Coatham and South Burdon Forest Plan FP 30

2025

Yorkshire Forest District

Forestry England forests and woodlands have been certified in accordance with the UK Woodland Assurance Standard (UKWAS)

Forestry England - Property

Forest District:	Yorkshire
Woodland or property name:	Coatham and South Burdon
Nearest town, village or locality:	Egglescliffe and Darlington
OS Grid reference:	NZ 396 159, NZ 332 151
Local Authority district/unitary Authority:	Stockton BC and Darlington BC

Areas for approval

	Conifer	Broadleaf
Lower Impact Silvicultural Systems regeneration felling	2	2

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

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

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

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

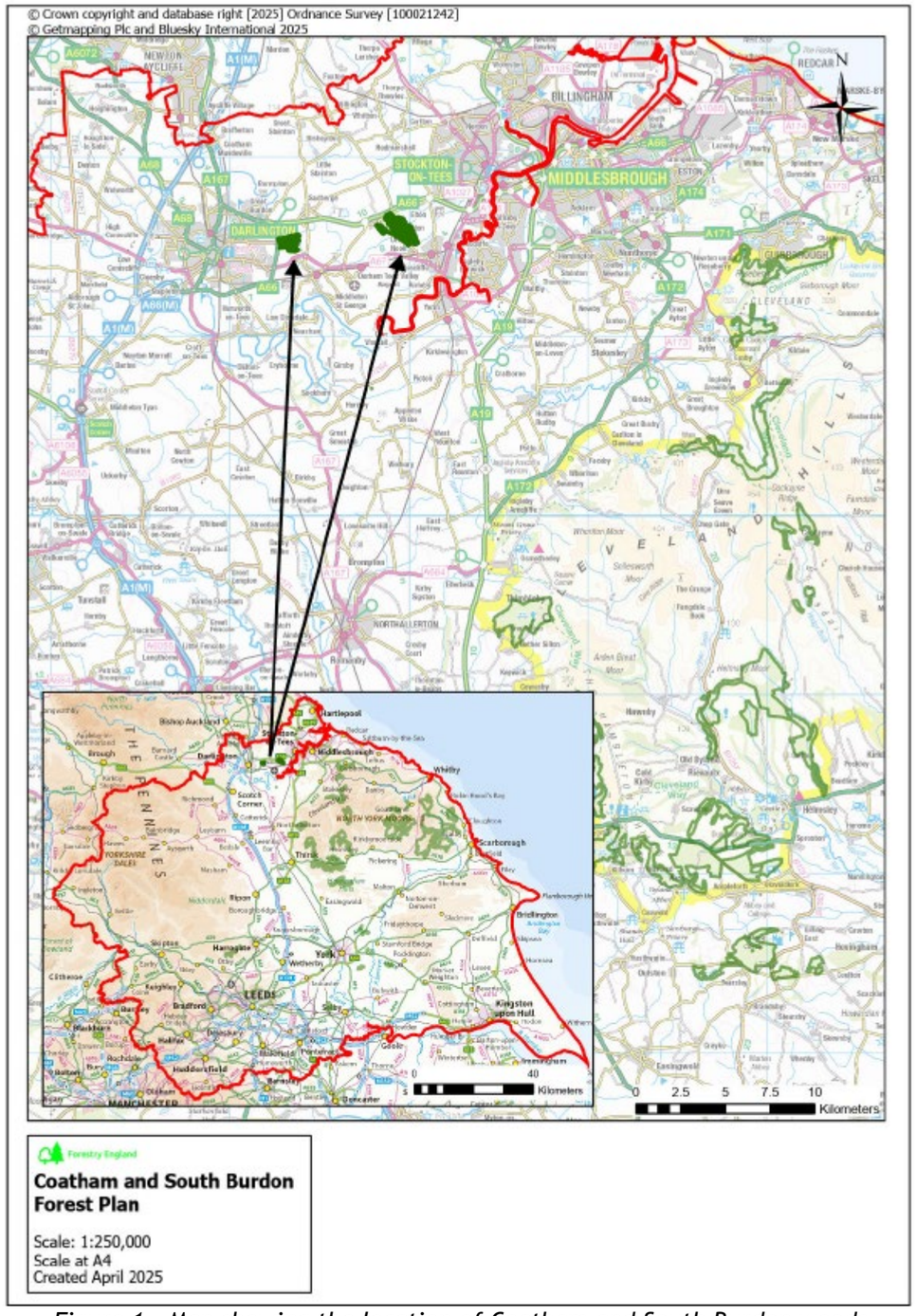


Figure 1 – Map showing the location of Coatham and South Burdon woods

Contents

General Principles

All operations within the forest will be carried out in accordance with the following standards;

- U.K. Woodland Assurance Standard
- U.K Forestry Standard 5th edition (published 2023)

All of our forests and woodlands are certified to the Forest Stewardship Council®(FSC®) licence code FSC-C123214 and the Programme for the Endorsement of Forest Certification (PEFC) licence code PEFC/16-40-1001 standards. We will maintain the land within our stewardship certified against the UK Woodland Assurance Standard, as independently assessed by annual independent surveillance audits.

Operational Planning - Before any major forest operations are undertaken, an Operational Site Assessment (OSA) is completed. The OSA details the proposed work outlining all known environmental, social and operational considerations, becoming an important reference document during the planning phase, at the pre commencement meeting before works begin and for supervisory visits during the operation. The OSA is retained along with other related documents. Forestry England staff will monitor all work through regular site visits ensuring that guidelines and contract conditions are adhered to.

We will protect and where appropriate, enhance all known sites of archaeological and ecological importance including areas of ASNW and PAWS, managing designated sites, such as scheduled monuments in accordance with statutory requirements, as per agreed management plans.

We apply local and national policy and best practice guidance to the management of riparian corridors, improving and enhancing the habitat network and benefiting protected species. Developing species and structural diversity will benefit habitats for priority woodland bird species throughout the woodland (Appendix 1 – Priority species).

Forest Resilience - We will continue to improve forest resilience to plant health, biosecurity and climate change threats through species and structural diversification.

Forest Development Types - During the lifetime of this plan, we will look to introduce the concept of Forest Development Types (FDTs)[8]. *"A Forest Development Type is a long-term vision of how the species composition and structure of a forest stand is intended to develop. The concept encourages the greater use of mixed-species stands and a wider variety of stand structure than previously deployed in British forests"*.

Lower Impact Silvicultural Systems (LISS) - All plans consider LISS in windfirm conifer plantations, based on methodologies in available guidence[11]. LISS with associated scale felling will contribute towards a varied and intimate internal and external forest landscape, with simple and complex stand structures creating a diverse visitor experience, whilst contributing toward structural diversity. Where existing coupes are not identified for LISS management, we may consider managing these on an extended rotation basis to be thinned and monitored for future consideration for conversion to LISS. See Appendix 2 – LISS Justification.

Using the FC Forest Research Agency, Ecological Site Classification system (ESC), a range of conifer species are considered 'optimum' to 'unsuitable' for LISS where timber production is considered as an objective.

Wildlife Management - Successful establishment of restocking sites through planting and/or natural regeneration requires effective control of crop damaging mammals. Although deer are present within the forest and surrounding farmland, good levels of natural regeneration indicate that browsing pressure is low. Damage levels will be monitored and managed[9].

Routine maintenance operations (e.g. fencing, ride mowing, survey work etc.) follow local policy[10].

Wildfire - Regarding wildfire, we will follow guidance as set out in 'FC Practice Guide – Building wildfire resilience into forest management planning'. This will be applied proportionately dependant on a particular forest or woodland.

Natural Regeneration - Natural regeneration in PAWS is assessed and the risks to the plan considered. Where dense shade or invasive species (i.e. Western hemlock) threatens the native woodland community, it will be removed as part of routine felling or thinning operations.

Native Woodland - Threats to our native woodlands can be immediate and absolute (e.g. loss to infrastructure or development) or slower and subtler (e.g. shading from conifer species or invasive species such as Rhododendron). There are also more widespread environmental changes, such as diffuse pollution and climate change, which may threaten in the long term.

Major threats to native woodland are:

- Climate change and fragmentation
- Excessive browsing and grazing by deer, livestock and grey squirrels
- Inadequate or inappropriate management
- Invasive and non-native plant species
- Diffuse pollution
- Pests and diseases
- Inappropriate recreational use
- Development and boundary incursions

We will continue to apply local and national policy and best practice guidance for the management and development of our existing and new native woodlands.
Maintaining a mixed resource of temporary and permanent open space with diverse flora will provide habitat for priority species.

Woodland Habitat condition - Over the lifetime of the plan where maintaining semi-naturalness is important, such as Ancient Woodland Sites, we will monitor and record levels of change through the Sub-Compartment Database and the resulting Semi Natural Class

scores (Table 1; See also Section 1.2, Table 3). Across these sites we will maintain stands at SN Class 1 and gradually manage other sites towards this target composition. Across Plantations on Ancient Woodland sites, it is Foresty England policy to improve SNC scores by one class by 2044[5].

Class 1	**Semi-Natural Woodland**
Includes native coppice woodland and high forest or site-native plantation with a relatively high percentage of native self-sown or coppice understorey.	
Class 2	**Reasserting Semi-Natural Woodland**
Plantation or ex-plantation with 50-80% site-native species. Includes coppice regeneration and/or strong natural regeneration amongst planted trees.	
Class 3	**Plantation**
Plantation with 20-50% site-native trees under established plantation stands	
Class 4	**Plantation**
Plantation with less than 20% site-native species. Includes all non-native broadleaves and beech planted outside its natural range in England.	

Table 1 – Semi- Natural Class descriptions

Forest Plans provide a holistic and long-term approach to planning and forest design. Forest plans will refer to other documentation, such as SSSI management plans, where appropriate.

Open space - There are no plans to create new areas of permanent open heathland, however this plan will continue the management and development of existing heathland; Within woods we will continue the development and management of open space habitat such as roadside verges, neutral grassland and acid mires where appropriate and in line with Forestry England's Open Habitat Policy. Maintaining a mixed resource of temporary and permanent open space with diverse flora will provide habitat for priority species.

Haulage - We will continue discussions with the relevant Highways Authority to agree haulage routes and discuss annual tonnages. All timber traffic will be managed in line with the Road Haulage of Round Timber Code of Practice, Fifth Edition (2020), which aims to improve the safety and environmental standards of the timber haulage industry.

Coatham and South Burdon Forest Plan

279.1 Hectares (Ha)

Period of Plan: 2025 - 2035

1.0 Describing the site

Coatham and South Burdon woods are situated in the north-west of the District, south of the A66. Coatham is situated 2.5 miles south-west of Stockton-On-Tees and South Burdon is a little over 2 miles east of Darlington, both forming part of the districts Cleveland beat.
Coatham and South Burdon are part of the network of Forestry England land in the north-west of the District. Coatham is situated 2.5 miles south-west of Stockton-On-Tees and South Burdon is a little over 2 miles east of Darlington, both forming part of the Cleveland beat.

Previously agricultural land, Coatham was acquired in 1997/1998 and South Burdon in 2001. They sit within a flat landscape, dominated by large arable fields and improved grassland in rectilinear patterns. Tree cover is generally represented in maintained hedgerows with few copses or existing woodlands present. The large conurbations of Darlington to the west and Stockton-On-Tees to the east provide a stark contrast to the intensively farmed landscape.

1.1 Geology and Soils (FP Map 01)

Underlying bedrock geology is predominantly sedimentary sandstone (Sherwood group) and conglomerate from the Triassic Period. Superficial geology is primarily Devensian till with alluvium and glaciolacustrine deposit running along and adjacent the length of Coatham Beck.

The soils at Coatham and South Burdon are uniform in nature, consisting of typical surface water gleys, offering a medium nutrient regime and wet to very moist regime based on Forest Research Ecological Site Classification (ESC).

1.2 Tree Species (FP Map 02)

Pine is the dominant conifer species group at 41%, comprised of Corsican and Scots pine.

Broadleaves account for 57% of woodland cover, dominated by oak, ash and hybrid poplar also present.

Species Composition (including as a component)	2025	
	Ha	%
Birch (downy/silver)	5.1	3%
Bird cherry	0.4	1%
Corsican pine	63.5	39%
European Ash	24.1	15%
Hybrid poplar	10.3	6%
Japanese larch	3.3	2%
Mixed broadleaves	0.7	1%
Oak (robur/petraea)	37.3	23%
Other Alders	2.8	2%
other willows	0.6	1%
Pedunculate/common oak	0	1%
Scots pine	2.6	2%
Small-leaved lime	3.7	2%
Wild cherry/gean	7.5	5%

Table 2 - Species Composition

Semi-Natural Class	Area (Ha)
1	63.5
2	23.8
3	3.7
4	76.8
No Trees	111.3
Total	**279.1**

Table 3 - Areas of Semi Natural Classifications (see General Principles) across Cotham and South Burdon.

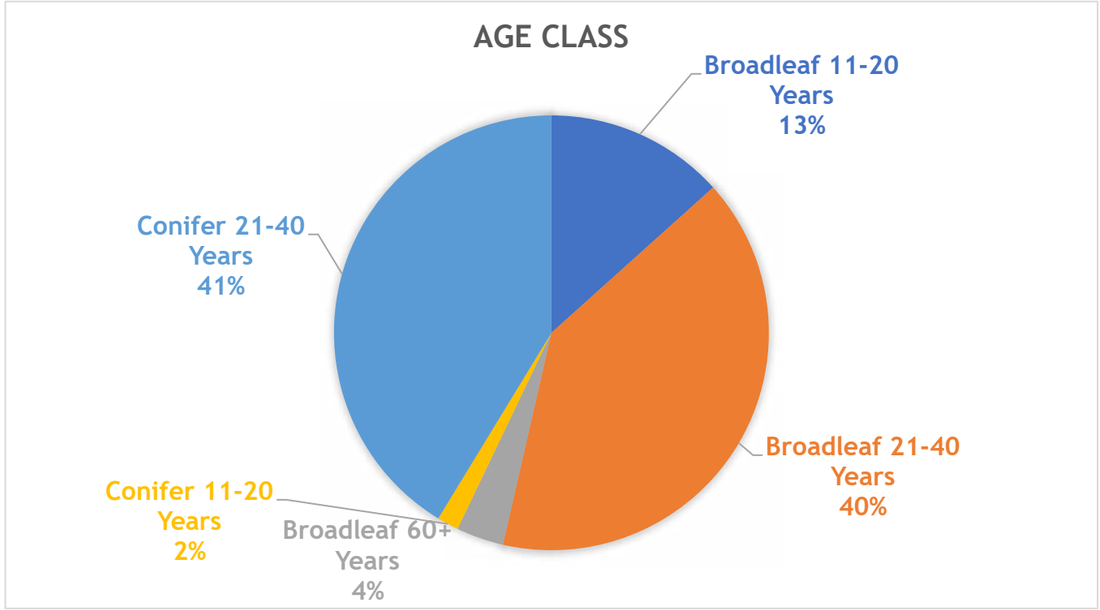


Figure 2 - *Age Class. Showing the distribution of 'planted year' across Broadleaf and Conifer. See also FP Map 03*

1.3 Wind Hazard

Wind Hazard Class across both woods is predominantly 2, increasing to 4 in the southern half of Coatham, although this is unlikely to be a limiting factor meaning that Alternative management options such as Lower Impact Silvicultural Systems (LISS) and extending the rotation age of productive conifer crops are suitable.

1.4 Landscape (Photographic montage)

Coatham and South Burdon sit centrally within the Tees Lowlands National Character Area (NCA), bordered by Darlington to the west and Stockton-on-Tees and Middlesbrough to the east. This NCA forms a broad, low-lying plain framed by wide views to the south-east towards the North York Moors and Cleveland Hills, and to the West across the industrial fringes of Darlington are distant views of the Pennines. Power lines and energy infrastructure are conspicuous in the landscape and particularly so at Coatham. Green corridors and former railway lines (Stockton to Darlington line at South Burdon) provide links between urban areas and the surrounding countryside.

Both woods sit low within the landscape, at below 50m in elevation.

Internal views vary between Coatham and South Burdon where the faster growing stands of conifer and poplar at Coatham foreshorten views and create a sense of enclosure within recently established woodland. The areas of permanent open ground can create a 'corridor' effect with limited visual diversity, though this is improving through the implementation of recent thinning operations and through the growth and increased presence of shrub species.

This contrasts markedly with South Burdon where the slower to establish, broadleaf-dominant stands and significant areas of open space still offer longer views across the site and beyond as canopy closure has not yet been entirely achieved.
Fixed-point photographs of both external and internal views demonstrate the landscape presence of Coatham and South Burdon.

1.5 People and Community (FP Map 04)

The car park at Coatham provides a popular starting point for walkers and young families alike to utilise the network of trails, rides and public rights of way on a frequent basis throughout the year.

Visitor usage is less developed at South Burdon, although the former Stockton to Darlington railway line along which George Stevenson and his 'Rocket' travelled, passes through the site and provides a pedestrian link with Middleton St George to the south-east and, via the footbridge crossing the A66, the market town of Darlington to the west. The land at South Burdon adjacent to the eastern spur off the A66/B6279 roundabout remains undeveloped.

Both woods are freehold with the potential to develop recreational use for people and businesses where these do not conflict with the plan's aims and objectives.

1.6 Natural Heritage (FP Map 04)

Both woods continue to increase their contribution to the local biodiversity value, contrasting to their previous agricultural land use which offered limited conservation value.

South Burdon
Open water and wetland habitats boast a broad range of floristic diversity at both the old quarry site in the northern section of the wood and ponds south of South Burdon Farm. Along with maintained areas of meadow and grass sward habitat, these sites are attracting a range of fauna, including increased numbers of owl species and kestrel.

Importantly, water vole have been recorded using these wetland habitats. This semi-aquatic rodent has seen its national population decline by 90--95% of its pre-1960's level..

Coatham
The riparian habitat along Coatham Beck continues to improve in condition as the adjacent areas of open ground allow existing trees, shrubs, deadwood habitat and ground flora to develop, with otter known to traverse this habitat corridor. Although Coatham Beck is currently categorised as 'moderate' status under Water Framework Directive criteria there are opportunities to develop improvements for water quality; during the previous forest plan flood attenuation measures were installed in partnership with the Environment Agency.

Due to the management approach implemented, Coatham now boasts the UK's largest colony of forester moth, a nationally scarce and regionally very rare species, whilst also being notable for its presence of white-letter hairstreak butterfly.

Following the creation of several freshwater ponds and the relocation of great crested newt in 2012, this species is now recorded across the wood, beyond the original sites of release. The ponds also provide habitat for many species of dragonfly and damselfly and Coatham wood is a key site in the area for these species.

1.7 Cultural Heritage (FP Map 04)

Although there are no scheduled heritage features recorded, unscheduled features were noted at the time of woodland creation and allocated as open ground.

2.0 Describing the Plan

Forestry England's purpose is to secure and grow the social, economic and natural capital value of the nation's forests. Different forests will deliver against our purpose in different ways depending on site conditions, constraints, and opportunities. This plan sets out the long terms vision for Coatham and South Burdon.

Throughout this plan period we will continue to sustainably harvest timber using appropriate silvicultural systems such as thinning and LISS, maintaining or increasing timber productivity and forest resilience through diversification of species and forest structure, whilst improving the forests contribution to the local landscape.

2.1 Opportunities & Constraints

Opportunities

- Throughout the previous plan period Coatham entered its productive phase; South Burdon has not yet reached this stage though is likely to do so during the next plan period.

- Both woods are suitable for Lower Intervention Silvicultural Systems (LISS), providing opportunities to enhance forest resilience, increase species and structural diversity, increase biodiversity and improve landscape aesthetics. Due to the age profile of both woods, there is a significant opportunity to improve both tree species and structural diversity.
- At Coatham, investment in road access infrastructure during the previous plan has been critical in facilitating forest operations, including timber extraction, aligned with timber harvesting interventions which are of increasing importance in support of the district's timber producing capacity.
- At South Burdon, opportunities are present for infrastructure investment.

Constraints

- Ash (9%) and Corsican Pine (23%) components are at risk from the tree diseases ash dieback (Hymenoscyphus fraxineus) and needle blight (Dothistroma septosporum) respectively and to a lesser extent Larch (1%) is at risk from Phytophthora ramorum. There is a risk of landscape and ecological impact should these trees become infected and require removal. Corsican pine crops will continue to benefit from timely thinning interventions. We will consider the scale and pace of felling to reduce the level of risk of these diseases.
- Due to the relative age of Coatham and South Burdon, these woods are one of the districts least diverse (In 2025, these woods have a combined Shannon Index score of 1.8) in relation to planted tree species.
- Coatham has a significant density of utilities, which impact on forest operations.
- Projected climate change scenarios and the impacts of forest pest and diseases are likely to challenge future tree species choice.
- South Burdon continues to have significant access issues.

2.2 Objectives and Implementation

	Objectives	Implementation
Wildlife	Protect and, where appropriate, enhance all known sites of ecological importance: • Improve the resilience of the forest and natural environment to pests, diseases and wildfires, and realise the potential of these woods for nature and wildlife, with a particular focus on diversification of species and structure. • Increase the proportion of native broadleaf cover, particularly across riparian zones. • Continue managing stands through LISS regeneration felling. • Maintain the ecological value of the woods.	• Increase and improve the deadwood resource[1] • Areas of high ecological value across which deadwood resources could be encouraged include riparian zones, Long Term Retention sites and areas of broadleaf woodland. • Follow guidance to implement adaptation actions including the acceptance of naturalised species and assisted migration[6] • Increase the diversity of tree species and age structure to maintain and improve favourable conditions for target species and identified habitats. • Utilise natural regeneration and enrichment planting, targeting the evolution of high value mixed woodland. • All work sites are surveyed prior to any operations being carried out, both to audit the accuracy of information already held on record and to identify opportunities to further improve the ecological value of the woodlands. • Through the utilisation of volunteers, we will monitor priority species.
People	• Maintain and enhance the contribution of Coatham and South Burdon woods to the Tees Lowlands Landscape Character Area through the design and delivery of LISS associated forest operations. • Improve landscape impact through the use of appropriate silvicultural systems. • Provide informal woodland based recreational opportunities for people and business. • Encourage communities to become involved across these woods, its management and direction though consultation in planning and participation in volunteering. • Maintain and protect the cultural and heritage value of these woods.	• Design of clearfell coupes and LISS areas to ensure that their scale and shape are in-keeping with the scale of the forest and the surrounding landscape. The resulting diversity in structure enhances both external and internal views of the forests. • Appropriate scale felling will continue the process of restructuring, continuing away from even-aged, single species stands to a more mixed conifer/broadleaf woodland, linking with other associated habitats. • All heritage features will receive the level of care appropriate to their relative importance[12] during the planning and execution of forest operations. Operational planning will identify appropriate measures for protection of heritage features before work begins, and, where possible, opportunities to enhance the condition of heritage features will be taken during routine forest operations, through liaison with Historic England.
Climate	• Continue the reduction of Corsican Pine as a component within mixed stands, consider strip and group felling in pure stands. • Increase species and structural diversity.	• Appropriate scale felling including LISS will continue the process of restructuring, continuing away from even-aged, single species stands to a more mixed conifer/broadleaf woodland, creating increased species and structural diversity • Consider the selection of ESC supported alternative tree species contributing towards greater species diversity. • Consideration and further development of use of Forest Development Types (FDT) will continue throughout the lifetime of this plan. A long list of site appropriate FDTs is available in Appendix 6.

Economy	• Maximise and maintain a sustainable supply of timber from a forest that has both structural and species diversity, utilising a range of site-appropriate conifer and broadleaf species. • Maximise and maintain a sustainable income stream from recreational and other income diversification opportunities.	• Timber will be sustainably harvested through LISS and thinning interventions. • Manage relative proportions of productive mixed conifer and broadleaf. Looking for opportunities to retain areas of existing conifer and extending rotations where appropriate. Where appropriate we will develop broadleaf stands to increase their contribution to timber production. • Operations will be planned and controlled to ensure due regard for all other management objectives. • ESC supported tree species will aims to maintain or increase timber productivity. • Paid parking will continue at Coatham. Other opportunities for the evolution of the visitor offer and diversification of important income generation will be explored.

Table 4 - Coatham and South Burdon Forest Plan objectives and implementation table. Note: A monitoring plan is provided in Appendix 4 showing how each plan objective will be measured

3.0 Methodology – Forest Operations

The design concept map (FP Map 08) details the key factors to be addressed through this Forest Plan. Other Forest Plan maps show the operational plan - Proposed Felling (FP Map 05), Proposed Management Coupes (FP Map 06), and Future Habitat and Restock (FP Map 07) that shows the distribution of restocking.

3.1 Felling

Felling	Area - hectares	% of total area (excl. SSSI)	Projected volume (m^3)
Gross Area to be managed under LISS	4	1.4	1500

Table 5 - Breakdown of felling areas within the plan period (FP Map 05).

3.2 Lower Impact Silvicultural Systems (LISS)

Through this plan a large proportion of Coatham and South Burdon will be managed utilising Irregular Shelterwood silvicultural systems. During the plan period, it is proposed that areas of LISS where crops are over 25 years old will receive a silvicultural intervention (thinning will remove no more than 30% of the stems within any single compartment at one time, Irregular Shelterwood systems will remove no more than 50% of the total number of trees or of the canopy per operation) as a result, the associated area will be regenerated through a combination of restocking and natural regeneration.

3.3 Restocking

Conifer

Areas of regeneration felling carried out through management by LISS will be established through a combination of restocking, using diverse productive conifer species, diversifying age structure to provide a sustainable timber resource, whilst mindful of the projected climate change impacts. A range of ESC informed timber producing conifer species as set out in Appendix 2 and Appendix 3 'Species by soil type' will help inform restocking options.

Additionally, areas of LISS will be managed to encourage natural regeneration of conifer and broadleaf species, although it is accepted that replanting will be required to maintain and further diversify species.

Reference to Predominantly Mixed Conifer on the Future Habitat and Species Map (FP Map 07) describes where a range of species will be planted/regenerated, where conifer species have a target composition of at least 80% of the component mix. Appropriate levels of suitable broadleaf species via natural regeneration may be accepted. All sites will achieve at least 2500 stems per hectare through planting, natural regeneration or a combination of both. The OSA provides specific data on soils and other factors, informing the correct choice of species, on a site specific basis.

Broadleaf

We will accept 'naturalised' species such as beech and sycamore and the principles of assisted migration where these can enhance resilience to the impacts of climate change.

Reference to Predominantly Mixed Broadleaf on the Future Habitat & Species Map will be used to describe those areas where a range of species will be planted and/or regenerated, where broadleaf species have a target composition of at least 60% of the component mix. Appropriate levels of suitable conifer natural regeneration may be accepted and up to 20% conifer planting may be undertaken to increase woodland resilience.

Targeted enrichment planting will be considered across sites that fail to develop sufficient natural regeneration of broadleaf species.

Most sites will achieve at least 1100 broadleaf stems per hectare through natural regeneration, planting or a combination of both. Where quality timber production is an appropriate objective, higher stocking densities may be utilised.

Habitat type (based on principle species planted)	Area - hectares			% of total area		
	2025	2035	2055	2025	2035	2055
Broadleaved; mixed/yew woodlands	114.4	80.5	83.4	41	28.8	29.8
Coniferous woodlands	66.6	61.8	62.3	23.9	22.1	22.3
Improved grassland, lowland dry acid grassland, lowland meadows, lowland deciduous woodland, neutral grassland	96.2	123.5	120.1	34.4	44.2	43

Table 6 - Point in time snapshots of forecasted changes to the distribution of habitat type 2025-2055.

4.0 Monitoring

A detailed monitoring plan is provided in Appendix 4. This plan outlines how we will monitor delivery against the Forest Plan objectives, operational implementation, and forest certification.

4.1 Forest Plan Monitoring

All forest plans are formally reviewed at year 5 ('mid-term review') and year 10, where the plan is assessed against its objectives. This plan will be formally reviewed in 2030 with the opportunity to share information where requested. This period may be shortened if circumstances change significantly or if parts of the plan prove detrimental to the overall aims and objectives.

Where an amendment to the Forest Plan is required, the Forestry Commission Practice Delivery Note 01 – Tolerance Table will be applied as set out in Appendix 5.

4.2 UKWAS Compliance Table

We will maintain the land within our stewardship certified against the UK Woodland Assurance Standard, as independently assessed by annual independent surveillance audits.

	Forest Plan Area (ha)	Forest Plan Percentage	Forest District Area (ha)	Forest District Percentage
Total Area	279.1	100	21082	100
Total Wooded area	165	59.1	18579	88
Natural Reserves - Plantation (1%)	0	0	294	2
Natural Reserves - Semi-natural (5%)	0	0	102	5
Long-term Retentions and Low Impact Silvicultural Systems (>1%)	167	59.8	10803	51
Area of conservation Value (15%) including designations; SSSI, ASNW, NR, LTR, LISS	167	59.8	11754	56
Planned Open/Other	112.1	40.2	3149	15

Table 7 - UKWAS Compliance Table

Bibliography

1. Deadwood - Policy, Procedures, Guidance (PPG) 51 (March 2022)
2. Keepers of Time: ancient and native woodland trees policy in England (May 2022)
3. Ancient Woodland on the Forestry Commission Estate in England (March 2002)
4. FEE Operations Instructions No. 3 (rev.2012), Ancient Woodlands
5. Plantations on Ancient Woodland Sites (PAWS) Restoration – PPG 70 Policy Document
6. FC – Managing England's woodlands in a climate emergency
7. G. Peterken – Native Woodland Development in the North York Moors and Howardian Hills
8. Forest Research Forest Development Types: A guide to the design and management of site-adapted resilient mixed forest stands in Britain
9. Yorkshire Forest District Deer Management Strategy
10. Yorkshire District policy - Timing of operations to minimise wildlife disturbance
11. FC Information Note 40 – 'Transforming Even-aged Conifer Stands to Continuous Cover Management'
12. The UK Forest Standard - 2023

Appendices

Appendix 1 – Priority species

Bird Species [1]	Forest location	Coatham	South Burdon	Habitat enhancement
Woodcock, dunnock	Developed shrub layer	Y	Y	Continue selective thinning and regeneration felling as part of LISS management, this will allow the development of shrub layer structure and increased structural and species diversity. Create and maintain successional woodland (birch and oak)/scrub habitat and standing deadwood.
Lesser redpoll, Redstart, Song Thrush, Yellow hammer, siskin	Woodland edge, ride, glade	Y	Y	Continue selective thinning and regeneration felling as part of LISS management, this will create increased structural and species diversity. Maintain wide rides to increase habitat connectivity and enable the development of woodland 'edge habitat' as planted trees mature. Over time maintain successional woodland scrub habitat and standing deadwood through selective thinning as part of LISS management. .
Owl and small raptor sp.	Forest wide	Y	Y	Maintain diversity of habitats with a mosaic of open and wooded and wetland habitats to ensure diversity of prey species available.
Mammals	**Forest location**			**Habitat enhancement**
Otter	Coatham Beck	Y	N	Maintain open/ broadleaf riparian habitat along Coatham Beck with scrub areas to provide cover and structure.
Watervole	Pond and wetland habitat	N	Y	Maintain current habitat in favourable condition through vegetation management around and within the ponds as necessary.
Amphibians	**Forest location**			**Habitat enhancement**
Great crested newt	Pond and surrounding terrestrial habitat	Y	N	Maintain the known sites in favourable condition through vegetation management around and within the ponds as necessary. Manage adjacent conifer plantations through LISS management to increase structural diversity and improve terrestrial habitat surrounding the ponds. Plan operations to work within the guidelines, ensuring less than 25% key habitat within the 250m buffer is worked in any year.
Odonata[3]	**Forest location**			**Habitat enhancement**
Various species.	Pond and wetland habitat	**Y**	**Y**	Maintain current habitat in favourable condition through vegetation management around and within the ponds as necessary.
Lepidoptera[2]	**Forest location**			**Habitat enhancement**
Forester Moth	Meadows and rides	Y	N	Maintain current management of meadow and rides. Maintain wide rides throughout the block through thinning interventions to increase habitat availability and connectivity where appropriate.
White letter hairstreak	Boundary hedgerow with mature elms	Y	N	Maintain current habitat in favourable habitat where possible. Potential to plant more wych elms through species diversification plans.

[1] Teesside bird club and Durham bird club

[2]Buterfly Conservation

[3]Forest Volunteers

Appendix 2 – LISS justification

Site Appraisal

Site Factor	Suitability Score	Comment
WHC: range 1to 4	1	Tree stability is not a site-limiting factor except for the wetter surface water gley soil types across the southern half of Coatham.
Soil fertility: Medium	2	Predominantly Very Poor with isolated areas of Medium fertility which support a wider range of competing vegetation.
Species suitability: P.oak SP,CP, Larch Ash	1 – Optimal 2 – Suitable 3 – Marginal/ Unsuitable	Corsican pine is considered unsuitable due to *Dothistroma* needle blight. Larch is considered unsuitable due to *Phytophthora ramorum*. Ash is considered unsuitable due to *Chalara*.

With a combined score ranging from 4 to 6, initial analysis indicates significant areas achieve a moderate suitability score for transformation to LISS.

Stand Appraisal

Stand form – overall stand form across most conifer species is average, of reasonable quality and is developing but more variable across broadleaf species, with the exception being stands of Poplar.

Thinning history – initial thinning operations have been implemented across Coatham, enhancing stability and structure.

The impact from P.ramorum, *D.septosporum, D.micans* and *Chalara* on larch, pine, spruce and ash species will need to be monitored as to how this might impact on future stand composition, depending on what the management objectives are for those sites.

Access – although good infrastructure has been developed across some areas of Coatham, there are areas where access is very challenging. Thinning and LISS management will seek to maximise stand development where safe to do so.

On the basis of the above information, we will consider the implementation of LISS with the aim of increasing species diversity through enrichment planting using a range of species depending on site objectives.

Irregular shelterwood systems (the removal of no more than 50% of the total number of trees or of the canopy per operation) will be applied to a range of stand types where the felling of small coupes, will contribute toward the development of a diverse woodland.

Future wildlife management issues may arise where deer browsing could impact shelterwood systems as more palatable species are introduced. Site monitoring and adherence to the District Deer Management strategy will help inform future management.

The Forest Research ESC table below supports the range of target species considered for natural regeneration and those identified as very suitable (dark green) and suitable (light green) where enrichment planting will increase species diversity.

Ecological Site Classification Report

Eastings(m)	Northings(m)	Grid Reference	Climate Scenario	Site Class	Filter	Brash	Drainage	Fertiliser/Nurse
439498	516111	NZ394161	Medium-High 2080 (A1b/3g0) AWC method	Very warm - Moderately exposed - Slightly dry	Suitable conifers only	No brash present	No drainage installed	No fertiliser

Site Description and Variables

The site has a very warm, moderately exposed and slightly dry climate. The soils are very moist moisture status and medium nutrient status. The analysis assumes that site management (e.g. CCF), the use of deep rooting species and/or soil properties will help mitigate climatic moisture deficits. Tree species recommendations in ESC do not take account of each countries regulatory approval process, so prior to including species in a forest plan advice should be sought from relevant forestry authorities.

Modifications	AT	CT	DAMS	MD	SMR	SNR
Default	2623.0	8.0	13.0	226.0	3.0(Very moist)	3.0(Medium)
Final	2623.0	8.0	13.0	226.0	3.0(Very moist)	3.0(Medium)

Species	Abbr.	Suit(Ecol)	Suit(Timber)	Yield	Limiting	AT	CT	DAMS	MD	SMR	SNR	Version
Corsican pine	CP	●	●	15	SMR	●	●	●	●	●	●	3.3(A)
Lodgepole pine	LP	●	●	11	AT5	●	●	●	●	●	●	3.1(A)
Macedonian pine	MCP	●	●	13	AT5	●	●	●	●	●	●	3.1(C)
Monterey/Radiata pine	RAP	●	●	12	SMR	●	●	●	●	●	●	3(C)
Scots pine	SP	●	●	9	SMR	●	●	●	●	●	●	3.3(A)
Norway spruce	NS	●	▲	10	AT5	●	●	●	●	●	●	3.3(A)
Oriental spruce	ORS	●	●	13	SMR	●	●	●	●	●	●	3(C)
Serbian spruce	OMS	●	●	13	AT5	●	●	●	●	●	●	3(B)
Sitka spruce	SS	●	▲	12	MD	●	●	●	●	●	●	3.4(A)
Sitka spruce (Imp.)	Imp.SS	●	▲	13	MD	●	●	●	●	●	●	3.4(A)
Western red cedar	RC	●	●	18	DAMS	●	●	●	●	●	●	3.1(A)
Japanese red cedar	JCR	●	●	14	MD	●	●	●	●	●	●	3(B)
European silver fir	ESF	●	●	12	SMR	●	●	●	●	●	●	3(B)
Grand fir	GF	●	●	18	SMR	●	●	●	●	●	●	3(A)
Nordmann fir	NMF	●	●	12	SMR	●	●	●	●	●	●	3(C)
Pacific fir	PSF	●	●	14	AT5	●	●	●	●	●	●	3.4(C)
Leyland cypress	LEC	●	▲	10	SMR	●	●	●	●	●	●	3(B)
Western hemlock	WH	●	▲	8	AT5	●	●	●	●	●	●	3(A)
Coast redwood	RSQ	●	●	23	DAMS	●	●	●	●	●	●	3(B)
Lawson's cypress	LC	●	●	19	DAMS	●	●	●	●	●	●	3(B)

Ecological Site Classification Report

Eastings(m)	Northings(m)	Grid Reference	Climate Scenario	Site Class	Filter	Brash	Drainage	Fertiliser/Nurse
439498	516111	NZ394161	Medium-High 2080 (A1b/3g0) AWC method	Very warm - Moderately exposed - Slightly dry	Suitable broadleaves only	No brash present	No drainage installed	No fertiliser

Site Description and Variables

The site has a very warm, moderately exposed and slightly dry climate. The soils are very moist moisture status and medium nutrient status. The analysis assumes that site management (e.g. CCF), the use of deep rooting species and/or soil properties will help mitigate climatic moisture deficits. Tree species recommendations in ESC do not take account of each countries regulatory approval process, so prior to including species in a forest plan advice should be sought from relevant forestry authorities.

Modifications	AT	CT	DAMS	MD	SMR	SNR
Default	2623.0	8.0	13.0	226.0	3.0(Very moist)	3.0(Medium)
Final	2623.0	8.0	13.0	226.0	3.0(Very moist)	3.0(Medium)

Species	Abbr.	Suit(Ecol)	Suit(Timber)	Yield	Limiting	AT	CT	DAMS	MD	SMR	SNR	Version
Silver birch	SBI	●	▲	4	SMR	●	●	●	●	●	●	3.2(A)
Big leaf maple	AMA	●	●	7	SMR	●	●	●	●	●	●	3.1(C)
Norway maple	NOM	●	▲	6	AT5	●	●	●	●	●	●	3(B)
Sycamore	SY	●	●	7	SMR	●	●	●	●	●	●	3.3(A)
Ash	AH	●	●	6	SNR	●	●	●	●	●	●	3(A)
Pedunculate oak	POK	●	●	7	DAMS	●	●	●	●	●	●	3.1(A)
Red oak	ROK	●	●	5	SMR	●	●	●	●	●	●	3(B)
Aspen	ASP	●	●	6	AT5	●	●	●	●	●	●	3.2(A)
Black poplar	BPO	●	●	8	SNR	●	●	●	●	●	●	3.1(A)
Common alder	CAR	●	●	8	DAMS	●	●	●	●	●	●	3.2(A)
Red alder	RAR	●	●	7	AT5	●	●	●	●	●	●	3(B)
Grey alder	GAR	●	▲	5	AT5	●	●	●	●	●	●	3.1(B)
Italian alder	IAR	●	●	9	CT	●	●	●	●	●	●	3.2(B)
Shining gum	ENI	●	▲	17	SMR	●	●	●	●	●	●	3(C)
Cider gum	EGU	●	●	13	AT5	●	●	●	●	●	●	3(C)
Rowan	ROW	●	▲	2	SMR	●	●	●	●	●	●	3.3(A)
Hornbeam	HBM	●	●	8	SMR	●	●	●	●	●	●	3(A)
Small-leaved lime	SLI	●	●	6	SMR	●	●	●	●	●	●	3(A)
Wych elm	WEM	●	●	6	SNR	●	●	●	●	●	●	3(A)
Wild cherry	WCH	●	●	7	SMR	●	●	●	●	●	●	3(A)
White willow	WWL	●	●	5	MD	●	●	●	●	●	●	3(C)
Willow (SRC)	SRC	●	●	8	SMR	●	●	●	●	●	●	3(C)

Appendix 3 - Restock Species

Site type		Species													
Upland sites	Lowland sites	**SP**	**LP**	**MCP**	**DF**	ESF	GF	**WH**	WRC	Ley/Law C	Coast R	Giant R	**HL**	**SS**	**NS**	Oriental S
Gley						***y***		***y***	***y***	y				**Y**	**Y**	***y***
Iron pan/podzol		**Y**	***y***	***y***	***y***	***y***	***y***				***y***	***y***	***y***		y	***y***
BE/intergrade		**Y**		***y***	**Y**	***y***	***y***	***y***	***y***	y	***y***	***y***	***y***	***y***	**Y**	***y***
Calcareous				***y***		***y***			***y***	y						***y***
	Gley					***y***		***y***	***y***	y	***y***	***y***		**Y**	**Y**	***y***
	Podzol	**Y**	***y***	***y***	***y***	***y***	***y***	***y***	***y***	y		***y***	***y***		y	***y***
	BE/intergrade	**Y**		***y***	**Y**	***y***	***y***		***y***	y	***y***	***y***		***y***	**Y**	***y***

BOLD CAPITAL (Y)/BOLD INFILL COLOUR	**Cat A Major species** - currently widely used with no supply problems and should continue to play an important role
Bold, lower case italics (y), pastel infil colour	**Cat B Minor species** - Species that either currently play a minor role but have demonstrated their suitability being part of a species range to diversify our forests. Climate change may increase or reduce their use
Normal lower case (y), pastel infill colour	**Cat C Secondary species**- Species with little information on forest performance but possible choice based on Arboreta. Use on small-scale experimental basis for now but may increase if favourable results

soucre data http://www.forestry.gov.uk/fr/treespecies

Refer to cell comments for specific species notes

No planting where >0.5m peat depth

Pacific coast associated forest cover - consider in mixtures as part of management by LISS					
DF	GF	WH	Law C	Coast R	*ESF*

Appendix 4 - Monitoring Plan

Objective	Method	Frequency/Timings	Actions
Wildlife			
Improve the resilience of the forest and natural environment to pests, diseases and wildfires and realise the potential of these woods for nature and wildlife, with a particular focus on diversification of species and structure.	Update Forester Web GIS; sub-compartment database, Conservation module.	As recordable changes occur within the forest environment. At time of Year 0 plan renewal, 5-year review, 10-year review.	Measure changes in diversity across species, age structure, conservation siting's/records and broad habitat types; conifer, broadleaf, open. Ensure positive change through increasing diversity occurs over the lifetime of the plan.
	Review sample of Operational Site Assessments.	Annually	Provide feedback where management is not compliant with recommendations.
Increase the proportion of native broadleaf cover, particularly across riparian zones.	Update Forester Web GIS; sub-compartment database; analyse semi-natural class scores; Fixed – point photography.	As recordable changes occur within the forest environment. At time of Year 0 plan renewal, 5-year review, 10-year review.	Measure changes in diversity across species, age structure, conservation siting's/records and broad habitat types; conifer, broadleaf, open. E.g. Tables 2,3,4. Ensure positive change through increasing diversity occurs over the lifetime of the plan.
Maintain the ecological value of these woods.	Update Forester Web sub compartment database and conservation module. Monitoring of priority species by volunteers.	Annually or as data becomes available. At time of Year 0 baseline, 5-year review, 10-year review.	Provide feedback where management is not compliant with recommendations.
Continue managing stands through LISS regeneration felling, utilising natural regeneration and enrichment planting.	Update Forester Web GIS; sub-compartment database: analyse semi-natural class scores.	As recordable changes occur within the forest environment. At time of Year 0 plan renewal, 5-year review, 10-year review.	Measure changes in stand structure. Ensure positive change through increasing diversity occurs over the lifetime of the plan.
People			
Maintain and enhance the contribution of Coatham and South Burdon woods to the Tees Lowlands Landscape Character Area through the design and delivery of LISS associated forest operations	Fixed-point photography.	Year 0 baseline, 5-year review, 10-year review.	Review visual impact of coupes within the landscape and adjust future coupe shapes if necessary.

Improve landscape impact through the use of appropriate silvicultural systems.			
Maintain and protect the cultural and heritage value of these woods.	Liaise with and review Historic England - At risk Register, update Forester Web GIS Heritage module.	Annually or as data becomes available. At time of Year 0 baseline, 5-year review, 10-year review.	Provide feedback where management is not compliant with recommendations.
Climate			
Continue to improve species and structural diversity.	Update Forester Web GIS; sub-compartment database	As recordable changes occur within the forest environment. At time of Year 0 plan renewal, 5-year review, 10-year review.	Measure changes in diversity across species e.g. utilising the combined Shannon Diversity Index score and Species composition as per Table 2. Ensure positive change through increasing diversity occurs over the lifetime of the plan. Measure changes in stand structure. Ensure positive change through increasing diversity occurs over the lifetime of the plan.
Continue the reduction of Corsican Pine as a component within mixed stands, consider strip and group felling in pure stands.	Update Forester Web GIS; sub-compartment database	As recordable changes occur within the forest environment. At time of Year 0 plan renewal, 5-year review, 10-year review.	Measure changes in diversity across species. Ensure positive change through increasing diversity occurs over the lifetime of the plan.
Economy			
All of our forests and woodlands are certified to the Forest Stewardship Council®(FSC®) licence code FSC-C123214 and the Programme for the Endorsement of Forest Certification (PEFC) licence code PEFC/16-40-1001 standards. We will maintain the land within our stewardship certified against the UK Woodland Assurance Standard.	Independent surveillance audit across the organisation.	Annually	Implement corrective actions as required.
	Independent surveillance audit across the District.	As per audit sample.	Implement corrective actions as required.
Maximise and maintain a sustainable supply of timber from a diverse range of site-appropriate conifer and broadleaf species	Update Forester Web GIS; sub-compartment database, Operational Thinning Layer, Management Coupe Layer.	As recordable changes occur within the forest environment and End Of Year updates. Year 0 plan renewal, 5-year review, 10-year review.	Review long-term changes in productive capacity through the Production Forecast at the point of plan renewal and across the wider District.

Site-specific - Operational			
Restock & Future Habitat Coupes - Productive mixed conifer sites. Establish at least 2500 conifer stems per ha by planting and natural regeneration by year 5 since date of initial planting (allowing 2 years fallow for *hylobius*).	On-site stocking density plot surveys.	Beat-up surveys between years 1 to 4. Year 5 stocking assessment, internal guidance PPG4.	Carry out beating up where stocking density falls below prescribed number of trees/ha to achieve full stocking.
Restock & Future Habitat Coupes - Mixed broadleaf habitat. Establish at least 1100 broadleaf stems per ha through natural regeneration by year 10 since date of felling.	On-site stocking density plot surveys.	Beat-up surveys between years 1 to 4. Year 5 stocking assessment, internal guidance PPG4.	Carry out enrichment planting where stocking density falls below prescribed number of trees/ha to achieve full stocking.
LISS coupes - Productive mixed conifer sites. Establish at least 2500 conifer stems per ha by year 10 after final removal overstorey.	On-site stocking density plot surveys.	Beat-up surveys between years 1 to 4. Year 5 stocking assessment, internal guidance PPG4.	Carry out enrichment planting where stocking density falls below prescribed number of trees/ha to achieve full stocking.
Wildlife management - Identify problem sites where mammal damage is affecting crop establishment or degrading woodland flora and minimise.	On-site stocking density plot surveys. Damage, Impact and Activity Assessments as set out in YFD Deer Management Strategy.	To be informed from results of beat-up surveys between years 1 to 4 and year 5 stocking assessment, internal guidance PPG4.	Target deer control in line with District strategy.
Forest Plan specific			
Forest Plan mid-term review. Review the plan's aims and objectives and the progress of their implementation.	Apply a variety of measures as described throughout this monitoring plan.	2030	Modify the plans aims and/or objectives where these are no longer compatible with National or District Policy. Significant plan changes will require consultation and formal amendment from the Forestry Commission.

Appendix 5 - Agreed Tolerance Table

	Adjustment to felling coupe boundaries	Swapping of felling coupes	Adjustment to felling operation	Clearance of standing trees associated with wind-blown areas[7]	Delayed restocking - including natural regeneration	Species choice	Tree health
Formal assessment and approval by FC area team required	>25% of the coupe area	Where changes to the felling sequence is likely to result in a significant breach[1] of the UKFS adjacency rules	From unconditional felling (thinning or low-intervention management) to conditional felling such as: • regeneration felling • strip felling[2] • clear felling and where ≥50% of standing tree volume is to be removed	Individual work area that is either: >5ha of standing trees associated with wind-blow areas or Proposals result in cumulative additional felling[8] affecting >20% of the Forest Plan area[9]	N/A - dealt with via FC Area team approval (below)	From mixed, predominantly broadleaves to predominantly conifer	Where no SPHN is issued but felling of ≥65% standing tree volume is required in response to a plant health issue
Written approval only required from FC area team[3]	Between 10-25% of the coupe area	Where changes to the felling sequence is likely to result in a minor breach[4] of the UKFS adjacency rules	From unconditional felling (thinning or low-intervention management) to conditional felling where between 30%-50% of standing tree volume is to be removed such as: • regeneration felling • strip felling or From lower intensity regeneration felling to higher intensity regeneration felling, (as defined by the felling operation hierarchy[5]) where <50% of standing tree volume is to be removed	Individual work area that meets both the criteria: 1-5ha of standing trees associated with wind-blow areas, (Where there is an immediate and significant risk to health and safety or access, felling of ≥5ha of standing trees associated with wind-blow areas) and Proposals result in cumulative additional felling[8] affecting <20% of the Forest Plan area[9]	Planting: Where this is ≥ 4 planting seasons from the date of felling. Natural regeneration: where necessary intervention to secure natural regen is not implemented within 4 full planting seasons from date of felling	Deciduous conifers to predominantly evergreen conifers	Where no SPHN is issued but felling between ≥50% and < 65% of standing tree volume is required in response to a plant health issue
No formal or written approval by FC area team required[6]	< 10% of the coupe area	Where changes to the felling sequence does not result in a breach of the UKFS adjacency rules	Clear felling to strip felling, shelterwood or regenerative felling systems, or thinning or From more severe regeneration felling to less severe regeneration felling as defined by the regeneration felling hierarchy[5]	<1ha of standing trees associated with wind-blow areas (Where there is an immediate and significant risk to health and safety or access, felling of 1ha-5ha of standing trees associated with wind-blow areas) and Proposals result in cumulative additional felling[8] affecting <10% of the Forest Plan area[9]	For any changes to the timing of restocking where this occurs <4 full planting seasons from the date of felling	Any other changes	Where an SPHN is issued Or Thinning / regenerative felling <50% of standing tree volume is required in response to a plant health issue

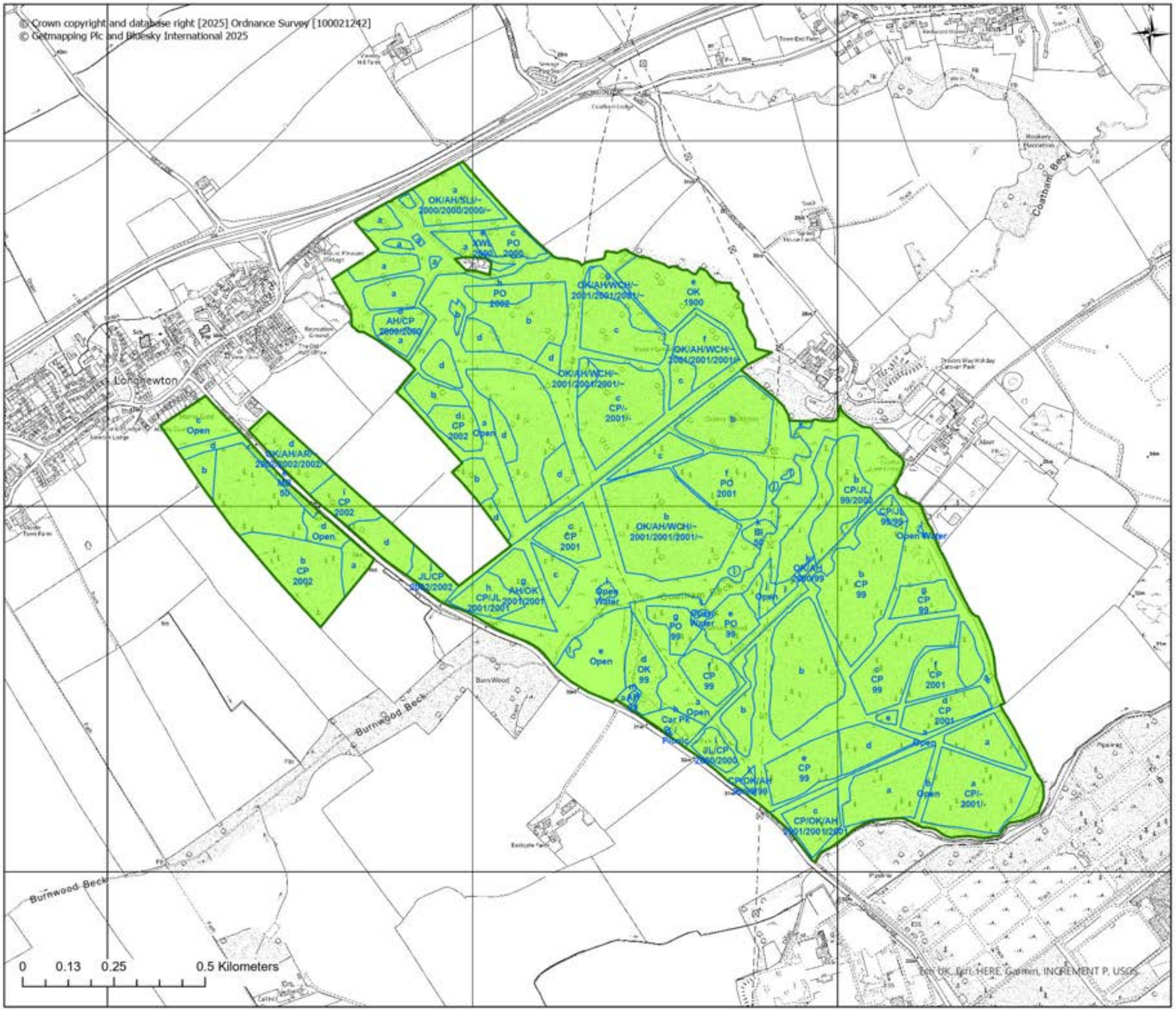
[9] For Yorkshire Forest District the "Forest Plan Area" will be utilized rather than "Forest Management Unit" when considering cumulative impact.
[1] Greater than 20% of the coupe boundary
[2] Felling strips with a width ≤ 1.5 x treelengths, with a length appropriate to site constraints.
[3] Approval letter retained for compliance inspection purposes.
[4] 20% or less of the coupe boundary
[5] Lower impact operation to higher impact operation hierarchy: thinning, selection system, uniform shelterwood, irregular shelterwood, group shelterwood, strip felling, clear felling.
[6] District must keep all **assessment and decision-making** records in respect of amendments for **audit purposes** and compliance inspections
[7] Operations remain subject to other approvals for sensitive areas (e.g. SSSI, SAM etc). Subject to agreement of this tolerance table by relevant protected landscapes.
[8] Cumulative additional felling = 5 year rolling total area of growing trees felled (excludes dead and completely windblown trees) that were not approved for felling within the relevant felling period, in the initial approved Forest Plan. This includes both FS approved amendments and felling below thresholds. The intention is to identify instances where events result in more substantial shift in management requiring increasing need for review of forest plan proposals.

Appendix 6 - Forest Development Types - Long List

"A Forest Development Type is a long-term vision of how the species composition and structure of a forest stand is intended to develop. The concept encourages the greater use of mixed-species stands and a wider variety of stand structure than previously deployed in British forests".1

As can be seen from the table below, there are a range of FDT's suitable for Coatham and South Burdon.

FDT Type	Description	Future Climate (AWC model)		Primary Species	Primary Proportion	Secondary Species
		2050	2080			
1.1.1	Sitka spruce even aged	Suitable		SS	90-100	
1.1.2	Sitka spruce uneven aged				80-90	
1.1.4	Sitka spruce with light demanding conifers				60-80	XCLD
1.1.5	Sitka spruce with shade tolerant conifers				60-80	XCST
1.1.6	Sitka spruce with beech				70-90	BE
1.1.7	Sitka spruce with long lived broadleaves				50-90	XBLL
1.1.8	Sitka spruce with short lived broadleaves				50-90	XBSL
1.2.1	Norway spruce even aged			NS	90-100	
1.2.2	Norway spruce uneven aged				80-90	
1.2.4	Norway spruce with shade tolerant conifers				60-80	XCST
1.2.5	Norway spruce with beech				50-70	BE
1.2.6	Norway spruce with long lived broadleaves				60-80	XBLL
1.2.7	Norway spruce with short lived broadleaves				70-90	XBSL
2.2.1	Corsican pine with shade tolerant conifers			CP	30-70	XCST
2.2.2	Corsican pine with light demanding conifers				30-70	XCLD
2.2.3	Corsican pine with long lived broadleaves				30-70	XBLL
2.4.1	Larch with Scots pine			LA	60-90	SP
2.4.2	Larch with shade tolerant conifers				60-80	XCST
2.4.3	Larch with beech				50-80	BE
2.4.4	Larch with oak				50-70	OK
3.2.1	Pacific North-West American (PNWA) firs			GF/PSF/NF	90-100	
3.2.2	Pacific North-West American (PNWA) firs				90-100	
3.2.3	Pacific North-West American (PNWA) firs and XCST			NF/PSF	60-80	XCST
3.2.4	Pacific North-West American (PNWA) firs with SS				60-80	SS
5.1.1	pedunculate oak with hornbeam			POK	70-90	HBM
5.3.1	oak with beech			OK	60-80	BE
5.3.2	oak with long lived broadleaves				50-70	XBLL
5.3.3	oak with hazel				80-100	HAZ
6.1.3	beech with shade tolerant conifers			BE	50-70	XCST
6.1.4	beech with long lived broadleaves				50-70	XBLL
7.1.1	birch even aged			BI	70-100	
7.1.2	birch and short lived broadleaves				50-70	XBSL
8.3.1	sycamore			SY	80-100	
8.3.2	sycamore with long lived broadleaves				50-70	XBLL
8.4.1	lime with long lived broadleaves			LI	50-70	XBLL
9.1.1	common alder			CAR	80-100	



Forestry England

Coatham and South Burdon Forest Plan

FP Map 01(a) - Coatham Forest Soils

Scale: 1:10,000
Scale at A3
Created March 2025

Typical Surface-Water Gley

Forestry England

Coatham and South Burdon Forest Plan

FP Map 01(b) - South Burdon Forest Soils

Scale: 1:10,000
Scale at A3
Created March 2025

Typical Surface-Water Gley

Forestry England

Coatham and South Burdon Forest Plan

FP Map 02(a) - Coatham
Current Species

Scale: 1:10,000
Scale at A3
Created March 2025

- Larches
- Oaks
- Other Broadleaves
- Pines
- No Species

Forestry England

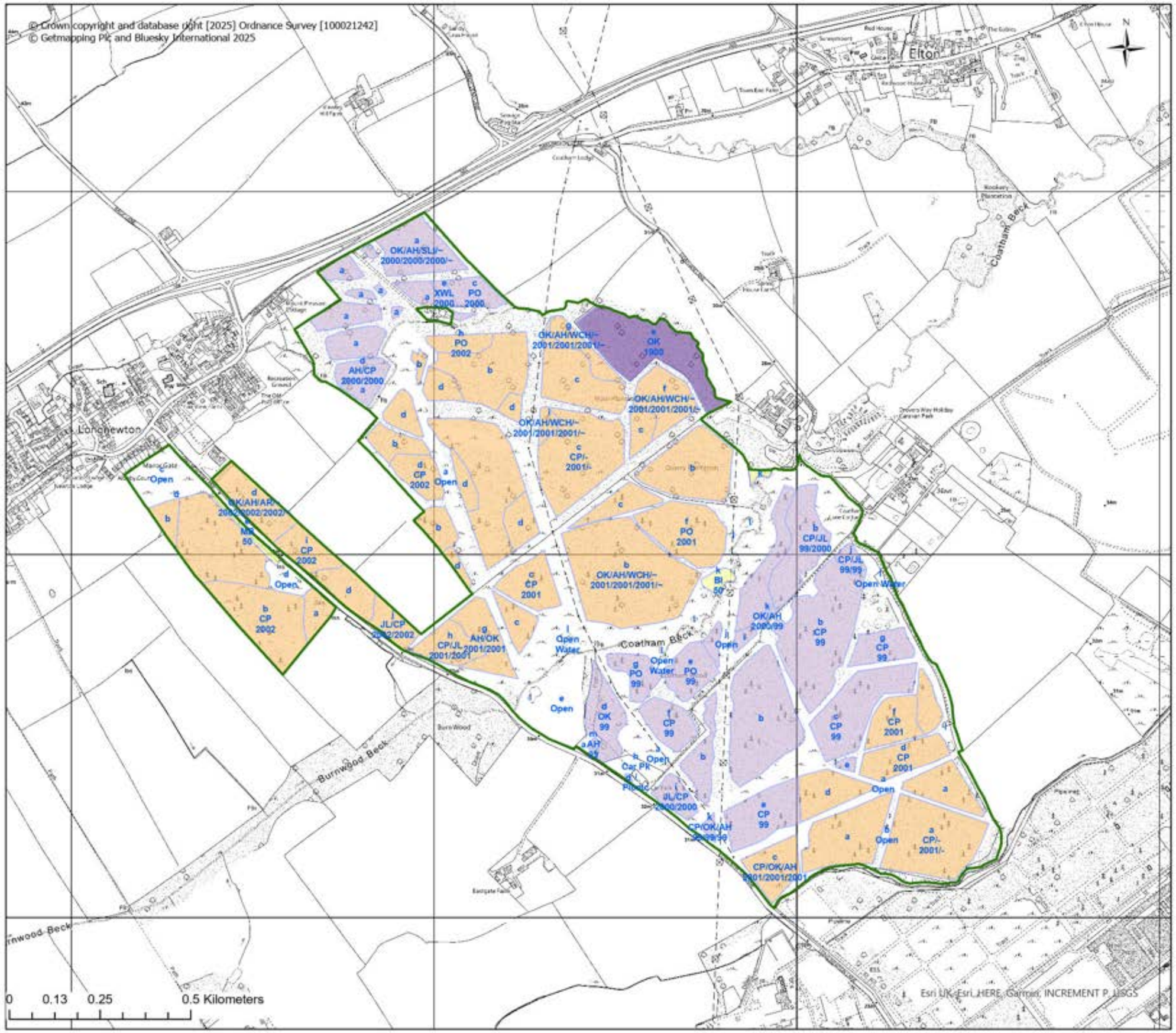
Coatham and South Burdon Forest Plan

FP Map 02(b) - South Burdon Current Species

Scale: 1:10,000
Scale at A3
Created March 2025

- Oaks
- Other Broadleaves
- Pines
- No Species

0 0.13 0.25 0.5 Kilometers



Forestry England

Coatham and South Burdon Forest Plan

FP Map 03(a) - Coatham
Age Class

Scale: 1:10,000
Scale at A3
Created March 2025

- 1851 - 1900
- 1941 - 1950
- 1991 - 2000
- 2001 - 2010

Forestry England

Coatham and South Burdon Forest Plan

FP Map 03(b) - South Burdon Age Class

Scale: 1:10,000
Scale at A3
Created March 2025

2001 - 2010

Forestry England

Coatham and South Burdon Forest Plan

FP Map 04(a) -
Management Information

Scale: 1:10,000
Scale at A3
Created March 2025

- Masts/Aerials
- Underground telephone or fibreoptic
- Gas Pipelines
- Overhead powerline
- Underground powerline
- Watercourses
- Heritage

0 0.13 0.25 0.5 Kilometers

Forestry England

Coatham and South Burdon Forest Plan

FP Map 4(b) - South Burdon Management Information

Scale: 1:10,000
Scale at A3
Created March 2025

- Heritage
- Watercourses
- Overhead powerline
- Gas Pipelines
- Overhead telephone or fibreoptic
- Underground telephone or fibreoptic

0 0.13 0.25 0.5 Kilometers

Proposed Harvesting Map

The map shows how we intend to manage tree felling in Coatham in order to meet the multiple objectives of management there.

Low Impact Silvicultural Systems

Change is managed more slowly using a combination of heavier thinnings and small group felling or strip felling. The purpose of thinning/ felling operations is to produce timber and to allow enough light to reach the forest floor for replanting/regeneration to take place. The majority of the site has tree cover at all times and at one or more levels.

Forestry England

Coatham and South Burdon Forest Plan

FP Map 05(a) - Coatham
Proposed Felling

Scale: 1:10,000
Scale at A3
Created March 2025

Beyond 2042 or LISS
Other / Open Land
Blocks

0 0.13 0.25 0.5 Kilometers

Proposed Harvesting Map

The map shows how we intend to manage tree felling in South Burdon in order to meet the multiple objectives of management there.

Low Impact Silvicultural Systems

Change is managed more slowly using a combination of heavier thinnings and small group felling or strip felling. The purpose of thinning/felling operations is to produce timber and to allow enough light to reach the forest floor for replanting/regeneration to take place. The majority of the site has tree cover at all times and at one or more levels.

Forestry England

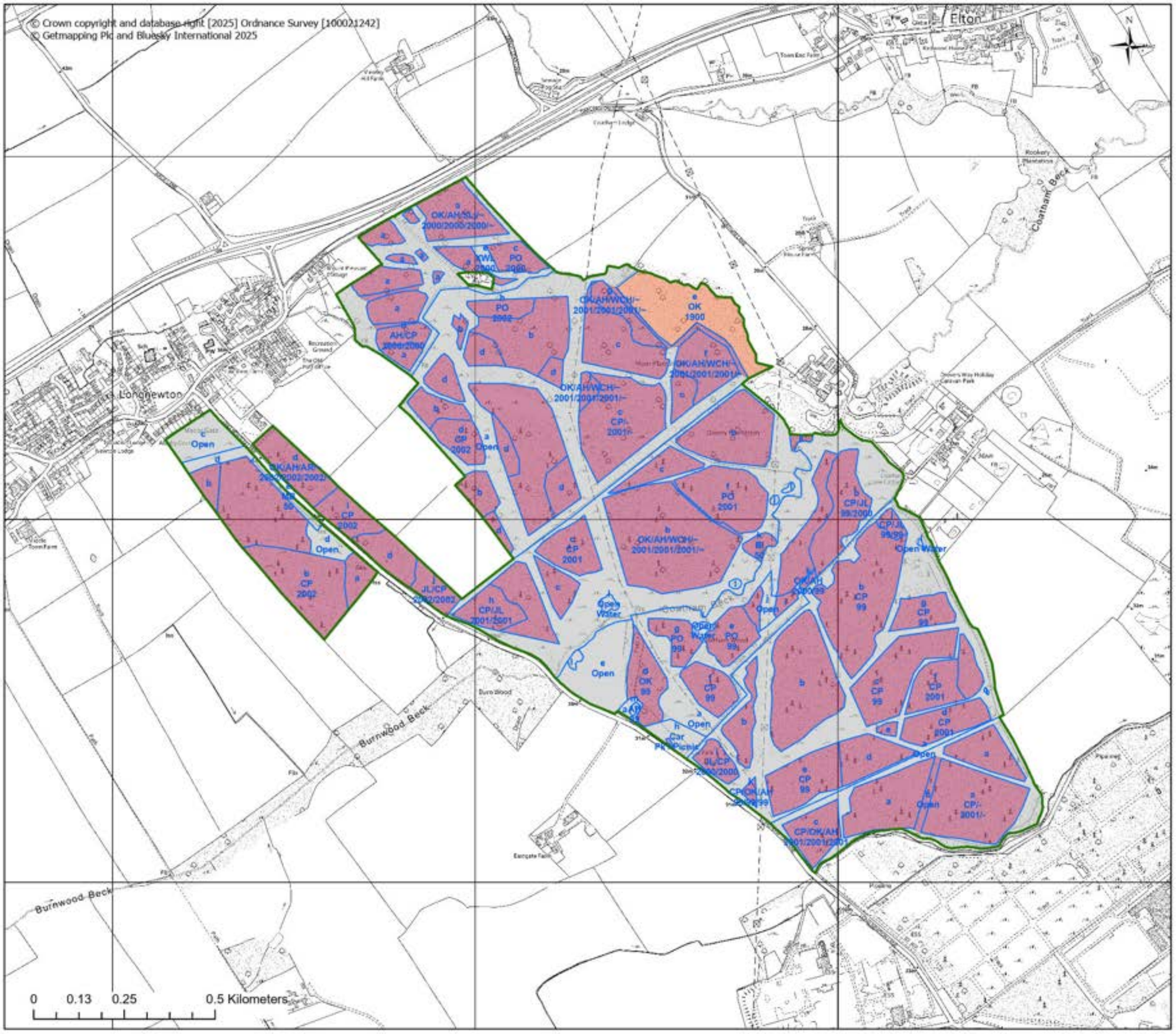
Coatham and South Burdon Forest Plan

FP Map 05(b) - South Burdon
Proposed Felling

Scale: 1:10,000
Scale at A3
Created March 2025

- Beyond 2042 or LISS
- Other / Open Land
- Blocks

0 0.13 0.25 0.5 Kilometers



Forestry England

Coatham and South Burdon Forest Plan

FP Map 06(a) - Coatham
Proposed Management Coupes

Scale: 1:10,000
Scale at A3
Created March 2025

- Long Term Retention
- Irregular shelterwood (general)
- Other\Open Land

Forestry England

Coatham and South Burdon Forest Plan

FP Map 06(b) - South Burdon
Propose Management Coupes

Scale: 1:10,000
Scale at A3
Created March 2025

Irregular shelterwood (general)
Other\Open Land

0 0.13 0.25 0.5 Kilometers

Forestry England

Coatham and South Burdon Forest Plan

FP Map 07(a) - Coatham Future Habitat and Restock

Scale: 1:10,000
Scale at A3
Created March 2025

- Predominantly Mixed Broadleaf
- Predominantly Mixed Conifer
- No Species

This map shows the main species groups that are to be used when restocking felled areas. Due to the constraints of map scale, unplanted areas are not shown unless they are greater than 0.5 hectares in size. This means that unplanted corridors such as along forest roads and rides will not be shown on this map.

Predominantly mixed conifer areas will be regenerated through a combination of planting and natural regeneration with appropriate species, dependent on the underlying site conditions such as soil and topography.

In addition, climate change projections and plant health issues indicate a reduction in the suitability of species such as Corsican pine and larch for restocking. Species showing drought tolerance and disease resistance characteristics such as Macedonian pine, Oriental spruce, European silver fir, Coast redwood, and Douglas fir will be considered.

Predominantly mixed broadleaf areas will be restocked by natural regeneration primarily using site-native species. This will be predominantly birch but other species such as rowan, holly, and oak are anticipated. We will also accept other species that are not site-native such as beech and sycamore where these meet management objectives. Enrichment planting may be used where there is insufficient regeneration or where we wish to further diversify the range of species present.

0 0.13 0.25 0.5 Kilometers

Forestry England

Coatham and South Burdon Forest Plan

FP Map 07(b) - South Burdon
Future Habitat and Restock

Scale: 1:10,000
Scale at A3
Created March 2025

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- Predominantly Mixed Broadleaf
- Predominantly Mixed Conifer
- No Species

0 0.13 0.25 0.5 Kilometers

Forestry England

Coatham and South Burdon Forest Plan

FP Map 08(a) - Coatham

Analysis and Concept

Scale: 1:10,000
Scale at A3
Created March 2025

- Manage as predominantly mixed broadleaf
- Manage as predominantly mixed conifer
- No Species

WFD condition status for Coatham Beck is current status is 'moderate'
LISS will reduce the impact of felling activity and sediment delivery adjacent to watercourses.

Sensitive group-felling and thinning adjacent to watercourses and ponds will contribute toward helping developing habitat for flora and fauna alike.

Utility wayleaves create long, geometric corridors.

LISS associated felling, and thinning will improve internal landscape by continuing the softening of hard edges and reducing the 'tunnel effect' along forest rides.

Increased structural and species diversity will create more diverse edge habitat for flora and fauna alike.

0 0.13 0.25 0.5 Kilometers

Elton
Longnewton
Coatham Beck
Burnwood Beck
Open Water
Open

Forestry England

Coatham and South Burdon Forest Plan

FP Map 08(b) - South Burdon
Analysis and Concept

Scale: 1:10,000
Scale at A3
Created March 2025

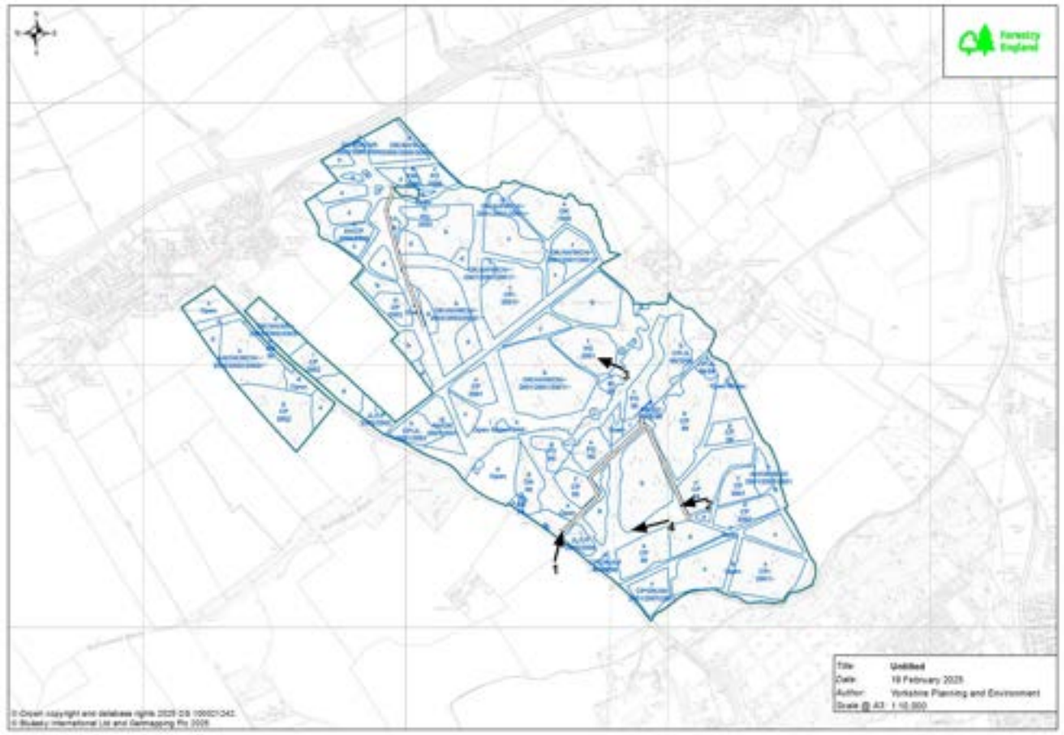
- Manage as predominantly mixed broadleaf
- Manage as predominantly productive mixed conifer
- No Species

Access continues to be challenging at South Burdon, in regards forest operations and public recreational use.

We will continue to consider and be alive to opportunities to improve access.

0 0.13 0.25 0.5 Kilometers

Forest Design Plan **Coatham**



1. NZ 3959 1534

Coatham is a popular destination for visitors, benefiting from a charged and maintained car park facility. In the background can be seen the developing forest with the pine and poplar having received a first thin.

2. NZ 4007 1548

Investment in forest road infrastructure has enabled access for recent and future timber harvesting operations.

3. NZ 3978 1601

Successful thinning, including in Poplar stands is resulting in successful understory development, in this instance of mixed broadleaf species, primarily Poplar, Ash and Birch.

4. NZ 3997 1540

Coatham has many interconnected open areas, often associated with overhead wayleaves. In the current FP this was highlighted as a potential landscape issue due to the presence of hard, linear edges. Although these issues are still present and should be considered, ride edges are now developing with a range of broadleaved tree and shrub species, softening edges; thinning operations will continue to improve structure.

Forest Design Plan **South Burdon**

1. NZ 32692530

There have been limited changes at South Burdon since the previous plan was developed, and this area directly adjacent the A66 continues to offer opportunities for access and income diversification.

2. NZ 3431 1509

South Burdon continues to sit well within the surrounding landscape.