SP ENERGY NETWORKS

Stronachlachar | YW4

Changing the VIEW : Landscape Enhancement Proposals Workbook

Project Title: Changing the View : Stronachlachar Landscape Enhancement Proposals
Client: Scottish Power Energy Networks

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1 Introduction

Project Background

1.1
LUC has been commissioned by ScottishPower Energy Networks (SPEN) to assess the visual impact of existing transmission infrastructure in the Loch Lomond and The Trossachs National Park, and identify areas suitable for potential mitigation in order to reduce identified visual impacts.

'Changing the VIEW' (Visual Impact of Existing Wirescape) is a project being driven by SPEN, to positively influence the visual impact of existing transmission infrastructure in some of Scotland's most sensitive and highly valued landscapes. The project presents a rare opportunity to reduce the landscape and visual impacts of infrastructure in specific areas within or near to National Parks and National Scenic Areas (NSAs). SPEN are keen to work collaboratively and in partnership with a range of stakeholders, to access a share of a £500 million OFGEM fund, to deliver the best possible outcome for the areas in which they operate.

1.2
SPEN greatly value the local expertise and knowledge of stakeholders in understanding the nature of landscape and visual impacts, the potential for mitigation, and importantly, the range of different interests which will influence the deliverability of any given project.

1.3
This stage builds on the work of our initial stakeholder consultation, overall review of existing landscape and visual impacts, and identification of potential projects to take forward.

1.4
Stage 3 now builds on the work of our stakeholder consultation, overall review of existing landscape and visual impacts, and identification of potential projects to take forward. Each mitigation project will be developed in further detail, in conjunction with landowners and other stakeholders, to submit to OFGEM for consideration.

Stage 1 and 2 Findings

1.5
A landscape and visual impact assessment, undertaken by LUC, identified the key landscape and visual impacts associated with the existing overhead line in this section. In landscape terms the pylons were noted to be intrusive elements in an otherwise naturalistic landscape, detracting from the Special Qualities of the National Park which are exhibited in this area. Close views of the line are available to sensitive receptors including local residents on the western shores of the loch and tourists, including those using **The Great Trossachs Path** and Sir Walter Scott steamboat. The pylons are sited on the rugged slopes above Loch Katrine and appear out of scale with other landscape elements.

Introduction

1.6
The western shore of Loch Katrine has been identified as an area which may benefit from mitigation. Through a process of stakeholder consultation and technical review, landscape enhancement was identified as the most appropriate form of mitigation.

1.7
The purpose of this workbook is to set out the reasons why Loch Katrine would benefit from visual mitigation, and to present the options and ideas for landscape enhancement.

The Site

Site Description

1.8
The section of 275kV overhead transmission line identified for mitigation runs across the steep, rugged slopes containing the north western edge of Loch Katrine, between Glen Gyle in the north and the small village of Stronachlachar in the south. The line then crosses an area of rolling moorland as it heads south towards Loch Ard Forest. The Loch Katrine catchment is owned by Scottish Water and leased to Forestry Commission Scotland. It is part of **The Great Trossachs Forest National Nature Reserve**. The land cover under the line is mainly upland grassland, and the shores of the loch are fringed by broadleaved semi-natural and ancient woodland. The line runs parallel to the Great Trossachs Path which skirts the loch edge. The line passes through the ***Ben More – Ben Ledi Wild Land Area (07)*** in the north.

Other Projects and Initiatives

1.9
There are a number of ongoing projects and initiatives in the National Park. Loch Katrine is at the heart of the project area for The Great Trossachs Forest Project . This covers an area over 160 square kilometres, and is now the largest National Nature Reserve in Scotland. This long term (200 year) project aims to return heavily grazed land and plantation forestry to a more dynamic mix of habitats, including native woodland, in tandem with further opportunities for recreation.

1.10
The western shores of Loch Katrine also fall within the project area for the S**Strathard – a landscape to live, work & play project**. This is a project which aims to improve land, forest and water management decisions in Strathard using an ecosystems approach, which recognises that natural and human systems are connected.

1.11
The Paths in the Park project aims to support community groups in the National Park who wish to improve their community path networks. The project is led by the **Loch Lomond and The Trossachs National Park Community Partnership**, who work closely with the National Park Authority to provide information, training and guidance to enable path groups to develop community paths and identify methods to maintain them.

Opportunities for Mitigation

1.12
Stronachlachar was identified as a high priority area for stakeholders due to its exhibition of the National Park's Special Qualities and its popularity with visitors. Undergrounding a short section of the line above Stronachlachar Pier received strong stakeholder support, but a technical review identified that this would be difficult due to the terrain. Re-routeing a short section also received support, but would result in similar impacts elsewhere. Landscape enhancement, focused on native tree and shrub planting along the line corridor, was therefore identified as the most appropriate solution for further exploration.

1.13
The long term aim of landscape enhancement would be to screen the overhead line in views from sensitive receptors, including those at Stronachlachar Pier and users of The Great Trossachs Path. The introduction of large scale tree planting has the potential to tie in with other ongoing projects such as the Strathard – a landscape to live, work & play project and **The Great Trossachs Forest Project**. The aims and objectives of the latter include:

- ***Habitat Management:*** *To create a forest landscape large enough to support a dynamic and functional ecosystem, which expands and contracts over time, allowing habitats and species to adapt to climate change. This includes protecting and enhancing over 10,000 hectares of native woodland, moorland, montane scrub, wood pasture, grassland and wetland; and creating around 4400ha of native woodland.*
- ***People engagement:*** *To become a renowned focal point offering a high quality visitor experience attracting visitors from the UK and overseas, benefiting local communities both socially and economically. This will includes improved access and engaging local communities and businesses by working with them.*
- ***Life-long learning:*** *Involving schools, universities, research institutes and volunteers; and providing opportunities for people to learn about cultural landscapes, forest ecosystems, sustainable land management, climate change, biodiversity and wildlife.*
- ***Partnership working:*** *To be a flagship partnership project, setting an example and encouraging other land managers to work across boundaries to benefit wildlife and people.*
- ***Other:*** *Delivering quality water to Glasgow and enabling delivery of the priorities set by Loch Katrine's Integrated Catchment Management Plan.*

1.14
There is also an opportunity to improve and promote cultural heritage interests in the area, such as the Victorian cascade at the aqueduct outlet, south of Stronachlachar.

2 Site Appraisal

Context
2.1
The line passes along the steep, rugged slopes containing the north western edge of Loch Katrine, between Glen Gyle in the north and the small village of Stronachlachar in the south, before crossing higher ground on the way to Loch Ard Forest. The section of line which would benefit from mitigation is approximately 6.3 km in length. Semi-natural and ancient woodland fringes the shores of the loch in places. The line runs parallel to the Great Trossachs Path which skirts the loch edge. The line passes through the Ben More – Ben Ledi Wild Land Area in the north, and Loch Katrine is at the heart of the Great Trossachs Forest National Nature Reserve.

Character/ landscape pattern
2.2
The landscape falls within the Straths and Glens with Lochs landscape character type. The key characteristics of the landscape are the long and narrow Loch Katrine, the steep and rugged enclosing hill slopes and the presence of ancient and semi-natural woodland. Woodland includes a stand of Scots Pine at the northern end of the loch and native deciduous trees along the track which runs parallel to Loch Katrine. There are grand houses and lodges on the western loch shore, with the small settlement of Stronachlachar at the head of the loch. A small pier at Stronachlachar just out into the loch.

Visual amenity and Views
2.3
Close views of the line are available to sensitive receptors in a key tourist destination within the National Park, including visitors to Stronachlachar and residential receptors on the western shores of the loch. The pylons are sited on the rugged slopes above the loch, and appear out of scale with other elements e.g. houses and woodland. The line passes over the B829 and the road into Stronachlachar.

Special qualities and Landscape Features
2.5
The area displays many of the Special Qualities of the National Park; it has a strong sense of place resulting from the combination of loch, woodland and craggy slopes and summits. There is a combination of ancient, semi-natural riparian and traditionally managed woodland on the shores of the loch. The area also displays some of the important industrial heritage of the area including a Victorian cascade which was part of the Glasgow Corporation Water Works.

Mitigation Proposals
2.7
There is an opportunity to introduce native tree and shrub planting along the overhead line corridor to screen and filter localised views. This could tie in with the Great Trossachs Forest Project which includes the area in question.

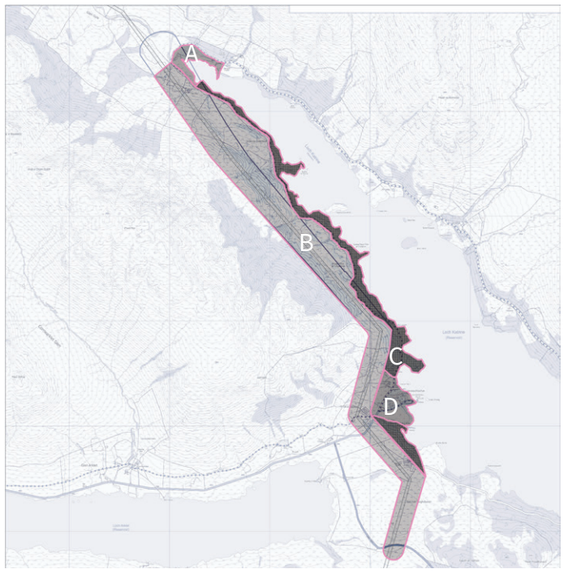
Landscape management
2.8
The catchment area for Loch Katrine is owned by Scottish Water and leased to Forestry Commission Scotland . Loch Katrine is Glasgow's main source of drinking water. The area is part of the Great Trossachs Forest National Nature Reserve which is being managed to restore a more natural habitat mosaic with enhanced ecosystem functions.

P1. Site Photographs






F2.1 Local Landscape Character Areas



Key

A Straths & glens with lochs coniferous & native woodland

B Straths & glens with lochs (hillside)

C Straths & glens with lochs (waterside/edge)

D Straths & glens with lochs with settlement

F2.2 Existing Vegetation

Key

A Scots Pine native woodland

B Moorland grassland with occasional self-seeded trees

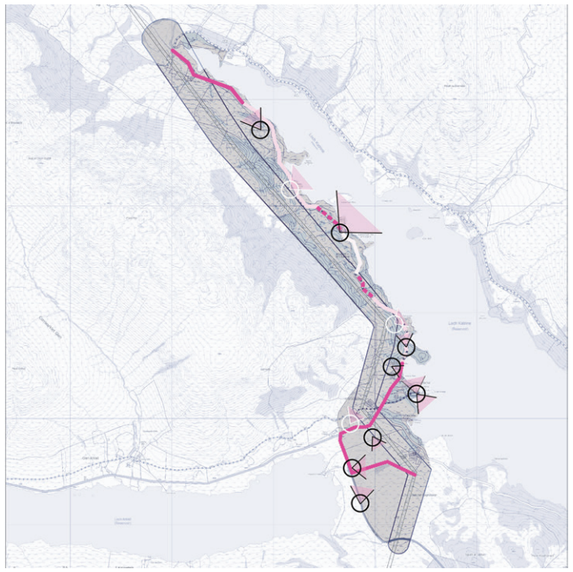
C Native deciduous tree planting along streams & road. Fragmented native woodland & self seeded trees on rocky outcrops

D Upland grassland & windblown trees in patches over upland valley sides

E Estate woodland with managed Scots Pine and Cedar tree planting

F Deforested bluff

F2.3 Views & Visibility



Key

Very high visibility

High visibility with some screening & interveening tree planting

Medium visibility at a distance with no skylining

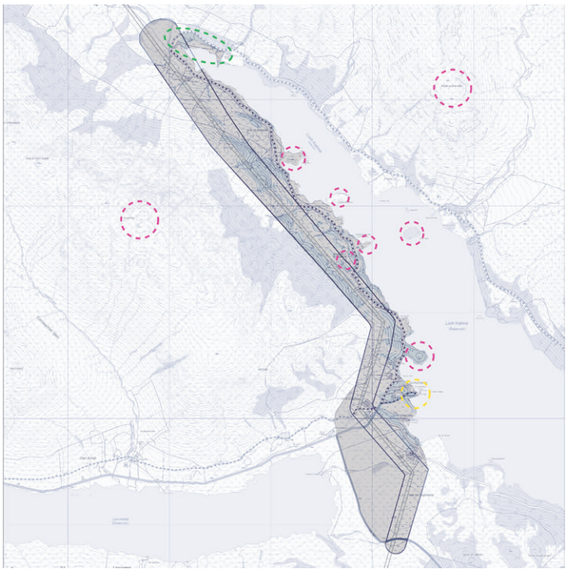
Some visibility intermittent screened tree planting

No Visibility

Long ranging views

Medium ranging views terminated by landform

F2.4 Special Qualities and Landscape Features



Key

Landform

Scots pine/native woodland

Stronachlachar pier

3 Precedent Projects and Guiding Principles

General

3.1

This first section of this chapter sets out precedent projects, the principles of which, inform the development of concept design for the Stronachlachar area.

This section is followed by the setting of guiding principles which have been developed to inform the design process for landscape enhancements for the mitigation of visual impacts of lines on the experience of the eastern side of Loch Katrine from Stronachlachar to Glen Gyle.

The guiding principles have been set out as a workthrough to demonstrate the following design elements which are to be taken into consideration during design development:

- Great Trossachs Forest and Scottish Natural Heritage Woodland Typologies;
- Materials;
- Woodland edge treatments;
- Woodland glade/ ride creation;
- Feathered woodland upland edge creation;
- Woodland establishment;
- Footpath creation; and
- Woodland planting structure.

Precedent Projects

3.2

The following projects have been identified as examples of the type of work that could be carried out on the western shores of Loch Katrine.

Carrifran Wildwood, Scottish Borders

The Carrifran Wildwood project is an ecological restoration initiative set up by members of the Borders Forest Trust, in Carrifran glen near Moffat in the Scottish Borders. The aim is to recreate an extensive tract of wild and largely wooded land, which will eventually becoming a self-functioning natural ecosystem. The plan is to create a natural looking woodland mosaic with open ground, over 1500 acres. Over 600,000 trees and shrubs have been planted in the glen since 2000, all from local provenance stock. Increases in species such as woodland feeding birds have been noted. The project was initially funded by members of the public and charitable trusts, and is now supported by public and private sector organisations such as the Millennium Forest for Scotland Trust, SNH and the Forestry Commission.

Glenlude, Scottish Borders

The John Muir Trust is working on a 20-year plan to 'rewild' a former sheep farm and conifer plantation into a mosaic of native habitats, at Glenlude, near Selkirk in the Scottish Borders. The conifer plantation is gradually being replaced with native broadleaf trees, which are also being planted on some of the open grassland. The trees are grown from seed collected locally and grown in Glenlude's tree nursery. Volunteers include schools, John Muir Trust members and a drug and alcohol rehabilitation charity.

Scottish Scenic Routes Project

The Scottish Scenic Routes competition sought to involve newly graduated architects and landscape architects in the development of a series of interventions along Scotland's most scenic roads.

- **An Ceann Mór, Inveruglas** on the banks of Loch Lomond is the final installation of the first phase of the Scottish Scenic Routes pilot project. From the visitor centre car park at Inveruglas visitors can walk up to the new pyramid-shaped structure, where panoramic views along the loch are revealed.
- **Woven Sound, Falls of Falloch** is a sheltered space cantilevering over the edge of the Falls of Falloch. The shelter is constructed from intricately woven steel rods weaving between the existing trees, with a diary entry from Dorothy Wordsworth recalling the numerous Romantic writers and poets who visited the Falls in the early 19th century.
- **Faerie Hollow, Loch Lubnaig beag**
  Loch Lubnaig beag is nestled in between shrubs in a natural hollow in the landscape on the shores of Loch Lubnaig. There are framed views across Loch Lubnaig towards Ben Ledi from this picnic spot.

P2. Precedent Project Photographs

Carrifran Wildwood: Images showing ecological restoration of Carrifran glen through native woodland planting

Glenlude: Images showing gradual removal of conifer plantation for creation of mosaic of native habitats through native woodland planting

Scottish Scenic Routes installations: Loch Lubnaig Beag and Woven Sound

Planting

3.3
The following images display the proposed planting species and style, and materials palette which are proposed to be used along the Stronachlachar section.

3.4
The following is a list of native species which can be drawn on for woodland mixes. Many of these species are common to the National Park. **The Biodiversity Action Plan for the National Park** (Wild Park 2020) notes that expanding and restoring native woodland is one of the major goals for Forestry Commission land in the National Park.

Woodland mixes

Pinus sylvestris	Scots pine
Betula pendula	Silver birch
Betula pubescens	Downy birch
Alnus glutinosa	Alder
Populus tremulus	Aspen
Fraxinus excelsior	Ash
Fagus sylvatica	Beech
Carpinus betulus	Hornbeam
Quercus robur / Quercus petraea	Oak (Common / Sessile)
Sorbus aucuparia	Rowan
Sorbus intermedia	Whitebeam
Prunus avium	Wild cherry / Gean
Salix fragilis / alba / caprea / cinerea / aurita	Willow (Crack / White / Goat / Grey / Eared)
Ulmus glabra	Wych elm
Acer campestre	Field maple
Ilex Aquifolium	Holly
Juniperus communis	Common Juniper

Native Hedgerow / Shrubs / Understorey

Crataegus monogyna	Hawthorn
Prunus spinosa	Blackthorn
Acer campestre	Field maple
Corylus avellana	Hazel
Fagus sylvatica	Beech
Ilex Aquifolium	Holly
Lonicera periclymenum	Honeysuckle
Sambucus nigra	Elder
Rosa canina	Dog rose
Rosa rubiginosa	Sweet briar
Viburnum Opulus	Guelder rose
Ligustrum vulgare	Wild privet

P3. Indicative Planting Palette Photographs


Silver birch (Betula pendula)


Rowan (Sorbus acuparia)


Alder (Alnus glutinosa)


Hazel (Corylus avellana)


Beech (Fagus sylvatica)


Scot's pine (Pinus sylvestris)


Holly (Ilex aquifolium)


Dog rose (Rosa canina)


Birch and Willow (Betula spp. and Salix spp.)


Goat willow (Salix caprea)


Blackthorn (Prunus spinosa)


Hawthorn (Crataegus monogyna)


Juniper (Juniperus communis)


Common Oak (Quercus robur)


Downy birch (Betula pubescens)

Planting/ Woodland Typologies

A. Native pine woodland

Altitudinal range from sea level to over 600m on steeply sloping ground with dry to damp acidic soils. Occurs with upland oakwood, upland birchwood and wet woodland habitats and also in patches within non-native conifer plantations.

Woodland Layer (Primary) 85%
Pinus sylvestris (Scot's pine)
Woodland Layer (Secondary) 15%
Betula pendula (Silver birch)
Betula pubescens (Downy birch)
Sorbus acuparia (Rowan)
Alnus glutinosa (Alder)
Salix cinera (Grey willow)
Ilex aquifolium (Holly)
Corylus avellana (Hazel)
Shrub/ Understorey Layer
Salix aurita (Eared willow)
Juniperus communis (Juniper)

B. Upland birchwoods

Moderate/ steep slopes generally below 400m, with well drained soils, but can extend well above this, can also occur in mosaics with Upland oakwoods, upland mixed ashwoods and wet woodland habitats.

Woodland Layer Primary 85%
Betula pendula/ pubescens (Birch spp.)
Woodland Layer (Secondary) 15%
Pinus sylvestris (Scot's pine)
Shrub/ Understorey Layer
Juniper (Juniperus communis)
Eared willow (Salix aurita)
Aspen (Populus tremula)
Grey willow (Salix cinera)

C. Upland mixed ashwoods

Moderate/ steep slopes with moist soils below 300m, in association with upland oakwood, upland birchwood and wet woodland habitats. Is also found in scattered patches on steep crags up to about 500m.

Woodland Layer (Primary) 85%
Fraxinus excelsior (Common ash)
Ulmus glabra (Wych elm)
Woodland Layer (Secondary) 15%
Grey willow (Salix cinera)
Hazel (Corylus avellana)
Downy birch (Betula pubescens)
Elder (Sambucus nigra)
Sorbus acuparia (Rowan)
Shrub/ Understorey Layer
Blackthorn (Prunus spinosa)
Dog rose (Rosa canina)
Eared willow (Salix aurita)
Gorse (Ulex europaeus)

D. Atlantic oakwoods

Moderate/ steep slopes below 300m in with well drained soils. Can occur in mosaics with upland birchwoods, upland mixed ashwoods and wet woodland habitats. Oak forms >30% of the canopy cover.

Woodland Layer (Primary) 80%
Sessile Oak (Quercus patraea)
Common Oak (Quercus robur)
Woodland Layer (Secondary) 20%
Silver birch (Betula pendula)
Rowan (Sorbus acuparia)
Hazel (Corylus avellana)
Holly (Ilex aquifolium)
Shrub/ Understorey Layer
Juniperus communis (Juniper)
Bramble (Rubus fruticosus)
Dog rose (Rosa canina)
Gorse (Ulex europaeus)
Broom (Cytisus scoparius)

E. Wet woodland

Flushed slopes, wet hollows, valley floors and edges of wetlands, rivers streams and lochs in upland and lowland situations.

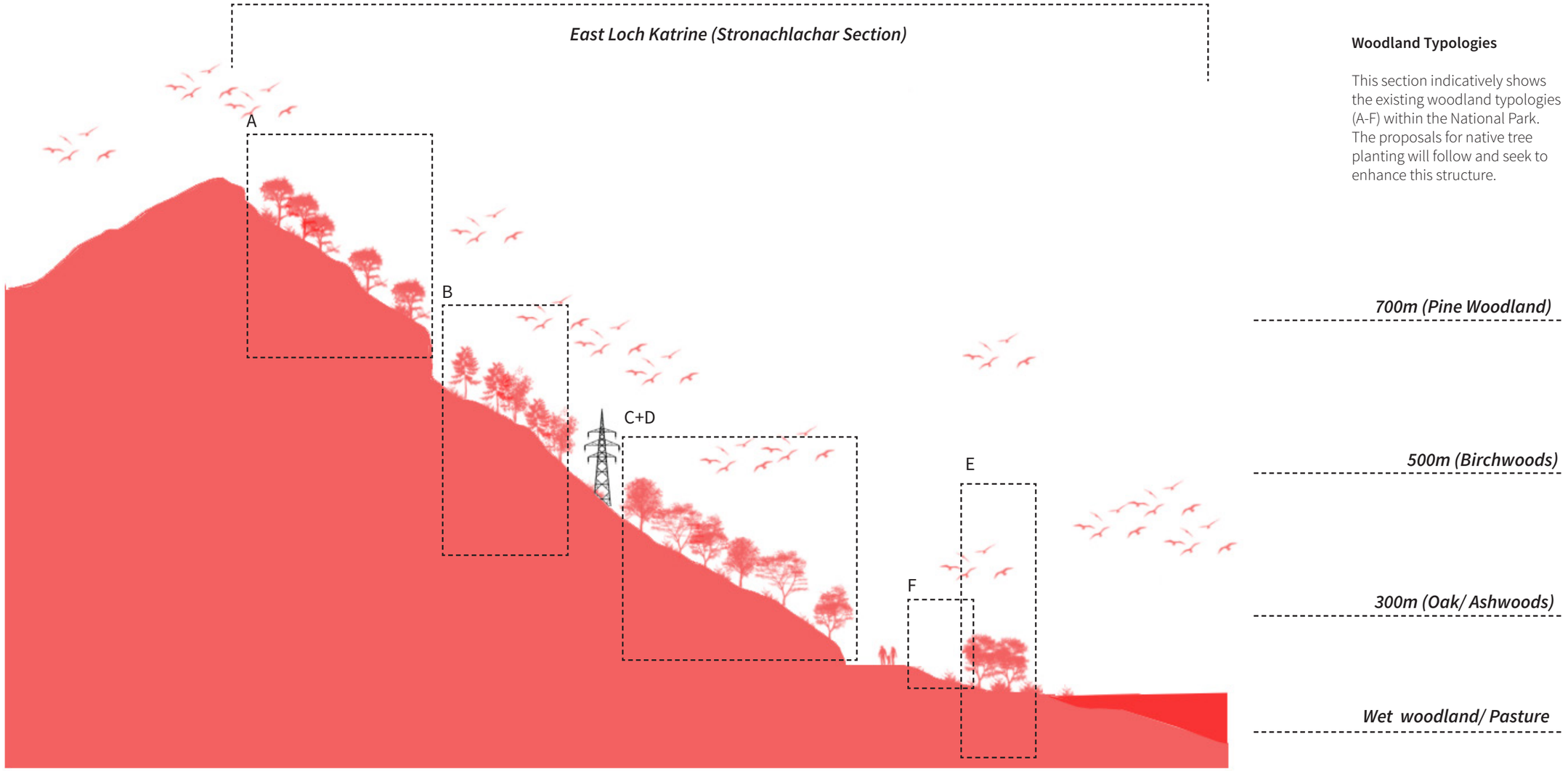
Woodland Layer (Primary) 100%
Grey willow (Salix cinera)
Goat willow (Salix caprea)
Downy Birch (Betula pubescens)
Alder (Alnus glutinosa)
Shrub/ Understorey Layer
Eared willow (Salix aurita)
Osier (Salix viminalis)
Hawthorn (Crataegus monogyna)

F. Wood-pasture and Parkland

Mostly below 300m in altitude in areas of native or plantation woodland or enclosed farmland. In upland areas most commonly associated with native woodland.

Tree Planting
Sessile Oak (Quercus patraea)
Common Oak (Quercus robur)
Ash (Fraxinus excelsior)
Alder (Alnus glutinosa)
Birch (Betula pendula/ pubescens)
Scot's pine (Pinus sylvestris)
Hazel (Corylus avellana)
Hawthorn (Crateagus monogyna)

F3.1 Indicative Section Woodland Typologies



Woodland Typologies

This section indicatively shows the existing woodland typologies (A-F) within the National Park. The proposals for native tree planting will follow and seek to enhance this structure.

G. Fencing

To ensure successful establishment of the proposed native woodland planting area will require to be deer/ sheep fenced for protection from grazing animals. All new woodland will be fenced in accordance with Forestry Commission/ National Park technical guidance and specification.

Fence lines will be designed to be sympathetic to natural contours and integrate forest edges into the landscape, creating natural forest edges as detailed over the following pages.

All fencing shall be treated softwood timber with a durability of 40 years plus with combination of rectangular wire mesh and hexagonal wire mesh netting galvanised to BS EN 10244-2 to prevent deer and wild mammal species. Fencing shall be min. 1.8m in height, 300mm x 220mm max. mesh size with 1050mm wide rabbit/ hare proof hexagonal 31mm mesh netting to base to be turned back by 150mm and pinned.

Treated softwood timber stiles and gates will also be required to facilitate access for woodland management activities. There will also be a requirement to cross streams in some locations which will require appropriate design to prevent access.

All areas shall be assessed by a qualified ecologist to identify species requirements i.e. badgers etc. to ensure appropriate gates are installed.

H. New Footpaths

All new footpaths shall be designed in accordance with SNH/ National Park/ Upland Path Advisory Group technical guidance i.e. Upland Pathwork Construction Standards for Scotland/ Constructed tracks in the Scottish Uplands.

In general paths should be constructed using locally won aggregate where possible to a width varying between 600-1200mm and a minimum depth of 250mm. Minimum depths for path construction are as follows:

- 50mm of compacted surface material;
- 100mm of compacted base material; and
- 150mm of sub-base material.

Excavated material with turfs and boulders shall be used to define and contain the path edge, with the path surface sitting slightly higher than the ground at the path edge to avoid water collecting.

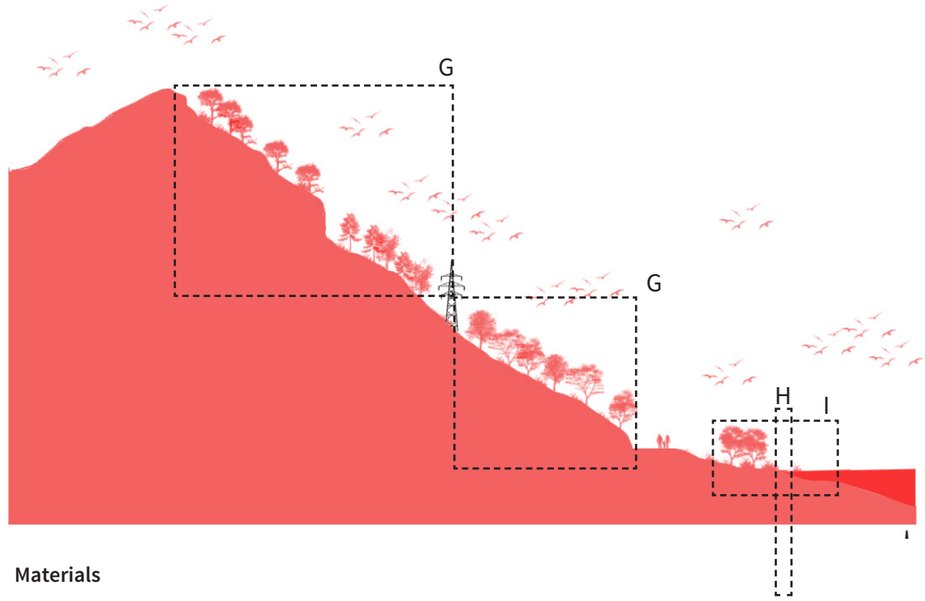
Localised site conditions will require independent assessment of suitable construction methods and materials i.e. in situations of peat/ waterlogged ground which may require matting/ geotextile use.

I. Wayfinding

The proposals involve the provision of alternative routes through the site area resulting in the requirement for creation new pathways which deviate from the existing routes. There is therefore a requirement to ensure these are adequately sign posted to ensure that these routes are adopted by users. To assist with this it is proposed that a wayfinding strategy is created to include implementation of the following:

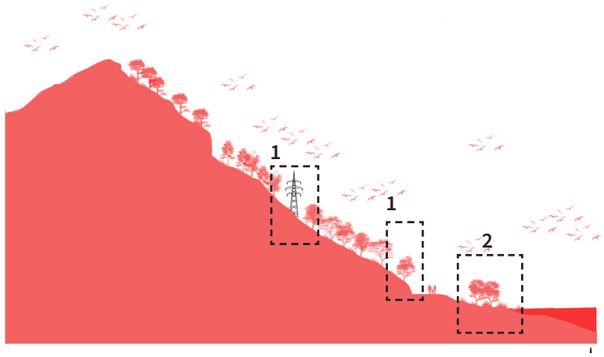
- Fingerpost directional signage;
- Waymarking posts; and
- Orientation panels.

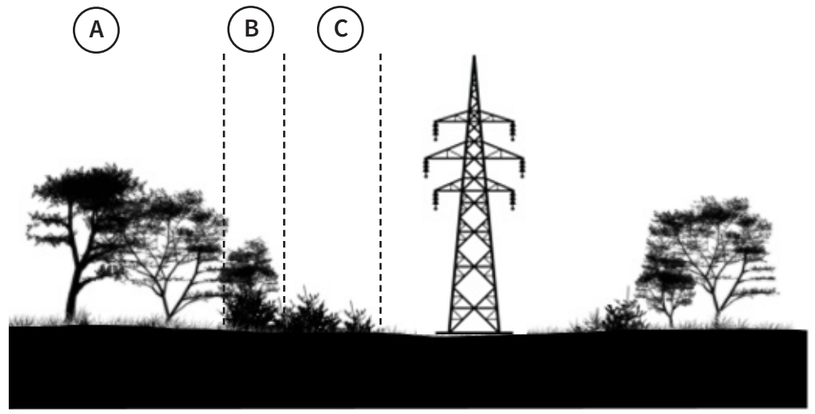
All signage and wayfinding elements are to be design sensitively to suit the surrounding setting and be appropriate in scale and location in accordance with National Park/ Signage Guidance for Outdoor Access guidance. Materials to be utilised shall be durable treated where appropriate to provide a long lifespan.



Materials

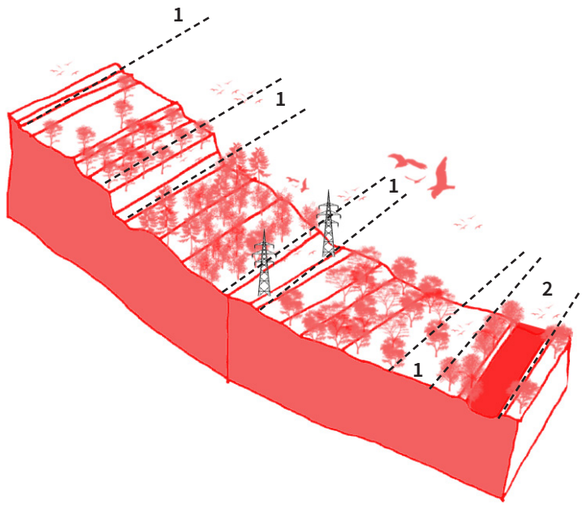
This section indicatively shows where proposed materials for fencing, footpaths and wayfinding will be deployed.

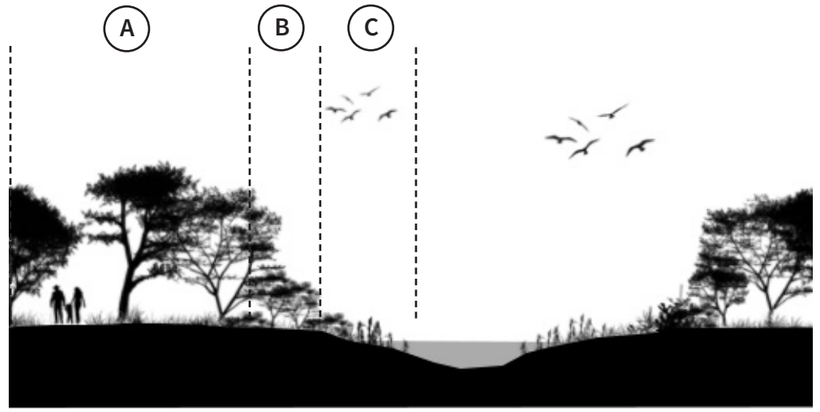




F3.2
Woodland Edge Treatment 1 indicative Section

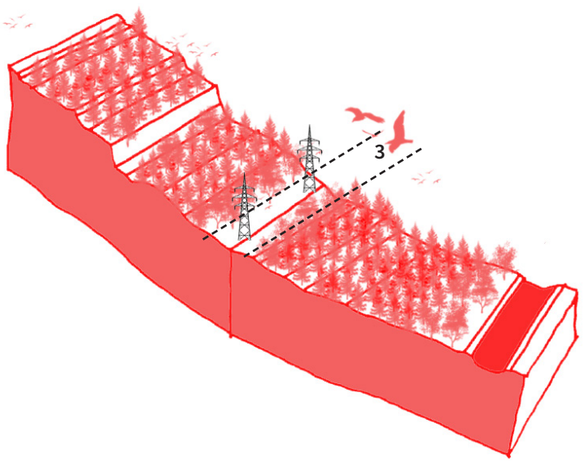
This treatment will be deployed in areas where new woodland is to be created along the wayleave and to all new woodland edges and glades.

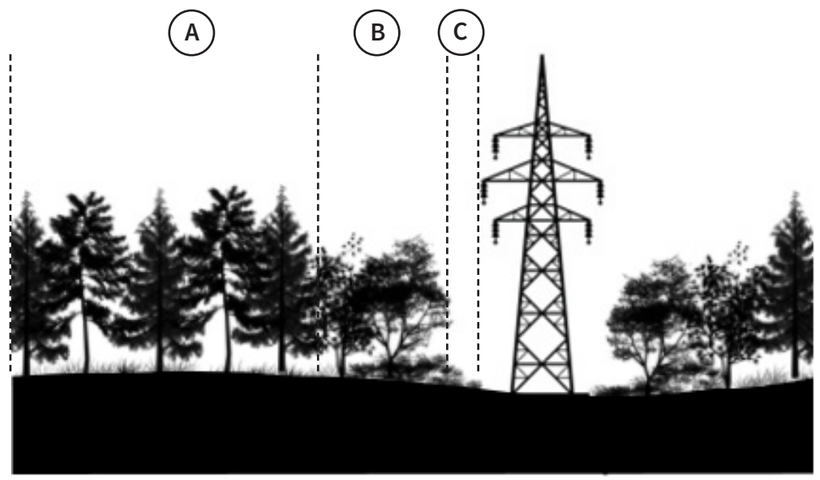




F3.3
Woodland Edge Treatment 2 Indicative Section

This treatment will be deployed in areas where new woodland is to be created along water edge/ riparian woodland.





F3.4
Woodland Edge Treatment 3 Indicative Section

This treatment will be deployed in areas where new woodland is to be created to existing plantation wayleave.

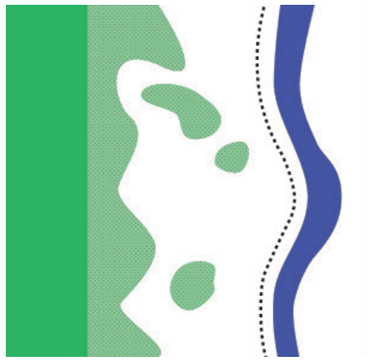
A. Woodland zone
B. Shrub zone
This is the transition zone between trees and the open area of the wayleave/ open space.
C. Herb zone
This is the transition zone between trees and the open area of the wayleave/ open space.

F3.5
Woodland Edge Treatments
indicative Plan DIagrams

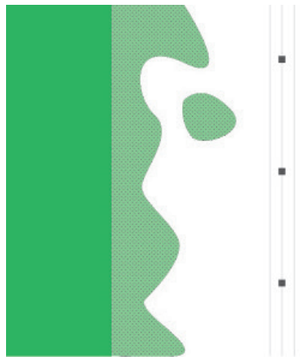
The following plan diagrams illustrate the proposed edge treatment in situations likely to arise during the design development and implementation of native woodland planting. These are intended to act as a guide for edge treatments in the scenarios likely to be encountered.

Treatments all propose naturalistic design of the permanent woodland and woodland edge through creation of glades, rides, scalloped edges, habitat islands and feathered edges to upland slope sides through sensitive following of natural hollows and depressions within the existing landform.

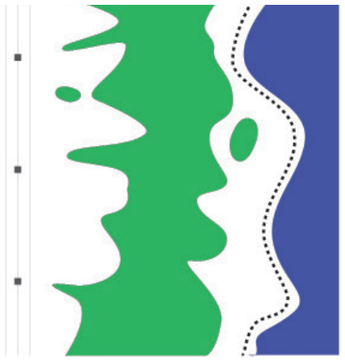
Native woodland edge to existing forestry and open space



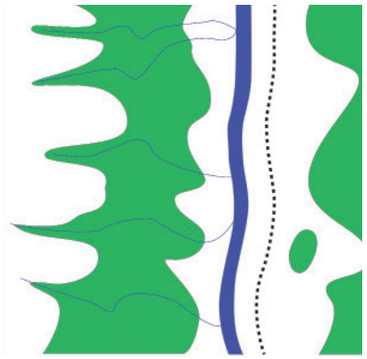
Native woodland edge to wayleave



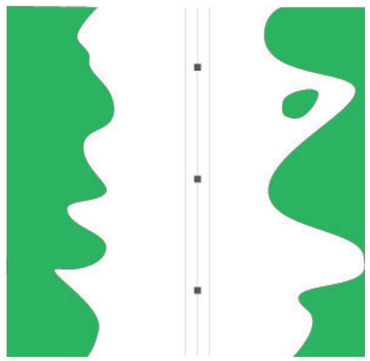
Native woodland on lower slopes between waters edge and wayleave



Native woodland on steep slopes with tributaries



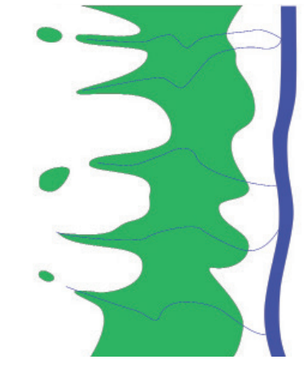
New native woodland edge to wayleave



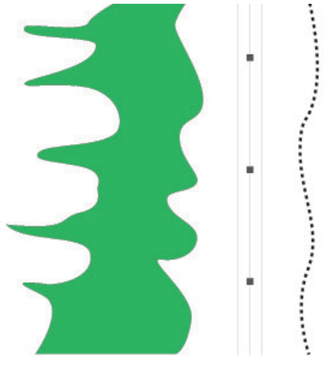
Riparian/ wet woodland corridor along rivers/ streams

Native woodland edge to river/ stream and footpath

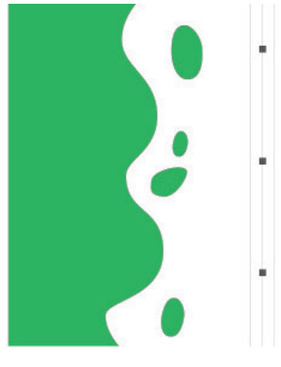
Native woodland planting edge to upland glen



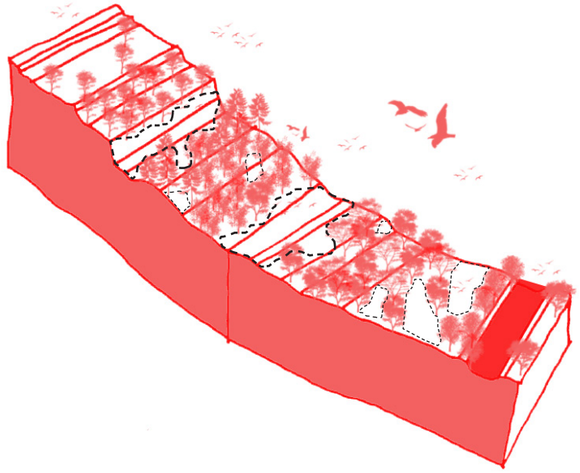
Native woodland planting to lower slopes and wayleave edge



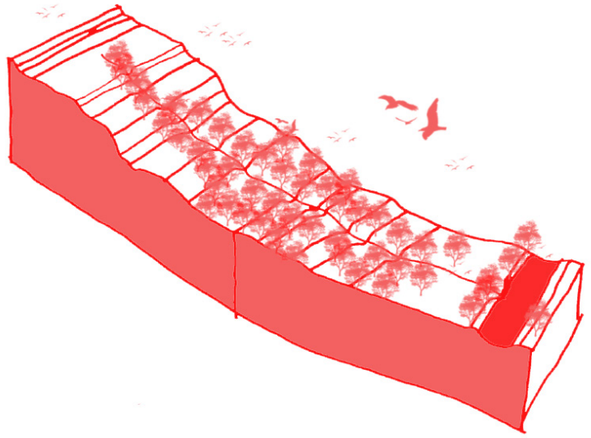
Native woodland edge to wayleave



F3.6 Woodland Glade/ Ride Creation



F3.7 Feathered Woodland Upland Edge Creation



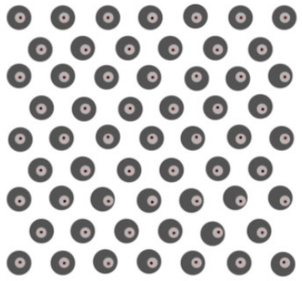
F3.8
Woodland Establishment Diagrams

1 year old
Whips at 0.5m-1.0m height and 15cm wide; trunk 2cm wide

Age: 1 year
Canopy: 15cm
Height: 0.5m-1.0m
Girth: 2cm

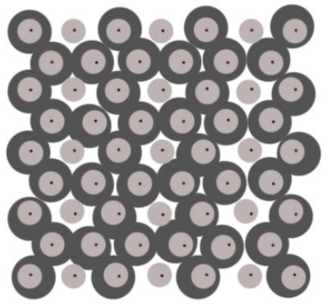
5 years old
Growth 2.0m-3.5m height and 0.6m wide; trunk 8-10cm wide

Age: 5 years
Canopy: 0.6m
Height: 2.0-3.5m
Girth: 8-10cm



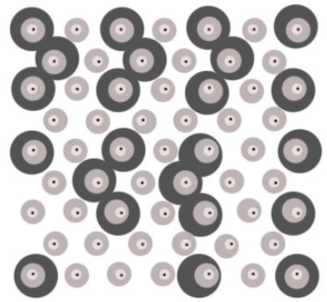
10 years old
6.0-7.5m height and 1.2m wide; trunk 15-20cm wide

Age: 10 years
Canopy: 1.2m
Height: 60-7.5m
Girth: 15-20cm
Thinning: every 5-10 years



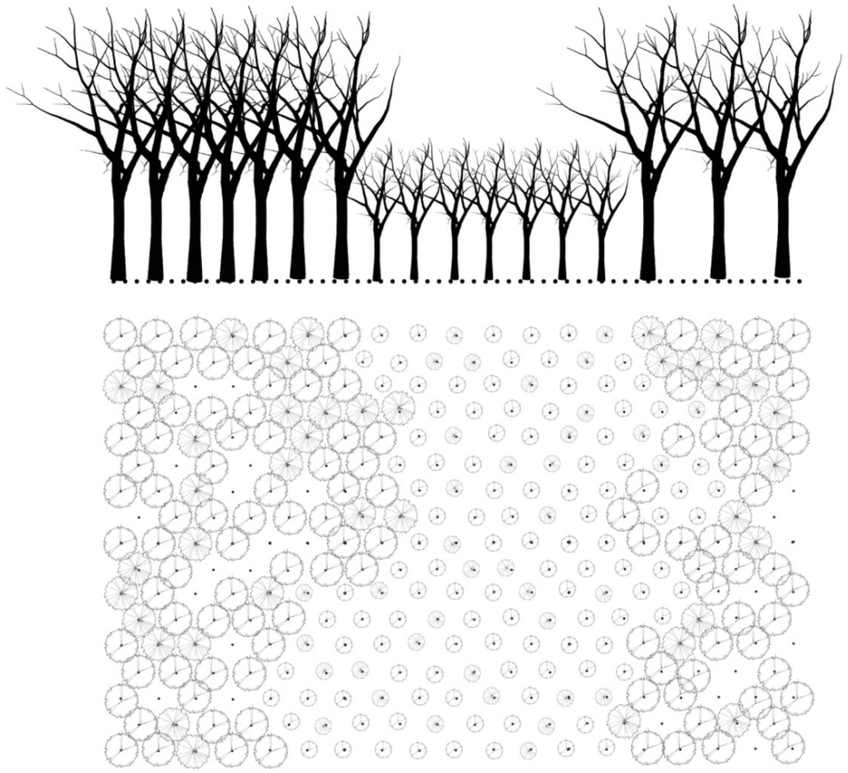
25 years old
10-15m height and 7m wide; trunk 25cm wide

Age: 25 years
Canopy: 7m
Height: 10-15m
Girth: 25cm
Thinning: every 5-10 years



40 years old
20-30m height and 10-15m wide; trunk 30-40cm wide

Age: 40 years
Canopy: 10-15m
Height: 20-30m
Girth: 30-40cm
Thinning: every 5-10 years



F3.9
Mixed Age Woodland
Establishment Diagram

25 and 10 year old
Planting carried out at 15 year intervals to ensure diversity of age of woodland for ecological benefits.
Above shows indicative woodland at 25 and 10 years of age.

F3.10
Footpath Creation Treatment 1
Indicative Section

A. Wayleave
B. Wet Woodland/ Riparian zone
This is the transition zone between trees and the open area of the wayleave/ open space.
C. Footpath on water's edge on valley/ glen floor

This treatment will be deployed in areas where footpaths are proposed directly adjacent to the water's edge.

F3.11
Footpath Creation Treatment 2
Indicative Section

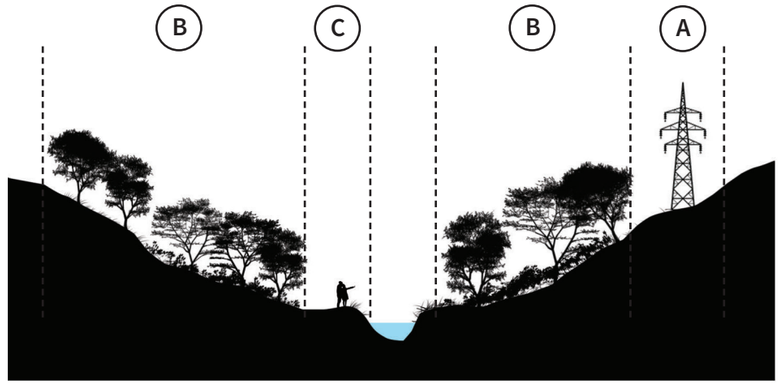
A. Wayleave
B. Wet Woodland/ Riparian zone
This is the transition zone between trees and the open area of the wayleave/ open space.
C. Footpath away from water's edge on lower slope sides
D. Herb/ Wetland zone

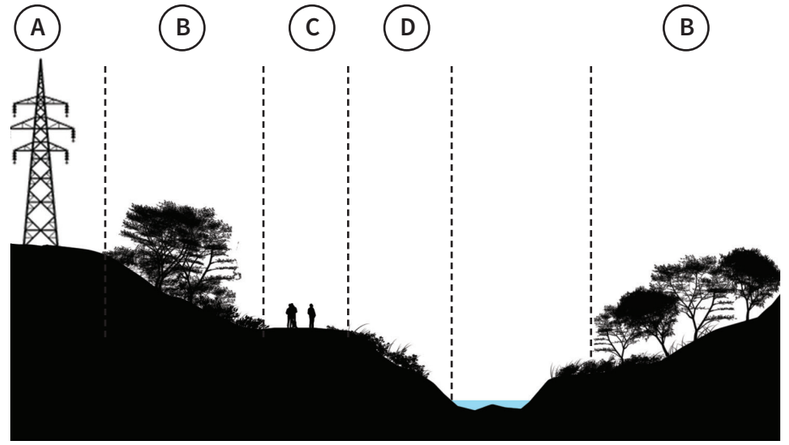
This treatment will be deployed in areas where footpaths are proposed to lower slope sides in close proximity to water's edge.

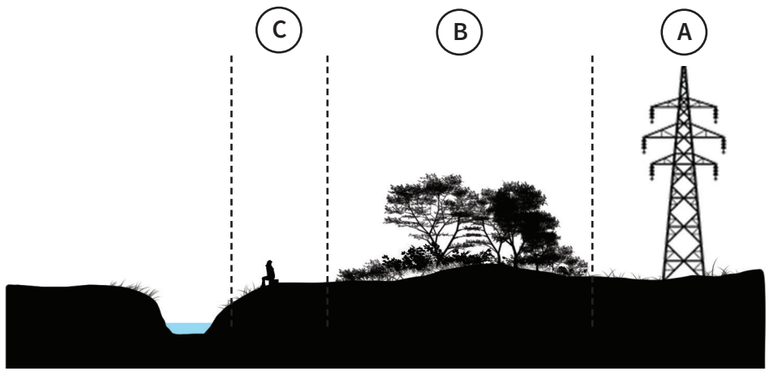
F3.12
Footpath Creation Treatment 3
Indicative Section

A. Wayleave
B. Wet Woodland/ Riparian zone
This is the transition zone between trees and the open area of the wayleave/ open space.
C. Footpath away from water's edge on lower slope sides

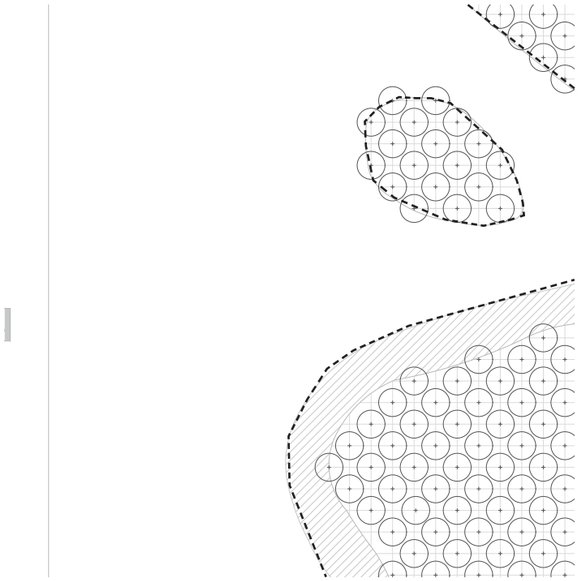
This treatment will be deployed in areas where footpaths and viewpoints are proposed to open space/ open water.



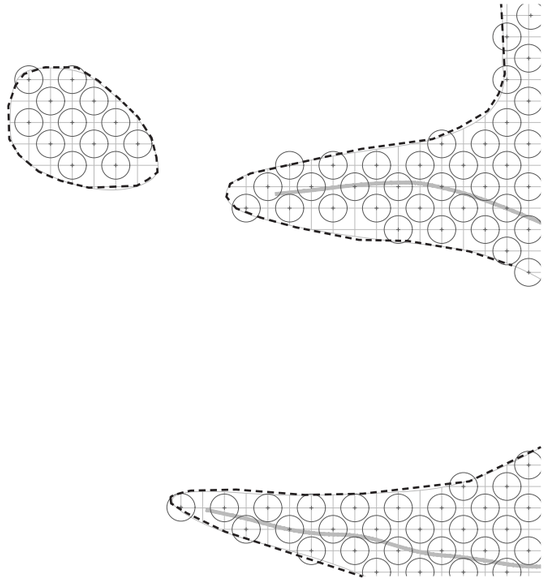




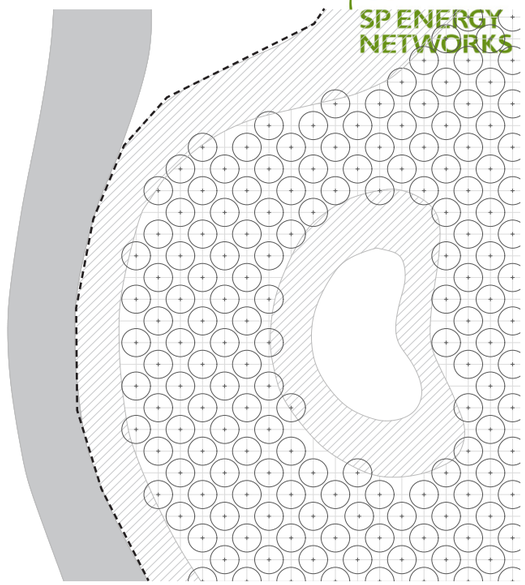
F3.13
Woodland Edge Indicative Planting Structure



A. Wayleave with habitat island
Woodland planting to interior. Dashed black line indicates extents of area to be fenced during establishment. The hatched area illustrates area not to be planted but to allow for natural regenration to form shrub zone.

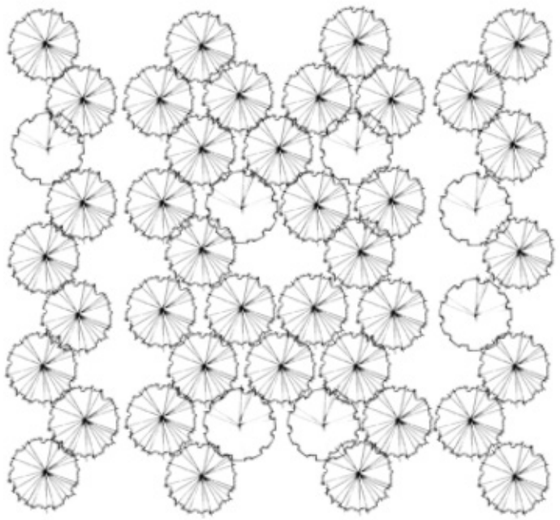


B. Upland slope with tributaties and habitat island
Woodland planting to upland edge to follow natural hollows and depressions. Dashed black line indicates extents of area to be fenced during establishment.

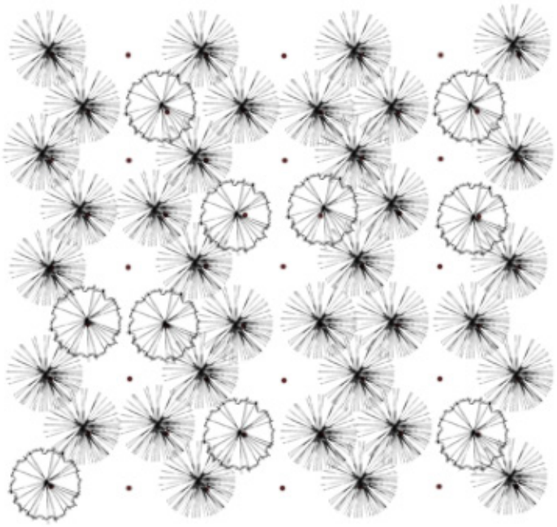


C. Water edge with woodland glade
Woodland planting to interior with areas left unplanted to form glades within the woodland mosaic. Dashed black line indicates extents of area to be fenced during establishment. The hatched area illustrates area not to be planted but to allow for natural regenration to form shrub zone.

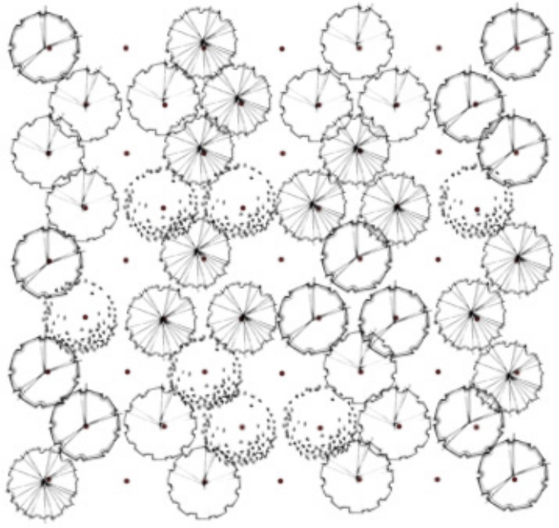
F3.14
Indicative Woodland Structure (25 years old)



A. Native Birch/ Ash/ Oakwoods



B. Native Pinewood



C. Wet Woodland

General

4.1
The findings from the site appraisal have been taken forward to inform the development of the overall concept for landscape enhancement proposals. Due to the size of the area and the complexities of the landscape, a series of options were developed which provide different solutions for mitigation of the visual impact of the line on Loch Katrine and the Great Trossachs Path.

4.2
Three potential options have been developed and are set out in this chapter. Analysis of each option has also been carried out, to ascertain strengths and weaknesses, and assist in determining the most suitable option to take forward and develop further to outline design stage.

Option 1

4.3
This option explores providing an alternate route to the existing road for the Great Trossachs Path. The proposed route would run along the water's edge of Loch Katrine taking in the 'spit' landforms. Landscape enhancement measures, in the form of native woodland planting, are also proposed to supplement existing planting between the proposed route/ existing road and lower slopes of the valley side to the base of the wayleave.
This proposal also identifies potential viewpoint/ intervention sites located on the 'spit' landforms along the water's edge. These sites will act as an attraction, diverting attention away from the line through providing focal points at key points along the proposed new route.
This proposal will assist in providing intermittent screening of the line from the shores of Loch Katrine. Screening will also be enhanced along the existing road/ Great Trossachs Path through proposed woodland planting. The tips of the pylons and cables will still be largely visible given the steepness of the valley sides along this route.

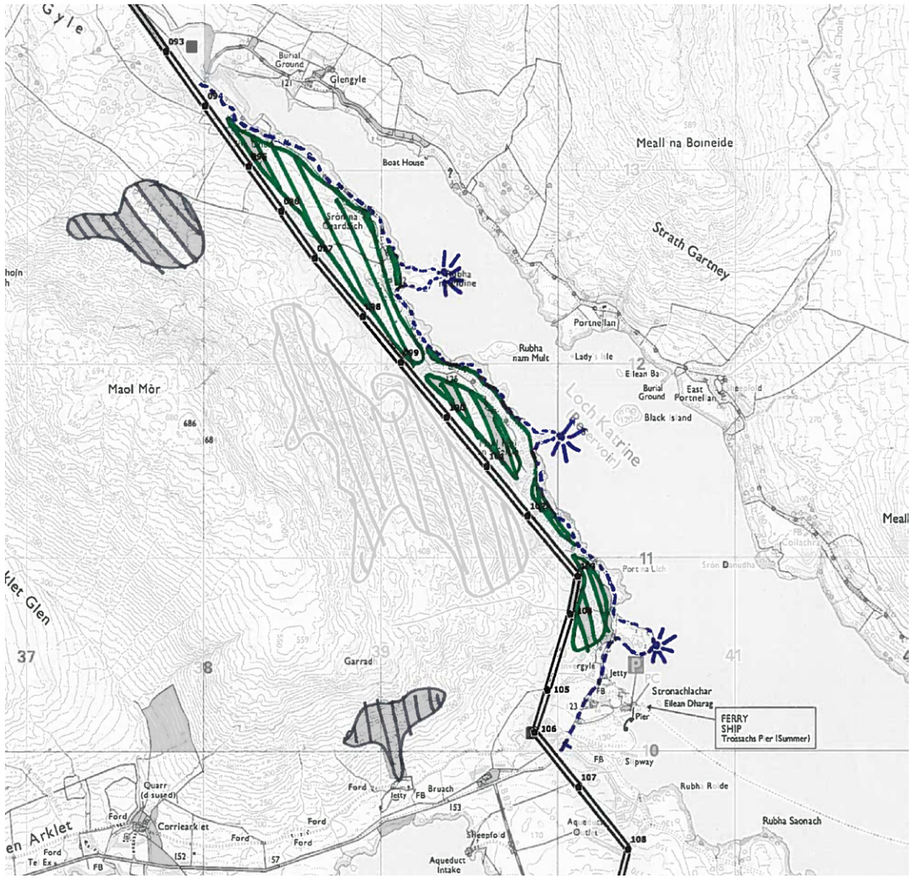
Option 2

4.4
This option explores retaining the Great Trossachs Path along the existing road route, providing native woodland planting to the lower slopes of the valley side between the exiting road and base of the wayleave. Landscape enhancement measures, in the form of native woodland planting, are also proposed to the middle slopes of the valley side to supplement and extend existing woodland.
This proposal also identifies a potential viewpoint/ intervention site located on the prominent, recently deforested 'spit' landform visible from the Pier and Stronachlachar. This site will act as an attraction, diverting attention away from the line, through providing a key focal point to the existing route.
This proposal will assist in enhancing the screening already afforded, in part, by existing woodland along the lower slopes of the valley side. The tips of the pylons and cables will still be largely visible given the steepness of the valley sides along this route. Widescale planting along the mid and upper slopes will also assist in augmenting screening of the lines from the Great Trossachs Path over far reaching views along Loch Katrine.

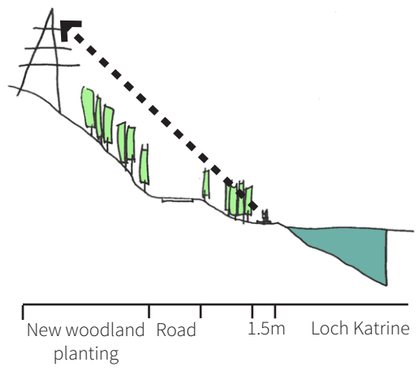
Option 3

4.5
This option explores retaining the Great Trossachs Path along the existing road route, providing native woodland planting to the lower slopes of the valley side between the exiting road and base of the wayleave. Landscape enhancement measures, in the form of native woodland planting, are also proposed to the middle slopes of the valley side to supplement and extend existing woodland.
This proposal also identifies a potential viewpoint/ intervention site located on the prominent, recently deforested 'spit' landform visible from the Pier and Stronachlachar. This site will act as an attraction, diverting attention away from the line, through providing a key focal point to the existing route.
This proposal will assist in enhancing the screening already afforded, in part, by existing woodland along the lower slopes of the valley side. The tips of the pylons and cables will still be largely visible given the steepness of the valley sides along this route. Widescale planting along the mid and upper slopes will also assist in augmenting screening of the lines from the Great Trossachs Path over far reaching views along Loch Katrine.

Plan



Section



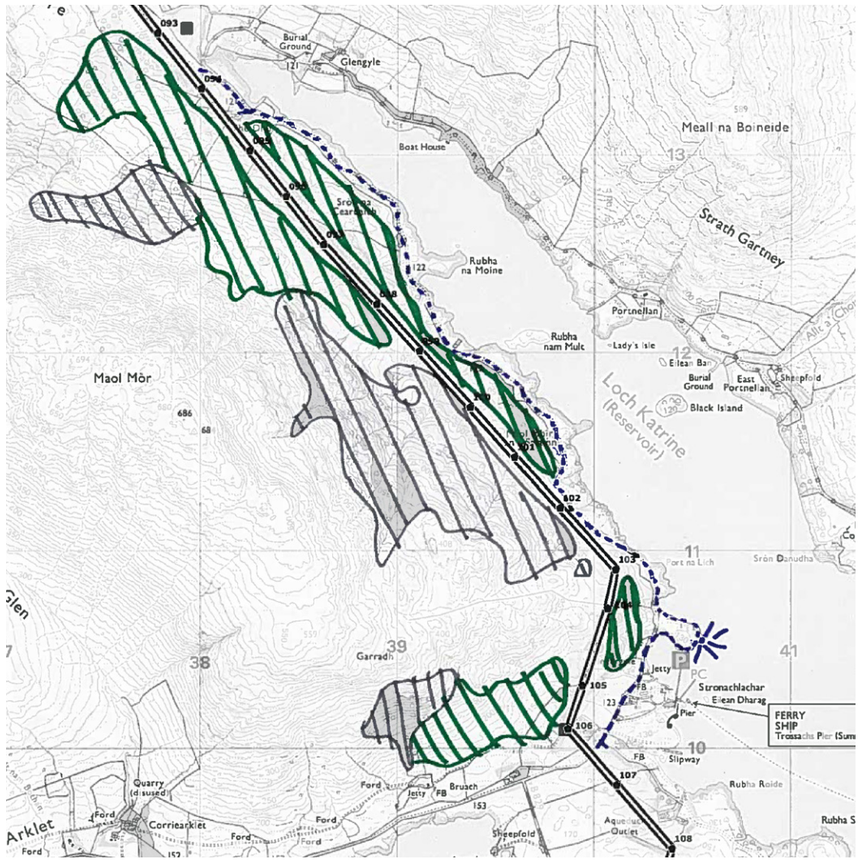
Section showing alternate route along Loch Katrine water edge with new native woodland planting to lower slope sides, and between new route and existing road.

Also showing proposed new viewpoints/ intervention on spits, which will attract attention away from the line.

It is anticipated this option will afford partial screening with intermittent views of the line still possible in areas above the planting.

Option 2

Plan



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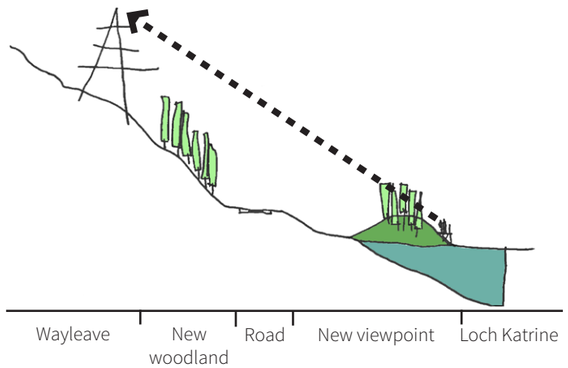


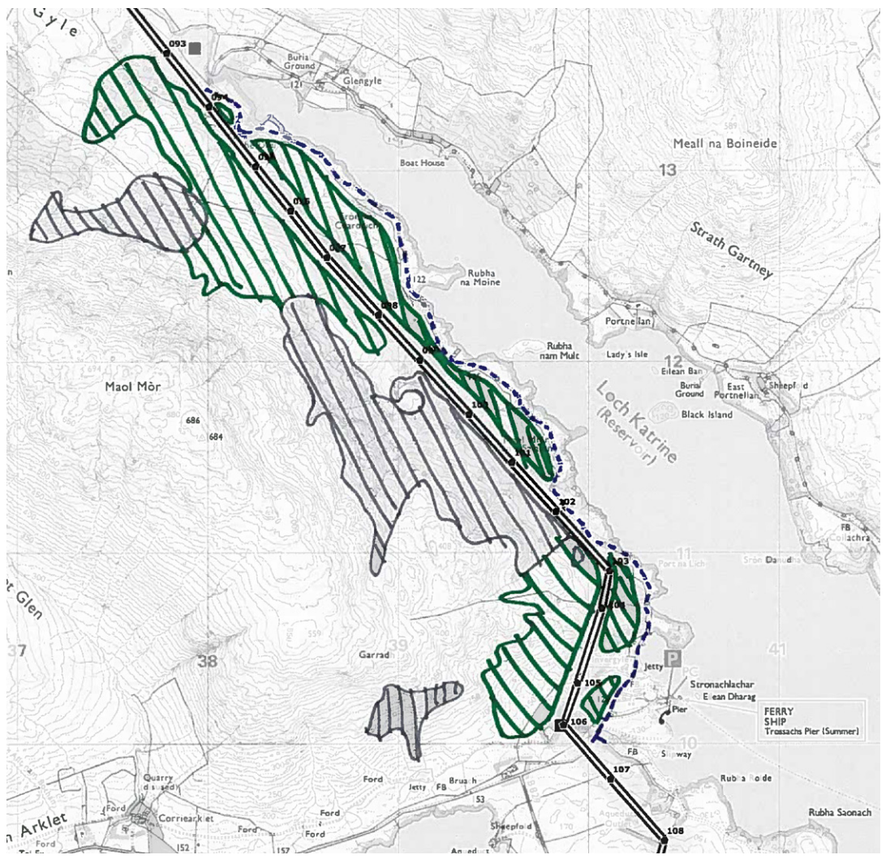
Section showing retained route along existing road with new native woodland planting to lower slope sides, and between new route and existing road.

Also showing proposed new viewpoint/ intervention on spit opposite Pier, which will act as an attraction and divert attention away from the line.

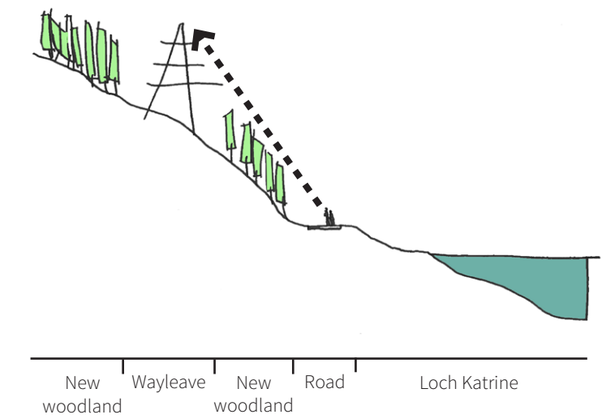
It is anticipated this option will afford partial screening with intermittent views of the line still possible in areas above the planting.

Option 3

Plan



Section



Section showing retained route along existing road with new native woodland planting to lower slope sides, and between new route and existing road.

It is anticipated this option will afford partial screening with intermittent views of the line still possible in areas above the planting.

Options Analysis

4.6 **Option 1**

Strengths:

- Intermittent screening afforded to views from the Great Trossachs Path;
- Introduction of visually diverting viewpoints/ interventions;
- Improved experiential connection with Loch Katrine water edge;
- Creation of new non-trafficked route;
- Limited landtake required; and
- Creation of native woodland and associated habitats.

Weaknesses:

- Limited opportunity to screen views of lines over far reaching views along Great Trossachs Path; and
- Construction of new route required with associated costs.

Opportunities:

- Visual diversion and enhanced user experience through viewpoints/ intervention features; and
- Increased native woodland creation and associated biodiversity benefits.

4.7 **Option 2**

Strengths:

- Marginally enhanced screening afforded to views from the Great Trossachs Path;
- Introduction of visually diverting viewpoint/ intervention;
- Utilises existing road/ route negating requirement for new footpath; and
- Creation of native woodland and associated habitats.

Weaknesses:

- Provides limited screening with views from Great Trossachs Path only slightly changed;
- Extensive landtake required for native woodland planting to valley side; and
- Utilises lightly trafficked road.

Opportunities:

- Visual diversion and enhanced user experience through viewpoint/ intervention feature; and
- Increased native woodland creation and associated biodiversity benefits

4.8 **Option 3**

Strengths:

- Marginally enhanced screening afforded to views from the Great Trossachs Path;
- Utilises existing road/ route negating requirement for new footpath;
- Landscape character change limited to lower valley slopes; and
- Creation of native woodland and associated habitats.

Weaknesses:

- Provides limited screening with views from Great Trossachs Path only slightly changed;
- Extensive landtake required for native woodland planting to valley side; and
- Utilises lightly trafficked road.

Opportunities

- Creation of woodland habitats; and
- Increased native woodland creation and associated biodiversity benefits.

4.9 Following on from the options analysis the option taken forward for development to outline design stage is option 1.

Option 1 is to be taken forward as it is affords the most beneficial levels of screening to receptors on the proposed alternate Great Trossachs Path route, which are deemed to be of **High** visual sensitivity to the lines.

5 Outline Proposals

General

5.1
The proposals have been developed taking into consideration landscape and visual factors, and building upon the fundamental elements, guiding principles and concept design to fulfil the primary objective of reducing the visual impact of the transmission lines from the route of the Great Trossachs Path along the section between Stronachlachar pier and Glen Gyle, at the northern extent of Loch Katrine.

The proposal seeks to enhance the visual experience along the route, which is popular with cyclists and walkers, as it passes around the north-western edge of Loch Katrine. The route may also provide alternative access to remote summits in the **Ben More – Ben Ledi Wild Land Area (07)** via Glen Gyle, whilst reducing the prominence of the transmission lines for visitors to Stronachlachar Pier.

The proposals also include potential viewpoint/ interventions which were explored during the optioneering stage, as set out within the accompanying workbook, creating locations along the route of the Great Trossachs Path which focus upon views away from the transmission line.

The creation and enhancement of extensive areas of mixed native woodland will be sympathetically designed and implemented to complement the proposals and objectives of the Great Trossachs Forest Initiative.

The outline design proposes the following mitigation measures for reducing the visual impact of the transmission line on users of the Great Trossachs Path, and visitors to Stronachlachar Pier and the surrounding area:

- Provision of an alternative route along the banks of Loch Katrine to take receptors/ people away from the line and along the edge of the loch;

- Localised woodland planting to the lower slopes to improve the visual experience along the existing route of the Great Trossachs Path, creating extended areas of native woodland habitat, supplementing the riparian habitat along the edge of Loch Katrine and providing enhanced screening and filtering of views towards the transmission lines;

- Wide scale woodland planting to the mid and upper glen slopes, sensitively designed to respond to existing topography and landscape pattern, and tie into existing woodland on upland slopes, which complements the objectives and proposals of the Great Trossachs Forest Initiative. Creation of further woodland habitat and affording screening of the transmission lines over far reaching views along the Great Trossachs Path, and across Loch Katrine; and

- Creation of visually diverting focal points in the form of viewpoints/ interventions on prominent ‘spit’ landforms along the alternative route of the Great Trossachs Forest to divert receptors attention and focus away from the transmission line.

Key Benefits

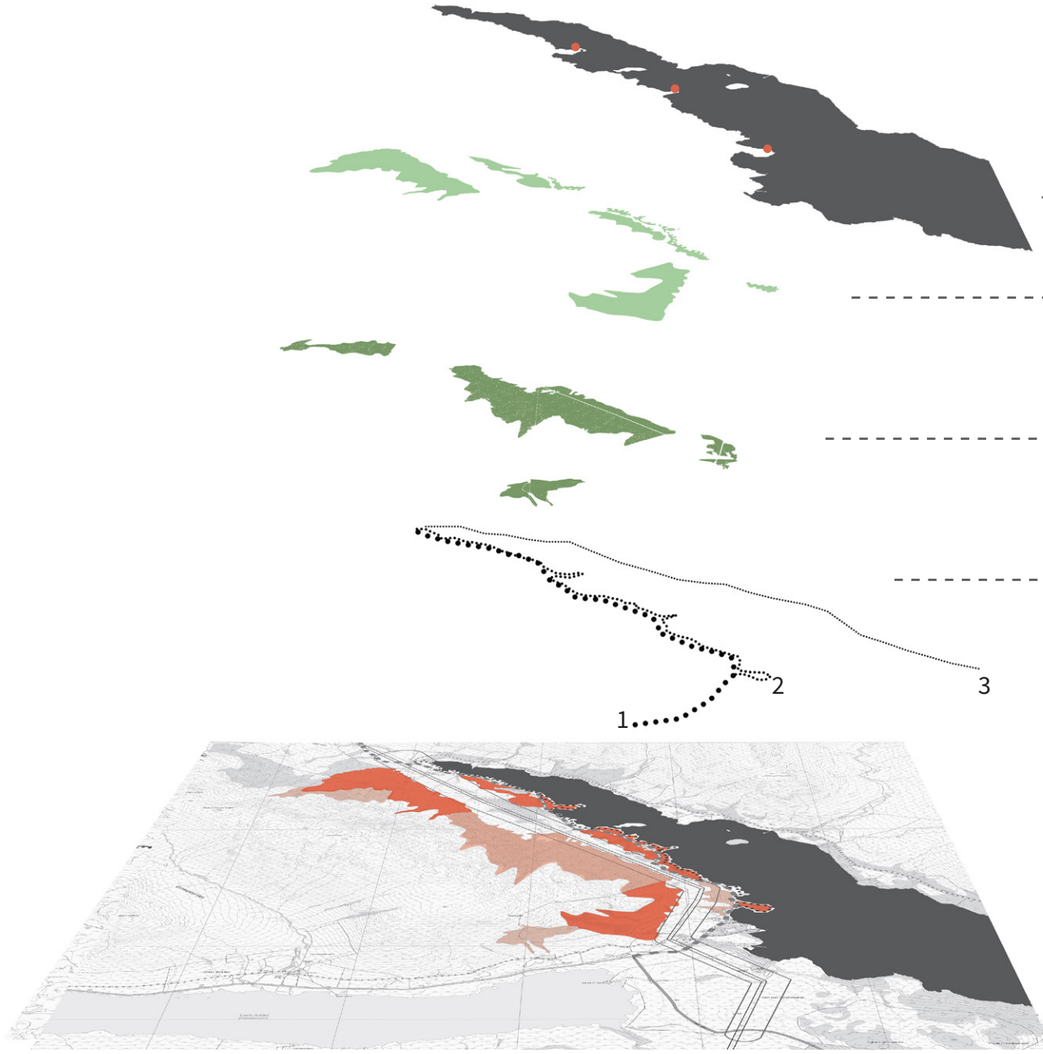
5.2
- Intermittent screening and filtering of views towards the transmission lines from the route of the Great Trossachs Path;
- Introduction of visually diverting viewpoints/ interventions, adding interest to the route of the Great Trossachs Path and focusing views away from the transmission line;
- Improved experiential connection with Loch Katrine water edge through creation of alternative footpath route closer to the loch, offering a separate route for pedestrians away from popular cycling route along the minor road;
- Limited land take required to deliver alternative footpath route, and native woodland planting focused along the existing route of the minor road/ Great Trossachs Path; and
- Creation and enhancement of mixed native woodland and associated habitats.

Key Challenges

5.3
- Limited opportunity to screen views of transmission lines over far reaching views along Great Trossachs Path;
- Long-term establishment of woodland before visual impact mitigation is effective;
- Changes in land management practices – including reduction or management of grazing to establish woodland planting from existing grassland and moorland vegetation;
- Large land take required to deliver extensive native mixed woodland planting on mid and upper slopes of the glen to screen and integrate the transmission lines over longer term; and
- Construction of new route required with associated costs.

5.4
The introduction of extensive native woodland will be implemented in line the Biodiversity Action Plan for the National Park (Wild Park 2020) which notes that expanding and restoring native woodland is one of the major goals for Forestry Commission land in the National Park. Appropriate woodland mixes of native species of trees and lower growing vegetation will be developed sympathetically, with reference to the geographical location, elevation, topography, soil type, hydrology and biodiversity of the specific area. The following woodland mixes are proposed, subject to more detailed survey and understanding of the areas to be planted:

F5.1 Proposal Component Diagram



Loch Katrine and proposed viewpoint/ intervention locations

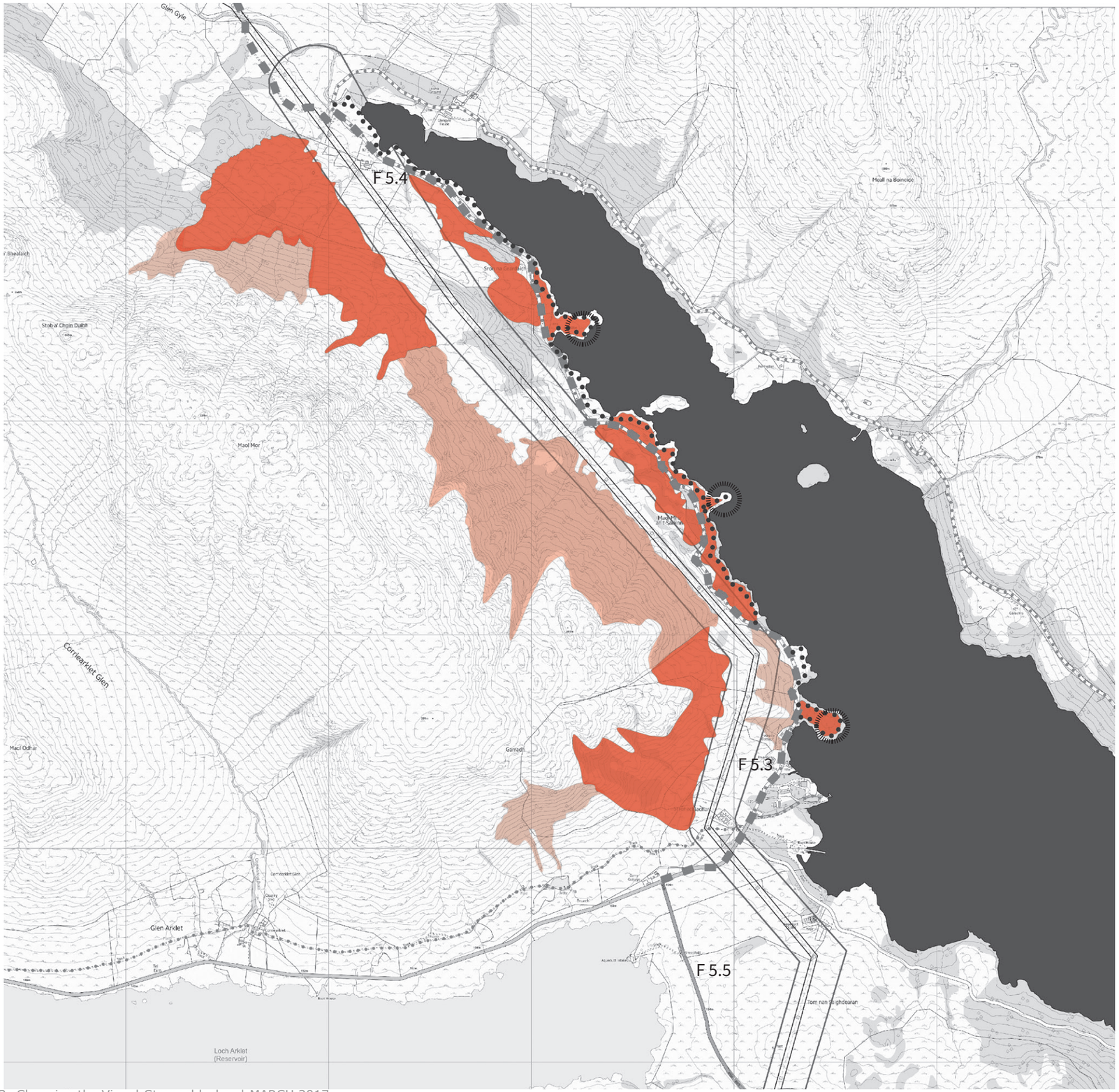
Proposed Native Woodland Planting

Existing Woodland to be Supplemented by Additional Native Planting

Path Network
1. Existing Great Trossachs Path Route/ Road
2. Proposed Alternative Route
3. Great Trossachs Path outwith the Proposals Area

Outline Proposal

F5.2 Outline Proposals Plan



Key

- Loch Katrine
- Great Trossachs Path
- OHL
- Existing Road/ Great Trossachs Path
- Proposed Alternative Route
- Proposed Native Mixed Woodland Planting
- Existing Woodland Planting
- Proposed Viewpoint/ Invervention
- F 5.3 — Consult Following Figure as Numbered

Analysis
Highlighting ridge lines, depressions, hollows and features within the existing landform in white dashed line. Loch Katrine water edge is highlighted by dashed blue line.

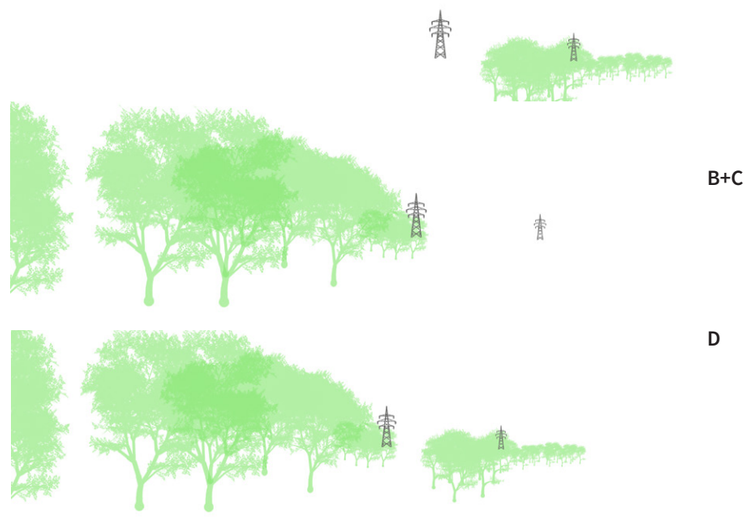
Proposed
Native woodland planting to the lower slopes between the existing road/ Great Trossachs Path and the wayleave corridor. This responds to the natural topography and provides some screening of the line form the existing path.

F5.3 Indicative Sketch Situation 2
Glen Lower Slopes Native Woodland

Visibility
Sketch showing native woodland creation along the lower slopes and impact on visibility of the line. The line would be intermittently visible from the existing path due to the steepness of the slopes. The line would largely be screened but pylon tips and cables will still be visible.

Analysis
Highlighting ridge lines, depressions, hollows and features within the existing landform in white dashed line. Loch Katrine water edge is highlighted in dashed blue line.

Proposed
Native woodland planting to the glenside which responds to the natural topography. Pine woodland planting to the upper slopes with feathered edge. Birchwoods to the mid slope and wet woodland to the valley floor.



F5.4 Indicative Sketch Situation 1
Loch Side/ Valley Floor Native Woodland

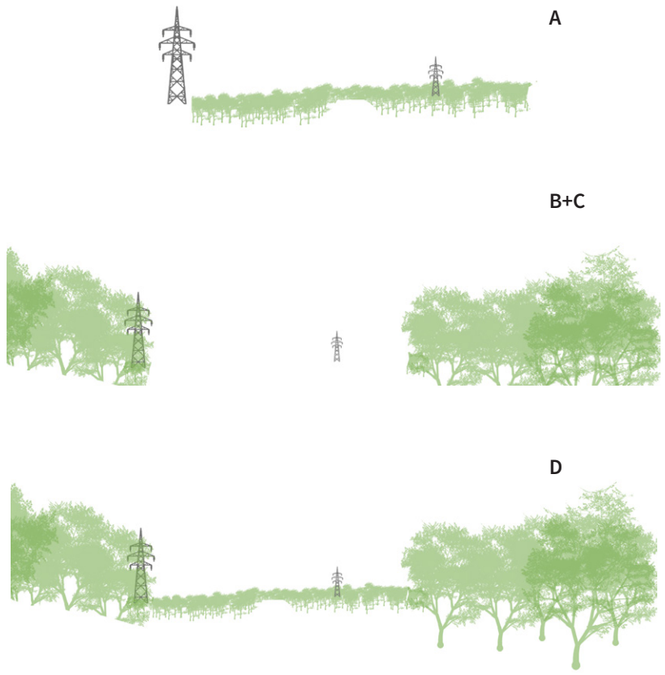
Visibility
Sketch showing native woodland creation along the banks of Loch Ard and along the existing road corridor, and impact on visibility of the line. The line is partially screened with only to tips of the pylons visible. Planting would be carried out so as to focus the eye to particular areas, in this instance the foot of Glen Gyle.

Woodland Composition by Typology
A. Native pinewood
B. Birch/ ash/ oakwoods
C. Wet woodland
D. Combined Mosaic

F5.5 Indicative Sketch Situation 3
Plateau Native Woodland

Analysis
Highlighting ridge lines, depressions, hollows and features within the existing landform in white dashed line.

Proposed
Native woodland planting to the glen slopes and glen floor which responds to the natural topography and Glen Gyle Water.



Visibility
Sketch showing native woodland creation on plateau above the settlement of Stronachlachar, and impact on visibility of the line. The line would beintemittently screened from the existing road. Sensitive design will be required to strike a balance between screening of the line and retaining long reaching scenic views.

Woodland Composition by Typology
A. Native pinewood
B. Birch/ ash/ oakwoods
C. Wet woodland
D. Combined Mosaic

Implementation

6.1

The following is a brief summary of the key tasks that would be required to implement a project of the nature described.

- **Screening -** EIA 'unlikely' to be required;
- **Scoping and consultation (if EIA required)** – identify key user groups, legal and good practice requirements for EIA / discussion with local authority, setting of management objectives;
- **Survey** – detailed site survey (e.g. legal, physical, biodiversity, historic environment, recreation, landscape, people, management of grazing animals; species selection);
- **Analysis** – identify site constraints and opportunities, landscape character and landform analysis, potential NVC woodland types, historic environment;
- **Synthesis** – development of a design concept, followed by sketch designs then detailed designs for new areas of woodland and new riverside path;
- **Implementation** –ground preparation, establishment of new planting (through natural regeneration, seeding or planting), path construction and improvements; and
- **Monitoring and review**– against management objectives, making changes if necessary.

It is anticipated that the works described above could be undertaken in a 5-10 year period, although woodland would take longer to mature.

Management and Maintenance

6.2

Detailed site survey will help to establish the maintenance requirements of the site. The following elements are likely to be a key consideration:

- Fencing of new areas of tree planting to protect from grazing;
- Management of regeneration of non-natives; and
- Maintenance of path including signage/ way markers.

Benefits to Landowners

6.3

Converting grassland or moorland to native woodland

- Increase in nesting opportunities for birds and bats;
- Can provide habitat for rare plant and animal species;
- Can create links between scattered areas of woodland habitat, which may be important for the movement of some plant and animal species;
- Can be used to promote community involvement, from consultation to active management;
- Increase in soil water retention/ reduced flooding and erosion; and
- Can provide shelter for arable land or grazing animals.

New footpath

- Increased opportunities for recreation, likely to attract more visitors; and
- Easier access to loch-side.

Costs of Creating and Managing Woodland

6.4
Forestry Commission Scotland provide extensive guidance and information about the creation, implementation and management of woodland, including the relative costs. The costs of creating and managing woodland varies, depending on the size of the proposed scheme, trees planted, and the purpose of woodland.

Factors to consider:

- Future access;
- Deer and rabbits;
- Environmental impact;
- Creation costs;
- Maintenance costs;
- Potential requirement for an Environmental Impact Assessment (EIA) for larger schemes;
- The character and views of the site will look like in the short-term and long-term; and
- Tree planting is usually carried out between October and March, avoiding frost and snow.

Things to consider when considering the cost of new woodland:

- Design costs: e.g. consultancy fees;
- Machinery costs;
- Site/ground preparation: ripping or mounding, establishment of low vigour grassy turf;
- Planting costs;
- Cost of material (seedlings etc.): trees from nurseries;
- Tree protection: spiral shelter, tube and stake and tie;
- Fencing: post and wire, post and rail, rabbit proof, deer proof;
- Labour; and
- Maintenance and upkeep: e.g. weed-free areas around the trees, replacements for failed trees, deer and rabbit control.

Planting

ITEM	QUANTITY	UNIT	RATE	COST
Tree planting (including shelter)	2324716	m^2	£3.50	£8,136,506
			Total	***£8,136,506***

Materials

ITEM	QUANTITY	UNIT	RATE	COST
Stock and rabbit fencing	17413	lin/m	£20.75	£361,320
Footpath	3585	lin/m	£30.00	£107,550
Footbridge	3	lin/m	£1500.00	£4,500
Stiles	8	each	£125.00	£1,000
Waymarker post	10	each	£30.00	£300
Fingerpost	2	each	£60.00	£120
Interpretation board	1	each	£1200.00	£1,200
			Total	***£475,990***

Total Outline Project Cost	**£8,612,496**