater at higher elevations and all parts of the forest are predicted to be classed as warm. Annual rainfall is predicted to remain more or less the same, a decrease in summer rainfall being compensated by a similar increase in winter. Despite the decrease in summer rainfall moisture deficit is predicted to also decrease. The impact of these changes on soil properties is uncertain. Potentially there could be an increase in growth rate in all tree species and a wider range of species may become suitable. Where exposure is currently a limiting factor it seems likely to remain so.

3.2 Biodiversity and environmental designations

Although previously dominated by even aged Sitka spruce, Letter provides a range of habitat types. The steeper slopes are still largely covered with non-native conifer though heather has spread in previously felled areas. Semi-natural ancient woodland occurs above Auchyle, outside the plan area, and there is some evidence that this woodland may have extended onto the slopes above Auchrig; now there are only small amounts of broadleaved woodland and a narrow strip on the western boundary is indicated as being semi-natural ancient woodland. Open moorland at higher elevations has a mix of heath vegetation. Loch Letter provides a range of wetland habitats from open water to wet woodland. Following previous clearfells there are improved linkages through the planted trees between the higher and lower elevations.

Loch Venachar, part of the River Teith SAC, is within a kilometre of the plan area. In addition the burns which form part of the Lake of Menteith SSSI approach within 250m of the boundary. Analysis of contour maps indicates that the plan area is not directly linked to either of these important designated features.

A number of important bird and mammal species use the woodlands including ravens and buzzards. Black grouse are known to occur nearby and possibly already use the woodland fringes; red grouse also occur on the open moorland. Ospreys are known to nest nearby.

3.3 The existing forest

3.3.1 Species, age structure and yield class

A total of 16 species, including general categories of mixed conifer and mixed broadleaves, are currently listed as being present in the forest. Most of these make up only a tiny percentage of the overall total and reference to table 3.1 clearly shows the dominance of Sitka spruce. Larch is the next most abundant species but makes up about 11% of the woodland area, followed by Lodgepole pine with almost 5%. There are small areas of Scots pine, Douglas and Grand fir and Western Red cedar, which make up about 8% of the woodland area between them. Native broadleaves consist of mainly birch and some oak whilst other broadleaves include beech and sycamore. Open ground has been excluded from table 3.1.

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Species	Area ha	Area %
Sitka spruce	96.1	65.4
Norway spruce	0.9	0.6
Lodgepole pine	14.2	9.7
Larch	12.9	8.8
Mixed conifer	7.3	5.0
Scots pine	2.1	1.4
Native broadleaf	7.5	5.1
Other broadleaf	5.8	4.0
	146.8	100.0

Table 3.1 Species diversity, Letter, 2018

Age Class	Area ha	Area %
0-10	39.2	26.7
11-20	26.3	17.9
21-40	5.2	3.5
41-60	76.1	51.9
60+	0	0.0
	146.8	100

Table 3.2 Age diversity, Letter, 2018

Table 3.2 gives figures for age class distribution for the woodland area. There is an imbalance in the structure with over 60% in the 41 – 60 age category but nothing older than this. This reflects the original even aged nature of the plantation which is less than 60 years old.

Yield class, (productivity) is measured as maximum mean annual volume increment ($m^3yr^{-1}ha^{-1}$) and is generally moderate in Letter. For Sitka spruce yield classes of 16 – 20, even higher in places, can be achieved on better sites, but growth at higher elevations is much reduced. At all elevations there are frequent areas of very slow growing trees due to waterlogging. Other conifers grow well at lower elevations on better sites. Performance of both Scots and Lodgepole pine is variable dependent on site conditions. There is limited data for existing broadleaved species.

3.3.2 Access

An existing forest road allows access through the forest block from the A81 near its summit on Cock Hill. Most of the forested area can be accessed from this road though stands at the western end are relatively isolated. In addition, because of the steep nature of the middle slopes, some of the upper ground presents serious access problems for wheeled harvesting machines. A farm track runs from the A81 near Loch Rusky to Letter Cottage and Auchrig and can be used to access some of the lower parts of the block. In reality this latter option is not practicable for most large scale operations.

ATV tracks have been constructed in several coupes to aid management operations, however these are not regarded as permanent features.

3.3.3 Potential for continuous cover forestry

Continuous cover forestry (CCF) systems work best where there are deep, well drained soils in relatively sheltered situations. Due to the climatic conditions, particularly exposure, in Letter the best potential for CCF will generally be found where there are brown earth soils below about 150m elevation. There may be potential to establish permanent woodland cover on steeper ground or wetter sites which are not suitable for commercial forestry.

3.3.4 Current and potential markets

Although timber prices fluctuate, there is continued demand for softwood timber of all dimensions and it is expected that there will continue to be a ready market for spruce. Future markets for hardwood and other conifer species are uncertain but expectations are that these will develop over time; in particular the demand for biomass for the woodfuel market is expected to grow.

3.4 Landscape and landuse

3.4.1 Visibility, landscape character and value

Letter lies within the Loch Lomond and The Trossachs National Park and, though it is outside any designated areas, the landscape setting has much of value. The Menteith Hills are part of a line of hills running parallel to the Highland Boundary Fault which are given a separate category in the Park's Landscape Analysis. These "parallel ridges" create a distinctive northern edge to this part of the low lying Forth Valley. Views from the south are generally distant but the woodlands are quite prominent when seen from the A81, driving north towards Callander.

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3.4.2 Neighbouring land use

The plan area lies at the interface of the rich agricultural land of the Forth Valley and the open moorland of the Menteith Hills, beyond which begin the Highlands proper. Immediately to the east are extensive private commercial plantations; to the south the picture is one of improved pasture with a limited amount of arable land. There is a riding centre at Castle Rednock and Loch Rusky supports a private fishery.

3.5 Social factors

3.5.1 Recreation

There are no formal recreation facilities in the plan area, however there is a small parking area at the forest entrance and this is used on a regular basis by people to access the woodlands. As well as the forest road there are a number of informal tracks and there is potential to link to other routes on Cock Hill and Ben Gullipen.

3.5.2 Community

The local community value the woodland for its amenity value and landscape character. They also have a strong sense of place and history associated within the wider area. Management of the forest is of keen interest to neighbouring households.

3.5.3 Heritage

Known heritage features are shown on the conservation map. These are largely poorly preserved features identified as part of a nationwide historic land use assessment. Few details are available regarding their character or importance. One site has above ground features on the Rhynaclach side of the forest boundary which may extend into the Letter plan area.

3.6 Statutory requirements and key external policies

The key policy documents influencing the LMP are the UK Woodland Assurance Standard, the UK Forestry Standard (4th Edition) and the Scottish Forestry Strategy.

4.0 Analysis and Concept

The analysis and concept map summarises the main issues and aspirations for the LMP area.

4.1 Analysis

- Woodlands dominated by Sitka spruce, becoming prone to windblow and with poor age structure.
- Steep slopes restrict access to some coupes. Some coupes isolated from forest road.
- Climate and soil conditions favourable for a range of species at lower elevations.
- Areas of open ground provide habitat for red grouse and potential black grouse habitat on woodland margins.
- Extensive natural regeneration of non-native conifer on areas left fallow after previous clearfelling.
- Loch Letter provides valuable diversity of wetland habitat with links to Loch Rusky.
- Woodlands are visually prominent from A81 and there are distant views from the south side of the Forth Valley.
- Limited areas of ancient semi-natural woodland.
- Presence of nearby bird species attracting high levels of protection.
- Few known heritage features of importance.
- Several burns are used for private water supplies.
- High deer numbers.

4.2 Concepts of the plan

The main objectives of the plan will be to maintain an element of timber production whilst diversifying species and age structure and improving ecological and visual diversity. In addition, protection of important mammal, bird and insect species and their habitats will be a priority.

- Establish a coupe structure that will improve the age and species diversity whilst minimising the risk of future wind damage.
- Investigate options for species diversification for commercial, conservation and landscape objectives.
- Investigate options for accessing more isolated stands.
- Retain some open ground habitat but accept variable amounts of non-native regeneration where this does not impact detrimentally on habitats and species.
- Accept more extensive non-native regeneration and examine options to manage this commercially in the future.
- Seek opportunities to extend native woodland.
- Establish management regimes that protect important bird species.
- Follow guidelines where important heritage features are known to exist and establish protection measures for any newly found features.
- Protect private water supplies and follow Forest and Water Guidelines during all operations.
- Establish an appropriate deer control programme and use appropriate measures to protect vulnerable tree species.

5.0 Land Management Plan Proposals

5.1 Management

Management will be guided by the key objectives of the plan. Broad objectives are illustrated in the management zones map though it should be stressed that there will be overlap between zones. The main management technique will be clearfelling and re-planting.

Coupes for which approval to fell is being sought are shown in the management map. All harvesting operations will be carried out in accordance with the UK Forestry Standard Guidelines, and Forests and Water Guidelines (5th edition).

The proposed felling sequence is a balance between minimising risk of wind damage, medium term retention of some of the older trees and cost effective establishment of broadleaves and softer conifers. South western coupes have been placed in the first phase. This provides opportunity to clear windblow, and for restocking to be carried out at the same time as some previously felled areas. A small area of larch will also be felled as a precaution against infection by Ramorum disease. The two coupes on the steep side slopes of the Menteith Hills will require a combination of forwarder and winch extraction. The westernmost coupe requires a road extension to be built before harvesting can proceed and it has been placed in the second phase of the LMP period. The easternmost coupe will be retained until the third phase. Small stands of spruce nearer the entrance of the forest will be retained, in the medium term, if they remain windfirm.

5.1.1 Thinning

Younger stands in the north east part of the forest will be assessed for first thinning during the plan period.

5.1.2 Potential for Continuous Cover Forestry

Those parts of the block that are likely to be most suitable for continuous cover forestry have not yet been restocked. As future stands develop they will be assessed and appropriate silvicultural techniques applied to ensure sustainable management. Existing stands on steeper slopes are not suitable for conversion to CCF and costs may be too high for these techniques to be applied in the next rotation. Where slopes are too steep to continue with economic timber production opportunities will be sought to establish permanent, preferably native, permanent woodland cover.

5.2 Future habitats and species

The future habitats map shows the restocking proposals of the plan. Timber objectives will be met by continuing to use Sitka spruce but the area of this species will be much reduced compared to previous plans. Opportunities will be taken to increase the percentage of other productive conifers where site conditions allow. These opportunities are largely limited to more sheltered sites at lower elevations.

The proposals include relatively large areas of productive broadleaves and these are concentrated on more sheltered sites where better access allows the more intensive management often required for these species. Both native and non-native species will be used, site conditions being the main guide to choice; a wide range of species are suitable including oak, birch and sycamore – other species will be used if site conditions allow. A number of conifer species, other than Sitka spruce, will be used to better integrate the broadleaved and conifer zones; depending on site type suitable species include Norway spruce, Douglas fir and Scots pine. Very steep slopes, unsuitable for commercial forestry, will be left to naturally regenerate, preferably with native species; however non-native species will also be accepted. Riparian areas will be left clear of trees and, again, allowed to fill with mixed natural regeneration if this occurs. Existing natural regeneration of previously felled areas in the north and east of the block will be allowed to develop into potentially productive woodland.

5.3 Restructuring

The felling proposals continue the process of restructuring the forest, which has been developed in previous plans. This process has been disrupted by the extent of recent wind damage and the risk of further damage will increase as stands get older. Adjacency issues have been avoided as far as possible and future stability will be achieved by replanting Sitka spruce and other conifer and broadleaved species in discrete stands with wide buffers between them.

5.4 Future management

Table 5.1 indicates net felling area and volume figures for the plan area. These values are approximate and coupes will be surveyed to provide more precise figures prior to felling.

Phase	Area (ha)	Volume (m ³)
1	58.5	33250
2	0.0	0.0
	58.5	33250

Table 5.1 Proposed felling

Table 5.2 summarises the establishment proposals for the plan area. The figures include approximately 48.9ha of previously felled ground that has not yet been restocked, accounting for the difference between area felled and restocked. Other differences are because felled area is net of open space.

	Broadleaves	Conifer	Open	Totals
Phase 1	64.3	33.2	14.5	112.0
Phase 2	0.0	0.0	0.0	0.0
Totals	64.3	33.2	14.5	112.0

Table 5.2 Proposed establishment

Where production is the key objective conifers will be planted at densities of approximately 2700 stems per hectare (sph) and broadleaves in the region of 3500. Target densities for native woodland regeneration will vary depending on site objectives but are expected to be in the range 100 to 1100 sph.

Where establishment is to be through natural regeneration its presence will be assessed five years after felling. If regeneration is not at desired levels a decision will be taken on whether to allow more time for natural establishment of trees or whether to take a more pro-active approach; for example, ground preparation to create a suitable substrate for seedling establishment, or planting. Further evaluation will take place when the plan is reviewed at mid-term and ten years and future commitments to natural regeneration outlined in the mid-term review and plan revision.

Open areas will be allowed up to 20% tree cover. Sitka spruce regeneration will be kept within agreed tolerance limits on both open ground and in areas designated for broadleaved woodland.

5.5 Species tables

Table 5.3 and Figure 5.1 indicate the change in relative species composition between 2018 and 2048. This shows a significant reduction in the amount of Sitka spruce relative to other species over the 30 year period. The amount of larch reduces (a response to the threat of Ramorum disease), but there is a small increase in Lodgepole pine. The latter species will be allowed to regenerate naturally on restock sites at higher elevations. There is also an increase in other conifers the most frequently used of which will be Norway spruce. The amount of native broadleaves will increase significantly and there will be greater use of sycamore, in particular, as a productive species, which is indicated in the increase in non-native broadleaves.

Species	2018	2028	2038	2048
Sitka spruce	65.4	33.1	32.4	30.7
Norway spruce	0.6	3.1	3.5	5.0
Lodgepole pine	9.7	6.2	6.7	6.8
Larch	8.8	2.9	1.6	1.6
Mixed conifer	5.0	12.4	13.3	13.1
Scots pine	1.4	1.0	0.7	0.9
Native broadleaves	5.1	26.6	27.7	28.0
Other broadleaves	4.0	14.7	14.1	13.9
	100.0	100.0	100.0	100.0

Table 5.3 Change in species diversity over time in Letter (percent planted area)

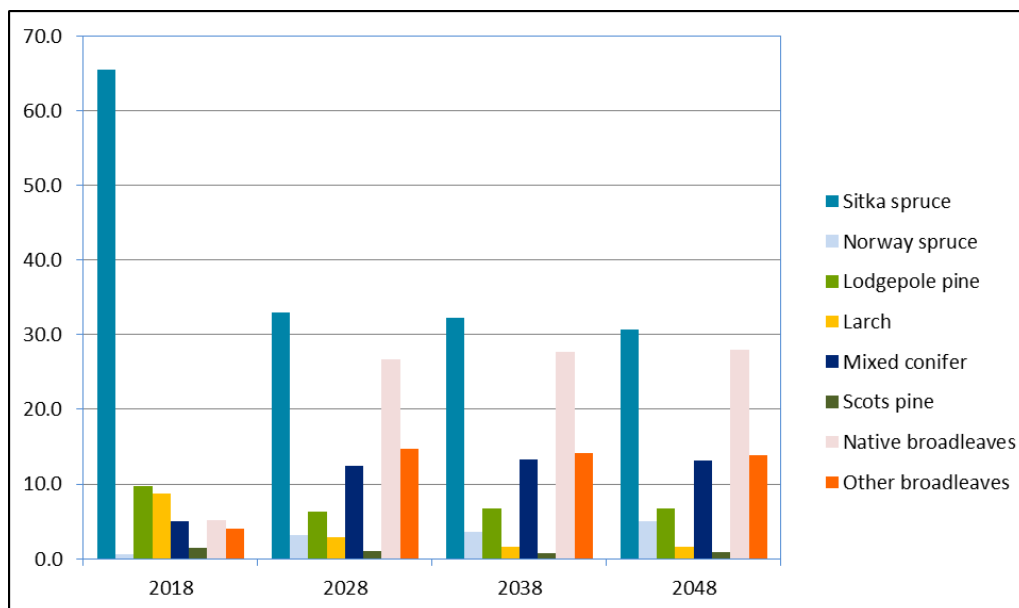


Figure 5.1 Change in species diversity over time in Letter (percent planted area)

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5.6 Age structure

Table 5.4 and Figure 5.2 show the change in relative age structure between 2018 and 2048. These figures indicate that it will take some time to achieve a balanced age structure. There is an early fall in older age classes which will not be fully compensated for till after 2048.

Age Class	2018	2028	2038	2048
0-10	26.7	73.5	28.3	6.4
11-20	17.9	3.8	55.2	25.2
21-40	3.5	11.9	14.8	57.3
41-60	51.9	0.0	0.0	10.1
60+	0.0	10.7	1.7	1.0
	100.0	100.0	100.0	100.0

Table 5.4 Age structure in Letter (percent of forested area)

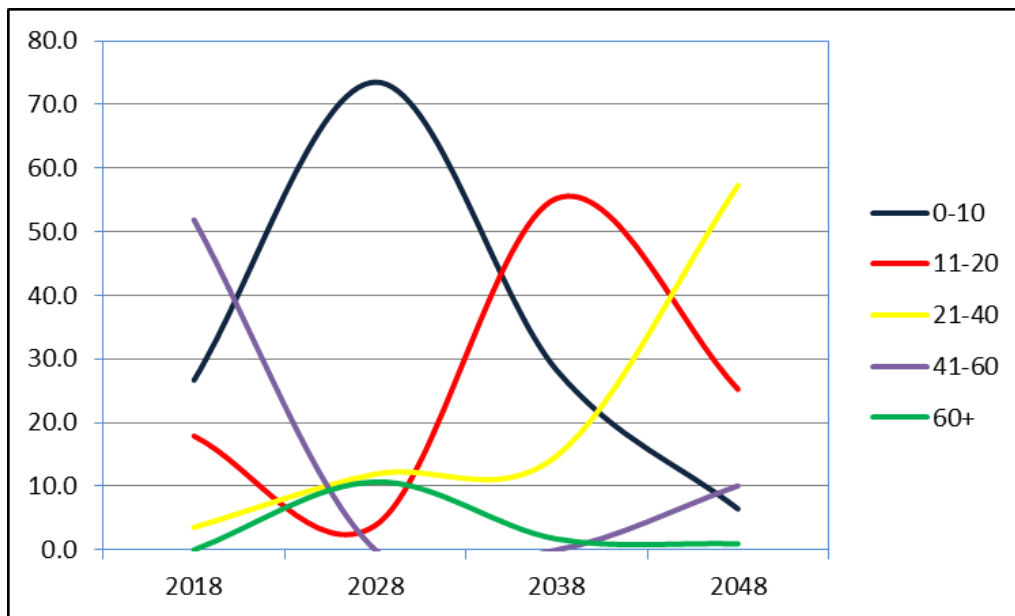


Figure 5.2 Age structure in Letter (percent forested area)

5.7 Management of open land

	2018	2028	2038	2048
Forest	42.7	62.0	66.0	67.4
Open	57.3	38.0	34.0	32.6
	100.0	100.0	100.0	100.0

Table 5.5 Relative area of open ground and forest (%).

Table 5.5 summarises the relative distribution of open ground to forest in 10 year intervals between 2018 and 2048. The figures include transient open space, where felled coupes have not yet been restocked. Natural regeneration will be allowed in areas shown as open space on the restock map. It is unlikely that this will exceed more than 20% within the life of the plan, but if it does so the objectives for these areas will be reviewed. Some of the open space is taken up by the roadline and a buffer zone around this will be kept clear of dense tree growth. Variable density regeneration is already occurring on some previously felled land and this will be allowed to develop to create a patchwork of habitats. Wetland habitats around Loch Letter will be managed to create a range of open and wet woodland habitats. Open land is also incorporated into most of the restocking coupes though this is not identified specifically in the plan.

5.8 Deer management

Successful establishment of broadleaves and softer conifers will require deer control in order to keep browsing to a minimum. Damage levels in the surrounding area have been in excess of 80%, in recent years where young stock has not been protected by fencing. The preferred approach is to manage background deer numbers through culling, bringing numbers down to a sustainable population where browsing damage is at an acceptable level. Because of the current density of deer numbers, fencing will be considered as an option. An added benefit of reducing deer numbers will be the improvement of open ground habitats. In addition to ATV tracks described below opportunities will be taken to incorporate open deer glades at restocking.

5.9 Access

The forest road meets the A81 just below Cock Hill. Extensions will be required to access the southern and western most coupes. The proposed lines are shown on the roads map and the total length is about 1620m representing a nominal area of about 1.14ha. A number of ramps and turning points will also be required to enable harvesting machinery to access felling coupes and facilitate lorry access. The precise location of these will be determined during operational planning but the expectation is that there will be one ramp for approximately 100m of coupe/road interface and a turning point towards the end of each spur. Ramps will be approximately 3m wide and generally up to about 15m long; ramps will not be treated as permanent features. In addition 3790m of ATV tracks and up to 100m of constructed forwarder tracks, will be required to facilitate harvesting and silvicultural operations and deer management on coupes to be restocked. ATV tracks will be approximately 2m wide and there will be a minimum amount of disturbance when they are being constructed. They will not be treated as permanent features and will be allowed to grass over once restocking is complete. Indicative positions of the tracks are shown in the roads and tracks map. Final position will be within $\pm 100\text{m}$ of the indicated positions and the nominal area amounts to approximately 0.76ha. Forwarder tracks will be about 3m wide with a nominal area of up to 0.03ha.

An EIA determination form for roads and tracks is to be found at the front of this document. A written request can be found in appendix V and a summary in Appendix VI.

Base material for road maintenance and construction will be obtained from nearby Forest Enterprise quarries

The roads and tracks map also indicates the access point into the forest with approximate volumes of timber to be brought onto the A81 during the plan period.

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Appendix I: Land Management Plan Consultation Record

Consultee	Date contacted	Date response received	Issue raised	Forest District Response
Forestry Commission Scotland	11.01.17	17.01.17	no issues raised	
Loch Lomond and The Trossachs National Park	11.01.17	n/a	Involved in brief setting 23.03.16.	
SEPA	11.01.17	17.01.17	Several general issues raised requiring adherence to relevant guidelines.	Guidelines will be adhered to.
SSE	11.01.17	10.02.17	Ask for notice if any proposed felling is close to transmission lines. Preference to see reduction in "red zone" trees at restocking. Can offer advice if any road construction is close to or under transmission lines.	No felling proposed close to lines. Restocking coupes will be designed to create suitable buffers either side of transmission lines. Proposed roads not close to transmission lines.
SNH	11.01.17	27.01.17	Note proximity to River Teith SAC and Lake of Menteith SSSI. Measures to protect features should be put in place, e.g. using access from A81 for timber haulage. Protected species likely to be present – advise surveys prior to operations.	Proximity noted and will be further examined in development of plan. Measures to protect features will be put in place, if necessary. Extraction and haulage will be to existing access on A81. Several bird and mammal species known to be present in the LMP area. Appropriate surveys and protection measures will be undertaken prior to and during operations.
Port of Menteith Community Council	08.09.16	20.09.16	Preference to see greater use of broadleaved species and reduction in non-native conifers..	Attended Community Council meeting on 17.10.16. Options to increase area of broadleaved species will be examined.
Callander Community Council	08.09.16	09.09.16	No issues raised.	

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Scottish Water	11.01.17	23.01.17	No significant issues. Requirement to comply with Sewers for Scotland and Water for Scotland 3 rd editions. Request early notification of any asset conflicts.	FES will comply with guidelines. FES will contact Scottish Water if any conflicts occur.
RSPB	11.01.17	10.02.17	Black grouse recorded in or near forest block in recent years. Opportunities should be taken to provide suitable habitat for this species. Increased native broadleaved woodland cover would benefit a range of species.	FES will aspire to create a range of suitable habitats, including diversity of open ground, improved age diversity in conifer forest, native woodland and habitat linkages. FES will examine opportunities to increase native broadleaved woodland.
Stirling Council	11.01.17	31.01.17	Refer to and follow recommendations of relevant Timber Transport Management protocols. Liaise with Local Authority Roads Service prior to and after timber sales. Seek appropriate permissions for any road infrastructure.	Protocols will be adhered to. FES will liaise with Local Authority regarding timber transport. Appropriate permissions will be sought.
Cambusmore Estate	11.01.17	11.01.17	No issues raised.	
Mr and Mrs Forester (Letter Cottage)	17.10.16	28.10.16	Discussed plan with Foresters, no major issues raised.	
Mr and Mrs Craig (Auchrig)	20.10.16	04.11.16	Discussed plan with Craigs, no major issues raised.	
Gartchonzie	11.01.17	no response		
Invertrossachs Estate	11.01.17	no response		
Castle Rednock Trekking Centre	11.01.17	no response		
Calander's Countryside	11.01.17	no response		
CONFOR	11.01.17	no response		
Balquhidder Deer Management Group	11.01.17	no response		

Appendix II. Scoping Record

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Record of scoping exercise carried out by email in February 2015

A number of stakeholders were contacted by email in January 2017 and the responses received are summarised in Appendix I.

NB: All forests managed by FCS are certified under the UK Woodland Assurance Scheme (UKWAS), which requires forests to be managed sustainably. The UKWAS is part of the Forest Stewardship Council (FSC) scheme, which allows timber sourced from certified forests to carry the FSC label. Callander FDP will incorporate the various requirements of UKWAS within its proposals.

Appendix III. Land Management Plan Brief

This forest plan will follow the general approach of the previous plan. During preparation reference was made to National and District strategy and other documents.

The key principal is to establish and maintain a diverse, resilient forest capable of delivering a range of ecosystem services into the future.

Objectives:

Create a visually diverse woodland which is in keeping with the landscape character of the area and is integrated, as far as possible, with neighbouring properties.

Establish a coupe structure that deals with windblow in a timely manner whilst leaving some mature stands in the medium term. Take into account presence of important bird and mammal species on the site and neighbouring land.

Maintain productive potential using a range of native and non-native broadleaved and conifer species. Maximise the use of broadleaved species, particularly in visibly prominent areas.

Maintain and expand established native woodland across the site and link with neighbouring properties where feasible.

Manage the area around Loch Letter as a diverse wetland habitat and link with Rhynaclach.

Allow non-native conifer regeneration to become established in variable densities as part of mixed woodland and habitat management.

Examine options for management of woodlands along the public road and existing forest tracks as part of visitor zone management.

Protect any known or newly discovered archaeological features.

Maintain a deer control programme appropriate to the establishment of broadleaved woodland. Maintain a track network to assist management.

Establish a permanent or temporary track/road network to allow efficient felling and restocking operations.

Follow all relevant guidelines during operations and take account of the presence of birds and other important wildlife/habitats.

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Appendix IV: Tolerance Table.

	Adjustment to felling coupe boundaries	Timing of restocking	Change to species (including boundaries)	Windthrow response	Changes to road lines
FC Approval not normally required	Up to 1ha or 10% of coupe - whichever is less	For productive species, up to 3 planting seasons after felling Up to 10 planting seasons for natural regeneration	Change within species group i.e. diverse conifers; broadleaves; Sitka spruce. Non native conifers in native woodland areas and designated open space up to 400 stems/ha. <20% increase in area of Sitka spruce	Up to 2ha as a single unit with >50%windblow	
Approval by exchange of letters and map	1ha to 5ha or 20% of coupe - whichever is less	For productive species, 3 – 5 years after felling	>20% increase in area of Sitka spruce	2ha to 20ha as a single unit with >50% windblow	Additional felling of trees not agreed in plan Departures of >60m in either direction from centre line of road
Approval by formal plan amendment	> 5ha or 10% of coupe	For productive species, over 5 planting seasons after felling	Change from specified native species Change between species groups	>20ha as a single unit	As above, depending on sensitivity

Appendix V. Screening opinion request

Letter LMP –roads, tracks and ramps

This is a request for an EIA determination for works covering construction of roads, tracks and ramps in Letter LMP area. The request covers proposals for the full ten year period of the plan which will offer some flexibility with the work programme without the necessity of having to re-submit a determination. Any work to be carried out in the second half of the plan period will be preceded by a new EIA determination request.

Approximately 1620m of new roads and 3890m of forwarder and ATV tracks will be required to access harvesting sites and to facilitate harvesting, silvicultural and deer management operations. In addition up to 12 ramps will be required to allow harvester/forwarder access into coupes that are to be felled during the design plan period.

An initial survey of proposed roadlines has been carried out and their positions are shown on the roads and tracks map. A more detailed assessment of the route will be made prior to construction and a tolerance of $\pm 60\text{m}$ adhered to. The footprint of roads will be approximately 7m and the nominal area amounts to 1.14ha. The existing road will also require upgrade and maintenance but the nominal footprint of the road will not be increased. The new road will be of standard construction with a water bound, non-tarmac, surface.

Tracks will be constructed in line with the principles described in the SNH guidance on Constructed Tracks in the Scottish Uplands. Construction will also conform to the Forests and Water Guidelines (Fifth Edition). During construction ground disturbance will be kept to a minimum. ATV tracks will not be treated as permanent features; once operations are complete tracks will be allowed to grass over and the running surface and side batters will be left in a condition that will promote vegetation regeneration. Tracks will be constructed with a top-side drain and will have regular drainage cut-offs to prevent erosion of the trackside drain. No water from the trackside drains will discharge directly into any watercourse.

Indicative positions of the tracks are shown on the roads and tracks map and final positions will be within $\pm 100\text{m}$ of these. The actual line will be planned to minimise landscape impact and ground disturbance, reflecting existing topography, avoiding steep gradients where possible and avoiding sensitive habitats. ATV tracks will be approximately 2m wide and the nominal area amounts to 0.76ha. A maximum of 100m of forwarder track will need to be constructed to gain access rocky ground; the exact distance will not be known until construction begins. Width will be approximately 3m and the nominal area up to about 0.03ha.

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Ramps will be approximately 3m wide and up to about 15m long. The nominal area is approximately 0.05ha. They will not be treated as permanent features and will be removed following operations. The final number and location of the ramps will be determined at the time of operations but we believe one ramp per 100m of road/coupe interface will be sufficient.

A screening opinion request form is to be found at the front of this document and a summary of proposed works in Appendix VI. A revised EIA determination will be sought if any specific sensitive issues are encountered before construction.

- 1 Landscape Roads and tracks crossing steeper slopes will be partially visible from the south. Lines have been selected that will minimise visibility. Any impact will be further reduced as tracks grass over and planted stock begins to hide roadlines.
- 2 Watercourses All work will conform to the 5th edition of the UK Forestry Standard Guidelines "Forests and Water".
- 3 Archaeology There are no known archaeological features in any of the coupes. Care will be taken to avoid damage to any new features discovered during operations.
- 4 Biodiversity Work carried out will be sensitive to permanent and temporary features of conservation value (e.g. spawning frogs and toads in roadside drains).
- 5 Access There are no major access issues.
- 6 Recreation Informal recreation on existing roads may be disrupted during construction of new roads and maintenance.
- 7 Material ATV tracks will use material from on site. Material suitable for roads ramps will be sourced from local FES quarries.

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Appendix VI. EIA Determination summary - forest roads and tracks

Coupe	Length (m)	Area (ha.)	Purpose	Landscape	Water quality	Archaeology	Biodiversity	Access	Recreation	Material
88006	470	0.33	access for harvesting	partially visible from public roads to	standard protection measures	no known issues	no significant issues	from forest road	n/a	nearest FES quarry
88013	800	0.56	access for harvesting	partially visible from public roads to south	standard protection measures	no known issues	no significant issues	from forest road	n/a	nearest FES quarry
88014	350	0.25	access for harvesting	partially visible from public roads to south	standard protection measures	no known issues	no significant issues	from forest road	n/a	nearest FES quarry
88013	100	0.03	access for harvesting	visible from public roads to south	standard protection measures	no known issues	no significant issues	from forest road	n/a	to be found on site
88006/14/15	1420	0.30	crop establishment and deer management	partially visible from public roads to south	standard protection measures	no known issues	no significant issues	from forest road	n/a	to be found on site
88015	490	0.10	crop establishment and deer management	partially visible from public roads to south	standard protection measures	no known issues	no significant issues	from forest road	n/a	to be found on site
88013/15	390	0.08	crop establishment and deer management	partially visible from public roads to south	standard protection measures	no known issues	no significant issues	from forest road	n/a	to be found on site
88024	1490	0.30	crop establishment and deer management	partially visible from public roads to south	standard protection measures	no known issues	no significant issues	from forest road	n/a	to be found on site