

**SHOULDHAM
AND BILNEY
FOREST PLAN**

2016 – 2026

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PROTECTING
AND EXPANDING
ENGLAND'S FORESTS
AND WOODLANDS,
AND INCREASING THEIR VALUE TO SOCIETY
AND THE ENVIRONMENT.



Forestry Commission woodlands have been certified in accordance with the rules of the Forest Stewardship Council.

The mark of responsible forestry



1. What are Forest Design Plans (FDP)?

Forest Plans are produced by us, the Forestry Commission (FC), as a means of communicating our management intentions to a range of stakeholders. They aim to fulfil a number of objectives:

To provide descriptions of our woodlands to show what they are like now.

To explain the process we go through in deciding what is best for the woodlands' long term future.

To show what we intend the woodlands to look like in the future.

To outline our management proposals, in detail, for the first ten years so we can seek approval from the statutory regulators.

Our aim is to produce a plan that meets your needs for the woodland; meets the needs of the plants and animals that live there and meets our needs as managers.

We have produced this draft plan to illustrate our management proposals thereby creating an opportunity for you to comment on the plan, whether you are a user, a neighbour or a member of one of the many stakeholder groups that have an interest in the woodlands. Information on how to get your comments to us is on the webpage.

This plan does not set out the detailed yearly management operations for each small piece of a wood, known as a coupe*. It is not possible to say which year a particular operation will take place, but we can say in which five-year period it should happen.

All tree felling in the UK is regulated and a licence is required before trees can be felled; the scale of tree felling in Shouldham and West Bilney woods is such that the Forest Plan is the best mechanism for applying for this licence.

Responsibility for checking that the plan meets all the relevant standards and statutes lies with another part of the FC (Forest Services). If all the criteria are met, full approval is given for the management operations in the first ten years (2016 - 2026) and outline approval for the medium term vision (2027 - 2046). The plan will be reviewed after the first five years (2021) to assess if the objectives are being achieved. Natural England will approve management proposals for the Sites of Special Scientific Interest (SSSIs) and Historic England will approve management proposals for Scheduled Monuments (SMs) which lie within our woods.

We use some technical words and phrases in the text because they best describe what we are doing. There is a glossary at the back of the plan with some commonly used technical forest terms and abbreviations these technical words are identified with an *.



2. Standard Practices and Guidance

Underpinning the management proposals in Forest Design Plans is a suite of standard practices and guidance described briefly below. Some of these practices are strategic national policy, whilst others are local expressions of national policy to reflect the particular conditions found in East England - the policy level is indicated in brackets.

The UK Forestry Standard* (national)

The UKFS sets out standards for the sustainable management of all forests and woodlands in the UK and describes, in outline, good forest practice.

The UK Woodland Assurance Standard* (national)

The UKWAS certification standard sets out the requirements which woodland owners, managers and forest certification bodies can use to certify their woodland and forests as sustainably managed. It is the document which guides all of our management, and against which the FC is certified by outside consultants to ensure our compliance.

Deadwood (national and local)

Deadwood is important in the forest as a habitat for birds, invertebrates and some primitive plants. Guidance is given on how to provide deadwood in the forest of different sorts and sizes and how this will be distributed.

Natural reserves (national and local)

Natural reserves are areas of the forest where little or no active management takes place thereby creating a very different and special habitat in our otherwise actively managed forests.

European Protected Species (national)

In August 2007 amendments to the European Habitat Directive came into force in England and Wales to protect the habitat of a number of vulnerable species. Those European Protected Species (EPS) most likely to be found in a woodland habitat include all species of bat, hazel dormouse, great crested newt, otter, sand lizard and smooth snake.

In Forestry Commission managed woodland where one or more of these species has been confirmed, the FC will manage the woodland in accordance with the good practice guidance documents that have been produced by FC and Natural England (NE). On the rare occasion when woodland management operations cannot be undertaken in compliance with the guidance, NE will be consulted and where neces-

sary, an application will be made to undertake the operation under licence.

It is recognised that EPS can occur beyond woodland therefore the management of open habitats identified in this Forest Design Plan (FDP) will also need to consider the presence of these species.

Other Designations

The FC landholding in England has a wide range of European and national designations placed upon it in various locations across the country, such as;

National Park

Area of Outstanding Natural Beauty (AONB)

Special Protection Area* (SPA)

Special Area of Conservation (SAC)

Sites of Special Scientific Interest* (SSSI)

Scheduled Monuments (SM's)

County Wildlife Sites*

Along with the standard guidance documents, we have individual plans for our designated sites; these describe work required to maintain and enhance the protected features. We will gradually integrate these into our Forest Design Plans where appropriate.

In addition, the Forestry Commission has a number of practice guides and specialist bulletins which further inform our management, some of these are available to download from our website <http://www.forestry.gov.uk/>

3. Introduction

This Forest Plan covers Shouldham and West Bilney woods, approximately 480 hectares of land in Norfolk managed by the Forestry Commission. In this revision of the expiring 2003 plan we are guided and directed by current policies and strategies - the most significant being:

The Government's Priorities

Forestry Commission's priorities are to make sure that trees and woodlands help in meeting Government's goals for natural resources, climate change, improved urban environments and a better quality of life for all.

Forest District Strategic Priorities

The Forest District's Strategic Plan is currently under revision, UK Forest Standard requirements particularly relevant to this forest plan are:

Forests should be designed to achieve a diverse structure of habitat, and species and ages of trees, appropriate to the scale and context.

Forests characterised by a lack of diversity due to extensive areas of even-aged trees should be progressively restructured to achieve a range of age classes.

Maintain or enhance the resilience of forests and forest ecosystems in order to reduce the risks posed by climate change to their sustainability.

Forests should be designed and managed to take account of the historical character and cultural values of the landscape.

The principles of forest design, informed by the landscape context, should be applied to ensure visual aspects are appropriately addressed.

Particular consideration should be given to conserving, enhancing or restoring priority habitats and species identified in section 41 of the Natural Environment and Rural Communities (NERC) Act.

General Description of Plan Area

This plan covers Shouldham and West Bilney Woods - two discrete woodlands occupying prominent positions either side of the River Nar valley, within Kings Lynn and West Norfolk District. They are a mile apart so are visually connected in the landscape, and can be accessed by crossing the river footbridge, but they are at least 8 miles apart by road.

The woods are an attractive mixture of productive conifer plantation and broadleaf woodland, and offer well-used opportunities to access the countryside in an otherwise intensively farmed landscape. They offer a range of habitats as the land they occupy includes the extremes of local conditions - high sandy hilltops and low peaty wetland, with several maintained drainage board channels as well as disused ditches.

The Forestry Commission England Corporate Plan sets the direction for the management of the Public Forest Estate. This is combined with our own local knowledge of the site to prepare a 'Design Brief', which sets out the main factors we need to consider within the plan. However these may be subsequently modified following consultation. The Brief is used to draw up an Analysis and Concept Map, which feeds into the rest of the FDP. The whole plan is arranged around the three themes of sustainable forest management:

- People—Forests that deliver for people
- Economy—Forests that deliver for economic growth
- Nature—Forests that deliver for Nature and the Environment

4. Design Brief

This Forest Plan recognises the importance of Shouldham and Bilney woods as an informal recreation facility and attempts to reconcile this with the Forestry Commission's need to yield timber revenue from a sustainably managed source and provide space for nature.

Relevant commitments in the Corporate Plan are outlined below, with the design brief for this Forest Plan.

People – Forests that Deliver for People

The Corporate Plan Aim is to extend access and expand opportunities for communities to become involved with the public forests and woodlands, and take part in activities that improve quality of life, health and learning.

Our objectives to meet our aim are to...

Encourage communities to become involved in the forests and woodlands, their management, and direction.

Enable everyone, everywhere to connect with the nations' trees and forests so that they understand their importance and act positively to safeguard forests for the future.

The Forest Plan brief is to implement these objectives by...

Continuing to provide a pleasant forest environment for informal recreation, through consideration of the scale of internal structural variation and creating opportunities for external views.

Asking forest users for feedback on this plan.

Economy – Forests that Deliver for Economic Growth

The Corporate Plan Aim is to make a significant contribution to economic activity, rural employment and green growth across England, using the assets and advantages of the forests and woodlands.

Our objectives to meet our aim are to...

Maintain the land within our stewardship under UKWAS certification

Improve the economic resilience of our woods and forests

The Forest Plan brief is to implement these objectives by...

Planning for a sustainable timber harvest by normalising the currently severely imbalanced age structure of the plan area, but do not programme stands to be felled too far from their age of maximum value.

Aiding forest resilience by planning to at least maintain the range of tree species, and increase the area of non-pine.

Ensuring coupes are designed to meet the UK Forest Strategy requirements for soil and water protection

Nature – Forests that Deliver for Nature and the Environment

The Corporate Plan Aim is to increase the environmental contribution made by the forests and woodlands to the range of ecosystem services delivered, and to protect and enhance its overall biodiversity and heritage value, at both the landscape and local level.

Our objectives to meet our aim are to...

Improve the resilience of the natural environment of our forests

Realise the potential of our forests and land for nature and wildlife

Maintain and improve the cultural and heritage value of the land

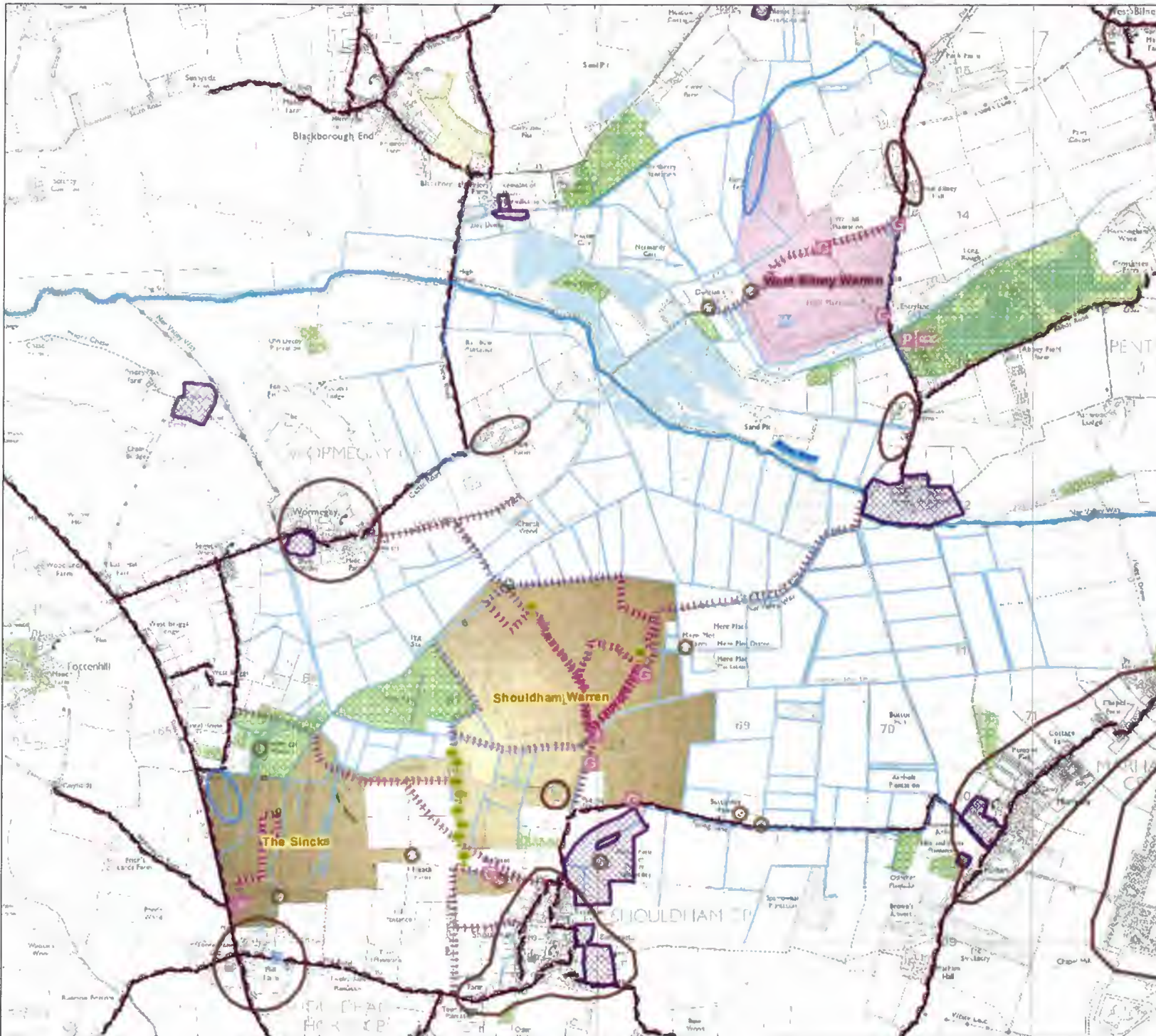
The Forest Plan brief is to implement these objectives by...

Allowing space for naturally functioning systems in an otherwise intensively managed wider landscape, maintaining landscape connectivity with other woods.

Recognising the visual significance and long term presence of the woods in the wider landscape, designing coupe shape and size in proportion to the landscape.

Providing continuity of habitat for nightjars (NERC section41 priority)

The following sections are an "Analysis and Concept" map and description of the Plan area. This is followed by maps showing felling and replanting proposals. Next there is an appraisal of the Forest Plan against the brief to see if all the objectives have been met. The final section is a statement stating how we will monitor the progress of work as the Forest Plan is implemented over the next ten years.



Forestry Commission
East England Forest District
Shouldham & Bilney

Analysis & Concept Map

Infrastructure	Access
Housing	Freehold land - access dedicated under Countryside and Rights of Way Act (CROW)
Public water supply	Leasehold land - access where landowner gives permission only
Environment	Public road
Rivers/ditches	Forest road
Open water	Public right of way
Heritage	Ride (compartment edge)
Scheduled Monument	Ride waymarked trail
Conservation	FC carpark
Site of Special Scientific Interest (SSSI)	Parking in gaterays
National Nature Reserve	Parking non FC
County Wildlife Site	Public Campsite
Veteran/character trees	

Location & Context

Forest Plan consultation area highlighted in yellow



Design Brief Summary

- People**
- Consider scale of internal structural variation
 - Create opportunities for external views
 - Ask forest users for feedback on this plan.
- Economy**
- Plan a sustainable timber harvest
 - Maintain the range of tree species, and increase the area of non-pine
 - Design coupes to enable soil and water protection.
- Nature**
- Allowing space for naturally functioning systems
 - Design coupe shape and size in proportion to the landscape
 - Provide continuity of habitat for nightjars (NERC section 41 priority)

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5. Description - Land and Natural Environment

Location and Ownership

Shouldham Woods lie approximately 6 miles south of Kings Lynn on the A134. They have been managed by the Forestry Commission since 1943, the beginning of a 999 year lease from the Hare Estate at Stow Bardolph. They comprise 372ha in two linked blocks known as Shouldham Warren (in the parish of Shouldham) and Shouldham Sincks (spilt between Shouldham and Shouldham Thorpe parish).

West Bilney Wood, 107ha, is around 6 miles south east of Kings Lynn off the A47 in the parish of East Winch. The Forestry Commission acquired the freehold of West Bilney Woods in 1953. It is in the parish of East Winch.

These woods were part of the intensive programme of re-forestation following WWII fellings in the national interest. They were part of a once much larger Forestry Commission holding around Kings Lynn, administered from an office and depot in Shouldham Warren.



Site Characteristics

Shouldham Sincks is, as its name suggests, relatively wet. The water table is close to ground level and numerous springs rise within and around the forest. The woods occupy a north facing slope that falls from 20m to the neighbouring wet woodland and fen at 3m above sea level.

Shouldham Warren and West Bilney Woods both sit on sandy hilltops that rise steeply out of the fens to 20m above sea level, although both also have low lying wet areas.

The bedrock geology is sand, except the southern edge of the Sincks which clips the Carstone (a sandstone) bed. This is overlain by clay or peat in places. There are extensive recent and current mineral extraction sites exploiting this material in the surrounding landscape.

Apart from fringes of Adventurers' Series peat, the soils are deep acidic sand - Newport series brown sandy drift occurs on the drier ground, with the seasonally wet Blackwood Series sandy gley drift over the south of Shouldham and the Isleham Series humic sandy gley in the north of Bilney.

Being only 5 miles from the Wash, there is a maritime influence to the climate. It is generally mild with warm summers and relatively low rainfall (700-800 mm/year) and the growing season is 270-290 days long.

The woods are within National Character Area (NCA) 76, North West Norfolk. Natural England's classification document for this area notes the presence of significant belts of mixed woodland and plantation and identifying an opportunity to protect and appropriately manage the woodland resource, combining commercial forestry and fuel production, expanding and improving connectivity between broadleaved woodlands for the benefit of wildlife, strengthening landscape character, and improving recreational opportunities.

The NCA document details threats to hydrology and soil. Groundwater is of high/intermediate nitrate vulnerability. It is noted that rivers are increasingly suffering from low flow conditions, particularly the Nar. The light sandy and loamy soils are subject to wind erosion and erosion from surface water run-off where cultivated or bare soil is exposed, particularly on moderately or steeply sloping land.

Under agricultural management these soils offer poor carbon storage potential and are at high risk of erosion. In this NCA it is recognised that tree cover contributes significantly to ecosystem services by regulating climate, water quality and soil erosion.

5. Description - Land and Natural Environment *cont.*

Existing Habitats

Coniferous Forest

Most of the plan area is conifer forest, predominantly pine but with over 15% other conifer. The mature forest areas are used as breeding habitat by raptors, and other woodland birds. Bats are likely to roost in trees with fissures and in standing deadwood. There are several badger setts amongst the plantations.

Some of these conifer plantations will continue to be managed by clear-felling and restocking—where we harvest all the timber from an area and replant it. However, in the plan area, there are places where we will apply the principles of Continuous Cover Forestry (CCF) – a general term encompassing ways to nurture the next generation of trees without completely clearing felling a stand. In addition to maintaining the woods as important landscape features, benefits of this approach include soil conservation, improved tree shelter and the opportunity to create more intimate internal variation.



Broadleaf Woodland



Declining poplar plantations and wet woodland occur in areas with a higher water table. On the drier ground, birch readily regenerates amongst conifer restock, and is the dominant species in some young coupes.

Neighbouring land is generally open intensively managed and drained arable land, but there are pockets of neighbouring and close-by broadleaf woodland managed for conservation interest designated as county wildlife sites and a network of hedges and copses linking the woods through the Narr Valley and to ex-gravel pit lakes at Pentney.

Deadwood

In the wet areas in particular, there are standing and windblown deadwood. These are an important contribution to the range of woodland habitats, particularly for invertebrates, and will be treated in accordance with the Forestry Commission Deadwood Policy during harvesting work.

Ponds and watercourses

Shouldham and Bilney woods are in the catchment of the River Narr. There are numerous drains through the woods but these are not regularly maintained as there is no longer a locally based woodland workforce and machine access is difficult.

The channels of historic meandering watercourses are visible on aerial photos in the surrounding arable land, but these have now been channelled into main drains and water levels in the district are managed by the Internal Drainage Board (IDB).

The IDB manage several channels through and on the boundaries of the woods. Norfolk Wildlife Services prepared a Biodiversity Action plan for the IDB in 2010 which identifies the need for them to undertake “appropriate water level management” to perpetuate all of the open habitat types that occur within the woods but states that they have no role in influencing woodland or scrub habitats.



There are Anglia Water supply boreholes in West Bilney woods, to take advantage of the lower nitrogen levels than in the surrounding arable areas.

Open space

The plan area includes 6% maintained open space. This is within a network of wide rides with areas of calcareous grassland and more commonly acid heath characteristics. There are also open fen-like habitats in a wet woodland mosaic which complements the neighbouring fen county wildlife sites.

The area of transient open space habitat available is currently 7%. These felled

5. Description - Land and Natural Environment cont.

areas awaiting restock or regeneration provide opportunities for open ground species whilst the next generation of trees is establishing. As they grow up, new open areas are created when the other coupes are felled.



Nightjars are ground nesting birds and Shouldham and Bilney Woods provide habitat between the population in Thetford Forest and North Norfolk. They are recording nesting in the transient open space.

Safeguarding the Heritage

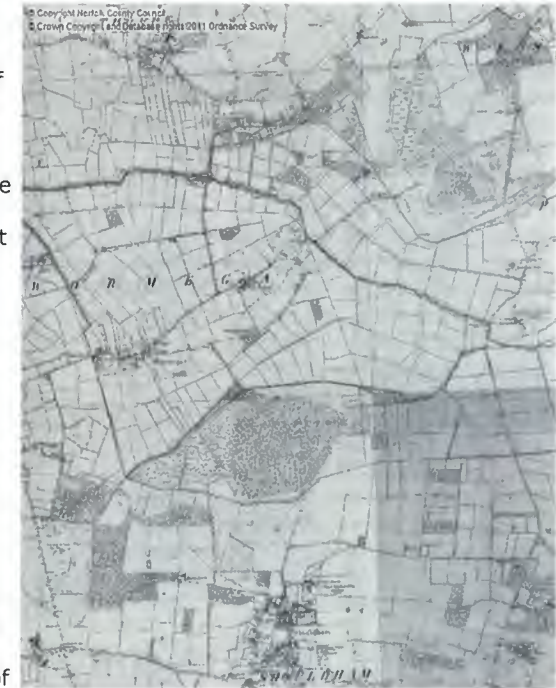
Shouldham and Bilney Woods are situated on the edge of the fens, in an area with a long history of settlement throughout human history.

Flint artefacts, including a flint "anvil-stone" found at the highest point of Shouldham Warren, reveal prehistoric activity. Cropmarks and finds indicate Bronze Age habitation, and there were Iron Age smelting pits at East Winch. In the Roman era Shouldham appears to have been a centre of some importance. Later, Anglo-Danish nobles held land in the area and there is evidence for habitation in the Early and Late Saxon periods, with well-established agricultural settlements by the time of Domesday (1086). There were medieval manors and priories and a

Norman castle was built at Wormegay. During the medieval period the livestock "Fair Stead Market" was held twice a year where Fairstead Plantation is now.

By the 13th century Kings Lynn was one off the most significant and prosperous ports in Britain, and the rich fenland resources of the surrounding landscape were exploited even more intensively when the 17th century drainage systems were established. In the post medieval period windmills exploited the hilly and windswept landscape for corn milling. The warrens in West Bilney and Shouldham were on the deep, less productive, sands. By the late 19th century the Stow Bardolph Estate, owner of Shouldham woods, was one of the largest in Norfolk.

Much of the area now in Shouldham and Bilney Woods were under tree cover by the 1880s (1st edition OS series maps, illustrated); part of Bilney Warren is shown as woodland as early as 1797 (Faden's Map of Norfolk) and a large proportion of Shouldham Sincks was wooded by the 1850s (tithe map).



Features associated with previous land use survive in the woods. For example, there are warren boundaries, the presence of rhododendron suggests an association with adjacent listed parkland, and there is brickwork from a WWII rifle range.

Cultural and heritage features are considered during pre-operational site assessments rather within the design plan. These assessments enable operations to preserve features and take opportunities to enhance their setting.

6. Description - Communities and Places

Community

The woods are used by formal and informal groups for events and activities, and are an important resource for these communities.

The surrounding rural settlements developed in response to the need for agricultural labour but are now desirable residential areas. There are ex-Forestry Commission and estate houses, farmsteads and hamlets within and adjacent to the plan area, and several villages are within walking distance. The nearby RAF Marham base is still in active service.

By car, the woods are easily accessed from the local town of Kings Lynn, 6 miles away.

Access and Recreation

The woods are an island of accessible land in the farmed landscape, and have a network of paths, so are popular with residents of nearby towns and villages for walking, cycling and picnicking. Public footpaths and historic drove roads lead into the woods from the nearby settlements, including the regional Narr Valley Trail.

Only West Bilney Woods are freehold and are dedicated under the Countryside and Rights of Way Act 2000 for unrestricted public access on foot. No formal visitor facilities are provided but rides are well-used by walkers.

The landowner of leasehold Shouldham Woods has provided a waymarked trail in The Shouldham Sincks, with a small car park alongside the A134.



The landowner allows the Forestry Commission to permit access throughout Shouldham Warren. This has a well used sandy informal car park with an FC trail. The Warren is easily accessible on foot from Shouldham village. The pit in the warren is increasingly popular with mountain bikers. There are regular orienteering events, and the village school visits frequently.

Sporting rights are retained by the estate, but only exercised in the Sincks. There is no shooting tenant at West Bilney.

There are rights of access to private houses through the woods and powerline and gas pipe wayleaves.

Landscape

The woods sit in Kings Lynn & West Norfolk Borough Council's Landscape Character Area H - "Settled Farmland with Plantations".

This landscape forms the transition between the low lying flat landscape of "The Fens - Open Inland Marshes" and the more elevated, variable landform of "The Brecks - Heathland with Plantations".



Although the topography appears generally flat, the land slopes gently towards the Nar and the fens.

Arable crop production defines the landscape, with areas of woodland bringing textural qualities and diffusing the land cover pattern with their irregular location and shape. Along with field margin hedges and shelter belts the woods offer some degree of enclosure imparting a medium scale to the landscape but there are opportunities for distant views. With the exception of views across and into the Fens, wooded horizons define much of the skyline. Views onto the plantations are a defining feature from adjacent landscape character areas.



A number of main routes cross through the landscape, with associated noise and visual intrusion but away from these the landscape is, for the most part, still and peaceful. Scattered farm dwellings and small-scale settlements of low density are dispersed throughout this landscape, connected by rural roads.

District council planning guidance is that large areas of plantations should be conserved and managed as striking landscape features and wildlife areas, and to seek to conserve, enhance and link patches of wet woodland.

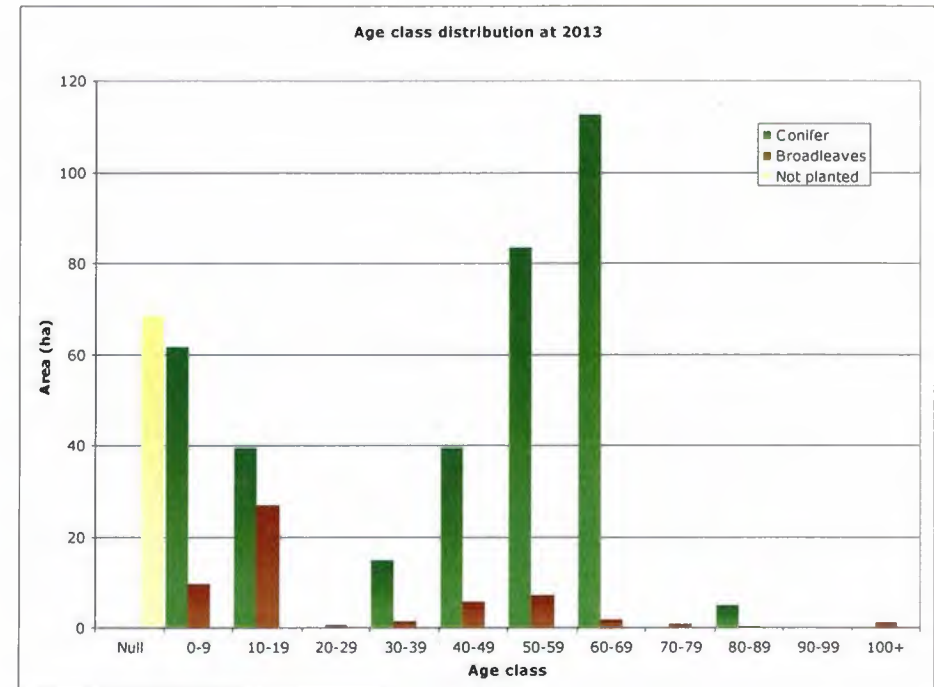
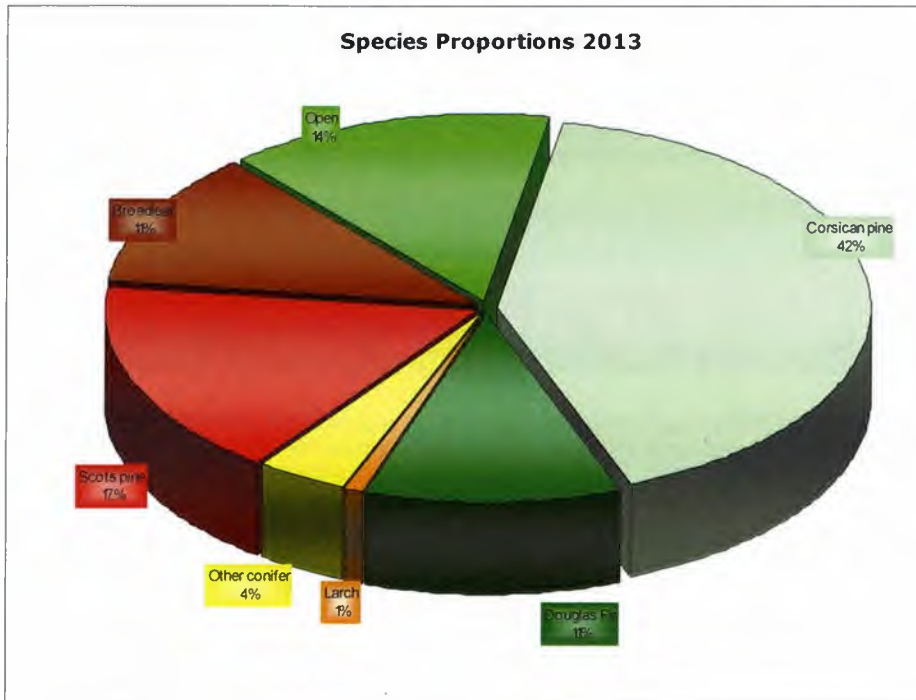
7. Description - Working Woodlands

Tree Species

There are 16 tree species recorded in the woods. Around 75% of the plan area is predominantly conifer - 60% is Scots and Corsican pine as they are particularly well suited to the soils and climate; growing fast and producing good quality timber.

The heavy reliance on pine, particularly Corsican pine, has its downside as the fungal pathogen *Dothistroma* Needle Blight (aka Red Band Needle Blight) is now present in the woods; Corsican pine is particularly susceptible to this disease; Scots pine is also affected but to a lesser extent. The effect of *Dothistroma* is to reduce the number of needles held on the tree and also to reduce the efficiency with which the remaining needles photosynthesize, leading to poor growth and in the worst cases killing the tree but this relatively rare.

The maritime climate and sheltered aspect of some parts of the woods offer opportunities to trial some more frost-sensitive species than would be possible in



other parts of the district.

Around 12% of the plan area is predominantly broadleaves, including poplar in the low-lying area. In addition, some stands have a significant amount of naturally regenerated broadleaf.

Age Classes

Shouldham and West Bilney Woods have a particularly skewed age range – almost half of the area was planted in the 20 years between 1940 and 1960 and almost a over a third has been felled since 2000.

For normal current conifer markets, timber needs to be large enough to be milled into useful products, but not too large for the sawmill to handle. This limits the age range when trees can be economically harvested.


















The trees planted before 1960 are all at the optimum size for harvesting, but it would not be appropriate to fell such a large area in a short time.




Forestry Commission
East England Forest District
Shouldham & Bilney Forest Plan

Management Map


Legend

-  Open
-  Clearfell 2017-2021
-  Clearfell 2022-2026
-  Clearfell 2027-2031
-  Clearfell 2032-2036
-  Clearfell 2037-2041
-  Clearfell 2042-2046
-  Clearfell 2047-2051
-  Clearfell 2052-2056
-  Clearfell 2057-2061
-  Clearfell 2062-2066
-  Clearfell 2067-2071
-  Clearfell 2072-2076
-  Clearfell 2077-2081
-  CCF Conifer
-  CCF Broadleaf
-  Minimum intervention



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Forestry Commission
East England Forest District
Shouldham & Blinley
Forest Plan

Management Map
Showing felling
periods falling within
the 10 year plan
approval date

Legend


-  Open
-  Clearfell 2012-2016
-  Clearfell 2017-2021
-  CCF Conifer and Retentions
-  CCF - Broadleaves
-  Minimum Intervention



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 woodlands now
 see) certified in
 accordance with the
 rules of the Forest
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Forestry Commission
East England Forest District
Shouldham & Bilney Forest Plan

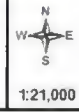
Habitat Map

Legend

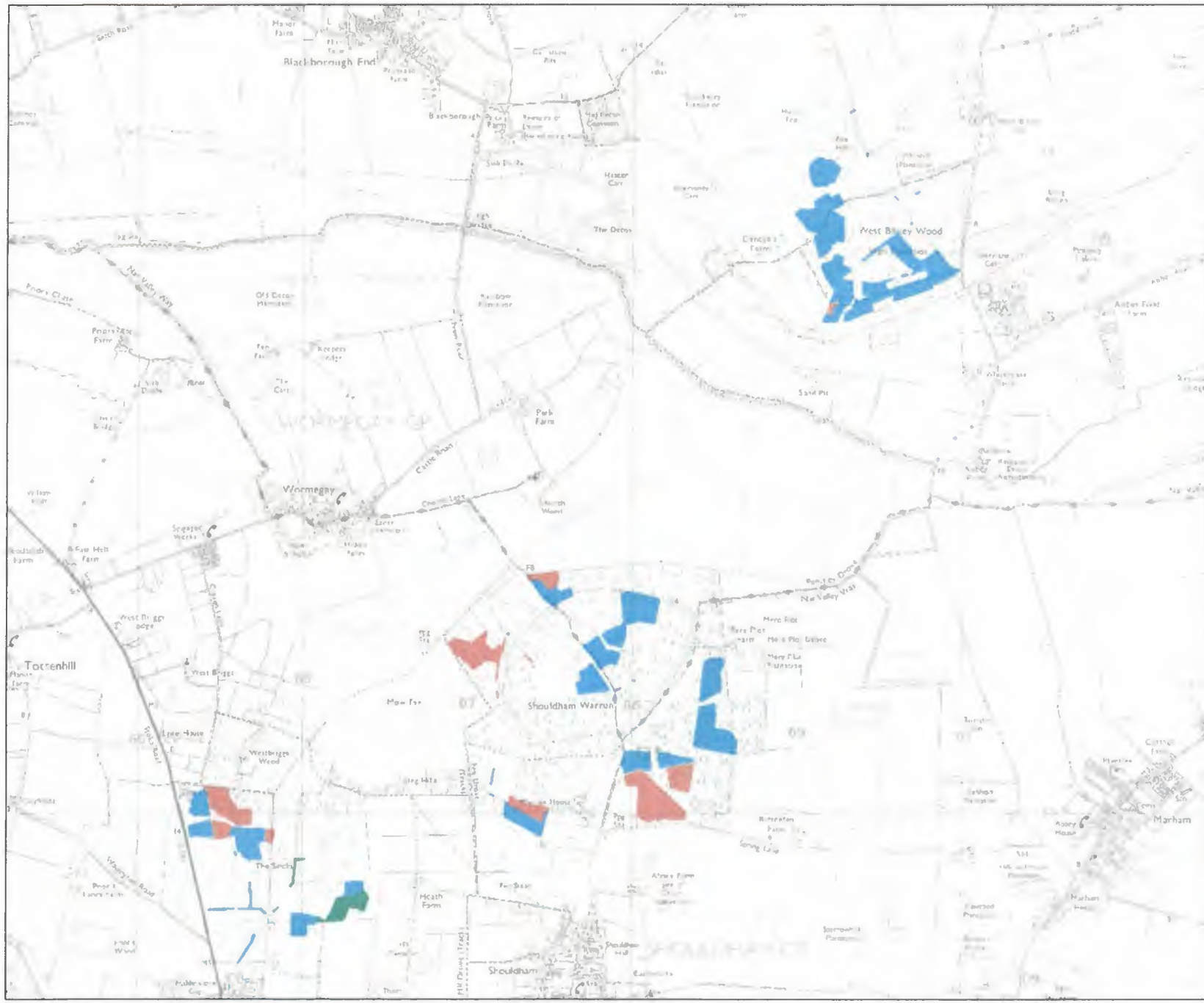
-  Broadleaf woodland
-  Evergreen conifer woodland
-  Deciduous conifer woodland
-  Open space



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Forestry Commission
East England Forest District
Shouldham & Bilney
Forest Plan

Species Map
Showing planned restock
species for coupes to be
felled within
the 10 year plan
approval period

Legend

- Pine
- Fir
- Mixed Conifer



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8. Plan Appraisal

The appraisal of the revised plan is measured against the design brief on page 6, this has three separate sections and the appraisal relates to these sections:

People – Forests that Deliver for People



Continuing to provide a pleasant forest environment for informal recreation, through consideration of the scale of internal structural variation and creating opportunities for external views.

Asking forest users for feedback on this plan.

The need to maintain internal variety and occasional views out of the wood was a significant consideration when refining felling coupe shapes and timing.

There will be an online consultation for the plan, with hard copies available through the district office. We will invite formal responses from the parish and district councils that the woods fall in to.

Forest Plans focus on tree management, so there are no proposals to alter recreation infrastructure within this plan.

The importance of the woodland to local users will be considered when planning the pattern of harvesting work through the wood, ensuring there is always somewhere open for access.

Economy – Forests that Deliver for Economic Growth



Planning for a sustainable timber harvest by normalising the currently severely imbalanced age structure of the plan area, but do not programme stands to be felled too far from their age of maximum value.

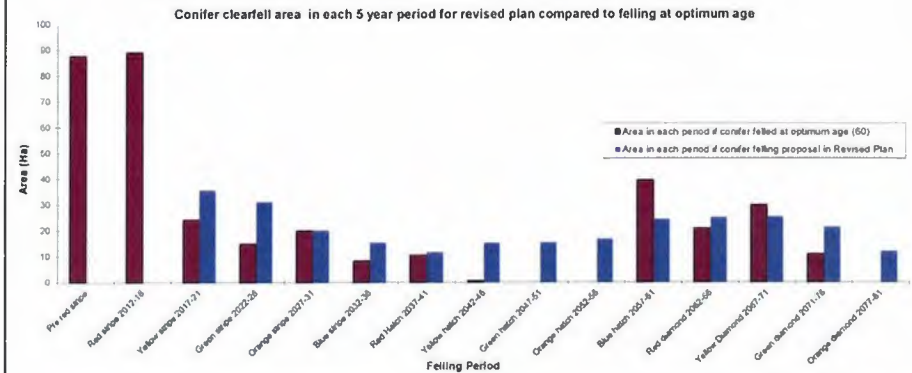
Aiding forest resilience by planning to at least maintain the range of tree species, and increase the area of non-pine.

Ensuring coupes are designed to meet the UK Forest Strategy requirements for soil and water protection

It will be challenging to meet the objective to smooth timber production in these woods with such a skewed age structure. Continuous cover systems (see section 11 for description) will be used where appropriate to help spread timber production and balance the age structure. The generation of young trees can be established amongst existing trees - this more sheltered situation increases the range of tree species that can be grown productively.

It has been agreed that decisions on which type of continuous cover silviculture management to apply in which areas will be made at the operational planning stage. In some places, promoting regeneration or planting will be the next task.

Coupes that will be clear-felled are designed to balance the desire to create views out of the wood, with the need to minimise damage to soil and water quality.



Nature – Forests that Deliver for Nature and the Environment



Allowing space for naturally functioning systems in an otherwise intensively managed wider landscape, maintaining landscape connectivity with other woods.

Recognising the visual significance and long term presence of the woods in the wider landscape, designing coupe shape and size in proportion to the landscape.

Small areas of "minimum intervention" are perpetuated from the expiring plan. These will have no active woodland management, and are away from non-woodland boundaries where possible to buffer them from other environmental influences.

This plan increases the area of land to be managed under continuous cover, which will enable a wider range of climate-change resilient species to grow.

Clear-fell coupes are spread as widely as practicable across the periods to allow continued opportunities for species using transient open space. If markets for the wood are available, there may be opportunities to supplement the area of transient open space by managing some areas of birch as shorter rotation coppice.

9. Summary of Proposals

The increase in restock species diversity compared to the expiring plan will increase resilience of the forest to climate change and the threat from pests and diseases.

The habitat map on page 15 gives an indication of the split between conifer and deciduous trees across the plan area; Larch is separated out because it is a deciduous conifer. Larch would be planted more widely but it is susceptible to *Phytophthora ramorum*; a disease which is killing Larch trees in the western half of the country. The restock map on page 16 indicates species group for areas to be restocked during the plan approval period (2016 to 2026). Restock species will be confirmed by a site assessment during the operational planning process — soil pits and vegetation surveys will be used to ascertain the optimum species for the coupe taking into account prevailing knowledge of species performance and pathology concerns.

Monitoring

To monitor compliance with the felling plan, after a coupe is felled the shape is captured on the ground using a GPS* receiver and the data is uploaded into GIS*. The resulting point data is then compared to the original coupe shape to confirm that the felling coupe has been accurately laid out on the ground.

To monitor compliance with the restocking plan, the forest district database is updated at replanting to show the newly planted species and their proportions. As part of this updating process the restocking information is compared with the Habitat Plan to confirm compliance. The restocking area can vary slightly from the plan as physical features come to light only after felling. Most of these minor changes are within the tolerances agreed between Forest Enterprise and the Forest Services – see Tolerance table on page 21. A felled coupe is usually restocked two years later, when all the ground preparation and weed control has been completed.

To monitor timber sustainability, a stocking assessment is carried out to measure establishment success after five years.

It is district policy to make silvicultural plans for CCF areas at the Operational Site Assessment stage. Monitoring will be carried out as required.

The Operational Site Assessment process will also identify the detailed design needed to implement buffer zones for water protection etc.

Wildlife survey results area recorded in the Forestry Commission GIS system where appropriate and the Forest Plan is amended to take account of species requirements when necessary.

Date of commencement of the plan: *TO BE AGREED*

Expiry Date: *TO BE AGREED*

Mid-Term Review Date: *TO BE AGREED*

I seek approval to clear fell 68ha and selectively fell up to 166ha for the purpose of continuous cover forestry during the period 2016 to 2026 as shown on the enclosed plans.

Signed

FOREST MANAGEMENT DIRECTOR

Date

Signed

REGIONAL DIRECTOR

Date

10. Glossary of Terms

Biological Diversity

The richness and variety of wildlife and habitats.

Canopy

The mass of foliage and branches formed collectively by the crowns of trees.

Compartments

Permanent management units of land within a forest, further divided into sub-compartments. The compartment boundary usually coincides with a road or ride.

County Wildlife Sites (also SINC and LNR)

A non-statutory designation, recognising a site's local importance for nature conservation. These sites are identified by the Local Authority and should be taken account of in planning.

Coupes

Areas of forest that have been or will be managed together.

Cubic metre

A standard forestry unit of timber volume. A cubic metre is roughly equivalent to a tonne of timber.

England Forestry Strategy (now England's Trees Woodlands and Forests)

Describes how the Government will deliver its forestry policies in England and sets out the Government's priorities for the next five to ten years.

Favourable condition

English Nature's definition for an SSSI in its intended state.

Forestry Commission Guidelines

Outline the principles and standards of good management practices in forests and woodlands to enable landowners, land managers and their advisors to satisfy Forestry Commission policy.

GIS

Geographic Information System - computer program that enables the FC to hold and display all the district's inventory, landholding and crop information. All the maps in this document have been produced using GIS.

GPS

Global Positioning System, which uses information from satellites to accurately locate a position on the Earth.

Habitat Action Plans

UK wide plans for priority habitats defined under the UK Biodiversity Action Plan. They contain quantitative targets for conserving, restoring and expanding the habitats.

Historic Environment

These are the physical remains of every period of human development from 450,000 years ago and include earthworks, buried remains, structures and buildings.

Historic Environment Action Plan (HEAP)

Sets out the requirements for the sustainable management of all historic environment sites.

Historic Environment Record (HER)

The definitive database of all known Historic Environment remains which is managed by the County Archaeology Service.

Native woodland

Woodland containing tree and shrub species which colonised Britain unaided by the influence of man after the last Ice Age.

Natural regeneration

The growth of trees from seed found in the soil or cast from adjacent trees and shrubs.

Non-native species

Trees and shrubs that have been introduced to the UK by the activities of man. Also used to describe species not native to the site and locality.

Operational Site Assessment (OSA)

Detailed site plans that are prepared in advance of all major forest operations and identify site constraints, opportunities and areas requiring special treatment or protection.

Red Data Book species

Species that are included on Red Data lists published by the Joint Nature Conservation Committee (JNCC). The lists are based on a global system developed by the International Union for Conservation of Nature and Natural resources (IUCN) for classifying species according to their extinction risk.

Restocking

The re-establishment of trees where felling has taken place. Restocking may be achieved through natural regeneration but as a term, it is more usually associated with replanting.

Ride

Forestry term for unsurfaced roads, paths and tracks within a woodland.

Rotation

The period, in years, that a 'crop' of trees take to reach economic maturity e.g. Scots Pine may be grown on a 80 year rotation.

Scheduled Monuments

Nationally important archaeological sites which are protected under the Ancient Monuments and Archaeological Areas Act, 1979.

Semi-natural woodland

A woodland predominantly composed of trees and shrubs that are native to the site and are not obviously planted.

Species Action Plan

A conservation plan under the UK Biodiversity Action Plan for species based upon knowledge of its ecological and other requirements, which identifies the action needed to stabilise and improve its status.

SPA

Special Protection Area designated under the European Habitats Directive (Council Directive 92/43/EEC).

SSSI

Site of Special Scientific Interest—this designation is determined by Natural England and placed on areas of very high conservation value.

Sub-compartments

Areas of forest comprising a more or less homogeneous crop in terms of age, species composition and condition. Their boundaries may change as the forest develops after felling and restocking.

Strategic Plan

Serves as a guide to the management of woodlands within South East England Forest District. It divides the district into zones for the purpose of management and ensures that forestry activities reflect the local ecological, social and cultural individuality of woodland. Strategic objectives for each zone are presented within the context of the Government's strategic priorities for forestry in England (e.g. forestry for rural development; forestry for economic regeneration; forestry for recreation, access and tourism and forestry for the environment and conservation).

Succession

Applied to the natural sequence of species change on a site over time, or more simply, the following on of one thing after another. So successional open space is the open space and the plants associated with it, that persist for a short time after felling of trees.

Thinning

The removal of a proportion of the trees in a sub-compartment to improve the quality of the remaining trees, accelerate individual tree growth and provide income.

UK Biodiversity Action Plan

The UK government response to the Convention on Biological Diversity at Rio de Janeiro: includes actions to safeguard key habitats and species.

UK Forestry Standard

The Government's criteria and standards for the sustainable management of forests in the UK.

UK Woodland Assurance Scheme (UKWAS)

A voluntary scheme for the independent assessment of forest management in the UK. The Scheme has been developed by a partnership of forestry and environmental organisations in response to the growing consumer demand for timber products from sustainably managed forests. It has been designed to ensure that it reflects the requirements of both the Government's UK Forestry Standard - and through this the guidelines adopted by European Forestry Ministers at Helsinki in 1993 - and the Forest Stewardship Council's (FSC's) GB Standard.

Uniform Shelterwood System

A management system that allows young crops to become established under the overhead shelter of existing crops. The existing tree crop is evenly and gradually removed over time in successive regeneration fellings to bring about natural regeneration on the ground beneath.

Veteran tree

A tree that is of interest biologically, aesthetically or culturally because of its age, or a tree that is in the ancient stage of its life, or a tree that is old relative to others of the same species.

Windthrow (or sometimes windblow)

Uprooting or breakage of trees caused by strong winds.

11. Management Prescriptions

(Ref: Management Map)

Clearfelling

This is the main form of timber harvesting in British forests. All the trees are felled across the site or 'coupe' with the timber part of the tree extracted to the forest road where it is taken away by lorry. The smaller branches and tops are left on site where they may be chipped, mulched or raked in to rows so that enough bare ground is available to plant the next rotation of young trees. The creation of the bare planting ground is an important part of the management of the Breckland Forest SPA/SSSI, as it is this bare ground that is the nesting habitat for Woodlark and Nightjar.

Thinning

This is an important part of the management of forests as nearly all the trees planted in the forest will require thinning at some point. Thinning performs three separate functions; removing small, dying or diseased trees; providing space for the dominant trees to continue growing; provide a small economic return in advance of clearfelling.

Continuous Cover Forestry (CCF)

This is a general term for the management of trees without clearfelling them all. There are a number of CCF silvicultural systems but all of them are based on thinning the crop on a regular cycle and removing a proportion of the trees thereby making space for seeds to germinate and new saplings to grow and fill the resulting space.

CCF is often used in areas of high public access to maintain the visual impact of large mature trees as these trees are maintained for their aesthetic value. CCF is also used to manage most of the broadleaf crops in Thetford and all the mature conifer crops in areas of high conservation value as these trees often provide important nesting habitat e.g. Firecrest.

Open space

Temporary open space follows felling when coupes are prepared for planting or to encourage natural regeneration.

Permanent open space will be centred on conservation sites and the heritage sites—see 5.5 Open Habitats.

Minimum Intervention

These two management types are similar in that they are areas where natural processes are left to progress unhindered unless there are tree safety issues e.g. a tree has died adjacent to a footpath and creates a hazard to the public.

12. Tolerance Table

	Adjustment to felling coupe boundaries	Timing of Restocking	Changes to species	Windthrow & DNB clearance
FC Approval normally not required	0.5 ha or 5% of coupe	Up to 3 planting seasons after felling	Change within species group e.g. conifers; broadleaves	Up to 2ha
Approval by exchange of letters and map	0.5ha to 2ha or 10% of coupe	Up to 4 planting seasons after felling	Change from other conifers to Corsican Pine	> 2ha to 10ha
Approval by formal plan amendment	> 2ha or >10% of coupe	Over 4 planting seasons after felling	Change from broadleaves to conifers	> 10a