Forestry and Land Scotland
Coilltearachd agus Fearann Alba

Central Region

Glenbuck

Land Management Plan

Approval date: 07 February 2023

Plan Reference No: 032/23/03

Plan Approval Date: 07/02/2023

Plan Expiry Date: 06/02/2033

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Forestry and Land Scotland
Coilltearachd agus Fearann Alba

Land Management Plan Details

LMP Name:	Glenbuck		
Grid Reference:	NS 74530 29862	Nearest town or locality:	Muirkirk
Local Authority:		East Ayrshire	
Land Management Plan area (hectares):		686.6	

Owner's Details

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Approval - to be completed by Scottish Forestry staff:

LMP Reference Number:	032/23/203		
Plan Period: (ten years) (day/month/year)	From: 07 February 2023	To: 06 February 2033	
Operations Manager Signature:		Approval Date: (dd/mm/yyyy)	07/02/2023

Contents

1 Summary of Proposals

This Land Management Plan (LMP) sets out proposals to create a new productive and resilient mixed woodland on a former opencast coal mine site. The new woodland will be multipurpose, simultaneously providing an enhanced setting for recreational use, diversifying habitat provision for wildlife, improving the local landscape, whilst also contributing a long-term sustainable supply of timber.

Glenbuck is within the Central Scotland Green Network (CSGN) project area. Regeneration of former industrial land including opencast mines, to provide a high quality environment for the benefit of people and wildlife is a key theme of the projects. Proposals in this LMP will deliver such transformation. The plan will also contribute towards Scottish Government woodland expansion targets.

This LMP covers woodland creation and forestry operations to be undertaken by Forestry and Land Scotland (FLS). Land forming operations have already been delivered by the Scottish Mines Restoration Trust, and were thus covered by a separate planning process.

The plan also includes the fulfilment of a 77.2 ha restock obligation, designed with sensitivities associated with the adjacent designated habitats accounted and mitigated for.

The Current Land Use map illustrates the starting condition at which FLS acquired the site and the inception of this plan. The Concept and Future Habitat and Species maps illustrate the long-term vision for the site's transformation.

Table 1: Woodland changes.

Species Breakdown	2022	2032	2042
Primary species: Sitka spruce	6.8 ha	217.4 ha	217.4 ha
Secondary species: other conifers	0 ha	73.9 ha	73.9 ha
Broadleaves	0 ha	194.8 ha	194.8 ha
Open space, Geology, Felled, Water, Other	679.8 ha	200.5 ha	200.5 ha
Total Plan Area	686.6 ha	686.6 ha	686.6 ha

LMP Objectives

- Establish a new productive, diverse and resilient woodland, which contributes to the long-term recovery of former mining ground for the sustainable supply of timber.
- Maintain productivity of existing woodland area with a timely restock of site suitable species.
- Increase biodiversity provision through well-connected habitat networks, and improved structural and species diversity.
- Provide an interesting and diverse setting for recreational use and community benefits associated with Glenbuck Heritage Village and geological features on site.

2 SF Regulatory Requirements

2.1 Summary of planned operations

Table 2: Summary of planned operations.

Planned Operations	2022 - 2032
Felling	0 ha
Thinning	0 ha
Restock	77.2 ha
Woodland Creation (afforestation)	406 ha
Habitat Restoration (deforestation)	0 ha
Road Construction	0 ha
Quarry expansion	0 ha

2.2 Proposed felling in years 2022 - 2032

There are no felling works proposed within the 10 year period of this plan.

2.3 Proposed restocking in years 2022 - 2032

There is 77.2 ha restocking proposed within the 10 year period of this plan, associated with felling carried out by the former land owner. This felling was carried out under Felling Licence No. FLA02371 however amendments have been made to the restocking plan as shown in the Planting map.

2.4 Woodland creation 2022 - 2032

406 ha of woodland creation is proposed in this plan. This is predominantly on recently remediated former mining ground. Species prescriptions are described in section 7.1 and the spatial layout is illustrated in the Planting map.

Table 3: Area and percentage breakdown by tree type.

Stand type	Area (ha)	Area (%)
Broadleaf	156	38
Conifer	250	62
Total	**406**	**100**

2.5 Access and roading 2022 - 2032

There are no road works proposed within the 10 year period of this plan.

2.6 Departure from UKFS Guidelines

The UKFS standards will be met throughout the delivery of this plan.

2.7 Standards and guidance on which this LMP is based

This LMP has been produced in accordance with a range of government and industry standards and guidance as well as recent research outputs. A full list of these standards and guidance can be found here: https://forestryandland.gov.scot/what-we-do/planning/links

2.8 Tolerance table

Table 4: Scottish Forestry tolerance table.

	Map Required (Y/N)	Adjustment to felling period	Adjustment to felling coupe boundaries	Timing of restocking	Change to species	Wind throw response	Adjustment to road lines	Designed open ground
SF Approval not normally required (record and notify SF)	N	Fell date can be moved within 5 year period where separation or other constraints are met	<10% of coupe size.	Up to 5 planting seasons after felling (allowing fallow periods for hylobius).	Change within species group E.g. Scots pine to birch, Non-native conifers e.g. Sitka spruce to Douglas fir, Non-native to native species (allowing for changes to facilitate Ancient Woodland policy).	N/A	N/A	Location of temporary open ground e.g. deer glades if still within overall open ground design Increase by 0.5 ha or 5% of area - whichever is less
	Y	N/A	10-15% of coupe size.	5 years +	Change of coupe objective that is likely to be consistent with current policy (e.g. from productive to open, open to native species).	Up to 5 ha	Departures of greater than 60 m from the centre of the road line	Increase of 0.5 ha to 2 ha or 10% - whichever is less Any reduction in open ground
Approval by formal plan amendment	Y	Felling delayed into second or later 5 year period Advance felling into current or 2nd 5 year period	>15% of coupe size.	N/A	Major change of objective likely to be contrary to policy, E.g. native to non-native species, open to non-native.	More than 5 ha	As above, depending on sensitivity	More than 2 ha or 10% Any reduction in open ground in sensitive areas Colonisation of open areas agreed as critical

3 EIA Screening Determination for Forestry Projects

Any operations requiring an EIA determination are shown in Table 4. If required, the screening opinion request form is located in Appendix IV.

Table 5: EIA projects within the plan area.

Type of project	Yes/No	Notes
Afforestation	Yes	406 ha of woodland creation is proposed in this plan, as detailed in section 7.2.1.
Deforestation	No	
Forest road construction	No	
Forest quarry development	No	

4 Introduction

Glenbuck is a 686.6 ha former opencast coal mining site situated off the A70 near Muirkirk, East Ayrshire. There is a long history of mineral extraction on site, with evidence of works dating back to 1795. The most recent phase of mining operations was undertaken by Scottish Coal, and ceased in 2013. Since then, Scottish Mines Restoration Trust have returned the ground to a more naturalistic form, completing this first phase of restoration in 2018. FLS acquired the site in 2019 and are working with a third party, under a licence agreement, to mechanically remediate the former mining ground to create soils fit for establishment and long-term growth of a new woodland. Soil remediation operations are licenced and regulated by SEPA.

4.1 The existing land holding

As illustrated in the chart below, the current land at Glenbuck is largely open (84%), with some existing woodland (12%) and open water (4%). Finer detail and breakdown of the current land use composition is detailed in Figure 1 and Table 6. The spatial distribution of each is illustrated in the Current Land Use map.

77.2 ha of the 84.0 ha of existing woodland on site is felled, awaiting restock. This restock area is on natural ground, unaffected by the mining activity. Other areas of natural ground include circa 64 ha of blanket bog and 40 ha of rough grazing slopes.

Topography at Glenbuck is generally rolling shoulder slopes between higher moorland to the north and lower open Ayr River valley to the south. The site is trisected by Ponesk Burn and Stottencleugh Burn, which both flow from north to south across the site in narrow glens. There are several features including voids, rock faces and water bodies on site associated with its former opencast mining activity. The most significant of which is Spireslack void, which runs for 1.2 km along a stretch of the site's northern boundary.

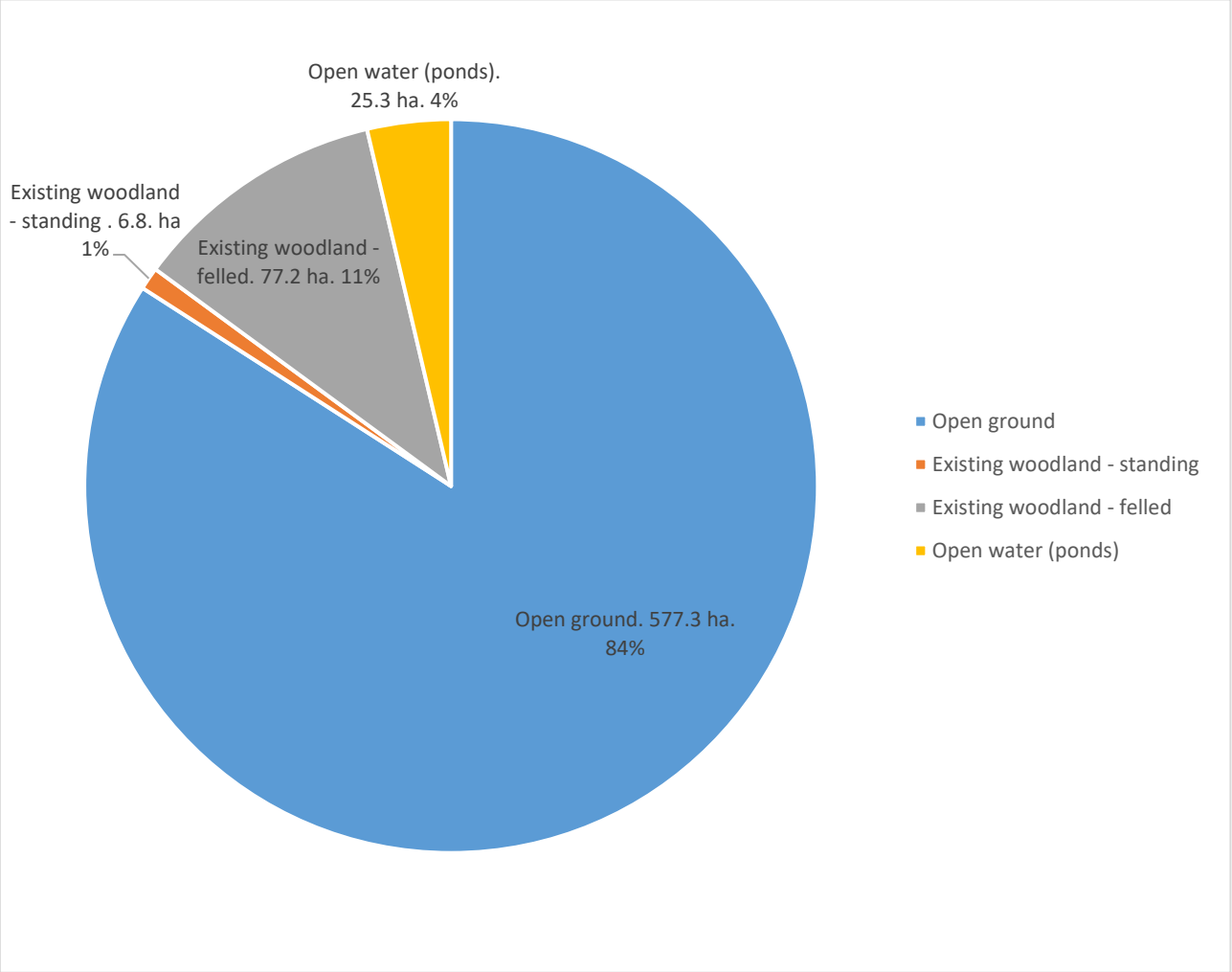


Figure 1: Land use breakdown by area (hectare) and percentage cover at Glenbuck, at starting point of LMP planning period (Year 0, 2022).

Table 6: Land use breakdown by area (hectare) and percentage cover at Glenbuck, at starting point of LMP planning period (Year 0, 2022).

Current Land Use	Area (ha)	Cover (%)
Geological feature (mining voids & mineral faces)	36.6	5.3
Open - restored mining (plantable)	270.7	39.4
Open - natural ground (plantable)	40.3	5.9
Open - marginal (unrestored mining & steep slopes)	103.0	15.0
Open - blanket bog	64.6	9.4
Open - unplantable (Infrastructure)	62.1	9.0
Open Ground Total	**577.3**	**84.1**
Existing woodland - standing	6.8	1.0
Existing woodland - felled	77.2	11.2
Existing Woodland Total	**84.0**	**12.2**

Open water (ponds)	25.3	3.7
Grand Total	**686.6**	**100.0**

4.2 Setting and context

Consistent with its two Landscape Character Types (detailed in Appendix II), local landscape features at Glenbuck represent a transition between the broad, open upland River Ayr valley along the southern boundary, up to rolling moorland plateau beyond the northern boundary of site. Land use in the local landscape is largely open rough grazing, upland plantation woodland and windfarms to the north, and enclosed pastures to the south, becoming more sheltered, improved and interspersed with broadleaf hedgerows and dispersed tree cover towards Muirkirk to the southwest.

As illustrated in the Concept map, a section of Glenbuck's boundary directly abuts the 26,833 ha Muirkirk and North Lowther Uplands SPA and the 19,154 ha Muirkirk Uplands SSSI. These sites are cited for their assemblage of resident breeding birds and network of upland moorland habitats.

The Glenbuck Heritage Village, owned and managed by East Ayrshire Council, is directly to the south of site, adjacent to Stottencleugh Burn. Glenbuck Heritage Village encompasses the Glenbuck Ironworks (Scheduled Monument), with infrastructure dating back to the late 18th century. Glenbuck village was a community embedded in coalmining. Buildings in the village included a school, kirk, market gardens and blocks of housing. The community was also notable for producing some 50 professional football players, including Bill Shankly. Glenbuck Heritage Village now consists of a carpark, memorials, plaques, footings of the former buildings and interpretation boards. Associated features on Glenbuck site include remnants of a railway viaduct across Stottencleugh Burn, which is prominently located and provides a visual link from Glenbuck Heritage Village.

The opencast mining legacy voids and rock faces on site are a subject of geological study by specialist and academic groups, such as the Edinburgh Geological Society and the British Geological Survey. Spireslack void in particular is considered to be a particularly valuable example of exposed Carboniferous-age strata.

4.3 LMP presentation

As the site is geographically consolidated and key influences are generally applicable to the site in its entirety, there is no requirement for zoning.

5 Plan Objectives

The LMP Brief (Appendix III) illustrates objectives derived from the Forestry and Land Scotland Corporate Plan 2019-2022 and how these relate to Glenbuck. Management objectives listed in section 5.3 will deliver the LMP Objectives, with the following site specific issues and key challenges considered.

5.1 Issues

The key features and management considerations for Glenbuck are illustrated in the Current Land Use and Concept maps. They are summarised in the following list:

- Proximity to Muirkirk and North Lowther Uplands SPA and Muirkirk Uplands SSSI, cited for their assemblage of resident breeding birds and network of upland moorland habitats (further detail in Appendix II).
- Maintenance of visual links, features and sense of place associations with Glenbuck Heritage Village.
- Landscape impacts of woodland creation and former industrial brown field sites in the local landscape.
- Forestry and Land Scotland's contribution to Scottish Government woodland expansion targets, the Central Scotland Green Network (CSGN).

5.2 Key challenges

Key challenges associated with this site and the LMP Objectives as detailed in the LMP Brief (Appendix III) and below, revolve around the legacy of opencast mining. These include:

- Appropriate species selection with tolerance to recovering soils, including compromised soil functionality and localised variability, as described in section 7.2.1.
- Timely establishment of vegetation on restored soils to minimise risks associated with erosion, compaction and rapid weed growth.

5.3 Management objectives

- Establish a new productive, diverse and resilient woodland, which contributes to the long-term recovery of former mining ground for the sustainable supply of timber.
- Maintain productivity of existing woodland area with a timely restock of site suitable species.
- Increase biodiversity provision through well-connected habitat networks, and improved structural and species diversity.
- Provide an interesting and diverse setting for recreational use and community benefits associated with Glenbuck Heritage Village and geological features on site.

6 Analysis and Concept

6.1 Analysis

Table 7: Illustration of how the analysis of the opportunities and constraints of an objective leads to the plan concept.

Objective	Opportunities	Constraints	Concept
Establish a new productive, diverse and resilient woodland, which contributes to the long-term recovery of former mining ground for the sustainable supply of timber.	Soil restoration operations on the site have provided an adequate substrate for new woodland creation, through mechanical de-compaction and enrichment. New woodland creation on previous industrial sites will contribute to Scottish Government woodland expansion targets without sacrificing productive agricultural area. Bringing Glenbuck into a formal deer management programme will protect new woodland from browsing damage and improve opportunities for natural regeneration of both herbaceous and woody species.	Restored soils generally suffer from impeded functionality and altered nutrient availability, due to destruction of natural soil structure. The range of site suitable tree species and the initial productivity potential of the soil is subsequently altered. Tree planting area must be balanced with open space and to contribute toward other habitat, water and recreation objectives to fulfil UKFS and UKWAS requirements. Landscape scale buy-in is required to achieve effective deer control.	Productive conifer areas on restored ground will be established with a nurse species to improve soil nutrient regime, structure and microbiology. Mixed productive broadleaf areas will be established in riparian zones, in a buffer zone associated with Muirkirk and North Lowther Uplands SPA/Muirkirk Uplands SSSI, and in proximity to Glenbuck Heritage Village, where associated landscape and biodiversity benefits are most impactful. Alternative conifer species will be established on lower slopes where exposure levels and soil types are more favourable, and where they can best contribute to visual and species diversity. Glenbuck will be subject to a formal and strategic deer management programme, guided by population surveys and a Herbivore Impact Assessment.
Maintain productivity of existing woodland area with a timely restock of site suitable species.	Existing woodland on site is largely felled, awaiting restock. Existing woodland area encompasses areas of upland brown earth, podzolic and gleyed soils, which all have good productive potential.	The existing woodland area (felled awaiting restock) is adjacent to the Muirkirk and North Lowther Uplands SPA/Muirkirk Uplands SSSI. Consideration for any possible negative effects on priority species present in the locality, must be considered in the restock species selection. Areas of deep peat are present within the area requiring restock. These have lower productivity potential.	A buffer zone of 200 m from the SPA/SSSI boundary will be established with low density native broadleaf woodland, to reduce negative impacts associated with non-native conifers on priority species, including visual impact and seed drift/colonisation. The buffer zone of native woodland establishment also encompasses the deep peat soils present locally.

Increase biodiversity provision through well-connected habitat networks, and improved structural and species diversity.	Two narrow glens, associated with Ponesk Burn and Stottencleugh Burn, run north to south across site. Their steep sides would benefit from establishment of new riparian woodland, for improved habitat provision and water quality. There are currently 11 mapped ponds on site. Some of these are square edged, built settling ponds, associated with the former mine. Others are more naturally shaped, but created during post mining, land forming operations, or water filled mining voids. Waterfowl have already colonised some of these ponds, but most would benefit from establishment of suitable trees and shrubs locally, for the benefit of amphibians and other aquatic species. There is 64 ha of raised bog on site, largely consolidated in an area just south of the main Spireslack void. This bog has been subject to some historic agricultural drainage. Approximately 270 ha of Glenbuck is former mining ground, now suitable for establishment and sustainable woodland growth, having recently been mechanically remediated.	The breadth of tree species and silvicultural systems that are suited to the site is largely limited by high levels of exposure and poor nutrient availability associated with recently restored former mining. Habitat provision must be balanced with productivity and access objectives across the site, to ensure financial and social sustainability.	The two narrow glens spanning the site from south to north, will act as focal areas for establishing new riparian native broadleaf woodland, connecting to and extending similar habitat on the banks of the River Ayr and Glenbuck Loch. Ponds onsite will be enhanced and protected by the establishment of native broadleaf wet woodland buffers, where these areas can be safely accessed. Opportunities to enhance existing natural peatlands, through operations such as drain blocking, will be taken where funding and resources permit. Remediated former mining ground will be established as productive woodland, transforming what was depleted open ground into new woodland.
Provide an interesting and diverse setting for recreational use and community benefits associated with Glenbuck Heritage Village and geological features on site.	Glenbuck abuts Glenbuck Heritage Village, which has parking facilities and attracts visitors from local communities and further afield. The Glenbuck Heritage Village includes footpath links and mapped trails that are routed through Glenbuck's forest road network. The remaining footings of the Glenbuck viaduct that once crossed the Stottencleugh glen provide a visual link between the Glenbuck Heritage Village and the surrounding Glenbuck site.	Local FLS woodland are subject to high rates of anti-social behaviour, including fly tipping and illegal motor vehicle use. Provision of access routes is limited by installation and maintenance costs, and must be balanced with future forest operations access requirements.	Species selection and stand boundaries will be designed with particular attention to maintain visual links and enhance the sense of place between the Glenbuck Heritage Village and associated features in the Stottencleugh glen. Native shrubs and open ground will be used strategically to avoid views of the viaduct becoming obscured. The established forest road network on site will be maintained in line with operational use and public pedestrian access. New woodland creation will complement and enhance the diversity and aesthetics experienced from the mapped trails on the existing

	The Spireslack void attracts visitors from geological interest and academic groups such as the British Geological Survey. The varied topography, long views and transitional nature of the site, between Ayr River valley and upland open moor, offer visual interest on a large scale. FLS have a Community Ranger working in the area, with established relations with local schools and community groups.	forest road network. Native broadleaves and alternative conifers will be used on the lower slopes to enhance visual diversity and interest for pedestrians on site and from vantage points in the wider landscape. Opportunities and permissions for community lead projects and site use for learning and community groups will be enabled where appropriate, through existing FLS channels.

6.2 Concept

The accompanying Concept map spatially illustrates the strategies to deliver the plan objectives with the site specific opportunities and constraints detailed above taken into account.

7 Long-term LMP Proposals

This section provides detail on land management proposals for the site. Activities scheduled for the current planning period and long-term management prescriptions are both covered.

The accompanying Future Habitat and Species map illustrates the vision towards which the prescriptions below are working. The Management map illustrates the proposed timing of management interventions and delivery.

7.1 Management of existing woodland

Existing woodland at Glenbuck consists of 6.8 ha of standing Sitka spruce plantation and 77.2 ha of plantation woodland recently felled and awaiting restock. Standing stock will be retained through the duration of this planning period. Prescriptions for the restocking of the felled area are detailed below in section 7.2.2.

7.1.1 Tree felling in exceptional circumstances

FLS will normally seek to map and identify all planned tree felling in advance through the LMP process. However, there are some circumstances requiring small scale tree felling where this may not be possible and where it may be impractical to apply for a separate felling permission due to the risks or impacts of delaying the felling.

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

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

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

The maximum volume of felling in exceptional circumstances covered by this approval is 75 cubic metres per Land Management Plan per calendar year. A record of the volume felled in this way will be maintained and will be considered during the five year Land Management Plan review.

7.2 Woodland creation and restocking

The accompanying Planting map illustrates the special distribution of the planting mix prescriptions below.

7.2.1 Woodland creation planting proposals

Selection of the below species and mixtures have been made with consideration of local climate data (via the Ecological Site Classification Decision Support Tool) and the continued recovery processes of disturbed soils associated with the sites coal mining past. The latter is a particularly strong driver and accounts for the proliferation of pioneer species on restored areas, such as common alder, birch, pine and Sitka spruce. These pioneer species will serve a critical role in tolerance and improvement of the depleted soil nutrients and structure. This will benefit accompanying species in the current species mix prescriptions and future rotations.

The species mixtures as described below may be subject to further enrichment during beat-up phases, with species that fulfil the objectives and prescriptions of each area and are suitable to changing site conditions, such as increasing local shelter from establishing surrounding crop. It is important to design such an element of species flexibility into new planting on restored soils as localised variations in texture and nutrient availability (as described further in Appendix II) may become more apparent as the site settles. Such flexibility falls within the parameters detailed in the LMP Tolerance Table (section 2.8).

Ground preparation for new woodland creation will adhere to 'Cultivation for Upland Productive Woodland Creation Sites'. This is the most current guidance document to support decision making in relation to cultivation techniques.

Table 8: Glenbuck planting prescriptions.

Planting Prescription	Local site type	Indicative Species	Target Density (Stems/ha)	Design	Area (ha)
Productive conifer	Restored ground, exposed	Mix 1: Sitka spruce, common alder, Lodgepole pine	2500	Intimate mix at 2.0 x 2.0 m tree spacing	184.4
Productive conifer	Restored ground & gleys, locally sheltered	Mix 2: Pacific silver fir, common alder/downy birch	2500	Blocky mix, minimum group size of 49 trees (7 x 7). 2.0 x 2.0 m tree spacing	27.5
Productive conifer	Restored ground, stony slopes	Mix 3: Scots pine/Macedonian pine, downy birch	2500	Blocky mix, minimum group size of 49 trees (7 x 7). 2.0 x 2.0 m tree spacing	22.5
Productive conifer	Restored ground & gleys, locally sheltered	Mix 4: Norway spruce, downy birch/common alder	2500	Intimate mix at 2.0 x 2.0 m tree spacing	15.9
Native mixed broadleaf (NVC – W17)	Man-made soils, rankers & gleys, locally sheltered slopes	Downy birch, rowan, hawthorn, common alder, hazel. Occasional Scots pine, aspen, sessile oak, holly	800	Blocky mix, directed by micro-site suitability. 2.5 x 2.5 m tree spacing. 50% open	128
Native montane mix (NVC - W4)	Peaty gley & man-made soils, exposed	Downy birch, rowan, willow (eared, bay, grey, goat), common alder. Juniper on mineral soil	800	2.5 x 2.5 m tree spacing. 50% open	7.4
Native wet woodland (NVC – W4, W7)	Riparian and wet ground, locally sheltered	Common alder, downy birch, willow (grey, goat). Occasional hawthorn, rowan, hazel on drier spots	800	2.5 x 2.5 m tree spacing. 50% open	9.8
Native shrubs	Gleys & brown earth, locally sheltered	Hazel, hawthorn, rowan, willow, guelder rose, elder, blackthorn, crab apple, holly, juniper	800	Interlaced with designed open space to maintain view of viaduct (see Planting map). 2.5 x 2.5 m tree spacing. 50% open	10.2
Planting buffers	Buffers	Open ground	N/A	Open ground – natural regeneration acceptable in some areas	133.4

7.2.2 Restock planting proposals

Below are the planting prescriptions for the restocking of Grasshill, 77.2 ha of former Sitka spruce plantation felled by the previous land owner in 2018. Species and habitat selections have been made with consideration of local climate data, soils and impacts on the adjacent Muirkirk and North Lowther Uplands Special Protection Area. Soils on the restock area are a mix of peat, peaty gley, podzol and brown earth. Exposure is relatively high (DAMS 17 – 19).

Table 9: Grasshill restock prescriptions.

Planting Prescription	Local site type	Indicative Species	Target Density (Stems/ha)	Design	Area (ha)
Productive conifer	Peaty gley & brown earth, exposed	Mix 1: Sitka spruce, Lodgepole pine, common alder	2500	Intimate mix at 2.0 x 2.0 m tree spacing	26.1
Productive conifer	Peaty gley & brown earth, exposed	Mix 2: Scots pine/Macedonian pine, downy birch	2500	Blocky mix, minimum group size of 49 trees (7 x 7). 2.0 x 2.0 m tree spacing	8
Native shrub mosaic	Peaty gley & podzol, exposed	Willow (eared, bay, grey, goat), grey alder on peaty soils. Hawthorn, blackthorn and hazel on mineral soil	200	Mosaic of densely planted patches directed by micro-site suitability and open ground.	28.6
Native mixed broadleaf (NVC – W17)	Man-made soils, rankers & gleys, locally sheltered slopes	Downy birch, silver birch, rowan, hawthorn, common alder, hazel, juniper. Occasional Scots pine, aspen, sessile oak, holly	800	Blocky mix, directed by micro-site suitability. 2.5 x 2.5 m tree spacing. 50% open	10.8
Planting buffers	Buffers	Open ground	N/A	Open ground – natural regeneration acceptable in some areas	5.1

7.2.3 Crop protection

As with all FLS deer management programmes, deer management at Glenbuck will be guided by a Region specific Deer Management Strategy, which is underpinned by a national code of practice and industry best practice guidelines.

An operational strategy for protection of new planting and restock at Glenbuck will be informed by on-site deer population monitoring and Herbivore Impact Assessment. Additional considerations such as tree species palatability, local topography and other operational constraints will be taken into account. In practice a combination of tactics will be implemented, including deer management, tree tubes and fencing across the site. Any deer fencing erected on the sites northern boundary will be suitably marked to minimise the risk of bird strike.

In order to aid safe, efficient and humane deer management operations, linear open space radiating away from strategic locations with sufficient backdrops and access for extraction have been incorporated into the planting design.

7.3 Long-term silvicultural prescriptions

7.3.1 Clear fell, restock

Newly planted productive areas are stratified based on topographic and productivity variables, and demarked with open rides. This will allow windfirm edges to develop for timely felling of future coupes.

7.3.2 Thinning

Areas within the site which benefit from localised topographic shelter, and more coarse, free draining soils, will be established with species mixtures that respond well to thinning. These mixtures will be selected to encompass species that have complimentary silvicultural characteristics, such as rooting structures , growth rates and shade tolerances. This will improve the potential for application of thinning in the long-term, which may lead to gradual felling and restock at the end of rotation or Low Impact Silvicultural Systems.

7.3.3 Minimum intervention

Once established, native wet woodland, mixed broadleaf and montane areas will be managed under a minimum intervention prescription. The primary long-term intention of these areas is to provide ecological benefits associated with this habitat type. These include deadwood accumulation, protection of water quality and provision of habitat niches for associated species.

7.4 Biodiversity and environment

7.4.1 Flood management

Although not within a designated area itself, Glenbuck is within the River Ayr catchment, which flows into Cumnock and Catrine Potentially Vulnerable Area (12/14) as defined in Scottish Environment Protection Agency's (SEPA) Flood Risk Management Strategy.

Forestry and Land Scotland are keen to collaborate with Flood Risk Management partners and others to understand flooding and consider opportunities on the estate. At Glenbuck, soil restoration and establishment of woodland across the former mining elements of the site will improve the site's water regulation capabilities, including interception, slowing and filtration of surface water flows through increased layers of vegetation and stabilised soils.

7.4.2 Water bodies and riparian zones

There are several former mine settling ponds, flooded mine voids and more naturalistic ponds formed during phases of land forming within the site. These are now functioning as valuable habitat for water fowl and associated species. These ponds will be retained as permanent

water features. Their habitat functionality will be protected and improved with the establishment of native wet woodland where appropriate (see Planting map).

Stottencleugh Burn and Ponesk Burn run through the site from north to south, both set in narrow glens. Lightshaw Burn and Galawhistle Burn initiate on site and drain west and east respectively, whilst Hareshaw Burn comes within 30 m at its closest point to the site boundary. Associated riparian areas will be established with mixed native broadleaf woodland. Trees here will be arranged to incorporate some open space to maximise habitat provision, as described further in section 7.2.1 and illustrated in the Planting map. Once established, the riparian woodland managed under minimum intervention, will act as a natural operational buffer zone for the watercourse.

Forestry and Land Scotland comply with current industry best practice guidelines and UKFS stipulations in order to protect water quality throughout all forest operations.

7.4.3 Peat restoration and carbon sequestration

Much of the ground on site is disturbed, mineral soils due to a legacy of mining activity. 65 ha of original peat soils are present to the south and north of the Spireslack void. Opportunities for peatland restoration operations here, such as ditch blocking, will be investigated and pursued if appropriate, in the context of funding availability and prioritisation of priority habitats managed by FLS nationally.

7.4.4 Designated sites

As illustrated in the Concept map, the Muirkirk and North Lowther Uplands Special Protection Area (SPA) and Muirkirk Uplands SSSI, is directly adjacent to 940 m of Glenbuck's northwest boundary, and on the opposite side of the A70 and the River Ayr to the south of site. Muirkirk and North Lowther Uplands is designated for its assemblage of resident and breeding birds, and upland habitats. The designations encompass 26,833 ha of predominantly open moorland.

In preparation for this plan a breeding bird survey was carried out at Glenbuck. The results are detailed in Appendix II.

The Muirkirk and North Lowther Uplands site perimeter is 257.5 km. The proportion abutting Glenbuck is 941 m, which equates to 0.37%. Potential impacts of land management at Glenbuck on Muirkirk and North Lowther Uplands can therefore be considered minimal, when their relative areas are taken into account.

A 200 m buffer has been integrated into restocking of Grasshill, adjacent to the SPA. There will be no conifers planted within this buffer zone, to reduce the risk of long-term seed drift into the SPA and associated negative effects on ground nesting breeding bird populations. Instead, a mix of native broadleaf species with a graduated feathering of stocking densities will be

established, reflecting a similar area on a neighbouring land holding just to the west of Grasshill, which similarly abuts the SPA.

Similar broadleaf buffers have also been located along the southern boundary, to soften edges with neighbouring open habitats and sections of the SPA across the A70 and River Ayr, further enhancing local diversity of habitat and foraging provision.

Glenbuck Heritage Village and scheduled monument landscape and setting:
The local FLS planning team and in-house landscape architects have worked together to ensure that the new woodland design is in-keeping with and complimenting the local landscape. This has involved joint site visits, landscape forces assessment and scenario testing via visualisation software. The attached Glenbuck Planting map and landscape visualisations shown in Appendix II/3.3 illustrate the design outcomes which compliment landscape variables, in terms of scale and visual complexity.

As illustrated, new woodland adjacent to Glenbuck will be characterised by high proportions of native broadleaf, native shrub species and open areas on lower ground, designed to best enhance the amenity and biodiversity value. Alternative conifer mixes on mid slopes are arranged in small coupes which tie into the underlying topographical shapes. The landscape visualisations illustrate the key viewpoints that have been considered in the design and how these will be enhanced by woodland creation on site.

7.5 Operational access

The main operational site access is gained directly from the A70, entering the site in the southwest. In an additional access agreement, East Ayrshire Council permits operational access via the Glenbuck Heritage Village access road, in perpetuity. Within the site, a network of forest roads are already established as a legacy from the previous mining land use. These require maintenance activities only. There are therefore no proposals within this plan for new forest road or track building. Delineation of forest roads will be carefully considered where routes are more vague and come in close proximity to the Glenbuck Heritage Village and nearby Glenbuck Ironworks scheduled monument.

7.6 Management of public access

The Glenbuck Heritage Village, with its carpark, interpretation boards, plaques and memorials, is the primary focal point for recreation locally. Footfall at Glenbuck is subsequently concentrated in areas directly adjacent to Glenbuck Heritage Village. Interpretation at the heritage site includes a map of walking routes based on the established forest road network on the Glenbuck site (see Access map). Access between the two sites is gained from the carpark at Glenbuck Heritage Village via pedestrian gates already installed in the march fence. FLS will continue to work with East Lothian Council and community groups to ensure that access routes remain suitable for use.

Furthermore, care has been taken through this plan to design an interesting blend of tree species and open space to link landscape features and viewpoints throughout, particularly in the areas adjacent to Glenbuck Heritage Village. This is illustrated in the Access and Planting maps.

The former Spireslack mining void is of particular interest for geological study by specialist and academic groups, such as the Edinburgh Geological Society and the British Geological Survey. Access by third party educational and academic organisations will be managed through the FLS permissions system. Key viewpoints and space for light vehicular access, and turning at these points, have been incorporated into this design (see Access map), to best ensure safe and effective use of this nature. The void is deer-fenced to ensure visitor safety. Prior approval must be sought from FLS to go within the deer fence and this access is likely to only be by research groups. The site of the void will continue to remain fenced off until a system for safe access can be designed and resourced.

As with all FLS woodlands, Glenbuck will be open to public access in accordance with the Scottish Outdoor Access Code, 2005. Occasional area closures or diversions may be put in place to manage public safety around forest operations, such as soil remediation. The affected areas and duration of such closures will be kept to a minimum.

7.7 Management of heritage features

The heritage features on site will be protected through our standard operational procedures. At Glenbuck this will entail assessment and flagging of operational buffers around heritage features during establishment operations, to avoid disturbance particularly by ground preparation machinery.

Furthermore, to maintain and enhance the sense of place associated with the Glenbuck Heritage Village, particular care has been taken to ensure that visual and pedestrian links between the heritage site and the viaduct footings are maintained. This will be delivered through various measures, including the use of low density native shrub planting in the glen which links the two features (see Planting map).

8 Critical success factors

The critical success factors listed below relate to delivery against the management objectives listed in section 5.3. They are:

- Successful establishment of the new woodland areas to the target stocking densities listed in section 7.2.1 and illustrated in associated LMP maps.
- Successful restock of felled areas to the target stocking densities listed in section 7.2.2 and illustrated in associated LMP maps.
- Improved habitat networks and foraging opportunities via establishment of new woodland, forest edge and open space as designed and illustrated in the Future Habitat and Species map.
- Current recreational routes will be maintained in a condition suitable for intended use. Development opportunities will be considered when sustainably viable.

Appendices

Appendix I: Land Management Plan consultation record

Table 10: Glenbuck (formerly known as Ponesk-Spireslack) LMP consultation record.

Consultee	Date received	Points raised	Forestry and Land Scotland response
NatureScot	14/02/2022	• FLS informed of the Development Framework for the Hagshaw Energy Cluster and that the contractor developing this would be informed of the Ponesk-Spireslack LMP to try and ensure that any proposals on the land to the north and east of the site are complementary. • FLS also informed of a recently commissioned study to explore the feasibility of creating an active travel route linking Glenbuck to Glespin.	Noted.
Online Public Consultation Form (6 responses)	Opened: 11/02/2022 Closed: 25/03/2022	Please note that due to the number of similar comments received we have amalgamated some of these into subject groups with a single response, rather than responding to each comment individually. We hope this captures all the points raised but would be happy for individuals to contact us via the details on our website should any queries remain.	
Question 1: What aspects of the Ponesk-Spireslack LMP are you most interested in?		50% Tree species choice 33% Landscape impacts 17% Recreational access	Noted.
Question 2: What do you like most about the plan, and why?		**Forest management** • Broadleaf networks managed with minimal intervention to help develop a legacy of semi-natural woodland. • Planting of suitable broadleaf species on steeper banks around watercourses. • Use of intimate mixtures in productive coniferous areas. **Visitor access and recreation** • Provides the local community with alternative walking routes. • Site access for the public is good and should be the main focus of the LMP. • Important landmarks are being retained. • Visitor safety is prioritised around old mining voids.	Thank you for your comments regarding forest management. Our proposed woodland design takes into account a number of social, environmental, and economic factors to ensure full compliance with the UK Forestry Standard (UKFS) and the independently audited UK Woodland Assurance Standard (UKWAS). Thank you for your comments regarding visitor access and recreation. We fully appreciate the value of these spaces for users to enjoy nature and the outdoors. Responsible access is something Forestry and Land Scotland actively encourage and we have designed the woodland in a way that will enhance the experience for all visitors to the site, particularly around geological and heritage features. Safety is a top priority on all of our sites, particularly in previously mined areas where voids, cliff faces and steep, unstable ground are present. As previously stated, these areas have been deer-fenced to ensure safe access for visitors.

Question 3: Is there a part of the plan that you would most like to see improved, if so how?	**Forest management** • Incorporate aspen as a major component in new native broadleaf planting, restock areas and in intimate mixtures with conifers. • Plant other species of high conservation value such as juniper and montane varieties of willow. • Plant trees in a more natural way to ensure there are no 'regimented rows'. **Visitor access and recreation** • More viewpoints to the west of the site.	• Aspen will be considered within native broadleaf mixtures however due to the high palatability of this species this will depend on whether sufficient herbivore management can be carried out on site. • As shown in Tables 7 and 8, juniper will be established as part of a native montane mix wherever mineral soils are present. Eared, bay, grey and goat willow are all proposed for establishment on site as they are more widely available for larger scale planting schemes and still offer similar ecological benefits. • The regimented and linear appearance of planted rows in productive forests is often unavoidable due to the fact that regular spacing is required to ensure consistent tree growth. At Ponesk-Spireslack, the restored mining soils are inconsistent and somewhat rocky so trees will only be planted where physically possible, creating more irregular rows. The intimate mixtures being used across the majority of productive areas will also create a more diverse canopy, helping to further reduce the regimented appearance of the woodland. • The viewpoints illustrated on the site Access map have been highlighted due to their close proximity to the Glenbuck Heritage Village car park as well as features of interest such as the Spireslack void. Numerous viewpoints are still present across the western half of the site for visitors wanting a longer walk.
Question 4: Please add any further comments relating to the plan here.	**Forest management** • Include pioneer scrub, native shrubs and wildflowers as an intermediate habitat to enhance landscape diversity and biodiversity value. • Explore the potential for an area being designated as community woodland to help encourage local economic activity. Community forestry and related microenterprises suggested as a possible outcome as well as the development of skills through use of the area for training. **Visitor access and recreation** • Link made between Ponesk-Spireslack and the River Ayr Way at the entrance to Darnhunch Farm. • Seating and tables installed in various locations to encourage more visitor access. **General** • The plan should be flexible so that it can be changed to suit future needs.	• Montane pioneer scrub is proposed on some of the higher altitude areas in the northern and eastern extents of the site. Planting in these areas will be low density with approximately 50% open ground throughout. Establishment of native shrubs is also proposed in the area immediately north-west of Glenbuck Heritage Village to ensure that views up towards the old viaduct pillars are not obscured. Native woodland ground flora will be considered as part of volunteer work with local community groups. • An area has already been designated as a local community area to be used for work skills and volunteering e.g. native tree planting and maintenance. Community organisations have the right to request to take over publicly-owned land or buildings that they feel they can make better use of for local people. These community empowerment rights apply to all land and buildings managed by Forestry and Land Scotland. Our Community Asset Transfer Scheme sets out how groups can acquire land that we manage, for the benefit of their communities. Please see the following webpage for more information: https://forestryandland.gov.scot/what-we-do/communities/community-asset-transfer-scheme • We appreciate the potential for a route connecting Ponesk-Spireslack and the River Ayr Way however the proposed linking point at the entrance to Darnhunch Farm leads onto neighbouring land that isn't owned by Forestry and Land Scotland. The A70 is also a very busy road and vehicles are travelling at high speeds, particularly at the proposed crossing point. Forestry and Land

			Scotland are therefore unwilling to accept the liability associated with creating a recreational route here. • Infrastructure such as benches and tables will be considered where appropriate for the site and where we have suitable resources to manage any resulting litter issues which may arise. • An element of flexibility is built into all of our Land Management Plans. The Tolerance Table in Section 2.8 shows the changes that we are able to make to the plan without the need for an amendment from our regulator, Scottish Forestry. Halfway through the 10 year Land Management Plan period, a 5 year review is carried out, following which any required amendments can be made. Upon expiry of the 10 year Land Management Plan, a renewal is carried out which takes into account any new objectives and changes to those from the previous plan.
British Geological Survey	22/03/2022	Once again, many thanks for giving us the chance to see the plans for the Ponesk-Spireslack Land Management Plan. My colleagues and I have had a chance to read it over and are content with the plans for the area as a whole. There appears to be a good mix of different tree species and appropriate access via forest roads and tracks, including to the 'geological locations'. We did note, in previous meetings with FLS and other interested parties, that there were discussions regarding information panels describing the geology of the area. As there are plans to have five viewpoints with three near the 'void' this might be a perfect opportunity to revisit this idea. BGS would be more than happy to provide the wording for such panels, after discussion on requirements etc.	Thank you for your feedback, we are glad to hear that you approve of our Land Management Plan proposals. Regarding the information panels, your comments have been passed on to our Visitor Services team. We are happy to work together with BGS to develop site information for visitors to incorporate in any future infrastructure or web-based information.
Sam Purdie, ex-resident of the former mining village of Glenbuck.	23/03/2022	This plan should be titled Glenbuck as per the Ordinance Survey. Note: The Ordinance Survey Map of 1885 to 1895, Figure 4 on page 37. "Ponesk-Spireslack" was the site name given to the area by a failed opencast contractor. Opencast operations have long-since ceased thus the site name is obsolete. Glenbuck Heritage Village has a famous footballing reputation. Bill Shankly is Glenbuck's most famous son. A fine gesture would be to have one of the forest areas named after him. <u>Trekking Access</u> 1.5 There was an ancient Right of Way between Glenbuck and Coalburn prior to opencast operations. Much of this Right of Way follows the old Mineral Railway between Galawhistle Colliery and Coalburn. This access should be maintained. Similarly, care should be taken over the Drove Road between Glenbuck and the Grave of the Martyr John Brown. <u>Management Objectives</u>	Thank you for your feedback Sam. We have addressed each of your comments in the bullet points below. • We are open to changing the name of the site if the local community are in agreement that "Glenbuck" would be more appropriate. Forestry and Land Scotland will consult with the Muirkirk Community Council and make the proposed change if there are no objections. • The ancient Right of Way which once linked Glenbuck and Coalburn has unfortunately been disturbed by the opencast operations and no longer appears on contemporary Ordinance Survey maps. As shown on the Access map, the line of the old railway does in fact link with a mine road at the north-eastern edge of our site boundary. All roads currently on site will be left undisturbed, providing good access for visitors who may wish to explore the ancient Right of Way leading to Coalburn. The Drove Road leading to Martyr John Brown's grave has also been disturbed by the opencast operations and therefore the access road, which follows a similar route to the Drove Road, now terminates at the western end of the Spireslack void. Those wishing to continue up onto the open hill will

		5.3 Recreational use will be enhanced if the ancient tracks and Rights of Way are preserved. Presumably FLS will have access roads as part of the plantations, these forestry roads could be part of the Right of Way. <u>Flood Management</u> 7.4.1 The River Ayr does not flow into Cumnock. What effect will this plan have on the River Ayr volume? <u>Visibility</u> II/3.2 The A70 road distances should be given in Miles.	still be able to do so as low density native broadleaves, proposed for establishment to the north of the road end, will not impede walkers. • In confirmation of your point regarding our management objectives, all roads and tracks that are present on site will be preserved however delineation will be required in areas where routes are more vague. The road and track network is illustrated on the Access map. • Section 7.4.1 states that the River Ayr "flows into Cumnock and Catrine Potentially Vulnerable Area" not into the town of Cumnock. SEPA have identified local catchments where significant flood risks are present. These catchments are then formally designated as Potentially Vulnerable Areas by Scottish Ministers. In terms of the effect of the LMP proposals on the River Ayr volume, we cannot state an exact figure. As stated in section 7.4.1, 'soil restoration and establishment of woodland across the former mining elements of the site will improve the site's water regulation capabilities, including interception, slowing and filtration of surface water flows through increased layers of vegetation and stabilised soils.' Improvements have also been made to the site drainage with the construction of trapezoidal ditches and contour berms which protect against soil erosion, siltation and slope instability as well as ensuring that watercourses leaving the site are not over-charged. • Noted. To remain consistent in our Land Management Plans we use metric units for all measurements.
RSPB	25/03/2022	Many thanks for consulting RSPB Scotland on the above referenced new planting scheme and Land Management Plan (LMP). We have included detailed comments in the attached Annex 1, however, in summary we have serious concerns about the current design of this proposal as presented in the LMP based on the potential impacts of this planting to designated sites (Muirkirk and North Lowther Uplands SPA and Muirkirk Uplands SSSI) and additional concerns which we summarise below: • A Habitats Regulations Appraisal (HRA) will be required to assess the impact of the plan on the nearby Muirkirk and North Lowther Uplands Special Protection Area (SPA). We do not believe that there is sufficient information contained in the LMP to inform this process. • As part of the HRA, a cumulative assessment will be required to assess the impact of existing forestry on the SPA, but should also include impacts from other developments, such as windfarms, from which there is already significant pressure. This information is not included in the LMP. • As part of the HRA, a cumulative assessment will be required to assess the impact of existing forestry on the SPA, but should also include impacts from other developments, such as windfarms,	Thank you for your feedback and succinct summary. All of your detailed comments in Annex 1 have been addressed individually to ensure that any key points that weren't mentioned in your summary have been acknowledged.

from which there is already significant pressure. This information is not included in the LMP.

- The plan may have an impact on nearby sensitive open habitats through the spread of seeds of invasive non-native conifer species, and we believe that the mitigation included in the plan is insufficient.
- It is unclear whether Scottish Forestry have been approached for an Environmental Impact Assessment screening opinion, and if they have, the decision-making process is not readily available for comment.
- We believe that the bird survey work carried out for the plan is insufficient as it does not allow for a robust assessment of the impacts of the plan on sensitive species potentially breeding on site.

We have included recommendations for planting design changes which we feel would mitigate against some of the issues highlighted in Annex 1, however this does not replace the need for an HRA to be undertaken before any decision is made on the LMP. Should you have any comments or questions regarding this response, please don't hesitate to get in touch.

Annex 1 – RSPB Scotland comments on Ponesk-Spireslack LMP

1. Muirkirk and North Lowther Uplands Special Protection Area (SPA) and the Need for a Habitats Regulations Assessment (HRA)

1.1 We consider the proposal will have a likely significant effect on the Muirkirk and North Lowther Uplands Special Protection Area (SPA) considering the site is within the foraging ranges of the species for which the site is designated.

1.1 Without evidence to prove that designated species are present within the area of the SPA adjacent to Ponesk-Spireslack, we disagree with the statement: 'the proposal will have a likely significant effect on the Muirkirk and North Lowther Uplands Special Protection Area (SPA).'

1.2 The SPA is designated for regularly supporting breeding populations of European importance of the Annex I species; hen harrier; short-eared owl, merlin, peregrine and golden plover and a wintering population of European importance of the Annex I species hen harrier. The Muirkirk Uplands Site of Special Scientific Interest (SSSI) and North Lowther Uplands SSSI which underpin the SPA support an outstanding assemblage of upland breeding birds.

1.2 Noted.

1.3 As the proposed development is not directly connected with the management of the SPA, Scottish Forestry must, as the competent authority, undertake a Habitats Regulations Appraisal (HRA). This must

1.3 A HRA will be undertaken by Scottish Forestry upon formal submission of the Land Management Plan.

	first determine whether there is a likely significant effect on the SPA and, if so, make an appropriate assessment of the implications of the proposed land management plan for the integrity of the SPA, in light of the site's conservation objectives. The proposed planting may be consented only after Scottish Forestry has established beyond reasonable scientific doubt that there will be no adverse impact on the integrity of the SPA, both on its own and in combination with other plans and projects impacting on the SPA.	
	1.4 The Muirkirk and North Lowther Uplands SPA is currently classed as being in unfavourable condition for breeding and non-breeding hen harrier, merlin and peregrine. It must be demonstrated that the development as proposed will not be detrimental to the full recovery of the site.	**1.4** Noted.
	1.5 Commercial conifer plantations are known to have a detrimental impact on ground nesting bird species through edge-effects, and this has led to specific guidance being produced for the Caithness and Sutherland Peatlands SPA, which recommends an 800m buffer is left between the SPA boundary and any commercial conifer plantation (https://forestry.gov.scot/publications/3-guidance-to-forest-managers-preparing-forest-plans-within-the-caithness-and-sutherland-peatlands-sac-spa/viewdocument/3). This is primarily due to the impact on golden plover, for which the Muirkirk and North Lowther Uplands SPA is designated.	**1.5** The guidance document you have referenced is for use by Forest Managers preparing plans within the Caithness and Sutherland Peatlands SAC/SPA. The 800 m commercial conifer buffer is only to be applied where 'adjacent habitat is flat and with pool systems', a topographical trait not shared with the SPA at the north-western boundary of Ponesk-Spireslack, where steeply sloping ground is abundant. Until 2018, a Sitka spruce plantation was present at Grasshill, on the boundary shared by the SPA and Ponesk-Spireslack. Our restock proposals have improved the sites interface with the SPA through the addition of a low density broadleaf mosaic buffer. The steeply sloping ground will also help to mitigate against any potential edge-effects as conifers will be predominantly on lower slopes.
	1.6 The planting design (Ponesk-Spireslack Future Habitats and Species Map) shows the four main blocks of Sitka spruce plantation to be within 300m of the SPA boundary.	**1.6** Noted.
	1.7 Paragraph 7.4.4 of the Land Management Plan (LMP) states that "*The Muirkirk and North Lowther Uplands site perimeter is 257.5 km. The proportion abutting Ponesk-Spireslack is 941 m, which equates to 0.37%. Potential impacts of land management at Ponesk-Spireslack on Muirkirk and North Lowther Uplands can therefore be considered minimal, when their relative areas are taken into account.*" As the impacts of the proposed planting are not restricted to the perimeter of the SPA, we do not agree with this conclusion. In addition, it has not been established whether the planting abuts a particularly sensitive part of the SPA.	**1.7** Noted.
	1.8 Furthermore, Appendix II, paragraph 2.2 also concludes that the SPA will not be directly affected by the planting. No evidence is given	**1.8** Noted. As stated in point 1.5, the 800 m commercial conifer buffer is only to be applied where "adjacent habitat is flat and with pool systems", a topographical trait

	as to how this conclusion has been reached. We welcome the fact that the LMP document recognises that the introduction of commercial non-native conifer plantation to the area increases the risk of predation to breeding birds. However, the recommended buffers and known distance of the edge-effect impacts have not been incorporate into the design of the plantation. No explanation is given as to why the recommended buffer for the Caithness and Sutherland Peatlands SPA (800m), which based on research on the impacts of forest edge and peatland waders, has not been applied in this case, and why a 300m buffer is more appropriate.	not shared with the SPA at the north-western boundary of Ponesk-Spireslack where steeply sloping ground is abundant.
	1.9 As far as we can discern, the above two short statements in the LMP are the only ones that address the potential impacts of the proposal on the SPA. Therefore, we are of the opinion that the information provided is insufficient to inform the HRA which must be undertaken by Scottish Forestry before a decision can be made on the LMP.	**1.9** Noted. Forestry and Land Scotland will provide Scottish Forestry with all of the information required to conduct the HRA.
	2. Cumulative Impacts of Commercial Non-native Forestry on the SPA	
	2.1 There is no discussion within the LMP on the cumulative pressures on the SPA from existing forestry. These impacts should be a key consideration for the competent authority when assessing the impact of this proposal on the SPA.	**2.1** Noted.
	2.2 There is already significant pressure from existing commercial forestry on the SPA as demonstrated in Figure 1 (see Annex 2). This has a negative impact through edge-effect on ground nesting birds which this proposal will add to the existing pressure. There is also significant pressure from onshore wind development, which should also be taken into account.	**2.2** As stated in Appendix II/2.2, we accept that dense coniferous plantations can have an effect on ground nesting birds due to an increased risk of predation. The woodland design therefore includes provision of a softer edge of mixed broadleaf species which will offer far greater visibility for ground nesting birds. This is a vast improvement over the purely coniferous block that was directly adjacent to the SPA boundary prior to felling in 2018.
	2.3 We therefore consider the information necessary for a cumulative assessment is incomplete, and as such does not meet the requirements for HRA.	**2.3** Noted. As our regulatory body, we will leave Scottish Forestry to determine whether the information we have gathered is adequate enough to inform the HRA process.
	3. Muirkirk Uplands Site of Special Scientific Interest (SSSI)	
	3.1 The proposal is likely to have a significant impact on the SSSI, which is designated for the upland habitat assemblage, blanket bog, the upland breeding bird assemblage, breeding and non-breeding hen harrier and breeding short-eared owl.	**3.1** Without evidence to prove that designated species are present within the area of the SSSI adjacent to Ponesk-Spireslack, we disagree with the statement: 'The proposal is likely to have a significant impact on the SSSI'.

	3.2 The impact of non-native invasive species regeneration, specifically related to Sitka spruce, is well understood and is a significant problem across large areas of peatland and open habitats e.g. https://www.iucn-uk-peatlandprogramme.org/sites/default/files/2019-11/CoI%20Forestry%20and%20Peatlands%20file%20size%20reduced.pdf	**3.2** The area of the SSSI immediately adjacent to Ponesk-Spireslack has high browsing pressure from deer and sheep. As such, there is very little natural regeneration of any non-native invasive species present. Given that a stand of Sitka spruce had been growing immediately adjacent to the SSSI since 1975, the addition of a buffer, free from non-native tree species will help to reduce the risk of natural regeneration.
	3.3 Paragraph 7.4.4 states that a 200 m buffer has been left "*to reduce the risk of long-term seed drift into the SPA and associated negative effects on ground nesting breeding bird populations.*" No reasoning is given at to how a figure of 200 m was arrived at.	**3.3** A 200 m buffer is being used as this was the distance used in the approved Grasshill FLA02371 restock proposal. This figure was deemed adequate by the Forestry Commission South Scotland Conservancy and we have therefore applied it to our restock proposal.
	3.4 Recent mapping work carried out in the Muirkirk and North Lowther Uplands SPA by RSPB Scotland on the spread and density of invasive Sitka spruce regeneration has demonstrated that high densities of invasive regenerating trees can be found up to 4 kilometres from the nearest plantation (see figure 2 in Annex 2). Therefore, we believe that a 200 m buffer is highly unlikely to be effective in preventing invasive regeneration in the SPA close to the proposed plantation areas.	**3.4** We appreciate that dispersal of seed from Sitka spruce can be widespread however in the case of Ponesk-Spireslack the topography and prevailing wind direction will greatly reduce the likelihood of this happening on the adjacent SPA/SSSI. The majority of productive conifers in the western half of the site will be established on lower, more sheltered slopes. Prevailing winds are from the west which will carry any seed east, away from the SPA/SSSI. A final additional measure we are proposing to implement prior to restocking is the removal of advanced Sitka spruce natural regeneration from the open ground immediately adjacent to the march fence on the north-western site boundary.
	3.5 In conclusion, we are of the opinion that a 200 m buffer is inadequate to prevent the spread of non-native invasive species within the SSSI (and SPA). There is no plan as to how the impact of seed spread might be controlled, and as such we believe that the planting design, as presented in the LMP, will have a negative impact on the features of both designated sites (SSSI and SPA).	**3.5** Noted. As stated in points 3.2 and 3.4, we are of the opinion that the measures we are proposing to implement will help to greatly reduce the likelihood of further regeneration of non-native species within the SSSI and SPA.
	4. Survey Work	
	4.1 We welcome the fact that bird surveys were carried out to inform the planting design. However, we note that the survey work did not start until 10th June, and as recognised in the breeding bird survey report, this is very late and likely means that breeding bird territories will have been missed. Also, as noted in the report, there was heavy snow in early May which may have had a negative impact on the breeding birds on site.	**4.1** Forestry and Land Scotland have commissioned a further survey for the 2022 breeding season to help ensure that the proposals made in this Land Management Plan have no significant effect on the adjacent SPA species. This survey will run from April to July 2022 to cover the full breeding season which we were unable to achieve in 2021.
	4.2 In the LMP, the efficacy of further survey work is questioned, since the plan will support "*a number of the species*" found during the surveys. However, of the 20 red and amber listed species recorded,	**4.2** See point 4.1.

	the plan has the potential to have a negative impact on all but 2, and without proper survey information to confirm their status it is impossible to tell the level of impact to these species from this proposal.	
	4.3 Furthermore, the LMP concludes that further survey work is "*highly unlikely to yield new information that would significantly alter the existing plan.*" We are unclear how this conclusion has been reached and ask for confirmation of the reasoning behind it.	**4.3** See point 4.1.
	4.4 We are also unclear as to the full extent of the survey across the site. From the photos included in the Appendix of the breeding bird survey report, it appears that only a small portion of the site was covered, specifically the areas which were previously planted and recently felled. We therefore request clarification of the coverage of the survey work on site.	**4.4** The area covered by the 2021 breeding bird survey was limited due to time constraints. The 2022 survey will cover the entirety of the site as well as a 700 m buffer around the site perimeter.
	4.5 In summary, we disagree with the conclusion in the LMP that further survey work is not required and recommend that a full suite of breeding bird surveys, including black grouse and scarce breeding birds (raptors) is undertaken to more fully inform the potential impact of this proposal.	**4.5** Noted. The 2022 breeding bird survey will allow Forestry and Land Scotland to fully determine the potential environmental impact of this proposal.
	5. Environmental Impact Assessment (EIA) Screening	
	5.1 - We note that, in chapter three, it is recognised that the area of new forestry (406ha) meets the threshold for EIA screening, which for new planting is anything over 20ha in area (Schedule 1 of the Forestry (Environmental Impact Assessment) (Scotland) Regulations, 2017). This is the only information relating to the EIA process in the LMP.	**5.1** Noted. A completed Scottish Forestry EIA Screening Opinion Request form is included in Appendix IV.
	5.2 In our opinion, there is insufficient information that will allow Scottish Forestry to form a screening opinion. In particular, we do not consider that there is a sufficient assessment of the impact of this proposal on the nearby SPA and SSSI, and that due to the incomplete information on the status of ornithological receptors derived from bird survey work undertaken, the impact on biodiversity on the site proposed for planting is unknown (as set out above).	**5.2** The findings of the 2022 breeding bird survey coupled with an EIA Screening Opinion Request form (see Appendix IV) will provide Scottish Forestry with sufficient information to form a screening opinion.
	5.3 We are unclear whether Scottish Forestry have been approached for an EIA screening opinion, and request that this information is supplied, along with any other information relevant to the decision-making process. If EIA screening has not been undertaken then we	**5.3** As aforementioned in point 5.2, Forestry and Land Scotland will provide Scottish Forestry with an EIA Screening Opinion Request form upon formal submission of the completed Land Management Plan.

	would advise that this process must happen before this plan is approved.	
	6. Planting Design and Recommendations	
	6.1 These recommendations are made based on the results of survey work as presented in support of this consultation and without prejudice to our comments in the rest of this response relating to the need for additional survey work and subject to the outcome of the HRA.	**6.1** Noted.
	6.2 We welcome the inclusion of a significant area of open ground and native broadleaved planting in the east of the site, and that peatland restoration will take place in this area. However, we note that the LMP says this will only take place "*where appropriate*" and will be subject to funding availability and an internal prioritisation process.	**6.2** We are glad to hear that you approve of our proposal for the east of the site. Forestry and Land Scotland's peatland restoration programme is currently prioritising larger schemes which offer the greatest ecological benefits in terms of priority habitat improvement and carbon capture. As such, smaller areas of isolated peatland such as those found at Ponesk-Spireslack which have less potential to be restored into larger hydrological units are classed as lower priority for restoration.
	6.3 However, as stated above, there is already a significant pressure on the SPA, SSSI and nearby open habitats from commercial forestry through habitat loss, habitat fragmentation and edge-effects. We believe that the current design will add to this pressure regardless of the mitigation proposed above.	**6.3** We disagree with this statement and believe that with some minor adjustments to the design, our proposal will improve biodiversity through an increased provision of potential woodland habitat, especially when combined with our proposed mitigation measures.
	6.4 The Ponesk-Spireslack site is ideally positioned to provide significant habitat enhancements to both the designated sites and the immediate surrounds. There is an opportunity to enhance habitats and connectivity between the constituent parts of the designated sites, but in our opinion, this has not been taken as part of this LMP.	**6.4** We are also of the opinion that Ponesk-Spireslack has great potential to significantly enhance habitats on site and on the ground immediately adjacent. We are looking to make minor changes to our design which will help to enhance habitats both on our site and the adjacent designated sites. These changes will primarily focus on improved edge design and increased connectivity between areas of native broadleaves already proposed for establishment.
	6.5 Therefore, we recommend the following changes to the planting design:	**6.5** We appreciate your suggested changes to our design and our response to your proposed changes is as follows:
	1. The two westernmost blocks of Sitka spruce are removed and planted as low-density native broadleaved woodland with areas of managed open space. This will significantly enhance the biodiversity value of the site, but most importantly provide a key habitat link between the constituent parts of the designated sites.	**1.** Forestry and Land Scotland seek to create multi-purpose, diverse woodlands that provide numerous social, economic and environmental benefits. Alongside Scottish Government funding, timber sales are a vital source of revenue to ensure that we can continue to sustainably manage Scotland's forests and land in perpetuity. Establishing some larger areas of productive conifer, where appropriate, is therefore important to ensure that we can achieve some return from the investments made when creating new woodlands, particularly on old opencast and vacant and derelict land sites. We are however adjusting our current design by replacing the Sitka spruce in the north of

			the westernmost blocks with low-density native broadleaves to help reduce potential edge-effects and improve habitat connectivity.
		2. The edge of the other two blocks of Sitka spruce are pulled back in line with the recommended buffer distances for the Caithness and Sutherland Peatlands SPA. This will help to reduce the negative impacts of this plantation on designated sites, ground nesting bird species and peatland habitats. The areas where the commercial forestry is pulled back should be planted with low-density native broadleaved species.	**2.** As discussed in point 1.5, we do not agree that the 800 m conifer buffer recommended for the Caithness and Sutherland Peatlands SPA is necessary in the areas you have suggested. We are however proposing a change to the current design, replacing the Sitka spruce in the north-west of this area (closest to the SPA/SSSI) with Macedonian pine. The latter is slower to establish and therefore more susceptible to weed competition, making natural regeneration of this species far less likely.
NatureScot	31/03/2022	Thank you for your consultation on the Ponesk-Spireslack Land Management Plan. Thank you also for sight of the 2021 bird survey report by Eagle-Eyed Surveyors. And thank you very much, too, for allowing an extension to the response deadline. Overall, we consider the plan to be well presented, with good reasoning, and the forest design is likely to result in the plan's main objectives (Chapter 5) largely being met. However, we would like to offer some comment which we believe, if implemented, could add to the success of the plan.	Thank you for your feedback. Sharing the 2021 breeding bird survey was the best way to provide you with all the information required to make a fair judgement of our Land Management Plan proposals. We greatly value the input from NatureScot and as such granted an extension to our response deadline. We're glad that you are generally happy with our proposals and welcome feedback that can further improve this Land Management Plan.
		Designated sites: section 7.4.4 of the plan notes that the clear-felled Grasshill area lies immediately adjacent to part of the Muirkirk and North Lowther Uplands SPA, sharing a c. 940 m length of boundary fence. We welcome the proposal to create a 200 m buffer zone of native broadleaf species, to separate the SPA from the new conifer plantings. Table 9 details the proposed buffer zone planting density, with 2.5 m x 2.5 m spacing and 800 stems/ha. We wish to recommend that, instead of uniform planting, trees are planted in such a way that there is a mosaic mix of areas of open ground, sparsely-planted ground and densely-planted ground. This method of planting, we believe, would result in a more natural-looking habitat which is more diverse biologically and more likely to be of benefit to, and utilised by, the SPA bird species. It would also be more attractive to other species such as black grouse and snipe.	An amendment will be made to the planting prescriptions shown in Table 9 as we agree that diffuse and irregular stocking will be more biologically and visually diverse. We have also lowered the stocking density to a maximum of 200 stems/ha which will be established in more densely planted groups creating a mosaic of native broadleaf woodland and open ground.
		Fencing: Section 7.2.3 describes the possible use of fencing to protect trees throughout the site. We advise that any deer-fencing used to protect the above buffer zone must be suitably marked to minimise bird strikes.	Any deer-fencing erected along the northern site boundary will be suitably marked to minimise bird strikes. Additions will be made to the Land Management Plan text and site maps to highlight this.

	Peat: we welcome the intention detailed in section 7.4.3 to investigate the requirement for, and feasibility of, peatland restoration within the c. 65 ha area of original peat soils in the vicinity of the Spireslack void. We would be happy to advise on this, if required, in due course.	Noted.
	Access: the Access Map shows that the project area has a good existing network of roads and tracks, which present a very attractive asset to the local community and visitors, for walking and cycling purposes. Section 7.5 of the plan states that there will be no further road or track creation, but we believe that it would be very useful to link the forest road in the westernmost compartment to the track at Berrie Craigs, ie to link across the Ponesk Burn, thereby creating another attractive circuit. Also, from experience, we know that the car park at Glenbuck is not large and is not especially easy to reach. If the woodland becomes as popular as seems likely, there may be a need to create a public car park at the much more accessible existing operational access point at the western, Ponesk end.	We currently do not have plans to extend this route over Berrie Craigs as this is not required for operational access. A route may develop as people make their way around the site under the Scottish Outdoor Access Code. Car parks take considerable planning and resource to manage and can become a magnet for anti-social behaviour. We will continue to monitor usage of the site and consider provision for visitors taking access as the site continues to develop and routes evolve.
	Further bird survey: the bird survey report is detailed and well illustrated, and we find the use of aerial photographs to be particularly helpful. Unfortunately, the survey began on 10th June 2021 which means that bird activity on-site in April, May and early June was not covered. This is not adequate for a true picture of bird activity and we agree with the surveyor's recommendation that further survey in April and May 2022 is necessary. Appendix 2, section 2.2 of the Land Management Plan, on page 33, states that further survey is not needed as it is "highly unlikely to yield new information which would significantly alter the existing plan". That might indeed turn out to be the case but the fact is that we cannot be certain. Consequently, and strictly speaking, under the Conservation (Natural Habitats etc) Regulations 1994, as amended, there is currently insufficient information to determine conclusively whether the proposal is likely to have a significant effect on the adjacent SPA species, and we therefore recommend that the bird survey is completed in 2022 and reported upon. We would be happy to comment on the further survey findings in due course.	Forestry and Land Scotland have commissioned a further survey for the 2022 breeding season to help ensure that the proposals made in this Land Management Plan have no significant effect on the adjacent SPA species. This survey will run from April to July 2022 to cover the full breeding season which we were unable to achieve in 2021.
	The Hagshaw Wind Energy Cluster: as you may be aware, NatureScot is involved in a project to produce a development framework for the Hagshaw Wind Energy Cluster, located to the immediate east of Spireslack. Given the many complementary activities identified in the Ponesk-Spireslack plan in respect of access provision, the diversification of habitats, and capitalising on the general area's	Noted.

		assets, we see a good opportunity for the Ponesk-Spireslack plan and the development framework to work together to deliver wider landscape-scale benefits in the area. We would be pleased to discuss this further with you.	
Historic Environment Scotland	08/06/2022	I have finally had the chance to look at the online information for Spireslack and can confirm that we foresee no significant issues for our statutory interests if the design stays as shown at this stage. It looks like there should be sufficient open ground around the monument to respect the UKFS requirement for a 20m buffer and to retain views between the monument and other elements of the village and industrial complex.	Thank you for taking the time to review the LMP documents available on our website. We're glad that you're in favour of our proposals at this stage.
		The only matter that we might want to see described in any detail is the nature of the forestry road which runs to the north of the scheduled ironworks. It looks like it follows an existing track that has already been well used by heavy machinery so it is presumably robust enough not to pose any danger to the ironworks, but in any finalised application it would be worthwhile making it clear how the track will be delineated and maintained and how its use would not pose a risk of accidental damage to the monument.	You are correct when stating that the road in question is actually an old mining road that has seen frequent use over the years. We are not proposing any road upgrades or construction during the 10 year LMP period as the road network present on site is already adequate for light vehicle/ATV access that will be required to facilitate tree planting. Moving east, away from the scheduled monument, the road becomes very steep with a gradient that is unsuitable for HGV access. It is likely that because of this, the majority of future HGV traffic such as timber lorries will use the route which runs directly north from Glenbuck Heritage Village. It's also worth noting that HGV access will only be permitted from the operational access in Ponesk, where the south-western extent of the site meets the A70. We will make some additions to the LMP document to be more explicit about how we manage the risk of any haulage operations and road maintenance work in relatively close proximity to the scheduled monument.
		Please note that HES's remit in this case would only extend to the scheduled monument; in the formal consultation process, impacts on undesignated archaeological remains would be addressed by the local authority's archaeological advisers. Local (and other) heritage interest groups are also likely to comment during the public consultation process.	Noted.

Appendix II: Supporting information

II/1 The existing forest and land

Grasshill, an 84 ha Sitka spruce plantation is present in the north east of the site. 77.2 ha was felled by the previous land owner in 2018 and FLS have taken on the restocking obligation upon acquiring the site.

A further 577.3 ha of open ground is present on site, the vast majority of which is former mining ground which is currently in the process of being mechanically remediated to a standard fit for woodland creation. A smaller proportion of natural ground is present which consists of species poor grassland and bracken on former rough grazing ground and steep riparian slopes. Also included in this area is 65 ha of blanket bog which is largely consolidated in two elevated blocks in the Spireslack (eastern) half of the site.

II/1.1 History of the land holding

The figures below are taken from historic Ordinance Survey maps. They illustrate the land use change over the last 120 years. Most notable is the expansion of open cast coal mining and the establishment of Grasshill forest plantation, on what was predominantly rough grazing historically.

Figure 2: Ordinance Survey. Contemporary.

Figure 3: Ordinance Survey. Surveyed/Revised 1908 to 1923, Published 1952.

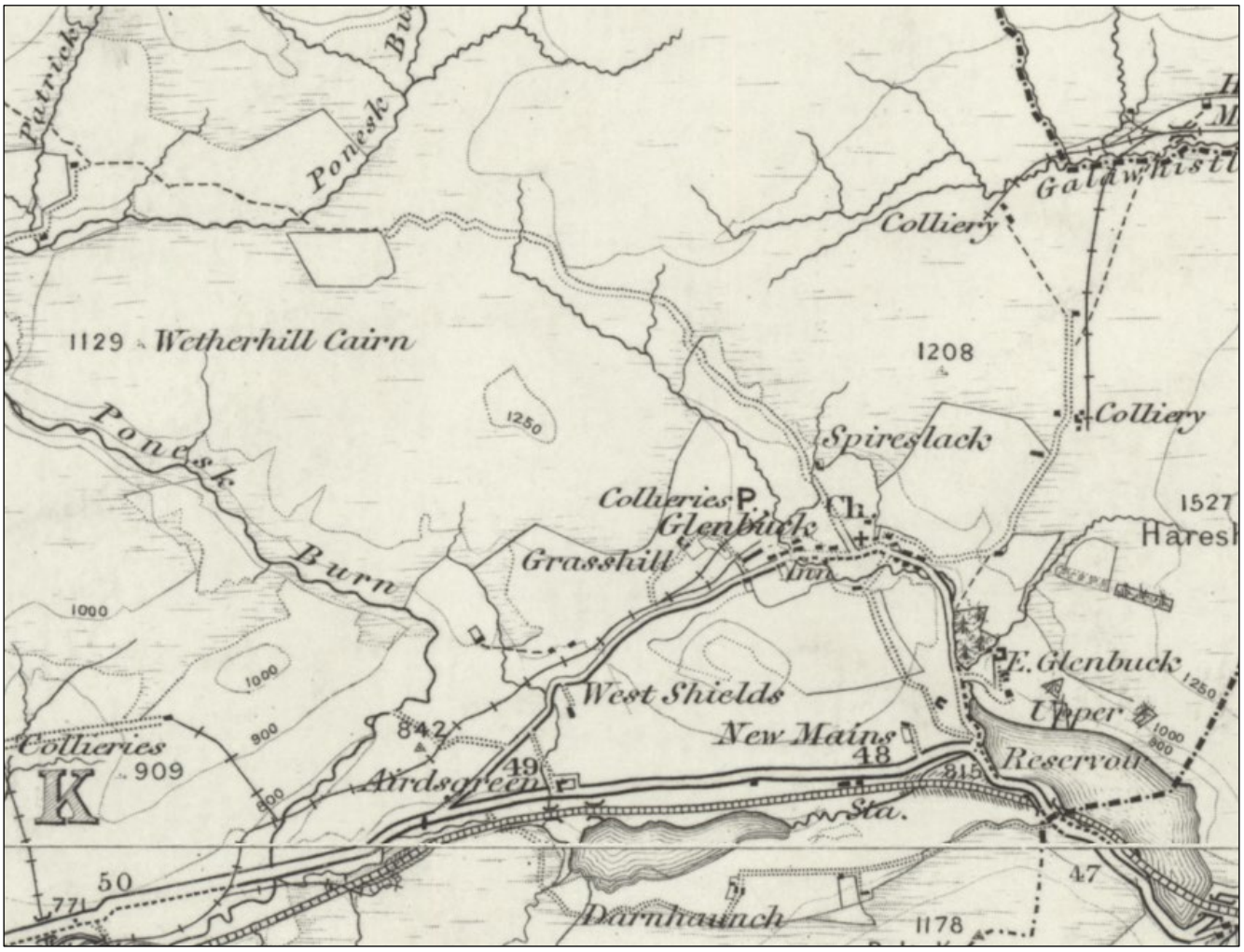


Figure 4: Ordinance Survey. Surveyed/Revised 1885 to 1895, Published 1897.

II/1.2 Physical site factors

II/1.2.1 Geology, soils and landform

Underlying geology at Glenbuck is a blend of Limestone Coal Formation and Upper Limestone Formation, as described by the British Geological Survey. The strata consist principally of sandstones, siltstones and mudstones with seatearths or seatclays and coals. In the restored opencast elements of the site these sequences have been amalgamated and mixed during removal and redistribution of overburden.

Soils on the restored opencast mine areas have been subject to stripping, relocation and recent mechanical de-compaction and enrichment with organic material. They are therefore mixed and disturbed in nature. Restored soils do not act as natural soils due to disturbance of structure and microbiological function. It has been documented by studies conducted by Forest Research that such disturbed soils are characterised by impeded drainage, a lack of cohesion with underlying layers and a heightened vulnerability to compaction. Restored coalfield soils are generally of clay

(2m) or coarse stone (2s) texture and have been de-compacted and enriched to a depth of 70 – 100 cm.

There are some fragmented areas of original soils across the Glenbuck site, that have avoided disruption during mining operations. These are generally located in the two steep-sided glens which cross the site from north to south (mineral soils), on the flatter hill tops south and north of the Spireslack void, and on the Grasshill restock area (mixed peaty and mineral soils).

Onsite topography has been extensively influenced by historic mining activity. Slopes formed of mining spoil have been re-profiled by the former land owner, to reflect the surrounding landform. These are broken north to south by naturally steep-sided glens and substantial former mining voids and rock faces.

II/1.2.2 Water

There are some 16 ponds and water filled voids on site. These are all associated with the former mining land use. Thus some are square, steep and man-made in appearance. Others have been profiled to a more natural shape. All are gradually being colonised by aquatic vegetation. All ponds on site will have operational buffering applied. Where this is not already established, wet woodland prescriptions shall be planted, with minimal to no ground preparation, in accordance with Practice Guide: Managing forest operations to protect the water environment.

Stottenclough Burn and Ponesk Burn run though the site from north to south, both set in steep-sided gullies. Lightshaw Burn and Galawhistle Burn initiate on site and drain west and east respectively, whilst Hareshaw Burn comes within 30 m at its closest point to the site boundary. Associated riparian areas will be enhanced with the planting of mixed native broadleaves, to a target canopy cover of 50%, as shown on the Planting map. These actions are in accordance with the UKFS and operations will adhere to the Practice Guide: Managing Forest Operations to Protect the Water Environment.

II/1.2.3 Climate

The site is generally classified as cool and wet with exposure ranging from moderate on the lower southern extent of the site to high and even severe in the most elevated areas of the site, near to the northern site boundary.

II/2 Biodiversity and environmental designations

II/2.1 Designations

941 m of the site boundary abuts with the Muirkirk and North Lowther Uplands SPA. As illustrated in the Planting map, the on-site area adjacent to the SPA is 84 ha of existing woodland, 77.2 ha of which is subject to restocking rather than afforestation. The SPA is cited for its assemblage of resident and breeding birds, including golden plover, short-eared owl, merlin, hen harrier and peregrine falcon. The SPA encompasses 26,833 ha of predominantly open moorland.

II/2.2 Habitats and species

In 2021, FLS appointed Eagle-Eye Surveyors to conduct a bird survey report in order to ascertain the likely impact of afforestation on breeding birds within and adjacent to the footprint of the site. Due to survey limitations, this initial survey did not capture the early part of the breeding season with surveys taking place between 10/06/2021 and 25/07/2021 and omitting the month of May, a critical stage in the breeding season for a number of upland species, waders and raptors.

In order to ensure a comprehensive account of the species present was provided, a second survey was commissioned in 2022 using RPS as the primary survey contractor. The second survey encompassed a larger target area and included a 700 m buffer around the proposed afforestation footprint. The second survey also covered a longer timeframe with surveys taking place between 29/04/2022 and 14/07/2022, thus capturing a more comprehensive overview of the species present and their breeding range.

The initial survey conducted by Eagle-Eye Surveyors recorded three species which form qualifying interests as part of the Muirkirk and North Lowther SPA:

- **Hen harrier**
- **Merlin**
- **Peregrine**

Of the three qualifying species recorded, none were seen to be actively breeding within or directly adjacent to the site footprint. It was however noted that peregrine had attempted to breed within the site earlier in 2021 but had failed to successfully raise a brood. The two other qualifying species of the Muirkirk and North Lowther Uplands SPA, short-eared owl and golden plover were notably absent with no records either within of directly adjacent to the site footprint. Curlew were observed but not found to be breeding. Assumptions were made that the curlew may have unsuccessfully attempted breeding earlier in the year. The report indicated that breeding numbers of red listed passerines found across the site were considered to be low. It was speculated that poor habitat quality as a result of sheep browsing and associated disturbance as well as predation by corvids were likely influencing factors.

The 2021 survey gave the following recommendations:

- **A secondary survey should be conducted in the 2022 breeding season:** This recommendation was accepted and a second survey was conducted by RPS in 2022.
- **The area between the forest road and SPA should not be planted with commercial species. Instead the inclusion of broadleaved scrub would provide an ecological niche currently absent from the landscape:** This recommendation was accepted and soft edged, low density broadleaved scrub will be established along the margins of the site footprint as recommended.
- **Areas of potential deep peat are assessed and where suitable, remediated and retained as open habitat:** This recommendation was explored and partially implemented with

peatland restoration assessments conducted in December 2021. The assessments concluded that peatland restoration was not a viable option for the areas in question, however significant areas of open habitat were retained around waterbodies and mining voids to provide ecological niches for a range of species.

- **The creation of small scrapes as habitat for waders:** This recommendation was accepted and all existing waterbodies will be retained and afforded an open space buffer in order to provide habitat to waders and wintering waterfowl. Furthermore, opportunities will be taken as part of the work planning process to identify opportunities to create additional scrapes and ponds throughout the duration of the Land Management Plan period.
- **The reduction of corvid numbers to reduce predator impacts on breeding waders and passerines:** This recommendation is being further considered. Any active predator control measures will require conclusive evidence and monitoring before they could reasonably be implemented. Ongoing monitoring and further assessment will be conducted within the term of this Land Management Plan period.
- **The reduction of grazing pressure to improve the quality of the habitats within the site:** This recommendation was accepted and fences will be erected as part of the woodland creation process and all sheep removed from site prior to woodland establishment. The exclusion of sheep will be an essential component to allow for woodland creation within the site footprint and open habitat quality should improve as a result.

The survey conducted by RPS in 2022 highlighted the presence of two species which form qualifying interests as part of the Muirkirk and North Lowther Uplands SPA:

- **Peregrine**
- **Hen harrier**

Other qualifying interest species, short-eared owl, merlin and golden plover were notably absent. Of the qualifying species recorded, only peregrine were found to be breeding within or adjacent to the site footprint and the 700 m survey boundary. A single pair of curlew were recorded breeding within the site footprint, two further breeding pairs were identified within the 700 m buffer around the site.

The 2022 survey gave the following recommendations:

- **The inclusion of a soft-edged broadleaf buffer along two sections of the eastern site margin to increase habitat connectivity, improve habitat value and reduce edge-effects:** The original planting design proposed an intimate mixture of Sitka spruce and common alder in this area. Based upon this recommendation, an amendment has been made to the planting design. This increases the broadleaf buffer adjacent to the Norway spruce from 10 m to a minimum of 20 m and creates a variable broadleaf buffer between the Sitka spruce and site boundary with a minimum width of 20 m.

In conclusion, the scheme is not expected to adversely impact the integrity of the Muirkirk and North Lowther Uplands SPA or any of its qualifying species. It is acknowledged that there will be a loss of breeding and foraging habitat for small numbers of passerine species and waders (most notably curlew) as a result of the proposed afforestation of this site. However, the scheme is designed to accommodate a wide range of species and should provide increased foraging and nesting opportunities for a range of species including many qualifying species of the Muirkirk and North Lowther Uplands SPA such as; hen harrier, merlin and peregrine.

The recommendations made in the reports listed above have been reviewed, assessed and incorporated into the design of this site. Every effort has been made to limit any potential negative effects of afforestation whilst maximizing the potential benefits that woodland habitat creation will provide for a range of species. It is considered that this scheme will create a diverse woodland and provide a range of ecological functions and habitat niches currently absent within the landscape, increasing biodiversity at a landscape scale as a result.

Furthermore, mitigatory measures will be implemented to minimize the negative effects to birds during cultivation, planting and harvesting operational phases of the scheme. In the event of works taking place during the bird breeding season, pre-commencement surveys will be undertaken to identify the presence of nesting birds and associated nest sites. Depending upon species and associated designations, a buffer zone excluding operational interference will be applied at a distance specified in current NatureScot guidance.

II/3 Landscape

The wider landscape at Glenbuck has been altered through several phases of coal mining. Most recently, a land-forming operation undertaken by Scottish Mines Restoration Trust has shaped mining spoil and infrastructure to a point where it is visually more in-keeping with the surrounding landscape.

II/3.1 Landscape character

Glenbuck falls within the ‘Plateau Moorlands – Ayrshire’, ‘Pleateau Moorlands - Glasgow and Clyde Valley’ and ‘Upland River Valleys – Ayrshire’ landscape character types, as defined by Scottish Natural Heritage. The former two landscape types are broadly described as a large scale landform, with distinctive upland character created by the combination of elevation, exposure, smooth plateau landform and moorland vegetation. Windfarms are abundant throughout this landscape type, but settlements relatively sparse. The latter is a varied river valley landform with broad open sections which contrast with steeper valley slopes and narrow, more enclosed valleys. These valleys are often the focus for settlement and transport routes as well as mineral extraction due to rich underlying geology.
Further details can be accessed directly from Scottish Natural Heritage at:

https://www.nature.scot/professional-advice/landscape/landscape-character-assessment/scottish-landscape-character-types-map-and-descriptions

II/3.2 Visibility

Glenbuck is relatively prominent in terms of visibility. This is due to a number of raised and landscaped landforms with direct adjacency to the A70 which links Muirkurk (4 km to the west) and Douglas (10 km to the east). Afforestation at Glenbuck will be most noticeable in views from the A70, when travelling westward past the eastern most extent of the site, and in views from neighbouring properties directly adjacent to the western most outcrop of the site. It will also be visible as part of wider panoramic views from Cairn Table, and from some sections of the associated Core Paths.

II/3.3 Design considerations

There are two main viewpoints which have been considered in the planting design. These are the view from the Glenbuck Heritage Village up to the old viaduct pillars and the view north from Cairn Table, a 593 m hill located approximately 6 km south-west of Glenbuck which is a popular climb for many walkers. The following visualisations help to illustrate how the mature forest may look from both of these viewpoints.

Design considerations have also been made with regards to the Spireslack void which is a feature of great geological importance. The area immediately surrounding the void will be left as open ground to maintain uninterrupted views of the feature from a number of vantage points.

Forestry and Land Scotland
Coilltearachd agus Fearann Alba

Glenbuck

View: Towards Glenbuck viaduct
Grid Ref: NS 7473 2977
Date: July 2021

Visualisation of Future Habitat and Species

Species Mix

Autumn Colours

Felling Phases have a rolling 5 year period and for visualisations start on the date shown above.

Sitka spruce	185864 stems	180.17Ha	38%
Downy birch	99902 stems	68.58Ha	15%
Common alder	118310 stems	66.69Ha	14%
Rowan	69494 stems	38.22Ha	8%
Lodgepole pine	39807 stems	33.17Ha	7%
Macedonian pine	23570 stems	22.47Ha	4.8%
Mixed broadleaves	25208 stems	21.01Ha	4.4%
other conifers	25208 stems	21.01Ha	4.4%
Norway spruce	10234 stems	8.53Ha	1.81%
Scots pine	6129 stems	5.57Ha	1.18%
Goat willow	5490 stems	4.58Ha	0.97%
Hazel	1410 stems	0.78Ha	0.165%
Hawthorn species	1410 stems	0.78Ha	0.165%
Blackthorn	1410 stems	0.78Ha	0.165%

Scotland's National Forest Estate is responsibly managed to the UK Woodland Assurance Standard.

FSC
The mark of responsible forestry

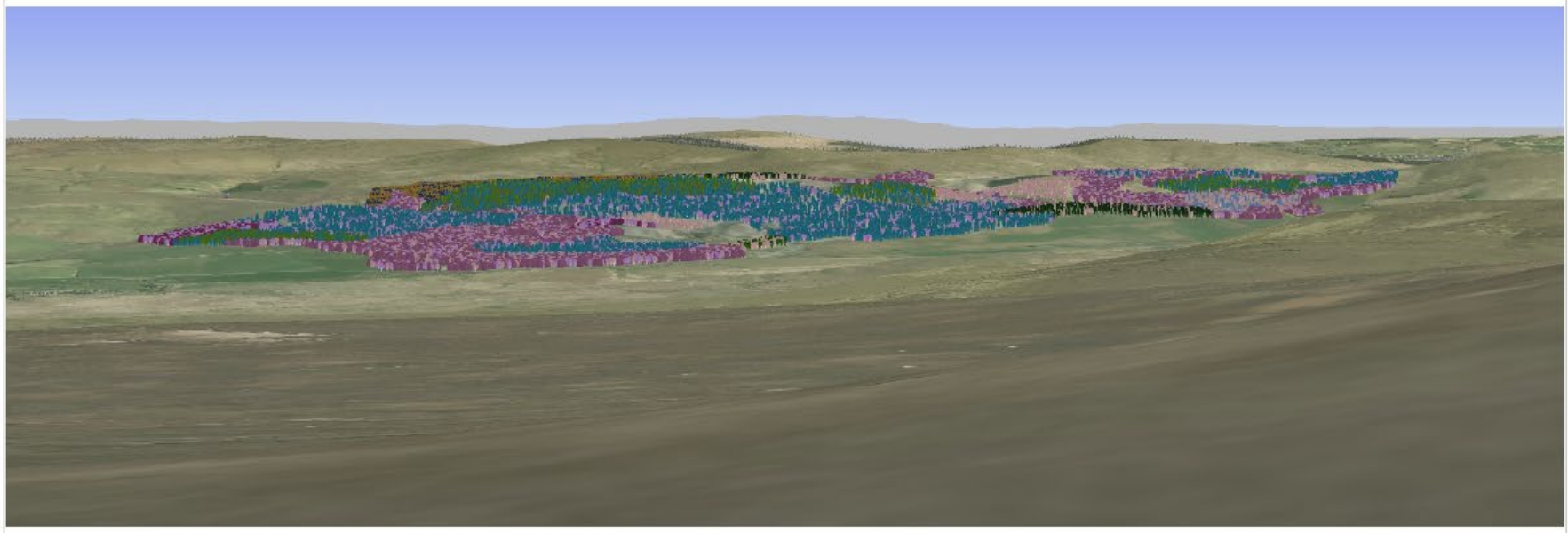
PEFC

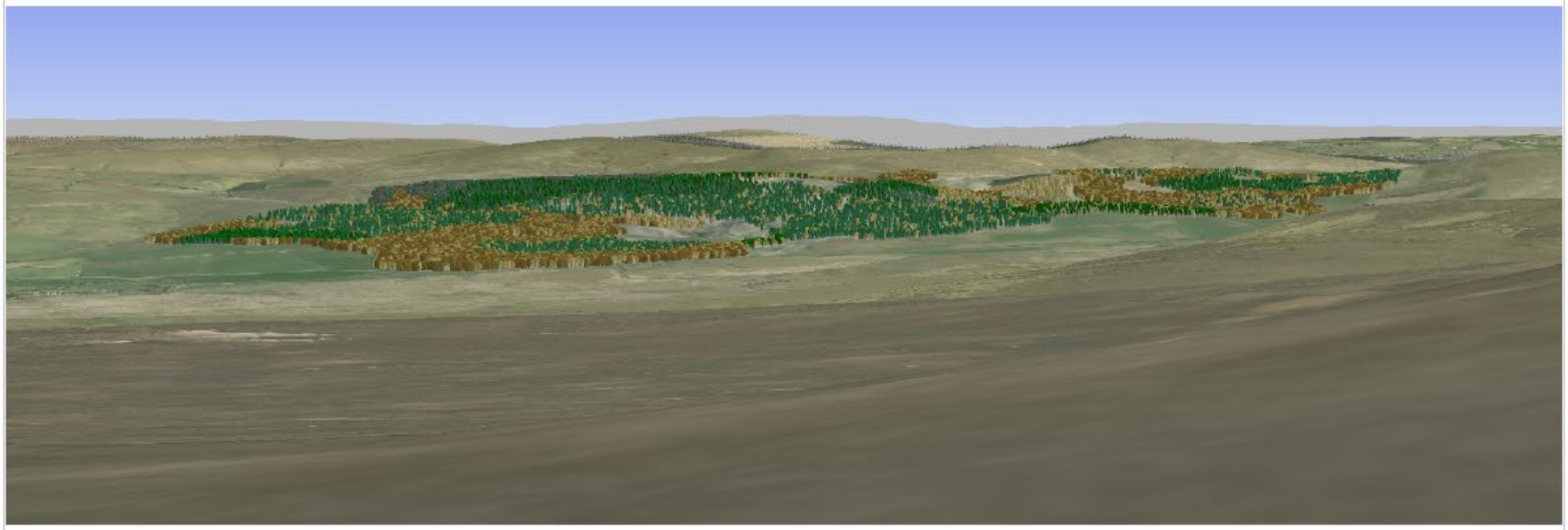
Forestry and Land Scotland
Coilltearachd agus Fearann Alba

Glenbuck

View: From Cairn Table facing N
Grid Ref: NS 724 243
Date: July 2021

Visualisation of Future Habitat and Species





Species Mix

Autumn Colours

Felling Phases have a rolling 5 year period and for visualisations start on the date shown above.

- Common alder — 738411 stems 127.96Ha 27%
- Sitka spruce — 608493 stems 125.14Ha 26%
- Downy birch — 457299 stems 79.21Ha 17%
- Rowan — 290106 stems 38.29Ha 8%
- Lodgepole pine — 165864 stems 33.17Ha 7%
- other conifers — 105041 stems 21.01Ha 4.4%
- Mixed broadleaves — 105041 stems 21.01Ha 4.4%
- Macedonian pine — 68696 stems 13.74Ha 2.9%
- Norway spruce — 42642 stems 8.53Ha 1.79%
- Goat willow — 22879 stems 4.58Ha 0.96%
- Scots pine — 18459 stems 3.69Ha 0.78%

Scotland's National Forest Estate is responsibly managed to the UK Woodland Assurance Standard.

FSC
The mark of responsible forestry

PEFC

II/4 Heritage

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

The Regional Historic Asset Management Plan includes conservation management intentions for those designated historic assets in Scotland's national forests. Details of all known historic environment features are held within the Forester Web Heritage Data (built using national and regional historic environment records) and included within specific operational Work Plans to ensure damage is avoided. Significant historic environment features will be depicted on all relevant operational maps.

II/5 Statutory requirements and key external policies

- Scotland's Forestry Strategy 2019-2029
- A Land Use Strategy for Scotland 2016-2021
- The UK Forestry Standard 2017
- UK Woodland Assurance Scheme 2018
- Central Scotland Green Network: Delivery Plan 2030
- SNH National Landscape Character Assessment 2019

Appendix III: LMP brief

III/1 Key background information

III/1.1 Introduction

- Glenbuck is a 686.6 ha former opencast coal mining site situated north of the A70 near Muirkirk, East Ayrshire.
- The site was owned by Scottish Coal, who ceased operations in 2013. Land forming operations were undertaken by the Scottish Mines Restoration Trust and Banks Mining Ltd. and completed in 2018.
- The site has been under FLS ownership since 2019. Soil remediation operations are ongoing, and being carried out by a third party, under a licence agreement with FLS. FLS are working with the licensee to ensure that results are to FLS specification, i.e. fit for woodland establishment and sustained tree growth. Remediation operations are regulated by SEPA.
- The site is adjacent to the 26,832 ha Muirkirk and North Lowther Uplands SPA, cited for populations of Annex 1 bird species and priority upland habitat.
- The neighbouring Glenbuck Heritage Village (East Ayrshire Council) is the location of a former mining village and earlier Glenbuck Ironworks (scheduled Monument). The former village site has strong historic links with local communities and with Liverpool Football Club, as referenced on interpretation boards and plaques on site. The scheduled monument relates to an earlier phase of extraction (1795 – early 19th century) and encompasses bell-pits, spoil heaps, trackways and remains of buildings and a blast furnace. Heritage features within the Glenbuck land holding relate to the more recent phases of coal extraction, including footings of a former viaduct and rail routes, mine trollies and building foundations.
- Glenbuck encompasses several large voids and exposed rock faces, associated with mining activity, that are of educational interest to such groups as the British Geological Survey.
- The site falls within the Fringe zone of the Central Scotland Green Network (CSGN) project area.

III/1.2 Silvicultural potential

- FR climate models classify the site as cool and wet. The complex topography across the site means that DAMS scores vary, from 14-16 on lower slopes and gullies, up to 18 and 19 on the hill tops. Elevations are 240 – 280 m.
- 77 ha of Sitka spruce plantation on site (Grasshill) was felled by the former site owner in 2018. This requires restocking. The natural soils here are peaty gley, deep peat, podzols and brown earth. The restock area is subject to some of the highest exposure on site. A mixed planting design will take into account buffering from the adjacent SPA and protection of steep riparian slopes.
- Remediated former mining soils are variable at a sub-compartment scale, but typically a mixture of boulder clay with lesser or greater components of shale and sandstone. These soils have been

mechanically de-compacted and enriched to a depth of 70 - 100 cm. The continued conditioning of such restored soils will be aided by a first rotation of mixed conifer with a broadleaf nurse.

- There is a minor component of former agricultural grazing ground on site, both at the far western extremity and on the slopes just east of Glenbuck. Brown gleys and typical surface water gleys here offer an opportunity for a wider selection of suitable species. Lower, riparian gullies, currently occupied by bracken and patches of heather on podzols and brown earths, are suitable for low density mixed broadleaves.
- A significant block of raised blanket bog on the eastern half of the site, remains in reasonable condition, and will be excluded from afforestation.
- Coupe design and species selection must be carefully considered around the Glenbuck Heritage Village and the main Spireslack void to provide an attractive and appropriate setting, which compliments various viewpoints, access routes and heritage features.

III/2 Strategic Drivers

To succeed in realising the vision as set out in the Scottish Forestry Strategy 2019-2029, six 'Priorities for Action' been identified for implementation:

- ***Ensuring forests and woodlands are sustainably managed***
- ***Expanding the area of forests and woodlands, recognising wider land-use objectives***
- ***Improving efficiency and productivity, and developing markets***
- ***Increasing the adaptability and resilience of forests and woodlands***
- ***Enhancing the environmental benefits provided by forests and woodlands***
- ***Engaging more people, communities and businesses in the creation, management and use of forests and woodlands***

As detailed in Forestry and Land Scotland's Corporate Plan 2019-2022, we have developed five Corporate Outcomes to guide our work during this period. Each Corporate Outcome sets out a position statement of where we want to be by 2022. The Corporate Outcomes support the delivery of the Scottish Forestry Strategy Priorities for Action, listed above. In brief, the FLS Corporate Outcomes are:

1. ***Supporting a sustainable rural economy***
2. ***Looking after Scotland's national forests and land***
3. ***National forests and land for visitors and communities***
4. ***A supportive, safe and inclusive organisation***
5. ***A high performance organisation***

In preparing the Brief and Objectives for this Land Management Plan (LMP) for Glenbuck, site opportunities and constraints relating to delivery of the Corporate Outcomes were evaluated. Those most relevant to Glenbuck are detailed below.

III/3 Draft LMP objectives

Table 11: Relevant Corporate Outcomes and actions for their delivery derived from the FLS Corporate Plan 2019, leading to draft Glenbuck LMP objectives.

Corporate outcomes relevant to this LMP	Operational Actions for delivery of corporate outcomes, relevant to this LMP	LMP action points
Outcome 1: Supporting a Sustainable Rural Economy FLS supports a sustainable rural economy by managing the national forests and land in a way that encourages sustainable business growth, development opportunities, jobs and investments.	• Managing the national forests and land in accordance with the UK Woodland Assurance Scheme (UKWAS) to ensure that timber and other products produced by FLS are guaranteed to be from a sustainably managed resource • Providing a sustainable supply of timber to Scotland's timber processing sector • Support the venison processing sector through our deer management • Bringing opportunities for further renewable energy projects to the market and helping to facilitate the development of projects which achieved planning consent	• Create a land management plan which meets UKFS/UKWAS requirements and where possible guidelines. • Enhance the long-term sustainable productivity and resilience of the site through selection of site and climate suitable species for new planting areas. • Optimise yield and timber quality through sound long-term silvicultural prescriptions and harvest coupe design, with site climate and site constraints considered. • Design open space and infrastructure to facilitate safe and efficient deer management operations to improve opportunities for natural regeneration and support the venison processing sector. • Engage with current third party renewable development interests and with future FLS offerings.

Outcome 2: Looking after Scotland's national forests and land Scotland's national forests and land are looked after; biodiversity is protected and enhanced; and more environmental services are provided to people.	• Managing the national forests and land to further the conservation and enhancement of biodiversity • Maintaining and enhancing our work on peatland restoration • Collaborating with partners on integrated landscape-scale approaches to habitat management and restoration • Taking specific conservation action for vulnerable priority species • Supporting policy development and research, and act as a testbed for new and innovative approaches to forestry and land management	• Design new planting and restock areas to improve species and structural diversity. • Prescribe habitat types throughout the site, including open, native broadleaf and conifer woodland, to best complement existing site features and link neighbouring habitat areas. • Investigate priority habitat and peatland restoration opportunities for existing peatlands. • Follow best practice guidelines for remediation and establishment of new woodland on former mining sites, including monitoring and recording outcomes for wider analysis and learning.

Outcome 3: National forests and land for visitors and communities Everyone can visit and enjoy Scotland's national forests and land to connect with nature, have fun, benefit their health and wellbeing and have the opportunity to engage in our community decision making.	• Maintaining walking and biking trails to promote fun in the outdoors, focusing on improving entry level experiences for everyone to enjoy and gain health benefits • Continuing to remove barriers to ensure that people from all backgrounds can and do access the full range of benefits of the national forests and land • Enabling outdoor learning and encouraging schools and community groups to make use of the national forests and land • Continuing to engage communities in decisions relating to the management of the national forests and land • Continuing to support community empowerment by enabling communities to make use of the national forests and land to benefit their communities	• Maintain access routes consulted on and installed by Scottish Mines Restoration Trust, and design adjacent woodland settings appropriately. • Where possible facilitate viable community lead projects/developments on site, as a land owner. • Design new woodland areas to provide a diverse, interesting and sensitive setting for recreational access associated with Glenbuck Heritage Village. • Consider access design that may best provide opportunities for education, in relation to geological, heritage and ecological features. • Continue to consult with local communities, schools and stakeholders throughout the Land Management Plan process.

Appendix IV: EIA screening opinion request form

Form located overleaf.

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Environmental Impact Assessment
Screening Opinion Request Form

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

Proposed Work

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

Proposed Work	select	Area in hectares	% Conifer	% Broad-leaves	Proposed work	select	Area in hectares
Afforestation	☒	406	62	38	Forest roads	☐	
Deforestation	☐				Forest quarry	☐	
Location of work		Glenbuck, near Muirkirk, East Ayrshire.					

Description of Forestry Project and Location

Provide details of the forestry project (size, design, use of natural resources such as soil, and the cumulative effect if relevant).
Please attach map(s) showing the boundary of the proposed work and other known details.

Glenbuck is a former opencast coalmining site. Forestry and Land Scotland (FLS) plan to expand existing woodland on site, with 406 ha of afforestation.

309 ha of the afforestation area is on former mining ground. Man-made soils here are currently being mechanically remediated in preparation for woodland creation. This operation is regulated by SEPA.

97 ha is on natural ground. This consists of species poor grassland and bracken on former rough grazing ground and steep riparian slopes. Soils here are surface water gleys, peaty gleys and some brown earths.

Coniferous planting prescriptions are focused on restored former mining ground, with some additional area on natural species-poor grasslands, away from environmental constraints. Coniferous planting prescriptions incorporate broadleaf nurses, and will be managed as productive forestry.

Broadleaf planting prescriptions are focused on delivering biodiversity and amenity objectives. They will be low density in nature, including 50% open space. Broadleaf planting will be largely located on slopes, riparian areas, adjacent to recreational infrastructure and as buffers between conifer planting and priority open habitats. Species

mixture prescriptions include: native mixed broadleaf (NVC W17), native montane (NVC W19, W4), wet woodland (NVC W4, W7), and native shrubs. Species mixtures will be assigned accordingly. Once established, these areas will be largely managed under a minimum intervention prescription, to allow natural processes to develop.

Areas of existing priority terrestrial habitat on site, such as blanket bog, upland heathland and upland flushes, fens and swamps, will remain unplanted.

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

Existing Land Use breakdown:

Existing woodland - Felled.	77.2 ha.	11%
Existing woodland - Standing.	6.8 ha.	1%
Open ground.	577.3 ha.	84%
Open water (ponds).	25.3 ha.	4%
Total	686.6 ha	

The site has been subject to a terrestrial habitat and soils survey, conducted by a third party contractor.

Population and human health:
Glenbuck is located approximately 6 km east of the village of Muirkirk which has a population of just under 2000. Immediate neighbours include Lightshaw Farm to the west and Glenbuck Home Farm to the south-east. The Glenbuck Heritage Village, with its carpark, interpretation boards, plaques and memorials, is the primary focal point for recreation locally. Footfall at Glenbuck is subsequently concentrated in areas directly adjacent to Glenbuck Heritage Village. Interpretation at the heritage site includes a map of walking routes based on the established forest road network on the Glenbuck site. Access between the two sites is gained from the carpark at Glenbuck Heritage Village via pedestrian gates already installed in the march fence. The River Ayr Way, a long-distance footpath following the River Ayr from source to sea, originates at the source of the river at Glenbuck Loch to the south-east of the site.

For future harvesting operations, timber transport will be carried out on the sites internal road network. All timber will be dispatched from the south-western site entrance and onto the A70 which is an Agreed Route by the Timber Transport Forum. No timber lorries will gain access or egress from the Glenbuck Heritage Village access road.

Priority habitats:
The open ground listed above includes 65 ha of blanket bog. This is largely in two consolidated, elevated blocks in the centre and northern fringe of the eastern half of the site. This area of bog has been subject to some historic agricultural draining and dyking.

Water:
There are some 16 ponds and water filled voids on site. These are all associated with the former mining land use. Thus some are square, steep and man-made in appearance. Others have been profiled to a more natural shape. All are gradually being colonised by aquatic vegetation.

Watercourses:
Stottenclough Burn and Ponesk Burn run through the site from north to south, both set in steep-sided gullies. Lightshaw Burn and Galawhistle Burn initiate on site and drain west and east respectively, whilst Hareshaw Burn comes within 30 m at its closest point to the site boundary.

Muirkirk and North Lowther Uplands Special Protection Area:
941 m of the Glenbuck site boundary abuts with the Muirkirk and North Lowther Uplands SPA. As illustrated in the Planting map, the on-site area adjacent to the SPA is 77.2 ha of existing woodland, thus subject to restocking rather than afforestation. The SPA is cited for its assemblage of resident and breeding birds, including golden plover, short-eared owl, merlin, hen harrier and peregrine falcon. The SPA encompasses 26,833 ha of predominantly open moorland.

Muirkirk Uplands Site of Special Scientific Interest:
The Muirkirk Uplands SSSI partly underpins the Muirkirk and North Lowther Uplands SPA and as such covers a similar footprint, abutting a stretch of the Glenbuck north-western site boundary and an area to the south of the A70 which runs close to the southern site boundary for Glenbuck. The SSSI is characterised by a variety of habitats. These include heather dominated moorland, acid grassland and blanket bog in the upland areas, dry heath dominated by heather on steeper mid-slopes and blanket bog transitioning into acid grassland on shallow peat and mineral soils on lower ground.

Glenbuck Loch, Woodland & Floodplain Local Nature Conservation Site:
To the south-east of Glenbuck lies Glenbuck Loch which provides a variety of habitat types. Glenbuck Loch and the adjacent woodland and floodplain has been designated as a Local Nature Conservation Site within East Ayrshire. The upper River Ayr floodplain includes scattered scrub, swamp and marsh and the mature policy woodland around Glenbuck Home Farm improves the habitat diversity of the site.

Glenbuck Heritage Village and Glenbuck Ironworks Scheduled Monument:
Glenbuck surrounds the Glenbuck Heritage Village, on three of four sides. The Glenbuck Heritage Village is owned and maintained by East Ayrshire Council and encompasses the Glenbuck Ironworks Scheduled Monument. Glenbuck village (now remaining in footings and foundations only) was a community associated with employment at the Ponesk and Spireslack mines. The current Glenbuck site encompasses several remnants of associated

infrastructure, including: viaduct pillars, footings of buildings, spoil heaps and discarded mine trollies. These are mainly scattered in the valley directly to the north of the Glenbuck site, and of particular value as visual links from the Heritage Village to the adjacent landscape.

Geology and soils:
Underlying geology at Glenbuck is a blend of Limestone Coal Formation and Upper Limestone Formation, as described by the British Geological Survey. The strata consist principally of sandstones, siltstones and mudstones with seatearths or seatclays and coals. In the restored opencast elements of the site these sequences have been amalgamated and mixed during removal and redistribution of overburden.

Soils on the restored opencast mine areas have been subject to stripping and relocation. They are therefore mixed and disturbed in nature. Restored soils do not act as natural soils due to disturbance of structure and microbiological function. It has been documented by studies conducted by Forest Research that such disturbed soils are characterised by impeded drainage, a lack of cohesion with underlying layers and a heightened vulnerability to compaction. Restored coalfield soils are generally of clay (2m) or coarse stone (2s) texture and have been de-compacted and enriched to a depth of 70 – 100 cm.

There are some fragmented areas of original soils across the Glenbuck site that have avoided disruption during mining operations. These are generally located in the two steep-sided glens which cross the site from north to south (mineral soils), on the flatter hill tops south and north of the Spireslack void, and on the Grasshill restock area (mixed peaty and mineral soils).

Landscape:
Glenbuck falls within the ‘Plateau Moorlands – Ayrshire’, ‘Pleateau Moorlands - Glasgow and Clyde Valley’ and ‘Upland River Valleys – Ayrshire’ landscape character types, as defined by Scottish Natural Heritage. The former two landscape types are broadly described as a large scale landform, with distinctive upland character created by the combination of elevation, exposure, smooth plateau landform and moorland vegetation. Windfarms are abundant throughout this landscape type, but settlements relatively sparse. The latter is a varied river valley landform with broad open sections which contrast with steeper valley slopes and narrow, more enclosed valleys. These valleys are often the focus for settlement and transport routes as well as mineral extraction due to rich underlying geology.

Onsite topography has been extensively influenced by historic mining activity. Slopes formed of mining spoil have been re-profiled by the former land owner, to reflect the surrounding landform. These are broken north to south by naturally steep-sided glens and substantial former mining voids and rock faces.

Description of Likely Significant Effects

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

Priority habitats:
Peat soils are particularly sensitive to disturbance caused by forestry establishment.

Muirkirk and North Lowther Uplands SPA and Muirkirk Uplands SSSI:
The relative scale and locations of the SPA and Glenbuck is illustrated in the site Location map. The SPA (26,833 ha) is cited for breeding populations of Golden plover, amongst other ground nesting birds. This species is particularly sensitive to tree cover adjacent to nesting sites. As illustrated in the site maps, afforestation proposed at Glenbuck is 350 m away from the SPA in the north of the site, and 100 m away in the south (adjacent to the A70 and River Ayr Way). There is an area of existing woodland in the north of the site which abuts the SPA. Restock design in this area is detailed below.

The perimeter of the SPA is 257.5 km. The proportion abutting the restock area at Glenbuck is 941 m, which equates to 0.37%. Potential impacts of land management at Glenbuck on the adjacent SPA can therefore be considered extremely localised at most. The conservation status of the designated features are not likely to be affected by the proposed woodland creation at Glenbuck.

Breeding bird surveys were commissioned by FLS and carried out in 2021 and 2022. The resulting reports and FLS summary statement of its outcomes are attached.

Glenbuck Heritage Village and Glenbuck Ironworks Scheduled Monument:
FLS have worked in partnership with SMRT, East Ayrshire Council and associated community groups during the development of the Glenbuck Heritage site. FLS have access to associated background information and reports. Additionally, FLS have assessed aerial photography in detail and undertaken extensive site walks to accurately locate landscape heritage features within the Glenbuck valley. This has informed the forest design, to ensure that sight lines and access routes are maintained and features are protected from operations, as detailed below.

Woodland creation on the Glenbuck site will effectively deliver restoration of a brownfield, former extractive industrial site to quality greenspace. The resulting landscape and setting for the Glenbuck heritage features and the visitors that they attract will be more diverse, complex, biodiverse and interesting.

Soils:
Soils on the restored opencast mine areas have been recently mechanically de-compacted and enriched with organic material. This remedial process will have improved the nutrient status and structure of the soils however they are still disturbed in nature and as such won't initially function like a natural soil.

Landscape:
Glenbuck is relatively prominent in terms of visibility. This is due to a number of raised and landscaped landforms with direct adjacency to the A70 which links Muirkurk (4 km to the west) and Douglas (10 km to the east). Afforestation at Glenbuck will be most noticeable in views from the A70, when travelling westward past the eastern most extent of the site, and in views from neighbouring properties directly adjacent to the western most outcrop of the site. It will also be visible as part of wider panoramic views from Cairn Table, and from some sections of the associated Core Paths. Design mitigation is detailed below.

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

Local community groups, RSPB, NatureScot, Scottish Forestry and British Geological Survey have all been shown concept woodland creation plans. During a formal period of consultation, all parties were asked to provide feedback on the draft Land Management Plan. The resulting feedback and Forestry and Land Scotland responses can be found in the consultation record table which is located in Appendix I of the Land Management Plan.

Mitigation of Likely Significant Effects

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

Priority habitats:
Bogs at Glenbuck will be excluded from afforestation, and opportunities instead will be explored to restore their natural functionality, where possible. Upland heathlands, and upland flushes, fens and swamps are distributed sparsely across the site. These will also be excluded from afforestation.

Water:
All ponds on site will have operational buffering applied. Where this is not already established, wet woodland prescriptions shall be planted, with minimal to no ground preparation, in accordance with Forest and Water Guidelines and Practice Guide: Managing forest operations to protect the water environment.

Watercourses:
Associated riparian areas will be enhanced with the planting of mixed native broadleaves, to a target canopy cover of 50%, as described above and in the Planting map. These actions are in accordance with the UKFS and operations will adhere to Forest and Water Guidelines and Practice Guide: Managing forest operations to protect the water environment.

Muirkirk and North Lowther Uplands SPA and Muirkirk Uplands SSSI:
Breeding bird surveys were carried out at Glenbuck in 2021 and 2022. The reports and FLS summary statement from which is attached. The report from the 2022 breeding bird survey concluded as follows:

'Following provision of the latest planting scheme by FLS, consideration has been given to the potential effects of the scheme on breeding birds, notably Red and Amber-listed Birds of Conservation Concern, Schedule 1 species, qualifying species of the Muirkirk and North Lowther Uplands SPA and moorland bird assemblage of the underlying Muirkirk Uplands SSSI.

On the whole, whilst there are some predicted negative effects on a small number of territories of a small number of species (most notably curlew), the scheme is designed either to accommodate species breeding on site (notably peregrine, ringed plover, common sandpiper and oystercatcher), or will provide significantly expanded foraging and nesting habitat for a range of other key bird species (including hen harrier, merlin, cuckoo, sparrowhawk, willow warbler, wren and song thrush).

The scheme alone is not considered to adversely affect the integrity of the Muirkirk and North Lowther Uplands SPA or the interests of the Muirkirk Uplands SSSI.'

The findings of the reports have been considered in development of the proposed restock and woodland creation planting design.

As illustrated in the Planting map, a 200 m buffer has been integrated into the restocking of Grasshill, adjacent to the SPA. There will be no conifers planted within this buffer zone, to reduce the risk of long-term seed drift into the SPA and associated negative effects on ground nesting breeding bird populations. Instead a very low density mosaic mix of native broadleaf and shrub species will be established, reflecting a similar area on a neighbouring land holding just to the west of Grasshill, which similarly abuts the SPA.

Broadleaf buffers have also been located along the southern boundary, to soften edges with neighbouring open habitats and sections of the SPA across the A70 and river Ayr, further enhancing local diversity of habitat and foraging provision.

Glenbuck Heritage Village and Glenbuck Ironworks Scheduled Monument:
The local FLS forest planning team and in-house landscape architects have worked together to ensure that the new woodland design is in-keeping with and complimenting the landscape immediately adjacent to the Glenbuck Heritage Village and Ironworks Scheduled Monument. This has involved joint site visits, landscape forces assessment and scenario testing via visualisation software.

As illustrated in the site Planting map, new woodland adjacent to Glenbuck Heritage Village will be characterised by high proportions of native broadleaf, native shrub species and open areas on lower ground, designed to best enhance the amenity and biodiversity value. Alternative conifer mixes on mid slopes are arranged in small coupes which tie into the underlying topographical shapes. The landscape visualisations illustrate the key viewpoints that have been considered in the design and how these will be enhanced by woodland creation on site.

Heritage features will be buffered appropriately during forest operations and tree planting.

Soils:
The compacted mixed mineral derived soils from stripped geological layers which originally overlaid the coal seams are currently characterised by low vegetative colonisation and localised surface soil erosion. Soil remediation and woodland creation with appropriate species mixtures, will stabilise and condition the soils over the duration of several rotations. Benefits will include accumulation of soil nitrogen and carbon, and establishment of a more natural soil structure and microbiome contributing to the long-term health of the woodland.

Landscape:
The wider landscape on the Glenbuck site has been altered through several phases of coal mining. Most recently, a land-forming operation undertaken by Scottish Mines Restoration Trust has shaped mining spoil and infrastructure to a point where it is visually more in-keeping with the surrounding landscape.

There are two main viewpoints which have been considered in the planting design. These are the view from the Glenbuck Heritage Village up to the old viaduct pillars and the view north from Cairn Table, a 593 m hill located approximately 6 km south-west of Glenbuck which is a popular climb for many walkers.

Design considerations have also been made with regards to the Spireslack void which is a feature of great geological importance. The area immediately surrounding the void will be left as open ground to maintain uninterrupted views of the feature from a number of vantage points.

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Environmental Impact Assessment
Screening Opinion Request Form

Sensitive Areas	
Please indicate if any of the proposed forestry project is within a sensitive area. Choose the sensitive area from the drop down below and give the area of the proposal within it.	
Sensitive Area	Area
Deep peat soil.	65 ha
Select...	
Select...	
Select...	
Select...	

Property Details			
Property Name:	Glenbuck		
Business Reference Number:		Main Location Code:	
Grid Reference: (e.g. NH 234 567)	NS 7418 2986	Nearest town or locality:	Muirkirk
Local Authority:		East Ayrshire Council	

Owner's Details			
Title:		Forename:	
Surname:			
Organisation:	Forestry and Land Scotland	Position:	
Primary Contact Number:		Alternative Contact Number:	
Email:	enquiries.central@forestryandland.gov.scot		
Address:	Five Sisters House, Five Sisters Business Park, West Calder		
Postcode:	EH55 8PN	Country:	
Is this the correspondence address?		Yes	

Agent's Details			
Title:	Mr	Forename:	Tom
Surname:	Roberts		
Organisation:	Forestry and Land Scotland	Position:	Woodland Creation Forester
Primary Contact Number:	07341 788403	Alternative Contact Number:	
Email:	tom.roberts@forestryandland.gov.scot		
Address:	Five Sisters House, Five Sisters Business Park, West Calder		

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Environmental Impact Assessment
Screening Opinion Request Form

Postcode:	EH55 8PN	Country:	
Is this the correspondence address?		Yes	

Office Use Only	
GLS Ref number:	