Forestry and Land Scotland
Coilltearachd agus Fearann Alba

Corriedoo

Land Management Plan 2021 - 2031 V1.0

We manage Scotland's National Forest Estate 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.

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Property details			
Property Name:	Corriedoo		
Grid Reference (main forest entrance):	NX 6814 8257	Nearest town or locality:	St John's Town of Dalry
Local Authority:	Dumfries and Galloway		

Applicant's details	
Title / Forename:	Dr Lena
Surname:	Boukelia
Position:	Planning Forester
Contact number:	07584 336807
Email:	Lena.boukelia@forestryandland.gov.scot
Address:	Forestry and Land Scotland, Ae Office, Ae Village, Parkgate, Dumfries
Postcode:	DG1 1QB

Owner's Details (if different from Applicant)	
Name:	N/A
Address:	N/A

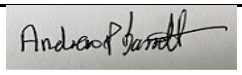
1. I apply for Land Management Plan approval for the property described above and in the enclosed Land Management Plan.

2. I apply for an opinion under the terms of the Forestry (Environmental Impact Assessment) (Scotland) Regulations 2017 for afforestation / deforestation / roads / quarries as detailed in my application.

3. I confirm that the scoping, carried out and documented in the Consultation Record attached, incorporated those stakeholders which the FC agreed must be included. Where it has not been possible to resolve specific issues associated with the plan to the satisfaction of the consultees, this is highlighted in the Consultation Record.

4. I confirm that the proposals contained in this plan comply with the UK Forestry Standard.

5. I undertake to obtain any permissions necessary for the implementation of the approved Plan.

Signed, Pp Regional Manager		Signed, Conservator	
FLS Region	South	SF Conservancy	South
Date	30/06/21	**Date of Approval**	
		Date Approval Ends	

Contents

1.0 Objectives and Summary

1.1 Plan overview and objectives

Plan name	Corriedoo
Forest blocks included	Corriedoo
Size of plan area (ha)	417.87 ha
Location	See Location map (**Map 1**)

Long Term Vision
The Corriedoo block generates a valuable supply of timber products to meet market demands. Timely thinning operations help to increase the quality of these products and initiate a move to low impact silvicultural systems where possible. A range of natural habitats are connected through the area through a network of watercourses. Wildlife is protected and benefits from sustainable forest management.
Management Objectives
1. Timber production: optimise productive potential and timber quality 2. Increasing resilience to wind damage by avoiding elevated exposed edges and implementing low density windbreaks where appropriate during restock 3. Increasing species diversity and age structure within the block 4. Protection and enhancement of habitats within the riparian corridor and adjacent to lochs 5. Initiate areas of long-term retention for nesting and food supply (predator birds, grouse and squirrels) with intention to be managed under minimum intervention in the future
Critical Success Factors
• Planting carried out sustainably, to meet the stocking density requirements • Protection of soft conifers and broadleaves from browsing damage • Completion of road upgrade and construction ready for establishment/harvesting operations • Carry out timely thinning

1.2 Summary of planned operations

Table 1

Summary of Operations over the Plan Period	
Clear felling (gross)	74.4 ha
Thinning (potential area)	79.8 ha
Restocking (gross)	92.6 ha
Afforestation	0 ha
Deforestation	0 ha
Forest roads	480 m
Forestry quarries	0 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 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.
The plan's objectives were analysed against the constraints and opportunities identified during scoping and consultation. Preferred options were then chosen for delivering the objectives, and these proposals are summarised on the Analysis and 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)	Yes	White Cairn lies adjacent to the forest block with the impact zone within the forest block area (NX681833)
National Scenic Area (NSA)	No	
National Park (NP)	No	
Deep peat soil (>50 cm thickness)	Yes	Three small isolated areas of deep peat have been identified. Currently two are managed open areas and will remain so. The third area is due to be felled in phase two of this plan period and will remain as managed open thereafter.
Tree Preservation Order (TPO)	No	
Biosphere reserve	Yes	Galloway and Southern Ayrshire
Local Landscape Area	No	
Ancient woodland	No	Note that Ancient (of Semi-natural origin) and Other (on Roy Map) mapped areas, however, no remnants of ancient forest remain visible at the site location.
Acid sensitive catchment	No	
Drinking Water Protected Area (Surface)	No	

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)
1	87017	2021/2022	25.7
1	87024	2021/2022	10.1
1	87015	2024/2025	10.3
2	87004	2027/2028	12.5
2	87020	2026/2027	15.8
		Total	74.4

Table 4

Clearfell by Species													
		Net Area (ha) by Main Species >20% (or MC, MB)											
Coupe Number	Fell Year	CP	DF	EL	HL	JL	LP	NS	SP	SS	MC	MB	Coupe Total
87017	2021/2022									19.1			**19.1**
87024	2021/2022									9.4			**9.4**
87015	2024/2025									9.5			**9.5**
87004	2027/2028									12.5			**12.5**
87020	2026/2027									14.6			**14.6**
Plan Area Total										**65.1**			**65.1**

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			417.9 ha							
Felling	Phase 1	%	Phase 2	%	Phase 3	%	Phase 4	%	Long Term Retention	%
Net Area (ha)	38	9.1	27.1	6.5	55.7	13.3	76.6	18.3	0	0

3.3 Thinning

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

This covers an area of 79.8 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 40 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	87026	5.60	2021/22	SS/NF	R	2500	SS 50% / NF 50%
F	87021	10.61	2021/22	SS, NBL, DF/NF	R	2500 (SS, DF/NF) 1600 (NBL)	SS 65%, DF/NF 18%, NBL 17%
1	87017	25.69	2023/24	SP, SS, MC	R	2500	Increase species diversity along road (A702) SP 49%, SS 40%, MC 11%
1	87024	10.03	2023/24	SS, NS, DF	R	2500	Increasing species diversity within forest SS 59%, NS 21%, DF 20%
2	87015	10.3	2026/27	SS	R	2500	
2	87020	17.85	2028/29	SS/NF, NBL	R	2500	SS 50% NF 50%, Small area of NBL at headwaters of watercourse.
2	87004	12.51	2029/30	SS, NBL/MC NBL/SS	R	2500 (SS, SS/NBL) 1600 (NBL/ MC)	NBL/MC complement existing plantation adjacent to Loch. SS/NBL (50/50)

Restocking							
							create soft woodland edge adjacent to open moorland.

Total	92.59

† 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 should fail to reach 1600 stems 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 after felling with beat up by year 4 for both Broadleaves and conifers at the latest.

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	291.9	69.8	273	65.4	215.7	51.6
Other conifers	6.4	1.5	33.4	8	46.5	11.1
Native broadleaves	14.9	3.6	19.2	4.6	21.6	5.2
Fallow	29.7	7.1	0	0	24.8	5.9
Open ground	75	17.9	92.3	22	109.3	26.2
Total	**417.9**	**100**	**417.9**	**100**	**417.9**	**100**

Chart 1

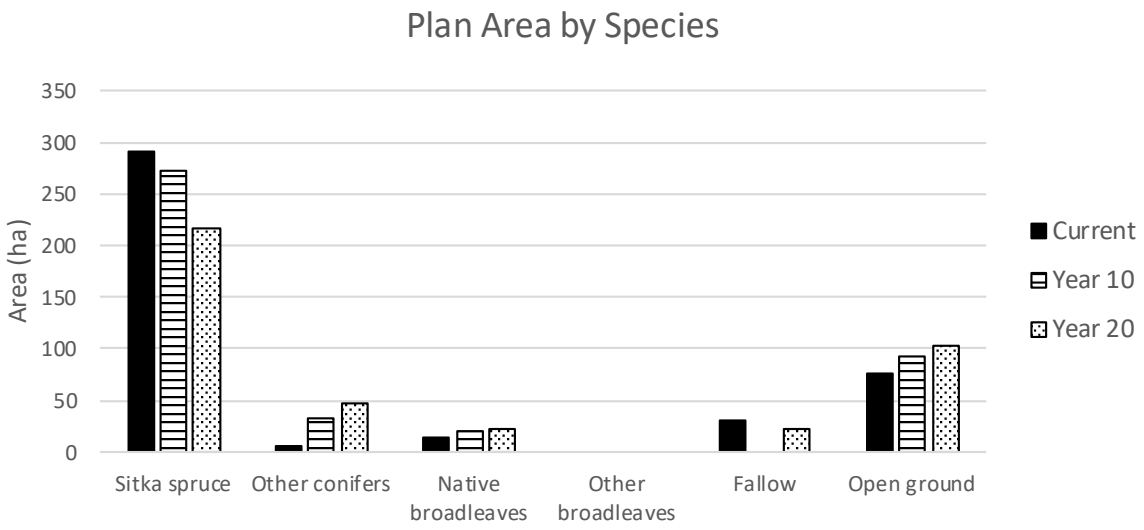
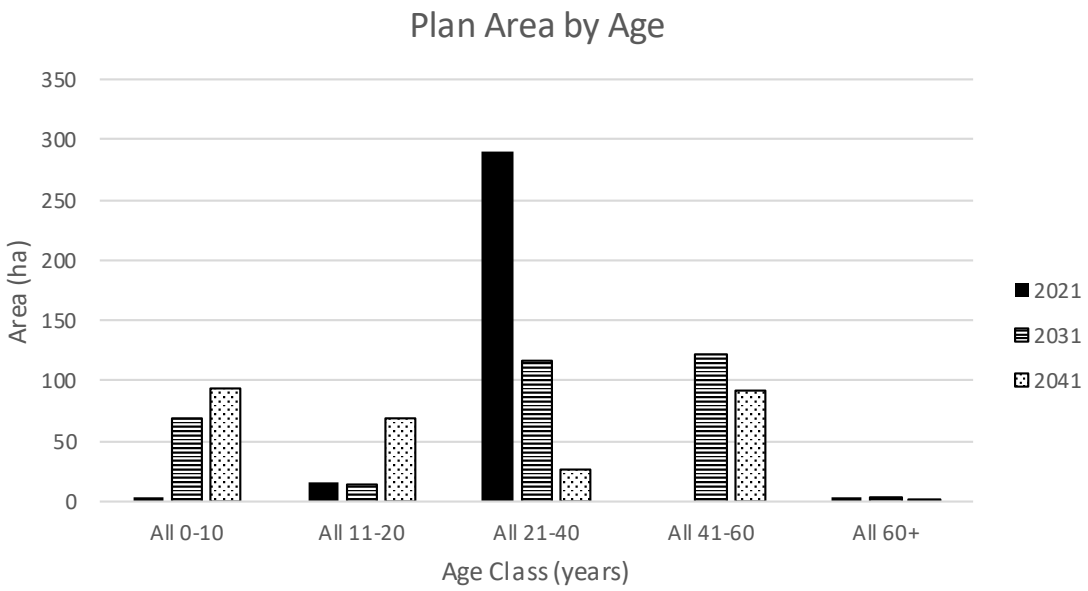


Table 8

Plan area by Age						
Age Class (years)	Current Area (ha)	%	Year 10 Area (ha)	%	Year 20 Area (ha)	%
0 – 10	4.2	1	69.7	16.7	93.4	22.3
11 – 20	16.1	3.9	14.8	3.5	69.6	16.7
21 – 40	289.7	69.3	116.9	28.0	26.7	6.4
41 – 60	null	0	121.5	29.1	92.1	22.0
60+	3.3	0.8	2.7	0.6	1.8	0.4
Total		**100**		**100**		**100**

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 Howie Access	480	2021/22	New Road
1	261	700	2021/22	Road upgrade
1	259	1140	2021/22	Road upgrade and minor realignment away from land slippage at NX 6808 8268
1	267	1450	2021/22	Road upgrade

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	Yes	Proposal to realign road number 259 by several metres away from an area of land slippage at NX 6808 8268 during the road upgrade process. This realignment will be minor and not expected to exceed 12 metres from the current route along a short (<60 m stretch) of the road line. Proposal to build one forest road (480 m with a 30 m maximum corridor) as a permanent structure (see **Appendix II**). The private way will be constructed to meet the specification detailed in the 'Timber Transport Forum - design and use of structural pavement of unsealed roads 2014' (TTF Guidance) and the requirements of the UK Forestry Standard. All road construction would adhere to best practice regarding protection of the water environment from contamination and maintain natural water pathways. Stone material for forest road construction, upgrade and maintenance to service the planned timber harvest will be sourced from Corriedoo quarry, located within Corriedoo Forest Block.
Forestry quarries	No	

3.9 Tolerance table

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

4.0 Management Proposals – guidance and context

Management proposals – guidance and context
4.1 Silviculture
4.1.1 Clearfelling
Coupes for clearfelling during the plan period (refer to **Map 4**): **87017** SS (P84). Fell year 2021/22. Significant area of windblow is contained centrally within the coupe following larch felling in 2013. Additionally, a 0.55 ha area south of the forest road (number 261), (notionally within the proposed LTR management coupe 87001), will be selectively felled to remove SS to allow the naturally regenerating understorey of native broadleaf (hawthorn, holly, birch) to become established. Watercourses along northern boundary of coupe contain existing mature BL that will be retained. Largely watercourses have an established open riparian area, however, in a small area in the north east of the coupe SS is within a few metres of the Garple Burn and will require careful delivery to minimise ground disturbance and therefore diffuse pollution. Good access from south of coupe along existing forest road. Road upgrade (number 261 and number 259) will be required to access the coupe. Core path 169 'Corriedoo to Barscobe' passes along the forest road adjacent to the coupe. Archaeological feature of local importance (Canmore reference 177728) contained within the coupe and requires careful management of clearfell to ensure structure remains intact. **87024** SS (P85/86/87/89). Fell year 2021/22. Coupe easily accessible from forest roads (number 259 and 267) to the north and south that will require upgrading. Private residence adjoins north western edge of the coupe as does overhead electric powerlines (11kV). Small area of windblow on western edge is weakening coupe stability. Core path 169 'Corriedoo to Barscobe' passes along the forest road adjacent to the coupe. Multiple tributaries of the Garple Burn pass through the coupe and will require careful planning and delivery to minimise ground disturbance and prevent diffuse pollution into Garple Burn. Established BL within the riparian area will be retained. A 0.09 ha linear section of clearfell along the southern edge of road number 259 will allow minor road alignment to take place during the road upgrade operations as a result of land slippage that has occurred at NX 6808 8268, no restock will take place after road alignment for the displaced road area. **87015** SS (P84). Fell year 2024/2025. Coupe easily accessed from existing forest road to the north of the coupe. Watercourses to the eastern edge and Loch Brach to the south western edge require protection from diffuse pollution during clearfell operations. **87020**

SS (P89/P93). Fell year 2026/27. MB (P93) fringe along northern boundary of the coupe adjacent to the A702 will be retained with potential enrichment planting taking place if required. Coupe easily accessed from forest road to west of the coupe. Steep slopes in places. Overhead electric power lines (33kV) in north west of coupe. Archaeological feature of regional importance (Canmore reference 177756) requires careful management of clearfell around structure. Watercourses criss-cross the coupe and require careful planning and delivery of clearfell to minimise soil disturbance and diffuse pollution losses.

87004

SS (P84). Fell year 2027/28. Coupe easily accessed by forest roads to the north and south of the coupe. Core path 169 'Corriedoo to Barscobe' passes along the forest road to the north. Undesignated archaeological feature (Canmore Reference 177729) of regional importance contained within the coupe and requires careful management of clearfell to ensure structure remains intact. Watercourse runs along the western edge will require careful planning and delivery of clearfell to minimise soil disturbance and diffuse pollution losses.

4.1.2 Thinning

Refer to Map 5.

Although DAMS figures are high in some places, the presence of brown earths on higher ground offer good rooting and so there is more potential than it would seem. This is supported by Forest GALES which shows that large areas of the block (particularly in the aforementioned locations) can accommodate standard rotations (with conventional thinning operations) without significant windblow. The thinning map shows all areas where there is potential to thin within the plan period, although any operations need to be carefully planned to ensure they are realistic, and above all delivered timeously to avoid missing intervention thresholds.

Corriedoo is not currently subject to any *Phytophthora ramorum* SPHNs and lies within the Management Zone. Thinning will selectively remove diseased Japanese larch where it is identified. Coupe 87010 SS/JL (P97) requires a small road construction to better access and remove timber product during the thinning operation and should be carried out early in phase 1 to ensure timely thinning operations.

First thinning operations proposed in coupes 87013 (P09), 87002 (P00), 87019 (P05) and part of coupe 87003 (sub-compartment 'C' SS P2015) will meet optimal thinning age in phase 2.

Thinning within coupe 87502 will address natural regeneration of SS in the heritage impact zone of the SAM (White Cairn, Canmore Reference 64279), as well as addressing natural regeneration of SS along watercourses and managed open areas by felling to waste.

Management proposals – guidance and context

4.1.3 Low Impact Silvicultural System (LISS)/Continuous Cover Forestry (CCF)

CCF is part of the long-term vision of this plan that will transform the silvicultural management practises conducted within Corriedoo. Several management coupes have been identified for thinning during the plan period (see above and **Map 5**). Timely thinning operations during the plan period may allow transformations to CCF silvicultural management opportunities for the future.

4.1.4 Long term retentions (LTR) / minimum intervention / natural reserves

Refer to **Map 4**.

There are currently no LTR/MI or NR identified within this forest block. Coupe 87088 was previously identified as an area of Larch LTR but was felled in 2013 due to infection with Phytophthora ramorum.

Coupes 87030 and 87001 are proposed as two new small areas of LTR, with the primary objectives of habitat creation and biodiversity.

87030 NS/NF (P47/47) 0.81 ha; will be retained for habitat provision and continuity of food source for Raptor species and red squirrel until suitable alternative conifer species have matured elsewhere in the block. Some natural regeneration of native MB is occurring in the under storey and will be retained.

87001 MC/MB (P52/P84) 2.75 ha and SP (P1930) 0.29 ha; will be retained for biodiversity provision and to allow continuity of food source, whilst also protecting and enhancing the riparian area adjacent to Barscobe Loch. Natural regeneration within the coupe contains multiple native broadleaf species of mixed ages.

4.1.5 Tree species choice

Refer to **Map 6**.

The site offers a limited range of soil conditions (**Map 9**) with predominantly surface water gleys and peaty surface-water gleys, with smaller areas of brown earths, iron pan, groundwater gley and ranker. Areas of tussocky Molina bog exist in pockets across the site normally associated with watercourses and lochs. Small discrete areas of deep peat soils (Upland Sphagnum Bog) are currently managed open and will not be planted.

Sitka spruce remains the primary species for timber produce with a predicted average YC of 18-20 in the next rotation. The proposed alternative conifer species aim to meet management objectives 1 and 3, whilst also contributing to habitat provision, as well as landscaping and aesthetic value. ESC has been used to identify where alternative conifers

would be suitable and still offer good yields. Intimate mixes of SS/LP (YC 20/12) and SS/NF (YC 22/20) are planned to maximise both timber yield and species diversity across the block. In suitable soil and climatic conditions pure crops of SP (YC12), DF (YC15) or NS (YC16) have also been identified. With timely thinning interventions the higher yielding areas should produce quality saw logs, with the remaining crop offering small round wood, pulp and biomass.

In locations where the forest block bounds open moorland, mixes of SS/NBL (with Rowan/birch/hawthorn the preferred choice), will be planted with a minimum of 3 rows of pure NBL at the outer edge and intimate mix thereafter, following more organic shapes identified in the restock plan to avoid straight edges. This will have multiple benefits, namely creating a softer edge to the forest boundary and biodiversity provision for moorland species, increasing landscape and visual appearance from the A702, creating a 'windbreaker' edge to the forest to protect the forest stands from wind damage behind them. This approach also delivers on advice for managing conifer forest edges for grouse conservation, which are present in the local area.

Several discrete stands of Aspen/Alder/Birch will be flat planted in coupe 87088 and part of 87003 adjacent to the Garple Burn. This area has been identified as carse and therefore highly suitable for the mix of broadleaves identified. Mixed broadleaf planting can offer dappled shade to the Garple Burn with the prospect of minimum intervention as a long term management objective for the future.

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

Riparian areas have been identified as successional open, the majority of these riparian areas have scattered young to semi-mature native broadleaf species that offer shade and carbon inputs to the burns. The riparian areas along the Garple burn in the north western part of the block and along Goathouse Burn have established naturally regenerated broadleaf, up to 30%, and individual mature Norway Spruce trees and other scattered alternative conifers already present. These areas offer excellent habitat and biodiversity potential. Successional open management will allow for natural regeneration to occur whilst managing and controlling any regeneration of Sitka Spruce or excessive growth near to the burns. This will contribute to fulfilling the main management objectives 3 and 4.

Management proposals – guidance and context

It is expected that some of the riparian zones, designed open ground 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 the watercourse in terms of shading and acidification. These areas will be monitored and/or surveyed at the 5 and 10 year review periods of the current Land Management Plan.

Sitka spruce natural regeneration across the site will be monitored and managed according to the approved land use. 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 respace or prematurely clear and restock. Where the natural regeneration is not the desired species or proposed land use (e.g. on managed open ground/open successional), it will be considered against the plan objectives and tolerance table and either accepted (with a plan amendment if necessary) or removed, if resources allow.

4.1.7 New planting

There is no new planting proposed in the plan

4.1.8 Protection

Deer

The plan sits within the Corriedoo Deer Management Unit (DMU). Roe deer are the prevalent species with Red deer also recorded. Movement into and out of neighbouring private forest blocks are of greatest concern.

The main objectives within the DMU are:

- To enable re-stocking to take place without the need for deer fencing and to achieve the appropriate stocking density at year five.
- To maintain impact levels in accordance with FLS local policy of less than 10% on all commercial tree species.
- To maintain a sustainable deer population.

Currently the three year average browsing impacts across this DMU are not within target objectives. The population dynamics in the Galloway main block have changed considerably between 2008 and 2020. A marked cull short fall during the recent Covid restriction period in 2020 has resulted in an increase in the Roe deer population. As a result cull rates for the next few years will be increased to counteract the recent increase in deer population.

Management proposals – guidance and context

Neighbouring forests have commenced significant restocking, which will have the effect of reducing immigration into Corriedoo Forest in the short-term. However, as crops grow on the surrounding land, re-stock sites on the FLS estate will again become more vulnerable.

The annual Roe deer cull target up to 2024/25 will be increase to 40 animals per year for the Corriedoo DMU in 2021/22 and then remain stable at 30 until 2025/26. This figure has been chosen based on population modelling to ensure the objectives of the DMU are met.

Species selection for restocking has used ESC and local knowledge to ensure that species are suitable for the sites at which they are proposed. This will encourage vigorous growth and reduce the risks from deer browsing. However, currently conditions for establishing palatable species types within the DMU are best described as "unfavourable to deteriorating" as the impact levels from browsing are currently high, with Sitka Spruce browsing occurring within the forest block.

Therefore, areas within the forest where restocking with soft conifers and broadleaves or indeed where natural regeneration of broadleaves is desired will be challenging. Frequent condition monitoring and any necessary actions should be taken to ensure their establishment.

Proposed restock areas have been chosen primarily on the basis of site suitability in addition to accessibility for protection against browsing. 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 tubes 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.

During thinning operations in management coupe 87010 Removing a small wedge shaped area of forest between Loch Howie and the neighbouring private plantation to the east will allow for greater deer management within the block. Widening the riparian margins, particularly in steeply sided valleys across the site will benefit deer control for access and carcass removal.

Pests and Diseases

As outlined in **Appendix I**, Corriedoo is within the Management Zone for *Phytophthora ramorum*. Diseased Japanese larch present in intimate mix in one management coupe has been recorded within the site and will be removed by thinning in Phase 1 (management coupe 87010). Two further management coupes (87003 and 87025) have a small percentage (<10%) of Japanese larch in intimate mix and will be removed by clearfell as part of the wider management plan. Discrete stands of Hybrid Larch are not showing signs

of disease and will be closely monitored for signs of infection (management coupe 87013). These stands are easily accessible for removal if the disease develops. Any requests will be made by formal plan amendment where necessary.

Biosecurity considerations are important during the planning and delivery of all forest operations.

Dendroctonus micans infestation has been recorded among infected spruce in 2019. Surveys will continue to be undertaken to monitor the situation, with a request made for the release of the predators *Rizophagus grandis* in the infected coupes in the near future.

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.

4.1.9 Road operations

Map 7 shows the existing forest road network, planned new roads and upgrades, main egress point, and agreed Timber Transport Routes.

There is one new road proposed for construction during the plan period.

Loch Howie access 480 m

Access into coupe 87010 to the south of Loch Howie for thinning operations. This operation will require careful planning and ongoing supervision to ensure no diffuse pollution (sedimentation) into Loch Howie.

There is one existing quarry in the forest no extension is requested at this time. Any further proposed quarrying will be submitted to Scottish Forestry for consideration.

Timber haulage will egress from the forest onto the A702 at one of two egress points. Egress point 1 (NX 6800 8305) and egress point 2 (NX 6800 8379), see **Map 7a**. Timber Transport Routes are shown in context with the wider area are shown on **Map 7b.**

Two culverts along the outflowing tributary of Loch Brack towards Garple Burn have been identified and noted as acting as barriers to fish migration during the development of the current plan. These two culverts (NX 67911 82462 and 68063 82463) have been referred to FLS Civil Engineering team to replace with fish friendly alternatives as part of the road upgrade operations to take place in Phase 1 of the proposed plan. There are no other known barriers to fish migration.

Management proposals – guidance and context

4.2 Biodiversity

4.2.1 Designated sites

There are no designated sites within the plan area.

4.2.2 Native woodland

The plan seeks to protect and enhance existing areas of native woodland and extend where appropriate to maximise habitat connectivity, and/or enhance the landscape.

Efforts to extend/establish native woodland will be focussed in the carse area along the banks of Garple Burn in the former larch LTR site. Here wet woodland species of Aspen, Birch and Willow native broadleaves will be established on both sides of the burn, in a mosaic of native trees and open ground. Small seeded varieties of NBL will be used to promote red squirrels in the forest block. There is an aspiration that this area will be retained as an area of minimum intervention once established and will contribute to re-establishing the former PAWS site in the future. Additionally, following clearfell, a low density mixed native woodland will be established around the eastern edge of Loch Brack.

On-going efforts to protect and enhance existing native woodland will continue within the riparian zones of the Garple Burn, Regland Burn and Loch Glar Burn. Monitoring of non-native regeneration (mostly Sitka spruce) will continue and removed where necessary. Likewise, Loch Howie and Loch Barscobe have established mixed native woodlands to varying degrees and natural regeneration of native species will be supported with some supplementary planting where needed. Management interventions during this plan period include selective thinning and removal of Sitka Spruce natural regeneration.

4.2.3 Ancient woodland / PAWS

The 2021 survey of the PAWS site along the Garple Burn at Drummanister confirms that there are no remnant features remaining on an area identified on ROY map as ancient woodland. Some mature beech and immature broadleaf is present along the edge of the Drummanister Strand Burn and the Garple Burn. Currently open areas adjacent to Garple Burn contain rank grassland with two discrete areas of Sitka spruce (P15 and P84).

Whilst there is no legal requirement for restoration of the semi ancient woodland marked on the Roy map, FLS recognize that restoring areas where possible meets FLS values. Plans to re-establish an area of native woodland over this ancient woodland site should be planted with suitable native trees of alder, downy birch, and willow along the burn with Oak and hazel on the slope. The re-establishment of this ancient woodland area will be carried out in phases as the standing conifer crop is removed. This plan also proposes to create an area of broadleaf planting within the 'carse area' (management coupe 87504) on the other side of

Garple Burn (see above) that will maintain a broadleaf seed base and help suppress SS regeneration. This will in turn create connectivity within the proposed native woodland area and watercourses, enhancing ecological value.

Impacts of deer browsing are high and will require conscientious management.

4.2.4 Protected and priority habitats and species

All forest management operations involve a work 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.

After felling operations, planting schemes will be designed around any priority habitats that are revealed. This includes species rich groundwater dependent terrestrial ecosystems (GWDTEs), which will also be protected during road building and any other forest operations using the current best practice.

Ancient woodland

See above.

Peatland

See Soils section.

Native freshwater fish (including migratory salmonids)

Atlantic salmon and sea trout both use the Garple Burn and its tributaries throughout their lifecycles. These fish species require clean and well oxygenated waters and so it is vitally important that diffuse pollution (sedimentation) is avoided through careful planning and delivery of all civil engineering and forestry works, implementing whatever measures are necessary. Caution must also be given to any disturbance of the streambed which may lead to damage of potential spawning areas. Road construction, the installation of culverts and any other operations that may create a barrier to fish movement must be planned to avoid this.

Black grouse

Although there are no recent records of leks on FLS land within the plan area, RSPB have provided information of several leks in the wider area surrounding the Forest Block. Black grouse need a mosaic of habitats throughout the year. A range of food types will increase as the plan is delivered. Larch will not be planted at the present time (due to larch die-back) and so this traditional forest food source will disappear. However, as native woodland is established within the plan area, alternatives such as birch buds and berries from rowan and hawthorn will become more available.

Management proposals – guidance and context
The creation of a low-density native broadleaf fringes where the forest block meets open ground is recommended, where possible. The expansion of broadleaf plantation around Barscobe loch and the creation of a broadleaf moorland fridge along the western edge of the block will be of particular value. Additionally, the creation of a 3ha native woodland in the Drummanaster Carse area will be an additional resource linked by watercourses across the site. However, the existing private forest block to the east and new private forest to the south of the Corriedoo Block limits the options for native woodland expansion in these areas. Deer management in the plan area will help regeneration of field layer food plants. The protection and enhancement of groundwater dependent terrestrial ecosystems (inc. flushes, springs) along the Regland Burn will ensure these habitats develop as potential sources of invertebrates for feeding chicks. Establishment of low-density woodland fringe along the moorland edge (rather than a hard edge) will also improve overall conditions. Red squirrel Red squirrel are present in this forest block. FLS has a single licence to cover forest management activities that may affect red squirrels on the National Forests and Land (NFL). This is in accord with the Scottish Biodiversity Strategy's aim to resolve species management issues. All works within the Plan area will follow the assessment and mitigation actions set out as conditions of this licence.
4.2.5 Open ground
Managed open ground contributes to nearly 18% of the plan area, and there is an expectation that resources will be allocated to maintaining it as open. This is primarily located along riparian zones and around the wind turbines. Monitoring of these areas will allow us to identify any significant changes, and Scottish Forestry will be notified if these require amendments to the plan. By year 10 the plan area will consist of 22% open ground with additional internal open space as a component amongst planted areas. Fallow clearfell sites will contribute to transitional open space throughout the forest.
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. Valuable deadwood and deadwood areas will be marked on contract maps. Where it is safe to do so, standing mature dead trees will be retained as these offer excellent potential for a range of species.
4.2.7 Invasive species (INNS)
Invasive grey squirrel are resident within the forest as are native red squirrels. Whilst this forest is not a stronghold site for the red squirrel the proposed management plan seeks to

include small seeded species that are more favourable to red squirrels. FLS will continue to support the control of grey squirrels being co-ordinated by Saving Scotland's Red Squirrels.

We will endeavour to control known patches of invasive non-native plants including Rhododendron ponticum, Japanese knotweed and Himalayan balsam.
North American Signal Crayfish have been identified within the plan area and the majority of the Corriedoo Forest Block sits within the NASC Washdown Zone. The comprehensive biosecurity measures identified in the FLS NASC Protocol (Appendix 1) will be adhered to as well as the SEPA document "Know the Rules" (2nd Edition) that highlight crucial biosecurity measures to avoid spreading INNS during all forestry operations.

FLS report all sightings of NASC to SEPA (Scotland's lead for aquatic INNS) and facilitate monitoring visits by SEPA, SNH and GFT staff who undertake surveys for INNS under licence. Moreover, FLS maintain and update a comprehensive national GIS map based system of all known sensitivities on the NFE recorded as a series of points or a series of shapes (polygons) in multiple layers. Local information is continually added and updated, not only to record the changes in forest structure but also any new sensitivities such as the presence of INNS. An individual FLS GIS layer records areas at risk of NASC.

NASC spread by travelling along watercourses, NASC can survive out of water for short periods, particularly in wet weather. Therefore, all forestry operations could potentially spread NASC. Road construction and maintenance (including culvert installation and gravel removal), quarrying, harvesting, ground preparation and drainage pose the highest risk because of the movement of machinery between catchments and the potential 'hitch hiking' of NASC along with them.

When a work plan is being created for any operations where crayfish might be present, this constraint will be flagged up and the necessary biosecurity procedures set out in Appendix 1 will be required for all operations. This will be recorded in the site constraints, discussed and agreed at the Pre-Commencement Meeting and monitored during the lifetime of the operation as part of the ongoing supervision and contract management.

4.3 Historic Environment

4.3.1 Designated sites

There are no designated sites for conservation in the plan area. However, White Cairn a Scheduled Ancient Monument lies adjacent to the forest block boundary with the impact zone extending into coupe 87502. Thinning operations to manage SS regeneration within the impact zone are detailed above.

Management proposals – guidance and context

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 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 Historical Asset Management Plan include 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.

4.3.2 Other features

Several regionally or locally important heritage features have been recorded within the site. All sites have been recorded on the FLS Heritage management system and all sites will be clearly identified on all management and operational maps as well as on the ground during operations. All of these features will be protected during any operations.

4.4 Landscape

There are no designated landscape areas. However, the proposed forest design has been carefully chosen in consultation with FLS landscape architects to reflect the landform and landscape scale, using appropriate coupe shapes and sizes. The most significant views are external into the forest block from the A702 with coupe size, shape and species diversity selected to create interesting and changing view along this high visibility corridor.
Likewise the same principles have been applied when considering internal views from along two main core paths; Corriedoo to Barscobe Loch and Corriedoo Forest to Loch Howie. To enhance the views both internally and externally broadleaf and alternative

conifer species have been increased as well as a move to smaller coupe sizes that complement the local landforms form part of the proposed plans.

4.5 People

4.5.1 Neighbours and local community

An online community consultation generated some feedback from local users, which has been included in **Appendix III**. FLS have engaged positively with the local community and incorporated suggestions and aspirations where they do not conflict with the proposed management objectives or aspirations for the forest block.

4.5.2 Public access

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.

4.5.3 Renewables, utilities and other developments

Blackcraig Windfarm is located within and adjacent to the Corriedoo Forest Block. Two turbines, two sub-stations and the export table are all situated within the forest block area and are clearly marked on **Map 2.** Moreover, the forest roads provide access to the open hill and turbines located in the adjacent privately owned land. This plans provides for on-going management of open space as required around the turbines with the removal of undesirable natural regeneration where required.

4.6 Soils

4.6.1 Ground preparation

The underlying geology is sedimentary Ordovician to Silurian greywacke sandstones, siltstone and mudstone graded beds. The block topography is undulating hill, rising from around 200m up to 400m above sea level at Corriedoo Hill where slopes are steeper. Several of the burns are characterised by steeply sided 'V' shaped valleys.

Management proposals – guidance and context

Soils are generally peaty or loamy and stony surface water gleys. Pockets of mineral brown earths are found in the North and West of the block with localised small areas along the eastern boundary. Localised ironpan soils are found in the north part of the block.

Virtually all of the plan area is classified by the James Hutton Institute (formerly Macaulay) "Land Capability for Forestry" classification as F5, land with limited flexibility for trees, with the north western section of the block classified as F4, moderate flexibility for the growth and management of tree crops.

The choice of ground cultivation will consider the short term benefits for establishment, as well as the longer term side effects on tree stability, future forest operations and the environment. There will be a preference for the least intensive technique. On most clearfell sites, inverted mounding will be preferred, but hinge and trench mounding may also be used as site dictates. However, techniques which involve a medium or high level of disturbance should not be used on organo-mineral soils with an organic layer over 10cm in depth. No ploughing will be undertaken due to the excess carbon release on peaty soils and the development of asymmetrical root plates that impact on long term stand stability.

4.6.2 Deep peats

FLS is preparing a Peatland Restoration Strategy which will be published in April 2022. (incorporating the 'FES Lowland Raised Bog and Intermediate Bog Strategy', 2013). In the interim, we will take a precautionary approach to restocking on deep peat soils, following the principles laid out in the FCS practice guide 'Deciding future management options for afforested deep peatland', in particular where there is a 'presumption to restore'.
Sites for which there is a 'Presumption to restore' are defined as:

- Habitats designated as qualifying features in the UK Biodiversity Action Plan, or on Natura sites, Ramsar sites, Sites of Special Scientific Interest (SSSI) or National Nature Reserves (NNRs);
- Sites or parts of sites where restocking is likely to adversely affect the functional connectivity (hydrology) of an adjacent Annex 1 peatland habitat (as defined in the EU habitats Directive) or a habitat associated with one;
- Sites where deforestation would prevent the significant net release of greenhouse gases

Some peat types (8a, 8d, 9a, 10a, 10b, 14, 14h, 14w) are classed as 'Scenario A' soils: edaphically unsuited to woodland. Additionally, 10a and 10b peat types are associated with raised bog habitats. Lowland raised bog and blanket bog are UK BAP priority habitats and therefore a presumption to restore. In the LMP process, by default we will not commercially restock areas where Scenario A peat types dominate, and will include such

areas for further assessment for either peatland restoration, or manage as native broadleaf or peatland edge woodland (PEW).

After areas for which there is a presumption to restore are identified, the remaining afforested peatlands will be investigated, looking for evidence to support replanting, as per the FCS Practice Guide. If evidence is found that they will clearly support good growth of Yield Class 8 or more, then they will be restocked. If no evidence is found, they will either be restored, if this is considered to be achievable, or if not, e.g. on slopes of greater than 5%, have a low density native woodland established (PEW).

With few examples of deep peat in the block, opportunities for peatland restoration are minimal.

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 neighbors will be consulted prior to any works commencing. Features will be clearly marked on all contract maps.

Loch Brack is a private water supply servicing local residents (less than 3 households) within the forest block. The location of abstraction and the header tank located at NX 68323 82416, are well known and documented (see Map 2). The route of the water supply pipe is visible on the surface and mapped true for the initial 425 m. Thereafter, the pipeline sinks underground for 200 m and an indicative pipeline route is marked according to mapped records before the pipeline is again visible at the surface and mapped accordingly.

Forestry operations can disturb private water supplies or easily damage pipelines therefore require buffer areas to be put in place with restrictions on operations. A 5 m buffer along either side of a pipe will be maintained. Pipelines will not be crossed unless unavoidable, with the use of a log bridge or steel pipes if repeated crossings are necessary. In the event of disturbance to either a pipeline or the source supply FLS will follow protocol by informing the local Environmental Health Department and affected residents.

Prior to any forest operations, Delivery Teams will carry out coupe inspections to check the mapped water supply points and pipes are correct and ensure appropriate actions are taken. Any new features, or deviations of the mapped constraint will be recorded

accurately and incorporated into the Forester Web GIS layers. These mapped features will be displayed on all contract maps, referenced in all operational work plans, as well as marked on the ground. These will then be safeguarded from all forestry activities in compliance with Forestry and Water Guidelines: Forestry & Water Scotland Know the Rules Booklet, V2 as well as meeting the requirements of the UKFS Guidelines on Forests and Water. Moreover, before operations begin a pre-commencement meeting will take place where a pollution prevention plan and site management rules will be discussed. Roles and responsibilities will be assigned with clear instructions on the protocols and contactable people in the event of an incident occurring on site.

Harvesting adjacent to Loch Brack will require care and diligent management during operations. Machinery will not be used inside the buffer zone of 50 m unless absolutely necessary and only then with additional water protection measures in place. All brash will be cleared from the buffer area upslope of the loch and chemicals will not be used or stored within the buffer zone. The operational site will be monitored by the site supervisor to ensure the buffer area and other measures are adequate for purpose and will respond quickly if circumstances change. Any incidents will be reported to the Forest Works Manager and the relevant authorities as required.

The design of the future forest has incorporated an open space or broadleaf buffer of at least 50 m around these supply points to minimize future disturbance. During restock any broadleaf planting within the 50 m buffer zone will not use machinery unless necessary and only where risks to the waterbody can be mitigated. Preferably restock will be undertaken by hand planting. Restock of productive timber species on slopes towards the water body will utilize methods and techniques to achieve minimal ground disturbance and the potential for diffuse pollution, such as inverted or hinge mounding. Silt traps/sumps and vegetated areas will reduce runoff as will blocking any drains that link directly to a watercourse. Fertilizer/pesticide use and storage will not take place within 50 m of Loch Brack or 10 m of the watercourses as a minimum buffer limit. Forest operators will follow all legal prescriptions for the safe use and storage of fuel and oil. Spill kits will be carried on all machinery with access to larger spill kits if required. Consideration of local weather and ground conditions will determine the most appropriate timing for operations to limit any potential disturbance.

4.7.2 Watercourse condition

Management proposals – guidance and context
All forestry operations will meet the requirements of the UKFS Guidelines on Forests and Water. Additionally, operations will adhere to Forestry and Water Scotland Know the Rules Booklet, V2 . The Garple Burn/Margree Burn watercourse (ID: 10572) is currently at moderate water quality status due to the presence of the invasive species North American Signal Crayfish. Otherwise the physical and chemical status of the water is at good status. Currently there are no water bodies within or adjacent to the plan area which are at "less than good" ecological status/potential as a result of forestry activities. It is important to maintain this status. Care will be taken during the planning and delivery of all road engineering and forestry works to prevent diffuse pollution (sedimentation). Management on steep slopes – there is an increased risk of additional sediment entering tributaries of the Garple Burn. Therefore, all forestry works will go through a 'work plan' process which will identify the best approach to working on steep ground.
4.7.3 Flooding
The Corriedoo forest block lies within a larger flood management zone of Castle Douglas Dee Catchment and Dumfries catchment, both of which are recognized as areas prone to flooding. Phased felling with buffers in place to slow the flow will mitigate any short-term enhanced run-off associated with clearfell activities. The scale and timing of felling in the forest, along with an increasingly diverse age structure is likely to have a beneficial impact on downstream flood risk and may contribute to flood alleviation.

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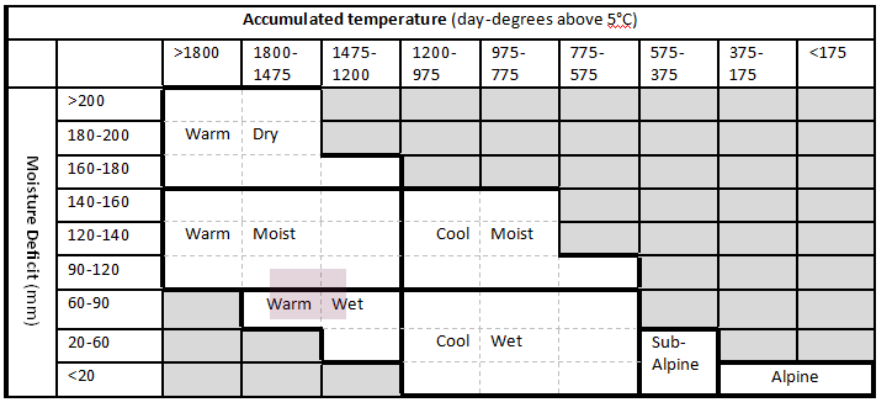
Appendix I: Description of Woodlands

Description of woodlands
Topography and Landscape
There are no landscape designations for the Plan area. **Map 11** shows the SNH Landscape Character Types relevant to Corriedoo: Foothills with Forest LCT 176 The forest block ranges in elevation from 180 m around Drummanister to over 400 m at the top of Corriedoo Hill. The landscape is typical of the foothills with forest landscape type; with rolling, undulating foothills, blankets of forest cover and windfarms dotted across the skyline. Views south from the A702 are important.
Geology and Soils
The bedrock lithology is comprised of Ordovician and Silurian igneous greywackes. Superficial deposits of till and alluvium are found along the valley bottoms within the Valley complexes. Soils are dominated by surface water greys and peaty surface water gleys with smaller areas of brown earths, iron pan, groundwater gley and ranker. Areas of tussocky Molina bog exist in pockets across the site normally associated with watercourses and lochs. Small discrete areas of Scenario A peat soils (10b Upland Sphagnum Bog) are currently managed open and will not be planted. Soils types within the forest block are shown on **Map 9**
Climate
Accumulated temperature (day-degrees above 5°C) Min: 1436, Max: 1687, Mean: 1551 Moisture Deficit (mm) Min: 74, Max: 95, Mean: 85 The climate of the LMP area is highlighted pink on the table below

Description of woodlands



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 Castle Douglas Dee and Dumfries catchments.

Water quality

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

Name: Garple Burn/Margree Burn is a watercourse (ID: 10572)
Overall Condition: Moderate

Impacted condition / Responsible pressures (Responsible activity):
The moderate water quality status due to the presence of the invasive species North America Signal Crayfish. Otherwise the physical and chemical status of the water is at good status.

Flooding

The Corriedoo forest block lies within a larger flood management zone of Castle Douglas Dee Catchment and Dumfries catchment, both of which are recognised as areas prone to flooding. The Castle Douglas Dee catchment is a NFM study area.

Phased felling with buffers in place to slow the flow will mitigate any short-term enhanced run-off associated with clearfell activities. The scale and timing of felling in the forest, along with an increasingly diverse age structure is likely to have a beneficial impact on downstream flood risk and may contribute to flood alleviation.

Water supplies

Description of woodlands
The plan area does not lie within a Drinking water Protected Area. There is one private drinking water extraction point (Corriedoo) in the Plan area (NX68178240). 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 50 m around these supply points to minimise future disturbance.
Windthrow
Map 10 illustrates the DAMS measurements for the Plan area. Sheltered areas occur north west of the block in the lee of local hills. Greater exposure occurs on the hill tops of Wallace's Rig, Drummanister Hill and Corriedoo Hill, the latter being the location of wind turbines for renewable energy production.
Adjacent land use
Plantation, rough grazing. Established private plantation block is adjacent to the east and north east of the Corriedoo Forest block. A private new woodland creation is approved and mostly planted to the south western boundary of the forest block. Open rough grazing exists to the west and north west.
Public access
There are no FLS formal recreation facilities. There are two core paths, 169 and 189 Map 2 within the forest block, largely used by local residents and neighbours for walking and dog walking. There are two permanent residential neighbours within the forest, at Drummanister and Corriedoo, with a third property in use seasonally at Rowanbank Cottage.
Historic environment
Historic environment records for the forest are shown in Appendix V and on Map 12.

Description of woodlands
There are no designated features within the plan area. There are no designated sites for conservation in the plan area. However, White Cairn a Scheduled Ancient Monument lies adjacent to the forest block boundary with the impact zone extending into coupe 87502.
Biodiversity
Designations There are no designated conservation areas in the plan area. Corriedoo is bound to the north, west and south with the environmentally sensitive area of '*Stewarty'*. The block is also contained within the Galloway and Southern Ayrshire Biosphere Reserve. Locally within the forest block conservation sites within Goathouse Burn and Regland Burn are suspected active breeding sites for brown trout (Salmo trutta subsp. fario). Lochs Brack and Barscobe are active breeding sites for the European Otter (Otter – Lutra lutra). Other species recorded include barn owl (Tyto alba), pine martin (Martes martes) and Northern Goshawk (Goshawk Accipter gentilis). Priority Habitats Extensive areas of Upland Heathland over the higher tops. Small patches of Blanket Bog. Strips of Upland birchwood along the Cornal Burn. Large area of Fen/Marsh/Swamp on the western slopes of Scaw'd Fell. Small patch of Montane Heath near the summit of Loch Fell. None of these habitats have been flagged as 'important' by the surveyor. Priority Species Although there are no recent records of leks on FLS land within the plan area, RSPB have provided information of several leks in the wider area surrounding the Forest Block. Red squirrel – are known to live within this forest alongside grey squirrel, incidence of squirrel pox have been recorded recently within the block. Native freshwater fish (Atlantic salmon and sea trout) – are present and breeding within Goathouse, Regland and Garple burns. Other native fish species are also present. Ancient Woodland / PAWS One small site classed as Ancient of Semi-natural Origin, shown on Map 2, is located at Drummanister, however, no remnants exist. Plans for re-establishing this forest are detailed in Section 4.0. Natural Reserves None present Deadwood ecological potential

Description of woodlands
Is generally low across the block with a smaller area of medium ecological potential in the carse area near Drummanister. The greatest potential is all riparian buffers. <u>Open ground</u> Significant sized areas of open ground occur over Corriedoo hill top, now housing several wind turbines of the Blackcraig Wind Farm. Patches of open ground combine with broadleaved woodland to create a mosaic along the watercourses in the block.
Invasive species
North American Signal Crayfish have been identified within the plan area and the majority of the Corriedoo Forest Block sits within the NASC Washdown Zone. The comprehensive biosecurity measures identified in the FLS NASC Protocol (**Appendix 1**) will be adhered to as well as the SEPA document "Know the Rules" (2nd Edition) that highlight crucial biosecurity measures to avoid spreading INNS during all forestry operations.
Woodland composition
The current woodland composition is shown on **Map 8**. Species composition, distribution and age (map of current species components – and charts to show species and age breakdowns), are detailed in **Section 3** above. The current woodland is first and second rotation high forest. Current woodland management (and % of plan area): Clearfell (82.8%) Long term retention (0%) CCF / LISS (0%) Minimum intervention (0%) Natural reserve (0%)
Plant health
<u>*Phytophthora ramorum*</u> The plan area is within the Management Zone for *P. ramorum*. Diseased Japanese larch present in intimate mix in one management coupe has been recorded within the site and will be removed by thinning in Phase 1. Two further management coupes have a small percentage (<10%) of Japanese larch in intimate mix and will be removed by clearfell as part of the wider management plan. Discrete stands of Hybrid Larch are not showing signs of disease and will be closely monitored for signs of infection. These stands are easily

Description of woodlands
accessible for removal if the disease develops. Any requests will be made by formal plan amendment where necessary. Dothistroma needle blight (DNB) DNB has not been recorded in the plan area.

Appendix II: EIA screening opinion request form

Overleaf if required

Appendix III: Consultation record

Consultee	Date contacted	Date of response	Issues raised	FLS response
Scottish Forestry (initial request for any specific requirements/ considerations)	24/11/2020		No response received	
Dumfries & Galloway Regional Council Environment Services	24/11/2020	06/01/2021	Agree with analysis in the design and concept map. Support management objectives and strategies to implement them and the improvements to the forest structure to improve walkers experience along core paths. Point raised of the straight edged plantation boundaries on the south and western edge of the forest and visibility of this from the A702. Support the two proposed areas for LTR are experienced from Core Path 169 and their retention for species diversity and age structure will improve walkers' experience. It is understood that there is little evidence of the ancient woodland (identified on Roy map) remaining on site (or of the small area of PAWS adjacent). Proposed wet woodland native broadleaf mix prosed for the felled area across the watercourse and linking it to existing mature broadleaf along the watercourse network east of Drummanister is welcomed. There is scope for developing a similar area of broadleaf/mixed conifer or open ground at the	FLS recognise the presence of straight edged plantation along the south and western boundaries of the forest block from older plantations. It is our intention to replace straight edges with more natural shapes making use of open space and broadleaf planting where appropriate as the plan progresses through subsequent management phases across the forest block (see section 4.1.5: Tree Species choice). We welcome the support for proposed two LTRs (detailed in section 4.1.4). An area of mixed broadleaf and conifer low density plantation surrounding Loch Howie (planted in 1997). Planned thinning operations (section 4.1.2) around Loch Howie will selectively remove Sitka Spruce from within the riparian area whilst removing diseased Japanese larch from the adjacent area. This will naturally create more open space and speed up the process of native broadleaf establishment by natural regeneration (Section 4.1.6). Continued management to ensure

Consultee	Date contacted	Date of response	Issues raised	FLS response
			southern end of Loch Howie to enhance the habitat diversity and the views from Core Path 189 towards the Loch.	broadleaf establishment combined with thinning operations will enhance this area over time. It is confirmed that there are no remnant ancient woodland remaining on former PAWS or Roy sites identified on the maps. Some mature beech and immature broadleaf is present along the edge of the Drummanister Strand burn and the Garple Burn (section 4.2.3). Complimentary planting of native wet woodland species on the former larch plantation and along riparian margins will improve species diversity and the riparian habitat network (section 4.2.2). FLS welcome access to the forest block (section 4.5.2). Planned road upgrades will improve walking access along Core Paths.
Dumfries & Galloway Regional Council Services (Archaeology / Biodiversity / Landscape Architect)	24/11/2020	26/11/2020	I have no issues from a public access perspective, you have clearly identified the route of the Core Path through the plantation which is great. Any other access around the woodland would be by way of the responsible access rights granted under the access legislation. These can be managed appropriately using the guidance in the Scottish Outdoor Access Code.	None required

Consultee	Date contacted	Date of response	Issues raised	FLS response
Dumfries and Galloway Flooding Flood Risk Management	24/11/2020		No response received	
SNH - Dumfries & Galloway	24/11/2020	24/11/2020	We have considered the proposal against our remit and do not consider that it will have any effect on any designated sites or protected species. We are pleased to note the continued consideration for the needs of black grouse in this next plan for the forest.	Consultation with the area Black Grouse Scientific Officer are taking place to ensure that restocking species and location is optimised where possible for Black Grouse in the new management plan.
Historic Environment Scotland	24/11/2020	14/12/2020	Evidence of regeneration on the scheduled monument White Carin (SM1047), we would recommend that a buffer of open ground be expanded to 40m from the edge of the scheduled area and included on a revised Concept Map. These measures would also help in re-establishing important views to the south and southwest from the monument, which have been severed by proximity to forestry. We recommend that the scheduled area is marked on all forest plans during operations and that all forestry operatives are made aware of the location and protected status of the monument to help reduce the risk of accidental damage to the monument.	It has been noted that there has been some natural regeneration of trees from neighbouring plantations and FLS will ensure that these are removed and an open buffered area is maintained. I will as requested the scheduled area will be marked on all operational maps to show its protected status. Reaffirm that in line with statutory requirements FLS will guarantee that a minimum of 20 m buffer from the edge of the scheduled monument is left open, removing trees that have naturally regenerated (sections 4.1.2 and 4.2.1). Out-with this 20 meter buffer area between the edge of our forest block and Regland Burn a mosaic of open space and mostly mixed broadleaf with naturally regenerated Sitka spruce. From our boundary fence in the north, to Regland Burn in the south, the current plantation is very low density (less

Consultee	Date contacted	Date of response	Issues raised	FLS response
				than 15% of the total area), allowing filtered views from the main road to the south.
SEPA	24/11/2020	03/12/2020	We support proposed main objective 4 and note that this area is affected and infected with Invasive Non-Native Species (INNS) especially North American Signal Crayfish. INNS are specifically identified as a pressure on the Garple Burn (WB 10572). We therefore support the action identified to 'Control invasive species as per FES guidelines'. We expect all forestry operators follow good practice guidance for Biosecurity to minimise the risk of moving North American Signal Crayfish from an infected water catchment to one where they are not present. Biosecurity measures are outlined in the Know the Rules Booklet Version 2. 1.3 It is unclear if new tracks or upgrading of existing tracks will be required as part of the plan. All proposed crossings should be sized to remain operational during flood events. "SEPA would recommend the 200 year design-flow standard to be adhered to". All bridges and culverts should be designed to convey the 1 in 200 year flow plus an appropriate allowance for freeboard. We advise a freeboard of 600mm.	I have forwarded the points that SEPA have raised in relation to biosecurity and engineering works for operational/management/engineering and environmental staff that cover the forest block. This will ensure that the work plans and activities proposed will fully take into account all regulatory and additional recommendations that have been raised.

Consultee	Date contacted	Date of response	Issues raised	FLS response
Galloway Fisheries Trust	25/11/2020	12/01/2021	The forestry block is located at the top of the Garple Burn, which is a significant tributary of the Kirkcudbrightshire Dee. The lower burn supports a low density population of Atlantic salmon and brown trout. The habitat quality is good but a significant population of NA signal crayfish are present. GFT support your objective to protect and enhance riparian habitats. The main water courses in the forestry block – Garple Burn, Drummanister Strand, Goathouse Burn, Loch Glar Burn and Regland Burn should be the main focus for riparian improvements. GFT are keen to encourage forest planners / managers to increase the levels of deciduous tree planting in riparian zones close to water courses. It was good to hear that you will be ensuring that when felling conifer blocks near water courses that any individual conifer trees near the water will also be cut at the same time.	FLS is aware of NASC presence and have agreed biosecurity measures in place for operations in affected areas (sections 4.2.7 and 4.7.2). The riparian enhancement will be a phased action as access is gained through clear fell operations across the block. We will endeavour to promote and incorporate wide buffers and low density broadleaf riparian planting to benefit aquatic biodiversity within the watercourses of the block, the proposed LMP will reflect this (section 4.1.5, 4.1.6, 4.2.4 and 4.7.2).
South Scotland Red Squirrel Conservation	24/11/2020		No response received	
RSPB	24/11/2020	15/01/2021	We are aware of several leks in the area, to both the north and south of the site. To the south, there is also a significant area of ground which is under management targeted at improving the area for black grouse, as part of the mitigation for Blackcraig wind farm. As such, we would strongly recommend that,	Further to our telephone call we discussed the rotational nature of forest felling and sequencing of felling to ensure forest stability whilst introducing a varied age structure across the forest block. The areas surrounding Loch Brack offer opportunities to include a broadleaf fringe or larger areas as the soil properties allow and will be incorporated into the

Consultee	Date contacted	Date of response	Issues raised	FLS response
			where the forestry in the LMP meets the open ground, that sitka spruce is replaced with some areas of low-density broadleaved native trees. This would be particularly beneficial along those borders to the south east and south west of Drummanister Hill and to the south of Corriedoo Hill. We would suggest that the fringe should be at least 50 metres in depth and contain species such as birch, willow, rowan, hawthorn and alder.	proposed new planting scheme. The south westerly edge of the block (South West of Drummanister Hill) is adjacent to open moorland and provides an opportunity for creating a softer broadleaf edge to benefit a variety of bird species. However, as we discussed this south westerly edge to the forest block is vulnerable to wind blow and would not be felled in the next rotation to ensure the block remains windfirm. However, as the forest is felled sequentially opportunities will be taken to create a softer broadleaf edge to the open moorland (section 4.1.4, 4.1.5, 4.2.2, and in particular section 4.2.4). With reference to the proposed broadleaf fringe to the south of the forest block, as discussed there is a new private conifer plantation bounding this edge and therefore open moorland no longer exists as a habitat for moorland bird species. The area around Corriedoo Hill will be maintained as open ground as per the windfarm planning agreement to ensure optimal functionality of the wind turbines (section 4.2.5).
Dalry Community Council	24/11/2020	11/02/2021	We welcome plans to improve Corriedoo Forest and for FLS reaching out to the community for feedback, advice and information at an early stage in the process. LMP actions and management objectives are welcome. Members would like to see more broadleaf planting there forest borders open ground. The community would like to ensure access and management of existing rights of way. Increasing public access and recreational	Your support on the proposed management objectives are very welcome. We welcome access to the forest block, with the proposed road upgrades and the management objectives enhancing the enjoyment of the experience (section 4.1.2, 4.1.5, 4.1.6). Unfortunately, given the limited use of this area by members of the public and our constrained budget for creating

Consultee	Date contacted	Date of response	Issues raised	FLS response
			routes by linking tracks to create circular, marked tracks for walking and importantly, for disabled access. Near-by parking at the A702 layby provides this opportunity and meet local community aspirations.	additional facilities, it is not possible to increase the recreation infrastructure at this stage.
Local Resident Drummanister	24/11/2020	24/11/2020	Concerns with windblow in coupes adjacent to private residence (approved management coupes 87024 and 87003, and possibly 87017). Preference of coupe 87003 to be planted with alternative species to Sitka spruce and coupe 87024 tidied up. Forest road running adjacent to Drumminaster property towards Barscobe Loch is requested to be upgraded.	Coupes 87017 and 87024 that have areas of windblow are scheduled for clearfell during this plan period (section 4.1.1). Road upgrades for the forest road running adjacent to the Drumminaster property are scheduled for upgrades in the first phase of the proposed plan. Coupe 87003 has SS (P1984 and P2015). To avoid issues with adjacency and prevent even aged crops this coupe (P1984 SS) is scheduled for clearfell in phase three of the proposed plan. The restock plan for coupe 87024 (to the east of Drumminaster) will comprise discrete stands of NS and DF with open riparian areas to be completed within this plan period. Likewise, the restock plan for coupe 87003 (to the west of the property), includes discrete pure crops of NS, SS and DF. Moreover, to the rear of Drumminister property the 'carse' area will be planted with wet woodland suitable species and the former PAWS site will be gradually reinstated as clearfell operations progress in the future (section 4.1.1, 4.1.5, 4.2.3).
Local Resident Rownabank Cottage	24/11/2020	03/01/2021	Encouraged by the themes of protecting habitats for native species. Concerns with land on the northern side of the A702 opposite property that has regenerated blocking views	A site walkover was undertaken to ascertain the current situation of existing vegetation and thinning by felling to waste is proposed for coupe 87502 to control Sitka spruce natural regeneration

Consultee	Date contacted	Date of response	Issues raised	FLS response
			across open moorland and access to the burn. Request consideration of thinning or removal of shrub growth to open up the area (NX 6800 8303).	addressing natural regeneration of SS along watercourses and within managed open areas (section 4.1.2).
Local Resident Corriedoo	24/11/2020	15/01/2021	I would like to thank you for your inclusive engagement at such an early stage in the plan. We welcome the plans to improve the Forest environment for timber production, carbon sequestration, wildlife, biodiversity and amenity use. As residents with a private water supply, the management of buffers around watercourses is of particular importance. We were extremely happy to read about the creation of red squirrel-suitable habitat by primarily focusing on small-seeded broadleaf species in the planting scheme as the Corriedoo block currently supports red squirrels and support conservation actions for priority species. We know and understand that Corriedoo is primarily a woodland for timber production; however, increased conifer diversity and the thinning of stands will greatly improve the forest for amenity and recreational use – as well as for wildlife and biodiversity, particularly so if it is managed as continuous cover. We believe the LMP actions will indeed improve this forest environment and we were particularly excited to read and hear visions for longer term improvement such as continuous cover aspirations, opening	Thank you for your positive engagement, local knowledge and ideas for the block. Maintaining good water quality within the block is of high importance to FLS to ensure it continues to be safe and healthy for drinking (section 4.7.1, 4.7.2). Locations of water abstraction and water pipelines are mapped within the block and will be safeguarded during any forest operations. The proposed riparian enhancements to widen the buffer zone, with a mosaics of broadleaf planting and managed open space will be a phased action as access is gained through clear fell operations across the block. It is anticipated that these riparian changes will bring multiple benefits to both aquatic and terrestrial biodiversity, water quality and habitat connectivity (section 4.2.2, 4.2.4, 4.2.7, 4.1.4). Species diversity and age restructuring as explained will be a longer-term goal for the block with positive steps taken in this next plan iteration (section 4.1.5).

Consultee	Date contacted	Date of response	Issues raised	FLS response
			up water courses to improve riparian zones and connectivity, natural regeneration in areas, and increased area of native broadleaves. We understand that this will be a phased improvement and that there will be future opportunities to engage.	
Galloway & Southern Ayrshire Biosphere	24/11/2020		No response received	
IUCN Otter Specialist Group	24/11/2020		No response received	
CONFOR	24/11/2020		No response received	
WOSAS	24/11/2020		No response received	
Scottish Wildlife Trust	24/11/2020		No response received	
Premier Woodlands	24/11/2020		No response received	
Blackcraig Windfarm	24/11/2020		No response received	

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 ****
FC Approval normally not required	N	• Fell date can be moved within 5 year period where separation or other constraints are met.	• Up to 10% of coupe area.	• Up to 3 planting seasons after felling.	• Change within species group e.g. evergreen conifers or broadleaves.		• Increase by up to 5% of coupe area	
Approval by exchange of letters and map	Y	• Advance felling of Phase 2 coupe into Phase 1	• Up to 15% of coupe area	• Between 3 and 5 planting seasons after felling, subject to the wider forest and habitat structure not being significantly compromised.		• Additional felling of trees not agreed in plan. • Departures of > 60m in either direction from centre line of road	• Increase by up to 10% of coupe area • Any reduction in open space of coupe area by planting.	• Up to 5ha
Approval by formal plan amendment may be required	Y	• Felling delayed into second or later 5 year period. • Advance felling (phase 3 or beyond) into current or 2nd 5 year period.	• More than 15% of coupe area.	• More than 5 planting seasons after felling, subject to the wider forest and habitat structure not being significantly compromised.	• Change from specified native species. • Change Between species group.	• As above, depending on sensitivity.	• In excess of 10% of coupe area. • Colonisation of open space agreed as critical.	• More than 5ha.

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*

Table of Working Tolerances Specific to Larch

	Adjustment to felling period	Adjustment to felling coupe boundaries	Timing of restocking	Changes to species	Changes to road lines
FC Approval not normally required	Fell date for all larch can be moved and also directly associated other species	Larch areas can be treated as approved coupes. Other conifers directly associated with larch being felled, may also be removed up to an equivalent of 20% of the area occupied by the larch or 5 ha, whichever is greater	To be undertaken within the overall plan approval period.	Replacement as per the agreed restock plan, but where this is not specified or is larch this may be replaced with either another diverse conifer (not SS) or Broadleaves.	
Approval normally by exchange of letters and map. **In some circumstances Approval by formal plan amendment may be required**		Removal of areas of other species in excess of the limits identified above.	Restocking proposals outwith the plan approval period.	Restocking proposals for other species which do not meet the tolerances identified above.	New road lines or tracks directly necessary to allow the extraction of larch material.

Appendix V: Historic Environment records

Refer to Map 12

Historic Environment Records					
Designation	Name	Feature Description	Grid Reference	Importance	Area (ha)
Undesignated	Wallace's Rig	Canmore ID 177756. A farmstead, comprising one roofed, one unroofed building and one enclosure is depicted on the 1st edition of the OS 6-inch map (Kirkcudbrightshire 1854, sheet 16). One unroofed building and one enclosure are shown on the current edition of the OS 1:10000 map (1982).	NX 6882 8337	Regional Importance	0.10
Undesignated	Wallace's Rig	Canmore ID 177767. One unroofed structure annotated 'Hay Ree' is depicted on the 1st edition of the OS 6-inch map (Kirkcudbrightshire 1854, sheet 16).	NX 6918 8380	Regional Importance	0.02
Undesignated	Cairn	Cairn	NX 6956 8245	Uncategorised	1.00
Undesignated	Tod Hill of Blawrainy	Canmore ID 177729. One unroofed structure annotated 'Hay Ree' is depicted on the 1st edition of the OS 6-inch map (Kirkcudbrightshire 1854, sheet 16). Shown on current OS mapping as unroofed structure with enclosure.	NX 6739 8160	Regional Importance	0.03
Undesignated	Drummanister	Canmore ID 177728. One enclosure annotated 'Hay Ree' is depicted on the 1st edition of the OS 6-inch map (Kirkcudbrightshire 1854, sheet 16).	NX 6734 8181	Local importance	

Historic Environment Records					
Designation	Name	Feature Description	Grid Reference	Importance	Area (ha)
Undesignated	Knockman Hill Cairn	HER reference MDG3872. Potential cairn.	NX 6811 8330	unknown	