

BONHAM FARM WOODLAND CREATION DESIGN PLAN

This Plan was produced by Andy Poore, Nick Hoare and David Pengelly of the Stourhead (Western) Estate.

Version control

Version number	Date	Reason for revision
Draft 1	24 th May 2019	
Draft 2	19 th July 2019	FC Comments

Site Details

WCPG reference number	WCPG 03 18 19
Grid Reference	ST 774331
Project Area (ha)	88.1
Gross Area of New Woodland (ha)	87.1
Owner Name	Nick Hoare
Agent Name	Andy Poore

Brief Description of the Site, its Characteristics and Current Land Use

An area of flat ground currently largely under arable cultivation to the east of a belt of woodland forming the eastern edge of the Stourhead (Western) Estate woodlands and the eastern side of the Stourhead Estate owned by the National Trust.

The Stourhead (Western) woodland comprises a part of a wider area of diverse, conifer-dominated woodland which forms the backdrop to Stourhead Gardens and the wider historic landscape.

Bonham Manor and Bonham Farmstead are situated adjacent to the North-west of the site. The eastern part of the site was formerly part of a temporary 2nd World War airfield and the concrete perimeter road of the airfield survives as an access route running north-south through the site.

There are two small areas of mixed conifer/ broadleaved woodland within and on the eastern edge of the site.

See Map 1 Site Context Plan.

Objectives

Table 1. OBJECTIVES

<i>Resource</i>	<i>Objective</i>
Timber	To increase the softwood resource within the woodland estate.
Water Quality	To improve the water quality of the upper Stour Headwaters catchment
Carbon Sequestration	To sequester a significant amount of carbon and reduce emissions associated with the current land-use
Landscape	To integrate the woodland into the wider landscape, including taking account of the impact on the Stourhead Registered Park & Garden
Archaeology and the Historic Environment	To avoid any significant impact on the historic landscape
Biodiversity	To avoid any significant impact on designated sites and to take opportunities to protect and enhance current biodiversity features

Survey

Identifying the survey requirements of a site has been completed at Stage 1 of the WCPG process. The information table in Annex 1 of this document identifies the types of information that require consideration when designing woodland and where this information can be obtained. Table 2 sets out the features that are present on site (including those identified at Stage 1) and any associated survey requirements.

Table 2. SURVEY REQUIREMENTS

<i>Information Class</i>	<i>Information type required/ features present</i>	<i>Survey Requirements</i>
Biodiversity	<u>Priority Habitats</u>	Magic Map
	<u>Priority Species</u>	Magic Map/ NE
	<u>Woodland Bird Assemblage</u>	Magic Map
	<u>Other Designations</u>	Magic Map
	<u>Other Biodiversity Features</u>	Field Survey
	<u>Adjacent SNC</u>	Wiltshire Wildlife Trust

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<p>Landscape</p>	<p><i>Context & Designations</i></p> <p>Cranborne & West Wiltshire Downs AONB: the whole of the Project Area is within the AONB.</p> <p>NCA 133: Blackmore Vale & Vale of Wardour</p> <p>Salisbury District Landscape Character Assessment: Landscape Character Area G1: Kilmington Greensand Terrace. Western boundary of Project Area is boundary of LCA G1 with LCA H1: Longleat to Stourhead Greensand Hills</p> <p>Stourhead Registered Park and Garden</p> <p>Stourhead (Western) Estate Heritage Landscape Management Plan: the Project Area lies outside the Heritage Area.</p> <p><i>Potential Landscape Issues</i></p> <p><u>Impact on the setting of Stourhead RPG:</u></p> <p><u>Change of Landscape Character</u></p>	<p>SDLCA</p> <p>Magic Map</p> <p>n/a</p> <p>Photographic survey/ Assessment by Historic Landscape Specialist</p> <p>Photographic Survey</p> <p>Photographic survey</p>
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	<p><u>General Visual Impact</u></p> <ul style="list-style-type: none"> - potential impact from Stourhead NT Over-flow car park - impact limited to minor road to the east (Zeals to Stourton) and ROW running through the Project Area - potential impact on PROWs in the south of the Project Area of views to the East: best views are from a PROW running alongside the eastern boundary of the Project Area and these will be unaffected by the Proposal. 	Photographic survey
Historic Environment	<p><u>Stourhead Historic Park & Garden Grade 1</u>: borders the north-west boundary of the Project Area (see Map 3):</p> <p>.</p> <p><u>Unscheduled monuments</u></p> <p><u>2nd WW Airfield</u>: the eastern half of the Project Area was used for a short time as an airfield during the 2nd WW. The perimeter road is</p>	<p>Assessment by Historic Landscape Specialist: S. Bonvoisin MA MSc MICFor, Nicholas Pearson Partnership</p> <p>Methodology</p> <p>The survey will be based on a single, partial rapid site walkover, and a rapid review of readily available on-line information. This appraisal will not be informed by access to the National Trust's Conservation Management Plan or other studies; new primary research; or extensive site surveys and investigations.</p> <p>Historic Environment Record: Wiltshire CC Assistant County Archaeologist</p> <p>Field & Photographic Survey</p>

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	<p>the only surviving feature within the Project Area and this will be preserved within the Proposal (see Map 3). The site is not a Registered Battlefield.</p> <p><u>Historic Boundaries</u></p>	OS 1 st Ed 25"-1 mile 1890s
Water	<p><u>Context</u> -Stour Dorset Catchment : SW portion: Stourhead Headwaters. Rest Shreen Water</p> <p><u>Water Quality</u> - SW portion : within CS Water Quality High Priority area. Rest: within CS Water Quality Low Priority area.</p> <p>- Lies within the Low Water Availability Zone. EA did not raise this issue in their initial response.</p> <p>There are no nearby water-dependant SSSIs etc.</p>	Environment Agency
Site & Silviculture	<p><u>The site</u> is almost wholly in arable cultivation at present. The soil derives from the underlying Upper Greensand but has been altered, particularly with regard to PH status.</p>	<p>Geological Map</p> <p>Soil Pits plus Soil PH testing</p>
Other	<p>An Environmental Stewardship/ Entry Level Agreement covers the land at present.</p>	n/a

Table 3. SUMMARY OF SURVEY RESULTS

Biodiversity

Priority Habitats

A small amount of Priority Deciduous Woodland lies in the middle of the Project Area and some Priority Woodland exists along the western and southern boundaries (see Maps 1 & 6).

Priority Species

Corn Bunting: the north-east corner of the Project Area is included in this Priority Species Map but the site is outside the main CS-targeted area for this species.

Tree Sparrow: the Project Area is included in this Priority Species Map. The species prefers woodland edges and hedgerows.

Woodland Bird Assemblage

This map layer, which incorporates areas associated with one or more of 9 Woodland Priority Bird species, covers areas to the west and north of the Project Area.

Other Designations

With regard to *Bonham Hanging County Wildlife Site*, adjacent to the western edge of the Project Area, the Ancient Woodland Inventory is inaccurate and an Estate map shows that the area was farmland in the 19th century. This incorrect classification as Ancient Woodland resulted in the designation of the woodland as a County Wildlife Site (see Map 2).

Other Biodiversity Features

Two lengths of older hedges have been identified, one with hedgerow trees. One is associated with an old lane for part of its length (see Map 2 and Photos 1 to 3 showing the Old Lane).

Landscape and Visual

Photographic Survey (see Map 4 & Appendix 3)

- Project Area is not visible from RPG
- Proposal is complimentary to existing landscape setting

Change of Landscape Character

- the proposal effectively extends the boundary of the 'mixed woodland' LCA H1 (Longleat to Stourhead Greensand Hills) to the east.
- the current quality of landscape within G1 (Kilmington Greensand Terrace) is weak.

General Visual Impact

- potential impact from Stourhead NT Over-flow car park
- impact limited to minor road to the east (Zeals to Stourton) and ROW running through the Project Area
- potential impact on PROWs in the south of the Project Area of views to the East: best views are from a PROW running alongside the eastern boundary of the Project Area and these will be unaffected by the Proposal.

Impact on the setting of Stourhead RPG, Wider Historic Landscape & Landscape Character:

Statement by Simon Bonvoisin, Nicholas Pearson Partnership LLP:

Heritage Significance

The Stourhead Western Estate wish to expand their productive woodland areas into what is now open arable land south of Stourton, Wilts, and adjoining the south eastern boundary of the registered landscape. The designed and registered landscape is of the highest level of national designation, and also acts as the setting of, and curtilage to, a number of listed buildings and structures within the park and pleasure grounds, many of which are also listed grade I. The landscape was influential nationally and internationally, laid out in two main phases, from 1733 – c. 1780 by Henry Hoare II, with a particular focus of activity in the 1760s; and from 1791- c. 1838 by Richard Colt Hoare. Succeeding generations regenerated and expanded the plantings at intervals, repaired and reworked some of the structures, but the above phases are considered to be the most significant at this influential landscape.

The wider landscape setting to the proposed planting area also retains readily identifiable heritage significance:

- The existing estate plantations overlay the eroded Upper Greensand hills, historically part of Selwood Forest, the numerous small mottes recording a period of resistance or lawlessness in the 11th century, followed by (or in response to) forest law. Selwood appears to have been boundary land for many centuries, including the rallying place for Alfred's men of Wessex, before defeating the Danes. This is reflected in the survival of early defensive earthworks, smaller fields, and very small settlements as well as SSSI woodlands and unimproved pastures. The proposals will lead to some perceived extension to this landscape character, but no impact on the significance of this modified medieval landscape.*
- The proposed new planting is within the area of the Kilmington Greensand terrace, more gently undulating arable land. However, the sense of openness is exaggerated by the former wartime airfield use of the part of the planting site; the open character is limited in part by a small number of larch plantations which play a significant foreshortening role in the gently undulating topography. In addition, the 1817 Ordnance Survey Old Series shows other substantial ancient woodland blocks, including Broom Wood, Deveril Long Wood and a wooded section of Kilmington Common which further subdivided the openness of this area, and which have since been cleared. This information may lead to some reappraisal of the current Landscape Character Assessment. The proposals are therefore not considered to have deleterious impact on the heritage value of this landscape, other than some change in the wider setting to the listed building at Bonham, within the proposed planting area. While the significance of this building is not fully understood, the immediate garden curtilage, orchard to the east, paddocks to the west, farm buildings to the north, highway and hedged green lane to the south would remain*

undisturbed. The presumed historic open field system was enclosed prior to 1817, and the area altered again by airfield development, such that the sensitivity of the wider setting of Bonham is considered to be low.

- Thirdly, the Greensand terrace area is overlooked and bounded by the West Wiltshire Downs Chalk Scarp, crowned by scheduled prehistoric earthwork monuments. The Greensand terrace forms part of the setting to these monuments, but the proposals are at several kilometres distance, and separated from, for example, White Sheet Castle hillfort by the site of two historic woodlands, Broom Wood and Deveril Long Wood.*

For the reasons stated above, the potential impact on the wider historic landscape and heritage assets are not consider further.

Historic Environment

Stourhead Historic Park & Garden Grade 1: see above

Unscheduled Monuments

- the eastern half of the Project Area was used for a short time as an airfield during the 2nd WW. The perimeter road is the only surviving feature within the Project Area (see Map 3). The site is not a Registered Battlefield.

.- the eastern boundary of the Project Area is the eastern boundary of Stourton Manor and was, pre 1880, the County Boundary between Somerset and Wiltshire (see Map 3). The associated bank was levelled when the airfield was created.

Water	
<p><u>Context</u> -Stour Dorset Catchment : SW portion: Stourhead Headwaters. Rest Shreen Water</p> <p><u>Water Quality</u> - SW portion: within CS Water Quality High Priority area. Rest: within CS Water Quality Low Priority area.</p> <p>-Lies within the High Priority Surface water Nitrates and Sediment Issues Areas.</p> <p>- Lies within the Low Water Availability Zone. EA did not raise this issue in their initial response.</p> <p>- There are no nearby water-dependant SSSIs etc.</p>	<p>Initial response from EA (Alastair Maxwell, EA National Flood Management Co-ordinator) is that proposal has potential to improve water quality and afforestation in the headwaters of these catchments is an EA priority.</p>
Site & Silviculture	
<p><u>The site</u> is almost wholly in arable cultivation at present. The soil derives from the underlying Upper Greensand but has been subject to annual application of green compost, chicken manure and sawdust. There has been no liming within the last 20 years.</p> <p>20 Soil Pits were dug across the site (see Map 5). Soil type and structure was investigated and the surface horizon was tesetd with dilute hydrochloric acid to test for free calcium. A separate evaluation of soil PH was undertaken across the Project Area and within other wooded and non-arable areas on the same soil type/ topographical situation. Recent PH results were available from the current farmer of the arable.</p>	

Results

- The soil is very uniform, a calcareous brown earth with Eumull humus layer. There are no ironpans.
- There is no evidence of free lime in the upper parts of the soil.

- PH Results and Interpretation:

- Project Area/ arable
 - subject to applications of green compost, chicken manure sawdust etc every year.
 - no liming within last 20 years
 - Farmer's PH testing showed PH range 6.4-7.5.
 - Home Paddock arable: our measurement showed 7.0 compared with Farmer's 7.5. Same in ploughed horizon and below.
- Project Area/ other land-use
 - Bonham Horse Field: permanent pasture on light stony soil: 6.2
 - Bonham Strip: former arable reverted to grassland 10-15 years ago: 6.4
 - Plantation with semi-mature RC/NS by concrete road: 6.2
- Existing Stourhead (Western) Estate Woodland on similar soil/ topography, i.e top and top-edge of plateau.

<i>Wood</i>	<i>Existing Species</i>	<i>PH</i>
Jack's Castle	LA/DF	6.6
New Park Plateau	LA/DF	6.2
Park Hill (NT)	DF	6.2

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We conclude that the original PH of the soil is 6.2-6.6 and that this grows high YC DF. On the arable within the Project Area the addition of ammonia from the chicken manure etc has elevated PH by 0.5-1, partly depending on when in the year the PH is tested.

With regard to the longevity of the effect of added ammonia the following article suggests that the effect wears off within a year or so.

<https://www.researchgate.net/publication/248325757> The plant availability and DTPA extractability of trace metals in sludge-amended soils

- ESC4 categorises the site as moderately exposed. However, evaluation of the site and the existing forest estate to the west suggests that in fact the site is sheltered. The ESC Sheet generated reflects this and 3 versions have been produced for the current, Base-line Condition and from Medium-High option for 2050 and 2080. These are attached at Appendix 2. The interpretation of the PH data does not lead to any alteration of the ESC results.

Windiness: the site combined with species such as Douglas Fir are given a Wind Damage Risk Status of 1 (low risk) by Forest GALES 2.5.

Other

The ELS Agreement will end on the 31st March 2021, 6 months after the tenancy concludes on 31st September 2020.

Analysis

The Site Appraisal Plan identifies the key factors related to the Plan Objectives (see Map 6).

Constraints and Opportunities

Table 4. Constraints and opportunities

Topic	Constraint	Opportunity
Landscape	Project Area is flat and is not visible from Stourhead Historic Landscape.	Complete the landscape which currently frames the north, west and south of the Stourhead landscape. Improve landscape associated with former airport road in S of Project Area.
Water		Major opportunity to improve water quality in the head of the Stour Headwaters catchment.
Silviculture		Create area of highly productive woodland capable of transformation to an irregular structure in due course.
Carbon Sequestration		High productivity will also produce high levels of sequestration.
Biodiversity	Project Area has limited current biodiversity value.	Replacing intensive agricultural land with well-designed woodland will help to protect the botanical interest of the

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		<p>adjacent County Wildlife Site.</p> <p>Well-designed, functional open space provides an opportunity to improve the overall biodiversity value of the site, particularly with regard to woodland bird and invertebrate species.</p> <p>Safeguard older hedges and associated hedgerow trees.</p> <p>Increase the area of structurally and species diverse woodland.</p>
Archaeology and Historic Environment	Two existing historic features (2 nd WW airfield road & historic boundary)	
Public Access	Existing PROWs in W of Project Area	Well-designed open space will improve user experience. In particular a new permissive route along the pylon line in the north-west of the Project Area would provide a better alternative route to the existing PROW.
Electricity Lines	Line in NW of Project Area	See above

Synthesis – Concept Development

Table 5. Synthesis

Biodiversity

This section describes how the impact of woodland creation on any priority habitats or species has been considered, including mitigation actions adopted to avoid or reduce any adverse ecological impacts.

Tree Sparrow: the Project Area is included in this Priority Species Map layer. The species prefers woodland edges and hedgerows. The general proposal to increase woodland is beneficial and specific measures, such as the maintenance of existing rich hedgerows and the incorporation of unimproved grassland open space, will be incorporated in the proposal.

Woodland Bird Assemblage: this map layer, which incorporates areas associated with one or more of 9 Woodland Priority Bird species, covers areas to the west and north of the Project Area. These species benefit almost immediately from woodland creation.

Bonham Hanging County Wildlife Site: the site has a reasonably rich flora although it is not an Ancient Woodland Site as stated in the CWS data. This is being conserved through the irregular structure of the existing mixed species stand. The mixed coniferous/broadleaved nature of the woodland will be reflected in the adjacent parts of the new planting area.

Other Biodiversity Features: the older hedgerows and their associated trees will be safeguarded by the development of managed open ground

alongside them. Biodiversity will be enhanced by incorporating the planting of shrubs and the subsequent management of open areas to develop a diverse sward. Other hedges will be safeguarded by the retention of an adjacent 5-meter-wide unplanted strip (see Map 8).

Use of Native Trees Species:

Since increasing biodiversity per se is not a major objective of the project the proposal does not include a large proportion of native species. In addition, the site is not a good oak site from the timber production point of view and it is too exposed for significant amount of this species. We have, however, included a reasonable amount of broadleaved species, including birch as a nurse, carefully selected to cope with the site and the topography. Sycamore is also included as a major broadleaved species and this is a naturalised species in this area.

Landscape & Historic Landscape

Stourhead Historic Landscape

The RPG is contiguous to the NW corner of the Project Area. Here the RPG consists of a 19th broadleaved plantation on the site of an open field and the Nursery Plantation to the SE of the Temple of Apollo. Most of this stand has been replaced by a younger broadleaved stand. In this part of the Project Area a transition of broadleaved planting will be created between the coniferous stands and the RPG boundary.

Potential Impacts on the Grade I Registered Landscape

Statement by Simon Bonvoisin, Nicholas Pearson Partnership LLP:

"The planting proposals have no direct impact on the registered landscape, as no part of the proposals occur on the registered land. Neither are there identified designed, ornamental circulation links between the two areas, other than along the highway, and a public right of way from Bonham to the village church.

The potential for impacts upon designed views has been considered. The complex arrangement of interlinked views across the lake, seen from the inner lakeside circuit, were plotted by Piper in 1779, and did not reach the boundary of the registered landscape. The views out from the landscape are also plotted in views drawn and painted by C W Bampfylde in 1775, F M Piper in 1779, S H Grimm in 1790, W Gilpin in 1798, J M W Turner in 1797-1800, and many others. While a few of these views show open fields on a slope around and behind the Temple of Apollo (which are now well-wooded), the top of the slope is crested with mature trees, entirely screening views to the land, the proposed planting site, beyond.

There was, and remains still, an outer, upper circuit or Terrace Drive, .. forming a complete higher elevation circuit around the wider designed landscape. It was...designed to be ridden along the topographic ridge, from the house to the obelisk, overlooking Six Wells Bottom, to Alfred's Tower, the Convent, and returning across the hillside northeast of Top Lane Farm. One of Bampfylde's views shows riders following this route below Top Wood and, although there a fewer historic images of views from this outer circuit, even these elevated viewpoints would have had limited views of the proposed planting site due to the ridge-top trees, and now the denser woodland on the slope below, Bonham Hanging. From these elevated viewpoints, the greatest impact is likely to involve quite distant glimpses of maturing tall conifers over the tops of the foreground broadleaves, and the appearance of a denser belt of woodland on the upper slopes from within the registered landscape, where the new planting shades part of the south eastern boundary of the registered area. For the most part, the planting proposals retain open paddocks along the registered area boundary, or a buffer of broadleaved planting to avoid an abrupt change to conifer woodland. The impact of the proposed planting on views out from the designed landscape is considered, therefore, not to impact on the significance of the registered landscape. The change in perimeter shade levels as been ameliorated by the scheme design, and could even offer the opportunity to reduce the present density of planting around the Temple of Apollo, at odds with the original design intent.

It is therefore considered that the planting proposals do not generate material impacts upon the significance of the registered Stourhead landscape."

At a wider scale the Stourhead Historic Landscape is framed by a partial circle of mixed, conifer-dominated woodlands mostly now managed with a permanently-irregular structure (see Maps 4 & 6 and Photographs 23 & 24). The Proposal will complete this framework by filling in the

SE quadrant.

Change of Landscape Character

The Project Area lies on westernmost edge of the open LCA G1 (Kilmington Greensand Terrace) on the boundary with the 'mixed woodland' LCA H1 (Longleat to Stourhead Greensand Hills). The current quality of landscape within G1 is weak particularly within the Project Area.

The proposal effectively extends the boundary of the 'mixed woodland' LCA H1 to the east and replaces a landscape of weak character. From the minor road to the east the backdrop of coniferous-dominated woodland to west is brought forward in the view. The proposal, therefore, conforms with the unity and spirit of place.

Landscape Design Features

The main external views are plain views from the exterior particularly from the National Trust Car Park and the Minor Zeals to Stourton Road. These edges will either be pure broadleaves or mixed broadleaves and conifers to form a transition to the coniferous dominated stands beyond.

A significant view out from the Project Area is that from the southern half of the area looking east towards the downs. This view is visible from the footpath at its southern end where the double-hedge changes to a one-sided hedge on the western side (see Photographs 14 & 15 and Map 6). This view would be improved by planting to the east. However, the same view is replicated from the bridlepath which runs along the eastern boundary of the Project Area again with the hedge to the west (see Map 6) and in fact the framing of the view is better here since the foreground falls away.

Overall the Design fits the scale and landform of the landscape and conforms with the local pattern of enclosure.

Edges of wider sections of open ground will be planted with groups of broadleaves and shrubs to reduce the dominance of linear features associated with the main plan toing blocks.

Long term landscape diversity will be created by planting mixtures of species and by the development of permanently irregular structures. This will eventually replicate the landscape of the wider backdrop to the Stourhead Historic Landscape.

Other Aspects of the Historic Environment

Unscheduled monuments

There are no significant impacts on the unscheduled monuments recorded on the Wiltshire Heritage Environment Record within the Project Area (see Map 3). The response from WCC Assistant County Archaeologist is attached at Appendix 6.

The eastern half of the Project Area was used for a short time as an airfield during the 2nd WW. The perimeter road is the only surviving feature within the Project Area and this will be preserved within the Proposal (see Map 3). The site is not a Registered Battlefield.

Water

Improvement of water quality in the headwaters of the *Stourhead Headwaters* and *Shreen Water* catchments is a high priority for EA. The Project Area is also High Priority for Surface Water Nitrates and for Sediments Issues.

Planting in the Project Area will have a significant effect on buffering nutrients, increasing infiltration slowing water in the upper catchment during heavy rainfall events and replacing a land-use using high fertiliser and pesticide inputs. All of the Project Area is within the Countryside Stewardship Water Quality Priority area, mostly at the High Priority level.

Given the topography of the site there are no particular design issues relating to local planting densities or location of open space. Open space will be kept to a minimum to accommodate pylon lines and to safeguard old hedgerow features.

Acidification of surface water is not an issue within the Project area and there are no detrimental effects from the afforestation process itself.

Access

It is proposed to create a new permissive right of way along the pylon line in the north-west of the Project Area which will run through the strip of managed open space as an alternative route to the current public footpath. The line of the current public right of way will be left unplanted within the adjacent plantations (see Map 8).

Silviculture

The ESC results with regard to suitability and productivity are summarised below for the base-line and projections in 2050 and 2080 under the Medium-High option.

<i>Yield Class (cu m/ha/yr) by species and projection date: Very Suitable or Suitable species only</i>			
<i>Species</i>	<i>Base-line</i>	<i>2050 Med-High</i>	<i>2080 Med-High</i>
Douglas fir	26	23	13
Western red cedar	21	20	12
Coast redwood	23	23	15
Norway spruce	23	12	x
Western hemlock	17	8	x
Scots Pine	14	13	10
Macedonian Pine	14	13	11
Japanese Red Cedar	19	7	x
Silver Birch	9	5	x
Sycamore	12	10	4
Sweet Chestnut	12	12	8
Wild Cherry	12	10	5

WCPG Stage 2

Pedunculate oak	8	7	4
Wild Service Tree	8	8	6
Small-leaved lime	10	8	4
Beech	10	4	x
Sessile oak	8	6	3

It should be noted that larch spp and Rauli beech have been excluded from consideration due to their susceptibility to *Phytophthora ramorum*. Sweet chestnut is also susceptible when in mixture with larch and/or *rhododendron ponticum* but infection is rare elsewhere. Since almost all larch has been felled in the surrounding forest areas over the last 5 years the risk from *Phytophthora ramorum* has reduced. Given its favourable status on this site across the climate scenarios it will be included in the planting design but in mixture with other species.

Tulip tree has been recorded as both susceptible and resistant to *Phytophthora ramorum*.

The climate change projections suggest that Norway spruce, Japanese Red Cedar and beech should not be used extensively and birch may have a limited life as a main stand element as the stands develop.

Species Choice

This above suggests that the main coniferous species should be Douglas fir, western red cedar, coast redwood and Scots pine. Norway spruce will be used as an additional species in patches of heavier soil and then in mixture with western red cedar.

The most suitable and productive broadleaved species would be sycamore, sweet chestnut pedunculate oak, small-leaved lime, wild service tree and wild cherry with birch suitable in the short-run as a nurse. Beech should be used on a limited scale and in mixture.

Experimental species comprising a small proportion of the planting could include Japanese red cedar (*Cryptomeria japonica*) and Macedonian pine, included in the table above, Atlas cedar (*Cedrus atlantica*) and tulip tree (*Liriodendron tulipifera*), the latter having shown promise in recent enrichment plantings in Bonham Hanging Plantation.

Site Preparation & Weed Control

Ground cultivation will not be necessary but it would be advisable to allow one season's fallow before planting to allow the effect of additional ammonia to diminish.

It would be advisable to sow a slow growing grass sward during the one-year fallow period to control weed growth and to allow the use of residual grass herbicides during the afforestation process.

Protection

Given the Project Area's location on the eastern edge of the Estate it is proposed to protect the larger blocks with a deer and rabbit/hare fence and for the other smaller broadleaved-only blocks to be protected by tubes.

Open Ground

There are a number of categories of Open Ground within the Proposal:

- A. Strips associated with major hedgerow features, including roadside hedges
 - open ground will comprise a 10-meter wide strip with part of the area planted with groups of native shrubs (hazel, field maple, crab apple and spindle).
 - in S/cpts 901c, 901e and 902g (associated with Bonham Manor) this will allow a graduated edge of open ground and shrubs against the main planting.
 - grassland areas will be subject to differential annual swiping.

- B. Area under pylons
 - this area (S/Cpt 902e) will comprise open grassland with clumps of 'lower-height' shrubs (hazel, spindle, wayfaring tree, dogwood) along the margins against the main plantings.
 - grassland areas will be subject to differential annual swiping.

- this will incorporate a new permissive footpath.

C. Strips associated with lesser hedgerow features

- these will comprise 5 meter-wide unplanted strips to preserve the hedge and to allow access for hedge maintenance.

D. Concrete road associated with 2nd WW airfield

- these areas will retained in its exiting state

The location of these elements is shown on Map 8 and further illustrated on Maps 7a, b and c.

Carbon Sequestration

Planting high yielding species in the Project Area will sequester large amounts of carbon and replace a land-use which produces high emissions.

ES ELS Agreement

It is anticipated that at the end of the Tenancy in October 2020, the Project Area will be removed from the Agreement allowing a Countryside Stewardship Woodland Creation Grant application to be made.

The above concept is summarised on Map 7a, the Overall Design Concept Plan and Maps 7b and 7c which show an enlarged view of the areas containing managed open space enhanced by scattered shrub planting.

Stakeholder Interest

All stakeholder consultation communication from this stage and the survey stage must be attached to this plan as an appendix (recommended format is Appendix 4a, 4b, 4c, for example, where each sub appendix relates to the entire consultation procedure with an individual stakeholder).

Table 6. Stakeholder responses

Organisation/ individual	Date contacted	Response	Mitigation agreed / action required	App. No.
Cranborne Chase & West Wiltshire Downs AONB/ Linda Nunn				
National Trust/ Alan Power				
Environment Agency/ Kim Gooneskera				
Historic England/ Jo McAllister-Hewlings				
Wiltshire Wildlife Trust/Heather Dixon				
Wiltshire County Council/Planning Dept				
Wiltshire County				

WCPG Stage 2

Council/ Martin Brown Assistant County Archaeologist				
Stourton & Gasper Parish Council/ Catherine Spencer				
Local Resident/ Mr Eric Ruane Bonham Manor BA12 6PX				
Local Resident/ Mr Charlie Bigham Stourton House BA12 6QF				

Final Woodland Creation Design Plan

The final stakeholder responses should feed in to a **Final Woodland Creation Design Plan**. The final Design Plan will show the selected design option for the woodland including

The Planting Design is based on the establishment of a productive mixed conifer stand which can be transformed into irregular structures in due course. The main species will be Douglas fir and western red cedar [with Norway spruce](#) and coast redwood as secondary species. Norway spruce will be used in mixture with western red cedar in patches of heavier ground. An admixture of birch will serve as an initial nurse to speed up the occupation of the site and to allow some site improvement in nutrient-impooverished areas.

Along the eastern boundary a mixed conifer-broadleaved stand will be established with Douglas fir mixed with Scots pine, sycamore and sweet chestnut as a transition to the pure conifer stand behind. Scots pine will be located in discrete groups. Atlas cedar will be added as a minor species in this area. Adjacent to Bonham Hanging South a similar transitional stand will be established but with Tulip tree as a minor species established in groups rather than Atlas cedar.

Adjacent to Bonham Hanging North a transitional broadleaved stand will be planted of sycamore, sweet chestnut, wild cherry and wild service. Further to the east adjacent to the Nursery and the National Trust farmland a belt of beech, sycamore and wild cherry with Tulip tree as a minor species will be established.

Along the southern and eastern boundaries of Bonham Manor a broadleaved stand of pedunculate oak, field maple and wild service tree will be planted with a strip of open ground and shrubs forming a graduated edge. The existing hedgerows here will be retained.

Major hedgerow features, including roadside hedges, will have an associated 10-meter wide strip with part of the area planted with groups of native shrubs (hazel, field maple, crab apple and spindle). The grassland element will be managed to produce a diverse sward.

Areas of managed grassland with groups of planted shrubs will be created along the lines of the electricity lines. A new permissive footpath will be created to allow the use of this area of linear open space through the main plantings. The existing public footpath line will be maintained through the adjacent plantations.

The 2nd WW Concrete Road will be preserved.

WCPG Stage 2

The summary of the planting proposal is as follows:

	Area (ha)	% of Planting Area	
<i>Conifer dominated + Admix of Broadleaves</i>			
DF/RC/NS/RSQ/SBI	66.10	75.9%	
DF/SP/SY/SWC	9.22	10.6%	86.5%
<i>Broadleaved Dominated</i>			
SY/SWC/WCH/WST	1.67	1.9%	
POK/WST/FM	0.78	0.9%	
BE/SY/WCH	2.85	3.3%	6.1%
<i>Open Ground + Associated Planting</i>			
OG	2.63	3.0%	
OG + scattered shrubs	3.82	4.4%	7.4%
Total Planting Area	87.07		
Existing Woodland	1.00		
Total Project Area	88.07		

Table 7, and Map 8 the Planting Design Plan, show the detail of the proposed planting as shown in the final Woodland Creation Design Plan.

Table 7.

Cpt Number	Sub-cpts	Area (Ha including open ground)	Current land use	Designation(s)	Stocking density (stem per net ha)	% open ground	Species	Species %	PROW
901	a	2.82	arable	AONB	2975	0	DF/SP/SY/SWC	65/15/15/5	
901	b	10.08	arable	AONB	2975	0	DF/RC/NS/RSQ/SBI	55/23/7/5/10	
901	c	0.28	arable	AONB	1740	0	POK/WST/FM	50/25/25	
901	d	0.77	hedged lane	AONB	scattered groups	100	OG + OB		X
901	e	0.15	arable	AONB	1740	0	POK/WST/FM	50/25/25	
901	f	18.77	arable	AONB	2975	0	DF/RC/NS/RSQ/SBI	55/23/7/5/10	
901	g	0.18	arable	AONB	scattered groups	100	OG + OB		
902	a	1.21	arable/pasture	AONB	1740	0	SY/SWC/WCH/WST	40/35/15/10	
902	b	0.66	arable	AONB	2975	0	DF/RC/NS/RSQ/SBI	55/23/7/5/10	
902	c	0.62	arable	AONB	1740	0	BE/SY/WCH	40/40/20	X
902	d	0.66	arable	AONB	2975	0	DF/RC/NS/RSQ/SBI	55/23/7/5/10	X
902	e	1.47	arable/pasture	AONB	scattered groups	100	OG + OB		X
902	f	0.47	pasture	AONB	1740	0	SY/SWC/WCH/WST	40/35/15/10	
902	g	0.36	arable	AONB	1740	0	POK/WST/FM	50/25/25	
902	h	9.03	arable	AONB	2975	0	DF/RC/NS/RSQ/SBI	55/23/7/5/10	X
902	i	2.23	arable	AONB	1740	0	BE/SY/WCH	40/40/20	

WCPG Stage 2

902	j	0.59	existing woodland	AONB		n/a			
902	k	0.18	arable	AONB	scattered groups	100	OG + OB		
903	a	1.35	concrete road	AONB		100	OG		
903	b	15.58	arable	AONB	2975	0	DF/RC/NS/RSQ/SBI	55/23/7/5/10	
903	c	1.52	arable	AONB	2975	0	DF/SP/SY/SWC	65/15/15/5	
903	d	0.83	arable	AONB	scattered groups	100	OG + OB		
904	a	1.28	concrete road	AONB		100	OG		
904	b	11.32	arable	AONB	2975	0	DF/RC/NS/RSQ/SBI	55/23/7/5/10	
904	c	4.88	arable	AONB	2975	0	DF/SP/SY/SWC	65/15/15/5	
904	d	0.41	existing woodland	AONB		n/a			
904	e	0.38	arable	AONB	scattered groups	100	OG + OB		

Maps

1	Site Context Plan
2	Biodiversity Designations, Features and Water Bodies
3	Historic Designations and Features & Public Rights of way
4	Location of Photographs
5	Soil Pit Locations
6	Site Appraisal Plan
7a	Overall Design Concept Plan
7b	Design Concept NW Inset Plan
7c	Design Concept SW Inset Plan
8	Planting Design Plan

Appendix 1: Sources of Information

Information class	Information required	Data sources
Legal	Ownership boundaries Legal access points/routes	Property Records
Biodiversity	SPA /SAC/SSSI/NNR LNR/SINC/SBI/CWS Priority Habitats Priority Species	Magic/ LIS to identify presence / proximity of features. Consultation with NE to discuss planting opportunities / mitigation. Magic and consultation with Local Authorities and Wildlife Trusts Phase 2 Habitat Survey Species survey Local Environmental records centre Consultant ecologist where appropriate Previous grant applications Biological Records Centre NBN Gateway
Landscape and visual	LCA (refer to National Character Area profile). In sensitive landscapes a Landscape and Visual Impact Assessment may be required in accordance with GLVIA3 (where this is necessary you may be eligible for Extraordinary Payment). Where a full LVIA is not required you should	National Park Area of Outstanding Natural Beauty Local Authority Landscape architect where appropriate

WCPG Stage 2

	<p>undertake a landscape survey to include assessment of the following:</p> <p>Visual context inc photographs Landscape designations Viewpoints from within and outside planned woodland Elements of landscape and visual diversity Visual detractors Identify watercourses, infrastructure supply catchments Landscape survey needs to be visually expressed in the form of a spatial plan</p>	
Historic environment	<p>SAM HLC WHS Registered Parks and Gardens Registered Battlefields Other features of Historic Interest</p>	<p>HER County Archaeologist Historic England NE (for HLC check internet) Previous grant applications</p>
Water	<p>Flood Risk Water Quality Surface Water Acidification Water Availability</p>	<p>Environment Agency (main River) or Local lead flood authority (if not a main river) FC LIS Water provider</p>
Species selection and silviculture	<p>Ecological Site Classification: Baseline, 50 and 80 'high' scenarios</p>	<p>Site soil survey / FC website</p>
People	<p>Existing PROW/CROW/Common Land</p>	<p>Magic/ FC LIS</p>

Appendix 2: ESC Sheets

ESC ST704346 Baseline Climate Scenario

ESC ST704346 Medium/High 2050 Climate Scenario

ESC ST704346 Medium/High 2080 Climate Scenario

Appendix 3: Photographic Survey

Appendix 4: Biodiversity Background Documents

Magic - Biodiversity Designations Map

LIS – Woodland Bird Assemblage Map

Bonham Hanging South Wildlife Site Information Sheet

Wiltshire Wildlife Trust – correspondence

Appendix 5: Landscape & Historic Landscape Background Documents

Magic – Historic Designations Map

Salisbury & District Landscape Character Assessment

Simon Bonvoisin Nicholas Pearson Partnership - correspondence

Wiltshire HER – Assistant County Archaeologist – correspondence

Appendix 6: Water Background Documents

Catchment Area Maps

Stour Headwaters Project Information

LIS – Water Quality & Flood Risk Layers Map

Appendix 7: Final Consultation / Stakeholder Engagement Notification and Responses

