Galloway Forest District

BRIGTON

Land Management Plan

Approval date:

Plan Reference No: FDP

Plan Approval Date: 01 March 2017

Plan Expiry Date: 28 February 2027

CSM 6 Appendix 1
FOREST ENTERPRISE – Application for Forest Design Plan Approvals
Forest Enterprise – Property

Forest District:	GALLOWAY FD
Woodland or property name:	BRIGTON
Nearest town, village or locality:	NEWTON STEWART
OS Grid reference:	NX 400750
Local Authority district/unitary Authority	DUMFRIES & GALLOWAY

1. I apply for Forest Design Plan approval*/~~amendment approval~~* for the property described above and in the enclosed Forest Design Plan.

2. 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 consultees, this is highlighted in the Consultation Record.

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

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

Signed ……..…… Signed ……
Forest District Manager Conservator

District **GALLOWAY FD**…… Conservancy ……

Date **……**…… **Date of Approval:** ……

Date approval ends: ……

*delete as appropriate

Brigton Land Management Plan 2017-27

EIA Determination form if required

Contents

Support documents: Maps

- Analysis and concept map
- Features map
- Future Habitats and Species map
- Management map
- Visitor Zone map

Appendices:

i) Forest Design Plan Consultation record
ii) Tolerance table
iii) Ground Truthed Heritage sites
iv) Coupe details for clearfell and establishment
v) Brigton Design Plan Brief
vi) Community Consultation notes
vii) Appropriate Assessments for Merrick Kells SAC and Galloway Oakwoods SAC
viii)
ix) The UK Forestry Standard, Forestry Commission Guidelines and the UK Woodland Assurance Scheme (UKWAS)

Summary of Proposals:

The main objectives are sustainable timber production and the expansion of Native Broadleaf Woodland sympathetic to the significant demands of landscape, environmental quality, biodiversity and recreation.

1.0 Introduction:

1.1 Setting and context

Part of Galloway Forest District that is based in Newton Stewart, Brigton is a large scale, fairly blocky plantation some 10.0km north of Newton Stewart. The block is particularly visible in near and mid distance view from the A712 Newton Stewart to Girvan road that runs along part of its eastern boundary and there are also significant plantation frontages visible from other minor county roads around the Glentrool village area, the C45w and C47w. Views of the rump of the block to the south east are less prominent.

To the north the block borders FES plantation, Kirriedarroch, Loch Trool and Glencaird Hill, to the east it links through to open hill ground and to FES plantation, Lamachan and to the south meets with some smaller private sector woodland, the Wood of Cree. To the west the boundary is initially the R Cree, then across FES plantation, Minniwick and out onto the lower lying open hill and agricultural land.

An integral part of the Galloway Forest Park the block also lies within the larger Western Southern Uplands Environmentaly Sensitive Area (ESA) and within the buffer zone of the Galloway and Southern Ayrshire Biosphere.

This plan is a revised submission of the earlier plan for Brigton approved in 2005.

1.2 History of plan

When design plan areas were initially set out by the district many years ago, Brigton was identified as a plan area separate from Minniwick essentially due to the physical boundary between the plans afforded by the Water of Minnoch and also, because of its proximity to Glentrool village, the significant community element aspect of Minniwick. Over the years similar long term objectives and the development of larger scale plans that capture distinct sections of water catchment, the Native Woodland expansion work carried out in both plan areas along the R Cree valley in partnership with Cree Valley Community Woodlands Trust (CVCWT) and most recently the extensive infection of both blocks with P ramorum has led us to consider an amalgamation of the two plans.

As a large scale plan, with the R Cree to the west and the Water of Minnoch running through it, it would stand comfortably as a single design plan unit for water quality and conservation considerations (Native Woodland expansion and the creation of habitat networks linking Ancient Woodland fragments).
A decision on any amalgamation will be taken when the Minniwick plan, due to expire in December2017, is being revised.
The area of the block to the north of the Pulniskie Burn was initially acquired through a significant land purchase in 1940 from the Earl of Galloway supplemented by further acquisitions in the early 1970s (see table below).

Acquisition date	**Deed No**	**Title**	**Seller**
April 1940	11147	Glentrool	Earl of Galloway
Jan 1950	11150	Part of Galloway Estate	Earl of Galloway
Oct 1970	11172	Larg Farm	T McWhirter
Mar 1972	11175	Cordorchan Farm (pt)	EMW Cliffe - McCulloch

Afforestation of the blocks generally took place between 1954 and 1965 continuing into the early / mid 1970s after the later acquisitions. Whilst significant areas of older plantation have been removed over the last 25 years other vestiges of the early 1950s plantation, including planned retentions of Larch and Scots Pine, were present throughout the block creating a relatively structurally diverse woodland. The recent P ramorum infestation resulting in the removal of large areas of mature larch and spruce crop has had a seismic impact on the appearance of the block.

2.0 Analysis of previous plan

2.1 Analysis from previous plan

Objectives from the previous plan were as follows:

Objectives	Assessment of Objectives during plan period
Commercial softwood timber production in forest core. Diversify age structure and species composition of the block through restructuring to benefit habitat and visual diversity (particularly along public roads). Increase area managed under Low Impact Silviculture.	Timber production and restocking initially progressed as per the approved plans and FCS agreed amendments however the original vision for the area has been significantly compromised by the extensive felling programme resulting from P ramorum infection of Larch. This advanced felling may provide opportunities for alternative coupe design.
Increase area of broadleaf and open space for conservation enhancememt. Expand area of Native broadleaf woodland and create habitat networks linking Ancient Woodland fragments (plan area is a priority zone of expansion for Native woodland).	Over the plan period the area of broadleaf woodland has increased as a result of both FES operations and work carried out in the sites managed in partnership with CVCWT. The additional clearfelling to remove infected Larch crops should inadvertently provide greater opportunities for larger scale broadleaf habitat network creation.
Improve riparian zones particularly along significant watercourses as identified by Galloway Fisheries Trust. Monitor and improve water quality as per Guidelines.	A significant tract of conifer plantation has been removed from the riparian corridors and water catchment areas of the Water of Minnoch, Water of Trool and the R Cree and been replaced with open space and broadleaf planting.
Provide, and enhance, the Recreational, historical and archaeological resource for local communities and visitors to area.	Existing facilities have been maintained during the plan period with walking and cycle trails benefiting from restructuring and additional open space. Again the additional felling of infected Larch areas affords opportunities to develop the Recreation infrastructure and Archaeological resource further (e.g. Cardorcan Cairn).
Maintain suitable habitat for Red Squirrel.	Larch removal particularly that of the older, retained Larch has somewhat compromised the block structure for the species. However greater species diversity in future rotations should ensure that the block remains relatively beneficial for the species.

Create moorland fringe on plantation margins to improve Black Grouse habitat.	Little work during plan period but likely to occur during this plan as coupes at elevation and coupes adjacent to Crigmurchie open hill are harvested.

Whilst these approved plan objectives were generally met, they have over the interim period become slightly outdated. Key objectives for the plan, see table below, are now more directly related to the revised brief (see Appendix V).

Themes and objectives.	**Priority**
Timber; Promote sustainable timber supply through revised felling plan / thinning plan Implement modest scale road building / road maintenance programme required to service proposed operations coupes Increase broadleaf woodland creation, native species for biodiversity and where possible faster growing commercial species (Oak)	high
Biodiversity; Enhance biodiversity of the site through SAC (SSSI) management plans aiming for favourable status and through PAWS restoration and maintenance / enhancement of other non designated ASNW sites Establish new native BL woodland within and establish habitat networks along the R Cree valley with neighbouring landowner where appropriate	high
Environmental Quality (Protect water, soil and air./ contribute to landscape); Manage watercourses within DP unit in keeping with UKWAS standards and Forest and Water guidelines to maintain and improve water quality within R Cree catchment to improve feeding and spawning conditions for fish Increase area of mature woodland and species diversity for habitat enhancement (considering impact of P ramorum within block and the future design of a potentially Larch free forest) Develop / expand area covered by Low Impact Silviculture systems (LISS) in particular lower valley coupes and areas highly visible from minor access roads Manage heritage features according to FES Archaeological guidelines	high
Climate change; Increase species diversity in response to major disease infestation and to enhance long term carbon sequestration profile of the block through establishment of new broadleaf woodland rather than conifer plantation	medium
Access & Health; Improve public enjoyment by providing a varied and enjoyable woodland experience through localised intensive management regimes, improved signage and facilities and a maintained road network	medium
Community development; Maintain CVCWT partnership activity in block.	medium
Business Development; Maintain / develop Recreation facilities infrastructure within the block (cycle trail / fishing) within the overarching Biosphere buffer & Dark Skies park zones	medium

3.0 Background Description

3.1 Physical site factors

3.1.1 Geology Soils and landform

The block lies only around 7.0km west of the granitic intrusion of Old Red Sandstone that is the Merrick massif however most of the afforested area essentially comprises sedimentary greywackes and shales of the Ordivician period with a number of Porphyrite dykes scattered throughout. The parent rock has been generally overlain with morainic material and boulder clay with peat deposits forming in the central low lying areas and alluvial deposits in the valley bottoms. This combination of geology and glaciation has generally resulted in poorer site types ranging from shallow upland brown earths and ironpan podzols in the valleys (5%) through the dominant swathes of peaty gleys and deep peat soils (85%) up to the skeletal soils of the uplands(10%).

The dominance of these poorly draining soils, particularly to the north and west of the block, has generally resulted in a monoculture of shallow rooting spruce conifer with a high risk of windthrow.

To the west the terrain is gently undulating, typical of the Cree valley catchment, around the three principal watercourses but quickly rises in steepness out to the open hilltops of Larg Hill (675m) and Craignaw (530m) in the east. Craigmurchie (286m) is the most prominent peak within the plantation.

The James Hutton Institute "Land Capability for Forestry" classification (previously Macaulay Institute) for the area is generally F5 (land with limited flexibility for growth and management of tree crops) and F3 (land with good flexibility for growth and management of tree crops) on the lower valley bottoms.

3.1.2 Water

Loch Middle is the principal open water body in the plan area and as the name suggests lies centrally in the block. It has been dammed to provide a public water supply however work is underway to remove the dam and re-profile the outflow and return the loch to FES ownership. Silver Rig loch to the south west also lies within the plantation area but is significantly smaller and marshier.

The design plan lies firmly within the R Cree water catchment and drains westerly into it either through the R Cree or indirectly via the Water of Minnoch and the Water of Trool. There are numerous other watercourses, the Pulniskie Burn, Ferrach Burn, Pulhowan Burn, Black Burn and Ballocharush Burn within the plantation area. The R Cree catchment has historically been quite heavily forested, watercourse over shading, the risk of siltation, drainage and riparian management and surface water acidification are particular concerns.

Along these watercourses there are a variety of habitats present ranging from juvenile salmonids habitat through to adult holding water. Brown trout, Eels Pike and Perch are all currently found. Overall management of the site is a key

environmental consideration so we aim to comply with best practice and minimise sediment release from any forest operations with efforts made to create wider aquatic and riparian zones to provide long term protection against disturbance from future forestry operations and loss of light from canopy closure.
With regard to River Basin Management Plan considerations the potential pressures on these watercourses from forest operations are morphological alterations, production of non renewable electricity and diffuse source pollution however our planned forest operations should not compromise the existing classification of these water bodies.
Due to the high incidence of existing open space within the plan, the catchments already only have moderate percentages of forest canopy cover over 300m with this figure likely to drop further with our restructuring and reduction in future conifer restocking.
FES has considered flood risk of peak flows at the exit of the site and also further down stream and there are no known issues. It is appreciated that new planting with associated operations of draining and ploughing can give rise to a very slight increase in peak flow (up to 20% at site scale) but the small scale of our additional planting and the well designed and significant sized buffers will minimise this effect. The significance of the potential increase in peak flow will reduce as more water joins from other tributaries and the peak flow is diluted. Clearly if whole water catchments were being proposed for planting this would require greater examination and consideration.
Details of all known private water supplies within the block are held in a District GIS layer (see constraints map).
All work undertaken will comply with the Forests and Water Guidelines (Fifth Edition) although in this sensitive acidified catchment riparian buffer zones should be significantly enhanced.

3.1.3 Climate

The south west of Scotland has a predominantly mild windy oceanic climate influenced by the Gulf Stream. Annual rainfall in the block ranges from 1400mm in the lower valley floor up to 1800mm on the hilltops, compared to the district range of 1000 – 2000mm, and falls mainly during the winter months October to February.
Guidance on Climate Change suggests that the District can expect an increased frequency of extreme weather events with the climate remaining wet and mild. Whilst there may be little impact on this DP block with regard to primary species choice (mainly conifer) there may be future threats to wildlife habitats. The development and maintenance of Habitat networks will be important.

3.2 Biodiversity and environmental designations

The Merrick Kells SAC and Galloway Oakwoods SAC are both slightly impacted on by the northern reaches of the plan area. Both sites are also SSSIs.

The Merrick Kells site, containing the most important and varied system of patterned blanket bog in Britain, is designated for its blanket bog and upland habitat, breeding bird assemblage and invertebrates. A range of current conditions from unfavourable to favourable apply to the various feature assemblages.

The Galloway Oakwoods is designated for Western Acidic oak woodland. Current condition for the area of the SAC managed by the district is "partially recovering".

There are also significant areas of both Ancient Semi Natural Woodland (ASNW) and FES PAWS sites within the land management plan unit. ASNW sites that appear in the NCC *Inventory of Long-established Woodland of semi natural origin* (class 1A) and in the more recent Scottish Natural Heritage directory as *Ancient Woodland* include Holm Wood, Bog Wood, Borgan Wood and the gorge woodland along the Caldons Burn with Low and High Camer Woods, Brigton Wood of Cree, Cardorcan Burn and Ferrach Burn. Significant links exist to other Ancient Semi Natural Wooded areas along the R Cree valley and there is a presumption for restoration of the sites and further development of these habitat networks as part of a wider project linking into the Loch Trool and Kirriedarroch LMP areas. Several of these ancient woodland areas are currently managed in partnership with Cree Valley Community Woodlands Trust.

Water quality in the upper reaches of the Cree catchment is a significant environmental factor in the plan area with the lower River Cree identified as being of conservation importance (SSSI). Galloway Fisheries Trust (GFT) has played a key role in identifying watercourses important for breeding salmonids with work already actioned to address the issues of forest encroachment onto watercourses in the plan. This work will benefit other aquatic species such as Brown trout and European Eel and will be further developed with the subsequent creation of aquatic and riparian zones improvements, generally in excess of basic guidelines identified in Forest and Water guidelines 5th edition.

3.2.1 FCS Biodiversity Programme key species

Red Squirrel is present within the block at low densities but the area is not considered to be a "Red Squirrel Stronghold site". These areas are designated by the Scottish Government as sites where Red Squirrel can be assisted to survive through positive management practices. Despite our intention to restore significant areas of native woodland within the plan area our otherwise continued commitment to areas of retained mature conifer plantation with an increased proportion of Scots Pine, Norway Spruce and small seeded Broadleaf restock areas will ensure that the block remains relatively advantageous towards Red squirrel.

Brigton LMP is not considered to be a core area for Black Grouse. However as this red listed UKBAP species has been recorded around 2km from the eastern

boundary at Barclye in 2010 the plan presents a great opportunity to provide for the species through improving the condition of existing internal open space, particularly that adjacent to developing heather areas and open ground / farmland, and developing the habitat further through establishing additional stands of native broadleaf species such as Birch, Hawthorn, Willow and Rowan for winter browsing on sites likely to be favoured by the species.

There are no examples of remnant populations of Common Juniper within the Brigton LMP area and opportunities for planting this locally rare UKBAP species are limited to a few internal open hill tops such as Craigmurchie, Craigenroy and Corby Craig and in parts of the extensive open hillgrazing habitats to the north east of the plan area around Glack Gairy, Craignaw and Cambret Hill. During the period of this plan sites for small plantings of local provenance Common Juniper within small enclosures will be explored both on the open hill ground and within areas of proposed woodland fringe.

3.2.2 Scottish Biodiversity List Species

Water bodies and existing riparian habitats are regularly used by Otters for breeding and for movement between the R Cree and R Bladnoch systems. Otters have a large territorial range; consequently wide ranges of adjacent connecting land will also be used.

Positive riparian zone improvements, often exceeding basic guidelines proposals, such as an increase in BL cover coupled with our aim to keep sections of stream banks permanently vegetated and persisting throughout subsequent rotations will increase both the availability and connectivity of suitable breeding and feeding habitat for both of these species. Galloway FD Environment staff now also prepare brash piles along water courses, specifically providing excellent cover for rearing, resting and breeding otters. The main benefits for FES is that providing these features greatly reduces the likelihood that otters will create resting places or breeding sites within commercial forest stands and the brash piles are also likely to be used by a wide range of animal species and provide valuable deadwood habitat.

Pine Martens favour similar forest habitats as Red Squirrels and have been regularly seen around the plan area. The LMP area has been important for Pine Martens since their reintroduction in the early 1980s with confirmed breeding in at least three separate artificial den boxes on multiple occasions since 2007. The species will benefit from the establishment of long term retention open broadleaf woodland expansion, the creation of habitat networks and any increase in thinning and LISS areas in subsequent rotation crops.

3.3 The existing forest

3.3.1 Age structure, species and yield class

Species / Yield class

A significant percentage of the total plan area, almost half (44.8%), is already classified as some form of open space comprising wild open hilltop, agricultural land, clear felled areas and other open ground as detailed in the table below.

Open ground type	Area (ha)
Open hilltop	454.6
Felled area	212.0
Agricultural land	790.6
Open water	15.0
Unplanted	41.4
Streamsides	0.9
Quarries	2.5
Deer glades	15.8
Archaeology	0.5
Car parks	0.1
	1533.4

Pure Sitka Spruce and Sitka Spruce and Lodgepole Pine crop mixtures completely dominate the block and account for over 89% of the plantation area. The remainder is made up of a 3.5% mix of minor conifer species (Scots Pine, Douglas Fir and Larch) and around 7.5% broadleaf generally located on the more fertile river valley bottoms. Figures for minor conifer species would undoubtedly have been higher were it not for the significant area of larch felled as a result of the recent *P ramorum* infection.

The large areas of open hill / grazing tenancy to the east of the plan area result in a larger than usual percentage of this plan (around 45% total area) already being classified as open space. This figure may well increase as conifer removal for planned woodland fringe creation impacts.

Conifer crop yield class across the block ranges from YC20 in the valley bottoms down to quite poor crop YC2 at elevation. There may well be scope for substituting some of the poorer crops with either an alternative conifer species better suited to the site such as Scots Pine or further conversion of the area to broadleaf woodland fringe or permanent open space.

Species in 2017	Total area (ha)	Total area %	Plantation area %
Sitka spruce	1670.3	48.8	65.8
Norway spruce	22.3	0.7	0.9
Larch spp.	25.3	0.7	1.0
LP (Other Pine)	32.9	1.0	1.3
Scots Pine	17.7	0.5	0.7
Douglas Fir	2.1	0.1	0.1
Other conifers	1.8	0.1	0.1
Broadleaf	148.0	4.3	5.8

Open land (includes felled areas & open water)	1499.6	43.8	24.3
Total	**3420.0**	**100.0**	**-**
Plantation area	**2537.5**		**100.0**

Age Structure

Despite significant recent larch felling, the plan currently provides only limited structural biodiversity benefit with the rump of the plantation area comprising maturing high forest. Block restructuring therefore remains a significant objective. Our planned felling programme, with a minimum of 7yr age gaps maintained between fell coupes and even longer gaps up to 10yr in potential Black Grouse areas, will slightly improve the spatial appearance and structure of the block over the plan period. In the longer term our proposed conversion of conifer to broadleaf in the valley bottoms to enhance riparian habitat network and the move towards Low Impact Silvicultural System (LISS) management will generate more old high forest and continue to improve overall crop structure through a more even spread of age class.

Age of trees	**Growth stage**	**Percentage of class at given year**	
		2017	**2047**
0 - 10	Establishment	8.1%	10.1%
11 - 20	Thicket	3.3%	15.6%
21 - 40	Pole stage	4.1%	18.0%
41 - 60	Maturing high forest	38.8%	4.9%
61 +	Old high forest	0.9%	3.2%
	Open space / felled areas	44.8%	48.2%
Total		**100.0%**	**100.0%**

3.3.2 Access

The block is already quite accessible for timber haulage using the extensive forest road network. Currently timber haulage exits the block to the west over a small section of minor road that crosses the Water of Minnoch (the C48w, a “severely restricted route”), through the forest road network of an adjacent FES block and out onto the A714 Newton Stewart to Girvan road, an “agreed route” on the Dumfries and Galloway Timber Transport Group Agreed Routes Map west for Timber Haulage.

Within the period of this design plan new road construction to facilitate access to planned felling coupes and supplementary upgrade of the existing forest road network is needed to meet our programmed volume forecast. Around 60% of the planned roads programme for the block is scheduled for construction during the approval period for this plan, mainly during the first phase (see table below).

Period of Proposed	Proposed length

Construction	for construction
2017 to 2021	2300m
2022 to 2026	1000m
Beyond 2026	2150m

There are only three small to medium scale quarries within the block (Borgan top, Borgan main drag and Brigton) that are likely to provide suitable stone material for road construction and upgrade to service the local area forecast timber volume. Because of the unsuitable nature of the parent material (very high levels of arsenic and aluminium) the Loch Middle quarry will no longer be used for road works.
All quarries, along with proposed / planned forest roads for the plan period and beyond, are identified in the suite of DP maps.

3.3.3 LISS potential

A significant area of the plan, essentially the lower lying plantation to the west of the open upland ground under Crainaw and Larg Hill, has low to moderate DAMS scores (Detailed Aspect Method of Scoring) of 17 or less providing significant opportunities for LISS management within second rotation crops.
LISS is defined as “Use of silvicultural system whereby the forest canopy is maintained at one or more levels without clearfell of areas over 2.0ha” (see section 5.1.3).

3.4 Landscape and land use

3.4.1 Landscape character and value

The plan area is visible in various mid to long distance views most notably from the A714 Newton Stewart to Girvan road but also from several minor council roads, the C45, C47 and C48 and tends to be dominated by the two river valleys of the R Cree and the Water of Minnoch / Water of Trool and their surrounding uplands. Conifer plantation stretches from the enclosed agricultural landscape and improved grassland of the Cree valley to the west out to the more rugged hill tops to the east but is often screened from view by the valley broadleaf woodland. Recent and planned felling coupled with an increase in permanent open space has and will continue to open up important internal views along the Southern Upland Way, to the north of the plan, and the cycle route from Borgan to Loch Trool.
The 1994 Dumfries and Galloway landscape assessment categorises most of the plan area as “type 17a plateau with forest” a blanket of dark green plantation super-imposed on plateau moorland, relatively flat, gently undulating hills of an open scale and extensive nature, an exposed and remote character. A small area of “type 4 Narrow wooded valley narrow incised valleys with wooded (mainly broadleaf) slopes enclosing pasture floors, an intimate unspoilt riparian tree landscape is also noted along the R Cree valley.

In developing our design for the block the following landscape specifics for the two landscape character types have been addressed:

- adding diversity to the landscape through forest design
- the threat of loss of plateau moorland character through forest expansion and
- potential wind power development given the landscape sensitivity

"Forest restructuring for spatial, age and species diversity" and "restrict planting to areas already dominated by forest"; throughout the block clearfelling followed by species diverse restock, both minor conifer and BL species, and the creation of additional linked open space will add species and structural diversity to the landscape. Significant movement towards restructuring had previously taken place in some of the lower lying parts of the block with mature larch retentions providing a significant component of the restructured landscape. Regrettably the recent large scale removal of larch throughout the block, under plant health notice for the P ramorum infestation, has seriously impacted on the landscape and will inevitably result in a greater future reliance on broadleaf and minor conifer species such as Scots Pine and Douglas Fir for restocking.

"Large scale design for large scale landform and relief"; whilst large scale relief allows for some larger scale felling coupe design in the distant view and at elevation, the principal landscape design concerns tend to now focus on, post Larch removal, a range of small to medium scale coupes tailored to the now exposed, gentle and subtle changes in topography that will introduce interconnected patterns of open space into the lower basin areas and achieve a more diverse restocking through the use of alternative species.

"Restrict planting to existing forest dominated areas" and "Conserve plateau moorland character"; there is no new planting envisaged and additional areas of forest will be targeted as permanent open space.

"Conserve riparian woodland and wetland corridors"; the semi natural riparian habitats of the R Cree and Water of Minnoch dominate the plan area, these will be enhanced through the creation of additional broadleaf woodland that will link the lower valleys to the hill slopes and summits.

3.4.2 Neighbouring land use

The block adjoins other private sector woodland and FES plantation to the north and south. To the west and east lies either open hill land or agricultural land. The open hill to the east is grazed by a tenant.

3.5 Social factors

3.5.1 Visitor Zone Recreation

There is little in the way of formal Recreation in the Brigton block. The smaller scale FES facilities include a section of the Southern Upland Way long distance route, part of the 7 Stanes (Big Country) cycle route and an informal layby at the

Minnoch Bridge. In addition there is a circular walking route with viewing area and information panel based in Low Camer wood that has been developed by Cree Valley Community Woodland Trust.
The principal facilities are listed in the table below.

Facility	Concept / Opportunity	Constraint	Plan Development
Southern Upland Way (SUW) long distance route	Improve general experience of walkers along forest sections of route Reduce impact of clearfell operations	Long route length Harvesting / forest operations and route closures	Convert conifer plantation along route to broadleaf woodland to reduce future harvesting operations impact Enhance / maintain immediate surrounds to long distance route with BL woodland and open space
7 Stanes (Big Country) cycle route	Enhance trail experience	Long route length Harvesting / forest operations and route closures	Enhance visual diversity along route through detailed site management (see Visitor Zones layer treatments)
Minor car park (Minnoch Bridge)	Develop car park capacity	Local angler usage	Maintain car park surrounds as open space / BL woodland Enhance riparian zone to east of Water of Minnoch to benefit anglers access
Low Camer & High Camer forest trails (CVCWT)	Maintain trail through BL woodland		Maintain immediate BL woodland and open space setting

The facilities may still however be considered important to the district's Recreation plan as a potential expansion area (see Visitors zone map) with the block partially providing an additional backdrop & entrance to other core Recreation facilities associated with the Glen Trool visitor centre. Recreational demands around these Visitor Zone areas will impact greatly on our management choice with our standard regimes heavily modified to improve the internal and external views associated with these routes. The importance of expanding the broadleaf links along the Water of Trool and R Minnoch to Recreation should also not be underestimated. They are visible from many vantage points along the walking and cycle trails and add a real sense of place and natural enjoyment for visitors.

Whilst optional links from the Southern Upland Way to both the FES and private sector trail networks and internal forest road links to potentially create horse riding trails have been considered as indeed has a route including Silver Rig mines, it should be stated that within the period of this plan there are no plans for Recreational development in the LMP area.

3.5.2 Community

Whilst there are only a few agricultural neighbour interests such as the Holm farm affecting the DP unit there is the nearby village community of Glentrool that lies some distance out of and to the north west of the block. To facilitate local comment on the plan as part of the Land Management plan process an open drop in meeting was held in the village (see Appendix VI for Community Consultation notes).

Cree Valley Community Woodlands Trust also manages areas of native woodland expansion within the block under local management agreement in partnership with FES.

The local Cree Valley Community Council is in receipt of the latest version of our local Strategic Plan and was consulted as a stakeholder in the early scoping of this plan.

3.5.3 Heritage

Following *FES Historic Environment Planning Guidance*, this Forest Design Plan describes and considers the conservation and management of the historic environment. The FDP includes details of all relevant scheduled monuments, listed buildings, designed landscapes and the most significant undesignated features. Designated historic environment features are recorded in the Designated Historic Assets Register (maintained by the FCS Archaeologist). Scheduled monuments and listed buildings are managed within the Forest District Monument Management Plan and Condition Surveys respectively. FCS also maintains a programme of detailed measured survey of our most significant sites in order to enhance the national historic environment record and inform conservation management. Currently there are no Category A listed buildings identified within the plan area however two Scheduled Monuments (Old Bridge of Minnoch and Cordorcan Cairn) are present. These principal features along with the locally important Silver Rig mines and lade and Borgan Ferrach and Holm Ferrach settlements and a raft of other sheep pens and cairns represent the archaeological heritage interest for the block (See Appendix III for heritage details).

All significant features will be protected and managed following the *Forestry and Archaeology Guidelines* (2011), the FCS policy document *Scotland's Woodlands and the Historic Environment* (2008) and the supporting *FES Historic Environment Planning Guidelines* (available from the FCS Archaeologist).

Known heritage features are marked on workplans before the start of forestry operations. Machine operators are fully briefed on their responsibilities prior to all

sites being worked. The known record is based on features recorded on the 1st edition OS Map (1850).

Felling coupes, access roads and fence lines will be surveyed prior to any work being undertaken to ensure that upstanding historic environment features can be marked and avoided. Historic environment features, including drystone dykes, coming to light during forest operations will be surveyed, recorded, mapped and monitored for inclusion in future versions of the Design Plan and to demonstrate Forestry Commission Scotland compliance with the UK Forestry Standard.

At planting and restocking historic features will be removed from ground disturbing operations with opportunities to enhance the setting of important sites considered on a case-by-case basis (such as the views to and from a significant designated site).

Any recent archaeological surveys that have been undertaken on behalf of FCS have been incorporated into the Forester GIS Heritage Module geodatabase - and any new archaeological surveys required (in unimproved upland areas for example, or areas within which the archaeological record is unusually rich) are undertaken to the standards laid out in *FES Historic Environment Planning Guidelines.* This will ensure that undiscovered historic environment features are mapped and recorded prior to forestry establishment and management operations - and will ensure the continued comprehensive protection of the known archaeological resource.

3.5.4 Forest Renewables and Utilities

Forestry Commission Scotland (FCS) is working to develop the wind and hydropower potential of the land and forests that we manage for the Scottish Ministers. Our aim is to ensure that the potential of the National Forest Estate is developed and managed in ways that

- contribute to the Scottish Government's renewable energy target
- maximise financial returns from the National Forest Estate
- secure benefits for local communities and
- achieve a reasonable and sustainable balance with other FCS objectives

Whilst the possibility remains that the Brigton LMP area could be subject to future windfarm applications, currently there are no renewable developments planned.

3.4 Statutory requirements and key external policies

The legal status of the land is purchased.

4.0 Analysis and Concept

4.1 Analysis of constraints and opportunities

The following table sets out the site factors that are deemed significant in influencing the long-term management of the forest block.

Factor	Opportunity	Constraint	Concept Development
Timber	Provide planned sustainable timber supply	Creation / enhance conservation habitats Recreation developments	LISS areas and smaller overall coupe size Maintain conifer restock programme whilst increasing area of BL in subsequent rotations Remove flow peaks from timber production
Biodiversity	Restore ASNW remnants and connect to other external ASNW habitat networks	Fragmented nature and poor quality of existing ASNW remnant Extended restructure period	Extend BL woodland / open space connectivity to riparian zones and internal / external open space Increase BL restock for additional species diversity
Biodiversity	Enhance connectivity aquatic areas to other habitat networks	Isolated nature of lochs Extended restructure period	Extend woodland fringe / open space connectivity to riparian zones and internal / external open space
Environmental Quality	Enhance views of block from A712 and minor county road	Rapid period of landscape change due to *P ramorum* infection Moderate levels of species diversity	Smaller coupe size LISS areas Greater species diversity
Environmental Quality	Develop Low Impact Silvicultural Systems on better site types	Site type constraints	Increase area under LISS
Environmental Quality	Enhance water quality within the R Cree catchment	Conifer monoculture planted close to watercourses	Smaller coupe size LISS areas Riparian enhancement

		Moderate levels of species diversity Extended period of landscape change	through increased open space / BL restock Increase species diversity (BL and minor conifer)
Access and Health	Enhance the aesthetic appearance of the forest that facilitates better engagement by visitors	As yet not one continuous link up the two rivers of BL cover. Limited access needs but plenty of exploring potential	Provision of additional bespoke treatments within Recreation Visitor zones including increased open space and species diversity

4.2 Concept development

The concept forms the broad framework for the detailed design and is presented graphically in map 4: Analysis and Concept. A variety of themes, often overlapping, are outlined as follows:

Commercial confer zone / Core timber production

Large swathes of upland spruce and mixed conifer plantation surrounds and lies within the design plan unit (heavily impacted by P ramorum felling). The plan area will continue to be managed as commercial crop to meet the district programme commitments. Better site types along the valley bottoms should facilitate extending rotation lengths in some conifer crops (through additional LISS areas) and will allow for increased species diversity including a potential for commercial broadleaf production. Opportunities for smaller clearfell coupe sizes exist.

R Cree catchment / floodplain

The R Cree runs along the western edge of the plan area however several of its feeder tributaries dissect much of the plan area. Water quality issues within the catchment and the creation of a major habitat network centred on the development of the riparian corridors are critical success factors in the plan. Opportunities will be taken to go beyond the basic proposals of the legal drivers and voluntary codes i.e. the UK Forestry Standard (UKFS) the Forest and Water Guidelines (FWG) and the UK Woodland Assurance Standard (UKWAS) to fully open up the riparian corridor.

Aquatic habitats

Loch Middle is a significant area of open water lying centrally within the plan area. Enhanced linkages from the loch to internal open space areas or connecting it to the riparian corridor habitat network should add biodiversity value to the plan area.

Ancient Semi Natural Woodlands

There are significant areas of ASNW remnant within and adjacent to the design plan unit. Opportunities exist over time to restore our existing fragmented ASNW areas through conifer removal, the development of LISS and greater species diversity and to further enhance them through linkages to the larger more favourable external ASNW areas, particularly along the R Cree valley. Cree Valley Community Woodland Trust manages parts of the Land Management Plan area under agreement.

Internal open hill tops

There are significant areas of internal open hill top within the plan area. Connecting these either internally to the riparian zones or externally to existing open hill ground should enhance the habitat network throughout the plan area.

Highly visible roadside corridor

The block is highly visible and previously presented a series of fairly attractive views from both the A714 county road, now compromised by the Phytopthora

ramorum infestation felling. Long term aims are to further improve the views through greater species diversity, both broadleaf and minor conifer.

Grazing tenancy

Lamachan tenancy covers a significant part of the open hill land to the north east of the plan. Options exist for the creation of beneficial woodland cover on the tenancy margins (a woodland fringe buffer) and the potential expansion of the grazing area.

Recreation Core

Cycle trails and low level informal access within the plan area provides support to the nearby Stroan Bridge Visitor Centre, a core recreation facility for the district. A short section of the Southern Upland Way also runs along the northern edge of the plan area linking to external long distance walking access. Area specific Visitor zone treatments will be developed for these sites involving mature tree retentions where possible, the creation of additional open space and species diversity and the retention of open views created by the removal of Larch.

Heritage

Two important SAM sites lie within the plan area. Managed as per the agreed management plans, their loci will additionally be enhanced.

5.0 Management Proposals

5.1 Forest stand management

The Brigton plan has been designed in accordance with sound silvicultural and environmental principles within the framework outlined by the UK Forestry Standard, the UK Woodland Assurance Standard and the Galloway FD Strategic Plan.

The accompanying Management map provides details of our coupe management proposals and the following table summarises the average annual felling and thinning volumes (m3ob) expected for the next 10years (plan period):

Fell period	Thinning / LISS	Clearfell	Total
2017-2021	8270	88280	96550
2022-2026	6750	79190	85940
2027-2031	7920	163580	171500
2032-2036	6100	146170	152270
2037-2041	6210	68390	74600

Programme has to an extent been smoothed to provide a regular and sustainable supply of timber.

5.1.1 Clear felling

While much of the plan area will be managed under a clearfell management type using conventional harvester and forwarder working, there may be significant scope to expand the area managed under Low Impact Silvicultural Systems (LISS) particularly in the lower lying valley areas where both second rotation conifer and broadleaf expansion areas are planned.

A number of coupes (14 coupes, around 19 % of the plantation area) are scheduled for clearfell during the 10yr period of the plan and they contribute quite substantially to the district programme (see Appendix IV).

Despite the higher figures identified towards the end of the plan period, the following table confirms that, as per paragraph 3.4.2 in the UK Woodland Assurance Standard (second edition), no more than 25% of the plan area is due to be felled in any five year period within this plan approval period. In this instance, because of the vast open hill area associated with the plan, we have used plantation area (1886.6ha) and the percentage is still not exceeded.

5yr Fell period	Area felled (ha)	Area felled as % of total plantation area
2017-2021	**192.0**	**10.2**

2018-2022	**271.3**	**14.4**
2019-2023	**237.2**	**12.6**
2020-2024	**192.5**	**10.2**
2021-2025	**193.5**	**10.3**
2022-2026	**160.8**	**8.5**
2023-2027	**263.2**	**14.0**
2024-2028	**206.8**	**11.0**
2025-2029	**303.3**	**16.1**
2026-2030	**317.9**	**16.8**

It is of course important to manage forestry activities in acid sensitive water catchments and the northern part of this Land Management Plan area occupies an area of the R Cree catchment that is currently identified as being either “at risk” or “failing”. Calculations have been prepared and are included at Appendix VII. Figures confirm that neither the felling threshold nor the restock thresholds are exceeded by our plan proposals.

Subject to favourable future water chemistry status, there is a district commitment towards our proposed felling and restocking for these catchments.

For landscape and biodiversity considerations efforts have been made to extend the felling period between coupes and where appropriate to reduce the overall size of the remaining clearfell coupes and increase the area of plantation under LISS specifically the valley bottom areas.

One of the objectives for felling and restocking is to have at least a 7 year separation between felling and restocking of neighbouring coupes for both visual amenity and overall forest structure. Wherever possible, this plan will resolve adjacency issues by delaying of felling, rather than restocking outside the normal 3 year window.

The restocking plan is based on a fallow period of 3 years which has been established as the most advantageous timescale through both experimental results within the district and feedback from previous establishment operations. When a felling operation has been moved and will deviate from the normal 7 year period, we would look for surrounding crops to be at least 2m tall where they are commercial conifer crops, and over 1m where they are broadleaves or natural regeneration. The density of natural regeneration will also be considered where it is suppressing ground vegetation to a reasonable extent and it is firmly established without further restocking of conifers required.

Further factors in the assessment will include any windthrow in adjacent areas that will likely result in felling and proposed areas for development such as quarries, powerlines, roads etc. Where the available data does not present a clear picture of the forest, a site visit will take place to survey the area surrounding the proposed felling and assess the forest structure. This assessment will be recorded along with any supporting evidence, such as photographs, collected and presented at 5 year review.

All proposed operations sites will be surveyed prior to work taking place to identify the presence of species such as Red Squirrel, Otter, Pine Marten or Badger that may require specific management treatments i.e. locating dreys or avoiding breeding seasons.

5.1.2 Thinning

Most of the LMP area is thinnable, only the upland areas to the east have DAMS scores in excess of 17.

Despite this only a small amount of thinning actually took place and was limited to the larch crops either side of the Jenny's Hill forest road and some of the lower lying spruce areas (the larch areas have subsequently been felled as a result of the P ramorum infestation).

The potential to expand the overall thinnable (and LISS) area within the block now rests with second rotation crops. To the north of the plan, some conifer areas have already been identified for inclusion in the district thinning programme and are due to be thinned during the period of this plan. As restocking continues other second rotation crops will inevitably be added to the programme resulting in a greater area of the plan area moving from clearfell to alternative less intensive management systems.

Carried out on a 7-10yr cycle in accordance with our local policy, crops will generally be thinned to realise improved timber quality, amenity, biodiversity and landscape benefits.

5.1.3 LISS, Long-term Retention and Natural Reserve

Currently there are no areas in the Brigton LMP area managed under Low Impact Silvicultural Systems (LISS). As LISS can contribute to the protection and improvement of soil quality, water quality and biodiversity through reducing soil erosion and the creation of suspended solids in water, second rotation thinned crops throughout the plan area will be targeted for LISS development.

Group Shelterwood systems will be the preferred system and should, through regular crown thinning and occasional small-scale clearfells of <2ha (perhaps centred on windthrow), provide areas for either natural regeneration or targeted restock of small seeded native tree and shrub species and contribute towards greater spatial diversity.

Group Shelterwood generally encompasses:

- progressive thinning
- clearance of windthrow patches
- small-scale felling patches of 0.5ha up to 2.0ha to stimulate restructuring and promote regeneration of target tree species

If there is a management requirement for any coupe greater than 2.0ha to be felled then that prescription will be initially agreed with the FCS as per the Tolerance Table in Appendix II.

With the move towards LISS management and increased thinning it is inevitable that additional road spurs and a permanent network of coupe access racks will be

required. These will be identified and recorded during future plan period operations.
Natural Reserves are predominantly wooded, permanently identified locations of high wildlife interest or potential that are solely managed for high conservation or biodiversity value.
Under Long-term Retention trees are retained for environmental benefit significantly beyond the age or size generally adopted.
Minimum intervention has management with no systematic felling or restocking although operations such as fencing, control of exotics and pests, safety work and trail maintenance are permitted.
Currently around 11% of the plan area is currently managed as either Natural Reserves (mainly the Native Woodland areas) or as Minimum Intervention (mainly the riparian and other broadleaf areas).

5.2 Future habitats and species

The accompanying Future Habitats and Species map provides detail of our proposed restock species and habitats for Brigton LMP.

5.2.1 Woodland fringe / open hilltop

A feature of the design plan is to create areas of woodland fringe, a transitional zone between the plantation and open hilltops. Native woodland fringe is preferred and 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 of woodland cover is unacceptably low then restocking would take place or if conifer regeneration is too dense then removed as resources allow. Woodland fringe has the potential to provide additional habitat for Black Grouse and to provide opportunities for additional planting of Common Juniper. Modification of the upper planting margins and highlighting crag areas through broadleaf planting and increased open space to better complement landform will take place.

Block	Objective	Benefits	Implementation

Brigton	Creation of woodland fringe transition zone	Enhance hill top habitat for various species (Black Grouse) Increase potential for heather moorland / open space Increase populations of local Common Juniper Increase potential for BL woodland Improve landscape value of block	Identify areas for open space / broadleaf woodland creation to link lower lying valley ground to higher elevation open ground and moorland sites

5.2.2 Riparian zones / aquatic zones (open space)

The open water area of Loch Middle is an important alternative habitat within the plan area for fish and some wild fowl species. Substantial open space buffer zones, to remove excessive shading by conifer crop, are already present but efforts will also be made to link the loch habitat to larger habitat networks both major riparian zones and other external and internal open space.

Other watercourses, >0.5m wide, dissecting the block will be subject to improved riparian buffer zones. Comprising native BL planting and open space to assist in improving water quality, protecting soils and benefitting species that use the habitat, riparian buffer zones within the plan area will be extended up to 20m.

At a more detailed level where we are looking to better promote other natural features such as rock crags and wet hollows areas, increased open space and species diversity will persist.

5.2.3 Wetlands zones (open space / woodland)

There are occasional wetland features associated with the Water of Minnoch / Water of Trool valley system. In many instances they are already identified as areas of permanent open space or low density broadleaf planting and will remain unstocked as far as possible as a benefit to invertebrates and bird life however some natural regeneration of native species will be accepted if water quality is not diminished.

5.2.4 Agricultural tenancy (open space)

A large area of open hill ground to the north east of the plan area accounts for approximately 80% of the Lamachan agricultural tenancy. Within the plan area around 90.0ha of additional open hill ground, centred on Craignaw, adjoins the tenancy area offering the potential for an increase in the area that could be managed under the agricultural tenancy

5.2.5 Quarries (open space)

Three modest sized quarries are identified on the features map and will remain as permanent open space; Brigton (NX373735), Borgan main drag (NX387761) and Borgan top quarry (NX399762). Inevitably future quarrying will be required

to provide source material for forest road construction and maintenance in the area although at present no significant quarry boundary expansion is planned. Any significant quarry development proposals outwith our agreed tolerances will be submitted to FCS for approval prior to any work taking place (see Tolerance table Appendix II).

5.2.6 Deadwood / veteran trees

Although there is generally little in the way of established deadwood throughout the block, there are mature broadleaf areas such as High and Low Camer Woods, Borgan Wood and Wood of Cree that do contain elements of standing and fallen native species deadwood. These areas and their associated woodland ground flora have been / will be retained at time of conifer clearfell and will provide focal points for future BL expansion (see local District BL policy document) and in time as the broadleaf component of the block increases should provide additional sources of deadwood.

Dedicated areas for deadwood creation also rely on identifying around 1% of the conifer plantation as Natural Reserve (from which no timber will be removed) as per our current District Deadwood Management policy. There are no such areas currently identified.

There are some Oak trees within the mature broadleaf areas that may potentially qualify as veteran trees.

5.2.7 Woodland

In the conifer dominant commercial areas Sitka Spruce the main timber species will generally be planted on the better sites. On poorer site types Sitka Spruce and Lodgepole Pine mixture (50%SS/50%LP) will be used to provide improved tree growth, given the reduced nutritional value of the site through peat depth, and to create additional species diversity whilst on some of the more mixed soil types Sitka Spruce and Larch mixtures (70%SS/ 30%JL) have previously been used. Where landscape considerations prevail or where site conditions are favourable native broadleaf will be preferred. Our current policy not to restock with Larch (driven by current and potential future P ramorum infections) will in the long-term result in a loss of Larch forest previously deemed beneficial for Black Grouse and Red Squirrel. This potential loss will hopefully be offset through this additional planned restocking of BL and other minor conifer such as Scots Pine and should the restocking embargos be lifted in the future, the reinstatement of some Larch crops.

The following table presents the details of our proposed species restock within the plantation area of the LMP:

Species	Area (ha) in 2027	Total Area %	Area (ha) in 2047	Total Area %
Sitka spruce	1425.0	56.1	1426.0	56.1
Norway spruce	19.5	0.8	18.6	0.7

Larch spp.	13.2	0.5	7.8	0.3
LP (other pine)	19.5	0.8	10.2	0.4
Scots Pine	51.2	2.0	64.9	2.6
Douglas Fir	1.6	0.1	1.6	0.1
Other Conifers	1.7	0.1	12.4	0.5
Broadleaf	155.5	6.9	232.5	9.2
Open Space	850.3	32.7	763.5	30.1
Total	**2537.5**	**100.0**	**2537.5**	**100.0**

The table reflects the proposed expansion of Scots Pine and broadleaf woodland for added species diversity. The increase of mainly native, small seeded broadleaf cover will both enhance the landscape and provide improved woodland habitat to protect soils and improve water quality.

Target stocking density for the non commercial broadleaf will be around 1600stems per hectare (2.5m spacing) with restocking taking place should the figure not be reached.

The area of open space fluctuates over time but remains focussed on existing open hilltop areas and internal riparian zones and their linkages out onto the adjacent designated hilltop areas.

Post clearfelling there will be no conifer restocking within at least 20m (and on occasion up to 50m) of main watercourses with the riparian zones also benefitting from small areas of additional broadleaf planting. Significant natural regeneration of conifers within these riparian zones will be managed as resources allow avoiding the loss of proposed buffer zone.

Where species selection differs markedly from the design plan proposals, detailed restock plans will be submitted to FCS for approval prior to work taking place (see Appendix II Tolerance table).

5.3 Restructuring

Block restructuring remains a significant objective with mature high forest occupying much of the plantation area. Where possible our proposed conversion of conifer to broadleaf in the valley bottoms to enhance the riparian habitat network, extended age class differences associated with our planned clearfell, the Long term retention of mature conifer and open space creation will continue to gradually change / improve the spatial appearance and structure of the block.

5.4 PAWS restoration

Current District policy is to restore PAWS sites of which there are several within the DP unit (see table below).

Site	Objective	Benefits	Implementation
Caldons (Jennys Burn)	▪ Site restoration	▪ Increase BL area within forest district ▪ Secure Ancient Woodland remnants ▪ Buffer existing designated ASNW ▪ Improve riparian zone habitats	▪ Clear conifer regeneration ▪ Identify areas for natural regeneration / broadleaf planting woodland creation to link ASNW fragments along Water of Trool onto R Cree valley
Ferrach Burn	▪ Site restoration	▪ Increase BL area within forest district ▪ Secure Ancient Woodland remnants ▪ Improve riparian zone habitats	▪ Clear conifer regeneration and remaining conifer crop ▪ Identify areas of native natural regeneration and those that require native BL planting to link existing mature semi natural broadleaf riparian woodland along the Ferrach Burn onto the R Cree
Ferrach Roundel	▪ Site restoration	▪ Increase BL area within forest district ▪ Secure Ancient Woodland remnants ▪ Secure remnant mature Oak	▪ Clear conifer regeneration ▪ Identify areas of native natural regeneration and those that require native BL planting to link site to Ferrach Burn PAWS
Cordorcan Burn	▪ Site restoration	▪ Increase BL area within forest district ▪ Secure Ancient Woodland remnants ▪ Improve riparian zone habitats above Wood of Cree SSSI	▪ Clear any conifer regeneration ▪ Monitor development and enrichment planting if required
Borgan Wood	▪ Site restoration	▪ Increase BL area	▪ Clear conifers and

		within forest district ▪ Secure Ancient Woodland remnants	conifer regeneration ▪ Identify areas for native natural regeneration and those that require native BL planting to link existing mature semi natural broadleaf riparian woodland along the Pulniskie Burn onto the R Cree
High Camer (CVCWT management agreement)	▪ Site restoration	▪ Retain mature BL area within forest district ▪ Maintain and enhance Ancient Woodland remnants	▪ Clear conifer regeneration
Low Camer (CVCWT management agreement)	▪ Site restoration	▪ Retain mature BL area within forest district ▪ Maintain and enhance Ancient Woodland remnants	▪ Clear conifer regeneration
Wood of Cree (CVCWT management agreement)	▪ Site restoration	▪ Retain mature BL area within forest district ▪ Maintain and enhance Ancient Woodland remnants	▪ Clear conifer regeneration

Significant opportunities exist to link these broadleaf woodland areas to the external blocks of adjacent Ancient Semi Natural woodland both internally up the Water of Minnoch and externally along the public road network and up and down the nearby R Cree valley for enhanced habitat network creation.
Native woodland expansion is managed both under agreement by Cree Valley Community Woodlands Trust or by the district referencing CVCWT objectives. Cree Valley Community Woodlands Trust aims to establish / restore a chain of continuous woodland cover from the Cree estuary to the head of Glen Trool by linking the remaining fragments of native woodland.

5.5 Deer management

Current deer management in the Brigton block is carried out by FES Wildlife Rangers with assistance from contract rangers as required.

Both Roe deer and significant numbers of Red deer inhabit the plan area and over the next 5yrs significant resources will be deployed in an effort to reduce the overall background population. This action will be vital to ensure that Forest Enterprise Scotland's National Deer Management Strategic objectives are met.

New ATV tracks will be implemented along restocked coupes adjacent to open hill areas or along the larger riparian zones. Careful consideration will be given to their absolute need and location. Though none are currently planned, where required, they will be constructed to one of two designated standards.

- Tracks along riparian zones will involve minimal ground disturbance work.
- Those not following riparian zones will involve removing topsoil and levelling the surface with a drain on the top side and will be a maximum of 2m wide.

No trees will be planted within 5m of the track centre.

Temporary quad bike tracks will also be formed with minimum ground disturbance. They will generally follow old unplanted rides, with levelling to negotiate side slopes and be spaced at approximately 400m intervals. There will be no unplanted margin around these temporary tracks and they will subsequently be subsumed into the plantation as tree canopy closes. Forests and Water guidelines (Fifth edition) will be adhered to during their construction and crossing points will be piped.

Deer glades, typically up to 1.0ha in size, are not shown on the suite of design plan maps. Precise locations will be identified and inserted at time of restocking when Ranger staff has had the opportunity to fully assess site conditions post clear fell.

5.6 Pathogens, Diseases and Invasive Non native species

Dothistroma Needle Blight (DNB) has been identified on Corsican and Scots Pine crops in the district, although at present is only causing mortality in CP. With Scots Pine an important element of planned restock the wider presence of DNB within the block cannot be ruled out resulting in more intensive survey work.

Hylobius, the Pine weevil, can cause extensive damage to young conifer crop and is found both in this plan area and throughout the district. As part of the districts chemical minimisation strategy the *Hylobius* Management Support System (HMSS), incorporating the use of billet traps, was previously used to measure *Hylobius* numbers on clearfell sites. Based on several years of monitoring data the district has moved to a standard 3year fallow period. This standard fallow period between felling and re-stocking conforms to our revised tolerance table (Appendix II Tolerance Table).

Phytopthora ramorum infection has been confirmed on Larch throughout the district with all infected groups initially felled to comply with the requirements of a Statutory Plant Health Notice (SPHN). The Brigton LMP area has been particularly affected with significant areas of mature and pole stage larch recently

removed. Where in previous versions of this plan Larch was a significant component in our planned restock, in this plan iteration it is likely that the species will become a far less prominent component of the local woodland with other minor conifer (not Sitka spruce) and broadleaf woodland contributing more towards the species diversity of the block.
Invasive non-native species (INNS) impact the geology of an area directly and are recognised as a significant risk to water environments. There are no records of Japanese Knotweed, Giant Hogweed or Himalayan Balsam in the block.
Rhododendron ponticum has been and will continue to be controlled in the block particularly within the Galloway Oakwoods SAC locus.
Monitoring is ongoing and identified species will continue to be treated as per the District's Invasive Species Policy until eradicated.

5.7 Waste on site (including felling waste)

Generally there are no plans to carry out chipping, mulching or spreading of forest waste over the plan area for ecological site improvement however some felling to waste may take place in response to potential infections of P ramorum of immature larch crops.
Detailed plans will be submitted to FCS for approval prior to any work taking place.

5.8 Sites requiring Appropriate Assessment

The following Special Area of Conservation (SAC) sites either border or cut through parts of the plan area:
Galloway Oakwoods
Merrick Kells
When a plan or project affects a Natura site the requirements of the conservation (Natural Habits etc) Regulations 1994 as amended (the "Habitats Regulations") apply and Habitats Regulations Appraisals (HRA) are required. Where necessary the appraisals include an appropriate assessment step, required when forestry operations are likely to have a significant effect on that site.
See appendix VII for Habitats Regulations Appraisals for both sites.

5.9 Tolerances

Tolerance thresholds for design plan amendments are as per our Tolerance Table (based on CSM6 Appendix 3 and subsequent to local agreement with FCS South Scotland staff) and the *P ramorum* working tolerance table for Larch found in Appendix II9

5.10 Critical Success Factors

- Development of the R Cree, Minnoch and Water of Trool riparian corridors
- Persistence and enhancement of PAWS and other ASNW features
- Construction of proposed new roads

5.11 Amendments

To be logged on amendment form

Appendix I: Forest Design Plan Consultation Record

Statutory Consultee	Date contacted	Date response received	Issue raised	Forest District Response
			•	•
Historic Scotland: John Malcolm	17 October 2014	12 November 2014	• No plans to designate additional assets • Exemplary recent FES management of two designated sites mentioned	• Noted in DP text (section3.5.3 and Appendix III)
RSPB Crossmichael: Julia Gallagher	17 October 2014	11 November 2014	• Supports increase in Native broadleaf woodland along riparian zones; restoration of PAWS and enhancement of ASNW areas • Welcomes opportunities for peatland restoration and maintenance of other open habitats in good ecological condition • Supports provision of small seeded native broadleaf restock to improve habitat for Black Grouse	• Noted in DP text
Cree Valley Community Woodlands Trust: Peter Robinson	17 October 2014	06 November 2014	• Highlighted collaborative project work potential for volunteers (Silver Rigg interpretation and access / broadleaf expansion)	• Noted in DP text

SEPA: John Gorman; Newton Stewart office	17 October 2014	03 November 2014	• Supports increase in BL restock and open space (habitat creation) particularly smaller tributaries • Note SEPA reference on Management of Forestry Waste • Treatment of non-compliant drains • Road construction and presence of heavy metals	• Noted in DP text (sections 3.3.1, 5.2.2 & 5.7) • Email reply on heavy metals and quarry use 6.11.14
SNH Newton Stewart office: Stuart Graham	17 October 2014	No comment received	•	•
FCS South Scotland Conservancy: Dumfries office	17 October 2014	No comment received	•	•
Cree Valley Community Council : Richard Kay	17 October 2014	No comment received	•	•
Galloway Fisheries Trust: Jamie Ribbens	17 October 2014	No comment received	•	•
Rosemary Green;IUCN Otter Specialist Group	17 October 2014	No comment received	•	•
Dumfries & Galloway Regional Council: Andrew Maxwell	17 October 2014	No comment received	•	•
Dumfries & Galloway Regional Council: Tom Whitty	17 October 2014	No comment received	•	•
Saving Scotland's Red Squirrels: Heinz Traut	17 October 2014	No comment received	•	•
Visit Scotland: Paula McDonald	17 October 2014	No comment received	•	•

Southern Uplands Partnership: Pip Tabor	17 October 2014	No comment received	•	•

Appendix II: Tolerance Tables

	Adjustment to felling period	Adjustment to felling coupe boundaries	Timing of restocking	Change to species	Change to roadlines	Designed open space
FC Approval not normally required	Fell date can be moved within 5yr period where separation or other constraints are met.	1.0ha or 10% of coupe area - whichever is less.	At year 3 after felling. Restocking within 2yrs +/- of year 3.	Change within species group e.g. evergreen conifers; broadleaf.		Location of temporary open space e.g. Deer glades if still within overall Open space design. Increase by 0.5ha or 5% of area - whichever is less
Approval by exchange of letters and map		1.0ha to 5ha or 10% of coupe area - whichever is less			Additional felling of trees not agreed in plan. Departures of >60m in either direction from centre line of road.	Increase of 0.5 to 2ha or 10% - whichever is less. Any reduction in open space.
Approval by formal plan amendment may be required	Felling delayed into second or later 5yr period. Advance felling into current or 2nd 5yr period.	>5ha or 10% of coupe area	If timing of restocking is outwith the period above.	Change from specified native species. Change between species groups.	As above depending on sensitivity.	More than 2ha or 10%. Any reduction in open space in sensitive areas. Colonisation of open

						space agreed as critical.

Notes

- Felling sequence must not compromise UKFS e.g. Adjacency. At mid term review detail of felling progress and impact will be reviewed against UKFS.
- Where windblow occurs, FCS should be informed of extent prior to clearance and consulted on clearance of standing trees.
- Tolerances subject to an overriding maximum of 20% open ground.
- Within the text of the Forest Design Plan it must clearly state how the plan will address the issue of adjacency with a statement to the effect that:
- **EITHER Any adjacency issues will be dealt with through delay restocking, ie a coupe will not be restocked until all surrounding crops are at least 2m tall**
- **OR Any adjacency issues will be dealt with through delay felling, ie a coupe will not be felled until all surrounding crops are at least 2m tall.**

TABLE OF WORKING TOLERANCES SPECIFIC TO LARCH WITH THE INFECTED ZONE

	Adjustment to felling period *	**Adjustment to felling coupe boundaries**	**Timing of restocking**	**Changes to Species**	**Changes to road lines**
FC Approval normally not 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 roadlines or tracks directly necessary to allow the extraction of Larch material

Appendix III: Ground Truthed Heritage sites

SITE	GRID	COMMENT
Old Bridge of Minnoch SAM	NX373759	Old 17th / 18th century pack horse bridge that crosses the Water of Minnoch. Easily accessed from nearby forest road and in good, well maintained condition. **Maintain within open space / broadleaf woodland and manage as per SAM management plan.**
Cordorcan Cairn SAM	NX396724	Partially grass covered prehistoric burial cairn around 25m in diameter an 2.5m high. **Maintain within open space / broadleaf woodland and manage as per SAM management plan.**
Silver Rig Lead Mine	NX378729	Identified on OS maps as Silver Mine, this is an area of building remains, spoil heaps and pit shafts associated with an abandoned lead mine within a fairly open area of forest. **Maintain in area of open space.**
Dam & lade (associated with Silver Rig mine)	NX380730	Dam in fair condition, lade route difficult to follow. **Maintain in area of open space.**
Borgan Ferrach		Various remains within area of open space and scattered BL. **Maintain in area of open space.**
Holm Ferrach	NX391766	Building and enclosure remains (possible small township) recently cleared of trees. Condition variable. **Maintain in increased area of open space.**
Dalane Cottage	NX376775	**Maintain in increased area of open space.**
Cairn & Trig point on Craigmurchie Hill	NX392735	Trig. point and cairn in fair condition on hill top. **Maintain in area of open space.**
Sheep pen	NX383767	Extensive sheep pens. **Maintain in area of open space.**

Sheep pen	NX372753	Extensive sheep pens. **Maintain in area of open space.**
Sheep pen	NX380749	Sheep pens. **Maintain in area of open space.**
Sheep pen	NX395731	Sheep pens. **Maintain in area of open space.**
Sheep pen	NX406730	Sheep pens. **Maintain in area of open space.**

Appendix IV: Coupe details for clearfell and establishment

Clearfell

Coupe	SS	NS	Larch	SP	LP	Other con.	BL	Open space	Total
12002	12.7	-	-	1.7	2.3	-	-	2.4	19.1
12013	56.6	-	-	-	-	-	-	2.5	59.1
12026	28.7	-	-	-	6.5	-	-	1.9	37.1
12031	25.5	-	-	-	2.5	-	-	0.6	28.6
12043	32.0	-	2.8	-	-	-	-	3.8	38.6
12047	23.6	-	5.0	0.5	-	-	-	6.0	35.1
12050	26.0	-	-	-	-	-	-	10.3	36.3
12053	7.5	-	-	-	-	-	-	0.8	8.3
12056	28.0	-	5.0	-	-	-	-	1.1	34.1
12058	8.0	-	-	-	-	-	-	7.6	15.6
12072	4.8	-	-	2.0	-	0.5	-	0.5	7.8
12077	58.0	-	-	-	2.5	-	-	0.5	61.0
12078	46.0	-	-	-	-	-	-	4.8	50.8
12522	15.5	-	2.0	0.5	-	-	-	5.5	23.5
total	**372.9**	**0.0**	**14.8**	**4.7**	**13.8**	**0.5**	**0.0**	**48.3**	**455.0**

Brigton Land Management Plan 2017-27

Restock

Coupe	SS	NS	Larch	SP	LP	Other con.	BL	Open space	Total
12002	13.8	-	-	-	-	-	4.0	1.3	19.1
12013	38.0	-	-	-	-	-	9.0	12.1	59.1
12026	25.1	-	-	-	-	-	7.5	4.5	37.1
12031	12.0	-	-	8.6	-	-	3.0	5.0	28.6
12043	30.8	-	-	-	-	-	2.0	5.8	38.6
12047	29.2	-	-	0.7	-	-	1.0	4.2	35.1
12050	24.2	-	-	-	-	-	9.1	3.0	36.3
12053	5.1	-	-	-	-	-	1.7	1.5	8.3
12056	22.4	-	-	2.5	-	-	2.0	7.2	34.1
12058	13.1	-	-	-	-	-	-	2.5	15.6
12072	-	-	-	1.2	-	-	6.6	-	7.8
12077	54.0	-	-	-	-	-	0.8	6.2	61.0
12078	27.3	-	-	13.7	-	-	1.9	7.9	50.8
12522	12.3	-	-	9.2	-	-	-	2.0	23.5
total	**307.3**	**0.0**	**0.0**	**35.9**	**0.0**	**0.0**	**48.6**	**63.2**	**455.0**

Notes on coupe work schedule

12002	**SS matrix with open space and BL restock for visual and species diversity along riparian zone**
12013	**Coupe at elevation under Craignaw; SS matrix with open space and BL restock targeted to riparian zone and plantation / open hill ground upper margins**

12026	**SS matrix with open space and BL restock for species diversity / habitat creation along riparian zone**
12031	**Coupe at elevation under Borgan Hill / Corby Craig; mainly SS with SP and BL restock targeted to rocky ground ridge and riparian zone**
12043	**SS matrix with open space and BL restock for species diversity / habitat creation along Cordorcan & Pulgowan Burn riparian zones**
12047	**SS matrix with SP, open space and BL restock for species diversity / habitat creation along Ballocharush Burn riparian zone**
12050	**SS matrix with open space and BL restock for species diversity / habitat creation targeted to Ballocharush Burn riparian zone and Craiggarnel outcrop**
12053	**Small coupe close to High Camer ASNW; mainly SS with BL for landscape, species diversity and BL expansion**
12056	**Coupe below Craigmurchie; mainly SS with SP targeted to rocky ground at open ground interface and BL open space along Pulhowan Burn riparian zone**
12058	**SS matrix with open space targeted along Cordorcan Burn riparian zone**
12072	**Small coupe adjacent to area of ASNW; restock with BL and retain mature SP for landscape, potential deadwood and species diversity**
12077	**SS matrix with open space and BL targeted to Pulniskie Burn & Bonny Burn riparian zones**
12078	**Borgan Hill coupe at elevation; mainly SS with SP and BL restock targeted to rocky ground ridge, riparian zone and coupe boundaries**
12522	**SS matrix with open space and SP targeted to thinner, stonier sites**

Appendix V. Brigton Design Plan Brief

The main management objectives focus on Timber production, Native Broadleaf woodland expansion, Water Quality and large scale Landscape views (open space, water and species diversity) in this large scale DP unit. The block lies around 9.0km north of Newton Stewart, Dumfries and Galloway.

Key Strategic Directions from Role of Scotland's National Estate	**Local District Strategic Plan Priorities**	**Actions / Prescriptions**
Healthy: good environmental and silvicultural condition in a changing climate	• High quality silviculture • Stewardship of carbon resources in estate's trees and soils • Adapt to climate change and make woodlands more resilient to pressure • Deal with invasive species that threaten habitats and biodiversity	• *Manage* watercourses within DP unit in keeping with UKWAS standards and Forest and Water guidelines to maintain and improve water quality within R Cree catchment (Water Of Minnoch & R Cree) • *Increase* area of woodland managed under LISS particularly lower valley coupes and highly visible areas • *Increase* both species diversity and use of natural regeneration in our restocking particularly in response to the major impact on the block by *P ramorum* disease • Much of the site is peaty gley and peat bog providing potential candidates for the implementation of the National deep peat restocking / restoration policy • *Control* invasive species as per FES guidelines (specifically R. ponticum)
Productive: provide sustainable economic benefits from the land	• Contribute to local economy • Expand area of productive broadleaf • Diversify timber markets and develop forestry and land management sectors • Provide work in rural areas and increase agricultural use of estate	• *Meet* production forecast commitment through revised felling /thinning plan (modified to accommodate extent of P ramorum infestation) • *Implement* road maintenance programme required to service harvesting operations • *Increase* area of productive broadleaf in lower valley areas • *Assess / develop* the part of the Lamachan grazing tenancy within DP area

Treasured: a multi-purpose resource that sustains livelihoods, improves quality of life and offers involvement and enjoyment	• Involve and engage with local people / encourage partnership working • Place for volunteering and gaining employment • Creation of unique special places • Place for research and development	• *Improve and enhance* key visitor zone surrounds to Glentrool VC and its associated viewcone through increased species diversity and open space, enhanced use of LISS and integrated management of open space within woodland • *Improve* access and views to rivers, ensuring they remain "must see" aspect of visitor destination • *Continue* to work with Cree Valley Community Woodland Trust to provide volunteering opportunities on the estate • Manage Galloway Oakwoods SAC and Glentrool Oakwoods SSSI along the Caldons Burn within the DP unit according to their designated site plans agreed with SNH to maintain / achieve favourable status
Accessible: woodlands that welcome and are open for all	• Improve access and enhance existing or invest in new facilities • Use for health benefits and outdoor learning	• Woodland lies adjacent to core Visitor Centre recreation facility at Stroan Bridge; *retain* and *enhance* existing walking and cycle trail networks (both FES and National Sustrans) and *provide* a varied and enjoyable woodland experience for visitors and local communities (specifically assess need for all abilities trail linked to Visitor Centre)
Cared for: working with landscape and the natural and cultural heritage	• Improve / restore status and condition of Ancient Woodland sites • Expand / enhance area of Native woodland • Increase area of broadleaf cover • Landscape • Maintain open habitats in good ecological condition • Priority species conservation • Safeguard heritage features	• *Maintain* tree condition and *enhance* ASNW woodland sites at Holm Wood, Bog Wood, Borgan Wood, Borgan and gorge woodland along Caldons Burn • *Maintain* tree condition and *restore* PAWS sites at Low and High Camer Wood, Holm, Brigton Wood of Cree, Ferrach Burn and Roundel, Cardorcan Burn and the part of Caldons PAWS within the DP unit • *Increase* area of native BL throughout design plan area for added biodiversity benefits targeting restocking along riparian zones of the Water of Trool, Water of Minnoch and R Cree creating habitat networks connecting the ASNW and PAWS remnants • Block is visually prominent from the minor county road to Straiton and the A714 Girvan to Newton Stewart road; *maintain and enhance* large scale landscape through enhanced use of LISS, additional species diversity, open

		space integrated management and revised coupe shapes to better suit landform • *Increase* open space through withdrawing conifer tree line and using district woodland fringe policy to *protect* open areas from conifer regeneration • *Maintain and enhance* area for Red Squirrel (a priority species although not in a core area) and Black Grouse (small population of priority species uses area around Craigmurchie) • *Manage* Old Bridge of Minnoch and Cordorcan Cairn SAMs and other minor heritage features such as Silver Rig as per FES guidelines
Good value	• Seek diverse range of income streams • Reduce carbon emissions from business activities	• *Manage* a sustainable deer population compatible with silvicultural objectives for the area

ACHIEVED BY PLAN

HEALTHY

Y Committed to high quality silviculture and increasingly using alternatives to clearfell (LISS): significant area of LISS in place with potential for further expansion(western low lying areas of block)

Y Committed to dealing with invasive plants that threaten habitats and biodiversity: active *R.ponticum* control ongoing within block

Y / N Help the estate to adapt to climate change and become more resilient to pressure: ongoing proactive control of *P ramorum* and an operational Deer management plan for block in place

PRODUCTIVE

Y Supply three million cubic metre of sustainable softwood: over LMP period the design plan will contribute significantly to the overall programme for the district

Y Manage at least one quarter of our expanding broadleaf woodlands to produce quality hardwood and fuelwood: plan has potential to contribute towards this figure with increased BL restocking in the western sections of the plan area that could be of a productive nature

Y / N Work with partners to find new ways to harness our natural and cultural heritage and develop the estate's potential for tourism: partnership work with CVCWT has previously developed access at the Camer Woods

Y / N Support Scottish Governments woodland expansion programme: block presents limited opportunities for woodland expansion

Y / N Plan to increase the agricultural use of the estate where this is consistent with environmental objectives: block presents limited opportunities for expansion of the agricultural land use

TREASURED

Y Recognise the value of the Estate as a place for research and development of best practice: block has potential for further LISS development

Y / N Committed to more unique special places across the estate and delivering benefits to a more diverse range of Scotland's people: ASNW restoration will deliver additional habitat diversity

Y / N Continue to use the Estate as a place for volunteering and gaining employment skills: block has previously been used by volunteers (CVCWT)

ACCESSIBLE

Y / N Invest available resources into high quality facilities that encourage and help visitors experience and enjoy the outdoor experience: block presents limited opportunities for development of fishing, walking trail etc

Y Use estate for health benefits and outdoor learning: block is frequently used by local people for exercise including dog walking and horse riding

CARED FOR

Y Restore 85%of areas on ASNW to native species: ongoing thinning and LISS areas will contribute towards district restoration targets

Y Increase BL tree cover from 8% woodland cover to 20%: block will significantly contribute towards district's BL tree cover expansion targets through additional restock / natural regeneration

Y Identify particularly vulnerable species for which the NFE is important and take specific conservation action (Black Grouse / Red Squirrel): not a priority area for either of these species however forest operations within plan area should potentially benefit priority species

Y Safeguard archaeological sites through planning and management and recognise special places and features with local cultural meaning: SAM sites within the block and local heritage features will be managed accordingly

Y / N Committed to maintaining best open habitats in good ecological condition: block presents limited opportunities for open habitat management

GOOD VALUE

Y / N Seek a range of income sources to underpin the cost of managing the Estate and look for ways to achieve best value in delivery of public benefits: block presents limited opportunities for income from sources other than timber

Appendix VI: Community Consultation notes

Brigton / Minniwick Drop-in meeting
Old Primary School, Glentrool, 29.10.14
Present L Renwick & S Stables

- 16 members of public attended (9 M & 6W - all adults mostly 40 and over)
- assortment of Glentrool village residents, Brigton block neighbours and a local councillor (Graham Nicol who also had a surgery in the hall that evening) who were generally supportive?? of district proposals for the DP area

Specific issues raised

- **Biodiversity**: request to increase broadleaf component along Black Burn and along track to Stroan Bridge VC; *noted for inclusion in plan Habitats and Species map*
- **Biodiversity**: request for Red Squirrel friendly restock specifically around access to Holm farm but also throughout plan area; *noted for inclusion in plan text & Habitats and Species map although not Priority area*
- **Biodiversity**: request to maintain / enhance the Pulniskie Burn (gorge) riparian zone which is already locally attractive; *noted for inclusion in plan Habitats and Species map*
- **Biodiversity**: concerns raised over loss of Larch as future growing stock component, use of alternative species from agreed FCS list discussed ; *noted for inclusion in plan Habitats and Species map*
- **Heritage**: poor condition of road access to Old Bridge over Minnoch (from south) discussed; *noted / **Roads to consider business need***
- **Water quality**: concerns raised over flooding and river bank erosion along sections of Water of Minnoch (Poachers Pool ?); *noted for inclusion in plan text, GFS and SEPA notified*
- **Landscape**: recent clearfell operations have exposed land form and alternative views within block, there is a need to sympathetically deal with future restock; *noted for inclusion in plan text, Management and Habitats and Species map*
- **Recreation**: horse access and the general condition of forest roads was an issue / request for provision of medium / long range horse routes by joining dead end forest roads to create connective loops; *noted / **Recreation to consider options***
- **Access**: the poor condition of and the forestry operations / timber traffic use of Clachaneasy road was discussed (and use of bridge), the road is an alternative visitor route to the Stroan Bridge VC; *noted / **Operations to consider future contract control / STTF funds for road repairs ?***

S Stables
31.10.14

Appendix VII: Appropriate Assessments for Merrick Kells SAC and Galloway Oakwoods SAC

Name of Natura site; Merrick Kells SAC. Designated; 17th March 2005. Area = 8698.31 ha

Qualifying Interests	
Common Name	**Scientific Name**
Blanket Bogs	Blanket Bog
Depressions on peat substrates of the Rhynchosporion.	Depressions on Peat Substrates.
European Dry Heaths.	Dry Heaths.
Lutra lutra.	Otter.
Natural dysotrophic lakes and ponds.	Acid peat- stained lakes and ponds.
Northern Atlantic wet heaths with Erica tetralix.	Wet heathland with Cross Leaved Heath.
Oligotrophic to mesotrophic standing waters with vegetation of the Littorelletea uniflorae and/or of the Isoëto-Nanojuncetea.	Clear-water lakes or lochs with aquatic vegetation and poor to moderate nutrient levels.
Siliceous alpine and boreal grasslands	Montane Acid Grasslands.
Siliceous rocky slopes with chasmophytic vegetation.	Plants in crevices on acid rocks.
Siliceous scree of the montane to snow levels (Androsacetalia alpinae and Galeopsietalia ladani.)	Acidic Scree

The **conservation objectives for the Merrick Kells SAC** are to avoid deterioration of the qualifying habitats and species listed above and ensure that the integrity of the site is maintained and the site makes an appropriate contribution to achieving favourable conservation status for each of the qualifying features and to ensure the following are maintained in the long term;

- Extent of the habitat on site.
- Distribution of the habitat within the site.
- Structure and function of the habitat.
- Processes supporting the habitat.
- Distribution of typical species of the habitat.
- Viability of typical species as components of the habitat.
- No significant disturbance of typical species of the habitat.

The **potential impacts** and **controls of impacts** of operations associated with Brigton land management plan on the Merrick Kells Natura site are as follows;

Potential Impact.	Control of Impact
Forest operations. On going forest operations will include felling and extraction of timber, timber haulage, restocking, fencing, culling of deer and goats.	• There will be no forest operations or traffic within the SAC area other than current levels of access by Rangers on quad bikes for the purposes of deer control and monitoring. • All trees will be felled away from the SAC area and brash concentrated in trackways off the SAC site. • Close adherence to Forest & Water Guidelines will ensure care in respect of Otters whose habitat straddles the boundaries of the SAC. (The presumption in Galloway is that Otter are highly likely to occupy or use any watercourse.) The pre-felling workplan process checks for this species and recommends appropriate safeguards.
Regeneration of trees. Regeneration of conifer and broadleaved trees onto the SAC site.	• Any areas of regeneration will be monitored and mapped and removed from the SAC site. • Regeneration within areas directly adjacent to the SAC site will be monitored and mapped and where resources permit removed.
Grazing. There is no grazing of Cattle or Sheep within or adjacent to the Brigton area.	• Wild grazing by deer and goats occurs within the wider area and deer cross from the forest and onto the open ground. Their numbers are assessed on a regular basis and controlled by annual culls.
Public Access. The public is encouraged to access the area for the purposes of quiet recreation which might potentially lead to problems with trampling, erosion, over-fishing and disturbance to wildlife.	• Members of the public are expected to following the Scottish Outdoor Access Code and act responsibly. • The impacts of visitors are routinely monitored to identify areas of erosion or trampling. There is no current evidence of significant damage to the Natura site or increased likelihood of this occurring given the likely scale of visitor increase. • Larger events are controlled via the Forest District permission

	system. • Other than official access on quad bikes, all other forms of motor vehicle access are forbidden. Gates have been installed to help reduce illegal motorised access. • Mountain Biking is channelled onto forest roads outwith the SAC area.

Conclusions.
The proposed Forest Operations contained in the Brigton land management plan will not adversely affect the integrity of the Natura Site.
The land management plan text and supporting documents set out a range of work that should enhance the wider biodiversity of the SAC site and wider area.

Name of Natura site; Galloway Oakwoods SAC. Designated; 17th March 2005. Area = 355.1ha

Qualifying Interests	
Common Name	**Scientific Name**
Western acidic oak woodland	Old sessile oak woods with *Ilex* and *Blechnum* in the British Isles

The **conservation objectives for the Galloway Oakwoods SAC** are to avoid deterioration of the qualifying habitats (listed below) thus ensuring that the integrity of the site is maintained and the site makes an appropriate contribution to achieving favourable conservation status for each of the qualifying features and to ensure that the following are maintained in the long term;

- Extent of the habitat on site.
- Distribution of the habitat within the site.
- Structure and function of the habitat.
- Processes supporting the habitat.
- Distribution of typical species of the habitat.
- Viability of typical species as components of the habitat.
- No significant disturbance of typical species of the habitat.

The **potential impacts** and **controls of impacts** of operations associated with Brigton land management plan on the Galloway Oakwoods Natura site are as follows;

Potential Impact.	**Control of Impact**
Forest operations. Forest operations adjacent to but not within the SAC area during the plan period will include felling and extraction of timber, timber haulage, restocking, fencing, culling of	• Other than current levels of access by Rangers on quad bikes for deer control / monitoring, there will be no forest operations / traffic within the SAC area • Adjacent plantation trees will be

deer and goats.	felled away from the SAC area and brash concentrated in trackways away from the SAC site. • Close adherence to Forest & Water Guidelines within the Caldons Burn riparian zone.
Regeneration of trees. Regeneration of conifer and broadleaved trees onto the SAC site.	• Any areas of regeneration will be monitored and mapped and removed from the SAC site. • Regeneration within areas directly adjacent to the SAC site will be monitored and mapped and where resources permit removed.
Grazing. There is no grazing of Cattle or Sheep within or adjacent to the Brigton area.	• Wild grazing by deer (possibly even goats and sheep) occurs within the wider plan area. Their numbers are assessed on a regular basis and controlled by annual culls.
Public Access. The public is encouraged to access the area for the purposes of quiet recreation	• Members of the public are expected to following the Scottish Outdoor Access Code and act responsibly. • There is no current evidence of significant damage to the Natura site or increased likelihood of this occurring given the scale of visitor usage. • Larger events are controlled via the Forest District permission system. • Other than official access on quad bikes, all other forms of motor vehicle access are forbidden. Gates have been installed to help reduce illegal motorised access. • Mountain Biking is channelled onto forest roads outwith the SAC area.

Conclusions.

The proposed Forest Operations contained in the Brigton land management plan will not adversely affect the integrity of the Natura Site.

The land management plan text and supporting documents set out a range of work that should enhance the wider biodiversity of the SAC site and wider area.

Appendix VIII: Assessment of felling and restock proposals within catchments at risk or failing

The Brigton LMP is impacted on by only a single catchments at risk / failing to the northern end of the block; R Cree 33 (see detail below). Areas of closed canopy forest are also not projected to be less than 30% of the catchments in 15yrs time.

R Cree 33 catchment at risk / failing catchment

The total area of this water catchment centred on Loch Trool is 4720.7ha however only 895.5* is directly occupied by the Brigton LMP.
See below for base catchment area detail as at 05 July 2017.

Open ground area (FES land)	463.3ha
Plantation area (FES land)	432.3ha
Total catchment area (FES land)	895.5ha*
20% of catchment (FES land)	179.1ha
30% of catchment (FES land)	268.7ha

The felled area within the catchment in any 3 year period needs to be less than 20% of the catchment. The table below based on the planned coupe felling programme over the period of the plan confirms that this is the case.

5yr Fell period	Currently proposed felled areas (ha)	Proposed fell area as % of catchment area
2017-19	**49.2**	5.5%
2018-20	**49.2**	5.5%
2019-21	**49.2**	5.5%
2020-22	**32.2**	3.6%
2021-23	**32.2**	3.6%

2022-24	**32.2**	3.6%
2023-25	**0.0**	0.0%
2024-26	**0.0**	0.0%
2025-27	**67.2**	7.5%
2026-28	**67.2**	7.5%

The area of closed canopy conifer forest (age > 15years) needs to be less than 30% of catchment in 15 years' time i.e. 268.7ha. The table below confirms that this is the case.
In the table the proposed fell area for the next 15yrs within the catchment is subtracted from the current plantation area in the catchment to give a notional area of 271.5ha of plantation within the catchment over 15yrs age (assumes that felled areas will be restocked within 2-3yrs of felling subject to planned restock and Hylobius Management Support System).

Current plantation area within catchment	432.3ha
Proposed felled area between 2017 -2031 (15yrs)	190.5ha
Notional plantation area in 15yrs time > 15yrs age	**241.8ha**

Appendix IX: The UK Forestry Standard, Forestry Commission Guidelines and the UK Woodland Assurance Scheme (UKWAS)

All of the operations in Brigton plantation will be carried out in accordance with the UK Forestry Standard and its supporting publications. In particular the following documents are relevant:

- Forests and Water Guidelines (5th edition pending)
- Forest and Nature Conservation Guidelines
- Forest and Archaeology Guidelines
- Forest and Soil Guidelines
- Forest Practice Guide - Forest Design Planning
- Galloway FD Deadwood Management Policy
- Galloway FD Deer Management Strategy Plan

In line with Forest Enterprise policy, Galloway FD has undergone a management audit that is part of the process leading to certification under UKWAS. Membership of the scheme indicates that the District's forests and management practices have been found to be sustainable both in terms of silviculture and environmental impact. Membership of the scheme is conditional on periodic audit and consistent attainment of audit standards.

Brigton Land Management Plan will be included in this audit process.