

# Hole Farm Woodland

Final Design Consultation



## Project Context

Since 2017, Forestry England and National Highways have worked together to explore the creation of a new forest in the proposed Lower Thames Crossing area.

The shared vision for this partnership between organisations is to “deliver a legacy of inspirational multi-purpose forest creation projects that will enhance and integrate the Lower Thames Crossing landscape for the environment and wellbeing”.

Hole Farm (Great Warley, Brentwood) is the site where the new 95ha community woodland is proposed. This will form part of the Thames Chase Community Forest and it will be managed by Forestry England (on a long-term lease arrangement) for wildlife, people, and the climate.

The vision at Hole Farm is to create a resilient, multi-purpose woodland which embraces the ‘Lawton principles’ (see page 11) of bigger, better, and more connected to provide thriving habitats for a wide range of species, whilst facilitating informal recreational access in a woodland environment for people on foot, cycle, and horse.

**Delivering benefits to people,  
wildlife, and the climate**

## Project Objectives

The objectives of the project are to deliver benefits for wildlife, people, the climate, and sustainability.

### For Wildlife

Hole Farm will be a place where wildlife can thrive through the creation and management of a diverse forest habitat, formed from a mosaic of mixed species woodlands, open grassland glades, wet areas and ponds.

### For the Climate

At Hole Farm we will create a forest which is resilient to climate change, produces sustainable timber and absorbs carbon emissions. The trees, vegetation, soils and freshwater environments of forests play a critical role in absorbing and storing green-house gas emissions and new forests, like Hole Farm, are needed to tackle the climate crisis.

The proposed composition and structure of the forest is guided by forestry professionals and the latest research to ensure that the tree and shrub species selected are compatible with the soils and both current and future climates (see page 7 for information on species choice).

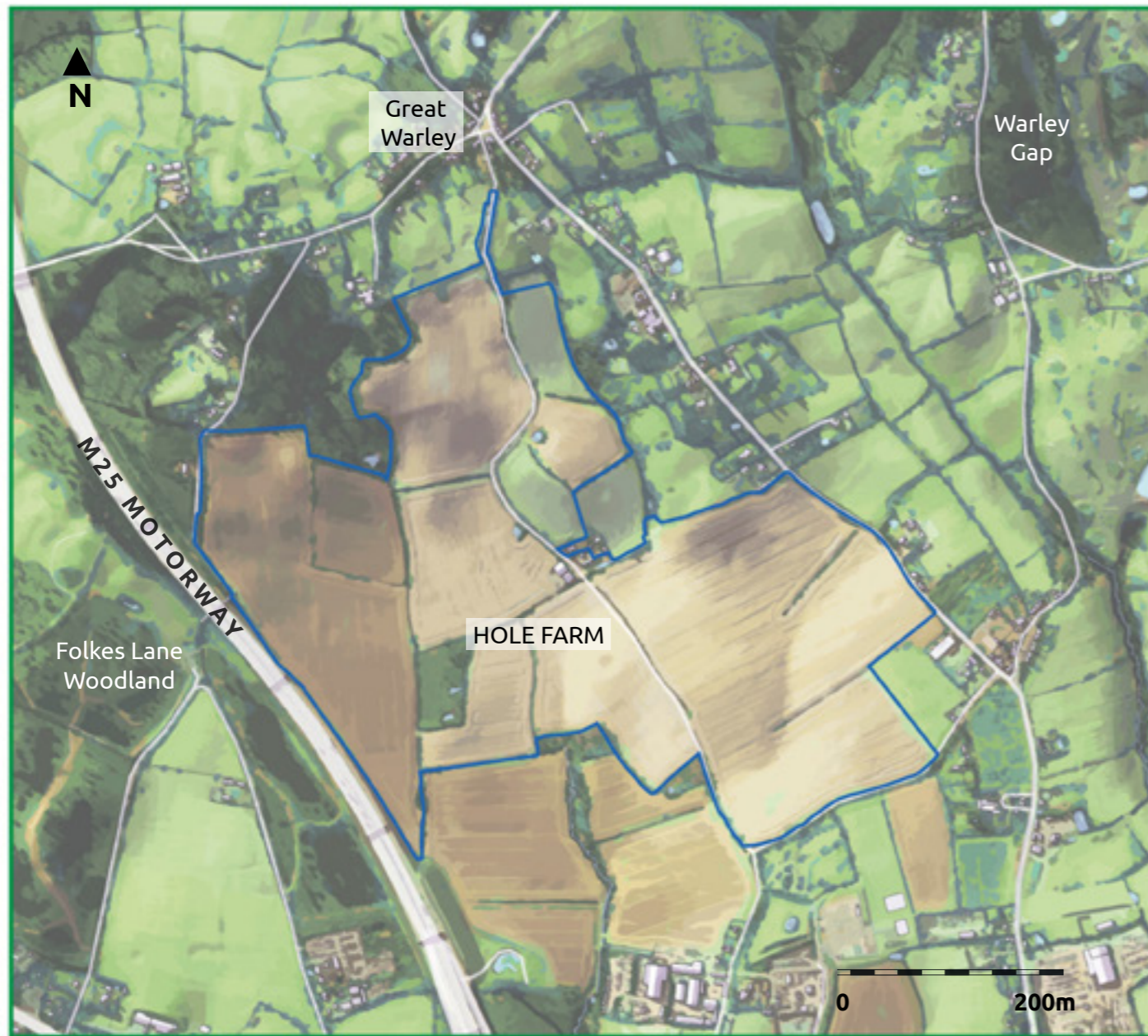
### For People

Hole Farm will be a forest for people, providing opportunities to connect with nature and improve health and wellbeing. Forests provide a true sense of wilderness and a deep peaceful connection with nature; they invite us to explore, play and seek new adventures.

### Sustainability

Environmental and financial sustainability underpins the vision for Hole Farm. We want to ensure that what is delivered now has a lasting legacy which can be sustained for current and future generations. To help ensure a lasting legacy, Hole Farm will be managed by Forestry England on behalf of the nation and Hole Farm will form part of the Thames Chase Community Forest.

Financial sustainability will be achieved through income generation commensurate with the cost of woodland management, facility and activity provision. This may come in the form of timber, chargeable parking, a refreshment concession, activity and event fees, rents and funding.



## Site Location

Hole Farm is an easily accessible site, lying to the east of the M25, close to Junction 29, and to the west of the B186, in a semi-rural environment.

Being close to both the M25 and A12, Hole Farm provides excellent access to central London, other parts of East Anglia and the Home Counties.

The site is open access for all users on foot. Hole Farm can be reached via public transport from Brentwood, Essex (nearest urban centre), there is a train running from Central London that connects to Brentwood. As part of this project, a car park is proposed to be developed which will provide for those travelling from further afield or requiring the use of their private vehicle.

# Stakeholder Consultation

During project development Forestry England has invited ideas and welcomed feedback from local stakeholders on the Hole Farm proposals.

The consultation approach drew on the second edition of 'Involving People in Forestry: A toolbox', which was created by Forest Research and provides background, guidance, and tools to involve people in woodland creation and forestry.

## Our aims for local consultation:

- Focus on urban forestry given the location and context of Hole Farm.
- Be engaging to make forestry more relevant to the lives of local people.
- Be targeted to ensure wide range of views reflected in Hole Farm as an important part of the legacy of the Lower Thames Crossing.
- Be participatory.
- Help build relationships between National Highways, Forestry England, and stakeholders to inform development and direction beyond Hole Farm project completion.

## Examples of consultation tools and approaches used:

- Stakeholder mapping session.
- Temperature check questionnaire (Image A) – this was sent out to 7,000 households.
- 4 Stakeholder engagement workshops.
- 2 Drop-in days (Image B).
- Consultation workshops with the Great Warley Conservation Society
- Ongoing consultation with Local Authorities and technical consultees



A



B

## Consultation Response

**Themes** – this section lists some of the key messages received through the stakeholder engagement process.

### Community Facilities

- Consider accessibility for those with disabilities.
- Address the issue of adverse community use and potential anti-social behaviour.
- Create provisions for sensory woodland experiences.
- Hole Farm education offerings should be aimed at all levels of education and development.
- Non academic skills should be promoted through learning with opportunities to engage with local education institutions and community organisations in the future.

### Community Engagement

- Stakeholders suggested a range of community, charity, and business groups which operate locally that may be interested in engagement around the proposals and future operations.

### Connectivity

- The project should consider the connectivity of the site to surrounding woodlands, paths, and communities.
- Active travel to be considered and promoted within the design to account for alternative access to vehicles.
- Address concerns around traffic generation, the location of access, and cumulative additional built infrastructure in the area.

### Landscape and Biodiversity

- Increasing interest to see open space used for habitats such as wildflower meadows to increase biodiversity.
- Widened rides desirable to allow light into the forest floor and trails, and to improve horse rider experience.



# Design Principles

Forestry England follow the best practice and guidance set out by UK Forestry Standard (UKFS). This includes the consideration for landscape character, visual effects and historic landscape character.

Whilst Hole Farm is not a protected or designed landscape, efforts have been made to ensure that the proposed planting mixes and design of the woodland would be visually consistent and in character with the adjoining areas of woodland and the predominantly wooded ridge to the north. The planting design with its mosaic of open habitat and tree planting has been informed by the existing and historic field boundaries and landform. Existing hedgerows will be either retained as features, or allowed to naturally regenerate into shrubby wildlife corridors, allowing for these features to be traced and understood into the future.

2022

1895

OS Six Inch - Essex LXVII Revised 1895, Published 1898 - Reproduced with the permission of the National Library of Scotland

# Design Principles

Desktop study and site surveys informed analysis of the opportunities and constraints (image a) for the project.

Opportunities identified include:

- Provision of improved recreation access within the site and connections to the wider network of public rights of way and other Thames Chase sites.
- Pond creation/watercourse restoration for enhanced biodiversity & water quality.
- Reduction of noise and visual influence of the motorway and industrial activity.
- Hedgerow restoration/enhancement for improved biodiversity and habitat connectivity.
- Enhancement of long distance open views across and within the site boundary.

Key constraints include:

- Existing rights of access for vehicles accessing Hole Farm.
- Utilities wayleaves.
- Setting of listed buildings.

Areas of tree planting will feature graded edges of diverse shrub planting (as shown in image b) to create wildlife habitat. We will also manage paths, rides and clearings to create sinuous margins with ecologically rich, native shrub species. These will form a network of habitat corridors that encourage wildlife.



Tree Planting

Shrub planting





















Recreation route



a

b

Key

-  Site Boundary
-  Visitor Facilities
-  Car park
-  Existing Access Point
-  Public Right of Way
-  Proposed Access Point
-  All Abilities Access Trail
-  Multi user track
-  Unsurfaced Route
-  Existing Trees/shrubs
-  Natural Regeneration
-  Tree Planting
-  Wet Woodland
-  Feature Tree Planting
-  Shrub
-  Meadow
-  Open Space
-  Existing Wet Area/Pond
-  Proposed Pond
-  Key view point



# Woodland Creation Plan

## Visualisations

The planting design has been developed to enhance and contribute to the quality of the landscape. Between the areas of trees and shrubs will be a mosaic of open spaces. Habitats managed for the benefit of wildlife, connected by surfaced paths and grass rides designed to form a network of varied recreation routes for visitors.

### Winter 2022



### Winter 2047



### Summer 2022



### Summer 2047

The artist's impressions suggest how the open character of the site will change slowly over a long period of time from arable farmland to established broadleaved woodland

Our proposals will extend access around the site enabling visitors to discover new vantage points. The tree and shrub planting will add visual diversity and diminish the influence of the motorway. The mosaic of open spaces include areas of meadow and the provision for longer distance views.

**Summer 2022**



Above: View from publicly inaccessible arable farmland at Hole Farm south toward Thames Estuary and the Kent Downs

**Summer 2032**



Above: Artist's impression of view from proposed surfaced path south toward Thames Estuary and the Kent Downs

## Tree & Shrub Species

### Our Planting Plan

Approximately 150,000 trees are anticipated to be planted over the establishment period for Hole Farm. Our woodland creation proposals and management techniques are based on internal expertise, surveys carried out, and advice from Forest Research. Tree and shrub species have been carefully selected for the site suitability, resilience and compatibility. The woodland will be predominantly mixed broadleaves, dominated by oak, with alder and willow in the lower lying wetter areas. Having a range of tree species in different mixtures, will create a diverse range of habitats to benefit biodiversity.

Shrub boundaries will be planted around the outside of the tree compartments (see image b, page 6). These shrub edges can act as biodiversity corridors across the site for a range of species. The species chosen for the shrub edges are mostly berry producing, this will benefit the local bird populations.

An orchard area will benefit pollinating insects. The species are chosen to have available pollinating trees throughout the summer.

Planting resilient woodlands

### Improving Ecological Resilience

We need to plant a forest resilient to future climate changes. Substantial evidence suggests that improved biodiversity and improved ecosystem services, such as carbon capture and flood mitigation, go hand in hand. Increased diversity improves an ecosystem's resistance to disturbances, such as pests and background climatic change.

To develop ecological resilience, tree species to be included will be of known provenance, disease free and resilient to disease and climate change. A variety of species will be included to strengthen the resilience of the forest, this include some non-native trees.

All trees will be grown in the UK, some may be locally sourced, for example Black Poplar may be sourced from the Thames Chase Trust's community tree nursery.

At Hole Farm we are encouraging natural regeneration of native tree and shrub species, by setting aside sites specifically for this purpose, to promote natural selection and climate change adaptation, and conserve distinctive genetic patterns – especially in and around semi-natural woodlands.

# Managing for Biodiversity

The planning process for Hole Farm has considered two key context factors:

1. Climate change – By creating a resilient woodland and habitats which will thrive now and be able to survive predicted changes in the future climate.
2. Biodiversity loss - By creating a woodland and habitats designed to support local resilient species, while enabling other species to move through the landscape in response to climate change.

## Biodiversity baseline

A series of surveys and reports have been commissioned and carried out at Hole Farm. These have established the current ecological baseline for biodiversity across the site and include:

1. A Preliminary Ecological Assessment – A habitat, species and conservation feature survey of the site and a “desktop” survey of the local area that includes habitats and designated sites and species records.
2. Breeding and wintering bird surveys.
3. Great crested newt, badger and dormouse surveys.

These surveys and reports identify that the arable fields are of low ecological value, while the boundary features such as hedges, trees and the existing woodland and ponds are of moderate to high ecological value. 25 species of bird were confirmed as breeding at Hole Farm, although skylark, song thrush, linnet and meadow pipit were also recorded during the breeding season. Badgers are the only protected species recorded at Hole Farm, along with the small heath butterfly.

We will protect these species and the boundary, woodland and pond habitats of the site. Other rare and declining species of birds, mammals and reptiles have also been recorded nearby.

## Creating a site for biodiversity

To guide our thinking for wildlife we are following the principles of ‘Better, Connected, Bigger and More’, outlined in the Making Space for Nature report. ‘Better’ means creating a very diverse range of habitats and micro-habitats. ‘Connected’ means ensuring these habitats are within easy travelling distance for wildlife and that they work at many different scales, within and between sites: a stepping-stone network for wildlife across the local area.

By creating a variety of habitats, in a connected way, for the locally rare and declining

species; turtle dove, water vole, dormouse, adder and bats, we can not only promote their conservation, but use them as ‘umbrella’ species to provide opportunities for a much greater diversity of species found in the Essex landscape.

The new habitats to be created will be:

- Diverse oak woods with shrub belts and edges. The wide range of shrub species will work for wildlife in the same way the hedges have done, but in a much-improved way and should provide dense cover, pollen, nectar, and fruits throughout the seasons for dormouse and a wide variety of moths and other insects.
- A significant extent of flower-rich open grassland will be created through the woodland areas providing seeds for turtle doves and supporting a pollinator community.
- A wetland complex will provide opportunities for water voles and also dragonflies.

Many species such as reptiles and bats use different habitats at different times and by enriching Hole Farm with a wide range of planted species and diverse habitat structures, whilst ensuring they are connected, we will create the greatest opportunity for wildlife to move in and thrive, move around the site and also move into the wider landscape.

### The Lawton Principles

Our vision at Hole Farm is to create a resilient, multi-purpose woodland which embraces the Lawton principles of bigger, better, and more joined up to provide thriving habitats for a wide range of species, whilst facilitating informal recreational access for people on foot, cycle, and horse. The Lawton Principles are summarised below:

**Bigger** - Increasing the size of existing areas. Simply increasing local habitat availability, creates more space for more nature making it more resilient in the face of climate change.

**Better**- This is explained as making sites more complex. Niches = Species = More Niches = More Species. A more complex site will be able to accommodate a wider range of species, that allow local populations to expand, but also allow species to permeate through the site and beyond as their geographical and niche range shifts in response to climate change.

**Joined Up** - Linking habitats and creating niches that are within the dispersal range of different species, increases the ability of nature to move through the landscape and colonise new spaces in response to environmental changes, again such as climate.

**More** - Increasing the number of sites for nature will increase their population size and distribution making them more resilient to environmental change.

# Biodiversity Net Gain

Biodiversity net gain is an overall increase in habitat area and/or quality following a new development. This is a useful measure as it factors environmental externalities (e.g. habitat loss/gain) into development decisions which can lead to gains and improvements in habitats, biodiversity, and other environmental goals.

To help measure biodiversity net gain and ensure the proposed woodland creation development at Hole Farm is “nature positive”, the Biodiversity Metric 3.0 was used. This tool was developed by Natural England and provides a way of measuring and accounting for nature losses and gains resulting from development or changes in land management.

Results from the tool are outlined in the table (Right). The biodiversity units for the on-site baseline data represent the existing arable farmland whereas the on-site post-intervention data represents the proposed woodland creation.

The on-site net % change demonstrates that for all three categories, there is a positive percentage change and thus indicates the delivery of biodiversity ‘net gain’ for the proposed woodland.



## Headline Results

On-site baseline	Habitat units	247.14
	Hedgerow unit	27.54
	River units	8.32
On-site post-intervention (Including habitat retention, creation, and enhancement)	Habitat units	464.59
	Hedgerow unit	29.49
	River units	13.16
Total net unit change	Habitat units	217.45
	Hedgerow unit	1.94
	River units	4.84
On-site net % change (Including habitat retention, creation, and enhancement)	Habitat units	87.98
	Hedgerow unit	7.05
	River units	58.10

# Natural Capital

Forestry England manage the nation's forests to provide benefits for people, nature and the economy. These benefits include spaces for people to enjoy and to exercise, vital habitats for wildlife, a source of sustainable timber and a means of capturing carbon to help mitigate climate change. These are also known as ecosystem services and it's important we get the balance right.

From the soils to the trees, and all the species who live in them, the whole forest ecosystem is a resource known as 'natural capital'. We use a natural capital approach to help us understand the value to society of the various benefits that come from the nation's forests.

Our aim is to increase the value of the benefits (or 'ecosystem services') that the nation's forests provide, whilst ensuring they are kept in the best condition. We do this through the expertise of our staff and support of partners, and by using scientific evidence and tools so that every decision we make is sustainable for the long term. This is our natural capital approach.



## Natural Capital Assessment:

Forestry England have used a Natural Capital Assessment tool to quantify the different public benefits that will be delivered through the proposed woodland creation design plan compared to those that are currently delivered through the existing arable site at Hole Farm.

To do this, a decision-support tool was used which was developed specifically for the purpose of comparing alternative forest design options for Forestry England.

The tool quantifies a range of ecosystem service values using inputs, including habitat type and area, predicted tree growth rates, volunteer hours generated, and financial costs and revenue.

Inputs were provided by Forestry England for the proposed design (see Woodland Design Plan on page 7).

The values created through this tool are a total asset value and a net present value. The ecosystem services included in the tool are:

- Timber
- Climate regulation
- Recreation
- Food
- Community
- Other financial costs and revenue

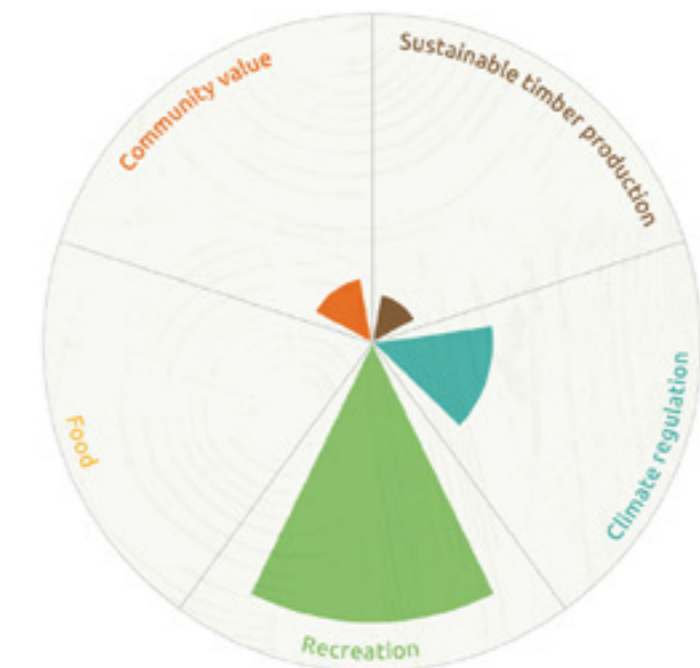
## Outcome:

The woodland design delivers significant increases in natural capital value compared to the baseline (the current arable farmland), from an estimated £2,758,000 to £13,437,000.

The higher natural capital is mostly due to greater recreation and climate regulation values.

The polar graphs on the right show the change in natural capital for each ecosystem service between the baseline (the existing arable farmland) and the proposed woodland design.

Baseline (Arable Farm)



Woodland Creation (proposed Design)

# Visitor Facilities

A range of visitor facilities to support different interests and needs are proposed for Hole Farm including:

- Our Forestry England sites feature **signage** and interpretation boards (image **f**) to help you navigate the forest and get the most out of your visit. At Hole Farm our signs will help you orientate yourself within the community woodland and also provide information about connectivity to nearby green spaces.
- There are plans to develop different types of trails, such as **well-being and nature trails**. Image **g** shows an explore sign which is from our wellbeing trail at Thames Chase which gives a focal point to stop and think about the forest and tune in to your surroundings.
- **All abilities surfaced path** - the landscape design plan proposes the construction of a multi-purpose trail which will be accessible for wheelchairs, pushchairs, and those with additional mobility requirements, as shown in image **h**.
- **Multi-user trails** are proposed to encourage responsible use by a variety of users, for example these will be open to dog walkers, cyclists and horse riders, such as the trail in image **i**.
- There are plans to develop a **community tree nursery** at Hole Farm. Image **a** shows our community tree nursery at Thames Chase Forest Centre which is run by the Thames Chase Trust. This existing nursery supplies local green spaces with saplings and provides an education resource for the local community.
- A **community orchard** with a variety of fruit trees is proposed for Hole Farm. Image **b** shows an established community orchard at Jeskyns Community Woodland in Kent, which is managed by Forestry England.
- **Forest furniture** – benches and picnic tables will be provided across the site, as shown in image **c**. This include accessible infrastructure to suit a range of requirements.
- A **100-space car park** is proposed to enable visitors with different requirements to access the woodland, similar to image **d**.
- We hope to create a **'grab-and-go' café** unit on site to provide visitors with refreshments. Image **e** provides a visual example of how this could look.





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