



Forestry and  
Land Scotland  
Coilltearachd agus  
Fearann Alba

# Tairlaw

## Land Management Plan 2024-2034 South Region-V1.0

**Plan Reference No:**

**Plan Approval Date: 20/12/2023**

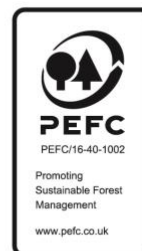
**Plan Expiry Date: 2034**

We manage Scotland's national forests and land to the United Kingdom Woodland Assurance Standard – the standard endorsed in the UK by the international Forest Stewardship Council® and the Programme for the Endorsement of Forest Certification. We are independently audited.

Our land management plans bring together key information, enable us to evaluate options and plan responsibly for the future. We welcome comments on these plans at any time.



The mark of  
responsible forestry



# Contents

## 1.0 Objectives and Summary

- 1.1 Plan overview and objectives
- 1.2 Summary of planned operations

## 2.0 Analysis and Concept

## 3.0 Management Proposals - regulatory requirements

- 3.1 Designations
- 3.2 Clear felling
- 3.3 Thinning
- 3.4 Other tree felling in exceptional circumstances
- 3.5 Restocking
- 3.6 Species diversity and age structure
- 3.7 Road operations and quarries
- 3.8 EIA screening requirements for forestry projects
- 3.9 Tolerance table

## 4.0 Management Proposals – guidance and context

### 4.1 Silviculture

- 4.1.1 Clear felling
- 4.1.2 Thinning
- 4.1.3 Low Impact Silviculture Systems (LISS) / Continuous Cover Forestry (CCF)
- 4.1.4 Long term retention (LTR) / Minimum intervention (MI) / Natural reserve (NR)
- 4.1.5 Tree species choice / Restocking
- 4.1.6 Natural regeneration
- 4.1.7 New planting
- 4.1.8 Protection
- 4.1.9 Road operations, Timber haulage and other infrastructure

### 4.2 Biodiversity

- 4.2.1 Designated sites
- 4.2.2 Native woodland
- 4.2.3 Ancient woodland / Plantation on Ancient Woodland sites (PAWs)

- 4.2.4 Protected and priority habitats and species
  - 4.2.5 Open ground
  - 4.2.6 Dead wood
  - 4.2.7 Invasive species
- 4.3 Historic Environment
  - 4.3.1 Designated sites
  - 4.3.2 Other features
- 4.4 Landscape
  - 4.4.1 Designated areas
- 4.5 People
  - 4.5.1 Neighbours and local community
  - 4.5.2 Public access
  - 4.5.3 Renewables, utilities and other developments
  - 4.5.4 Support for the rural economy
- 4.6 Soils
  - 4.6.1 Protection and Fertility
  - 4.6.2 Cultivation
  - 4.6.3 Deep peats
- 4.7 Water
  - 4.7.1 Drinking water
  - 4.7.2 Watercourse condition
  - 4.7.3 Flooding

Appendix I	Description of woodlands
Appendix II	EIA screening opinion request form (None see <b>3.8</b> )
Appendix III	Consultation record
Appendix IV	Tolerance table
Appendix V	Historic Environment records
Appendix VI	Private Water Supplies [CONFIDENTIAL]

Map 1	Location
Map 2	Key Features
Map 3	Analysis and Concept
Map 4	Management
Map 5	Thinning

Map 6	Future Habitats and Species
Map 7	Road Operations and Timber Haulage
Map 8	Current Woodland Composition
Map 9	Soils
Map 10	DAMS
Map 11	Landscape Character Types
Map 12	Heritage Features
Map 13	Visitor Zones
Map 14	Drinking Water Protected Areas
Map 15	Flooding

# 1.0 Objectives and Summary

## 1.1 Plan overview and objectives

Plan name	Tairlaw
Forest blocks included	Tairlaw
Size of plan area (ha)	1102
Location	See Location map ( <b>Map 1</b> )

### Long Term Vision

The Tairlaw block will continue to provide a valuable, sustainably managed forest through the use of clearfell and alternative to clearfell systems in the less exposed areas. This will result in increased species diversity and age class to provide a range of ecosystem services including timber supply, greater habitat biodiversity and water quality.

A network of broadleaved corridors within sustainably managed conifer forests will connect to the Ancient Semi-Natural Woodland, both within the block and out into the surrounding area.

Importance will also be given, in perpetuity, to the Black Grouse habitat on the blocks open hill tops due to its current benefit to the existing, fragile population and its value to the wider core area for the species in Galloway.

### Management Objectives

1. Manage the woodland under appropriate silvicultural systems to produce sustainable quality timber products.
2. Maintain and enhance structural and species richness of the woodland to benefit biodiversity, in particular Black Grouse habitats.
3. Continue working to forestry best practice to safeguard water, soil and air quality, strengthening the resilience of terrestrial and aquatic ecosystems.

### Critical Success Factors

- Increased use of alternative to clearfell management practices.
- Ongoing restoration of Ancient and Semi Natural Woodland.
- Removal of conifer regeneration within the open areas maintaining important black grouse habitat.
- Removal of conifer regeneration within areas of broadleaf restock near Loch Bradan.

## 1.2 Summary of planned operations

Table 1

Summary of Operations over the Plan Period	
Clear felling (gross)	32.6 ha
Thinning (potential area)	342 ha
Restocking (gross)	32.6 ha
Afforestation	0 ha
Deforestation	0 ha
Forest roads	0 m
Forestry quarries	1 ha

The forest is managed to the UK Woodland Assurance Standard – the standard endorsed in the UK by the *Forest Stewardship Council and the Programme for the Endorsement of Forest Certification*. Forestry and Land Scotland is independently audited to ensure that we are delivering sustainable forest management.

## 2.0 Analysis and Concept

The planning process was informed by collecting information about the woodland, which is presented in **Appendix I** and on the Key Features map (**Map 2**). During the development of this plan we have consulted with the local community and other key stakeholders, and a Consultation Record is presented in **Appendix III**.

Below lists the objectives for the site and how the key features present opportunity or constraint. The Analysis of these form the concept for this Land Management Plan.

**Objective: 1. Manage the woodland under appropriate silvicultural systems to produce sustainable quality timber products.**

### Opportunities:

- Will provide more flexibility to meet demands of local timber markets.
- Thinning will extend rotation length to improve age structure in the plan.
- To manage an area as a future habitat provision for existing protected species, when the current area is no longer suitable.

### Constraints

- Limited resources, local experience and contractor base may restrict thinning programme during phase 1.
- A large area of the plan will be too exposed for alternative to clearfell management.

**Concept**

- Ensure continued sustainable timber production from the block and look to diversify species with mixed conifer species in appropriate areas.
- Continue to maintain infrastructure for future operations.

**Objective 2. Maintain and enhance structural and species richness of the woodland to benefit biodiversity, in particular Black Grouse habitats.****Opportunities:**

- Maintain habitats in the core priority area for Black Grouse.
- Provide links to other leks and help to maintain the present species range.
- To increase species diversity, habitat connectivity and improve landscape setting, throughout the block.

**Constraints**

- Funding for conifer regeneration clearance over large open areas.
- Minimal options to increase species diversity away from the current Sitka Spruce plantation due to the less fertile soil types.

**Concept**

- Habitat enhancement through increased native woodland fringe and the maintenance of current open space on hill tops.
- Improve forest structure and visual setting through the use of appropriate Low Impact Silvicultural Systems (LISS) and increase species diversity, to increase habitat connectivity through the block.
- Design appropriate areas of LISS, to lessen impacts on the local landscape views and to provide permanent tree cover for important UK Biodiversity Action Plan (UKBAP) species.

**Objective 3. Continue working to forestry best practice to safeguard water, soil and air quality, strengthening the resilience of terrestrial and aquatic ecosystems.****Opportunities:**

- Protect the Drinking Water Protected Areas (DWPA) of Loch Bradan Reservoir and Tairlaw Burn.
- To support habitats of priority UKBAP species such as Atlantic Salmon.
- Maintain and enhance positive effects on water bodies to ensure continued water quality while also supporting flood risk management and aquatic ecosystems.
- Provide a varied woodland experience for forest users.

**Constraints**

- Most clearfell areas in the DWPA have been restocked, so a change in species may be limited in the short to medium term.
- Limited resources, local experience and contractor base expected to limit LISS programme during phase 1.
- Conifer regeneration in establishing broadleaved areas as a result of first rotation species choice.

**Concept**

- Improve quality of water catchments through species diversity, with the focus on establishment of broadleaved species and increased open space,

- Include the linking of riparian zones along extensive watercourses and a mixed broadleaved with minor conifer species, buffer zone along the loch shore.
- Retain access along forest roads for walking, cycling and horse-riding, using visitor zone areas to design alternative low-impact forest management and species diversity, where appropriate, to enrich the forest user experience and visual amenity from the Carrick Forest Drive.

Different management options for achieving the plan's objectives were considered against the constraints and opportunities identified during scoping and consultation. The preferred approach is summarised on the Concept map (**Map 3**).



## 3.0 Management Proposals - regulatory requirements

This land management plan was produced in accordance with a range of government and industry standards and guidance as well as recent research outputs, recognised at the time of its production. A full list of the current standards and guidance which guide the preparation and delivery of FLS Land Management Plans can be found using the link [HERE](#).

### 3.1 Designations

The plan area forms part of, includes, or is covered by the following designations and significant features.

Table 2

Designations and significant features		
Feature type	Present	Note
Site of Special Scientific Interest (SSSI)	No	
National Nature Reserve (NNR)	No	
Special Protection Area (SPA)	No	
Special Area of Conservation (SAC)	No	
World Heritage Site (WHS)	No	
Scheduled Monument (SM)	No	
National Scenic Area (NSA)	No	
National Park (NP)	No	
Deep peat soil (>50 cm thickness)	Yes	Small pockets across the plan area.
Tree Preservation Order (TPO)	No	
Biosphere reserve	Yes	Galloway and Southern Ayrshire
Local Landscape Area	Yes	Carrick Hills
Ancient woodland	Yes	Tairlaw Glen
Drinking Water Protected Area (Surface)	Yes	2 – Tairlaw Burn and Loch Braden.

The Key Features map (**Map 2**) shows the location of all designated areas and significant features. Any deep peats are indicated on the Soils map (**Map 9**).

## 3.2 Clear felling

Sites proposed for clear felling in the plan period are identified as Phase 1 and Phase 2 coupes on the Management map (**Map 4**).

Table 3

Clearfell Summary by Phase and Coupe Number			
Phase	Coupe Number	Fell Year	Gross Area (ha)
Phase 1	68004	2026/27	12.4
Phase 1	68026	2024/25	0.6
Phase 1	68023	2024/25	1.8
Phase 1	68506	2024/25	4.9
Phase 2	68027	2030/31	12.9
Total			32.6

Table 4

Clearfell by Species												
Coupe Number	Fell Year	Net Area (ha) by Main Species >20% (or MC, MB)										Coupe Total
		CP	DF	HL	JL	LP	NS	SP	SS	MC	MB	
68004	2027								9.44			9.44
68026	2025								0.55			0.55
68023	2025								1.73			1.73
68506	2024				1.66				1.66			3.32
68027	2030								10.41		0.1	10.51
Plan Area Total					1.66				23.79		0.1	25.55

NB Coupe totals: Table 3 shows gross coupe area / Table 4 shows net area of species

Table 5

Scale of Proposed Felling Areas										
Total Woodland Area			648.9 ha							
Felling	Phase 1	%	Phase 2	%	Phase 3	%	Phase 4	%	Long Term Retention	%
Net Area (ha)	15.04	2.3	10.51	1.6	0	0	64	9.9	15.9	2.5

## 3.3 Thinning

Potential sites for thinning in the plan period are identified on the Thinning map (**Map 5**).

This covers an area of 342 ha

Thinning will normally be carried out at, or below, the level of marginal thinning intensity (i.e. removing no more than 70% of the maximum MAI, or YC, per year). Higher intensities (no more than 140 % of maximum MAI, or YC, per year) may be applied where thinning has been delayed, larger tree sizes are being sought or as part of a LISS prescription. In all cases work plans will define the detailed thinning prescription before work is carried out and operations will be monitored by checking pre and post thinning basal areas for the key crop components.

## 3.4 Other tree felling in exceptional circumstances

FLS will normally seek to map and identify all planned tree felling in advance through the LMP process.

However, there are some circumstances requiring small scale tree felling where this may not be possible and where it may be impractical to apply for a separate felling permission due to the risks or impacts of delaying the felling.

Felling permission is therefore sought for the LMP approval period to cover the following circumstances:

Individual trees, rows of trees or small groups of trees that are impacting on important infrastructure (as defined below\*), either because they are now encroaching on or have been destabilised or made unsafe by wind, physical damage, or impeded drainage.

*\*Infrastructure includes forest roads, footpaths, access (vehicle, cycle, horse walking) routes, buildings, utilities and services, and drains.*

The maximum volume of felling in exceptional circumstances over the plan area covered by this approval is 75 cubic metres per calendar year.

A record of the volume felled in this way will be maintained and will be considered during the five year Land Management Plan review.

[N.B. Trees may be felled without permission if they: are of less than 10 cm diameter at breast height (1.3 m); pose immediate danger to persons or property; are completely dead; or are part of Authorised Planning Permission works or wayleave agreements].

## 3.5 Restocking

Proposed restocking is shown on the Future Habitats and Species map (**Map 6**).

**Table 6**

Restocking							
Phase †	Coupe Number	Gross Area (ha)	Proposed Restock Year	Species	Method *	Minimum stocking Density (s/ha)	Note
F	Tairlaw Larch	0.9	2024	Mixed Broadleaves (MB)	R	1600	Previously infected JL
1	68023	1.8	2025	MB & Mixed Conifers (MC)	R	1600/2500	40:30:40 MB/MC/Open intimate mix
1	68026	0.6	2025	MB	NR	1600	60:40 MB/Open
1	68506	4.9	2027	MB	R	1600	50:50 MB /Open
1	68004	12.4	2027	Sitka Spruce (SS),	R	2500/1600	60:40 SS/LP - 9.73 ha

Restocking							
				Lodgepole Pine (LP)& MB			intimate mix & MB - 1.05 ha
2	68027	12.9	2031	MC, SS & MB	R	2500/1600	60:40 MC /SS - 3.51 ha blocky mix & MB - 2.21 ha

<b>Total</b>	33.5
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† recently felled awaiting restock (F) / Phase 1 (1) / Phase 2 (2)

\* replant (R) / natural regeneration (NR) / plant alternative area (ALT) / no restocking (None)

If the Restock or natural regeneration should fail to reach 1600 per hectare (Native Broadleaves) or 2500 sph (productive Conifers) the site will be beaten-up to the required planting density. This will be assessed at year 3 and year 5 after planting with beat up by at least year 5.

## 3.6 Species diversity and age structure

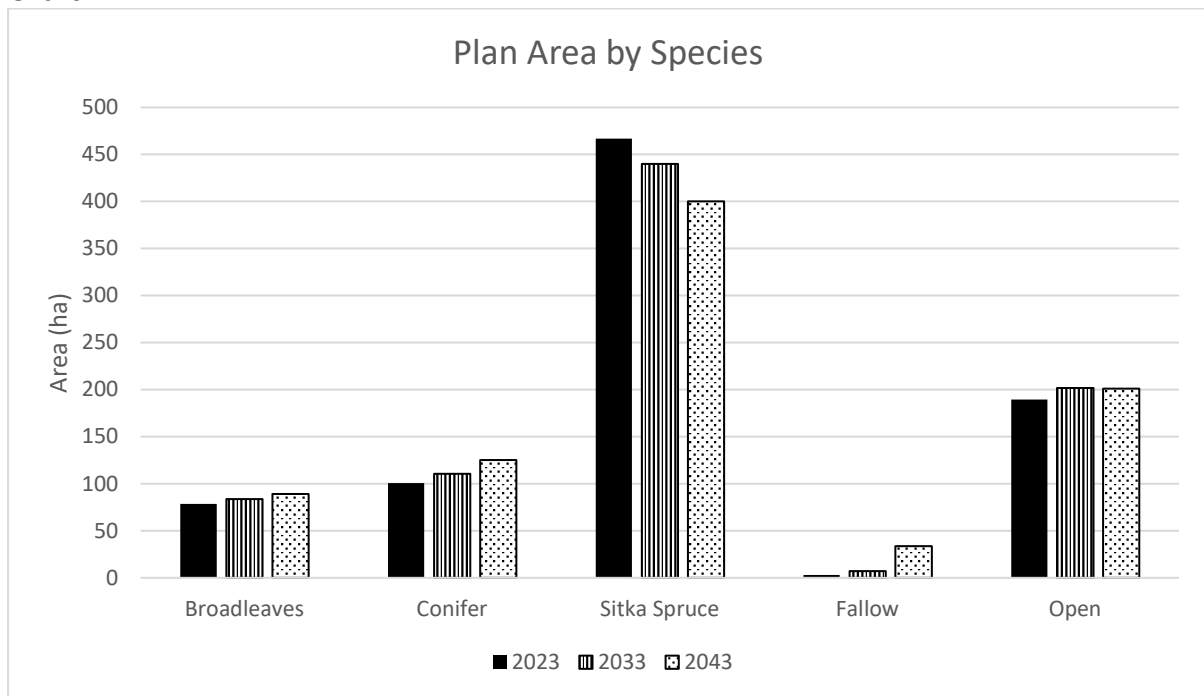
The following tables show how the proposed management of the forest will help to maintain or establish a diverse species composition and age-class structure, as recommended in the UK Forestry Standard. The current woodland composition is shown on **Map 8**.

Stands adjoining felled areas will be retained until the restocking of the first coupe has reached a minimum height of 2m. Where this is not possible (e.g. due to windblow risk), the planned approach to achieving height separation between adjacent coupes is outlined in section 4.1 – Clear felling.

**Table 7**

Plan area by species						
Species	Current Area (ha)	%	Year 10 Area (ha)	%	Year 20 Area (ha)	%
Sitka spruce	466.8	56	439.9	52	400.3	47
Other conifers	100.6	12	110.7	13	125.2	15
Mixed broadleaves	78.5	9	83.7	10	89.2	11
Fallow	3	0	7	1	33.8	4
Open ground	189.5	23	201.6	24	201	24
<b>Total</b>		<b>100</b>		<b>100</b>		<b>100</b>

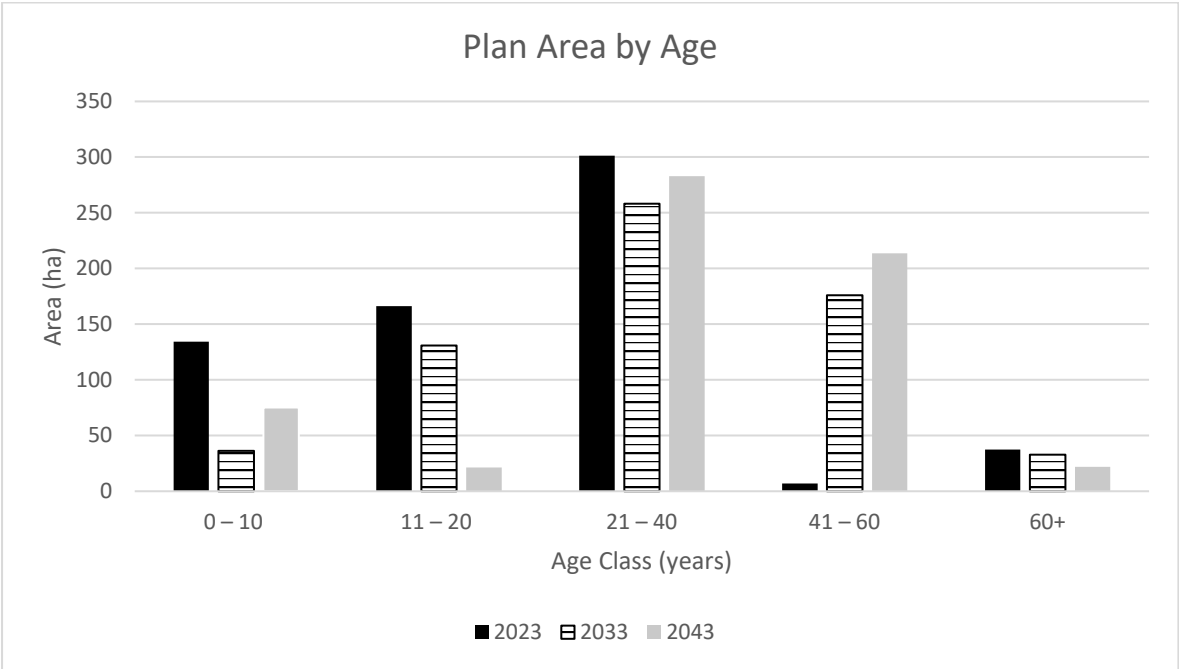
**Chart 1**



**Table 8**

Plan area by Age						
Age Class (years)	Current Area (ha)		Year 10 Area (ha)		Year 20 Area (ha)	
		%		%		%
0 – 10	134.4	21	36.3	6	75.2	12
11 – 20	166.2	26	130.9	21	21.2	3
21 – 40	301.2	47	258.3	41	282.9	46
41 – 60	7	1	176	28	213.5	35
60+	37.3	6	32.8	5	22	4
<b>Total</b>		<b>100</b>		<b>100</b>		<b>100</b>

Chart 2



### 3.7 Road Operations and Quarries

Planned new roads, road realignments, road upgrades, new quarrying, and timber haulage routes are shown on the Road Operations and Timber Haulage map (**Map 7**).

Table 9

Forest Road Upgrades, Realignments, New Roads and New Quarrying				
Phase	Name / Number	Length (m)	Year	Operation
1	Loch Braden Quarry	-	2024	1 ha extension to existing quarry.

## 3.8 Environmental Impact Assessment (EIA)

Any operations requiring an EIA determination are shown in the table below. If required, the screening opinion request form is presented in **Appendix II**.

Table 10

EIA projects in the plan area		
Type of project	Yes / No	Note
Afforestation	No	
Deforestation	No	
Forest roads	No	
Forestry quarries	Yes	1 ha extension to existing quarry. Below EIA screening but an EIAd screening opinion request form has been provided to ensure other criteria have been checked to assess whether an EIA will be required for this forest quarry extension.

## 3.9 Tolerance table

Working tolerances agreed with Scottish Forestry are shown in **Appendix IV**.



# 4.0 Management Proposals – guidance and context

## 4.1 Silviculture

### 4.1.1 Clear felling

Coupes for clearfelling during the plan period (refer to **Map 4**):

**68004** 2026/27      12.4 ha      (9.44 net)

Area of patchy mature trees and windblow to be felled to removed trees from watercourse on site which is important for drinking water quality and has therefore been proposed for Phase 1. To be completed in the drier months to reduce diffuse pollution. Liaison with SEPA and the Local Authority will be a requirement well in advance of works.

**68026** 2024/25      0.6 ha      (0.55 ha net)

Area required for felling a buffer around sensitive infrastructure. Will be cut by chainsaw and felled to waste.

**68023** 2024/25      1.8 ha      (1.73 ha net)

To be felled with 68506, spruce only, to prevent any future windblow issues on Scottish Water dam access route. To be restocked with MB.

**68506** 2024/25      4.9 ha      (3.32 ha net)

Challenging coupe, to be felled to remove windblow issues from mature dead standing larch. Stacking area proposed just off the public road within this LMP submission. Liaison with Scottish Water will be paramount at the planning stages due to an important Scottish Water asset running through the site. 68023 to be felled at the same time.

**68027** 2030/31      12.9 ha      (10.51 ha net)

Windblown area to be felled, previously thinned. Substantial watercourses running through site.

To achieve the UK Forestry Standard of separation between adjacent crops, adjoining coupes should not be felled before the restocking of the first area has reached and average height of at least two metres. We expect this to be achieved in 5 years following planting.

Any unforeseen reduction in separation during the period of the plan will be formally agreed with Scottish Forestry as an amendment. Felling will be undertaken once trees in adjacent restocked coupes have reached 2 m height.

### 4.1.2 Thinning

Refer to **Map 5**.

Thin Coupe ID

<b>68002</b>	85.28 ha	Biodiversity area alternative to clearfell management.
<b>68007</b>	10.74 ha	Minimum intervention clear conifer only.
<b>68003</b>	26.31 ha	Thin to increase timber value.
<b>68510</b>	3.67 ha	LTR thin for management purposes.
<b>68012</b>	12.87 ha	Alternative to clearfell management for 2nd rotation.
<b>68004</b>	56.26 ha	Continue thinning for UKBAP species and timber value
<b>68506</b>	15.29 ha	Future Long Term Retention for UKBAP species.
<b>68005</b>	22.28 ha	Minimum intervention clear conifer only.
<b>68011</b>	41.74 ha	Minimum intervention clear conifer only.
<b>68008</b>	26.01 ha	Minimum intervention clear conifer only.
<b>68009</b>	5.27 ha	Minimum intervention clear conifer only.
<b>68013</b>	36.28 ha	First thin.

### 4.1.3 Low Impact Silviculture Systems (LISS) / Continuous Cover Forestry (CCF)

Refer to **Map 4**.

<b>68520</b>	26.17 ha	Group shelterwood
Conversion to replace LTR (68513) in the future with breeding Schedule 1 species and UKBAP species.		

### 4.1.4 Long term retention (LTR) / Minimum intervention (MI) / Natural reserve (NR)

Refer to **Map 4**.

**68015**            1.48 ha                      Long Term Retention  
SP Retained for structure and UKBAP species

**68500**            4.79 ha                      Long Term Retention  
Mature LP/SS. In the long term, this area is will be felled to waste or eco plugged and retained as future deadwood, however this will be when resources allow and an amendment will be sourced if this is before the next iteration of the Tairlaw Plan.

**68009**            5.62 ha                      Long Term Retention  
Windblow retained for conservation deadwood and UKBAP species.

**68505**            2.66 ha                      Long Term Retention  
Mature SS. Retained to improve block structure.

**68513**            15.91ha                      Long Term Retention  
Environment habitat for Schedule 1 Raptor and other UKBAP species.

**68509**            14.82 ha                      Minimum intervention  
Diverse area of mixed broad leaves and mixed conifers alongside the Water of Girvan.

**68030**            17.86 ha                      Minimum intervention  
An area of naturally regenerated mixed broadleaves with some mature conifers alongside Loch Braden. To be left due to potential water quality issues from any operations and for landscape setting benefits.

**68517**            13.52 ha                      Minimum intervention  
An area of natural regenerated mixed broadleaved alongside public road and a planted, thicket stage mixed broadleaved area.

**68515**            6.03 ha                      Minimum intervention  
Thicket stage mixed broadleaved area behind settlement.

**68501**            12.49 ha                      Natural Reserve (Broadleaf)  
Tairlaw Glen ASNW site with a mature native canopy that extends into semi-natural mature riparian woodland to create habitat connectivity.

Areas classified as 'Natural Reserves' where activities (when resources allow) will be limited to: wildlife management; removal of invasive /non-native tree regeneration and vertebrate pests that could reduce value for biodiversity or colonise surrounding stands; fencing works; maintenance of paths and rides and safety work.

## 4.1.5 Tree species choice / Restocking

Refer to **Map 6**.

**Tairlaw Larch** 0.9 ha (net) 2024

Restocking species Mixed Broadleaves (MB) as per larch tolerance table and sites may be delayed in line with Phytophthora Ramorum policy.

**68023** 1.21 ha (net) 2025

40:30:40 MB/MC/Open intimate mix. Species to be chosen with low impacts on the access in future. Shrub species and non-productive mixed conifers will be chosen, which will also enhance visitor experience and landscape views for this area.

**68026** 0.35 ha (net) 2025

60:40 MB/Open this will allow for some mixed broadleaved regeneration within the area but conifer species will not be permitted due to the sensitivity of infrastructure on the site.

**68506** 1.37 ha (net) 2027

50:50 MB /Open. Species choice is due to reducing management needs for this area and for water quality. A matrix of restock, using species not likely to cause root damage to infrastructure, and open will be implemented on this site. Discussions with Scottish Water will be required early in the planning stages due to the sensitivities around the water pipeline.

**68004** 10.78 ha (net) 2027

60:40 SS/LP - 9.73 ha intimate mix & MB - 1.05 ha. 30m riparian buffer with MB species to protect sensitive watercourse quality. SS and LP mix most suitable to this site due to wet gley soil types. Discussions with SEPA and the Local Authority will be required early in the planning stages due to the sensitivities around the watercourse.

**68027** 10.99 ha (net) 2031

60:40 MC /SS - 3.51 ha blocky mix & MB - 2.21 ha. MB to be focused around watercourses to act as riparian zones. Mainly ground water gley and sheltered in its exposure. Opportunity to diversify conifer according to ESC with species of Fir a possibility here, which will benefit the biodiversity concept zone, future LISS management and provide habitat links. All broadleaf planting will be native to the area and should complement and/or enrich existing naturally growing scrub and woodland to give the most ecological value.

The Restocking Strategy for Scotland's National Forest Estate explains that we will minimise chemical usage in restocking (insecticides and herbicides) by considering options at the site scale, and using tactics such as delayed planting to achieve this.

### 4.1.6 Natural regeneration

There should be a preference for natural regeneration of broadleaf areas (to maintain provenance and improve the chances of establishment) but where this is unlikely or has not been successful then these areas should be planted/beaten up to the required stocking density and site requirements.

It is expected that some of the riparian zones, designed open ground on the hill tops and broadleaf areas will fill in with natural regeneration of both conifers and broadleaves. This will be managed in such a way as to ensure that, where practicable, it does not significantly impose a negative impact upon the objectives of the plan or create a negative impact upon water bodies in terms of shading and acidification.

There are some productive sites where natural regeneration is occurring. These will be monitored and recorded in the FLS sub-compartment database. Where this is the desired species, we will endeavour to use it to establish the required stocking density. If stocking density is too low it will be beaten up by year 5. If the natural regeneration is too dense it may be necessary to clear and restock. Where the natural regeneration is not the desired species it will be considered against the plan objectives and tolerance table and either accepted (with a plan amendment if necessary) or removed.

### 4.1.7 New planting

No new planting is proposed for this plan revision.

## 4.1.8 Protection

### Deer

There is a significant challenge in establishing species palatable to deer such as soft conifers and broadleaves. Generally, within the South Region there is a presumption not to erect physical protections against deer. The Wildlife team have provided a Deer Management Plan (DMP) for Tairlaw produced alongside this plan, from which the details below have been collated.

Tairlaw forest is one of 52 wildlife management units located within the Galloway main block Deer Management Unit 1 (DMU) as denoted in the South Region Deer Strategy 2021-2026. Red and Roe are present within this block, Roe being the predominant of the two. Red deer can be expected to utilise or travel through Tairlaw for various reasons throughout the year.

Proposed restock species have been chosen primarily on the basis of site suitability in addition to accessibility for protection. At the work planning stage, we will re-assess all restock areas to determine site specific deer management requirements. If the potential occurrence of deer browsing is high, and where protection through deer population control alone is likely to prove difficult, alternative protection measures such as plastic tree guards may be used. Establishment will be assessed at year five after restocking has been completed. If used, plastic tree guards will be removed and recycled once trees are satisfactorily established and less susceptible to browsing pressure.

Tairlaw has stock fences installed around parts of its boundary and there one small area of deer fencing protecting a broadleaved restock connecting to the ASNW by the public road, however there are no current plans to construct further fencing within the block.

### Tree Pests and Diseases

Tree diseases reported in Tairlaw include *Phytophthora ramorum* whose general infection has been confirmed on Larch across the region. Several infected areas in the plan area were initially felled to comply with the requirements of Statutory Plant Health Notices (SPHN). There is 6 ha of larch in total across the block. As Tairlaw is within the SF *P. ramorum* on larch Action Plan (July 2022) Management zone, removal of all “live” larch is required by April 2032. 4.3 ha of the larch currently present in Tairlaw is thicket stage larch stands, the majority of which is dead or dying. Due to its fragmented locations across the plan area this will be left as standing deadwood. 1.7 ha of this is mature crop which will be felled as part of clearfell coupes within the first phase of the plan. Restocking of these sites will be compliant with SF Larch Tolerance Table, see **Appendix IV**.

*Dothistroma* Needle Blight (DNB) has been identified on Scots Pine crops across the Region. Likely infection on pine in the block though effects of mortality is currently minimal.

Ash dieback *Chalara fraxinea* is present within the LMP boundary, though its scale and proximity to any infrastructure is minimal. Monitoring is ongoing and identified specimens will be treated as per the FCS published Chalara Action Plan for Scotland in 2013.

*Hylobius*, the Pine weevil, can cause extensive damage to young conifer crop (and at times young broadleaves) and is found in this plan area and throughout the region. As part of the districts chemical minimisation strategy, the *Hylobius* Management Support System (HMSS) is used to measure *Hylobius* numbers on clearfell sites. Using billet traps on conifer restock areas to assess weevil numbers to establish optimum time for site restocking. This more flexible fallow period between felling and re-stocking may result in restocking not taking place within two years of felling (see Tolerance Table section **Appendix IV**).

*Heterobasidion annosum* - Not endemic in the block but a proportionate area in the north of the block is within FR High Hazard area. Stump treatment with urea post felling may be required in the areas of these poorer site types.

FLS encourage good biosecurity practices to prevent diseases from spreading. Monitoring established and emerging pest and diseases in Tairlaw will be completed through defined plant surveys, and through training staff to recognise and report tree health issues. Enabling early detection of emerging tree health threats and any negative changes in existing ones.

When designing the restock of this plan, species have been appropriately matched to sites, and efforts have been made to diversify the range of species and silvicultural systems used where appropriate, including greater use of mixtures to reduce future impacts of climate affects.

## Fire

FLS continues to work closely with the Scottish Fire and Rescue Service (SFRS) to prevent and tackle wildfires that threaten Scotland's National Forests and Land. FLS support SFRS in their lead role for fire prevention and suppression through creating annual fire plans, maintaining a duty rota, and providing additional logistical support. FLS's primary objective is always to protect people's health, safety and wellbeing. FLS in South Region are a member of the Ayrshire Partnership And Rural Crime (APARC) group. This group is made up of Police Scotland, FLS, local farmers, relevant councils, The Horse Society, local estates, and private forestry groups all working together in an attempt to tackle Anti-Social Behavior (ASB), including that of fire-raising. (For further details on ASB please see section **4.5 People**)

Where appropriate opportunities to create broadleaved buffers between the main forest block and the settlements have been implemented, to go towards creating a natural fire break.

## 4.1.9 Road operations, Timber haulage and other infrastructure

**Map 7** shows the existing forest road network, planned new infrastructure, quarries and agreed Timber Transport Routes.

There are no new road planned for Tairlaw within the term of this plan. There is one stacking area required for a phase 1 coupe and a quarry extension of 1 ha for the existing Loch Braden quarry. There will be a need to maintain the forest roads, however this will not include breaking new ground or re-routing of existing roads.

Minor roads around the block are consultation routes for timber haulage. Consultation with Ayrshire Roads Alliance must be made prior to any extraction from this blocks to determine any restrictions required, and the impact on haulage. All timber haulage will adhere to the Timber Transport Forum “Road Haulage of Round Timber – Code of Practice”.

## 4.2 Biodiversity

### 4.2.1 Designated sites

There are no designated sites within the plan area.

### 4.2.2 Native woodland

Broadleaves within the plan area are currently at 9% of the area and implementation of this plan will see this rising to 11% at year 20.

Ancient woodland areas from Nature Scots Ancient Woodland Inventory include Tairlaw Glen within the LMP boundary. Areas surrounding the ancient woodland have been encouraged, through removal of mature seed-bearing spruce, encouragement of natural regeneration and restocking to establish some wet woodland species of Aspen, Birch, Willow and other suitable native broadleaves, in a mosaic of native trees and open ground expanding these fragmented units.



Riparian areas will look to link the woodland areas through appropriate broadleaved expansion leading to greater associations between broadleaved woodland sites nearby, creating a robust woodland network to link the open hill tops used by black grouse. Positive steps taken during the term of the previous plan can already be seen through establishment of native regeneration and restocking of broadleaved species increasing the connectivity of these valuable habitats.

Restocking of native woodland has been implemented and continues to be encourage around the edge of Loch Braden to contribute to positive water quality. Issues have arisen with newly restocked native woodland on this site where natural colonisation of conifer has begun. Therefore, when resources allow, FLS will continue to remove conifer regeneration to support the native woodland in this area.

The above measures also support the objectives in the South Ayrshire Forestry and Woodland Strategy in relation to the restoration and enhancement of ancient woodland sites.

### 4.2.3 Ancient woodland / Plantation on Ancient Woodland sites (PAWs)

The plan area includes Tairlaw Glen, a substantial site that appears in the NatureScot directory as Ancient Woodland. Despite its relative isolation from other, larger areas of ancient woodland, a mixed broadleaved network along the glen is being established to develop links to other Ancient Semi Natural Wooded areas along the Water of Girvan valley. Opportunities to create wet woodland with open space, and our current targets are to preserve and enhance any identifiable Ancient Woodland features with increased levels of broadleaved woodland proposed for subsequent rotations. We would look to remove conifer regeneration in sensitive areas, when resources allow, however should mature NS or SP be present they will be retained to continue to provide a food resource for Red Squirrel.

### 4.2.4 Protected and priority habitats and species

All forest management operations involve a planning process before work commences which includes checks for wildlife and important habitats. Work plans will be adjusted if necessary to avoid disturbance, and opportunities to further protect species or enhance habitats will be identified.

**Black Grouse** *Lyrurus tetrix*

The importance of connectivity between leks was highlighted in the *RSPB Galloway Glens Black Grouse Project Habitat Management Plans 2021* report which has also been used to inform the design of open areas for this LMP revision. The Tairlaw block forms part of the core area for Black Grouse in Galloway Forest Park. The LMP will build on previous work by maintaining habitat linkages between internal open space and the moorland edge and by establishing stands of native broadleaf species for winter browsing on adjacent sites favoured by Black Grouse.

**Red squirrel** *Sciurus vulgaris*

This area is not a stronghold though the species is present within the area and efforts have been made to further encourage the species through habitat provision, retaining mature trees, increasing areas of Scots pine, Norway spruce and small seeded broadleaved species, and reducing coupe sizes. FLS has a single species licence to cover forest management activities that may affect red squirrels on the National Forest Estate (NFE). All works within the plan area will follow the assessment and mitigation actions set out as conditions of this licence.

**Atlantic Salmon** *Salmo salar*

Both Tairlaw Burn and the Water of Girvan systems support important breeding populations of fish, including Atlantic salmon. Water quality is a significant environmental factor in the plan area with the main watercourses important for breeding salmonids (including Brown trout and European Eel, UKBAP species). Riparian zone improvements, often in excess of basic guidelines proposals, should benefit these species. See **4.7.2 Watercourse condition**

**Pine Marten** *Martes martes*

Pine Marten is well established, with a breeding population within the forest block. The population is monitored annually and efforts to retain mature crop have been implemented where possible within the plan. The Tairlaw block is an integral part of the ongoing Pine Marten box project that cover large swathes of FLS plantation to the north of the district.

**Badgers** *Meles meles*

Badgers are present in the block. Before any operations site surveys are carried out species licenses from NatureScot will be obtained should they be required. Forestry Practice Guide 9 Forest Operations and Badger Setts is followed as appropriate.

**Otter** *Lutra lutra*

Otters are abundant throughout the LMP area. The species should benefit from continued riparian management that will aim to keep sections of stream banks permanently vegetated.

### **Bats**

Bat boxes are found within the block and bats that use these include Soprano *Pipistrellus pygmaeus*. The population is monitored annually and efforts to retain foraging areas has been implemented in the plans design. Before any operations site surveys are carried out and species licenses from NatureScot will be obtained should they be required. FCS Guidance Note 35a: Forest operations and bats in Scotland will be followed as appropriate.

### **Birds**

Various raptors, including Kestrel *Falco tinnunculus* and other schedule 1 raptors are present within the LMP area. The plan provides a mosaic of habitats providing a range resources for different bird species which will increase as the plan is delivered. In-house environmental surveys will provide up to date information on bird species using the area prior to the start of any operations. The Tairlaw block is an integral part of the ongoing Kestrel box project that cover large swathes of FLS plantation to the north of the district.

### **Priority habitats**

Upland Heathland, Upland Birchwood, Upland Fen flush & Swamp and an Oligotrophic Loch UK Biodiversity Action Plan (UKBAP) Priority Habitat are found within the LMP. In addition to this some wet Woodlands (W7) are developing within the riparian zone alongside the Tairlaw Burn and Water of Girvan. The design plans to enhance the surrounding areas whilst maintaining the these valuable existing habitats.

For Priority Peat comments please see **4.6.3 Deep peats**

## **4.2.5 Open ground**

A feature of the previous LMP was to create additional habitat for Black Grouse mainly in the form of woodland fringe and this is ongoing in this iteration of the Tairlaw Plan. Native woodland fringe is defined as 20-50% tree cover in a matrix of short vegetation. Always more than 50% (ideally 100%) of the tree species will be native. Regeneration will be closely monitored, assessed as to its suitability and if the density and species mix of woodland cover is unacceptable restocking of a woodland fringe mix may take place. Conifer regeneration has begun to spread into this open habitat and it is presumed that conifer clearance will need to

take place when resources allow. Clearance of regeneration in this area will be a priority over the term of this plan to support the vulnerable and important Black Grouse habitat.

These open areas and their associated woodland should also benefit species using the riparian zone. At a more detailed level where we are looking to better promote natural features such as rock crags and wet hollows areas, increased open space and species diversity will persist.

Several quarries in the block will remain as permanent open space and are identified on the features map. Two of these quarries will remain active.

Significant open space and non-commercial broadleaf areas are planned for the south face of the block overlooking Loch Bradan. The creation of more natural woodland edges and reduced planting densities within the broadleaf should maintain and enhance the views from over the loch. Target stocking density for non-commercial broadleaf will be around 1600 stems per hectare (2.5m spacing). In the woodland fringe additional restocking will take place should the figure not be reached.

Open space areas have increased slightly and are mainly focussed on the riparian zones and hilltops some of which may eventually develop into native woodland fringe.

#### 4.2.6 Dead wood

Opportunities for retaining or creating deadwood will be identified during the planning of all felling and thinning works, favouring areas with the highest deadwood ecological potential. Some areas of deadwood will be eventually provided by, small inaccessible areas of Larch. Valuable deadwood and deadwood areas will be marked on contract maps. Areas of minimum intervention will offer some of the best opportunities for the development of standing and fallen deadwood. Where it has been safe to do so, windblown and standing mature dead trees have been retained as these offer excellent potential for a range of species.

#### 4.2.7 Invasive species

Invasive Non-Native Species (INNS) can impact directly on many environmental aspects of an area and are specifically recognised as a significant risk to water environments potentially causing problems for communities who rely on rivers and lochs for their livelihoods. There is Common rhododendron *Rhododendron ponticum* in a small pocket in the plan area managed

as appropriate. There are some conifer regeneration in some environmentally sensitive areas. However the extent of these are minimal and will be monitored and dealt with as appropriate by FLS, when resources allow.

Monitoring of INNS is ongoing and any invasive species identified will be treated as per the Region's INNS Policy and this includes the use of biosecurity measures, which are also highlighted before operations begin, at the work plan stages

## 4.3 Historic Environment

Refer to **Map 12**.

Our key priorities for archaeology and the historic environment are to undertake conservation management, condition monitoring and archaeological recording at significant historic assets; and to seek opportunities to work in partnership to help to deliver Our Place in Time: the historic environment strategy for Scotland (2014) and Scotland's Archaeology Strategy (2015). Significant archaeological sites will be protected and managed following the UK Forestry Standard (2017) and the FCS policy document Scotland's Woodlands and the Historic Environment (2008). Harvesting coupes, access roads and fence lines will be surveyed prior to any work being undertaken in order to ensure that upstanding historic environment features can be marked and avoided. At establishment and restocking, work prescriptions remove relevant historic environment features from ground disturbing operations and replanting. Where appropriate, significant historic assets are recorded by archaeological measured survey, see active conservation management and may be presented to the public with interpretation panels and access paths. Opportunities to enhance the setting of important sites and landscapes will be considered on a case-by-case basis (such as the views to and from a significant designated site).

The Regional Historic Asset Management Plan includes conservation management intentions for designated historic assets on the National Forest Estate. Details of all known historic environment features are held within the Forester Web Heritage Data and included within work plans for specific operations to ensure damage is avoided. Significant historic environment features will be depicted on all relevant operational maps.

Areas of historic environment interest should be checked both on FLS's internal historic environment records and also with the Council's HER prior to the commencement of forestry

activities. Any upstanding features should be clearly marked, both on the ground and on operational maps. Care should be taken to avoid any damage to surviving structural elements.

### 4.3.1 Designated sites

There are no designated sites within the Tairlaw LMP area.

### 4.3.2 Other features

There are several known undesigned historic environment features in the plan area, 10 of which are of regional importance. These are recorded in **Appendix V** along with locally important features within the block.

Other features include cairns, sheep rees, stone walls, a ruined building, a trig point and a possible Crannog. The historical site of Loch Braden Castle is thought to be on an island, though there is no evidence of this today. Heritage areas will be identified on site before operations commence and will be avoided as appropriate.

## 4.4 Landscape

### 4.4.1 Designated areas

Tairlaw sits within the Landscape Character Types of the Ayrshire foothills (076), and to a lesser extent, within the Pastoral Valleys of Ayrshire (072), along the northern boundary of the block. The Foothills landscape area covers a series of hills which form the transitional area between the upland moorlands in the south to the more sheltered and settled lowlands of north Ayrshire. The block is also within the South Ayrshire Council Local Landscape Area of the High Carrick Hills, which also relates to the landscape character types.

Landscape was a major objective in the previous iteration of the plan, when the felling and restocking in the areas where the major viewpoints into the block are, were in a transitional period and having a temporary adverse effect on the landscape character. The landscape views have been reviewed during the scoping and concept of this plan in consultation with the FLS Landscape Architects. Therefore it has been concluded that the felling, subsequent restocking and management of the forest has successfully improved the landscape views onto the block and therefore its wider setting in the landscape.

## 4.5 People

### 4.5.1 Neighbours and local community

Neighbours have taken an active interest in the development of the plan and their aspirations have been incorporated where they do not conflict with the objectives of the plan and are consistent with FLS's approach to land management.

Anti-Social Behaviour (ASB) issues were raised by stakeholders during the consultation for this plan revision. Unfortunately the remote or secluded nature of our forest sites, including the Tairlaw Forest block, can also make them attractive to a small number of people for antisocial or criminal activities including fly tipping, illegal use of motorbikes, quad bikes and fire raising which are ongoing problems that FLS staff face on a regular basis.

Regrettably these types of incidences are unlikely to be stopped by physical barriers, signs, information, interpretation or even face to face advice. Arguably people carrying out these activities are not taking recreational access, but such incidents are linked to access in various ways. Most anti-social activities are criminal offences and are most effectively dealt with by the police or in partnership with other bodies. Whilst it is not wholly the responsibility of FLS to educate the public on the countryside code and responsible use of the forests, we as an organisation do recognise the part we can play in supporting communities in and around our forests with this. Nationally we work in partnership with other rural organisations, including the emergency services to try and tackle rural crime and ASB.

In relation to Tairlaw Forest itself, FLS staff continually take steps to address ASB issues in order to protect our forest users and the forest environment. Locally this includes working as part of the Ayrshire Partnership And Rural Crime (APARC) group as mentioned in section **4.1.8 Protection - Fire**. We would encourage any ASB witnessed by forest users to be reported to the relevant authorities as close to the time of observation as possible.

## 4.5.2 Public access

There is no formal recreation currently within the Tairlaw block. Visitors are welcome to explore FLS land, and will only be asked to avoid routes while certain work is going on that will create serious or less obvious hazards for a period (e.g. tree felling). Scotland's outdoors provides great opportunities for open-air recreation and education, with great benefits for people's enjoyment, and their health and well-being. The Land Reform (Scotland) Act 2003 ensures everyone has statutory access rights to most of Scotland's outdoors, if these rights are exercised responsibly, with respect for people's privacy, safety and livelihoods, and for Scotland's environment. Equally, land managers have to manage their land and water responsibly in relation to access rights and FLS will only restrict public access where it is absolutely necessary, and will keep disruption to a minimum.

Tairlaw is within the Dark Sky Park in Galloway and FLS is committed to protecting and conserving this. However there are no artificial sources of lighting in the block that could interfere with the night sky.

### Woodland Management in Visitor Zones

Visitor Zones have been identified in areas where FLS encourage and manage access or where the woodland managed by FLS interacts with popular visitor sites or access routes. Visitor Zones are mapped on **Map 13**.

In these areas, single trees or small groups of trees will be removed when necessary to protect facilities, infrastructure and trails, or to enhance the setting of features, or to maintain existing views.

Woodland in these zones will also be thinned, or trees re-spaced, for safety reasons (including to increase visibility to ensure that sites are welcoming and feel safe) and where it is necessary to enhance the experience of the forest setting, through the development of large trees, or preferential removal of trees to favour a particular species.

## 4.5.3 Renewables, utilities and other developments

No known renewable developments proposed or existing.



Known utilities in the block include an emergency services mast, overhead powerlines and water pipelines. For a list of utilities on site please see **Appendix 1** - Description of Woodlands, Infrastructure.

## 4.5.4 Support for the rural economy

FLS supports a sustainable rural economy by managing the national forests and land in a way that encourages sustainable business growth, development opportunities, jobs and investment.

## 4.6 Soils

### 4.6.1 Protection and Fertility

There will be minimal soil disturbance and machine movement on sites with clayey soils to reduce the risk of compaction or damage to the soil structure. Brash mats (or alternative measures) will be used to protect sensitive soils. Felling residue will usually be left on site to allow nutrient recycling, with consideration for the practicalities of restocking.

### 4.6.2 Cultivation

Where required, the choice of ground cultivation technique will consider the short-term benefits for establishment against any long-term side effects on tree stability, access for future forest operations and the environment. There will be a preference for the least intensive technique.

### 4.6.3 Deep peats

Peatland areas within the Tairlaw block are minimal with deep peats <10 ha, fragmented, and most are located on the open hill. Some peat types are edaphically unsuited to woodland and there will be no restocking of commercial conifer on deep peats.

Prior to restocking, the areas will be assessed for evidence to support replanting as per the FC Practice Guidance. If evidence is found to clearly support good growth of YC 8 or more, they will be restocked.

## 4.7 Water

### 4.7.1 Drinking water

All private drinking water supply points (and pipes) are recorded as a layer in our Forester Web GIS (included in **Map 2**). This is consulted during the work plan process for all forest operations to ensure their protection. Affected neighbours will be consulted prior to any works commencing. Features will be clearly marked on all contract maps, as well as on the ground. The design of the future forest has incorporated an open space or broadleaf buffer of at least 50m around these supply points to minimise future disturbance. For further information on Private Water Supplies, please see Confidential **Appendix VI** Private Water Supplies.

There are two active Scottish Water drinking water catchments designated as Drinking Water Protected Areas (DWPA) – Surface Water, within the LMP area. The existing loch waterbody or Loch Braden, where drinking water is stored and Tairlaw Burn, an existing small river waterbody. These waterbodies and their catchments are protected in the plan through careful design of the restocking, felling and any nearby forestry operations. All operations within these catchments and buffers will follow the good practice guidance for Public Water Supplies such as [guidance-on-forestry-activities-near-sw-assets-final.pdf](#) (confor.org.uk) and Forestry and Water: <https://www.confor.org.uk/resources/forestry-water-scotland/guidance-documents/>.

### 4.7.2 Watercourse condition

The current status of Tairlaw's water environment has been informed by SEPAs river basin management plan (RBMP) that outlines the condition, protection and improvement of the

water environment across Scotland (see **Appendix 1** - Description of Woodlands, Hydrology). This LMP will also work towards delivering the RBMP actions through adhering to relevant legislation and 'good working' practices.

The ground water catchment of South Ayrshire Hills cover the LMP area and is in good condition. The surface water catchments for Water of Girvan (d/s of Loch Braden to Palmullan Burn) and Loch Braden are within the plan area, with the former being of good ecological status. Loch Braden is of moderate status and rural sources are noted as a minor contributor to this though a diffuse source, however the major contribution seems to be acid rain and modifications to adjoining burns to provide drinking water. Therefore, it has been noted by SEPA that improvement to water quality condition is likely to be a long-term process due to the natural processes required to improve soils in the catchment. Therefore it is likely the water quality will continue to remain at current levels.

Minor tributaries flow from the forest block feeding into Loch Braden, Tairlaw Burn and River Girvan and are important for biodiversity, supporting the local fish species and in-turn the local communities with their interest in recreational angling. Most notable of these species are the Brown Trout and the protected, Atlantic Salmon. These waterbodies are important spawning and breeding areas especially for the nationally declining population of Atlantic Salmon.

Efforts to improve water quality within the land management plan will be realised through continued implementation of riparian zones along water courses that include increasing broadleaf percentages, copses and glades. The Riverwoods Initiative (<https://www.riverwoods.org.uk>) principles have also been incorporated into the plan where possible to promote and provide a valuable habitat corridor for the important ecosystems in these areas. The proposed increase in open ground and increased areas of permanent broadleaf woodland should result in a greatly reduced operational impact and positive impacts on water quality.

As standard, and to support the improvement to water quality of the area all forestry operations will meet the requirements of the UKFS Guidelines on Forests and Water and follow the good forestry practice advocated by the Forestry & Water Scotland initiative. All necessary precautions will be taken to avoid water quality deterioration, including robust preparation and dissemination of emergency and work planning particulars before any operations begin.

### 4.7.3 Flooding

Tairlaw's localised flooding potential has been checked using the SEPA Flood Hazard and Flood Risk Information tool to identify localised flood risk areas from water bodies within a 50 meter radius. It was shown there was no identifiable possibility of river flooding recognised for this area but there could still be local impacts from flooding in some places.

There are 2 Objective Target Areas (OTA) downstream of 2 main catchments within the plan area as highlighted in SEPAs FRMP - Ayrshire Local District Plan (see **Map 15**). River Girvan catchment flow north from the block towards the Straiton OTA (TA 162) then flows west towards the Girvan OTA (TA 78).

There is a risk of surface water and river flooding highlighted in the Ayrshire Datasheet <https://www2.sepa.org.uk/frmplans/documents/lpd12-ayrshire-frmp-2021.pdf>

FLS has considered its effect on flood risk and peak flows further downstream at the relevant OTA. The minor scale of felling in the forest, along with measures to enhance the diverse age structure and riparian corridors is likely to have a beneficial impact on downstream flood risk and may contribute to flood alleviation.

Relevant actions needed to help TA objectives in the FRMP include the use of Natural Flood Management (NFM) within the relevant catchments. Restock areas in the plan will be well-thought-out and watercourses given significant riparian corridors where appropriate to support these objectives. It is anticipated that our operations within the Tairlaw LMP will have no negative impact on the existing flooding risk within the drainage areas.

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# Appendix I: Description of Woodlands

Description of woodlands
<p>Topography and Landscape</p> <p><b>Map 11.</b> Shows the relevant NatureScot Landscape Character Types (LCT) relevant to Tairlaw:  Ayrshire foothills – LCT 076  Pastoral Valleys – LCT 072</p> <p><u>Local Landscape Area – South Ayrshire – High Carrick Hills</u>  Included within the local authorities development plan area due to its notable landscape quality.</p>
<p>Geology and Soils</p> <p>Geology is composed of Sedimentary bedrock in the south east of the block formed during the Ordovician period. Igneous bedrock is present in the north eastern half of the block formed during the Silurian and Devonian periods.</p> <p>There are some Superficial deposits within the block appearing mainly within the valleys present. These are all sedimentary deposits formed during the Quaternary period and are primarily glacial in origin. Some peat deposits also appear in areas currently noted as open ground.</p> <p>Soils types within the forest block are shown on <b>Map 9</b>. These mainly consist of surface water gleys, rankers appearing around the summit of Loch Dhu and some small fragmented pockets of brown earth and peaty areas across the block.</p>
<p>Climate</p> <p><u>Accumulated temperature (day-degrees above 5°C)</u>  Min: 1303, Max: 1666, Mean: 1427</p> <p><u>Moisture Deficit (mm)</u>  Min: 55, Max: 90, Mean: 67</p>

## Description of woodlands

The climate of the LMP area is highlighted pink on the table below:

		Accumulated temperature (day-degrees above 5°C)								
		>1800	1800-1475	1475-1200	1200-975	975-775	775-575	575-375	375-175	<175
Moisture Deficit (mm)	>200	Warm Dry								
	180-200									
	160-180									
	140-160	Warm Moist			Cool Moist					
	120-140									
	90-120									
	60-90		Warm Wet		Cool Wet					
	20-60						Sub-Alpine			
	<20						Sub-Alpine	Alpine		

Climatic Zones in Great Britain (shading indicates combinations not present)

## Hydrology

**Map 2** shows all watercourses, open water, and recorded water supplies. The forest sits in the Ayrshire river basin district.

### Water quality

Bodies of surface waters (as identified by SEPA) in the plan area:

**Name:** Water of Girvan (d/s Loch Bradan to Palmullan Burn) (ID: 10456)

**Overall Condition:** Good

**Impacted condition / Responsible pressures (Responsible activity):**

Heavily modified water body on account of physical alterations that cannot be addressed without a significant impact on water storage for public drinking water.

**Name:** Loch Bradan is a lake (ID: 100316) **Overall Condition:** Moderate

**Impacted condition / Responsible pressures (Responsible activity):**

Heavily modified water body on account of physical alterations that cannot be addressed without a significant impact on water storage for public drinking water.

### Flooding

**SEPA's Flood Risk Management Plans** – Ayrshire Local District Plan (see **Map 15**)

**Operational Target Area Catchments** (Information from SEPA's Flood Risk Management Datasheet)

**Catchments:** Girvan

**Target Areas (TA):** Girvan (TA 78) & Straiton (TA 162)

**Relevant TA objectives:** Consider whole catchments and coastlines and work with natural processes and the environment to deliver outcomes.

Description of woodlands
<p><u>Water supplies</u></p> <p>There are 2 private drinking water supplies within the LMP boundary. There is 1 public water supply at Loch Braden Reservoir</p> <p><u>Drinking water protected areas</u></p> <p>Loch Braden – Existing loch waterbody - DWPA13_488 Tairlaw Burn – Existing small waterbody - DWPA13_485</p>
Windthrow
<p><b>Map 10</b> illustrates the DAMS measurements for the Plan area. The majority of the block is has a wind score of above 16 make these areas exposed to windthrow. Slope rising up from the burns within the valleys have a score of under 16 and are therefore likely to be less exposed.</p>
Adjacent land use
<p>Areas around the Tairlaw boundary mainly include rough grazing belonging to the small settlements scattered around the site and areas of plantation forestry belonging to the national forest estate. There is also a small industrial area comprising of the Scottish Water Treatment Works.</p>
Public access
<p><b>Map 13</b> shows the location of visitor zones. There are no official trails or recreational facilities in the block.</p>
Historic environment
<p>Historic environment records for the forest are shown in <b>Appendix V</b> and on <b>Map 12</b>. There are no Scheduled Monuments within the plan area.</p>
Biodiversity
<p>Designated Sites - None within the LMP boundary Priority Habitats – Upland Heathland, Upland Birchwood, Wet Woodland, Upland Fen flush &amp; Swamp and Oligotrophic Loch. Priority Species – Black Grouse, Kestrel, Red Squirrel, Pine Marten, Badger, Bats and Schedule 1 Raptors. Ancient Woodland – Tairlaw Glen Ancient (of semi-natural origin) (14.4 ha) under minimum intervention management Natural Reserves – 1 within the LMP boundary on ASNW site. Deadwood potential - Main core of the block is low, with slopes falling to the lower ground towards valley bottoms and loch shore side is medium. High around the riparian zones. Open ground - Rides, components of riparian zones, quarries, agricultural grazing, utility infrastructure, open hill habitat.</p>
Invasive species



Description of woodlands
<p><i>Rhododendron ponticum</i> at the Tallaminnoch footbridge over the Tairlaw burn. Ongoing management to remove, when appropriate.</p> <p>No other invasive species known within the LMP area.</p>
Woodland composition
<p>The current species composition of the forest is illustrated on Map 8.</p> <p>The current woodland is majority second rotation high forest with some remnants of first rotation coupes. A small area of agricultural leased ground is also incorporated in the block to the East of the plan area.</p> <p>Current woodland management (and % of plan area):</p> <p>Clearfell (51 %)</p> <p>Long term retention (2 %)</p> <p>CCF / LISS (10 %)</p> <p>Minimum intervention (8 %)</p> <p>Natural reserve (0 %)</p> <p>Other/Open land (10 %)</p> <p>Open Water (19 %)</p>
Plant health
<p><i>Phytophthora ramorum</i> - The block lies within Management Zone where there is a requirement to removal at least 50% of larch by April 2027 including removal of all mature larch in same period. Some sanitation felling in the block completed in previous years.</p> <p><i>Phytophthora pluvialis</i> – None known but monitored as part of an emerging disease in Scotland</p> <p><i>Chalara</i> – Minimal Ash within block and away from any infrastructure, though likely infected.</p> <p><i>Dothistroma</i> Needle Blight – Likely to be present as now widespread in Galloway.</p> <p><i>Hylobius</i> – Common pest on clearfell sites including those in Tairlaw</p> <p><i>Heterobasidion annosum</i> – High risk area in the north of the block.</p>
Infrastructure
<p>There is a well-established forest road network throughout the plan area, providing adequate access to most sites. There are no bridges.</p> <p>There are 7 quarries within the block with only 2 of these now active.</p> <p>Boundary stock fences are the only fences within the block.</p> <p>Tairlaw fire mast is owned by the emergency services and appears on Tairlaw Ring.</p> <p>Scottish Power transmission overhead 275kV powerline passes through the main plan area.</p> <p>Other low voltage (11kV) powerlines are located around the plans boundary with one crossing the forest supplying the emergency mast. Low voltage underground cables are located in close proximity to the emergency mast and the eastern dam.</p> <p>Loch Braden Treatment Works owned by Scottish Water is adjacent to the block</p> <p>Scottish Water assets in the area include a 90mm HPPE water main pipe.</p> <p>A minor public roads passes through the west and northern edge of the forest block</p>

## Appendix II: EIA screening opinion request form

None provided to SF as proposed LMP operations below EIA screening threshold.

## Appendix III: Consultation record

Consultee	Date contacted	Date of response	Issues raised	FLS response
Ayrshire Rivers Trust	13/07/2023	No reply	-	-
Ayrshire Roads Alliance	13/07/2023	13/07/2023	Acknowledgement but no further comments received	-
Botanical Society of Britain & Ireland	13/07/2023	13/07/2023	Acknowledgement but no further comments received	-
Community Council - Crosshill, Straiton and Kirkmichael	13/07/2023	No reply	-	-
CONFOR	13/07/2023	No reply	-	-
Galloway & Southern Ayrshire Biosphere	13/07/2023	No reply	-	-
Historic Environment Scotland	13/07/2023	19/07/2023	Ancient Monuments Officer No issues but should consult with West of Scotland Archaeology Service.	None
IUCN Otter Specialist Group	13/07/2023	No reply	-	-

Consultee	Date contacted	Date of response	Issues raised	FLS response
Loch Doon Residents Association	13/07/2023	No reply	-	-
Loch Doon Walking Group	13/07/2023	No reply	-	-
NatureScot	13/07/2023	15/08/2023	<p>Believe that the Analysis and Concept Map has identified the most pertinent issues of interest to NatureScot, and agree with and welcome the proposed actions.</p> <p>As noted, the area is very important to black grouse. There is a need therefore to maintain a mostly open habitat on **** and to minimise disturbance there during the breeding season. Welcome the proposal to establish a mix of open ground and broadleaf species within the purple-coloured part of the map, along the north side of Loch Bradan. Would also provide roosting and foraging habitat for black grouse during the non-breeding and winter seasons, if a mosaic of groups of birch, rowan and Scots pines can be included there. This would also complement the past work the Commission has carried out along parts of the southern side of the loch, including the planting of Scots pine and native broadleaf trees.</p> <p>Clearly deer-fencing should not be used, due to the great danger they present to flying birds.</p> <p>Regarding amenity, the complete circular walk is often frustrated due to the ford there being</p>	<p>See <b>4.2 Biodiversity, 4.1.5 Tree species choice / Restocking</b> &amp; refer to <b>Map 6</b>.</p> <p>See <b>4.1.8 Protection</b></p>

Consultee	Date contacted	Date of response	Issues raised	FLS response
			flooded. If FLS has control over the ford crossing there can a simple footbridge or stepping stones be implemented.	Comments passed to local Visitor Services team. See also <b>4.5 People</b>
Raptor Study Group	13/07/2023	No reply	-	-
River Girvan District Fishery Board	13/07/2023	No reply	-	-
RSPB	13/07/2023	13/07/2023	Acknowledgement but no further comments received	-
Saving Scotland's Red Squirrels	13/07/2023	No reply	-	-
Scottish Badgers	13/07/2023	No reply	-	-
Scottish Forestry	13/07/2023	No reply	-	-
Scottish Power Energy Networks	13/07/2023	No reply	-	-
Scottish Water	13/07/2023	23/08/2023	SW letter noted -  <i>The proposed activity falls just outside the DWPA for Bradan Treatment Works catchment, however the 1000mm pre-stressed concrete 'Bradan' main runs through the site with associated washout pipes within the site boundary.</i>	See <b>4.7 Water</b>

Consultee	Date contacted	Date of response	Issues raised	FLS response
			<p>After clarification from FLS on SW infrastructure in the area email was received noting –</p> <p><i>'In addition to the 1000mm pre-stressed concrete (PSC) main we've discussed, there is also a 42" PSC raw water main from the east end of the loch down to the WTW and there is also the Stinchar Aqueduct at the west end of the reservoir.'</i></p> <p>Generic SW information was also received at this time.</p> <p>SW portal was used as directed to try to contact the HAUC Diversions Team via the Development Services portal to obtain specific protection measures for these SW assets on 01/09/2023 – as of 07/12/2023 there has been no response.</p>	
Scottish Wildlife Trust	13/07/2023	No reply	-	-
SEPA	13/07/2023	13/07/2023	Email and generic response letter received from Principal Compliance Officer .	<p>Was copied into the Private water supply correspondents with Local Authority.</p> <p>See <b>4.7 Water</b></p>
South Ayrshire council	13/07/2023	14/08/2023	Located within the Biosphere buffer zone and this should be considered as part of the Land Management Plan and all proposals should align with objectives.	See <b>4.2 Biodiversity</b>



Consultee	Date contacted	Date of response	Issues raised	FLS response
			<p>watercourses both within and out with the application site as well as Loch Bradan to the south and therefore FLS should consult Scottish Water and SEPA.</p> <p>Consultation should be undertaken with Crosshill, Straiton and Kirkmichael Community Council.</p> <p>The application site is within the Dark Sky Park core area and therefore should align with the objectives of the Dark Sky Park area.</p> <p>Landscape and Visual Impacts. Regard should be taken in respect of the impact of the development the Local Landscape Character is described as High Carrick Hills and the Local Landscape Area as Foothills with Forest.</p> <p>Protected Species. Although the proposed site is not affected by any national or international natural heritage designations, consideration should be given to the potential impacts of the proposals upon species of flora and fauna protected under EC Directive 92/43/EEC on the Conservation of Natural Habitats and of Wild Flora and Fauna (the “Habitats Directive”) or the Wildlife and Countryside Act 1981.</p> <p>The cumulative impacts arising from forestry works are becoming increasingly important considerations in the assessment of such proposals in South Ayrshire. account should be</p>	<p>SEPA and SW consulted</p> <p>Consulted – no response.</p> <p>See <b>4.5.2 Public access.</b></p>



Consultee	Date contacted	Date of response	Issues raised	FLS response
			<p>taken of the views of both NatureScot and South Ayrshire Council on the cumulative landscape and visual impact of the proposal.</p> <p>There is a strong presumption in favour of protecting Scotland's woodland resources. In line with Scottish Government's wider objective to protect and expand Scotland's woodland cover, applicants are expected to develop their proposal with minimal woodland removal. The first consideration for all woodland removal decisions should be whether the underlying purpose of the proposals can reasonably be met without resorting to woodland removal – for example by changes to forest design, woodland type or management intensity.</p> <p>Tourism is an essential support to the economy of rural communities such as this, and forestry roads &amp; tracks offer ideal facilities for outdoor pursuits, to draw in the visitors.</p> <p>Access Officer requested more mention of facilities/ opportunities for horse riders. Including altering road materials used for maintenance to allow softer ground for horses travelling over them or wide verges. Also providing gates on routes with a minimum 1.5m wide opening to permit equestrian access.</p>	

Consultee	Date contacted	Date of response	Issues raised	FLS response
			<p>Environmental Health officer requested a joint site visit to be undertaken with SAC, FLS, the PWS owners, SEPA, and any other party that may have input to PWS in the area</p> <p>The proposed Land Management Plan should align with the UK Forestry Standard, the Ayrshire and Arran Forestry and Woodland Strategy and the South Ayrshire Local Development Plan 2.</p> <p>All timber haulage should adhere to the Timber Transport Forum “Road Haulage of Round Timber – Code of Practice and consultation with Ayrshire Roads Alliance should be undertaken.</p>	
Timber Transport Forum - Ayrshire & South Lanarkshire	13/07/2023		No reply	-
Visit Scotland	13/07/2023		No reply	-
Vincent Wildlife Trust (Pine Marten)	13/07/2023	13/07/2023	Acknowledgement but no further comments received	-
Angling Club Loch Braden	13/07/2023	12/08/2023	12/08/2023 - replied via email. Wary of inviting public vehicles being introduced back into the forest alongside timber haulage. Improved	Comments passed to local Visitor Services team.

Consultee	Date contacted	Date of response	Issues raised	FLS response
			<p>maintenance on vegetation for sight lines along forest roads that are most likely to be used. Improved signage on road for public and timely updates to website. Lack on maintenance to the Loch Braden cycle path. Potential for volunteering.</p> <p>Anti-social behavior issues raised.</p> <p>Concerns raise about the successful introduction on Pine Marten and the effect on black grouse and red squirrel populations.</p>	<p>See also <b>4.5 People</b></p> <p>Comments passed to local Environment team.</p>
Scottish Woodlands	13/07/2023	21/07/2023	Reply via email Forest Planner, Woodland Creation proposed at an adjacent site, conifer, broadleaved mix. No further comments received.	<p>Restock designed with proposal in mind.</p> <p>See <b>4.1.5 Tree species choice / Restocking</b> &amp; refer to <b>Map 6</b>.</p>
West of Scotland Archaeology Service	20/07/2023	01/08/2023	Reply by email Historic Environment Records Officer. Was apprehensive regarding the lack of detailed information on protection of heritage features and thought it was more generic. Gave examples of what he would expect to ensure features were protected during forestry operations.	<p>03/08/2023 replied with two attachments of the map of the heritage features currently noted on ForesterWeb and a table including descriptions. Explained FLS procedures including protections and mitigations for any forestry operations in more detail.</p> <p>See <b>4.3 Historic Environment</b> &amp; refer to <b>Map 12</b>.</p>

## Appendix IV: Tolerance table

	Maps Required (Y/N)	Adjustment to felling period *	Adjustment to felling coupe boundaries **	Timing of Restocking	Changes to Restocking species	Changes to road lines	Designed open ground ** ***	Windblow Clearance ****
<b>FC Approval normally not required</b>	N	<ul style="list-style-type: none"> <li>Fell date can be moved within 5 year period where separation or other constraints are met.</li> </ul>	<ul style="list-style-type: none"> <li>Up to 10% of coupe area.</li> </ul>	<ul style="list-style-type: none"> <li>Up to 3 planting seasons after felling.</li> </ul>	<ul style="list-style-type: none"> <li>Change within species group e.g. evergreen conifers or broadleaves.</li> </ul>		<ul style="list-style-type: none"> <li>Increase by up to 5% of coupe area</li> </ul>	
<b>Approval by exchange of letters and map</b>	Y	<ul style="list-style-type: none"> <li>Advance felling of Phase 2 coupe into Phase 1</li> </ul>	<ul style="list-style-type: none"> <li>Up to 15% of coupe area</li> </ul>	<ul style="list-style-type: none"> <li>Between 3 and 5 planting seasons after felling, subject to the wider forest and habitat structure not being significantly compromised.</li> </ul>		<ul style="list-style-type: none"> <li>Additional felling of trees not agreed in plan.</li> <li>Departures of &gt; 60m in either direction from centre line of road</li> </ul>	<ul style="list-style-type: none"> <li>Increase by up to 10% of coupe area</li> <li>Any reduction in open space of coupe area by planting.</li> </ul>	<ul style="list-style-type: none"> <li>Up to 5ha</li> </ul>
<b>Approval by formal plan amendment may be required</b>	Y	<ul style="list-style-type: none"> <li>Felling delayed into second or later 5 year period.</li> <li>Advance felling (phase 3 or beyond) into current or 2nd 5 year period.</li> </ul>	<ul style="list-style-type: none"> <li>More than 15% of coupe area.</li> </ul>	<ul style="list-style-type: none"> <li>More than 5 planting seasons after felling, subject to the wider forest and habitat structure not being significantly compromised.</li> </ul>	<ul style="list-style-type: none"> <li>Change from specified native species.</li> <li>Change Between species group.</li> </ul>	<ul style="list-style-type: none"> <li>As above, depending on sensitivity.</li> </ul>	<ul style="list-style-type: none"> <li>In excess of 10% of coupe area.</li> <li>Colonisation of open space agreed as critical.</li> </ul>	<ul style="list-style-type: none"> <li>More than 5ha.</li> </ul>

### NOTES:

\* Felling sequence must not compromise UKFS, in particular felling coupe adjacency

\*\* No more than 1ha, without consultation with FCS, where the location is defined as 'sensitive' within the Environmental Impact Assessment (Forestry) 1999 Regulations (EIA)

\*\*\* Tolerance subject to an overriding maximum 20% open space

\*\*\*\* Where windblow occurs FCS should be informed of extent prior to clearance and consulted on where clearance of any standing trees is required

**Larch Tolerance Table**

	<b>Adjustment to Felling period</b>	<b>Timing of Restocking and species component</b>	<b>Felling of larch within a mixed coupe</b>	<b>Changes to Road Lines</b>
<b>FC Approval normally not required</b>	Fell date for phase 2 can be moved forward where larch comprises 50% or more of the coupe species component.	changes to restocking proposal that exclude larch and closely related species in the same genus, eg Sitka and Norway Spruce.  Up to 3 planting seasons after felling		
<b>Approval normally by exchange of letters and map</b>	Felling moved between phases 1 and 2 where larch comprises less than 50% of the coupe species component	Changes to restocking proposals that include larch or closely related species in the same genus, eg Sitka and Norway Spruce.  Between 3 and 5 planting seasons after felling	Areas of pure larch up to 20% of coupe area within phase 1 and 2 can be felled to remove the sporulating host, with restocking deferred until the rest of the crop is felled. Where the Larch constitutes more than 20% of the coupe component, then the whole coupe must be felled and restocked together.	New road lines (subject to EIA screening opinion) or tracks within existing approved plans necessary to allow the extraction of Larch material.  Where necessary Prior Approval should be dealt with directly with the relevant Regional Council
<b>Approval by formal plan amendment is required</b>	Advance felling into current or 2 <sup>nd</sup> phase for pre-emptive larch removal			Where a new public highway entrance or exist is required. Where necessary Prior Approval should be dealt with directly with the relevant Regional Council

NB: Larch felled in the autumn and winter, when the presence of *P. ramorum* cannot be assessed visually must be treated as infected and will therefore require a movement licence. When carrying out operations where the clearance has not been on the Public Register or through the consultation procedure it is important that due diligence is undertaken to identify sites that will require to be protected. SPHNs will still be issued and should be complied with accordingly. This tolerance table is offered to assist in the pre-emptive early removal of the host species

# Appendix V: Historic Environment records

Refer to Map 12

Historic Environment Records					
Designation	Name	Feature Description	Grid Reference	Importance	Area (ha)
Undesignated	Cairn	Circular Cairn	NX425982	Regional Importance	0.02
Undesignated	Circular Sheep Ree	Circular sheep ree	NX422982	Local Importance	0.03
Undesignated	Fore Burn	One unroofed structure annotated Sheep Ree, which is attached to a field wall, is depicted on the 1st edition of the OS 6-inch map (Ayrshire 1859, sheet lii)	NS427000	Local Importance	0.01
Undesignated	Knockdon	This cairn, which is on low-lying, cultivated ground, is almost certainly prehistoric. Measuring 15m E-W by 14m and 2m high on the N.	NS429005	Regional Importance	0.03
Undesignated	Loch Bradan Castle	Bradan Castle: the remains of what is said to have been a castle on an island on Loch Bradan. There is nothing to be seen either of Bradan Castle or the island on which it stands as the loch	NX427970	Regional Importance	0.15
Undesignated	Loch Bradan Lodge	Annotated Craiglure Lodge (in ruins), two unroofed buildings, one of which has two outshoots, are depicted on the 1st edition of the OS 6-inch map (Ayrshire 1858, sheet lviii). Not shown	NX421969	Regional Importance	0.02

Historic Environment Records					
Designation	Name	Feature Description	Grid Reference	Importance	Area (ha)
Undesignated	Crannog	Possible Crannog	NX421986	Local Importance	1.45
Undesignated	Pre Improvement Stone Wall	Within a 100m square is a pre-improvement stone wall.	NX424984	Uncategorised	1
Undesignated	Sheep Ree	Possible early sheepfold, boulder built, rude construction, 'organic' form in plan, annotated 'sheep ree' on the 1st edition of the OS 6-inch map (Ayrshire 1859, sheet li).	NX402982	Local Importance	0.07
Undesignated	Trig Point	Ordnance Survey Control	NX407988	Local Importance	0.02