

The main focus for biodiversity is the woodland potential as red squirrel habitat, and the adoption where possible of good management practices which will encourage them in preference to greys - for example through favouring species such as Norway spruce, Douglas fir or small seeded broadleaves (e.g. birch, rowan or aspen). The use of thinning, CCF systems, and the retention of some mature 'specimen' trees in perpetuity will also enhance the overall biodiversity value of the woodlands.

The existing mature mixed woodlands found on all three sites are generally quite visible within the local landscape. Where possible Continuous Cover Forestry (CCF) systems will be used in preference to a standard Clearfell approach in order to reduce the impact of future management operations on the landscape.

All three sites benefit from generally good quality soils and a warm, moist climate which together offers the potential to grow a wide range of species.
Future species choice will be driven by management objectives (including timber production, biodiversity and recreation), and will also need to take into account the expected future impact of climate change.

Long history of managed woodland across all three sites, with the majority of the woodland designated as LEPO (Long Established of Plantation Origin). Use of thinning + CCF systems will assist in the maintenance of native woodland vegetation.

The woods are located within a relatively densely populated area, and both Benarty and Cardenden are partially designated as WIAT (Woodland In and Around Town) woods.
Public access for recreation and the impact of minor antisocial aspects (e.g. Fly tipping, Poaching, Drinking dens, Fire setting, Illegal Motorbike use) are thus important considerations, and the needs and wishes of the local Communities will help influence the woodland design.

Of the three main diseases impacting on the National Forest Estate currently (*Phytophthora ramorum* on Larch, *Chalara fraxinea* on Ash, and Dothistroma Needle Blight (DNB) on Pine), only the latter is known to be present across the three sites.
Corsican pine has been most heavily impacted by DNB, and the existing stock will be felled (or thinned out of mixed stands). To date the existing Scots pine stands have been less badly affected, although they remain at risk.

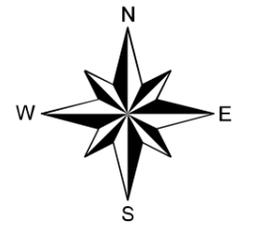
Legend

FC Blocks

- Benarty
- Cullaloe
- Cardenden

Existing Woodland

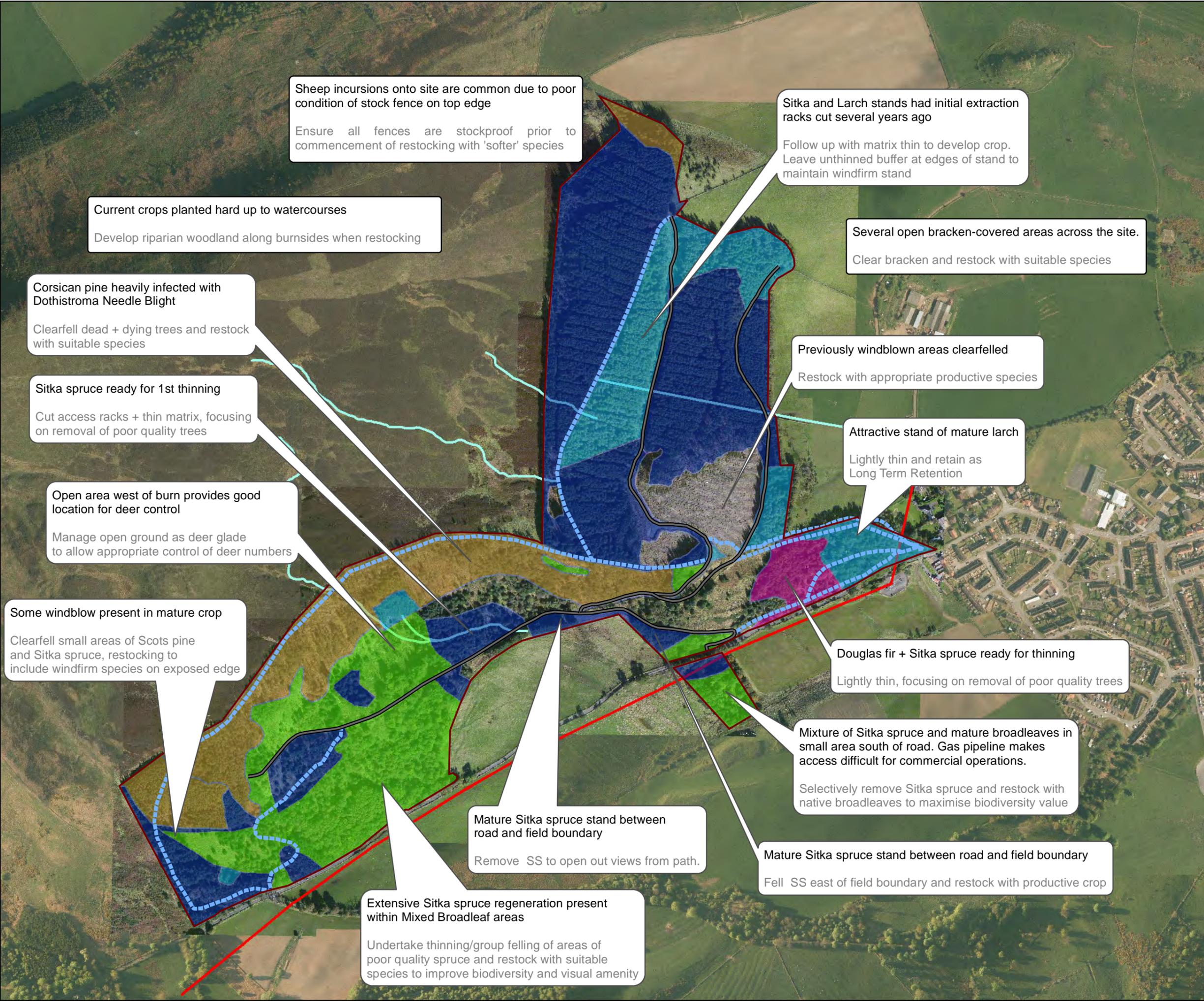
- Mainly Broadleaves
- Mainly Conifers



Analysis + Concept

Legend

- Benarty
- Pines
- Spruces
- Larches
- Other Conifer
- Mixed Broadleaves
- FC Road
- Tracks & Paths
- Watercourse
- Gas pipeline



Sheep incursions onto site are common due to poor condition of stock fence on top edge
Ensure all fences are stockproof prior to commencement of restocking with 'softer' species

Current crops planted hard up to watercourses
Develop riparian woodland along burnbanks when restocking

Corsican pine heavily infected with Dothistroma Needle Blight
Clearfell dead + dying trees and restock with suitable species

Sitka spruce ready for 1st thinning
Cut access racks + thin matrix, focusing on removal of poor quality trees

Open area west of burn provides good location for deer control
Manage open ground as deer glade to allow appropriate control of deer numbers

Some windblow present in mature crop
Clearfell small areas of Scots pine and Sitka spruce, restocking to include windfirm species on exposed edge

Mature Sitka spruce stand between road and field boundary
Remove SS to open out views from path.

Extensive Sitka spruce regeneration present within Mixed Broadleaf areas
Undertake thinning/group felling of areas of poor quality spruce and restock with suitable species to improve biodiversity and visual amenity

Sitka and Larch stands had initial extraction racks cut several years ago
Follow up with matrix thin to develop crop. Leave unthinned buffer at edges of stand to maintain windfirm stand

Several open bracken-covered areas across the site.
Clear bracken and restock with suitable species

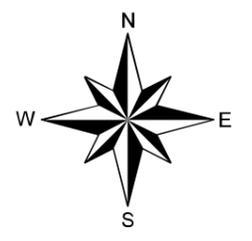
Previously windblown areas clearfelled
Restock with appropriate productive species

Attractive stand of mature larch
Lightly thin and retain as Long Term Retention

Douglas fir + Sitka spruce ready for thinning
Lightly thin, focusing on removal of poor quality trees

Mixture of Sitka spruce and mature broadleaves in small area south of road. Gas pipeline makes access difficult for commercial operations.
Selectively remove Sitka spruce and restock with native broadleaves to maximise biodiversity value

Mature Sitka spruce stand between road and field boundary
Fell SS east of field boundary and restock with productive crop



Analysis + Concept

Legend

- Cardenden
- Pines
- Spruces
- Larches
- Other Conifer
- Oak
- Beech
- Other Broadleaves
- FC Road
- Tracks & Paths
- ✕ Overhead powerline
- Underground powerline

North end of Den most heavily used by local community
Make wood more welcoming by improving entrances, renovating existing infrastructure, keeping vegetation back from paths and thinning to open out the wood and improve sightlines

Mature shelterbelts surround New Carden Plantation
Retain as Long Term Retention to improve age diversity and provide shelter to plantation

Dense stand of mainly multi-stemmed Birch + Sycamore
Bring woodland into active management, through combination of Coppice, Singling + Thinning, to supply local firewood market and open out wood for recreational usage

Mature Beech/Sycamore woodland, with some stands of pine, spruce and larch. Coriscan pine suffering from widespread infection by Dothistroma Needle Blight
Fell pine stands, and thin out from mixed woodland, and restock with more suitable species. Thin remaining woodland, focusing on best quality SY + NS

Recently acquired fields at Cardenbarns
Take advantage of favourable site conditions to create productive broadleaf woodland

Extensive *Rhododendron ponticum* clearance program undertaken in recent years
Continue to monitor woodland, and undertake program of follow up spraying where appropriate

Mature stand of predominantly Scots pine with naturally regenerating understorey of birch, pine + spruce.
Lightly thin to remove poorest stems, favouring Norway spruce where present. Accept birch understorey as intermediate firewood crop

Sitka stand east of road has missed thinning window, and has some small pockets of windblow
Allow to grow on unthinned and fell before windthrow becomes widespread

Sitka + Pine planted in mid-90's approaching 1st thinning height. Extensive birch regeneration also present.
Cut extraction racks and undertake intermediate thinning of crop, respace birch to manage as productive stand

Good ground conditions and sheltered climate
Manage majority of woodland as Continuous Cover Forestry or Long Term Retention. Retain a scattering of oversize conifers across the site in long term as 'specimen' trees for visual diversity and to provide additional habitat for a wider range of species

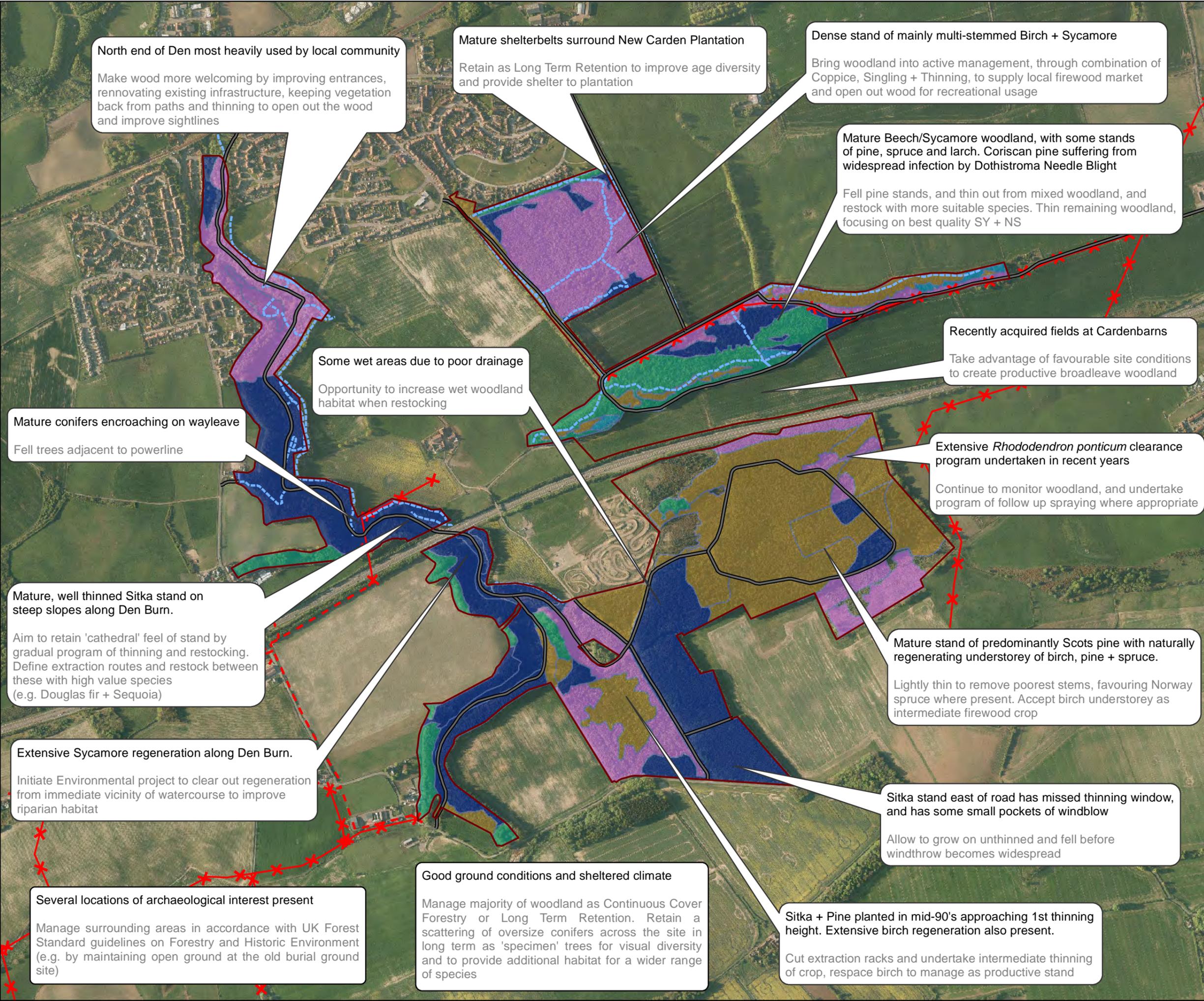
Some wet areas due to poor drainage
Opportunity to increase wet woodland habitat when restocking

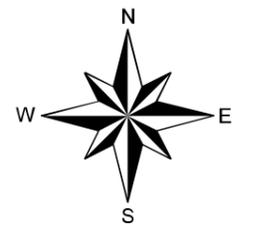
Mature conifers encroaching on wayleave
Fell trees adjacent to powerline

Mature, well thinned Sitka stand on steep slopes along Den Burn.
Aim to retain 'cathedral' feel of stand by gradual program of thinning and restocking. Define extraction routes and restock between these with high value species (e.g. Douglas fir + Sequoia)

Extensive Sycamore regeneration along Den Burn.
Initiate Environmental project to clear out regeneration from immediate vicinity of watercourse to improve riparian habitat

Several locations of archaeological interest present
Manage surrounding areas in accordance with UK Forest Standard guidelines on Forestry and Historic Environment (e.g. by maintaining open ground at the old burial ground site)

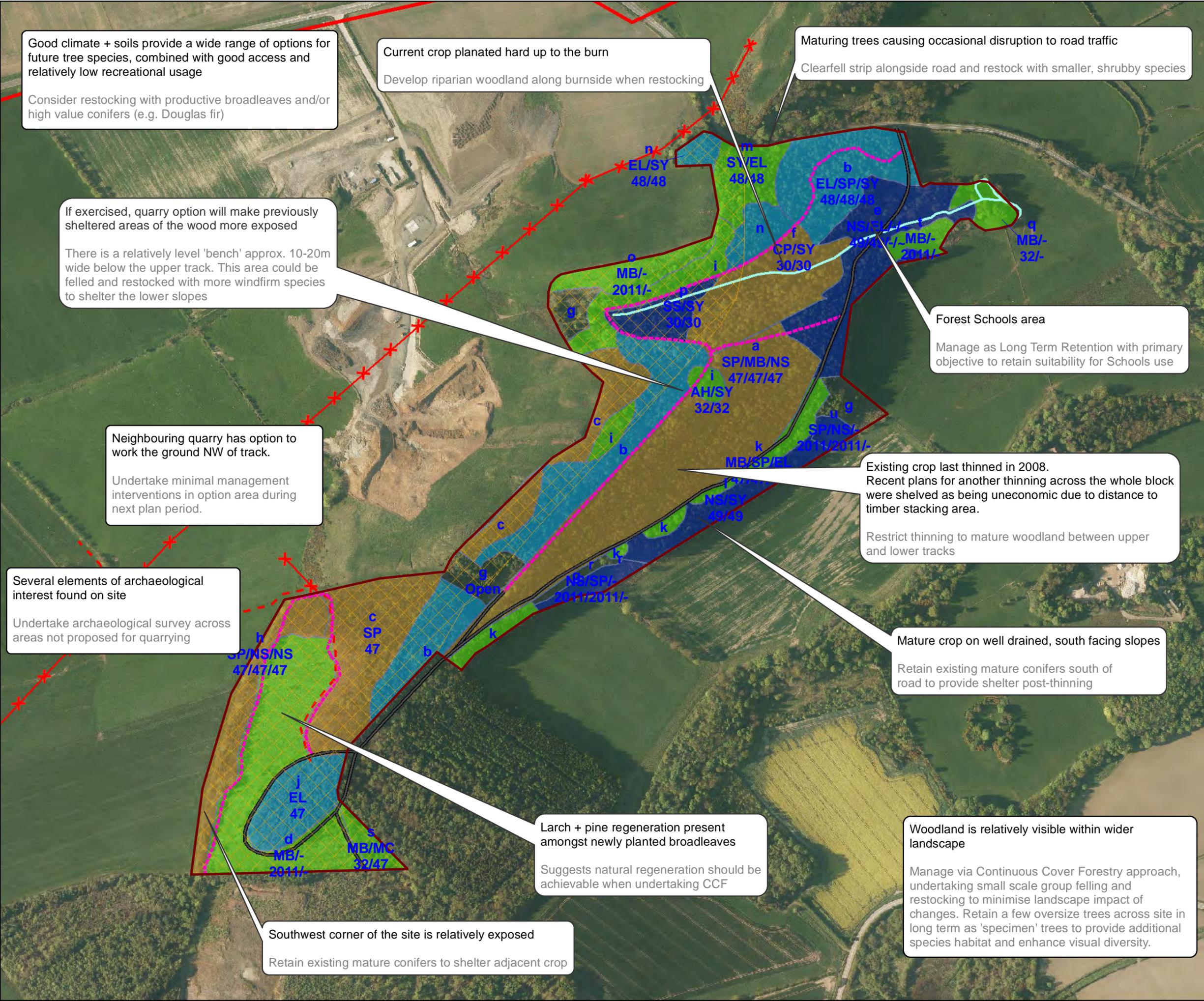




Analysis + Concept

Legend

- Cullaloe
- Pines
- Spruces
- Larches
- Mixed Broadleaves
- Quarry option
- FC Road
- Tracks & Paths
- ✕ Overhead powerline
- Underground powerline
- Gas pipeline
- Watercourse



Good climate + soils provide a wide range of options for future tree species, combined with good access and relatively low recreational usage

Consider restocking with productive broadleaves and/or high value conifers (e.g. Douglas fir)

Current crop planated hard up to the burn

Develop riparian woodland along burnside when restocking

Maturing trees causing occasional disruption to road traffic

Clearfell strip alongside road and restock with smaller, shrubby species

If exercised, quarry option will make previously sheltered areas of the wood more exposed

There is a relatively level 'bench' approx. 10-20m wide below the upper track. This area could be felled and restocked with more windfirm species to shelter the lower slopes

Forest Schools area

Manage as Long Term Retention with primary objective to retain suitability for Schools use

Neighbouring quarry has option to work the ground NW of track.

Undertake minimal management interventions in option area during next plan period.

Existing crop last thinned in 2008. Recent plans for another thinning across the whole block were shelved as being uneconomic due to distance to timber stacking area.

Restrict thinning to mature woodland between upper and lower tracks

Several elements of archaeological interest found on site

Undertake archaeological survey across areas not proposed for quarrying

Mature crop on well drained, south facing slopes

Retain existing mature conifers south of road to provide shelter post-thinning

Larch + pine regeneration present amongst newly planted broadleaves

Suggests natural regeneration should be achievable when undertaking CCF

Woodland is relatively visible within wider landscape

Manage via Continuous Cover Forestry approach, undertaking small scale group felling and restocking to minimise landscape impact of changes. Retain a few oversize trees across site in long term as 'specimen' trees to provide additional species habitat and enhance visual diversity.

Southwest corner of the site is relatively exposed

Retain existing mature conifers to shelter adjacent crop