Landscape Proof of Evidence Appendices

Land to the West of Wood Lane and Stocking Lane, Kingston Estate, Gotham

On behalf of Renewable Energy Systems (RES) Ltd

Date: 23 April 2024 | Pegasus Ref: P24-0106

PINS Ref: PO340/W/23/3329235 | LPA Ref: 22/00319/FUL

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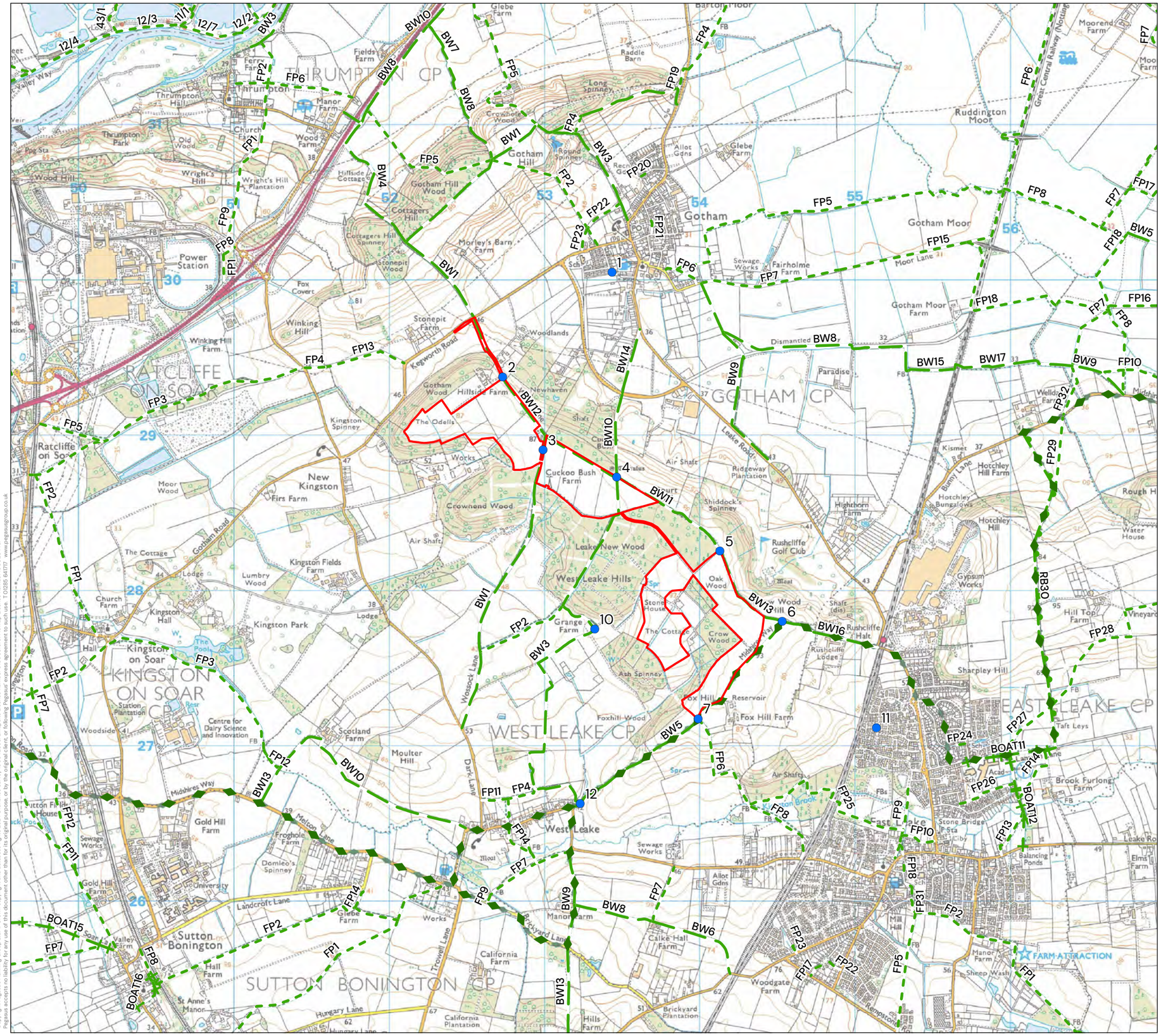
APPENDIX 1: SITE LOCATION AND PUBLIC RIGHTS OF WAY PLAN (WITH LVA VIEWPOINTS)



KEY

- Site Boundary
- Public Footpaths
- Public Bridleways
- Restricted Byway
- Public Byway open to all traffic
- Recreational Route - Midshires Way
- LVA Viewpoints

NOTES:
REVISIONS:

SITE LOCATION AND PUBLIC RIGHTS OF WAY PLAN

KINGSTON SOLAR FARM

RES

N
0 1 km

DATE	SCALE	TEAM	APPROVED
26/03/2024	1:25,000@A3	EH	CR

SHEET	REVISION
-	B

DRAWING NUMBER
P24-0106_EN_02

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APPENDIX 2: LANDSCAPE MASTERPLAN (TWO PLANS, NORTH AND SOUTH)

Proposed native hedgerow planting to be managed at 3-4m height (replacement of existing hedgerow behind visibility splay)

Stonepit Farm

Stonepit House

46m

FP13

45m

KEGWORTH ROAD

46m

Drain

Gotham Wood

Drain

58m

Hillside Farm

Proposed native woodland planting comprising heavy standard trees and feathered tree planting with understorey shrub planting

Track

Existing hedgerow planting to be infilled and managed at 3-4m height.

Field 2

Field 3

Field 5

BW12

Existing hedgerow planting to be infilled and managed at 3-4m height.

Field 1

Field 4

Field 6

Kingston Spinney

Drain

Drain

58m

Depot

Adit

Iss

Iss

Magazine Plantation

Crownend Wood

Drain

Existing hedgerow planting to be infilled and managed at 3-4m height.

Field 7

Field 8

BW1

Path

Drain

Drain

Drain

Drain

Newhaven

Drain

GYPSUM WAY

Existing hedgerow planting to be infilled and managed at 3-4m height.

Track

Path

42m

BW10

Existing hedgerow planting to be infilled and managed at 3-4m height.

Cuckoo Bush

Proposed native woodland planting comprising heavy standard trees and feathered tree planting with understorey shrub planting

Tumulus

Field 10

Field 9

Field 11

Air Shaft

Air Shaft

Path

BW11

Court Hill

96m

Proposed native hedgerow planting to be managed at 3-4m height.

Proposed permissive path (educational route)

BW10

REFER TO SHEET 2

LOCATION PLAN 1:15000

SHEET 1

SHEET 2

KEY

- Site Boundary
- Existing PRoW - bridleway
- Proposed permissive path (educational route)
- Existing vegetation retained
  - Within and to along site boundaries shown as per Neo Environmental Arboricultural Impact Assessment
  - Outside of site boundary shown as per OS mapping only
- Existing hedgerow to be infilled
  - Gap up and infill @ approx. 30% rate, managed at 3-4m
- Existing vegetation to be removed

SOFT LANDSCAPE PROPOSALS

- Proposed species rich grassland mix
  - to be confirmed by ecologist pre-construction
- Proposed grassland strip
  - to be confirmed by ecologist pre-construction
- Proposed wildflower meadow seed mix
  - to be confirmed by ecologist pre-construction
- Proposed native hedgerow planting
- Proposed woodland planting
  - Heavy and feathered native tree planting within native shrub understorey planting (symbols indicative only)

ECOLOGICAL FEATURES

- Invertebrate hotel
- Herptile hibernacula
- Hedgehog house
- Bird box

HARD LANDSCAPE PROPOSALS

- Fence line
- Gates within fence line
- CCTV
- Temporary construction compound
- Indicative solar PV array
- Existing access track
- Proposed access track
- Customer substation
- Inverter
- Spares containers
- Indicative infiltration pond location

For Ecological management plan by Neo Environmental refer to drawing no. NEO0763_0471_E

Kingston Solar Farm - Landscape Masterplan (North)

N

0 100 250 m

| PEGASUSGROUP.CO.UK | TEAM/DRAWN BY: IBD | APPROVED BY: IBD | DATE: 05/04/2024 | SCALE: 1:2500@A1 | DRWG: P24-0106_EN_01_E_01 | CLIENT: RES |

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REFER TO SHEET 1

West Leake Hills

Leake New Wood

Path

BW10

Track

Drain

Spr

Field 12

Field 13

Field 14

Field 15

Field 16

Existing hedgerow planting to be infilled and managed at 3-4m height.

Existing hedgerow planting to be infilled and managed at 3-4m height.

Proposed native tree planting

Proposed native instant hedgerow planting to be managed at 3-4m height

Proposed native instant hedgerow planting to be managed at 3-4m height

Stone House

Drain

BW11

93m

BW13

Track

Crow Wood Hill

93m

90m

Path

Pine Lodge

CH

BW16

BW3

ne Cottage

Crow Wood

Fir Dale Plantation

Ash Spinney

Track

Drain

W

B

93m

BRIDLEWAY

BW5

90m

Reservoir (cov)

Foxhill Wood

Fox Hill

Fox Hill Farm

88m

BW5

FP6

Moat

F

SHEET 1

SHEET 2

LOCATION PLAN 1:15000

KEY

- Site Boundary
- Existing PRoW - bridleway
- Existing PRoW - Footpath
- Existing vegetation retained
  - Within and to along site boundaries shown as per Neo Environmental Arboricultural Impact Assessment
  - Outside of site boundary shown as per OS mapping only
- Existing hedgerow to be infilled
  - Gap up and infill @ approx. 30% rate, managed at 3-4m
- Existing vegetation to be removed

SOFT LANDSCAPE PROPOSALS

- Proposed species rich grassland mix
  - to be confirmed by ecologist pre-construction
- Proposed grassland strip
  - to be confirmed by ecologist pre-construction
- Proposed wildflower meadow seed mix
  - to be confirmed by ecologist pre-construction
- Proposed heavy standard native tree planting
- Proposed native hedgerow planting
- Proposed native instant hedgerow planting
- Proposed woodland planting
  - Heavy and feathered native tree planting within native shrub understorey planting (symbols indicative only)

ECOLOGICAL FEATURES

- Invertebrate hotel
- Herptile hibernacula
- Hedgehog house
- Bird box

HARD LANDSCAPE PROPOSALS

- Fence line
- Gates within fence line
- CCTV
- Temporary construction compound
- Indicative solar PV array
- Proposed access track
- Inverter

For Ecological management plan by Neo Environmental refer to drawing no. NEO0763_0471_E

Kingston Solar Farm - Landscape Masterplan (South)

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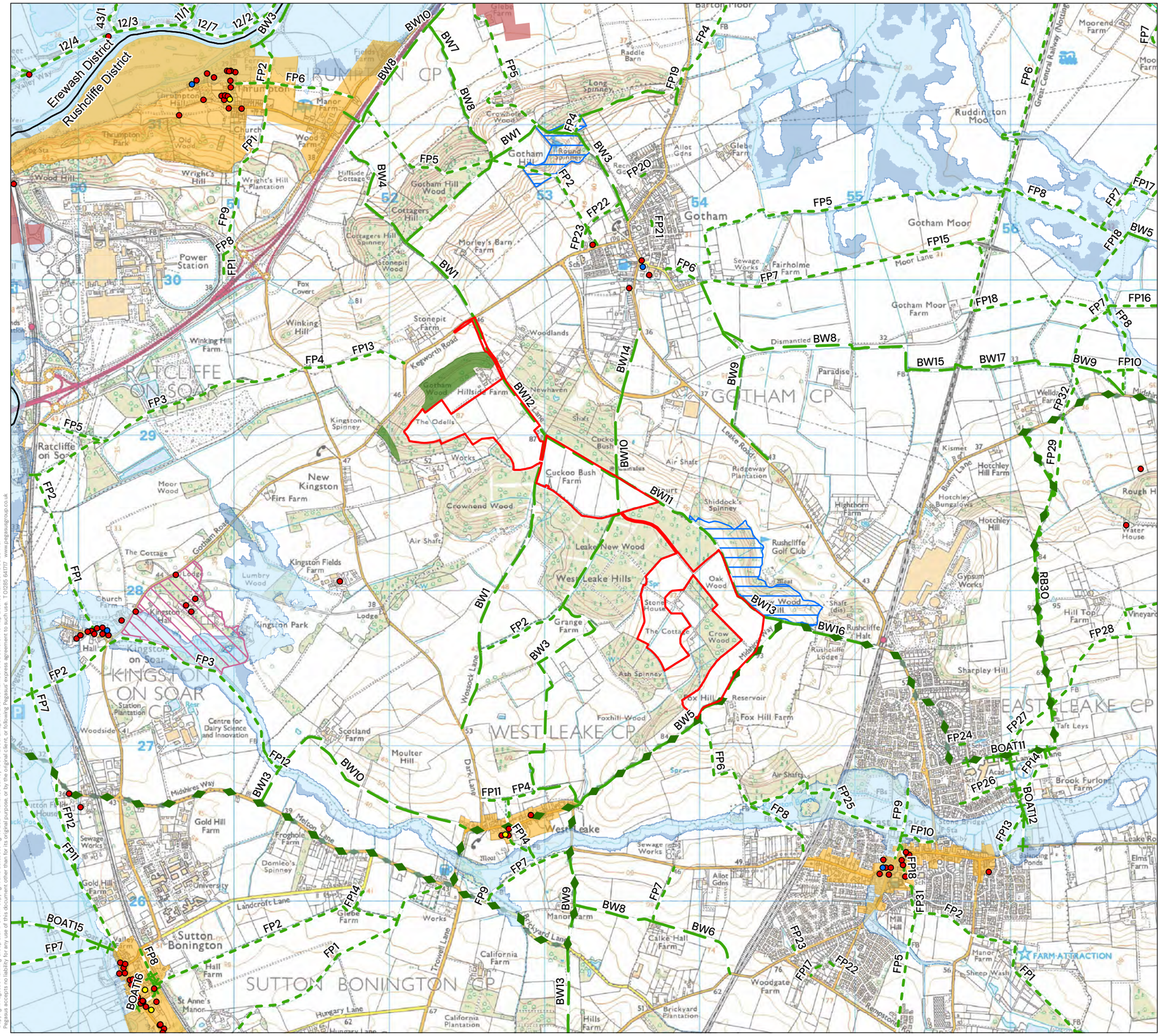
N

0 100 250 m

| PEGASUSGROUP.CO.UK | TEAM/DRAWN BY: IBD | APPROVED BY: IBD | DATE: 05/04/2024 | SCALE: 1:2500@A1 | DRWG: P24-0106_EN_01_E_02 | CLIENT: RES |

APPENDIX 3: ENVIRONMENTAL DESIGNATIONS PLAN



KEY

- Site Boundary
- District Boundary
- Grade I Listed Building
- Grade II* Listed Building
- Grade II Listed Building
- Public Footpaths
- Public Bridleways
- Restricted Byway
- Public Byway open to all traffic
- Recreational Route - Midlands Way
- Country Parks
- Registered Parks and Gardens
- Scheduled Monuments
- Conservation Area
- Local Nature Reserves
- Sites of Special Scientific Interest
- Ancient Woodland
- EA Flood Zone 3
- EA Flood Zone 2

NOTES:
REVISIONS:

ENVIRONMENTAL DESIGNATIONS PLAN

KINGSTON SOLAR FARM

RES

N

0 1 km

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DRAWING NUMBER
P24-0106_EN_03

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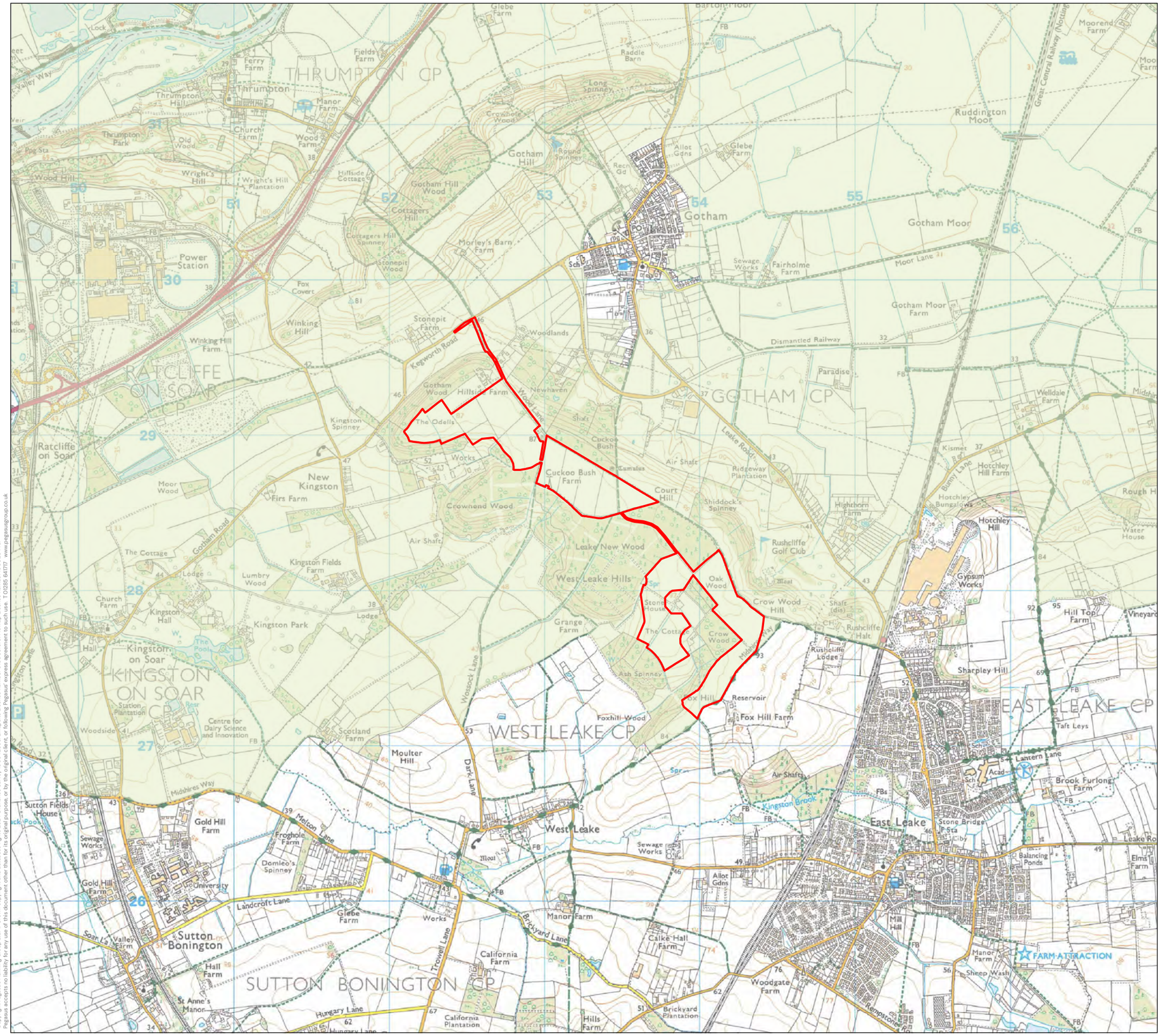
APPENDIX 4: LOCAL GREEN BELT PLAN



KEY

- Site Boundary
- Nottingham – Derby Green Belt

NOTES:
REVISIONS:

LOCAL GREEN BELT PLAN

KINGSTON SOLAR FARM

RES

N
0 1 km

DATE	SCALE	TEAM	APPROVED
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SHEET	REVISION
-	B

DRAWING NUMBER
P24-0106_EN_04

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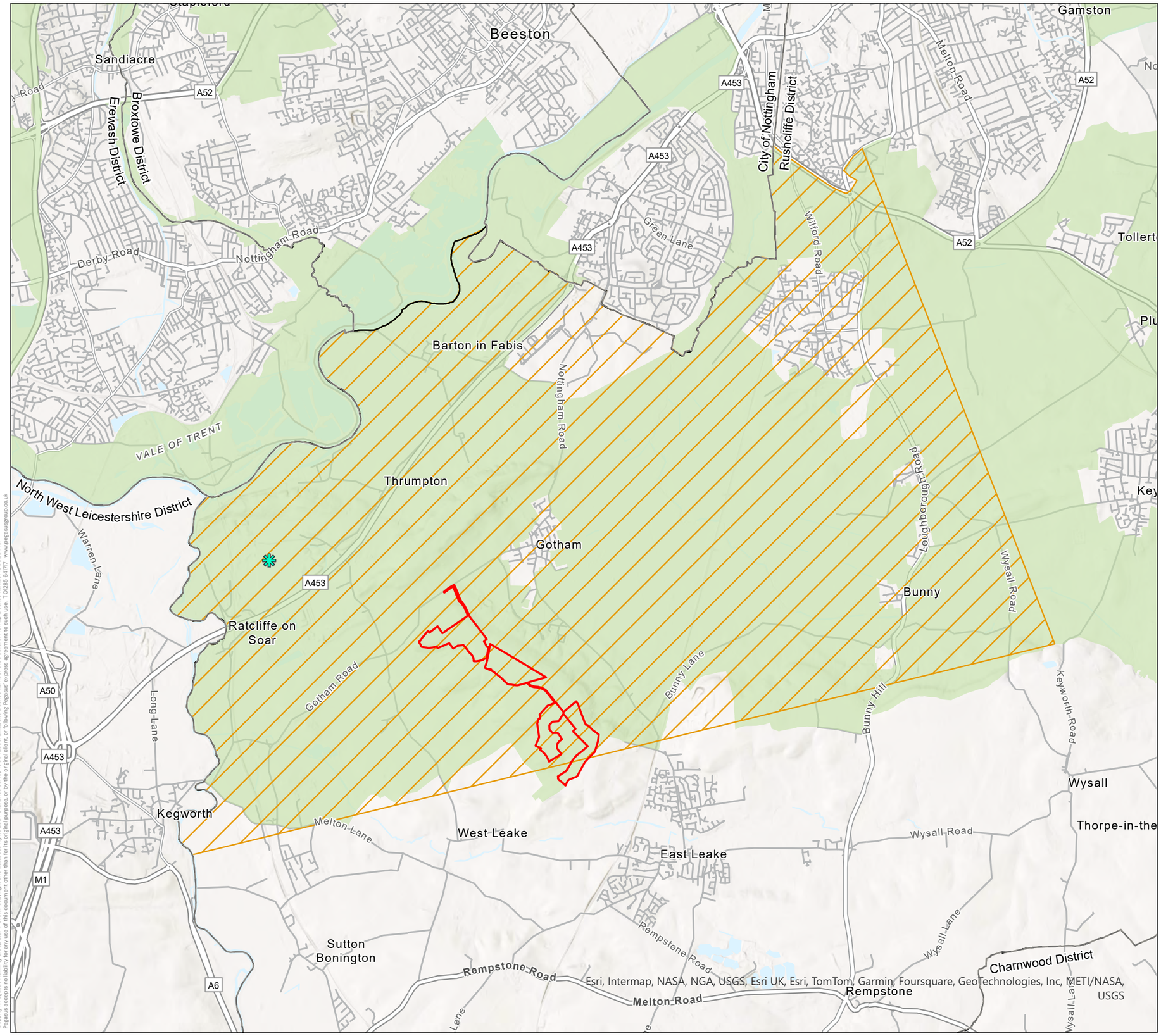
APPENDIX 5: WIDER GREEN BELT PLAN



KEY

- Site Boundary
- Nottingham – Derby Green Belt
- Ratcliffe-on-Soar Power Station

Rushcliffe Green Belt Review

- Broad Area A: Rushcliffe West

NOTES:
REVISIONS:

WIDER GREEN BELT PLAN

KINGSTON SOLAR FARM

RES

N
0 2 km

DATE	SCALE	TEAM	APPROVED
26/03/2024	1:50,000@A3	EH	CR

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DRAWING NUMBER
P24-0106_EN_05

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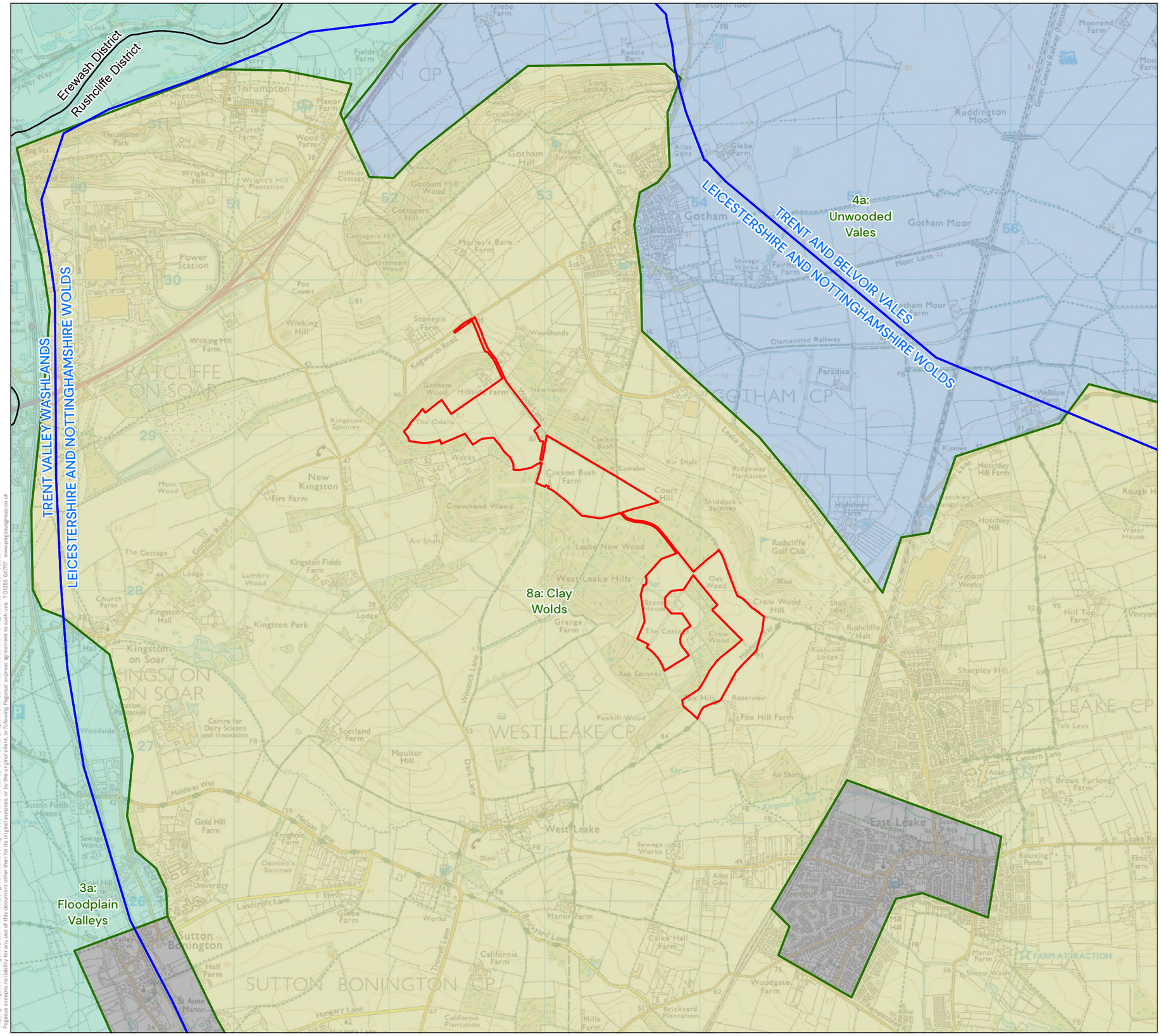
APPENDIX 6: LANDSCAPE CHARACTER PLAN – NATIONAL AND REGIONAL



KEY

- Site Boundary
- District Boundary
- National Landscape Character Areas

East Midlands Regional Landscape Character Assessment (2010)

- Landscape Character Areas

Landscape Character Types

- 3: River Valley Floodplains
- 4: Lowland Vales
- 8: Clay Wolds
- Built Up Area

NOTES:
REVISIONS:

REGIONAL AND NATIONAL LANDSCAPE CHARACTER PLAN

KINGSTON SOLAR FARM

RES

N
0 1 km

DATE	SCALE	TEAM	APPROVED
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-	**A**

DRAWING NUMBER
P24-0106_EN_09

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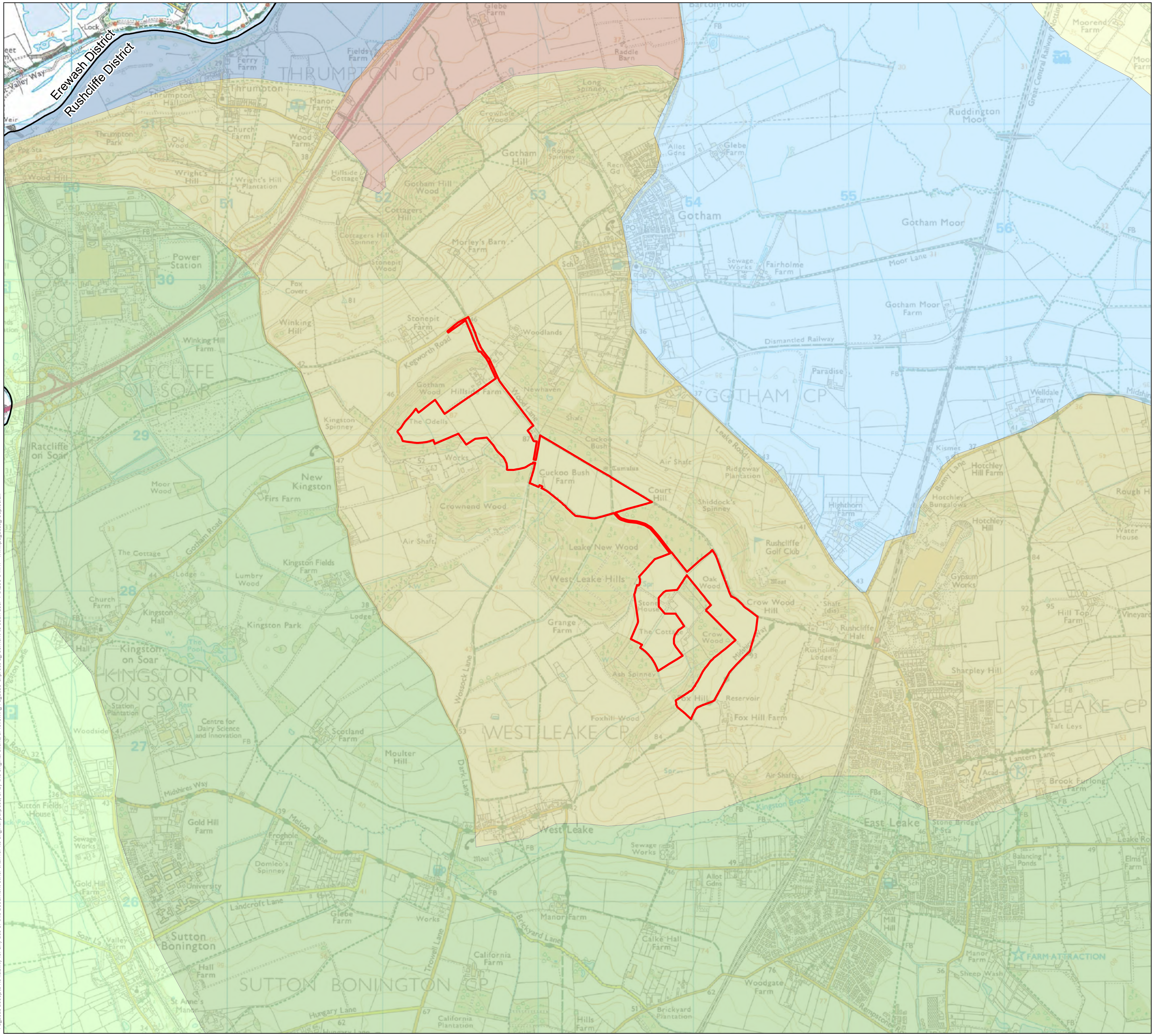
APPENDIX 7: LANDSCAPE CHARACTER PLAN – LOCAL



KEY

- Site Boundary
- District Boundary

Greater Nottingham Landscape Character Assessment (2009) - Landscape Character Types

- NW01: Gotham And West Leake Hills And Scarps
- NW02: East Leake Rolling Farmland
- SN01: Clifton Slopes
- SN02: Ruddington Alluvial Farmland
- SN04: Cotgrave And Tollerton Village Farmlands
- TV01: Attenborough Wetlands
- TV02: Soar Valley Farmlands

NOTES:
REVISIONS:

LOCAL LANDSCAPE CHARACTER PLAN

KINGSTON SOLAR FARM

RES

N
0 1 km

DATE	SCALE	TEAM	APPROVED
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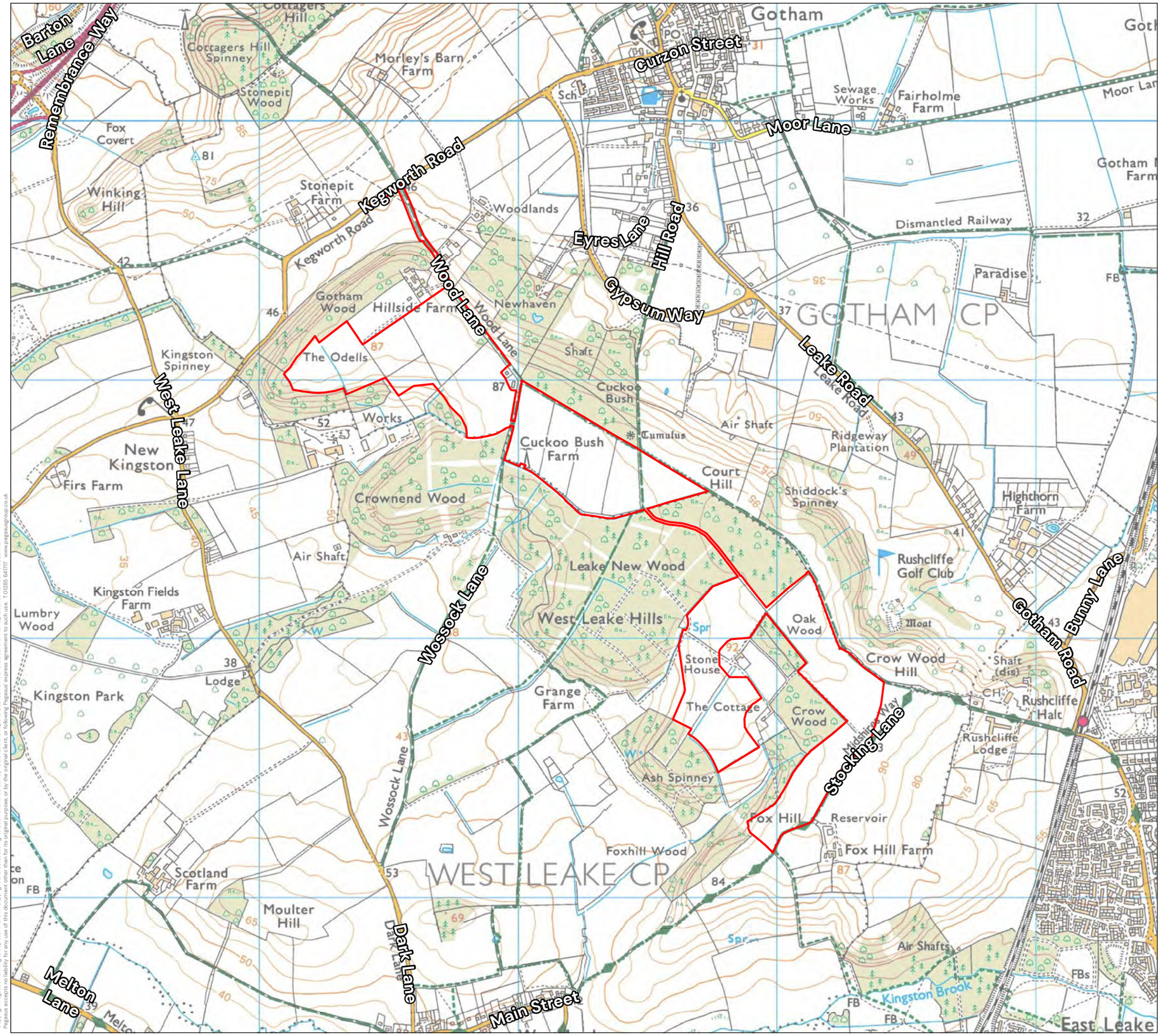
P24-0106_EN_06

APPENDIX 8: ROAD NAMES PLAN



KEY

Site Boundary

NOTES:
REVISIONS:

ROAD NAMES PLAN

KINGSTON SOLAR FARM

RES

N
0
0.6 km

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SHEET	REVISION
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DRAWING NUMBER
P24-0106_EN_02

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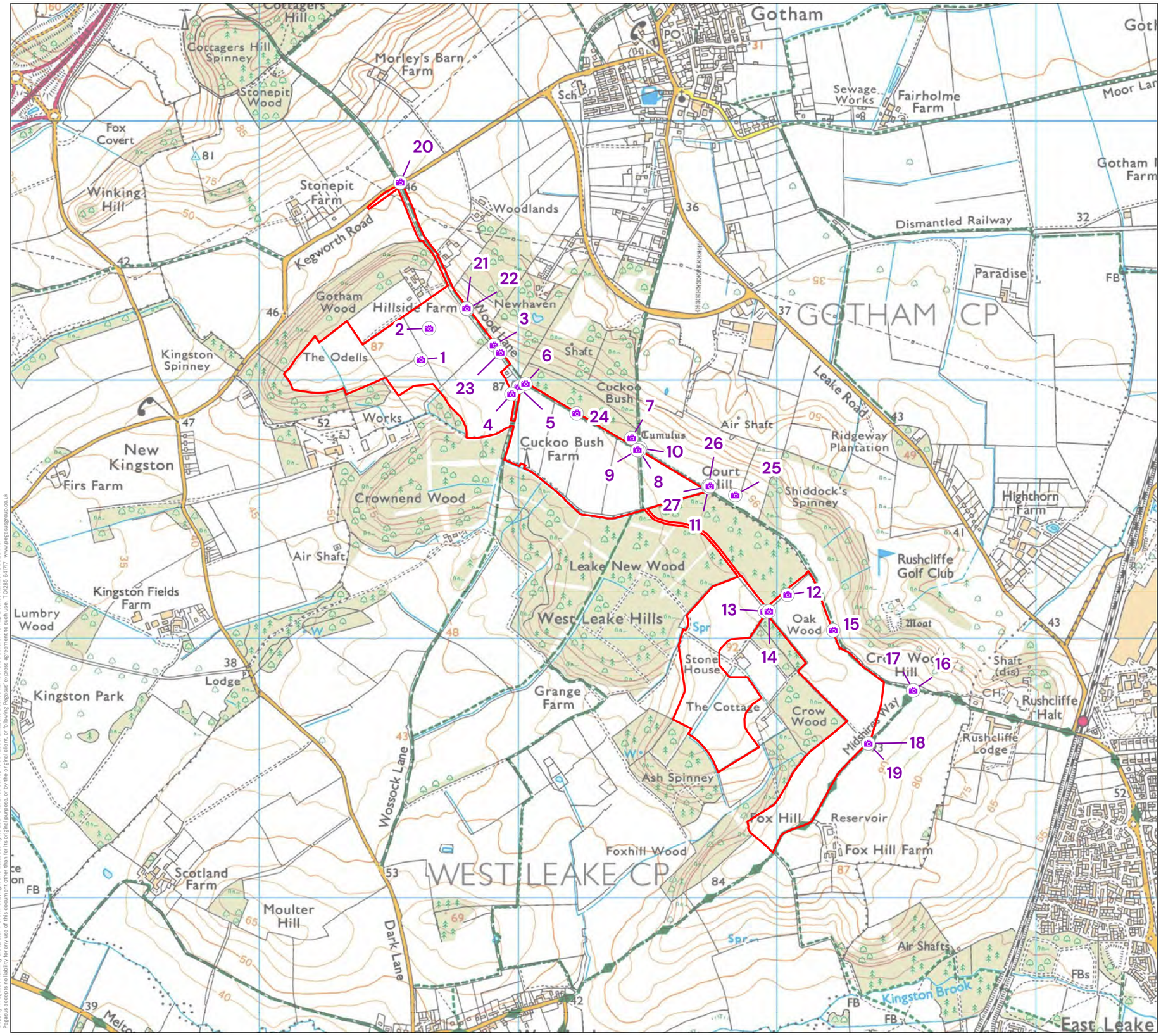
APPENDIX 9: CONTEXT VIEWPOINT LOCATION PLAN



KEY

- Site Boundary
- Photo Locations

NOTES:
REVISIONS:

PHOTO LOCATIONS PLAN

KINGSTON SOLAR FARM

RES

N
0 0.6 km

DATE	SCALE	TEAM	APPROVED
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SHEET	REVISION
-	A

DRAWING NUMBER
P24-0106_EN_14

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APPENDIX 10: CONTEXT PHOTOVIEWS

Photoview 1A

Photoview 1B

PHOTOVIEWS

KINGSTON SOLAR FARM

Client **| RES**

Drawing number **|** P24_0106_EN_13

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Photoview 2A

Photoview 2B

PHOTOVIEWS

KINGSTON SOLAR FARM

Client **| RES**

Drawing number **|** P24_0106_EN_13

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Photoview 3

Photoview 4

PHOTOVIEWS

KINGSTON SOLAR FARM

Client **| RES**

Drawing number **|** P24_0106_EN_13

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Photoview 5A

Photoview 5B

PHOTOVIEWS

KINGSTON SOLAR FARM

Client **| RES**

Drawing number **|** P24_0106_EN_13

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Photoview 6

Photoview 7

PHOTOVIEWS

KINGSTON SOLAR FARM

Client **| RES**

Drawing number **|** P24_0106_EN_13

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Photoview 8

Photoview 9

PHOTOVIEWS

KINGSTON SOLAR FARM

Client **| RES**

Drawing number **|** P24_0106_EN_13

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Photoview 10

Photoview 11

PHOTOVIEWS

KINGSTON SOLAR FARM

Client **| RES**

Drawing number **|** P24_0106_EN_13

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Photoview 12

Photoview 13

PHOTOVIEWS

KINGSTON SOLAR FARM

Client **| RES**

Drawing number **|** P24_0106_EN_13

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Photoview 14

Photoview 15

PHOTOVIEWS

KINGSTON SOLAR FARM

Client **| RES**

Drawing number **|** P24_0106_EN_13

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Photoview 16

Photoview 17

PHOTOVIEWS

KINGSTON SOLAR FARM

Client **| RES**

Drawing number **|** P24_0106_EN_13

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Photoview 18

Photoview 19

PHOTOVIEWS

KINGSTON SOLAR FARM

Client **| RES**

Drawing number **|** P24_0106_EN_13

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Photoview 20

Photoview 21

Photoview 22

Photoview 23

PHOTOVIEWS

KINGSTON SOLAR FARM

Client **| RES**

Drawing number **|** P24_0106_EN_13

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Photoview 24

Photoview 25

Photoview 26

Photoview 27

PHOTOVIEWS

KINGSTON SOLAR FARM

Client **| RES**

Drawing number **|** P24_0106_EN_13

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APPENDIX 11: LVIA METHODOLOGY

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;
- 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.

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

[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

likely significance of effects, this 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

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

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 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, 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 tranquillity. Rare or distinctive landscape elements and features are key components that contribute to the landscape character of the area.

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

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 tranquillity. 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 tranquillity. 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:

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.

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

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.

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

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.

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

[9] Page 158, Glossary, GLVIA3

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, 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 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 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

APPENDIX 12: SUMMARY VISUAL IMPACT SCHEDULE

Appendix 12: Summary of Visual Effects based on LVA Viewpoints
Effects are assessed as adverse unless otherwise stated.

Viewpoint/Receptor	Value	Susceptibility	Sensitivity	Magnitude – Year 1	Effect (adverse) – Year 1	Magnitude – Year 10	Effect (adverse) – Year 10
1 - Highway	Medium	Medium	Medium	Negligible	Negligible	Negligible	Negligible
2 – PRoW	Medium	High	High	Low	Moderate	Negligible	Negligible
3 - PRoW	Medium	High	High	Low	Moderate	Negligible	Negligible
4 - PRoW	Medium	High	High	Medium	Major	Negligible	Negligible
5 - PRoW	Medium	High	High	Low	Moderate	Negligible	Negligible
6 - PRoW	Medium	High	High	Low	Moderate	Negligible	Negligible
7 - PRoW	Medium	High	High	None	None	None	None
8 - PRoW	Medium	High	High	Low	Moderate	Negligible	Negligible
9 - Highway	Medium	Medium	Medium	None	None	None	None
10 - PRoW	Medium	High	High	None	None	None	None

APPENDIX 13: NCA 74 LEICESTERSHIRE AND NOTTINGHAMSHIRE WOLDS

National Character Area profile:

74. Leicestershire and Nottinghamshire Wolds

Supporting documents

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.

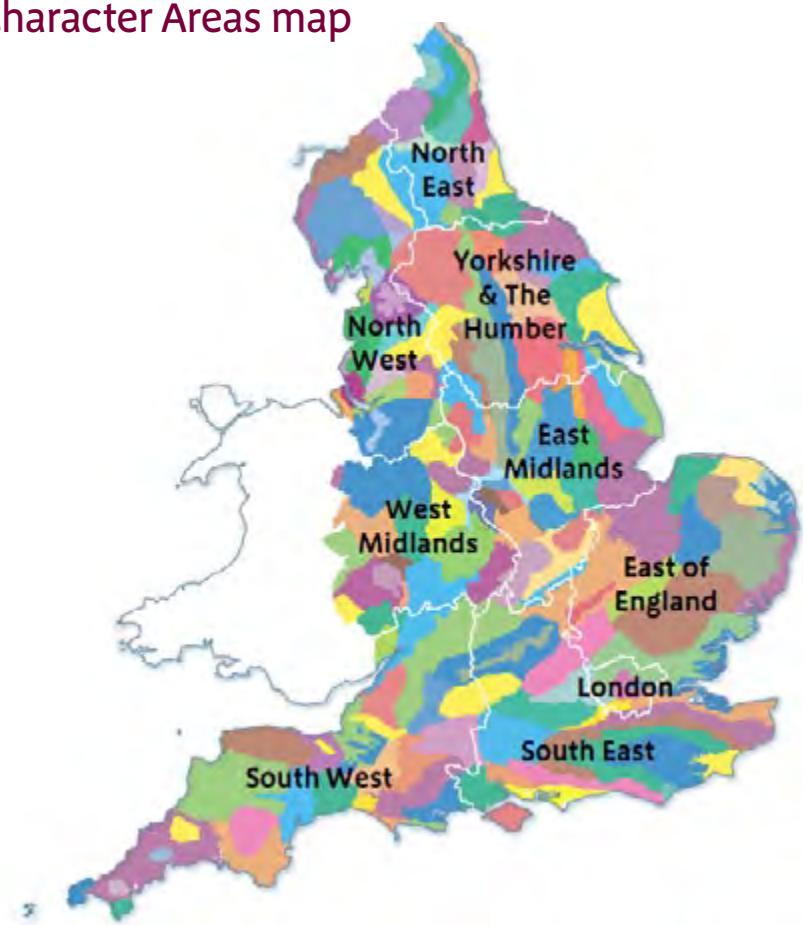
NCA profiles are guidance documents which can help communities to inform their decision-making about the places that they live in and care for. The information they contain will support the planning of conservation initiatives at a landscape scale, inform the delivery of Nature Improvement Areas and 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 Leicestershire and Nottinghamshire Wolds form part of a belt of Wold landscapes formed by gently dipping Jurassic rocks which stretch from the Cotswolds to Lincolnshire. The character area extends eastwards between Nottingham and Leicester and includes the large market town of Melton Mowbray. Further south, Rutland Water is a significant feature in this rural, open, mixed farmland landscape with long views from the summits of undulating hills.

The Wolds form a watershed between the rivers Wreake, Soar and Trent with streams draining from the central elevated land to each of these rivers. There is a major inland reservoir at Rutland Water which is a major source of urban water supply to the region; a wetland of international importance and is designated an SPA and Ramsar site supporting internationally important populations of golden plover.

Much of the area is a popular visitor destination, exceeding 1.5 million[4] visitors and a significant number visit Rutland Water and the historically important Belvoir Castle.

Food production is an important service to the area with extensive areas of arable farming on the plateaux with sheep grazing on the steeper slopes of the valleys. Elsewhere, spinneys, fox coverts, hedgerows, hedgerow trees and streamside trees provide moderate tree cover.

Over abstraction of water is an issue in the NCA particularly during periods of peak abstraction. Abstracted water is used for agricultural irrigation within the NCA and as a public water supply. Maintaining water levels in Rutland Water is essential to maintain the water quality of the internationally important wetland habitats.

An increase to the areas of commercial agriculture could also pose a threat to areas of semi-natural grassland, their associated flora and areas of ridge and furrow, a legacy of historic land use and a characteristic of the NCA.

Click map to enlarge; click again to reduce.

[4] Rutland visitor strategy 2007-2012

Statements of Environmental Opportunity

- **SEO 1**: Promote sustainable agricultural practices in this important food producing area to conserve the soil resource and protect water quality, while also ensuring the distinctive historic field pattern and important grassland and broad-leaved woodland habitats are conserved and restored.

- **SEO 2**: Conserve and manage Rutland Water reservoir and nature reserve for its internationally designated habitats and for the variety of recreational and education assets it provides.

- **SEO 3**: Protect tranquillity levels in the rural landscape and ensure new development on the urban fringe incorporates green infrastructure into the design, maintains the vernacular and links with the wider countryside.

- **SEO 4**: Where new development is planned on the urban fringe consider integrating multi-functional greenspace into the design that links to the surrounding countryside.

Typical Wolds landscape.

Description

Physical and functional links to other National Character Areas

The Wolds are formed by gently dipping Jurassic rocks, most notably limestones, forming a series of steeper scarp and more gentle dip slopes, a characteristic shared with other nearby Wolds landscapes, such as those in the Northamptonshire Uplands and High Leicestershire.

The Wolds form a watershed between the rivers Wreake, Soar and Trent. To the west, a low escarpment with outlying hills rises above the Soar Valley. This escarpment becomes steeper and more irregular to the north where it forms a prominent ridge extending in to the Trent and Belvoir Vales NCA. In the south, the Wreake Valley provides the boundary between the more varied and wooded landscape of High Leicestershire. In the east the landscape is characterised by a sequence of irregular landforms which are eventually, dominated by the Lincolnshire Limestone. The Vale of Catmose separates the adjoining character areas of High Leicestershire and the Kesteven Uplands.

From the open ridge tops of the Wolds there are wide views out to neighbouring character areas. The Belvoir escarpment provides long views north over the adjoining Trent and Belvoir Vales, emphasising the strong contrast with the flat valley landscape below. The Belvoir escarpment is a defining feature in views south from the Trent and Belvoir Vales and Rutland Water is a major source of urban water supply for the region.

Distinct areas

- Wreake Valley
- Vale of Catmose and Rutland Water

The view out across the Vale of Belvoir into the neighbouring Trent and Belvoir Vales NCA.

Key characteristics

- A range of rolling hills, with elevated plateaux, narrow river valleys and distinctive scarp slopes.
- Jurassic mudstones (towards the west), limestone, sandstone and ironstone overlain by glacial till throughout much of the area produce moderately fertile soil.
- Woodland cover is generally sparse, except for some wooded scarps and in the Wreake Valley and adjacent to Rutland Water. Elsewhere, spinneys, fox coverts, hedgerows, hedgerow trees and streamside trees provide moderate cover.
- Agricultural land use dominates with arable farming on the plateaux tops and pasture on steep sloping valley sides.
- Agricultural land use has diminished semi-natural habitat although important habitats do remain, including species-rich neutral grasslands, wet meadows, parkland, reservoirs, rivers and streams.
- The centrally elevated Wolds form a watershed between the rivers Wreake, Soar and Trent, draining streams downwards in a radial pattern to each of these rivers, which together with Rutland Water, provide significant biodiversity and recreation assets.
- The establishment of Rutland Water reservoir has created a major wetland of international importance for water birds that combines open water, lagoons, islands, mudflats, reedswamp, marsh, old meadows, pastures, scrub and mature woodland.
- Evidence of many deserted and shrunken settlements, as well as extensive areas of ridge and furrow separate small villages and farms linked by country lanes with wide verges.
- Red brick buildings with pantile roofs are widespread and most abundant clustered around churches, which are constructed from ironstone and limestone contributing to the local vernacular.
- Urban influences include overhead lines, mineral extraction sites, airfields and the busy A46 and A60 although these do not weaken the rural character.

The characteristic Wolds landscape underlain by Jurassic rocks.

Leicestershire and Nottinghamshire Wolds today

The Wolds are essentially a range of undulating hills, broken by vales and dominated by Jurassic scarp and dip slopes. It is a remote and rolling rural landscape with open, empty plateaux contrasting with the more intimate sheltered valleys and lower slopes.

Jurassic mudstones (towards the west), limestone, sandstone and ironstone overlain by glacial till throughout much of the area produce a topography of low lying vales and more prominent escarpments. Post glacial erosion has created steeper sided valleys forming the rolling landform seen today.

Soils are lime-rich, loamy and clayey which provides moderately fertile land for agricultural use, especially on the plateaux. The field pattern is large to medium sized and is commonly bounded by well managed hedgerows displaying the rectilinear pattern of 18th and 19th century enclosures. The area has a strong hunting tradition and many small copses, coverts and spinneys planted in the 19th century have survived.

Rutland Water comprises extensive sheets of open water with a complex of wetland and lakeside habitats, including lagoons, islands, mudflats, reedswamp, marsh, old meadows, pastures, scrub and mature woodland.

Along the base of the scarps there are spring-line flushes and streams flowing down through steep sided valleys to main river corridors; north eastwards into the Wreake, north westwards to the Trent and westwards to the Soar. The River Eye has important invertebrates such as the native crayfish and white-legged damselfly. Neutral grassland is the most common type of unimproved grassland and it is often characterised by the presence of ancient ridge and furrow markings or by a rich flora. Calcareous grassland in the NCA is associated with outcrops of Jurassic limestone.

In the south, Rutland Water reservoir is an important source of water for the surrounding urban areas, and is also a nature reserve which supports an internationally important assemblage of waterfowl and is designated a Special Protection Area and Ramsar[5] site. It comprises extensive sheets of open water with a complex of wetland and lakeside habitats, including lagoons, islands, mudflats, reedswamp, marsh, old meadows, pastures, scrub and mature woodland. Over winter the habitat supports a percentage of the northwestern European populations of gadwall and shoveler and regularly supports at least 20,000 waterfowl.

[5] Ramsar sites are wetlands of international importance designated under the Ramsar Convention. The Convention on Wetlands (Ramsar, Iran, 1971) -- called the "Ramsar Convention" -- is an intergovernmental treaty that embodies the commitments of its member countries to maintain the ecological character of their Wetlands of International Importance and to plan for the "wise use", or sustainable use, of all of the wetlands in their territories.

In medieval times, the area was well populated and there remain many deserted and shrunken settlements. Extensive ancient earthworks can be seen around some of the present villages. The present settlement pattern is sparse, comprising small, regularly spaced villages which are generally clustered around a church. Farmsteads are dotted across the landscape.

To the south the land falls into the well-wooded Wreake Valley, which in contrast to much of the rest of the area is strongly affected by 20th century development including gravel workings, the deep coal mine at Asfordby and major new roads. It has a much denser pattern of settlement. However, even here, the predominantly rural and partially deserted character can still be seen with extensive ridge and furrow and strong patterns of parliamentary field enclosure.

In the east, the land subsides into the Vale of Catmose which is a deeply rural area disrupted only by the cement works on the northern edge of Ketton just outside the area. It is dominated by Rutland Water which is a focal point in many views. The Vale is more wooded than the rest of the area although the northern part is predominantly arable.

A more remote and rural character exists on the high Wolds, where small settlements are connected by wide enclosure roads with wildflower-rich verges. Modern influences include pylons, airfields and the busy A46.

In the west, gypsum is mined around the Leakes. East Leake and Keyworth have developed into quite substantial settlements, being a short distance from Nottingham and the power station at Ratcliffe-on-Soar is a dominant visual feature. In the east there are limestone and ironstone quarries towards Lincolnshire.

There are some enlarged commuter villages with high density modern housing such as Cotgrave, Gotham and Keyworth. Melton Mowbray and Oakham are the only large settlements in the area and are busy market towns. Melton Mowbray is known for its associations with pork pie and stilton cheese making. Oakham has also seen recent expansion but retains its historic centre with Oakham Castle remaining a distinctive feature.

Building materials are predominantly red brick with red pantile roofs. The spired churches are characteristically built of ironstone and limestone, which are quarried in the east. The local style of banding the two stones is very distinctive. Belvoir Castle is the grandest building in the NCA and provides long and extensive views over the Vale of Belvoir that extends into the neighbouring NCA.

Pylons cross the Wolds landscape near Long Clawson in the north of the NCA.

The landscape through time

The Wolds are underlain by a thick sequence of Carboniferous mudstones and river-lain Coal Measures overlain by Triassic sandstones and mudstones deposited in a persistently arid environment. These concealed strata have strongly influenced the development of the Wolds NCA. The Carboniferous rocks provide coal and oil and the Triassic rocks a source of gypsum (still mined today) and a deep aquifer supplying water to the north and west of the area.

To the west of the NCA Triassic mudstones and narrow bands of harder limestone, c.210 million years old, create a landscape of sharp scarp and shallow dip slopes known as cuestas. Towards the end of the Triassic period, relative rise in sea level deposited predominantly marine sediments, which characterise the NCA to the east, Lower Jurassic muds and silts giving way to ironstones and limestones, c.175 million years old. These form the main Wolds escarpment and provide the distinctive creamy grey limestones and orange brown ironstones in buildings.

Pre-glacial sands and gravels of the ancient River Bytham (today the River Wreake follows this ancient river course) represent the oldest Quaternary sediments in the NCA over much of which till from the Anglian glaciation (500,000 to 370,000 years ago) has been deposited. Post Anglian climatic fluctuation has lead to the development of a series of sand and gravel river terraces and the establishment of today's river system and rolling landscape.

The evidence of prehistoric activity is sparse although possible occupation sites have been found towards the north above the Belvoir escarpment and a significant iron-age occupation has been found in the Knipton Valley. The Neolithic rock carvings on the gritstone outcrops above the village of Rigton are of national importance.

In the Roman period the Fosse Way, now the A46, cut across the western edge of the area and is still prominent in the landscape.

Early Anglo-Saxon occupation of the area may have been limited but it is likely many of today's towns and villages are of Saxon origin although it is not certain whether the numerous bys and thorpes of the 9th- and 10th-century Scandinavian invaders represent re-naming of existing settlements or the founding of new ones.

The medieval landscape was probably one of intermittent woodland with vast rough pastures reached by lanes and trackways from the surrounding valleys. Many of these routes can still be traced today. As the population grew, small villages, surrounded by their open fields, came to dominate a landscape from which the tree cover had largely disappeared.

Many villages were deserted from the 14th century onwards and the landscape became thinly-populated and dominated by sheep grazing.

Main population centres such as Oakham and Melton Mowbray lie at the edge of the area. Melton Mowbray developed into a substantial market town in the post-medieval period.

Belvoir Castle, originally a Norman castle, was a stronghold of the Royalists during the Civil War. The Great Hall of Oakham Castle is one of the finest examples of late 12th-century domestic architecture in England.

The late 18th and early 19th century saw the rebuilding of many farmsteads as agricultural cultivation began to increase and by the 19th and 20th centuries arable cultivation continued on a large scale. Industrialisation increased with the development of ironstone and gypsum quarries and deep coal-mines at

Asfordby. A complex mosaic of grassland, scrub and woodland vegetation has developed in disused pits and on spoil heaps.

Brick making was prevalent and in a brick pit near Barrow upon Soar in 1851 a plesiosaur was recovered, known locally as the 'Barrow Kipper'. It now resides in the Leicester Museum and is very much a symbol of Barrow with a representation of the plesiosaur appearing on signs and street furniture throughout the town.

Food shortages during and after the Second World War, led to intensive farming practices and large areas of grassland were ploughed up. This trend continued following the adoption of the Common Agricultural Policy resulting in a dramatic change in landscape and often a decline in biodiversity.

Rutland Water reservoir was constructed in the 1970s by damming the Gwash Valley. It is a highly distinctive feature and valued for its wildlife and recreation assets. At the time it was the largest pump storage reservoir in Europe and by surface area, it is the largest reservoir in England.

While the rural landscape retains a mixed land use, there is an increasing trend of agricultural production, resulting in the loss of hedgerows and hedgerow trees and damage to areas of ridge and furrow and other earthworks. While the historic hedgerow pattern is largely intact, significant proportions of the area's hedgerow trees are over-mature and require augmenting. Agricultural stewardship is now being successfully used as a means of addressing these issues.

There has been limited expansion of the settlements in recent years however, there has been a proliferation of new, large scale agricultural buildings.

Recent large scale engineered road improvements to the A46 have also had an impact on the wider countryside although it has presented opportunities for roadside planting of native tree and shrub species.

Flood protection works have contributed to the erosion of traditional riparian character along the Wreake valley however, sections of the valley are now managed through stewardship schemes, which seeks to combine flood management with environmental protection, and where possible, enhancement.

Overall, the landscape remains strongly rural and largely unchanged in recent years.

The power station at Ratcliffe-on-Soar is a dominant visual feature in the NCA.

Ecosystem services

The Leicestershire and Nottinghamshire Wolds 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 Leicestershire and Nottinghamshire Wolds NCA is contained in the 'Analysis' section of this document.

Provisioning services (food, fibre and water supply)

- **Food provision**: Arable farming dominates the NCA with winter cereals, oilseed rape and forage maize being grown in the heavier, loamy, clayey soil. Some of the land north and east of Gotham is lighter and suitable for growing root crops and the lighter land at Belvoir supports some sugar beet. The processing plant at Newark is still active. Sheep graze the steeper topography (the scarp slope and small valleys) and soils tend to support grassland over arable. Promoted as the "Rural Capital of Food", Melton Mowbray is perhaps best known for its local specialities, being the home of the pork pie and one of the homes of Stilton cheese. Stilton and Red Leicester cheeses originally came from the village and farm dairies in the Eye basin. There are cheese processing facilities at nearby Long Clawson.

- **Timber provision:** Woodland cover is sparse and offers little in terms of timber provision although there is an active sawmill on the Belvoir Estate.

- **Biomass energy:** Woodland cover, of only 6 per cent by area of the NCA, offers little opportunity for the provision of timber as a fuel source. Generally the NCA has a medium to high potential for the provision of biomass services through plantations of short rotation coppice (SRC) and medium potential through plantations of miscanthus. A considerable number of biomass boilers have been installed in schools, private houses and businesses in this NCA.

- **Water availability**: There are no extensive aquifers in the NCA. Rutland Water reservoir (a designated SSSI, SPA and Ramsar site) is by surface area one of the largest reservoirs in lowland England and is used as a strategic resource for water demand within the Anglian region.

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

- **Climate regulation:** The soils over most of the NCA have a low carbon content (0-5 per cent) although there are small pockets of soil with a higher carbon content (5-10 per cent) likely to be associated with the wetland habitats in the NCA (reedbeds, flood plain grazing marsh), semi-natural grasslands and certain woodlands. In this area the woodland covers are a particularly effective carbon store and remaining grassland is also important.

- **Regulating soil erosion:** The majority of the River Eye CSF Priority Catchment is located in the NCA and soil erosion is identified as an issue. Regulation benefits could be increased significantly by changes to land management practices.

- **Regulating soil quality:** The slowly permeable clay soils of the NCA can suffer from compaction and/or capping when wet, damaging the soil structure. This leads to nutrient loss and worsening rates of water infiltration. Diffuse pollution may result from surface water run-off.

Sensitive Farming (CSF) Priority Catchment is located within the NCA. Controlling pollutants and sediments entering water courses as a result of soil and nutrient run-off, and livestock directly accessing watercourses, are identified as issues within this Priority Catchment.

- **Regulating water quality:** The groundwater chemical status in the majority of the NCA is good. The majority of the River Eye England CSF[6] Priority Catchment is located within the NCA. The ecological status of the main rivers in the NCA, the River Wreake and the River Eye is 'moderate'. The surface water chemical status of the River Wreake and the River Eye is 'good'. Rutland Water reservoir is an important resource providing public water supply to the Anglian region.

- **Regulating water flow:** There are three main catchments within the NCA; the River Trent, the River Witham and the River Welland. The Environment Agency flood risk map indicates that for much of the NCA flooding is not generally a major issue, although there are some relatively small areas of flood risk associated with the River Wreake/Eye.

- **Pollination:** The NCA contains areas of lowland meadows and semi-natural habitats that are likely to support sources of nectar.

- **Pest regulation:** Semi-natural habitats and hedges close to areas of commercial agriculture may support species of predators, which can regulate populations of pests that adversely food production.

[6] Catchment Sensitive Farming (formerly known as 'The England Catchment Sensitive Farming Delivery Initiative') is a joint venture between the Environment Agency and Natural England, funded by Defra and the Rural Development Programme for England, working in priority catchments within England. It delivers practical solutions and targeted support to enable farmers and land managers to take action to protect water bodies and the wider environment.

Cultural services (inspiration, education and wellbeing)

- **Sense of place/inspiration**: A sense of inspiration and escape are provided by the undulating hills that afford far-reaching views from their summits and the prominent northern escarpment, as well as the areas of woodland and grassland found on the steeper scarp slopes and the sheltered valleys. The long views from Belvoir ridge provide a similar experience. Rutland Water provides numerous bird hides and offers nature trails from two visitor centres with experts providing a service for both formal and informal education. The nature reserve provides volunteering opportunities with over 20,000 hours per year spent on osprey surveillance, management and species recording.

- **Sense of history**: Sense of history is likely to be associated with the distinct earthworks that represent numerous deserted and shrunken settlements, as well as extensive areas of ridge and furrow. This is supported by the local vernacular of red brick and pantiles and ironstone/limestone churches, as well as the imposing Belvoir Castle in the north east (which is in the 19th-century baronial style). The area also has a strong hunting tradition and many small copses, coverts and spinneys planted in the 19th century have survived.

- **Tranquility**: Over 50 per cent of the NCA is classified as undisturbed with many deeply rural and remote areas away from the main settlements of Melton Mowbray and Oakham and development in the west. A sense of tranquillity is associated with the open hills and undeveloped valleys and areas of woodland and pasture and the remoter ridge tops devoid of human-scale features. There is a sparse settlement pattern with small, isolated villages, providing one of the strongest senses of tranquillity in the eastern Midlands.

- **Recreation**: The NCA has a relatively dispersed network of access opportunities. By far the largest recreational amenity in the area is

Rutland Water, which not only offers visitors extensive opportunities for access but also specialist natural history and environmental education and excellent facilities for a range of water-based recreational pursuits. It is also home to the British Birdfair (the first of its kind anywhere in the world), which has over 30,000 visitors per year, contributes to the local economy and has raised over £2 million for conservation projects. Melton Mowbray is served by a small country park which is accessible on foot from the town centre and offers the local community opportunities to enjoy and get involved with their local greenspace. The wider area has a network of community scale parks, gardens and other greenspaces. Belvoir Castle is open to the paying public and is becoming an increasingly important venue for country shows, concerts and special interest events.

- **Biodiversity:** Rutland Water is a wetland of international importance for water birds and is designated a Ramsar site, SPA and SSSI. The wetlands are one of the most important areas for over wintering wildfowl. The habitat regularly supports over 23,000 individuals including: lapwing, coot, goldeneye, tufted duck, pochard, teal, wigeon, cormorant, great crested grebe, little grebe, shoveler and gadwall. The area also supports internationally important populations of golden plover. Rutland Water is also the location of the successful osprey re-introduction project. There are number of sites where farmland bird assemblages that include corn bunting, grey partridge, lapwing, turtle dove, tree sparrow and yellow wagtail can be found. Other priority habitats in the NCA include species-rich neutral grasslands, wet meadows, parkland, reservoirs, rivers and streams. Species-rich neutral grasslands are most common although there are a few pockets of calcareous grassland. Early purple, green winged and pyramidal orchids are commonly found in these grasslands.

- **Geodiversity:** Rock exposures are concentrated mainly on outcrops of ironstone that were mined and quarried for iron ore up until the 1960s. Other exposures occur on the Lincolnshire Limestone, quarried for local building stone and the mines and quarries associated with the extraction of gypsum and coal. There are numerous former workings of Quaternary sand and gravel and currently active extraction near East Leake, as well as numerous former brick pits. The legacy of quarrying contributes to the industrial heritage and character of the NCA through the use of local building stone. These quarries may continue to provide material for new development and the repair of historic buildings. There are a number of designated Local Geological Sites, with exposures in the Jurassic rocks providing opportunities for education and research and our understanding of past climate. Most are fossiliferous, providing opportunities for the study of palaeontology.

Volunteers undertake maintenance on a reed bed at Rutland Water.

Statements of Environmental Opportunity

SEO 1: Promote sustainable agricultural practices in this important food producing area to conserve the soil resource and protect water quality, while also ensuring the distinctive historic field pattern and important grassland and broad-leaved woodland habitats are conserved and restored.

For example, by:

- Managing and restoring the field patterns on a landscape scale to increase biodiversity, reduce erosion, strengthen landscape character and ensure the legacy of the historical heritage remains legible within the area.
- Managing and expanding the areas of neutral grassland with their rich flora and common association with ridge and furrow, to increase biodiversity and conserve and buffer areas displaying ridge and furrow patterns.
- Conserving the canopy through woodland creation where appropriate, or succession planting and promoting sustainable management for priority woodland habitat in the many small copses, coverts and spinneys; a legacy of historic land use.
- Retaining mature hedgerow trees and augmenting them to ensure continuity, and restoring neglected riverside pollards.
- Promoting suitable management of arable land to deliver habitat for farmland birds.
- Raising the awareness of all landowners to the management options available under environmental stewardship, woodland grant schemes and Catchment Sensitive Farming schemes.
- Protecting soil quality and reducing soil erosion and nutrient loss from farmland by managing livestock through best practice methods, for example encouraging the use of management plans that address the issues of bank erosion and direct deposition into water courses from livestock (directly accessing watercourses) and soil erosion from mixed and livestock farming practices.
- Ensuring pollutants and excess nitrate do not enter the groundwater.
- Promoting the “Rural Capital of Food” associations in the area, which centre on Melton Mowbray with its local specialities such as the pork pie and Stilton cheese, for the contribution to the local economy, and to the sense of place of the area.

SEO 2: Conserve and manage Rutland Water reservoir and nature reserve for its internationally designated habitats and for the variety of recreational and education assets it provides.

For example, by:

- Conserving through sustainable land management practices, the water availability and quality at Rutland Water, which by surface area is the largest reservoir in lowland England and is used as a strategic resource for water demand within the Anglian region.
- Maintaining the condition of the designated sites to conserve and protect the internationally important habitats such as open water, reedbeds, flood plain grazing marsh, which support many species including the assemblage of waterfowl of European importance.
- Conserving and expanding habitats to protect the important species they support and to increase their resilience to climate change.
- Promoting the responsible use of water and seek alternative sustainable sources of water to maintain the integrity of the habitat at Rutland Water.
- Reducing sources of diffuse pollution into rivers and standing water habitat.
- Contributing to the visitor economy.
- Conserving and promoting recreational amenity at Rutland Water with its numerous bird hides and nature trails from two visitor centres, with experts providing a service for both formal and informal education. Managing public access to important habitats ensuring the needs of both are balanced.
- Promoting events such as the British Birdfair which contribute to the local economy and volunteering opportunities, which offer benefits for both conservation and recreation/education to the community.
- Managing the osprey initiative which includes surveillance, management and species recording through over 20,000 hours of voluntary work a year.

Internationally important populations of golden plover.

SEO 3: Protect tranquillity levels in the rural landscape and ensure new development on the urban fringe incorporates green infrastructure into the design, maintains the vernacular and links with the wider countryside.

For example, by:

- Conserving the sense of tranquillity associated with the open hills, undeveloped valleys and remoter ridge tops by protecting the relatively sparse settlement pattern of small, isolated villages and ensuring any new development is integrated into the landscape sensitively.
- Planning new developments to ensure they do not negatively impact on the character of the settlement or surrounding landscape, and that they provide accessible multi-functional green spaces as an integral component.
- Encouraging the use of local building stone and adhere to any guidelines provided by English Heritage.
- Repairing the fragmented bridleway network through the Rights of Way Improvement Plan and provide rights of way that link to existing networks.
- Planning for new community green spaces and green infrastructure to provide wildlife corridors to improve the resilience of species to climate change, to offer opportunities to local communities to enjoy their local greenspace, to take action to improve it and to benefit from the recreation and health benefits it affords them.
- Taking an integrated approach to the natural environment that reflects the strong link between geodiversity and its influence on the landscapes, industrial development and settlement pattern of the NCA. The link between biodiversity and geodiversity is particularly reflected in the distribution of habitats and species and the important former extraction sites.

SEO 4: Where new development is planned on the urban fringe consider integrating multi-functional greenspace into the design with links to the surrounding countryside.

For example, by:

- Planning new developments to ensure they do not negatively impact on the character of the settlements or surrounding landscape, ensuring they provide accessible open green spaces as an integral component.
- Encouraging the use of local building stone and adhere to any guidelines provided by English Heritage.
- Repairing the fragmented bridleway network through the Rights of Way Improvement Plan and provide rights of way that link to existing networks.
- Master planning for new community green spaces and green infrastructure to provide wildlife corridors to improve the resilience of species to climate change and provide opportunities for community recreation with associated health benefits.

Additional opportunity

1. Conserve and manage the suite of SSSIs and Local Sites to protect and improve their condition.

For example, by:

- Maintaining and enhancing the quality of designated sites by agreeing management plans with owners and occupiers.
- Working collaboratively with partners and stakeholders to undertake restorative management of designated sites.
- Encouraging the recording of both temporary and permanent exposures in the poorly exposed geological sections.
- Negotiating long term conservation of exposures with mineral companies and site owners at key geological sites.
- Managing former extraction sites for their range of mutually beneficial heritage interests including geodiversity, biodiversity and industrial archaeology.

An osprey soars above Rutland Water, an example of the success of the re-introduction project.

Supporting document 1: Key facts and data

Total area: 64,071 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
International	Ramsar	Rutland Water	1,333	2
European	Special Protection Area (SPA)	Rutland Water SPA	1,555	2
	Special Area of Conservation (SAC)	n/a	0	0
National	National Nature Reserve (NNR)	Muston Meadows NNR	18	<1
National	Site of Special Scientific Interest (SSSI)	A total of 19 sites wholly or partly within the NCA	1,945	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 244 Local sites in the Leicestershire and Nottinghamshire Wolds covering 1,132 ha which is 2 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 conditions as of March 2011 is as follows:

SSSI condition category	Area (ha)	percentage of SSSI in category condition
Unfavourable declining	8	<1
Favourable	210	11
Unfavourable no change	55	3
Unfavourable recovering	1,674	86

Source: Natural England (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

Elevation ranges from 26m above sea level to a maximum of 185 m at the top of the Wolds. The average elevation of the landscape is 98 m above sea level.

Source: Natural England (2010)

2.2 Landform and process

The rolling hills the Leicestershire and Nottinghamshire Wolds rise above the lowland plains of both the Trent Valley and Belvoir Vales. Younger deposits (200 to 185 million years old) composed of clays, mudstones and ironstones occur in the area.

Source: Leicestershire and Nottinghamshire Wolds Countryside Character Area

2.3 Bedrock geology

The area is slightly higher than the surrounding lowlands because it sits on hard bedrock that caps the area and erodes more slowly than the mudstone or clay. Younger deposits (200 to 185 million years old) composed of clays, mudstones and ironstones occur in the area.

Source: Leicestershire and Nottinghamshire Wolds Countryside Character Area Description

2.4 Superficial deposits

Whilst influencing the elevation and main landform features, the surface expression of the Jurassic bedrock is often subdued by a thick mantle of glacial till which softens landform features to create a smooth landscape. Post glacial erosion has created steep sided valleys forming the rolling landform seen today.

Source: Leicestershire and Nottinghamshire Wolds Countryside Character Area Description

2.5 Designated geological sites

Tier	Designation	Number
National	Geological Site of Special Scientific Interest (SSSI)	0
National	Mixed Interest SSSIs	1
Local	Local geological sites	8

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

Soils are lime-rich, loamy and clayey which provides moderately fertile land for agricultural use, especially on the plateaux. In places, the clay soil can be heavy and unmanageable and pasture land is generally found in these areas, commonly on steeply sloping valley sides and close to villages.

Source: Leicestershire and Nottinghamshire Wolds Countryside Character Area Description

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	12,739	20
Grade 2	44,838	70
Grade 3	3,287	5
Grade 4	12,739	20
Grade 5	0	0
Non-agricultural	2,024	3
Urban	764	1

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)
River Eye	23
River Wreak	15
River Devon	7
Fairham Brook	4
Grantham Canal (disused)	3
River Gwash	1

Source: Natural England (2010)

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

The Wolds form a watershed between the rivers Wreake, Soar and Trent with streams draining from the central elevated land to each of these rivers. There is a major inland reservoir at Rutland Water. An important river is the River Eye which is designated as a SSSI. This river comprises an exceptional example of a semi-natural lowland river.

3.2 Water quality

The total area of Nitrate Vulnerable Zone is 64,071 ha, 100 per cent of 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

The NCA contains 3,664 ha of woodland (6 per cent of the total area), of which 364 ha is ancient woodland (1 per cent of the NCA).

Source: Forestry Commission (2011)

4.2 Distribution and size of woodland and trees in the landscape

Woodland cover is generally sparse, except on the wooded scarps and hills along the northern edge of the Wolds and in the Wreake Valley, which has denser woodland cover. Elsewhere, small spinneys, hedgerow and streamside trees predominate, particularly in the valleys. Fox coverts signify strong associations with hunting. There are few areas of conifers and the predominant tree species are ash, oak, sycamore. In the Bunny Hill to Windmill Hill area there are fragments of coppice woodland. Parks, generally dominated by mature parkland oaks, are to be found on sheltered sites around the northern edge of the area.

Source: Leicestershire and Nottinghamshire Wolds Countryside Character Area Description; Trent Valley and Rises Natural Area Profile

4.3 Woodland types

A statistical breakdown of the area and type of woodland found across the NCA is detailed in the following table.

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

Woodland type	Area (ha)	Percentage of NCA
Broadleaved	2,759	4
Coniferous	333	1
Mixed	287	<1
Other	285	<1

Source: Forestry Commission (2011)

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

Woodland type	Area (ha)	Percentage of NCA
Ancient semi-natural woodland	245	<1
Planted ancient woodland sites (PAWS)	119	<1

Source: Forestry Commission (2011)

5. Boundary features and patterns

5.1 Boundary features

The field patterns on the ridges often have the rectilinear pattern of 18th- and 19th-century enclosures and are bounded by low thorn hedges. In the valleys denser, mixed species hedgerows and more frequent hedgerow trees are more common. Both arable and pasture are present with a predominance of arable on the gentler gradients and ridge tops, where hedgerow size is correspondingly reduced. Multi-species hedges, are characteristic of the steeper ground and of the smaller fields around the villages. The area generally has exceptionally well managed hedgerows. Uptake of agricultural stewardship programmes has contributed to the restoration and maintenance of boundary features including fencing, hedge management, hedge planting and restoration and restored boundary protection.

Source: Leicestershire and Nottinghamshire Wolds Countryside Character Area description; Countryside Quality Counts (2003)

5.2 Field patterns

The field patterns on the ridges often have the rectilinear pattern of 18th- and 19th-century enclosures. Irregular field patterns are to be found in the valleys. Pasture is often associated with the smaller, more irregular, fields of early enclosure.

Source: Leicestershire and Nottinghamshire Wolds 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

In 2009, the majority of holdings in this NCA are either cereal growing (184 holdings representing 30 per cent of the agricultural sector) or grazing for livestock (168 holdings representing 27 per cent of the agricultural sector). These are broadly the same as in 2000.The number of dairy farms has reduced from 53 to 39 since 2000.

Source: Agricultural Census, Defra (2010)

6.2 Farm size

Holdings over 100 ha are the most common size in the NCA accounting for 36,777 ha or nearly 74 per cent of the farmed area. Holdings between 50 and 100 ha are the second most common farm size with 7,174 units representing 14 per cent of the farmed area. The trend shows a reduction in the number of farms above 100 ha between 2000 and 2009 (15 fewer). In the same period, the number of holdings between 20 and 50 ha has increased by 4 holdings.

Source: Agricultural Census, Defra (2010)

6.3 Farm ownership

In 2009, 65 per cent of the total farmed area is owner occupied. This figure is broadly similar in 2000.

Source: Agricultural Census, Defra (2010)

6.4 Land use

In 2009, the dominant land use is lowland grazing with grassland, accounting for 21,051 ha representing (42 per cent) of the farmed area. Cereals account for 17,125 ha, or 34 per cent of the farmed area and oilseed rape 6,219 ha, or 12 per cent. The area of grassland has increased by 415 ha since 2000. Land used to grow oilseed crops has increased by 2,251 ha since 2000, a 57 per cent increase. The area used to grow cereal crops has decreased since 2000, from 22,171 ha to 17,125 ha. Mix of major farm types has stabilised, with some evidence of consolidation of units. The most extensive annual Countryside Stewardship agreements in 2003 were for lowland pastures on neutral/acid soils (486 ha) and regeneration of grassland/semi-natural vegetation (92 ha).

Source: Agricultural Census, Defra (2010)

6.5 Livestock numbers

Sheep are the most numerous livestock with 54,300 animals, followed by cattle (28,400) and pigs (7,300). Compared to 2000 all livestock numbers have declined. In particular, the decline in the number of pigs, from 22,600, is a fall of nearly 68 per cent.The number of sheep has also declined significantly, with 26,600 fewer sheep compared to 2000, a decrease of 33 per cent. The number of cattle has fallen less steeply since 2000, with a fall of 9 per cent or 2,800 animals.

Source: Agricultural Census, Defra (2010)

6.6 Farm labour

The number of principal farmers has declined since 2000 by 135 to 797. There has been an increase in salaried farm managers employed during this time of 40, which represents a 100 per cent increase since 2000.The number of casual farm workers employed during the period 2000 to 2009 has halved, down to 60.

Source: Agricultural Census, Defra (2010)

Please note: (i) Some of the Census data are estimated by Defra so may not present a precise assessment of agriculture within this area (ii) Data refers to commercial holdings only (iii) Data includes land outside of the NCA where it belongs to holdings whose centre point is recorded as being within the NCA.

7. Key habitats and species

7.1 Habitat distribution/coverage

The wooded escarpments and hills along the northern and western edges of the Wolds have the greatest variety of semi-natural habitats, with woodland, wet flushes and unimproved grassland. Neutral grassland is the most common type of unimproved grassland and there are a number of acidic and calcareous grassland sites associated with local differences of geology. Rutland Water reservoir SPA and Ramsar site is a wetland of International importance and supports populations of waterfowl of European importance. It comprises major wetland area which combines extensive sheets of open water with a complex of wetland and lakeside habitats, including lagoons, islands, mudflats, reed-swamp, marsh, old meadows, pastures, scrub and mature woodland. The designated site extends to 1,555 ha representing approximately 2 per cent of the land area of the NCA. The NCA also contains important arable habitats. These support nationally important assemblages of arable birds.

Source: Trent Valley and Rises Natural Area Profile

7.2 Priority habitats

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

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

Priority habitat	Area (ha)	Percentage of NCA
Broadleaved mixed & yew woodland (broad habitat)	3,046	5
Coastal & floodplain grazing marsh	499	1
Lowland meadows	379	1
Lowland calcareous grassland	318	<1
Lowland dry acid grassland	58	<1
Fens	44	<1
Reedbeds	30	<1
Purple moor-grass & rush pastures	15	<1

Source: Natural England (2011)

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

- 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

Small villages of mainly red brick buildings clustered around an ironstone or limestone church are regularly spaced across the landscape. There are isolated farms and a few cottages and houses, but the heart of the Wolds is a remote rather empty landscape. Development is concentrated to the south in the Wreake Valley. Melton Mowbray and Oakham are larger settlements with evidence of industry and modern expansion on the outer edges and historic centres.

Source: Leicestershire and Nottinghamshire Wolds Countryside Character Area description; Countryside Quality Counts (2003)

8.2 Main settlements

Main towns/cities within the NCA are: Melton Mowbray, Oakham. The total estimated population for this NCA (derived from ONS 2001 census data) is: 96,052.

Source: Leicestershire and Nottinghamshire Wolds Countryside Character Area description; Countryside Quality Counts (2003)

8.3 Local vernacular and building materials

Many of the buildings are red brick but, in the eastern part of the area, ironstone and limestone are found and the spired churches are built of stone. The churches emerge above a roofscape dominated by weathered pantiles. This eastern transition is marked by quarrying of the underlying limestone and the use of the attractive creamy grey stone in Wolds buildings.

Source: Leicestershire and Nottinghamshire Wolds Countryside Character Area description; Countryside Quality Counts (2003)

9. Key historic sites and features

9.1 Origin of historic features

In medieval times, the area was well populated and there remain many deserted and shrunken settlements, as well as extensive areas of ridge and furrow. Of the individual buildings, Belvoir Castle is by far the grandest with an outstanding site overlooking the Vale of Belvoir, although Oakham Castle is also a significant historic feature. Burley-on-the-Hill House, built in 1690s, is another fine building and overlooks Rutland Water. It is designed in the manner associated with Sir Christopher Wren.

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

9.2 Designated historic assets

This NCA has the following historic designations:

- 6 Registered Parks and Gardens covering 1,918 ha.
- 0 Registered Battlefield/s covering 0 ha.
- 49 Scheduled Monuments.
- 1,336 Listed Buildings.

Source: Natural England (2010)

More information is available at the following address:

- http://www.english-heritage.org.uk/caring/heritage-at-risk/
- http://www.english-heritage.org.uk/professional/protection/process/national-heritage-list-for-england/

10. Recreation and access

10.1 Public access

- 2.77 per cent of the NCA 1,772 ha is classified as being publically accessible.
- There are 782 km of Public Rights of Way at a density of 1 km per km2.
- There are 0 National Trails within the Leicestershire and Nottinghamshire Wolds NCA.

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	8	<1
Country Parks	1,553	2
CROW Access Land (Section 4 and 16)	41	<1
CROW Section 15	0	0
Village Greens	7	<1
Doorstep Greens	0	0
Forestry Commission Walkers Welcome Grants	0	0
Local Nature Reserves (LNR)	1	<1
Millennium Greens	0	0
Accessible National Nature Reserves (NNR)	18	<1
Agri-environment Scheme Access	31	<1
Woods for People	120	<1
Woods for People	2,035	1

Sources: Natural England (2012, 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) the infrastructure corridors introduce disturbance and lower the scores across the area, especially in the south along the Wreake Valley where there is more industry and the town of Melton Mowbray. Tranquillity on the high Wolds is high.

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	-60
Mean Value within NCA	-0.5

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. This shows that disturbance is high especially in the south along the Wreake Valley where there is more industry and the town of Melton Mowbray. A breakdown of intrusion values for this NCA are detailed in the table below.

Intrusion category	1960s (%)	1990s (%)	2007 (%)	Percentage change (1960s-2007)
Disturbed	21	33	47	26
Undisturbed	78	66	51	-28
Urban	1	1	2	1

Sources: CPRE (2007)

Notable trends from the 1960s to 2007 are the percentage increase has more than doubled and the amount of urban land has also increased. Consequently, there has been a reduction in the amount of undisturbed land, although compared to some neighbouring NCAs, the total amount of undisturbed land remains relatively high.

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

12 Data sources

National

- 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%. 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 cover is generally sparse, except on the wooded scarps and hills along the northern edge of the Wolds and in the Wreake Valley. There are a few areas of conifers but the predominant tree species are ash, oak, sycamore with white willow and crack willow in the wetland areas. In the period covered by the Countryside Quality Counts (CQC 1999 to 2003), 74 ha was approved for new planting through a Woodland Grant Scheme. Most of the planting is in the form of small blocks scattered throughout the farmed landscape. In 2003 the proportion of established, eligible National Inventory of Woodland and Trees (NIWT)[7] woodland stock was approximately 14 per cent. About 15 per cent of the woodland covers ancient woodland sites. During the period 1999 to 2003 the proportion of these sites covered by a Woodland Grant Scheme agreement increased from 7 per cent to 29 per cent.

Boundary features

- Between 1999 and 2003 Countryside Stewardship capital agreements for linear features included fencing (26 km), hedge management (51 km), hedge planting and restoration (42 km) and restored boundary protection (23 km). The estimated boundary length for the NCA is about 4,124 km and the total length of boundary option agreements between 1999 and 2003 is equivalent to about 3 per cent of this total. Continued uptake of environmental stewardship agreements has contributed to the restoration and maintenance of boundary features. To date, (2011) the length of boundary features under agreement option includes hedge management (1,293 km), stone walls (0.9 km) and maintenance of woodland fences (10 km). The total length of agreements is equivalent to approximately 31 per cent of the estimated boundary length for the NCA, a percentage increase of 28 per cent since 2003.

Agriculture

- During the period 1999 to 2003 the area and proportion of grassland in the NCA continued to decline but at a reduced rate, with an increase to the area of grassland of 415 ha since 2000. The mix of major farm types has stabilised, with some evidence of consolidation of units and diversification. The most extensive annual Countryside Stewardship agreements in 2003 were for lowland pasture on neutral/acid soils (486 ha) and regeneration of grassland/semi-natural vegetation (92 ha).

- In 2009, the dominant land use was lowland grazing with grassland, accounting for 21,051 ha representing (42 per cent) of the farmed area; cereals account for 17,125 ha, or 34.3 per cent of the farmed area and oilseed rape 6,219 ha, or 12.5 per cent.

Settlement and development

- Development is locally significant, such as extending the footprint of Oakham, Melton and East Leake. Within the Wolds, the villages are generally small and have a historic character that could be affected by small scale inappropriate developments.

[7] The overall aim of the NIWT is to provide up to date information on the extent, size and composition of our woodlands. In particular the objective is to provide an accurate assessment of woodland area and to estimate other characteristics such as forest type, species, age class, stocking, timber potential and woodland structure. It is produced and maintained by the Forestry Commission.

Semi-natural habitat

- The wooded escarpments and hills along the northern and western edges of the Wolds have the greatest variety of semi-natural habitats, with woodland, wet flushes and unimproved grassland. Neutral grassland is the most common type of unimproved grassland and there are a number of acidic and calcareous grassland sites associated with local differences of geology. The most extensive annual Countryside Stewardship agreements in 2003 were for lowland pastures on neutral/acid soils (486 ha) and regeneration of grassland/semi-natural vegetation (92 ha). A significant number of new ponds were created.

Historic features

- Historic assets of note include Belvoir Castle, Oakham Castle and Burley-on-the-Hill House. Approximately 3 per cent of the area of the NCA is registered park or garden and of this, approximately 69 per cent of the parkland is covered by a Historic Parkland Grant, and 31 per cent is included in an agri-environmental scheme. 63 per cent of historic farm buildings remain unconverted, although most are intact structurally (CQC).

Rivers

- Water is pumped from the rivers Welland and Nene, both located outside this NCA, and the River Gwash within the NCA, and used to sustain water levels in the Rutland Water reservoir at times of peak demand. Abstraction levels in the River Gwash are above those needed to achieve 'good status' as defined by the Water Framework Directive. The ecological status of the main rivers in the NCA, the rivers Wreake and Eye, is 'moderate' and their surface water chemical status is 'good'. There exists an issue with possible deterioration through over-abstraction and nutrient inputs.

Minerals

- The Lincolnshire Limestone is quarried at Greetham and is used locally as a building stone that gives the buildings a distinct 'Wolds' characteristic. Other extractive operations within the NCA include deep mined coal at Asfordby, oil fields at Long Clawson and Rempstone, gypsum at Barrow, and sand and gravel at East Leake (British Geological Survey).

- Historic extraction of stone and minerals has left a legacy of old quarries on the landscape, some of which are designated Local Geological Sites that afford opportunities for interpretation and education.

Drivers of change

Climate change

- Climate trends suggest increased rainfall, periods of drought and more frequent storm events.

- Over-abstraction in the River Gwash is already an issue and may become a greater problem during hotter drier summers.

- Over-abstraction from rivers feeding the Rutland Water reservoir and from the reservoir itself may become a greater problem during hotter drier summers and have a detrimental effect to habitats of international importance.

- The Environment Agency flood risk map indicates that for much of the NCA, flooding is not generally a major issue. However, localised flooding does occur and could become more frequent.

Other key drivers

- Development pressures around the urban areas and commuter villages are likely to continue. New developments provide opportunities to ensure a high quality built environment, contributing to green infrastructure.
- The area is likely to remain a popular destination for recreation and tourism and affords opportunities for environmental education and understanding local heritage. This is both a challenge and an opportunity.
- The need for food security will likely result in continued agricultural production, along with changing farming practices, which may adversely impact on ecological habitats, networks and species, as well as landscape character. Agri-environment stewardship and Catchment Sensitive Farming schemes provide opportunities to work with land managers to incorporate farmland habitats; develop networks of linked habitats, reuse redundant farm buildings and enhance the rural character of the landscape. Increased agricultural production may impact on the quality of the soils and will need careful management.
- There exists an opportunity to increase the production of biomass on a small scale that will not be detrimental to the landscape character.
- Restoration of areas of semi-natural grassland will provide opportunities to enhance biodiversity and the landscape, whilst buffering areas with ridge and furrow patterns thus ensuring the legacy of the historical heritage remains legible within the landscape.
- The NCA contains valuable habitats, including an internationally significant Ramsar site. Conserving these features, and the overall landscape characteristics and historic legacy from the pressures of climate change, recreation and changing land management practices, will remain key concerns within the NCA.
- The quality of the internationally important habitat at Rutland Water reservoir will be threatened by increased water abstraction from rivers that feed the reservoir and the reservoir itself. An opportunity exists to find a more sustainable means of water management and responsible use of the water resource.

There are many recreational activities at Rutland Water including fishing and golf.

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.

Sheep grazing by Rutland Water.

Statement of Environmental Opportunity	Ecosystem Service: Food provision	Timber provision	Water availability	Genetic diversity	Biomass engergy	Climate regulation	Regultating water quality	Regulating water flow	Regulating soil quality	Regulating soil erosion	Pollination	Pest regulation	Regulating coastal erosion	Sense of place/ inspiration	Sense of hisotry	Tranquillity	Recreation	Biodiversity	Geodiversity
SEO 1: Promote sustainable agricultural practices in this important food producing area to conserve the soil resource and protect water quality, whilst also ensuring the distinctive historic field pattern and important grassland habitats are conserved and restored.	↗ **	↗ *	↗ **	↗ *	↗ *	↗ **	↑ ***	↗ **	↑ ***	↑ ***	↗ **	↗ *	N/A	↑ ***	↑ ***	↗ *	↗ *	↑ ***	↔ **
SEO 2: Conserve and manage Rutland Water reservoir and nature reserve for its internationally designated habitats and for the variety of recreational and education assets it provides.	↔ **	↔ **	↑ ***	o	↔ o	↗ **	↑ ***	↑ **	↗ *	↗ *	↔ **	o	N/A	↑ **	↗ *	↗ ***	↑ **	↑ ***	↔ **
SEO 3: Protect tranquillity levels in the rural landscape and ensure new development on the urban fringe incorporates green infrastructure into the design, maintains the vernacular and links with the wider countryside.	↔ **	↔ **	↗ *	o	↔ **	↗ *	↗ *	↗ *	↗ *	↗ *	↔ **	o	N/A	↗ ***	↗ ***	↑ ***	↗ ***	↑ ***	↗ **
SEO 4: Where new development is planned on the urban fringe consider integrating multi functional greenspace into the design that links to the surrounding countryside	↔ ***	↔ ***	↗ **	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 attribute	Justification for selection
The drift and solid geology of the area help to produce a moderately fertile soil, which has lead to agricultural land dominating the land use with arable farming on the plateaux tops and pasture on steep sloping valley sides.	■ The predominance of boulder clay underlain by mudstones produces a soil profile that is lime-rich, loamy and clayey resulting in moderately fertile land suitable for arable farming, especially on the broad plateaux. Food production is an important service to the area with extensive areas of arable farming on the plateaux with sheep grazing on the steep slopes of the valleys. ■ Commercial agriculture has resulted in the loss of some field boundaries, unimproved grassland, ridge and furrow features and a general reduction in biodiversity.
The field pattern is large to medium sized and is commonly bounded by well managed hedgerows displaying the rectilinear pattern of 18th- and 19th-century enclosures. Mature hedgerow trees are characteristic of the area.	■ The field pattern, formed as a result of historic land uses, contributes to the cultural history. ■ Hedgerows and ageing hedgerow trees reinforce the field patterns.
Woodland cover is generally sparse, except for some wooded scarps and in the Wreake Valley and adjacent to Rutland Water. Elsewhere, spinneys, fox coverts, hedgerows, hedgerow trees and streamside trees provide moderate cover.	■ Predominant tree species include ash, oak and sycamore with white willow and crack willow in wetland areas. ■ The area has a strong hunting tradition and many small copses, coverts and spinneys planted in the 19th century have survived as a legacy of historic land use.
Neutral grassland is the most common type of unimproved grassland and it is often associated with ancient ridge and furrow markings and characterised by a rich flora.	■ The presence of ancient ridge and furrow markings contributes to the cultural history formed as a result of historic land uses.
Rutland Water reservoir and nature reserve covers an area of 1,200 ha and often supports in excess of 20,000 waterfowl.	■ The reserve is of international significance and this is recognised in its designations as a Special Protection Area and Ramsar site. It comprises extensive sheets of open water with a complex of wetland and lakeside habitats, including lagoons, islands, mudflats, reedswamp, marsh, old meadows, pastures, scrub and mature woodland. Rutland Water reservoir was constructed in the 1970s and is now a highly distinctive feature of the area and is a valued asset for recreation and its contribution to the visitor economy of the local area. ■ By surface area, it is the largest reservoir in England and is a major source of public water supply.
Settlement patterns and buildings constructed from local building stone.	■ There is evidence of many deserted and shrunken settlements and separate small villages and farms linked by country lanes with wide verges. ■ Red brick buildings are widespread and most abundant clustered around churches constructed from ironstone and limestone contributing to the local vernacular.

Landscape opportunities

- Manage the areas of neutral grassland, the most common type of unimproved grassland that is threatened by agricultural practices. The neutral grassland is often associated with ancient ridge and furrow patterns and characterised by a rich flora; a valuable habitat and an important historic asset and educational feature.

- Manage and plan to extend the network of hedgerows. The existing field pattern is commonly bounded by hedgerows displaying the rectilinear pattern of 18th- and 19th-century enclosures which could be threatened by commercial agriculture. Plan to augment the over-mature hedgerow trees that are a distinctive feature.

- Protect the Rutland Water reservoir and nature reserve. The reserve is of international significance and this is recognised in its designations as a Special Protection Area and Ramsar site. It comprises many diverse habitats and also contributes to the visitor economy of the area. The reserve is also home to a successful osprey re-introduction project.

- Manage and conserve the predominant tree species that include ash, oak, sycamore and white willow and crack willow in wetland areas. Consider successional planting to conserve the tree canopy in existing woodland.

- Conserve the vernacular of existing settlements. Plan sympathetically any new development by setting out in established patterns and using traditional building materials.

Wooded escarpments and hills are more common along the northern and western edges of the Wolds.

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	State	Main beneficiary	Analysis	Opportunities	Principal services offered by opportunities
Food provision	Arable farming Soils	Agricultural food production is an important service to the area. Mudstones (towards the west), limestone, sandstone and ironstone overlain by glacial till throughout much of the area produce moderately fertile soil that supports arable farming. The soil is classified Grade 3 using the agricultural land classification system. Arable farming is extensive on the plateaux of the area with sheep grazing on the steep slopes of the valleys. Some of the land north and east of Gotham is lighter and suitable for growing root crops and the lighter land at Belvoir does support some sugar beet. The processing plant at Newark is still active.	Regional	Arable farming dominates with winter cereals, oilseed rape, beans and forage maize as significant crops. Promoted as the "Rural Capital of Food", Melton Mowbray is perhaps best known for its pork pie and one of the homes of Stilton cheese production. Stilton and Red Leicester cheeses originally came from the village and farm dairies in the Eye basin. There are significant cheese processing facilities at nearby Long Clawson, Quenby Hall and Cropwell Bishop. Any increase in commercial agriculture could lead to decreased water availability and have a detrimental effect on Rutland Water reservoir, an SPA and Ramsar site, particularly during periods of peak abstraction. It could also lead to a reduction in area of semi-natural grassland and characteristic flora.	Opportunities exist to continue food production with sustainable methods of farming to ensure that food production is maintained without detriment to the environment. Opportunities exist to work in collaboration with farmers to increase yields. Opportunities exist to enhance and increase areas of semi-natural habitats and re-instate hedgerows through environmental stewardship. This would create a mosaic of habitat types, thus resulting in a more robust ecosystem.	**Food provision** **Biodiversity** **Regulating soil quality**
Timber provision	Many small copses, coverts and spinneys	The predominant tree species include ash, oak and sycamore, with white willow and crack willow in wetland areas. Woodland cover of only 6 per cent by area of the NCA offers little opportunity for the provision of timber.	Local	An expansion to woodland cover would lead to a loss of identity of the small copses, coverts and spinneys and reduce the area available for agriculture. However an expansion to woodland cover could increase climate regulation through the sequestration of carbon.	There exists an opportunity to conserve and manage the existing woodland cover by successional planting thus providing opportunities for timber provision and climate regulation.	**Timber provision** **Biodiversity** **Climate regulation**

Service	Assets/ attributes: main contributors to service	State	Main beneficiary	Analysis	Opportunities	Principal services offered by opportunities
Water availability	Rutland Water reservoir Rivers No extensive aquifers	The rivers Wreake and Eye both currently have a 'water available' CAMs status[8]. Rutland Water reservoir is used as a strategic resource for water demand within the Anglian region. Water pumped from the river s Welland and Nene, both located outside the NCA, and the River Gwash, within the NCA, are used to sustain water levels in the reservoir. The River Gwash currently has a CAMS 'over abstracted status[9].	Regional	Abstracted water is used for agricultural irrigation in the NCA and as a public water supply. Increasing water availability through greater capture could increase agricultural outputs at times when irrigation is limited during periods of drought. An increase in water availability would alleviate over abstraction in the River Gwash and maintain water levels in the Rutland Water reservoir during periods of peak abstraction thus maintaining the wetland habitat.	There are no extensive aquifers in the NCA although there is a deep aquifer in the north of the NCA, therefore opportunities to increase water availability by slowing run-off or increasing infiltration is limited. However, opportunities exist for careful management of over-abstraction, efficient use of water and seeking alternative more sustainable sources of water supply where possible.	**Water availability** **Biodiversity** **Food provision** **Regulating water quality**
Biomass energy	Many small copses, coverts and spinneys, sheltered valleys and extensive arable fields on plateaux	Generally the NCA has a medium to high potential for the provision of biomass services through plantations of short rotation coppice (SRC) and medium potential through plantations of miscanthus.	Local	An increase to the provision of SRC for fuel has the potential to increase climate regulation, but could decrease the provision of food if placed on farmed land. A major expansion could also adversely affect any historic assets that contribute to the sense of place if the SRC becomes a major component of the landscape by obscuring the small scale pattern of woodland cover, hedgerows and areas of ridge and furrow.	There exists an opportunity to increase biomass services. Small scale energy crop planting in sheltered valleys rather than on ridge tops would be more sensitive to the landscape. Areas to the north and east/ south east of Melton Mowbray in the NCA generally have high potential for SRC while to the west and north west of the NCA the SRC yield potential is medium.	**Biomass energy** **Climate regulation** **Biodiversity**
Climate regulation	Soils Woodland Reedbeds Floodplain grazing marsh	The soils over most of the NCA have a low carbon content (0-5 per cent) although there are small pockets of soil with a higher carbon content (5-10 per cent) associated with the wetland habitats in the NCA and certain woodlands. Woodland cover of only 6 per cent by area of the NCA offers little in terms of the storage of significant carbon. However other habitats for example reedbeds and floodplain gazing marshes also play a role.	Local	Currently, the NCA offers little in terms of climate regulation through carbon storage. However increasing the areas where carbon storage is higher would enhance climate regulation. Additional benefits include greater biodiversity, increased water capture and improvement to water quality.	There exist opportunities to enhance climate regulation through carbon storage by increasing wetland areas such as shallow lagoons, reedbeds, floodplain and grazing marsh. This would deliver multiple benefits since it would also enhance the regulation of water quality and water flow and increase biodiversity. Sympathetic planting of new woodland, hedges and improved management of existing woodland would contribute to this service. Opportunities exist to work in collaboration with farmers to examine methods of lowering green house gas emissions, for example through reduced fertiliser inputs and producing energy from farm waste.	**Climate regulation** **Regulating water quality** **Biodiversity** **Sense of place/ inspiration**

[8] The Soar Catchment Abstraction Management Strategy (July 2006), Environment Agency.
[9] The Welland Catchment Abstraction Management Strategy (April 2007), Environment Agency.

Service	Assets/attributes: main contributors to service	State	Main beneficiary	Analysis	Opportunities	Principal services offered by opportunities
Regulating water quality	Agricultural land River valleys Wetland habitat	The majority of the River Eye England Catchment Sensitive Farming[10] (CSF) Priority Catchment is located within the NCA. The ecological status of the main rivers in the NCA, the rivers Wreake and Eye is 'moderate' and their surface water chemical status is 'good'. The current ecological status of Rutland Water is poor; the surface water chemical quality of Rutland Water does not currently require assessment. The groundwater chemical status in the majority of the NCA is good.	Regional	Controlling pollutants and sediments entering water courses as a result of soil and nutrient run-off and livestock directly accessing watercourses are identified as issues within this Priority Catchment. Falling water level through over-abstraction of water has a detrimental effect on water quality; affecting biological oxygen demand (BOD) reducing flow rate and stresses the ecology thus, the effects of pollutants are more significant. Improvements to river corridors for example, establishment of semi-natural wetland habitats, grassland buffer strips and re-establishment of floodplains can provide additional water storage.	There exists an opportunity to raise the awareness of major riparian landowners to CSF and to take steps to reduce soil erosion and nutrient loss from farmland and improve livestock management near watercourses through best practice and management plans. The establishment of semi-natural wetland habitats and grassland buffer strips adjacent to watercourses in areas where potential sediment load is high would have a beneficial effect on water quality.	**Regulating water quality** **Regulating water flow** **Regulating soil quality** **Regulating soil erosion** **Biodiversity**
Regulating water flow	Rivers Surface waters Wetlands Woodlands Land uses	There are three main catchments within the NCA; the River Trent, the River Witham and the River Welland. The Environment Agency flood risk map indicates that for much of the NCA flooding is not generally a major issue, although there are some relatively small areas of flood risk associated with the River Wreake/Eye. In July 2001, a flood alleviation scheme was provided comprising an upstream storage system, which controls flood waters with automatic gates.[11] As a result flood risk in the town has been significantly reduced.	Local	The Environment Agency flood risk map indicates that for much of the NCA flooding is not generally a major issue. However, localised flooding does occur and actions to mitigate these events could include investigation of land use changes, which could reduce run-off rates and lessen soil erosion from commercially farmed land. This could potentially require an incentivised decrease in food production. More intense rainfall events brought about by climate change may undermine the stability of river valleys and slopes such as the Vale of Belvoir escarpment and intensify soil erosion. Improvements to river corridors for example, establishment of semi-natural wetland habitats, grassland buffer strips and re-establishment of floodplains can reduce flow rates and provide additional water storage.	There exist opportunities for flood risk management for example the identification of locations where flood attenuation ponds or wetland areas could be created as part of a sustainable urban drainage scheme (SUDS) with associated habitat improvement and the identification of potential sites for priority habitat creation[12]. There is an opportunity to increase vegetation cover and extend areas of floodplain habitats such as flood meadows, wet woodland and reed beds could be considered to attenuate the flow downstream.	**Regulating water flow** **Regulating soil erosion** **Regulating water quality**

[10] Catchment Sensitive Farming (formerly known as 'The England Catchment Sensitive Farming Delivery Initiative') is a joint venture between the Environment Agency and Natural England, funded by Defra and the Rural Development Programme for England, working in priority catchments within England. It delivers practical solutions and targeted support to enable farmers and land managers to take action to protect water bodies and the wider environment.

[11] Melton Mowbray Strategic Flood Risk Assessment (January 2008) Entec UK Ltd.

[12] The River Trent Catchment Flood Management Plan Summary Document December 2010. Environment Agency.

Service	Assets/ attributes: main contributors to service	State	Main beneficiary	Analysis	Opportunities	Principal services offered by opportunities
Regulating soil quality	Soils Agricultural land Woodland Semi-natural grassland	The slowly permeable clay soils of the NCA can suffer from compaction and/ or capping when wet, damaging the soil structure. This leads to nutrient loss and worsening rates of water infiltration. Diffuse pollution may result from surface water run-off.	Regional	It is important to minimise incidences of compaction on clay soils, which can arise from over-grazing, trafficking or other mechanised activities. Minimising incidences of flooding through regulation of water flow in water courses can have multiple benefits; reducing soil erosion maintaining soil structure and reducing the amount of leaching of nutrients.	There exist opportunities to implement management techniques, for example minimal tillage, that reduces soil erosion and nutrient loss from farmland and improve livestock management through best practice and management plans. Increasing the percentage of organic matter in the soil can improve the soil structure and can lead to reduced incidence of soil compaction. Opportunities relating to the regulation of water quality and water flow also have a beneficial effect on soil quality and food production.	**Regulating soil quality** **Food provision** **Regulating soil erosion** **Regulating water quality** **Water availability**
Regulating soil erosion	Woodland copses, spinneys and coverts Hedgerow windbreaks Areas of semi-natural grassland Agricultural land	The majority of the River Eye, England Catchment Sensitive Farming[13] (CSF) Priority Catchment is located within the NCA. Clay soils in the NCA with impeded drainage are prone to capping/ slaking which can lead to increased risk of soil 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.	Regional	Soil erosion is identified as an issue within this catchment, particularly from bank erosion and direct deposition into water courses from livestock (directly accessing watercourses) and soil erosion from mixed and livestock farming practices.	There exists an opportunity to reduce incidences of soil erosion. Raising the awareness of all landowners to the CSF initiative; implementing management techniques that reduce soil erosion and nutrient loss from farmland and improve livestock management through best practice and management plans. Opportunities also exist to conserve woodland, the pattern of hedgerows and to expand the areas of semi-natural grassland that stabilises the soil.	**Regulating soil erosion** **Regulating water quality** **Regulating water flow** **Biodiversity** **Food provision**

[13] Catchment Sensitive Farming (formerly known as 'The England Catchment Sensitive Farming Delivery Initiative') is a joint venture between the Environment Agency and Natural England, funded by Defra and the Rural Development Programme for England, working in priority catchments within England. It delivers practical solutions and targeted support to enable farmers and land managers to take action to protect water bodies and the wider environment.

Service	Assets/attributes: main contributors to service	State	Main beneficiary	Analysis	Opportunities	Principal services offered by opportunities
Pollination	Lowland meadows Areas of semi-natural habitat, grasslands, hedgerows, parks and gardens	The NCA contains areas of lowland meadows and semi-natural habitats together with settlements that are likely to support sources of nectar.	Local	The contribution of pollination services to commercial food production is an important service to the area. Arable farming dominates with oil seed rape, beans and forage maize as significant crops. An increase to the populations of pollinators may facilitate an increase to the types of crops that could be grown in the future. Increasing the areas that support sources of nectar would also result in a significant increase in biodiversity.	There exists an opportunity to increase the population of pollinators enabling a more diverse range of crops to be grown in the future expanding the range of food provision thus increasing resilience to the effects of climate change. An incentivised decrease in overall food production may be required to compensate for the reversion of productive agricultural land to habitats that are likely to support sources of nectar.	**Pollination** **Food provision** **Biodiversity**
Pest regulation	Areas of semi-natural habitat Hedgerows	Areas of semi-natural grassland and hedgerows are proximal to areas of agricultural production.	Local	Semi-natural habitats and hedges proximal to areas of commercial agriculture may support species of predators which can regulate populations of pests that adversely affect food provision.	Opportunities exist to enhance semi-natural habitats and re-instate hedgerows through environmental stewardship. This would provide a mosaic of habitats in areas of monoculture, thus providing a more robust ecosystem.	**Pest regulation** **Food provision** **Biodiversity**
Sense of place / inspiration	Rutland Water reservoir and nature reserve, SSSI, SPA and Ramsar site Undulating hills Narrow steep-sided valleys Exposed ridges with extensive views Sparse settlement pattern	A sense of inspiration and escapism is likely to be provided by the undulating hills that afford far-reaching views from their summits and the prominent northern escarpment, as well as the areas of woodland and grassland found on the steeper scarp slopes and the sheltered valleys. Rutland Water reservoir is a significant feature of the NCA. The site has inspired a number of reintroduction projects, for example the successful Rutland osprey project.	Regional	Initiatives that increase the service are likely to increase tourism and reinforce a sense of history. Conserving and enhancing the landscape features of the NCA is likely to benefit biodiversity by enhancing or expanding areas of semi-natural habitats.	There exists an opportunity to conserve and expand the areas of semi-natural habitat and hedgerows that contribute to a sense of place.	**Sense of place / inspiration** **Sense of history** **Biodiversity** **Recreation**

Service	Assets/ attributes: main contributors to service	State	Main beneficiary	Analysis	Opportunities	Principal services offered by opportunities
Sense of history	Ancient earthworks Areas of ridge and furrow patterns Many small copses, coverts and spinneys Local building stone Significant historic buildings	Attributes that contribute to a sense of history include the distinct earthworks and extensive areas of ridge and furrow. In addition; 6 Registered Parks and Gardens covering 1,918 ha or approximately 3 per cent by area of the NCA. 49 Scheduled Monuments and 1,336 Listed Buildings including Belvoir Castle and Burley House.	Regional	Managing and interpreting the attributes that contribute to a sense of history has some potential to increase education, recreation and tourism which contributes to the local economy. It also has the potential to increase a sense of place by reinforcing the historic character of the area. Ensure that the objectives of any management plan by English Heritage are adhered to.	There exists an opportunity to conserve and protect deserted settlement earthworks and areas of ridge and furrow that are often associated with semi-natural grassland and a rich flora. There exists and opportunity to protect and reuse redundant farm buildings. Conserve areas of woodland that reflect historic land use. Protect the condition of significant historic buildings.	**Sense of history** **Sense of place/ inspiration** **Recreation**
Tranquillity	Open hills Undeveloped secluded valleys Woodland Lowland meadows	According to the 'Intrusion Map 2007' provided by the Campaign for the Protection of Rural England (CPRE), over 50 per cent of the NCA is classified as undisturbed (a drop from 78 per cent in the 1960s), with many deeply rural and remote areas away from the main settlements of Melton Mowbray and Oakham and development in the west. A sense of tranquillity is associated with the open hills and undeveloped valleys and areas of woodland and pasture, and the remoter ridge-tops devoid of human-scale features.	Local	According to data collated by CPRE, the area of undisturbed territory is declining. Expanding areas of woodland could have a beneficial effect on tranquillity, biodiversity and climate regulation. However large scale planting could be detrimental to a sense of history by obscuring areas of historic planting. Expanding the areas of lowland meadows that have restricted access, for example at Rutland Water, could benefit biodiversity but have a detrimental effect on recreation. Sensitively plan new settlements on urban fringes ensuring retention of the vernacular.	There exists an opportunity to protect core areas of the NCA where intrusion is low. Sensitively plan any expansion to urban areas and roads by planting woodland shelter belts reducing visual impact, noise and light pollution. Maintain the balance between undisturbed territory and public access.	**Tranquillity** **Sense of place/ inspiration** **Recreation** **Biodiversity**

Service	Assets/ attributes: main contributors to service	State	Main beneficiary	Analysis	Opportunities	Principal services offered by opportunities
Recreation	Rutland Water LNR, SSSI, SPA and Ramsar site Melton Country Park, Cotgrave Country Park and the LNR Local sites[14] Rivers Footpaths and bridleways Open access land	Visitor numbers to the area of Rutland exceed 1.5 million per year [15] and a significant number visit Rutland Water. Rutland Water is one of the largest reservoirs by surface area in lowland England and provides significant recreational opportunities within the area. This is supported by 782 km of rights of way (at a density of 1.22 km per km^2), and 41 ha of open access land (just 0.06 per cent by area of the NCA).	National	An expansion to this service has the potential to increase tourism which contributes to the local economy. It could also have a beneficial effect on the quality of local sites through more community engagement and voluntary intervention, with the potential to improve health and well-being, reduce the incidence of obesity and contribute to a high quality green infrastructure. However, increased intrusion in to other habitats could have a detrimental effect on biodiversity.	Plan for the improved enjoyment and understanding of the landscape and its subtle variations, its inspirational qualities, its biodiversity and historic interest, its role in producing food and mitigating climate change. Expansion to the footpath and cycle network near to where people live and stay will offer better opportunities for recreation and by promoting awareness of the less well known sites and features will help maintain the integrity of priority habitat and maintain the existing levels of tranquillity.	**Recreation**

[14] Local Sites as defined by Defra's Local Sites Guidance on their Identification, Selection and Management. Local Sites are sites of substantive nature conservation value. Although they do not have any statutory status, many are equal in quality to the representative sample of sites that make up the series of statutory sites of special scientific interest.

[15] Rutland visitor strategy 2007-2012

Service	Assets/ attributes: main contributors to service	State	Main beneficiary	Analysis	Opportunities	Principal services offered by opportunities
Biodiversity	Semi-natural habitats BAP habitat Arable field margins Areas of set-aside Agri-environment scheme options Local Biodiversity Action Plan	Rutland Water is a wetland of international importance and is designated a Ramsar site. The wetlands are one of the most important areas for over wintering wildfowl. The habitat regularly supports over 23,000 individuals including: lapwing, coot, goldeneye, tufted duck pochard, teal, Wigeon, cormorant, great crested grebe, little grebe, shoveler and gadwall[16]. Rutland Water is also the location of the successful osprey re-introduction project Other priority habitats in the NCA include wet meadows, parkland, reservoirs, rivers and streams. Species-rich neutral grasslands are most common although there are a few pockets of calcareous grassland. Early purple, green winged and pyramidal orchids are commonly found in these grasslands.	International	Over-abstraction of water poses a significant threat to the habitats at Rutland Water. Falling water levels through over-abstraction of water has a detrimental effect on water quality; affecting biological oxygen demand (BOD) reducing flow rate and stresses the ecology, thus the effects of pollutants are more significant. Other areas of semi-natural habitats, for example species-rich neutral grasslands, wet meadows, parkland are at risk from continued expansion of commercial agriculture, thus placing greater emphasis on the positive outcomes that agri-environment schemes can provide. Biodiversity in the NCA is a prime driver for tourism, recreation and sense of place and is therefore valued not only for its intrinsic value but also for its societal value.	Opportunities exist to work in collaboration to identify sustainable sources of water and improve the management of existing sources. Opportunities exist to identify agricultural scheme options that can enhance biodiversity, in particular farmland birds. There are opportunities to work in partnership to further the objectives and aspirations of the Local Biodiversity Action Plan. Restorative management of Local Wildlife Sites and the osprey re-introduction project offers opportunities for volunteering and community engagement.	**Biodiversity** **Climate regulation** **Recreation** **Sense of place/ inspiration**

[16] Joint Nature Conservation Committee website; http://jncc.defra.gov.uk/page-2007

Service	Assets/ attributes: main contributors to service	State	Main beneficiary	Analysis	Opportunities	Principal services offered by opportunities
Geodiversity	Topography Old quarries Building stone Soils Minerals Geomorpho-logical features Local Geodiversity Action Plan Designated sites	The landform exemplifies the link between geology and topography. Dip and scarp slopes, landslides and river valleys are significant features in the NCA. Jurassic and Triassic geology overlain by glacial till produce moderately fertile soil. There are 8 Local Geological Sites within the NCA and a nationally important exposure of Jurassic limestone. Dynamic river systems have produced deeply incised valleys and there are landslides on the Vale of Belvoir escarpment.	National	Jurassic mudstones (towards the west), limestone, sandstone and ironstone overlain by glacial till throughout much of the area produce moderately fertile soil. Rock exposures are concentrated mainly on outcrops of ironstone in the Marlstone Rock and Northampton Sand Formations that were mined and quarried for iron ore up until the 1960s. Other exposures occur on the Lincolnshire Limestone, quarried for local building stone; sand and gravel workings in the Wreake Valley; the mines and quarries associated with the extraction of gypsum at the Leakes and coal at Asfordby. The legacy of quarrying contributes to the industrial heritage and to the character of the NCA through the use of local building stone. These quarries may continue to provide material for new development and the repair of historic buildings. Designated sites provide important and accessible sections allowing the interpretation, understanding and research into the geology of the NCA and our understanding of past climate.	Appropriate small-scale extraction of stone could provide material for repair of existing buildings and construction of new development to maintain the vernacular. There exists an opportunity to improve the condition of designated sites and to manage former extraction sites for their range of mutually beneficial interests including geodiversity, biodiversity, industrial heritage and educational purposes. There are opportunities to work in partnership to further the objectives and aspirations of the Local Geodiversity Action Plan and to develop restorative management of Local Geological Sites offering opportunities for volunteering and community engagement.	**Geodiversity** **Recreation** **Sense of place/ inspiration** **Sense of history** **Biodiversity**

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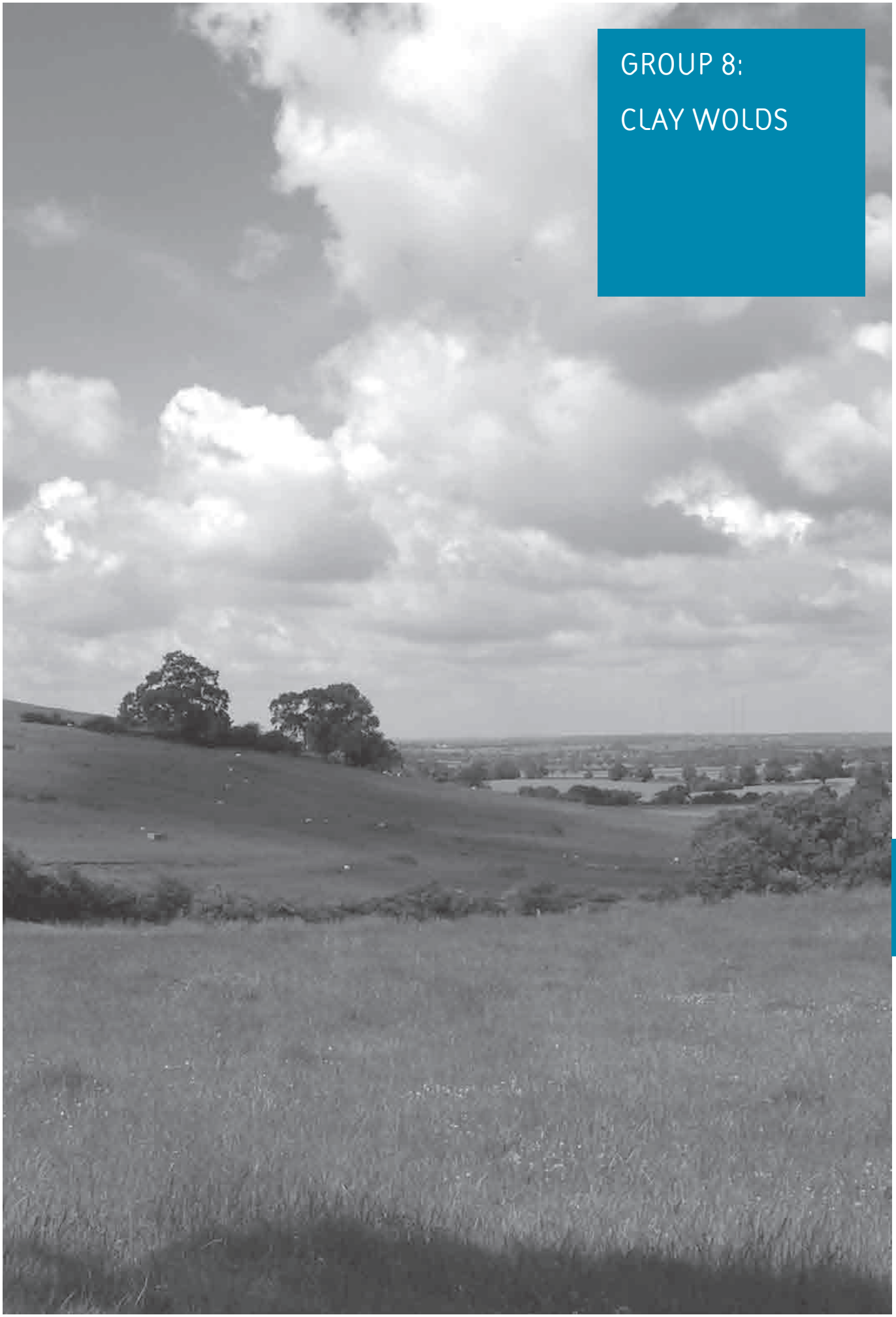
APPENDIX 14: EAST MIDLANDS LANDSCAPE CHARACTER ASSESSMENT (EXTRACT)

GROUP 8: CLAY WOLDS



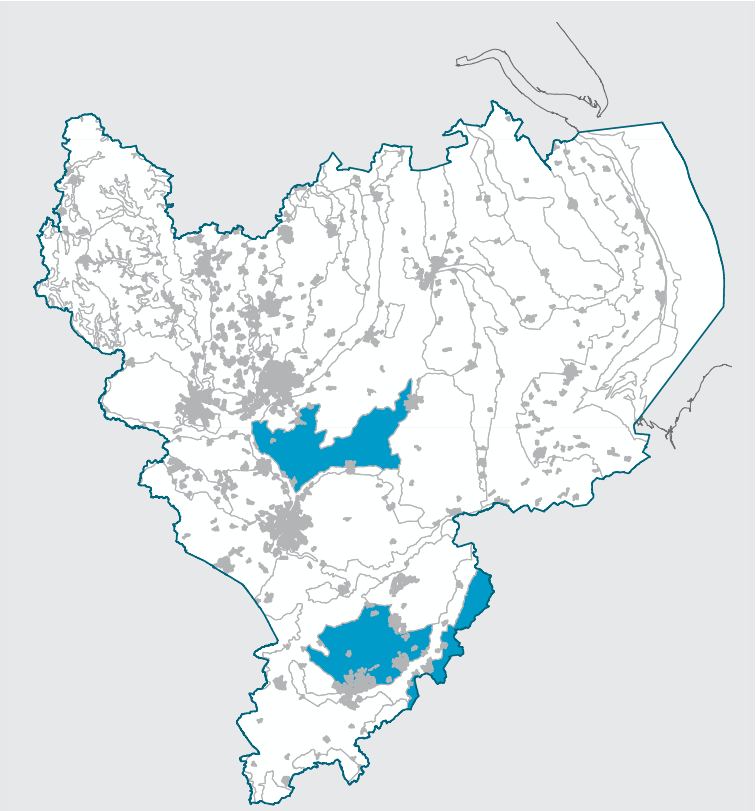
Prominent scarp slopes are characteristic of the Clay Wolds (© River Nene Regional Park/M Williams)

GROUP 8
PAGES 227-234

8A:

CLAY WOLDS

Well treed character from hedgerows, hedgerow trees, copses and small woodlands
(© River Nene Regional Park/M Williams)



KEY CHARACTERISTICS

- Broad plateaux overlain by thick mantle of till surrounded by undulating ridges and valleys, and prominent scarp slopes;
- Clay plateaux drained radially by streams occupying arrow valleys creating rolling landform;
- Mixed farming but with mainly arable on the plateau tops and pasture on steep sloping land and along valleys; hedged fields generally medium to large scale, with some evidence of amalgamation;
- Well treed character from hedgerows, hedgerow trees, copses and small woodlands despite limited areas of large woodland;
- Sparse settlement pattern of small villages and farms with little modern development;
- Ironstone and limestone churches and vernacular buildings, but brick the most abundant and -widespread building material;
- Frequent and prominent ridge and furrow close to villages;
- Quiet and remote, often empty character with expansive views contrasting with more intimate and intricate areas close to villages; and
- Damming of several valleys to create reservoirs which have localised impact on landscape character.

LANDSCAPE CHARACTER

The Clay Wolds Landscape Character Type represents a distinctive elevated plateau farmland landscape across thick belts of boulder clay separated by rolling valleys. Historically, the intractable clays of the plateau appear thinly settled, with settlements generally gravitating to the more easily worked soils on the neighbouring slopes and valleys. Remnants of this pattern of settlement remain evident in the modern landscape, and many of the elevated clays are sparsely settled, and retain a remote, sometimes empty character, enhanced by panoramic views over the surrounding landscape possible from their fringes. The valleys drain radially from the uplands and form a major component of the River Nene and several tributaries of the Trent. Here the landscape is more intricate and intimate, with long distance views obscured by landform and vegetation. Villages remain small and rural, although their built character is dominated by the use of brick.

The historic character of the landscape is dominated by hedged fieldscapes dating to the 18th and 19th centuries, albeit overlain onto a much older pattern of sinuous boundaries and routes across the hills. Other influences are limited to occasional rail routes winding through the landscape and reservoirs. In more recent decades, the removal of hedgerows and increased reversion to cereal farming has had a subtle influence on landscape character.

Clay Wolds, Nottinghamshire near East Leake.
(© Martin Banham, Natural England)

PHYSICAL INFLUENCES

The Clay Wolds Landscape Character Type occupies various bedrock geology formations, including Lias Group mudstones, Ooidal limestones and the Marlstone Rock and Northampton Sand Formations, the latter two of which have been used extensively as a building stone and are represented in the local vernacular of buildings within many of the villages. Jurassic mudstones are also extensive to the east of the Nene, stretching into neighbouring Cambridgeshire. Whilst influencing the elevation and main landform features, such as the escarpment and outliers that rise above the Vale of Belvoir, the surface expression of the bedrock is often subdued by a thick mantle of glacial till which also softens landform features to create a smooth, gently undulating landscape, interspersed with often steep sided valleys. The steep slopes in mudstone may be subjected to landslides.

The clay wolds to the south and east of Nottingham and east of Northampton offer only limited potential for features of geodiversity interest with very few exposures but some geomorphological features. The area to the north of Northampton offers much more potential. With the many former ironstone and building stone quarries and more pronounced geomorphological features, it is important that practices are in place for their care, maintenance and management, and the promotion of their educational and interpretational interest.

The streams that rise on the elevated plateaux flow into the surrounding river valleys in a radial drainage pattern. The influence of these valleys on landscape character is significant; the streams having eroded convex sloped valleys that are, in part, responsible for creating the undulating landform.

The superficial covering of till was deposited by glacial ice and is formed from unlithified rocks, sands and clays that have their origins as far north as Yorkshire, Lancashire and beyond. The covering was once more extensive, but has since been eroded by the numerous streams draining these low hills and deposited in the valleys of the major rivers, first as gravels and then as muds and silts. As such, the clay mantle now occupies only the more elevated areas and watersheds between the valleys, allowing the underlying geology to emerge at the fringes of the landscape.

On the plateaux and other more elevated areas, the soils derived from the till are lime-rich, loamy and clayey with impeded drainage. They are characteristically stony and contain a wide range of pebbles and rock fragments, indicating that the underlying tills have diverse geological origins. Where the clay overburden has eroded to expose the underlying Marlstone Rock and Northampton Sand Formations, soils are free draining, slightly acid but base-rich.

Despite the impeded drainage of the clays, cereal cultivation predominates across the fertile soils and gentle topography of the plateaux and gently sloping hills and valleys. Indeed, some areas are particularly intensively farmed through field amalgamation and the cultivation of single crops across wide areas. However, pastures are conspicuous on steeply sloping topography along valleys and close to villages. Here, field patterns tend to be more intricate and a wider range of land uses combine to create a more colourful and textured character than that of the simpler and more expansive plateau tops.

Widespread improvement and cultivation has diminished the nature conservation interest of the agricultural landscape. However, isolated areas of species rich grassland remain and are noted for their biodiversity value. Woodlands are also locally important, although not generally a dominant feature. Ancient woodlands are limited in scale and tend to be located on the thick clays. Evidence also suggests that these are often at the edge of parishes, perhaps indicating they were retained as communal resources at the fringes of the best and most readily cultivated land. Elsewhere, larger woodlands are a feature of parklands, valley sides and steep sloping scarps overlooking the Vale of Belvoir. Small geometric broadleaf copses and coverts are also an important landscape feature, providing cover for game and other farmland species.

Hedgerow trees, notably oak and ash, and lines of trees fringing watercourses also add to the wooded character of the landscape. Whilst the scale of fields, and therefore the distance between boundaries limits their ability to reduce the open character of the landscape, hedgerows are also locally important, providing visual containment and networks of habitat through the agricultural landscape.

CULTURAL INFLUENCES

Evidence of prehistoric settlement and activity on the Clay Wolds is limited. It is possible that the intractable clays would have been a constraint to the early exploitation as a consequence of primitive plough technology. However, the intensive arable farming of the past few decades may have removed evidence of prehistoric and Roman fields and farms.

Early Anglo Saxon occupation may also have been limited, and it is unclear whether the Saxon and Scandinavian place names evident represent consolidation of pre-existing farms and settlements or mark a new phase of occupation in the mid to late Saxon period. The repeated reference to 'Wolds' in place names, almost all of which occur on the till deposits, is indicative of open hill pastures, perhaps interspersed with woodland. Such resources would have been carefully managed as communal grazing and timber reserves. The distribution of settlements is also of note. The majority of villages appear to have been established at the edges of the thick till mantle, indicating that the elevated areas were managed as communal grazing, with open fields on the free draining soils of the slopes and lower lying areas. Remnants of ridge and furrow also support this, with most surviving areas lying on the fringes of the clay and where the clay mantle has been removed to expose the underlying bedrock.

Parish boundaries, established in the late Saxon period, and perhaps indicating much older divisions, also allude to this pattern of settlement and system of land management. Parish boundaries appear to show that valuable upland grazing resources were equitably divided amongst settlements on the lower ground. It is interesting to note that many ancient woodland sites survive on the fringes of several parishes, perhaps indicating that woodlands marked boundaries and were shared by neighbouring communities.

During the early medieval period, it is also possible that large areas of the landscape fell under forest law. For example Rockingham Forest once extended to Northampton, and would have included much of the landscape of the Clay Wolds west of Kettering. The Bromswold, mentioned in the 11th century tale of Hereward the Wake, once extended east from the Nene towards the River Great Ouse and is also significant. However, it is not clear to what degree such 'forest' areas were wooded, and evidence suggests that much of the land was cleared by the time of the Domesday survey.

There appears to have been piecemeal enclosure of the landscape from the 15th century onwards, and wide areas may have been thinly populated and dominated by sheep grazing. This goes some way to explain the thinly settled character of the landscape, small villages and few farms. Indeed it is possible that many areas remained unenclosed until the 18th and 19th centuries. During this time, the landscape was divided up as part of parliamentary and non parliamentary enclosures, resulting in today's pattern of rectangular hedged fields set within a more sinuous pattern of older enclosures, winding lanes and watercourses. Many village cottages and farms were also built or rebuilt in brick at this time. Whilst some limestone or ironstone buildings are evident, particularly in churches, brick is the dominant material.

During the 19th and 20th centuries agricultural improvement allowed arable cultivation to become more widespread and recent decades have seen hedgerow removal to create larger fields to accommodate modern farm machinery. Whilst industrialisation has not been a significant influence on the landscape, and villages have retained their rural character, the modern period has seen the construction of several rail lines across the Clay Wolds landscape, airfields and several reservoirs, notably in the valleys north of Northampton such as Pitsford Water, Hollowell and Thorpe Malsor.

Clay Wolds (© Graham Murray, Natural England)

AESTHETIC AND PERCEPTUAL QUALITIES

Despite being a productive agricultural landscape, in close proximity to several large towns, the absence of buildings and people across wide areas of the elevated clay landscape imparts a distinctive, albeit subtle, remote character. Where particularly long distance views are possible a sense of exposure prevails. This contrasts with the more settled character along river valleys. Here landform, small woodlands and hedgerow trees serve to limit views and create a more intimate landscape.

The predominance of brick in many farms and villages gives a unity of character, and implies relatively late settlement of the landscape. However, areas of ridge and furrow and ancient churches, as well as sinuous field boundaries and country lanes are suggestive of a much longer period of settlement and exploitation.

Colours and textures across the landscape are generally simple and muted, largely as a result of large fields of single crops. Where hedgerow removal or absence of management is in evidence, a declining character is perceived. More intact areas surrounding villages, perhaps displaying arable and pasture farming, wet meadows and areas of woodland, provide an important contrast, particularly where hedgerows are well maintained and form continuous unbroken networks.

LANDSCAPE CHANGE AND MANAGEMENT

BUILT DEVELOPMENT

Forces for Change

Large scale modern mixed-use development is evident on the fringes of larger settlements in the south of the Clay Wolds, such as Northampton, Wellingborough and Kettering, creating visual intrusion and extending the urban fringe. These settlements are targeted for further growth as they are located within the MKSM Growth Area. There is also pressure for residential development in the villages around the towns, which are popular with commuters, eroding architectural and historic character. The impact of the new development on the setting and views of churches is particularly important, as these are distinctive local landmarks.

Shaping the Future Landscape

The aim should be to protect the character of the countryside and consider the visual impact of any new development. Specific mechanisms include best practice innovative architectural designs and planning solutions and the planting of new trees, helping to integrate new development into the landscape.

In urban areas, care should also be taken to prevent coalescence, ensuring separation is maintained between the urban fringe and surrounding settlements. In rural areas, village expansion should generally be avoided in open, elevated areas where development would damage the sense of remoteness and expansive views. Many settlements would benefit from Village and Town Design Statements, guiding the design and scale of new development and ensuring the appropriate use of vernacular styles and building materials. As well as Village and Town Design Statements, Conservation Area Appraisals can also be important tools.

ENERGY PROVISION

Forces for Change

Given the Government's commitment to renewable energy provision, elevated areas of the Clay Wolds Landscape Character Type may be under pressure for wind farm development. Such development can create visual landmarks and reduce the sense of remoteness and isolation.

Shaping the Future Landscape

The aim should be to protect the character of the landscape by appropriately siting and designing new wind energy installations. There is potential for strategic regional and sub regional level guidance on commercial wind energy schemes, including cumulative impact, informed by the EMRLCA and other studies. In addition, planning guidance should be produced at the county and/or district level where necessary, establishing the most appropriate sites for development and setting out the criteria against which new applications will be assessed.

AGRICULTURE AND LAND MANAGEMENT

Forces for Change

While the rural landscape retains a mixed land use, with areas of pasture and arable, there is evidence of agricultural intensification, resulting in the loss or damage of many typical landscape features. This includes loss of hedgerows and hedgerow trees and damage to areas of ridge and furrow and other earthworks. There is also proliferation of new, large scale agricultural buildings, reflecting the loss of smallholdings and the general increase in farm size.

Shaping the Future Landscape

The aim should be to protect the structure and unity of the landscape and consider the impact of changes to farming practices. Consideration should be given to the management of those features lost or under threat. In particular the restoration of hedgerows should be given priority, creating a stronger pattern of land use and reinforcing the well-treed character. Management plans may also be appropriate for areas of ridge and furrow and other earthworks, to identify those areas most at risk.

The aim should also be to manage new agricultural development, ensuring development is appropriate in terms of type, scale and location. New large scale agricultural buildings should be carefully sited, away from visually prominent locations and amongst existing buildings where possible. Specific design guidance for farmsteads may be appropriate, establishing the criteria for new development.

FORESTRY AND WOODLAND

Forces for Change

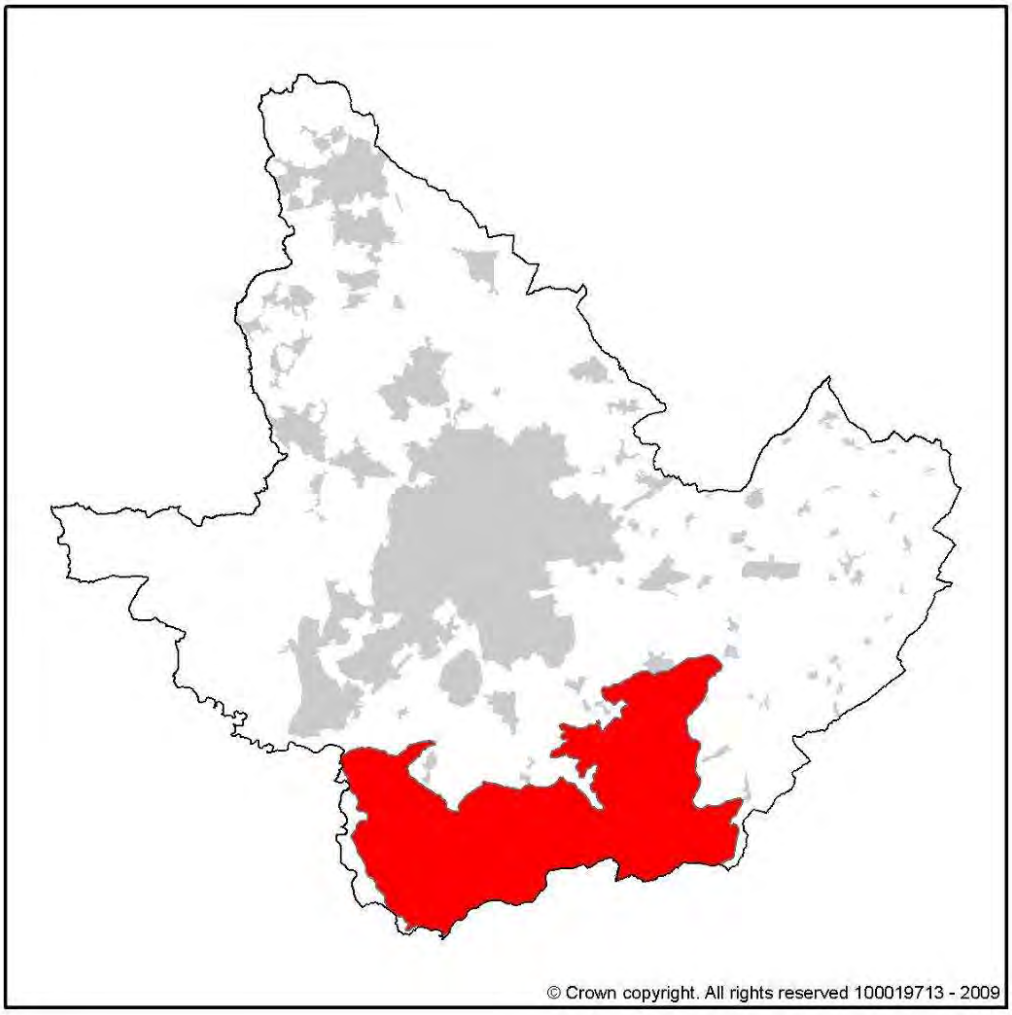
Woodland cover varies across the landscape, with generally more woodland within upland areas. New woodland planting would therefore generally be appropriate, reinforcing the character and increasing overall woodland coverage in the region. New woodland could also be used in and around settlements to integrate new development into the landscape and contain future growth. There is also a general neglect and lack of management, resulting in the decline of woodlands and hedgerow trees although where field sports, notably hunting, are practiced this will ensure the longer term management of woodlands as game coverts.

Shaping the Future Landscape

The aim should be to plan for new woodland creation in appropriate areas and around key settlements. The aim should also be to manage existing trees and woodland, encouraging new planting to ensure a diverse age and ecological structure. Consideration should also be given to the creation of woodland edge habitats, enhancing their contribution to landscape and biodiversity character, and strengthening links with restored hedgerows and grassland areas.

Such proposals should be undertaken in collaboration with the Forestry Commission and local landowners, and financial support may be available through the English Woodland Grant Scheme.

APPENDIX 15: GREATER NOTTINGHAM LANDSCAPE CHARACTER ASSESSMENT (EXTRACT)



DPZ within this Regional Character Area:

NW01	**Gotham and West Leake Wooded Hills and Scarps**
NW02	**East Leake Rolling Farmland**
NW03	**Widmerpool Clay Wolds**
NW04	**Cotgrave Wooded Clay Wolds**

Key Characteristics

- Defined by a low boulder clay plateau traditionally known as 'wolds' (elevated tracts of open land);
- Closely associated with a dissected glacial plateau comprising variable thicknesses of boulder clay overlying Lower Lias and Rhaetic Beds;
- Broad area of low hills which extend to the Soar Valley thinning out to a series of hills in the north. Gotham and West Leake are the most prominent;
- Rhaetic beds provide a low steeply inclined escarpment which forms a continuous boundary above Cropwell Bishop broken only by the valleys of Fairham Brook and other minor streams;
- Soils are predominantly strong clayey matrix containing chalk stones and lenses of fine loamy material which are difficult to cultivate although loamy coarse soils are present to the west of the region;
- Erosion by streams has stripped away covering glacial drift to create a series of deep valleys separated by ridges of higher ground. The most prominent is Kingston Brook, a narrow corridor flanked by steeply rising hills;
- Most streams flow west towards the River Soar except Fairham Brook which flows north to the River Trent;
- Distinctive rural character and feeling of seclusion from urban centres;
- Small red brick and pantile roofed villages interconnected by narrow winding country lanes;
- Larger commuter settlements with residential estates on their fringes and small older centres within the northern and western parts of the region;
- Red brick and pantile roof farmsteads are common within the area although many farms contain larger modern buildings constructed in metal or timber;
- Industrial influences have a localised effect on the area such as Ratcliffe on Soar Power Station, and gypsum works at East Leake and Gotham;
- Narrow lanes bordered by hedgerows and frequent hedgerow trees (mostly ash with some oak);
- Extensive areas of continuous pasture and arable farming;
- Well defined and recognisable pattern of hedged fields and woodland;
- Medium to large scale regular and semi-irregular field pattern, this is less distinctive in arable fields; older smaller field patterns are present in pastoral fields close to village fringes;
- Ridge and furrow present within pastoral fields;
- Hedgerows are mostly hawthorn, most are well maintained and intact although around arable fields their condition is more variable;
- Broad-leaved woodland is variable across the area and ranges in size creating areas of high and low enclosure; the most prominent and mature is on high ground covering the hills to the north at Gotham and West Leake and around Cotgrave;
- Smaller woodland copses and coverts are common and exert a localised influence particularly where present on high ground;
- Hills characterised by large regular blocks of mature broad-leaved woodland, scarp grasslands and pasture and long arable fields which extend down the slopes;

- Pockets of wooded parkland provide an element of formality and enclosure within the landscape such as Stanford Hall and Kingston Hall;
- Small streams notable through the presence of willows and riparian shrubs; and
- Willow pollards are common within this area.

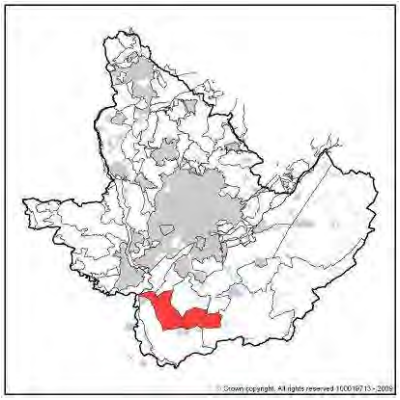
Guidelines and Recommendations

- Enhance the broad-leaved character of existing woodlands;
- Identify opportunities for new woodland planting on suitable sites;
- Conserve the sparsely settled rural character of the landscape;
- Conserve the traditional built form character and pattern of rural settlements;
- Conserve all areas of permanent pasture particularly where present close to villages and along streams;
- Promote measures for conserving and enhancing the historic features such as ridge and furrow;
- Conserve the historic pattern of hedgerows along rural lanes;
- Conserve the semi-irregular small to medium scale field pattern around villages and medium to large scale field pattern throughout remainder of the area;
- Restore the traditional pastoral character and diversity of scarp grasslands;
- Promote measures to enhance the semi-natural appearance of scarp woodland;
- Conserve the balance of woodland and farmland on scarp hills;
- Conserve the riparian character of stream corridors through retention and replanting of streamside trees and scrub;
- Conserve willow pollards where present along stream corridors;
- Conserve the character of village side pastoral landscapes; and
- Promote measures for achieving a better integration of new and existing development in the countryside.

NW01 Gotham And West Leake Hills And Scarps

CONTEXT

Regional Character Area:
Nottinghamshire Wolds
LDU Reference: 113, 128, 66, 425, 251, 252 ,187, 258
DPZ Reference: NW01



CHARACTERISTIC FEATURES

- Series of prominent individual hills with steep sometimes scarp slopes and broad plateaus
- Hills are the dissected northern extent of a low boulder clay plateau extending from Leicestershire traditionally known as 'The Wolds'
- Rural character although urban elements such as villages, power station, industry and quarrying are frequent in the landscape
- Kingston Brook is a localised feature on low ground between hills characterised by riparian woodland and some grazing pasture at its margins
- Land use is a mixture of woodland, arable and pasture. Arable is on the lower and more gentle slopes, pasture close to rivers, settlements and scarp grassland where the land is steeply sloping precluding machinery from working the land
- Field pattern is mostly modern although pockets of older field systems such as irregular geometric and geometric and those reflecting open fields are present
- Field pattern in places sweeps down the slopes and is a distinctive feature
- Field boundaries are mostly hedgerows on the slopes with fences often present on higher ground
- Woodland is generally on high ground across the hills although there are smaller pockets of woodland on lower ground as establishing scrub and along village fringes/areas of former quarry
- Prominent extensive woodland plantation covers the slopes and high ground, often on steep scarps
- Rides and areas of open land are interspersed between plantation woodland
- Wooded tracks with spring flowering understorey planting along tracks up hills
- Large commuter settlements such as Gotham and East Leake and smaller settlements such as West Leake are nestled at the base of the hills on the fringes of the DPZ
- Infrequent individual farms within the character area often on the slopes or high ground. A row of individual modern houses is present along Ash Lane. One distinctive red brick and pantile roof farmstead on Bunny Hill is set within gardens with a small orchard
- Buildings are mostly red brick with older properties having red pantile roofs
- Church towers and spires are prominent within a uniform village skyline
- Overhead lines are prominent on low ground between hills
- Small former spring (Wheldon Spring) on Gotham Hill is a localised feature characterised by a depression in the ground and establishing scrub
- Enclosed channelled views on low ground between hills with extensive panoramic views across towards Nottingham City and beyond from high ground

LANDSCAPE ANALYSIS

Condition

A series of distinctive wooded hills with arable fields on lower and gentler slopes and pasture and pockets of grassland on the steeper slopes. Views are extensive and often over long distances from the high ground although become more enclosed from lower ground. Urban elements are frequent with views of Ratcliffe on Soar Power Station and the gypsum works. Some villages such as Gotham village are characterised by modern edges and a small older core with a distinctive church spire. Others such as West Leake are small and distinctive focused along a single street with small working farms and lack of modern development.

Land use is a mix of plantation woodland, arable farming and pasture. Fields are mostly medium to large in size with the majority of arable farming being a modern field pattern; although at Gotham there is evidence of older irregular geometric patterns. Pockets of fields reflecting open field system and regular geometric patterns are present on lower slopes or pockets of high ground. Older field patterns are generally used for pasture.

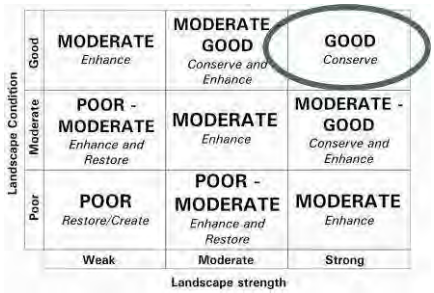
Woodland comprises large geometric field sized blocks of both broadleaved and conifer woodland. On West Leake Hill a large woodland is used for commercial forestry with rides and various belts of different species within woodlands. Other vegetation includes smaller frequent copses at the base of slopes and around settlements. Frequent hedgerow trees and intact hedgerows are present across the area. Pockets of regenerating scrub are often around village fringes or on the base of slopes.

The landscape condition is **GOOD**. Hedgerows and woodland are well managed, although there is some evidence of field boundary fragmentation in places. Where hedgerows have been replaced, the timber fencing is usually in good condition. The agricultural land is well managed and features are intact with little sign of decline.

Landscape Strength

This DPZ is a distinctive series of hills which are prominent within the surrounding area. They often form a backdrop to views from the southern edges of Nottingham. From high ground within the DPZ there are open expansive views to the centre of Nottingham and lower-lying farmland at Ruddington and Bunny.

The strength of character is **STRONG**. The hills are distinctive and consistent features across the landscape and exert their influence within the surrounding area. The pattern of arable, pasture and woodland is also consistent with moderate sized villages and some expanding commuter villages present on low ground.



The overall landscape strategy is **CONSERVE**.

LANDSCAPE ACTIONS

Landscape features

- Conserve the distinctive pattern of hills with large blocks of woodland on high ground
- Conserve the older field patterns within the character area such as those reflecting open systems and the irregular and regular geometric patterns
- Conserve the balance of arable farming on lower slopes and pasture on steeper and higher slopes
- Conserve field patterns which sweep down the hills
- Conserve the landform of the former Wheldon Spring
- Conserve the diversity of broadleaf and large-scale woodland plantations on hills
- Ensure new conifer planting includes belts of broadleaf woodland and woodland edge along its fringes
- Any new woodland planting should be small in scale along the base of slopes becoming larger and of field size on higher slopes
- Conserve the small rides and various ages of woodland within the character area
- Conserve the wooded tracks along the ridgelines
- Conserve hedgerows and encourage infill planting within gaps rather than erection of timber fencing
- Conserve areas of rough grassland where present on steeper scarp slopes

Built form

- Conserve the frequency of small farmsteads and outbuildings throughout the landscape; any new barn developments should be small scale and fit within the existing pattern and vernacular styles
- Conserve the small linear and vernacular character of West Leake
- Conserve the uniform roofline of villages with prominent church spires

- Encourage the use of red brick and red pantile roofs for new buildings and extensions
- Conserve the nucleated character of larger villages
- Minimise the influence of larger settlements such as East Leake through small-scale woodland planting to reduce the scale and frequency of urban edges within views

Other development/ structures in the landscape

- Conserve the winding character of rural lanes with expansive channelled views between hills
- Ensure any new industrial development is nestled on low ground and has well wooded boundaries which integrate with woodland on higher ground to reduce its visibility