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# **Anglian Water Revised Draft Water Resource Management Plan 2024 Environmental Report**

Appendix D: Baseline Review and Baseline Maps

August 2023

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# **Anglian Water Revised Draft Water Resource Management Plan 2024 Environmental Report**

Appendix D: Baseline Review and Baseline Maps

August 2023

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# 1 Introduction

## 1.1 Background

- 1.1.1 Anglian Water is the largest water and wastewater company in England and Wales geographically, covering 20% of the land area.
- 1.1.2 As a water company Anglian Water has a statutory obligation to produce a Water Resources Management Plan (WRMP) every five years. The WRMP sets out how a sustainable and secure supply of clean drinking water will be provided to its customers over a minimum 25 year planning period, whilst showing how its long-term vision for the environment will be achieved. Wider societal benefits, such as tourism, are also considered and balanced against the plan being affordable. This creates a 'best value' plan. Anglian Water's WRMP 2024 (rdWRMP24) renews the previous WRMP published in 2019.
- 1.1.3 In the development of a WRMP, companies in England and Wales must follow the Environment Agency Water Resources Planning Guideline (WRPG)<sup>1</sup>, consider broader government policy objectives and adhere to the relevant legislation. The WRPG highlights six environmental assessment processes, and their respective legislative / policy requirements, as noted below. Anglian Water's plan-making for rdWRMP24 has undertaken all six assessments. The broad scope of the Strategic Environmental Assessment (SEA) process has been used as a framework to integrate the findings of the other environmental assessments to seek to avoiding duplication and inconsistency emerging across the specific requirements of each process:
- Habitats Regulations Assessment (HRA)
  - Water Framework Directive (WFD) assessment
  - Natural Capital Assessment via Ecosystem Services (NCA)
  - Biodiversity Net Gain (BNG) assessment
  - Invasive Non-Native Species (INNS) risk assessment
- 1.1.4 This report is an appendix to the SEA and provides a high-level review of the current environment and socio-economic baseline conditions within the Anglian Water area. As Anglian Water's Water Resources Management Plan 2024 (WRMP24) covers a substantial geographical area, with water being transported to and from other water companies, this baseline review includes relevant designations and protections within the Water Resources East (WRE) region. The maps included in Appendix A reflect this approach.
- 1.1.5 More detailed location specific baseline information has been developed in a GIS database (see paragraph 1.2.2 and 1.2.3 for more information). This database has been used as an evidence base on which environmental issues or opportunities from WRMP24 can be predicted, assessed and fed into decision-making. The results of these environmental assessments are displayed within Sub Reports A-D and Appendix E of the WRMP24 Environmental Report.

## 1.2 Baseline Approach

- 1.2.1 The baseline information in this appendix was collected from published sources (checked in June 2023) as referenced in the text below, including but not limited to the following sources:
- Department for Environment, Food and Rural Affairs (Defra)

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<sup>1</sup> Water resources planning guideline (2023). Available at: [Water resources planning guideline - GOV.UK \(www.gov.uk\)](https://www.gov.uk)

- Department for Transport
- Environment Agency
- Historic England
- Local Authority Health Profiles (Public Health England, 2018)
- Natural England
- Office for National Statistics (ONS)
- UK Climate Projections 2018 (UKCP18)

1.2.2 Although the wider baseline has been provided within this note to contextualise the plan boundary that the options sit within, this does not represent the entire baseline considered as part of the option’s environmental assessments (please see section 1.1.2).

1.2.3 An ESRI ArcGIS tool was developed to store environmental and socio-economic information, to inform key sustainability issues and opportunities. This digital approach to production of the baseline ensured that the most up to date and appropriate baseline information (shown in Table 1.1 below) was available to be used at each stage of the WRMP plan making process. This allowed assessors to determine key constraints and opportunities for the selected supply options, as well as assessing the overall effects of the WRMP24 and its reasonable alternatives. The GIS map was also utilised to enable the assessment of the cumulative effects between WRMP24 and other plans, programmes and major projects.

**Table 1.1 Environmental Datasets**

Topic	Assessment	Aspect assessed	Data Source
Air	SEA	Air Quality Management Area(s) (direct impact)	Defra - Air Quality Management Areas
	SEA	Noise Action Important Areas	Defra - Noise Action Planning Important Areas Round 2 England
	SEA	Air Quality monitoring points and data	<a href="https://uk-air.Defra.gov.uk/networks/find-sites">https://uk-air.Defra.gov.uk/networks/find-sites</a>
Biodiversity, Flora, Fauna	<b>Biodiversity: Statutory Designations</b>		
	SEA, BNG	Local Nature Reserves (LNR)	Natural England Local Nature Reserves
	SEA, BNG	National Nature Reserves (NNR)	Natural England National Nature Reserves
	SEA, BNG, HRA	Ramsar Sites	Natural England Ramsar
	SEA, BNG, HRA	SACs/candidate SACs (cSAC) and SCIs (direct impact)	Natural England SACs
	SEA, BNG, HRA	SPAs / potential SPAs (pSPA) (direct impact)	Natural England SPAs
	SEA, BNG, NCA, HRA	Sites of Specific Scientific Interest (SSSIs)	Natural England SSSI
	SEA, BNG, NCA, HRA	Sites of Specific Scientific Interest (SSSIs) risk zones	Natural England SSSI
SEA, BNG	Marine Protection Areas/Marine Conservation Zones (for specific marine schemes)	JNCC Marine protected areas data set	



Topic	Assessment	Aspect assessed	Data Source
		<b>Biodiversity: Non-Statutory Designations</b>	
	SEA, BNG, NCA	Ancient Woodland	Natural England Ancient Woodland
	SEA, BNG, NCA	Local Wildlife Sites	Local Authorities
	SEA, BNG, NCA	Priority Habitat	Natural England Priority Habitat Inventory
		<b>Biodiversity opportunity areas</b>	
	SEA	Nature Improvement Areas	Natural England
	SEA	National Priority Focus Areas	Natural England
		<b>Community Features</b>	
Population and Human Health	SEA, NCA	Allotments or Community Growing Spaces	OS Greenspace dataset
	SEA, NCA	Borough	OS Greenspace dataset
	SEA, NCA	Bowling Green	OS Greenspace dataset
	SEA, NCA	Cemetery	OS Greenspace dataset
	SEA, NCA	Country Parks	Natural England - Country Parks
	SEA, NCA	Golf Course	OS Greenspace dataset
	SEA, NCA	Medical Facilities	OS Greenspace dataset
	SEA, NCA	National Parks	OS Greenspace dataset
	SEA, NCA	National Trails <sup>2</sup>	Natural England
Material assets	SEA, NCA	Open Access Areas	OS Greenspace dataset
	SEA, NCA	Other Sports Facility	OS Greenspace dataset
	SEA, NCA	Play Space	OS Greenspace dataset
	SEA, NCA	Playing Field	OS Greenspace dataset
	SEA	Public Park or Garden	CRoW S4 Conclusive Registered Common Land
	SEA, NCA	Registered Common Land	OS Greenspace dataset
	SEA, NCA	Religious Buildings	OS Greenspace dataset
	SEA, NCA	Religious Grounds	OS Greenspace dataset
	SEA, NCA	Schools	OS Greenspace dataset
	SEA, NCA	Tennis Courts	OS Greenspace dataset
	SEA	Transport Route Major Roads,	OS Open Roads
	SEA	Railway Tracks	OS Vector Map
	SEA	National Designated Cycle Routes	Sustrans
Population		<b>Indices of Multiple Deprivation</b>	
	SEA	20% most deprived areas for the index of multiple deprivation	Indices of Multiple Deprivation 2015

<sup>2</sup> Some of these trails may be formed by PROW and bridleways

Topic	Assessment	Aspect assessed	Data Source
	SEA	20% most deprived areas for income deprivation	Indices of Multiple Deprivation 2016
	SEA	20% most deprived areas for employment deprivation	Indices of Multiple Deprivation 2017
	SEA	20% most deprived areas for education, skills and training deprivation	Indices of Multiple Deprivation 2018
	SEA	20% most deprived areas for healthcare	Indices of Multiple Deprivation 2019
	SEA	20% most deprived areas for crime deprivation	Indices of Multiple Deprivation 2020
	SEA	20% most deprived areas for barriers to housing and services	Indices of Multiple Deprivation 2021
	SEA	Population and Migration Projections	Office of National Statistics
	SEA	Local Authority area profiles: NOMIS information	NOMIS
	SEA	Local Authority area profiles: Public Health England information	Public Health England
Cultural Heritage		<b>Historic Environment</b>	Historic England Listed Buildings
	SEA	Grade I Listed Structures	Historic England Listed Buildings
	SEA	Grade II* Listed Structures	Historic England Listed Buildings
	SEA	Grade II Listed Structures	Historic England Registered Parks and Gardens
	SEA	Grade I Registered Parks and Gardens	Historic England Registered Parks and Gardens
	SEA	Grade II* Registered Parks and Gardens	Historic England Registered Parks and Gardens
	SEA	Grade II Registered Parks and Gardens	Historic England Registered Parks and Gardens
	SEA	Protected Wreck	Historic England Protected Wrecks
	SEA	Registered Battlefields	Historic England Registered Battlefields
	SEA	Scheduled Monuments	Historic England Scheduled Monuments
	SEA	Conservation Areas	Historic England Conservation Areas
	SEA	World Heritage Sites	Historic England World Heritage Sites
Soil		<b>Land Quality</b>	
	SEA	Authorised Landfill Sites	Environment Agency authorised landfill
	SEA	Historic Landfill Sites	Environment Agency historic landfill
		Land Use	Natural England Agricultural Land Classification
	SEA, NCA	Grade 1 Agricultural Land	Natural England Agricultural Land Classification
SEA, NCA	Grade 2 Agricultural Land	Natural England Agricultural Land Classification	
Landscape		<b>Landscape</b>	

Topic	Assessment	Aspect assessed	Data Source
	SEA, NCA	Areas of Outstanding Natural Beauty (AONB)	Natural England
	SEA	National Landscape Character Areas	Natural England
	SEA, NCA	Woodlands (General assessment of total area of woodland)	Priority habitat map layers
	SEA	Urban Grade of Agricultural Land	Natural England Agricultural Land Classification
	SEA	Green Belt Land	Department for Communities and Local Government - Green Belt
Water		<b>Water: Ground</b>	Environment Agency - source protection zones
	SEA	Source Protection Zone (SPZ) 1	Environment Agency - source protection zones
	SEA	SPZ1c	Environment Agency - source protection zones
	SEA	SPZ2	Environment Agency - source protection zones
	SEA	SPZ2c	Environment Agency - source protection zones
	SEA	Major Aquifer High	Environment Agency - Groundwater Vulnerability Zones maps (requires contract with Environment Agency open data)
	SEA	Major Aquifer Intermediate	Environment Agency - Groundwater Vulnerability Zones maps (requires contract with Environment Agency open data)
	SEA	Major Aquifer Low	Environment Agency - Groundwater Vulnerability Zones maps (requires contract with Environment Agency open data)
	SEA	Minor Aquifer High	Environment Agency - Groundwater Vulnerability Zones maps (requires contract with Environment Agency open data)
	SEA	Minor Aquifer Intermediate	Environment Agency - Groundwater Vulnerability Zones maps (requires contract with Environment Agency open data)
	SEA	Minor Aquifer Low	Environment Agency - Groundwater Vulnerability Zones maps (requires contract with Environment Agency open data)
	SEA, WFD	Water Framework Directive (WFD) Groundwater Status	WFD Groundwater Bodies
	SEA, WFD	WFD Groundwater Classifications	Environment Agency WFD Catchment data explorer
	WFD	Incursion into aquifers of 'good yield' and 'good quality' under the WFD (Principal aquifer / secondary)	WFD Groundwater Bodies
		<b>Water: Surface</b>	
	SEA	Environment Agency Flood Defences	Environment Agency flood defences
	SEA	Environment Agency Main Rivers	Environment Agency main rivers

Topic	Assessment	Aspect assessed	Data Source
	SEA	Flood Zone 3 (1 in 100 year)	Environment Agency Flood Zone 3
	SEA	Flood Zone 2 (1 in 1000 year)	Environment Agency Flood Zone 2
	SEA, NCA	Surface Water Features	OS surface water dataset (OS open rivers)
	WFD	WFD surface water body classifications	Environment Agency WFD Catchment data explorer
	WFD	WFD Catchments	Environment Agency WFD Catchment data explorer
	WFD	WFD River Basins	Environment Agency WFD Catchment data explorer
Climatic Factors	<b>Climate</b>		
	SEA	Climate projections from UKCP18	<a href="https://ukclimateprojections-ui.metoffice.gov.uk/products">https://ukclimateprojections-ui.metoffice.gov.uk/products</a>

## 2 Baseline Information

### 2.1 Biodiversity, Flora and Fauna

#### Designated Sites

2.1.1 The Anglian Water region contains numerous Special Areas of Conservation (SAC), Special Protection Areas (SPA), Ramsar sites, Sites of Special Scientific Interest (SSSI), National Nature Reserves (NNR), Local Nature Reserves (LNR), Marine Protected Areas (MPA), and Marine Conservation Zones (MCZ). The number and type of ecological sites across the Anglian Water region is presented in Table 2.1 and in Maps A.1 to A.4 in Appendix A.

**Table 2.1: Designated ecological sites in the Anglian Water region**

Designated Site	Total Number (Anglian Water region)
SAC	140
SPA	173
Ramsar	100
SSSI	1093
NNR	150
LNR	225
MPA	1
MCZ	1

#### Flora and Fauna

2.1.2 There is a large stretch of coastline in the Anglian Water region which supports a wide range of wetland, coastal and estuarine habitats and species. The Anglian Water region is rich in species and habitat diversity. Under the Natural Environment and Rural Communities (NERC) Act 2006, water companies have a duty to 'have regard' to conserving biodiversity when delivering their functions and contribute to local biodiversity priorities and obligations on their own land<sup>3</sup>. The duties relate to habitats and species of principal importance, some of which may be designated as Local Wildlife Sites (LWS). This includes restoring, maintaining, or enhancing the condition of habitats or species. The ecological baseline has been developed with the following in mind.

2.1.3 The government guidance 'Biodiversity duty: public authority duty to have regard to conserving biodiversity'<sup>4</sup> sets out what the biodiversity duty is and how water companies should meet it when carrying out all their activities.

2.1.4 Some 'priority' habitats and species are identified as being of principal importance for the purpose of conserving biodiversity under Section 41 of the NERC Act. Examples include water-dependent habitats such as rivers, streams, lakes, ponds, canals, wetlands, fens, blanket bogs,

<sup>3</sup> [Water industry strategic environmental requirements \(WISER\): technical document - GOV.UK \(www.gov.uk\)](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/612211/wiser-technical-document-2022.pdf) May 2022

<sup>4</sup> GOV.UK (2023). [Complying with the biodiversity duty](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/1141111/Complying-with-the-biodiversity-duty-2023.pdf) - GOV.UK (www.gov.uk)

and coastal habitats, and species such as white-clawed crayfish, freshwater pearl mussel, lamprey, salmon and sea trout.

2.1.5 In addition, the 25 Year Environment Plan has shifted the ambition<sup>5</sup>. The Environment Act 2021 amends the NERC Act 2006 placing a duty on public authorities including water companies to further, so far as is consistent with the proper exercise of their functions, the conservation and enhancement of biodiversity. This reflects the aim of restoring or enhancing a species population or habitat and the government’s ambition for the prevention of further human-induced extinctions of known threatened species.

2.1.6 Priority habitats, defined as the most threatened semi-natural habitats and which require conservation action under the UK Biodiversity Action Plan (UK BAP<sup>6</sup>), make up 8.55% of the Anglian Water region, equating to a total of 194,525ha<sup>78</sup>. Deciduous woodland accounts for the highest percentage of this priority habitat in the region. The split of priority habitats by type across the region is shown in Table 2.2.

**Table 2.2: Priority habitats in the Anglian Water region**

Priority Habitat Type	Hectares (ha) in Anglian Water region	Percentage of land area in Anglian Water region
Coastal and floodplain grazing marsh	37,482.0	1.65%
Coastal saltmarsh	N/A	N/A
Coastal sand dunes	1,261.1	0.06%
Coastal vegetated shingle	630.3	0.03%
Deciduous woodland	92,168.9	4.05%
Good quality semi-improved grassland	7,204.1	0.32%
Lowland calcareous grassland	3,953.9	0.17%
Lowland dry acid grassland	4,868.0	0.21%
Lowland fens	4,510.5	0.20%
Lowland heathland	4,236.0	0.19%

<sup>5</sup> A Green Future: Our 25 Year Plan to Improve the Environment (2018). Available at: [25 Year Environment Plan - GOV.UK \(www.gov.uk\)](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/721212/25-Year-Environment-Plan.pdf)

<sup>6</sup> Biodiversity: The UK Action Plan (1994). Available at: [Biodiversity: the UK action plan - GOV.UK \(www.gov.uk\)](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/721212/Biodiversity-The-UK-Action-Plan-1994.pdf)

<sup>7</sup> JNCC (2019). UK BAP Priority Habitats. Available at: [UK BAP Priority Habitats | JNCC - Adviser to Government on Nature Conservation](https://www.jncc.gov.uk/information-and-services/our-work-programmes/biodiversity-action-plans/uk-biodiversity-action-plan/priority-habitats)

<sup>8</sup> Natural England (2022). Priority Habitat Inventory. Available at: [Priority Habitat Inventory \(England\) \(www.data.gov.uk\)](https://www.data.gov.uk/dataset/10000000/priority-habitat-inventory).

Priority Habitat Type	Hectares (ha) in Anglian Water region	Percentage of land area in Anglian Water region
Lowland meadows	2,860.3	0.13%
Maritime cliff and slope	161.40	0.01%
Mudflats	4,408.0	0.19%
No main habitat but additional habitats present	17,715.6	0.78%
Purple moor grass and rush pastures	1,533.5	0.07%
Reedbeds	1,042.2	0.05%
Saline lagoons	178.0	0.01%
Traditional orchard	1,419.0	0.06%

## 2.2 Water

2.2.1 The Anglian Water region’s operational area is classed as experiencing serious water stress, and is located within the WRE region, which is the driest in the UK<sup>9</sup>. As such, precipitation during winter months is crucial to recharge these resources so that higher demand can be met during the spring and summer months. The pressure on water supply and the natural environment within the region will further increase as the local population grows alongside greater demands from agricultural and industrial users, and the challenges posed by climate change.

The Anglian Water region’s water environment is made up of:

- The Anglian River basin district (Tables 2.3 – 2.5)
- Parts of the Humber River basin district (Tables 2.6 – 2.8)
- Parts of the Severn River basin district (Tables 2.9 – 2.11)

2.2.2 The main rivers in the Anglian Water region are shown on Map A.5 in Appendix A. This appendix provides an overview of the status of the water bodies within the three river basin districts; however, it should be noted that the Anglian Water region does not encompass each of these districts completely, with the Humber River Basin District and Severn River Basin District only encompassing a relatively small area and therefore the information provided should be used as a general indication of status.

### Anglian River Basin District

2.2.3 The Anglian River Basin District covers an area of 27,900km<sup>2</sup> and includes 14 management catchments ranging from ephemeral chalk streams and aquifers to lowland fens and coastal

<sup>9</sup> Environment Agency (2013). Water Stressed Areas – Final Classification. Available at: [Water stressed areas final classification \(publishing.service.gov.uk\)](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/274447/Water_stressed_areas_final_classification.pdf)

marshes<sup>10</sup>. These support a rich diversity of species and habitats some of which are of national and global importance, including the largest protected wetland in Britain, The Broads, which provides a habitat for wintering wildfowl.

2.2.4 Physical modifications, pollution from wastewater, and pollution from rural areas are the three most reported water management issues which affect water body status in the Anglian River Basin District preventing them from achieving 'Good' status. Changes to the natural flow and level of water is also listed as a reason for not achieving 'Good' status'.

2.2.5 The number of water bodies within the Anglian River Basin District is presented in Table 2.3.

**Table 2.3: Number of water bodies in the Anglian River Basin District**

Water body categories	Natural	Artificial	Heavily modified	Total
Rivers, canals and surface water transfers	175	41	306	522
Lake	10	19	17	46
Coastal	4	1	8	13
Estuarine	3	0	15	18
Groundwater	31	0	0	31
Total	223	61	346	630

Source: Anglian River Basin Management Plan (RBMP) (2022)

2.2.6 The current status of the groundwater and surface water bodies in the Anglian River Basin District is presented in Table 2.4 and Table 2.5.

**Table 2.4: Ecological and chemical 2015 classification for surface waters in the Anglian River Basin District**

Ecological status or potential				Chemical status		
Bad	Poor	Moderate	Good	High	Fail	Good
21	103	428	47	0	599	0

Source: Anglian RBMP (2022)

<sup>10</sup> Environment Agency (2022) Anglian River Basin District – Summary of Data. Available at: [Anglian River Basin District | Catchment Data Explorer](#)



**Table 2.5: Chemical and quantitative 2015 classification for groundwaters in the Anglian River Basin District**

Quantitative status		Chemical status	
Poor	Good	Poor	Good
14	17	15	16

Source: Anglian RBMP (2022)

**Humber River Basin District**

- 2.2.7 The Humber River Basin District covers an area of 26,100km<sup>2</sup> and is made up of 18 management catchments which have undergone varying levels of urbanisation and industrialisation ranging from upland streams and fertile river valleys to chalk aquifers<sup>11</sup>. The water bodies within this river basin district provide a diverse range of habitats and support species which are of both national and global importance including Golden and Ringed plover<sup>12</sup>. It should be noted that the Anglian Water region does not cover the entire River Basin District area (see paragraph 2.2.2).
- 2.2.8 Physical modifications, pollution from wastewater, and pollution from rural areas are reported as the most significant water management issues affecting water bodies within the Humber River Basin District, preventing them from achieving “Good” status. Changes to the natural flow and level of water is also listed as a reason for not achieving this status.
- 2.2.9 The number of water bodies in the Humber River Basin District is presented in Table 2.6.

**Table 2.6: Number of water bodies in the Humber River Basin District**

Water body categories	Natural	Artificial	Heavily modified	Total
Rivers, canals and surface water transfers	468	104	271	843
Lake	12	18	103	133
Coastal	0	0	2	2
Estuarine	1	2	4	7
Groundwater	51	0	0	51
Total	532	124	380	1036

Source: Humber RBMP (2022)

- 2.2.10 The current status of the groundwater and surface water bodies in the Humber River Basin District is presented in Table 2.7 and Table 2.8.

<sup>11</sup> Environment Agency (2022) Humber River Basin District – Summary of data. Available at [Humber River Basin District | Catchment Data Explorer](#)  
<sup>12</sup> Natural England (2023). Humber Estuary Ramsar. Available at: [Designated Sites View \(naturalengland.org.uk\)](#)

**Table 2.7: Ecological and chemical 2015 classification for surface waters in the Humber River Basin District**

Ecological status or potential					Chemical status	
Bad	Poor	Moderate	Good	High	Fail	Good
27	159	646	150	0	982	0

Source: Humber RBMP (2022)

**Table 2.8: Chemical and quantitative 2015 classification for groundwaters in the Humber River Basin District**

Quantitative status		Chemical status	
Poor	Good	Poor	Good
13	38	25	26

Source: Humber RBMP (2022)

### Severn River Basin District

2.2.11 The Severn River Basin District covers an area of 21,000km<sup>2</sup> and includes 11 management catchments both in Wales and England<sup>13</sup>. The catchments in this river basin district range from upland streams to lowland rivers, and sandstone and limestone aquifers and are home to wildlife and habits which are of both national and international significance including Bewick's swan<sup>14</sup>. It should be noted that the Anglian Water region does not cover the entire River Basin District area (see paragraph 2.2.2).

2.2.12 Pollution from rural areas, pollution from wastewater, and physical modifications are the three most significant water management issues preventing waterbodies within the river basin district from achieving a status of 'Good'. Changes to the natural flow and level of water is also listed as a reason for not achieving this status.

2.2.13 The number of water bodies within the Severn River Basin District is presented in Table 2.9.

**Table 2.9 Number of water bodies in the Severn River Basin District**

Water body categories	Natural	Artificial	Heavily modified	Total
Rivers, canals and surface water transfers	358	36	51	445
Lake	10	7	10	27
Coastal	0	0	0	0

<sup>13</sup> Environment Agency (2022) Severn River Basin District – Summary of Data. Available at: [Severn River Basin District | Catchment Data Explorer](#)

<sup>14</sup> Natural England (2014). European Site Conservation Objectives for Severn Estuary SPA (UK9015022). Available at: [European Site Conservation Objectives for Severn Estuary SPA - UK9015022 \(naturalengland.org.uk\)](#)

Water body categories	Natural	Artificial	Heavily modified	Total
Estuarine	0	0	3	3
Groundwater	33	0	0	33
Total	401	43	64	508

Source: Severn RBMP (2022)

2.2.14 The current status of the ground and surface water bodies in the Severn District is presented in Table 2.10 and 2.11.

**Table 2.10: Ecological and chemical 2015 classification for surface waters in the Severn River Basin District**

Ecological status or potential					Chemical status	
Bad	Poor	Moderate	Good	High	Fail	Good
11	110	309	45	0	475	0

Source: Severn RBMP (2022)

**Table 2.11: Chemical and quantitative 2015 classification for groundwaters in the Severn River Basin District**

Quantitative status		Chemical status	
Poor	Good	Poor	Good
9	24	12	21

Source: Severn RBMP (2022)

### River Basin Management Challenges

2.2.15 The RBMPs for the Anglian, Humber and Severn River Basin Districts highlight significant water management issues which prevent the sustainable management of water within each river basin. Table 2.12 presents the significant water management issues preventing waters reaching good status and the sectors identified as contributing to the impact (reasons for not achieving good status).

**Table 2.12: Significant water management issues preventing waters reaching good status and the sectors identified as contributing to the impact (reasons for not achieving good status)**

Water Management Issue	Anglian	Humber	Severn
Changes to the natural flow and level of water	100	83	81
Invasive non-native species	43	9	5
Physical modifications	652	932	231
Pollution from abandoned mines	0	71	18
Pollution from rural areas	791	721	889
Pollution from towns, cities and transport	172	487	173
Pollution from waste water	501	801	343

Source: Anglian, Humber and Severn RBMPs (2022)

## 2.3 Flood Risk

### 2.3.1

Within the Anglian Water region, the risk of flooding comes from a variety of sources which include coastal waters, surface water, groundwater, and reservoirs. The projected changes in climate presented in Section 2.6: Climatic Factors, are likely to increase the frequency of extreme weather events, which combined with projected increases in sea levels will further impact flood risk across the region.

The Anglian River Basin District has 6,404,735 people, of these 8.4% live in areas at risk of flooding from rivers and the sea and 0.6% live in areas with a high risk of flooding<sup>15</sup>.

The Humber River Basin District has 12,329,529 people, of these 8.5% live in areas at risk of flooding from rivers and the sea and 0.5% live in areas with a high risk of flooding<sup>16</sup>.

The Severn River Basin District has 4,553,694 people, of these 4.2% are in areas at risk of flooding from rivers and the sea and 0.4% are in areas with a high risk of flooding<sup>17</sup>.

## 2.4 Soil

### 2.4.1

The Anglian Water region is a hub for agriculture with cereal and livestock grazing being the predominant type of farming<sup>18</sup>. Agricultural land is classified on a scale of 1 to 5 where 1 is the

<sup>15</sup> Environment Agency (2022) Anglian River Basin District – Flood Risk Management Plan. Available at: [Anglian River Basin District Flood Risk Management Plan 2021 to 2027 \(publishing.service.gov.uk\)](https://publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/106421/anglian_river_basin_district_flood_risk_management_plan_2021_to_2027.pdf)

<sup>16</sup> Environment Agency (2022) Humber River Basin District – Flood Risk Management Plan. Available at: [Humber River Basin District Flood Risk Management Plan 2021 to 2027 \(publishing.service.gov.uk\)](https://publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/106421/humber_river_basin_district_flood_risk_management_plan_2021_to_2027.pdf)

<sup>17</sup> Environment Agency (2022) Severn River Basin District – Flood Risk Management Plan. Available at: [Severn River Basin District Flood Risk Management Plan 2021 to 2027 \(publishing.service.gov.uk\)](https://publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/106421/severn_river_basin_district_flood_risk_management_plan_2021_to_2027.pdf)

<sup>18</sup> Defra (2020). Agricultural Facts – East of England. Available at: [Agricultural Facts \(www.assets.publishing.gov.uk\)](https://www.assets.publishing.gov.uk).

highest quality and 5 is the lowest. The agricultural land classification of the region is predominately of Grade 2 and Grade 3 with pockets of urban and non-agricultural land as shown on Map A.5 in Appendix A. There are large areas with Grade 1 particularly around north Cambridgeshire and South Lincolnshire.

2.4.2 Currently, there are approximately 254 authorised landfill sites across the Anglian Water region<sup>19</sup>.

## 2.5 Air

2.5.1 Air quality in the Anglian Water region is varied and there are areas with higher concentrations of air pollutants likely to be associated with urbanisation, transport or business activities. Air Quality Management Areas (AQMAs) are declared where the national air quality objectives are not being met<sup>20</sup>. A high proportion of the local authorities which fall within the region contain at least one AQMA and are predominately designated for Nitrogen dioxide (NO<sub>2</sub>) and Particulate Matter (PM<sub>10</sub>)<sup>21</sup>.

## 2.6 Climatic Factors

### Current Climate Trends

2.6.1 Current observations indicate that the UK is continuing to warm. In 2022 new summer temperature records were set, including a high of 40.3°C<sup>22</sup> and a new winter record was set in 2019 of 21.2°C<sup>23</sup>. The record UK high of 40.3°C was set on the 19 July 2022 in Coningsby, in the Anglian Water region. As of 2021, the UK mean temperature is closer to 1°C warmer than to the baseline from 1961-1990.

2.6.2 2020 was the wettest year on record since 2011 as annual precipitation has increased across the UK in the last few decades<sup>24</sup>. Summers have been 11% wetter on average than 1981-2010 and 13% wetter than 1961-1990. Winters have been 4% and 12% wetter than 1981-2010 and 1961-1990 respectively.

2.6.3 High-level climate observations for regions across the UK are publicly available from the Met Office for the 30-year period between 1981-2010. Those published for Eastern England are presented in Table 2.13.

**Table 2.13: Eastern England climate observations**

Climatic Condition	Climate Observation Update
Temperature	Mean annual temperatures range from around 10.5°C in central areas, decreasing to 9.5°C nearer to the coast, or over higher ground. The coldest month is January where daily minimum temperatures range from over 2°C along the coast to 0.5°C over higher ground inland. July is the warmest month with daily mean maximum temperatures of 23°C. Extreme maximum temperatures can occur in July or August and are usually associated with heat waves lasting several days.

<sup>19</sup> Environment Agency (2022). Permitted Waste Sites - Authorised Landfill Site Boundaries. Available at: [Permitted Waste Sites \(www.data.gov.uk\)](http://www.data.gov.uk).

<sup>20</sup> Defra National Air Quality Objectives. Available at: [National Air Quality Objectives \(www.uk-air.defra.gov.uk\)](http://www.uk-air.defra.gov.uk).

<sup>21</sup> Defra List of Local Authorities with AQMAs. Available at: [List of Local Authorities with AQMAs \(www.uk-air.defra.gov.uk\)](http://www.uk-air.defra.gov.uk).

<sup>22</sup> Met Office (2022). Joint Hottest Summer on Record for England. Available at: [Joint Hottest Summer on Record for England \(www.metoffice.gov.uk\)](http://www.metoffice.gov.uk).

<sup>23</sup> Met Office (2022). Past Weather Events. Available at: [Past Weather Events \(www.metoffice.gov.uk\)](http://www.metoffice.gov.uk).

<sup>24</sup> Met Office (2020). Record Breaking Rainfall. Available at: [Record Breaking Rainfall \(www.metoffice.gov.uk\)](http://www.metoffice.gov.uk).

Climatic Condition	Climate Observation Update
Precipitation	Across most of the region there are, on average, about 30 rain days (rainfall greater than 1 mm) in winter (December to February) and less than 25 days in summer (June to August) with the highest averages being at higher altitudes.
Sunshine	Across the region, annual averages range from about 1450 sunshine hours per year over much of Lincolnshire and East Yorkshire to over 1600 hours in east Norfolk, Suffolk and Essex.
Snowfall	The number of days with snow falling in the Eastern England region is around 6-15 per year on average over the lower lying areas. On higher ground, snow falling days can be around 30 per year on average.
Wind	<p>Eastern England is one of the more sheltered parts of the UK, since the windiest areas are to the north and west, closer to the track of Atlantic storms.</p> <p>Much of East Anglia and Lincolnshire has no more than 2 days of gales each year, but exposed coasts average about 5 gales each year.</p>

### Climate Projections

- 2.6.4 The Met Office UK Climate Projections (UKCP) were updated for the first time since 2009 in December 2018 (UKCP18)<sup>25</sup>. The UKCP18 are largely the same as the 2009 projections where all areas of the UK are anticipated to be warmer, particularly during summer months. Rainfall is expected to vary seasonally and at a regional scale. The UK is projected to have wetter winters and drier summers.
- 2.6.5 The projected changes in temperature and precipitation for the east of England by the 2050s (2040-2069), under the RCP8.5 scenario (high emissions scenario) are detailed in Table 2.14. The 1981-2010 baseline period and the central estimate, representing ‘as likely as not’ probability of change (50th percentile), was used for the following projections.

**Table 2.14: Future climate projections by the 2050s under the RCP8.5 scenario**

Climatic Factor	Climate Projections
Temperature	Annual mean temperatures are projected to increase by 2-3°C. Summer temperatures are projected to see the largest increase by 3-4°C and winter temperatures by 2°C. Mean maximum summer temperatures are projected to increase by 3-4°C.
Precipitation	Annual mean precipitation is projected to decrease by 2%. Seasonal variability is projected with a 20-30% decrease in precipitation during summer months and an increase of 5-15% during winter months.

Source: Met Office UKCP18 using the central probability estimate for a RCP8.5 scenario

<sup>25</sup> Met Office UKCP18. Available at: [UK Climate Projections User Interface \(www.ukclimateprojections-ui.metoffice.gov.uk\)](http://www.ukclimateprojections-ui.metoffice.gov.uk).

## Greenhouse Gas Emissions

- 2.6.6 Based on the local authorities which fall within the East of England, the total carbon dioxide (CO<sub>2</sub>) emissions for 2018 across all sectors is estimated at 32,660 kilo tonnes (ktCO<sub>2</sub>) (not including land use, land-use change, and forestry (LULUCF))<sup>26</sup>.
- 2.6.7 The transport sector contributed the highest proportion of emissions to the total in 2018 at 44% followed by the domestic and industrial sector at 27% and 29% respectively. The LULUCF sector is estimated to be responsible for the removal of 214ktCO<sub>2</sub> equating to a 0.6% reduction in the total CO<sub>2</sub> emissions<sup>20</sup>.

## 2.7 Population, Human Health, and Economy

### Population

- 2.7.1 Settlements within the Anglian Water region are diverse and range from large population centres such as Cambridge and Norwich to small rural hamlets and seaside towns.
- 2.7.2 The East of England is home to 6.3 million people, with approximately one third living rurally, the region has some of the most affluent localities in the country and the most deprived. The population is forecast to grow by 8.7% (548,000) over the next two decades. Much of the projected growth will be in older age groups. By 2043, 25.6% of the East of England population are projected to be aged over 65 years.<sup>27</sup>
- 2.7.3 Ethnicity in the Anglian Water region is predominately White. There are larger proportions of Black, Asian and Mixed ethnicities in the urban areas of the region compared to rural areas.

### Human health

- 2.7.4 For much of the decade prior to the COVID-19 pandemic, the East of England had mirrored national trends with a slowing in improvements in life expectancy year on year. From 2019 to 2020, life expectancy fell from 80.7 to 79.6 years for males and from 84.1 to 83.5 years for females.<sup>28</sup> Between 2019 and 2020, mortality from COVID-19 contributed to a reduction of 1.1 years for males and 0.8 for females.

### Economy

- 2.7.5 Eastern England contributes 8.5% of the total UK economy<sup>29</sup>. Gross Domestic Product (GDP) per head is £29,176 which is lower than the national UK average of £31,972. The service industry dominates the employment sector across the Eastern region, which is in line with the rest of the UK<sup>30</sup>. For the three months ending June 2022 the unemployment rate was 3.3% which is slightly lower than the UK average of 3.4%<sup>31</sup>.

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<sup>26</sup> BEIS (2020). UK Local Authority and Regional Carbon Dioxide Emissions National Statistics: 2005 to 2018. Available at: [UK Local Authority and Regional Carbon Dioxide Emissions \(www.gov.uk\)](http://www.gov.uk).

<sup>27</sup> Public Health England (2021). Health Profile for the East of England 2021. Available at: [Health Profile for the East of England 2021 \(phe.org.uk\)](http://phe.org.uk)

<sup>28</sup> Public Health England (2021). Health Profile for the East of England 2021. Available at: [Health Profile for the East of England 2021 \(phe.org.uk\)](http://phe.org.uk)

<sup>29</sup> ONS (2022). Regional Economic Activity by Gross Domestic Product, UK: 1998 to 2018. Available at: [Regional Economic Activity by Gross Domestic Product \(www.ons.gov.uk\)](http://www.ons.gov.uk).

<sup>30</sup> ONS (2022). Labour Market in the Regions of the UK: August 2020. Available at: [Labour Market in the Regions of the UK \(www.ons.gov.uk\)](http://www.ons.gov.uk).

<sup>31</sup> ONS (2022). Regional Labour Market: Headline Labour Force Survey indicators for all regions (HI00). Available at: [Regional Labour Market \(www.ons.gov.uk\)](http://www.ons.gov.uk).

2.7.6 In 2019, there were 9.7 million trips to Eastern England, which makes up around 10% of total trips to England. The total expenditure in Eastern England was £1,661 million<sup>32</sup>.

2.7.7 The Index of Multiple Deprivation (IMD) (2019) local authority district map shows that most of Eastern England is within the least deprived category.

## 2.8 Historic Environment

2.8.1 The Anglian Water and wider WRE region is rich in heritage with listed buildings, scheduled monuments, conservation areas, registered parks and gardens, registered battlefields, and protected wrecks. The total number of each of these assets within the Anglian Water region is presented in Table 2.15. Scheduled monuments, registered parks and gardens, and registered battlefields are shown in Map A.6 in Appendix A.

**Table 2.15: Historic environment assets**

Asset	Description	Number in Anglian Water region	
Listed Buildings	The statutory responsibility for listed buildings control lies with the individual Local Authorities. The Department for Digital, Culture, Media and Sport is responsible for compiling the statutory list of buildings of special architectural or historic interest and each building or structure of interest is classified under one of three Grades; I, II* and II depending on their significance (Grade I assessed as highest significance).	Grade I	1923
		Grade II*	3147
		Grade II	44,599
Registered Parks and Gardens	Historic England maintains a register of historic parks and gardens of special interest in England, these parks and gardens are as equally important as buildings and settlements and form part of an area's cultural heritage. However, unlike listed buildings and conservation areas, historical parks and gardens are not afforded legal protection within the UK. The registration of these historic parks and gardens is a 'material consideration' in the planning process, meaning that planning authorities must consider the impact of any proposed development on the landscapes' special character.	Grade I	17
		Grade II*	51
		Grade II	131
Scheduled Monuments	Scheduled monuments are protected under the Ancient Monuments and Archaeological Areas Act 1979. The monuments are scheduled and recorded through Historic England, based on national importance and covering a diverse range of archaeological sites. Scheduled monuments are often in a ruinous or semi-ruinous condition or take on the form of earthworks. More complete structures of national significance are usually protected as listed buildings.	1918	

<sup>32</sup> Visit England (2020). Great Britain Tourist Annual Report 2019 – East England. Available at: [The GB Tourist \(www.visitbritain.org\)](http://www.visitbritain.org).



Asset	Description	Number in Anglian Water region
Conservation Areas	Conservation areas are designated by local planning authorities under their powers. The areas are protected to preserve special areas of historical and architectural importance and can range from small villages, town centres and residential areas. Each conservation area will have its own conservation area appraisal, which sets out how it should be protected.	945
Registered Battlefields	Historic England holds a Register of Historic Battlefields. Its purpose is to offer battlefields protection through the planning system, and to promote a better understanding of their significance and public enjoyment.	4
Protected Wrecks	The Protection of Wrecks Act 1973 allows the Secretary of State to designate a restricted area around a wreck to prevent uncontrolled interference. These protected areas are likely to contain the remains of a vessel, or its contents, which are of historical, artistic or archaeological importance. <sup>33</sup>	0

2.8.2 It is likely that most of the Local Authorities within the Anglian Water (and wider WRE region) will hold a Historic Environment Record (HER), which is a database of archaeological sites, listed buildings and other historic buildings, and finds of historic objects. There are hundreds of entries on the HERs from churches and houses to roman coin finds and medieval finds. There is also potential for unidentified heritage assets and archaeological remains to be present within the region.

## 2.9 Landscape

2.9.1 The landscape across the Anglian Water and wider WRE region is diverse and is made up of a mixture of lowlands and small hills. The Anglian Water region also has a striking stretch of coastline, including the Norfolk and Suffolk coasts, and picturesque seaside villages. Agriculture plays an important role in the landscape, however the Anglian Water region also has densely populated areas, such as Norwich.

2.9.2 National Character Areas (NCAs) divide England’s landscape into 159 distinct areas and are defined by a unique combination of aspects such as landscape, biodiversity, geodiversity and economic activity<sup>34</sup>. There are 40 NCAs within the Anglian Water region.

2.9.3 National Parks are designated to protect their outstanding landscape and countryside, wildlife and cultural heritage. There is one National Park located within Anglian Water’s region, which was designated in 1976. The Broads National Park is 303 square kilometres, most of which is in Norfolk, with over 200 kilometres of navigable waterways. The National Park consists of seven

<sup>33</sup> Protected wrecks in the North Sea and related estuaries are included in the SEA write up where applicable, but do not appear in this table as it relates to the direct land area covered by Anglian Water’s WRMP24 plan area.

<sup>34</sup> Natural England (2014). National Character Area Profiles: Data for Local Decision Making. Available at: [National Character Area Profiles \(www.gov.uk\)](http://www.gov.uk).

rivers and 63 broads, mostly less than four metres deep. Thirteen broads are generally open to navigation, with a further three having navigable channels<sup>35</sup>.

2.9.4 Areas of Outstanding Natural Beauty (AONB) are protected to conserve and enhance their natural beauty and distinctiveness<sup>36</sup>. There are five AONB within the Anglian Water region which are detailed in Table 2.16 and shown on Map A.7 in Appendix A. The Chilterns AONB clips the Anglian Water region as seen on the map and the majority is not within the area.

**Table 2.16: AONB within the Anglian Water region**

AONB	Description
Lincolnshire Wolds	The Lincolnshire Wolds is a peaceful and expansive landscape; unlike some AONBs with large tracts of wild land, much of the area has been in intensive agricultural for centuries with the shift from sheep farming to cultivation through agricultural improvements from as early as the 1800's. The grasslands, abandoned chalk pits, and chalk streams are an important habitat for rare flowers and insects and some areas of fine mixed woodland are managed to conserve their traditional oak, ash and hazel coppice.
Norfolk Coast	This long coastal strip incorporates the finest, wildest, and most remote of Norfolk's renowned marsh coastlands. The coast is backed by gently rolling chalkland and glacial moraine including the distinctive 90m high Cromer Ridge. Together the coastal habitats form an ecosystem of outstanding importance and National Nature Reserves within the area include the world-famous bird reserves, Titchwell and Cley Marshes, and Winterton Dunes, one of the country's finest dune systems. The Hun and Stiffkey located within the Norfolk Coast AONB and are two of only 210 rare chalk rivers worldwide, valued globally, and important to local communities. The Heritage Coast stretch is a Ramsar site, a Biosphere Reserve, a SSSI, a SPA and candidate SAC and Marine SAC.
Suffolk Coast and Heath	The Suffolk Coast and Heaths AONB is a low-lying coastal landscape of astonishing variety, stretching from the Stour estuary in the South to Kessingland in the North, covering a total of 403 square kilometres. It has a unique mixture of shingle beaches, crumbling cliffs, marshes, estuaries, heathland, forests and farmland. The AONB is also one of the most important wildlife areas in Britain, encompassing three NNRs, many SSSIs and the RSPB's Minmere Reserve. The mudflats and creeks of the AONB's estuaries contain wildlife wetland sites of national and international importance, whilst the wild, sandy stretches of ancient open heathland such as the Sandlings are a refuge for nightjar, woodlark, and rare heath butterflies.
Dedham Vale	The designated area of the AONB is just 90 km <sup>2</sup> and stretches upstream from Manningtree to within one mile of Bures. The landscape quality of the remainder of the Stour Valley is often as high and representations to extend the AONB continue. As much of East Anglia's traditional grasslands have already been drained and ploughed for arable farming, the hedgerows and wildflower meadows of the Dedham Vale AONB are among some of England's most precious and vulnerable pastoral landscapes.
Chilterns <sup>37</sup>	The Chilterns Area of Outstanding Natural Beauty (AONB) covers 883 km <sup>2</sup> (324 square miles) of countryside stretching across Bedfordshire, Buckinghamshire, Hertfordshire and Oxfordshire. Over half of the woodland is ancient, including the Chilterns beech wood SAC (European designation). There are also significant box, juniper and beech-yew woods, veteran trees and relict wood pasture. There are nine chalk streams within it which are a globally scarce habitat, it is a diverse archaeological landscape, with rich industrial heritage and is home to nationally important concentrations of species-rich chalk grassland that is home to scarce and threatened species, such as Chiltern gentian, wild candytuft, pasqueflower, silver-spotted skipper and glow-worm. <sup>38</sup>

<sup>35</sup> The Broads (2005). Lake Characteristics. Available at: [Lake Characteristics \(www.livinglakes.org\)](http://www.livinglakes.org).

<sup>36</sup> Natural England (2018) Areas of Outstanding Natural Beauty (AONBs): Designation and Management. Available at: [Areas of Outstanding Natural Beauty \(www.gov.uk\)](http://www.gov.uk).

<sup>37</sup> Only the small area of the Chilterns AONB - in the areas surrounding Dunstable - is located partly within Anglia Water's WRMP24 area, see Figure A.7 in this report's appendix.

<sup>38</sup> Chilterns Area of Outstanding Natural Beauty. Available at: [About the AONB - Chilterns AONB | Chilterns AONB](http://www.gov.uk)

Source: Landscapes for Life<sup>39</sup>

- 2.9.5 Tranquillity is recognised as a natural resource and one which is beneficial to health and wellbeing, however infrastructure and development is putting more pressure on this special quality<sup>40</sup>. The Campaign for Rural England (CPRE) has developed a tranquillity map for England to show the range of undisturbed or disturbed tranquillity areas across the country<sup>41</sup>. There are areas of high tranquillity (undisturbed areas) distributed throughout the Anglian Water region as well as pockets of urban areas.

## 2.10 Material Assets

### Transport

- 2.10.1 Norwich International Airport (NIA) and London Stansted Airport (LSA) are the two major passenger airports within Eastern England. In 2019 NIA served over 530,000 passengers<sup>42</sup> flying to over 30 destinations globally<sup>43</sup>. In 2018 LSA served 27 million passengers, flying to over 200 destinations globally<sup>44</sup>. The East Coast Main Line passes through the region<sup>45</sup>.
- 2.10.2 The M1 motorway passes through the west of the region, starting just north of London and proceeding north toward Leicester. Two other small stretches of motorway run through East Anglia, with the end of the M11 south of Cambridge and sections of the A1 in Cambridgeshire and around Peterborough being classed as motorway. Main trunk routes maintained by Highways England in the region include the A1, A11, A12, A14 and A47. A variety of other major roads run through the region, maintained by county councils<sup>46</sup>.
- 2.10.3 The Port of Felixstowe is Britain's biggest and busiest container port, and one of the largest in Europe. Around 17 shipping lines operate from Felixstowe, offering 33 services to and from over 700 ports around the world<sup>47</sup>.

### Resource Use and Waste

- 2.10.4 In 2022/23 the total amount of local authority managed waste, as reported by Defra, was 2,989 thousand tonnes in Eastern England<sup>48</sup>. Of this, 23.5% of this waste was sent to landfill, 28.4% to incineration, 45.7% recycled/ composted and the remaining 2.4% other.

## 2.11 Natural Capital

- 2.11.1 The Anglian Water region contains a diverse assembly of Natural Capital stocks that provide a range of ecosystem services at the national, regional and local levels. The landscape is a mixture of coastal area, lowlands and small hills that contain all eight broad habitat types

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<sup>39</sup> Landscapes for Life (2022) The UK's 46 AONBs. Available at: [The UK's 46 AONBs \(www.landscapesforlife.org.uk\)](http://www.landscapesforlife.org.uk).

<sup>40</sup> Campaign to Protect Rural England (2015). Give Peace a Chance. Available at: [Give Peace a Chance \(www.cpre.org.uk\)](http://www.cpre.org.uk).

<sup>41</sup> Campaign to Protect Rural England (2007). Map of Tranquillity. Available at: [Map of Tranquillity \(www.cpre.org.uk\)](http://www.cpre.org.uk).

<sup>42</sup> Routes (2022). Norwich Airport, About the Airport. Available at: [About the Airport \(www.routesonline.com\)](http://www.routesonline.com).

<sup>43</sup> BCP (2022). Norwich Airport – Handy Information About the Airport. Available at: [Norwich Airport \(www.parkbcp.co.uk\)](http://www.parkbcp.co.uk).

<sup>44</sup> London Stansted Airport [Facts and figures | London Stansted Airport](http://www.londonstanstedairport.com)

<sup>45</sup> Network Rail (2018) East Coast Main Line. Available at: [East Coast Main Line \(www.networkrail.co.uk\)](http://www.networkrail.co.uk).

<sup>46</sup> Highways England (2022). East. Available at: [East \(www.nationalhighways.co.uk\)](http://www.nationalhighways.co.uk).

<sup>47</sup> Port of Felixstowe (2022). Available at: [The Port of Felixstowe \(www.portoffelixstowe.co.uk\)](http://www.portoffelixstowe.co.uk).

<sup>48</sup> Defra (2023). Statistics on waste managed by local authorities in England in 2018/19.

included within the United Kingdom's National Ecosystem Assessment (UK NEA<sup>49</sup>). The UK NEA reports, first published in 2011 with follow-on reports published in 2014, set out the direct relationships between healthy, functioning ecosystems and human well-being and economic prosperity. The findings, which included extensive research from hundreds of natural scientists, economists, social scientists and other stakeholders, explained that many of the UK's ecosystems are in a state of decline, and that it is critically important for decision-making processes to recognise the benefits that society receives from those ecosystems.

2.11.2 Anthropogenic pressures associated with land use change, such as agricultural intensification and population growth, threaten the functioning of those ecosystems, with the report citing a significant decline in the UK's semi-natural grasslands in the last 60 years due to agricultural activity. There is a similar decline in coastal margin habitats due to development and coastal squeeze. It is an imperative for assessment processes to recognise the current state and benefits human well-being derived from its ecosystems. It is also important to recognise that the Anglian Water region contains several key abiotic stocks<sup>50</sup> including fertile soils and coastal shelves, which also directly benefit society.

2.11.3 The land cover percentages for Natural Capital stocks within the Anglian Water region have been estimated using open-source data<sup>51</sup> and are provided below (Sections 2.11.4 to 2.11.11).

#### Soils and geology

2.11.4 The Anglian Water region contains nationally important stocks of soils. Detailed information on these soil stocks is provided in Section 2.4 and within Map A.5 in Appendix A.

#### Freshwater

2.11.5 Freshwater natural capital stocks encompass all water bodies and wetlands such as rivers, ponds, fens, marshes and bogs. Within the Anglian Water region, artificial freshwater habitats such as canals and reservoirs are also an important natural capital stock. These natural capital stocks are vital to support the region's biodiversity and provide other ecosystem services such as water supply, climate regulation and cultural services.

#### Farmland

2.11.6 Farmland natural capital stocks include agriculture, with cereal and livestock grazing being the most predominant type of farming. Examples of types of farmland stocks include arable and rotational leys, horticulture, improved grassland, orchards and top fruit and permanent pasture. In addition to the primary production of agricultural products, farmland provides many other services such as supporting biodiversity and providing cultural and heritage services.

#### Grasslands

2.11.7 Grassland natural capital stocks include predominately semi natural grasslands. These habitats provide key services supporting biodiversity, sequestering carbon and mitigating climate change and livestock production. In addition, this stock is associated with recreation and physical benefits.

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<sup>49</sup> UK National Ecosystem Assessment (2022). Understanding Nature's Value to Society. Available at: [Understanding Nature's Value to Society \(www.uknea.unep-wcmc.org\)](http://www.uknea.unep-wcmc.org).

<sup>50</sup> Abiotic stocks refer to things within the environment that are not living ([ABIOTIC | English meaning - Cambridge Dictionary](https://www.cambridge.org/core/dictionary/entries/abiotic))

<sup>51</sup> Natural Environment Valuation Online tool (NEVO) (2022). Welcome to NEVO. Available at: [Welcome to NEVO \(www.leep.exeter.ac.uk\)](http://www.leep.exeter.ac.uk).

## Urban

- 2.11.8 Urban natural capital stocks includes greenspace<sup>52</sup>, blue space<sup>53</sup> and mosaic habitats<sup>54</sup> within urban areas. These natural capital stocks provide a wide range of ecosystem services supporting a diverse array of plants and animals and can be particularly important for pollination services. Amenity greenspaces (parks, outdoor sports facilities) are vital for community cohesion, and the mental and physical health of urban residents.

## Woodland

- 2.11.9 Woodland natural capital stocks consist of several sub habitat types including broadleaved, mixed and yew woodland, coniferous woodland, Individual trees/veteran trees and woodland priority habitats. The quality of woodland stocks vary within the region as the majority is under management, however several high-quality stocks include ancient woodland. These stocks provide services such as carbon sequestration, air purification and flood prevention.

## Coastal and marine

- 2.11.10 Coastal and marine habitats cover a small proportion of the land cover within the Anglian Water region however include several key habitats and natural capital stocks such as:
- Beach
  - Salt marsh
  - Sand dunes
  - Intertidal rock
  - Intertidal sediment
  - Reefs
  - Sea grass beds
  - Shallow subtidal sediment.
- 2.11.11 These stocks support a range of services including reaction, cultural service, hazard prevention and climate regulation.

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<sup>52</sup> Greenspace habitats refer to any green space that has a specific function in its use ([UK natural capital - Office for National Statistics \(ons.gov.uk\)](#))

<sup>53</sup> Blue space habitats refer to outdoor environments—either natural or manmade—that prominently feature water and are accessible to people ([Blue space - the final frontier - Creating a better place \(blog.gov.uk\)](#))

<sup>54</sup> Mosaic habitats are defined as an area where a range of contiguous plant community types occur in transition with one another ([Open mosaic habitats on previously developed land \(UK BAP Priority Habitat description\) \(jncc.gov.uk\)](#))

## 3 Future Baseline

### 3.1 Key Trends

3.1.1 The SEA Regulations requires that “the relevant aspects of the current state of the environment and the likely evolution thereof without implementation of the Plan or Programme” is identified. Prediction of future trends is difficult because they depend on a wide range of global, national and regional factors and decision making. Key trends have been identified and from an initial review it is likely that the following trends will continue:

- **Biodiversity, flora and fauna** – The Anglian Water region contains numerous sites designated and managed for their biodiversity values. This includes SACs and SPAs in the UK’s national site network (NSN) (previously part of the Natura 2000 network under the EU Habitats<sup>55</sup> and Birds<sup>56</sup> Directives), Ramsar sites (Wetlands of International Importance), SSSIs, NNRs and LNRs. MPAs and MCZs are also present along the coast of areas covered by the Anglian Water region. England’s wildlife habitats have become increasingly fragmented and isolated, leading to declines in the provision of some ecosystem services, and losses to species populations. Lawton (2010) recognises that future climate change, demographic change, economic growth, new technologies, societal preferences and changes in policy and regulatory environments may all have profound consequences<sup>57</sup>. However, new legislation such as the Environment Act (2021) will continue to protect biodiversity as it provides a framework for a legally binding target of net gain within the planning system and Anglian Water have committed to achieving a voluntary 10% net gain on all AMP8 projects.
- **Water** – Anglian Water operates in the driest region of the UK, in areas classed as experiencing serious water stress. Local population growth, agriculture, and industry are expected to continue driving increases in demand, while climate change will pose challenges for the already limited supply. The water bodies in the Anglian Water region range from ephemeral chalk streams and aquifers to lowland fens and coastal marshes. They support a rich diversity of habitats and species some of which are of national and global significance. This increases the importance of good water resources management in the region. Key issues reported as affecting the ecological status of the region’s water bodies include physical modifications, pollution from wastewater, and pollution from rural areas, among others and these are expected to continue in the future. Projected economic and population growth will likely place further pressure on the region’s water resources and water dependent environments. Water quality is likely to continue to be maintained and improved through legislation such as the WFD. There is potential for an increased need for wastewater treatments as a result of WFD water quality standards combined with population increase. Climate change is projected to result in more extreme weather events, potentially causing or exacerbating periods of drought which alongside population and economic growth will impact water availability.
- **Flood risk** – Within the Anglian Water region there is a risk of flooding from various sources, including coastal waters, surface water, groundwater, and reservoirs. Climate change is

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<sup>55</sup> The Council of the European Communities (1992). Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora. *Official Journal of the European Communities*. Available at: [The Habitats Directive - Environment - European Commission \(europa.eu\)](#).

<sup>56</sup> The European Parliament and the Council of the European Union (2009). Directive 2009/147/EC of the European Parliament and of the Council of 30 November 2009 on the conservation of wild birds. *Official Journal of the European Union*. Available at: [EUR-Lex - 32009L0147 - EN - EUR-Lex \(europa.eu\)](#).

<sup>57</sup> Making Space for Nature: A Review of England’s Wildlife Sites and Ecological Network, Lawton (2010): [2010Lawtonreport \(1\).pdf \(scambs.gov.uk\)](#)

expected to cause flood risk to increase, due to more frequent extreme weather events and sea level rise. Much of the land mass in the Anglian Water region already lies below sea level and development could increase flood risk in the region.

- **Soil** – Much of the soil in the Anglian Water region is derived from silt and peat deposits, making it highly fertile. Agriculture is the predominant land use, with extensive growing of arable crops such as cereals, rapeseed and potatoes, and also significant presence of livestock grazing which is anticipated to continue in the future. The agricultural land classification of the region is mostly Grade 2 (Very Good Quality) and Grade 3 (Moderate Quality), with significant areas of Grade 1 (Excellent Quality). The soil in some areas is contaminated by urban development, derelict brownfield sites, and landfill sites. As the population increases it is likely that more brownfield land will be remediated and developed. There is potential for a loss of agricultural land through development pressures.
- **Air** – Air quality in the region is generally good. There are some, relatively small, declared Air Quality Management Areas (AQMAs) where national air quality objectives are not being met. Motor vehicles are the main source of air pollutants, particularly in areas that experience heavy traffic. Agriculture can also contribute to local air quality issues originating from housed livestock and the spreading of slurries and manures. New development, economic growth and tourism may lead to increased car journeys and congestion within the area leading to localised air quality effects. Public transport improvements, national air quality targets and emissions standards for new vehicles should contribute to reducing future air quality impacts from motor vehicles.
- **Climatic factors** – Like the rest of the UK, the east of England (which includes the Anglian Water region) is expected to experience warmer temperatures under climate change, particularly in the summer months. Annual precipitation is expected to decrease overall, with a small increase in winter but a larger decrease in summer. These climate changes will exacerbate water stress in the Anglian Water region. Extreme weather events are also predicted to occur more frequently as a result of climate change, increasing water-related risks such as flooding and drought.
- **Population, human health and economy** – Human settlements in the Anglian Water region are comprised of a few large cities with many smaller towns, villages, and hamlets. The distribution of age among the population is similar to the UK average, and ethnicity is predominately White British with larger proportions of ethnic minorities in urban areas. Public health in Eastern England is generally considered better than the UK average, reflected through various indicators including life expectancy. As with the rest of the UK, the service sector dominates employment. Economic deprivation is considered low across most of the region, but with some small areas where it is higher. Water available for consumptive use may be affected by climate change whereby access to water is limited through more frequent droughts or floods. Population is projected to increase in the region and life expectancy is also higher than the nation average meaning that the numbers of elderly residents are likely to increase. As such, water demand will increase, and further pressure will be placed on water resources within the region.
- **Historic environment** – The Anglian Water region has a rich cultural heritage, reflected through numerous designated heritage assets including listed buildings, scheduled monuments, conservation areas, registered parks and gardens, and registered battlefields. There is also potential for currently unidentified heritage assets and archaeological remains to be present within the region. Historic England recently reported that heritage assets at risk are decreasing. There are now 87 fewer heritage assets at risks than in 2018 with successes in buildings and structures and archaeology. Historic assets will likely continue to be protected through UK legislation. Development could put pressure on heritage assets and their setting.
- **Landscape** – The landscape in the Anglian Water region is comprised of lowlands, small hills and a long stretch of coastline. Agriculture dominates the landscape in rural areas. The

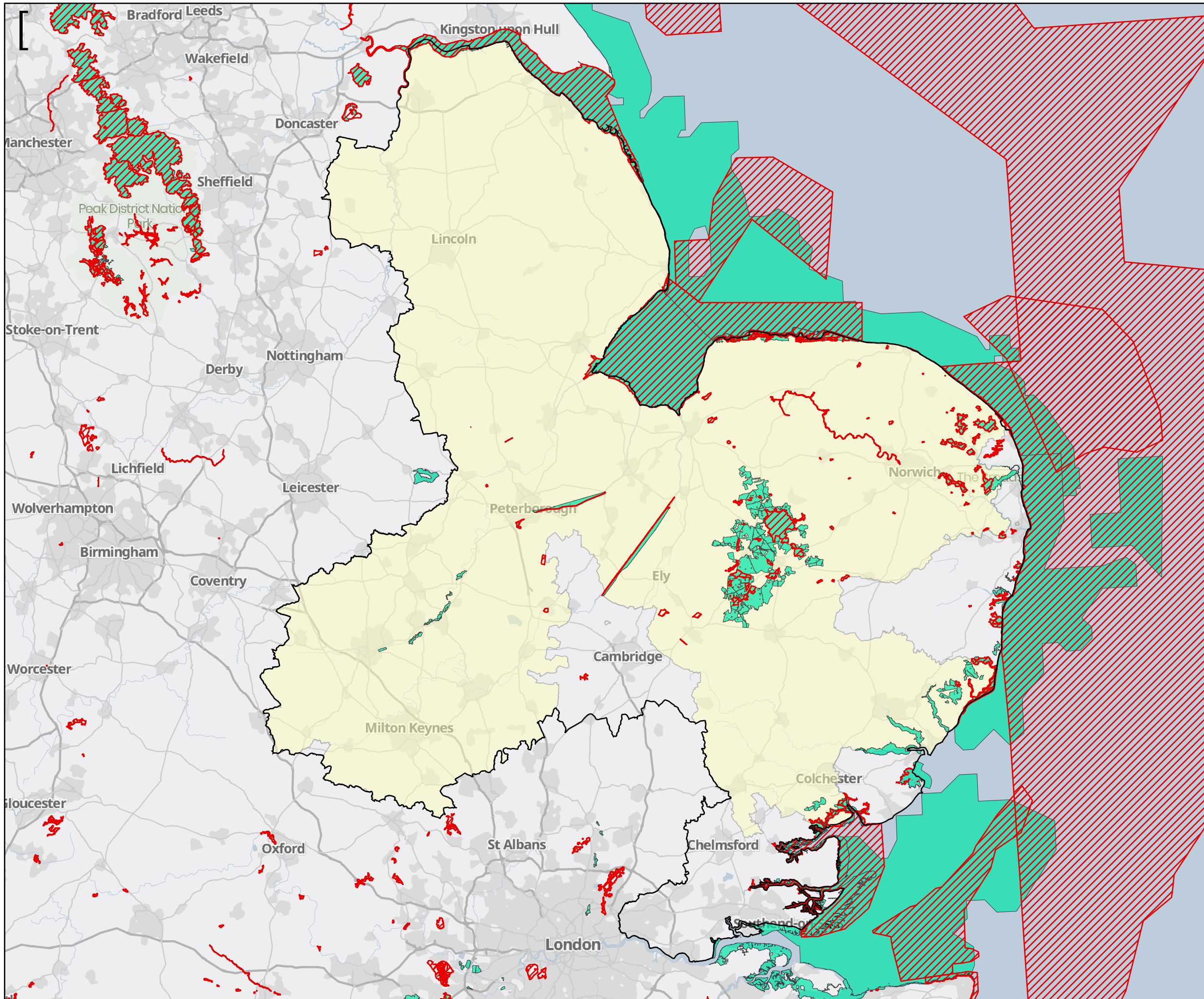
Broads National Park partially overlaps with the Anglian Water region. The Anglian Water region also contains large Areas of Outstanding Natural Beauty such as the Lincolnshire Wolds and Norfolk Coast. Changing and continued development could affect the quality and character of landscapes.

- **Material assets** – Significant transport infrastructure in the Anglian Water region includes Norwich International Airport, the East Coast Main Line railway and M1 motorway which pass through the region. Several other main trunk routes and major roads are also present. The major port of Felixstowe is located just outside the Anglian Water region. In terms of resource use and waste, the recycling rate for Eastern England is the second highest of regions in England. Regeneration and future investment and demand are likely to increase the number and quality of material assets such as housing, transport infrastructure, waste facilities, and community facilities.
- **Natural capital** – The Anglian Water region contains all eight of the broad habitat types included within the UK's National Ecosystem Assessment (NEA). These stocks of natural capital support a broad range of ecosystem services, providing benefits to society such as hazard prevention, climate regulation and opportunities for recreation, among others. Changing and continued development could affect the quality and quantity of these natural capital stocks.



# A. Drawing Pack

- A.1 Designated Sites (SAC and SPA)
- A.2 Designated Sites (SSSI and Ramsar)
- A.3 Designated Sites (LNR and NNR)
- A.4 Designated Sites (MPA and MCZ)
- A.5 Main Rivers and Agricultural Land Classification
- A.6 Heritage Assets
- A.7 AONB



**Key to Symbols**

- WRE area
- Anglian Catchment Area
- Special Area of Conservation (SAC)
- Special Protection Area (SPA)

**Notes**

The Anglian catchment also includes Hartlepool, this is not shown in this map set as no options are occurring in that area.

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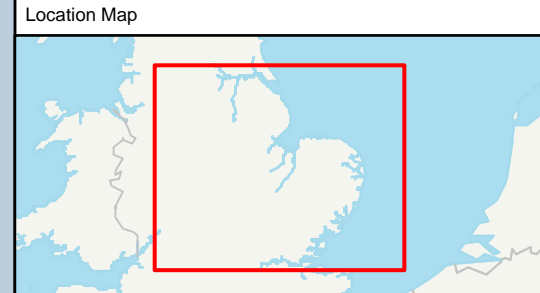
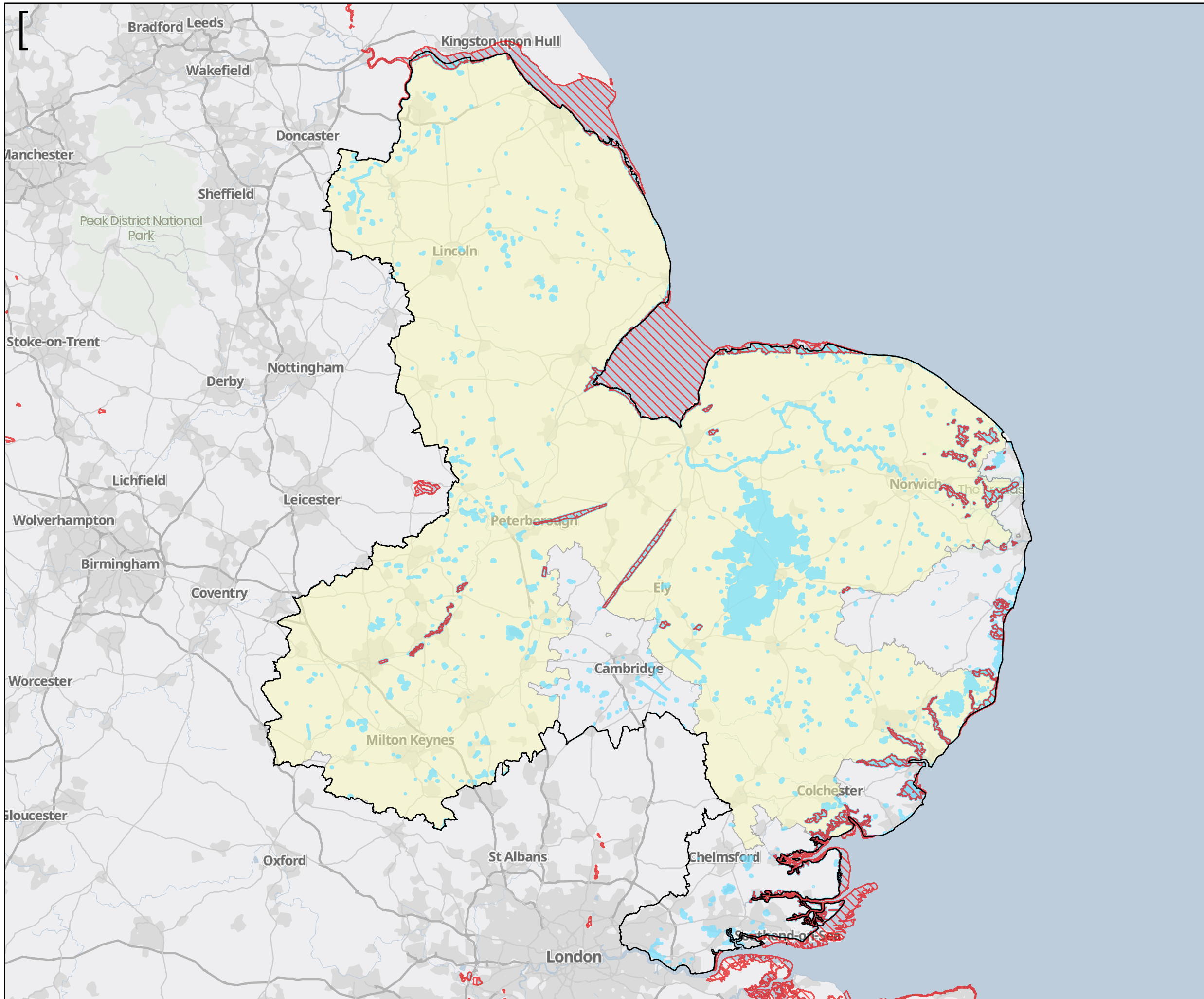


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 WRMP24  
 Designated Sites (SAC and SPA)

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Scale at A3  
 1:1,000,000

Figure A.1



**Key to Symbols**

- WRE area
- Anglian Catchment Area
- Ramsar
- Site of Special Scientific Interest (SSSI)

**Notes**

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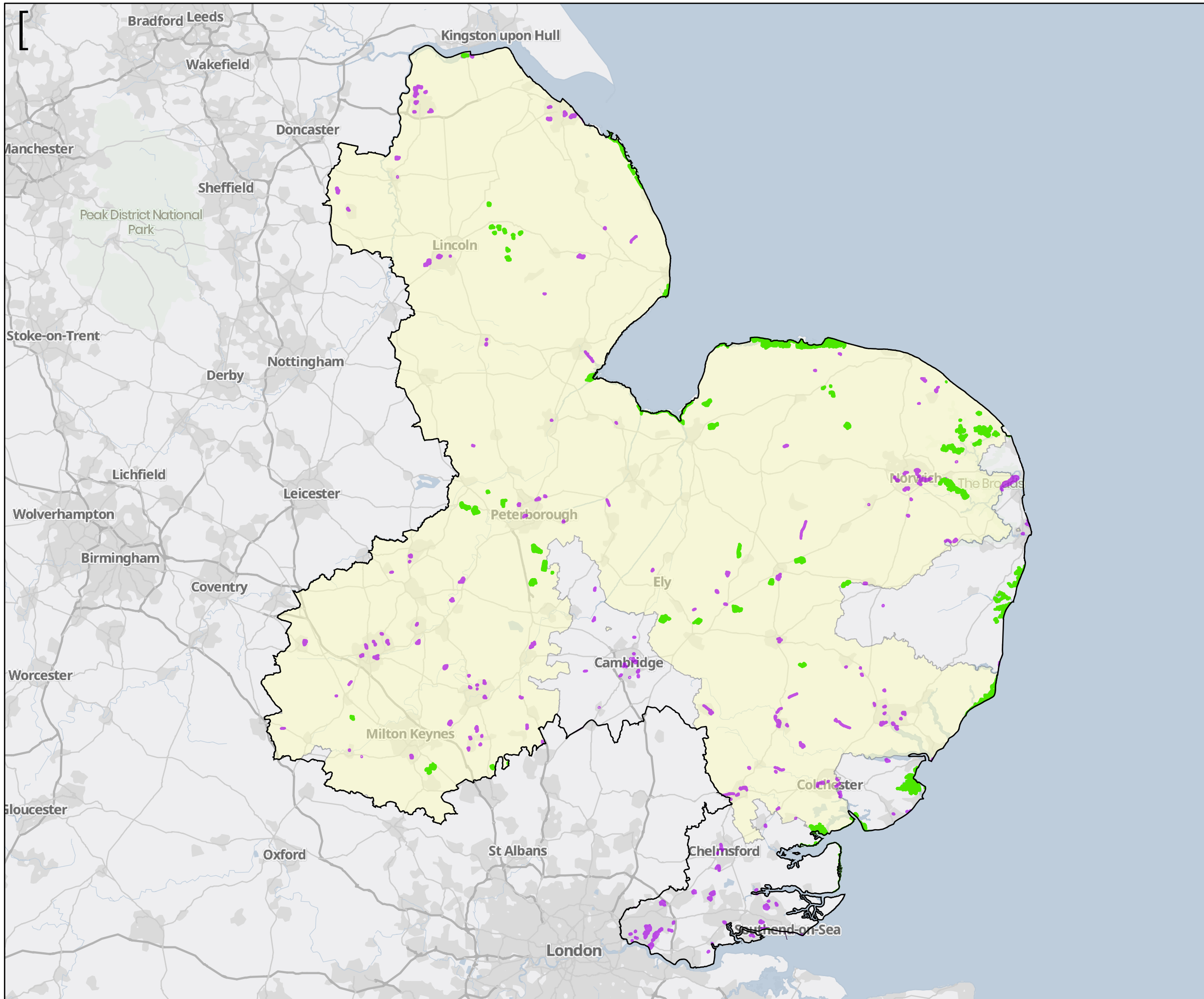
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**Key to Symbols**

- WRE area
- Anglian Catchment Area
- Local Nature Reserve (LNR)
- National Nature Reserve (NNR)

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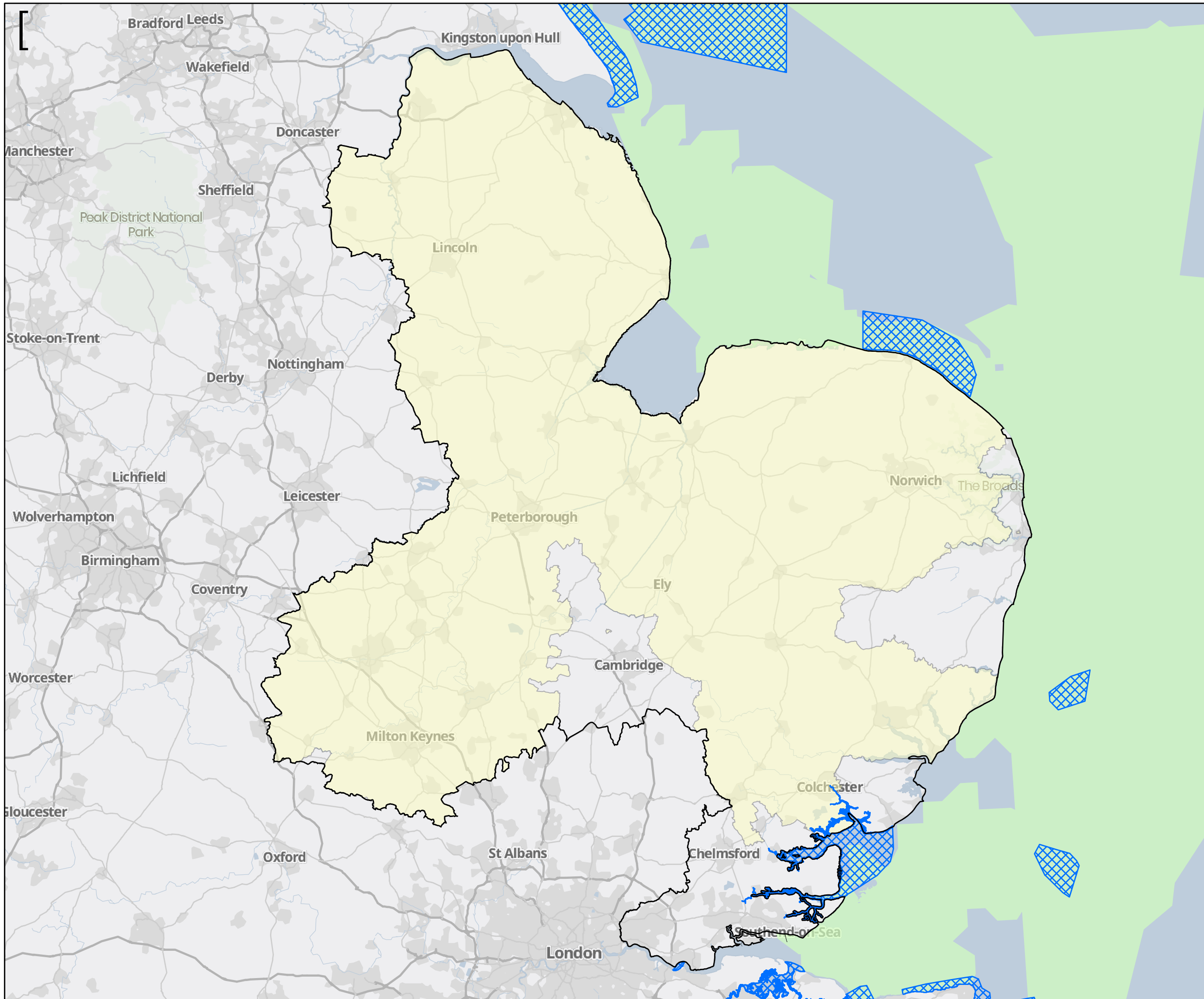
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Figure A.3

C:\Users\DON101710\Mott MacDonald\100421065 AWS AMP7 Water Resources fwk - GIS\03\_Map Composition\AWS\_WRMP24\_Environmental\AWS\_WRMP24\_Environmental.aprx\Figure A.3- National Nature Reserves and Local Nature Reserves



**Key to Symbols**

- WRE area
- Anglian Catchment Area
- Marine Conservation Zone
- Offshore Marine Protection Area

**Notes**

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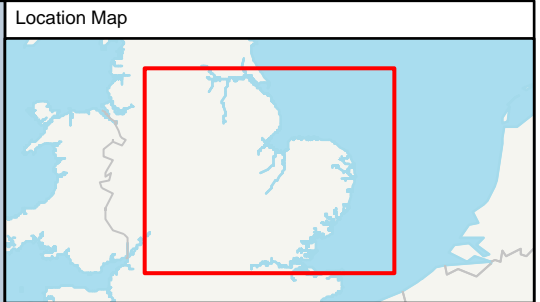
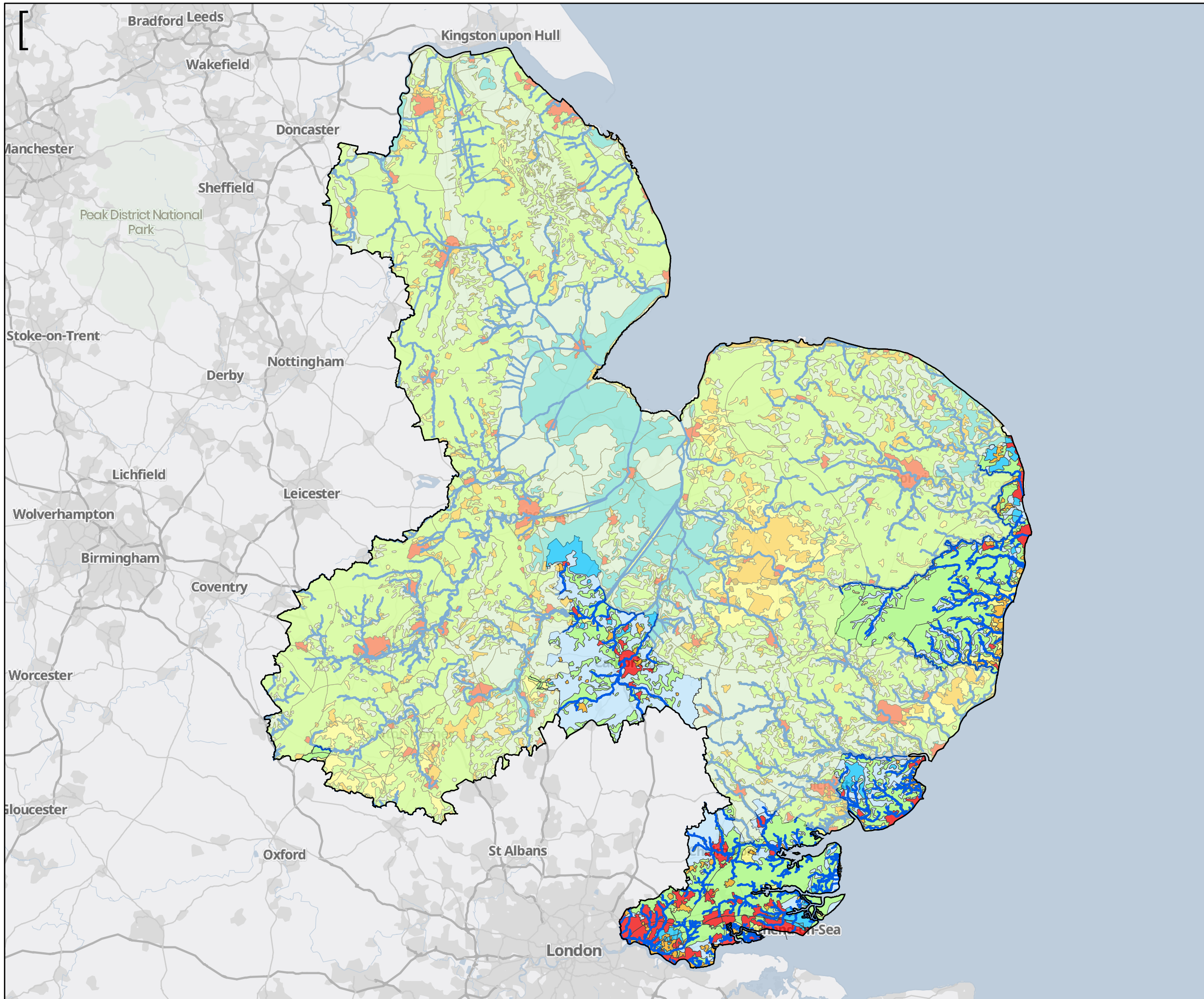
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**Key to Symbols**

- WRE area
- Anglian Catchment Area
- Main river

**Provisional Agricultural Land Classification (ALC)**

- Grade 1
- Grade 2
- Grade 3
- Grade 4
- Grade 5
- Non agricultural
- Urban

**Notes**

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Anglian Water  
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 Main Rivers and Agricultural Land Classification

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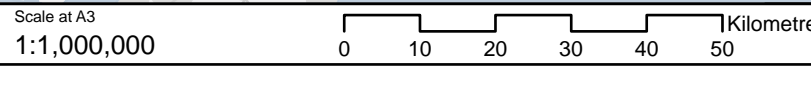
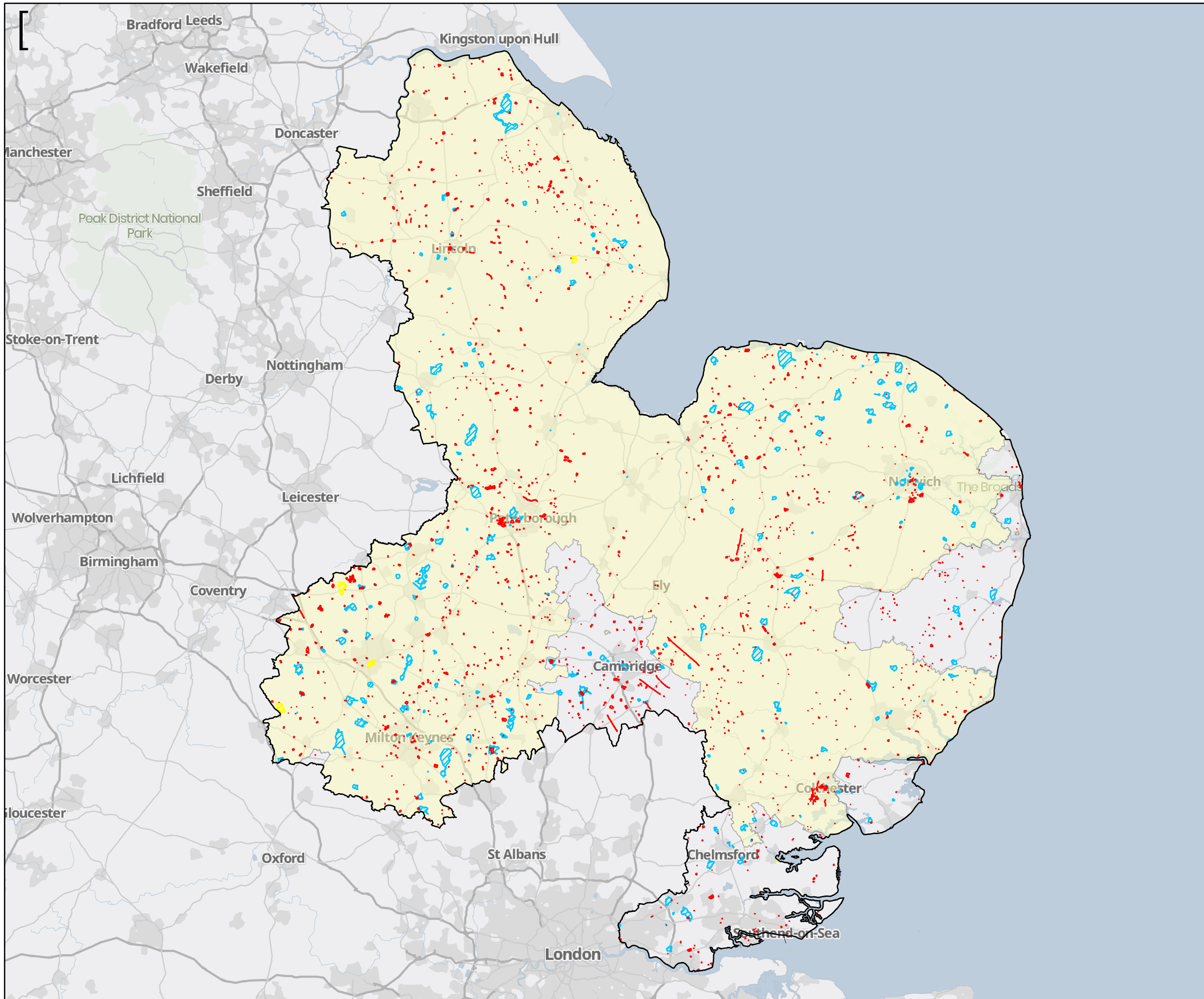


Figure A.5



**Key to Symbols**

- WRE area
- Anglian Catchment Area
- Registered park and garden
- Scheduled monument
- Registered battlefield
- Conservation area (Indicative only)

**Notes**

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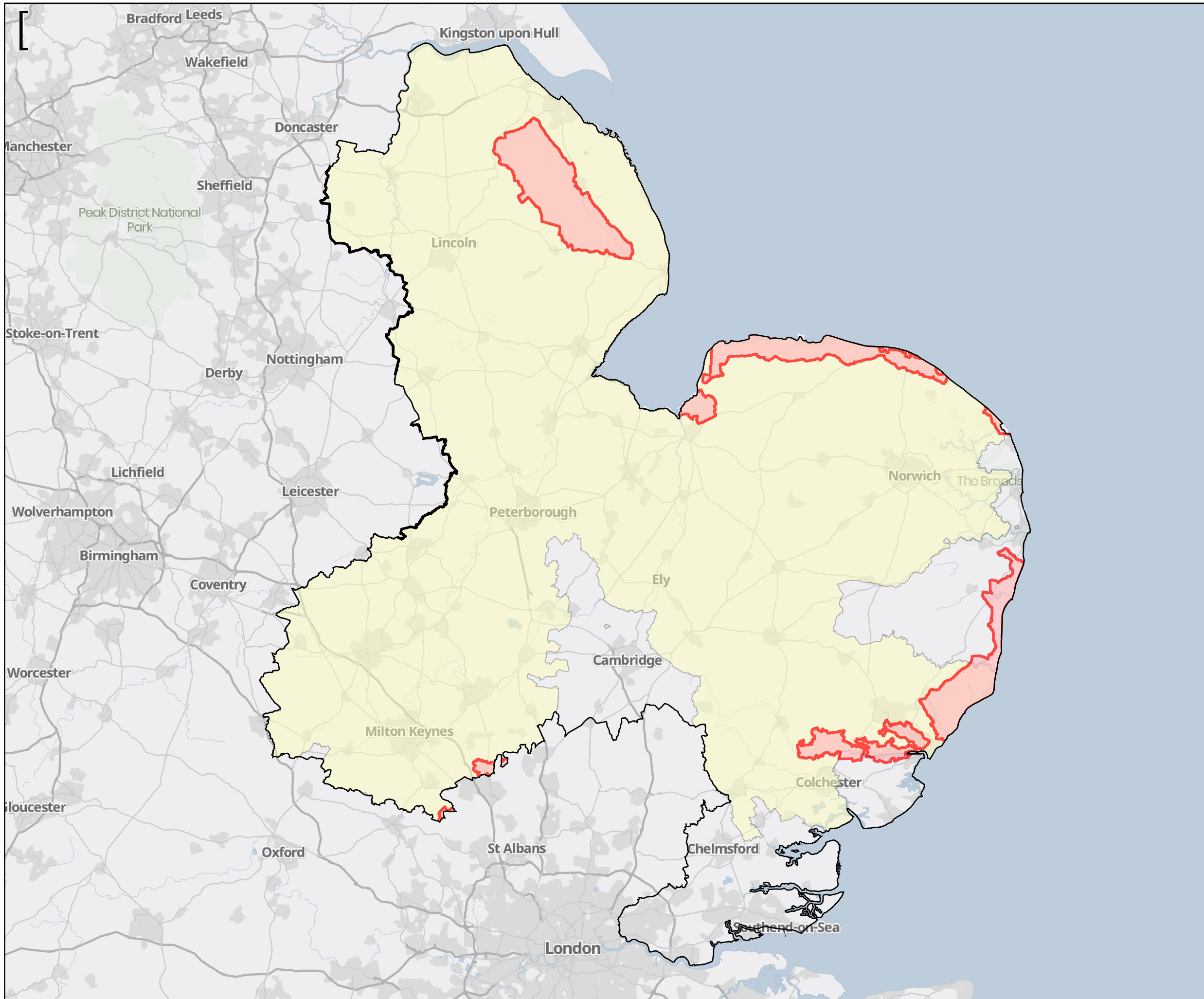
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**Key to Symbols**

- WRE area
- Anglian Catchment Area
- Area of Outstanding Natural Beauty

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Figure A.7



