Landscape Proof of Evidence Appendices

Proposed Solar Farm

On behalf of One Planet Developments Ltd

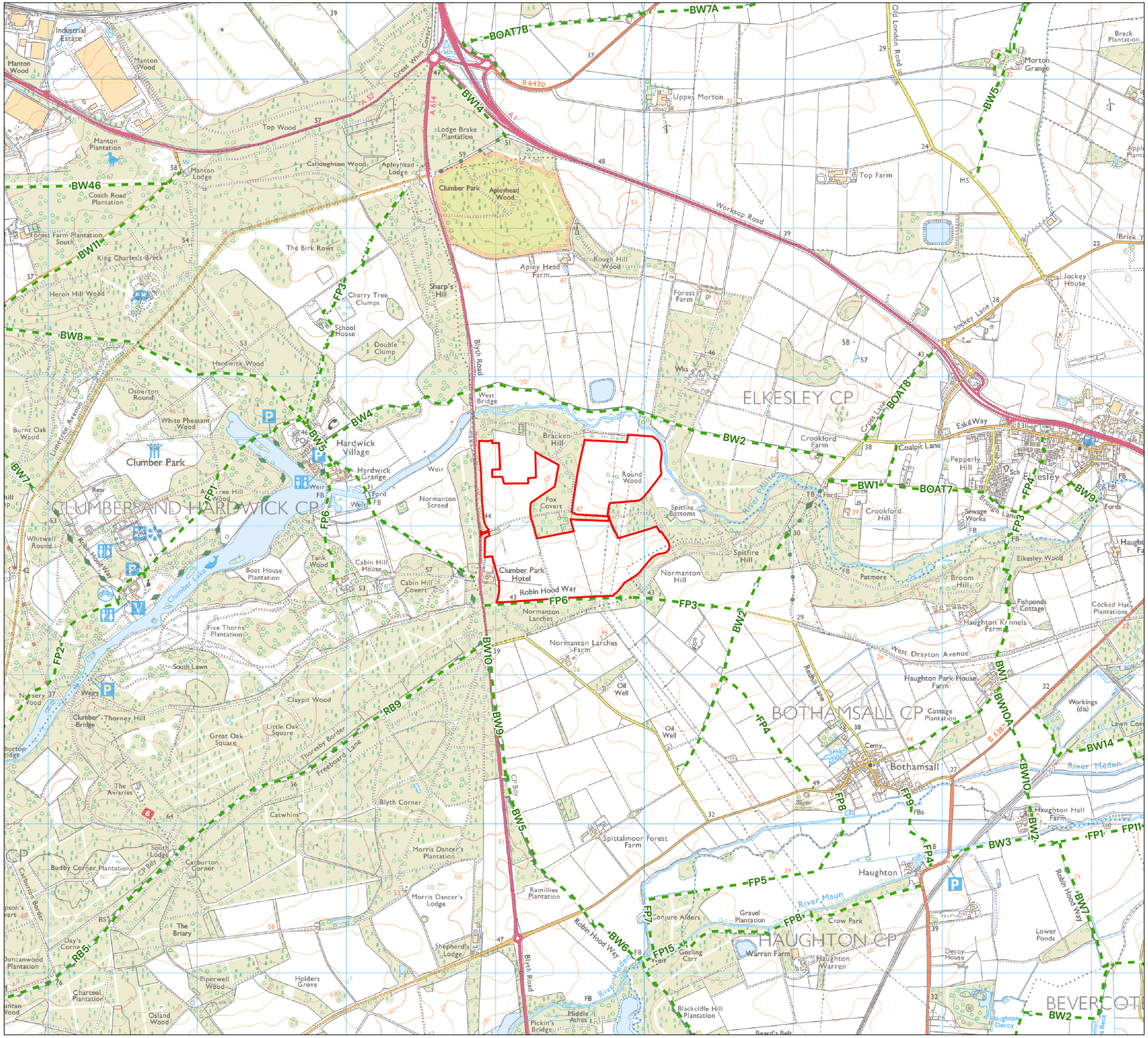
Date: 17th December 2025 | Pegasus Ref: P25-2880

PINS Ref: APP/A3010/W/25/3367817 | LPA Ref: 24/00384/FUL

Author: Andrew Cook BA (Hons) MLD CMLI MISEP CEnv

Appendices Contents.

APPENDIX 1: SITE LOCATION AND PUBLIC RIGHTS OF WAY PLAN



KEY

- Site Boundary
- Public Rights of Way

REV	DATE	DESCRIPTION
-	-	-

SITE LOCATION AND PUBLIC RIGHTS OF WAY PLAN

LAND ADJACENT TO THE A614, WORKSOP

LONGWORTHY LIMITED

DATE	SCALE	DRAWN	APPROVED
15/12/2025	1:25,000@A3	AB	AC

SHEET	REV	N	0	0.5 KM
-	A			

DRAWING NUMBER
P25-2880_EN_02

PEGASUS GROUP

APPENDIX 2a: AMENDED LAYOUT PLAN (REV 12)

A0

Revisions:

Revision	Date	Revision Notes	Drawn	Inspected
01	04.03.24	First Issue	EM	JW
02	08.03.24	Layout Updated	EM	JW
03	12.03.24	Layout Updated	JC	JW
04	14.03.24	Layout Updated	JC	JW
05	15.03.24	Layout Updated	CS	JW
06	19.03.24	Panel Spec Updated	CS	JW
07	26.03.24	Tracks and RLB Amended	EM	JW
08	12.07.24	Layout Updated	RR	JW
09	16.08.24	Layout Updated	RR	JW
10	29.08.24	Vegetation Added & Amended	CS	JW
11	19.11.25	Vegetation Amended	HL	MC
12	19.11.25	Vegetation Added & Amended	HL	MC
	26.11.25	Gap for existing track reintroduced	RR	MC

LEGEND:

PLANNING APPLICATION BOUNDARY

DNO ACCESS

NEW ACCESS TRACK

WATER COURSE

PERIMETER FENCELINE

PALISADE FENCE

O/H 400kV CABLE

O/H 132kV CABLE

SITE INFRASTRUCTURE:

SECURITY GATE

CCTV CAMERA

POINT OF CONNECTION

SOLAR ARRAY

132kV SUBSTATION

WATER TANK

LATTICE TOWER

MV POWER STATION

CUSTOMER SWITCHGEAR

SPARE PARTS CONTAINER

WELFARE CABIN

BESS CONTAINER

POWER CONVERSION SYSTEM

TRANSFORMER

HYDRANT

ENVIRONMENT:

EXISTING VEGETATION

WOODLAND PLANTING

PROPOSED SCRUB PLANTING

PROPOSED MIXED SPECIES HEDGEROW AND SPECIMEN TREES

HORSE CHESTNUT TREES

HISTORIC HEDGE REINSTATED/REINFORCED

SPECIES RICH MEADOW FOR SANDY SOIL

TUSSOCKY GRASSLAND

RIPARIAN SCRUB WITH TUSSOCKY SPECIES RICH MEADOW

AGRICULTURAL FIELD

EXISTING VEGETATION TO BE REMOVED

Note: See Planting Plan and LEMP for full details

Project:

Land Adjacent to the A614, Worksop, S80 3PA

Consultant:

ONE PLANET

Biddlesgate Farm, Wimborne, Dorset BH21 5RS

Drawn by:

CADmando
2D , 3D CAD & BIM SERVICES

CADmando Design & Draughting Solutions Ltd
The Long Barn, The Courtyard, Severn Drive, Tewkesbury Business Park, GL20 8GD

Tel: +44 (0) 1684 850019
Mob: +44 (0) 7814436910

Status:

PLANNING

Drawing Title:

Proposed Site Layout Plan

Drawn:	Checked:	First Issued:
EM	JW	04.03.2024

Project Code: **OPL011-** Drawing Number: **PL-01**

Sheet Size:	Scale:	Revision:
A0	**1:2500**	**12**

1 NORMANTON LARCHES PROPOSED SITE LAYOUT PLAN

Scale: 1:2500@A0

0 50 100 150 200 250m
SCALE 1:2500

APPENDIX 2b: PROPOSED SITE LAYOUT PLAN (REV 10)

A0

Revisions:

Revision	Date	Revision Notes	Drawn	Inspected
01	04.03.24	First Issue	EM	JW
02	08.03.24	Layout Updated	EM	JW
03	12.03.24	Layout Updated	JC	JW
04	14.03.24	Layout Updated	JC	JW
05	15.03.24	Layout Updated	CS	JW
06	19.03.24	Panel Spec Updated	CS	JW
07	26.03.24	Tracks and RLB Amended	EM	JW
08	12.07.24	Layout Updated	RR	JW
09	16.08.24	Layout Updated	RR	JW
10	29.08.24	Vegetation Added & Amended	CS	JW

LEGEND:

- PLANNING APPLICATION BOUNDARY
- DNO ACCESS
- NEW ACCESS TRACK
- WATER COURSE
- PERIMETER FENCELINE
- PALISADE FENCE
- O/H 400kV CABLE
- O/H 132kV CABLE

SITE INFRASTRUCTURE:

- SECURITY GATE
- CCTV CAMERA
- POINT OF CONNECTION
- SOLAR ARRAY
- 132kV SUBSTATION
- WATER TANK
- LATTICE TOWER
- MV POWER STATION
- CUSTOMER SWITCHGEAR
- SPARE PARTS CONTAINER
- WELFARE CABIN
- BESS CONTAINER
- POWER CONVERSION SYSTEM
- TRANSFORMER
- HYDRANT

ENVIRONMENT:

- EXISTING VEGETATION
- WOODLAND PLANTING
- PROPOSED SCRUB PLANTING
- PROPOSED HEDGE / HORSE CHESTNUT TREES
- HORSE CHESTNUT TREES
- HISTORIC HEDGE REINSTATED/REINFORCED
- SPECIES RICH MEADOW FOR SANDY SOIL
- TUSSOCKY GRASSLAND
- RIPARIAN SCRUB WITH TUSSOCKY SPECIES RICH MEADOW
- AGRICULTURAL FIELD
- EXISTING VEGETATION TO BE REMOVED

Note: See Planting Plan and LEMP for full details

Project:

Land Adjacent to the A614, Worksop, S80 3PA

Consultant:

ONE PLANET

Biddlesgate Farm, Wimborne, Dorset BH21 5RS

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Status:

PLANNING

Drawing Title:

Proposed Site Layout Plan

Drawn:	Checked:	First Issued:
EM	JW	04.03.2024

Project Code: **OPL011- PL-01** Drawing Number:

Sheet Size:	Scale:	Revision:
A0	**1:2500**	**10**

1 NORMANTON LARCHES PROPOSED SITE LAYOUT PLAN

Scale: 1:2500@A0

0 50 100 150 200 250m
SCALE 1:2500

APPENDIX 2c: PROPOSED SITE LAYOUT PLAN (REV 7) (APPLICATION SCHEME)

A0

Revisions:

Revision	Date	Revision Notes	Drawn	Inspected
01	04.03.24	First Issue	EM	JW
02	08.03.24	Layout Updated	EM	JW
03	12.03.24	Layout Updated	JC	JW
04	14.03.24	Layout Updated	JC	JW
05	15.03.24	Layout Updated	CS	JW
06	19.03.24	Panel Spec Updated	CS	JW
07	26.03.24	Tracks and RLB Amended	EM	JW

LEGEND:

- PLANNING APPLICATION BOUNDARY
- DNO ACCESS
- NEW ACCESS TRACK
- WATER COURSE
- PERIMETER FENCELINE
- PALISADE FENCE
- HV 400kV — ELE — HV 400kV — O/H 400kV CABLE — HV 400kV — ELE — HV 400kV
- HV 132kV — ELE — HV 132kV — O/H 132kV CABLE — HV 132kV — ELE — HV 132kV

SITE INFRASTRUCTURE:

- SECURITY GATE
- CCTV CAMERA
- POINT OF CONNECTION
- SOLAR ARRAY
- 132kV SUBSTATION
- WATER TANK
- LATTICE TOWER
- MV POWER STATION
- CUSTOMER SWITCHGEAR
- SPARE PARTS CONTAINER
- WELFARE CABIN
- BESS CONTAINER
- POWER CONVERSION SYSTEM
- TRANSFORMER
- HYDRANT

ENVIRONMENT:

- EXISTING VEGETATION
- 'TREE & SHRUB PLANTING (SEE PLANTING PLAN FOR FURTHER INFO)'
- EXISTING VEGETATION TO BE REMOVED

1 NORMANTON LARCHES PROPOSED SITE LAYOUT PLAN

Scale: 1:2500@A0

0 50 100 150 200 250m

SCALE 1:2500

Project:

Land Adjacent to the A614, Worksop, S80 3PA

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Biddlesgate Farm, Wimborne, Dorset BH21 5RS

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EM	JW	04.03.2024

Project Code: **OPL011-** Drawing Number: **PL-01**

Sheet Size:	Scale:	Revision:
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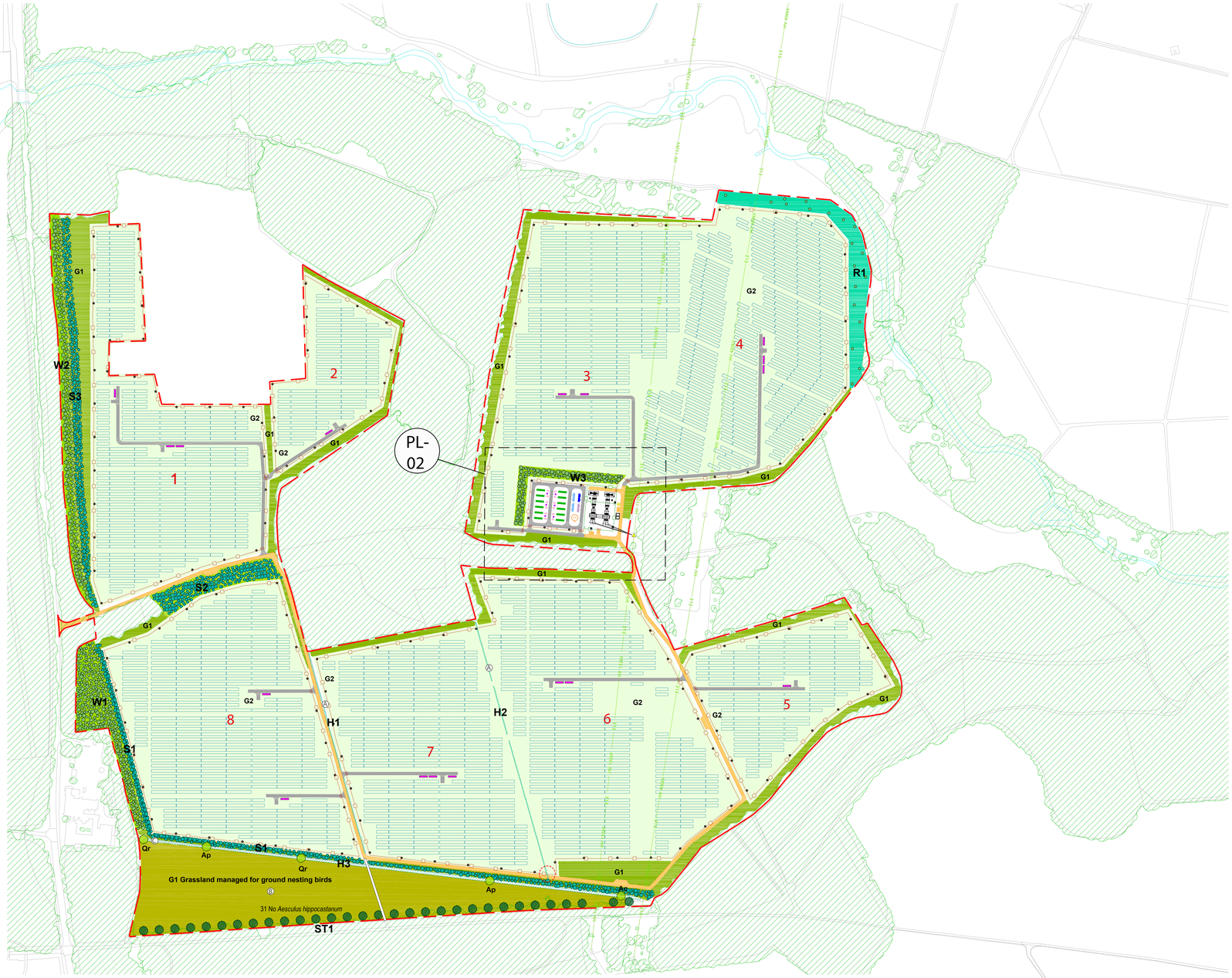
APPENDIX 2d: PLANTING PLAN (REV C)

A0



LANDSCAPE SPECIFICATION

PREPARATION

On completion of the construction of the solar farm infrastructure all deleterious construction materials and waste products shall be removed from site. Liaise with the main contractor operator on health and safety requirements, particularly in relation to any excavations near buried electrical cables.

Make good any damaged/disturbed areas by infilling with topsoil previously stripped from hardstanding areas within the site, grading out and cultivating to marry in with existing levels. Areas to be planted shall have a minimum depth of 350 mm topsoil. If less than this, make up the deficit with topsoil from the site. By mechanical means, relieve any compaction or areas of poor drainage arising from the construction works.

PROPOSED PLANTING

Planting to be supplied in accordance with BS 3936-1:1992 Nursery Stock. specification for trees and shrubs, BS 3936-4:2007 Nursery Stock, BS 8545:2014 Trees: from nursery to independence in the landscape. All landscaping works to be in accordance with BS4428:1989 "General Landscaping Works." All planting should be UK grown and, where possible, sourced from local provenance certified stock. Planting to take place during the months of November to March, preferably before January and at a time when the soil is not frozen or waterlogged.

WOODLAND SCREEN PLANTING CLOSE TO THE HOTEL AND ALONGSIDE THE BATTERY STORAGE AND SUBSTATION COMPOUND

(Identified as W1, W2 and W3 on the planting plan)

The plants are to be planted in a random mix in rows at 1.5m centres, with the plants within the rows at 1.5m staggered centres. Planting shall be a minimum of 15m away from the nearest battery container and the measurement must be checked on site once the containers are in place, but before planting takes place.

7%	*Acer campestre*	Field Maple	60 – 80cm high bare root transplant or cell grown
3%	*Acer campestre*	Field Maple	8 – 10cm girth bare root standard trees
7%	*Acer platanoides*	Norway Maple	60 – 80cm high bare root transplant or cell grown
3%	*Acer platanoides*	Norway Maple	60 – 80cm high bare root transplant or cell grown
10%	*Betula pendula*	Birch	60 – 80cm high bare root transplant or cell grown
5%	*Betula pendula*	Birch	8 – 10cm girth container standard trees
15%	*Crataegus monogyna*	Hawthorn	60 – 80cm high bare root transplant or cell grown
12.5%	*Corylus avellana*	Hazel	60 – 80cm bare root transplant or cell grown
7%	*Fagus sylvatica*	Beech	60 – 80cm bare root transplant or cell grown
3%	*Fagus sylvatica*	Beech	8 – 10cm girth bare root standard trees
7.5%	*Ilex aquifolium*	Holly	45 – 60cm high cell or pot grown
5%	*Pinus sylvatica*	Scots Pine	0.5 – 0.75m high bushy container plant
10%	*Quercus robur*	Common Oak	45 – 60cm high bare root transplant or cell grown
5%	*Quercus robur*	Common Oak	8 – 10cm girth container standard trees.

NATIVE SCRUB PLANTING TO SCREEN VIEWS FROM THE A614 AND ROBIN HOODS WAY

(Identified as S1, S2 and S3 on the planting plan).

These areas shall be planted with a random mix of the following, in rows at 1.5m centres, with the plants within the rows at 1.5m staggered centres:

5%	*Acer campestre*	Field Maple	60 – 80cm high bare root transplant or cell grown
5%	*Cornus sanguinea*	Dogwood	45 – 60cm high bare root transplant or cell grown
15%	*Corylus avellana*	Hazel	60 – 80cm bare root transplant or cell grown
30%	*Crataegus monogyna*	Hawthorn	60 – 80cm high bare root transplant or cell grown
5%	*Ilex aquifolium*	Holly	45 – 60cm high cell or pot grown
3%	*Ligustrum vulgare*	Privet	45 – 60cm high bare root transplant or cell grown
10%	*Prunus spinosa*	Blackthorn	45 – 60cm high cell or pot grown bare root transplant
8%	*Rosa canina*	Dog Rose	60 – 80cm high bare root transplant or cell grown
2%	*Rhamnus cathartica*	Buckthorn	45 – 60cm high cell or pot grown transplant
7%	*Sorbus aucuparia*	Rowan	60 – 80cm high bare root transplant or cell grown
5%	*Ulex europaea*	Gorse	45 – 60cm high bare root transplant or cell grown
5%	*Sorbus aucuparia*	Rowan	60 – 80cm high bare root transplant or cell grown

RIPARIAN EDGE TO THE RIVER POULTER
(Identified as R1 on the planting plan)

To be planted as a random mix at loose spacing of 3 - 10m, averaging 1 plant per 33m2.

25%	*Sorbus aucuparia*	Rowan	60 – 80cm high bare root transplant
20%	*Cornus sanguinea*	Dogwood	45 -60cm high bare root transplant
10%	*Rosa canina*	Dog Rose	60 – 80cm high bare root transplant
5%	*Rhamnus cathartica*	Purging Buckthorn	45 – 60cm high bare root transplant
25%	*Salix caprea*	Goat willow	45 -60cm high bare root transplant
15%	*Salix viminalis*	Osier Willow	60 – 80cm high bare root transplant

PLANTING NOTES

The transplants are to be notch planted into the existing topsoil and protected with a clear plastic or light green, biodegradable tree shelter, 750mm high such as a Tubex Combitube or similar (typically as a 73- 105mm dia. nested set). The shelter to be secured to a softwood stake (supplier to be FSC® Certified). A 50 -75mm square biodegradable mulch mat is to be fixed around the base of each tree/transplant shelter and pegged down in accordance with the suppliers' recommendations.

Holly, roses and pines to be protected with a shrub shelter.

The standard trees are to be pit planted in the positions shown and secured with a single 50mm softwood stake driven in until firm and trimmed to 1.4m above ground level and secured with a single tree tie at 1.2m height. A 50 -75mm square biodegradable mulch mat is to be fixed around the base of each tree and pegged down in accordance with the suppliers' recommendations.

ENHANCHMENT OF EXISTING HEDGES H1 and H2

There are 850 metres length of existing low-cut hedges within the Site which will be retained. The following plants are to be planted in a random mix and spacing along eitherside of the hedge to enhance diversity. No plant protection required.

150 No	*Crataegus monogyna*	Hawthorn	60 - 80cm high bare root transplant
50 No	*Cornus sanguinea*	Dogwood	45 -60cm high bare root transplant
50 No	*Prunus spinosa*	Blackthorn	45 -60cm high bare root transplant
75No	*Rosa canina*	Dog rose	60 – 80cm high bare root transplant
50 No	*Rhamnus cathartica*	Buckthorn	45 – 60cm high bare root transplant
25 No	*Sambucus nigra*	Elder	60 – 80cm high bare root transplant
150No	*Ulex europaea*	Gorse	20 – 30cm high container grown
100 No	*Vaccinium myrtillus*	Bilberry	15cm high, container grown
75 No	*Digitalis purpurea*	Foxglove	1 litre container grown

NEW HEDGE PLANTING - H3
New native hedge along a historic boundary. To be planted as a random mix of species as two staggered rows, 500mm between plants and 750mm between rows. Plants to be protected with Tubex 60cm Easywrap tree shelters supported by a cane or similar product to approval. A 1.5m wide strip, centered on the hedge line is to be mulched to a depth of 75m (a 5kg sample of the mulching material is to be supplied for approval prior to use).

25%	*Acer campestre*	Field Maple	45 -60cm high bare root transplant
25%	*Crataegus monogyna*	Hawthorn	45 -60cm high bare root transplant
20%	*Corylus avellana*	Hazel	60 – 80cm high bare root transplant
5%	*Ilex aquifolium*	Holly	2L Container grown
10%	*Prunus spinosa*	Blackthorn	45 -60cm bare root transplant
5%	*Rhamnus cathartica*	Buckthorn	45 – 60cm high bare root transplant
5%	*Rosa canina*	Dog rose	60 – 80cm high bare root transplant
5%	*Ulex europea*	Gorse	20 – 30cm container grown

The following standard trees are to be planted along the hedge in the positions as shown on the planting plan.

2 No	**Ac**	*Acer campestre*	Field Maple	12 -14cm girth, air pot grown
2 No	**Qr**	*Quercus robur*	Oak	12 -14cm girth, air pot grown
1 No	**Ap**	*Acer platanoides*	Norway Maple	12- 14cm girth, air pot grown.

NEW TREE PLANTING ALONGSIDE ROBIN HOODS WAY - ST1

31 No *Aesculus hippocastanum* 12 -14cm girth, air pot grown

Specimen trees to be planted in the positions shown, secured between two stakes, driven in until firm and a 1.5m above ground, with adjustable webbing ties. A 60 litre watering bag is to be fixed to each tree and a 1.5m dia. area around the tree is to be mulched to a depth of 75m (a 5kg sample of the mulching material is to be supplied for approval prior to use). The watering bags are to be filled/topped up every three weeks during the growing season. Applies also to the specimen treees in H3.

GRASSLAND

Allow the fields to lie fallow to allow the seed bank to germinate, recultivation and repeating the process until there is little regrowth of pernicious weeds. As a last resort use chemical control. If time allows the preference is to seed the bare soil with the seed mixes, allow to germinate and keep mown to a height of 100mm to provide a firm grass sward on which to build out the panels. Any subsequent damage arising due to the construction works shall be made good by relieving compaction, spreading the soil to an even grade, cultivating to an even tilth and reseeding.

If not practical to pre-seed due to program or seasons, then the ground around the panels and margins is to be cultivated to a fine tilth and sown with the following seed mixes available from wildseed.co.uk (or other supplier of a similar product to approval).

Areas G1 - Tussocky grassland to margins and within R1
Area to be sown with Emorsgate Tussock Mix EM10 at a rate of 4g/m2 or similar to approval.

Areas G2 - Acidic meadow within the fenced solar panel area
To be sown with Landlife wildflower seed mix for Dry, Sandy and Loam Soils Wildflower Seeds LW3M
https://www.wildflower.co.uk/products/wildflower-seed-mixtures/80-20-wildflower-meadows-seed-mixtures/lw3-dry-sandy-and-loam-soils-80-20.html.
To be sown at a rate of 4g/m2 or similar to approval.

The landscape is to be managed in the long term in accordance with the Habitat Management and Monitoring Plan (Sightline Landscape).

0 50 100 150 200 250m
SCALE 1:2500

Revisions:

Revision	Date		Drawn	Inspected
A	04.09.24	Panels pulled back from southern boundary and tree lines and hedge added	CM	CAM
B	07.10.24	Ground nesting bird plots added	CM	CAM
C	22.11.25	Extent of mitigating planting increased Internal avenue omitted. Gap for existing track reintroduced.	CM	CAM

LEGEND:

- PLANNING APPLICATION BOUNDARY
- DNO ACCESS
- NEW ACCESS TRACK
- WATER COURSE
- PERIMETER FENCELINE
- PALISADE FENCE
- HV 400kV — ELE — HV 400kV — O/H 400kV CABLE
- HV 132kV — ELE — HV 132kV — O/H 132kV CABLE

SITE INFRASTRUCTURE:

- SECURITY GATE
- CCTV CAMERA
- POINT OF CONNECTION
- SOLAR ARRAY
- 132kV SUBSTATION
- WATER TANK
- LATTICE TOWER
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ENVIRONMENT:

- EXISTING VEGETATION
- WOODLAND PLANTING
- PROPOSED SCRUB PLANTING
- PROPOSED MIXED SPECIES HEDGEROW AND SPECIMEN TREES
- HORSE CHESTNUT TREES
- HISTORIC HEDGE REINSTATED/REINFORCED
- SPECIES RICH MEADOW FOR SANDY SOIL
- TUSSOCKY GRASSLAND
- RIPARIAN SCRUB WITH TUSSOCKY SPECIES RICH MEADOW
- AGRICULTURAL FIELD
- EXISTING VEGETATION TO BE REMOVED

Project:
Land Adjacent to the A614, Worksop, S80 3PA

Consultant:
ONE PLANET

Drawn by:
sightline LANDSCAPE

Status:
PLANNING

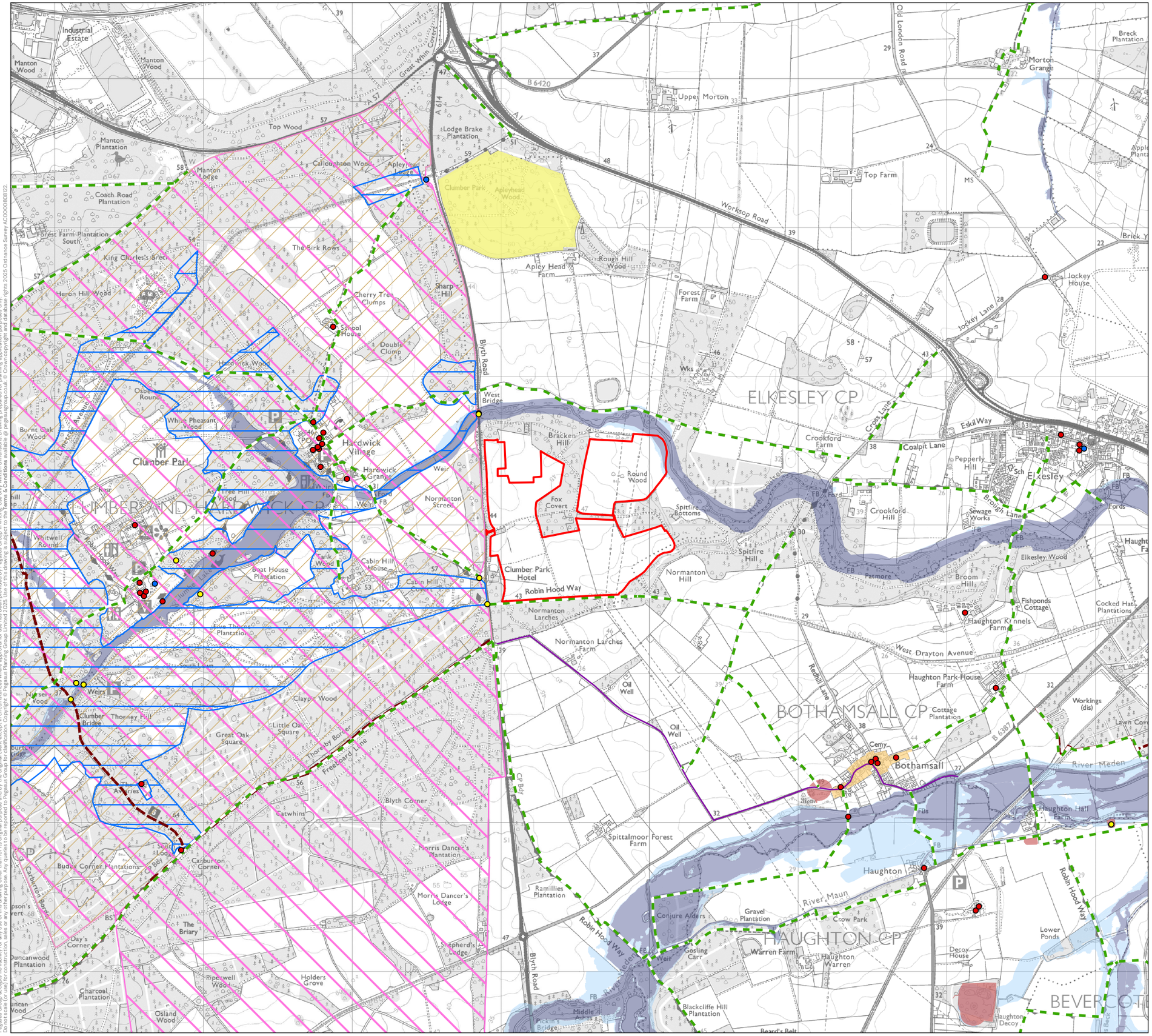
Drawing Title:
PLANTING PLAN

Drawn:	Checked:	First Issued:
CM	**CAM**	

Drawing Number:
571_PP_01

Sheet Size:	Scale:	Revision:
A0	**1:2500**	**C**

APPENDIX 3: ENVIRONMENTAL DESIGNATIONS PLAN



KEY

- Site Boundary
- Grade I Listed Building
- Grade II* Listed Building
- Grade II Listed Building
- Public Rights of Way
- National Cycle Network
- Reclassified Route
- CRoW Access Land
- Country Parks
- Registered Parks and Gardens
- Scheduled Monuments
- Conservation Area
- Sites of Special Scientific Interest
- Flood Zone 2
- Flood Zone 3

REV	DATE	DESCRIPTION
-	-	-

ENVIRONMENTAL DESIGNATION PLAN

LAND ADJACENT TO THE A614, WORKSOP

LONGWORTHY LIMITED

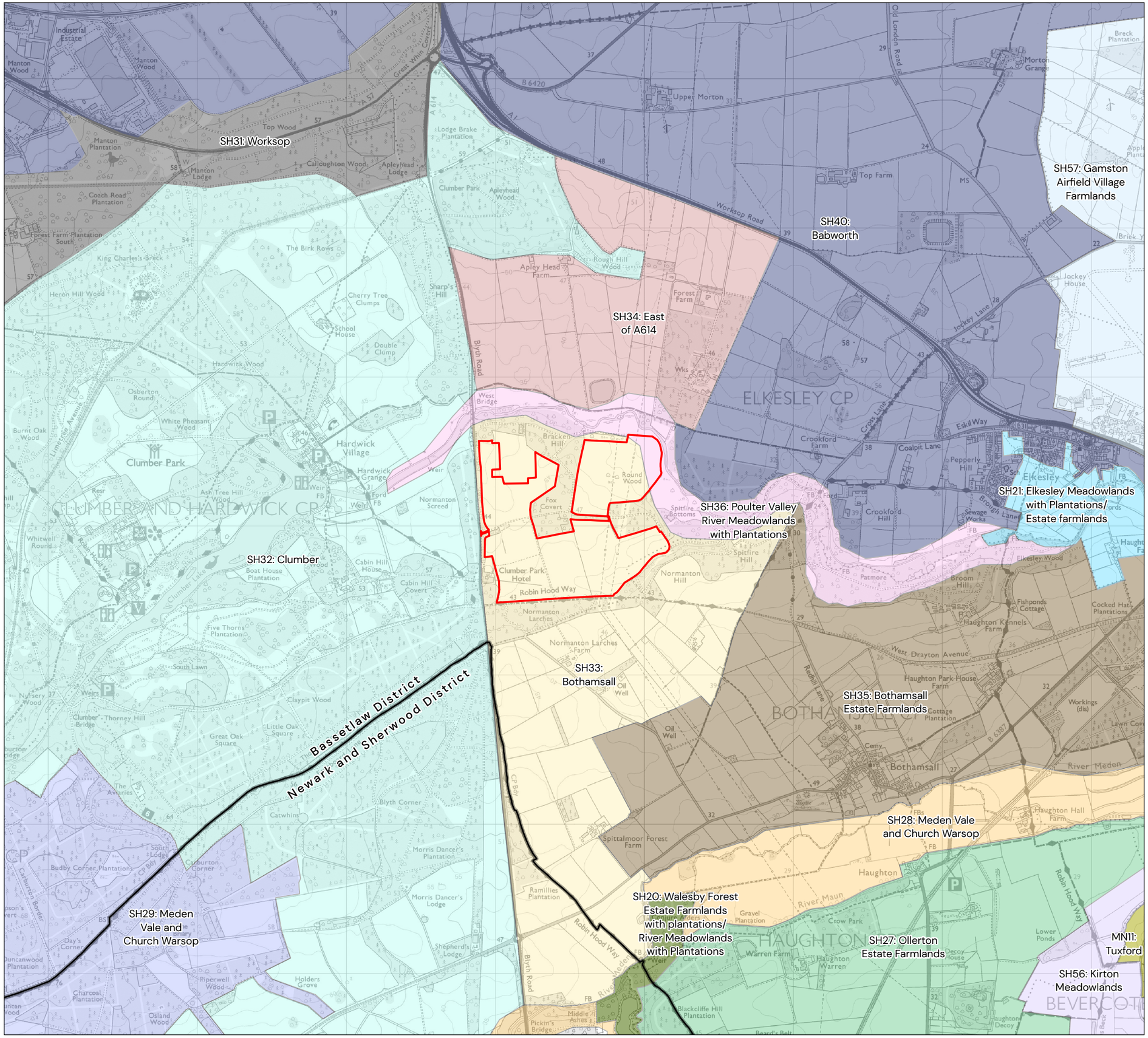
DATE	SCALE	DRAWN	APPROVED
16/12/2025	1:25,000@A3	AB	AC

SHEET	REV	N	0	0.5KM
-	A			

DRAWING NUMBER
P25-2880_EN_03

PEGASUS GROUP

APPENDIX 4: LANDSCAPE CHARACTER PLAN



KEY

- Site Boundary
- District Boundary

Bassetlaw Nottinghamshire Landscape Character Assessment (2009)

Landscape Character Areas

- MN11: Tuxford
- SH20: Walesby Forest Estate Farmlands with plantations/ River Meadowlands with Plantations
- SH21: Elkesley Meadowlands with Plantations/ Estate farmlands
- SH27: Ollerton Estate Farmlands
- SH28: Meden Vale and Church Warsop
- SH29: Meden Vale and Church Warsop
- SH31: Worksop
- SH32: Clumber
- SH33: Bothamsall
- SH34: East of A614
- SH35: Bothamsall Estate Farmlands
- SH36: Poulter Valley River Meadowlands with Plantations
- SH40: Babworth
- SH56: Kirton Meadowlands
- SH57: Gamston Airfield Village Farmlands

Note: The plan extent falls entirely within Sherwood National Landscape Character Area

REV	DATE	DESCRIPTION
-	-	-

LANDSCAPE CHARACTER PLAN

LAND ADJACENT TO THE A614, WORKSOP

LONGWORTHY LIMITED

DATE	SCALE	DRAWN	APPROVED
16/12/2025	1:25,000@A3	AB	AC

SHEET	REV	N	0	0.5 KM
-	A			

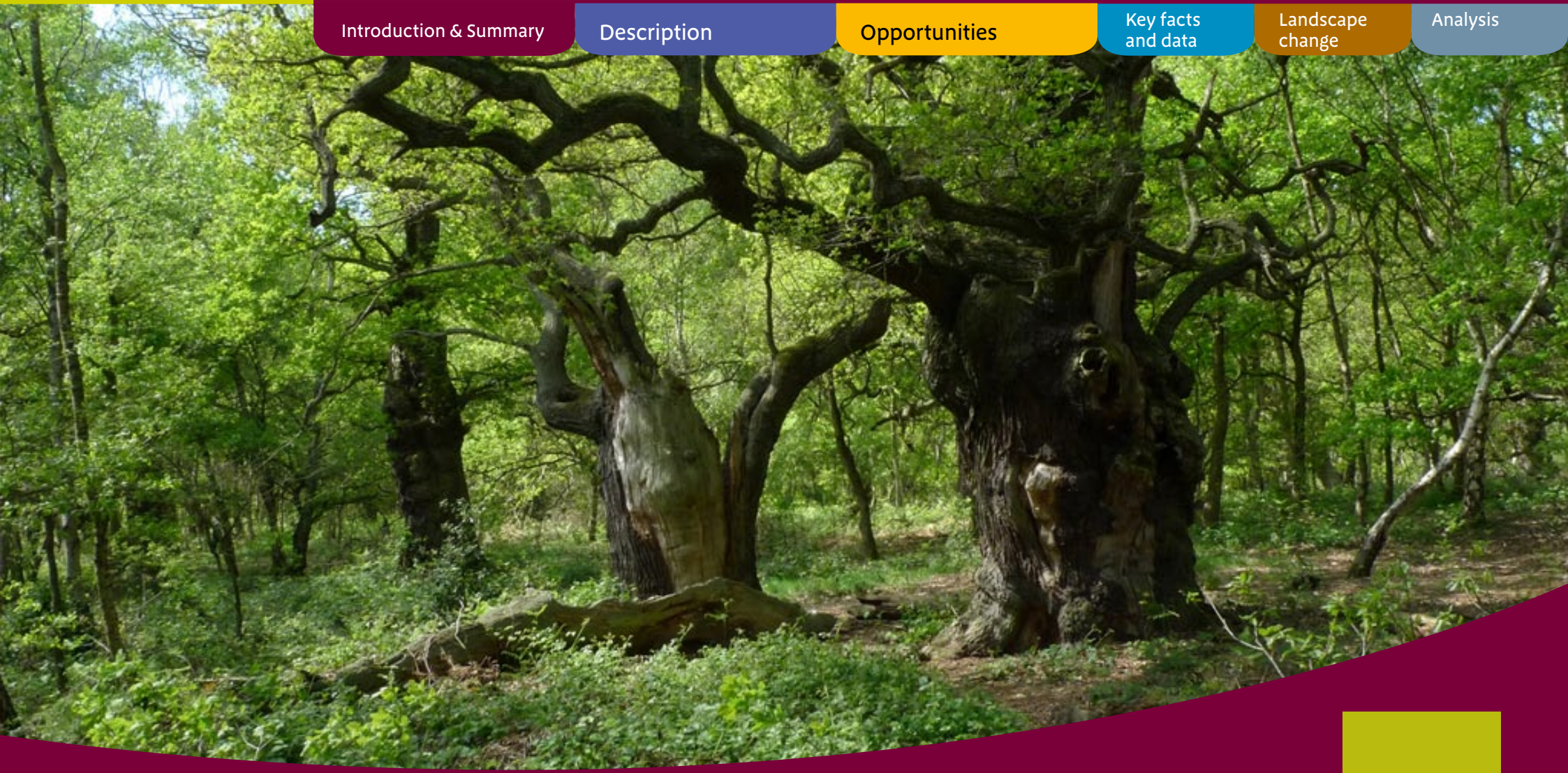
DRAWING NUMBER
P25-2880_EN_04

PEGASUS GROUP

APPENDIX 5: NCA 49: SHERWOOD

National Character Area profile:

49. Sherwood



NATURAL ENGLAND

www.naturalengland.org.uk

Introduction

As part of Natural England's responsibilities as set out in the Natural Environment White Paper[1], Biodiversity 2020[2] and the European Landscape Convention[3], we are revising profiles for England's 159 National Character Areas (NCAs). These are areas that share similar landscape characteristics, and which follow natural lines in the landscape rather than administrative boundaries, making them a good decision-making framework for the natural environment.

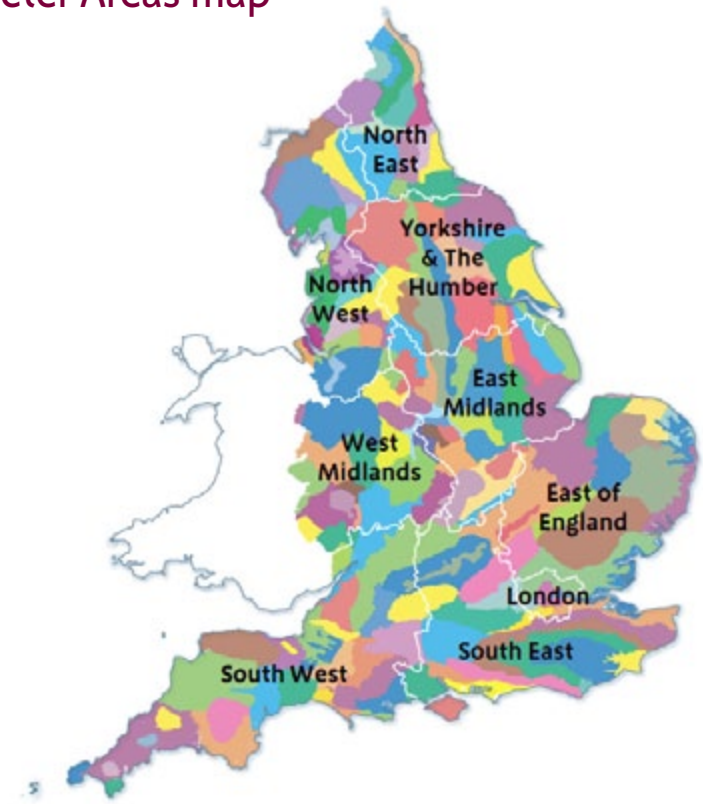
NCA profiles are guidance documents which can help communities to inform theirdecision-making about the places that they live in and care for. The informationthey contain will support the planning of conservation initiatives at a landscape scale, inform the delivery of Nature Improvement Areas and encourage broader partnership working through Local Nature Partnerships. The profiles will also help to inform choices about how land is managed and can change.

Each profile includes a description of the natural and cultural features that shape our landscapes, how the landscape has changed over time, the current key drivers for ongoing change, and a broad analysis of each area's characteristics and ecosystem services. Statements of Environmental Opportunity (SEOs) are suggested, which draw on this integrated information. The SEOs offer guidance on the critical issues, which could help to achieve sustainable growth and a more secure environmental future.

NCA profiles are working documents which draw on current evidence and knowledge. We will aim to refresh and update them periodically as new information becomes available to us.

We would like to hear how useful the NCA profiles are to you. You can contact the NCA team by emailing ncaprofiles@naturalengland.org.uk

National Character Areas map



[1] The Natural Choice: Securing the Value of Nature, Defra (2011; URL: www.official-documents.gov.uk/document/cm80/8082/8082.pdf)
[2] Biodiversity 2020: A Strategy for England's Wildlife and Ecosystem Services, Defra (2011; URL: www.defra.gov.uk/publications/files/pb13583-biodiversity-strategy-2020-111111.pdf)
[3] European Landscape Convention, Council of Europe (2000; URL: http://conventions.coe.int/Treaty/en/Treaties/Html/176.htm)

Summary

The Sherwood NCA extends north from Nottingham, principally coinciding with an outcrop of sandstone which forms a belt of gently rolling hills. Historically it was managed as woodland and remains a well wooded area. The oak and birch wood pasture in the heartland of Sherwood Forest and more recent pine plantations, contribute strongly to the sense of place. Large estate parklands, heathland, open arable land and a strong mining heritage also characterise the area. The area contains the settlements of Mansfield, Worksop, Retford and Ollerton around its peripheries and sits on an aquifer that provides water to the area.

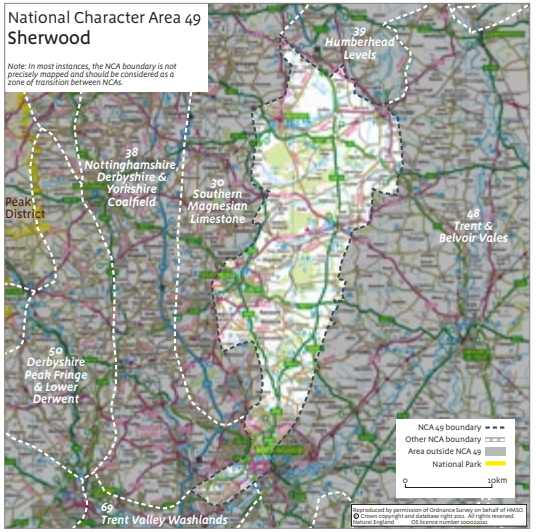
The woodlands of Sherwood support internationally important oak woodland and associated invertebrates. The area also supports nationally important assemblages of farmland birds. In addition Sherwood's strong cultural associations with Robin Hood help attract around one million vistors/year to the forest. Recent change has led to some increase in heathland through forestry clearance and conservation efforts, particularly on ex-industrial sites, and an increase in hedge size (largely through current agri-environment incentives). However, high recreation use in protected areas, over abstraction from the aquifer, soil erosion (in arable areas), and restoring derelict landscapes continue to provide challenges and opportunities.

Statements of Environmental Opportunity

- **SEO 1**: Protect, enhance and promote Sherwood as a landscape of international environmental and cultural significance by securing and expanding the iconic mosaic of woods, heaths and parklands, and enhancing recreation and education opportunities.

- **SEO 2**: Promote sustainable agricultural practices to help protect the major under lying aquifer, manage issues with soil erosion in Sherwood and increase farmland birds.

- **SEO 3**: Integrate new green infrastructure and conservation of historic features into the redevelopment of derelict land to establish high quality characteristic local environments.



Click map to enlarge; click again to reduce.

Description

Physical and functional links to other National Character Areas

The agricultural land and woodlands of the Southern Magnesian Limestone, and beyond that the Nottinghamshire, Derbyshire and Yorkshire Coalfield, lie to the west of Sherwood where the legacy of the coal mining industry is a strong physical and cultural link throughout.

The open arable land of the Trent and Belvoir Vales lie to the east. The narrow river valleys and corridors of riparian vegetation form links between these character areas. Areas alongside these rivers provide flood storage. This has an influence on flooding downstream in the Humberhead Levels which lie to the north and the Trent Valley Washlands to the south.

The sandstone aquifer which underlies the majority of the Sherwood NCA and the adjoining NCAs provides functional inks between these areas and the population of the East Midlands region whose water the aquifer supplies.

Sherwood has a significantly more wooded and heathy character than adjoining character areas, due historically to the poor agricultural potential of the surface sandstone. In the past, Sherwood Forest would have covered a much larger area and extended into neighbouring NCAs, such as Trent and Belvoir Vales NCA, but the area of woodland is now much reduced. Despite some similarities, the landscape character differentiations with neighbouring areas are well defined.

Views between Sherwood and neighbouring character areas are limited because of the rolling landform and the woodland. From within Sherwood the rolling landform means there are views of varying distance within the character area, frequently shaped by wooded skylines or the heads of dry valleys. A high level of connection to surrounding character areas, for the movement of animals and plants, is provided through Sherwood's woodland and farmland networks.

Distinct areas

- Historic heartlands of Sherwood Forest.
- Parklands and estates of The Dukeries.

Nottingham Castle on its distinctive sandstone outcrop.

Internationally important wood pasture containing veteran stag-headed oaks, which supports a great diversity of wildlife.

Key characteristics

- A gently rolling landform of low rounded sandstone hills, which principally coincide with an outcrop of the Permo-Triassic Sherwood Sandstone Group. The sandstone gives rise to well drained, acidic, sandy soils.
- Magnesian limestone and marl are exposed to the west of the area and underlie the sandstone, forming the base of a major aquifer.
- Woodland is a distinctive feature of the area with a mosaic of broadleaved, mixed and coniferous woodlands, including ancient oak wood pasture and parkland, and pine plantations.
- Wooded horizons frame extensive areas of open arable farmland with large, geometric fields contained by low, often treeless, hawthorn hedges.
- Commercial agriculture, especially in the north of the character area, is focused on root crops, although pig and poultry units are also characteristic.
- The free draining geology and acidic soils support many areas of unenclosed lowland heathland and acid grassland often associated with the wood pasture areas, but also found on marginal agricultural land, on rail and roadsides and on restored colliery sites.
- Narrow river corridors, associated with marshy flats and flood meadows, drain the area and dry valleys are characteristic because of the permeable geology.
- A dispersed settlement pattern of small villages and farmsteads is common in the agricultural areas, with larger settlements surrounding the perimeter of the area. Characteristic building materials are local red sandstone, and red brick and pantiles.
- Large country houses, their associated parklands and, in some cases, their narrow engineered lakes, are a distinctive feature of this character area.
- Coal Measures beneath the sandstone have been extensively mined and the industrial heritage is visible in the landscape. Disused sites are progressively being restored.
- The area, especially Sherwood Forest, is intrinsically linked to the internationally renowned legend of Robin Hood.

Characteristic Sherwood building materials are local red sandstone and red brick and pantile.

Wooded horizons frame open farmland with geometric fields bounded by low, often treeless, hawthorn hedges.

Thoresby Hall in the Dukeries - large country houses are a distinctive feature of Sherwood.

The free draining geology and acidic soils support many areas of unenclosed lowland heathland.

Sherwood today

The area largely coincides with an outcrop of the Permo-Triassic Sherwood Sandstone Group, comprising the Nottingham Castle and Permian Lenton Sandstone Formations. This underlying geology forms a belt of low, rolling hills and has strongly influenced the natural and cultural evolution of the landscape. Some sandstone outcrops are prominent in the landscape, the most famous being Castle Rock in Nottingham, and artificial caves are also distinctive features of this area. The sandstone is underlain at depth by the Coal Measures of Carboniferous age (which form the concealed coalfields), and also by impervious Permian marl, which forms the base of a major aquifer.

Views through Sherwood are characteristically over agricultural land and bounded by woodland. Wooded horizons are a common feature.

Sherwood has a strongly wooded character, with a mix of broadleaved, mixed and coniferous woodland.

Sherwood is well wooded with a varied patchwork of broadleaved and coniferous woodland. The wood pasture in Sherwood Forest National Nature Reserve (NNR) contains more than a thousand ancient oaks, most of which are known to be over 500 years old. The most famous of these, the Major Oak, may be nearly twice that age. Clearings in the coniferous woodland provide habitats for nationally significant populations of woodlark and nightjar, while the wood pasture has been designated for its internationally significant old acidophilous oak woodland and the invertebrate assemblages which are associated with its deadwood and veteran trees. "Sherwood Forest" also has a strong cultural history and is internationally renowned as the home of Robin Hood, the heroic outlaw of English folklore.

Large-scale planting of conifers occurred during the first half of the 20th century and provide a strong contrast to native woodland elsewhere. There is generally less woodland cover in the north than in other places. Views throughout the area are often bounded by woodland on all sides, giving a sense of enclosure and tranquillity.

Often found within the wood pasture, the lowland heathland and acid grassland mosaic is a distinctive characteristic of this landscape. Open tracts of dry sandy heathland, dominated by heather, gorse and bracken, were once widespread across the great Forest of Sherwood, and remain in some areas such as Sherwood National Nature Reserve and Birklands and Bilhaugh Special Area of Conservation (SAC). The habitats are home to a wide variety of species, including one of the few remaining UK populations of the Hazel Pot Beetle.

The sandy soils of the Sherwood Sandstone have historically been poorly suited to arable farming, but modern farming methods have overcome many of these problems and the land is now intensively farmed, predominantly for root crops. Livestock rearing is evident, although mainly confined to pigs and poultry. Parliamentary enclosure field patterns remain the framework of the agricultural landscape, and medium to large rectilinear fields, divided by low treeless hawthorn hedges, are characteristic, especially to the north.

Rivers are not common due to the highly permeable nature of the bedrock and those that do flow across the landscape flow in narrow alluvial corridors with occasional wetland marshy flats. The large houses in the area dammed their rivers to create ornamental lakes in their grounds and narrow artificial lakes are now a feature of the landscape, such as at Clumber, Welbeck and Newstead.

Settlement throughout Sherwood was traditionally scattered villages and farmsteads. Many of these small farming settlements expanded during the last century to become mining villages. There is a variety of traditional building materials in the area. Red brick and pantiles are frequent in the east, limestone in the west, and older buildings are generally local sandstone with pantile roofs. In the area known as 'The Dukeries' (large estates originally owned by English Dukes), there are nucleated estate villages and some isolated farmsteads, but the large ducal houses define the area and include Welbeck Abbey, Thoresby Hall, Rufford Abbey and Newstead Abbey. Newstead Abbey was the family home of the poet, Lord Byron.

The coal industry has played a significant role in shaping the area and its decline has left behind a legacy of former colliery sites and spoil tips. Many of these have been reclaimed to agriculture, heathland, woodland, business, community and amenity uses and some mining relics are now landmark features.

The landscape through time

The area is characterised by a north–south ridge of Triassic Sherwood Sandstone. This sandstone was deposited by rivers that flowed northwards across the area. During the Quaternary geological period the area was periodically glaciated leaving deposits of clays, sands and gravels capping hills and filling valleys.

Coal measures have been extensively mined and the industrial heritage is visible in the landscape and settlement pattern. Land is now progressively being restored.

Sherwood is intrinsically linked to the internationally renowned legend of Robin Hood and this cultural heritage is reflected through out the area.

From the earliest periods of occupation the constraints imposed by the porosity and fragility of the soils have been a major influence on settlement and land use. There is limited evidence of occupation during most of the late prehistoric period, but there is some evidence of iron-age/Romano-British settlements and field systems.

During the Roman period, archaeological evidence indicates that much of the woodland was cleared, although substantial stands may have remained in the south, based on the density of crop mark evidence. In the post Roman period the area became largely depopulated allowing much of the woodland to regenerate. However by 1086 the area is recorded as wood pasture, and is likely to have been managed by the larger settlements on the margins of the area.

The Norman kings brought the area under Forest Law and by 1300 there was little land that was not linked to the economies of royal or monastic estates or of local manors and communities. Throughout the 12th, 13th and 14th centuries, documentary references indicate a process of continual piecemeal enclosure, assarting (woodland clearance under licence from the lord) and illegal encroachment by both individuals and whole communities. It was during these medieval times that Robin Hood is said to have lived in Sherwood

Thoroton's history of Nottinghamshire (written in 1677) describes Sherwood at that time as a place "where deer sported in groups unnumbered...where Robin Hood and his gay followers performed their many and long renowned exploits... Here the spreading oak stood for ages a grand monument of embellished nature, a shade and covert for the birds and beasts that inhabited this", before going on to say, "all is now divided and subdivided by stumpy fences... On the forest I observed many capital farmhouses, and the adjoining fields, rich in a plentiful crop of corn". This reference indicates that people have always valued the area's woodland, as well as informing us of how the landscape changed during those centuries.

Sanderson's Map of 1835 illustrates the habitat mosaic that formed Sherwood Forest as an area much greater than the present day NCA boundaries. The Forest was gradually eroded and by the 16th century only the core woods of the surviving royal estates and parks remained. Some attempts at the wider improvement of commons were made during the 16th century but the forest remained largely heath.

The dissolution of the monasteries was a particularly significant stage in the evolution of the landscape, as the transfer of the monastic estates was limited to a few powerful and influential families. Their wealth underpinned the establishment of a number of great country houses and their associated parklands and estates in the 'The Dukeries'. This chain of parks continues to contribute to the sense of place in Sherwood today. Architecturally distinct estate farms are striking features in these areas. Other less fertile areas were taken in to the estates, providing shooting cover, timber and managed fuel supplies for local industry. Together with the enclosure of arable land, the physical framework of this landscape was established by the early 19th century and has been largely maintained to the present.

Formal enclosure arrived in the 18th and 19th centuries, primarily to allow for improved crop rotation and closer stock management. Regular and irregular geometric field patterns, the products of Georgian and early Victorian planned enclosure, were widespread across the Sherwood area, and remain a significant historical characteristic. Medieval open field patterns rarely existed in Sherwood except around the northern fringes of Mansfield, and to the north and north-west of Worksop, and there are some rare surviving areas of ridge and furrow such as at Blidworth.

The porous and nutrient poor sandy soils continued to be a constraint to viable agricultural production and within the last century there have been periods of decline. However, modern farming methods have facilitated improvement and the soil is now able to support extensive areas of arable land with cropping throughout the year.

The coal mining industry has also had a major effect on the Sherwood landscape. The sinking of deep mines in the late 19th and early 20th centuries resulted in the establishment of colliery sites, pit heads, spoil heaps and the adjacent mining settlements, many absorbing smaller existing settlements. The network of railways and roads also added to the transformation of a once simple wood pasture and agrarian landscape to one with an industrial focus. Although the coal mining industry has declined, the legacy of this period is still evident. Some industrial relics in the landscape have now become landmark features including The Winding Engine House and Dynamo House at Bestwood.

Change continues to shape the landscape and the decline of the coal mining industry has lead to the closure of the majority of sites and their subsequent restoration to farmland. The artificial mounds now formed with spoil from the pit heaps are starting to become better integrated into the rolling, well-wooded landscape.

The regular field pattern of flailed thorn hedgerows associated with the enclosure period has since been altered, in places, by more intensive farming practises during the late 20th century. However, the uptake of agri-environment schemes by farmers in recent years has made a significant contribution to the restoration of the landscape, also bringing benefits to wildlife into the future. Field boundary management has generally lead to thicker and taller hedgerows, new areas of woodland have been planted and the general shift from coniferous to broadleaved woodland has continued. Areas of new heathland have also been created and heathland vegetation and acid grassland is becoming established across previously restored land on some of the old colliery sites. In places, plantations of short rotation coppice, established to supply a source of renewable energy, are beginning to be established in the landscape. Recent trends of urban expansion provide both challenges and opportunities.

Ecosystem services

The following section seeks to identify the services offered by the landscape. A more expansive list of ecosystem services associated with this NCA are included in the Analysis section.

The Sherwood NCA provides a wide range of benefits to society. Each is derived from the attributes and processes (both natural and cultural features) within the area. These benefits are known collectively as 'ecosystem services'. The predominant services are summarised below (under the constituent headings). Further information on ecosystem services provided in the Sherwood NCA is contained in the 'Analysis' section of this document.

Provisioning services (food, fibre and water supply)

- **Food provision:** The Sherwood area provides medium grade (3) light free-draining soils that support the production of root crops. The heavier soils also support pasture and dairying. This is chiefly limited to the area of small estates north of Worksop.

- **Timber provision:** Sections of low grade soils of the NCA (generally of marginal agricultural use) support commercial forestry. The Forestry Commission Estate is managed for commercial timber production and covers approx 3,100 ha.

- **Water availability**: The Sherwood NCA contains the highly significant East Midlands Triassic Sherwood Sandstone aquifer; this provides 10 per cent of all water supplies in the Environment Agency's Midlands region. Abstracted water provides benefits to agriculture in Sherwood (through irrigation) and to the whole of the east midlands as a public water supply.

Regulating services (water purification, air quality maintenance and climate regulation)

- **Regulating soil erosion:** Regulation of soil erosion is currently low, due to low levels of vegetation/cover and high levels of compaction (caused of machinery) in at risk areas. These lighter textured soils have an enhanced risk of soil erosion on moderately or steeply sloping land, where cultivated or bare soil is exposed, including that under outdoor pig rearing. Regulation benefits could be increased significantly by vegetating key risk areas and changes to land management practices.

- **Regulating water quality:** Natural regulating processes provide services that ensure the high quality of the water supply from the regionally important aquifer (mentioned above). This service is supported by the Nitrate Vulnerable Zone which restricts chemical use in the area (and prevents overburdening of the natural system). In addition this water is sometimes mixed with other water sources to improve overall water quality, offering an additional benefit.

Cultural services (inspiration, education and wellbeing)

- **Sense of place/inspiration:** The unique and internationally renowned sense of place and history is most strongly shaped by the area's association with the legend of Robin Hood. This association is highly significant for tourism and attracting visitors to the area. The area has also provided inspiration for Byron and other notable poets and artists.

- **Sense of history:** The wood pasture and ancient oaks are a reminder of the once vast royal hunting forests, as is King John's hunting lodge, which is also a significant historical feature. In addition the castles, ducal houses and industrial remains provide cultural services and are highly visited.

- **Recreation:** The historic parks and woodlands and caves, in Nottingham, offer significant recreational and potential health benefits. It is estimated around 130 schools involve over 6,000 children to undertake activities at the Sherwood Forest NNR each year. In the wider landscape the density and distribution of public rights of way is variable with a notably lower level of provision in areas traditionally managed as part of the ducal estates. Recreation is supported by a network of rights of way totalling 390 km with a density of 0.73 km per km^2, and a small proportion of open access land at 223 ha or approximately 0.5 per cent of the area of the NCA.

- **Biodiversity:** 3 per cent of the Sherwood NCA receives statutory protection due to its wildlife value. This is focussed mainly around Sherwood Forest National Nature Reserve and Birklands and Bilhough Special Area of Conservation.

Nottingham's man-made sandstone caves attract many visitors each year.

Statements of Environmental Opportunity

SEO1: Protect, enhance and promote Sherwood as a landscape of international environmental and cultural significance by securing and expanding the iconic mosaic of woods, heaths and parklands, and enhancing sustainable recreation and cultural opportunities.

For example, by:

- Maintaining the woodland with a special focus on the ancient oak wood pasture and the veteran oaks as well as for world renowned heritage associations.
- Maintaining the condition of the SSSI and continue to conserve and protect the valuable habitats and species in the Birklands and Bilhaugh Special Area of Conservation (SAC) and Sherwood Forest National Nature Reserve (NNR).
- Conserving and enhancing key species within the habitats such as internationally important invertebrate assemblages, including the rare lesser stag beetle and four banded longhorn beetle.
- Maintaining and extending the lowland heath / acid grassland mosaic, enhancing populations of key species found predominantly in landscapes designated for nature conservation, but also in areas of marginal land.
- Securing the potential for a successor generation of veteran trees by the identification, protection and recording of candidate specimens.
- Creating a mosaic of linked areas of lowland heathland, taking into account the location of suitable soils and coniferous plantation, to strengthen the ecological linkages and visual value of these areas.
- Exploring potential for new woodland types, including species more resilient to potential climate change.
- Encouraging the dispersal of visitor pressures by investment in high quality infrastructure designed to meet the different needs and levels of use of a range of visitors, including local communities, recreational day visitors and tourists, without being the cause of damage or degradation of these unique assets.
- Ensuring that the access to the iconic ancient oak woodland, veteran trees and other environmentally sensitive sites provides equality of opportunity and a connection.
- Investigating ways of securing better management of designated heritage assets, including conserving and enhancing the historical estates of the Dukeries, and other estate landscapes.

SEO2: Promote sustainable agricultural practices to help protect the major underlying aquifer, manage issues with soil erosion in Sherwood and increase farmland birds.

For example, by:

- Promoting minimum tillage cultivation techniques to protect soil and encourage planting of crops less reliant upon irrigation.
- Creating new areas of woodland, tree belts and hedgerows to provide wind breaks across open farmland.
- Protecting the sandstone aquifer and its present good water quality by ensuring pollutants and excess nitrate do not enter the ground water,
- Promoting water conservation measures.
- Promoting management of arable land to deliver habitat for farmland birds.
- Enhancing the rectilinear hedgerow pattern weakened by the loss of some field boundaries, by replanting lost hedgerows and using traditional hedge-laying techniques.
- Strengthening the existing hedgerow pattern through less regular and severe trimming, allowing hedgerows to become denser and taller, thus increasing their use to reduce soil erosion and to contribute to the ecological network.
- Increasing the number of native hedgerow trees throughout this area, which are currently predominantly English or sessile oak and create/ restore species rich hedgerows where appropriate.

SEO3: Integrate new green infrastructure and conservation of historic features into the redevelopment of derelict land to establish high quality characteristic local environments.

For example, by:

- Promoting the appropriate restoration and interpretation of the conspicuous reminders of the coal mining industry.
- Creating new landscapes, including woodland, heathland and amenity land, which is open to the public, on previous derelict land and spoil heaps.
- Promoting the industrial heritage of the area by retaining some heritage features, including old mining buildings and mining machinery, to offer educational and cultural history resources.
- Promoting geodiversity in key sites.

Additional opportunities

1. Enhance Sherwood's few, but significant, hydrological and riparian assets.

For example, by:

- Managing over–abstraction of the aquifer and some of the area's rivers, through careful use of water and the use of other, environmentally sustainable, sources of water supply where possible.
- Creating and extending natural buffer strips of riparian vegetation and wetland habitat along the length of the rivers.
- Maintaining and/or restoring the rare wet heaths in this area which have been damaged by drainage and over-abstraction.

2. Consider the location and design of new development to retain local distinctiveness.

For example, by:

- Ensuring cultural heritage, protection of local vernacular, and sense of place are considered in the process of planning for likely settlement expansion.
- Conserving the character of historic Sherwood settlements such as medieval village cores, estate villages and planned colliery villages by following guidance in Conservation Area Appraisals.
- Ensuring new development enhances settlement character and integrates into the landscape / townscape by ensuring it is sensitively located and designed, using local materials such as sandstone, red brick and pantiles and limestone.
- Protecting islands of solitude found where there is little settlement intrusion, for example in the agricultural land to the north of the area, which is remote and encompassed by wooded horizons.
- Ensuring high quality design and implementation of infrastructure, which complements and contributes to the strategic network of green spaces and routes and avoids route severance.

3. Conserve the characteristic geodiversity of the area, including surface expression (for example, caves and sandstone outcrops).

- Identifying and protecting the characteristic geodiversity of the NCA, within and outside designated sites, including surface expressions of the underlying geology, such as the caves and the sandstone outcrops. Provide access to and interpretation about geodiversity assets at appropriate locations.

4. Promote, where appropriate, opportunities for renewable energy and timber supply.

- Supporting sustainable timber production, and increase the potential for biomass as a by-product of coniferous plantations and in presently unmanaged mixed woodlands; and support other energy crop provision where appropriate

Supporting document 1: Key facts and data

Total area: 53,456 ha.

1. Landscape and nature conservation designations

There are no National Parks or Areas of Outstanding Natural Beauty in this NCA.

Source: Natural England (2011)

1.1 Designated nature conservation sites

The NCA includes the following statutory nature conservation designations:

Tier	Designation	Name	Area (ha)	Percentage of NCA
European	Special Protection Area (SPA)	n/a	0	0
	Special Area of Conservation (SAC)	Birklands and Bilhaugh SAC	270	<1
National	National Nature Reserve (NNR)	Sherwood Forest NNR	424	<1
National	Site of Special Scientific Interest (SSSI)	A total of 14 sites wholly or partly within the NCA	1,757	3

Source: Natural England (2011)

Please note: (i) Designated areas may overlap (ii) all figures are cut to Mean High Water Line, designations that span coastal areas/views below this line will not be included.

There are 221 Local sites in Sherwood NCA covering 7,133 ha which is 13 per cent of the NCA.

Source: Natural England (2011)

- Details of individual Sites of Special Scientific Interest can be searched at: http://www.sssi.naturalengland.org.uk/Special/sssi/search.cfm
- Details of Local Nature Reserves (LNR) can be searched http://www.lnr.naturalengland.org.uk/Special/lnr/lnr_search.asp
- Maps showing locations of statutory sites can be found at: http://magic.defra.gov.uk – select 'Designations/Land-Based Designations/Statutory'

1.2 Condition of designated sites

A breakdown of SSSI condition as of March 2011 is as follows:

SSSI condition category	Area (ha)	Percentage of SSSI in category condition
Unfavourable declining	2	0
Favourable	191	11
Unfavourable no change	63	4
Unfavourable recovering	1,493	85

Source: Natural England (March 2011)

- Details of SSSI condition can be searched at: http://www.sssi.naturalengland.org.uk/Special/sssi/reportIndex.cfm

2. Landform, geology and soils

2.1 Elevation

The rolling landform varies from 12m above sea level at its lowest point to 191m above sea level at its highest point. The average elevation of the landscape is 69 m above sea level.

2.2 Landform and process

This is a gently rolling landform of low rounded sandstone hills, which coincide with an outcrop of the Permo-Triassic Sherwood Sandstone Group. The sandstone gives rise to well drained, acidic, sandy soils.

Source: Countryside Commission Countryside Character description.

2.3 Bedrock geology

- The area principally coincides with the outcrop of Triassic Sherwood Sandstone Group and Permian Lenton Sandstone Formation, which forms a belt of low hills.
- The Lenton Sandstone comprises bright red fine-grained sandstone, above which is the much thicker and more extensive outcrop of the brownish red coarse grained Nottingham Castle Sandstone Formation, which also contains quartzite pebbles.
- Permian Marl underlies the sandstone forming the base of a major aquifer.
- Under lying Coal Measures.
- A breakdown of solid geology as a proportion of total land area is as follows:
  - 72 per cent pebbly sandstone.
  - 10 per cent sandstone.
  - 6 per cent siltstone and sandstone.
  - 2 per cent mudstone and sandstone.

Source:East Midlands Regional Landscape Character Assessment

2.4 Superficial deposits

The superficial deposits are comprised of clay, silt, sand and gravel.

Source: East Midlands Regional Landscape Character Assessment

2.5 Designated geological sites

Tier	Designation	Number
National	Geological Site of Special Scientific Interest (SSSI)	0
National	Mixed Interest SSSIs	0
Local	Local Geological Sites	41

Source: Natural England (2011)

- Details of individual Sites of Special Scientific Interest can be searched at http://www.sssi.naturalengland.org.uk/Special/sssi/search.cfm

2.6 Soils and Agricultural Land Classification

The soils derived from the sandstone are largely acidic and nutrient poor. These soils lack podzol-forming conditions that help soils retain water and so are free-draining, allowing the aquifer to maintain high water levels. Traditionally, the nutrient poor soils, particularly where they were susceptible to wind erosion, discouraged arable farming in the area, but modern farming methods such as the use of lime, artificial fertilizers and irrigation have increased soil productivity.

Source: Natural England Natural Area Profile.

The main grades of agricultural land in the NCA are broken down as follows (as a proportion of total land area*):*

Agricultural Land Classification	Area (ha)	Percentage of NCA
Grade 1	0	0
Grade 2	4,209	8
Grade 3	30,415	57
Grade 4	1	<1
Grade 5	0	0
Non-agricultural	10,036	19
Urban	8,796	16

Source: Natural England (2010)

Maps showing locations of sites can be found at:
http://magic.defra.gov.uk – select 'Landscape' (shows ALC and 27 types of soils).

3. Key waterbodies and catchments

3.1 Major rivers/canals

The following major rivers/canals (by length) have been identified in this NCA.

Name	Length in NCA (km)
Chesterfield Canal	17
Dover Beck	1
River Leen	6
River Idle	7
River Poulter	12
River Meden	17
River Ryton	19
River Maun	31

Source: Natural England (2010)

The River Ryton drains the northern part of the area, flowing north-eastwards to join the River Idle. The central area is drained north-eastwards by a series of small rivers, including the Poulter, Meden, Maun and Rainworth Water, all of which also join the Idle along the eastern edge of the area. The southern part of the area is drained by the River Leen which flows southwards to join the River Trent.

Please note: other significant rivers (by volume) may also occur. These are not listed where the length within the NCA is short.

3.2 Water quality

The total area of Nitrate Vulnerable Zones covers 100 per cent of the NCA.

Source: Natural England (2010)

3.3 Water Framework Directive

Maps are available from the Environment Agency showing current and projected future status of water bodies: http://maps.environment-agency.gov.uk/wiyby/wiybyController?ep=maptopics&lang=_e

4. Trees and woodlands

4.1 Total woodland cover

This NCA contains 11,583 ha of woodland (22 per cent of the total area), of which 875 ha is ancient woodland (2 per cent of the total area). The Greenwood Community Forest, one of twelve Community Forests established to demonstrate the contribution of environmental improvement to economic and social regeneration, covers 17,809 ha of this NCA, which is 33 per cent.

Source: Natural England (2010)

4.2 Distribution and size of woodland and trees in the landscape

Woodland cover in the Sherwood Natural Area is very high, covering approximately 22 per cent of its area. Of considerable conservation interest, and arguably Sherwood's most important feature, are the ancient wood-pasture and ancient semi-natural broadleaved woodlands that have been wooded since at least 1600, and support a great diversity of wildlife, particularly deadwood beetles and other invertebrates. Internationally important wood pasture containing veteran stag-headed oaks is also found in the parklands of the Dukeries. Woodland cover in the north is generally rather less than elsewhere in the area and tends to have a greater diversity including species such as ash, oak, birch, sweet chestnut, wych elm, beech, alder and willows. Wet woodlands, characterised by alder and willow, line several streams.

Source:Natural England, Countryside Quality Counts.

4.3 Woodland types

A statistical breakdown of the area and type of woodland found across the NCA is detailed below.

Area and proportion of different woodland types in the NCA (over 2 ha).

Woodland type	Area (ha)	Percentage of NCA
Broadleaved	5,087	10
Coniferous	5,110	10
Mixed	387	1
Other	999	2

Source: Forestry Commission (2011)

Area and proportion of ancient woodland and planted ancient woodland (PAWS) within the NCA.

Woodland type	Area (ha)	Percentage of NCA
Ancient semi-natural woodland	424	<1
Ancient re-planted woodland (PAWS)	451	<1

Source: Forestry Commission (2011)

5. Boundary features and patterns

5.1 Boundary features

Low, heavily managed hawthorn hedges are common in this NCA, although agricultural stewardship programmes are beginning to reverse this trend. In Sherwood the hedgerows and roadside verges can be healthy and contain gorse, broom and bracken.

Source: Countryside Character Area description; Countryside Quality Counts (2003)

5.2 Field patterns

Post enclosure field patterns remain the framework of the agricultural landscape. Medium to large fields of rectilinear pattern, divided by low hawthorn hedges, which are often treeless.

Source: Countryside Character Area description; Countryside Quality Counts (2003)

6. Agriculture

The following data has been taken from the Agricultural Census linked to this NCA.

6.1 Farm type

The landscape's mixed farming character is supported by figures on farm type: 63 general cropping farms (29 per cent) and 48 cereal holdings (22 per cent).Survey data from 2000 to 2009 show a 37 per cent rise in the number of cereal farms, while general cropping farms have decreased by 23 per cent (a reduction of 19 holdings). This is predominantly an arable farming NCA and is characteristically a vegetable growing area. Outdoor pigs feature on general cropping farms.

Source: Agricultural Census, Defra (2010)

6.2 Farm size

Farms over 100 ha are the most common farm size, accounting for 75 units, covering more than 84 per cent of the total farmed area. Holdings between 5 -20 ha are the second most common farm size with 49 units, but cover less than 2 per cent of the farmed area. Trends show a reduction in the number of farms above 100 ha between 2000 to 2009 (10 fewer). The number of holdings in both 20 – 50 ha and 50-100 ha size have increased by 3 and 8 holdings respectively.

Source: Agricultural Census, Defra (2010)

6.3 Farm ownership

Nearly 63 per cent of the agricultural land (17,292 ha) is farmed by the owner.

Source: Agricultural Census, Defra (2010)

6.4 Land use

39 per cent of the farmed area is used cereal crops (10,849 ha). Grassland covers 5,486 ha (20 per cent) – the second most prevalent land use. Between 2000 and 2009 there was a 21 per cent (1,056 ha) decrease in the area farmed for cash root crops. The areas farmed for oilseeds increased by 53 per cent (802 ha) up to 2,313 ha and for vegetables increased by 64 per cent (809 ha) up to 2,075 ha.

Source: Agricultural Census, Defra (2010)

6.5 Livestock numbers

Pigs are the most numerous livestock within this landscape (a total of 43,120 animals) compared to a total of 11,177 sheep and 4,730 cattle. The area of grassland, between 2000 and 2009, declined by 740 ha or 12 per cent.There was an overall decline in the number of sheep (5,937 or 35 per cent) and cattle (1,333 or 22 per cent). The number of pigs increased by 5,486 (15 per cent).

Source: Agricultural Census, Defra (2010)

6.6 Farm labour

The figures suggest that the largest number of holdings are managed by owner farmers (318), followed by those with a full-time manager/farmer (51). Family members will often make up the number of farmers. Trends over the last decade show a small decrease in part-time farmers/managers and farm workers, and a decrease in full-time categories (79 less, 22 per cent). Numbers of casual labour also increased during the 2000-2009 period.

Source: Agricultural Census, Defra (2010)

Please Note: (i) Some of the Census data is estimated by Defra so will not be accurate for every holding (ii) Data refers to Commercial Holdings only (iii) Data includes land outside of the NCA belonging to holdings whose centre point is within the NCA listed.

7. Key habitats and species

7.1 Habitat distribution/coverage

Internationally important wood pasture and parkland, containing veteran stag-headed oaks, are found in the Dukeries. They support internationally important populations of invertebrates, as well as a massive array of birds. Important species also include bats, including noctule and Natterer's. Some of the landscaped Dukery Estates also contain reed beds and marsh, providing important habitats for biodiversity, particularly breeding and wintering wildfowl.

Wet woodlands are characteristic features along many of the rivers and streams. They are dominated by species of alder and willow, interspersed with a number of small ash holts.

Extensive lowland heathland was once a characteristic of Sherwood, and the remaining mosaic of heathers and acid grassland is floristically distinct from the heathlands of Hampshire and Dorset. Locally rare shrubs include petty whin, dwarf gorse and bilberry. Nationally rare birds include nightjar and woodlark. The rich and important invertebrate community includes green tiger beetle.

Concentrations of heathland can be found around Rainworth, Kirkby-in-Ashfield, Clipstone Forest, Budby and Clumber Park.

Source: Sherwood Natural Area Profile

7.2 Priority habitats

The Government's new strategy for biodiversity in England, Biodiversity 2020, replaces the previous Biodiversity Action Plan (BAP) led approach. Priority habitats and species are identified in Biodiversity 2020, but references to BAP priority habitats and species, and previous national targets have been removed. Biodiversity Action Plans remain a useful source of guidance and information. More information about Biodiversity 2020 can be found at; www.naturalengland.org.uk/ourwork/conservation/biodiversity/protectandmanage/englandsbiodiversitystrategy2011.aspx.

The NCA contains the following areas of mapped priority habitats (as mapped by National Inventories). This will be used to inform future national inventory updates.

Priority habitat	Area (ha)	Percentage of NCA
Broadleaved mixed & yew woodland (Broad Habitat)	3,767	7
Lowland heathland	993	2
Lowland calcareous grassland	37	<1
Coastal & floodplain grazing marsh	167	<1
Reedbeds	59	<1
Lowland meadows	22	<1
Fens	24	<1

Source: Natural England (2011)

Note that the boundary of the NCA is the mean high water mark and thus open water and marine areas are not included.

Maps showing locations of priority habitats are available at:

- http://magic.defra.gov.uk – Select 'Habitats and Species/Habitats'

7.3 Key species and assemblages of species

- These are listed in Annex 1 (full document only)
- Maps showing locations of some key species are available at: http://magic.defra.gov.uk – Select 'Habitats and Species/Habitats'
- Maps showing locations of S41 species are available at: http://data.nbn.org.uk/

8. Settlement and development patterns

8.1 Settlement pattern

In the north there is a dispersed pattern of scattered villages, hamlets and isolated farmsteads. Settlement on the Sherwood heaths takes the form of scattered villages and farmsteads. These were originally small farming settlements but many have expanded this century to become mining villages. Extensive colliery settlements occur around villages such as Calverton, Bilsthorpe, Edwinstowe and Rainworth. There is evidence of expansion of the urban fringe around Mansfield Rainworth and Calverton.

Source: Countryside Character Area description; Countryside Quality Counts (2003)

8.2 Main settlements

The main settlements within Sherwood are: Nottingham (population 666,358 - although the whole settlement does not lie in the NCA); Mansfield and Worksop.

Source:2001 Census, ONS; Countryside Character Area description; Countryside Quality Counts (2003)

8.3 Local vernacular and building materials

Red brick and pantiles are frequent in the east, limestone in the west and sandstone elsewhere. Red sandstone is characteristic to Sherwood.

Source:Countryside Character Area description; Countryside Quality Counts (2003)

9. Key historic sites and features

9.1 Origin of historic features

Heathland and tree cover make it difficult to identify features from the air hence Sherwood has potentially a significant undiscovered historical resource. There is some evidence of Roman camps and villas such as the Roman Villa at Oldcoates. Rufford Abbey Cistercian Monastery includes a monastic precinct, water management works, openfield system and a post medieval building. The large estate houses and gardens of the Dukeries and the man-made sandstone caves in Castle Rock under Nottingham Castle are contrasting historic features. Coal mining industrial relics, infrastructure and pit heaps remain in the landscape as a reminder of the impact the coal mining industry had on this landscape.

Source: Countryside Quality Counts Draft Historic Profile, Countryside Character Area description

9.2 Designated historic assets

This NCA has the following historic designations:

- 16 Registered Parks and Gardens covering 4,571 ha.
- 0 Registered Battlefield/s covering 0 ha.
- 42 Scheduled Monuments.
- 1,463 Listed Buildings.

Source: Natural England (2010)

- More information is available at the following address: https://www.english-heritage.org.uk/caring/listing/

10. Recreation and access

10.1 Public access

- 18 per cent of the NCA, 10,337 ha is classified as being publically accessible.
- There are 393 km of Public Rights of Way at a density of per 0.7 km/ km2.
- There are 0 National Trails within Sherwood NCA.

Sources: Natural England (2010)

The table below shows the breakdown of land which is publically accessible in perpetuity:

Access designation	Area (ha)	Percentage of NCA
National Trust (Accessible all year)	0	0
Common Land	2	<1
Country Parks	1,696	3
CROW Access Land (Section 4 and 16)	-	-
CROW Section 15	1,736	3
Village Greens	36	<1
Doorstep Greens	5	<1
Forestry Commission Walkers Welcome Grants	525	<1
Local Nature Reserves (LNR)	177	<1
Millennium Greens	3	<1
Accessible National Nature Reserves (NNR)	423	<1
Agri-environment Scheme Access	9	<1
Woods for People	5,725	11

Sources: Natural England (2011)

Please note: Common Land refers to land included in the 1965 commons register; CROW = Countryside and Rights of Way Act 2000; OC and RCL = Open Country and Registered Common Land.

11. Experiential qualities

11.1 Tranquillity

Based on the CPRE map of tranquillity (2006) it appears to be most tranquil in the core areas of the NCA and to the north where the settlement pattern is sparse. The western periphery, around Nottingham and along the A roads through the area, have a low rating. The mean average for the area is -12 per cent, which suggests the area is not as tranquil as some neighbouring NCAs.

A breakdown of tranquillity values for this NCA are detailed in the table below:

Tranquillity	Score
Highest Value within NCA	40
Lowest Value within NCA	-86
Mean Value within NCA	-12

Sources: CPRE (2006)

- More information is available at the following address: http://www.cpre.org.uk/resources/countryside/tranquil-places

11.2 Intrusion

The 2007 Intrusion Map (CPRE) shows the extent to which rural landscapes are 'intruded on' from urban development, noise (primarily traffic noise), and other sources of visual and auditory intrusion. A breakdown of intrusion values for this NCA are detailed in the following table.

Intrusion category	1960s (%)	1990s (%)	2007 (%)	Percentage change (1960s-2007)
Disturbed	42	63	68	26
Undisturbed	46	24	13	-33
Urban	12	13	19	7

Sources: CPRE (2007)

Notable trends from the 1960s to 2007 are a significant increase in the area of disturbed land, and an even stronger decrease in the amount of land considered being undisturbed. The area has become over 50 per cent more urban than level in the 1960s.

- More information is available at the following address: http://www.cpre.org.uk/resources/countryside/tranquil-places

12 Data sources

- British Geological Survey (2006)
- Natural Area Profiles, Natural England (published by English Nature 1993-1998)
- Countryside Character Descriptions, Natural England (regional volumes published by Countryside Commission/Countryside Agency 1998/1999)
- Joint Character Area GIS boundaries, Natural England (data created 2001)
- National Parks and AONBs GIS boundaries, Natural England (2006)
- Heritage Coast Boundaries, Natural England (2006)
- Agricultural Census June Survey, Defra (2000,2009)
- National Inventory of Woodland & Trees, Forestry Commission (2003)
- Countryside Quality Counts Draft Historic Profiles, English Heritage (2004)*
- Ancient Woodland Inventory, Natural England (2003)
- Priority Habitats GIS data, Natural England (March 2011)
- Special Areas of Conservation data, Natural England (data accessed in March 2011)
- Special Protection Areas data, Natural England (data accessed in March 2011)
- Ramsar sites data, Natural England (data accessed in March 2011)
- Sites of Special Scientific Interest, Natural England (data accessed in March 2011)
- Detailed River Network, Environment Agency (2008)
- Source protection zones, Environment Agency (2005)
- Registered Common Land GIS data, Natural England (2004)
- Open Country GIS data, Natural England (2004)
- Public Rights of Way Density, Defra (2011)
- National Trails, Natural England (2006)
- National Tranquillity Mapping data, CPRE (2007)
- Intrusion map data, CPRE (2007)
- Registered Battlefields, English Heritage (2005)
- Record of Scheduled Monuments, English Heritage (2006)
- Registered Parks and Gardens, English Heritage (2006)
- World Heritage Sites, English Heritage (2006)
- Incorporates Historic Landscape Characterisation and work for preliminary Historic Farmstead Character Statements (English Heritage/Countryside Agency 2006)

Please note all figures contained within the report have been rounded to the nearest unit. For this reason proportion figures will not (in all) cases add up to 100 per cent. The convention <1 has been used to denote values less than a whole unit.

Supporting document 2: Landscape change

Recent changes and trends

Trees and woodlands

- Woodland is a significant feature in the landscape, with 22 per cent coniferous and broadleaved woodland cover forming strong patterns. The area of woodland covered by Woodland Grant Schemes went up from 8 per cent to 13 per cent between 1990 to 2003. Only 875 ha is ancient woodland, and the proportion of these sites covered by WGS has gone down, from 37 per cent to 23 per cent. Some planting has occurred within the Community Forest area around Hucknall, Blidworth and Mansfield, which is of local significance as the blocks of planting are large.

Boundary features

- With previous agricultural expansion, some hedgerow patterns have been lost, and the remaining hedges are often low and over-clipped, in particular on the more intensive arable land. Between 1999-2003 Countryside Stewardship capital agreements for linear features included fencing (6 km), hedge management (14 km), hedge planting and restoration (45 km), restored boundary protection (18 km). The estimated boundary length for Sherwood is about 2,670 km meaning only about 3 per cent of field boundaries (hedges) were covered by agreements between 1999 and 2003. The length of hedgerows in Environmental Stewardship boundary management in 2011 is 689 km, with 36 km of woodland and 14 km of ditch in environmental stewardship boundary management schemes.

Agriculture

- Agriculture is dominated by cropping, but the increase in grassland area up to 2003 (as shown in the Countryside Quality Counts work) has since turned into a 12 per cent decrease, according to the agricultural census data. This data also shows a decrease in sheep and cattle, although the number of pigs increased by 15 per cent. There has also been an increase in the area farmed for oilseeds and vegetables, but a decrease in the area of cash root crops.

Settlement and development

- There is evidence of expansion of the urban fringe around Mansfield, Rainworth and Calverton, and development pressures continue to transform many parts of the area. There is marked dispersed development between Ollerton, East Retford and Worksop, while the A1 upgrading has had an impact in the north of the area.

Semi-natural habitat

- Semi-natural habitats are limited in extent within this NCA. Some 1,768 ha (just over 3 per cent) is designated for nature conservation, and of this approximately 11 per cent is in favourable, and 82 per cent in unfavourable recovering condition (Feb 2010). Up to 2003 the most extensive agri-environment agreements were for maintaining heath and lowland pastures on neutral / acid soils, and re-creating heath.

Historic features

- There are extensive historic estates and parklands in the Dukeries to the south-west of Worksop, but there are also pockets of estate land amidst the arable fields. Just over half of the parkland is covered by agreements. It is estimated that about 80 per cent of historic farm buildings remain unconverted.

Rivers

- The Sherwood aquifer underlies much of the area, and abstraction levels are above those needed to achieve 'good status' in line with the Water Framework Directive. In particular the River Idle is over-abstracted. So while biological and chemical water quality is generally very good, there are issues with possible deterioration through over-abstraction and nutrient inputs.

Drivers of change

Climate change

- Climate trends suggesting increased rainfall, periods of drought, and more frequent storm events.
- Over-abstraction of the aquifer is already an issue and may become a greater problem with hotter and drier summers.
- A changing climate, in particular summer droughts, is likely to increase the vulnerability of the iconic ancient oak woodland and heathland, with veteran trees increasingly vulnerable to damage, pests and disease. Heathland will become more vulnerable to bracken incursion, drought and fire.
- Sandy acid soils may be more vulnerable to damage such as increased erosion through wind-blow and run-off, along with nutrient loss and decreased soil microbial activity.

Other key drivers

- Development pressures around the urban areas and commuter villages are likely to continue. New developments provide opportunities to ensure a high standard of design and a contribution to green infrastructure.
- The area is likely to remain attractive for recreation, with good access to nature along with opportunities for environmental education and understanding our heritage; this is both a challenge and an opportunity.
- The need for food security will result in continued agricultural production, along with changing farming practices, which may impact on ecological habitats, networks and species, as well as landscape character. Agri-environment schemes provide opportunities to work with land managers to incorporate farmland habitats, develop networks of linked habitats and enhance the rural character of the landscape.
- Increased agricultural production may impact on the quality of the soils and will need careful management.
- Restoration of sites affected by the industrial past will provide opportunities to enhance biodiversity and the landscape, whilst ensuring that the legacy of the industrial heritage remains legible within the landscape.
- Sherwood NCA contains many rare species and valuable habitats, including an internationally significant collection of veteran oaks and one of the few UK populations of the Hazel Pot Beetle. Conserving these features, along with the overall landscape character and historic legacy, from the pressures of climate change, recreation and changing land management processes will remain key concerns within Sherwood.

Supporting document 3: Analysis supporting Statements of Environmental Opportunity

The following analysis section focuses on a selection of the key provisioning, regulating and cultural ecosystem goods and services for this NCA. These are underpinned by supporting services such as photosynthesis, nutrient cycling, soil formation and evapo-transpiration. Supporting services perform an essential role in ensuring the availability of all ecosystem services.

Biodiversity and geodiversity are crucial in supporting the full range of ecosystem services provided by this landscape. Wildlife and geologically-rich landscapes are also of cultural value and are included in this section of the analysis. This analysis shows the projected impact of Statements of Environmental Opportunity on the value of nominated ecosystem services within this landscape.

Unenclosed lowland heathland and a mosaic of broadleaved, mixed and coniferous woodland are defining features of Sherwood.

Statement of Environmental Opportunity	Ecosystem service																	
	Food provision	Timber provision	Water availability	Genetic diversity	Biomass energy	Climate regulation	Regulating water quality	Regulating water flow	Regulating soil quality	Regulating soil erosion	Pollination	Pest regulation	Regulating coastal erosion	Sense of place / inspiration	Sense of history	Tranquillity	Recreation	Biodiversity	Geodiversity
SEO 1: Protect, enhance and promote Sherwood as a landscape of international environmental and cultural significance by securing and expanding the iconic mosaic of woods, heaths and parklands, and enhancing recreation and education opportunities.	O	↗	↗ **	O	O	↗ **	↗ *	↗ *	↗ *	↗ **	↗ **	↗ *	n/a	↑ ***	↑ ***	↗ **	↑ ***	↑ ***	O
SEO 2: Promote sustainable agricultural practices to help protect the major under lying aquifer, manage issues with soil erosion in Sherwood and increase farmland birds.	O	↔	↗ **	O	↗ *	O	↗ **	↗ *	↗ **	↑ ***	↗ **	↗ *	n/a	↗ *	↗ *	↗ **	↗ *	↗ **	↗ *
SEO3: Integrate new Green infrastructure and conservation of historic features into the redevelopment of derelict land to establish high quality characteristic local environments	↔	↗ *	O	O	O	↗ *	↗ *	↗ *	↗ *	↗ *	↗ *	O	n/a	↑ ***	↑ ***	↗ *	↑ ***	↑ **	↑ **

Note: Arrows shown in the table above indicate anticipated effect on service delivery ↑ = Increase ↗ = Slight Increase ↔ = No change ↘ = Slight Decrease ↓ = Decrease.
Asterisks denote confidence in projection (*low **medium ***high) O = symbol denotes where insufficient information on the likely effect is available .

Dark plum = national importance; mid plum = regional importance; light plum = local importance

Landscape attributes

Landscape attributes	Justification for selection
The free draining geology and acidic soils support a rare and valuable lowland heath/acid grassland mosaic, often found within the wood pasture of the managed country parks, but also found on areas of marginal land.	■ Dry sandy heathland, dominated by heather, gorse and bracken, was once widespread but now mainly remains in managed areas such as Sherwood National Nature Reserve (NNR) and Birklands and Bilhaugh Special Area of Conservation (SAC). ■ It is a rare and important priority habitat, characteristic of this NCA because of the surface sandstone, but not common in neighbouring areas. ■ The heathland is important for a range of characteristic breeding birds such as the tree pipit and woodlark.
Woodland is a distinctive feature of the area with broadleaved, mixed and coniferous woodlands, ranging from ancient oak wood pasture to pine plantations.	■ Views throughout the area, even long distance ones, are often bounded by woodland on all sides, giving a sense of enclosure and tranquillity. ■ The habitats are home to a wide variety of species; for example, great-spotted woodpecker, green woodpecker, tawny owl, woodlark, redstart and nightjar, and approximately 1,000 beetle species. The area also supports a number of bat species, including noctule and Leisler's. ■ Sherwood NNR contains more than 1,000 ancient oaks, most of which are known to be over 500 years old. It is rare to have such a high density of ancient oaks and Sherwood possibly provides one of the highest concentrations of ancient oaks in Western Europe. ■ The Forestry Commission and private landowners manage estates in Sherwood for timber. The use of rotational felling and restocking in the pine plantations provides much habitat for nightjars. The mixed coniferous and broadleaved woodland provide a range of woodland habitats. Welsh Clearwing Moth and the Hazel Pot Beetle are rare species found here. ■ The high amount of woodland cover provides a carbon sink and there is potential for woodland planting which would increase the carbon storage. ■ The woodland areas are well-used recreation sites.

Landscape attributes	Justification for selection
Occasional narrow river valleys with their marshy flats and flood meadows are important features.	■ These river valleys contain permanent grasslands and flood meadows, often with fringing alders, willows and scrub, which provide important habitat and landscape features. ■ Arable land sometimes extends right to the water's edge, and reducing the areas where this occurs would bring landscape and biodiversity benefits. ■ Characteristic bankside woodland occurs extensively in some sections, often along steep flanking slopes, and ash holts are a particular feature of the River Ryton.
Large country house estates with their parkland and narrow artificial lakes are distinctive.	■ These are particularly distinctive in the area known as the Dukeries. There are a few associated nucleated estate villages, such as Perlethorpe and Hardwick, and some isolated farmsteads, but the large ducal houses such as Welbeck Abbey, Thoresby Hall, Rufford Abbey and Newstead Abbey, help to define the area. ■ The associated lakes are important artificial historic features created in the landscape to enhance the visual appearance of the Dukeries, which now provides rare and valuable habitats including reedbeds and fen. ■ The large houses are important historic features and some have important cultural associations, for example, Newstead Abbey was the family home of the poet Lord Byron.
The sandstone geology is a defining feature in this NCA. Outcrops of sandstone are a key feature, as are the caves which have formed, or been created, in the rock. Local sandstone is a distinct building material of the local vernacular.	■ The Lenton Sandstone is a bright red fine-grained sandstone which is distinctive as a local building material. ■ Outcrops of sandstone are distinctive features, the most famous being Castle Rock beneath Nottingham Castle. ■ Caves have formed naturally in the sandstone, or have been created by man, forming unusual features in the NCA.
Industrial heritage originating from the extensive coal mining industrial which operated in Sherwood is evident in the legacy of spoil heaps, old mining equipment and mining villages.	■ Deep coal mines were sunk in the late 19th and early 20th centuries, with a number of pits being established near existing villages away from the main centres of population. These villages have a distinct mining heritage but are now mostly commuter settlements and include Clipstone, Annesley and Ollerton. ■ It is necessary to protect the industrial heritage and cultural history of this legacy, while also restoring the degraded landscape, for example to woodland or amenity land. Some mining relics are now landmark features; however, some intrusive un-reclaimed sites still exist. ■ Opportunities should be taken to restore the derelict mining landscapes to heathland, which is far more difficult and costly to restore on agricultural land.

Landscape attributes	Justification for selection
Some parts of Sherwood, especially in the north, retain a high level of tranquillity and a low level of intrusion from urban influences and light pollution.	■ Based on the 2006 CPRE map of tranquillity, Sherwood is most tranquil in the core areas of the NCA and to the north where the settlement pattern is sparse. This is a valuable and shrinking feature and should be protected. ■ Tranquillity and intrusion are an issue around the peripheries of the NCA where the settlement pattern is much denser. The popular recreational areas of Sherwood Forest and the Dukeries require careful management to retain tranquillity and a low level of intrusion.
Parliamentary enclosure field patterns form the framework of the agricultural landscape and medium to large fields of rectilinear pattern, divided by low treeless hawthorn hedges are characteristic, especially to the north.	■ The field pattern contributes to the cultural history formed as a result of historic land uses, although formal enclosure did not occur until the 18th and 19th centuries. The previous field pattern has almost been totally removed from the Sherwood landscape. ■ Agricultural intensification and the move to arable farming have resulted in the loss of some field boundaries. Other field boundaries are low and treeless and whilst this may be a characteristic, increasing the trees and hedgerow density would bring ecological and landscape benefits, so would not alter the landscape character negatively. ■ There is an absence of hedgerow trees in this area and, as a well-wooded NCA, new native hedgerow tree planting would be appropriate and in character.

Landscape opportunities

- Protect, manage and expand the lowland heath / acidic grassland mosaic found in areas of marginal land, which provide valuable habitat to many rare species (including club-mosses, petty whin, dwarf gorse and bilberry) and provide an interesting and educational feature for the many visitors to Sherwood.

- Protect the character and historic resource of the large country houses and parklands found in the Dukeries, and elsewhere in the area. Conserve their valuable parkland and lakeside habitats, protect the condition of the large houses, and conserve the historic estates for the cultural history they contribute to the landscape character.

- Protect the unique features of the sandstone geology such as the caves under Nottingham Castle.

- Manage the oak-birch broadleaved woodland, ancient wood pasture and coniferous plantations throughout the area for their contribution to the wooded landscape character, their wildlife value, high recreational value and their contribution to retention of greenhouse gases.

- Manage the narrow river valleys to conserve and enhance their riparian habitats. These habitats are rare in this character area, but can form an important component of the landscape character which is of high wildlife value.

- Manage development to reduce its impact on tranquillity, and where appropriate plant native tree species in keeping with the area, to screen the impacts of development. Protect identified existing rural areas where tranquillity and intrusion, including light pollution, are low to ensure this valued resource is maintained.

- Conserve the character of the settlements by using traditional building materials and patterns in any new development.

- Restore derelict landscapes (including previous colliery spoil heaps) to heathland, woodland, amenity land or agricultural land as appropriate, whilst ensuring the industrial heritage of the area is conserved and promoted.

- Strengthen the network of hedgerows, which is presently low and overly managed, to enhance the historic landscape pattern and ecological networks. Plan to increase the number of native hedgerow trees, which should be predominantly English and/ or sessile oak, and which are lacking in this otherwise wooded character.

Ecosystem service analysis

The following section shows the analysis used to determine key Ecosystem Service opportunities within the area. These opportunities have been combined with the analysis of landscape opportunities to create Statements of Environmental Opportunity.

Please note that the following analysis is based upon available data and current understanding of ecosystem services. It does not represent a comprehensive local assessment. Quality and quantity of data for each service is variable locally and many of the services listed are not yet fully researched or understood. Therefore analysis and opportunities may change upon publication of further evidence and better understanding of the inter-relationship between services at a local level.

Service	Assets/ attributes: main contributors to service	Main beneficiary	State	Analysis	Opportunities	Principal services offered by opportunities
Food provision	Soils – sandy soils which are predominantly grade 3 agricultural, supporting arable farming	National	The Sherwood area supports commercial scale, mainly arable farming. The sandy soils are mostly Grade 3 although irrigation and fertiliser inputs allow them to be used flexibly. The freely draining, slightly acid sandy soil does not become waterlogged in the winter, allowing good year round growing and lifting conditions. Root crops predominate and carrots from this area supply many UK supermarkets. Outdoor pig and poultry systems can also be seen. Pasture and dairying is concentrated in the small area north of Worksop, though English Longhorn cattle are used to graze the ecologically sensitive wood pasture of the Sherwood NNR.	Food provision is an important service, and the root crops grown here make a significant contribution to local, regional, and national food resources. Farming activity can have a significant impact on other services particularly those relating to water and soils. Irrigation is very important on the sandy soil, and has to be carefully managed so as not to lead to increased shortfalls in water resource. 100 per cent of the Sherwood NCA is designated as a Nitrate Vulnerable Zone to prevent excess nitrate entering the aquifer. Some farming practices can lead to increased rates of soil erosion, which have a detrimental effect on agricultural productivity over the long term. Maintaining vegetation cover, avoiding soil compaction and creating wind breaks through hedgerows and tree belts are important measures within this NCA.	There is an opportunity to ensure agriculture is managed sustainably and does not have a significant detrimental effect on the value of other ecosystem services or assets such as water availability, water quality and soil quality. This will in turn bring benefits to agricultural land and assist with future provision of food.	**Food provision** **Water availability** **Regulating water quality** **Regulating soil erosion**

Service	Assets/ attributes: main contributors to service	Main beneficiary	State	Analysis	Opportunities	Principal services offered by opportunities
Timber provision	Sherwood Forest Pines estate approximately 3,100 ha managed for timber alongside other interests Soils – poor grade soils	Regional	The Forestry Commission and several private landowners have a large estate in the Sherwood area managed for productive timber. Sherwood Forest Pines estate is approx 3,100 ha, which includes multiple use areas for recreation, wildlife conservation and timber production. Predicted softwood availability from all Forestry Commission estates for 2007-2011 across the whole of Central England region was forecast at 258,000 cubic metres in 2005.	The timber woodland sites are associated with many of the NCA's most important wildlife resources and provide valuable recreational opportunities, although the plantation woodlands are not in character with the traditional oak/ birch wooded nature of the area. An increase in timber production could increase climate change regulation through increased carbon sequestration and bring local benefits to renewable energy through local heating energy sources. An increase in timber provision would require new land presently not wooded to be planted and this land would need to be appropriately sourced so as not to affect habitats, food provision or areas of archaeological resource. There may be potential for new woodland sites on some of the derelict land associated with the mining industry, on marginal agricultural land and land bordering existing woodland.	There is an opportunity to ensure timber-producing commercially managed forests are managed for multiple benefits (for example, recreation, biodiversity, timber). There may be opportunities to increase timber production within appropriate settings.	**Timber provision** **Biodiversity** **Recreation**

Service	Assets/ attributes: main contributors to service	Main beneficiary	State	Analysis	Opportunities	Principal services offered by opportunities
Biomass energy	Woodlands cover 20 per cent of area Stands of short rotation coppice, for example, along the A614	Local	The existing very high woodland cover (22 per cent) offers an increased potential for the provision of biomass as a by-product of commercial timber production, as well as through bringing unmanaged woodland under management. There are currently prominent stands of short rotation coppice (SRC) beside the A614 in the NCA. For information on the potential landscape impacts of biomass plantings within the NCA, refer to the tables on the Natural England website.	Although a recent study suggested the NCA has medium potential for SRC but with some small areas of high potential, new sites for biomass would need to be carefully considered first. (Biomass production in the area is currently low; however the area has medium potential for SRC. Increased provision of SRC for fuel has the potential to sequest carbon and provide renewable supplies of energy, but could decrease provision of future food if placed on farmed areas. Major expansion could also affect sense of place if SRC becomes a major component of the landscape. There may be potential for new sites on previously derelict land from the mining industry, on marginal agricultural land and land bordering existing woodland.	There is an opportunity to increase production of biomass as a bi-product of existing commercial timber production and through introducing management in currently unmanaged woodlands. There is also an opportunity for small-scale biomass production through planting on sites including small parcels of land isolated by development and are not suitable for agriculture, spoil heaps and closed landfill sites.	**Biomass energy** **Biodiversity** **Regulating soil erosion**

Service	Assets/ attributes: main contributors to service	Main beneficiary	State	Analysis	Opportunities	Principal services offered by opportunities
Water availability	Aquifer – supplies 10 per cent of Environment Agency Midlands region Rivers Surface waters	Regional	The majority of the NCA overlays the East Midlands Sherwood Sandstone aquifer. The aquifer provides a strategically important groundwater resource, the source of significant public water supply (about 10 per cent of all water supplies in the Environment Agency's Midlands region. Over-abstraction is a continuing issue for the aquifer, with abstraction levels greatly above those needed to obtain "good status" in line with the Water Framework Directive (Environment Agency, 2009). Rivers in the NCA generally have an integrated 'no water available' Catchment Abstraction Management (CAMs) status, with the exception of the River Idle to the north which has been classified as 'over abstracted.' The closing of many of the collieries has also seen a marked reduction in watercourse levels, as it is no longer pumped from the mines for safety reasons.	Significant volumes of abstracted water are used for agricultural irrigation in Sherwood, and as a public water supply to the growing population of the East Midlands. This abstraction results in low groundwater levels and low base-flows in the relatively small number of rivers on the surface of this landscape. Water levels in the lakes of the Ducal estates, some of which are Sites of Special Scientific Interest (SSSI) are also low, and this is having an overall negative effect on the ecology of these waterbodies. Increasing water availability (through greater capture/infiltration) and continuing to carefully manage abstraction is likely to reduce biodiversity loss in the wetland habitats and improve water quality, whilst maintaining water availability. This could also increase agricultural outputs during periods when water for irrigation is limited.	There is an opportunity to manage water within the NCA to slow runoff rates and increase infiltration rates into the aquifer. There is also an opportunity to manage over-abstraction from the aquifer and river systems through implementing careful and efficient use of water, and through development of alternative more sustainable sources of water supply where possible. Managing crop types and cultivation methods also has potential to provide benefits (although it is recognised that many land managers already operate using environmentally sensitive practices).	**Water availability** **Regulating water quality** **Regulating soil erosion**

Service	Assets/ attributes: main contributors to service	Main beneficiary	State	Analysis	Opportunities	Principal services offered by opportunities
Climate regulation	Woodland Soils (limited contribution)	Regional	The high woodland cover in the area, both deciduous and coniferous plantation woodland, brings benefits for carbon sequestration. The sandy soils over most of the NCA have a low carbon content (0-5 per cent) but there may be potential to increase carbon sequestration and storage by increasing organic matter inputs within agricultural systems.	Carbon storage in the woodland is currently relatively high (woodland cover 22 per cent), but may be increased by the planting of additional woodland, on appropriate sites, and through management. There is limited potential for increasing the carbon sequestration and storage capacity of the soils by increasing organic matter inputs and reducing the frequency / area of cultivation. If planted with native trees there is also potential to increase biodiversity services and recreation (if access is provided). Planting may also increase the sense of place by enhancing the woodland character of Sherwood.	There is an opportunity to increase the carbon storage potential of the area through the planting of new woodland (as referenced above in timber and biomass service provision). This would need to result in a net increase of the woodland cover and would only be appropriate if suitable sites could be found (see above).	**Climate regulation** **Timber provision** **Biodiversity**

Service	Assets/ attributes: main contributors to service	Main beneficiary	State	Analysis	Opportunities	Principal services offered by opportunities
Regulating soil erosion	Semi-natural vegetation cover Hedgerows and tree belts (windbreaks) Woodland, copses, scrub	Regional/ Local	The well-drained, acidic, sandy soils found in this NCA are at risk of wind and water based soil erosion, especially if the impact of climate change brings about drier summers, more intense rainfall events and higher wind speeds. These lighter textured soils have an enhanced risk of soil erosion on moderately or steeply sloping land where cultivated or bare soil is exposed, including that under outdoor pig rearing (a characteristic of this NCA). The intense use of the agricultural land for root crops could also increase the risk of soil erosion where it is not properly managed. The slightly acid loam and clay soils with impeded drainage are prone to capping/slaking, leading to increased risk of erosion. These soils are easily compacted by machinery or livestock if accessed when wet, increasing the risks of soil erosion by surface water run-off, especially on steeper slopes.	The current rate of soil erosion is a significant issue in this NCA. Increasing regulation of soil erosion by careful management of agricultural practices and by planting more permanent vegetation would help to reduce compaction, trap sediment and improve soil health. This approach would offer benefits to biodiversity, climate regulation and agriculture in the long run, by helping bind the soil, reducing sedimentation in rivers and by storing limited amounts of carbon in the soil. This could help maintain fertility in the longer term.	There is potential to increase the semi-natural vegetation cover by restoring heathland and planting small areas of woodland /short rotation coppice. This may also help increase organic matter content of the freely draining slightly acid sandy soils that dominate this NCA. These management measures will improve soil structure, help increase water infiltration (aiding aquifer recharge) and reduce the risk of water and wind based erosion. There are also opportunities to sustainably manage agricultural land management practices to reduce the impact on soil erosion, for example through types of crop rotations, use of machinery and timing of cropping.	**Regulating soil erosion** **Regulating soil quality** **Regulating water quality** **Water availability**

Service	Assets/ attributes: main contributors to service	Main beneficiary	State	Analysis	Opportunities	Principal services offered by opportunities
Regulating water flow	Woodland Wetlands Rivers Surface waters	Local	The main catchment within the NCA is the River Trent. The Environment Agency flood risk map indicates that for much of the NCA flooding is not generally a major issue. Rainfall tends to soak quickly into the sandstone. However, flooding has caused significant localised damage in severe weather events, for example in Worksop in summer 2007 the River Idle flooded affecting 200 properties. The River Erewash in the south-east of the NCA and the River Meden and River Maun also experienced flooding at this time. Many of the areas alongside the rivers in the NCA offer informal flood storage. The River Idle Washlands SSSI, located downstream of Bawtry, is the principal area of floodplain wet grassland in the catchment.	Flooding has not been a major issue in this NCA within the recent past The high woodland cover, as well as the porous nature of the soils and geology, help to ensure rainwater is intercepted and infiltrated effectively. However, actions in this NCA can impact flooding downstream in the Humberhead Levels and elsewhere within in the River Trent basin. Careful water management can help to reduce the severity of flooding events downstream.	There is an opportunity to increase vegetation cover and including wet woodland to create water storage areas, in accordance with sustainable urban drainage systems. There are opportunities to create and extend semi-natural floodplain habitats such as flood meadows, wet woodland and reedbed to mitigate the severity of downstream flood events.	**Regulating water flow** **Regulating water quality** **Regulating soil erosion** **Regulating soil quality**

Service	Assets/ attributes: main contributors to service	Main beneficiary	State	Analysis	Opportunities	Principal services offered by opportunities
Pollination	Areas of semi-natural habitat, hedgerows, grass margins	Local	The habitats in the area support a variety of pollinators, which are essential to maintaining the habitats and to agricultural production. It is possible that the population of pollinators has fallen, with some species becoming isolated in pockets, due to the increase of commercial scale farming, the changing climate or use of chemicals, but the causes are unclear.	The hedgerows, heathland, acid grassland, wood pasture habitats found in Sherwood provide good habitats for pollinators and should be managed in good condition and expanded where possible to ensure this service continues effectively. A good network of semi-natural habitat should be developed throughout the NCA to ensure this service performs to maximum effect.	Pollination is not currently a service required by the predominant agricultural crop, however, there are pockets of agricultural land which do benefit from it and an increase in local populations of pollinating invertebrates may aid in affording a greater diversity of crop types to be grown in the future. A strong and wider network of semi natural habitats would bring significant benefit for biodiversity too.	**Pollination** **Biodiversity**
Pest regulation	Areas of semi-natural habitat/ hedgerows/ grass margins	Local	The habitats in the area support a variety of species, such as beetles, which can regulate the populations of pests such as aphids.	The hedgerows, heathland, acid grassland, wood pasture habitats found in Sherwood provide good habitats for species which regulate pests and should be managed to afford a wide variety of niches and expanded where possible to ensure this service continues effectively.	A stronger and wider network of semi-natural habitats would bring benefit for pest regulation, as well as pollination and biodiversity services.	**Pest regulation** **Pollination** **Biodiversity**

Service	Assets/ attributes: main contributors to service	Main beneficiary	State	Analysis	Opportunities	Principal services offered by opportunities
Sense of place/ inspiration	Sherwood Forest NNR, containing the Major Oak and its fellow ancient oaks, and Sherwood Pines The Ducal Estates The mining heritage	National / International	The sense of place is most strongly shaped by the international legend of Robin Hood, which is intrinsically linked with Sherwood Forest and the City of Nottingham. A sense of place is provided by the varied but distinctive patchwork enclosed arable land, large pine plantations, lowland woodland and heaths of the former medieval Sherwood Forest and wastes. The historic parklands and estates of the Dukeries and the built relicts of the former coal industry add to the sense of place. Feelings of inspiration and escapism are associated with the varying views of wooded skylines and open heaths creating a strong sense of enclosure in an otherwise urbanised landscape. This landscape offers opportunities to escape into the past, or into a world of myths and legends. Sherwood Forest NNR, containing the Major Oak and its fellow ancient oaks, and Sherwood Pines, actively promotes this experiential quality, particularly for children's activities associated with the legend of Robin Hood.	Increasing sense of place has the potential to increase tourism. Management to enforce sense of place is also likely to increase sense of history. Conserving and enhancing the distinct patchwork of landscape features is also likely to benefit biodiversity by enhancing or expanding available habitat.	There is an opportunity to maintain a sense of place, valued by local people and tourists, by conserving the patchwork and variety of landscape features which give the NCA its distinctive sense of place. Most prominently there are opportunities to conserve and promote the cultural association with Robin Hood, as it re-enforces the sense of place Sherwood has on an international scale. There are also opportunities to strengthen the landscape pattern through increasing the hedgerow networks, and to expand areas of woodland and heathland as appropriate. This would bring benefits for other regulating services	**Sense of place/ inspiration** **Recreation** **Biodiversity** **Regulating soil erosion**

Service	Assets/ attributes: main contributors to service	Main beneficiary	State	Analysis	Opportunities	Principal services offered by opportunities
Sense of history	The Dukeries Sherwood Forest ancient oaks Nottingham Castle and caves The mining heritage	National	A significant sense of history is engendered by the tracts of ancient woodlands: remnants of Sherwood Forest and their strong associations with Robin Hood. A sense of history is associated with the Dukeries, an extensive area of historic estates, parklands and ornamental gardens, and the northern sandstone estates. Notable estates include Clumber Park, Welbeck Abbey, Thoresby and Babworth Parks. This historic character is reinforced by the nucleated pattern of estate villages related to country houses within the Dukeries, such as Perlethorpe, and the dispersed pattern of villages, hamlets and farmsteads unaffected by coal mining elsewhere. Other emblems of the area's varied past are the conspicuous relics of the coal mining industry including pit heaps, mineral lines, the Chesterfield Canal, Nottingham as the centre of lace making from the 17th to 20th centuries, as well as cultural links to the Pilgrim Fathers. Nottingham Castle and the caves beneath it, have a long history and form a much visited tourist attraction.	Maintaining, conserving and enhancing the sense of history, through increased interpretation and opportunities to interact with the history, may have potential to increase the service. This may lead to increased recreation and tourism in the area, although management would be needed to ensure this is sustainable and does not have a negative impact on the assets themselves. The reinforced sense of history could contribute strongly to sense of place in the landscape.	Sherwood Forest NNR and the surrounding area should continue to be managed for biodiversity and the sense of history they provide to ensure the area remains in suitable condition and provides a valuable recreational and tourism asset. There is an opportunity to increase sense of history by protecting the character and historic resource of the large country houses and parklands found in the Dukeries, and elsewhere in the area; conserve their valuable parkland and lakeside habitats, protect the condition of the large houses, and conserve the historic estates for the cultural history they contribute to the landscape character.	**Sense of history** **Sense of place/ inspiration** **Recreation**

Service	Assets/ attributes: main contributors to service	Main beneficiary	State	Analysis	Opportunities	Principal services offered by opportunities
Tranquillity	High wooded nature of the area Pockets of undeveloped rural land away from settlements and major tourist attractions	Local	The NCA has experienced a continued decline in tranquillity: areas of intrusion have increased from 42 per cent in the 1960s to 68 per cent in 2007, largely resulting from an increase in urbanisation. Characteristics of the landscape that are particularly important in conveying a sense of tranquillity are the narrow river corridors and pockets of deciduous woodland, contrasting strongly with the expansive arable fields and relics of a mining past. Tranquillity is reduced in other areas because of their proximity to Nottingham and other towns and large mining villages. The popularity of the area for tourism also has an impact on tranquillity levels.	Preventing the decline of areas of tranquillity by screening new development with new planting and managing tourism sustainably would bring benefits for people's enjoyment of Sherwood as a tranquil landscape. Increasing tranquillity through expanding areas of deciduous woodland could also increase biodiversity/natural beauty, sense of place.	There is an opportunity to protect areas, such as the core and northern areas of the NCA, where tranquillity and intrusion are presently low. This will allow people to feel connected to nature and contribute to wellbeing and health. Reduce where possible the impact of settlement in the urban western areas and along roads by planting woodland shelter belts, strengthening the hedgerow pattern and ensuring new development on settlement fringes is sensitively designed.	**Tranquillity** **Sense of place/ inspiration** **Biodiversity**

Service	Assets/ attributes: main contributors to service	Main beneficiary	State	Analysis	Opportunities	Principal services offered by opportunities
Recreation	Sherwood NNR Country Parks and Ducal Estates Historic sites such as Nottingham Castle Foot paths Open Access Land	National	The historical interest and the numerous recreational and access facilities means this is a landscape popular for recreational and education purposes. Clumber Park, Sherwood Forest NNR, Sherwood Pines, Bestwood and Newstead, as well as the caves in Nottingham, are all significant attractions. Many schools bring children to undertake ranger and self guided activities at the Sherwood Forest NNR. The area has a number of significant commercial visitor destinations including Center Parcs and the ducal estates which are now registered parks and gardens. Nottingham Castle, sitting on top of its outcrop of sandstone, offers long views over the city and is a well-visited attraction. In the wider landscape the density and distribution of public rights of way is variable with a notably lower level of provision in areas traditionally managed as part of the ducal estates. Recreation is supported by a network of rights of way totalling 390 km with a density of 0.73 km per km^2, and a small proportion of open access land at 223 ha or approximately 0.5 per cent of the area of the NCA.	Recreation is already a very significant service in this NCA. It is likely that recreational opportunity could be increased without significant effects on other services, so long as the assets were well managed for both biodiversity and recreation, especially those in the Sherwood Forest NNR and surroundings. Supporting proposals in the Nottinghamshire Rights of Way Improvement Plan would lead to increased recreation opportunity away from the major visitor attractions, which would benefit local residents.	There is an opportunity to conserve and enhance the many recreational opportunities offered in this NCA around Sherwood Forest NNR, Clumber Park, Rufford Country Park and Sherwood Pines Forest Park each year, while managing the impacts from tourism and recreation on the natural landscape. In addition there are opportunities to promote the recreational and education opportunities offered by the public access to the large houses and ducal estates in the area. Expanding the public rights of way network in areas traditionally managed as part of the ducal estates where the network is not as strong as in other areas would bring recreational benefits to the local population. Increasing green infrastructure links from urban areas out to the recreational areas in the centre of the NCA would help make recreation "greener" and provide more assets.	**Recreation**

Service	Assets/ attributes: main contributors to service	Main beneficiary	State	Analysis	Opportunities	Principal services offered by opportunities
Biodiversity	Semi-natural /habitats (species-rich grasslands, heathlands wetlands, deciduous woodlands) Arable margins Fallow areas	Local	3 per cent of the NCA has been designated for its biodiversity and this includes Birklands and Bilhaugh SAC, Sherwood Forest NNR and 1,757 ha of SSSI. Approximately twice this area is covered by priority habitats. Semi natural habitats such as lowland heathland and acid grassland are under pressure from commercial scale farming, which is an important land use in this area. The loss of meadows is particularly evident along river corridors, which would have traditionally defined the river channels and distinguished them from the surrounding farmland.	There is scope to improve biodiversity by working with land managers through conservation and environmental stewardship schemes.	Ensure areas of designated land remain in favourable condition and improve the condition in these designated areas where possible. Work with land owners to extend the area of land in Environmental Stewardship.	**Biodiversity**

Service	Assets/ attributes: main contributors to service	Main beneficiary	State	Analysis	Opportunities	Principal services offered by opportunities
Geodiversity	Geology Exposed rock formations Designated geological sites Sandstone buildings	local	There are no nationally designated geological sites in Sherwood but there are 41 local sites (non-statutory designation) which are mostly quarries and river section sites. There are outcrops of Triassic Sandstone throughout the NCA, the most famous of which is Castle Rock in the centre of Nottingham. The network of caves under the castle is an important feature in the sandstone geology, although the caves are man-made. The Coal Measures found in the area lead to significant mining activity, which has now left a distinct mining heritage. Local sandstone is a distinct building material of the local vernacular.	The sandstone geology of Sherwood gives it a sense of place clearly distinctive from surrounding NCAs. The assets, such as the caves and the rocky outcrops, provide opportunities for interpretation and access to the public. These features make a significant contribution to the sense of place and sense of history of the area.	There are opportunities to continue the access to the Nottingham caves, and other geological exposures, as tourist destinations to help increase understanding and enjoyment in the resource, and the history of the area. There are also opportunities to ensure new development is in keeping with the character of the area by using traditional building materials where possible.	**Geodiversity** **Sense of history** **Recreation**

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Bassetlaw District Council

LANDSCAPE CHARACTER ASSESSMENT – BASSETLAW, NOTTINGHAMSHIRE

August 2009

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EXECUTIVE SUMMARY

The Bassetlaw Landscape Character Assessment has defined the landscape character of the administrative area of Bassetlaw District Council [BDC] and will form part of the evidence base for the Local Development Framework [LDF]. It will be used by BDC to aid development control decisions on planning applications.

The document provides an objective methodology for assessing the varied landscape within Bassetlaw and contains information about the character, condition and sensitivity of the landscape to provide a greater understanding of what makes the landscape within Bassetlaw locally distinctive. The study has recognised this by the identification of Policy Zones across the 5 Landscape Character Types represented in Bassetlaw. Figure 1 shows the Landscape Character Types for the whole county.

For each of the Policy Zones a series of Policy sheets has been developed which detail a landscape action for each Policy Zone. The landscape actions are defined as follows:-

Conserve – actions that encourage the conservation of distinctive features and features in good condition.

Conserve and Reinforce – actions that conserve distinctive features and features in good condition, and strengthen and reinforce those features that may be vulnerable.

Reinforce – actions that strengthen or reinforce distinctive features and patterns in the landscape.

Conserve and Restore – actions that encourage the conservation of distinctive features in good condition, whilst restoring elements or areas in poorer condition and removing or mitigating detracting features.

Conserve and Create – actions that conserve distinctive features and features in good condition, whilst creating new features or areas where they have been lost or are in poor condition.

Restore – actions that encourage the restoration of distinctive features and the removal or mitigation of detracting features.

Restore and Create – actions that restore distinctive features and the removal or mitigation of detracting features, whilst creating new features or areas where they have been lost or are in poor condition.

Reinforce and Create – actions that strengthen or reinforce distinctive features and patterns in the landscape, whilst creating new features or areas where they have been lost or are in poor condition.

Create – actions that create new features or areas where existing elements are lost or are in poor condition.

Figure 2 is a summary of the landscape actions for the whole of the Bassetlaw District Council area.

How to use this document

This document describes the landscape character of the Bassetlaw District Council administrative area, which consists of 5 different County Character Areas. The report has been structured to enable users not to have to read the whole document to access the information they need, but are able to go directly to the key information.

Each chapter of the report covers a distinct character area, and describes the broad characteristics of the area, such as:

- Geology
- Soils
- Landform
- Hydrology
- Ecology
- Cultural Heritage

It then describes the main factors that have brought about change in the character area, and considers the trends and pressures that may produce change in the future. It then includes policy sheets which summarise the key characteristics of each Policy Zone.

For example, if a user wants to know about an area of land south of Retford, the first step would be to determine which Landscape Character Area the site falls into. In the first place, refer to an enlarged version of Figure 1 to determine if the area is in the Sherwood Character area or the Mid-Nottinghamshire Farmlands Character area. If, as in this case, the area is in Sherwood, refer to an enlarged version of Figure 6, which is overlaid on to an OS base to check which Policy Zone the site falls into, in this case SH PZ 57.

Then consult the appropriate character description for SH PZ 57 – Gamston Airport – to obtain a summary of the field data collected about the area.

The following analysis sheet describes the key criteria which have been used to define the landscape condition, which in this case is *"Moderate"*. The Policy Sheet then describes the key criteria that have been used to define landscape sensitivity, which in this case is also "*Moderate"*. These factors have been used to derive a Landscape Policy – in this case "Conserve and Create" or *"actions that conserve distinctive features and features in good condition, whilst creating new features or areas where they have been lost or are in poor condition"*. Landscape actions are then listed at the base of the policy sheet, these are divided into actions relating to landscape features and built features.

1.0 INTRODUCTION AND METHODOLOGY

1.1 When applied to the landscape, the notion of "character" is not a concept that merely concerns itself with aspects of scenic quality. The character of the landscape derives from a complex interaction of a wide range of physiological and historical phenomena. These include geology, topography, soils, ecology, archaeology, architecture, local customs and culture as well as the pattern of land use, settlement and fields. It is the varied interaction between these factors which produces the local and regional variations in character for which the English landscape is famous. The diversity of that character is a central part of our landscape heritage and vital to people's appreciation and enjoyment of the countryside.

1.2 The landscape that we see today is a product of its historical evolution, reflecting the underlying physical resource and the changing nature of human exploitation of the land. The landscape will, of course, continue to change and evolve, reflecting the changing priorities and demands that society places on it. Over recent decades, however, these priorities and demands have often degraded rather than improved the fabric of the landscape. There is now a general consensus that positive action is needed to reverse this trend, and that this should place a high value on conserving and enhancing the inherent character and diversity of our landscapes.

1.3 It is the responsibility of Local Authorities to undertake county and district level assessments of the landscape character. These assessments play an integral role not only within the wider planning framework, offering guidance from the outset with key aims and objectives to help guide development, but during the planning process itself providing a useful tool and checklist for both the local authority and the design team.

1.4 This landscape character assessment has been carried out at the request of Bassetlaw District Council and covers the district of Bassetlaw. It relates to the evolving landscape character assessment for the whole of the county of Nottinghamshire and other associated county wide documents including the Nottinghamshire Local Biodiversity Action Plan and the Nottinghamshire Historic Landscape Characterisation. The methodology for Nottinghamshire Landscape Character Assessment, prepared by Nottinghamshire County Council [NCC], has been used to assess the landscape character of Bassetlaw District. A copy of the full methodology is contained at Appendix A. All information contained at the introductory paragraphs within each of the following 5 chapters is specific to Bassetlaw unless stated otherwise.

Context

1.5 Bassetlaw District covers five National Character Areas [NCAs] as defined by Natural England; Southern Magnesian Limestone [30], Humberhead Levels [39], Northern Lincolnshire Edge with Coversands [45], Trent and Belvoir Vales [48] and Sherwood [49]. At a county level, Regional Character Areas [RCAs] have been defined by Nottinghamshire County Council. While these relate to the NCAs, which cover much broader areas, they do not have exactly the same boundaries and have been created using the 'Living Landscapes Project' methodology. This is a GIS based process which is not only associated with the NCA work carried out by Natural England but is an established methodology used by counties across the country, including Derbyshire and Leicestershire both of which border Nottinghamshire. A total of five RCAs fall within Bassetlaw; Sherwood, Magnesian Limestone Ridge, Idle Lowlands, Mid-Nottinghamshire Farmlands and Trent Washlands (Figure 1 shows these character areas in the context of the whole county). Each RCA forms a separate chapter within this Landscape Character Assessment. The RCAs are further divided into Landscape Description Units [LDUs], these are homogenous units within the broader RCAs.

Landscape Character Assessment

1.6 Within each Regional Character Area the LDUs are subdivided into manageable survey units known as Landscape Character Parcels [LCPs]. Each LCP is assessed in terms of its individual landscape character in accordance with the methodology. A photograph which is representative of the character of each LCP is also taken and its location recorded. This information is detailed on the Landscape Character Assessment field survey sheets for each Regional Character Area which are included at the relevant Appendix.

Draft Policy Zones

1.7 Following on from the Landscape Character Assessment of each LCP a number of Draft Policy Zones [DPZs] are created using the completed survey information. Key characteristics are tabulated to help determine which LCPs may or may not be grouped together to form a DPZ, for instance LCPs with obvious similarities become one distinct DPZ. The DPZs combine either one or more LCP depending upon the similarities of their attributes. A table showing the derivation of each DPZ for each Regional Character Area is included at the relevant Appendix. [N.B. on the summary tables - under Landform/Landuse/Building Style etc. plain text denotes dominant or prominent characteristics and italics denote apparent or insignificant characteristics.]

Landscape Condition and Sensitivity Assessment

1.8 The DPZs are assessed in terms of their Landscape Condition and Sensitivity in accordance with the methodology. This information is detailed on the Landscape Condition and Sensitivity Assessment field survey sheets for each Regional Character Area, which are included at the relevant Appendix, and forms the basis of the Landscape Policy for each Zone. It is at this stage, once the survey process is complete, that the Draft Policy Zones become Policy Zones.

Policy Zones

1.9 A series of Policy Sheets, one per Policy Zone, covering each Regional Character Area within the District of Bassetlaw, have been produced and are set out within the relevant chapters 2 – 6, these are supported by a plan showing the resultant Policy for each Zone. Each Policy Sheet includes an overall character summary, specific characteristic features, a matrix and summary of the landscape condition and sensitivity and a representative photograph. Finally, a series of landscape actions is defined for each Policy Zone. An overarching plan of all Policy Zones within Bassetlaw has also been produced [Figure 2].

1.20 Collectively these provide a Policy Framework for the conservation and restoration of Sherwood, Magnesian Limestone Ridge, Idle Lowlands, Mid-Nottinghamshire Farmlands and Trent Washlands falling within Bassetlaw. This framework will help to ensure that landscape character is reflected in the many decisions and actions that affect its continuing evolution. The intention is not to fossilise change, but to provide a context that will enable policy making, planning and landscape management decisions to be made which respect and sustain the diversity and character of our countryside.

2.0 SHERWOOD

2.1 PHYSICAL AND HUMAN INFLUENCES

Introduction

2.1.1 The Sherwood region is characterised by a wide and diverse range of landscapes including the heartland of the historic Sherwood Forest and the extensive parklands and large estates of the Dukeries. The area, rich with historical, ecological and landscape features, is intrinsically linked to a number of historical themes including the internationally renowned Robin Hood legend. The region runs northwards from Nottingham to the lowlands of the River Idle. It is located between the heavily populated Magnesian Limestone Ridge and Nottinghamshire Coalfield regions to the west, and the more rural areas of the Mid-Nottinghamshire Farmlands region to the east. The region is entirely confined within Nottinghamshire, almost half of the area falls within the district of Bassetlaw.

The Shape of the Land

2.1.2 The region is closely associated with a broad belt of Permo-Triassic sandstones which, like the adjoining mudstones, run northwards through the length of Nottinghamshire and beyond into South Yorkshire. This belt of country, which averages 10-12 kilometres in width, narrows at its southern extremity where the outcrop thins and is faulted out along the Trent Valley. Towards the northern end of the outcrop, where the region passes into the Idle Lowlands, the Permo-Triassic bedrock is largely overlain by alluvial and fluvio-glacial drift. Within Sherwood itself the sandstones rise as a line of low hills along the eastern edge of the Magnesian Limestone Ridge. These hills dip gently eastwards, but due to the softness of the underlying rock they seldom assume the character of a bold escarpment.

2.1.3 The outcrop of Permo-Triassic sandstones covers nearly a quarter of the County and comprises two recognisable formations. The lower of these is the Lenton formation [formerly the Lower Mottled Sandstone] consisting of bright red, fine-grained sandstone with local clayey bands. The upper division, now called the Sherwood Sandstone formation [formerly the Bunter Pebble Beds], comprises a much greater thickness of brownish-red, coarse-grained sandstones with extensive beds of quartzite pebbles. These pebble beds and red sandstones, often showing well-developed current bedding, are frequently exposed in cuttings, sandpits and natural bluffs throughout the region. The loose-textured nature of both sandstones also makes them highly porous and as a consequence the land surface is prevailingly dry. The lower sandstone rests on an impervious bed of Permian Marl, however,

and this forms the base of an extensive aquifer which has, since the mid-19th century, provided a major source of water supply. The western fringe of the region extends on to Permian Marl in the vicinity of Welbeck.

2.1.4 The Sherwood Sandstone typically gives rise to a markedly undulating topography, which, apart from a few larger rivers, is characterised by a general absence of surface drainage. Most of these rivers, including the Ryton, Poulter, Meden and Maun, rise on the Magnesian Limestone Ridge and flow across the region in a general south-west to north-east direction before turning northwards into the River Idle. The reason these rivers maintain their flow is that their valleys lie just below the water table. All of these valleys are defined by narrow alluvial corridors, which in places open out into wide marshy flats. The latter are particularly well-developed below the confluence of the Meden and Maun, while long narrow man-made lakes are a feature at Clumber and Welbeck. These wetland and water features contrast strongly with the dryness of the broad stretches of plateau-like country that separate the river valleys. The flanks of these low, rounded hills are nearly everywhere sculptured by numerous dry valleys, thought to have been formed by the melting of snow at a time when the climate was much colder.

Soils [to be read in conjunction with Figure 3]

2.1.5 A range of soil types has developed within the region, the majority being well-drained sandy soils. Well-drained coarse loamy soils are found on the lower slopes of the dry valleys in accumulations of head [recent colluvium or wind-blown material]. Podzolised soils are found locally, particularly under woodland around the Clumber area.

2.1.6 On the eastern boundary of the region there are pockets of Mercia Mudstone; in these areas the soils are surface and ground water gleys. The soils have very slightly stoney clay loam surface horizons, and cropping limitations are imposed by the heavy texture and soil wetness.

Landscape History

2.1.7 The present landscape of the Sherwood region is dominated by the artefacts of aristocratic estates and agricultural reform, largely laid down in the 18th and early 19th centuries, and by those of late 19th and 20th century industry, particularly coal mining. This has been an area in which changes in land use, however long they took to effect, have been radical and clear cut, in contrast to the piecemeal evolution evident in other regions in Nottinghamshire. Underlying the long history of the Sherwood region, and a key determinant in the pattern of stability and change within it, is the essential character of its geology and resulting soils. The porosity of

the Sherwood Sandstones and consequent fragility of the soils in general have placed limits upon the sustainability of farming here. Advances in agricultural methods from the 18th century until today may appear to have pushed out those limits but the qualities of the land continue to present agricultural challenges which can be overcome only at a cost, financial and environmental. It remains to be seen if this cost can be both supported and mitigated or if within the vastly complex modern economic structures there will be a reversion to land uses which respect the basic qualities of this region.

2.1.8 Traditionally, the Sherwood region has been regarded as an area where settlement and land use were restricted by poor soils, woodland and forest law. While these restraints must be acknowledged, this is anything but the full story which is far more interesting and complex.

2.1.9 As in the rest of Nottinghamshire, a forest landscape will have developed here after the end of the Ice Ages. There is as yet scant direct evidence for the composition of this primeval forest but it may be surmised, on the basis of later millennia, to have been mixed birch and oak with a greater variety of species in the river valleys and on the less arid soils of its margins. The presence of early prehistoric hunter-gatherer groups is demonstrated by the occasional finding of stone tools on the surface of ploughed fields. There is no evidence of the funerary and other ritual monuments which characterise the Neolithic and Bronze Age landscapes elsewhere. Again, occasional finds of objects, such as Beaker pottery at Thoresby, or of stone tools and stone axeheads, the latter being interestingly high in frequency in this region, testify to a continuing but sparse human presence, perhaps focused on the river valleys. Even this, however, could have had some locally substantial effect upon the woodland cover, through slash and burn agriculture and more particularly the grazing of domestic animals, to produce thinnings and clearings and the establishment of pieces of heath.

2.1.10 Whilst clearance of woodland and the development of agriculture and settlement proceeded apace elsewhere, the Sherwood region appears to have been relatively unoccupied during most of the late prehistoric period. Indeed, it is possible that it constituted a border zone between the political, social and economic organisation of tribes. This does not mean that it was untouched, however. As woodland diminished elsewhere, its timber resource may have become more attractive, and its use as a source for animal fodder and for grazing, perhaps involving transhumance as place names hint in the post-Roman period, is likely to have increased with resulting local, and perhaps not so local, changes in woodland composition and extending clearance. As earlier, settlement in the river valleys should not be discounted.

2.1.11 This picture changes dramatically with the Roman period. In the mid 1970s, aerial reconnaissance and photography over the north of the region suddenly revealed an integrated landscape of field boundaries, trackways and settlements, long since levelled. Subsequent research has shown that this landscape is substantially Roman in date, although

Late Iron Age origins are possible. North of a line between Warsop and Bevercotes, this landscape is largely coherent and evidently planned, with more than one phase evident in some localities. Covering an area in excess of 100 sq miles, it extends into South Yorkshire. The social structure and economy represented by these remains is still under debate. Evidence from field walking and a limited number of excavations at Menagerie Wood near Worksop and Chain Bridge Lane in Lound, indicates that most of the settlements were of low status, in contrast to those on its eastern margins in the Idle Valley or the villas known on the Magnesian Limestone to the west. Only one site producing objects of types normally associated with Roman villas has been identified so far in this area. As to the function of the fields, understanding is hampered by the acidity of the sandy soils which normally destroys bone so that evidence about livestock is largely lacking. Given the experience of both mediaeval and modern farmers in this region, long term arable cultivation may not have been sustainable despite the possibility of an almost virgin soil and a slightly warmer climate. An equally striking analogy, however, is the similarity in size between the fields of this Roman landscape and those of 16th and 17th century enclosure in the south of Nottinghamshire. Perhaps this, together with the mediaeval and more modern history in this region of grazing, particularly of sheep, may suggest a mixed agricultural regime of rotating crops, grasses and animal husbandry.

2.1.12 Whatever the social and economic interpretation of this landscape may be, the evidence of the aerial photographs shows that the woodland of this area was substantially cleared by early in the Roman period. This clearance was not necessarily entire, however. The presence of coppiced hazel at Menagerie Wood, if not imported from another region such as the Magnesian Limestone Ridge immediately to the west, may hint at surviving pockets of wood which, on this evidence, are likely to have been carefully managed resources.

2.1.13 Woodland survival may have been somewhat greater in the more southerly areas of the Sherwood region. South of Bassetlaw the cropmarks of this Roman landscape become more disjointed. It is possible that this difference in cropmark density could reflect a difference in the intensity of Roman settlement and land use between the north and south of the region, with more woodland and presumably more heath produced by rough grazing surviving in the south.

2.1.14 The end of the Roman period was marked by another great turning of the landscape, in which the region became again relatively unpopulated and the Roman field systems largely abandoned. The date of this change and the reasons and processes involved are as yet unclear. General population decline and changes in social organisation and economy beginning in the later Roman period and continuing and developing in the 5th and 6th centuries are perhaps explanation enough. Soil exhaustion and erosion may also have played a part. In all events the early Roman level of settlement and land use clearly became unsustainable.

Settlement moved out of the region, probably relocating on the more fertile soils on its margins and beyond, and otherwise contracted to favourable sites in the river valleys. In consequence, woodland regenerated by expanding out from existing pockets and by establishing itself anew. Apart from such farms as may have continued or developed in river valley locations, the communities around the region's margins used it as a grazing resource in balance with their arable on the clays and other soils of adjacent regions. This use explains the siting of many communities around the margins of the region where settlement is poised between the differing agricultural resources of contrasting geologies.

2.1.15 Thus it was that, in the centuries around and after the end of the Roman period, the landscape developed which is now thought of as characteristically Sherwood Forest. Low in population, with space enough to attract Scandinavian settlement in the late 9th and early 10th centuries, identifiable by place names ending in 'by', this was a countryside of large and smaller areas of dense and not so dense oak and birch wood and of large and small tracts of sandland heath with gorse, ferns and grass. The woods served as game reserves, sources of timber and smallwood, and as fodder and grazing, and were in smaller or greater part managed to these ends. Much of the heath originated in areas of Roman woodland clearance, particularly around the southern margins of the region, was kept open by grazing and temporary small areas of cultivation.

2.1.16 It was to this landscape, and more particularly to the area south of the Meden, that the term Sherwood was applied. Assuming the "shire" of "Shire-wood" to equate with Nottinghamshire, this name can be little or no older than its first written appearance in the 10th century, when Nottinghamshire was first created. The meaning of this name remains uncertain. It may mean no more than the woodland on the border of the Shire. Alternatively, it may refer to much more ancient rights, to woodland resources held by the king, nobility, or communities within Nottinghamshire.

2.1.17 In 1086, the Sherwood region was the most sparsely settled area of Nottinghamshire, low in arable, with much woodland almost wholly recorded as wood pasture, exploited by larger settlements around its rim and fewer smaller ones within it. Such was its emptiness that Norman kings soon brought it under Forest Law, probably consolidating existing royal rights, to maintain its stocks of deer and other game. Under Henry II, Forest Law was extended across all of north Nottinghamshire, but this was cut back by Henry III to embrace only the countryside of woods and heaths on the Magnesian Limestone and the Sherwood Sandstones south of the Meden. However, extensive royal woods and game preserves north of the Meden and elsewhere remained subject to the Forest officials, effectively maintaining Forest Law over most of the region throughout the Middle Ages and later.

2.1.18 Henry III's redefinition and reaffirmation of the traditional Forest was in part a response to the effects of rising population in generating new settlement and expanding arable agriculture. Initially, the emptiness of the Magnesian Limestone and Sherwood Sandstones and the low value of the profits there, made these suitable areas for the creation of hunting parks and to be donated for the establishment of monasteries. Of the twelve monasteries and nunneries founded in Nottinghamshire, eight were within or immediately adjacent to this area, where sufficient unencumbered land was available to endow them without significant damage to the financial interest of their benefactors. Considerable blocks of land in the Sherwood region thus passed into monastic control. The 12th and 13th centuries also saw the expansion of existing settlements and the creation of new ones. By 1300, while the region remained thinly settled and more apparently untamed than the rest of the district, there was little land which was not locked into the economies of royal or monastic estates or of local manors and communities.

2.1.19 Indeed, however it may appear to modern communities, this was a highly managed environment in which the central dynamic was the sustainability of one economic regime, the maintenance of the traditional woodland and heathland resource, against the pressures of another, demanding land to till and grazing for animals. Royal and aristocratic parks encompassed a number of functions and land managements. There was woodland for timber and game, heath and grassland for grazing stock and deer, and rabbit warrens and arable fields for foodstuffs and fodder. Resources and activities which might be scattered through widely separated estates elsewhere were brought together in one locality created out of a single area of royal woodland and heath and held in balance by management. Even with positive management, much less without it, the woodland could not be maintained against the economic pressures towards clearance by felling, tillage and grazing.

2.1.20 Despite recovering from an apparent failure to replace trees felled in the 12th century, which led to a dearth of timber dating to the 14th century in buildings, and despite strict control of felling in the Royal woods of Birklands and Bilhaugh, royal interest in the maintenance of woods and heaths of the region was spasmodic. It was at best undermined by the private interests of the local nobility, who supplied the principal officials of the Forest, or by the ancient rights of communities to common pasture, and at worst negated by royal indifference or distraction by other concerns. Royal woods and lands were leased out or granted away, and the application of Forest Law became more a process of raising rents on lands long cleared by individuals and communities than a means of habitat conservation. Throughout the later 12th, 13th and 14th centuries, documentary references paint a picture of continual piecemeal enclosure, assarting and illegal encroachment by the great and the small, individuals and whole communities. Tree by tree almost, the woodland was gradually eroded. By the 16th century virtually only the core woods of the surviving royal estates and parks, Birklands, Bilhaugh, Roumwood, a few others on monastic estates and elsewhere, remained.

By the later 17th century, when royal rights in the Forest had been largely appropriated by the great landowners and after the best trees on the royal estates had been sold off by the Commonwealth, it was difficult to find useful timber in the surviving woods.

2.1.21 With so few settlements and so little permanent arable lying within the region, there is little trace of the social and economic changes of the period 1350 to 1600. The area did not remain untouched, however. It may be that the reduced demand for tillage from the reduced population in the 15th and early 16th centuries slowed the degradation of the woods by increasing grazing land outside the area and by decreasing any pressure to change the traditional land uses within it. Equally, the growing importance of animal husbandry in this period could well have been met by the traditional common pasturage owned by communities within and adjacent to the region. Further, animal husbandry, particularly sheep raising, was already well established as a major enterprise on some monastic estates.

2.1.22 Common pasture meant there was no need to enclose for animal husbandry, but the region shared in the trend towards farm engrossment and piecemeal enclosures nevertheless. Traditional agricultural practice had long involved supplementing the sometimes small areas of permanent arable, the infield, with temporary enclosures in the Forest. Within these, cultivation was allowed for a limited number of years after which the enclosure was thrown down, the fields levelled and the exhausted soil allowed to revert to scrub, heath and grass. This “Breck” system was to continue unchanged until formal enclosures arrived in the 18th and 19th centuries. For now, portions or all of the permanent arable were enclosed, primarily to allow for improved crop rotation and closer stock management. This produced the pattern of relatively small, hedged fields found close into villages bordering the region, particularly on the east, where enclosure was limited. Within the region, however, all or most of the comparatively small open arable fields might be enclosed. All the infield of Carburton, for example, had been enclosed by 1619 and was largely under grass. The region was not isolated from, nor unaffected by, the economic trends and changing agricultural practices of the day, therefore. Rather, both traditional land uses and an ability to adapt predisposed it to meet the changing economic order, when social organisation, agricultural knowledge and techniques developed so as to overcome the inherent difficulties presented by the land.

2.1.23 The foundation for economic growth and changes in the landscape was the dissolution of the monasteries. Grants or sales of the monastic sites and estates to leading members of the aristocracy and gentry gave power and influence in the region to a handful of families. For some 200 years these concentrated on converting or replacing monastic buildings, building and rebuilding, to produce great country houses and developing extensive parklands around them for ornament, sport and animal husbandry. The creation of a virtual chain of these properties through the region, from Clumber and Thoresby to Worksop, gave much of it a new name, “The Dukeries”. After the Reformation the aristocratic landowners here began investing

in new building and reordering and restocking their parks, and the 18th century in particular saw much new development. Many of the aristocratic landowners of this period became progressive agriculturists. They saw profit in timber and undertook large-scale plantation schemes both within their parks, where new species were introduced and the woods served also as ornamentation, and on their estates at large. The legacy of this is still with us in the well-wooded aspect of significant parts of the region, for which these 18th century plantations were the foundation. They also invested in the development of agriculture on the sandlands, building upon the mixed farming regimes and diversification of crops, particularly root crops which had been introduced into the area by the beginning of the 17th century, and experimenting with fertilisers and crop rotations. Most importantly, they encouraged their tenant farmers to follow.

2.1.24 The result was the enclosure, through a succession of private Acts of Parliament, of most of the open heath and commons in the region and the creation of new farms outside the villages. With few existing land divisions to consider, much of this enclosure was geometrically laid out in field sizes considerably larger than those of earlier enclosed areas. Defined by fences or hedges, dominated by “quickset” hawthorn, this new “surveyor’s” landscape is still a striking feature of the region, on the map and on the ground.

2.1.25 The region thus underwent a veritable “Agrarian Revolution” in the later 18th century. This was based on the intensification of animal husbandry, particularly sheep rearing, which was sustained by the cultivation of root crops and rotational grass, the fertility of the land being maintained by manure and early artificial fertilisers.

2.1.26 The physical framework of this region’s landscape, established at the end of the 18th century and the beginning of the 19th, has been essentially maintained through today. There have been significant alterations, however, and none more marked than the appearance of industry, particularly coal mining. The earliest modern industrial development was the Chesterfield Canal, cut across the region in the 1770s. But it was the advent of deep mining in the 1850s which brought the major impacts. Throughout the later 19th and 20th centuries coal mines were sunk progressively eastwards across the region, introducing often lofty pithead buildings and structures, and large-scale waste heaps, into the landscape. To house the miners and those who serviced them new villages were built and new estates which have virtually swallowed the original villages to which they were appended. Infrastructure was developed, initially railways and more latterly roads; Worksop developed as a commercial centre.

2.1.27 In parallel with industrial development, the agricultural countryside remained relatively prosperous, responding to economic circumstances by changing balances in production. The basic reliance on animal husbandry saw the area through the 19th century. The First World

War put emphasis on corn growing and potatoes, followed by a reversion to livestock after the War. From the 1920s sugar beet began to replace turnips; by 1950 these had all but disappeared from the rotational repertoire. The Second World War again returned the emphasis to corn growing, but this time there was no substantial return to livestock. Government and European policies and the introduction of modern fertilisers have maintained the region's farmlands almost wholly under arable since. In many places this has brought alterations to the enclosed landscape through the demolition of hedgerows and boundaries to create wide open spaces suited to manoeuvring large machinery.

2.1.28 The industrial development and agricultural changes of the last 125 years are the latest additions to a long history of landscapes in this area. The combination of these with the landscapes created in the 18th and early 19th centuries, the parks, the woods, the Forestry Commission plantations and the enclosure fields, leaves a distinct impression on the modern visitor.

2.2 VISUAL CHARACTER OF THE LANDSCAPE

Introduction

2.2.1 The character of the Sherwood region is strongly influenced by a number of factors. The high level of woodland cover and strong heathy character provide a reminder of the formerly extensive areas of forest and "waste". A range of features combine to produce a distinctive and sometimes unified landscape; these include rolling landform, scattered areas of grass, bracken and heather heathland, excellent examples of lowland oak/birch woodland, large mature coniferous forests, enclosed arable farmlands, narrow river corridors and ornamental parklands.

2.2.2 The undulating landform ensures views of varying distance. Frequently these are of well-wooded skylines; however, in the more open arable areas they are often confined to the crests of the dry valleys. The arable farmlands are, in places, totally devoid of tree cover with the geometric patterns of low hawthorn hedgerows imparting a distinctive, but rather uniform character to the landscape. To the north of the region, farmland becomes the most dominant landscape element; the extent and pattern of woodland cover is markedly different from the landscapes located further south. Scattered pockets of parkland add diversity to the landscape, creating a strong historical sense of place.

Landscape Character Parcels

2.2.3 The Sherwood region has been divided into 76 Landscape Description Units [LDUs] of which 25 fall within the Bassetlaw District [Figure 4]. Eight of these units are classed as 'urban land use', the remaining 17 were then subdivided into 30 Landscape Character Parcels [LCPs] [Figure 5]. The completed Landscape Character Assessment field survey sheets are included at Appendix B2. This information was than tabulated to help determine the Draft Policy Zone [DPZ] boundaries in preparation for the Landscape Condition and Sensitivity Survey contained at section 2.4.

2.3 LANDSCAPE EVOLUTION AND CHANGE

Introduction

2.3.1 This section examines the main forces that have brought about change and evolution within the Sherwood region over recent decades. It does this by discussing how the current structure and pattern of land use has developed, paying particular regard to agriculture, woodland, transport, urban/industrial development, mineral extraction and tourism. It also considers the trends and pressures that may produce landscape change in the future.

Agriculture

2.3.2 Historically, agriculture on the sandlands of the Sherwood region has had a more tenuous hold than in other parts of the district. Poor quality soils, with limited moisture retention properties, have created a relatively unstable base to the agricultural economy and this has, over the years, produced wide variations in the pattern and nature of land use. These instabilities have continued into the present century and, to an extent, are still present in the current agricultural system.

2.3.3 The sandstone areas are not generally capable of sustaining high quality pasture, and as a consequence most agriculturally productive land has been put to arable use. Before the Second World War arable land was mostly under fodder crops. The sandy soils, highly permeable parent rock and low rainfall averages meant that the chief management aim was to increase the water-holding capacity of the soil. This was done through liberal applications of farmyard manure, the turning in of green crops and the traditional practice of folding sheep in fields. Economic hardships experienced in the 1920s and 1930s led to the abandonment of many sandland farms. Many areas of present heathland originate from these abandoned landholdings.

2.3.4 Since the 1940s, technological innovations in agriculture have led to the development of intensive, high input agricultural systems. These systems have overcome many of the traditional constraints to agriculture and have, for the last few decades at least, placed the agricultural economy on a more secure footing. The widespread use of irrigation, coupled with heavy dressings of lime, potassium and phosphorus and also frequent seasonal applications of nitrogen, has ensured consistent yields at levels that were previously unobtainable.

2.3.5 The principal crops of the region are cereals, particularly barley and wheat, with potatoes, sugar beet, oilseed rape, field beans, dry peas, carrots and linseed also being grown. Livestock operations are found within most of the parishes of the region.

2.3.6 As already noted, there are a number of constraints to agricultural production, the severity of these constraints varying widely in response to physical factors such as soil type. Much of the arable land is easily worked; however, compaction and panning can occur if soils are worked too soon after heavy rain. There is also a danger of wind erosion, especially during spring and autumn. The generally low available water capacities of the sandland soils and relatively low rainfall average mean that yields are often lowered by drought.

2.3.7 The majority of agricultural land within the region is classified by MAFF as having moderate limitations to agricultural use. The higher quality soils, with sandy loam or loamy sand textures, have better moisture retention capacities and occur in the northern areas of the region. The lower quality agricultural land occurs extensively to the south of the Maun Valley where limitations are imposed by the susceptibility of soil to drought and the presence of pebbles.

2.3.8 The heavy reliance on fertiliser and irrigation inputs has created problems that now question the long-term sustainability of the current agricultural system. The Sherwood Sandstone outcrop overlies an extensive aquifer that is utilised as a public drinking water supply. There are concerns about the capacity of the aquifer to supply water for irrigation purposes and this is reflected in the limited availability of water abstraction licences. A more severe problem than this has been associated with the high inputs of nitrogenous fertiliser. Nitrate contamination of the aquifer has now exceeded statutory limits at a number of boreholes.

2.3.9 The problems associated with contamination of the aquifer have led to much of the region being designated as a Nitrate Vulnerable Zone [NVZ]. The NVZ scheme aimed to reduce nitrate levels by encouraging farmers to restrict applications of both organic and inorganic fertilisers. In addition, four Nitrate Sensitive Areas [NSAs] were designated within Sherwood including Barnby Moor at Retford. The NSA scheme was a voluntary agreement whereby landowners could receive financial payments for reducing nitrate leaching by changing their farming practices. Some or all of their fields falling within the NSA boundary could be entered into the scheme. The overall effect of the NSA scheme has been a reduction in fertiliser and manure applications for certain crops. This has given rise to a reduction in the area of potatoes grown within the NSAs, but has been compensated for by increases elsewhere. With regard to the NVZ scheme, it is doubtful that farming in the future will be significantly affected. There may, however, be little expansion in the area devoted to sheep and pigs because of reduced limits on organic manure.

Trees and Woodland

2.3.10 The woodland cover of Sherwood is higher now than for many centuries. In 1086 the greatest concentration of woodlands in the County lay within the Mid-Nottinghamshire Farmlands region, to the east. The Sherwood Sandstones were of secondary importance despite the presence of Sherwood Forest. The lowest levels of woodland cover are thought to have occurred in the 18th century largely as a result of clearance in the preceding centuries.

2.3.11 Landscape improvement, game preservation, timber production and fuel supply were the main reasons for increases in woodland cover during the 18th and 19th centuries. Landscape considerations were particularly influential, with many of the houses, parks and great estates being established on the agriculturally poor sandland soils. Planting was very elaborate and on a large scale, and preceded the laying out of the modern agricultural landscapes that we see today. Currently the Sherwood region is the most wooded part of the district, a large proportion of which is coniferous.

2.3.12 There are significant variations in the distribution and pattern of woodland across the region. These variations are one of the most important factors in determining its landscape character. The area between the Maun Valley and Worksop represents the most densely wooded area of the County. This contains the remnants of the historic Sherwood Forest, the emparked lands of the Dukeries, the broad-leaved estate lands and the coniferous infill plantations established in the last 60 years.

2.3.13 The main sources of land for post-1920 woodland planting have come from agriculture and waste, the light sandy soils being easily converted to woodland. Plantations were established as large management units by both the Forestry Commission and private estates. Large-scale planting by the Forestry Commission began in the late 1920s and a fivefold increase in the area of predominantly pine woodland has occurred since that time. Many of these early plantations are now reaching economic maturity and will be progressively felled in a way that restructures the forest blocks to create greater ecological and visual diversity. There have been significant increases in woodland cover within the parkland areas, with the planting and extension of existing parkland trees and plantations. Smaller-scale gains in woodland cover have been made from the planting of former industrial areas and coal tips.

2.3.14 Three ancient woodlands, as identified by the 1990 English Nature Inventory of Ancient Woodlands, are found within the region. The areas identified as ancient woodland at Birklands, Bilhaugh and Buck Gates are remnants of the historic Sherwood Forest and contain the best examples of oak-birch woodland in the County, they are also designated SSSIs.

2.3.15 The Ministry of Defence leases a large area of woodland and heathland from the Thoresby Estates, and this is managed in association with Natural England and Nottinghamshire Wildlife Trust.

Transportation

2.3.16 A number of major roads have had an impact upon the region, the most prominent being the A614, which runs in a north-south direction through much of the area before terminating east of Worksop where it connects to the A1. The A60 also runs north-south, whilst the A617 and A620 cut across the region in an east-west direction. The A1 runs through the northern part of Sherwood. A dense network of railway lines were developed to serve the needs of the coal industry. Contraction of this industry in recent decades has led to many of these becoming derelict.

Urban and Industrial Development

2.3.17 The main urban areas are located along the southern and western fringes of the region and include the urban edge of Warsop and Worksop. Along the eastern fringe of the region are Ollerton and East Retford.

2.3.18 The coal industry has played a central role in the economic life of large parts of the region, where much of the area was traditionally dependent upon mining employment. This included the larger town of Worksop as well as the numerous mining villages.

2.3.19 In order to provide new job opportunities and to encourage the economic regeneration of the mining areas the redevelopment of redundant collieries for employment purposes is encouraged. Green after uses, including agriculture, forestry and recreation, are the preferred options for certain rural collieries and spoil tips.

Mineral Extraction

2.3.20 The principal mineral resources exploited in the region are deep-mined coal and Sherwood Sandstone. Both forms of extraction have had a considerable impact on the economy and environment of the region, particularly coal extraction.

2.3.21 Many of the pits in the region were established during the first half of the 20th century when technical advances in the mining industry enabled wider exploitation of the deep coal

resource. A number of the pits were located next to existing villages and on green field sites in the more rural areas away from the main centres of population. This led to the enlargement of the existing villages and the creation of a number of isolated and free-standing mining communities. Examples of such colliery settlements include that at Edwinstowe, at the southern edge of the district. It was developments like this which brought industrial landscapes into the heart of the region.

2.3.22 A number of environmental issues are associated with coal extraction, particularly that of visual intrusion. The visual impact of mine-head developments and spoil disposal is enormous, with many spoil heaps being established prior to current planning legislation when little attention was given to environmental considerations. More recent permissions seek to minimise the visual impact of tipping through attention to grading and shaping details and so reduce the "engineered" appearance of many pit heaps. The Sherwood region has a naturally rolling landform; the opportunities to integrate pit heaps into the landscape are therefore perhaps greater than in certain other parts of the district. Priority is therefore given to the early reclamation of the external visible faces of pit heaps.

2.3.23 The premature closure of pits has had major environmental consequences for reclamation, as existing programmes can no longer be achieved. The County Council, UK Coal and the Forestry Commission are working together to develop new proposals to restore such spoil heaps to a mixture of forestry, heathland and public open space.

2.3.24 Sandstone extraction generally leaves a moderately deep void and little on-site material, and the options for infilling are limited due to the need to protect the aquifer. Low-level reclamation may be feasible; however, the resulting landform may be unsuitable both visually and in management terms. The area is unsuitable for agricultural after uses because of inherently poor soil types. Woodland and nature conservation after uses are often the most appropriate. Reclamation conditions are favourable for the establishment of native oak and birch woodland and also for the re-creation of heathland habitats.

Tourism

2.3.25 Sherwood Forest is one of the major tourist attractions in Nottinghamshire, attracting in excess of one million visitors each year. There are a number of tourist facilities, including a visitor centre at the Sherwood Forest Country Park, car parks and a number of surfaced footpaths. The Forestry Commission promotes public access within Sherwood Pines, a large block of woodland near Edwinstowe. Walking, cycling and horse-riding are the most popular activities. The presence of the Center Parcs holiday village, also near Edwinstowe, is a major tourist attraction. This complex remains one of the regions largest employers. The tourism

industry is likely to play an increasing role in the economy of the Sherwood region, particularly since the decline of the mining industry.

2.4 POLICY ZONES

Draft Policy Zones

2.4.1 Following on from the Landscape Character Assessment of each LCP a total of 25 Draft Policy Zones [DPZs] were created [Figure 6]. A table showing the derivation of each DPZ is included at Appendix C2. A subsequent Landscape Condition and Sensitivity Assessment was then undertaken of each DPZ, this information is detailed on the Landscape Condition and Sensitivity Assessment field survey sheets which are included at Appendix D2.

2.5 SPECIES LIST

2.5.1 The following list includes native tree and shrub species that are commonly found within Sherwood and are suitable for inclusion in planting schemes. These are important for determining the area's regional character. A range of other native species may also be appropriate to particular locations or sites. In these cases professional advice should be sought.

● **Dominant Species** ❍ **Other Species Present**

TREES	Woodlands/ Plantations	Hedges	Hedgerow Trees	Wet Areas/Streamsides	Individual/ Parkland Trees
Alder (Common)	❍			●	
Ash	❍	❍	●	●	
Beech	❍				
Birch (Downy)	❍				
Birch (Silver)	●	❍	❍		
Cherry (Wild)		❍	❍		
Crab Apple		❍			
Elm (English)		❍			
Elm (Wych)	❍	❍	❍		
Lime (Small Leaved)	❍				
Lime (Large Leaved and Hybrid)		❍	❍		
Maple (Field)		●	❍		
Oak (Common)	●	●	●		
Oak (Sessile)	❍		❍		
Pine (Scots)	●		❍		

● **Dominant Species** ❍ **Other Species Present**

TREES	Woodlands/ Plantations	Hedges	Hedgerow Trees	Wet Areas/Streamsides	Individual/ Parkland Trees
Rowan	❍		❍		
Sweet Chestnut	❍		❍		
Willow (Crack)	❍			●	
Willow (White)				❍	

SHRUBS	Woodlands/ Plantations	Hedges	Hedgerow Trees	Wet Areas/Streamsides
Blackthorn		●		
Buckthorn (Purging)		❍		
Broom	❍	❍		
Dogwood (Common)		❍		
Gorse	❍	❍		
Hawthorn	❍	●	❍	❍
Hawthorn (Midland)		❍		
Hazel	❍	●		
Holly	❍	●		
Privet (Wild)		❍		
Rosa Sp.	❍	❍		
Spindle		❍		

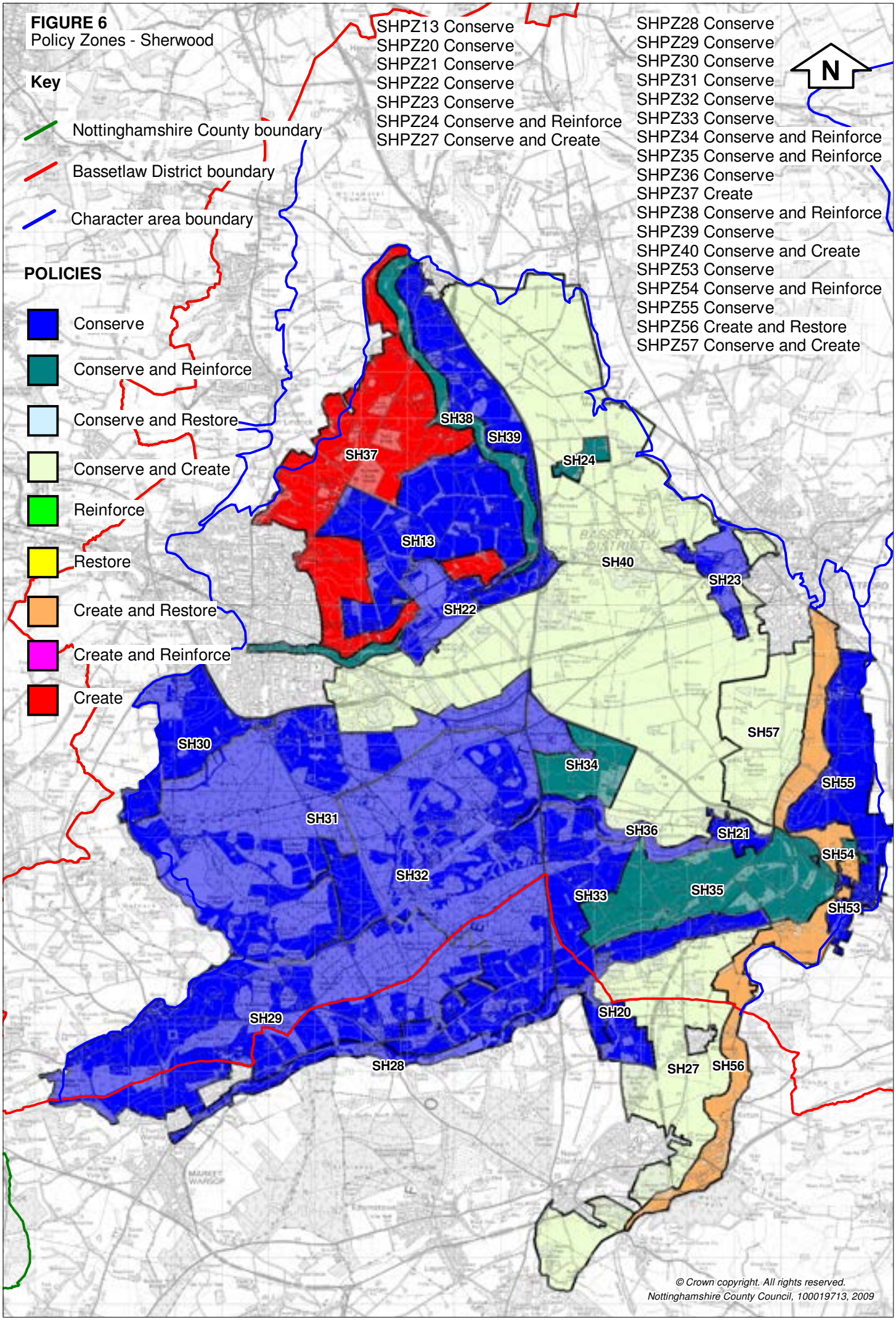
FIGURE 6
Policy Zones - Sherwood
Key
Nottinghamshire County boundary
Bassetlaw District boundary
Character area boundary
POLICIES
Conserve
Conserve and Reinforce
Conserve and Restore
Conserve and Create
Reinforce
Restore
Create and Restore
Create and Reinforce
Create
SHPZ13 Conserve
SHPZ20 Conserve
SHPZ21 Conserve
SHPZ22 Conserve
SHPZ23 Conserve
SHPZ24 Conserve and Reinforce
SHPZ27 Conserve and Create
SHPZ28 Conserve
SHPZ29 Conserve
SHPZ30 Conserve
SHPZ31 Conserve
SHPZ32 Conserve
SHPZ33 Conserve
SHPZ34 Conserve and Reinforce
SHPZ35 Conserve and Reinforce
SHPZ36 Conserve
SHPZ37 Create
SHPZ38 Conserve and Reinforce
SHPZ39 Conserve
SHPZ40 Conserve and Create
SHPZ53 Conserve
SHPZ54 Conserve and Reinforce
SHPZ55 Conserve
SHPZ56 Create and Restore
SHPZ57 Conserve and Create
N
SH38
SH39
SH37
SH24
SH13
SH40
SH23
SH22
SH57
SH30
SH34
SH55
SH31
SH36
SH21
SH54
SH32
SH33
SH35
SH53
SH29
SH20
SH28
SH27
SH56
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Sherwood

Policy Zone 33: Bothamsall

POLICY: CONSERVE

Character Summary

The area lies south of the Poulter valley and east of Blyth Road [A614] which forms the western boundary. The village of Bothamsall is located outside the Policy Zone boundary to the south-east and Elkesley lies in the north-east. The River Meden follows the south-eastern boundary but lies just outside the area. Clumber Park is located immediately west of the Policy Zone.

Topographically the Policy Zone is gently undulating with flat areas, sloping from higher ground in the east down towards the west. Elevated landform in the south allows open views across the area towards flatter, lower lying land in the north.

The northern section of the Policy Zone is dominated by interlocking areas of woodland and plantation, these are surrounded by arable fields which also occupy much of the reminding area. A pig farm covers part of the Policy Zone in the east, south of Normanton Larches Farm, an oil well is also located in close proximity, south-east of the farm. Spittalmoor Forest Farm is situated further south. Clumber Park Hotel is located on the western edge of the Policy Zone fronting Blyth Road [A614].

An historic avenue of trees remains along West Drayton Avenue which extends from Clumber in the west to West Drayton further east of the Policy Zone. This avenue now forms part of the Robin Hoods Way.

Sherwood – Policy Zone 33: Bothamsall

PHOTOGRAPH

CONTEXT

Policy Zone: S PZ 33
Land Cover Parcel[s]: S33

Condition

Good	REINFORCE	CONSERVE & REINFORCE	CONSERVE
Moderate	CREATE & REINFORCE	CONSERVE & CREATE	CONSERVE & RESTORE
Poor	CREATE	RESTORE & CREATE	RESTORE
	Low	Moderate	High

Sensitivity

NB: where one criterion is 'very good' this pushes the policy descriptions into the next highest category

CHARACTERISTIC FEATURES

- Intensive open arable farmland with significant woodland and plantation blocks.
- Pig farm; part of adjacent Policy Zone.
- No settlement areas, only isolated farmhouses.
- Narrow hedged lanes.

LANDSCAPE ANALYSIS

Condition

The landscape condition is very good. There is a **unified** pattern of elements with **few** detracting features within the Policy Zone; an oil well, pylons and high voltage power lines. Overall the area has a **strongly unified** visual appearance.

Pig farming extends into the centre of the Policy Zone from the east, elsewhere the land is under intensive arable use interspersed with strong plantation and woodland blocks. There is some evidence of missing field boundaries in localised areas but generally the historic field pattern is intact. Woodland sometimes partially or entirely encloses fields. Two red brick farmhouses lie isolated within the landscape and no other settlement or development exists, pylons within the east being the only urban influence. The overall cultural integrity is considered **good**.

Two SINCs lie within the Policy Zone and comprise valuable roadside verges and coniferous plantation. Tree cover is moderate to high and largely mature; significant woodland and mixed plantation blocks extend throughout the area into the surrounding landscape. Where hedgerows remain they are generally well maintained, though gappy in some places, and connect into woodland and plantation across the Policy Zone, most notably in the east and west, providing a strong green infrastructure throughout. Trees are apparent along roadside verges, however hedgerow trees are rarely seen. Deciduous woodland is more evident in the north. The ecological integrity is described as **strong** which overall gives a **very strong** habitat for wildlife/functional integrity. A **strongly unified** area with a **very strong** functional integrity gives a **very good landscape condition**.

SUMMARY OF ANALYSIS

Condition	**Very Good**
Pattern of Elements:	Unified
Detracting Features:	Few
Visual Unity:	Strongly Unified
Ecological Integrity:	Strong
Cultural Integrity:	Good
Functional Integrity:	Very Strong

Sensitivity

Features which give the area local distinctiveness are **unique/rare** of the Sherwood region and the continuity/time depth is **historic** [post 1600], giving a **strong** sense of place.

The Policy Zone has an enclosed nature and the landform is **apparent** resulting in **low** visibility. A **strong** sense of place combined with **low** visibility gives **moderate landscape sensitivity** overall.

Sensitivity	**Moderate**
Distinctiveness:	Unique/Rare
Continuity:	Historic
Sense of Place:	Strong
Landform:	Apparent
Extent of Tree Cover	Enclosed
Visibility:	Low

LANDSCAPE ACTIONS

Conserve

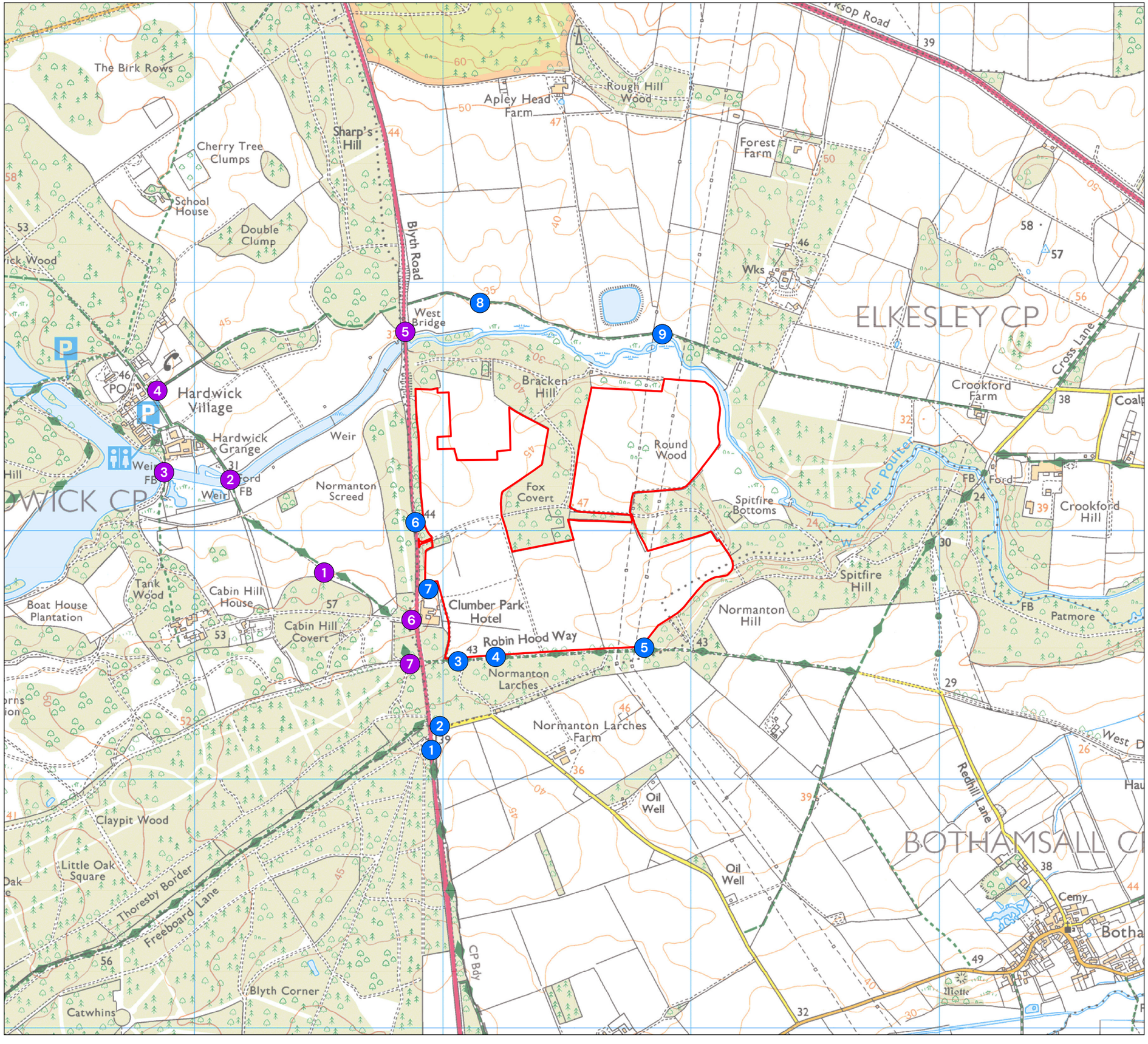
Landscape Features

- **Conserve** historic field pattern, maintain existing hedgerows, restore and reinforce poor hedgerow boundaries where necessary.
- **Conserve** and enhance woodland/plantation blocks and connectivity across the area.
- **Conserve** and enhance hedgerow and tree planting along roadsides.
- **Conserve** ecological diversity and biodiversity of the designated SINCs, enhance where appropriate.
- Seek opportunities to restore arable land to pastoral.

Built Features

- **Conserve** the sparsely settled and rural character of the landscape.
- Contain new small scale development within existing field boundaries.
- **Conserve** the traditional architectural style of red brick construction.

APPENDIX 7: VIEWPOINT LOCATION PLAN



KEY

- Site Boundary
- LVIA Viewpoint Locations
- Clumber Park Viewpoint Locations

REV	DATE	DESCRIPTION
-	-	-

VIEWPOINT LOCATION PLAN

LAND ADJACENT TO THE A614, WORKSOP

LONGWORTHY LIMITED

DATE	SCALE	DRAWN	APPROVED
18/12/2025	1:15,000@A3	NC/CS	AC

SHEET	REV	N	0	0.5 KM
-	C			

DRAWING NUMBER
P25-2880_EN_01

PEGASUS GROUP

APPENDIX 8: SUMMARY VISUAL IMPACT SCHEDULE

Visual Impact Summary Schedule								
Site Viewpoint	Receptor	Value	Susceptibility	Sensitivity	Magnitude – Year 1	Effect – Year 1	Magnitude – Year 10	Effect – Year 10
1	Trunk road user	Low	Low	Low	None	None	None	None
2	Highway User	Medium	Medium	Medium	None	None	None	None
3	PRoW	Medium	High	High	Low	Moderate	Negligible	Negligible
4	PRoW	Medium	High	High	Low	Moderate	Negligible	Negligible
5	PRoW	Medium	High	High	Negligible	Negligible	None	None
6	Trunk road user	Low	Low	Low	Low	Minor	None	None
7	Hotel car park	Medium	Medium	Medium	Low	Minor	None	None
8	PRoW	Medium	High	High	None	None	None	None
9	PRoW	Medium	High	High	Negligible	Negligible	Negligible	Negligible
Clumber Park Viewpoint	Receptor	Value	Susceptibility	Sensitivity	Magnitude – Year 1	Effect – Year 1	Magnitude – Year 10	Effect – Year 10
1	PRoW	High	High	High	Negligible	Negligible	None	None
2	PRoW	High	High	High	None	None	None	None
3	PRoW	High	High	High	None	None	None	None
4	PRoW	High	High	High	Negligible	Negligible	None	None
5	Trunk road	Low	Low	Low	None	None	None	None
6	Normanton Road	High	High	High	Negligible	Negligible	None	None
7	Drayton Gate	High	High	High	None	None	None	None

- Summary of Visual Effects is based on the LVIA Viewpoints
- Effects are assessed as adverse unless otherwise stated.
- Assessment is based on winter views, representing a worst-case scenario
- Where there is no assessment, a dash/- is used

APPENDIX 9: LVIA METHODOLOGY

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LANDSCAPE AND VISUAL IMPACT ASSESSMENT METHODOLOGY

Contents.

1. Landscape and Visual Impact Assessment Methodology

1.1. The Analysis is based on this methodology which has been undertaken with regards to best practice as outlined within the following publications:

- Guidelines for Landscape and Visual Impact Assessment (3rd Edition, 2013) - Landscape Institute / Institute of Environmental Management and Assessment;
- Notes and Clarifications on Aspects of Guidelines for Landscape and Visual Impact Assessment Third Edition (GLVIA3) - Technical Guidance Note LITGN-2024-01 (2024);
- Visual Representation of Development Proposals (2019) - Landscape Institute Technical Guidance Note 06/19;
- An Approach to Landscape Character Assessment (2014) - Natural England;
- An Approach to Landscape Sensitivity Assessment - To Inform Spatial Planning and Land Management (2019) - Natural England.
- Reviewing Landscape Visual Impact Assessments (LVIAs and Landscape and Visual appraisals (LVAs) Technical Guidance Note 1/20 Landscape Institute.
- Assessing Landscape Value Outside National Designations, Technical Guidance Note 02/21 - Landscape Institute (2021).

1.2. GLVIA3 states within paragraph 1.1 that "Landscape and Visual Impact Assessment (LVIA) is a tool used to identify and assess the significance of and the effects of change resulting from development on both the landscape as an environmental resource in its own right and on people's views and visual amenity."[1]

1.3. GLVIA3 also states within paragraph 1.17 that when identifying landscape and visual effects there is a "need for an approach that is in proportion to the scale of the project that is being assessed and the nature of the likely effects. Judgement needs to be exercised at all stages in terms of the scale of investigation that is appropriate and proportional."[2]

1.4. GLVIA3 recognises within paragraph 2.23 that "professional judgement is a very important part of LVIA. While there is some scope for quantitative measurement of some relatively objective matters much of the assessment must rely on qualitative judgements"[3] undertaken by a landscape consultant or a Chartered Member of the Landscape Institute (CMLI).

1.5. GLVIA3 notes in paragraph 1.3 that "LVIA may be carried out either formally, as part of an Environmental Impact Assessment (EIA), or informally, as a contribution to the 'appraisal' of development proposals and planning applications"[4] Although the proposed development is not subject to an EIA requiring an assessment of the likely significance of effects, this

[1] Para 1.1, Page 4, GLVIA, 3rd Edition
[2] Para 1.17, Page 9, GLVIA, 3rd Edition
[3] Para 2.23, Page 21, GLVIA, 3rd Edition
[4] Para 1.3, Page 4, GLVIA, 3rd Edition

assessment is also titled as an LVIA rather than an 'appraisal' in the interests of common understanding with other planning consultants.

1.6. The effects on cultural heritage and ecology are not considered within this LVIA.

Study Area

1.7. The study area for this LVIA covers a 3km radius from the site. However, the main focus of the assessment was taken as a radius of 1km from the site as it is considered that even with clear visibility the proposals would not be perceptible in the landscape beyond this distance.

Effects Assessed

1.8. Landscape and visual effects are assessed through professional judgements on the sensitivity of landscape elements, character and visual receptors combined with the predicted magnitude of change arising from the proposals. The landscape and visual effects have been assessed in the following sections:

- Effects on landscape elements;
- Effects on landscape character; and
- Effects on visual amenity.

1.9. Sensitivity is defined in GLVIA3 as "a term applied to specific receptors, combining judgments of susceptibility of the receptor to a specific type of change or development proposed and the value related to that receptor."[5] Various factors in relation to the value and susceptibility of landscape elements, character, visual receptors or representative viewpoints are considered below and cross referenced to determine the overall sensitivity as shown in Table 1:

Table 1, Overall sensitivity of landscape and visual receptors

		VALUE		
SUSCEPTIBILITY		**HIGH**	**MEDIUM**	**LOW**
	HIGH	High	High	Medium
	MEDIUM	High	Medium	Medium
	LOW	Medium	Medium	Low

1.10. Magnitude of change is defined in GLVIA3 as "a term that combines judgements about the size and scale of the effect, the extent over which it occurs, whether it is reversible or irreversible and whether it is short or long term in duration."[6] Various factors contribute to

[5] Glossary, Page 158, GLVIA, 3rd Edition
[6] Glossary, Page 158, GLVIA, 3rd Edition

the magnitude of change on landscape elements, character, visual receptors and representative viewpoints.

1.11. The sensitivity of the landscape and visual receptor and the magnitude of change arising from the proposals are cross referenced in Table 11 to determine the overall degree of landscape and visual effects.

2. Effects on Landscape Elements

2.1. The effects on landscape elements includes the direct physical change to the fabric of the land, such as the removal of woodland, hedgerows or grassland to allow for the proposals.

Sensitivity of Landscape Elements

2.2. Sensitivity is determined by a combination of the value that is attached to a landscape element and the susceptibility of the landscape element to changes that would arise as a result of the proposals – see pages 88-90 of GLVIA3. Both value and susceptibility are assessed on a scale of high, medium or low.

2.3. The criteria for assessing the value of landscape elements and landscape character is shown in Table 2:

Table 2, Criteria for assessing the value of landscape elements and landscape character

HIGH	Designated landscape including but not limited to World Heritage Sites, National Parks, National Landscapes (formerly Areas of Outstanding Natural Beauty) considered to be an important component of the country's character or non-designated landscape of a similar character and quality. Landscape condition is good and components are generally maintained to a high standard. In terms of seclusion, enclosure by land use, traffic and movement, light pollution and absence of major built infrastructure, the landscape has an elevated level of tranquility. Rare or distinctive landscape elements and features are key components that contribute to the landscape character of the area.
MEDIUM	Undesignated landscape including urban fringe and rural countryside considered to be a distinctive component of the national or local landscape character. Landscape condition is fair and components are generally well maintained. In terms of seclusion, enclosure by land use, traffic and movement, light pollution and some major built infrastructure, the landscape has a moderate level of tranquility. Rare or distinctive landscape elements and features are notable components that contribute to the character of the area.
LOW	Undesignated landscape including urban fringe and rural countryside considered to be of unremarkable character. Landscape condition may be poor and components poorly maintained or damaged. In terms of seclusion, enclosure by land use, traffic and movement, light pollution and significant major built infrastructure, the landscape has limited levels of tranquility. Rare or distinctive elements and features are not notable components that contribute to the landscape character of the area.

2.4. The criteria for assessing the susceptibility of landscape elements and landscape character is shown in Table 3:

Table 3, Criteria for assessing landscape susceptibility

HIGH	Scale of enclosure – landscapes with a low capacity to accommodate the type of development being proposed owing to the interactions of topography, vegetation cover, built form, etc. Nature of land use – landscapes with no or little existing reference or context to the type of development being proposed. Nature of existing elements – landscapes with components that are not easily replaced or substituted (e.g. ancient woodland, mature trees, historic parkland, etc). Nature of existing features – landscapes where detracting features, major infrastructure or industry is not present or where present has a limited influence on landscape character.
MEDIUM	Scale of enclosure – landscapes with a medium capacity to accommodate the type of development being proposed owing to the interactions of topography, vegetation cover, built form, etc. Nature of land use – landscapes with some existing reference or context to the type of development being proposed. Nature of existing elements – landscapes with components that are easily replaced or substituted. Nature of existing features – landscapes where detracting features, major infrastructure or industry is present and has a noticeable influence on landscape character.
LOW	Scale of enclosure – landscapes with a high capacity to accommodate the type of development being proposed owing to the interactions of topography, vegetation cover, built form, etc. Nature of land use – landscapes with extensive existing reference or context to the type of development being proposed. Nature of existing features – landscapes where detracting features or major infrastructure is present and has a dominating influence on the landscape.

2.5. Various factors in relation to the value and susceptibility of landscape elements are assessed and cross referenced to determine the overall sensitivity as shown in Table 1.

2.6. Sensitivity is defined in GLVIA3 as "a term applied to specific receptors, combining judgments of susceptibility of the receptor to a specific type of change or development proposed and the value related to that receptor."[7] The definitions for high, medium, low landscape sensitivity are shown in Table 4:

[7] Glossary, Page 158, GLVIA, 3rd Edition

Table 4, Criteria for assessing landscape sensitivity

HIGH	Landscape element or character area defined as being of high value combined with a high or medium susceptibility to change. Landscape element or character area defined as being of medium value combined with a high susceptibility to change.
MEDIUM	Landscape element or character area defined as being of high value combined with a low susceptibility to change. Landscape element or character area defined as being of medium value combined with a medium or low susceptibility to change. Landscape element or character area defined as being of low value combined with a high or medium susceptibility to change.
LOW	Landscape element or character area defined as being of low value combined with a low susceptibility to change.

Magnitude of Change on Landscape Elements

2.7. Professional judgement has been used to determine the magnitude of change on individual landscape elements within the site as shown in Table 5:

Table 5, Criteria for assessing magnitude of change for landscape elements

HIGH	Substantial loss/gain of a landscape element.
MEDIUM	Partial loss/gain or alteration to part of a landscape element.
LOW	Minor loss/gain or alteration to part of a landscape element.
NEGLIGIBLE	No loss/gain or very limited alteration to part of a landscape element.

3. Effects on Landscape Character

3.1. Landscape character is defined as the "distinct, recognisable and consistent pattern of elements in the landscape that makes one landscape different from another, rather than better or worse."[8]

3.2. The assessment of effects on landscape character considers how the introduction of new landscape elements physically alters the landform, landcover, landscape pattern and perceptual attributes of the site or how visibility of the proposals changes the way in which the landscape character is perceived.

Sensitivity of Landscape Character

3.3. Sensitivity is determined by a combination of the value that is attached to a landscape and the susceptibility of the landscape to changes that would arise as a result of the proposals – see pages 88-90 of GLVIA3. Both value and susceptibility are assessed on a scale of high, medium or low.

3.4. The criteria for assessing the value of landscape character is shown in Table 2.

3.5. The criteria for assessing the susceptibility of landscape character is shown in Table 3.

3.6. The overall sensitivity is determined through cross referencing the value and susceptibility of landscape character as shown in Table 1.

Magnitude of Change on Landscape Character

3.7. Professional judgement has been used to determine the magnitude of change on landscape character as shown in Table 6:

Table 6, Criteria for assessing magnitude of change on landscape character

HIGH	Introduction of major new elements into the landscape or some major change to the scale, landform, landcover or pattern of the landscape.
MEDIUM	Introduction of some notable new elements into the landscape or some notable change to the scale, landform, landcover or pattern of the landscape.
LOW	Introduction of minor new elements into the landscape or some minor change to the scale, landform, landcover or pattern of the landscape.
NEGLIGIBLE	No notable or appreciable introduction of new elements into the landscape or change to the scale, landform, landcover or pattern of the landscape.

[8] Glossary, Page 157, GLVIA, 3rd Edition

4. Effects on Visual Amenity

4.1. Visual amenity is defined within GLVIA3 as the "overall pleasantness of the views people enjoy of their surroundings, which provides an attractive visual setting or backdrop for the enjoyment of activities of the people living, working, recreating, visiting or travelling through an area." [9]

4.2. The effects on visual amenity considers the changes in views arising from the proposals in relation to visual receptors including settlements, residential properties, transport routes, recreational facilities and attractions; and representative viewpoints or specific locations within the study area as agreed with the Local Planning Authority.

Sensitivity of Visual Receptors

4.3. Sensitivity is determined by a combination of the value that is attached to a view and the susceptibility of the visual receptor to changes in that view that would arise as a result of the proposals – see pages 113-114 of GLVIA3. Both value and susceptibility are assessed on a scale of high, medium or low.

4.4. The criteria for assessing the value of views are shown in Table 7:

Table 7, Criteria for assessing the value of views

HIGH	Views with high scenic value within designated landscapes including but not limited to World Heritage Sites, National Parks, National Landscape (formerly Areas of Outstanding Natural Beauty), etc. Likely to include key viewpoints on OS maps or reference within guidebooks, provision of facilities, presence of interpretation boards, etc.
MEDIUM	Views with moderate scenic value within undesignated landscape including urban fringe and rural countryside.
LOW	Views with unremarkable scenic value within undesignated landscape with partly degraded visual quality and detractors.

4.5. The criteria for assessing the susceptibility of views are shown in Table 8:

Table 8, Criteria for assessing visual susceptibility

HIGH	Includes occupiers of residential properties and people engaged in recreational activities in the countryside using public rights of way (PROW).
MEDIUM	Includes people engaged in outdoor sporting activities and people travelling through the landscape on minor roads and trains.
LOW	Includes people at places of work e.g. industrial and commercial premises and people travelling through the landscape on major roads and motorways.

4.6. Sensitivity is defined in GLVIA3 as "a term applied to specific receptors, combining judgments of susceptibility of the receptor to a specific type of change or development

[9] Page 158, Glossary, GLVIA3

proposed and the value related to that receptor."[10] The definitions for high, medium, low visual sensitivity are shown in Table 9:

Table 9, Criteria for assessing visual sensitivity

HIGH	Visual receptor defined as being of high value combined with a high or medium susceptibility to change. Visual receptor defined as being of medium value combined with a high susceptibility to change.
MEDIUM	Visual receptor defined as being of high value combined with a low susceptibility to change. Visual receptor defined as being of medium value combined with a medium or low susceptibility to change. Visual receptor defined as being of low value combined with a high or medium susceptibility to change.
LOW	Visual receptor defined as being of low value combined with a low susceptibility to change.

Magnitude of Change on Visual Receptors

4.7. Professional judgement has been used to determine the magnitude of change on visual receptors as shown in Table 10:

Table 10, Criteria for assessing magnitude of change for visual receptors

HIGH	Major change in the view that has a substantial influence on the overall view.
MEDIUM	Some change in the view that is clearly visible and forms an important but not defining element in the view.
LOW	Some change in the view that is appreciable with few visual receptors affected.
NEGLIGIBLE	No notable change in the view.

[10] Glossary, Page 158, GLVIA, 3rd Edition

5. Significance of Landscape And Visual Effects

5.1. The likely significance of effects is dependent on all of the factors considered in the sensitivity and the magnitude of change upon the relevant landscape and visual receptors. These factors are assimilated to assess whether or not the proposed development will have a likely significant or not significant effect. The variables considered in the evaluation of the sensitivity and the magnitude of change is reviewed holistically to inform the professional judgement of significance.

5.2. Within Table 11 below, the major effects highlighted in grey are considered to be significant in terms of the EIA Regulations. It should be noted that whilst an individual effect may be significant, it does not necessarily follow that the proposed development would be unacceptable in the planning balance. The cross referencing of the sensitivity and magnitude of change on the landscape and visual receptor determines the significance of effect as shown in Table 11:

Table 11, Significance of landscape and visual effects

		Sensitivity		
		HIGH	**MEDIUM**	**LOW**
Magnitude of Change	**HIGH**	Major	Major	Moderate
	MEDIUM	Major	Moderate	Minor
	LOW	Moderate	Minor	Minor
	NEGLIGIBLE	Negligible	Negligible	Negligible

6. Typical Descriptors of Landscape Effects

6.1. The typical descriptors of the landscape effects are detailed within Table 12:

Table 12, Typical Descriptors of Landscape Effects

MAJOR BENEFICIAL	Substantially: - enhance the character (including value) of the landscape; - enhance the restoration of characteristic features and elements lost as a result of changes from inappropriate management or development; - enable a sense of place to be enhanced.
MODERATE BENEFICIAL	Moderately: - enhance the character (including value) of the landscape; - enable the restoration of characteristic features and elements partially lost or diminished as a result of changes from inappropriate management or development; - enable a sense of place to be restored.
MINOR BENEFICIAL	Slightly: - complement the character (including value) of the landscape; - maintain or enhance characteristic features or elements; - enable some sense of place to be restored.
NEGLIGIBLE	The proposed changes would (on balance) maintain the character (including value) of the landscape and would: - be in keeping with landscape character and blend in with characteristic features and elements; - Enable a sense of place to be maintained.
NO CHANGE	The proposed changes would not be visible and there would be no change to landscape character.
MINOR ADVERSE	Slightly: - not quite fit the character (including value) of the landscape; - be a variance with characteristic features and elements; - detract from the sense of place.
MODERATE ADVERSE	Moderately: - conflict with the character (including value) of the landscape; - have an adverse effect on characteristic features or elements; - diminish a sense of place.
MAJOR ADVERSE	Substantially: - be at variance with the character (including value) of the landscape; - degrade or diminish the integrity of a range of characteristic features and elements or cause them to be lost; - change a sense of place.

7. Typical Descriptors of Visual Effects

7.1. The typical descriptors of the visual effects are detailed within Table 13:

Table 13, Typical Descriptors of Visual Effects

MAJOR BENEFICIAL	Proposals would result in a major improvement in the view.
MODERATE BENEFICIAL	Proposals would result in a clear improvement in the view.
MINOR BENEFICIAL	Proposals would result in a slight improvement in the view.
NEGLIGIBLE	The proposed changes would be in keeping with, and would maintain, the existing view or where (on balance) the proposed changes would maintain the general appearance of the view (which may include adverse effects which are offset by beneficial effects for the same receptor) or due to distance from the receptor, the proposed change would be barely perceptible to the naked eye.
NO CHANGE	The proposed changes would not be visible and there would be no change to the view.
MINOR ADVERSE	Proposals would result in a slight deterioration in the view.
MODERATE ADVERSE	Proposals would result in a clear deterioration in the view.
MAJOR ADVERSE	Proposals would result in a major deterioration in the view.

8. Nature of Effects

8.1. GLVIA3 includes an entry that states *"effects can be described as positive or negative (or in some cases neutral) in their consequences for views and visual amenity."*[11] GLVIA3 does not, however, state how negative or positive effects should be assessed, and this therefore becomes a matter of professional judgement supported by site specific justification within the LVIA.

[11] Para 6.29, Page 113, GLVIA 3rd Edition

Town & Country Planning Act 1990 (as amended)
Planning and Compulsory Purchase Act 2004

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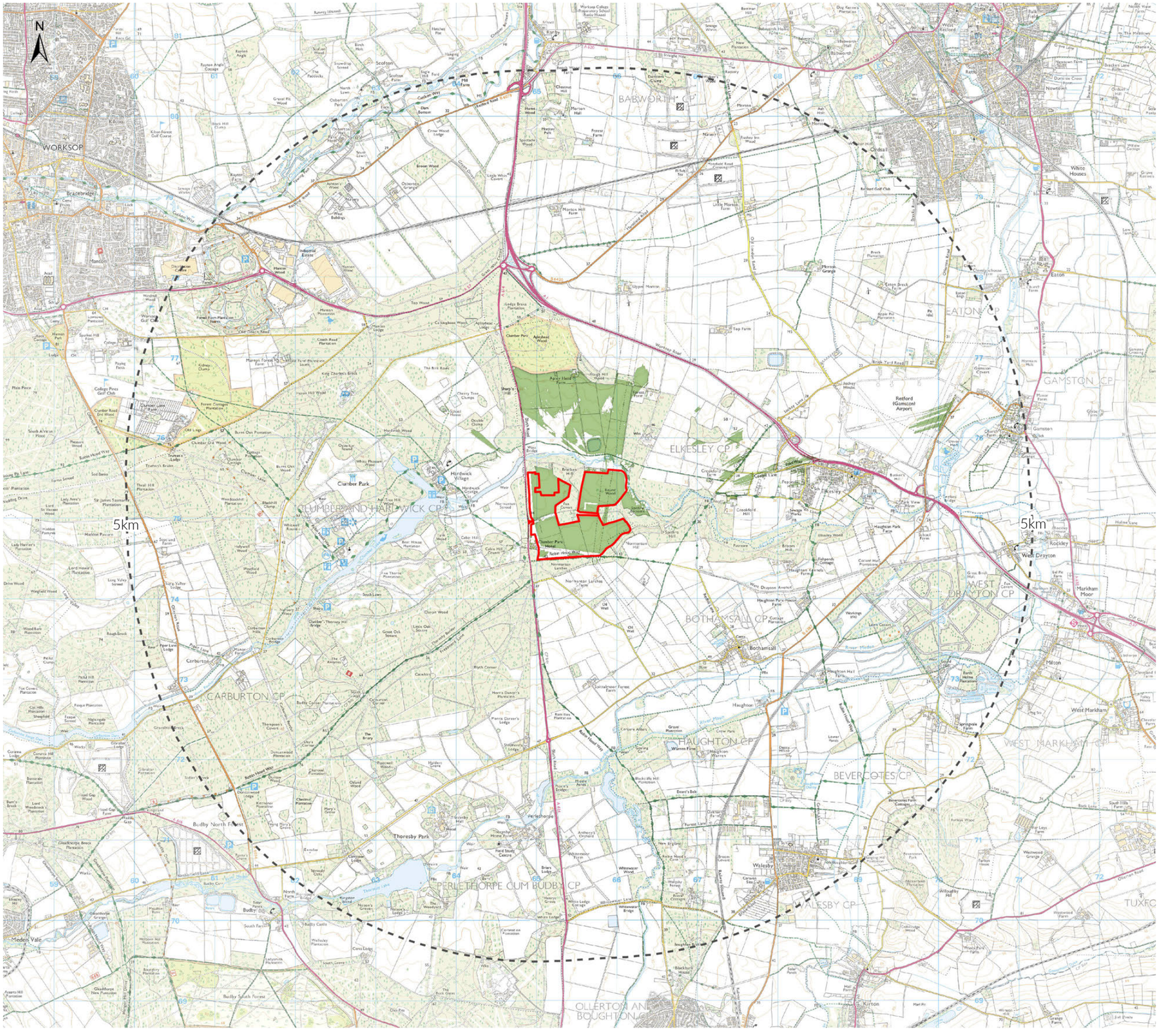
APPENDIX 10: SCREENED ZTV (PREPARED BY SIGHTLINE)

Blyth Road Solar | Zone of Theoretical Visibility (ZTV) with proposed planting



Legend

- Site boundary
- 5km radial extent
- Zone of Theoretical Visibility (ZTV)

The ZTV is generated from a receptor height of 1.6m (average eye level) and a receiver heights of up to 3m (maximum pv array height) and 6.7m (maximum substation height) above existing ground level. Proposed planting has been added to include new hedgerows at 3m high, scrub planting at 3.5m high and woodland trees at 7m high. Multiple targets were placed within the site to best represent points that may be visible.

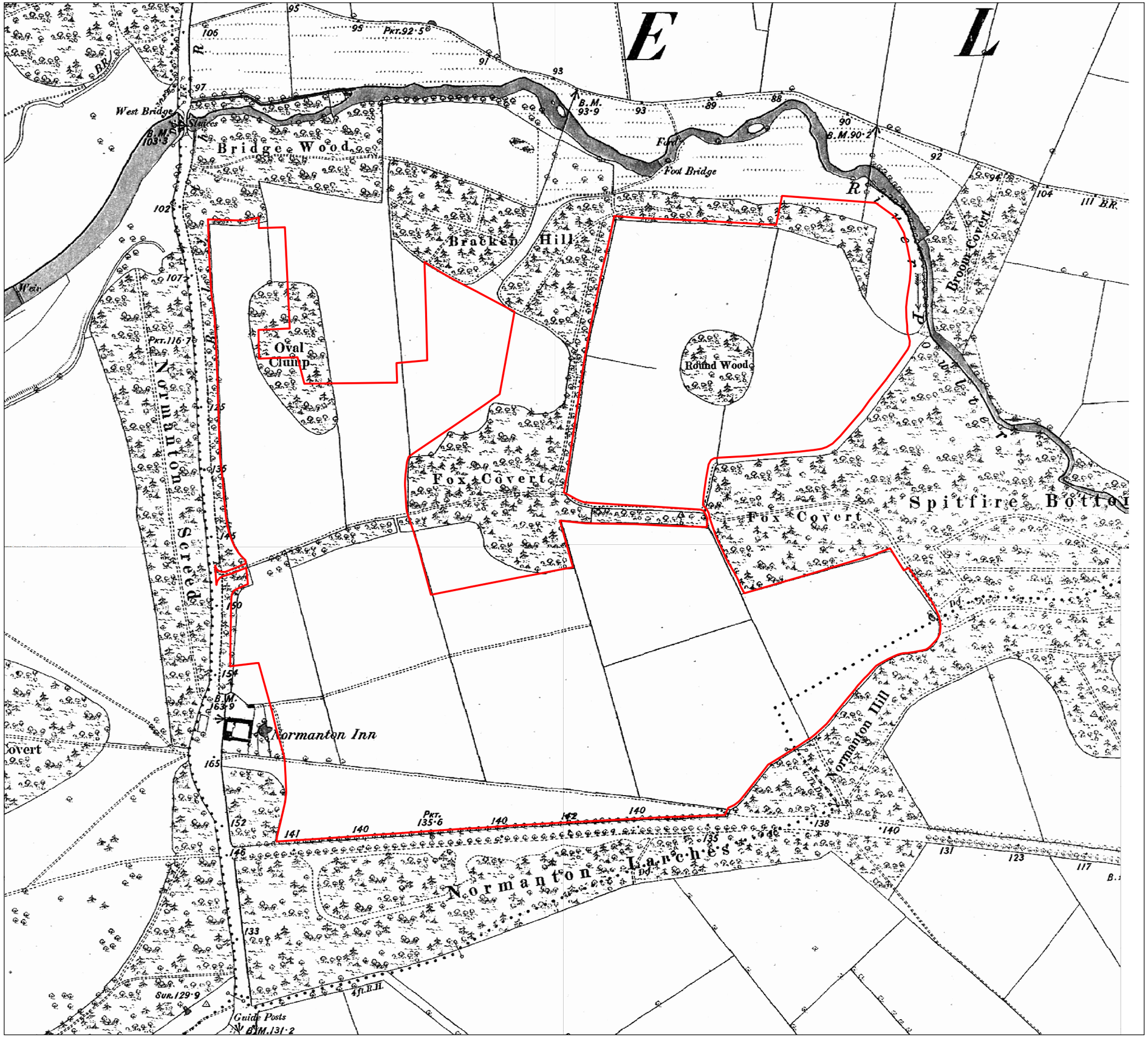
This ZTV is based on 5m LiDAR 'First Return' DSM (Digital Surface Model) terrain data which includes intervening features such as existing trees/ vegetation and buildings in the landscape. Some changes within the landscape may have occurred since the DSM data and ZTV was created. Data source; data.gov.uk. This ZTV also includes Earth's curvature.

Proposed hedges have been modeled at 3m high, proposed scrub at 3.5m high and proposed woodland at 7m high in the locations shown on the Planting Plan 571_PP_01_Rev C, Sightline Landscape.

0 1 2 km

Scale 1 : 50,000 @ A3

APPENDIX 11: HISTORIC MAP



KEY

Site Boundary

REV	DATE	DESCRIPTION
-	-	-

HISTORIC MAP 1885

LAND ADJACENT TO THE A614, WORKSOP

LONGWORTHY LIMITED

DATE	SCALE	DRAWN	APPROVED
16/12/2025	1:6,500@A3	AB	AC

SHEET	REV	N	0	200M
-	A			

DRAWING NUMBER
P25-2880_EN_06

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