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# Volume 3, Appendix 21.1: Onshore Ecology Desk Study

**Outer Dowsing Offshore Wind Environmental Statement** 

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## **Revision Record**

Revision	Date	Prepared By	Checked By	Authorised By
1.0	March 2024	SLR	GoBe	ODOW

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# **Acronyms and Terminology**

## **Acronyms**

Acronyms and Abbreviations	Description
BAP	Biodiversity Action Plan
ВСТ	Bat Conservation Trust
BSBI	Botanical Society of Britain and Ireland
DCO	Development Consent Order
EA	Environment Agency
ECC	Export Cable Corridor (offshore ECC or indicative onshore ECC)
EIA	Environmental Impact Assessment
ES	Environmental Statement
ETG	Expert Topic Group
GCN	Great Crested Newt
GLNP	Greater Lincolnshire Nature Partnership
IPA	Important Plant Area
IRZ	Impact Risk Zone
JNCC	Joint Nature Conservation Committee
LCC	Lincolnshire County Council
LNR	Local Nature Reserve
LWS	Local Wildlife Site
LWT	Lincolnshire Wildlife Trust
MAGIC	Multi-Agency Geographical Information for the Countryside
NERC	Natural Environment and Rural Communities
NGSS	National Grid Sub-Station
NNR	National Nature Reserve
NSIP	Nationally Significant Infrastructure Project
ODOW	Outer Dowsing Wind
OnSS	Onshore Substation
PEIR	Preliminary Environmental Information Report
ROW	
RSPB	Royal Society for the Protection of Birds
SAC	Special Area of Conservation
SPA	Special Protection Area
SSSI	Site of Special Scientific Interest



# **Terminology**

Term	Definition		
400kV cables	High voltage cables linking the OnSS to the NGSS.		
400kV cable corridor	The 400kV cable corridor is the area within which the 400kV cables connecting the onshore substation to the NGSS will be situated.		
The Applicant	GT R4 Ltd. The Applicant making the application for a DCO.		
	The Applicant is GT R4 Limited (a joint venture between Corio Generation, Total Energies and Gulf Energy Development (GULF)), trading as Outer Dowsing Offshore Wind. The Project is being developed by Corio Generation (a wholly owned Green Investment Group portfolio company), Total Energies and GULF.		
Baseline	The status of the environment at the time of assessment without the development in place.		
Development Consent Order (DCO)	An order made under the Planning Act 2008 granting development consent for a Nationally Significant Infrastructure Project (NSIP).		
Effect	Term used to express the consequence of an impact. The significance of an effect is determined by correlating the magnitude of the impact with the sensitivity of the receptor, in accordance with defined significance criteria.		
Environmental Impact Assessment (EIA)	A statutory process by which certain planned projects must be assessed before a formal decision to proceed can be made. It involves the collection and consideration of environmental information, which fulfils the assessment requirements of the EIA Regulations, including the publication of an Environmental Statement (ES).		
Environmental Statement (ES)	The suite of documents that detail the processes and results of the EIA.		
Export cables	High voltage cables which transmit power from the Offshore Substations (OSS) to the Onshore Substation (OnSS) via an Offshore Reactive Compensation Platform (ORCP) if required, which may include one or more auxiliary cables (normally fibre optic cables).		
Impact	An impact to the receiving environment is defined as any change to its baseline condition, either adverse or beneficial.		
Intertidal	The area between Mean High Water Springs (MHWS) and Mean Low Water Springs (MLWS).		
Landfall	The location at the land-sea interface where the offshore export cables and fibre optic cables will come ashore.		
National Grid Onshore Substation (NGSS)	The National Grid substation and associated enabling works to be developed by the National Grid Electricity Transmission (NGET) into which the Project's 400kV Cables would connect.		
Onshore Export Cable Corridor (ECC)	The Onshore Export Cable Corridor (Onshore ECC) is the area within which, the export cables running from the landfall to the onshore substation will be situated.		
Onshore Infrastructure	The combined name for all onshore infrastructure associated with the Project from landfall to grid connection.		
Onshore substation (OnSS)	The Project's onshore HVAC substation, containing electrical equipment, control buildings, lightning protection masts, communications masts, access, fencing and other associated equipment, structures or buildings; to enable connection to the National Grid.		



Order Limits	The area subject to the application for development consent, the limits shown on the works plans within which the Project may be carried out.
Outer Dowsing Offshore Wind (ODOW)	The Project.
Preliminary Environmental Information Report (PEIR)	The PEIR was written in the style of a draft Environmental Statement (ES).
Receptor	A distinct part of the environment on which effects could occur and can be the subject of specific assessments. Examples of receptors include species (or groups) of animals or plants, people (often categorised further such as 'residential' or those using areas for amenity or recreation), watercourses etc.
Study Area	Area(s) within which environmental impact may occur – to be defined on a receptor-by-receptor basis by the relevant technical specialist.
The Planning Inspectorate	The agency responsible for operating the planning process for Nationally Significant Infrastructure Projects (NSIPs).
The Project	Outer Dowsing Offshore Wind, an offshore wind generating station together with associated onshore and offshore infrastructure.



## 21.0 Onshore Ecology Desk Study

### 21.1 Introduction

- Outer Dowsing Offshore Wind (ODOW) is a Nationally Significant Infrastructure Project (NSIP). An Environmental Impact Assessment (EIA) is being undertaken, the findings of which are presented within this Environmental Statement (ES) which accompanies the Development Consent Order (DCO) application under the Planning Act 2008.
- 2. SLR Consulting was commissioned by GoBe Consultants Ltd, whom has been instructed by GT R4 Limited (trading as Outer Dowsing Offshore Wind) (the Applicant), to undertake a suite of ecological surveys of those relevant parts of the project site that may be affected by the construction, operation, and maintenance, and decommissioning of the onshore aspects of the Project.
- 3. This report presents the findings of the Ecology Desk Study and supports Volume 1, Chapter 21: Onshore Ecology (document reference 6.1.21).

## 21.2 The Project

- 1. The Project will include both offshore and onshore infrastructure including an offshore generating station (windfarm) located approximately 54km from the Lincolnshire coastline, export cables to landfall, onshore cables, an onshore substation, connection to the electricity transmission network, and ancillary and associated development (see Volume 1, Chapter 3: Project Description 6.1.3 (document reference 6.1.3) for full details).
- 2. The ES references the Project's 'Order Limits' which comprises the extent of the land for which the DCO application has been made. Onshore it reflects the landfall, the Onshore Export Cable Corridor (a typically80m wide corridor around a centre line totalling approximately 70km in length)the Onshore substation (OnSS), a 400kV cable corridor connecting the OnSS to the Connection Area (an indicative search zone for the National Grid substation (NGSS) in to which the project will ultimately connect.
- 3. Due to the linear footprint of the Project, the Survey Area for some receptors is relatively large-scale, therefore to assist with the interpretation and explanation of associated data, the Order Limits have been split into segments. The extent of these segments has been



aligned with key geographical features such as roads or rivers which cross the Order Limits.

4. The segments for the Onshore Order limits are shown in Table 21.1 below.

**Table 21.1:Onshore Order Limits Segment Names** 

Segment Name				
ECC 1: Landfall to A52 – Hogsthorpe				
ECC 2: A52 – Hogsthorpe to Marsh Lane				
ECC 3: Marsh Lane to A158 - Skegness Road				
ECC 4: A158 – Skegness Road to Low Road				
ECC 5: Low Road to Steeping River				
ECC 6: Steeping River to Fodder Dike Bank/Fen Bank				
ECC 7: Fodder Dike Bank/Fen Bank to Broadgate				
ECC 8: Broadgate to Ings Drove				
ECC 9: Ings Drove to Church End Lane				
ECC 10: Church End Lane to The Haven				
ECC 11: The Haven to Marsh Road				
ECC 12: Marsh Road to Fosdyke Bridge				
ECC 13: Fosdyke to Surfleet Marsh OnSS/Marsh Drove				
ECC 14: Surfleet Marsh OnSS/Marsh Drove to the Connection Area				

## 21.3 Purpose of this Report

- 4. The aim of this desk study is to identify important ecological features<sup>1</sup> such as designated sites, habitats, and species populations within the zone of influence<sup>2</sup> of the Project, and to gather information on such features, contributing to an understanding of the ecological baseline.
- This appendix does not present desk study data relating to onshore ornithology, which is
  presented separately with Volume 1, Chapter 22: Onshore Ornithology (document
  reference 6.1.22) and associated appendices.

<sup>&</sup>lt;sup>2</sup> Selected with reference to *Chapter 2*, *p22 Establishing Zones of Influence* of Guidelines for Ecological Impact Assessment (CIEEM, 2018)



<sup>&</sup>lt;sup>1</sup> Identified with reference to *Chapter 4: Important Ecological Features* of CIEEM (2018) Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine version 1.2. Chartered Institute of Ecology and Environmental Management, Winchester.

- 6. This appendix sets out the results of the desk study for the onshore Order Limits and surrounding habitats, and the nature conservation value of the area with the potential to be affected by the proposed development. The main purposes of the report are:
  - To describe the data collection and assessment methods used;
  - To summarise the results of the desk study; and,
  - To begin to identify potentially significant ecological constraints associated with the development.



## 21.4 Methodology

## 21.4.1 Changes in Response to Scoping Opinion

- 7. An EIA Scoping Report (ODOW, 2022a) was prepared and submitted to The Planning Inspectorate in July 2022. The Scoping Report presented the methods for and results of an initial desk study. In addition, the Scoping Report set out a proposed approach for further collation of biological records and local wildlife site data to be presented in the ES.
- The Scoping Opinion (Case Reference EN010130, The Planning Inspectorate 2022)
  provided by the Planning Inspectorate in response to the Scoping Report, contained
  comments from Natural England in relation to the study areas adopted for certain
  receptors.
- 9. In response to these comments, and related further discussions with the Onshore Ecology Expert Topic Group (ETG), the scoping methodology for the desk study was modified to that presented in this appendix. Modifications include:
  - The extension of the study area to include bat roosts within 5km in response to advice from Natural England as per Point 133 and Point 137 (in relation to bats) in the Scoping Opinion; and
  - Expansion of the data requested to include Local Wildlife Sites (LWS) and candidate LWS, as per Point 136 of Natural England response presented in the Scoping Opinion.
- 10. In addition, with regard to the onshore elements of the Project, Natural England specifically advised<sup>3</sup> that the ES should include a full impact assessment for the following sites; these have therefore been included in the desk study:
  - Flamborough Head Site of Special Scientific Interest (SSSI);
  - The Wash SSSI;
  - Gibraltar Point SSSI;

<sup>3</sup> p.8 of Natural England's email Scoping Response as provided in Appendix 2 of the Inspectorate Scoping Opinion (Case Reference EN010130, 2022).



- Chapel Point -Wolla Bank SSSI;
- Saltfleetby –Theddlethorpe Dunes SSSI;
- Humber Estuary SSSI; and,
- Sea Bank Clay Pits SSSI.
- 11. After submission of the Preliminary Environmental Information Report (PEIR) in May 2022, via the consultation process carried out in accordance with section 42 of the 2008 Act, an updated data search was requested from the Greater Lincolnshire Nature Partnership (GLNP) in August 2023, no additional comments were received relating to the desk study methodology.
- 12. It should be noted that desk study data relating to Special Areas of Protection (SPAs) and RAMSAR sites, and ornithological species are presented separately in Chapter 22 (document reference 6.1.21).

## 21.4.2 Study Areas and Desk Study Sources

- 13. The data search for statutory designated sites included all areas within and in a 15km radius of the Order Limits (onshore). The data search for priority habitats and protected species records included all areas within, and in a 2km radius of, the Order Limits.
- 14. Table 21.2 lists the data sources, the type of data requested and the study area for each ecological feature.



Table 21.2: Summary of Data Sources Relating to Ecology

Source	Summary	Spatial Coverage of study area	
Joint Nature Conservation Committee (JNCC)	Special Area of Conservation (SAC) details including qualifying interest features, conservation objectives, standard data forms.		
	SACs, possible SACs, and Impact Risk Zones (IRZs) for component SSSIs, spatial extent and citation.	Order Limits plus 15km buffer.	
	SSSIs and National Nature Reserves (NNR) and IRZs, spatial extent, and citation.		
	Local Nature Reserves (LNR), spatial extent.		
Multi-agency Geographic	Ancient Woodland Inventory, spatial extent.		
Information Centre (MAGIC) website and Natural England's	Priority Habitat Inventory for coastal grazing marsh, mudflat, reedbed, wetland, woodland and other habitats, type, and spatial extent.	Order Limits plus 2km buffer.	
datasets at data.gov.uk	Great Crested Newt (GCN) Pond Surveys 2017 – 2019, location of GCN breeding ponds.	Order Limits plus 2km buller.	
	GCN Survey Licence Returns, location of GCN breeding ponds.		
	Granted European Protected Species Licenses, location, and species.		
	Priority species layers.		
Greater Lincolnshire Nature Partnership (GLNP)	Protected and Notable Species Records location and date, and locally designated sites, location, and citation.	Order Limits plus 2km buffer, extended to 5km for bat records.	
Lincolnshire Wildlife Trust: Nature	Designated site and LNR details, including qualifying interest features.		
conservation from the Humber to the Wash (LWT)	LNR and LWS sites and site information.	Order Limits plus 2km buffer.	
Gov.uk: Natural England	Designated site and LNR details, including qualifying interest features.	Order Limits plus 2km buffer.	
Bat Conservation Trust (BCT)	Bat distribution map and records.	Order Limits plus 5km buffer.	
	Core Sustenance Zones.		
John Russ – Bat Calls of Britain and Europe	Bat distributions within the UK.		



Source	Summary	Spatial Coverage of study area
Woodland Trust Ancient Tree Inventory	Details of ancient and veteran trees, location, species, size.	Order Limits plus 2km buffer.
Lincolnshire Biodiversity Action Plan (BAP)	UK and local BAP habitats and species and their distribution within Lincolnshire	Order Limits plus 2km buffer.



#### 21.4.3 Limitations

- 15. A data set was obtained from the GLNP on 8<sup>th</sup> August 2023. Since then, minor amendments have been made to the Order Limits boundary in order to incorporate access routes to the ECC. In cases where the longer access routes intersect with the ECC, the outer perimeter of the 2km and 5km study areas are not included in the baseline data. The total area within the 2km and 5km study areas where desk study data is absent amounts to 841ha. However, considering the existing coverage of the data set and the comprehensive field survey data available, this is not considered to have a significant impact on the results.
- 16. Records at the same grid reference are provided as a single point within the figures. Due to the low resolution of some records, for example those that were provided for 1km², where such records overlapped the study area boundary it was not possible to determine if they originated from within or outside the study area. In such instances, professional judgment has been applied to determine if a suitable habitat is present within the Order Limits. For example, there is a record of grey seal (*Halichoerus grypus*) within inland fields inside the Order Limits, however the accuracy of the reference is only to within 1km, which includes the coastline, and so the record was more likely to have been made at the coastline and therefore outside of the onshore Order Limits. In instances such as these, the data has been included for completeness (e.g. Section 3.3.9: Marine Mammals).
- 17. The existing Ancient Woodland Inventory, from the 1980s, only includes areas of ancient woodland at least 0.5ha in area. The GLNP is contributing to the Ancient Woodland Inventory Update Project which will provide more up to date information and include pockets of ancient woodland smaller than 0.5ha. This will account for strips of ancient woodland along field margins. The Ancient Woodland Inventory Update Project is anticipated to be completed in 2024. Until that time, the existing Ancient Woodland Inventory will be relied upon, although the habitat surveys for the Project have considered whether small areas of ancient and semi-natural ancient woodland are present within the study area.
- 18. Desk study data is unlikely to be exhaustive, especially in respect of species, and is intended primarily to set a context for the study. It is therefore possible that important habitats or protected species not identified during the data search do in fact occur within the study area. Interpretation of maps and aerial photography has been conducted using



recent imagery, but it has not been possible to verify the accuracy of any statements relating to land use and habitat context outside of the areas that were subject to field survey.

### 21.5 Results

### 21.5.1 Designated Sites

## 21.5.1.1 Statutory Designations

19. There are two SACs, 15 SSSIs (excluding geological designations), three NNRs and one LNR within the onshore study area. Figure 21.1.1 illustrates the locations of the statutory designations. Summarised descriptions are outlined in Table 21.3 and listed in order of their nearest segment and then by distance from the nearest Order Limits boundary. The descriptions contain excerpts from the statutory citations which are provided in Annex A.



**Table 21.3: Statutory Designated Sites** 

Site Name	Distance from the Order Limits (km)	Nearest Segment	Compass Direction	Area of Designation (ha/km)	Description*
Sea Bank Clay Pits SSSI	0	ECC 1: Landfall to A52 – Hogsthorpe	ENE	17ha	SSSI: 'A series of isolated flooded clay workings of varying size, depth and topography which now support uncommon aquatic plant community's characteristic of the slightly brackish, eutrophic (nutrient-rich) water in addition to extensive reedbeds and a rich marginal wetland flora. The pits are important for breeding, wintering and passage birds and support a rich aquatic invertebrate fauna, notably beetles, including several nationally scarce species and others new to the County. The water plant communities of the pits are characterised by fennel pondweed, lesser pondweed, horned pondweed, spiked water milfoil, algae of the genus Enteromorpha and two nationally scarce species: brackish water crowfoot and soft hornwort. Large colonies of common spotted orchid occur at Wolla Bank in marshy ground.'
Willoughby Branch Line LNR	4.9	ECC 1: Landfall to A52 – Hogsthorpe	W	5.00ha	Formed of a disused branch railway, the track has developed into a fine wildlife area with ashwood, hawthorn scrub and grassland supporting a varied flora, including abundant bird's-foot trefoil and restharrow, hemp-agrimony, spotted-orchid, twayblade, lady's bedstraw, yellow-wort and great burnet. Butterflies include common blue and several species of skippers and browns. Whitethroat, lesser whitethroat, blackcap, sedge warbler, redpoll and other finch species, and occasionally nightingale, nest in the reserve. Hips and haws attract fieldfares and redwings in winter, and barn owls frequently use the track for hunting.
Saltfleetby- Theddlethorpe Dunes SSSI	12.5	ECC 1: Landfall to A52 – Hogsthorpe	NNW	972ha	'This nationally important site includes flats, dunes, salt, and freshwater marsh which together support an exceptionally rich flora and fauna. There are outstanding assemblages of vascular wall, invertebrates and breeding birds and it is the most north-easterly breeding site in Britain for the Natterjack Toad. The rapid accretion of dunes and saltmarsh make this an important site for research into the processes of coastal development.
					The intertidal sands and muds provide extensive feeding and roosting grounds for wildfowl and waders including brent geese, shelduck and dunlin. Yellow wagtails breed on the saltmarsh and there is a small colony of little tern on the shingle bank. Diverse and successional saltmarsh and rich fen communities,



Site Name	Distance from the Order Limits (km)	Nearest Segment	Compass Direction	Area of Designation (ha/km)	Description*
					supporting a colony of orchids including southern and early marsh orchids ( <i>Dactylorhiza praetermissa</i> and <i>D. incarnata</i> ), pyramidal and bee orchids and rare plants such as needle spike rush ( <i>Eleocharis acicularis</i> ), divided sedge, marsh pea and greater water-parsnip. Invertebrates recorded include several notable moths and nationally rare species from the moth and beetle families. There are outstanding breeding densities of birds in the dune scrub, with whitethroat a major constituent. Also present are lesser whitethroat and long eared owl. The oldest areas of scrub now contain breeding blackcap ( <i>Sylvia atricapilla</i> ), garden warbler and nightingale.  Part of the site is also designated as Theddlethorpe Dunes and Gibraltar Point SAC.'
Lincolnshire Coronation Coast NNR	12.7	ECC 1: Landfall to A52 – Hogsthorpe	NNW	619ha	NNR: 'Site forms part of the Saltfleetby-Theddlethorpe Dunes SSSI, as well as part of the Humber Estuary SAC. It is an important reserve containing tidal sand and mudflats, salt and freshwater marshes and sand dunes. On the foreshore, accreting mud and silt flats and saltmarsh in the north give way to a narrower sandy beach at the southern end.'
Calceby Marsh SSSI	13.4	ECC 1: Landfall to A52 – Hogsthorpe	W	10.8ha	'Calceby Marsh is of national importance as an outstanding example of a base-rich marsh. This habitat type typically follows the distribution of calcareous springlines, and streams, in this case Calceby Beck, a Lincolnshire Wolds chalk stream. Such areas of base-rich marsh are becoming increasingly scarce in the county, as elsewhere in England, through the effects of drainage and other agricultural improvements. The site consists of 3 areas of marshland, each differing slightly in its species composition, surrounded by tussocky neutral grassland which is of value to breeding snipe and lapwing.  The site is one of the few stations in the county, outside the Cambridgeshire Fens, where the marsh moth occurs.'
Swaby Valley SSSI	14.2	ECC 1: Landfall to A52 – Hogsthorpe	W	3.5ha	'A glacial overflow valley supporting two habitats now scarce in Lincolnshire – floristically diverse, lime-rich marsh and unimproved chalk turf. The marsh borders a stream bisecting the valley floor and the interest of the grassland is increased by the terraced nature of the slopes.



Site Name	Distance from the Order Limits (km)	Nearest Segment	Compass Direction	Area of Designation (ha/km)	Description*
					The wet conditions favour orchids and the marsh arrowgrass ( <i>Triglochin palustris</i> ). The sheltered conditions on the site attract 15 species of butterfly.'
Willoughby Meadow SSSI	5.5	ECC 2: A52 – Hogsthorpe to Marsh Lane	W	0.52ha	'This meadow is the best example of the permanent unimproved neutral grassland once common over Lincolnshire Middle Marsh boulder clay. Well over one hundred species have been recorded from its small acreage. Surrounded by hedgerows, this field is still managed by the traditional means of taking a hay crop followed by grazing. Two small ponds are located at the field's edge.'
Willoughby Wood SSSI	6.3	ECC 2: A52 – Hogsthorpe to Marsh Lane	W	23.4ha	'A representative of the series of ancient woodlands found on the middle Marsh Boulder Clay on the edge of the Lincolnshire Wolds. It is predominantly oak-ash and hazel, managed as coppice with standards. This supports a characteristic and rich ground flora. The site is notable for its breeding birds.'
Candlesby Hill SSSI	6.6	ECC 2: A52 – Hogsthorpe to Marsh Lane	WSW	1.81ha	'One of the best remnants of the once extensive chalk grasslands of the South- east Lincolnshire Wolds. Together with surrounding scrub and broad-leaved woodland, the site provides an excellent example of the sequence of change to a mature system.'
Hoplands Wood SSSI	6.6	ECC 2: A52 – Hogsthorpe to Marsh Lane	W	14.4ha	'Situated on the northern side of a shallow valley on the poorly draining boulder clay of the Lincolnshire Middle Marsh, Hoplands Wood is one of the best remaining examples of oak/ash ancient woodland in north Lincolnshire. It is characterised by a local abundance of alder and a mosaic of tree species perpetuated by a long history of woodland management promoting both high forest and coppice-with-standards. This favours a rich and varied ground flora and breeding bird community.'
Skendleby Psalter Banks SSSI	8.4	ECC 2: A52 – Hogsthorpe to Marsh Lane	W	1.0ha	'The species-rich unimproved grasslands of Skendleby Psalter Banks represent one of the best examples of a habitat now rare and fragmented in Lincolnshire. The abundance of plants restricted to these steep north-facing slopes of a dry valley cut into the eastern Wolds by glacial meltwaters is maintained by traditional management of sheep grazing.'



Site Name	Distance from the Order Limits (km)	Nearest Segment	Compass Direction	Area of Designation (ha/km)	Description*
Bratoft Meadows SSSI	2.8	ECC 4: A158  - Skegness Road to Low Road	W	2.2ha	SSSI: 'The best example of species rich neutral grassland in North Lincolnshire. One of the remaining areas of permanent grassland not dominated by plants associated with chalk and limestone. Two adjacent fields which border the Cowcroft drain are divided by a high hedge of hawthorn with fine specimens of pollarded crack willow. Both are managed as hay meadows and are grazed after cutting. They are dominated by sweet vernal grass, red fescue, meadow fescue and creeping bent, and a rich sward includes betony, dyer's greenweed, cowslip, adder's tongue fern and saw-wort. Wetter areas have cuckooflower and ragged robin. The southern field has abundant greenwinged orchid. A third field separated from the others by a narrow strip of improved pasture is dominated by the same grasses as the other meadows and, like them includes yellow rattle, great burnet and devil's-bit scabious. It is cut for hay.  The site as a whole attracts large numbers of butterflies, and 18 species of terrestrial mollusc are recorded.'
Saltfleetby- Theddlethorpe Dunes & Gibraltar Point SAC	4.1	ECC 5: Low Road to Steeping River	ESE	968ha	'Important habitats include saltmarshes, salt pastures, salt steppes, coastal sand dunes, sand beaches, machair, bogs, marshes, water fringed vegetation and fens. Annex 1 habitats that are the primary reason for designation include:  • Fixed coastal dunes with herbaceous vegetation  • Dunes with sea buckthorn  • Humid dune slacks  • Embryonic shifting dunes (a qualifying features though not a primary reason for designation).'
Gibraltar Point SSSI	4.1	ECC 5: Low Road to Steeping River	ESE	581ha	SSSI: 'The SSSI is managed by the Lincolnshire and South Humberside Trust for Nature Conservation. Designated for its sand dunes, saltmarsh, freshwater marsh, and associated fauna. Invertebrates include Lepidoptera, Diptera and Coleoptera, including 12 species which are nationally rare. Breeding birds include mallard, shelduck, ringed plover, little tern, oystercatcher, and redshank. Passage and wintering birds of internationally important numbers



Site Name	Distance from the Order Limits (km)	Nearest Segment	Compass Direction	Area of Designation (ha/km)	Description*
					include oystercatcher, grey plover, knot, sanderling and bar-tailed godwit and the area is of national importance for its numbers of little ringed plover.'
Gibraltar Point NNR	4.3	ECC 5: Low Road to Steeping River	ESE	429ha	NNR: 'Site which forms a small part of Saltfleetby-Theddlethorpe Dunes and Gibraltar Point SAC and SSSI. Habitats include sand dunes, saltmarsh, marshes, and meadows.'
Jenkins Carr SSSI	10.1	ECC 6: Steeping River to Fodder Dike	NW	3.6ha	'A species rich example of alder carr, a habitat now rare in the area, with stream and swamp communities of regional importance. Stands of alder, and mixed woodland dominated by willows <i>Salix</i> spp., but also has ash ( <i>Fraxinus excelsior</i> ) and alder.
		Bank/Fen Bank			The area of open water/swamp in the east and the stream sides have wetland species including water-plantain ( <i>Alisma 14enelope-aquatica</i> ), wild celery and lesser water parsnip ( <i>Berula erecta</i> ). In different areas along the stream bushgrass ( <i>Calamagrostis epigejos</i> ), reedmace and reed sweet-grass ( <i>Glyceria maxima</i> ) dominate. The wet areas contain a variety of sedges with patches of hempagrimony ( <i>Eupatorium cannabinum</i> ), water figwort ( <i>Scrophularia aquatica</i> ) and wild iris ( <i>Iris 14enelope14e14</i> ).'
Keal Carr SSSI	10.7	ECC 6: Steeping River to Fodder Dike Bank/Fen Bank	NW	23ha	'An example of a base-rich springline alder woodland, especially characteristic of the southern Lincolnshire Wolds. The wood supports a rich flora typical of flushed ground and is one of the best sites in the county for the alternate-leaved golden saxifrage ( <i>Chrysosplenium alternifolium</i> ). Woodlands dominated by alder are rather rare nationally, as many such stands have been lost through drainage.
					The bottom of the valley is a mosaic of tall herbs in open areas and woodland, with shaded marsh vegetation under the tree canopy. The woodland below the springline is dominated by old, coppiced alder with some scattered coppiced ash and a shrub layer of willows Salix spp.
					At the northern end of the site an area of open water provides additional interest as it is much used by duck. Keal Carr is a habitat for a number of breeding birds, including all three species of woodpecker, willow tit ( <i>Poecile</i>



Site Name	Distance from the Order Limits (km)	Nearest Segment	Compass Direction	Area of Designation (ha/km)	Description*
					montanus) and garden warbler. In winter the area is used as a feeding ground by siskin (Spinus spinus).
					Above the springline, the steep dry sandy slopes have a similar mosaic of woodland and open areas, the latter dominated by bracken ( <i>Pteridium aquilinum</i> ).'
Mavis Enderby Valley SSSI	13.5	ECC 6: Steeping River to	NW	15.4ha	'On the steeper sides species-rich unimproved grassland has been maintained by sheep grazing. The poorly-draining valley floor to the south has developed as a marsh alongside the beck.
		Fodder Dike Bank/Fen Bank			The dry acid grassland of the slopes is dominanted by red fescue (Fescue rubra), common bent (Agrostis capillaris) and sweet vernal grass (Anthoxanthum odoratum). Typical herbs are mouse-ear hawkweed (Hieracium pilosella), tormentil (Potentilla erecta) and sheep's sorrel (Rumex acetosella) with the locally scarce meadow saxifrage (Saxifraga granulate) a feature. Where sandstone is exposed, species scarce in the East Midlands have colonized. This is the only known Lincolnshire site for Racomitrium heterostichum and Lophocia 15enelope15e v 15enelope15e. A whole series of badgers setts is located both along the sandstone exposure and in the woods. Snipe breed and water rail visit this area.'
The Wash SSSI	0.2	ECC 11: The Haven to Marsh Road	E	62,044ha	SSSI: 'Covers the same area and footprint as the SPA and Ramsar. An area of international biological interest. The intertidal mudflats and saltmarshes represent one of Britain's most important winter-feeding areas for waders and wildfowl outside of the breeding season. Enormous numbers of migrant birds, of international significance, are dependent on the rich supply of invertebrate food. The saltmarsh and shingle communities are of considerable botanical interest and the mature saltmarsh is a valuable bird breeding zone. In addition, the Wash is also very important as a breeding ground for common seals.'
The Wash (and North Norfolk Coast) SAC	0.2	ECC 11: The Haven to Marsh Road	Е	107,720ha	SAC: 'Important habitats include marine areas, sea inlets, tidal rivers, estuaries, mudflats, sand flats, lagoons (including saltwork basins), saltmarshes, salt pastures and salt steppes. Annex 1 habitat that are the primary reason for designation:



Site Name	Distance from the Order Limits (km)	Nearest Segment	Compass Direction	Area of Designation (ha/km)	Description*
					<ul> <li>sandbanks which are slightly covered by sea water all the time</li> <li>mudflats and sandflats not covered by seawater at low tide</li> <li>large shallow inlets and bays</li> <li>reefs</li> <li>Glasswort and other annuals colonising mud and sand</li> <li>Atlantic salt meadows</li> <li>Mediterranean and rutico-Atlantic halophilous scrubs (<i>Sarcocornetea ruticose</i>)</li> <li>Coastal lagoons (a qualifying features though not a primary reason for designation).</li> <li>The SAC is also designated for Annex II species common seal, with otter also listed as a qualifying feature but not the primary reason for designation.'</li> </ul>
The Wash NNR	0.6	ECC 12: Marsh Road to Fosdyke Bridge	ENE	8777ha	NNR: 'Site of mixed of open deep water, permanent shallow water, mudflats and saltmarsh, representing one of Britain's most important winter-feeding areas for waders and wildfowl (Natural England via Lincolnshire's National Nature Reserves Webpage). It comprises Kirton Marsh, Terrington St Clement Marsh, Point Green, and the North Wootton Marsh. It's a valuable breeding zone for birds such as redshank and supports one of the largest common seal populations in England.'
Surfleet Lows SSSI	3.1	ECC 13: Fosdyke to Surfleet Marsh OnSS/Marsh Drove	SW	3.8ha	'Surfleet Lows is one of the few remaining wet alluvial meadows in Lincolnshire which has not been subjected to agricultural improvement. Meadows of this type are now rare throughout lowland Britain. A typical range of meadow plants is present as well as a number of species more characteristic of coastal locations.  The meadow occupies a hollow formed by an old coastal creek system and its residual high salinity explains the presence of brackish marsh plants. The grassland is dominated by marsh foxtail ( <i>Alopecurus geniculatus</i> ) and floating sweet-grass ( <i>Glyceria fluitans</i> ), together with hammer sedge ( <i>Carex hirta</i> ),



Site Name	Distance from the Order Limits (km)	Nearest Segment	Compass Direction	Area of Designation (ha/km)	Description*
					tubular water-dropwort ( <i>Oenanthe fistulosa</i> ), celery-leaved buttercup ( <i>Ranunculus sceleratus</i> ), hairy buttercup ( <i>R. sardous</i> ), strawberry clover, sea milkwort and other brackish and neutral grassland plants. Areas of marsh are characterised by common reed, false fox-sedge, sea club-rush, common spikerush ( <i>Eleocharis palustris</i> ), distant sedge and grey clubrush ( <i>Schoenoplectus tabernaemontani</i> ). Additional interest is provided by wet fen woodland, pools, and tall fen vegetation.  Winter flooding of the meadow attracts ducks such as mallard, teal ( <i>Anas 17enelo</i> ) and wigeon ( <i>Anas 17enelope</i> ), and good numbers of snipe.  Reedwarblers breed here, and at least 50 other species of bird have been recorded.'
					recorded.
Vernatts Drain LNR	5.1	ECC 14: Surfleet Marsh OnSS/Marsh Drove to the Connection Area	sw	10.7km	Wildflower meadow and wetland habitats including reedbeds, marsh and a large pond. Provides habitat for damselflies, small copper butterfly, reed warbler and water vole.

<sup>\*</sup> Quotation marks indicate where descriptions have been taken from the designation citations.



### 21.5.1.2 Non-statutory Designations - Local Wildlife Sites

- 20. A total of 43 non-statutory LWS occur within the study area. Twelve of these sites fall within, or partially within the Order Limits.
- 21. Figure 21.1.2 illustrates the locations of the designations. Table 1.4 provides summary details for each designation, along with their distance from the nearest segment of the Order Limits. The descriptions are extracted from each LWS citation. Where available, the full citations for each designation are provided at Annex B– Local Wildlife Site Citations.

#### 21.5.1.3 Non-statutory Designations - Lincolnshire Wildlife Trust Reserves

- 22. There are eight LWT Reserves within the 2km study area and five within/partially within the Order Limits.
- 23. Figure 21.1.1 illustrates the locations of the designations. Table 21.4 provides summary details for each designation, along with their distance from the nearest segment of the Order Limits. Designations are listed by segment and then by distance from the Order Limits. Where available, the full citations for each designation are provided at Appendix 1 Local Wildlife Site Citations.



Table 21.4: Non-Statutory Sites

Site Name	Distance from the Order Limits (km)	Nearest Segment of the ECC	Compass Direction	Area/Length of Site (ha/km)	Description
Local Wildlife	e Sites				
Anderby Creek Sand Dunes	0	ECC 1: Landfall to A52 – Hogsthorpe	NE	11.9 ha	Main Habitats: Coarse or rank grassland, sand dune, scrub and ditch.  'A 1.1km long stretch of coast. Due to lack of management, most places support coarse and weedy vegetation, with substantial cover of scrub and trees. Good, open dune is very limited in extent.'
Hogsthorpe Pit	0	ECC 1: Landfall to A52 – Hogsthorpe	SSW	1.4ha	Main Habitat: Standing water, willow carr, grassland 'Around the pond is diverse wetland vegetation and some drier grassland and scrub. Lesser bulrush and common reed are abundant at the water's edge. Also present are water dock, branched bur-reed, water mint, purple loosestrife, greater pond-sedge, and yellow iris. Marshy areas, particularly to the east of the pond, support further species, such as marsh bedstraw, hoary willowherb, tufted forget- me-not, water-cress, meadowsweet and jointed rush. Of most note is a sizeable patch of brookweed amongst tall fen vegetation beside an angler's path. Mature and younger specimens of various willows dominate the remainder of the site, with a restricted range of common ground flora plants beneath. Some sycamore is also present.  Botanically-rich grassland is restricted to small areas of dry bank on the southern and northern margins of the pond. Species present include autumn hawkbit, tufted vetch, yarrow, lady's bedstraw and meadow vetchling. A larger patch of coarser grassland is used as a car park (in the northwest corner of the site). This supports much common knapweed, together with bird's-foot-trefoil, common sorrel, red clover, red fescue, tall fescue and tufted hair-grass. Adjacent to this is neglected former grassland that is now dominated by species such as field bindweed, creeping thistle, bramble, cow parsley, upright hedge-parsley ( <i>Torilis arvensis</i> ), field horsetail and false oat-grass. Scrub species include hawthorn, elder, blackthorn and some dogwood that appears to be non-native.  Coot, moorhen, and common dragonflies were recorded.'



Site Name	Distance from the Order Limits (km)	Nearest Segment of the ECC	Compass Direction	Area/Length of Site (ha/km)	Description
Marsh Yard to Anderby Creek Dunes	0.2	ECC 1: Landfall to A52 – Hogsthorpe	N	16.8ha	Main Habitat: coarse or rank grassland, scrub – scattered/dense (also semi-improved, neutral grassland, non-native plantation, reedbed)  'A 1.75km stretch of coast comprising bare sand on the upper beach with some young dunes; a line of low, fixed dunes supporting much coarse grassland, which widens in the south and supports plentiful woody vegetation, including garden escapes; and a range of habitats inland of the dunes, particularly planted and naturally occurring trees and scrub on both dry and damp land, grassland, sparsely vegetated car parking areas, a track and a little bare sand.  To the north is a huge population of scarce strawberry clover along the car park and species rich neutral grassland. Many parts of the dune ridge are dominated by coarse vegetation, such as marram, lyme-grass, sea and sand couch, common reed, and dewberry. A wide range of woody species includes sycamore, horse chestnut, white poplar, hybrid black poplar, pine, ash, buckthorn, sea-buckthorn, buddleia, wild & garden privet, elder, hawthorn and ivy. Damp areas, particularly inland in the north, support osier, grey sallow, woody nightshade, comfrey, amphibious bistort, and silverweed.  Birds and invertebrates seen during the survey included migrating whimbrel, reed bunting, house martin, common blue, brown argus, meadow brown, gatekeeper, peacock, and common darter.'
Wolla Bank South	0.2	ECC 1: Landfall to A52 – Hogsthorpe	E	5ha	Main Habitat: Coarse or rank grassland, semi-improved, neutral grassland, reedbed (also drain and pond).  'Coastline comprising bare sand on the upper beach; a line of low fixed dunes grading into wetland; and an old embankment beside the road. As a result of recent landscaping works, much of the site is now far wetter than previously, with substantial areas of open water and reedbed, as well as coarse grassland in the central island and on the embankment. The wetland and dunes support a rich flora and fauna.  A wide range of birds and invertebrates were noted during the survey, including coot, sedge & reed warbler, swift, common whitethroat, common blue, ringlet, small



Site Name	Distance from the Order Limits (km)	Nearest Segment of the ECC	Compass Direction	Area/Length of Site (ha/km)	Description
					skipper, shaded broad-bar, common blue & blue-tailed damselfly, darter, and four-spotted chaser.'
Anderby Gravity Outfall	0.3	ECC 1: Landfall to A52 – Hogsthorpe	N	0.6ha	Main Habitats: Drain, semi-improved neutral and coarse grassland 'The canalised downstream end of Main Drain and its steep banks on the southern edge of Anderby Creek. Adjacent to both Anderby Creek Sand Dunes and Anderby Marsh LWT nature reserve. The drain is maintained, limiting the brackish floral community present. Sea club-rush and common reed are abundant on both of the steep lower banks, as is typical of brackish drains. Few aquatic species can survive the saline conditions, but any that do are kept under control by regular management. The very steep banks prevented comprehensive study of water plants, but at the more accessible landward end there is much fennel pondweed and some bulrush.  Good assemblage of birds (reed and sedge warbler, common whitethroat, wren, swallow, swift, house martin), damselflies and common frog.'
Chapel Six Marshes	0.5	ECC 1: Landfall to A52 – Hogsthorpe	ESE	0.75km	Main Habitats: Coarse or rank grassland, lake, reedbed, scrub - scattered/dense (also ditch, marsh/fen, non-native plantation - on ancient/new, pond, scrub - scattered/dense)  A 750m stretch of coast and is partly a LWT Reserve.  'Within the small area of reserve managed by LWT, wetland plants typical of brackish water include parsley water-dropwort, sea-milkwort, probable brackish water-crowfoot, saltmarsh rush and distant sedge. Growing with these are ivy-leaved duckweed, common fleabane, angelica, creeping bent, toad rush and false fox-sedge. On the dune ridge and adjacent landward slope are sand sedge, sand couch, red fescue, marram, lyme-grass, common bird's-foot-trefoil, meadow vetchling, cat's-ear, tufted vetch, black medick, and dewberry. Trees and shrubs include grey sallow, sycamore, hawthorn, elder, sea-buckthorn, bramble, dog-rose. The remainder of the site is managed by LCC and is publicly accessible. Major works have been carried out in 2014/2015 to enhance the value of the site for wetland flora and fauna, involving creation of winding water channels on land to north and south of the entrance road. Habitats present over the site as a whole are



Site Name	Distance from the Order Limits (km)	Nearest Segment of the ECC	Compass Direction	Area/Length of Site (ha/km)	Description
					bare sand and short vegetation in car parking areas, coarse grassland, a little open water, much reedbed, and varying cover of trees and scrub. The resulting flora is diverse and interesting.  Fauna recorded includes moorhen, migrating whimbrel, wood pigeon, green-veined white, small tortoiseshell, and common darter.'
Chapel Pit Nature Reserve (non-SSSI)	0.9	ECC 1: Landfall to A52 – Hogsthorpe	ESE	0.3ha	Main Habitats: Scrub, rough grassland, ditch, and hedgerow 'This site comprises two small unmanaged parts of Chapel Pit nature reserve, all the rest of which is part of Sea Bank Clay Pits Site of Special Scientific Interest. The smaller element is a very small spur of land in the south-eastern corner of the reserve, supporting much scrub and a little remnant grassland. The remainder of the site lies on the northern edge of the reserve, immediately adjacent to an east- west orientated track within the SSSI. In the west there is a triangular area of rough grassland and scrub. East of this is a ditch and overgrown hedgerow.'
Chapel Pit	0.9	ECC 1: Landfall to A52 – Hogsthorpe	ESE	3ha	Main Habitat: Open water and reedbeds 'Excavated for clay for the repair of the sea banks following the floods of 1953, the flooded pit has marginal reedbeds and aquatic plants, such as water-crowfoot and great reedmace. Fifteen species of duck have been recorded, mainly winter visitors. Bearded tit and bittern are recorded occasionally. In summer breeding species include reed and sedge warblers, lesser whitethroat and little grebes can also be seen. In August and September thousands of migrating swallows and house martins roost in the reedbeds. Screens of willows round the banks of the pits have been planted in order to reduce disturbance to birds. A 0.3ha area of this LWT is also designated as Chapel Pit LWS.'
Chapel Point Dunes, North	1.3	ECC 1: Landfall to A52 – Hogsthorpe	SE	3.4ha	Main Habitats: Coarse or rank grassland, sand dune, scrub – scattered/dense 'A 0.62km stretch of coastline. In the east is the upper part of a shallow sloping sandy beach, which is within Chapel Point to Wolla Bank geological Site of Special Scientific Interest. Elsewhere, in central and southern parts, there are heavily scrubbed-up fixed dunes, which also support some coarse grassland. Plants of good quality dunes are few in number, but include marram, lyme-grass, sea and



Site Name	Distance from the Order Limits (km)	Nearest Segment of the ECC	Compass Direction	Area/Length of Site (ha/km)	Description
					sand couch, hound's-tongue, sea bindweed, prickly saltwort and sand sedge. Invertebrates recorded include common blue, ruddy darter and common darter.'
Moggs Eye Sea Bank Ponds	1.6	ECC 1: Landfall to A52 – Hogsthorpe	N	2.9ha	Main Habitat: Standing water, reedbed 'A long, thin area of standing water, possibly formed by excavation of the earth sea wall. To the north, the site is almost 100% common reed with the road embankment supporting wooded patches of crack willow, alder and sycamore. Few aquatic species noted, although some wet edges support sea club-rush, mare'stail, common duckweed, least duckweed and the invasive non-native New Zealand pigmyweed. The southern end of the site is used by anglers.  Marshy edges of the site are botanically diverse. Species present include brookweed, saltmarsh and jointed rushes, clustered dock, hoary willowherb and false fox-sedge. The slightly drier conditions nearby provided a chance sighting of adder's-tongue, a fern that is usually very inconspicuous in late summer. Other grassland species include crested dog's-tail, red fescue, common bent, meadow buttercup, meadow vetchling and lesser hawkbit.'
Chapel Point Dunes, South	1.9	ECC 1: Landfall to A52 – Hogsthorpe	SE	7.7ha	Main Habitat: Sand dune  'A northsouth aligned strip of coastal land, 1.6km long and varying in width between 25m and 75m. The site comprises developing low sand dunes on the upper beach, between un-vegetated sand to the east and the concrete promenade in the west. The generally sparse sward includes a diverse sand dune flora.  Much of the area is characterised by a mixture of bare sand and marram, but few other plants. However, both sea-holly and sea spurge are not uncommon in this habitat in the north. Places that are better vegetated support short species associated with open, sandy grassland, such as thyme-leaved sandwort, common whitlowgrass, little mouse-ear, lesser chickweed, wall speedwell, early forget-menot, smooth meadow-grass, and sand sedge. Other more robust species include lyme-grass, sea couch, common reed, hound's-tongue, evening-primrose, great mullein, great lettuce, horse-radish, and hogweed.



Site Name	Distance from the Order Limits (km)	Nearest Segment of the ECC	Compass Direction	Area/Length of Site (ha/km)	Description
					Amongst the birds and invertebrates encountered during the survey were swallow, house martin, dunnock ( <i>Prunella modularis</i> ), goldfinch, cinnabar, brown-tail moth, orange tip, and most notably several green hairstreaks.'
Huttoft Carr Terrace to Marsh Yard Dunes	1.9	ECC 1: Landfall to A52 – Hogsthorpe	N	10.4ha	Main Habitat: Coarse or rank grassland, sand dune, scrub – scattered/dense (also native plantation)  'A 1.2km stretch of coast comprising bare sand on the upper beach with some botanically-poor foredunes; a concrete pathway and linear car parking area at the top of the beach; a line of low, fixed dunes and flatter ground inland, supporting much unmanaged vegetation, dominated by dense scrub and trees in central and northern parts, with larger amounts of grassland further south; and a gravel car parking area inland of the dunes at the southern end of the site, characterised by a short, open sward.  Woody vegetation on the fixed dunes includes pine, sycamore, sea-buckthorn, elder, hawthorn, woody nightshade, bramble, and dewberry. Other robust or weedy plants here are marram, lyme-grass, common reed, sea couch, false oat-grass, creeping & spear thistle, hedge & large bindweed, curled dock and amphibious bistort. Species found in less vegetated sandy areas include prickly saltwort, sand couch, hound's-tongue, procumbent pearlwort (Sagina procumbens), sea ferngrass and sand sedge.  The most interesting flora is typical of neutral soils. It is largely restricted to the vicinity of the southern car park and along a track that extends northwards. Present here are hare's-foot & strawberry clover, lesser & hop trefoil, buck's-horn plantain, common bird's-foot-trefoil, tufted vetch, meadow vetchling, yarrow, smooth hawk's-beard, autumn hawkbit, cat's-ear, black medick, silverweed, and smooth meadow-grass. Damper habitat west of the car park supports dense willow scrub, while further north of that there is much common reed.  Birds, butterflies, and moths seen during the survey included common whitethroat, reed bunting, swallow, Sandwich tern, Essex skipper, painted lady, red admiral, and cinnabar.'



Site Name	Distance from the Order Limits (km)	Nearest Segment of the ECC	Compass Direction	Area/Length of Site (ha/km)	Description
Sloothby Low Lane	0.8	ECC 2: A52 – Hogsthorpe to Marsh Lane	WNW	4.6km	Main Habitat: Neutral grassland (also damp grassland, standing water, seasonally wet areas, undulating ground, deep ditches, species-poor hedgerows)  'This wide green lane is an area of neutral grassland occasionally grazed by cattle. Good flora occurs in small patches, particularly at the edges of the site. Occasional species present include yarrow, common knapweed, sorrel, cowslip, selfheal (Prunella vulgaris), meadow buttercup, and strawberry clover. The dominant grasses over the majority of the site are cocksfoot (Dactylis glomerata) and perennial ryegrass (Lolium perenne) with areas of crested dogstail, meadow fescue, Timothy grass (Phleum pratense) and smooth meadow-grass.  Damper areas are poached by cattle; the hollows are filled with water. These areas support scattered hard rush (Juncus inflexus), water crowfoot and water starwort. Creeping bent is frequent in these areas.  The site appears to be good for grassland fungi; species recorded include parrot waxcap (Riparia riparia), dung roundhead (Stropharia semiglobata), field mushroom (Agaricus campestris), Hygrocybe virginea, Panaeolus sphinctrinus, Volvariella murinella and Vascellum pratense. The slime mould Mucilago crustacean has also been recorded.  The deep bordering ditches appear to be permanently wet and support a few species of note including abundant water horsetail (Equisetum fluviatile) and common spike-rush. Spiked water milfoil, broad-leaded pondweed (Potamogeton natans), greater pond-sedge (Carex riparia) and water starwort are frequent. Water plantain and jointed rush occur scattered around the site. The dominant subaquatic species appears to be opposite-leaved pondweed (Groenlandia densa). Common reed is beginning to establish. Marestail is rare - one small patch being present in the northern ditch around TF 156 709. The steep banks support many of the meadow species including locally abundant cowslips plus scrub/ruderal species such as bramble and great willowherb.
					arvensis). Elder and wild plum ( <i>Prunus domestica</i> ) are occasional. Crack willow is rare (two trees).



Site Name	Distance from the Order Limits (km)	Nearest Segment of the ECC	Compass Direction	Area/Length of Site (ha/km)	Description
					Evidence of badgers ( <i>Meles meles</i> ) noted and short-eared owl ( <i>Asio flammeus</i> ) observed. An owl box has been constructed at the end of the central branch of the site. Other species include Brown hare ( <i>Lepus europaeus</i> ), roe deer ( <i>Capreolus capreolus</i> ), redwing, moorhen, mute swan, wood pigeon, heron, magpie ( <i>Pica pica</i> ), pheasant ( <i>Phasianus colchicus</i> ), long-tailed tit ( <i>Aegithalos caudatus</i> ), blackbird ( <i>Turdus merula</i> ), skylark, carrion crow ( <i>Corvus corone</i> ), linnet ( <i>Linaria cannabina</i> ) and small tortoiseshell.'
Middlemarsh Farm	0.3	ECC 4: A158 – Skegness Road to Low Road	ESE	73.5ha	Main Habitat: Grazing marsh, standing water 'Around 7 fields surrounded by ditches and some hedges. In the mid-2000s, the area was transformed from arable land into a topographically-varied wetland where breeding, passage and wintering birds typical of the Lincolnshire coastal grazing marshes could flourish.
					Aquatic and waterside plants of great interest have arrived naturally, while a neutral grassland sward has been established through sowing of appropriate native grasses, plus small amounts of cowslip, ragged-robin, and other meadow species. Cattle graze throughout at low intensity for much of the year.
					The list of breeding birds since 2008 includes lapwing, redshank, snipe, avocet ( <i>Recurvirostra avosetta</i> ), yellow wagtail, reed and sedge warbler, reed bunting, skylark ( <i>Alauda arvensis</i> ), shoveler ( <i>Anas clypeata</i> ), mallard and mute swan ( <i>Cygnus olor</i> ). Wigeon, lapwing, curlew and other birds use the area in winter. Amongst the wetland plants present are horned pondweed, water-crowfoot, pink water-speedwell ( <i>Veronica catenate</i> ), branched bur-reed, common reed, and saltmarsh rush, plus the scarce orange foxtail ( <i>Alopecurus aequalis</i> ).'
Middlemarsh Meadows	0.5	ECC 4: A158 – Skegness Road to Low Road;	E	4.7ha	Main Habitat: Unimproved neutral grassland, coarse grassland (also semi-improved neutral grassland, hedgerows, drain)
					'Four contiguous hay meadows, each one adjacent to the north-eastern edge of Middlemarsh Farm LWS. The two eastern fields are very rich in plants typical of high-quality neutral grassland, whereas the sward in the two western fields is less rich. Boundary ditches, hedges, scrub, and a farm track are included, because they are not cut for hay and support some extra plants and good invertebrate habitat. It



Site Name	Distance from the Order Limits (km)	Nearest Segment of the ECC	Compass Direction	Area/Length of Site (ha/km)	Description
					is not known if there is any aftermath grazing. The southern boundary of the western field holds a lot of mature shrubs that vaguely enclose a narrow strip of unmanaged, coarse grassland and wetter vegetation. Growing here are hawthorn, blackthorn, dog-rose, bramble, yellow iris, tufted hair-grass, reed canary-grass and common reed.
					Fauna noted during survey were sedge and reed warbler, chaffinch ( <i>Fringilla coelebs</i> ), wren, blue tit ( <i>Cyanistes caeruleus</i> ), starling, wood pigeon, small copper ( <i>Lycaena phlaeas</i> ), meadow brown, common blue and common frog.'
The Hollies Field	2.2	ECC 4: A158 – Skegness Road to Low Road	NW	8.4ha	Main Habitat: Neutral Grassland 'Two fields with fossilised ridge and furrow and old drainage systems, bisected by a public footpath. The site is grazed by cattle. The site supports some interesting plant species however they are generally
					restricted to the steeper slopes of the earthworks. The sward is dominated by crested dog's-tail <i>Cynosurus cristatus</i> , sweet vernal grass <i>Anthoxanthum odoratum</i> and Yorkshire fog <i>Holcus lanatus</i> . Meadow brome <i>Bromus commutatus</i> , timothy <i>Phleum pratense</i> and smooth meadow-grass <i>Poa pratensis</i> are occasional. Clumps of spear thistle <i>Cirsium vulgare</i> and creeping thistle <i>Cirsium arvense</i> are frequent throughout.
					In the very restricted areas where forbs are frequent species include yarrow <i>Achillea millefolium</i> , daisy <i>Bellis perennis</i> , rough hawkbit <i>Leontodon hispidus</i> , birdsfoot trefoil <i>Lotus corniculatus</i> , creeping cinquefoil <i>Potentilla repens</i> , bulbous buttercup <i>Ranunculus bulbosa</i> , sorrel <i>Rumex acetosa</i> and meadow saxifrage <i>Saxifraga granulata</i> . The grassland flora of the site would benefit from management as an unfertilized hay meadow with aftermath grazing.
					Several occasionally drying pools across the site are dominated by floating sweet grass <i>Glyceria fluitans</i> with soft rush <i>Juncus effusus</i> , creeping buttercup <i>Ranunculus repens</i> and brooklime <i>Veronica beccabunga</i> . Larvae of great crested newt <i>Triturus cristatus</i> were recorded from these pools during the survey. A local resident reported that great crested newts are locally abundant.



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					Other incidental records of fauna from the site include jackdaw Corvus monedula and rabbit Oryctolagus cuniculus.'
Steeping Marsh	2.7	ECC 5: Low Road to Steeping River	ESE	22.1ha	Main Habitat: Coarse or rank grassland, saltmarsh, river, drain, ditch (also scrub, saline lagoon, reedbed, ruderal)  'This is a 70-190m wide and 1.5km long 'island' of several interesting habitats surrounded by low-lying arable land.  Growing on the riverbanks are typical saltmarsh plants such as spear-leaved orache (Atriplex prostrata), sea club-rush, reed canary-grass, sea couch and common cord-grass (Spartina Anglica). Flatter areas nearby hold both temporary and permanent saline pools amongst saltmarsh. These salt-rich habitats support sea plantain, sea-purslane, sea aster (Aster tripolium), sea milkwort, sea arrowgrass, annual sea-blite (Suaeda maritima), greater sea-spurrey (Spergularia media), common scurvygrass (Cochlearia officinalis), glasswort and toad rush. One area of disturbed ground is favoured by grass-leaved orache.  The Relief Channel is at least 30m wide. There is a varied selection of freshwater species along the margins, including common reed, angelica, marsh bedstraw, meadowsweet, yellow iris, amphibious bistort, bulrush, branched bur-reed, and false fox-sedge. Some saltiness is indicated by the presence of sea club-rush, while the few bankside trees and shrubs include grey and crack willow.  Woody species present are hawthorn, sea buckthorn, wild privet and elder, with some sycamore further north. The boundary drain flora includes common reed, reed sweet-grass, angelica, water mint, common fleabane, and common duckweed. Amongst the grassland species on the adjacent embankment are meadow vetchling, tufted vetch, smooth hawk's-beard, yarrow, common mouse-ear, upright hedge-parsley, and red fescue.'
The Lymm	1.2	ECC 5: Low Road to Steeping River	WNW	3.2km	Main Habitat: River and linear reedbed (also coarse grassland, semi-improved neutral grassland, and scattered scrub).  'Botanical diversity varies along areas of the Lymn with many aquatic plants recorded such as five pondweed species, yellow water-lily, ivy-leaved duckweed,



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					water starwort and rigid hornwort. Wetland species also include common reed, reed canary-grass, reed sweet-grass and water dock whilst the flat road.'
Wrangle Brick Pits	0.3	ECC 7: Fodder Dike Bank/Fen Bank to Broadgate	SSW	15.1ha	Main Habitat: New native plantation, semi-improved neutral grassland, pit (also scrub, coarse or rank grassland, ditch and reedbed).  'A mosaic of waterbodies, grassland, semi-mature planted trees, broad-leaved woodland, cattle-grazed semi-improved grassland, and broad-leaved plantation woodland. The two main pits are used for fishing, but the north-eastern pond has been created for wildlife. The site is managed for nature conservation by the owner. The citation states that water vole feeding signs and latrines found around the margins of the southern pond.'
Hobhole Drain, Simmon House Bridge to Benington Bridge	1.4	ECC 8: Broadgate to Ings Drove	W	2.8km	Main Habitat: Drain, coarse grassland 'The channel is approximately 15m wide. No submerged or floating aquatic species were found. The southern stretch has much more emergent marginal vegetation than the north, although there are large patches of common reed near the pumping station in the north.  The more diverse community of marshy species recorded at the edges of the drain towards the south included gypsywort ( <i>Lycopus europaeus</i> ), common fleabane, water mint, wild angelica and marsh woundwort in addition to the ubiquitous common reed, reed canary-grass and reed sweet-grass.  The bridges along the drain have numerous species growing on them, particularly in the south. Species include black spleenwort ( <i>Asplenium adiantum-nigrum</i> ), maidenhair spleenwort ( <i>Asplenium trichomanes</i> ), hart's-tongue ( <i>Asplenium scolopendrium</i> ), and smooth meadow-grass.  Large trees have been planted almost all the way along the drain on the eastern side.'
Dove's Lane Drain	0	ECC 9: Ings Drove to Church End Lane	SSE	0.6km	Main Habitat: Drain 'Drain with the nationally scarce marsh mallow.'



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Shore Road Drain	0.1	ECC 9: Ings Drove to Church End Lane	SSE	0.6km	Main Habitat: Drain with grassland 'Drain with the nationally scarce marsh-mallow (Althaea officinalis).'
Hobhole Drain, Benington Bridge to Baker's Bridge	0.2	ECC 9: Ings Drove to Church End Lane	NNW	4.6km	Main Habitats: Scrub, semi-improved neutral grassland, coarse or rank grassland, and drain.  'The LWS provides a valuable corridor for wildlife due to the near continuous lining of scrub and trees along the banksides which provides important areas for local and migrant bird populations. The site also has high potential to support water vole and kingfisher.  Scrub vegetation predominantly consists of elder, hawthorn, blackthorn, sycamore, bramble and dog-rose. Bankside flora is dominated by rough grassland with species including creeping buttercup ( <i>Ranunculus repens</i> ), common reed, lesser pond sedge ( <i>Carex acutiformis</i> ), great willowherb (Epilobium hirsutum), angelica, black knapweed ( <i>Centaurea nigra</i> ), vetch species, fleabane, hemlock ( <i>Conium maculatum</i> ), hogweed, cleavers ( <i>Galium aparine</i> ), bristly ox-tongue ( <i>Helminthotheca echioides</i> ), cow parsley and nettle with patches of lower sward species rich areas with red clover, bird's foot trefoil, fleabane, ox-eye daisy ( <i>Leucanthemum vulgare</i> ), glaucous sedge, ( <i>Carex flacca</i> ), tare species ( <i>Vicia sativa</i> ), meadow vetchling, wild carrot ( <i>Daucus carota</i> ), common mouse-ear ( <i>Cerastium fontanum</i> ), and lady's bedstraw.'
Hobhole Bank	0	ECC 10: Church End Lane to The Haven	SSW	3.7ha	Main Habitat: Scrub, semi-improved neutral grassland, semi-improved calcareous grassland (also coarse or rank grassland).  'Man made, raised earth bank associated with a large drain (Hobhole Drain). The dominant communities on the bank top are rough neutral grassland, with areas of finer more calcareous grassland also present; and also dense scrub along the banksides. The calcareous nature of the grassland is likely to have arisen as a result of material brought in to form the banks.  The site is a Lincolnshire Wildlife Trust Reserve and is actively managed in order to try and maintain the finer grassland sward on the bank top. Scrub invasion from the bank slopes is a threat to the floristic diversity of this site.



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					It supports a good bird assemblage and is known locally for the long-eared owls which over winter on site.'
Hobhole Drain, Baker's Bridge South	0	ECC 10: Church End Lane to The Haven	N	6.1km	Main Habitat: Scrub, semi-improved neutral grassland, semi-improved calcareous grassland, coarse or rank grassland, ditch.  'A man-made drain providing the main drainage for the East Fen north of Boston and discharging into The Haven. The eastern bank comprises neutral rough grassland and calcareous grassland (which is particularly species rich towards the southern end) – the bank is kept clear to assist dredging operations. The western bank supports more dense and scattered scrub – hawthorn, ash, blackthorn, willow species, elder, bramble, dog-rose, field maple and oak occur.  The bankside flora is good whilst the aquatic habitat is relatively poor in comparison. Past surveys indicate that this has always been the case and the bankside flora has always been the notable feature of this site. The calcareous nature of the vegetation is likely to have arisen as a result of material imported when the banks were created. The site provides a valuable wildlife corridor due to the near continuous line of scrub and trees on the banksides.'
Havenside	0	ECC 11: The Haven to Marsh Road	W	33.1ha	Main Habitat: Coarse or rank grassland (also new-native plantation, scrub, semi-improved neutral grassland, improved grassland, ditch, pond, coastal grazing marsh, marsh, reedbed).  'A long man-made sea bank dating from 1880s. The component areas are: A raised bank of plantation and meadow at the western end Triangular area of rough grassland and newly planted trees Grazed grassland with drainage ditches and ponds Older sea bank with dense scrub An amenity area centred on the Pilgrim Fathers memorial with amenity grassland, two small ponds and wet grassland. The mosaic of woodland, grassland and wetland is very valuable in the local context and of significant value to local bird, mammal, and invertebrate populations. The linear nature of the site provides a good wildlife corridor through Boston.'



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Frampton Hall	0	ECC 11: The Haven to Marsh Road	WNW	21.3ha	Main Habitat: Parkland (including a mosaic of semi-natural woodland, scrub, semi-improved neutral grassland, semi-improved calcareous grassland, improved grassland, coarse or rank grassland, ditch, pond)  'Veteran trees are abundant and include horse chestnut, pedunculate oak and walnut (Juglans regia). Some mature exotic species as well.  The ponds are generally very shaded with rigid hornwort (Ceratophyllum demersum), reed sweet grass, common reed, yellow iris, algae, common duckweed, false fox sedge and bittersweet. The ditches are dry/seasonally wet and have fool's watercress (Helosciadium nodiflorum), celery leaved buttercup, floating sweet grass (Glyceria fluitans), creeping bent, watercress, reed sweet grass, reed canary grass (Phalaris arundinacea), common reed and creeping bent.  The site is likely to be a valuable foraging/roosting area for local bat populations. The abundant mature/veteran parkland trees with holes, cracks and fissures have a very high bat roost potential. The mature parkland trees are one of the most significant features of this site.'
Slippery Gowt Sea Bank	1.3	ECC 11: The Haven to Marsh Road	N	1.2ha	Main Habitat: Coarse or rank grassland (also semi-improved neutral grassland, scattered scrub)  'A rough grassland bank, landside only, adjacent to the Haven and associated tracts of saltmarsh. The site mainly comprises a rough grassland bank between the bank top and footpath and the drain which occurs between the waste site and the bank. The area supports Boston horsetail ( <i>Equisetum ramosissimum</i> ) which occurs (or has occurred in the past) all the way along the landward bank, including the area that was stripped in 2006-07.  This is the only site for this species in Greater Lincolnshire.'
Hall Weir	1.5	ECC 11: The Haven to Marsh Road	W	2.3ha	Main Habitat: Wet Woodland 'A mosaic of wet woodland, marshy areas, ponds, drains, and patchy wet/neutral grassland. It was possibly the site of former brick pits but has regenerated to secondary wet woodland in the main. There is no management and as a result



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					there is abundant fallen dead wood, shading over the ponds, fallen trees in the ponds and wet areas and some very dense scrub.
					<b>Scrub and trees</b> : Dominated by willow species and alder with some poplar, elm, birch, snowberry, horse chestnut, elder, hawthorn. Much fallen and standing dead wood.
					Ponds and wet flushes: Dominated by yellow iris, gyspywort, water mint, reed canary grass, bittersweet, reed sweet grass, pond sedge, pendulous sedge, meadowsweet, water plantation, pendulous sedge and common reed. There are areas of the ponds, drains and wetlands in the interior of the site that are very shaded, therefore little emergent/fringing aquatic vegetation occurs.
					<b>Drains</b> : wet drain running to the south of the site supports brooklime, pink water speedwell, water starwort, fool's water cress, watercress, common duckweed.
					Wet grassland and rough grassland: dominated by creeping buttercup, rush species, great willowherb, silverweed, hogweed, false oat grass, common nettle, hedge bindweed, creeping thistle, Yorkshire fog, cow parsley, hedge woundwort and dock species.
					Water voles signs recorded in the wet drain running along the south side of the site. Signs of badger activity located towards the northern area of the site. The site is likely to be a valuable foraging area for local bat populations, and it has high potential to support a rich invertebrate assemblage. The presence of hard fern is locally notable.'
Tytton Lane	1.5	ECC 11: The	NW	0.3ha	Main Habitat: Pit
West Pits, East		Haven to Marsh Road			'Deep water with steep banks in places, surrounded in the main by scrub and trees. The bankside is open and fringing/marginal vegetation is recorded in the areas which border gardens and also in areas along the southern boundary. The fringing vegetation comprises mainly common reed, reed sweet grass and yellow iris. Some water lily and marginal species occur near the gardens where the banks are not shaded.'



Site Name	Distance from the Order Limits (km)	Nearest Segment of the ECC	Compass Direction	Area/Length of Site (ha/km)	Description
Tytton Lane West Pits, West	1.6	ECC 11: The Haven to Marsh Road	NW	0.6ha	Main Habitat: Pit 'Deep water with steep banks in places, surrounded in the main by scrub and trees. The bankside is open and fringing/marginal vegetation is recorded in the areas which border gardens and also in areas along the southern boundary. The fringing vegetation comprises mainly common reed, reed sweet grass and yellow iris. Some water lily and marginal species occur near the gardens where the banks are not shaded.'
Westgate Wood and Meadow	1.7	ECC 11: The Haven to Marsh Road	NW	31.4ha	Main Habitat: Native plantation – new, Neutral grassland – semi-improved 'Newly created woodland plantation on former arable land; this has been extended over the last few years to include grassland areas, parkland areas, ponds and more woodland. The site is developing into a good mosaic habitat with woodland of varying ages, some young parkland, water bodies and permanent grassland.'
Botolphs Park Pond	1.7	ECC 11: The Haven to Marsh Road	NW	1.1ha	Main Habitat: Pond, Garden  'Large pond, former brick pit, forming part of a large garden. Some non-native species present. A large garden pond with a sinuous form; there is a great variety of marginal habitats present including dense stands of common reed and bulrush, areas of rip rap with rush species growing, muddy margins with lower growing macrophytes such as watercress, water forget me not and blue water speedwell and small shallow inlets with some water starwort and common duckweed. The aquatic flora is relatively poor probably due to an abundance of water lilies covering the surface of the pond (particularly at the western end).  Areas of the pond are becoming covered in invasive water lilies and there are some exotic species present. The water lilies have spread since the last survey visit.  There are some banksides trees and scrub including willow species, hawthorn and exotic species.  The banksides comprise amenity grassland with typical garden species.  There is a small fountain within the pond.'



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Moulton Marsh	0.3	ECC 12: Marsh Road to Fosdyke Bridge	SSE	28.3ha	Main Habitat: native plantation, reedbed, saltmarsh, saline lagoon (also coarse grassland, drain)  An area of dense planted woodland (including aspen, alder, field maple, with some pine, rowan ( <i>Sorbus aucuparia</i> ), birch ( <i>Betula</i> sp.), hawthorn, and dogwood), and very coarse grassland with a variety of shrubs including large amounts of sea buckthorn.  Frequently flooded, saltmarsh. Two, large saline ponds with little aquatic or marginal vegetation but some important invertebrate species typical of saline lagoons of SSSI quality. This is a wetter area enclosed on all sides by high banks with a mixture of reedbed (c.70%), areas of saltmarsh vegetation with the occasional pool, and drier areas of coarse grassland. A c.10-20m wide strip of trees has been planted along the southeast edge.  The saltmarsh vegetation occurs at the wetter edges of the reedbed and includes glasswort ( <i>Salicornia europaea</i> ), lesser sea-spurrey ( <i>Spergularia marina</i> ) and a small unidentified rush ( <i>Juncus</i> sp.). The more negotiable areas on higher, drier ground have large amounts of saltmarsh rush, clumps of distant sedge, sea aster ( <i>Tripolium pannonicum</i> ), brookweed, common fleabane, sea-milkwort, and sea couch.  Fennel pondweed was found in some of the small pools that were present, and wood small-reed ( <i>Calamagrostis epidejos</i> ) occurred in patches throughout.'
Risegate Eau	0	ECC 13: Fosdyke to Surfleet Marsh OnSS/Marsh Drove	W	9km	Main Habitat: Coarse or rank grassland, drain, linear reedbed, scrub.  'A central 9km of a 15km long watercourse extending from South Forty Foot Drain in the west to River Welland in the east. Channel size varies from one to about six metres wide. Banks along the 65m of drain that is west of Allen's Bridge have been managed and studied by local resident Leslie Hebdon since the late 1980s, during which time a selection of nectar-rich and pollen-rich plants have been introduced to encourage insect populations. Population of the locally and nationally rare Deptford pink ( <i>Dianthus armeria</i> ). A very small patch of adjacent woodland planted in 1990 comprises native trees and shrubs such as pedunculate oak, alder, goat willow



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					(Salix caprea), field maple, alder buckthorn, hazel, guelder-rose (Viburnum opulus) and hawthorn.  A good diversity of insects include: Essex skipper, common blue, gatekeeper, shaded broad bar, blood vein (Timandra comae), silver Y (Autographa gamma), Roesel's bush-cricket (Metrioptera roeselii), common carder bee (Bombus pascuorum), brown hawker (Aeshna grandis) and common darter. Other fauna recorded were reed warbler, kingfisher (Alcedo atthis), common snipe, grey heron (Ardea cinerea), moorhen, green sandpiper (Tringa ochropus) and common frog. Water voles (Arvicola amphibius) were present near Allen's Bridge in 2013 and have been known to occur there for many years.  Records show that there is an excellent selection of bees, wasps, and other insects west of Allen's Bridge. One of these, the large garden bumblebee (or ruderal bumblebee) (Bombus ruderatus), is a nationally notable UK BAP species, while the nationally rare tawny longhorn beetle (Paracorymbia fulva) is listed as RDB3. The abundance of dandelion (Taraxacum officinale) and white dead-nettle (Lamium album) is important in providing food for bees immediately after they emerge from hibernation.'
A16 verges North of the River Glen	0.6	ECC 13: Fosdyke to Surfleet Marsh OnSS/Marsh Drove	SW	0.9km	Main Habitat: Coarse or rank grassland (also scattered scrub, ditch)  'Neutral grassland of moderate quality and includes soil mounds created by black ants. A few plants of interest here are common bird's-foot-trefoil, hop trefoil, meadow vetchling, tufted vetch, common knapweed, cat's-ear, yarrow, glaucous sedge, and red fescue. Other species reflect the lack of management, and include bristly oxtongue, colt's-foot, field bindweed, hogweed, mugwort, horseradish, common nettle and false oat-grass. Damp habitat in or near the ditch is characterised by common fleabane, amphibious bistort, yellow loosestrife, water figwort, bulrush, common reed, and jointed rush. Vegetation on the road edge includes salt-tolerant plants such as buck's-horn plantain, grass-leaved orache and reflexed saltmarsh-grass. Woody species are a minor element of the flora, but include sycamore, willow, hawthorn, dog-rose, and bramble.'



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South Bank Fosdyke	0	ECC 14: Surfleet Marsh OnSS/Marsh Drove to the Connection Area	NNE	1.9km	Main Habitat: Coarse or rank grassland, saltmarsh (also scattered scrub, unimproved neutral grassland, mudflat).  'A man-made raised floodbank with wide berm along the southern side of the River Welland. The grassland is a mixture of rough neutral grassland dominated by sea couch, with areas of more calcareous finer grassland, particularly on the south facing bank. The banks are cut for hay and a loose management regime is in place. Abundant snail, grasshopper and butterfly species observed.'
Surfleet Bank	0	ECC 14: Surfleet Marsh OnSS/Marsh Drove to the Connection Area	NNW	0.8km	Main Habitat: Neutral grassland (also scrub, coarse or rank grassland, semi-improved calcareous grassland)  'A 540m long strip of sandy embankment and adjacent flat pasture on the north-western side of the tidal River Welland.  One of only two localities in Lincolnshire where the autumn lady's tresses orchid (Spiranthes spiralis) has been seen in the last 20 years. Previously recorded in 1994 where the grassland flora includes lady's bedstraw, fairy flax (Linum catharticum), common bird's-foot-trefoil, yellow oat-grass (Trisetum flavescens), quaking-grass (Briza media), and good quantities of the uncommon prickly sedge (Carex vulpine). Now subject to high level of rabbit occupation.  Good quality neutral grassland, especially on the northwest facing slope, supporting a selection of butterflies and day flying moths, as well as many soil mounds created by black ants (Lasius niger). Amongst the plants present are cat'sear, bulbous buttercup (Ranunculus bulbosus), meadow vetchling, lady's bedstraw, crested dog's-tail, sweet vernal-grass, quaking-grass and over 30 flowering spikes of pyramidal orchid. In addition, the southeast facing slope supports plentiful knotted hedge-parsley, a rather uncommon plant of barish places near the sea. Below this, some fairly coarse vegetation grades into saltmarsh.'
ECC 14: Surfleet Marsh OnSS/Marsh Drove to the	0.7	ECC 14: Surfleet Marsh OnSS/Marsh Drove to the Connection Area	W	1.7km	Main Habitat: River, marsh, calcareous grassland (also saltmarsh, mudflat, anthills, steep slopes, seasonally wet/damp areas.  'This site is adjacent to the tidal River Welland and forms the part of the flood plain for this river. Some of the flat is inundated daily but most is only flooded at Spring tide. There are three main habitats: patches of tidal mud flat, tidal salt marsh and



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Connection AreaECC 14: Surfleet Marsh OnSS/Marsh Drove to the Connection AreaSurfleet Seas End Saltmarsh					calcareous grassland higher up the bank and on the bank top. The Vernatt's Drain runs the length of the site on the other side of the bank.  Although the species count for the site, it is one of very few accessible salt marshes in this area with a public footpath through part of the site and the entire length on the adjacent bank. Few birds were observed on the day, but this stretch of river is known to be valuable for birds with regular visits from waders of all sorts, birds of prey, sand martins ( <i>Riparia riparia</i> ) and many others.'
Vernatt's Drain	0.7	ECC 14: Surfleet Marsh OnSS/Marsh Drove to the Connection Area	SW	10.7km	Main Habitat: Drain, calcareous grassland, neutral grassland, reedbed, coarse grassland (also scattered non-planted trees, tussocky vegetation, steep slopes. South-facing slopes, earthworks/hummocky ground)  'Vernatt's Drain is a large man-made watercourse resulting from the amalgamation of Counter Drain, North Drove Drain and South Drove Drain at Pode Hole.  Substantial stretches with a rich grassland flora. Species often found in good quality neutral grassland include yellow rattle, common knapweed, lady's bedstraw, pignut (Conopodium majus), southern marsh-orchid, tufted vetch, meadow vetchling, crested dog's-tail and sweet vernal-grass. Plants typical of calcareous soils are also present.  Common reed dominates much of the water's edge, but there are sections where a rich mixture of other wetland vegetation occurs. Some of the waterside plants in these places are flowering-rush (Butomus umbellatus), yellow iris, water dock, common club-rush, branched bur-reed, fool's-water-cress, lesser water-parsnip, water-cress, reed canary-grass and reed sweet-grass. Species characteristic of marshy areas include meadowsweet, marsh-marigold (Caltha palustris), angelica, common fleabane, brooklime (Veronica beccabunga), water mint, common spikerush, and common and jointed rush. In addition, the presence of sea club-rush, sea-purslane (Halimione portulacoides), sea couch and reflexed saltmarsh grass (Puccinellia distans subsp. Distans) suggests that the drain water includes a slightly saline element.



Site Name	Distance from the Order Limits (km)	Nearest Segment of the ECC	Compass Direction	Area/Length of Site (ha/km)	Description
					Amongst the many aquatic plants recorded in the period 2009-11 are five pondweeds, namely curled pondweed ( <i>Potamogeton crispus</i> ), hairlike pondweed ( <i>Potamogeton trichoides</i> ), fennel pondweed, flat-stalked pondweed ( <i>Potamogeton friesii</i> ) and perfoliate pondweed ( <i>Potamogeton perfoliatus</i> ). The aquatic flora also includes arrowhead ( <i>Sagittaria latifolia</i> ), spiked water-milfoil, mare's-tail, water-violet ( <i>Hottonia palustris</i> ), rigid hornwort ( <i>Ceratophyllum demersum</i> ), fan-leaved water-crowfoot ( <i>Ranunculus circinatus</i> ), fat duckweed ( <i>Lemna gibba</i> ), unbranched bur-reed ( <i>Sparganium emersum</i> ) and the national rarity ribbon-leaved water-plantain ( <i>Alisma gramineum</i> ).
					The site supports a good range of fauna, including breeding populations of reed and sedge warblers, reed bunting and sand martin. Amongst the invertebrates present are small skipper, small heath ( <i>Coenonympha pamphilus</i> ), ringlet, meadow brown, gatekeeper, smoky wainscot moth ( <i>Mythimna impure</i> ), common blue damselfly and Roesel's bush-cricket. An otter spraint was also found.'
Moulton River	1.0	ECC 14: Surfleet Marsh OnSS/Marsh Drove to the Connection Area	NE	5.4km	Main Habitats: Course or rank grassland, drain, and reedbed 'Site comprises stretch of canalised drain and associated banks, travels northeast towards Holbeach River but very low flow and shallow leading to algal growth, although water quality good with diverse aquatic flora. Bankside flora comprises ruderals and neutral grassland species with scrub/trees scarce. Site surveys have recorded a range of invertebrates, red list birds, and common toad ( <i>Bufo bufo</i> ).'
Moulton River	1.0	ECC 14: Surfleet Marsh OnSS/Marsh Drove to the Connection Area	NE	5.4km	Main Habitats: Course or rank grassland, drain, and reedbed 'Site comprises stretch of canalised drain and associated banks, travels northeast towards Holbeach River but very low flow and shallow leading to algal growth, although water quality good with diverse aquatic flora. Bankside flora comprises ruderals and neutral grassland species with scrub/trees scarce. Site surveys have recorded a range of invertebrates, red list birds, and common toad ( <i>Bufo bufo</i> ).'
River Glen Corridor	1.0	ECC 14: Surfleet Marsh OnSS/Marsh	WSW	21.6km	Main Habitat: River, coarse or rank grassland, semi-improved neutral grassland (also scrub, linear reedbed, scattered non-planted trees, steep slopes, ROW, south-facing slopes.



Site Name	Distance from the Order Limits (km)	Nearest Segment of the ECC	Compass Direction	Area/Length of Site (ha/km)	Description
		Drove to the Connection Area			'This is a botanically rich 20km stretch of the River Glen between Baston and Thurlby Fens Site of Special Scientific Interest and a sluice near the confluence with the River Welland. The 10-25m wide channel and both banks are included, as well as a strip of adjacent grassland within Willow Tree Fen nature reserve. The Macmillan Way long distance footpath is beside the river throughout.
					A wide range of aquatic plants in the river includes fennel and perfoliate pondweed, yellow water-lily ( <i>Nuphar lutea</i> ), whorled water-milfoil ( <i>Myriophyllum verticillatum</i> ), common, fat and ivy-leaved duckweed, water starwort ( <i>Callitriche stagnalis</i> ), unbranched bur-reed, arrowhead, rigid hornwort, water-crowfoot and <i>Riccia fluitans</i> (an aquatic liverwort). Amongst the diverse waterside flora are blue water-speedwell ( <i>Veronica persica</i> ), water-cress, brooklime, marsh woundwort ( <i>Stachys palustris</i> ), water forget-me-not ( <i>Myosotis scorpioides</i> ), common fleabane, yellow iris, water dock, reed sweet-grass, reed canary-grass, common reed, greater pond-sedge and tufted-sedge ( <i>Eriophorum angustifolium</i> ).
					Coarse grassland dominates drier habitats, but species typical of good neutral grassland are also present, such as common bird's-foot-trefoil, lady's bedstraw, yellow rattle, pignut ( <i>Conopodium majus</i> ), common knapweed, meadow vetchling, crested dog's-tail, yellow oat-grass, tor-grass ( <i>Bromus madritensis</i> ) and glaucous sedge. A few parts are quite well wooded, but typically the banks only support a scatter of woody plants, including grey willow ( <i>Salix cinerea</i> ), goat willow, white willow ( <i>Salix alba</i> ) and crack willow, hawthorn, elder, sycamore and bramble.'
Blue Gowt Drain, North	1.2	ECC 14: Surfleet Marsh OnSS/Marsh Drove to the Connection Area	W	1.1km	Main Habitat: Drain, coarse or rank grassland (also scattered scrub, linear reedbed)  'Measuring 1.1km long and 6-10m wide, this stretch of watercourse is of national significance due to the presence of a population of ribbon-leaved water-plantain, a species also occurring naturally in the nearby Counter Drain/Vernatt's Drain complex, but only in two other places in Britain. Consequently, the plant is protected under Schedule 8 of the Wildlife and Countryside Act (1981), is considered Critically Endangered, and is the subject of a Biodiversity Action Plan. It appears that ribbon-leaved water-plantain only grows and sets seed in Blue Gowt Drain in the years immediately following de-silting. The last record here was in



Site Name	Distance from the Order Limits (km)	Nearest Segment of the ECC	Compass Direction	Area/Length of Site (ha/km)	Description
					2007, when an estimated 50 plants produced 36 fruiting heads, as reported by Richard Lansdown.
					Other aquatic plants seen in 2012 were spiked water-milfoil, perfoliate and fennel pondweed, duckweed and the non-native Nuttall's waterweed ( <i>Elodea nuttallii</i> ). Waterside species include yellow iris, water figwort, meadowsweet, amphibious bistort, great willowherb, reed sweet-grass, reed canary-grass, common reed, and greater pond-sedge.
					Drier bankside habitat is mostly dominated by coarse grassland, as well as some hawthorn and elder bushes. Some of the more interesting plants here are tufted vetch, meadow vetchling, lesser trefoil, and red fescue.'
Pinchbeck Marsh	1.5	ECC 14: Surfleet Marsh OnSS/Marsh Drove to the Connection Area	SW	2.3km	Main Habitat: Calcareous grassland (also river, reedbed)  'The original SNCI here is now a large area of arable land between the Vernatt's Drain and the River Welland. Two crops were being grown there at the time of survey, wheat, and potatoes. The potato crop had recently been sprayed with acid. The southern end of this site is formed by the bank of the A16 Spalding Bypass and was also once the bank on the old Spalding to Boston Railway. When the road was completed in the early 1990s the verge was landscaped, and some planting took place on this bank.
					The Welland bank is more open and true grassland. On the river side of the bank there are patches of rank vegetation, but most is grassland, cut once a year by the EA. Some areas on the field side have been closed off and used to graze cattle.
					This stretch of the Welland is tidal. Incidental bird sightings included 35 mallard, a grey heron and a shag ( <i>Gulosus aristotelis</i> ) on or by the water.'
Lincolnshire	Wildlife Tru	ust Reserves		<u>'</u>	
Anderby Marsh	0	ECC 1: Landfall to A52 – Hogsthorpe	NNE	24ha	Main Habitat: Traditional coastal grazing marsh  'Managed to support a range of conservation priority birds including lapwing, curlew, redshank, snipe, barn owl, starling, and reed bunting. The adjacent reedbed fringes attract numerous reed, sedge, and Cetti's warblers. Marsh harrier is a regular sight in the summer as is cuckoo.



Site Name	Distance from the Order Limits (km)	Nearest Segment of the ECC	Compass Direction	Area/Length of Site (ha/km)	Description
					The southern section of the Reserve is also designated as Anderby Creek Sand Dunes LWS.'
Wolla Bank Reedbed	0	ECC 1: Landfall to A52 – Hogsthorpe	ENE	3ha	Main Habitats: Small pools, grassland with sea club-rush and sea couch.  'Water rail, reed warbler, sedge warbler, Cetti's warbler, grasshopper warbler, reed bunting and whitethroat all nest. Marsh harrier and hobby occur regularly in the summer and short-eared owls can be present in winter. Bearded tit is a regular visitor in the winter. Starling murmurations can sometimes be present in the winter months.  The Reserve has no other designation but lies between Anderby Creek Sand Dunes LWS to the north and Wolla Bank South LWS to the south.'
Wolla Bank Pit	0.3	ECC 1: Landfall to A52 – Hogsthorpe	E	4ha	Main Habitat: Flooded clay pits, reed bed, chalk grassland.  'Extensive reedbeds and sea club-rush, with great reedmace, fennel pondweed, wild celery, sea arrowgrass and water-crowfoot. Colonies of common spotted orchid. Winter birds include snipe, fieldfare, redwing, and song thrush, with bittern and bearded tit occasionally visiting. Also important for breeding populations of reed and sedge warblers, reed bunting and little grebe. Invertebrates include many species of lepidoptera and odonata.  The Reserve has no other designation but is adjacent to Wolla Bank South LWS.'
Moulton Marsh	0.3	ECC 12: Marsh Road to Fosdyke Bridge	NNE	36ha	Main Habitat: Broad-leaved woodland, scrub, saline lagoons, shallow tidal scrapes, grassland, saltmarsh.  'Young, planted broad-leaved woodland (6ha), two large saline lagoons with islands, river with shall tidal scrapes, and saltmarsh totalling 6.5ha in area. This reserve also includes the 26.3ha Moulton Marsh LWS.  The woodland and scrub habitats support a good population of tits, finches, whitethroats, and buntings. The lagoons are an important wintering area for little grebe and water rail. Redshank and little egret are regularly seen on the scrapes. The flood protection bank alongside the reserve has a variety of wildflowers, including pyramidal orchid, and attracts butterflies and other insects. Strawberry clover and sea-milkwort occur on the reserve.'



Site Name	Distance from the Order Limits (km)	Nearest Segment of the ECC	Compass Direction	Area/Length of Site (ha/km)	Description
Chapel Six Marshes	0.5	ECC 1: Landfall to A52 – Hogsthorpe	E	2.2ha	Main Habitat: coarse or rank grassland, lake, reedbed, scrub – scattered/dense 'A 750m stretch of coast forming part of the wider Chaper Six Marshes LWS designation. The northern, smaller area forms part of the Chapel Six Marshes LWS, while the remainder has visitor facilities much used by the public, owned, and managed by Lincolnshire County Council (LCC). Features common to both, from east to west, are bare sand on the upper beach; a line of low fixed dunes succeeded westwards by flatter dry habitat; and finally an old embankment beside the road. The upper beach is within Chapel Point to Wolla Bank geological SSSI.'
Frampton Marsh	0.7	ECC 11: The Haven to Marsh Road	E	172ha	Main Habitat: Saltmarsh 'The reserve is part of the most mature saltmarsh in The Wash and is exceptionally rich in plants, birds, and invertebrates. The upper levels, which have extensive zones of sea-lavender, sea aster and sea-purslane, are intersected by large creeks, one of which was the old course of the River Witham before the new cut was made in 1880.  The area supports regular breeders such as redshank, oystercatcher, reed bunting, meadow pipit and skylark. In winter the saltings attract wigeon, mallard, shelduck, teal and brent geese, with large flocks of finches and buntings, notably linnet and twite ( <i>Linaria flavirostris</i> ) and birds of prey such as hen harrier and merlin ( <i>Falco columbarius</i> ). The tidal mudflats form part of the wader feeding grounds, which give the Wash its international status. Large flocks of dunlin occur, as well as considerable numbers of grey plover, whimbrel, curlew, bar-tailed godwit, and greenshank.  The Trust's reserve is grazed together with the RSPB's reserve to the south.'
Friskney Decoy Wood	0	ECC 6: Steeping River to Fodder Dike Bank/Fen Bank	sw	6.0ha	'The site is comprised of woodland which is on a thin peat soil, mostly consisting of birch, sycamore and Scots pine with rowan, alder, willow and aspen. There are also larch, spruce and Corsican pine. Some woodland may have grown here before draining of the East Fen including a variety of novelty veteran trees, but most of the trees have been planted.  The ground flora is dominated in parts by bracken and buckler-fern. The climbing corydalis, a localised plant in eastern England, occurs throughout the wood.



Site Name	Distance from the Order Limits (km)	Nearest Segment of the ECC	Area/Length of Site (ha/km)	Description
				Over 30 species of birds have bred, and large numbers use the wood in winter for feeding and roosting. The main objectives of management are to maintain and enhance a varied woodland of mainly native trees and to retain the relict decoy pond and pipes as a wetland area.'



## 21.5.1.4 Important Plant Areas

24. North Norfolk Coast and The Wash Important Plant Area (IPA) is situated 146m east of ECC 11: The Haven to Marsh Road segment. The IPA has been identified for the vascular plant species richness of coastal habitats.

### 25. The Plantlife Website states that

'the saltmarshes hold four species of sea-lavender (including matted sea-lavender (Limonium bellidfolium), a species now confined to Norfolk within the British Isles). Present are marsh-mallow, shrubby sea-blite (Suaeda vera), sea purslane, salt meadow sedge, sharp sea rush or sea aster. There are also several species of glasswort also known as 'samphire' and collected for the kitchen. The dunes and shingle spits hold sea-holly, sea-heath (Frankenia pauciflora), hoary mullein (Verbascum Thapsus), the bright sea-pea and yellow-horned poppy (Glaucium flavum), as well as bee and pyramidal orchids, and in a few places, the dune slacks are home to marsh helleborines (Epipactis palustris) and southern marsh orchids'.

### 21.5.1.5 Ancient Woodland

26. There are no areas of ancient, semi-natural or ancient replanted woodland within the study area.

## 21.5.2 Habitats

### 21.5.2.1 Annex I habitats

27. The desk study returned no records of Annex I habitats within the Order Limits. The nearest Annex I habitats are associated with Saltfleetby-Theddlethorpe Dunes & Gibraltar Point SAC and The Wash (and North Norfolk Coast) SAC. Table 21.2 provides details of these habitats and Figure 21.1.1 illustrates their locations.

## 21.5.2.2 Section 41 Priority Habitats and Lincolnshire BAP Habitats

28. The definitions for each of the UK and Lincolnshire Biodiversity Action Plan (BAP) Habitats identified within the study area are provided below. Definitions have been taken from the Lincolnshire BAP (unless stated otherwise) as it provides more localised and relevant descriptions to which habitat features can be attributed. The exception to this is Mudflats, which are a Section 41 Priority Habitat but are excluded from the Lincolnshire BAP as 'they are already well addressed through the management of the Humber and Wash European Marine Sites (Lincolnshire BAP – 2011-2020).



- 29. A number of Lincolnshire BAP habitats including: hedgerows, rivers and drains, and ponds, lakes, and reservoirs, were recorded during the UKHab and condition assessment survey. These habitats are described further in Volume 3, Appendix 21.2: UK Habitat Classification Survey.
- 30. Lincolnshire BAP and Priority Habitats within the study area are summarised in Table 21.5 for each segment, except for ponds, lakes, and reservoirs, for which numbers are provided in the text. Figure 21.1.1 illustrates the locations of Priority Habitats and Figure 21.1.3 provides the habitat type at each location.

## **Coastal and Floodplain Grazing Marsh/Grazing Marsh**

31. Grazing marsh is defined within the Lincolnshire BAP as;

'periodically inundated, or wet, grassland with a high water table; usually bounded by brackish or freshwater ditches that frequently support diverse plant and invertebrate communities. Traditional grazing marsh can also include areas used for hay production with aftermath grazing. The habitat is most usefully considered as a complex with many elements including grassland, drainage ditches, fen and reedbed: water-filled hollows and permanent ponds with emergent swamp communities are often a feature of the habitat. Grazing marsh also includes washlands (areas of deliberately flooded pasture or meadow) and can be found in natural river floodplains, both large and small, as well as along the coast.'

32. Within the Order Limits there are 8.56ha of this habitat. Table 21.5 presents data on the total area of this habitat recorded within each segment.

#### **Coastal Saltmarsh**

33. The Lincolnshire BAP states that coastal saltmarsh

'occurs in the transitional zone between intertidal flats and terrestrial habitats. It develops in situations where sufficient shelter from strong wave action allows a net deposition of silt to occur. A limited number of salt tolerant plants colonise the deposited silts, between the mean high water of neap tides and the mean high water of spring tides, producing saltmarsh. Saltmarsh is an important resource for wading birds and wildfowl. It provides a hightide refuge for birds feeding on adjacent mudflats in winter and on passage in autumn/spring. Saltmarsh also provides sheltered nursery sites for several species of fish and can export nutrients to nourish neighbouring mudflats. Saltmarshes are important habitats for many rare invertebrates. It is also an excellent carbon sink; saltmarsh soils store 210g C m-2 yr-1, which is a substantial rate'.



34. Within the Order Limits there are 0.27ha of this habitat. Table 21.5 presents data on the total area of this habitat recorded within each segment.

#### **Coastal Sand Dunes**

35. The Lincolnshire BAP states that coastal sand dunes develop where there:

'is an adequate supply of sand in the intertidal zone and where onshore winds are prevalent. A sufficiently wide beach, the surface of which dries out between high tides, is also important. Dry sand is blown inland and deposited above the high-water mark, where it is trapped by strandline plants and dune-building grasses such as sand couch, marram and lyme grass.'

36. Within the Order Limits there are 2.39ha of this habitat. Table 21.5 presents data on the total area of this habitat recorded within each segment.

#### **Lowland Mixed Deciduous Woodland**

- 37. Within the Lincolnshire BAP 'Lowland mixed deciduous woodland:
  - '... includes woodland growing on the full range of soil conditions from very acidic to base-rich and takes in most semi-natural woodland in southern and eastern England'.
- 38. Within the Order Limits there are 0.55ha of this habitat. Table 21.5 presents data on the total area of this habitat recorded within each segment.

### **Traditional Orchard**

39. Within the Lincolnshire BAP traditional orchards are defined as:

'groups of fruit or nut trees planted on vigorous rootstocks at low densities in permanent grassland and managed in a low intensity way. This means little or no use of chemicals; relatively long-lived trees allowed to reach the veteran stage; and a permanent grass sward that is usually grazed by cattle or sheep or cut for hay. The minimum size of a traditional orchard is defined as five trees, with crown edges less than 20m apart (planting density will depend on the species of tree)'.

40. There are no traditional orchards within the Order Limits, but this habitat is present in the wider study area.



#### **Lowland Calcareous Grassland**

41. The Lincolnshire BAP states that:

'In the UK calcareous grasslands develop on shallow, lime-rich soils derived from limestone and chalk strata. These grasslands are now largely found on topographic features such as escarpments or dry valley slopes, on road verges and disused quarries. They are typically managed as components of pastoral or mixed-farming systems. The very rich flora of characteristic lime-loving plants makes the habitat important for a large range of invertebrates and a number of scarce and declining birds. Calcareous grassland is part of a mosaic of different habitats: scrub has always been part of this habitat, and its presence in small quantities is important in providing shelter and breeding sites for many species, but a balance must be achieved'.

42. Within the Order Limits there are 0.38ha of this habitat. Table 21.5 presents data on the total area of this habitat recorded within each segment.

#### **Mudflats**

43. Intertidal mudflats which are defined as:

'sedimentary intertidal habitats created by deposition in low energy coastal environments, particularly estuaries and other sheltered areas. Their sediment consists mostly of silts and clays with a high organic content... Mudflats are characterised by high biological productivity and abundance of organisms, but low diversity with few rare species. The mudflat biota reflects the prevailing physical conditions.<sup>4</sup> (JNCC, 2016a)

44. Within the Order Limits there are 2.39ha of this habitat. Table 21.5 presents data on the total area of this habitat recorded within each segment.

### Reedbeds/Reedbeds and Bittern

45. Within the Lincolnshire BAP reedbeds which are defined as:

'wetland habitats dominated by stands of common reed Phragmites australis, where the water table is at or above ground level for most of the year. Often occurring in association with other wetland habitats (for example wet woodland, ponds and lakes, rivers and drains, fens and marshes, and saline lagoons), they are of immense conservation value, supporting a range of species'.

<sup>4</sup> https://data.jncc.gov.uk/data/ca179c55-3e9d-4e95-abd9-4edb2347c3b6/ukbap-baphabitats-17-hedgerows.pdf



48

46. There are no reedbeds within the Order Limits, but this habitat is present in the wider study area.

## Saline Lagoons

47. The Lincolnshire BAP includes:

'coastal lagoons and saline ditches, which are virtually tideless, natural or man-made bodies of saline (salty), hyper-saline (very salty) or brackish (slightly salty) water wholly or partially separated from the sea, but with some influx of sea water. They are usually shallow and warm and can contain a variety of substrata, often soft sediments which in turn may support tasselweeds (Ruppia spp.) and stoneworts (Charales spp.) as well as filamentous green and brown algae. In addition, lagoons contain invertebrates rarely found elsewhere: they also provide important habitat for a range of water birds'.

48. There are no saline lagoons within the Order Limits, but this habitat is present in the wider study areas.

### **Other Priority Habitats**

- 49. In addition to those habitats identified during the desk study and list above, the following habitats were identified during the UK Habitat Classification Survey. These include:
  - Hedgerow and Trees;
  - Rivers, Canals, and Drains;
  - Ponds, Lakes and Reservoirs;
  - Arable Field Margins;
  - Blanket Bog;
  - Estuarine Rocky Habitats;
  - Infland Rock Outcrop and Scree Habitats;
  - Wet Woodland
- 50. Descriptions of these habitat types are provided below and in Volume 3, Appendix 21.2: UK Habitat Classification Survey. Lengths for the linear habitats are presented for each segment in Table 21.5 below.



# Hedgerows and hedgerow trees

51. The Lincolnshire BAP defines hedgerows as:

'linear strips of shrubs and trees often associated with features such as ditches, banks, and grass verges. They resemble woodland edge and scrub habitats and may contain relics of ancient woodland vegetation.'

52. Further, a hedgerow is defined as:

'any boundary line of trees or shrubs over 20m long and less than 5m wide, and where any gaps between the trees or shrub species are less that 20m wide... Any bank, wall, ditch, or tree within 2m of the centre of the hedgerow is considered to be part of the hedgerow habitat, as is the herbaceous vegetation within 2m of the centre of the hedgerow. All hedgerows consisting predominantly (i.e., 80% or more cover) of at least one woody UK native species are covered by this priority habitat.' (JNCC, 2016b).

53. There are a total of <u>73</u> hedgerows existing within the Order Limits.

### Rivers, Canals, and Drains

- 54. The definition for UK BAP-quality rivers<sup>6</sup> (JNCC, 2016c) is restricted to natural and nearnatural running waters, headwaters, and those that support designated species. However, the Lincolnshire BAP covers all of Lincolnshire's watercourses including natural, modified, and man-made. The extensive network of drainage ditches that dominate arable field margins across the area are therefore covered under the BAP.
- 55. There are a total of 408 drains and six rivers within the Order Limits.

## Ponds, Lakes and Reservoirs

56. Ponds, lakes and artificial still-waters, including reservoirs and fishing ponds amongst others, are including within the Lincolnshire BAP. Within this document a pond is defined as a

'small body of water – between 1m<sup>2</sup> and 2ha in area – which holds water for more than four months in a year. Anything larger than 2ha is defined as a lake.'

<sup>6</sup> https://data.jncc.gov.uk/data/01d6ab5b-6805-4c4c-8d84-16bfebe95d31/ukbap-baphabitats-45-rivers-2011.pdf



<sup>&</sup>lt;sup>5</sup> https://data.jncc.gov.uk/data/ca179c55-3e9d-4e95-abd9-4edb2347c3b6/ukbap-baphabitats-17-hedgerows.pdf

- 57. The Lincolnshire BAP states that this habitat category aligns with the two UK Priority Habitats eutrophic standing waters and ponds.
- 58. Within the Order Limits, eight ponds have been identified.

Table 21.5: Priority Habitats within the Study Area

Priority Habitat	Total within Order Limits	Total for Habitat survey area (100m buffer)	Total for desk study area (2km buffer)
ECC 1: Landfall to A52 - Hogsthorp	е		
Coastal and floodplain grazing marsh (ha)	0	N/A	18.48
Coastal sand dunes (ha)	2.39	N/A	20.99
Lowland mixed deciduous woodland (ha)	0	N/A	3.73
Mudflats (ha)	1.05	N/A	2.54
Reedbeds (ha)	0	N/A	3.05
Traditional orchard (ha)	0	N/A	0.15
Total Area	3.44	N/A	48.94
Hedgerows (km)	0.94	2.95	N/A
Rivers, Canals, and Drains (km)	4.36	10.33	N/A
ECC 2: A52 - Hogsthorpe to Marsh L	ane		
Coastal and floodplain grazing marsh (ha)	2.40	N/A	127.22
Lowland mixed deciduous woodland (ha)	0	N/A	0.65
Traditional orchard (ha)	0	N/A	0.34
Total Area	2.40	N/A	128.21
Hedgerows (km)	1.15	4.3	N/A
Rivers, Canals, and Drains (km)	3.04	12.07	N/A
ECC 3: Marsh Lane to A158 - Skegn	ess Road		
Coastal and floodplain grazing marsh (ha)	1.95	N/A	238.46
Lowland mixed deciduous woodland (ha)	0	N/A	1.02
Traditional orchard (ha)	0	N/A	0.12
Total Area	1.95	N/A	239.78
Hedgerows (km)	0.19	2.99	N/A
Rivers, Canals, and Drains (km)	1.44	8.71	N/A
ECC 4: A158 – Skegness Road to Lo	w Road		



Priority Habitat	Total within Order Limits	Total for Habitat survey area (100m buffer)	Total for desk study area (2km buffer)
Coastal and floodplain grazing marsh (ha)	0	N/A	157.68
Lowland mixed deciduous woodland (ha)	0	N/A	1.89
Total Area	0	N/A	159.57
Hedgerows (km)	0.01	0.86	N/A
Rivers, Canals, and Drains (km)	1.46	5.83	N/A
ECC 5: Low Road to Steeping River			
Coastal and floodplain grazing marsh (ha)	3.28	N/A	227.39
Deciduous woodland (ha)	0	N/A	5.15
Traditional orchard (ha)	0	N/A	0.09
Total Area	3.28	N/A	232.63
Hedgerows (km)	0.29	1.95	N/A
Rivers, Canals, and Drains (km)	3.19	13.47	N/A
ECC 6: Steeping River to Fodder Di	ke Bank/Fen Bank		
Coastal and floodplain grazing marsh (ha)	0.56	N/A	20.17
Deciduous woodland (ha)	0	N/A	10.70
Total Area	0.56	N/A	30.87
Hedgerows (km)	0.09	1.34	N/A
Rivers, Canals, and Drains (km)	2.26	9.56	N/A
ECC 7: Fodder Dike Bank/Fen Bank	to Broadgate		
Coastal and floodplain grazing marsh (ha)	0	N/A	7.00
Deciduous woodland (ha)	0	N/A	5.60
Traditional orchard (ha)	0	N/A	2.96
Total Area	0	N/A	16.78
Hedgerows (km)	0.39	2.5	N/A
Rivers, Canals, and Drains (km)	2.55	13.82	N/A
ECC 8: Broadgate to Ings Drove		•	
Coastal and floodplain grazing marsh (ha)	0.06	N/A	22.01
Deciduous woodland (ha)	0	N/A	1.91
Traditional orchard (ha)	0	N/A	1.82
Total Area	0.06	N/A	25.74
Hedgerows (km)	0.07	1.27	N/A
Rivers, Canals, and Drains (km)	3.58	15.07	N/A



Priority Habitat	Total within Order Limits	Total for Habitat survey area (100m buffer)	Total for desk study area (2km buffer)
ECC 9: Ings Drove to Church End L	ane		
Coastal floodplain grazing marsh (ha)	0	N/A	6.25
Traditional orchard (ha)	0	N/A	0.20
Total Area	0	N/A	6.45
Hedgerows (km)	0.35	1.04	N/A
Rivers, Canals, and Drains (km)	2.24	12.01	N/A
ECC 10: Church End Lane to The Ha	aven	1	
Coastal and floodplain grazing marsh (ha)	0	N/A	13.14
Coastal saltmarsh (ha)	0	N/A	11.69
Lowland mixed deciduous woodland (ha)	0.55	N/A	5.89
Mudflats (ha)	0.55	N/A	11.12
Total Area	1.10	N/A	41.84
Hedgerows (km)	0.18	0.9	N/A
Rivers, Canals, and Drains (km)	1.63	6.45	N/A
ECC 11: The Haven to Marsh Road			
Coastal and floodplain grazing marsh (ha)	0.01	N/A	153.12
Coastal saltmarsh (ha)	0	N/A	258.24
Lowland mixed deciduous woodland (ha)	0	N/A	16.02
Mudflats (ha)	0.64	N/A	19.24
Saline lagoons (ha)	0	N/A	1.01
Traditional orchard (ha)	0	N/A	7.38
Total Area	0.65	N/A	455.01
Hedgerows (km)	0.1	0.82	N/A
Rivers, Canals, and Drains (km)	1.84	10.45	N/A
ECC 12: Marsh Road to Fosdyke Br	idge		
Coastal and floodplain grazing marsh (ha)	0.32	N/A	7.57
Coastal saltmarsh (ha)	0	N/A	181.61
Lowland mixed deciduous woodland (ha)	0	N/A	5.17
Mudflats (ha)	0	N/A	17.17
Saline lagoons (ha)	0	N/A	0.44
Traditional orchard (ha)	0	N/A	0.26



Priority Habitat	Total within Order Limits	Total for Habitat survey area (100m buffer)	Total for desk study area (2km buffer)
Total Area	0.32	N/A	212.22
Hedgerows (km)	0.25	2.31	N/A
Rivers, Canals, and Drains (km)	2.29	9.39	N/A
ECC 13: Fosdyke to Surfleet Marsh	OnSS/Marsh Drove		
Coastal and floodplain grazing marsh (ha)	0	N/A	4.22
Coastal saltmarsh (ha)	0	N/A	1.13
Lowland mixed deciduous woodland (ha)	0	N/A	2.09
Lowland calcareous grassland (ha)	0	N/A	4.00
Mudflats (ha)	0	N/A	3.09
Traditional orchard (ha)	0	N/A	0.75
Total Area	0	N/A	15.28
Hedgerows (km)	0.51	3.33	N/A
Rivers, Canals, and Drains (km)	6.3	11.5	N/A
ECC 14: Surfleet Marsh OnSS/Marsl	n Drove to the Conn	nection Area	
Coastal and floodplain grazing marsh (ha)	0	N/A	57.05
Coastal saltmarsh (ha)	0.27	N/A	2.64
Lowland mixed deciduous woodland (ha)	0	N/A	9.70
Lowland calcareous grassland (ha)	0.38	N/A	0.67
Mudflats (ha)	0.17	N/A	6.26
Traditional orchard (ha)	0	N/A	0.16
Total Area	0.82	N/A	76.43
Hedgerows (km)	1.42	0.74	N/A
Rivers, Canals, and Drains (km)	4.16	6.23	N/A

## 21.5.2.3 Habitat Networks

- 59. Habitat Networks are centred primarily on 18 priority habitat types, some of which lie within, or near to the Order Limits. The Habitat Network Maps provide spatial information on the opportunities for priority habitat restoration, creation, enhancement and connection with associated habitats in the surrounding landscape. Mapping is available from Natural England on the Catchment Based Approach Data Hub website.
- 60. Habitat Networks have been established around several priority habitats within the Order Limits, including coastal sand dunes at Wolla Bank and habitat mosaics (including



coastal saltmarsh and mudflats) on The Haven and River Welland. There are also several occurrences of habitat zoning (including Fragmentation Action Zones, Network Enhancement Zones 1 and 2 and Network Enhancement Zones), that are within the Order Limits, but associated with priority habitats beyond it. Occurrences include those coastal priority habitats associated with The Wash between Boston and the River Welland, and restorable coastal floodplain and grazing marsh to the southwest of Hogsthorpe.

# **21.5.3** Species

#### 21.5.3.1 Plants

- 61. There are no records of important plants within the Order Limits.
- 62. GLNP returned records for two important plant species from within the study area: bluebell (*Hyacinthoides non-scripta*) and Deptford pink (*Dianthus armeria*). Bluebell and Deptford pink are both protected under the Wildlife and Countryside Act 1981 (as amended). Deptford pink is also classified as endangered on the Vascular Plant Red Data List for Great Britain (Cheffings, C.M. *et al.*, 2015). The locations of important plant records returned from GLNP are provided in Table 21.6 with Figure 21.1.4 ilustrating the locations of the records.
- 63. Important plant records have also been extracted from the citations for statutory and non-statutory sites and are presented in Table 21.6. The conservation status of each plant is taken from the BSBI Website and the Lincolnshire Naturalist Union Website. No species list was available for South Lincolnshire.
- 64. A single record for Boston horsetail exists on the banks of The Haven, upstream of the onshore ECC. In England, Boston horsetail is known only to occur near Boston and in North Somerset. In 2019, the Environment Agency propagated and introduced Boston Horsetail at The Haven as part of management and maintenance work at Boston Barrier (Environment Agency, 2019).



**Table 21.6: Records of Important Plants within Designated Sites** 

Species	Importance	Designated Site	Nearest segment	Distance from Order Limits (km)
Autumn ladies' tresses orchid	Red Data List: Nationally threatened. Locally very rare.	Surfleet Bank LWS	ECC 13: Fosdyke to Surfleet Marsh OnSS/Marsh Drove	0.5
Bluebell	Protected under Schedule 8 of the WCA 1981 (as amended).	Recorded at Graves Farm, near Fosdyke.	ECC 12: Marsh Road to Fosdyke Bridge	0.5
Boston (or branched) Horsetail	Protected under Schedule 8 of the WCA 1981 (as amended). Red Data List: Vulnerable. Nationally scarce; only present near Boston and in North Somerset.	Slippery Gowt Sea Bank LWS	ECC 10: Church End Lane to The Haven	1.5
Brackish water	Red Data List species: Endangered.	Sea Bank Clay Pits SSSI	ECC 1: Landfall to A52 – Hogsthorpe	0
crowfoot	Nationally rare and locally scarce.	Chapel Six Marshes LWS	ECC 1: Landfall to A52 – Hogsthorpe	0
Deptford pink	Protected under Schedule 8 of the WCA 1981 (as amended).  Red Data List: Nationally endangered. JNCC Species Status Assessment: nationally scarce. Priority Species; NERC Section 41 species.  Recorded as locally extinct.	Risegate Eau LWS	ECC 13: Fosdyke to Surfleet Marsh OnSS/Marsh Drove	0



Species	Importance	Designated Site	Nearest segment	Distance from Order Limits (km)
Glasswort species	Many are nationally scarce and locally rare or scarce.	Chapel Six Marshes LWS (probable)	ECC 1: Landfall to A52 – Hogsthorpe	0
Ribbon-leaved water- plantain	Red Data List: critically endangered. Schedule 8 of the WCA 1981 (as amended). NERC Section 41 species.	Vernatt's Drain LWS	ECC 14: Surfleet Marsh OnSS/Marsh Drove to the Connection Area	0.7
Soft hornwort	Red Data List species: Least concern. Nationally rare, locally very rare.	Sea Bank Clay Pits SSSI	ECC 1: Landfall to A52 – Hogsthorpe	0



# 21.5.3.2 Invertebrates

65. The GLNP data search returned no records for invertebrates. Records for important invertebrate species within the 2km study area have instead been extracted from LWS citations and are provided in Table 21.7.

Table 21.7: Records of Important Invertebrates Within Designated Sites

Designation	Notes on Invertebrates
Within the Order Limits	
Sea Bank Clay Pits SSSI	Supports a rich aquatic invertebrate fauna, notably beetles, including several nationally scarce species and others new to the County.
Havenside LWS	Significant Value to invertebrates.
Risegate Eau	Leslie Hebdon's records show that there is an excellent selection of bees, wasps, and other insects west of Allen's Bridge. One of these, the large garden bumblebee (or ruderal bumblebee), is a nationally notable UK BAP species, while the nationally rare tawny longhorn beetle is listed as RDB3. The abundance of dandelion and white dead-nettle here is important in providing food for bees immediately after they emerge from hibernation.
Beyond the Order Limits	
Saltfleetby-Theddlethorpe Dunes SSSI (and Lincolnshire Coronation Coast NNR)	Invertebrates recorded include several notable moths and nationally rare species from the moth and beetle families.
Gibraltar Point SPA, Ramsar, SSSI	Ramsar: Gibraltar Point has an appreciable assemblage and number of rare wetland invertebrate species, representing an important habitat of a number of Red Data Book invertebrates four of which are listed as endangered including, <i>Gymnacyla canella</i> and <i>Rhymosia connexa</i> and eight species listed as rare including <i>Athetis pallustris</i> and <i>Eupithecia extensaria</i> . Gibraltar point supports a notable number of dragonfly species with up to 13 being recorded notably <i>Brachytron pratense</i> .
	SSSI: Invertebrates include Lepidoptera, Diptera and Coleoptera, including 12 species which are nationally rare.
Calceby Marsh SSSI	The site is one of the few stations in the county, outside the Cambridgeshire Fens, where the marsh moth occurs.



Designation	Notes on Invertebrates
Vernatt's Drain LWS	Vulnerable small heath, and Roesel's bush- cricket recorded at this LWS.



## 21.5.3.3 Fish

- 66. GLNP data search did not return any records of fish from within the Order Limits.
- 67. GLNP returned records of two species from the wider study areas. Three records for river lamprey (*Lampetra fluviatilis*) were returned from the River Welland at the southern end of the Order Limits, and one record of burbot (*Lota lota*) from a fishing lake approximately 1.5km west of the Order Limits.
- 68. A desk-based search of Environment Agency online records has been undertaken<sup>7</sup>. The results are reported below in Table 21.8 and illustrated in Figure 21.1.5.

Table 21.8: Records of Fish Species inside the Study Area

Species	Number of Records							
	2013	2014	2015	2016	2017	2018	2019	2020
Bleak (Alburnus alburnus)	1	0	0	4	0	0	2	0
Cod (Gadus morhua)	2	0	0	0	0	3	1	0
Common Bream (Abramis brama)	4	0	0	8	0	0	2	0
Common Goby (Pomatoschistus microps)	0	4	0	0	3	0	5	0
Crystal Goby (Crystallogobius linearis)	0	1	0	0	0	0	0	0
Dab ( <i>Limanda limanda</i> )	1	0	0	0	0	2	0	0
Dover Sole (Solea solea)	0	2	0	0	7	2	3	1
European Eel (Anguilla anguilla)	2	0	0	1	0	0	0	0
Flounder ( <i>Platichthys</i> <i>flesus</i> )	7	3	0	0	16	5	11	6
Greater Pipefish (Syngnathus acus)	0	0	0	0	3	3	0	0

<sup>&</sup>lt;sup>7</sup> EA Ecology & Fish Data Explorer: <a href="https://environment.data.gov.uk/ecology/explorer/">https://environment.data.gov.uk/ecology/explorer/</a> (accessed 19<sup>th</sup> September 2023)



Species	Number of Records							
	2013	2014	2015	2016	2017	2018	2019	2020
Gudgeon (Gobio gobio)	2	0	0	1	0	0	1	0
Herring (Clupea harengus)	5	6	0	0	9	6	9	6
Hooknose/Pogge (Agonus cataphractus)	0	0	0	0	0	2	0	0
Lesser Pipefish (Syngnathus rostellatus)	0	6	0	0	7	0	12	5
Perch ( <i>Perca</i> fluviatilis)	4	0	1	8	0	0	2	0
Pike (Esox Lucius)	6	0	1	8	0	0	1	0
Plaice (Pleuronectes platessa)	4	0	0	0	4	5	3	0
Red Mullet (Mullus surmulletus)	0	0	0	0	0	1	0	0
Roach (Rutilus rutilus)	4	0	1	8	0	0	2	0
Roach x Bream hybrid ( <i>Rutilus</i> rutilus x Abramis brama)	3	0	1	4	0	0	1	0
Rudd (Scardinius erythrophthalmus)	1	0	1	4	0	0	1	0
Ruffe (Gymnocephalus cernuus)	5	0	0	7	0	0	1	0
Sand Goby (Pomatoschistus minutus)	6	5	0	0	12	6	12	6
Sea Bass (Dicentrarchus labrax)	1	0	0	0	6	4	6	1
Silver Bream ( <i>Abramis</i> <i>bjoerkna</i> )	1	0	1	0	0	0	0	0
Smelt (Osmerus eperlanus)	3	6	0	0	7	3	11	5
Sprat (Sprattus sprattus)	1	6	0	0	4	0	2	0
Tench ( <i>Tinca</i> tinca)	0	0	1	2	0	0	0	0



Species	Number of Records							
	2013	2014	2015	2016	2017	2018	2019	2020
Thin-lipped Grey Mullet ( <i>Liza</i> ramada)	0	0	0	0	0	0	0	2
Three-Spined Stickleback (Gasterosteus aculeatus)	1	0	0	0	1	0	1	0
Viviparous Blenny (Zoarces viviparus)	4	1	0	0	2	1	2	0
Whiting (Merlangius merlangus)	1	0	0	0	4	6	2	4

# 21.5.3.4 Amphibians

- 69. GLNP returned records of four species of amphibian from within the study area. These are:
  - GCN;
  - · Smooth newt;
  - · Common toad; and,
  - · Common Frog.
- 70. No records of GCN were returned from within the Order Limits with relatively low numbers of records of common frog, common toad and smooth newt returned.
- 71. Table 21.9 provides a summary of amphibian records received for the Study Area. The locations of amphibian records returned from GLNP are provided in Figure 21.1.6.



Table 21.9: Records for Amphibians within the Study Area

Total Number of Records									
Segment (and option)	Great crested newt		Smooth newt		Common toad		Common frog		
	Inside Order Limits	Beyond Order Limits							
ECC 1: Landfall to A52 – Hogsthorpe	0	2	0	1	0	17	0	27	
ECC 2: A52 – Hogsthorpe to Marsh Lane	0	0	0	0	0	0	0	1	
ECC 3: Marsh Lane to A158  – Skegness Road	0	16	0	0	0	0	0	0	
ECC 4: A158 – Skegness Road – Low Road	0	5	0	0	0	1	0	2	
ECC 5: Low Road to Steeping River	0	0	0	0	0	4	0	5	
ECC 6: Steeping River- Fodder Dyke Bank	0	7	0	3	0	1	0	5	
ECC 7: Fodder Dike Bank/Fen Bank to Broadgate	0	0	0	0	1	5	1	5	
ECC 8: Broadgate to Ings Drove	0	0	0	1	0	8	0	8	
ECC 9: Ings Drove to Church End Lane	0	0	0	1	0	1	0	3	
ECC 10: Church End Lane  - The Haven	0	0	0	2	0	0	0	2	
ECC 11: The Haven – Marsh Road	0	0	0	0	0	2	0	0	
ECC 12: Marsh Road – Fosdyke Bridge	0	0	0	0	0	1	0	0	
ECC 13: Fosdyke to Surfleet Marsh OnSS/Marsh Drove	0	0	0	0	0	0	0	0	
ECC 14: Surfleet Marsh OnSS/Marsh Drove to the Connection Area	0	0	0	0	0	1	0	0	
Total	0	30	0	8	1	41	1	58	

72. Class Licence Survey Returns published on the Multi-Agency Geographical Information for the Countryside (MAGIC) website include records of GCN presence at four locations within the study area. Details are provided in Table 21.10 No results were returned within the Order Limits.



Table 21.10: Records of GCN Class Licence Surveys within the Study Area

Location	Nearest Segment	Date	Details
TF 520653 c.0.4km southwest of Order Limits	ECC 3: Marsh Lane to A158 - Skegness Road	26.04.17; 09.05.17; 13.06.17; 21.06.17 and 24.06.17.	Positive result of GCN presence found during every survey.
TF 517651 c.0.6km north of Order Limits	ECC 3: Marsh Lane to A158 - Skegness Road	10.05.17; 15.05.17; 25.05.17 and 05.06.17	Positive result of GCN presence found during every survey. A peak count of 9 individuals was made on 25.05.17 and again on 30.05.17.
TF 500565 c.1.8km east by southeast of Order Limits	ECC 6: Steeping River to Fodder Dike Bank/Fen Bank	30.05.17	Positive result of GCN presence from single survey.
TF 520536 c.1.7km west of Order Limits	ECC 11: The Haven to Marsh Road	20.05.15; 23.05.15; 27.05.15; 29.05.15 and 03.06.15	Positive result of GCN presence found during every survey.

## **21.5.3.5** Reptiles

- 73. GLNP returned records of three species of reptile from the study area. These are:
  - Common lizard (Zootoca vivipara);
  - Grass snake (Natrix natrix); and,
  - Slow worm (Anguis fragilis).
- 74. A single record of grass snake was returned from within the Order Limits from the River Welland near segment ECC 7: Fodder Dike Bank/Fen Bank to Broadgate.
- 75. Table 21.11 provides a summary of the records for each species and Figure 21.1.7 illustrates the locations.

Table 21.11: Records for Reptiles within the Study Area

Total Number of Records										
Segment	Grass snake		Commo	on	Slow					
	Inside Order Limits	Beyond Order Limits	Inside Order Limits	Beyond Order Limits	Inside Order Limits	Beyond Order Limits				
ECC 1: Landfall to A52 – Hogsthorpe	0	9	0	6	0	1				
ECC 2: A52 – Hogsthorpe to Marsh Lane	0	4	0	0	0	0				
ECC 3: Marsh Lane to A158 – Skegness Road	0	4	0	0	0	0				



Total Number of Re	cords					
ECC 4: A158 – Skegness Road – Low Road	0	3	0	0	0	0
ECC 5: Low Road to Steeping River	0	8	0	0	0	0
ECC 6: Steeping River to Fodder Dike Bank/Fen Bank	0	6	0	0	0	0
ECC 7: Fodder Dike Bank/Fen Bank to Broadgate	1	5	0	0	0	0
ECC 8: Broadgate to Ings Drove	0	7	0	0	0	0
ECC 9: Ings Drove to Church End Lane	0	1	0	0	0	0
ECC 10: Church End Lane – The Haven	0	3	0	0	0	0
ECC 11: The Haven – Marsh Road	0	21	0	0	0	1
ECC 12: Marsh Road – Fosdyke Bridge	0	2	0	0	0	0
ECC 13: Fosdyke to Surfleet Marsh OnSS/Marsh Drove	0	1	0	0	0	0
ECC 14: Surfleet Marsh OnSS/Marsh Drove to the Connection Area	0	0	0	0	0	0
Total	1	74	0	6	0	2

## 21.5.3.6 Bats

- 76. A total of 11 species of bat have been recorded in Lincolnshire (GLNP, 2013b).
  Records for ten of these 11 species have been returned from the GLNP.
- 77. Within the Order Limits there is one record of a roost for brown long-eared and one record of a roost for pipistrelle bat species.
- 78. There are other (non-roost) records for brown long-eared, common pipistrelle, soprano pipistrelle, Nathusisus' pipistrelle (*Pipistrellus nathusii*) Pipistrellus sp., Daubenton's (*Myotis daubentonii*), Myotis sp., noctule, Nyctalus sp. and Western barbastelle (*Barbastellus*).
- 79. The locations of records for bats the 2km study area are illustrated in Figure 21.1.8, with records of species recorded within each segment summarised in Table 21.12.
- 80. Table 21.13 provides the records for bat roosts within the 5km study area and Figure 21.1.9 illustrates the locations of these records. Within both Table 21.12 and Table 21.13, data relating to 'bats' refer to records where species level of identification was not provided and have been included to provide context on bat presence within the study area only. Those records for 'pipistrelle' and 'Myotis' were available to genus level only.



Table 21.12: Records for Bats within the Study Area

Total Number of Re	ecords																					
	Unide Bat	ntified	Brown Long-		Pipistr Specie		Comm Pipist		Sopra Pipist		Nathu Pipist		Noctu	le Bat	Myotis Specie		Daube s Bat	nton'	Nyctal Specie		Weste Barba	
Segment	Inside Order Limits	Beyond Order Limits																				
ECC 1: Landfall to A52 – Hogsthorpe	0	15	0	0	0	0	0	5	0	1	0	1	0	1	0	0	0	0	0	0	0	0
ECC 2: A52 – Hogsthorpe to Marsh Lane	0	5	0	0	0	3	0	7	0	0	0	0	0	3	0	0	0	0	0	0	0	0
ECC 3: Marsh Lane to A158 – Skegness Road	0	7	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ECC 4: A158 – Skegness Road – Low Road	0	6	0	2	0	7	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ECC 5: Low Road to Steeping River	0	20	0	6	0	9	0	7	0	0	0	0	0	1	0	1	0	1	0	0	0	0
ECC 6: Steeping River to Fodder Dike Bank/Fen Bank	0	17	0	2	0	8	0	3	0	1	0	0	0	1	0	0	0	0	0	0	0	2
ECC 7: Fodder Dike Bank/Fen Bank to Broadgate	0	53	0	2	0	8	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ECC 8: Broadgate to Ings Drove	0	34	0	6	0	7	0	5	0	0	0	0	0	0	0	0	0	2	0	0	0	0



Total Number of Re	cords	5																				
ECC 9: Ings Drove to Church End Lane	0	34	0	2	0	15	0	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0
ECC 10: Church End Lane – The Haven	0	25	0	5	0	6	0	4	0	4	0	0	0	0	0	0	0	3	0	0	0	0
ECC 11: The Haven – Marsh Road	0	10	0	3	0	3	0	2	0	2	0	1	0	5	0	2	0	2	0	1	0	0
ECC 12: Marsh Road – Fosdyke Bridge	0	22	0	1	0	1	0	7	0	2	0	0	0	2	0	0	0	0	0	0	0	0
ECC 13: Fosdyke to Surfleet Marsh OnSS/Marsh Drove	0	8	0	1	0	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
ECC 14: Surfleet Marsh OnSS/Marsh Drove to the Connection Area	0	20	0	1	0	4	1	16	0	3	0	0	0	0	0	3	0	7	0	0	0	0
Total	0	276	0	31	0	72	1	59	0	13	0	2	0	14	0	7	0	16	0	1	0	2



Table 21.13: Records for Roosting Bats within the 5km Study Area

Segment	Unidentified Bat		Brown Long-eared Bat		Pipistrelle Species		Common Pipistrelle		Soprano Pipistrelle		Natterer's Bat		Noctule Bat		Myotis Species		Daubenton's Bat	
	Inside Order Limits	Beyond Order Limits	Inside Order Limits	Beyond Order Limits	Inside Order Limits	Beyond Order Limits	Inside Order Limits	Beyond Order Limits	Inside Order Limits	Beyond Order Limits	Inside Order Limits	Beyond Order Limits	Inside Order	Beyond Order	Inside Order	Beyond Order Limits	Inside Order Limits	Beyond Order Limits
ECC 1: Landfall to A52 – Hogsthorpe	0	1	0	3	0	1	0	3	0	1	0	1	0	0	0	0	0	0
ECC 2: A52 – Hogsthorpe to Marsh Lane	0	1	0	5	0	6	0	1	0	0	0	1	0	0	0	0	0	0
ECC 3: Marsh Lane to A158  – Skegness Road	0	4	0	10	0	11	0	5	0	0	0	2	0	0	0	0	0	0
ECC 4: A158 – Skegness Road – Low Road	0	1	0	7	0	45	0	3	0	0	0	0	0	0	0	0	0	0
ECC 5: Low Road to Steeping River	0	4	1	6	0	10	0	4	0	0	0	0	0	0	0	0	0	0
ECC 6: Steeping River to Fodder Dike Bank/Fen Bank	0	1	0	0	0	2	0	2	0	1	0	0	0	0	0	0	0	0
ECC 7: Fodder Dike Bank/Fen Bank to Broadgate	0	3	0	1	0	5	0	0	0	0	0	0	0	0	0	0	0	0
ECC 8: Broadgate to Ings Drove	0	1	0	3	0	9	0	3	0	1	0	0	0	0	0	0	0	1
ECC 9: Ings Drove to Church End Lane	0	6	0	3	0	18	0	1	0	0	0	0	0	0	0	0	0	4
ECC 10: Church End Lane – The Haven	0	5	0	5	0	9	0	1	0	1	0	0	0	0	0	0	0	0



Segment	Unidentified Bat		Bro Long- Ba	eared	Pipis Spe		Com Pipis		Sop Pipis		Natte Ba			tule at	Myo Spe		Daube Ba	
	Inside Order Limits	Beyond Order Limits	Inside Order	Beyond Order	Inside Order	Beyond Order Limits	Inside Order Limits	Beyond Order Limits										
ECC 11: The Haven – Marsh Road	0	11	0	6	0	11	0	4	0	0	0	0	0	6	0	0	0	2
ECC 12: Marsh Road – Fosdyke Bridge	0	3	0	9	0	9	0	6	0	1	0	0	0	0	0	2	0	0
ECC 13: Fosdyke to Surfleet Marsh OnSS/Marsh Drove	0	2	0	2	0	5	0	2	0	1	0	1	0	0	0	0	0	0
ECC 14: Surfleet Marsh OnSS/Marsh Drove to the Connection Area	0	14	0	7	1	25	0	13	0	11	0	0	0	0	0	0	0	5



## 21.5.3.7 Badger

81. GLNP returned just over 400 records of badger from within the Study Area. Details of badger records are presented separately in Volume 3, Appendix 21.5: Confidential Badger Survey.

#### 21.5.3.8 Other Terrestrial Mammals

82. A single record for red squirrel (*Sciurus vulgaris*) exists to the south of the Connection Area. Figure 21.1.10 illustrates this as being beyond the 2km study area. However, only a four-figure grid reference was provided, so the exact location of the record could be anywhere within this 1km square (see Section 2.1.3: Limitations for further details).

#### 21.5.3.9 Marine Mammals

83. For marine mammals, a small number of four-figure grid references were also obtained for common porpoise (*Phocoena Phocoena*), fin whale (*Balaenoptera physalus*), harbour seal (*Phoca vitulina*), grey seal (*Halichoerus grypus*) and hooded seal (*Cystophora cristata*) (refer to Figure 21.1.11). The limited availability of only four figure grid references resulted in a significant reduction in the precision and accuracy of the recorded data. Consequently, certain marine mammals were erroneously marked as being on land when their actual location is more likely to be on or near to a water body within the same 1km square (see Section 2.1.3: Limitations for further details).

#### 21.5.3.10Otter

- 84. GLNP returned one record of otter within the Order Limits. Additionally, 92 records of otter have been recorded within the Study Area.
- 85. Table 21.14 presents a summary of the otter records (along with water vole records) and the locations are shown in Figure 21.1.12.

## 21.5.3.11Water Vole

86. GLNP returned 33 records from within the Order Limits. Over 2000 records of water voles were returned within the study area.



87. Table 21.14 presents a summary of the records, and the locations are shown in Figure 21.1.21.

Table 21.14: Records for Otter and Water Voles Within the Study Area

	Total Number	of Records		
Segment	0	tter	Wate	r vole
	Inside Order Limits	Beyond Order Limits	Inside Order Limits	Beyond Order Limits
ECC 1: Landfall to A52 – Hogsthorpe	0	16	0	223
ECC 2: A52 – Hogsthorpe to Marsh Lane	0	7	1	455
ECC 3: Marsh Lane to A158 – Skegness Road	0	0	12	416
ECC 4: A158 – Skegness Road – Low Road	0	1	13	356
ECC 5: Low Road to Steeping River	0	12	7	379
ECC 6: Steeping River to Fodder Dike Bank/Fen Bank	0	20	0	40
ECC 7: Fodder Dike Bank/Fen Bank to Broadgate	0	1	0	3
ECC 8: Broadgate to Ings Drove	0	8	0	11
ECC 9: Ings Drove to Church End Lane	0	4	0	3
ECC 10: Church End Lane – The Haven	0	6	0	3
ECC 11: The Haven – Marsh Road	0	1	0	96
ECC 12: Marsh Road – Fosdyke Bridge	0	1	0	54
ECC 13: Fosdyke to Surfleet Marsh OnSS/Marsh Drove	1	1	0	8
ECC 14: Surfleet Marsh OnSS/Marsh Drove to the Connection Area	0	14	1	148
Total	1	92	33	2195



# 21.6 Conclusion

- 88. The ecology desk study returned a large number of records from within the Order Limits including designated sites supporting priority habitats and red data list species of plant and insects, amphibians including GCN, reptiles, bat roosts, badgers, water voles, and otter.
- 89. These records have contributed to the understanding of the ecological baseline within the Order Limits and provide context to the results of protected species surveys, as reported in Chapter 21 (document reference 6.1.21) of the ES.



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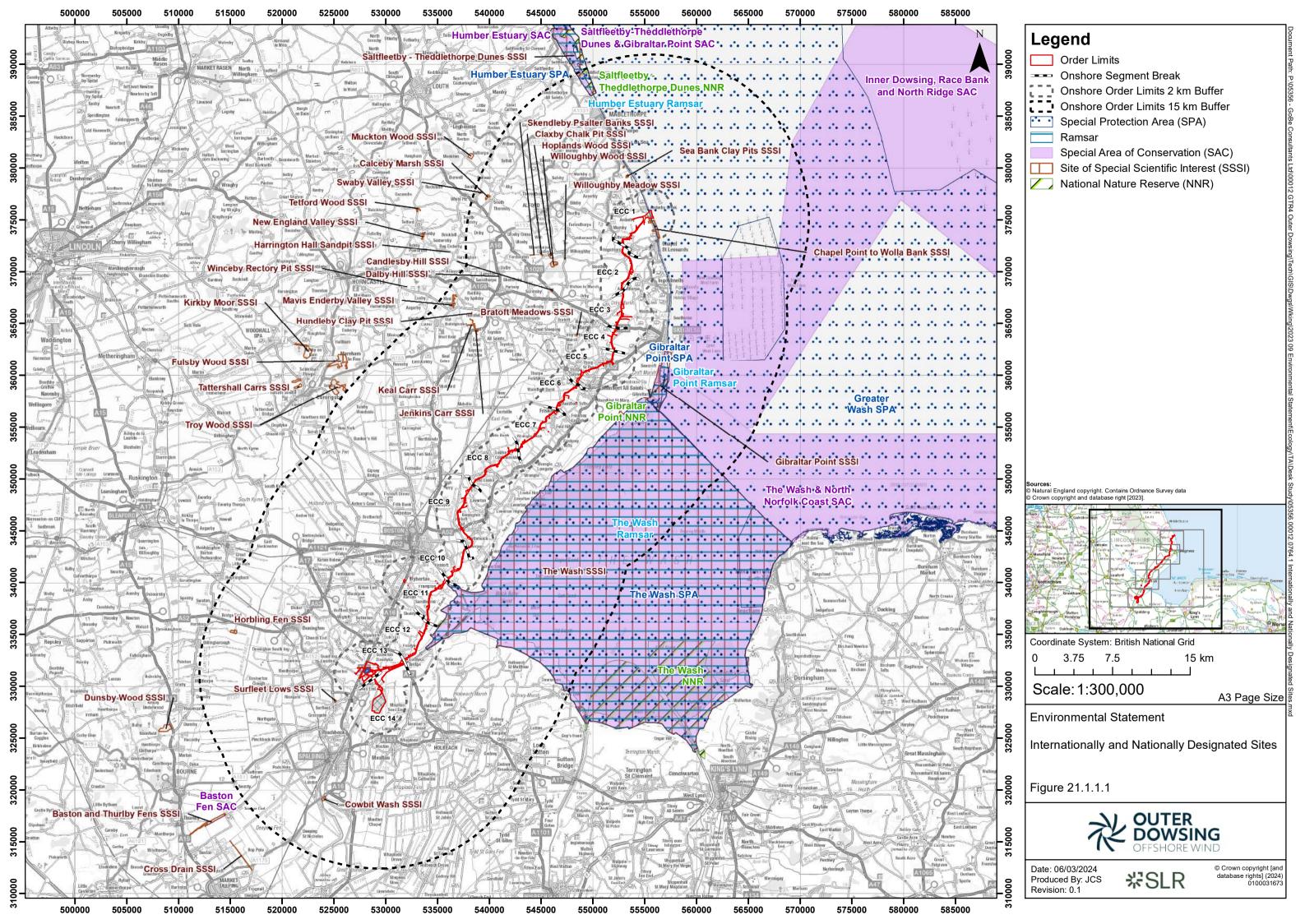
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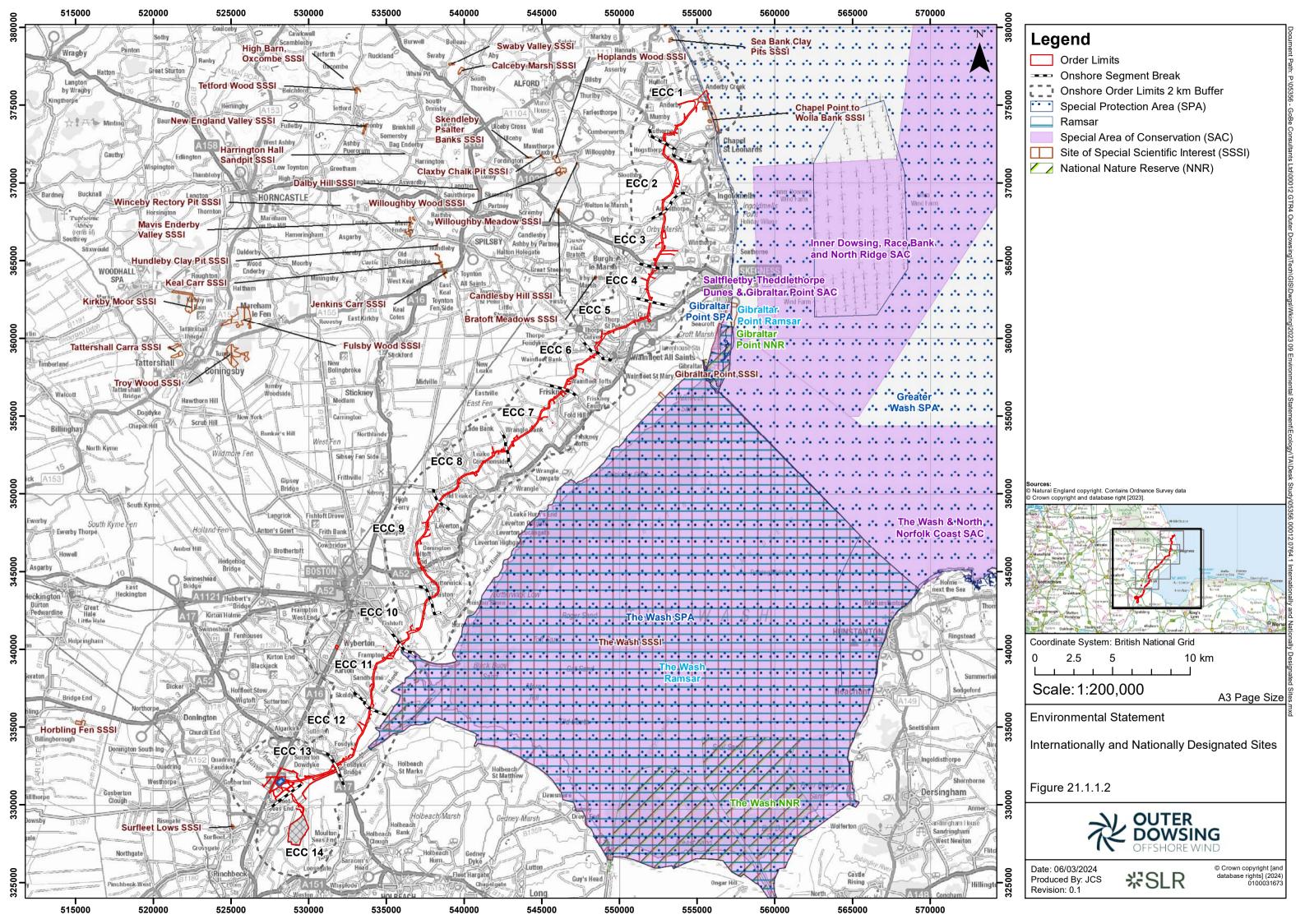


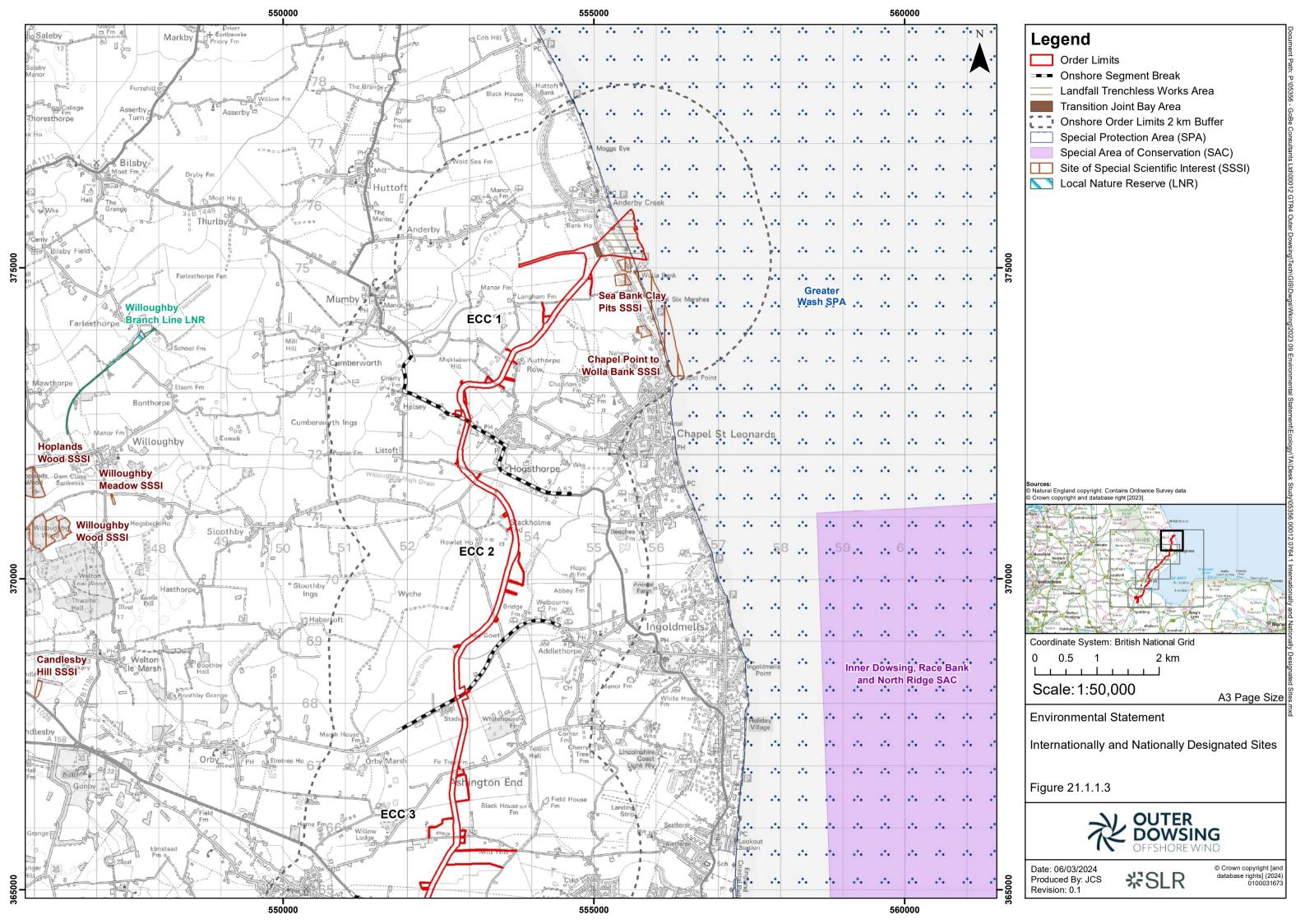
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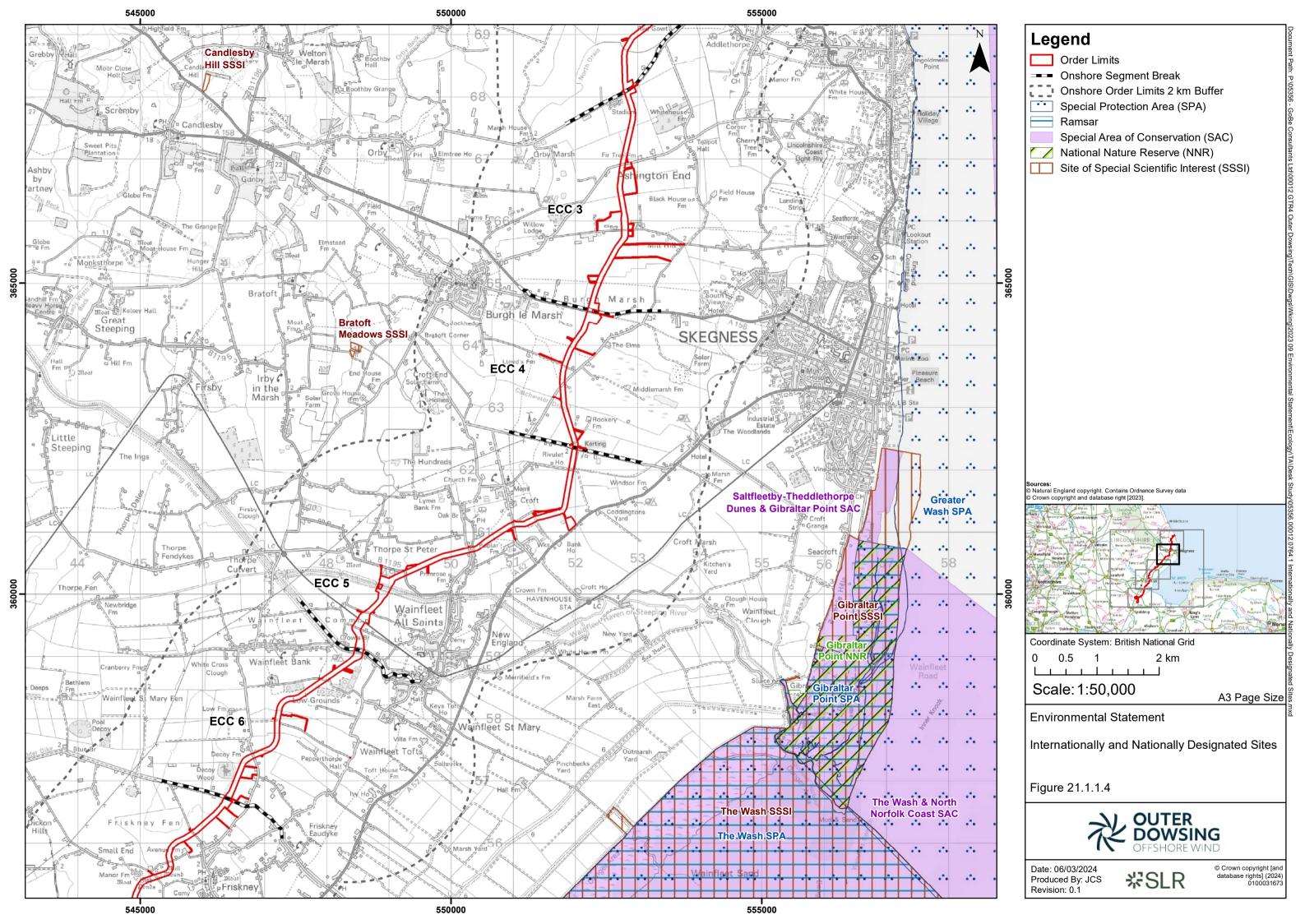
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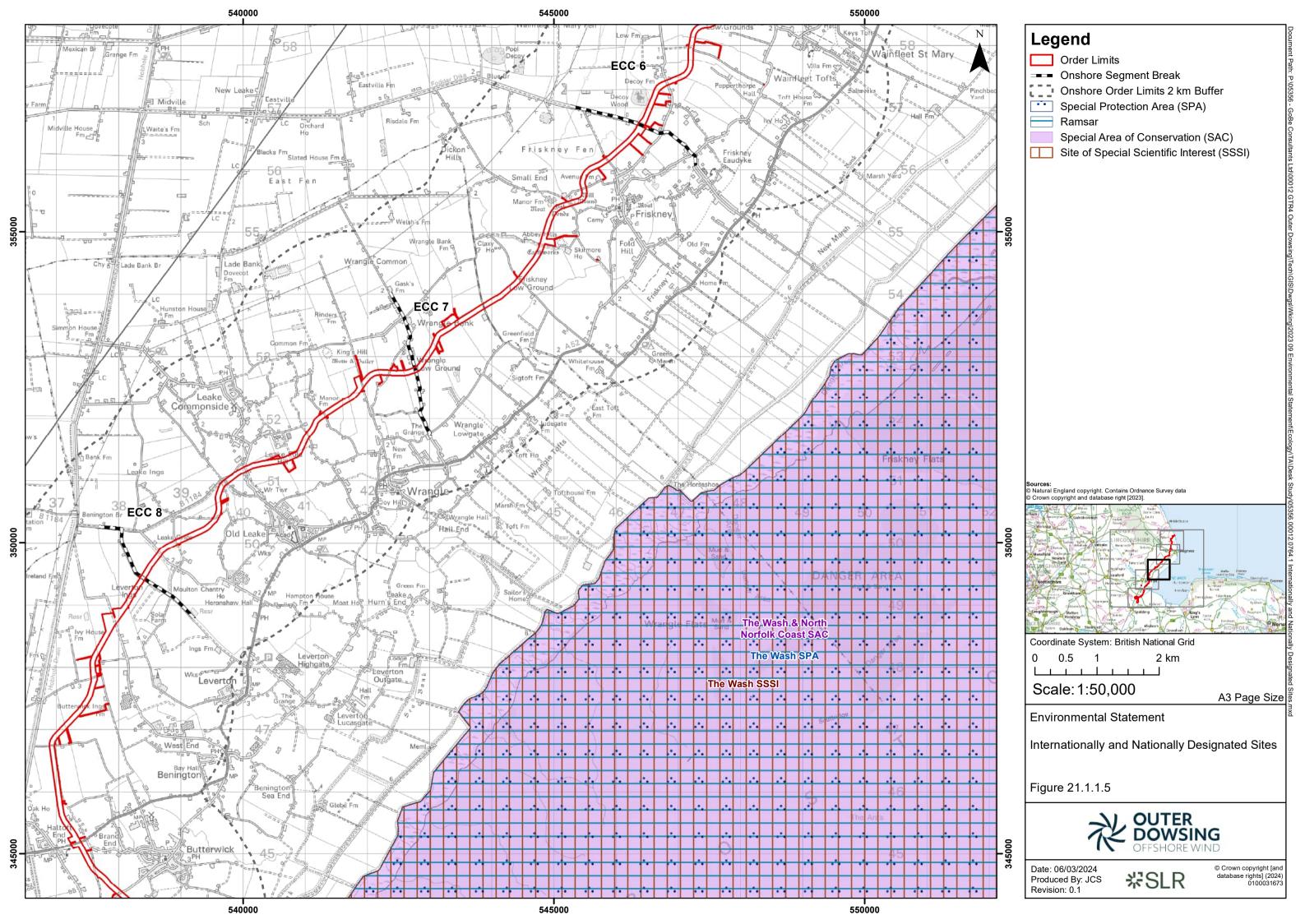


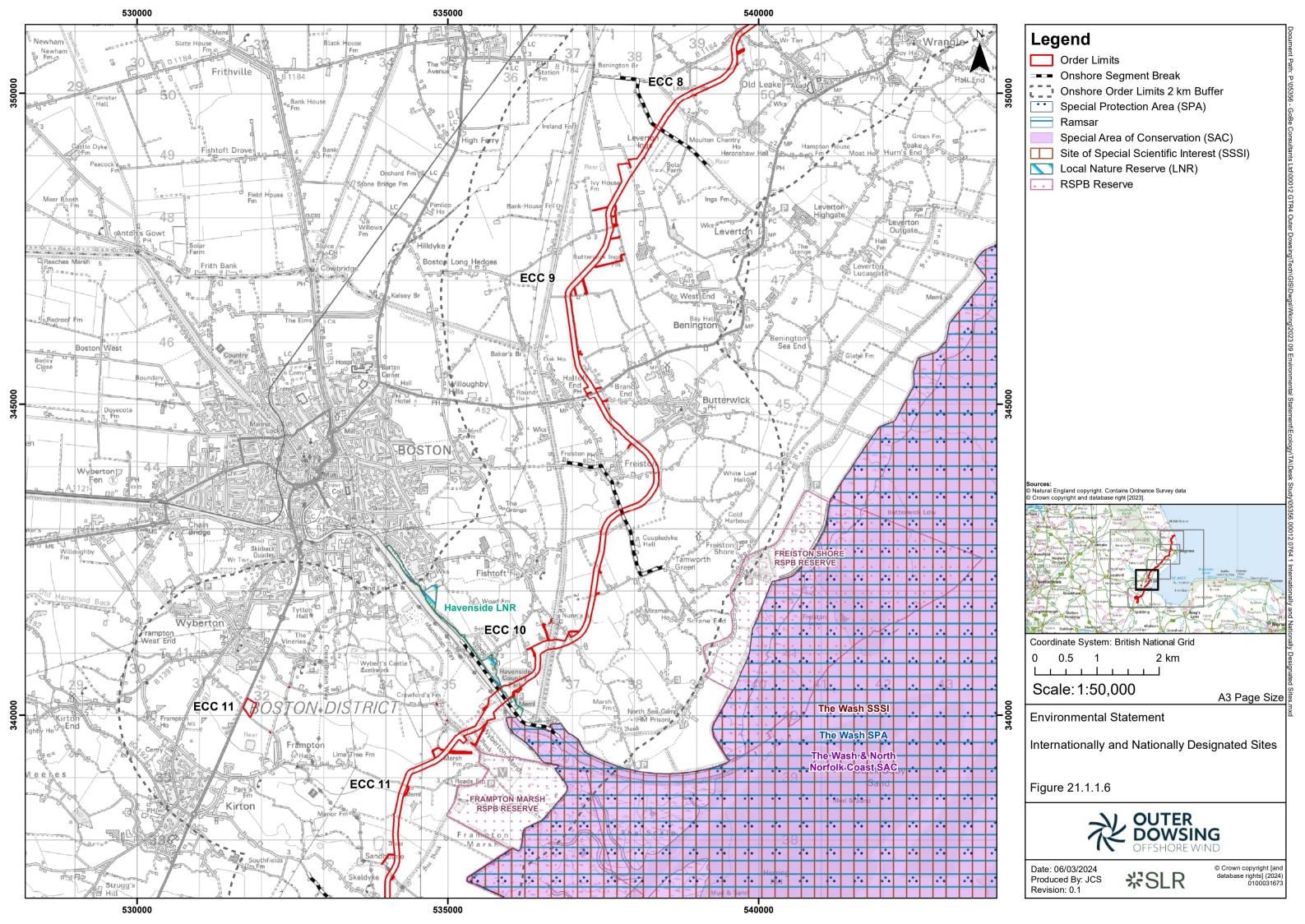


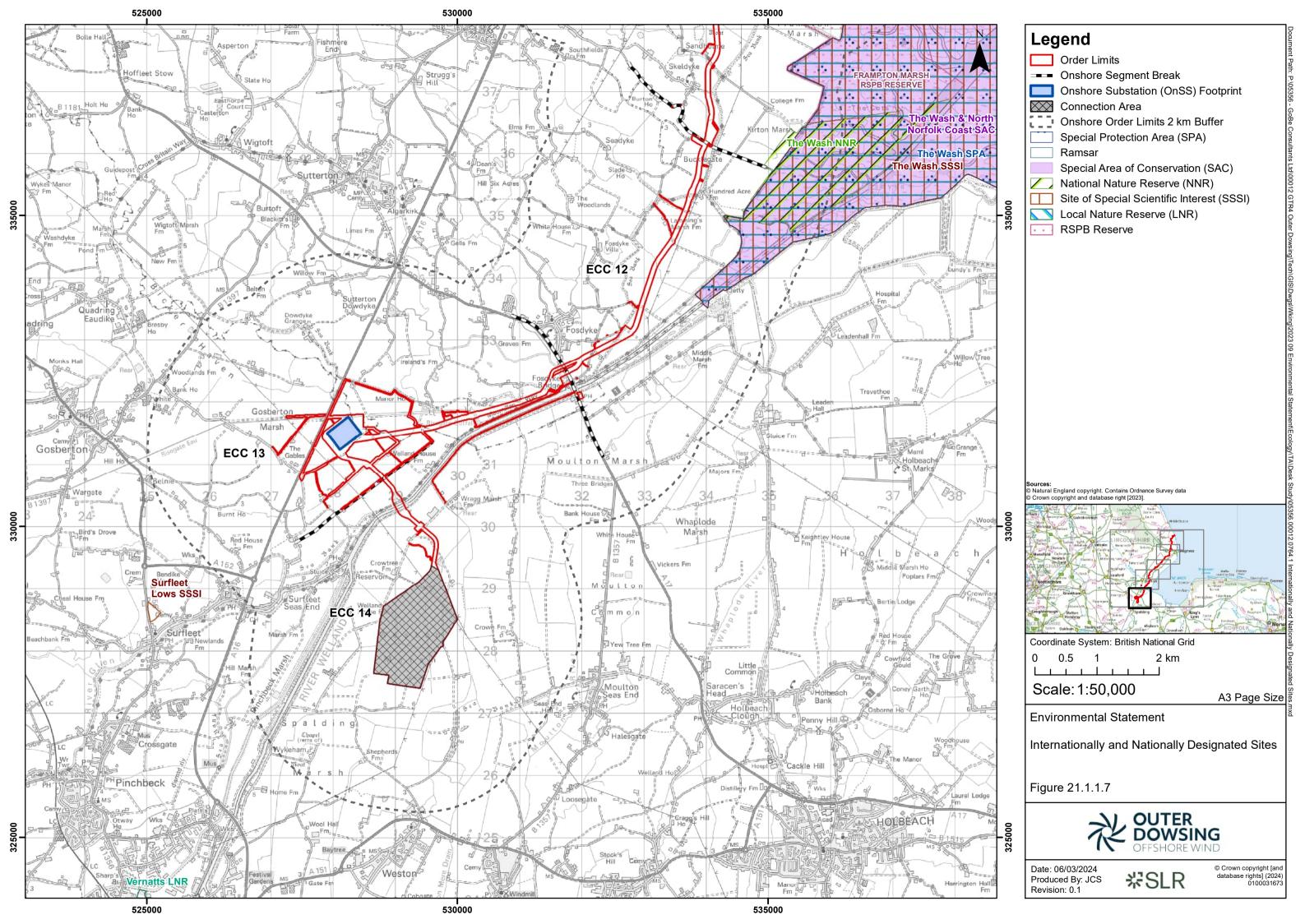


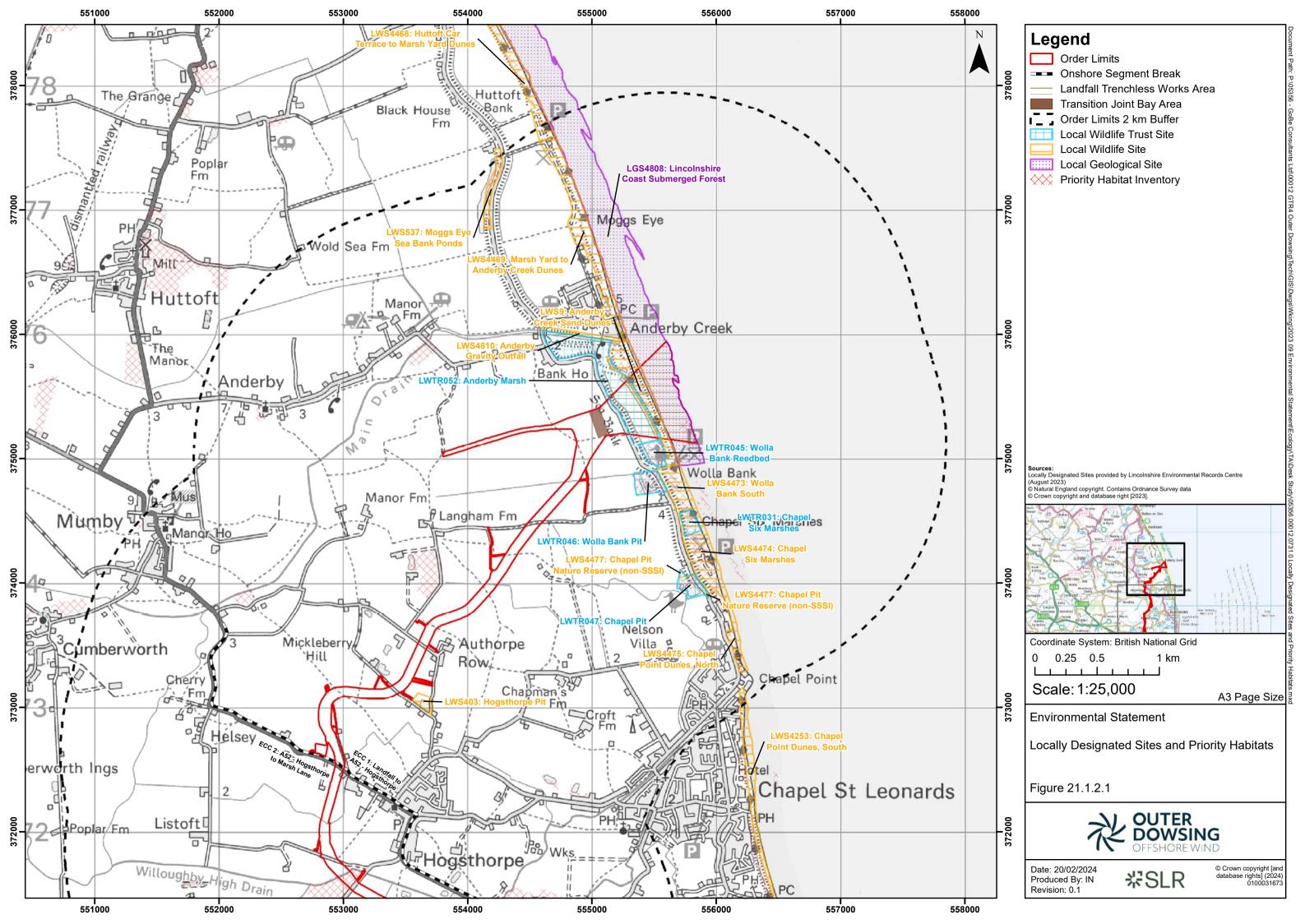


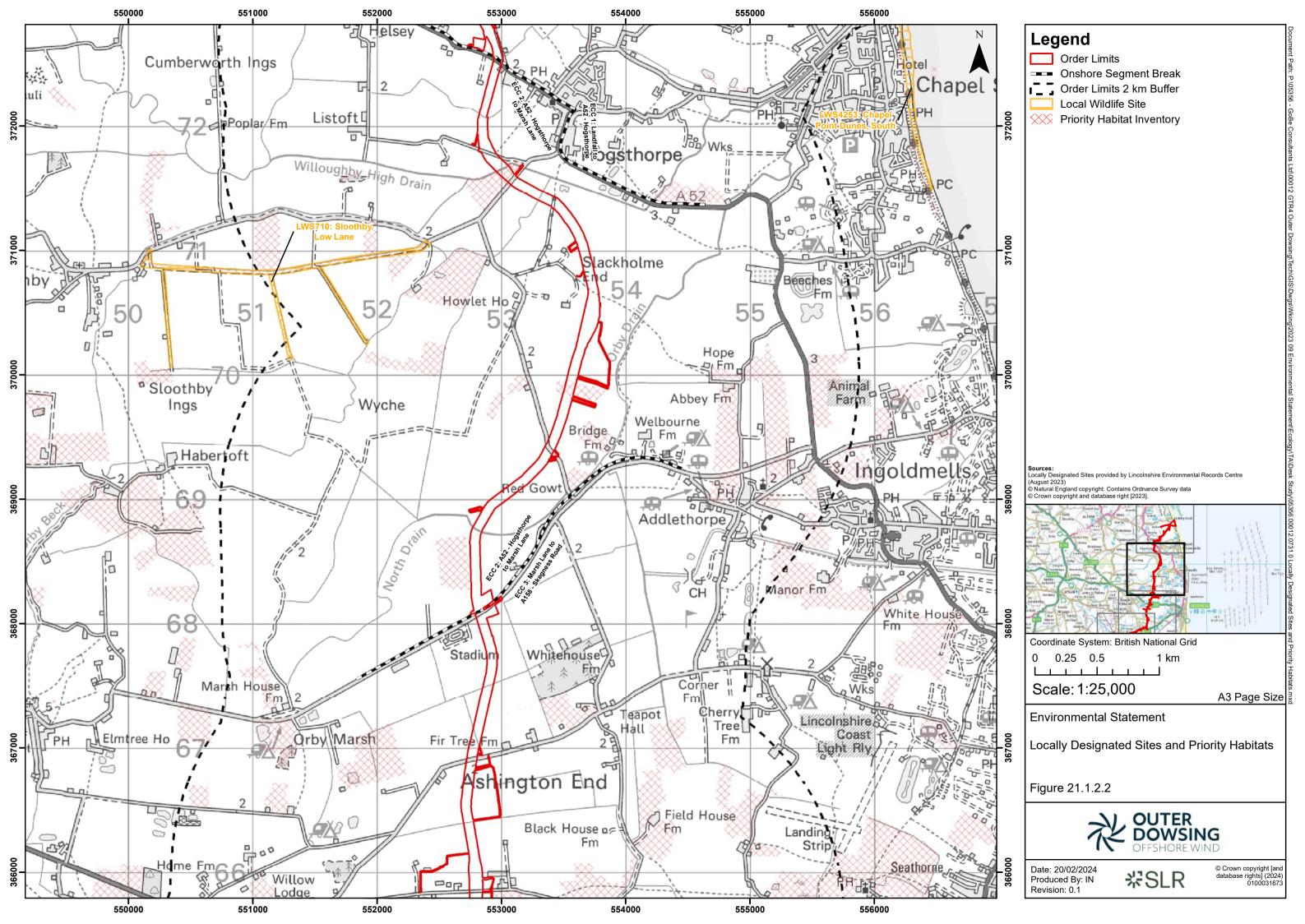


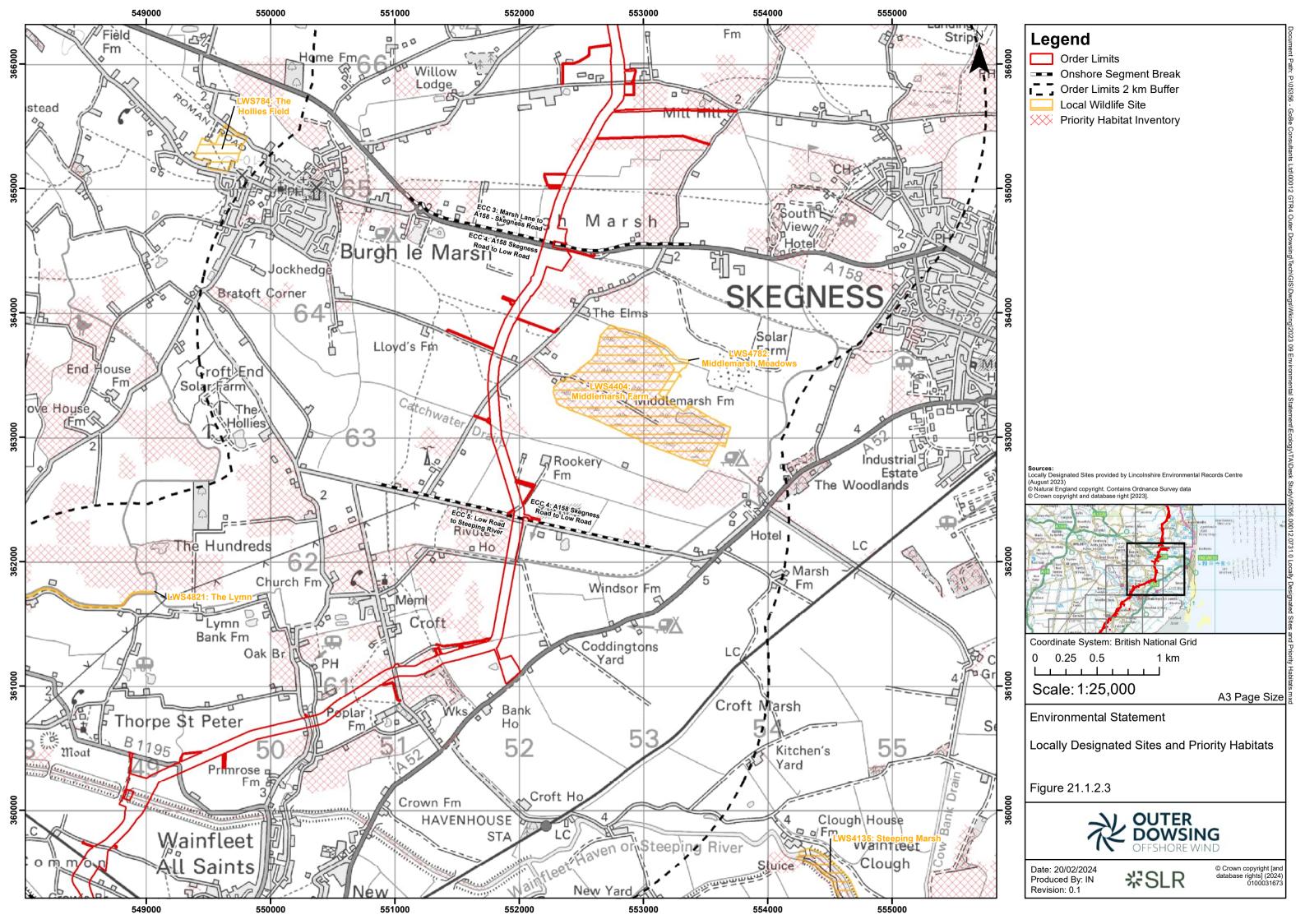


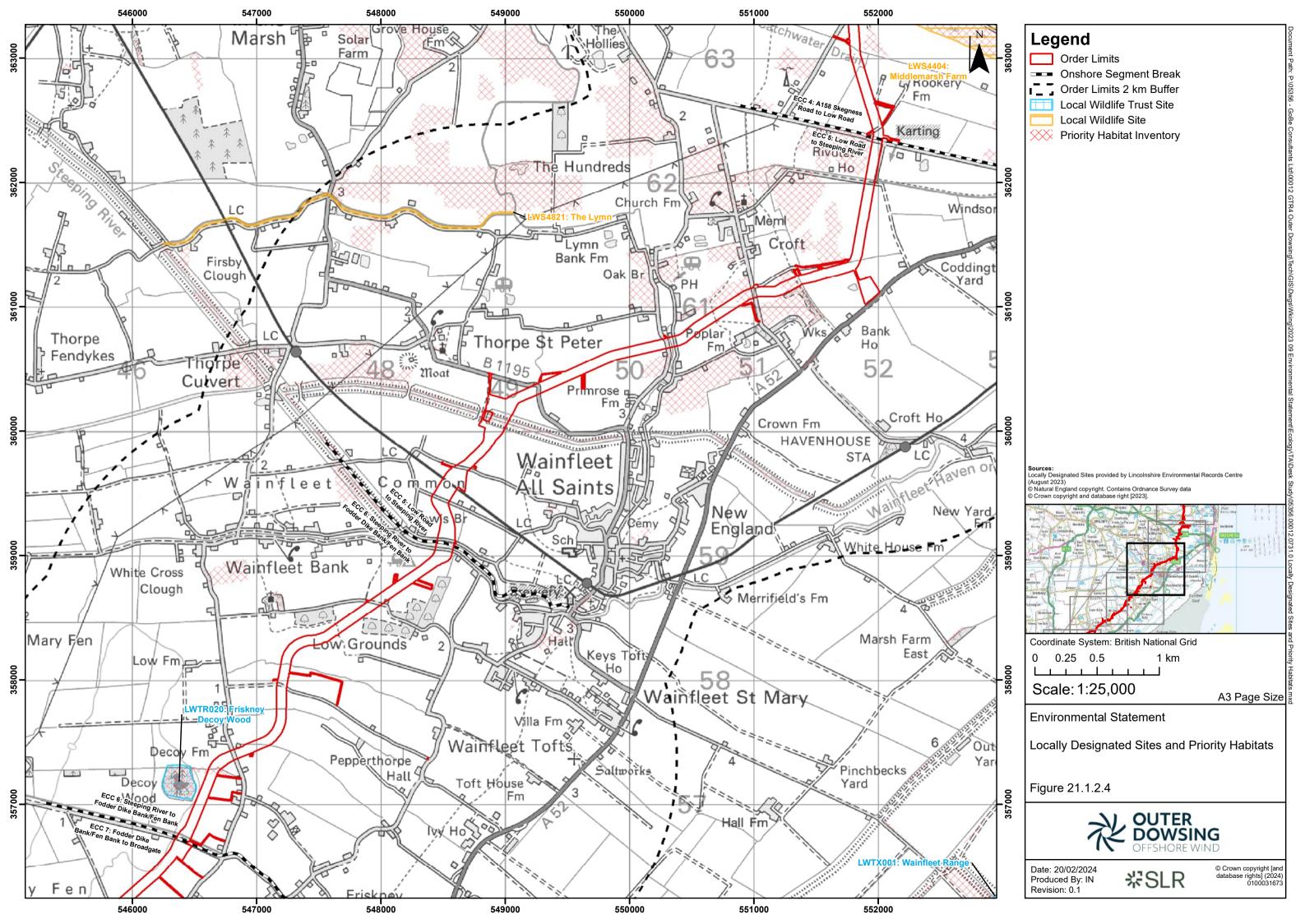


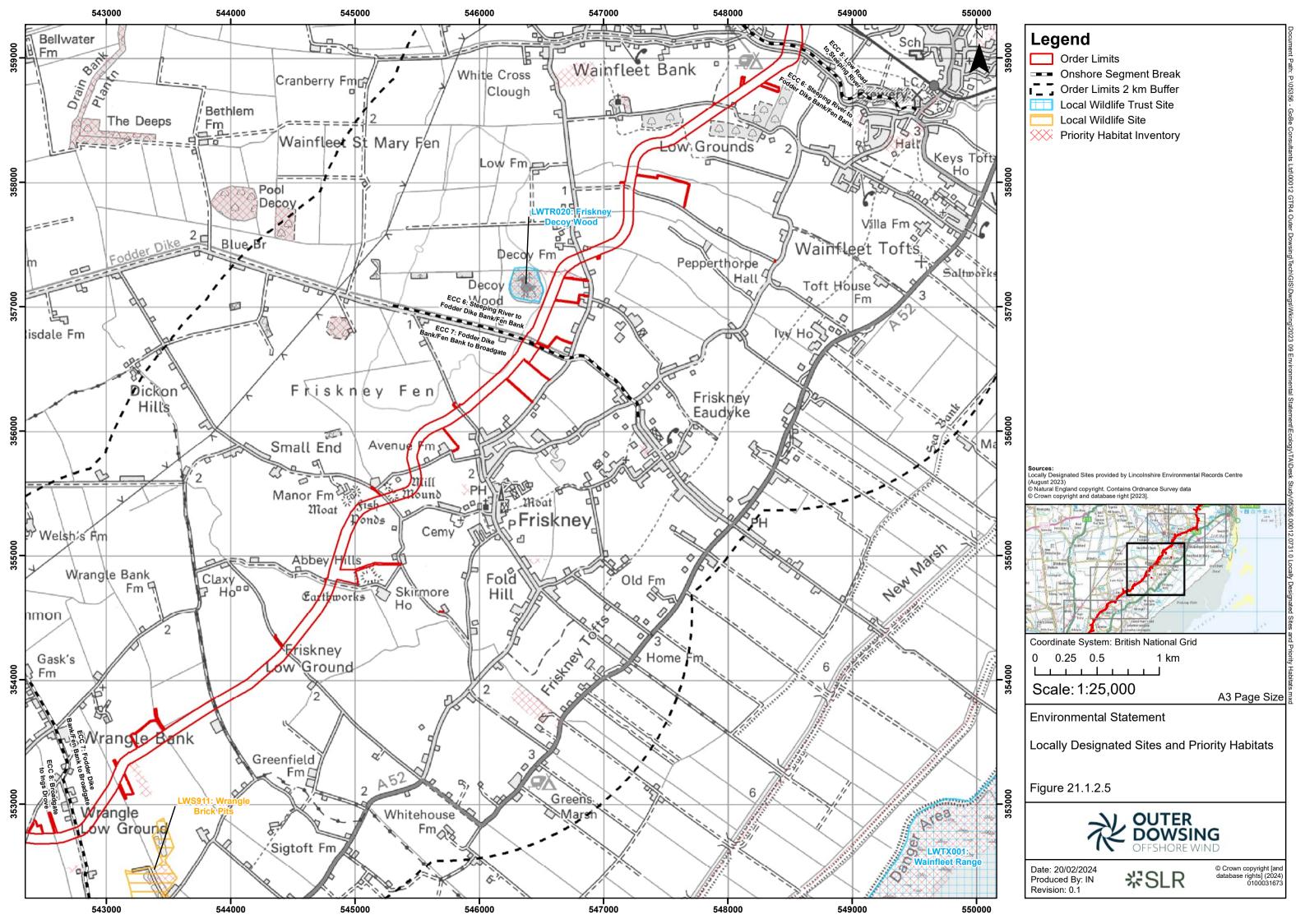


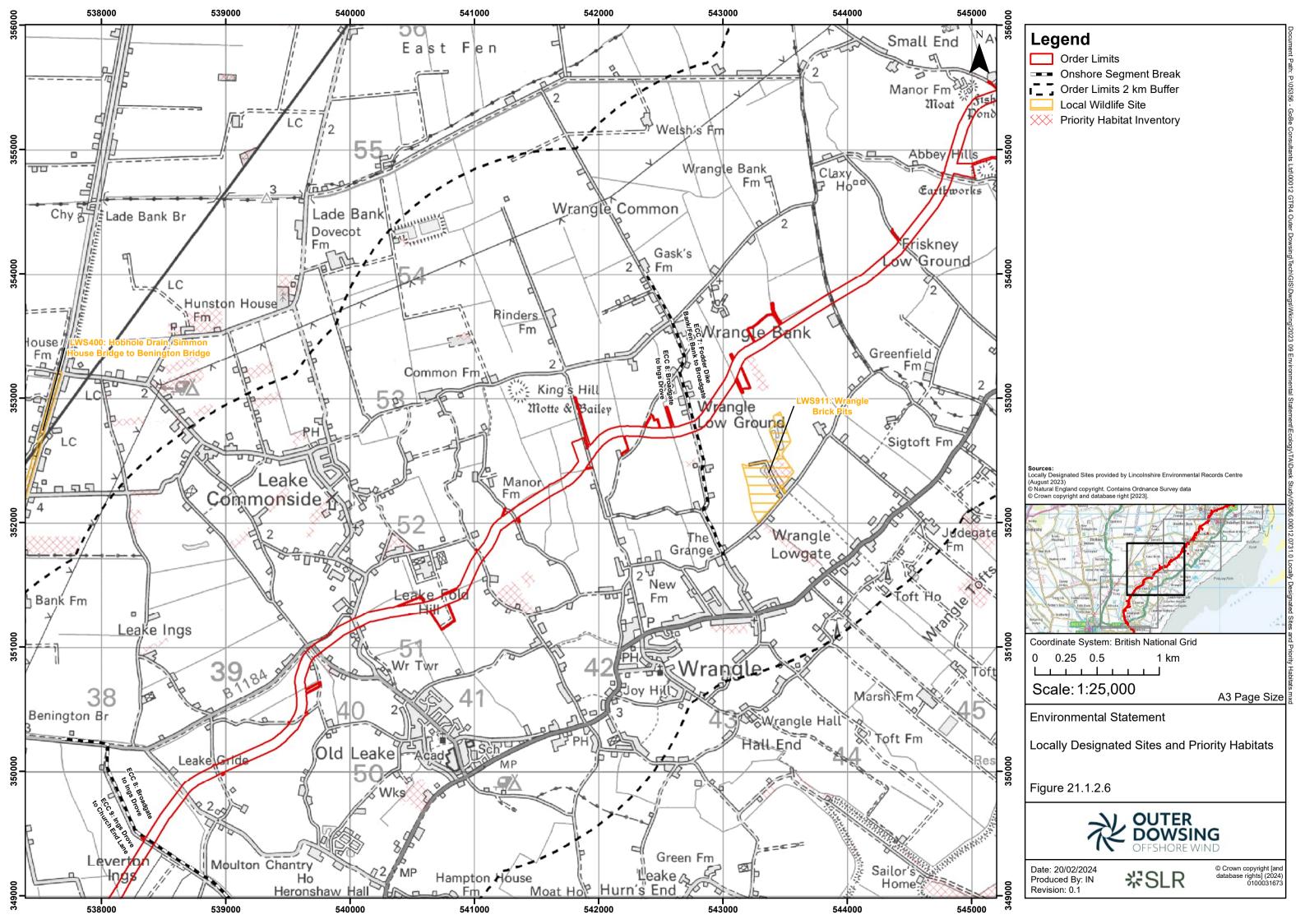


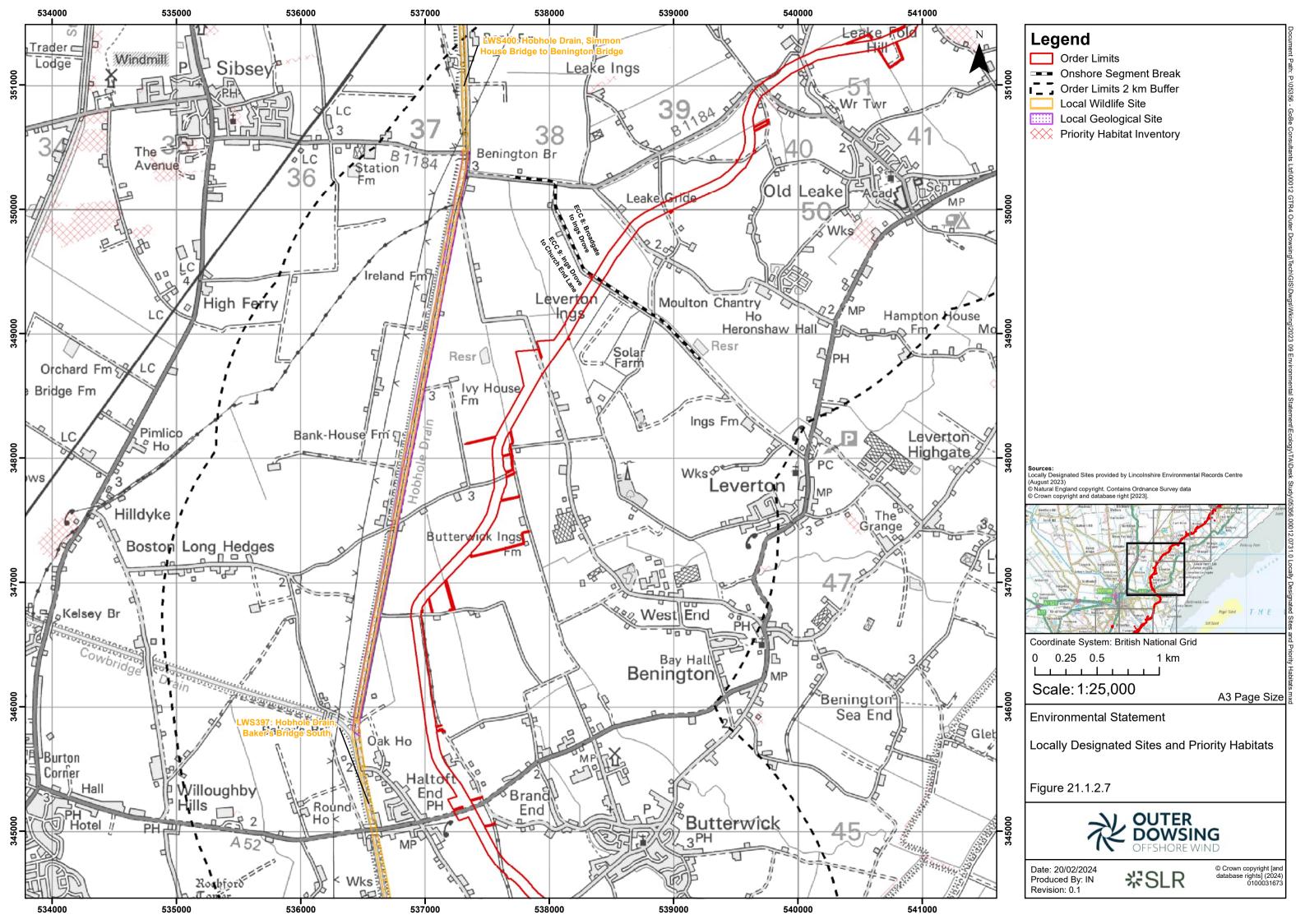


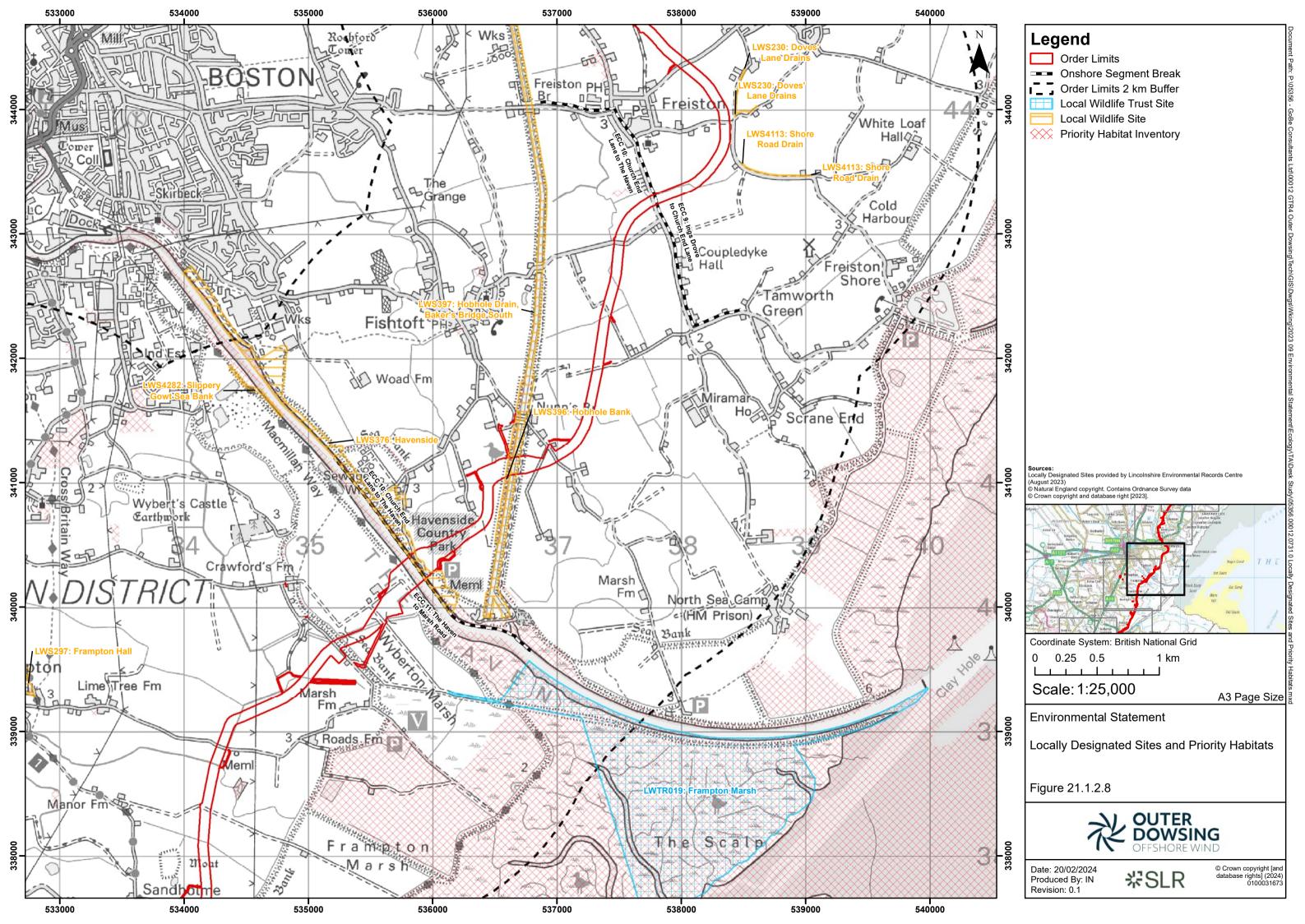


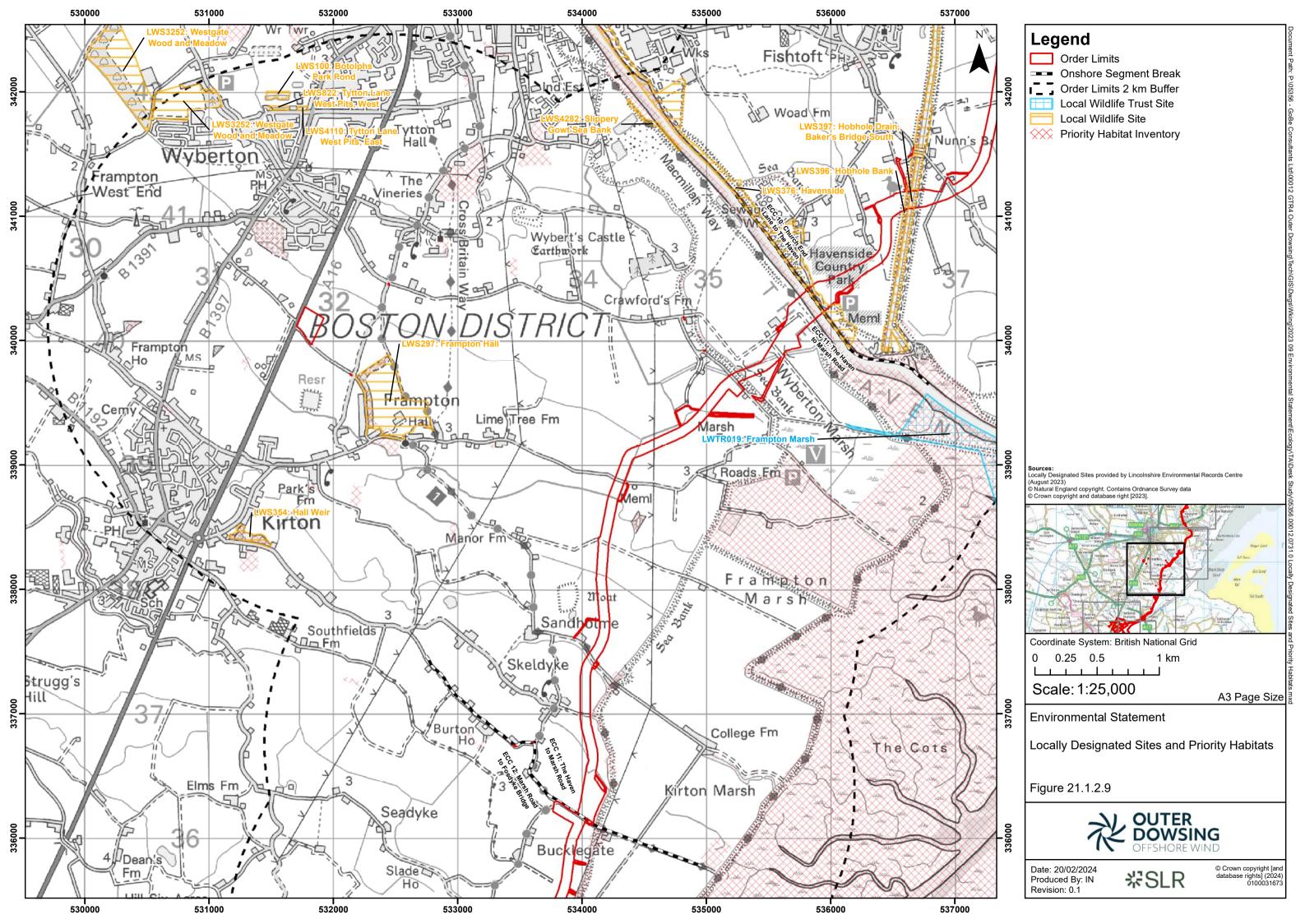


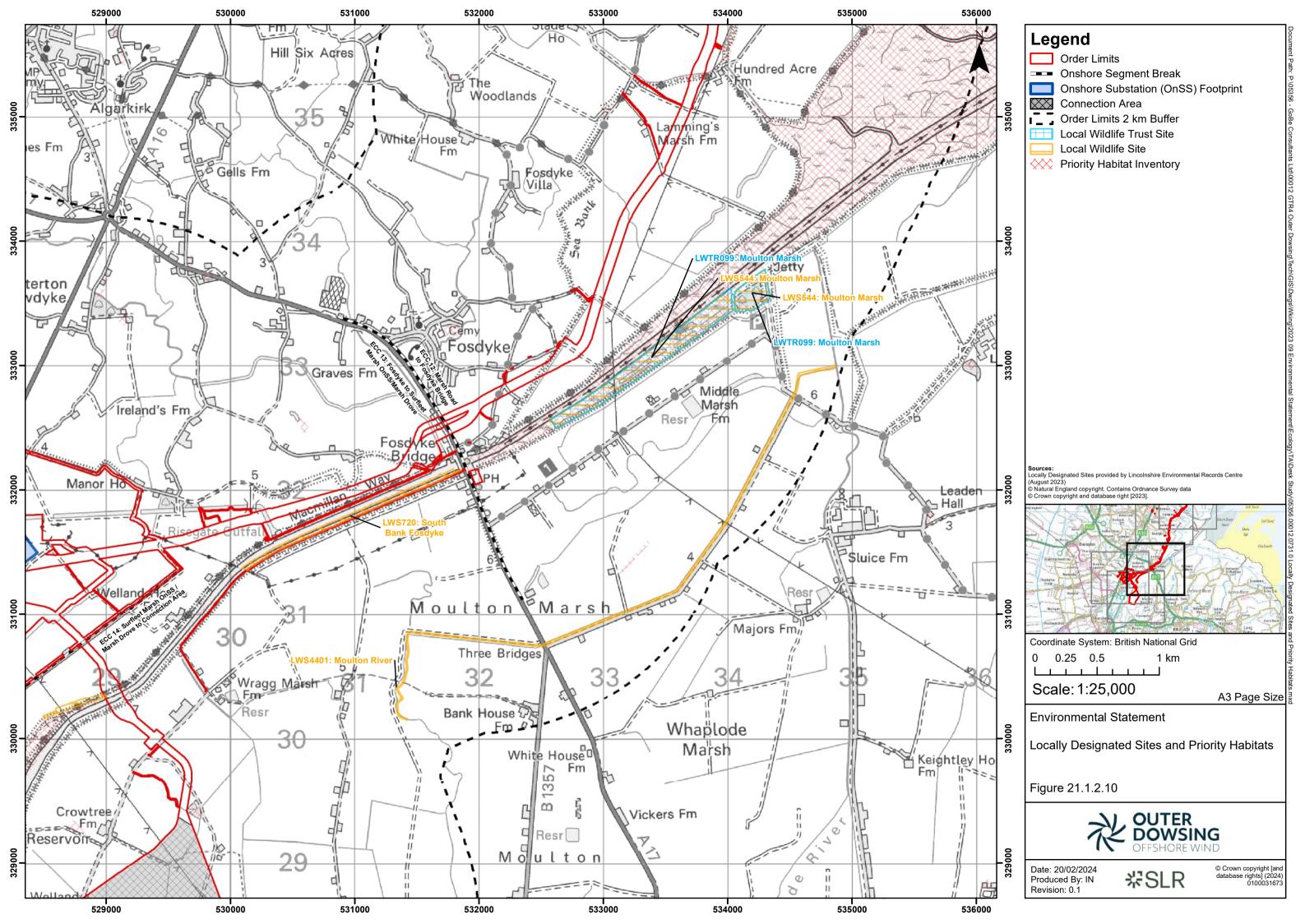


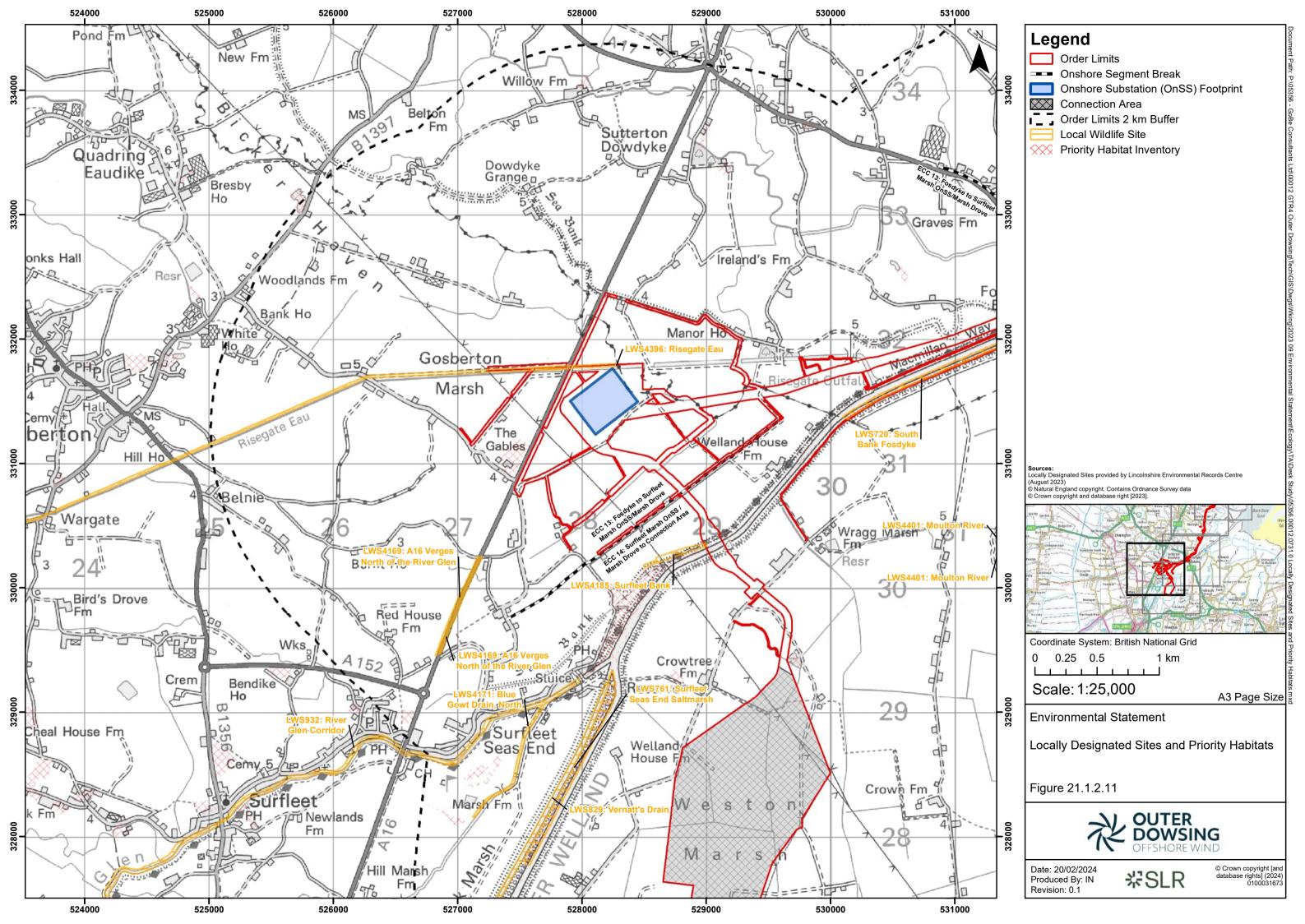


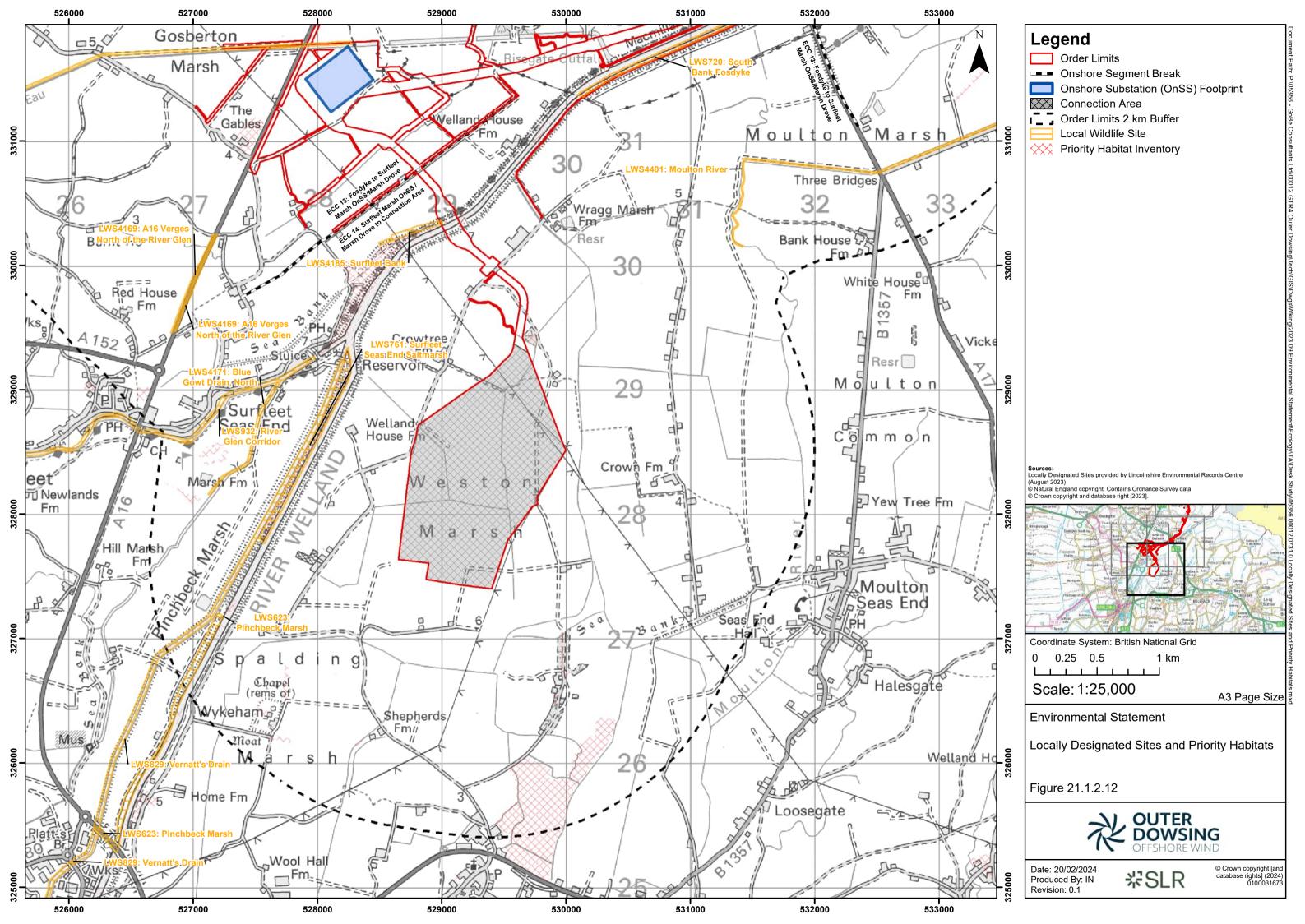


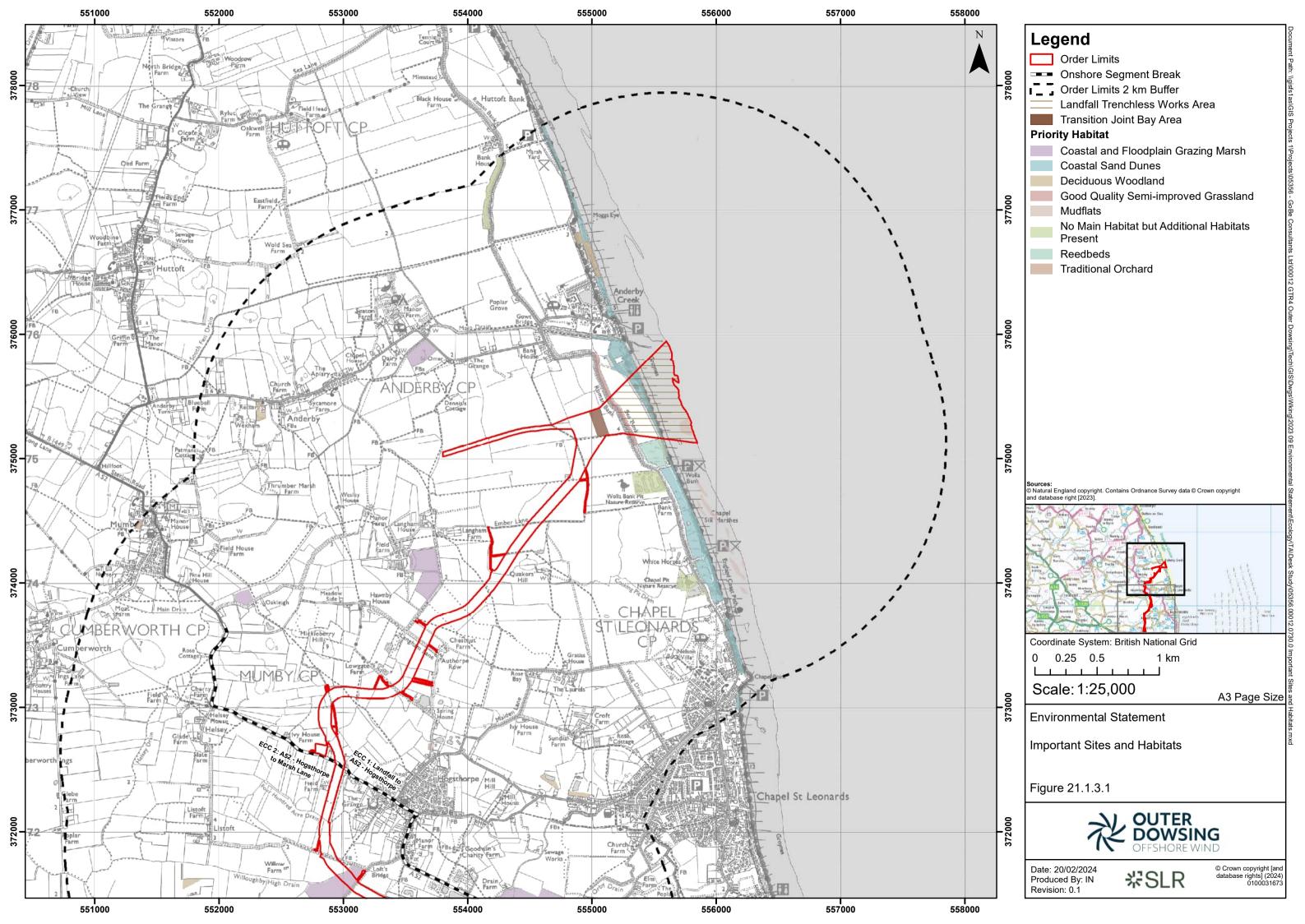


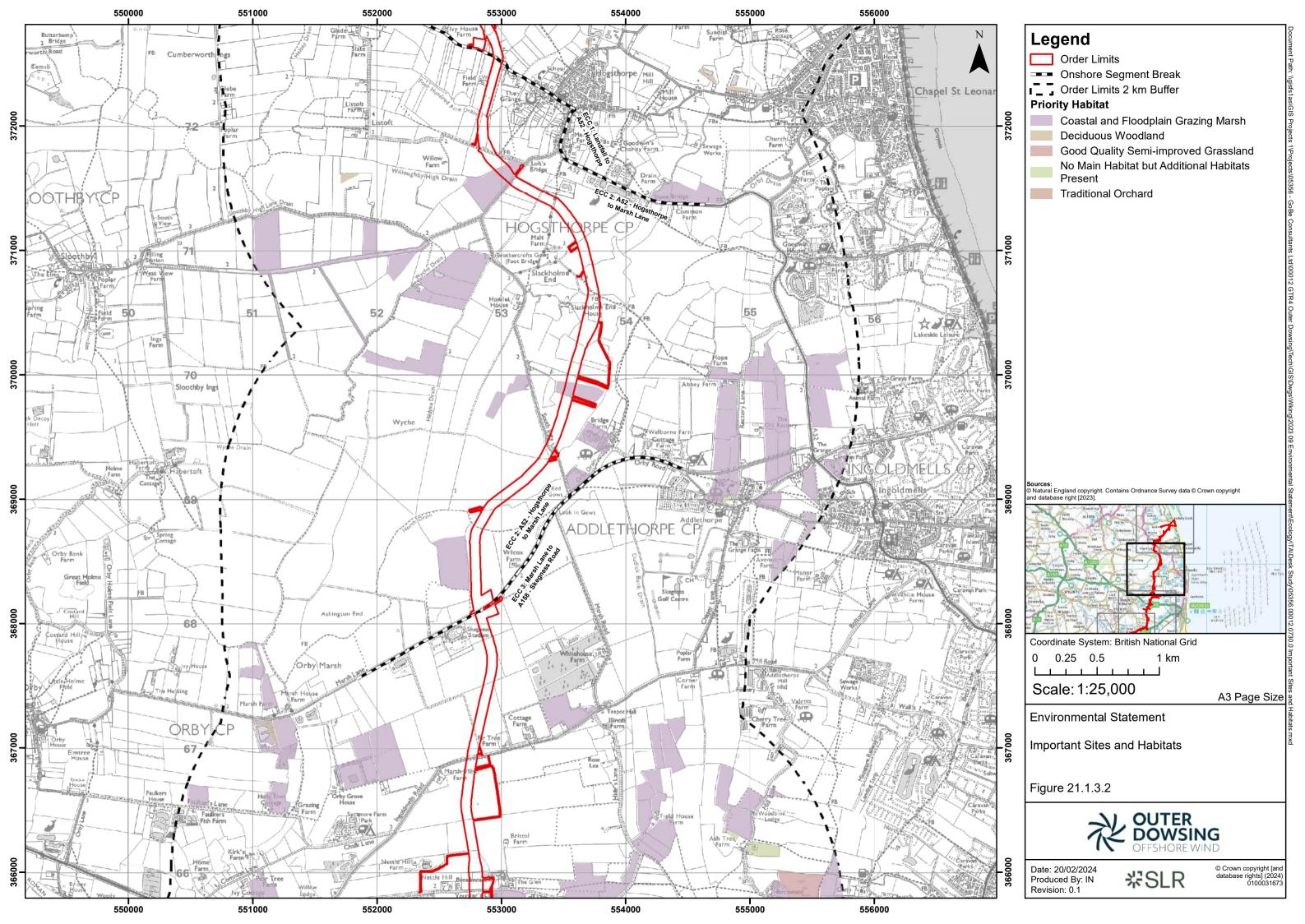


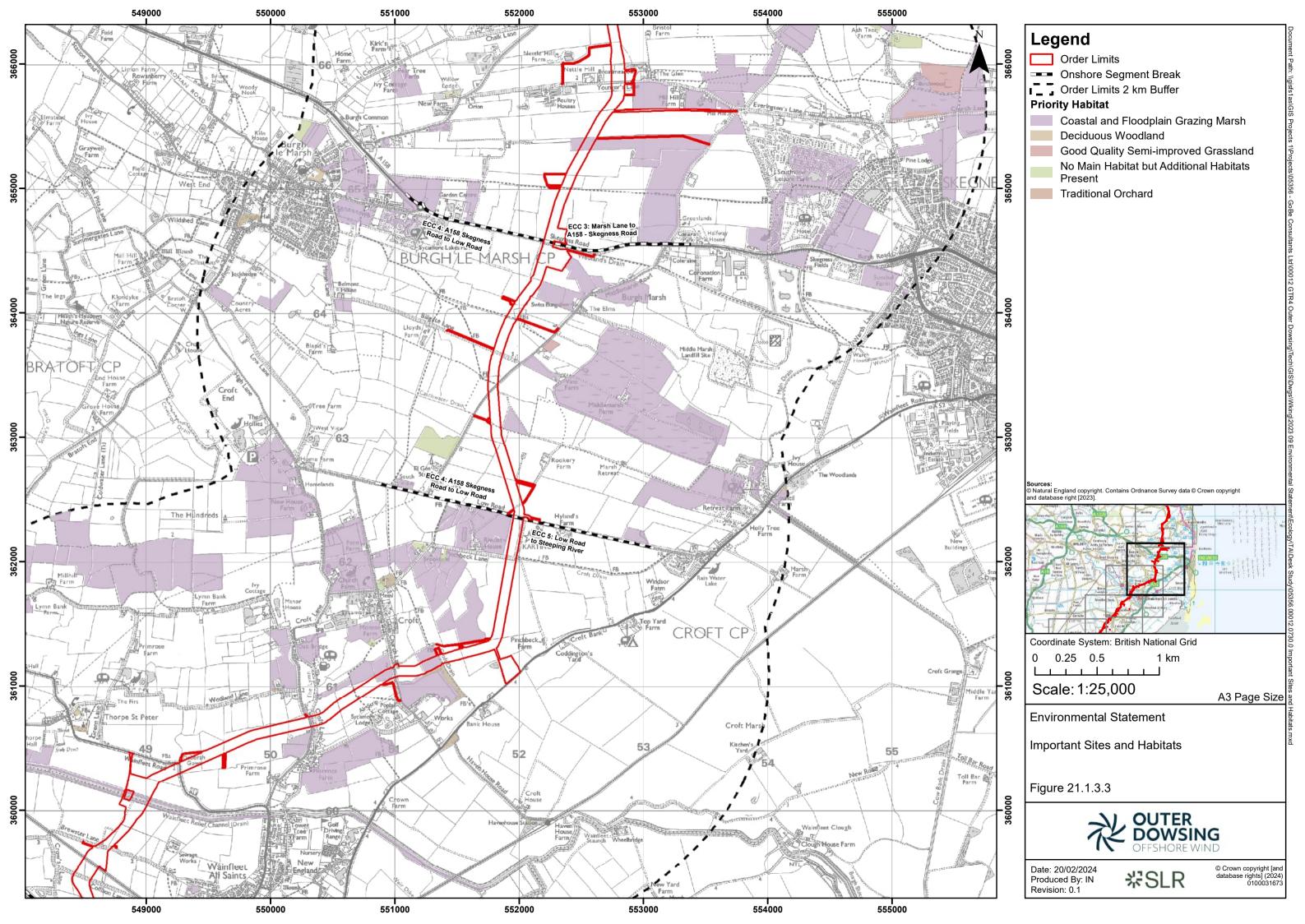


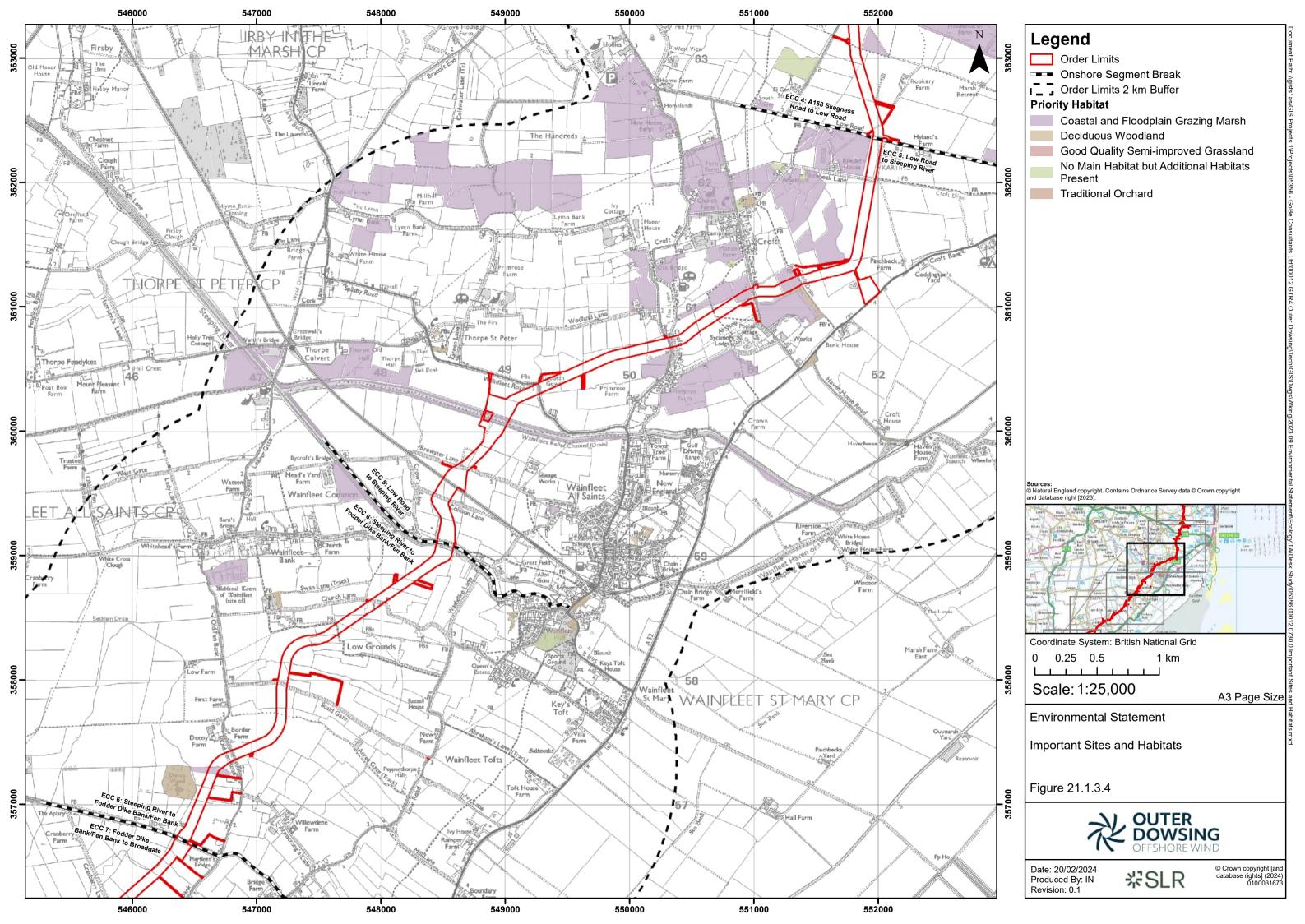


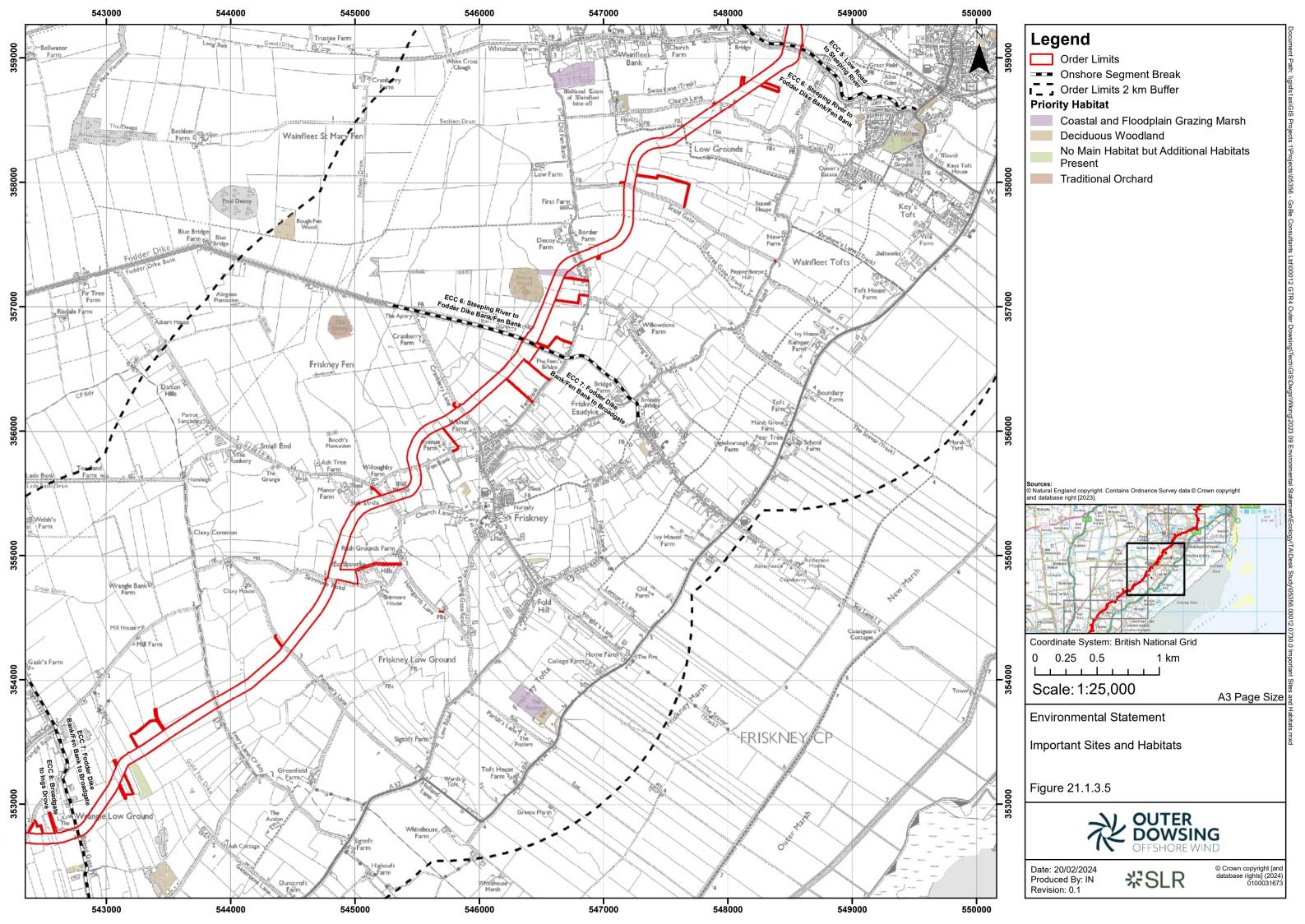


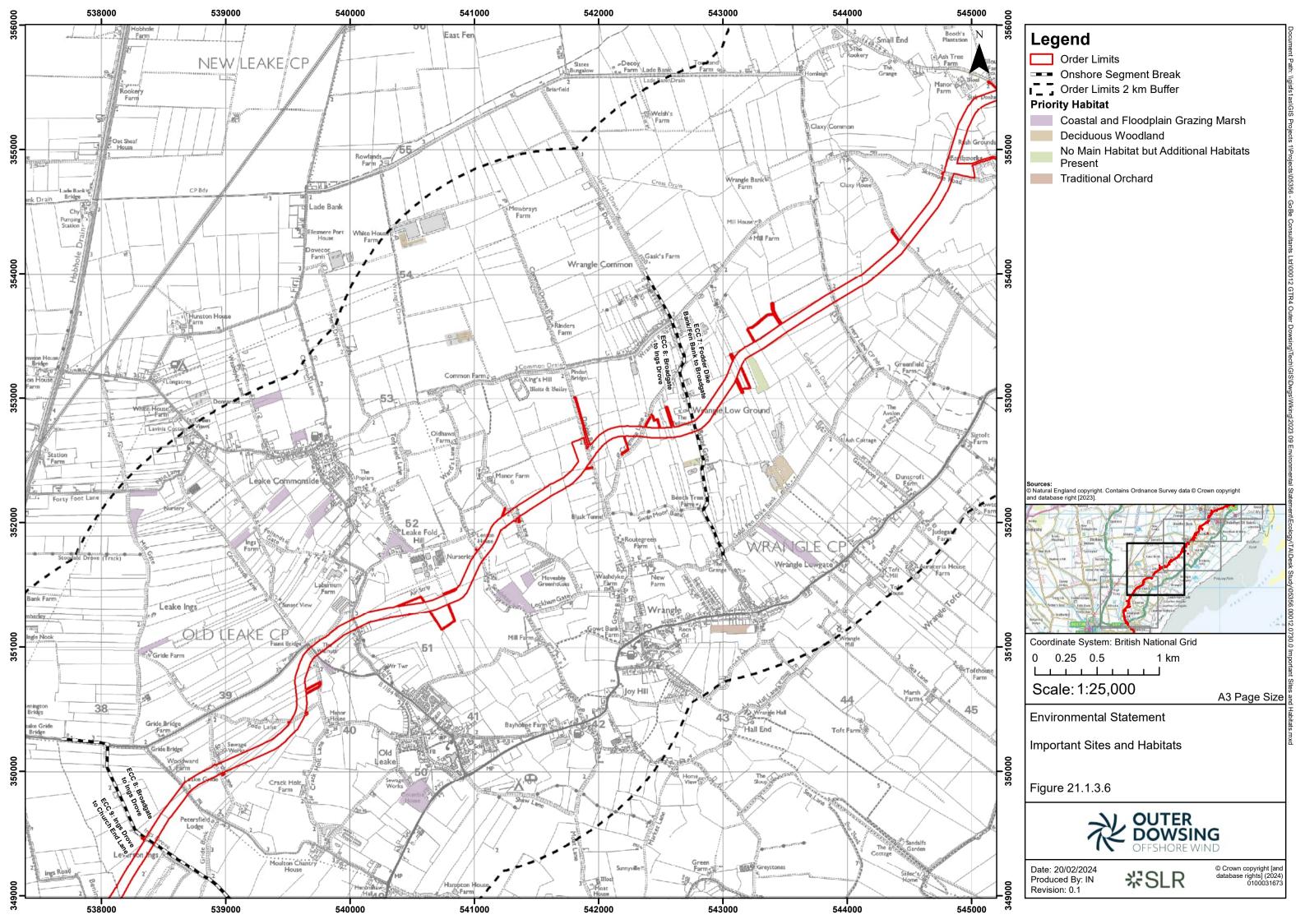


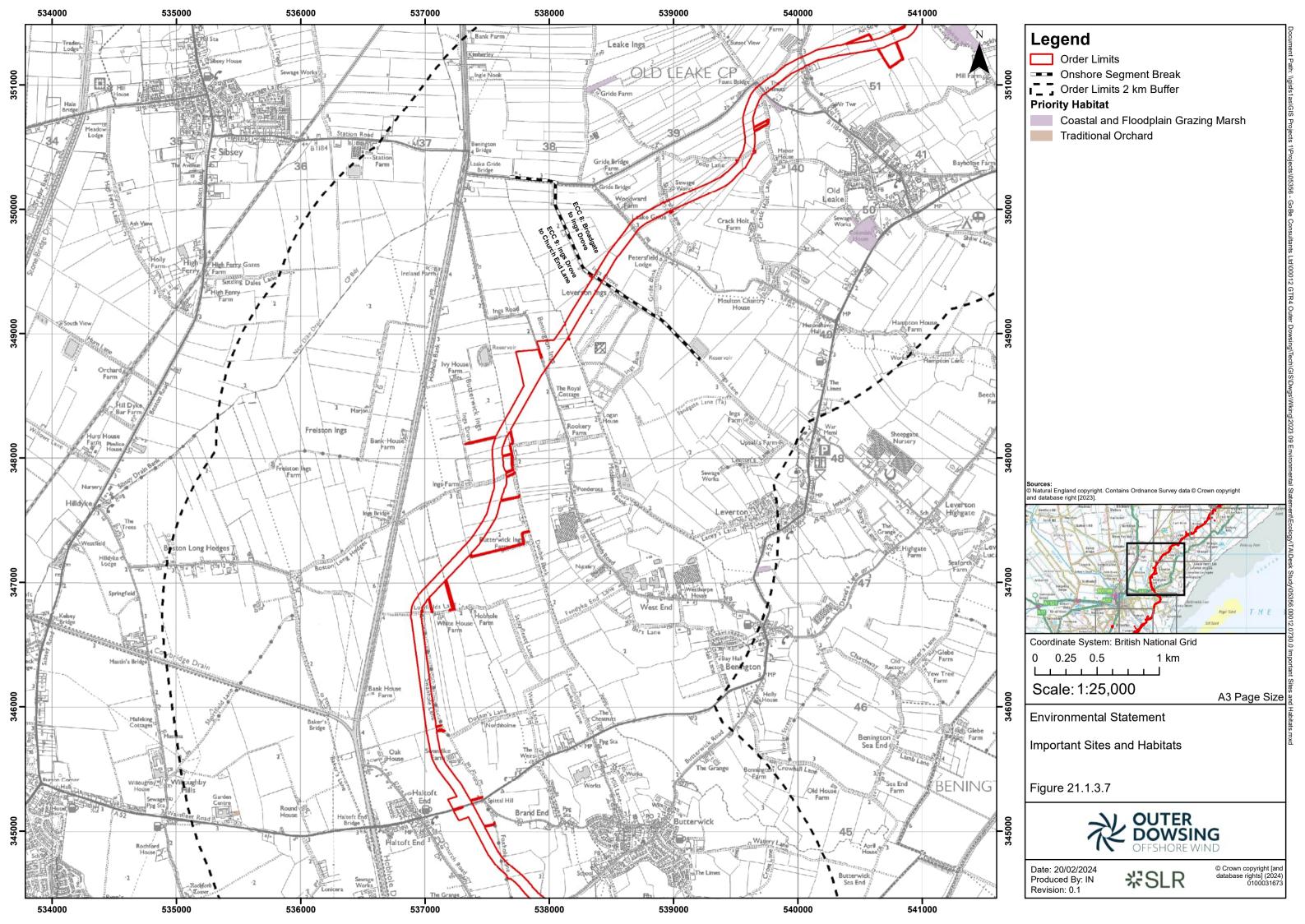


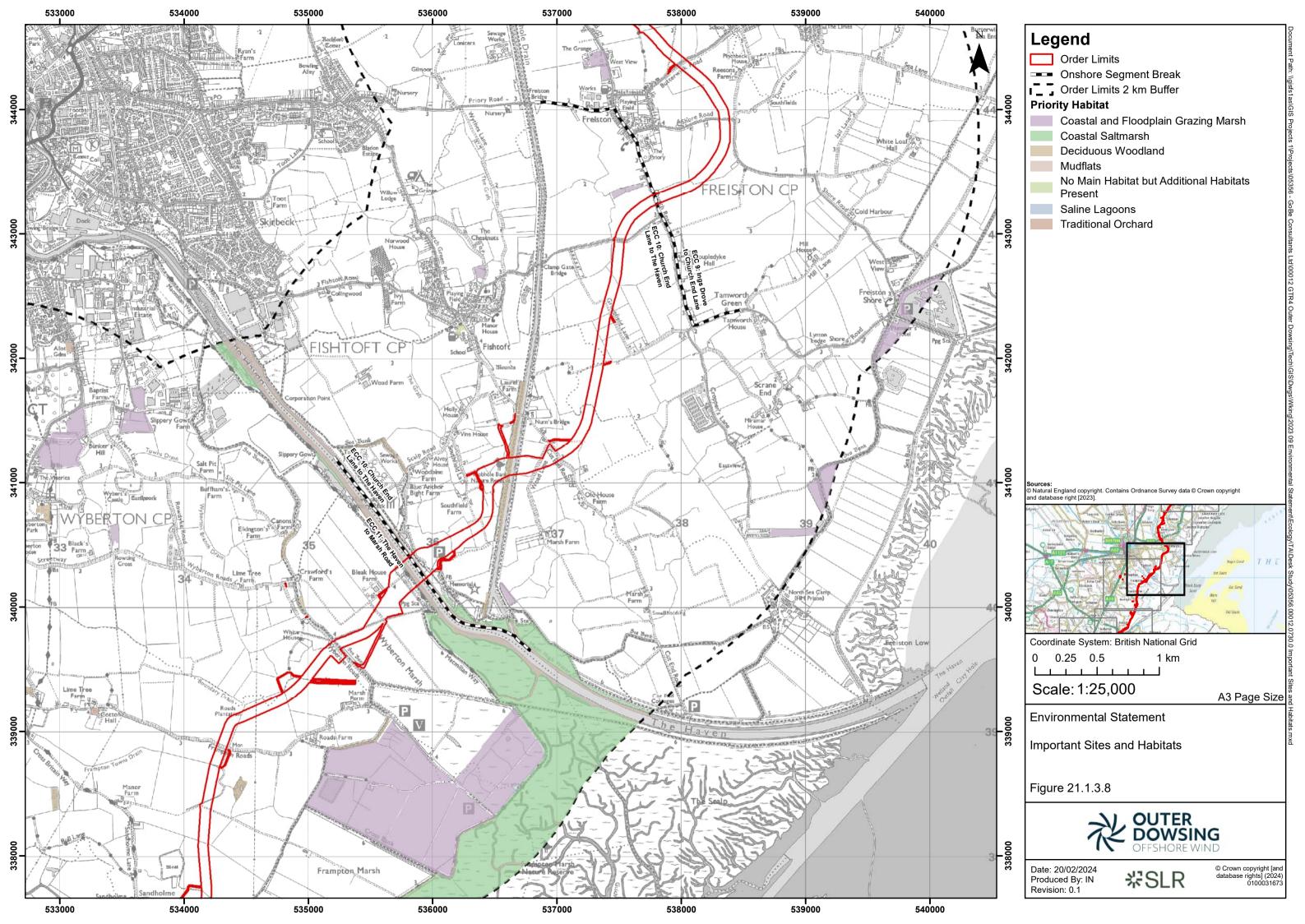


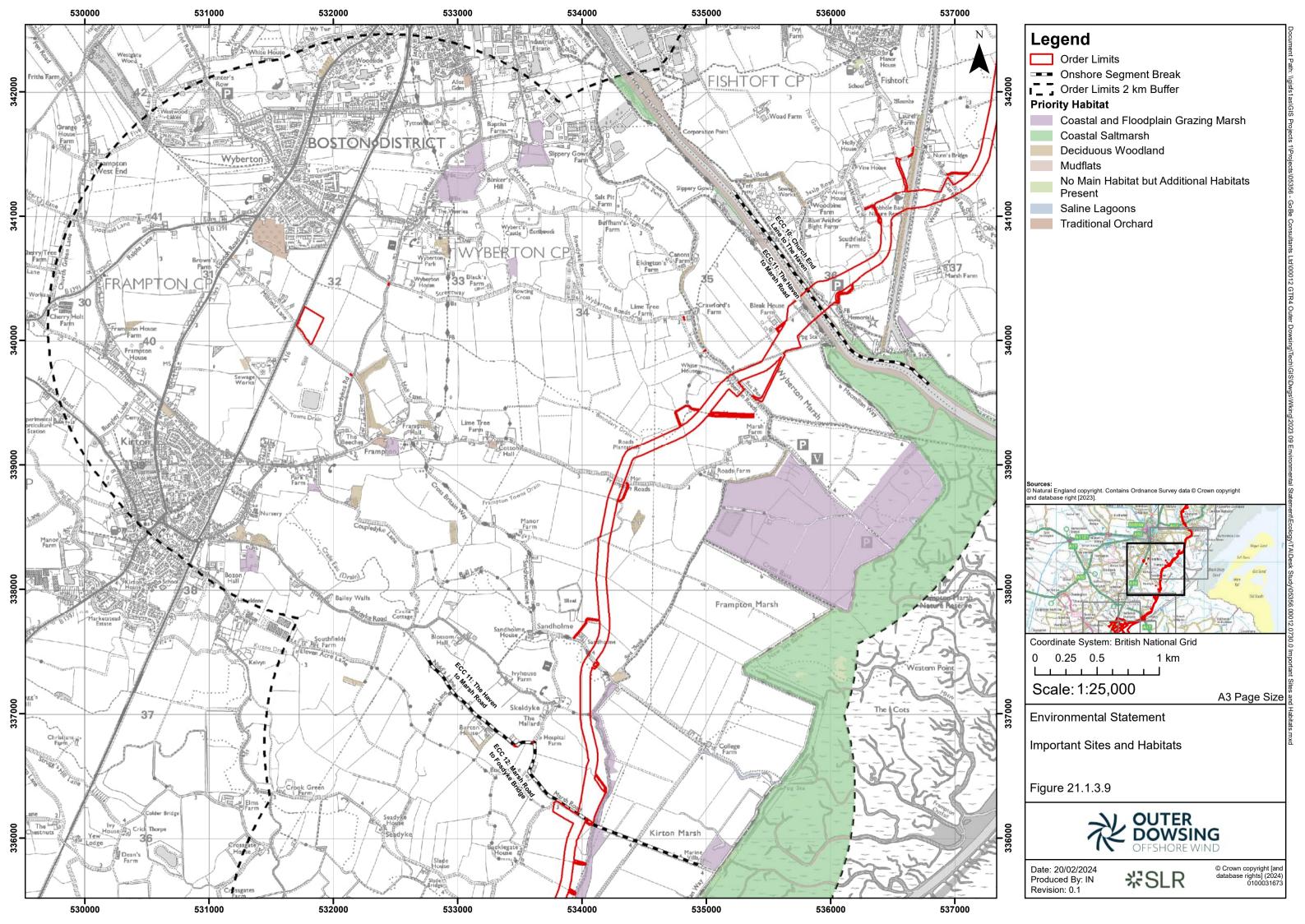


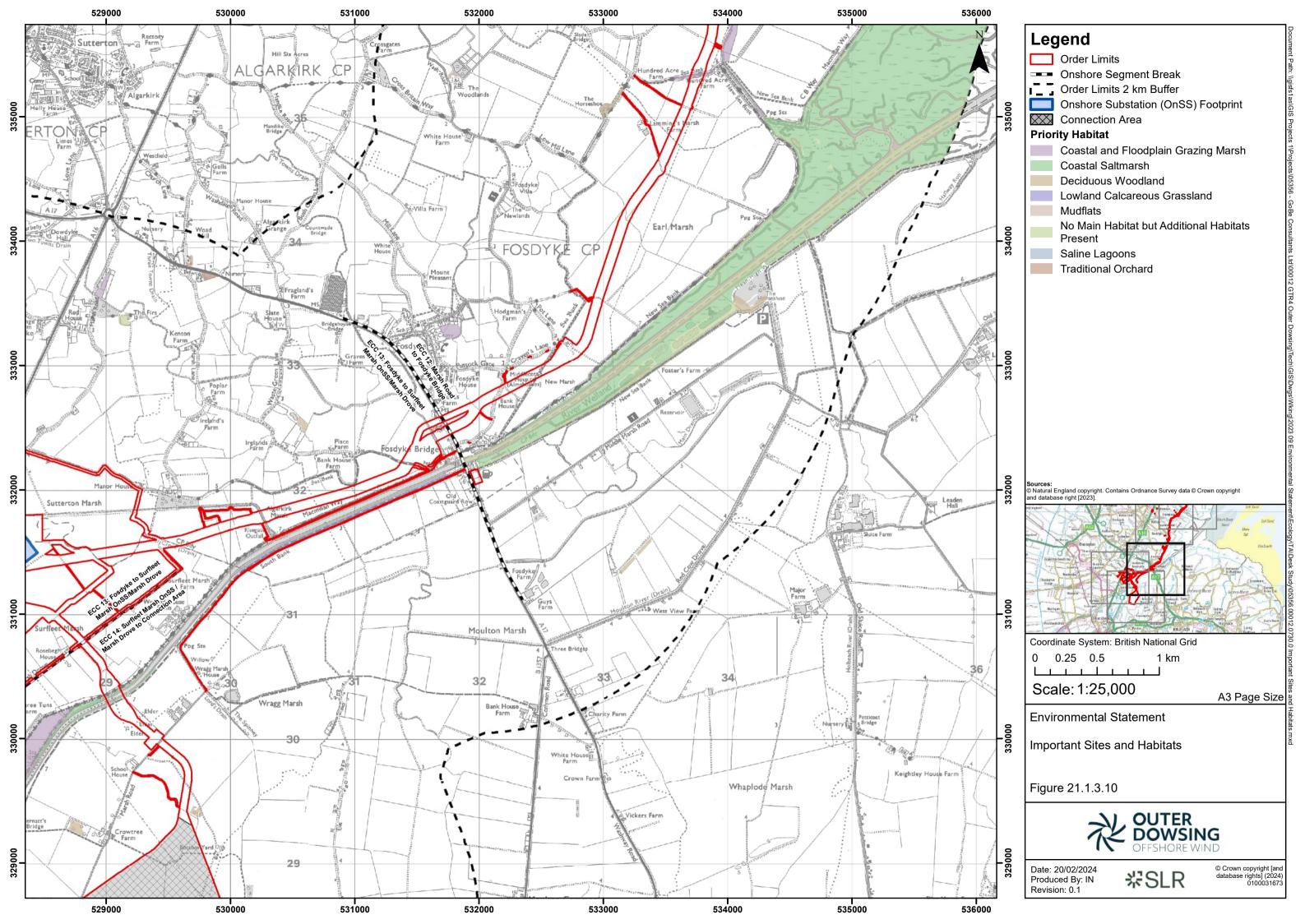


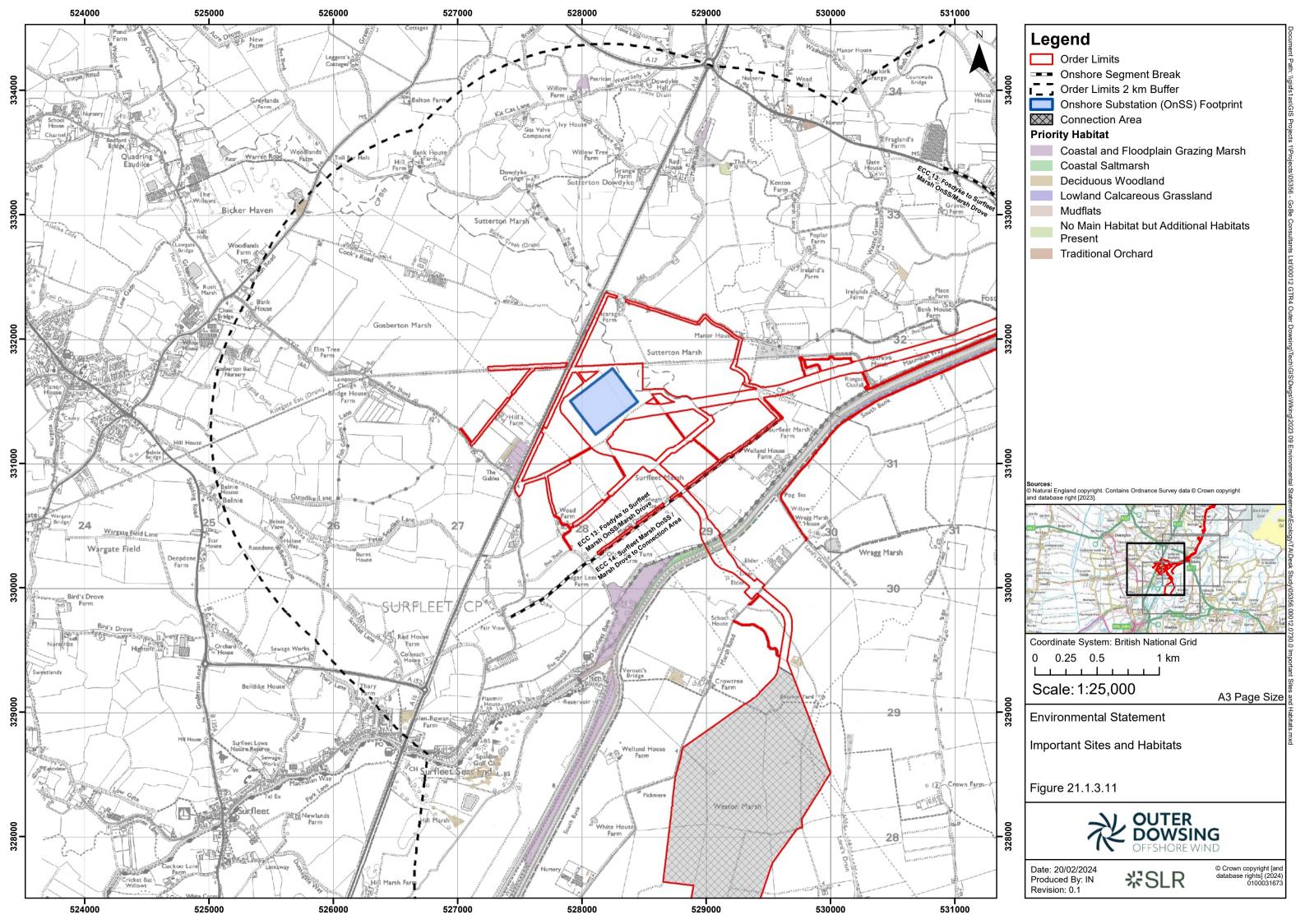


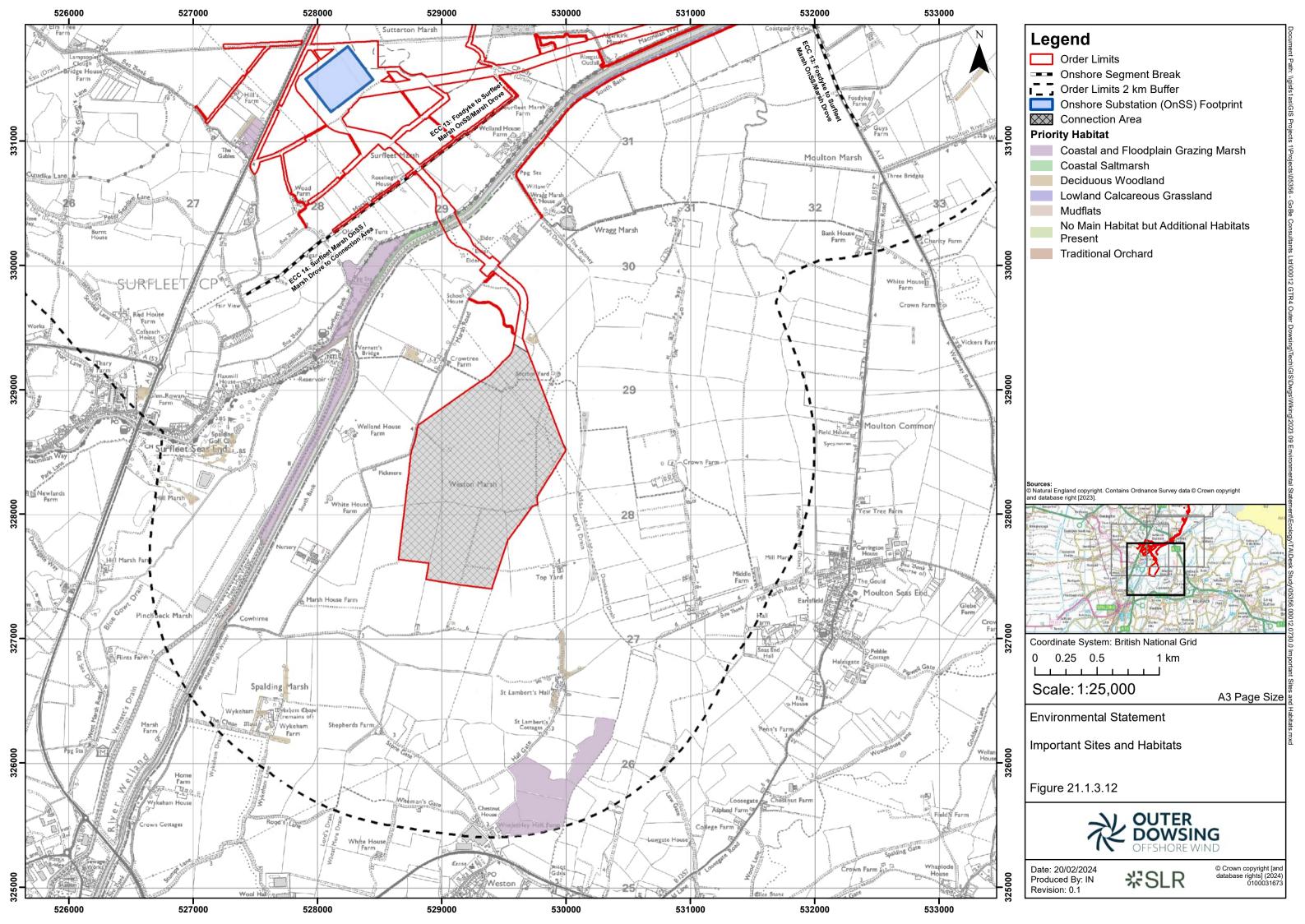


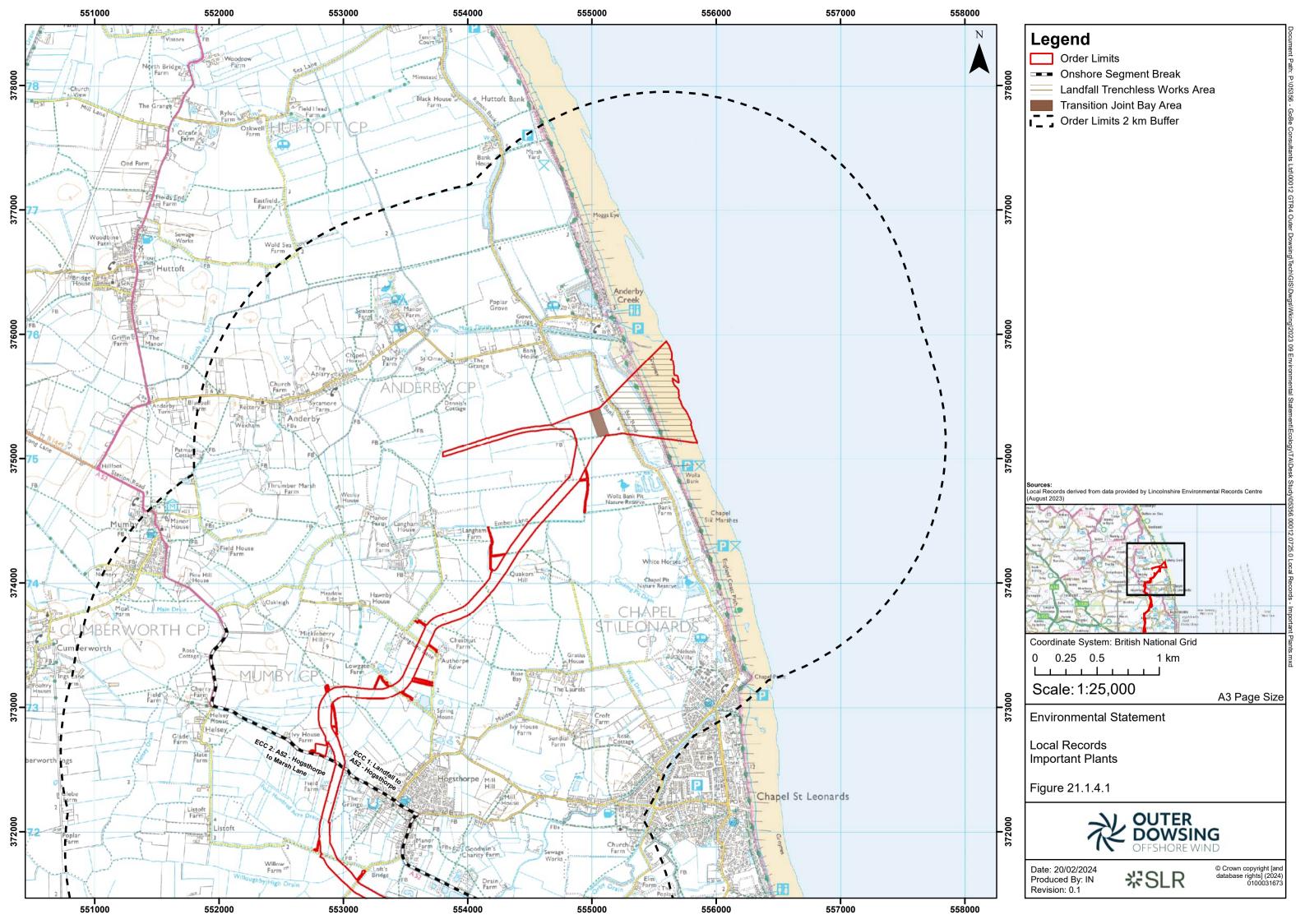


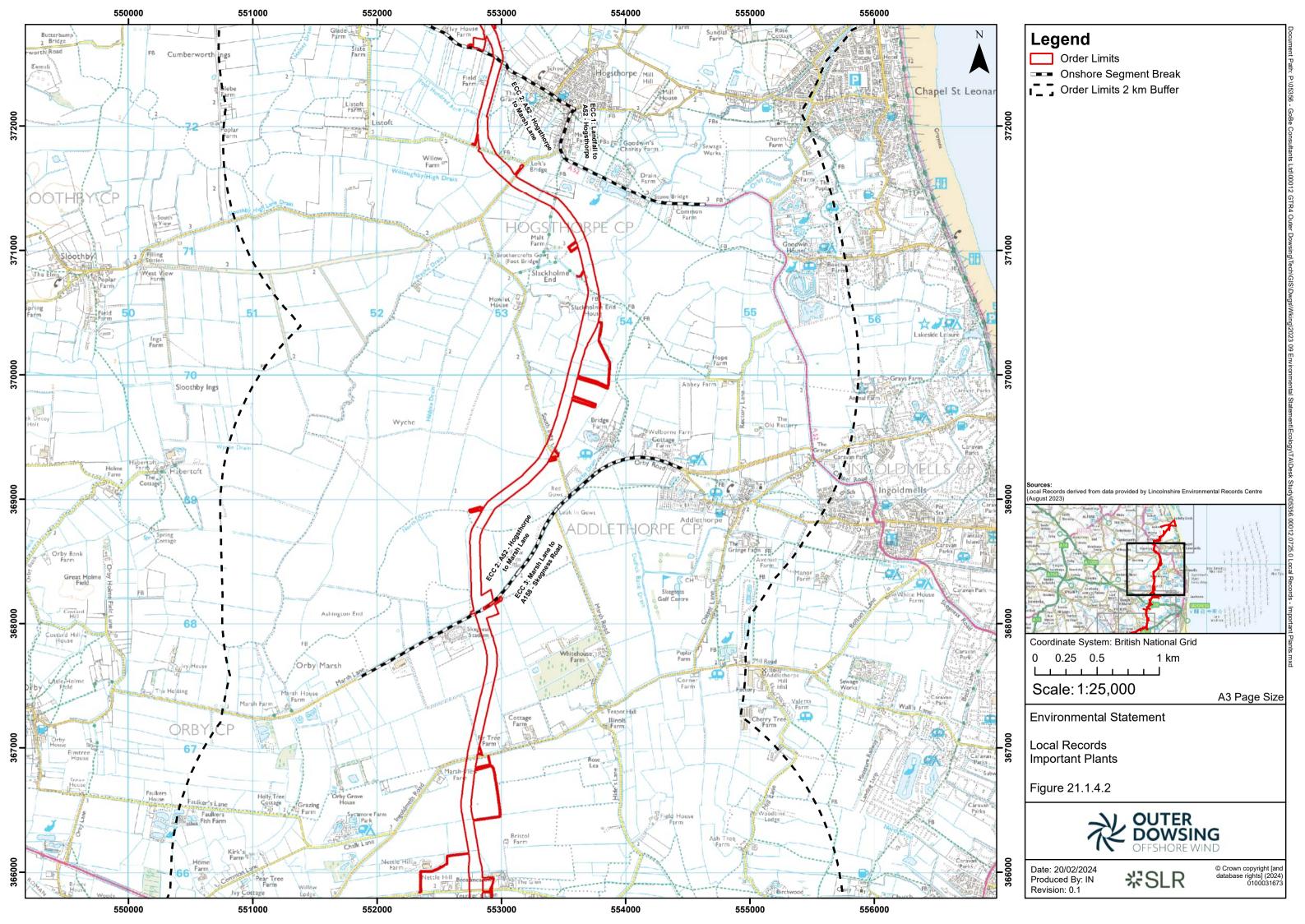


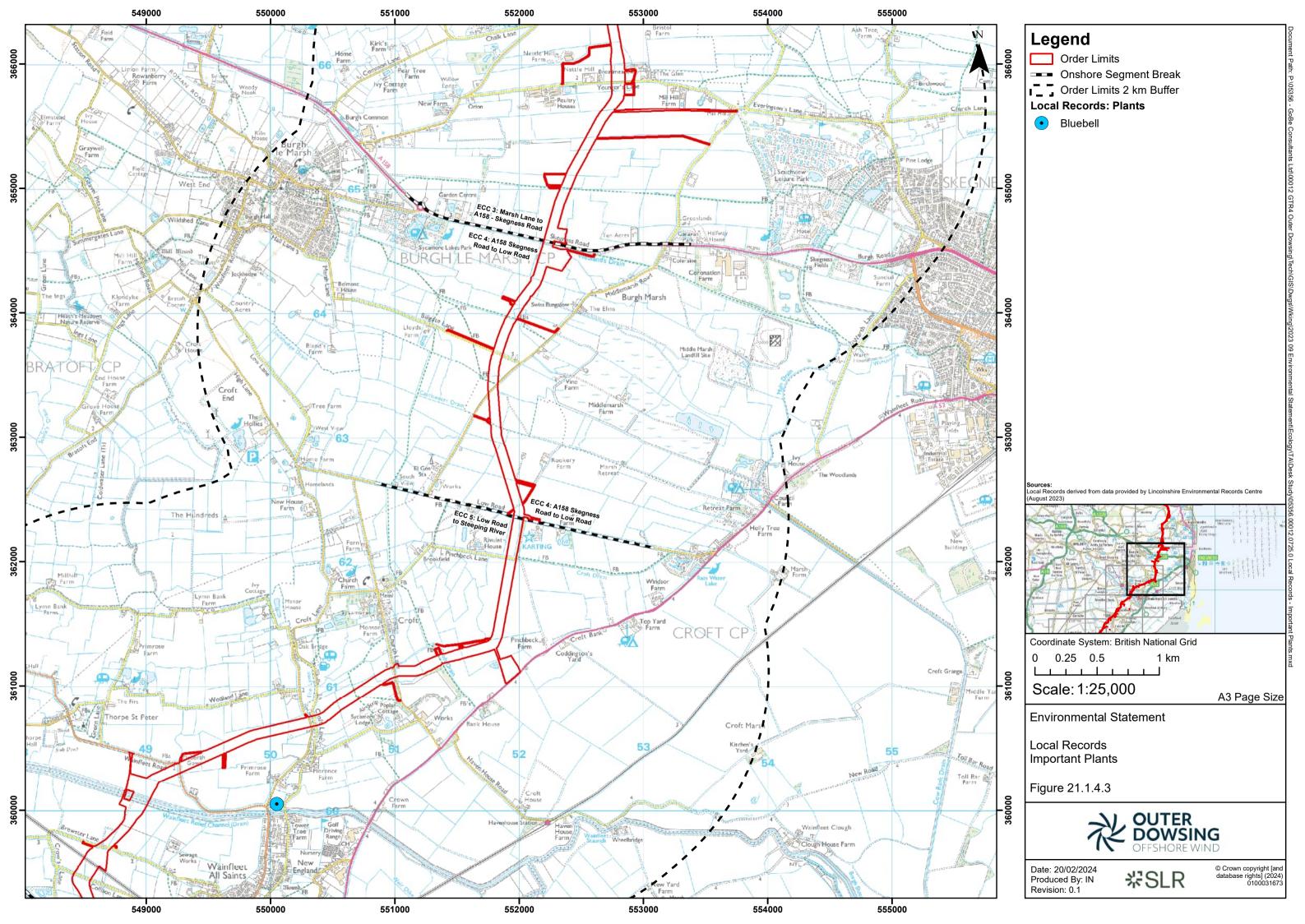


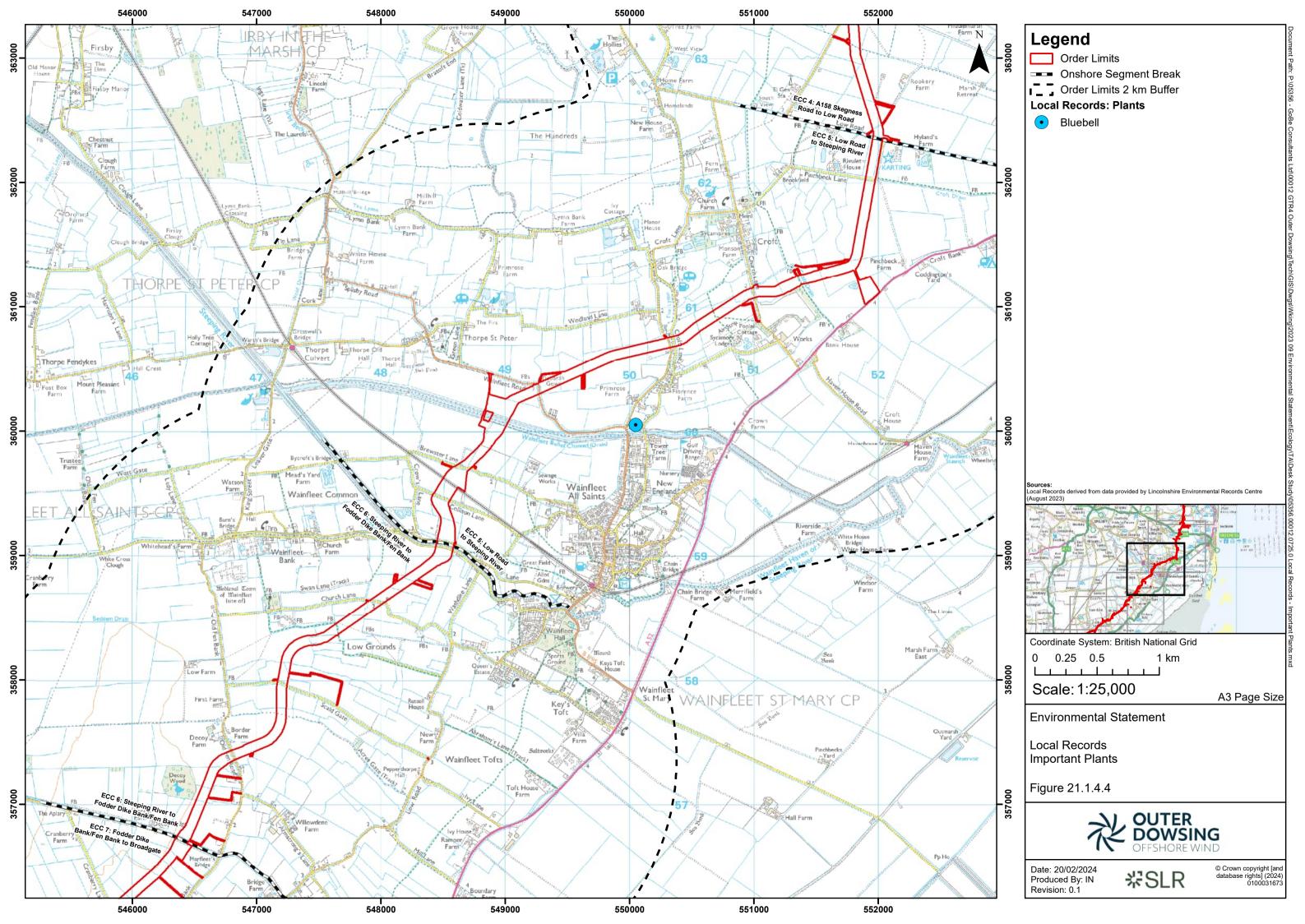


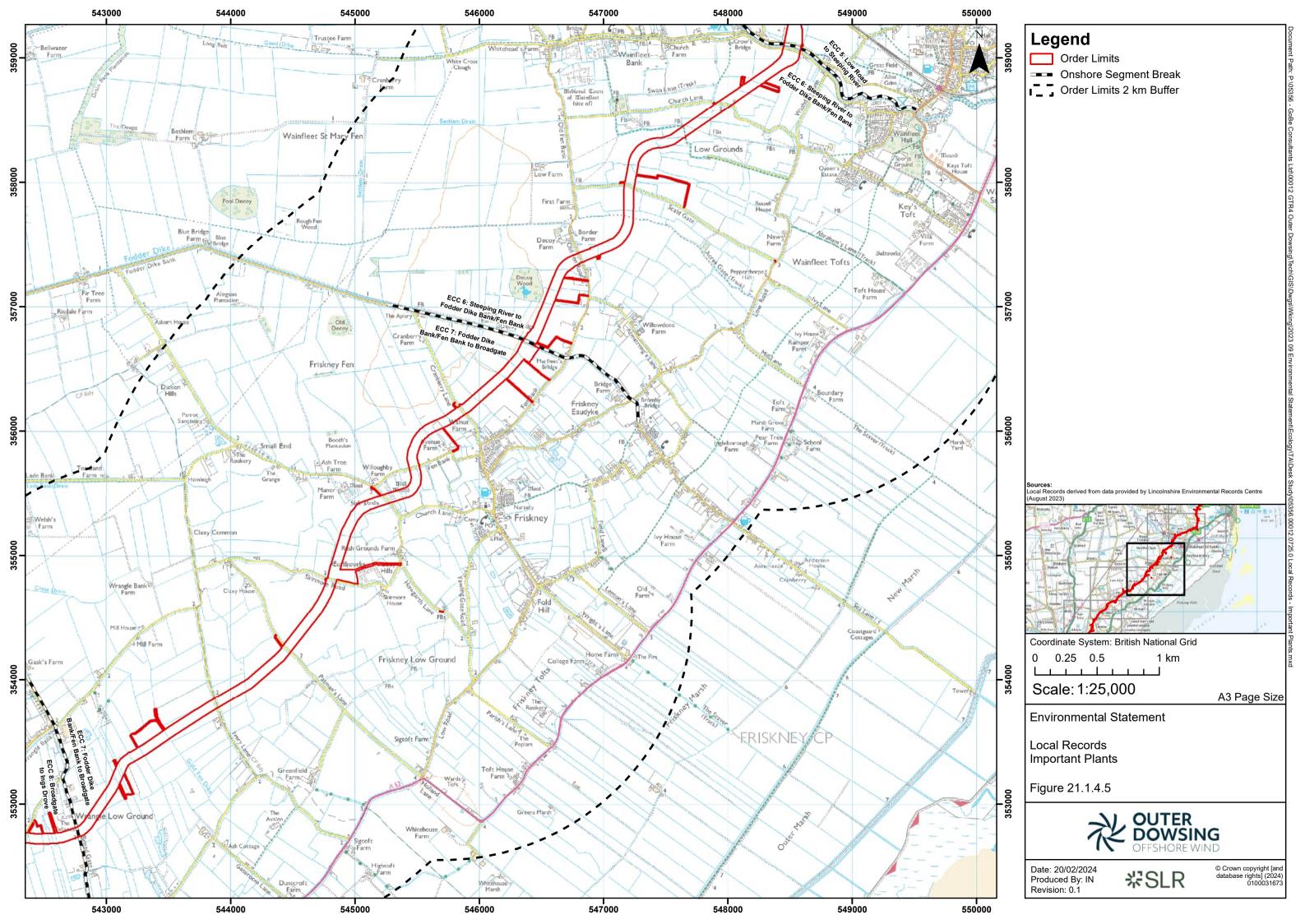


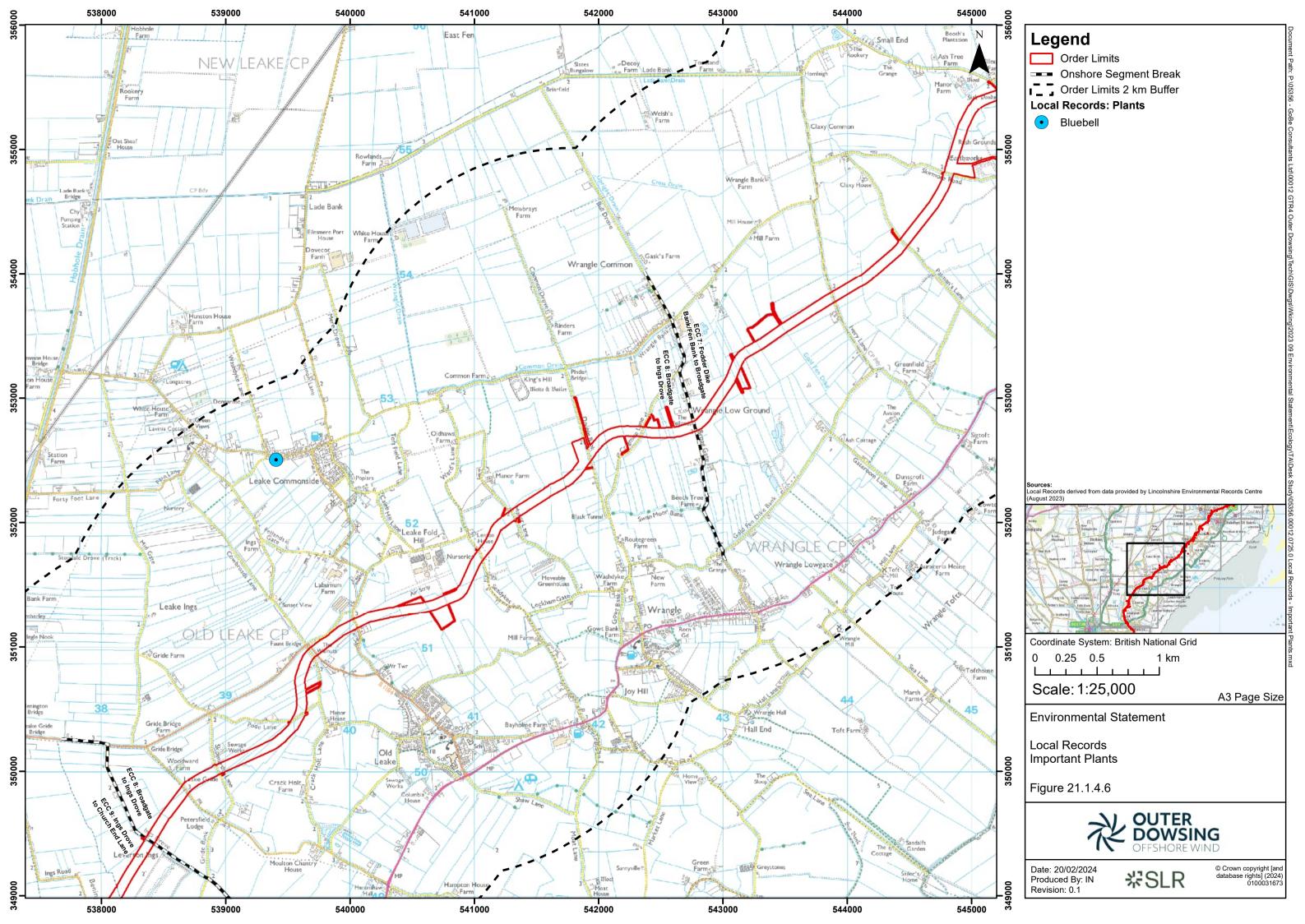


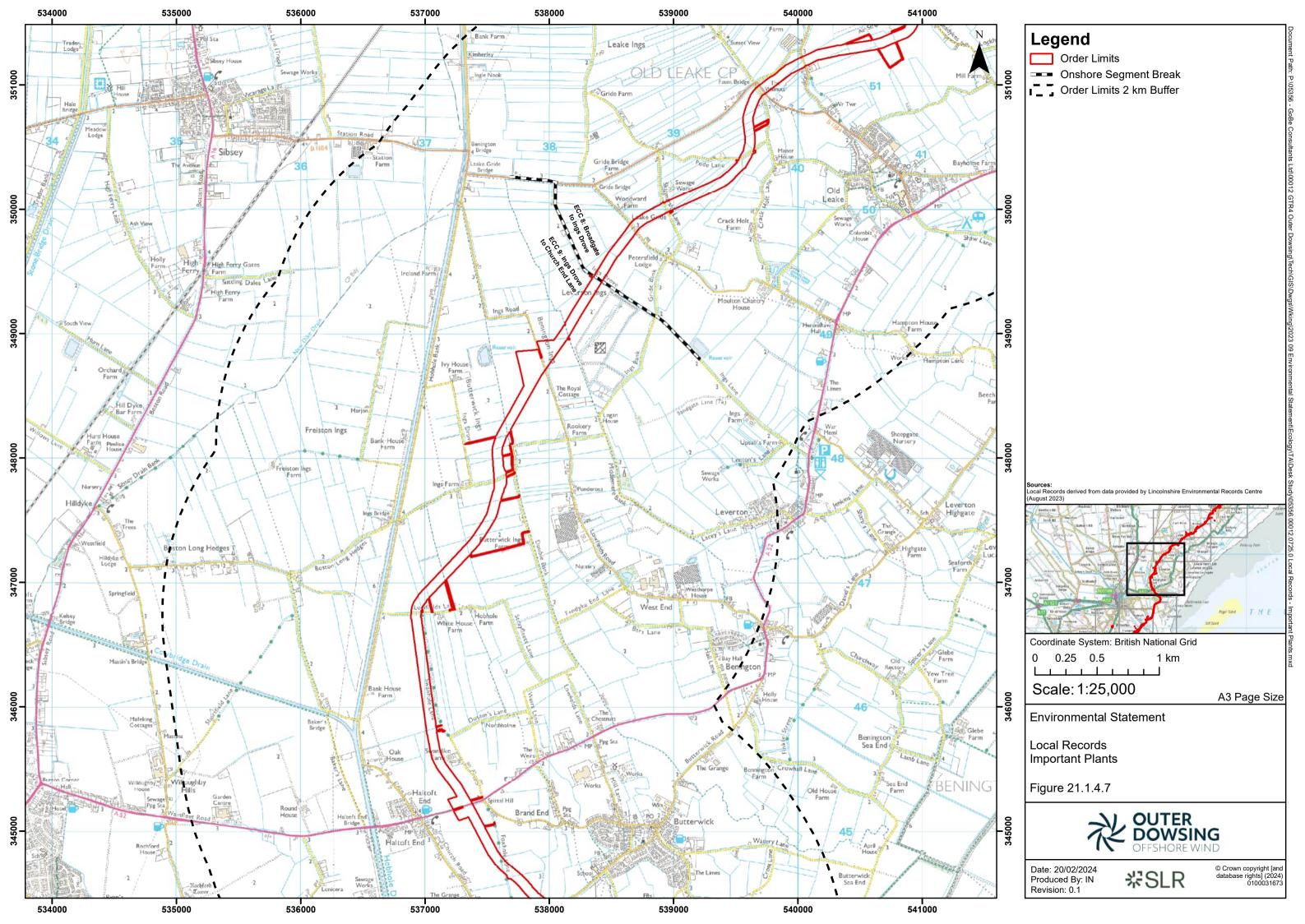


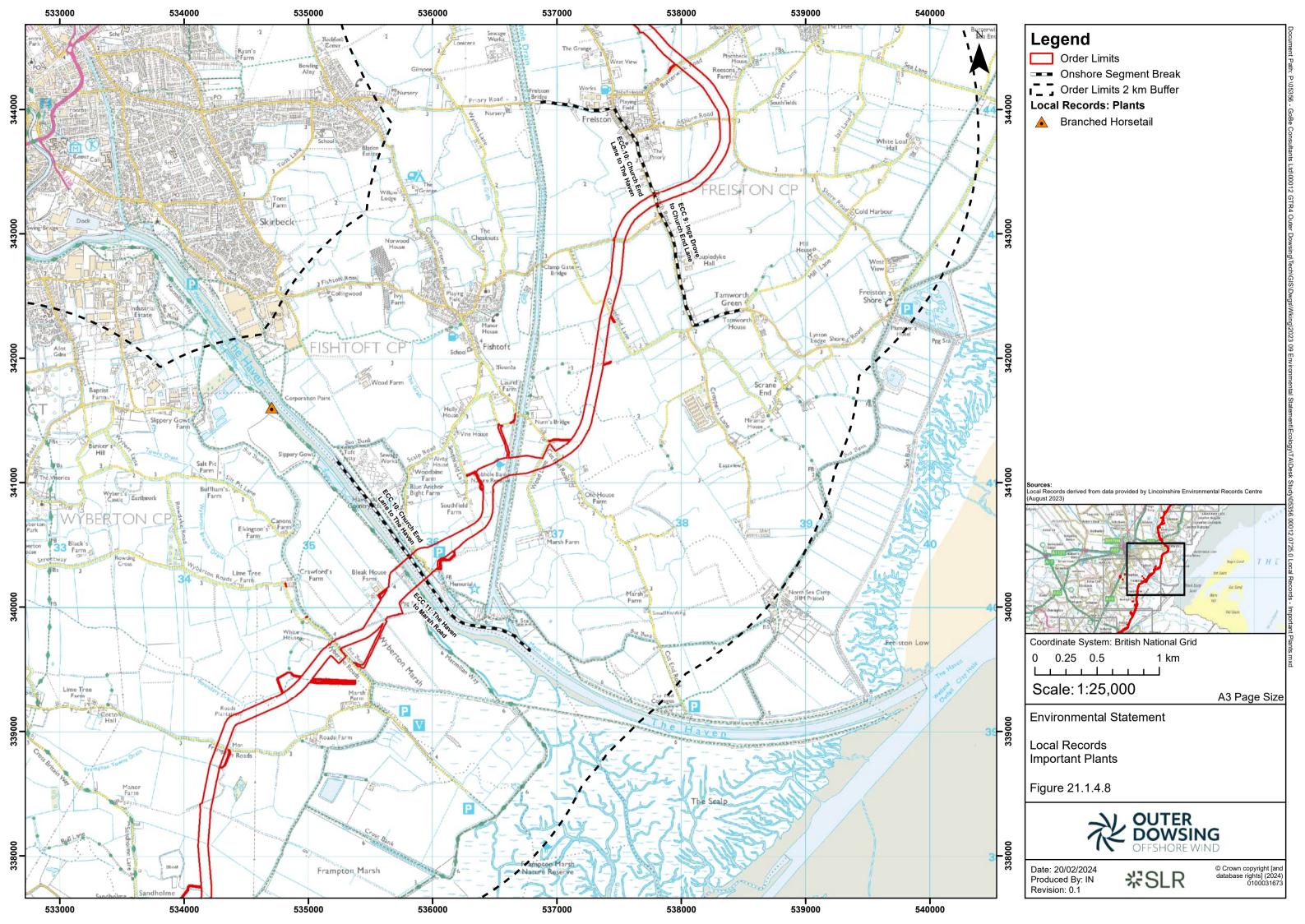


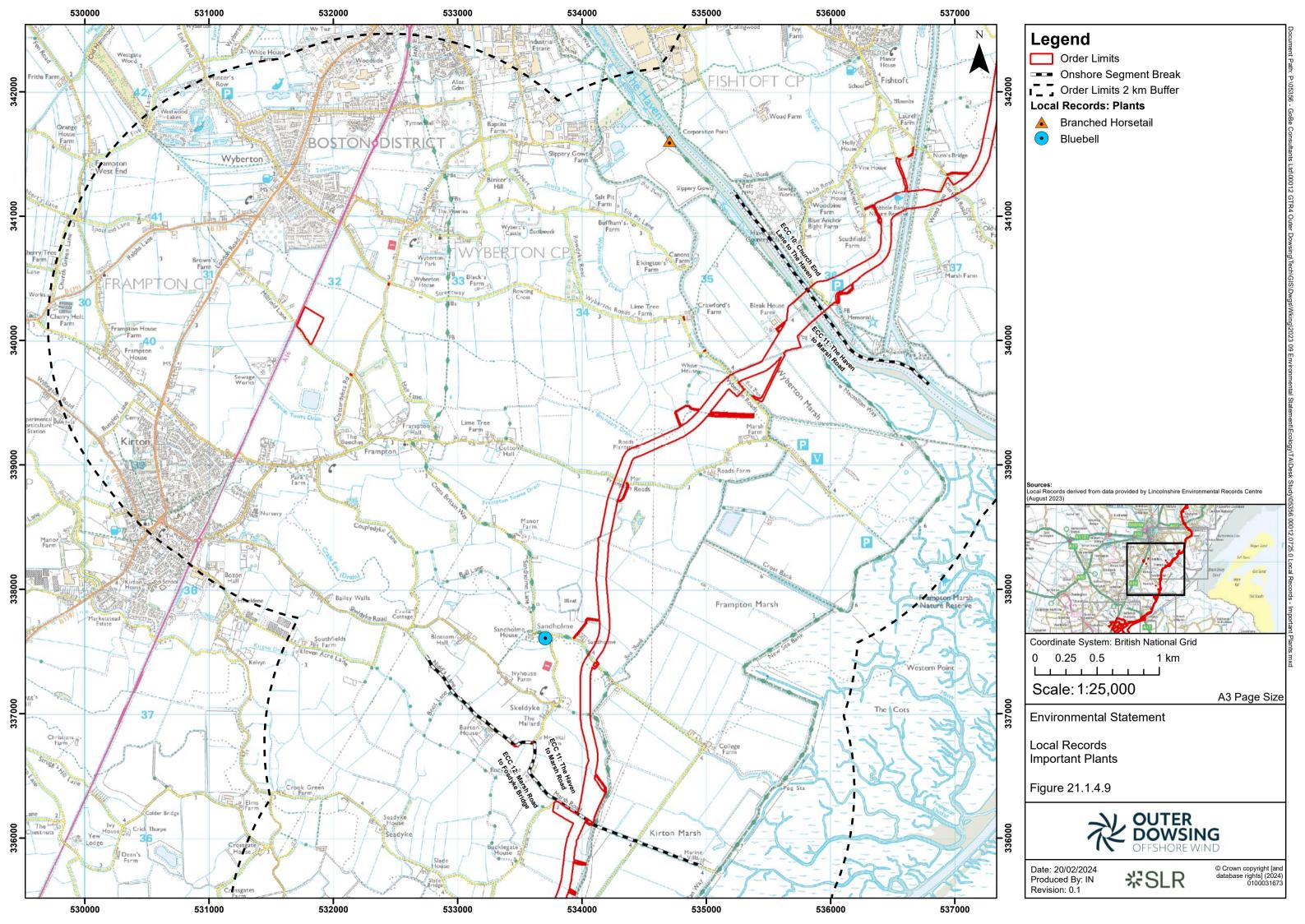


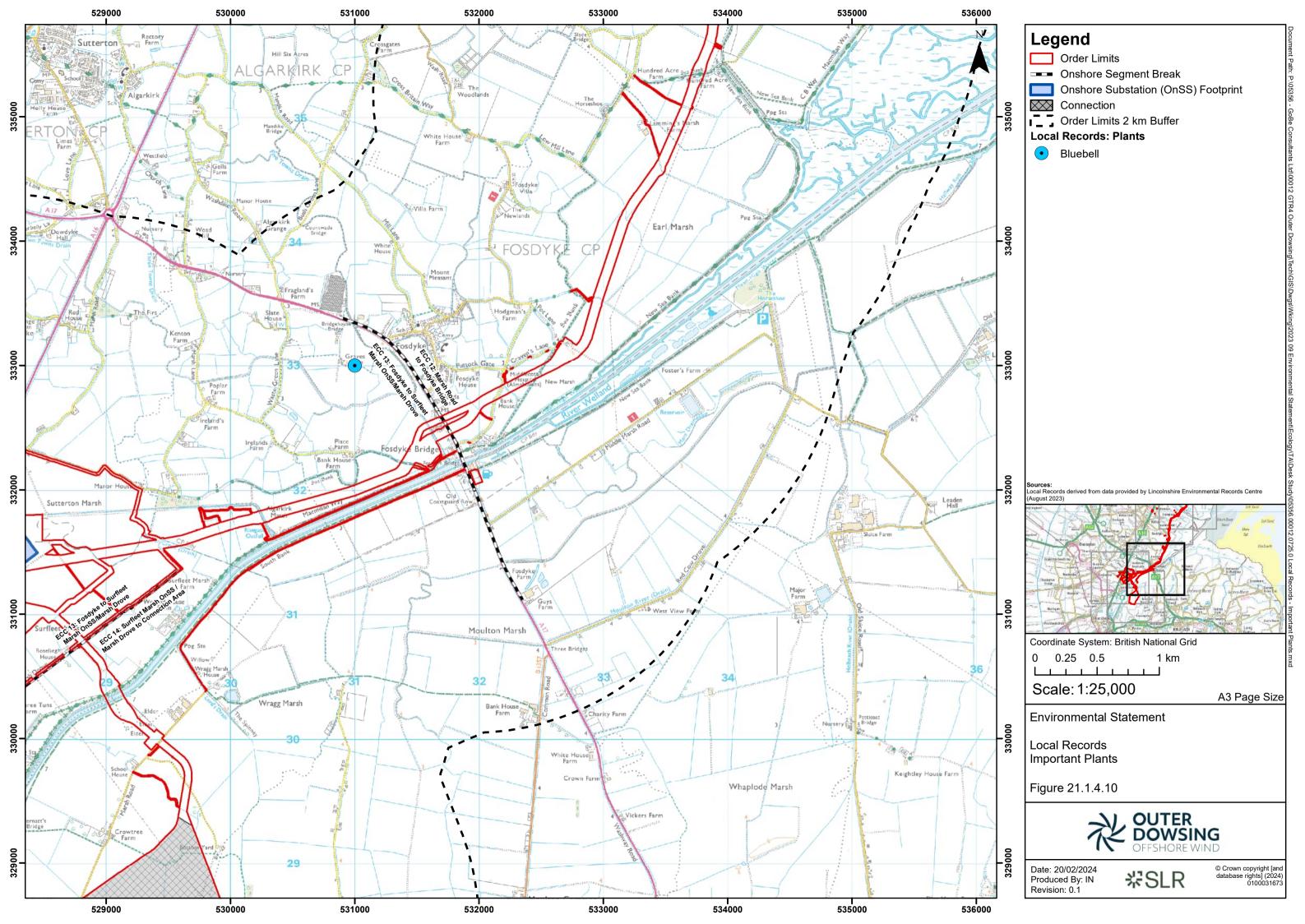


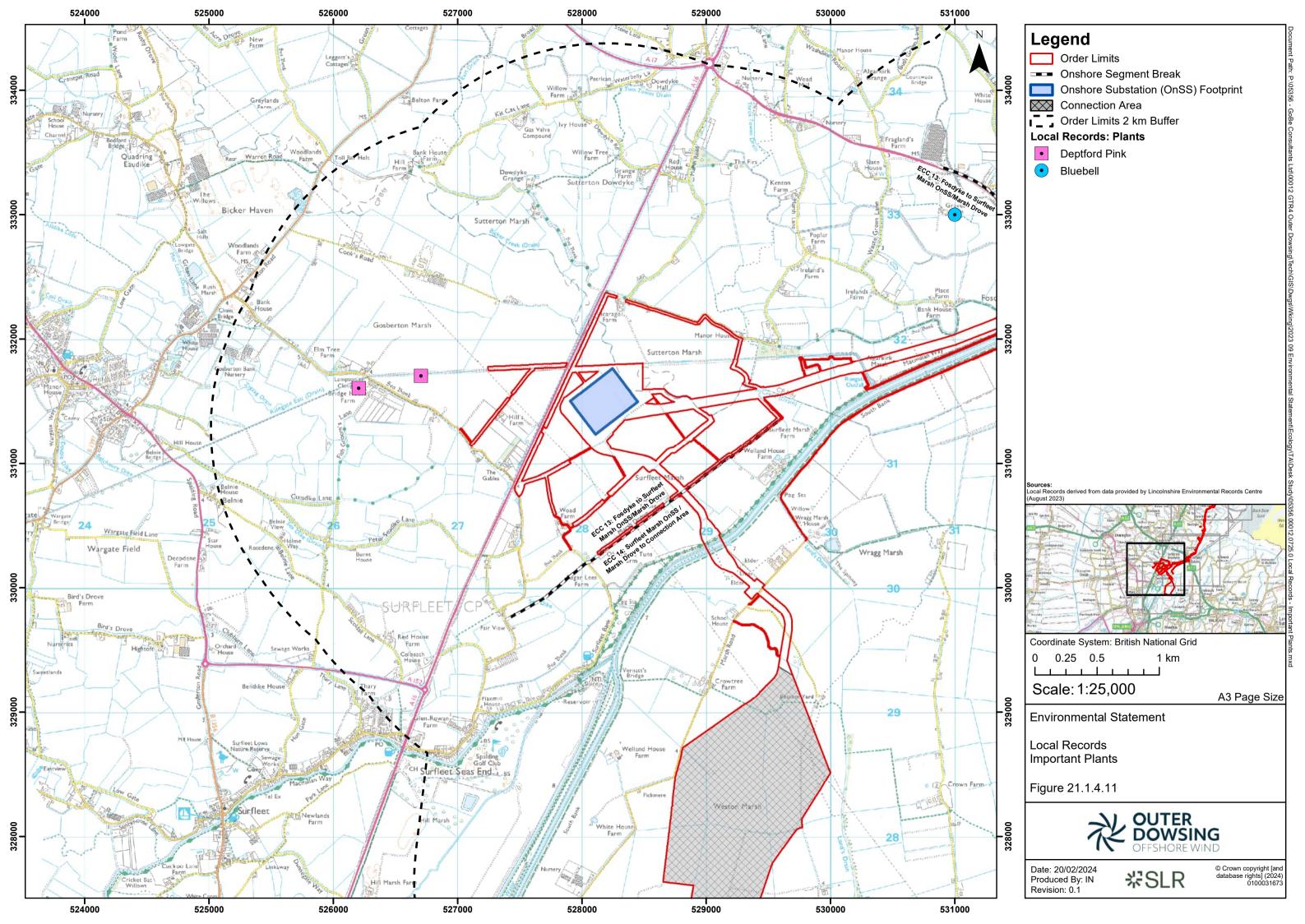


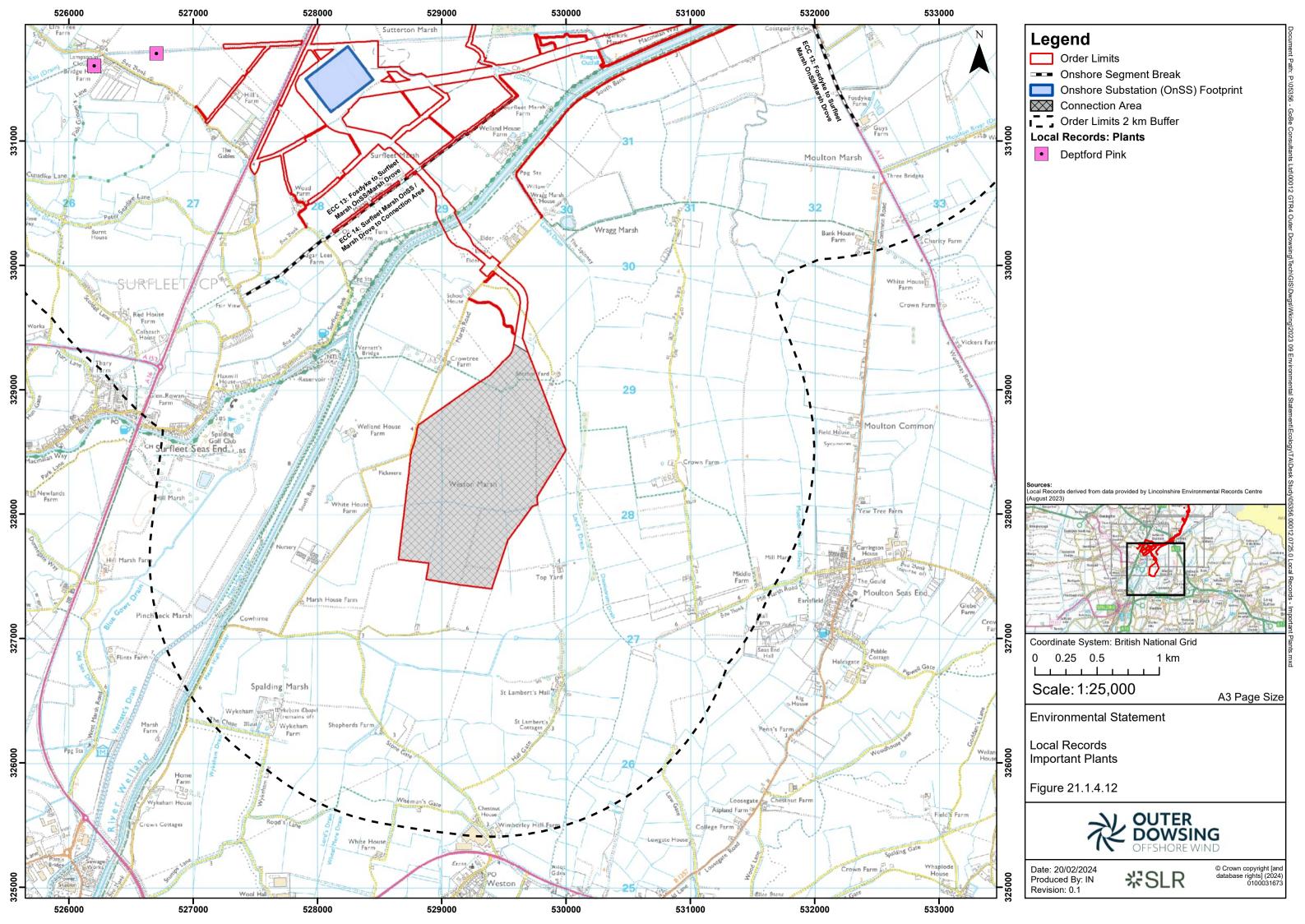


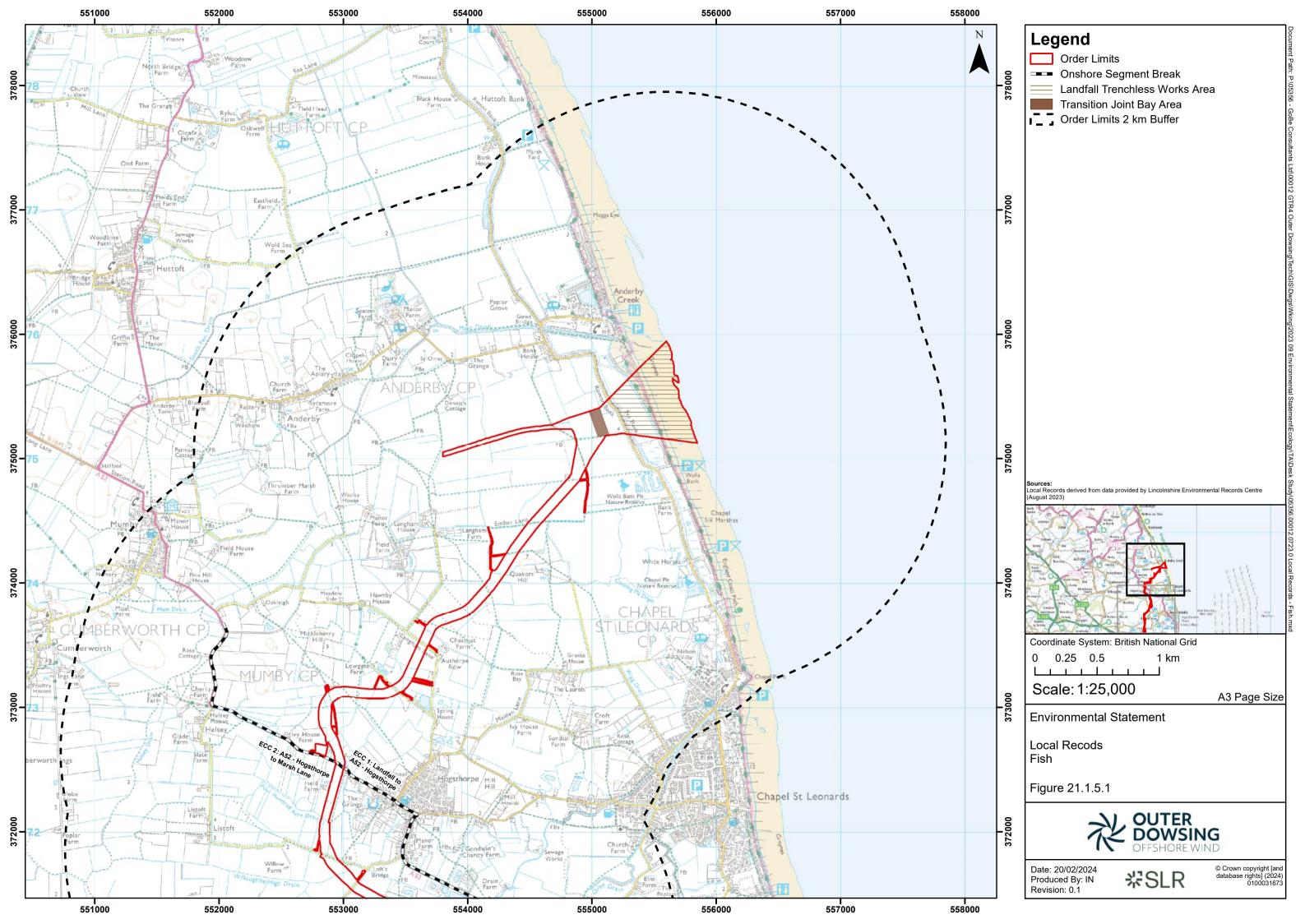


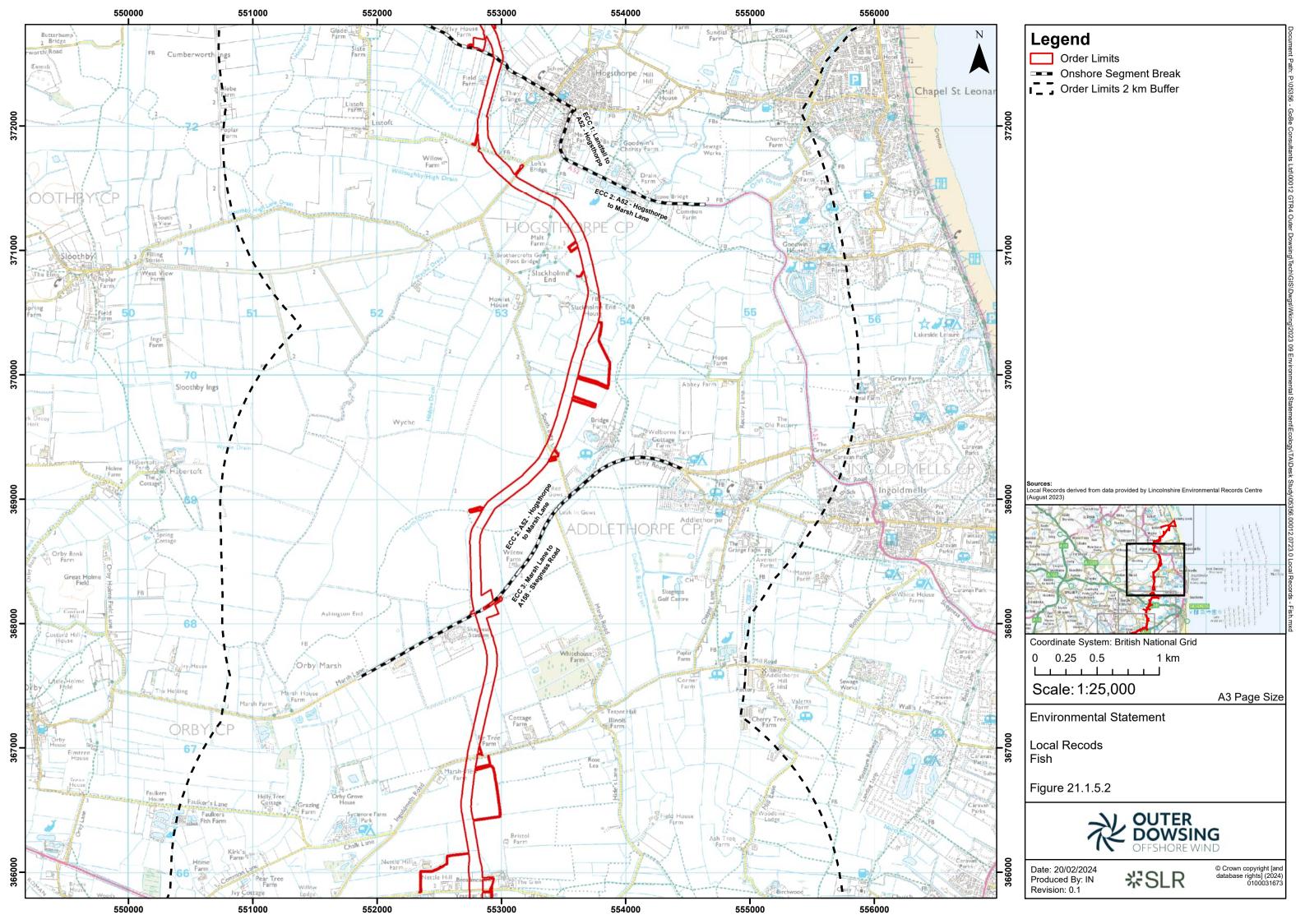


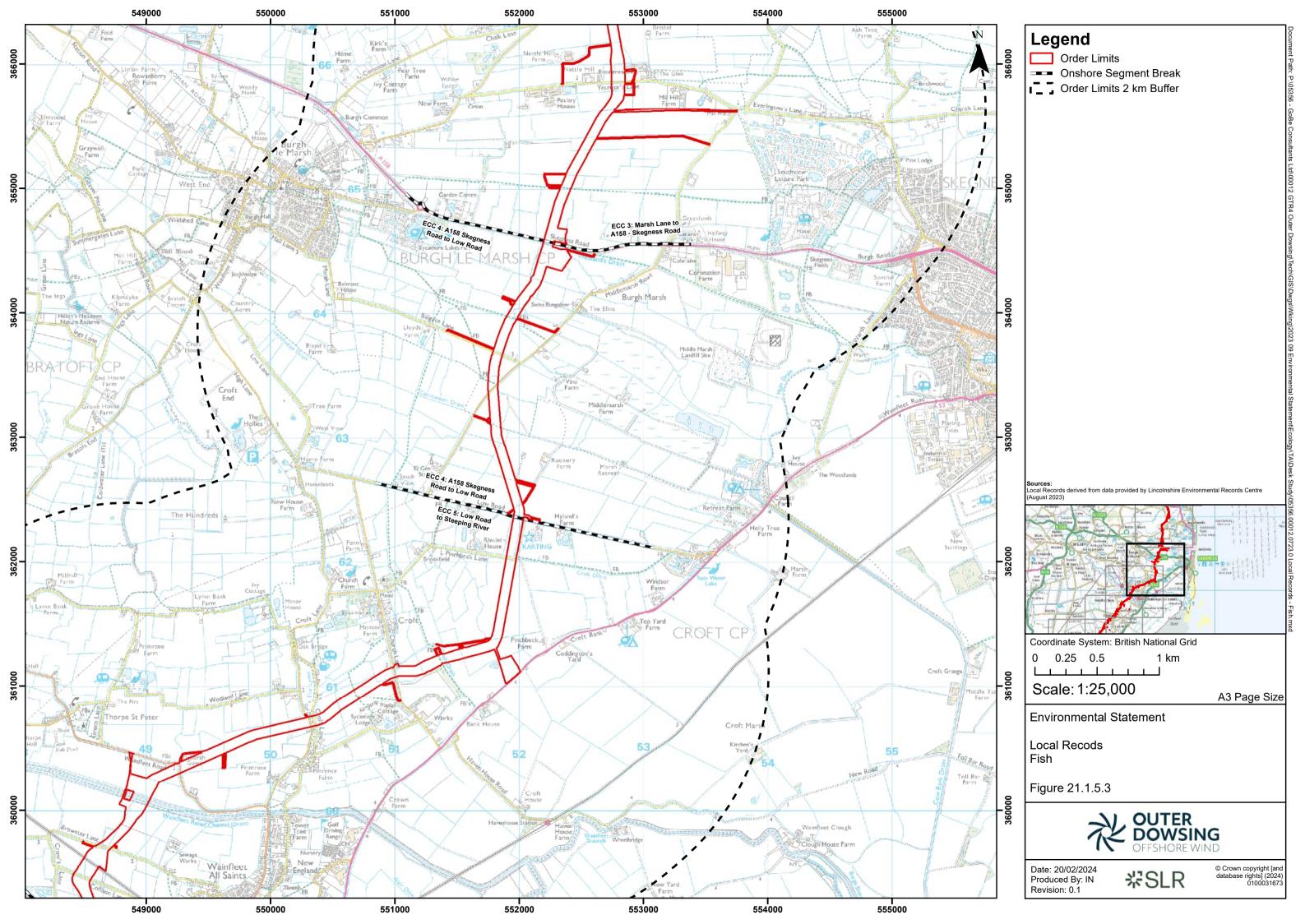


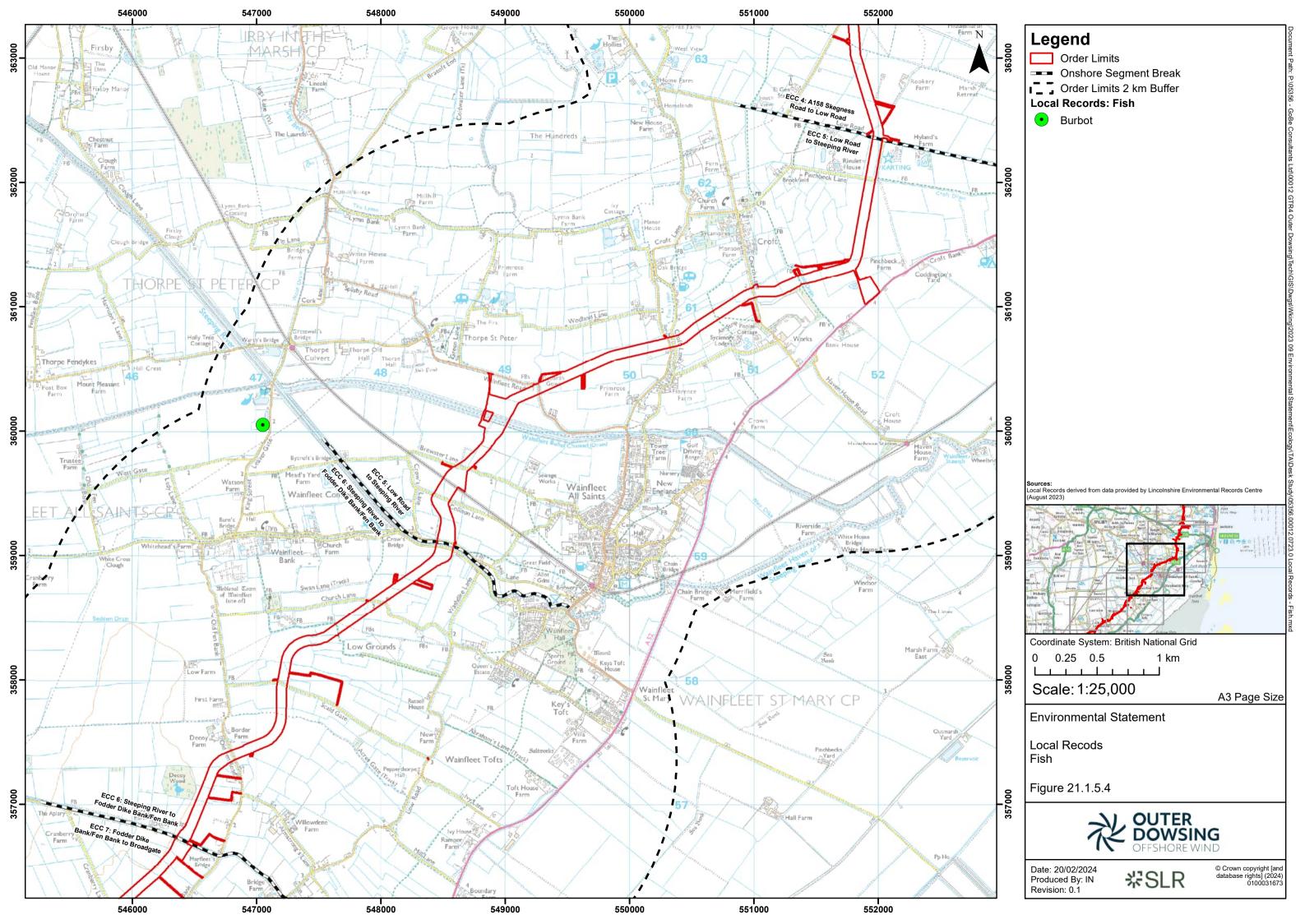


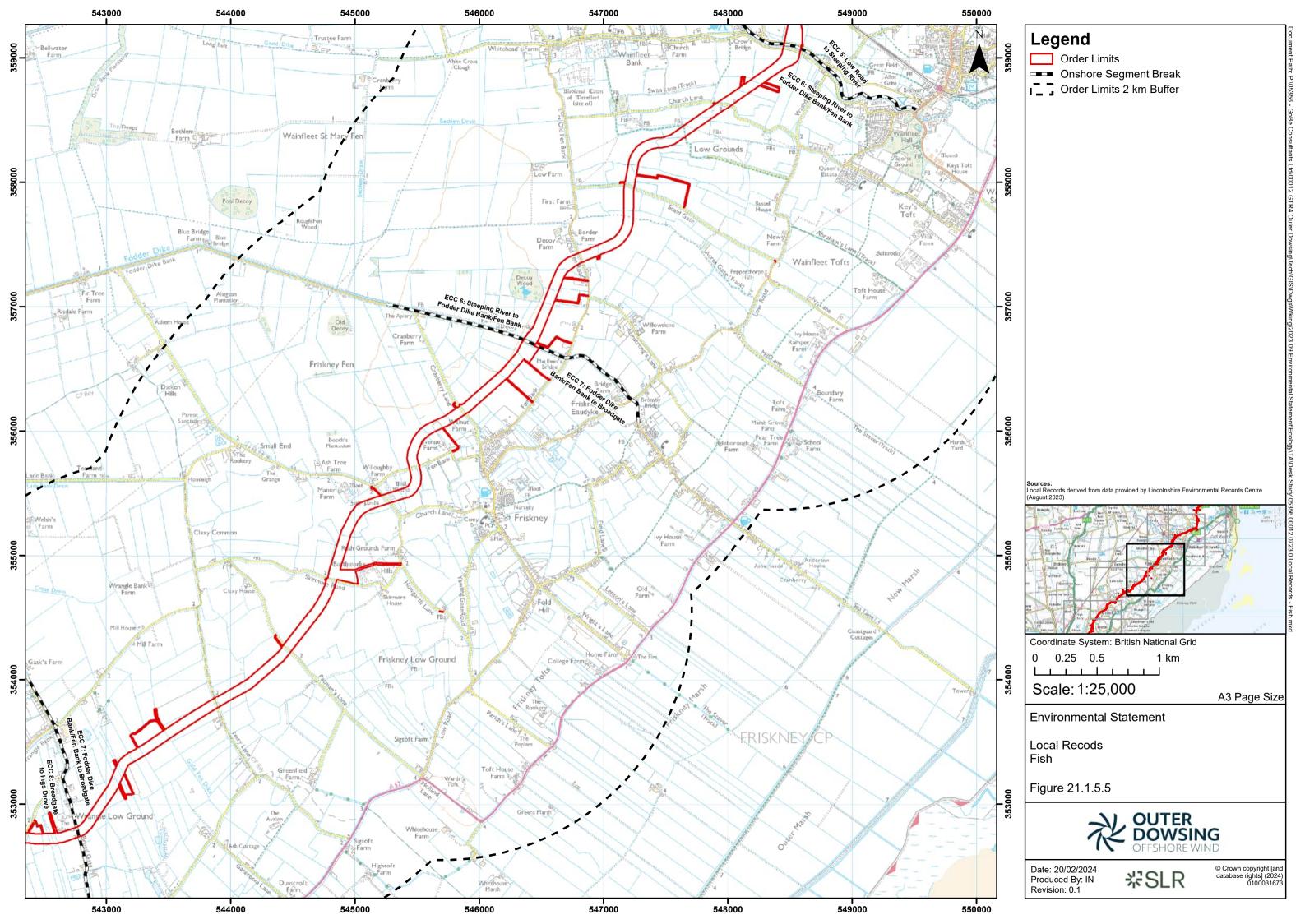


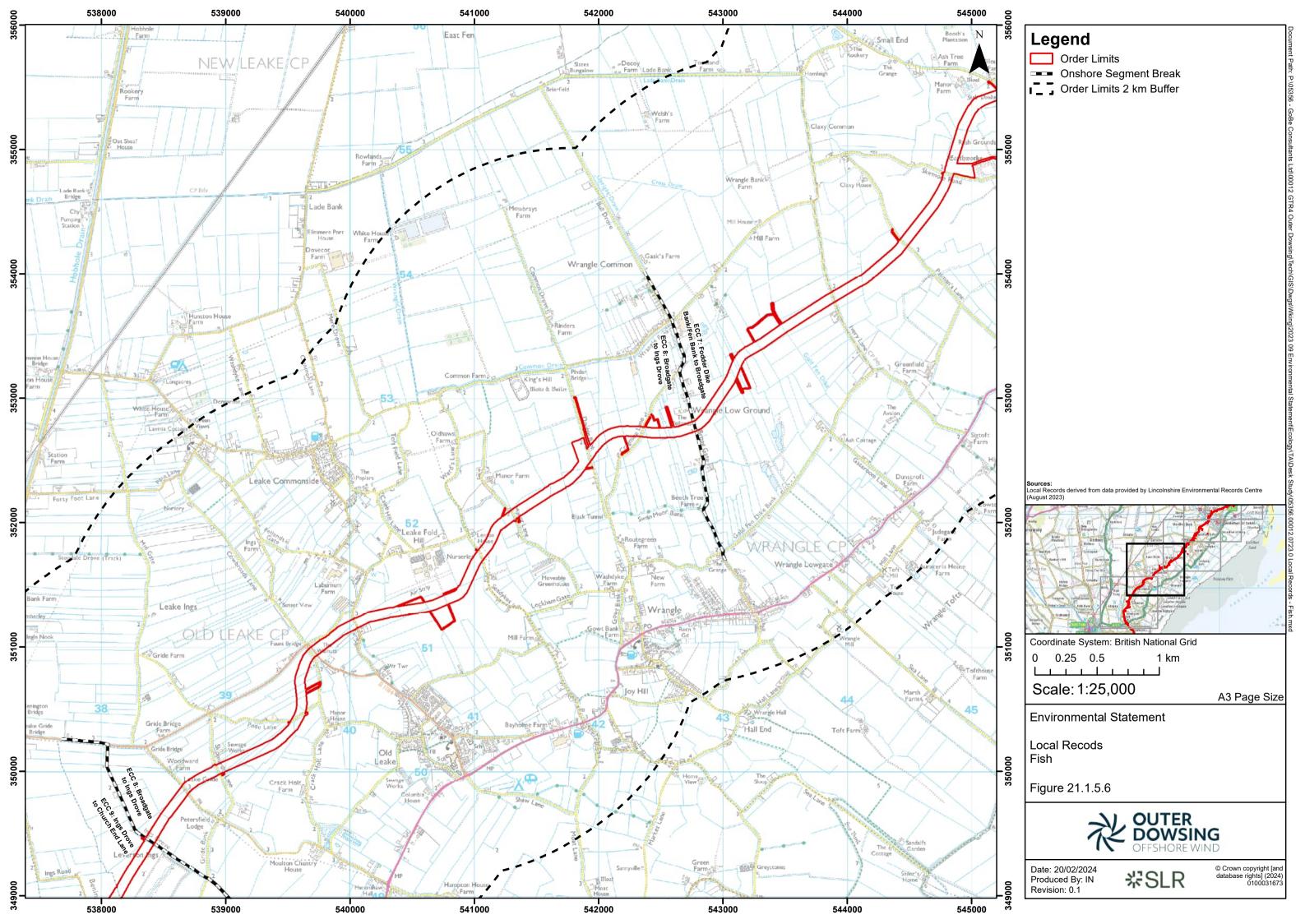


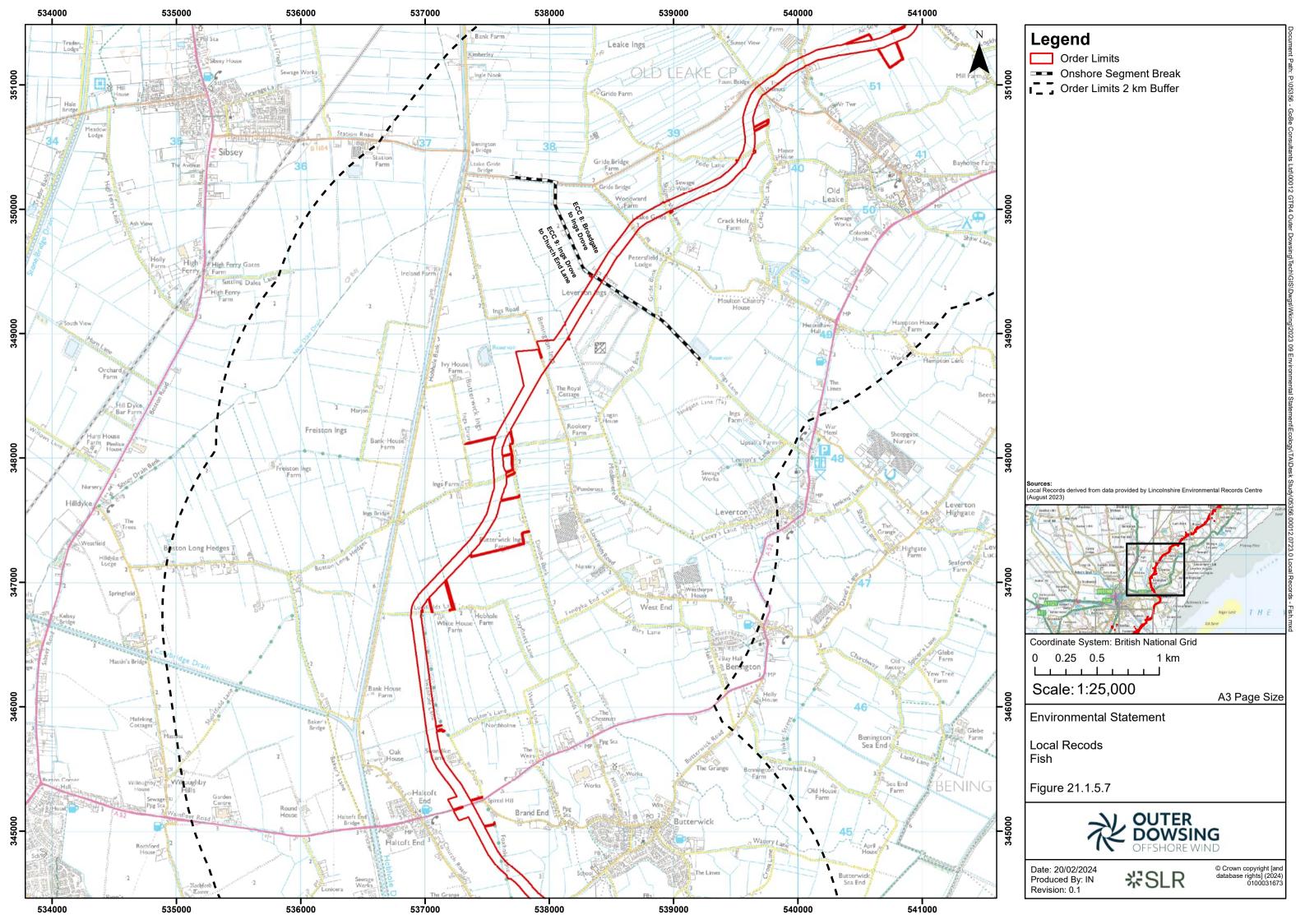


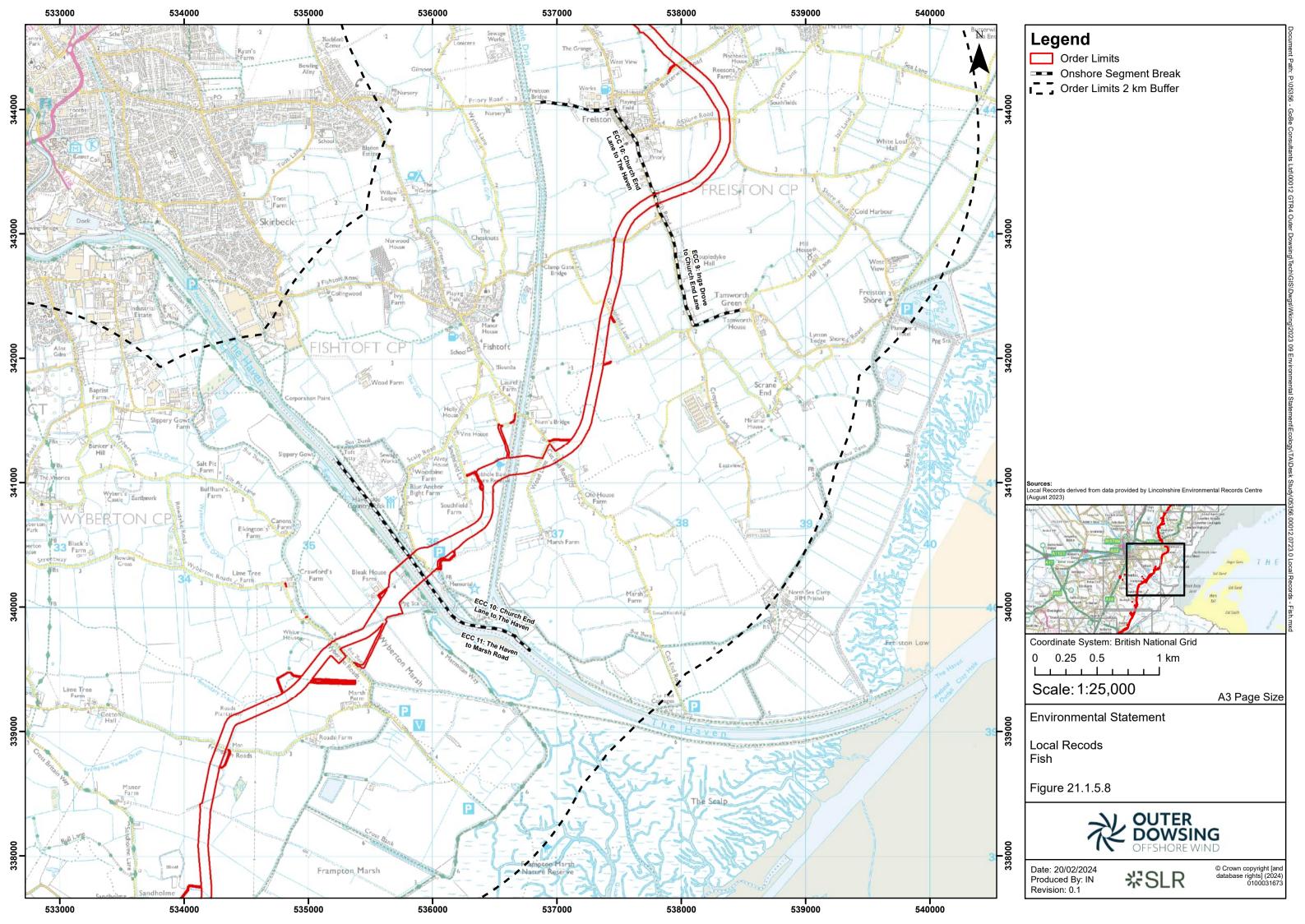


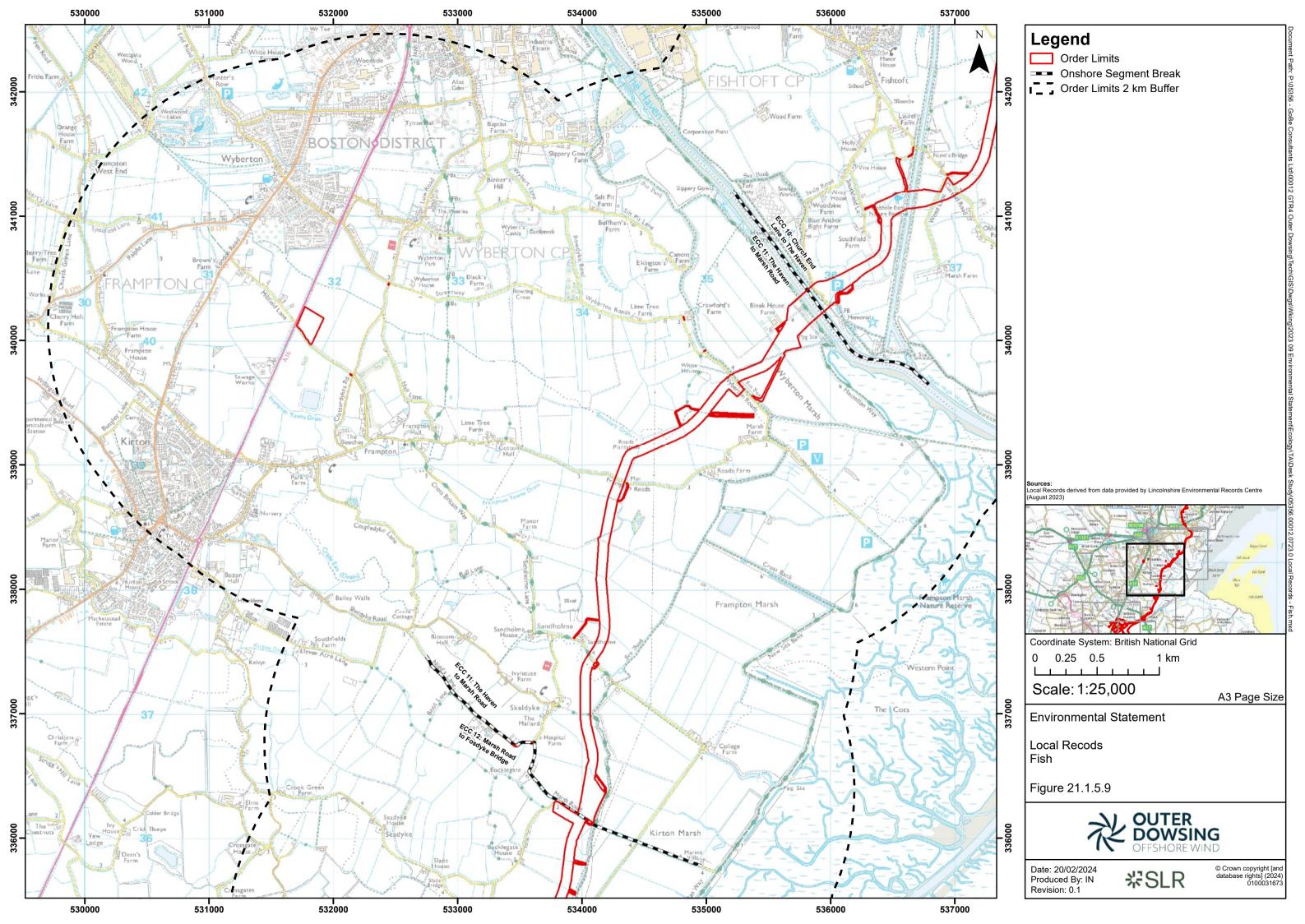


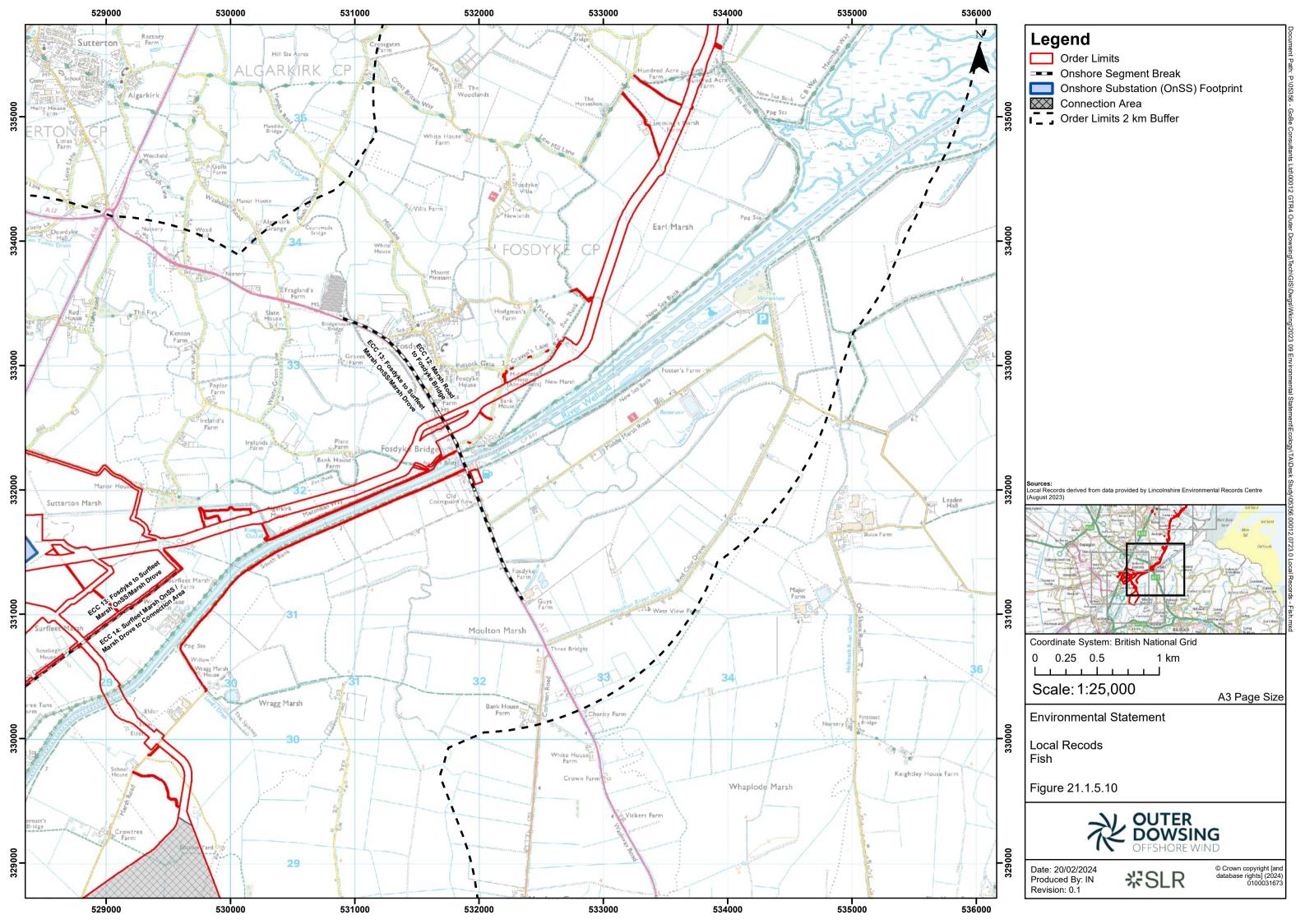


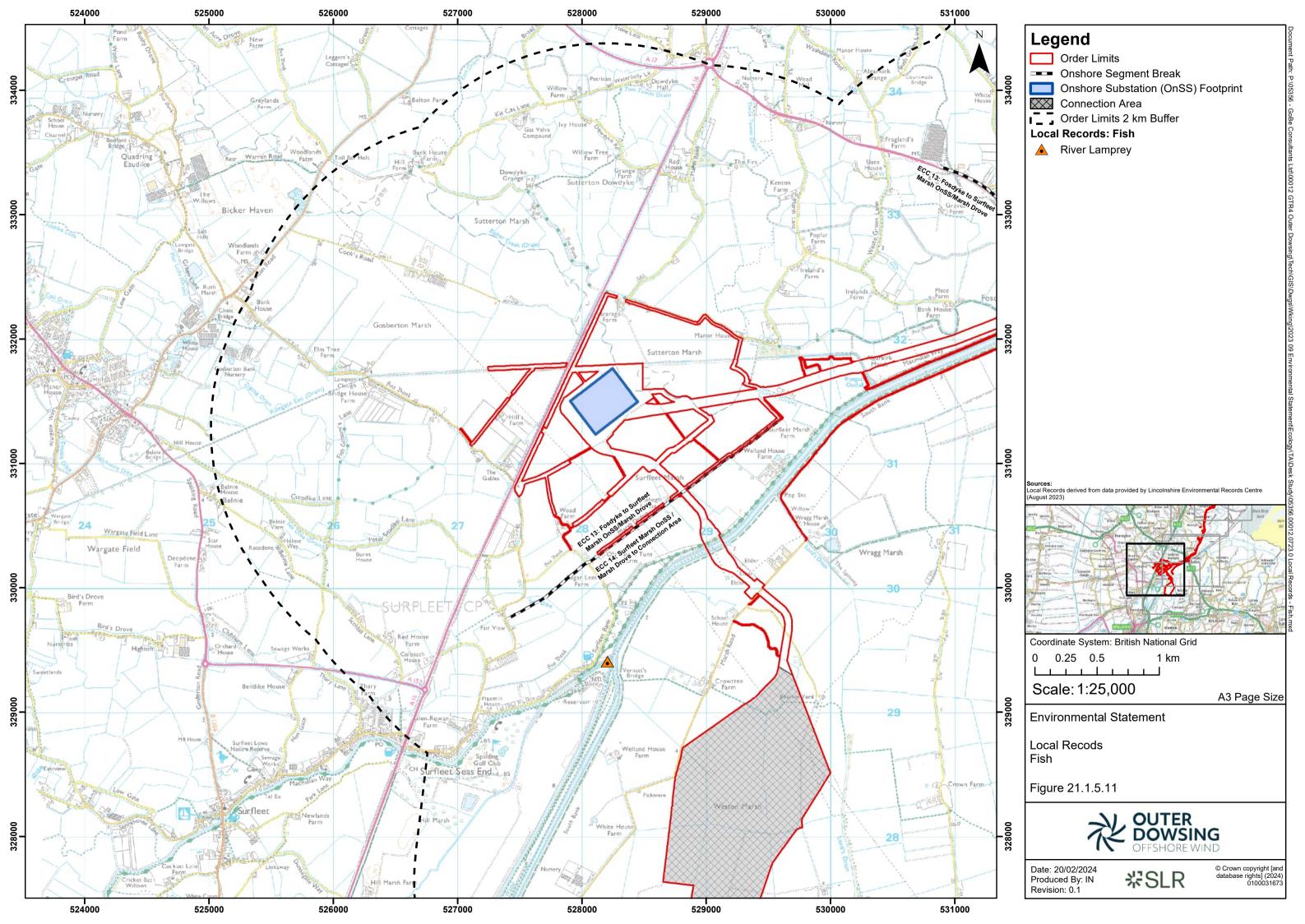


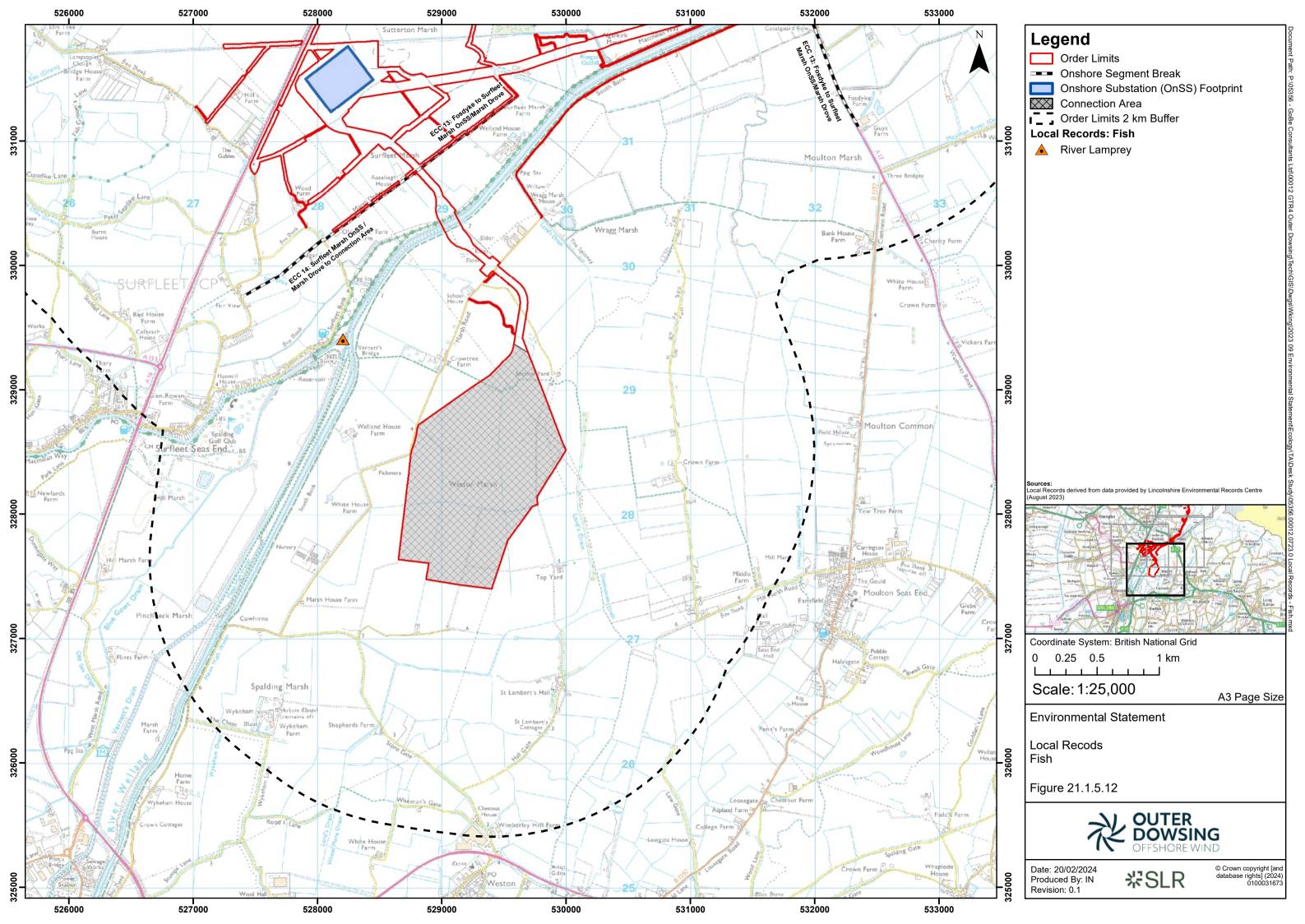


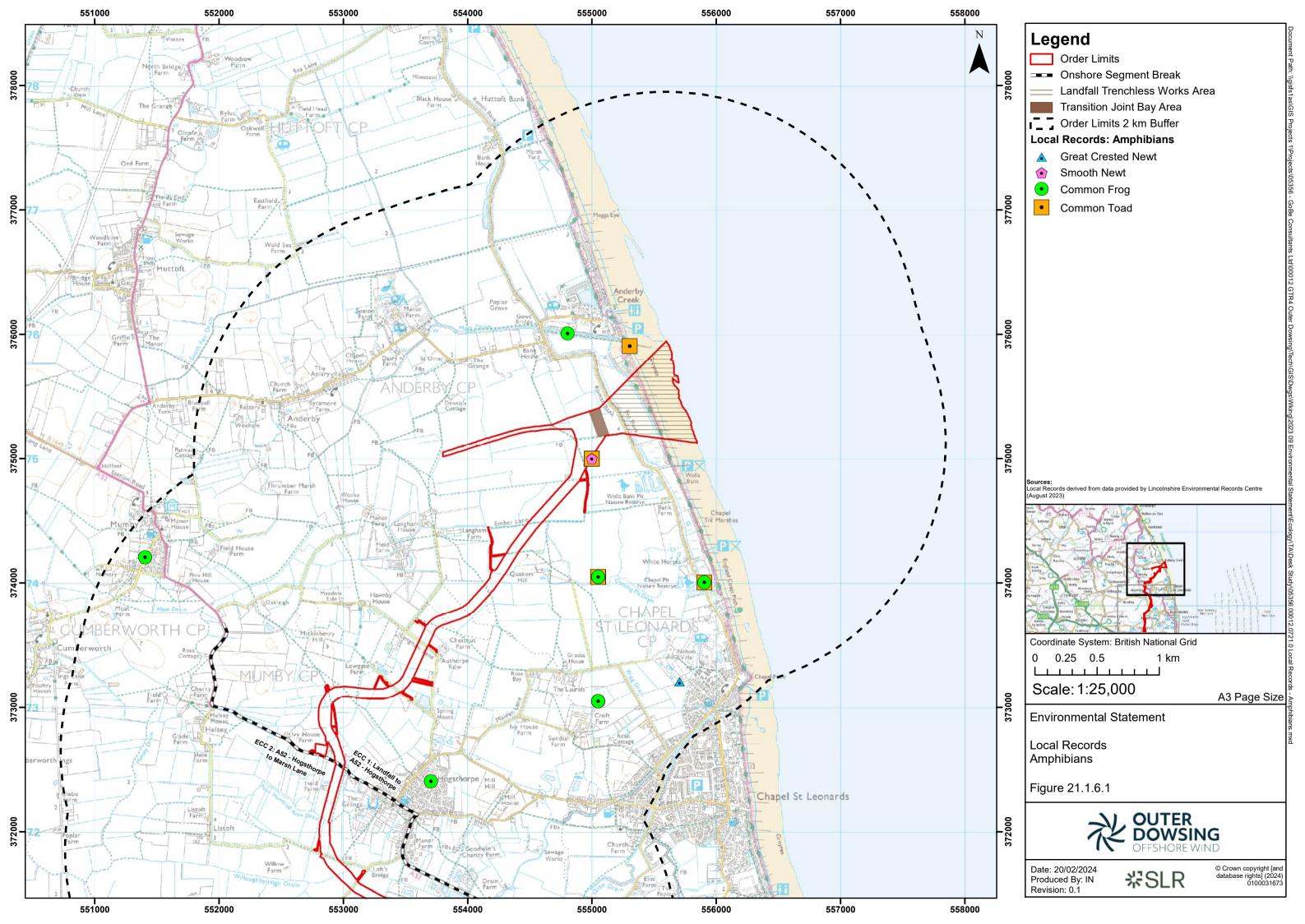


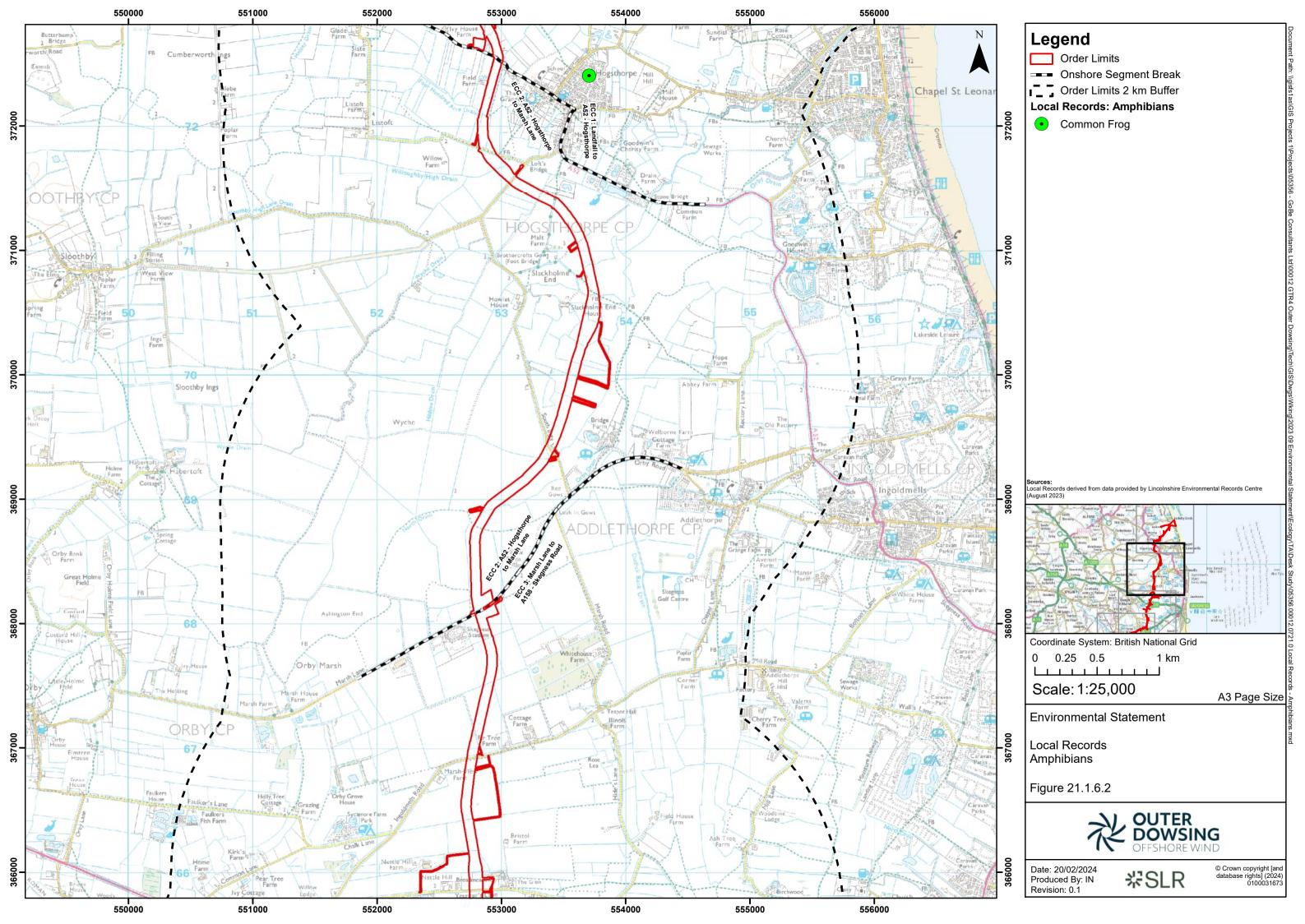


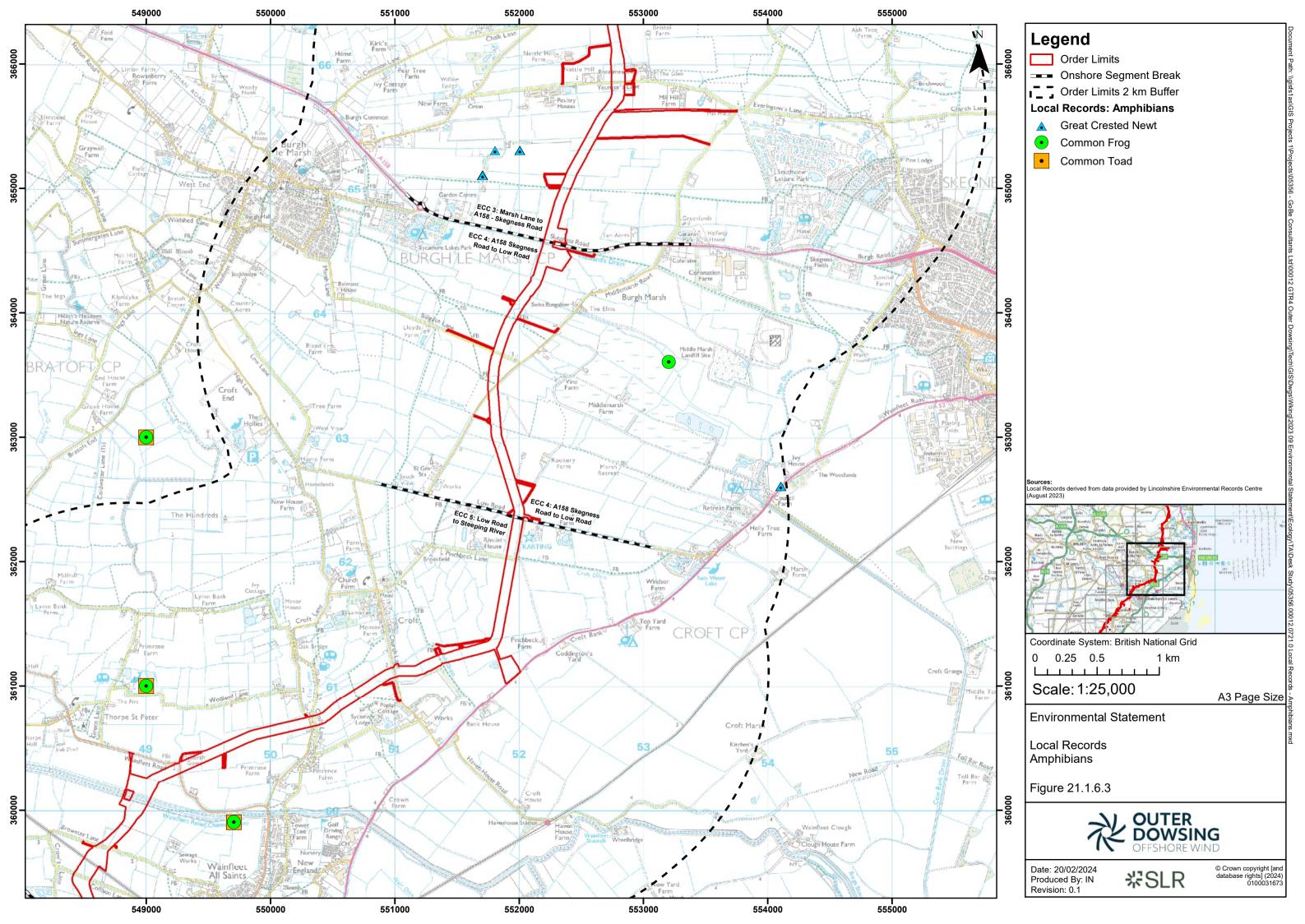


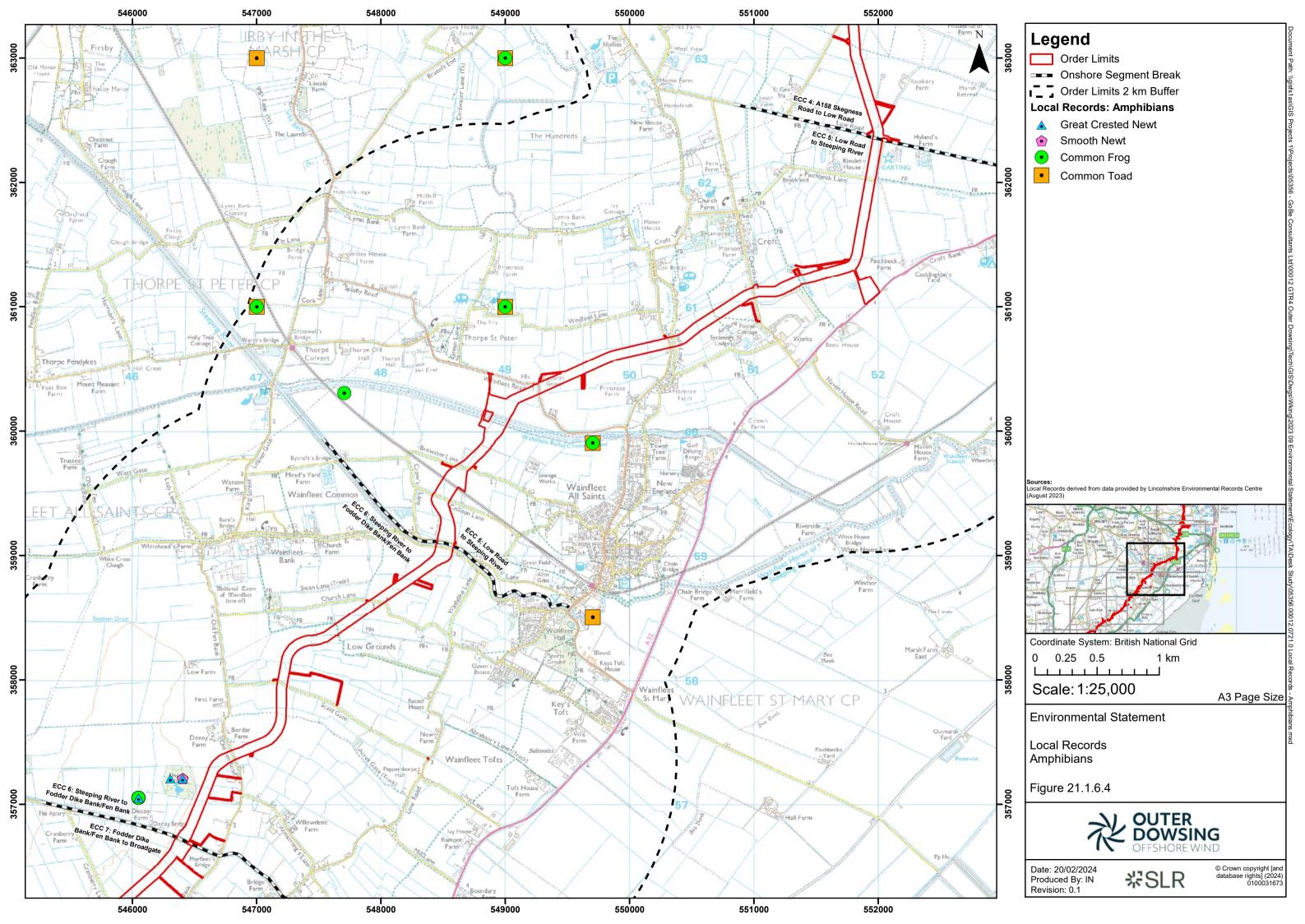


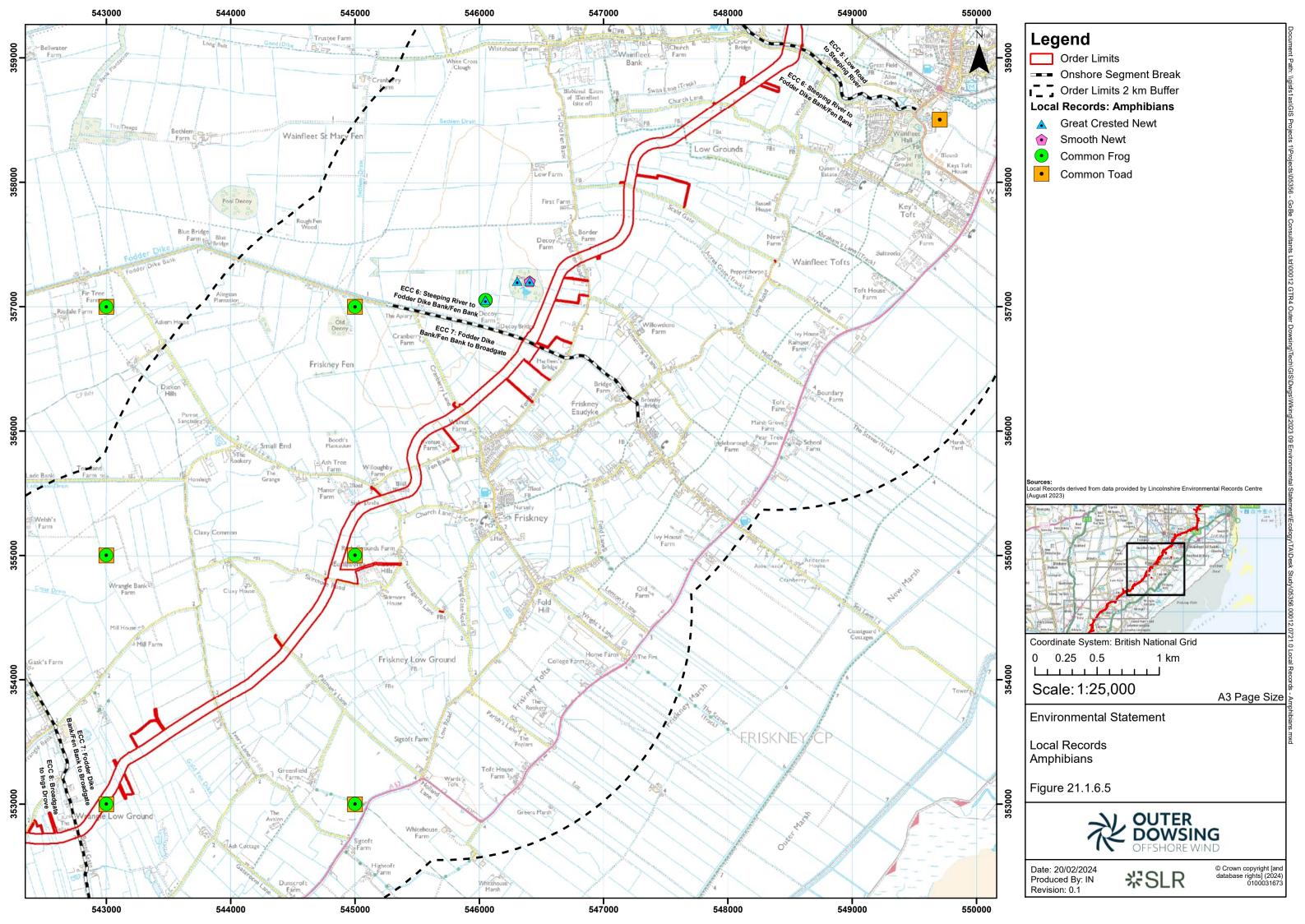


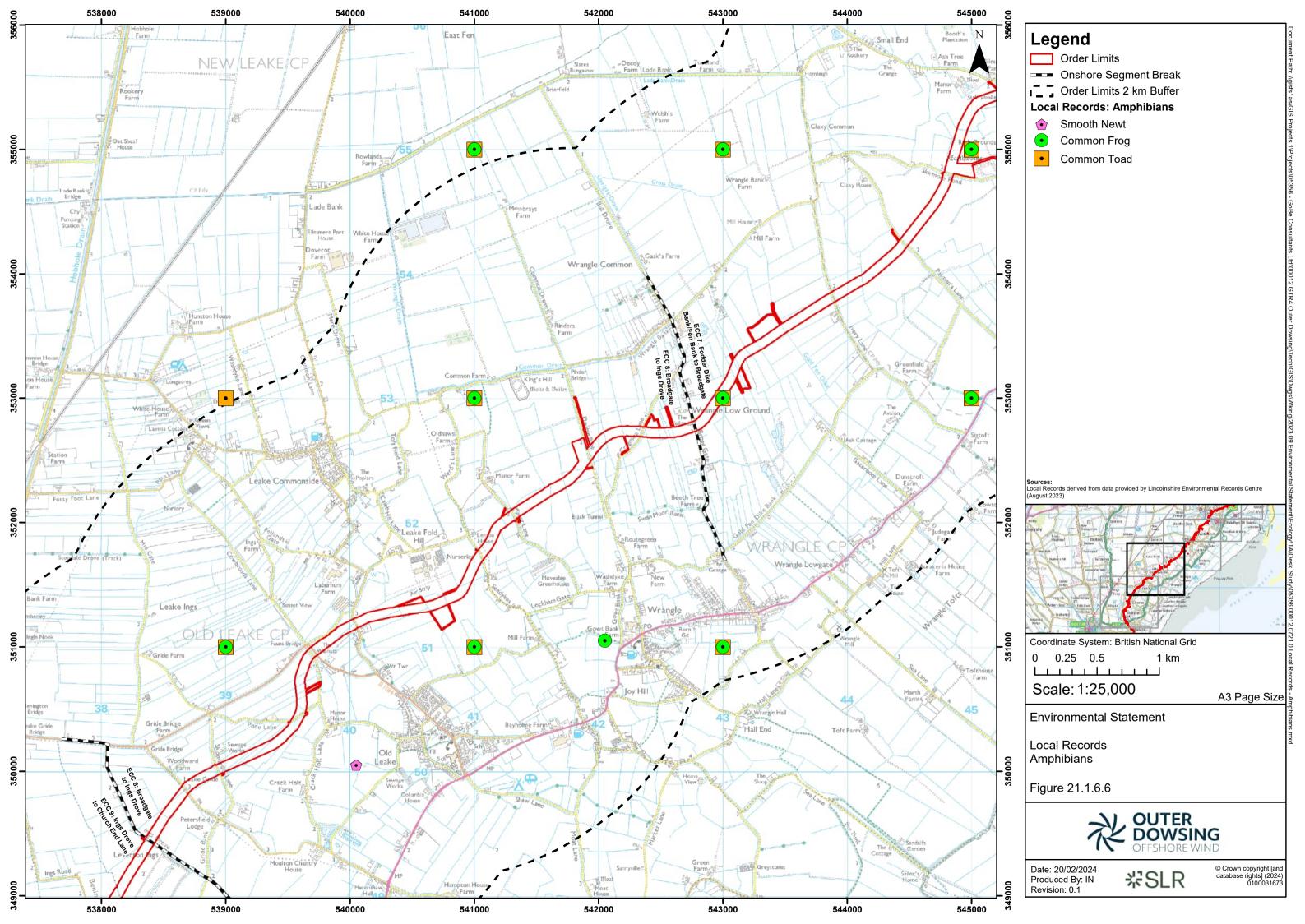


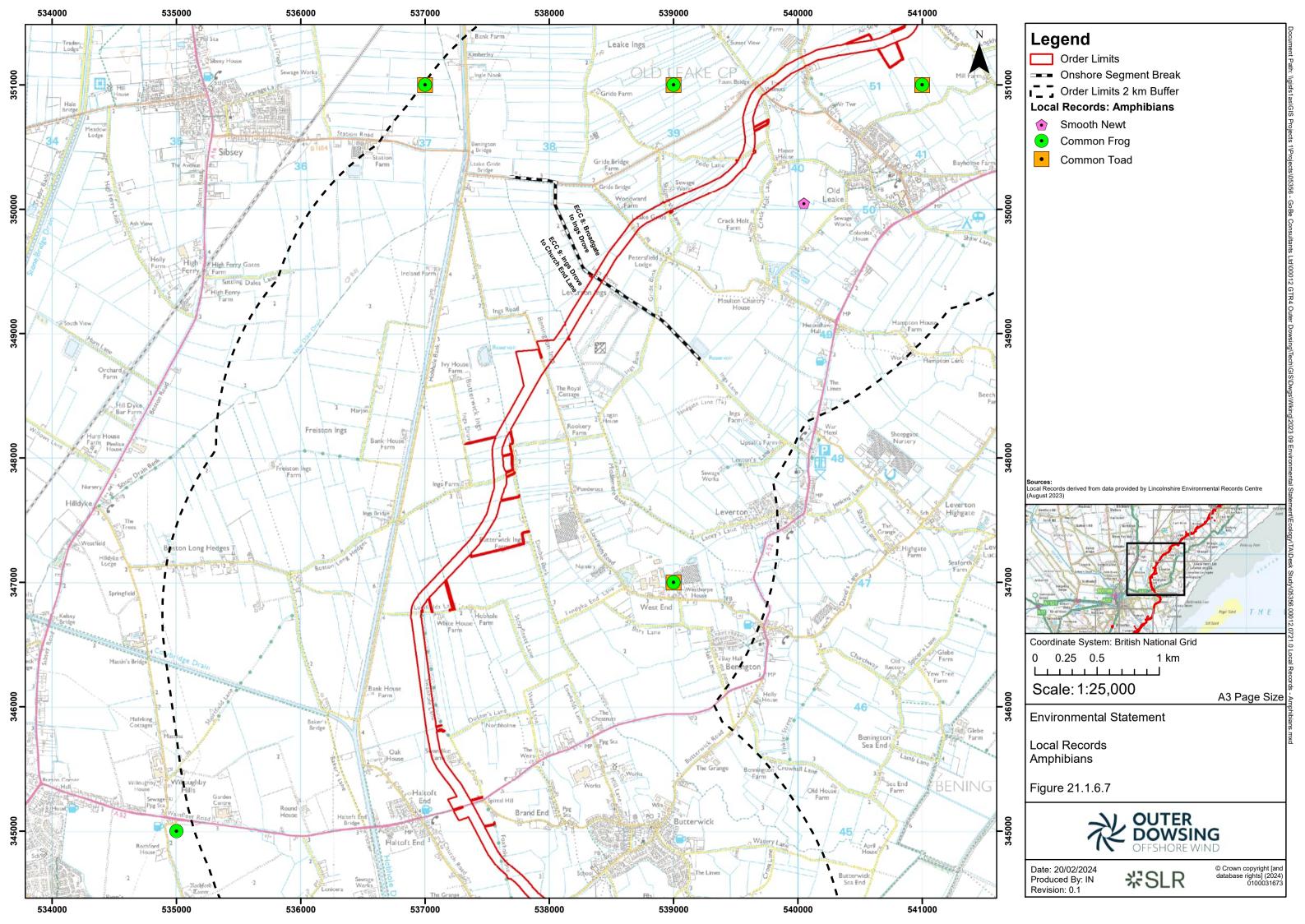


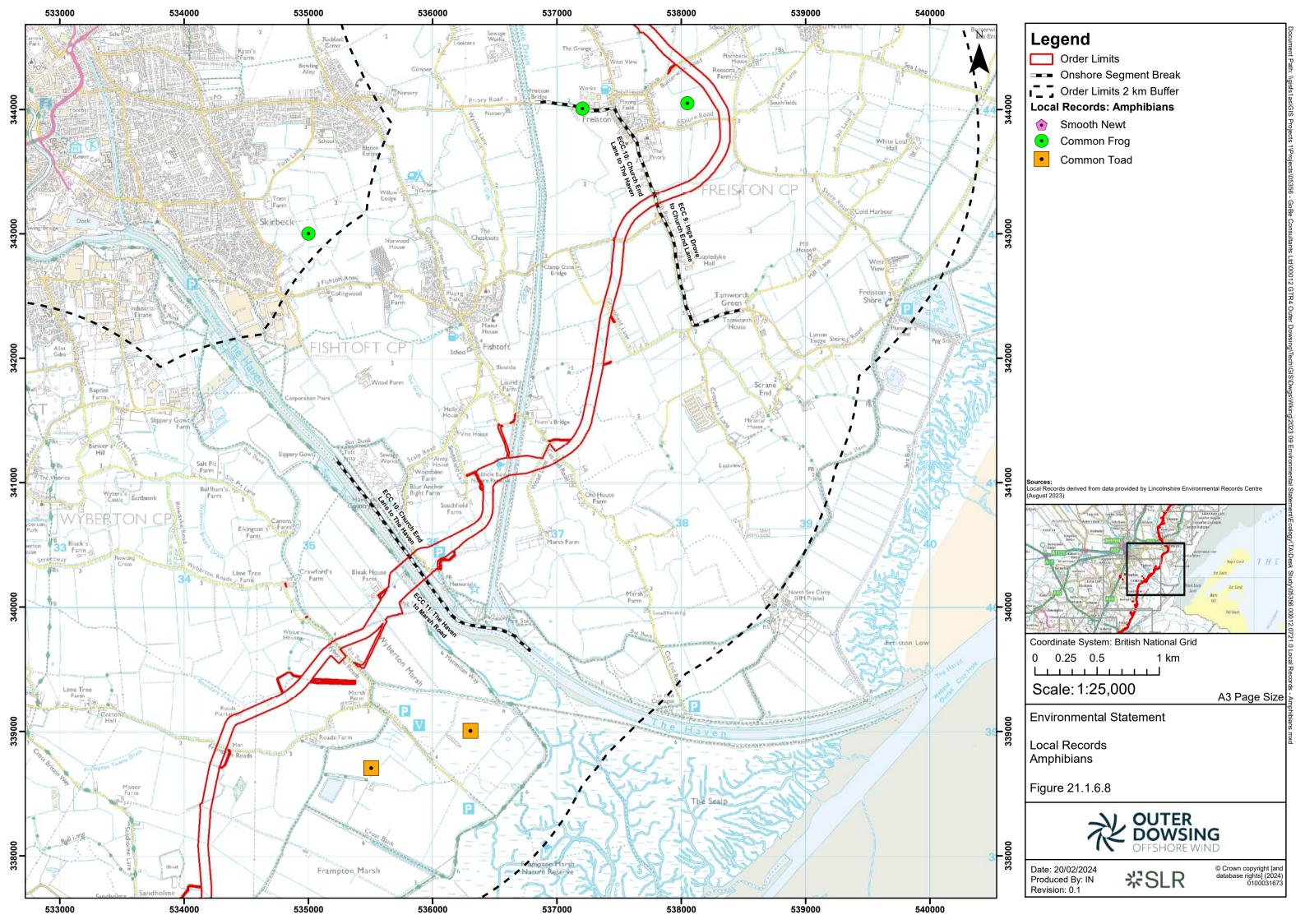


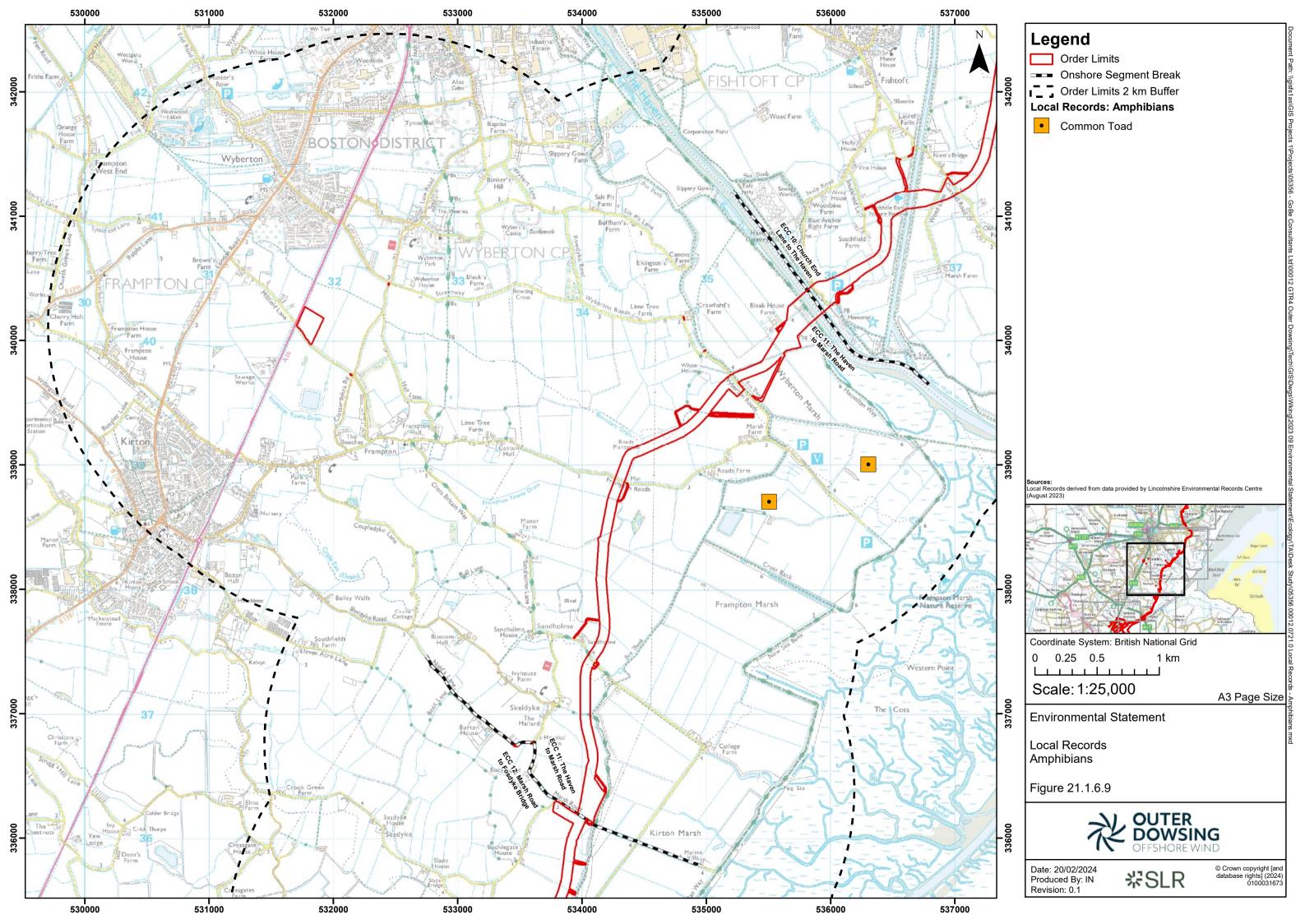


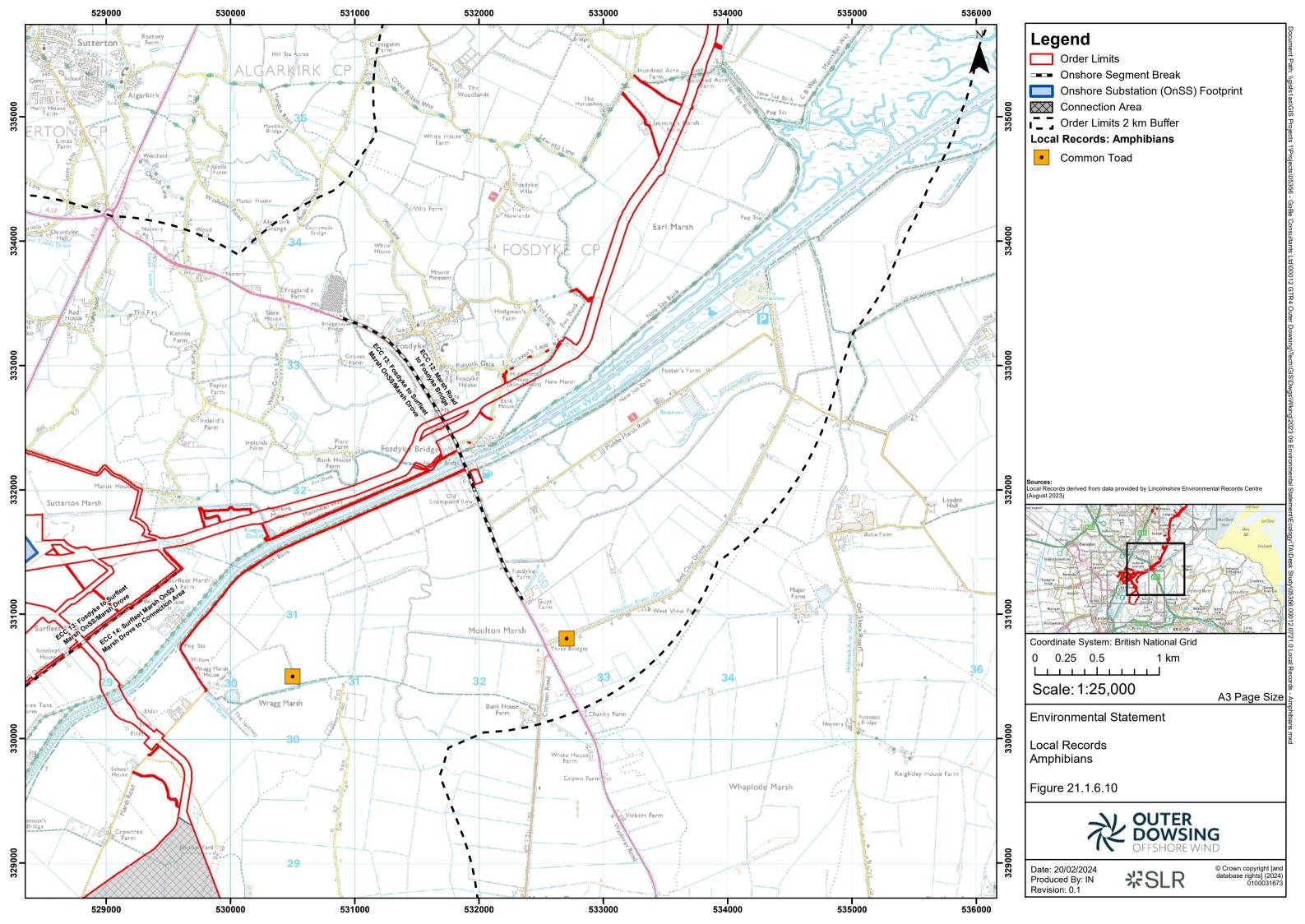


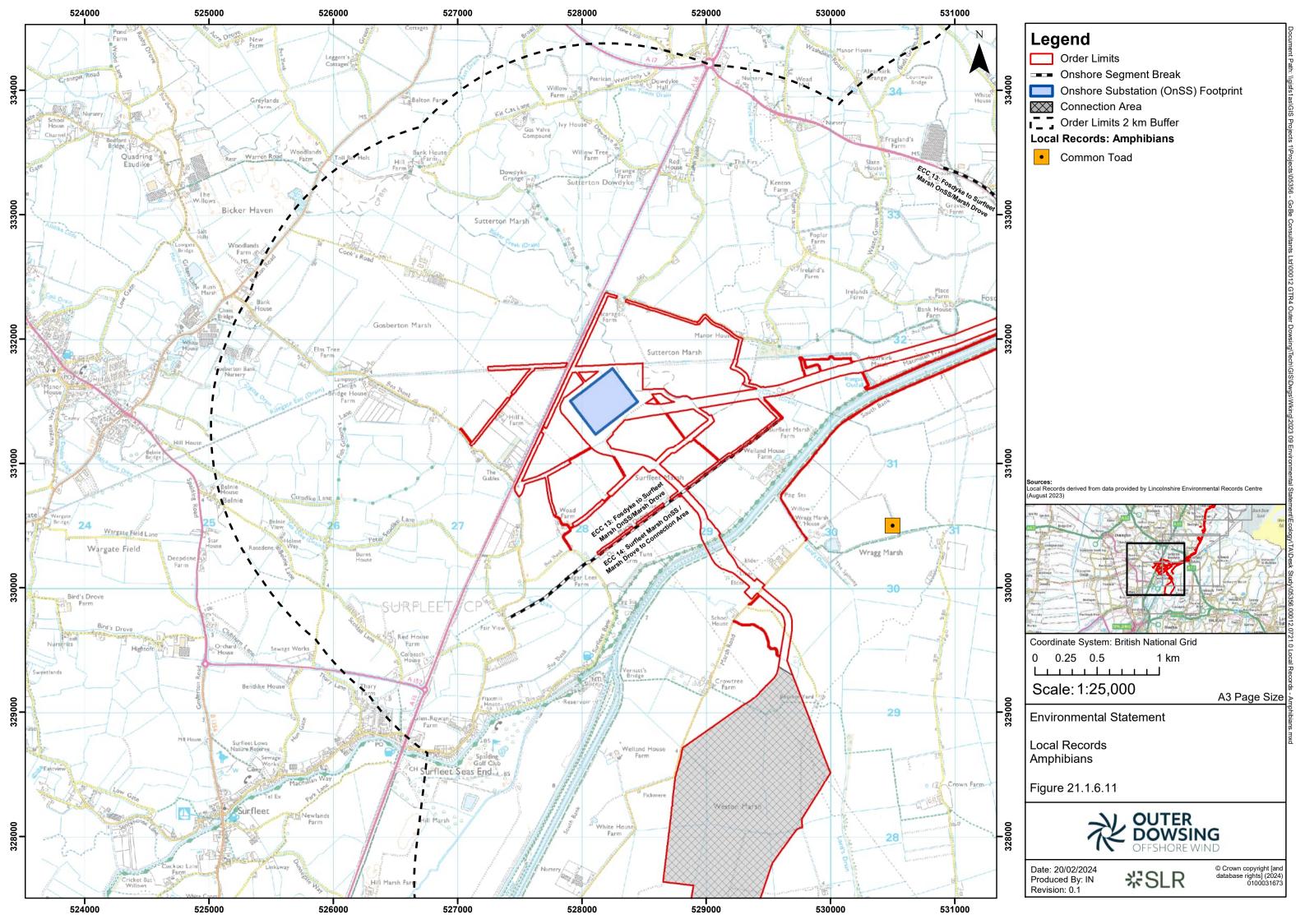


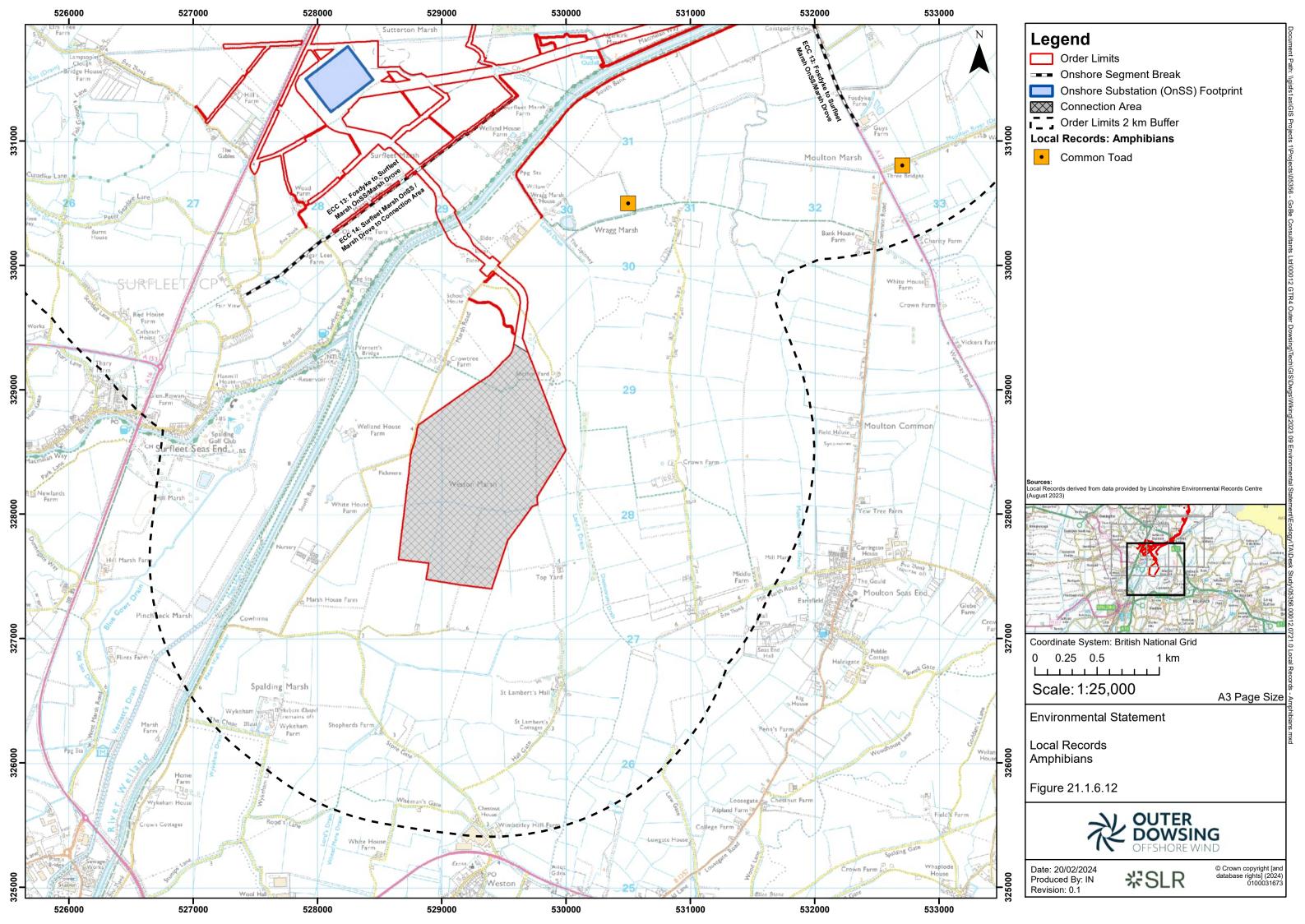


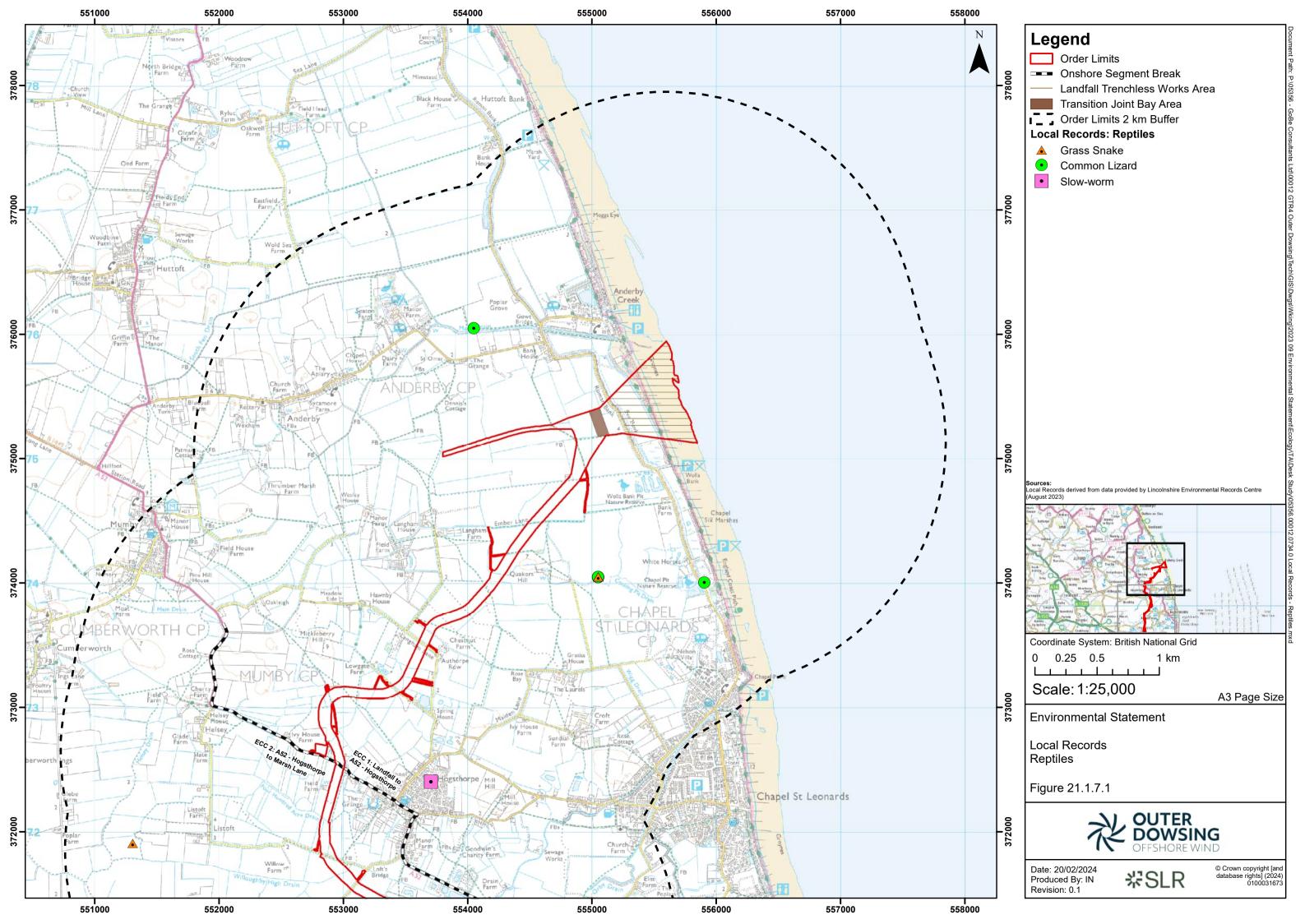


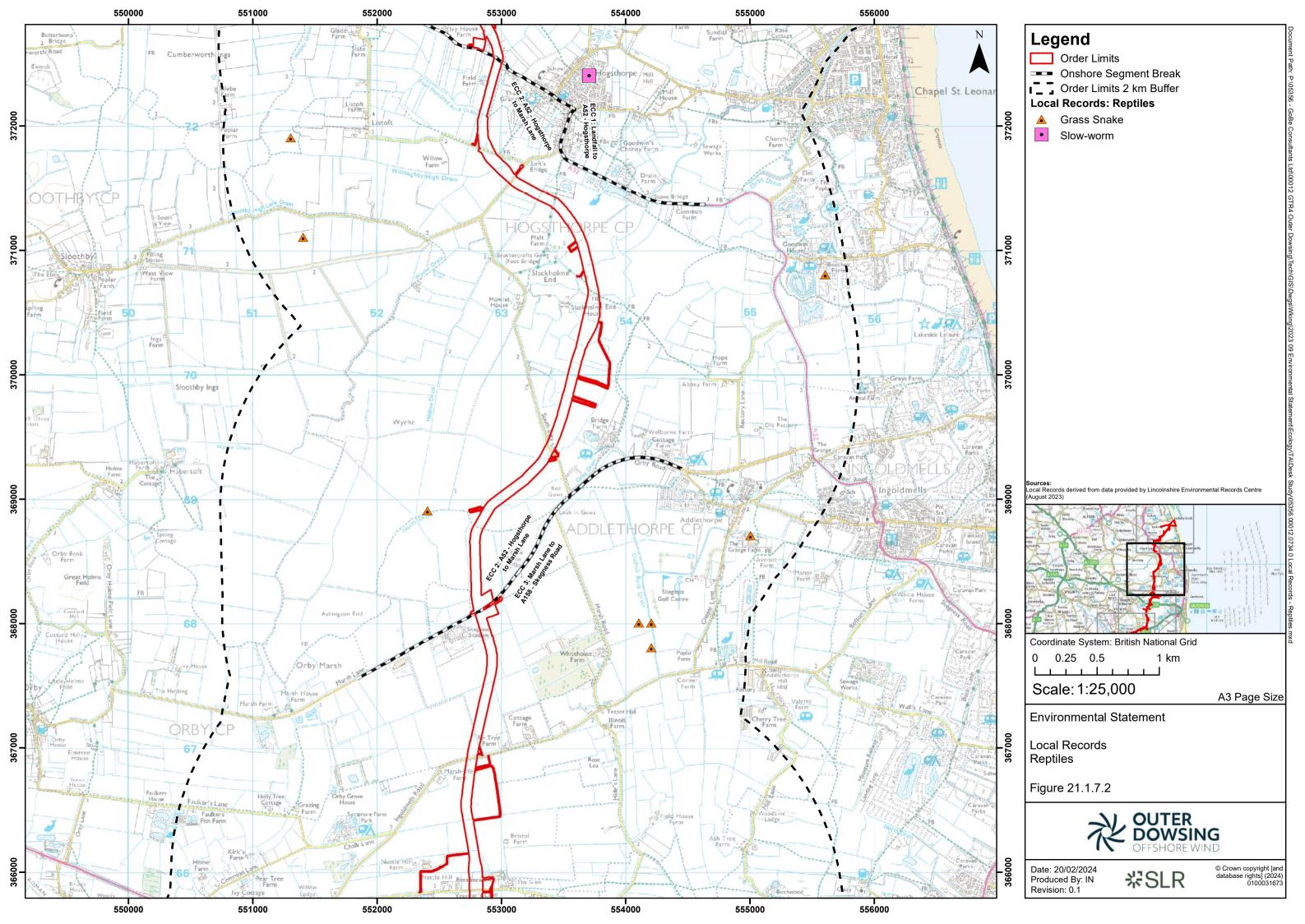


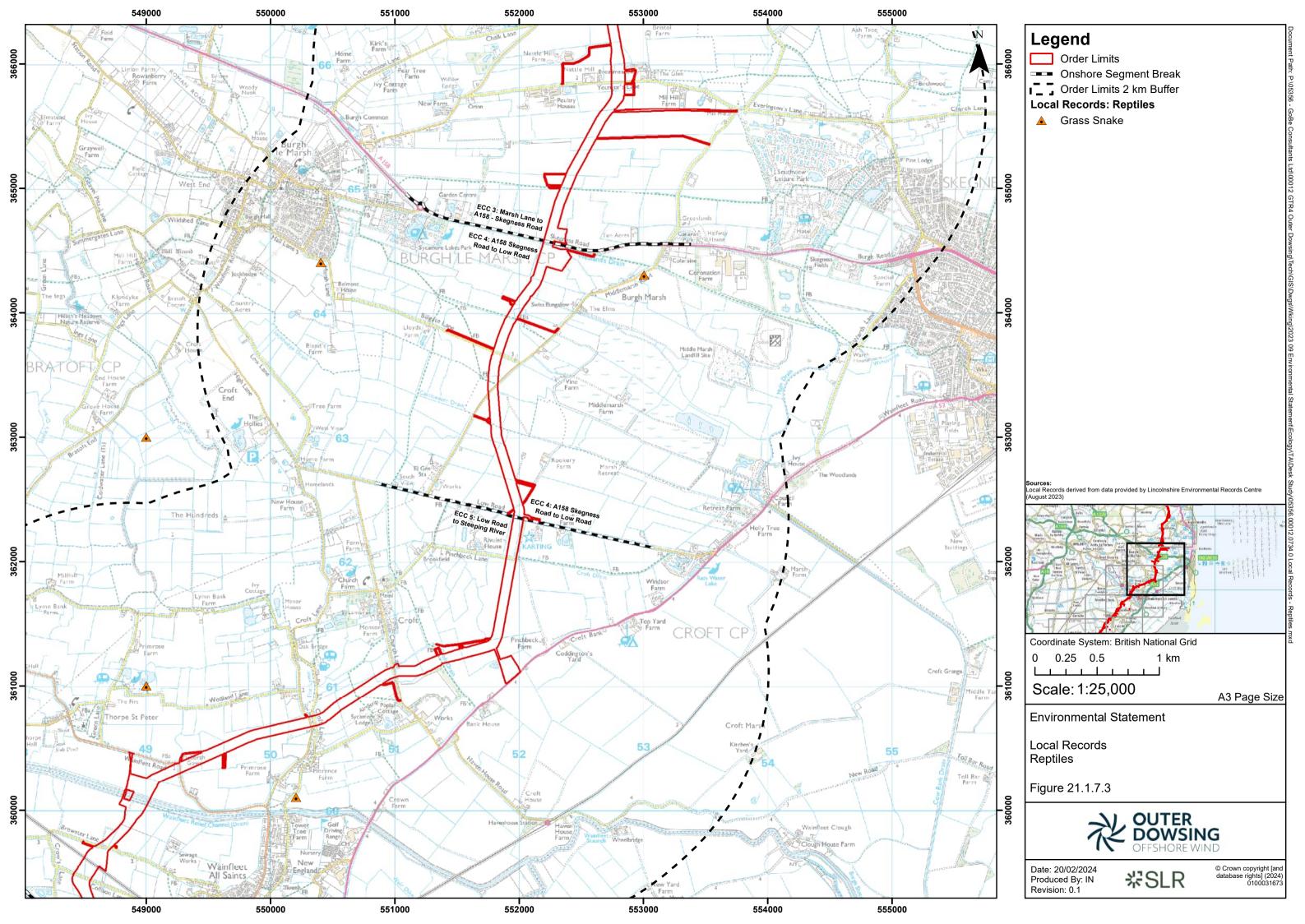


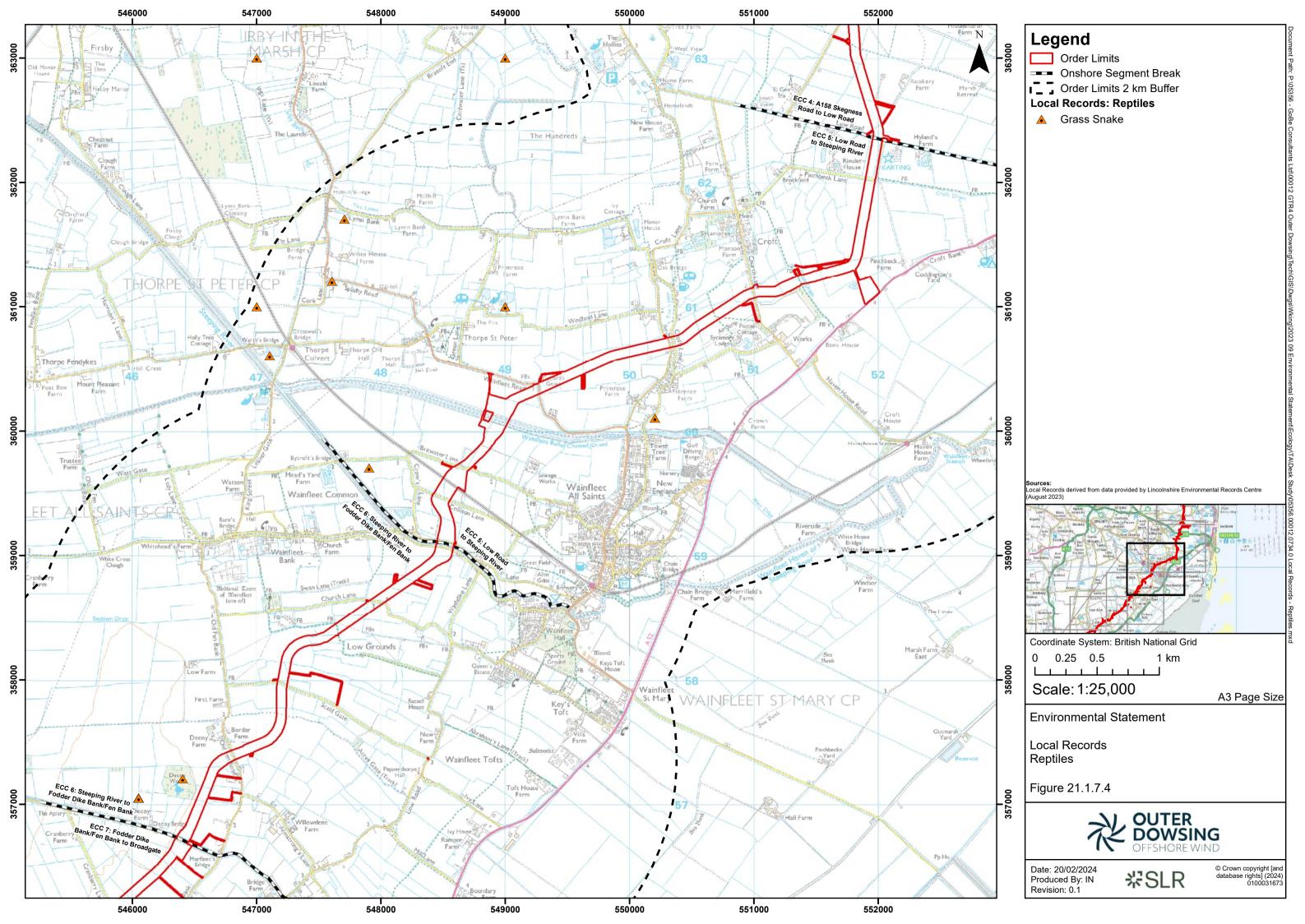


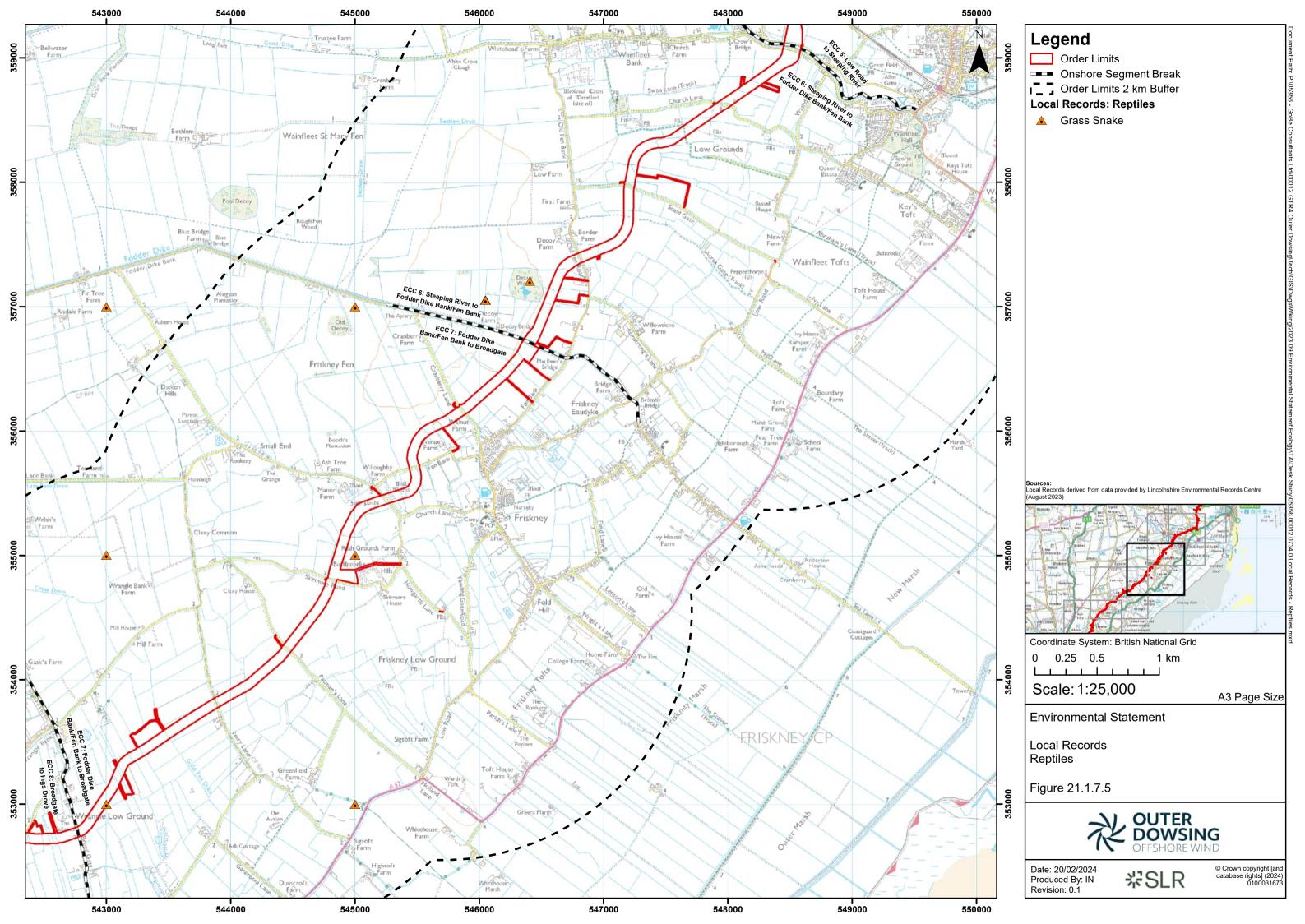


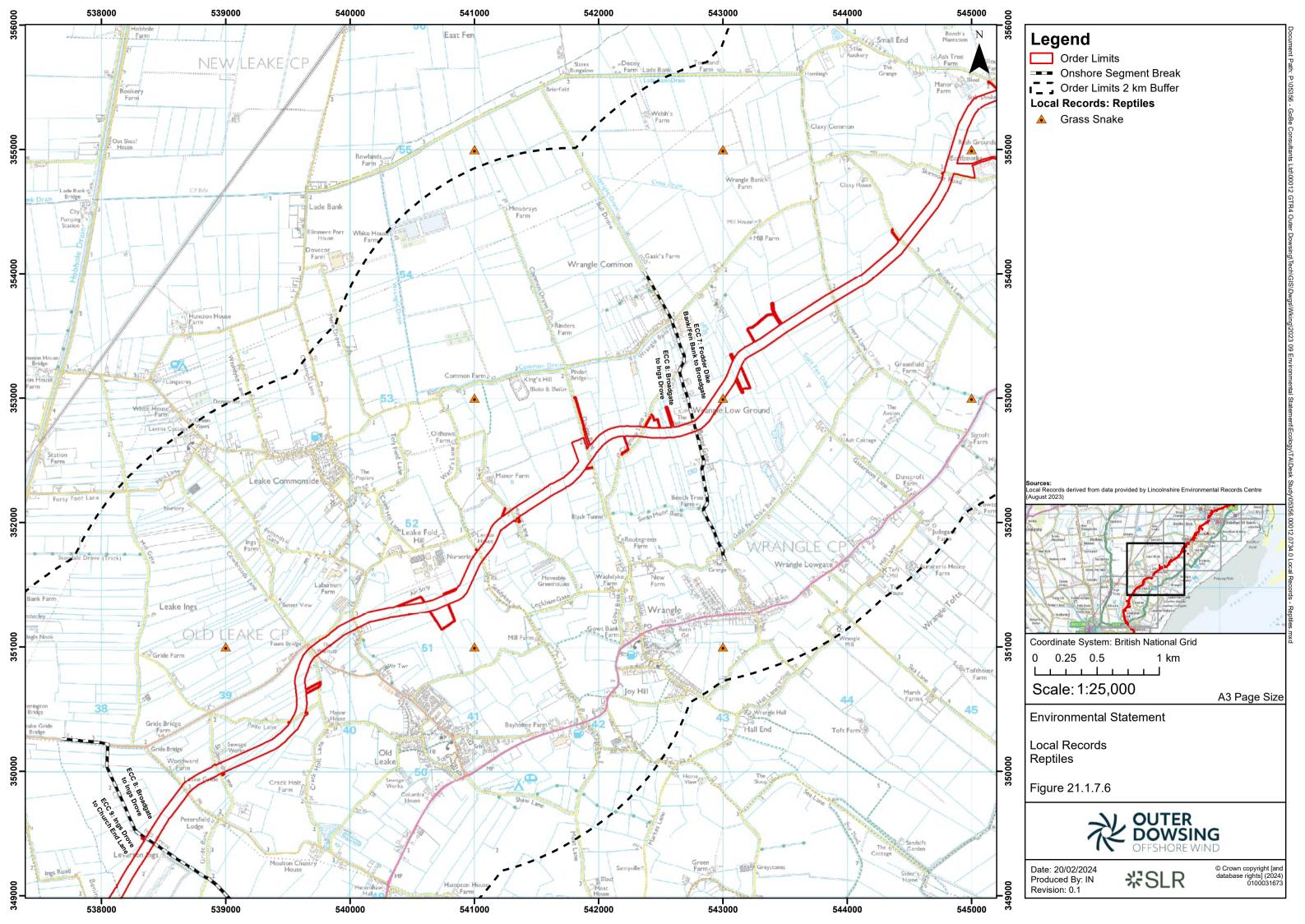


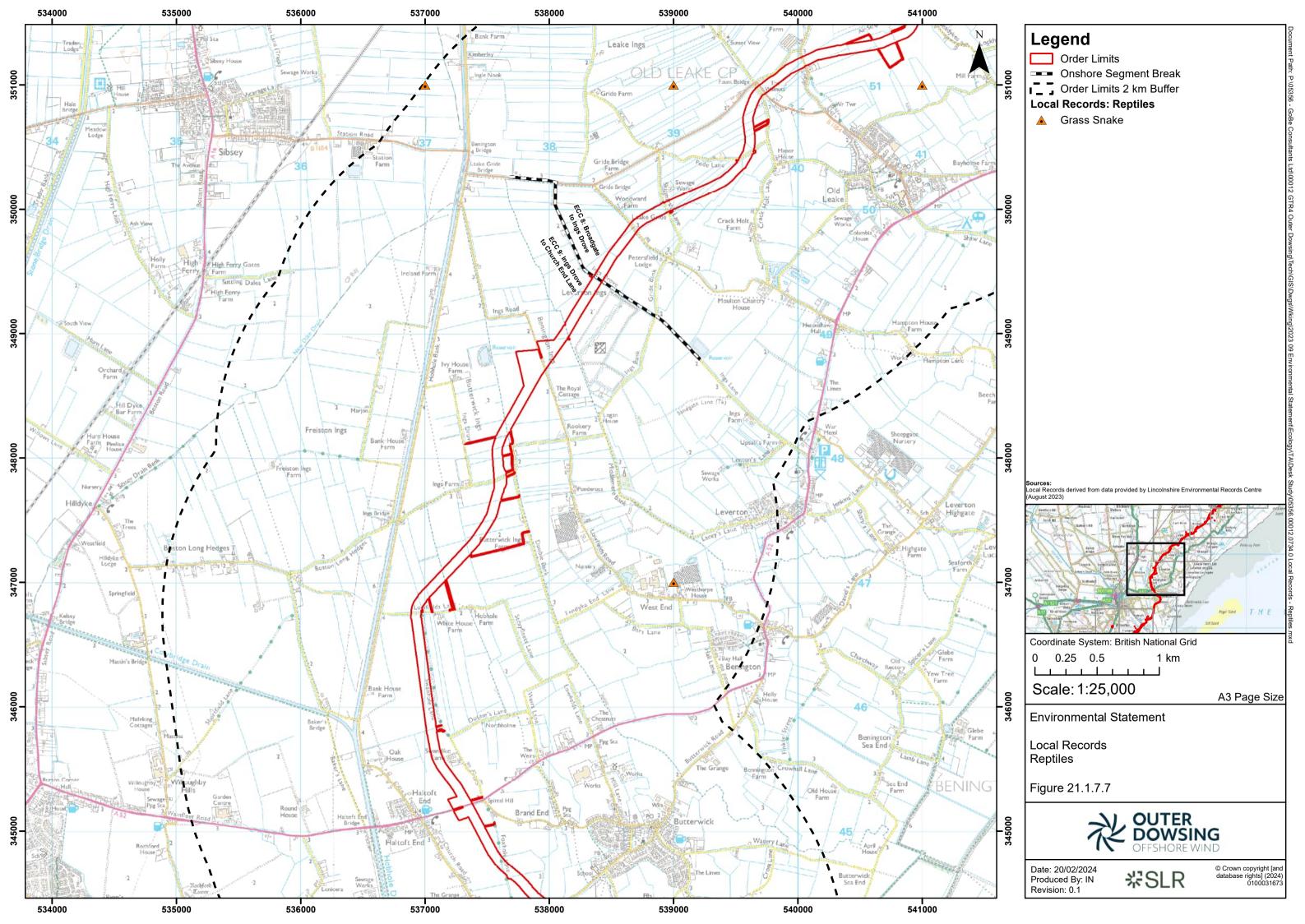


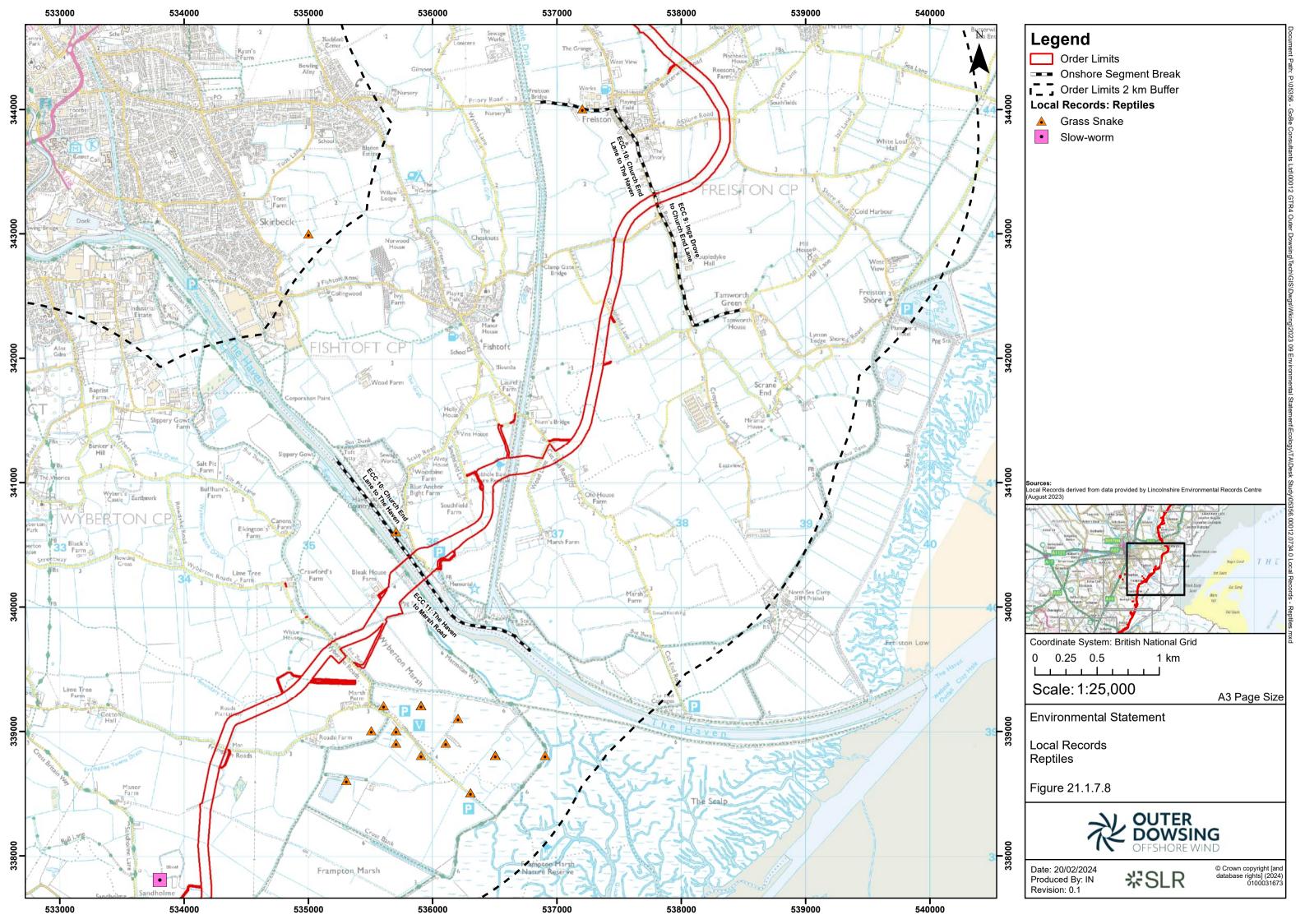


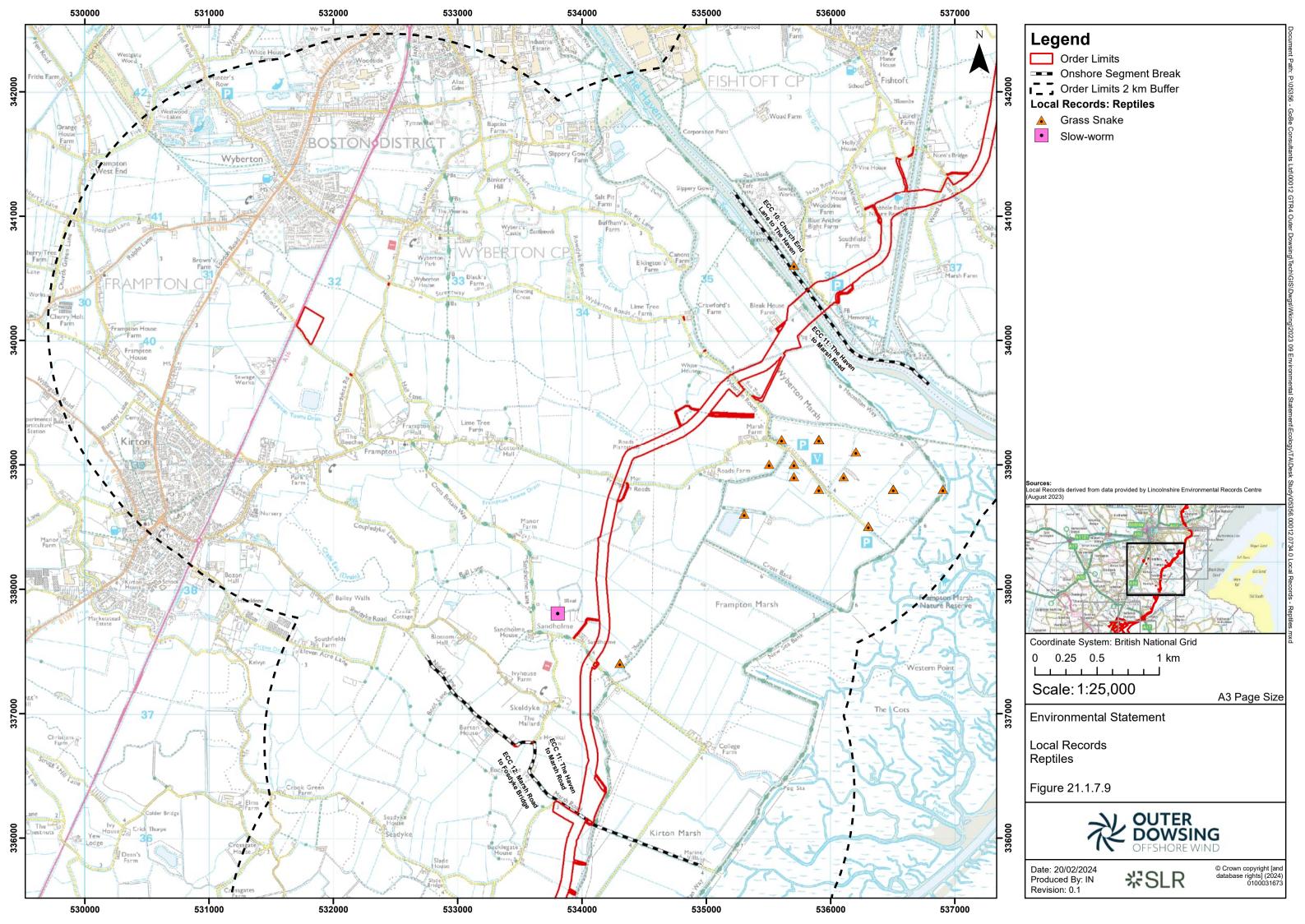


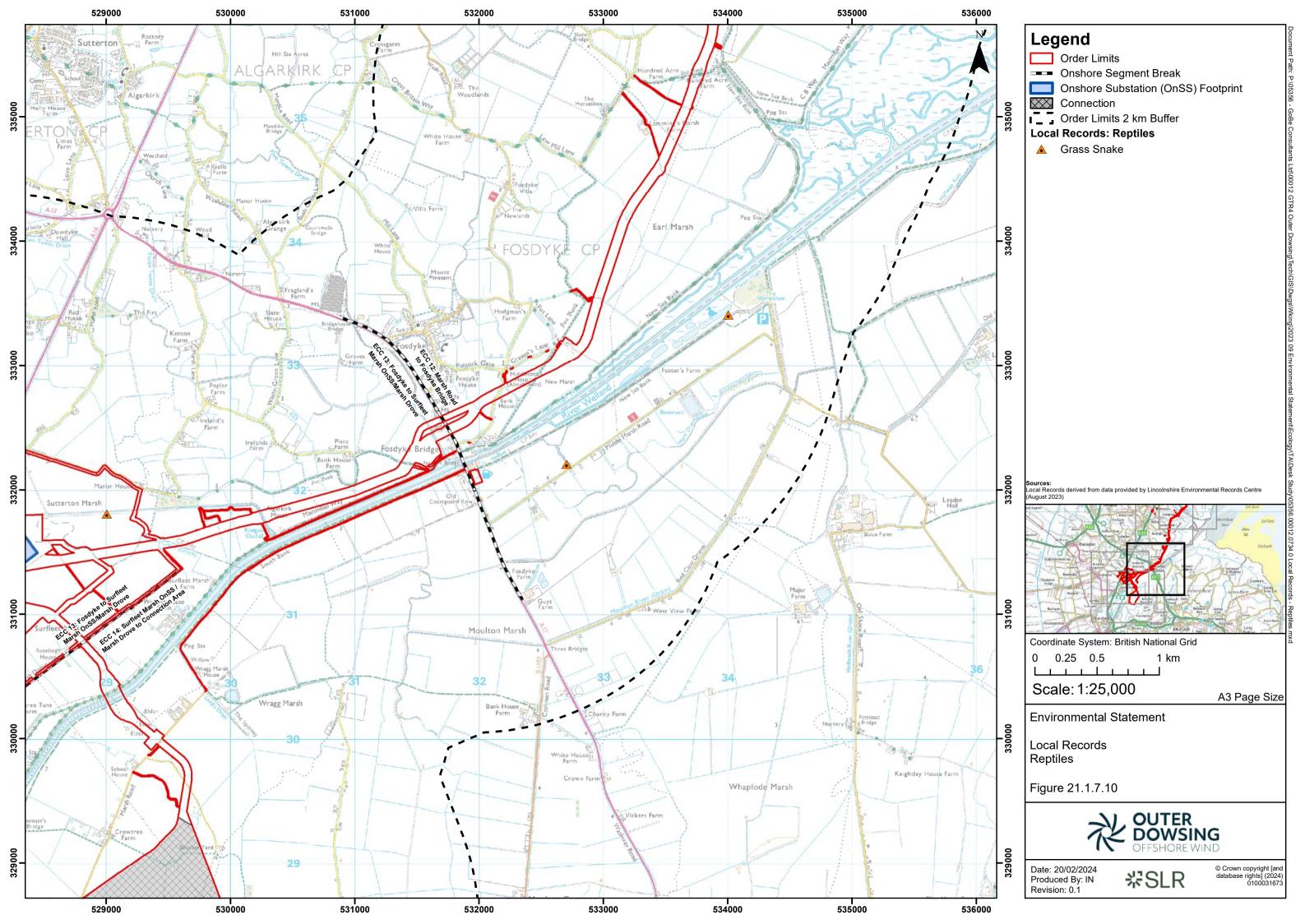


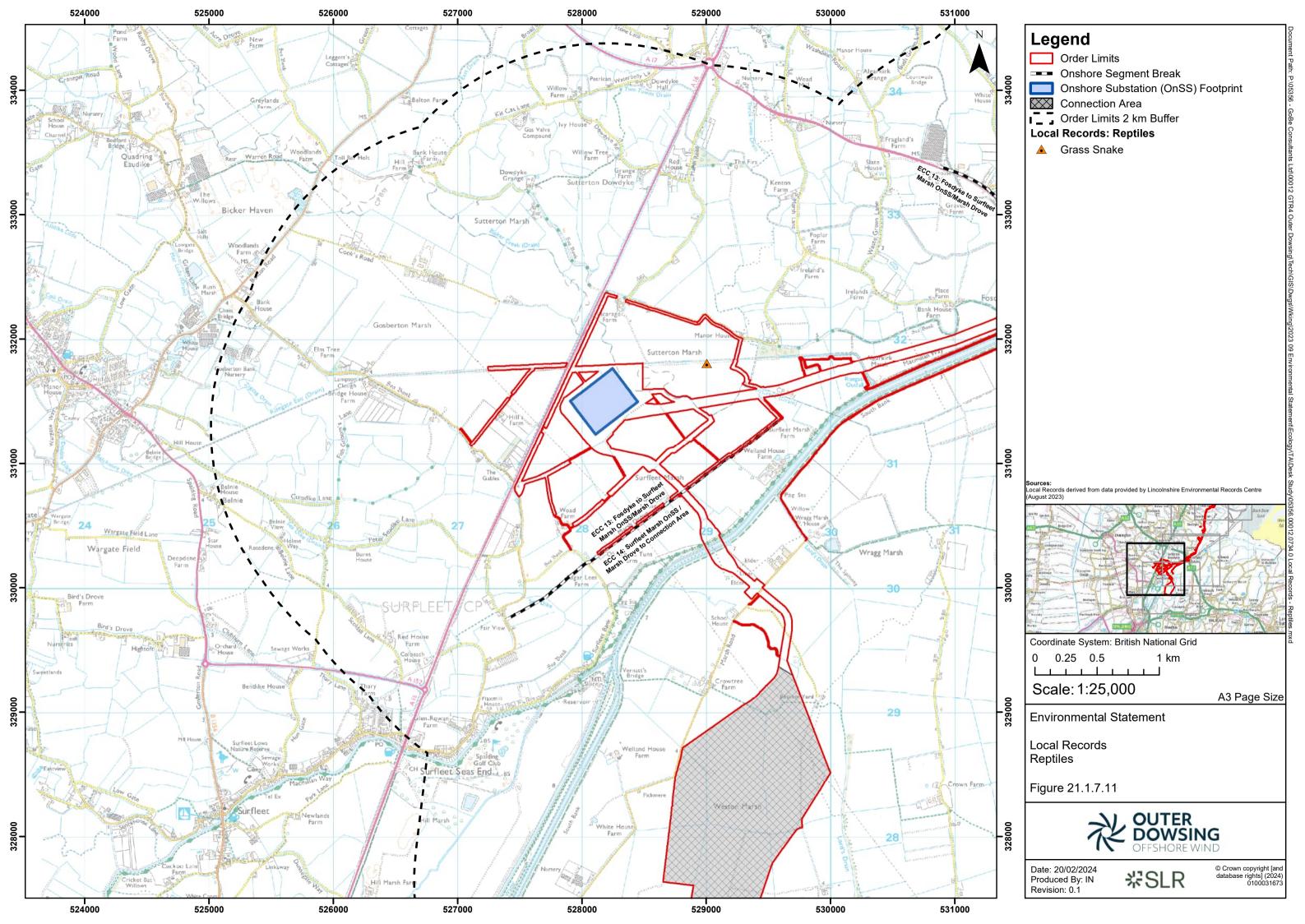


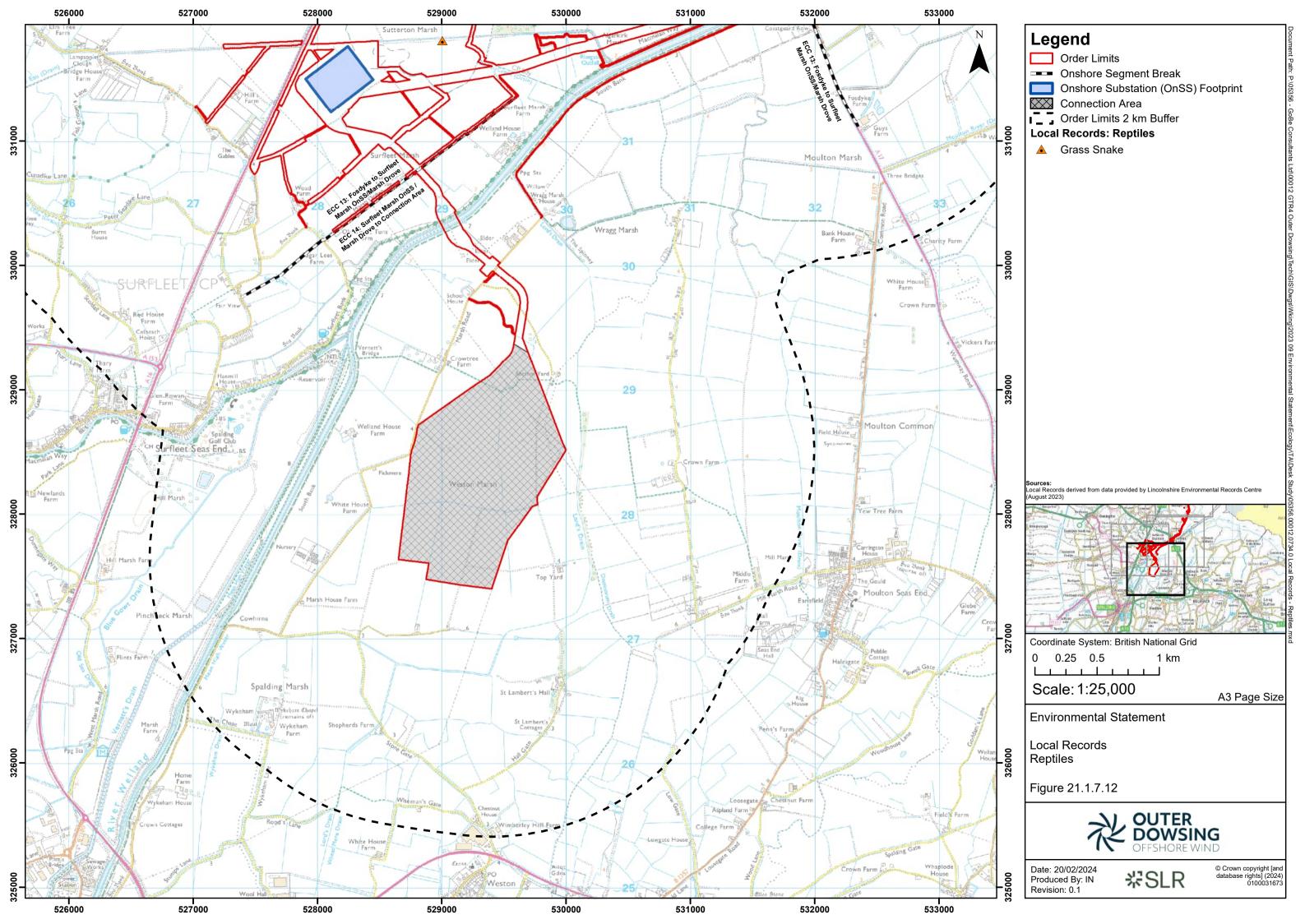


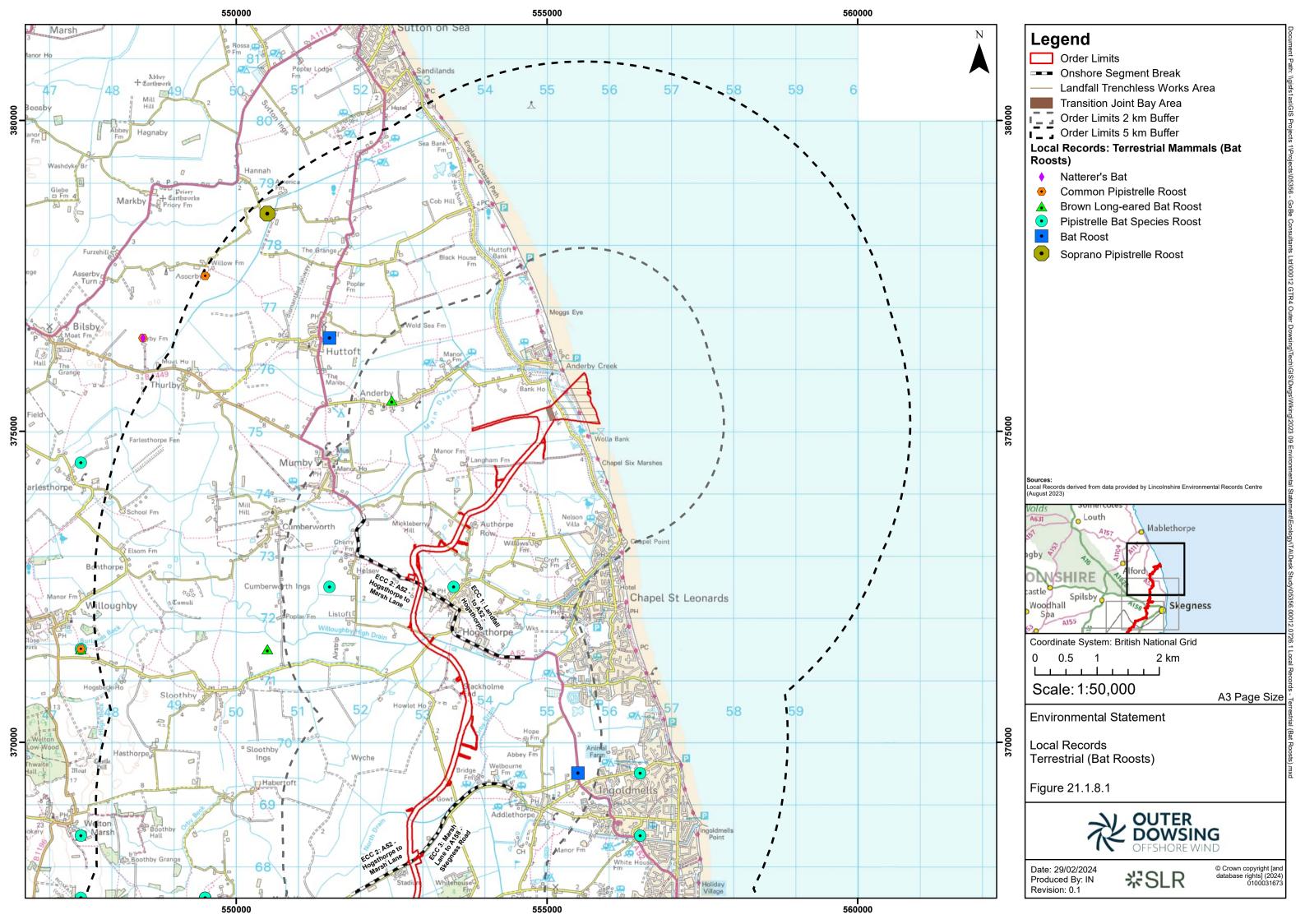


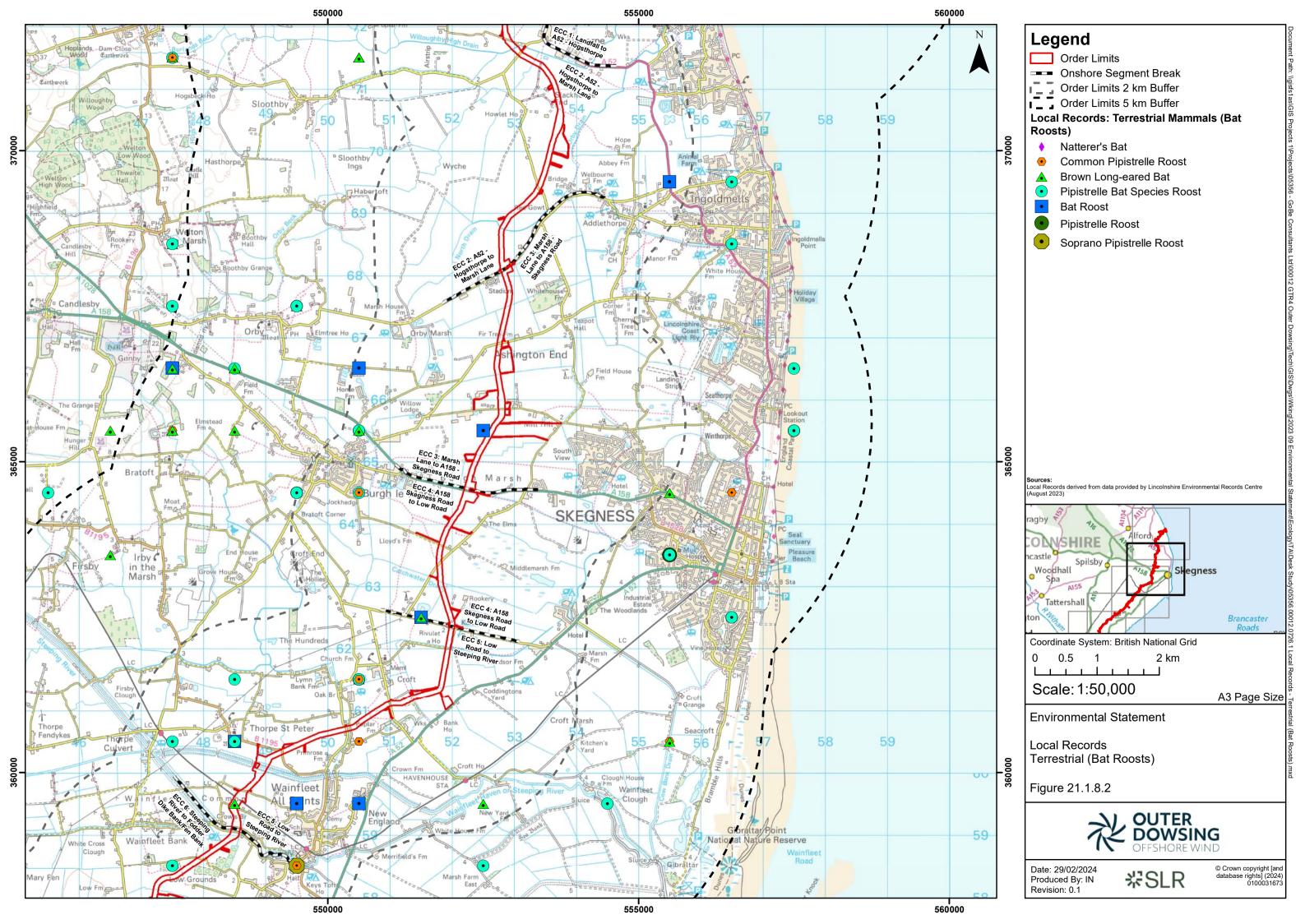


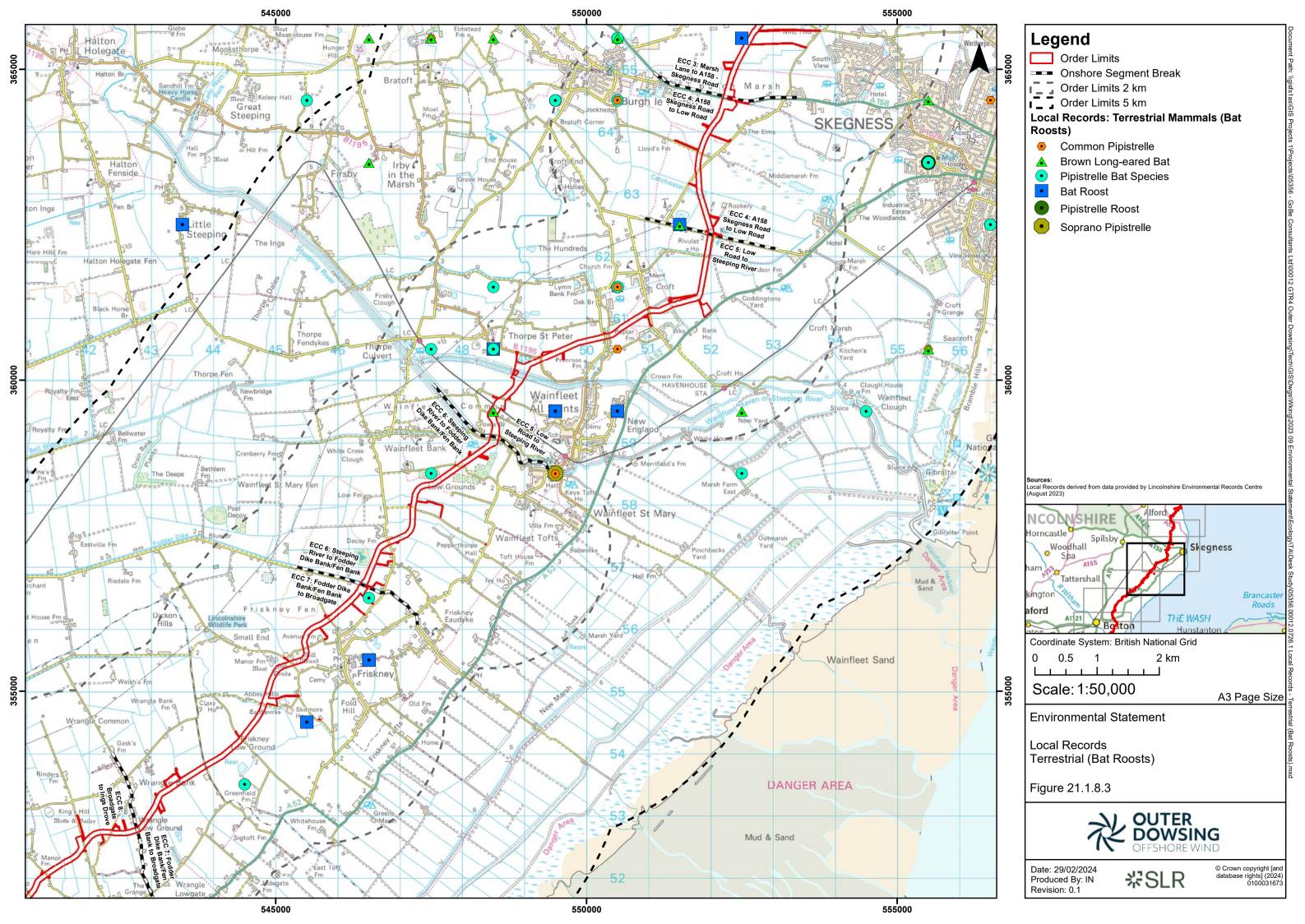


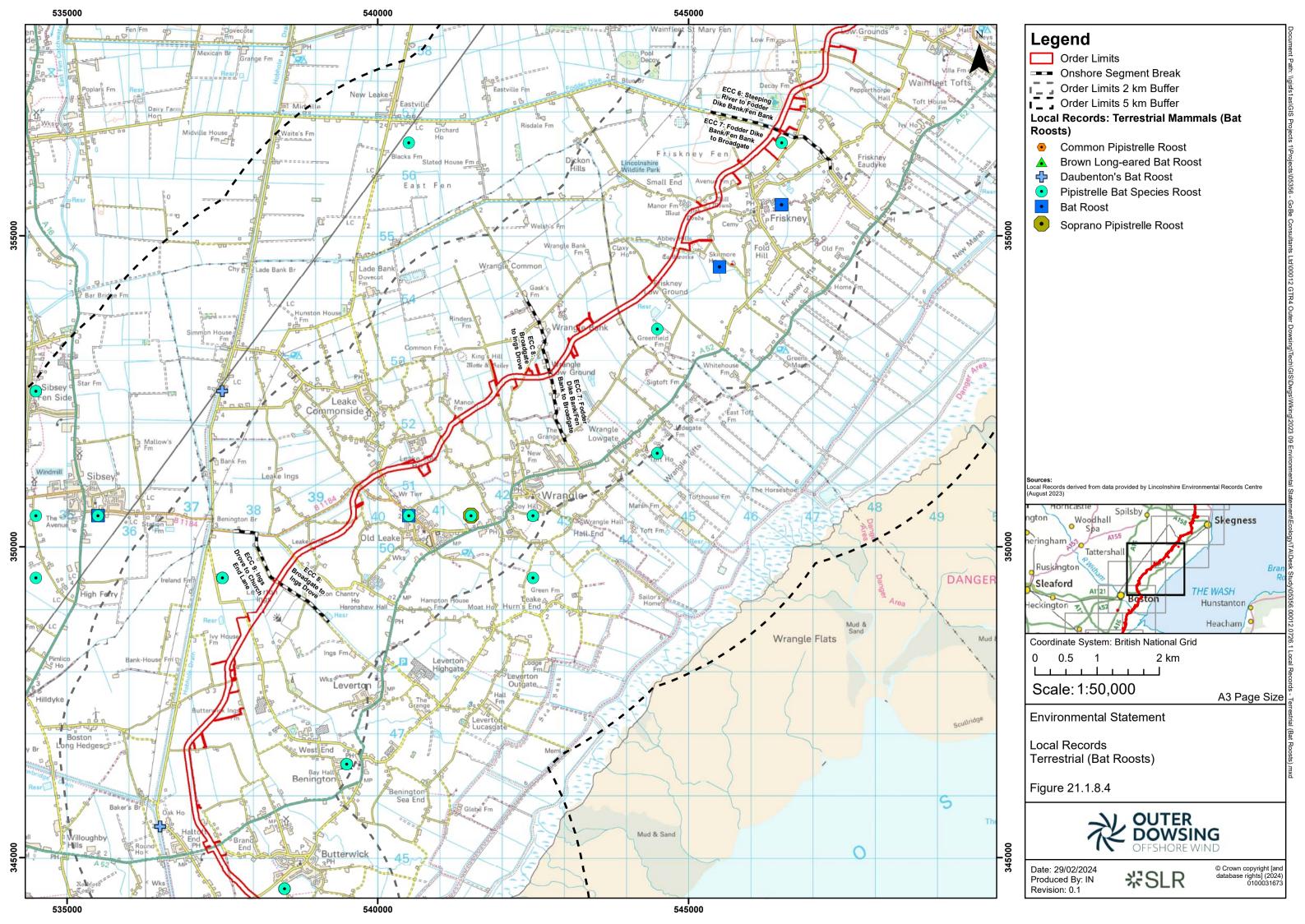


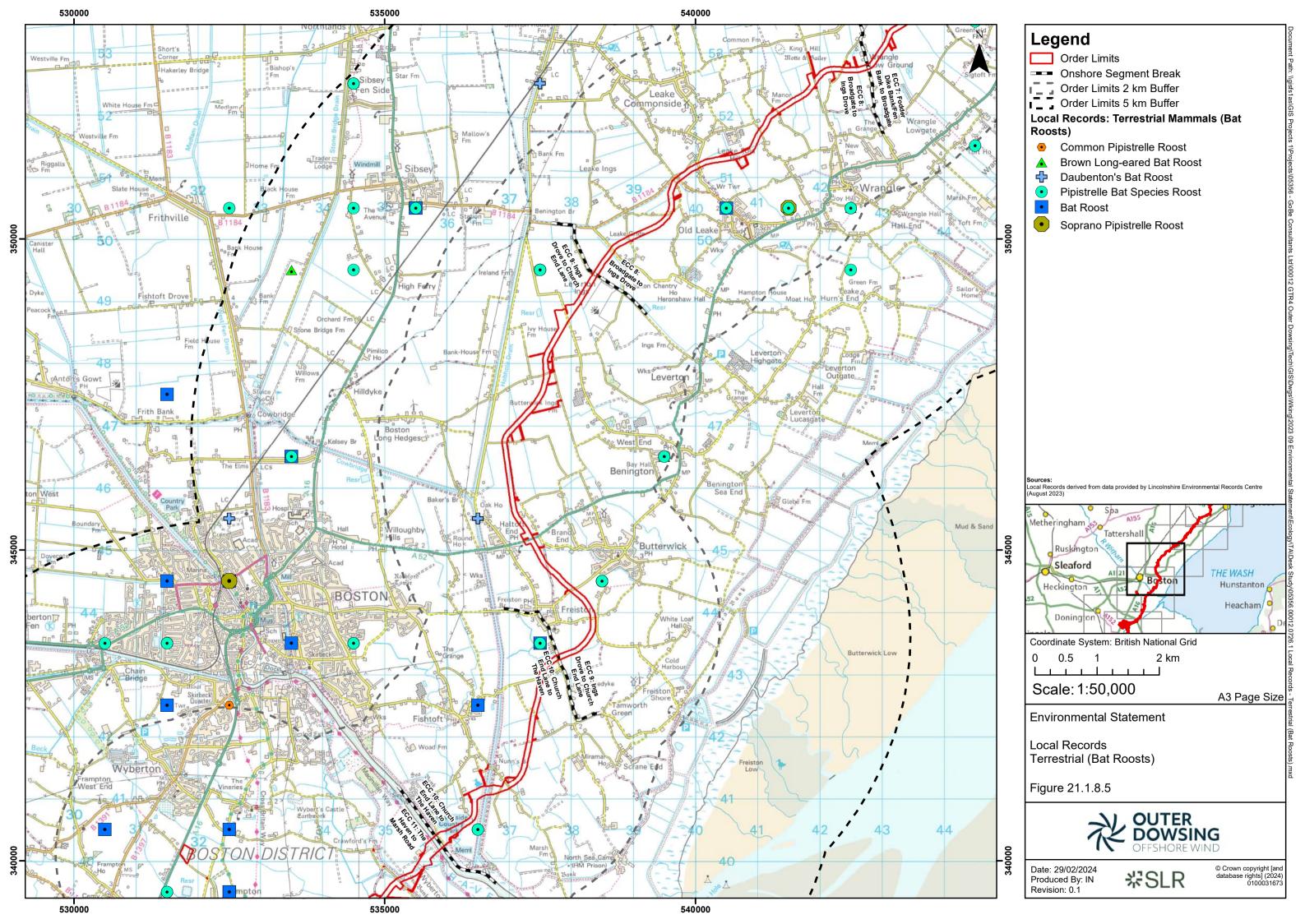


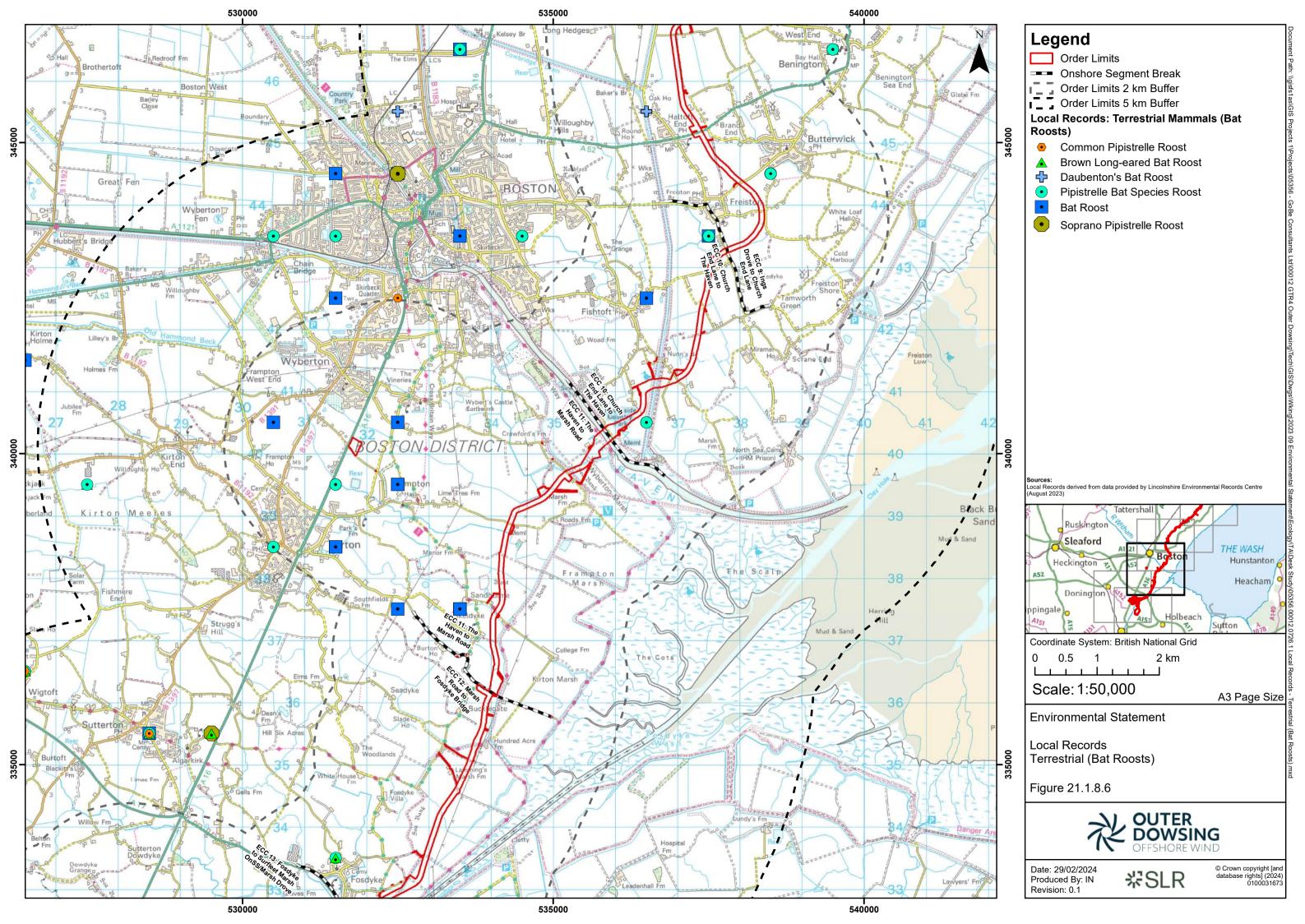


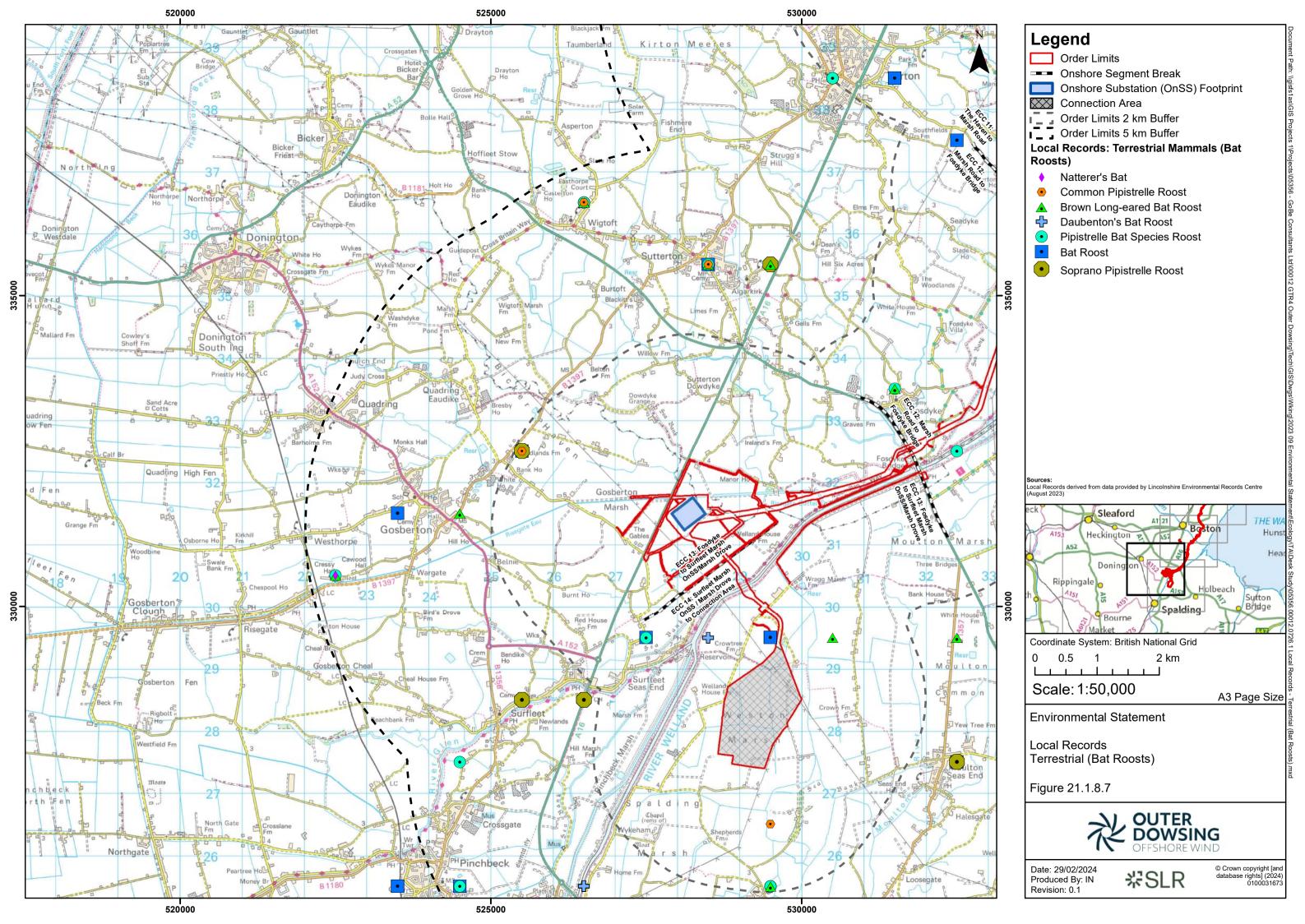


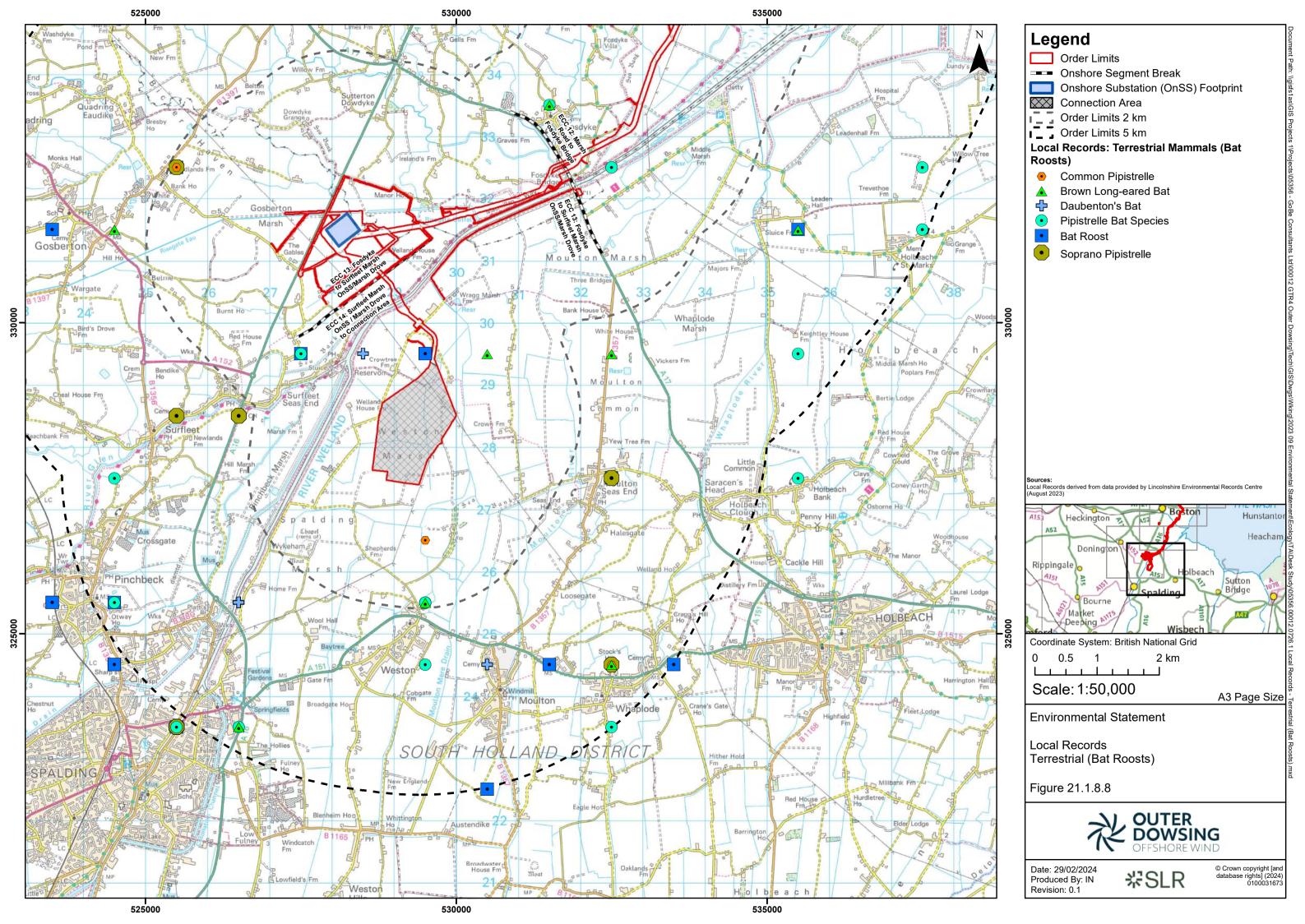


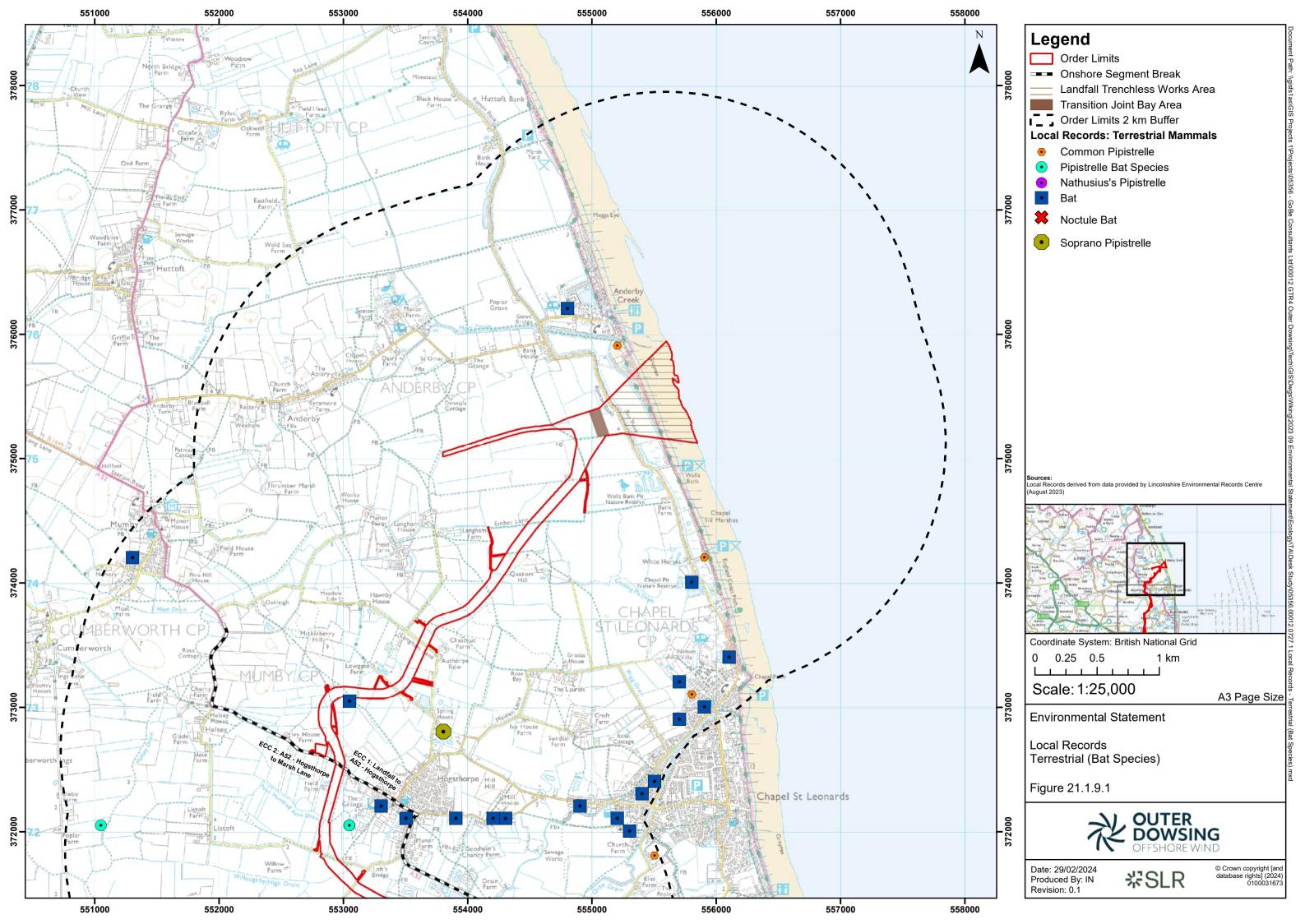


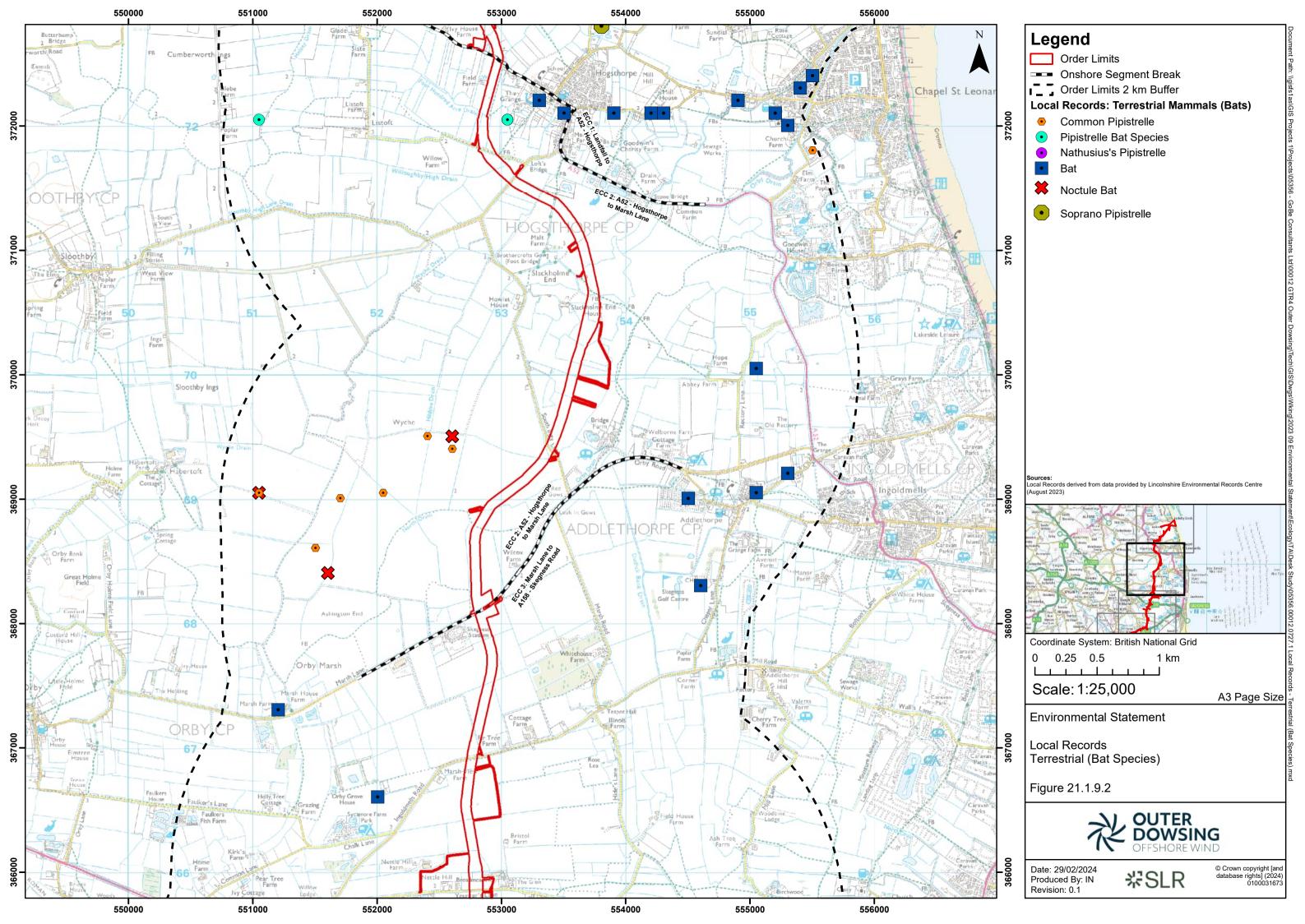


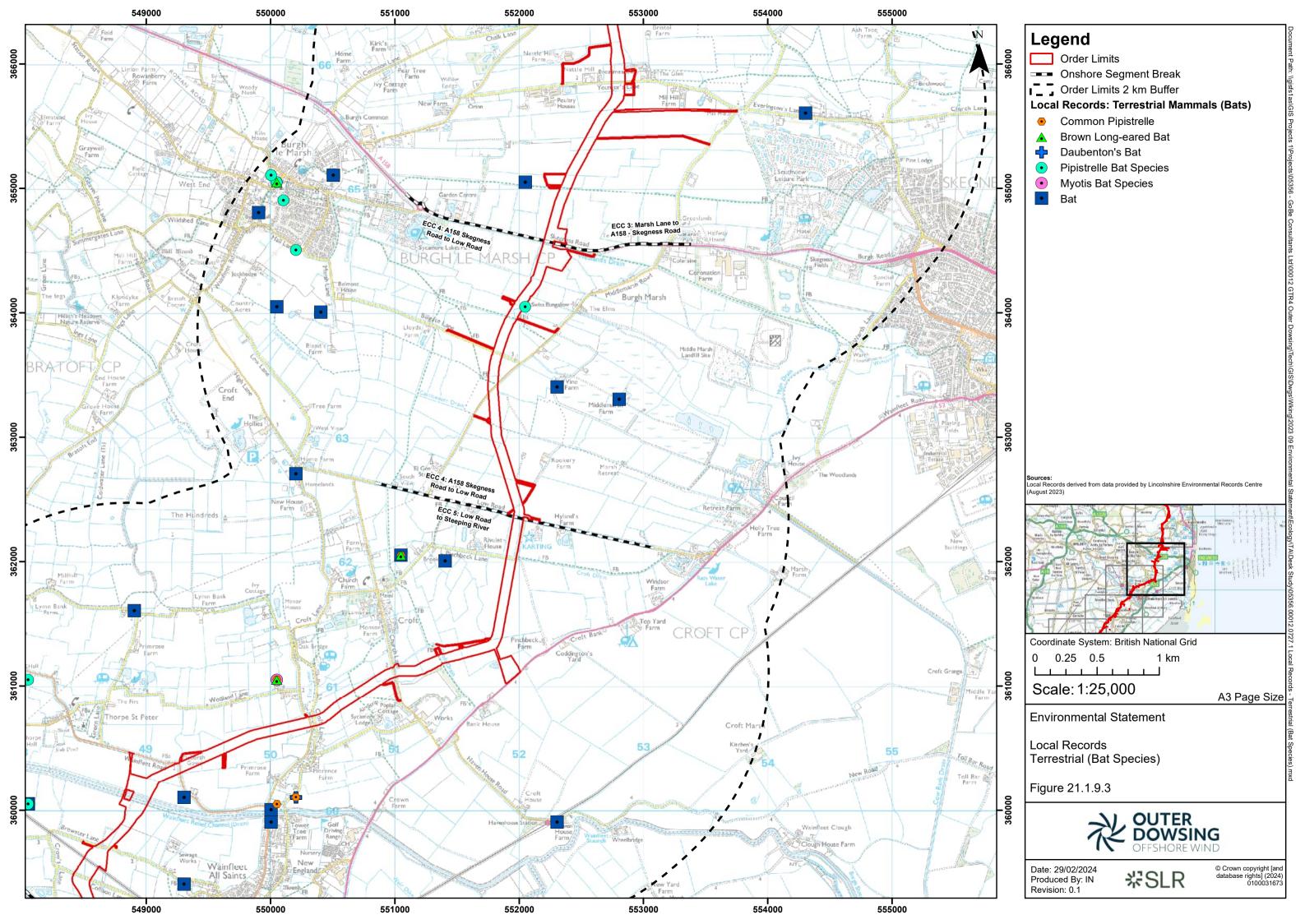


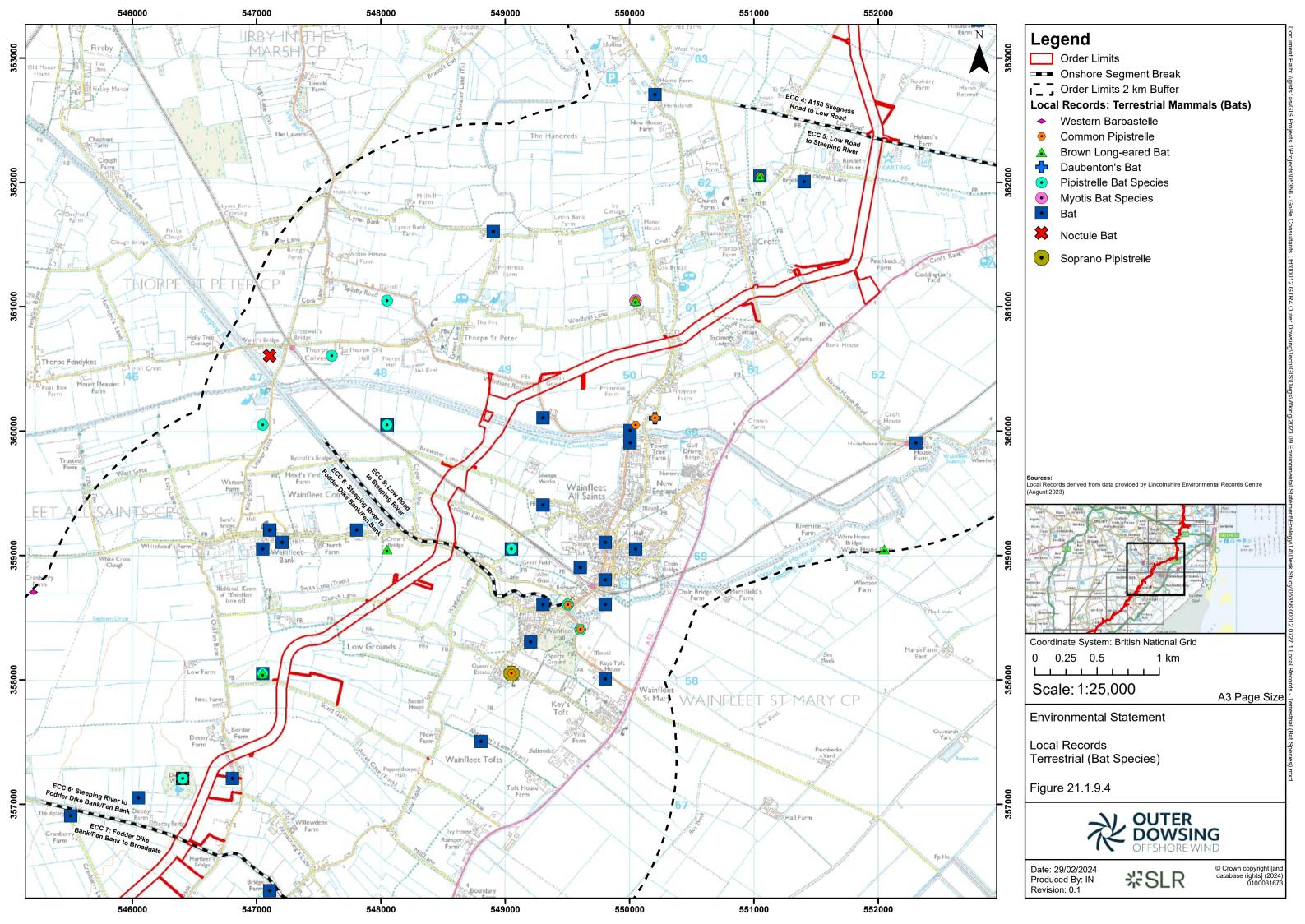


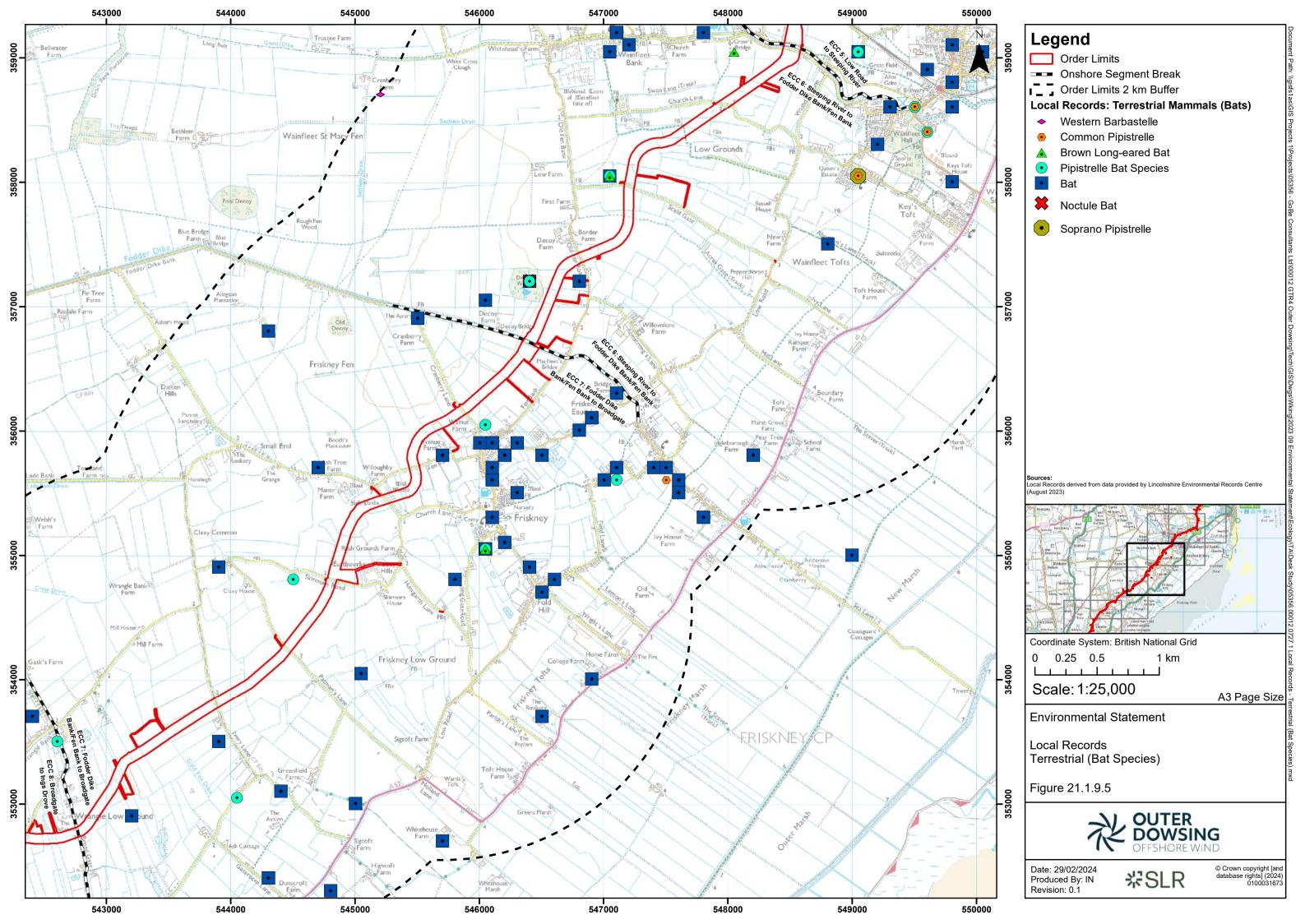


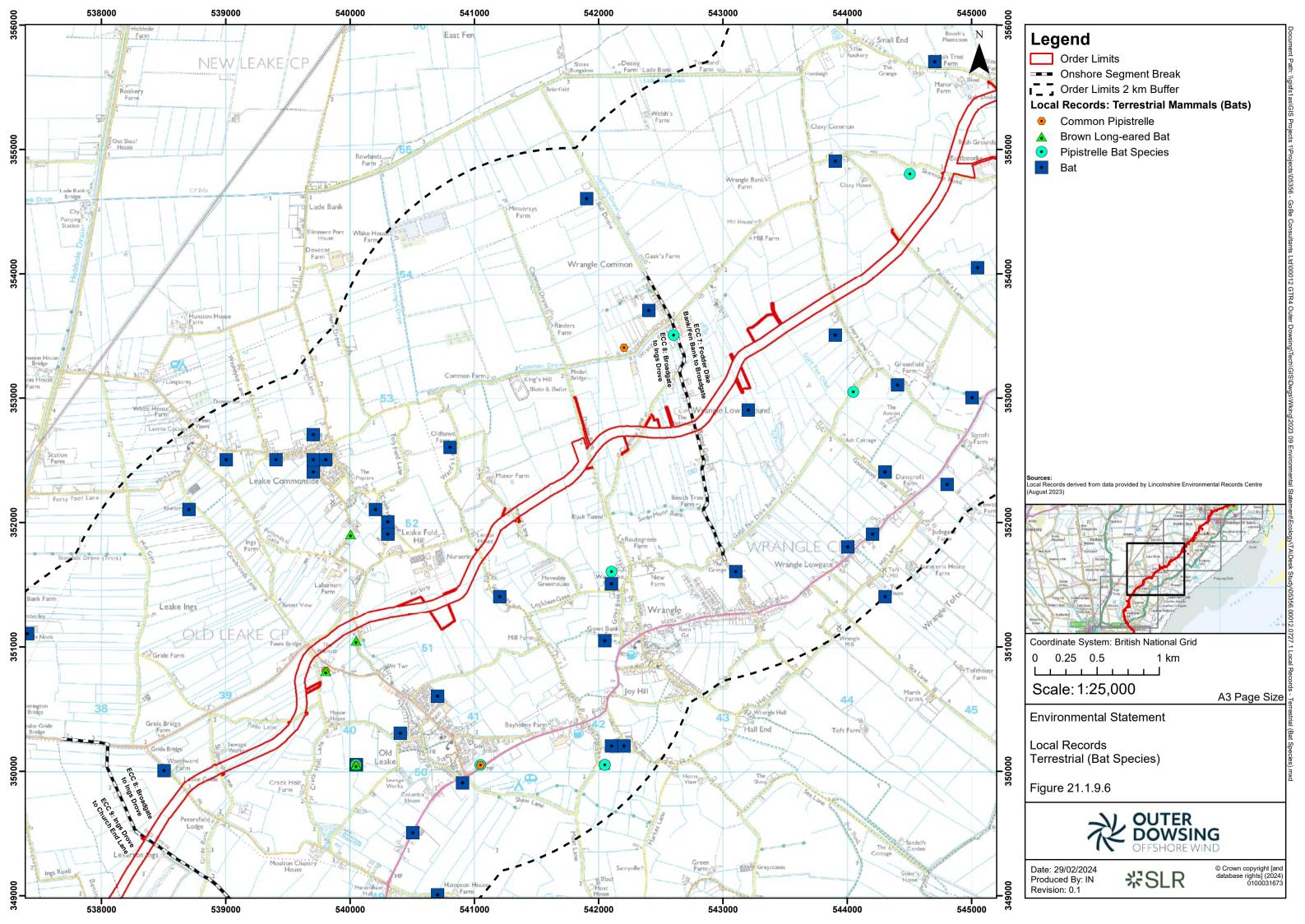


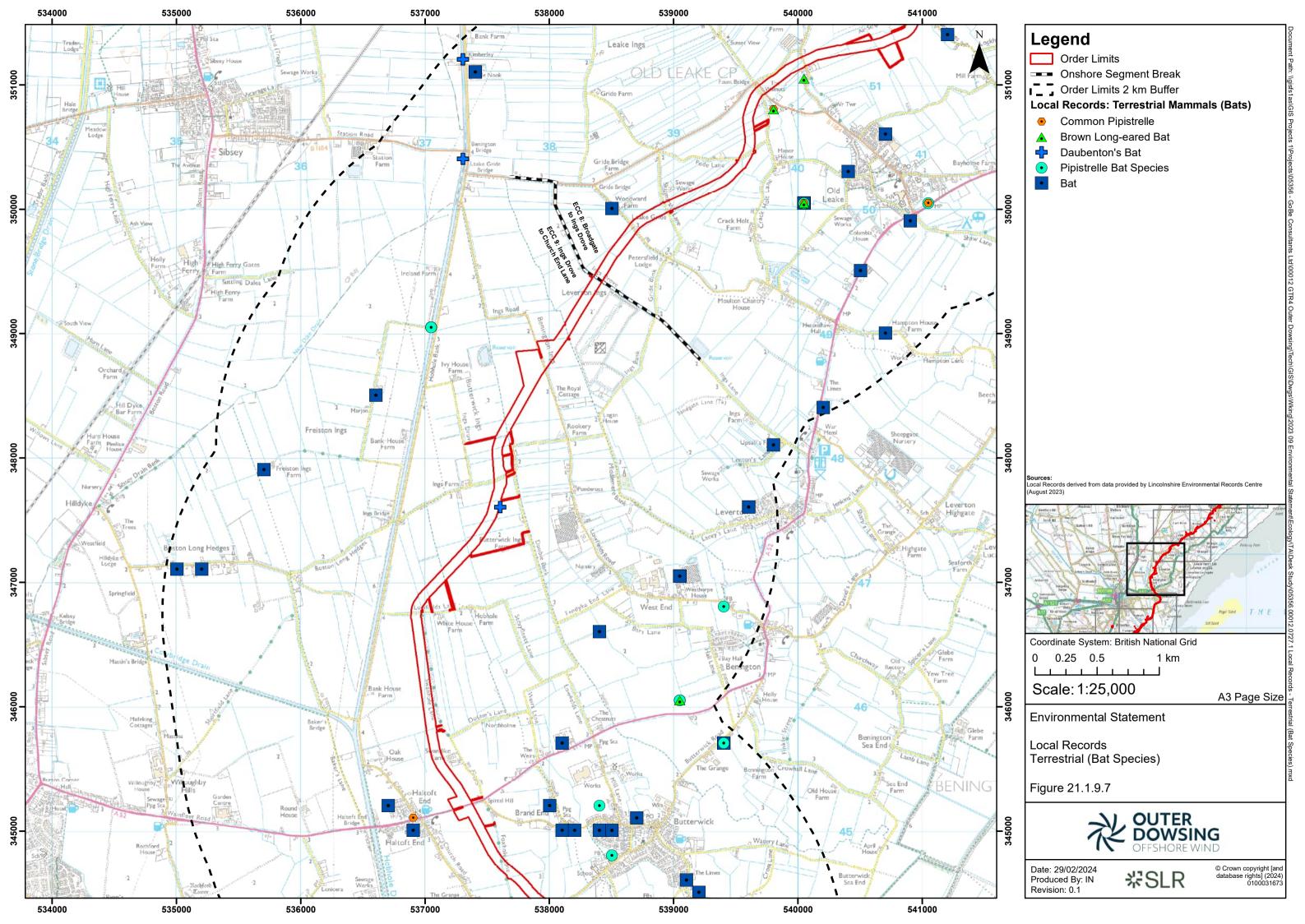


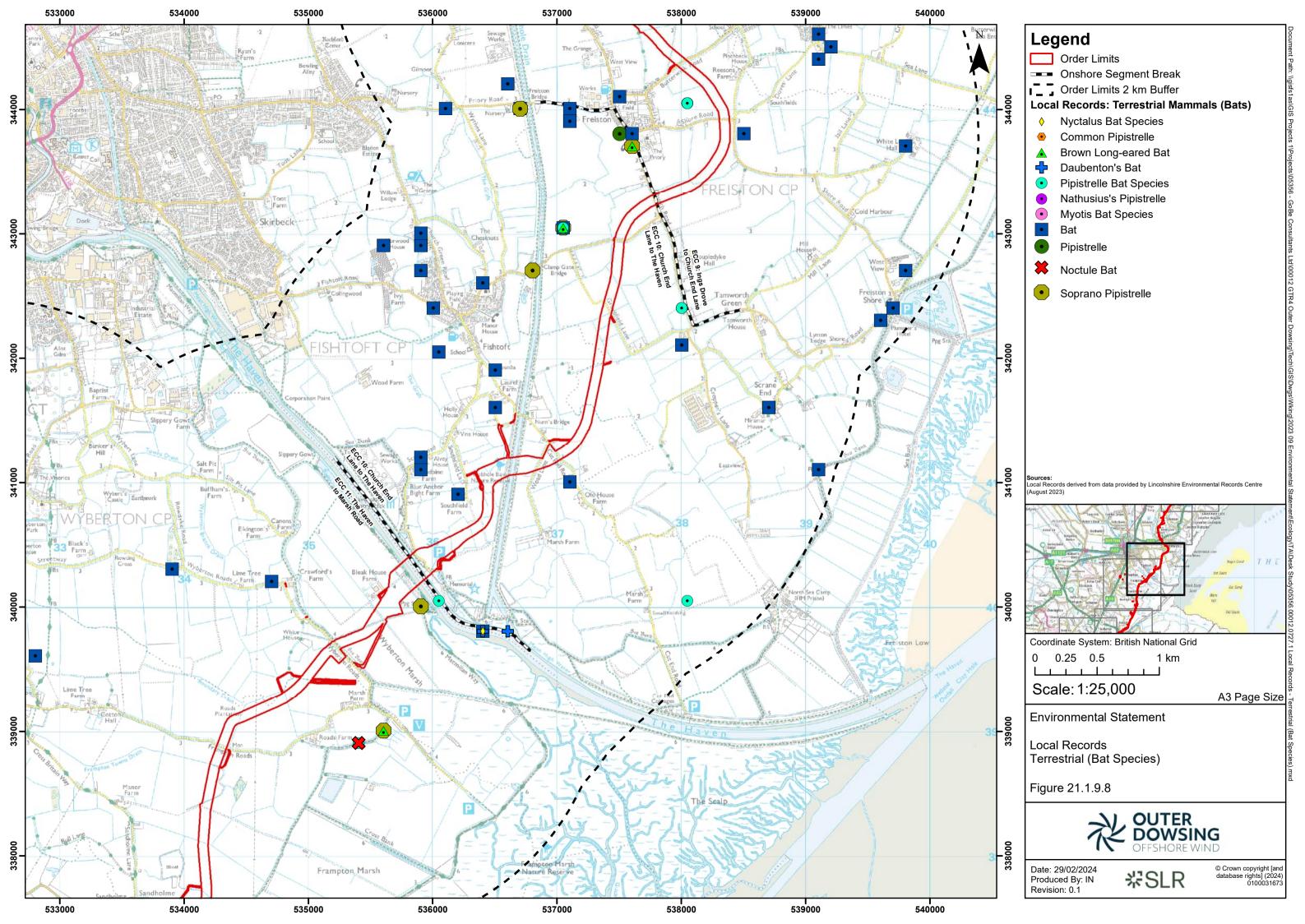


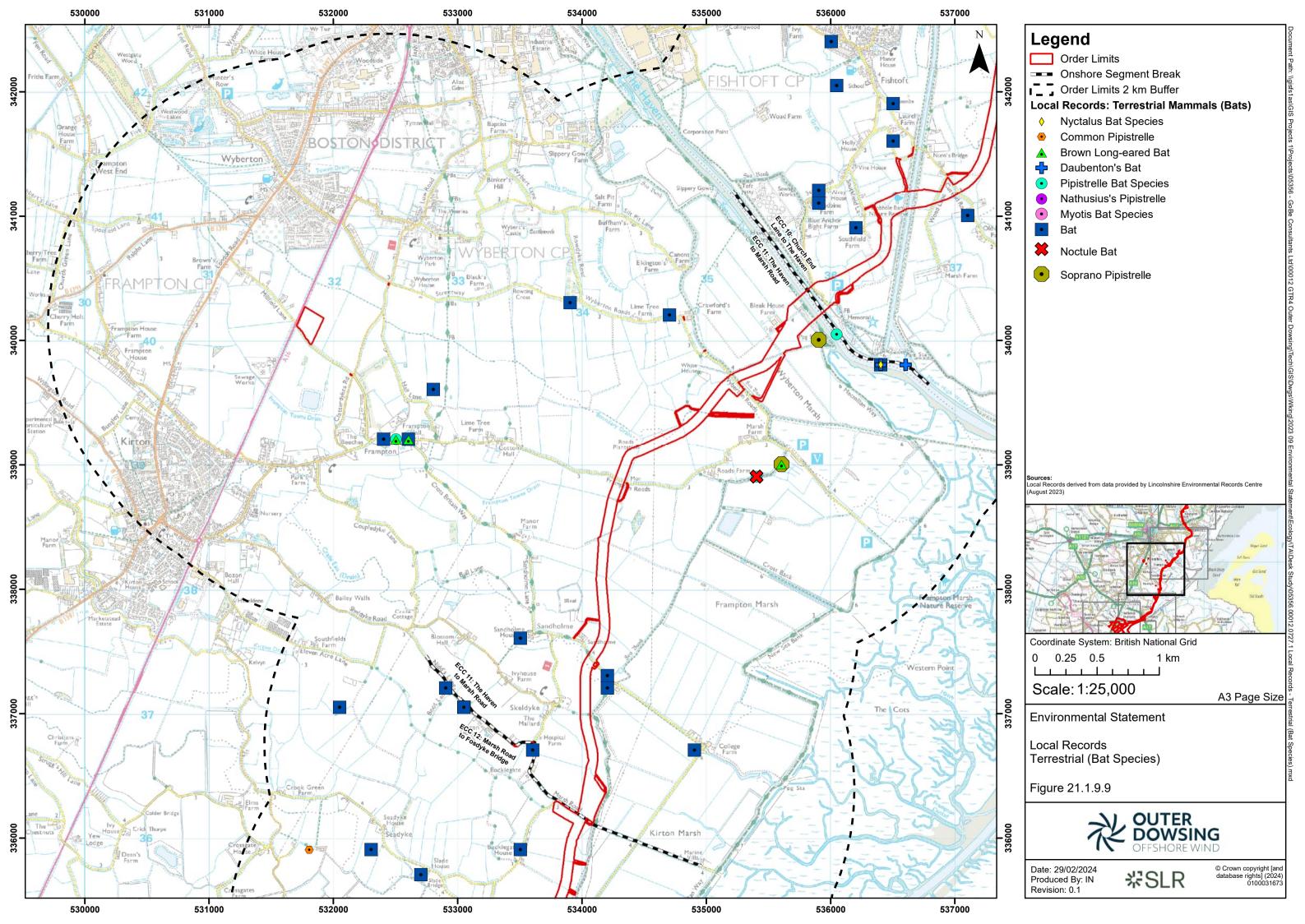


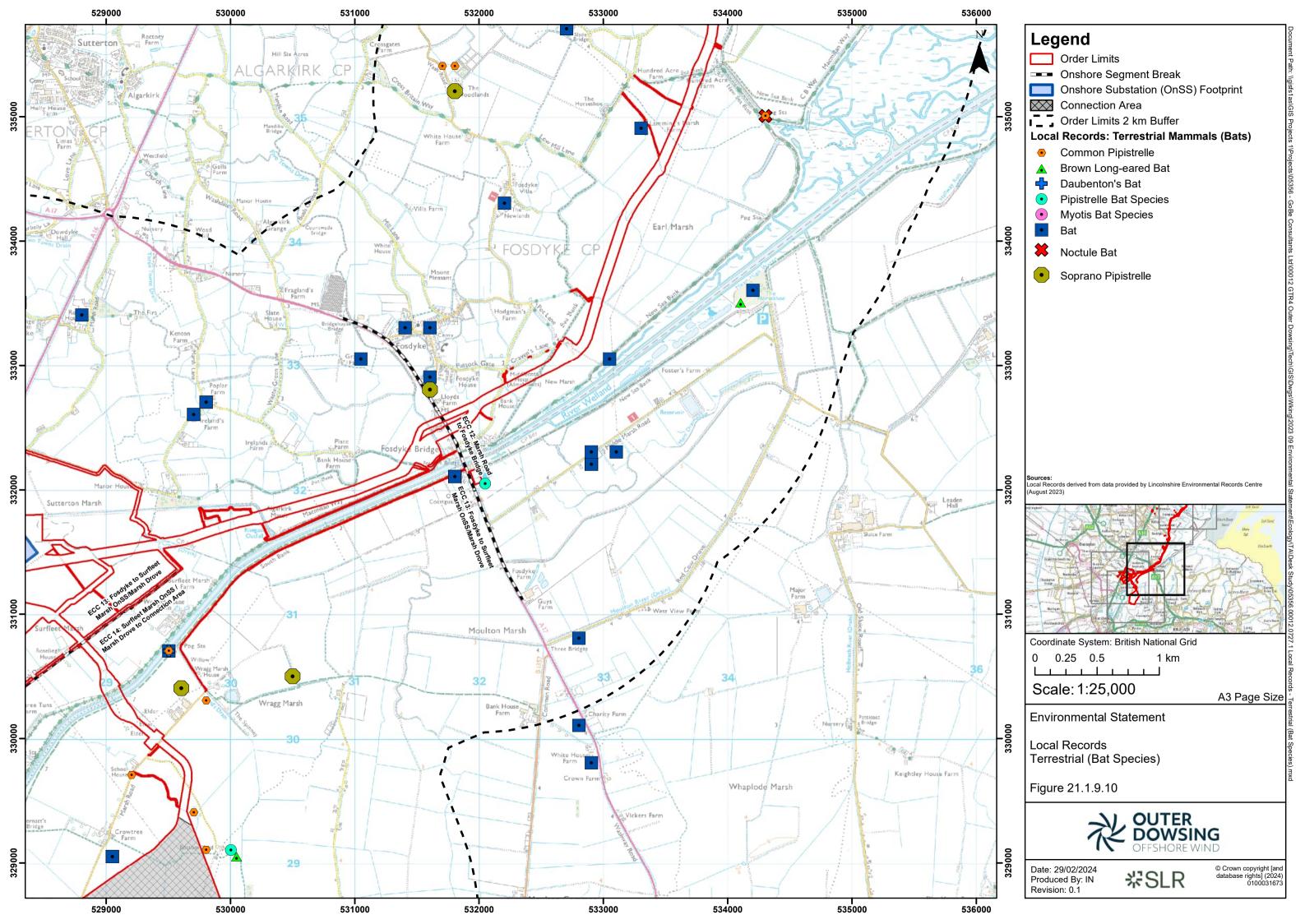


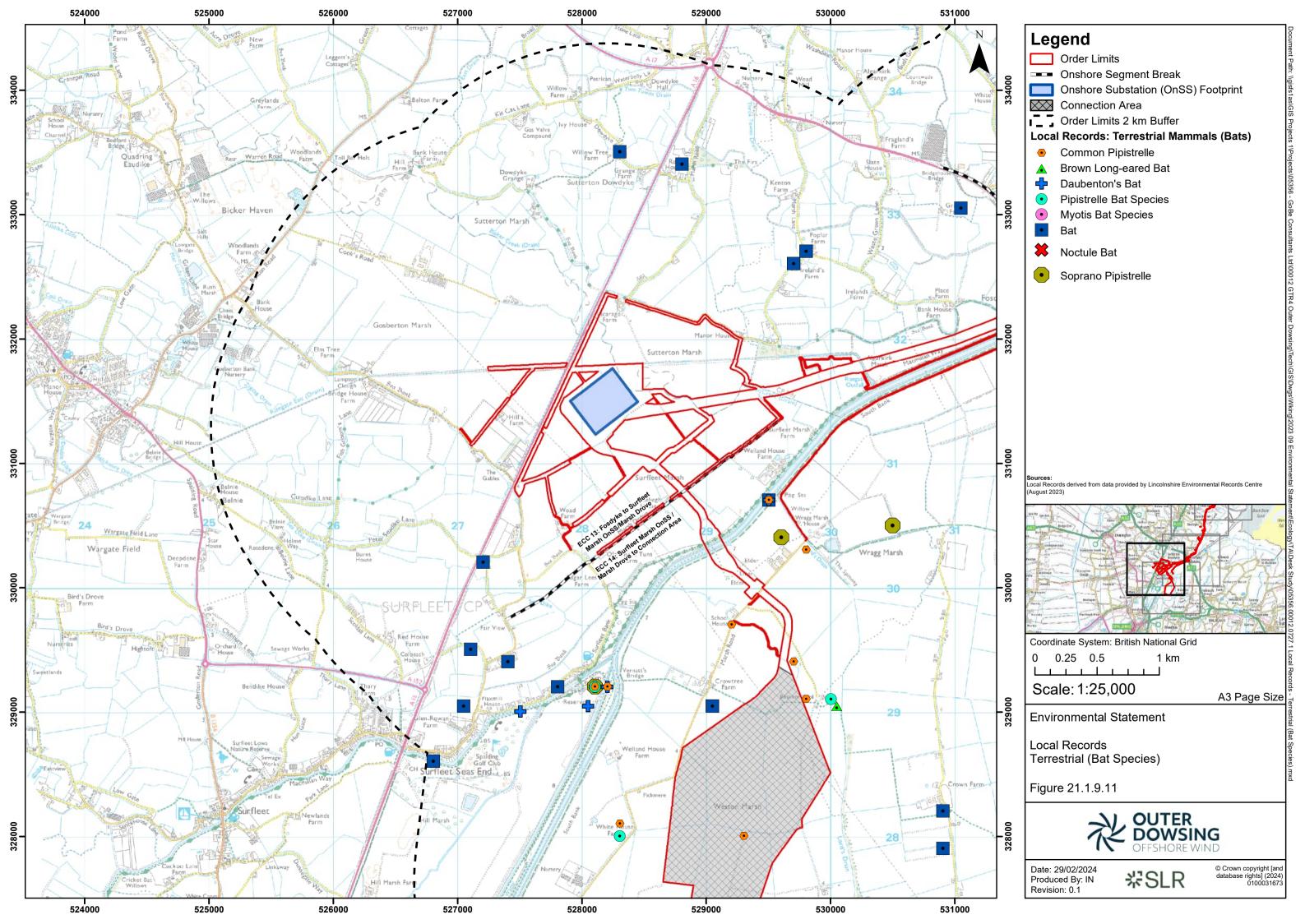


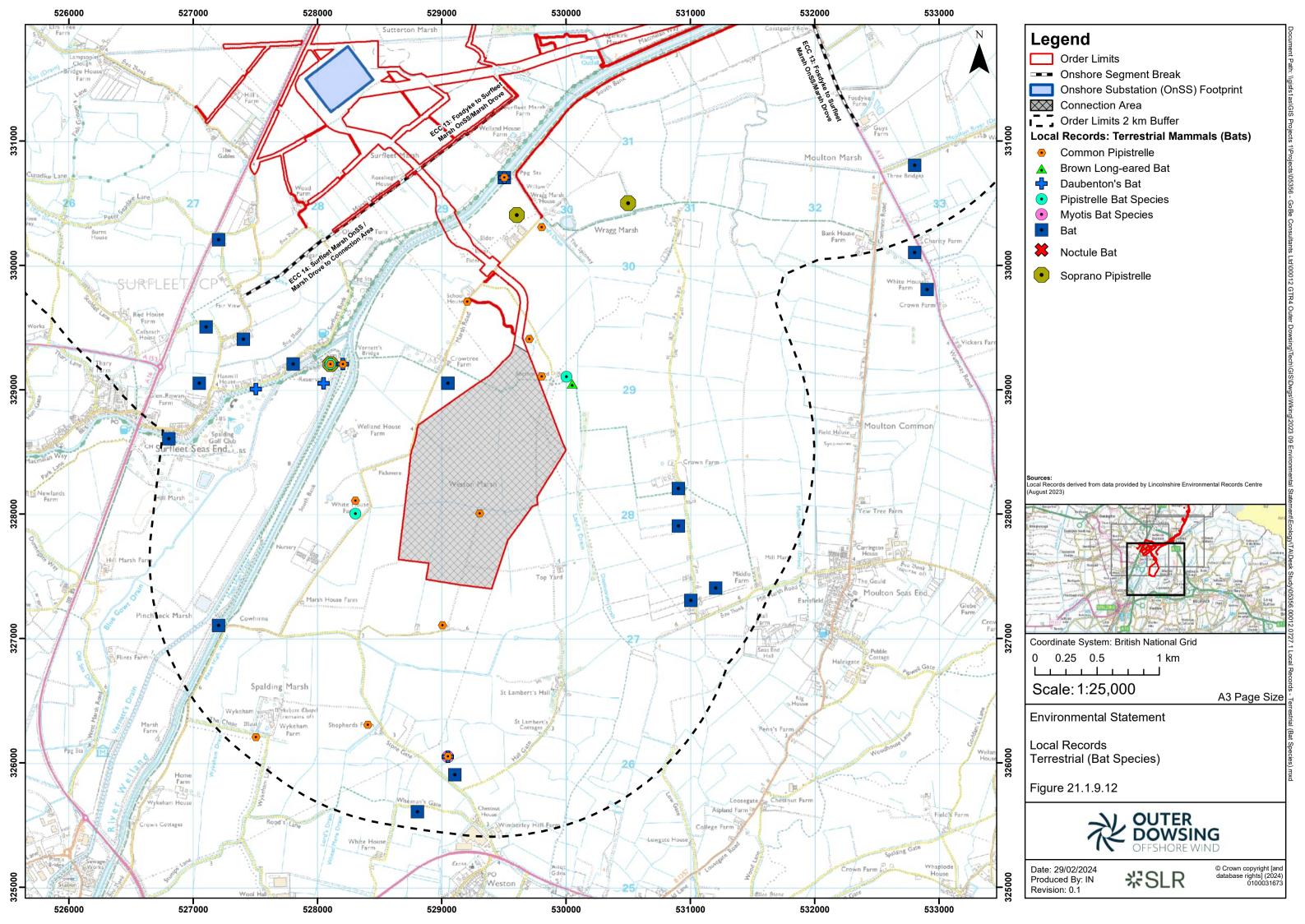


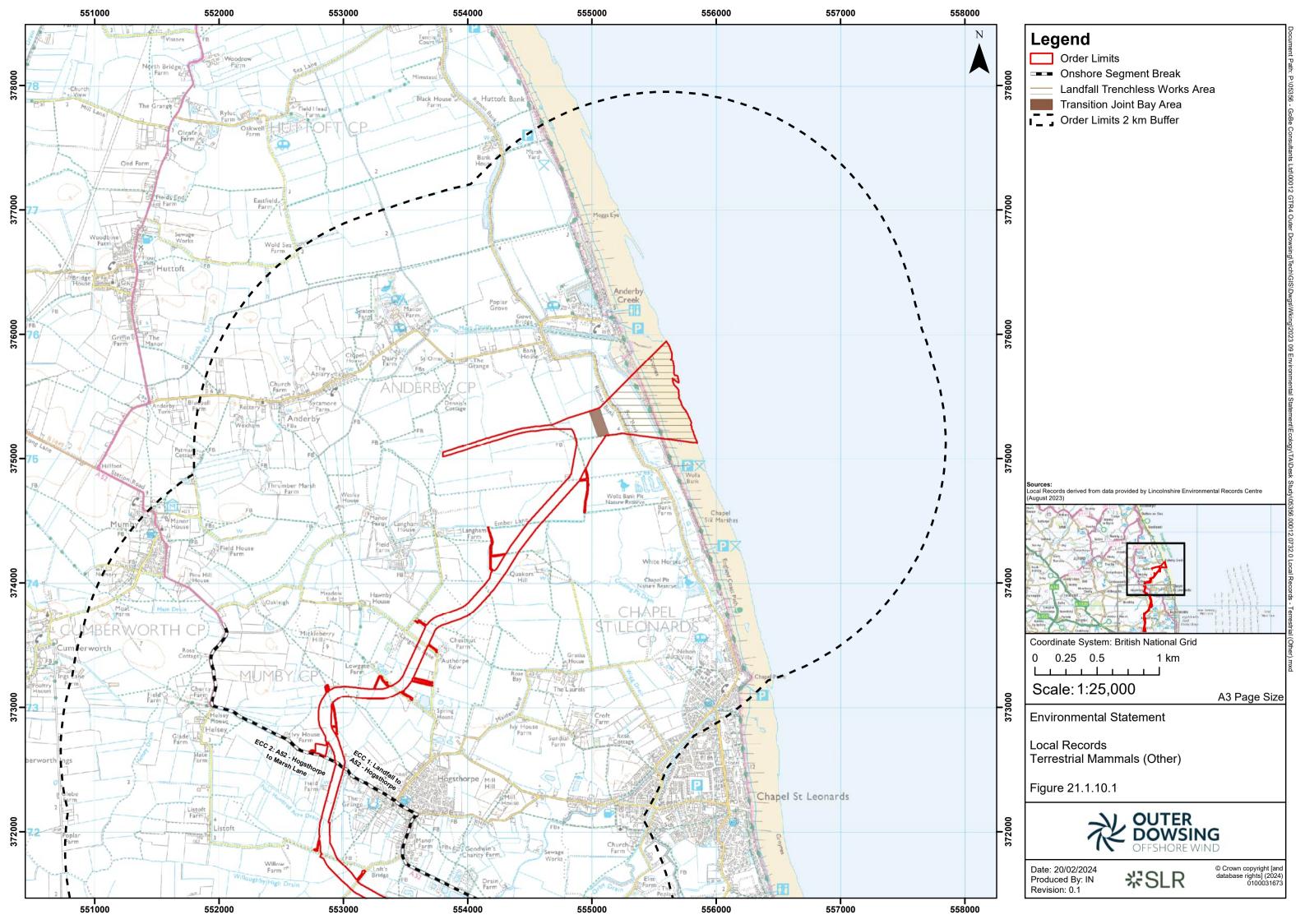


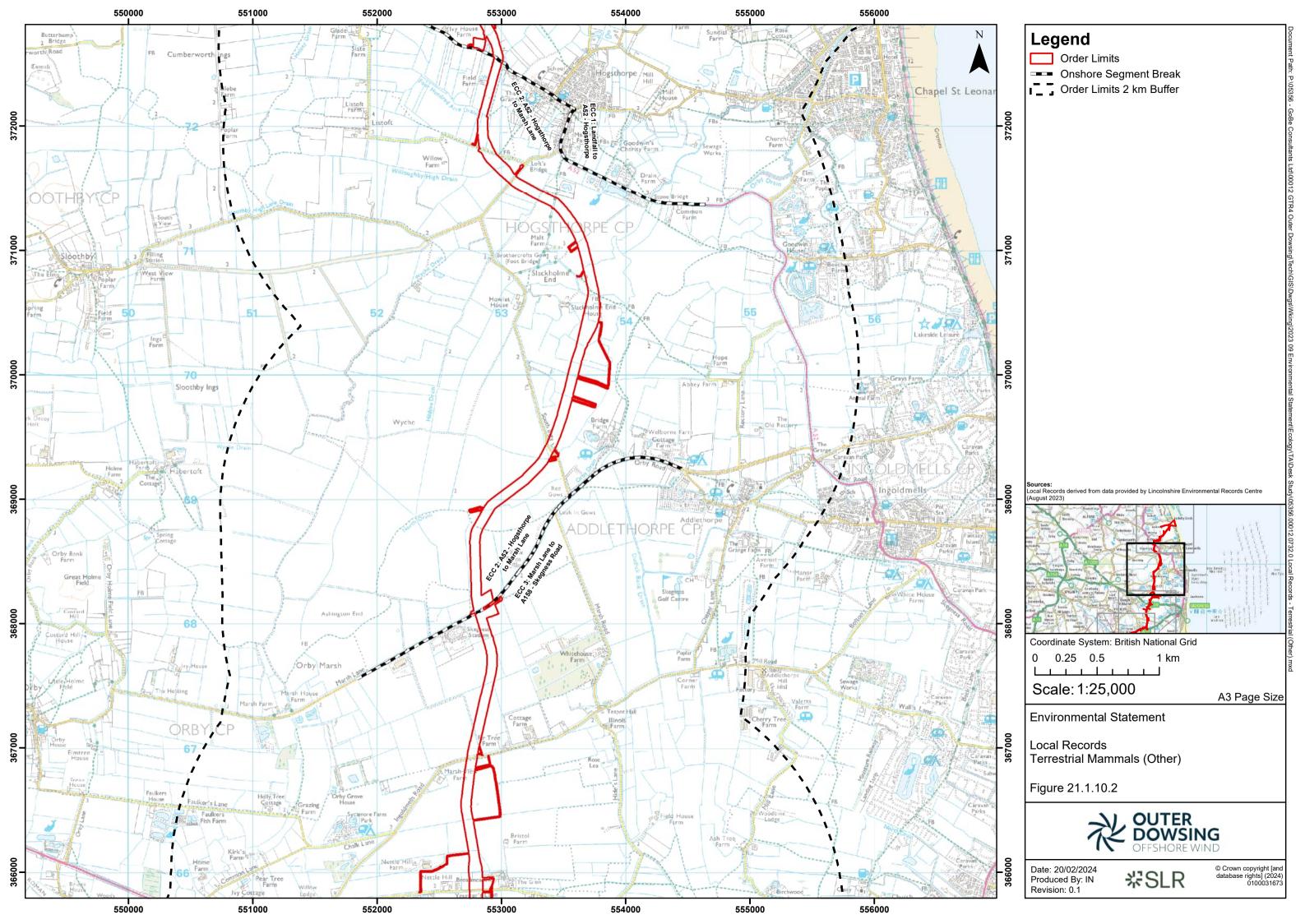


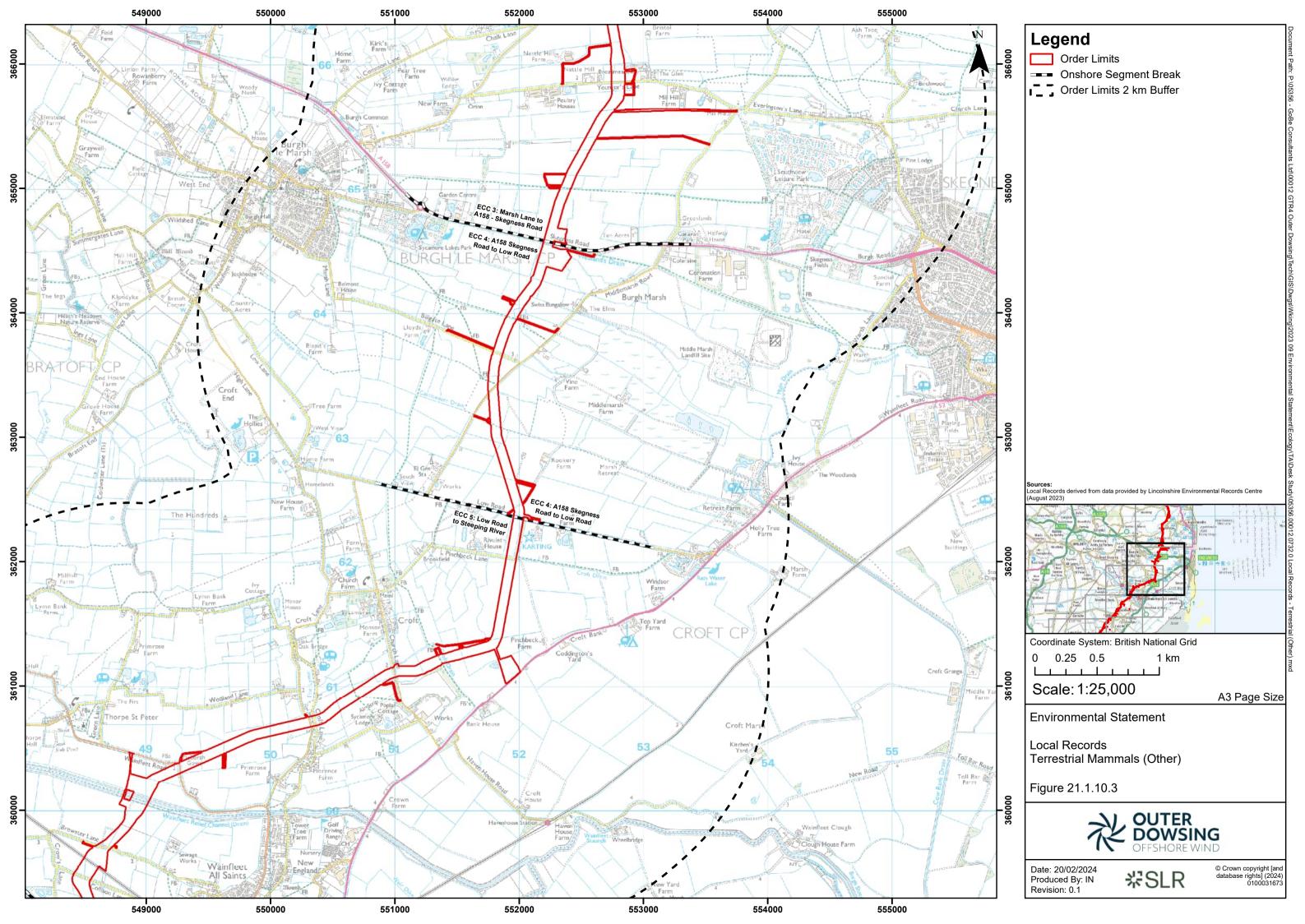


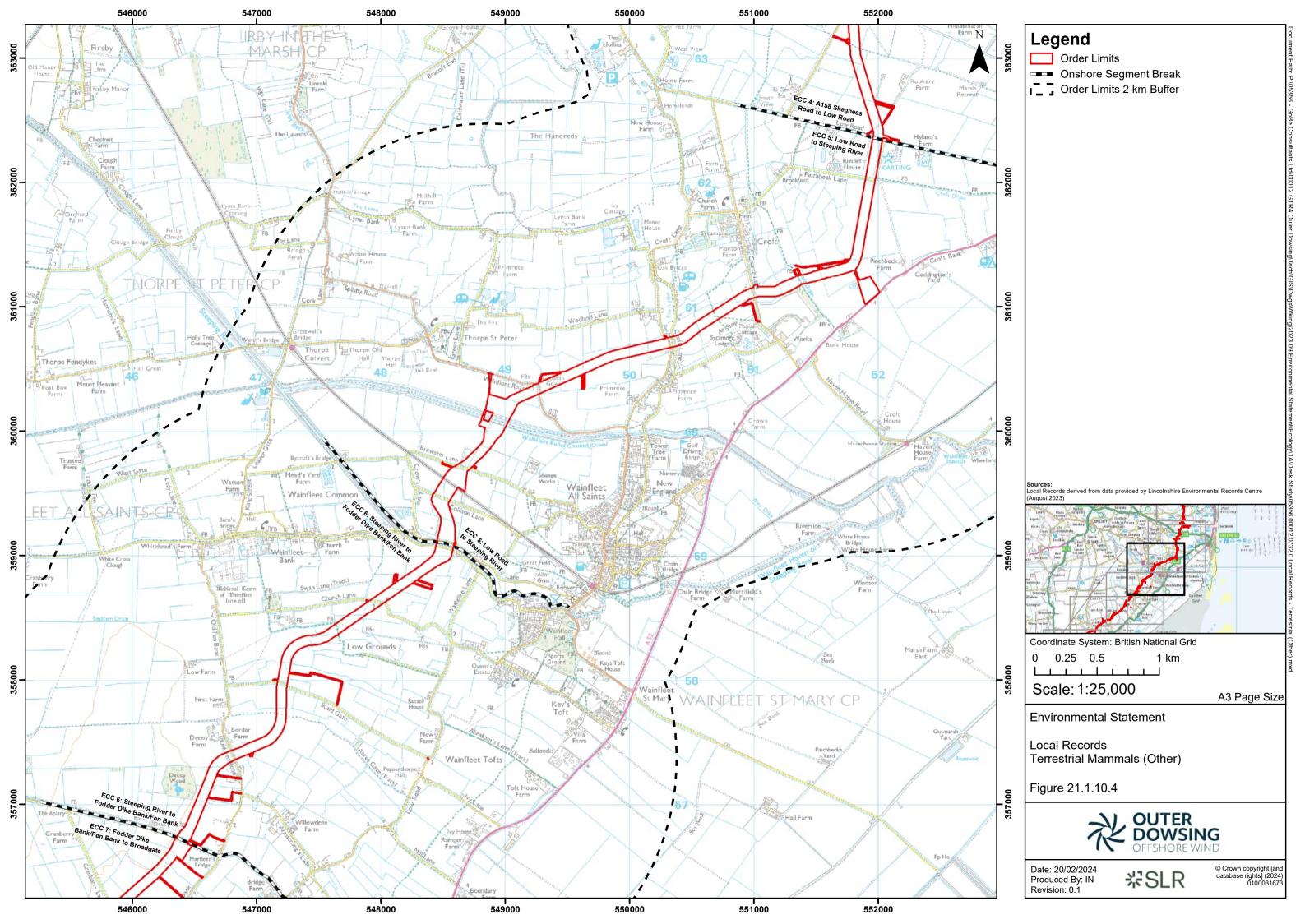


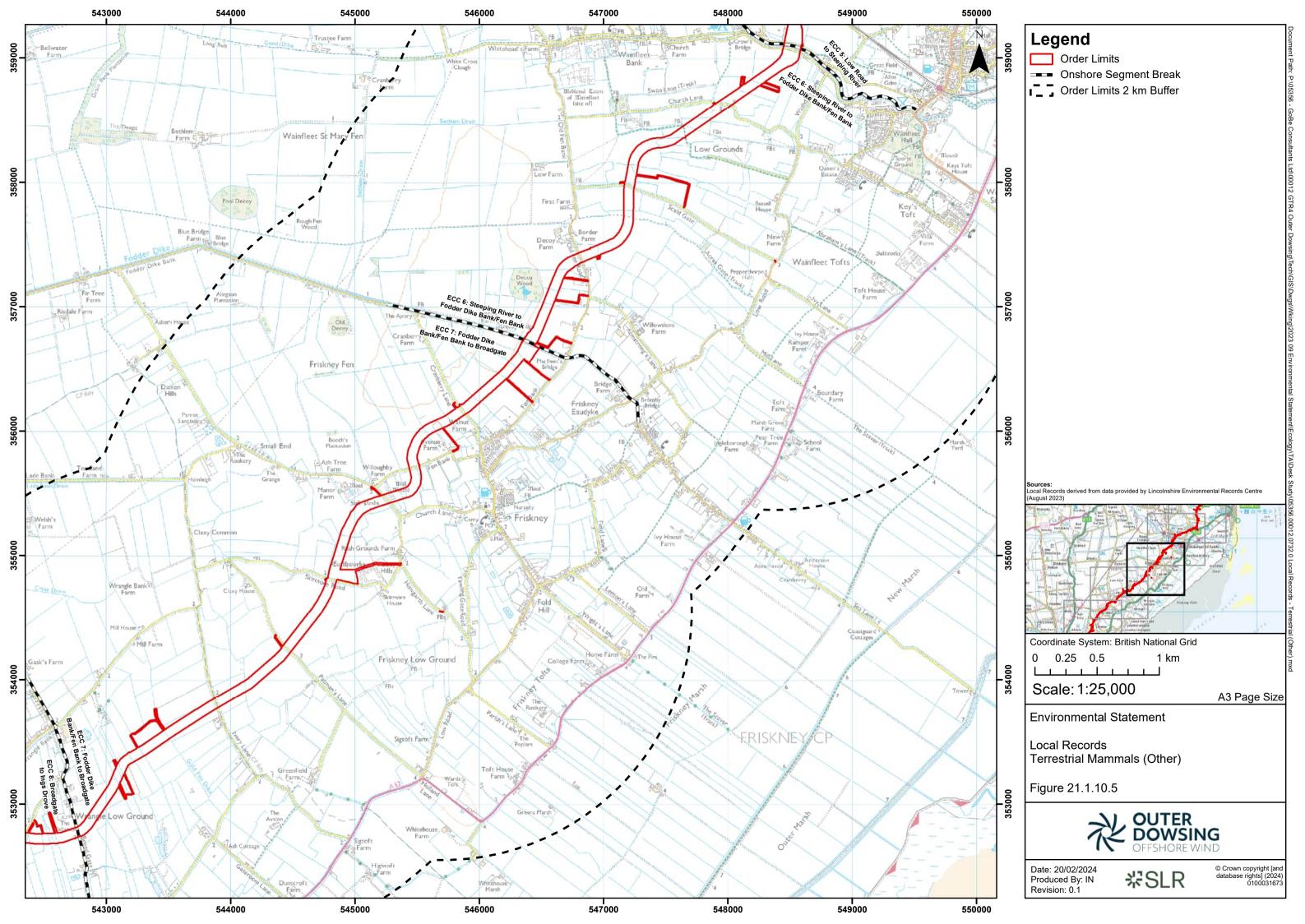


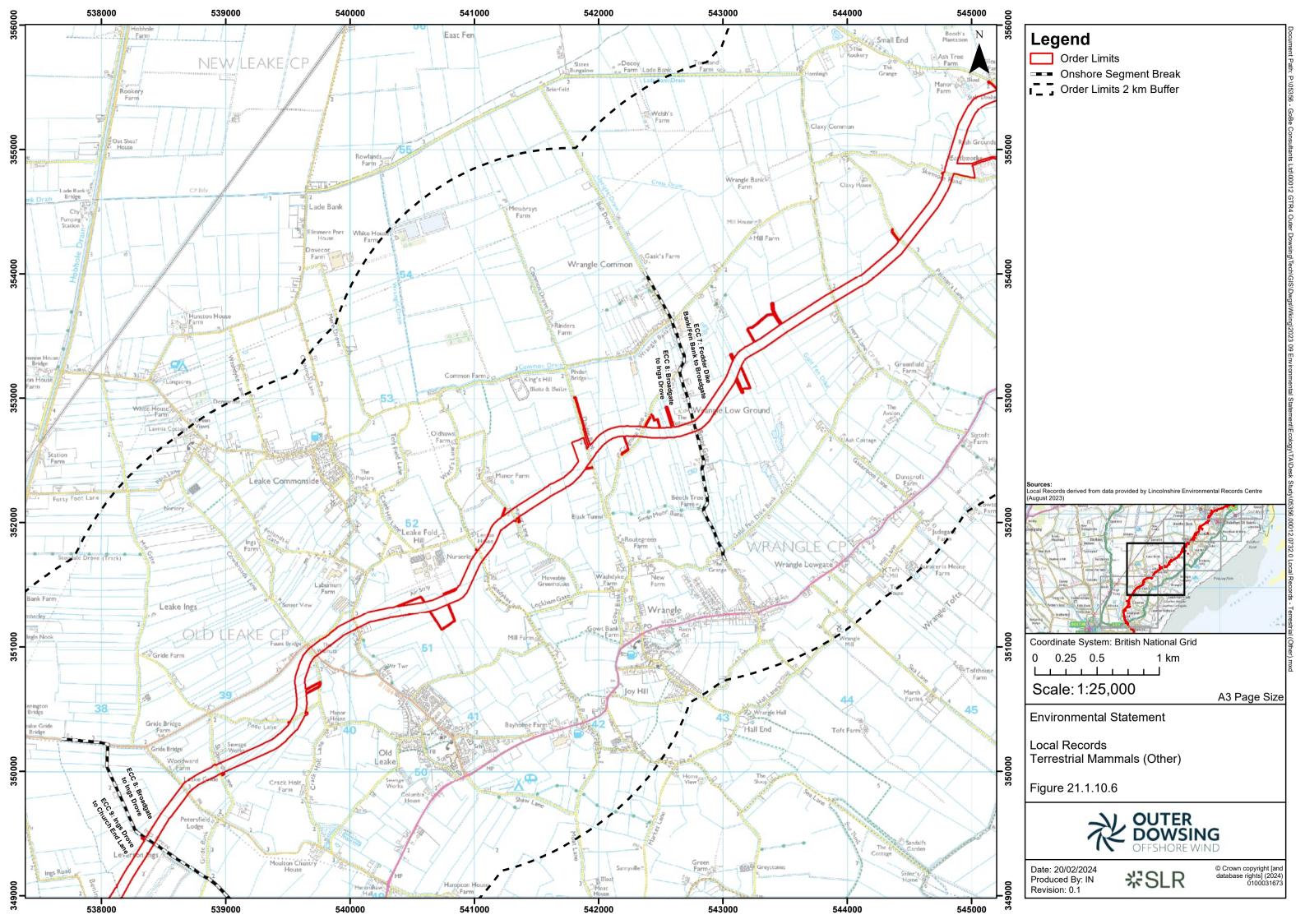


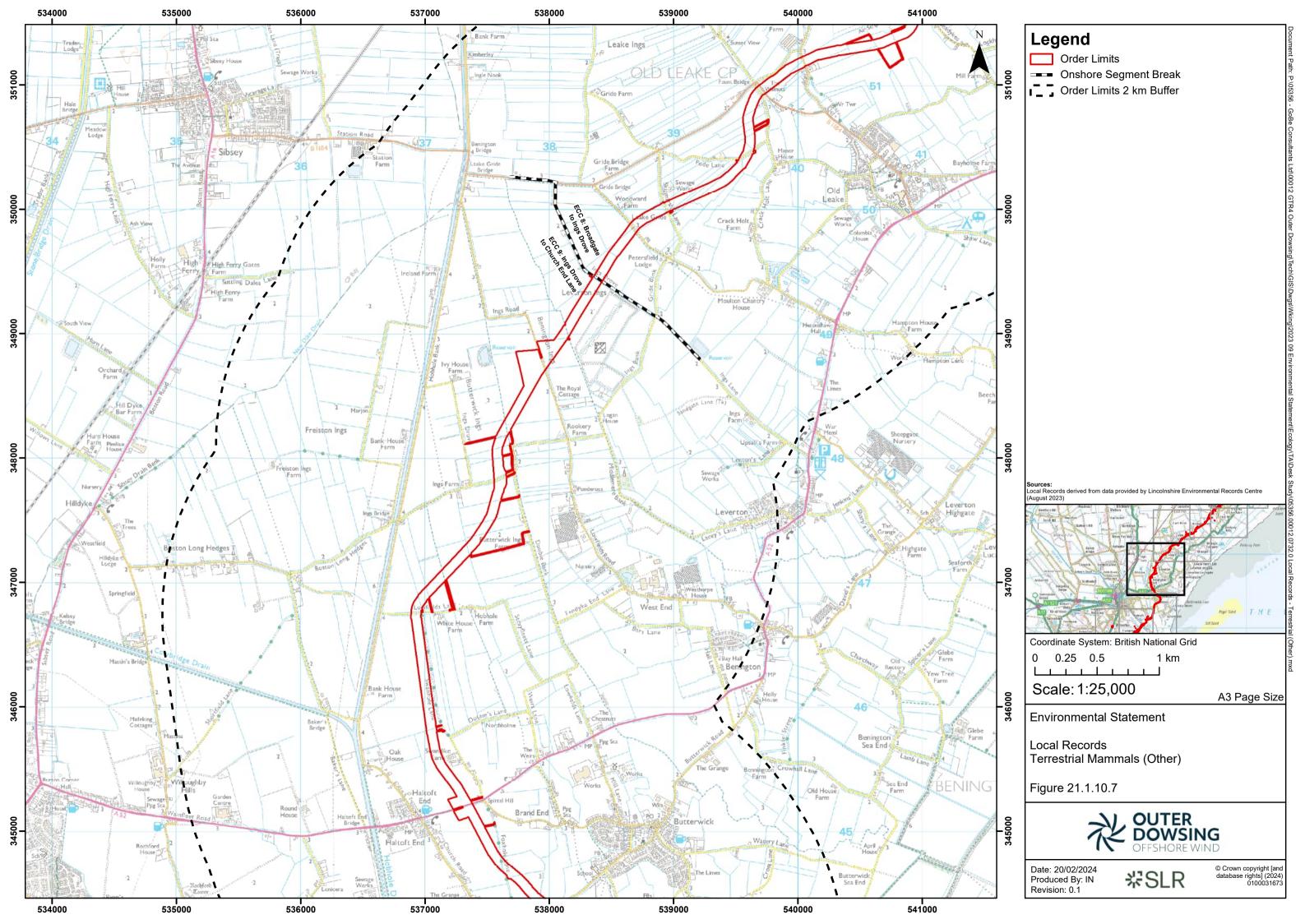


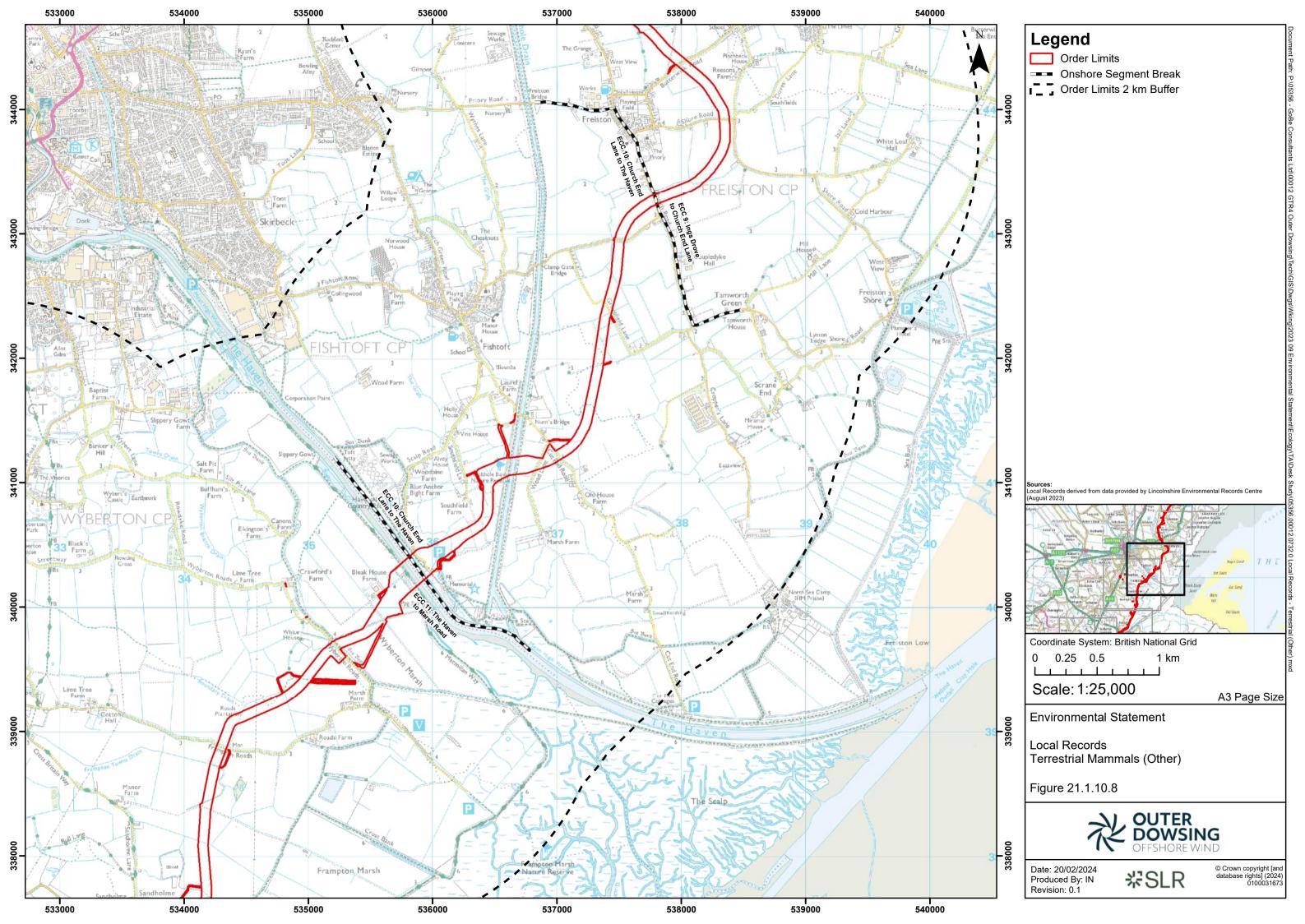


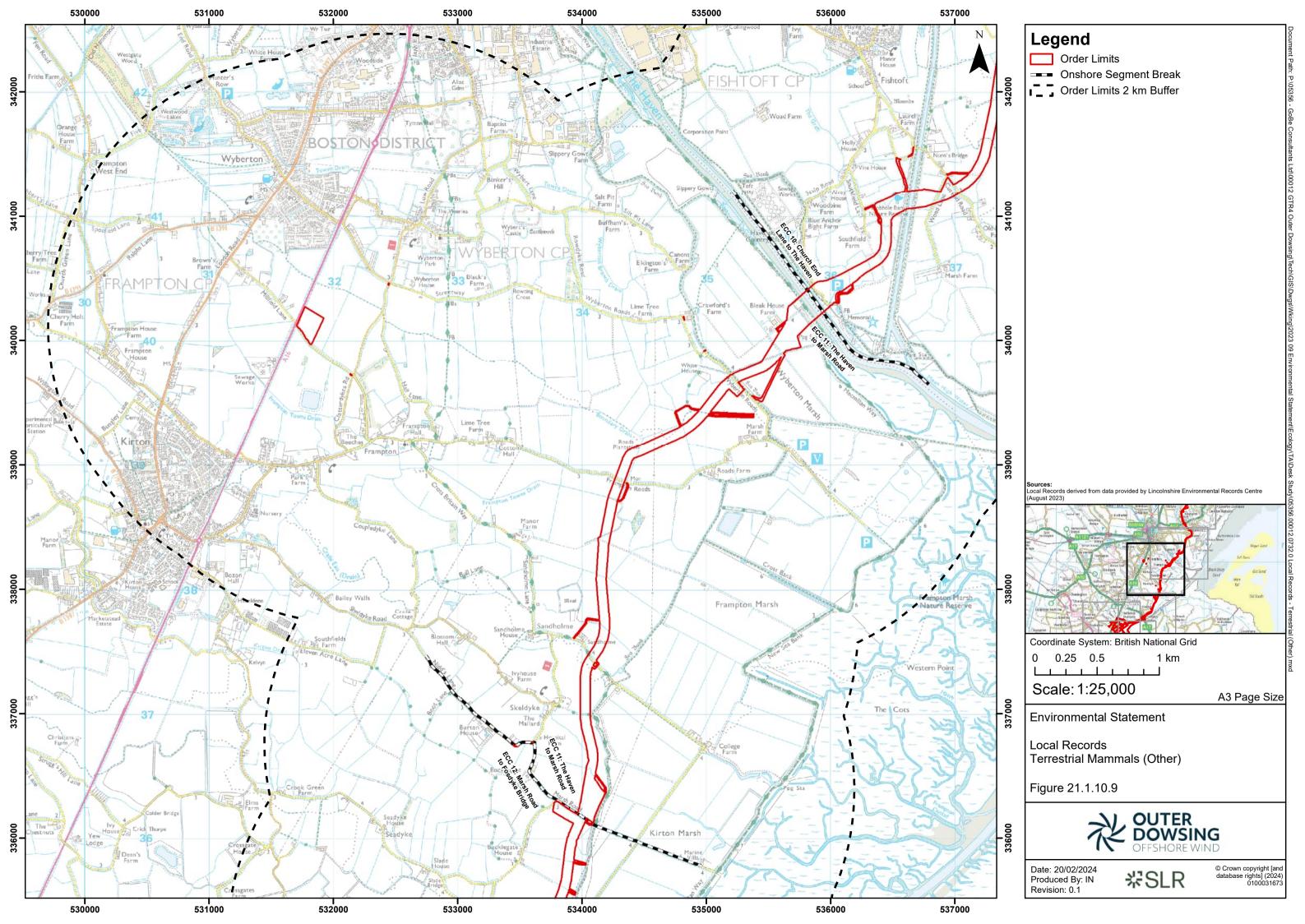


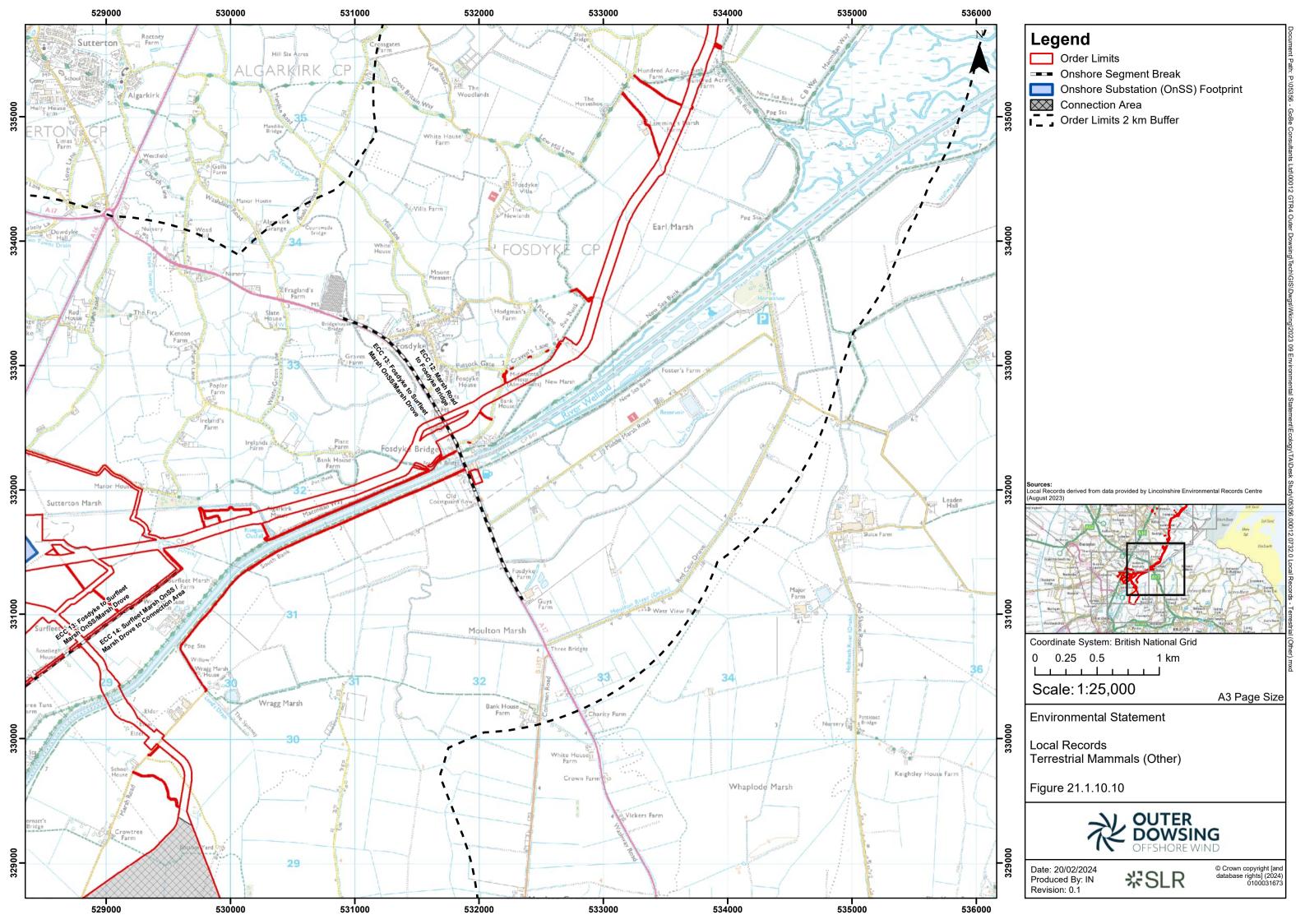


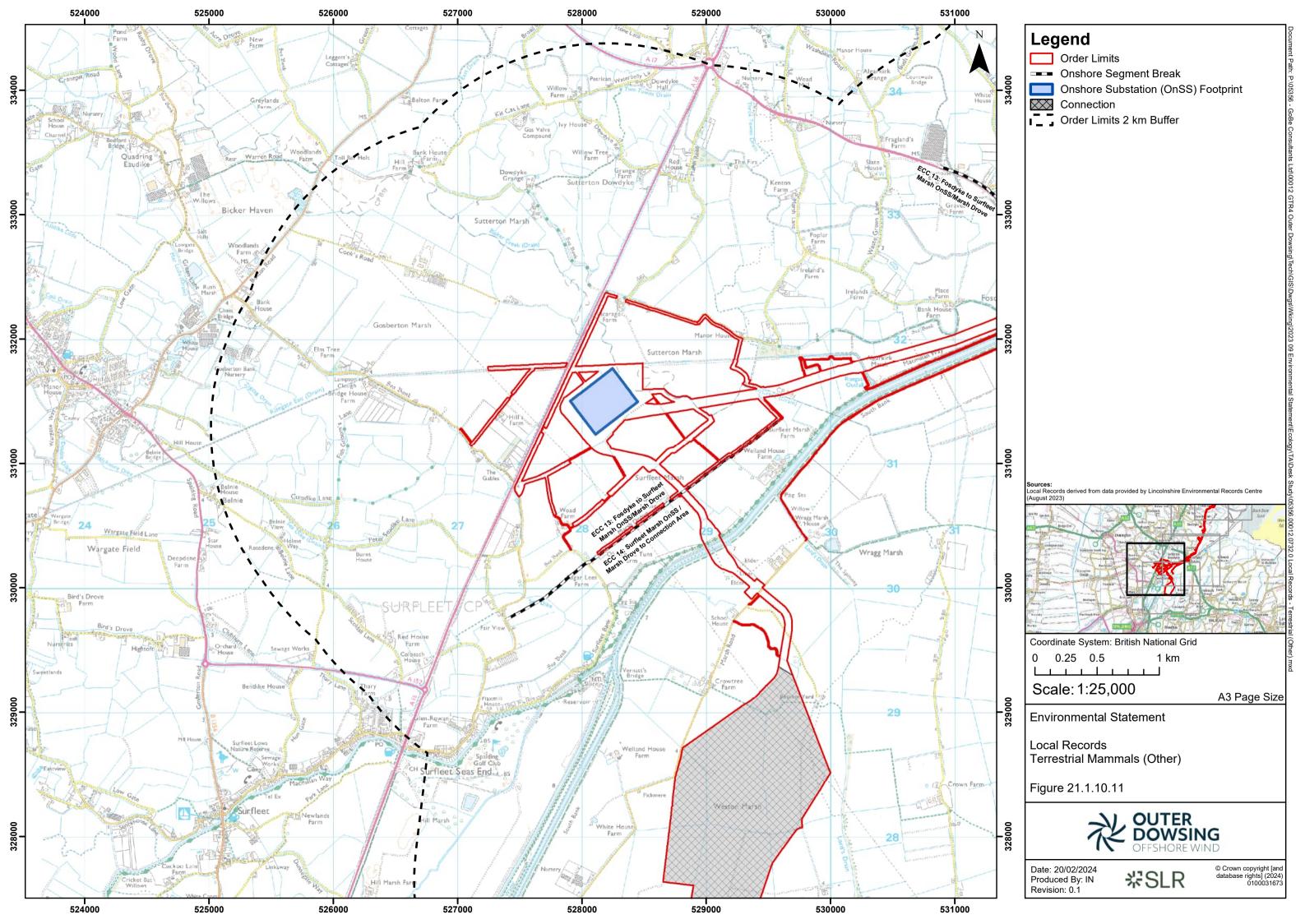


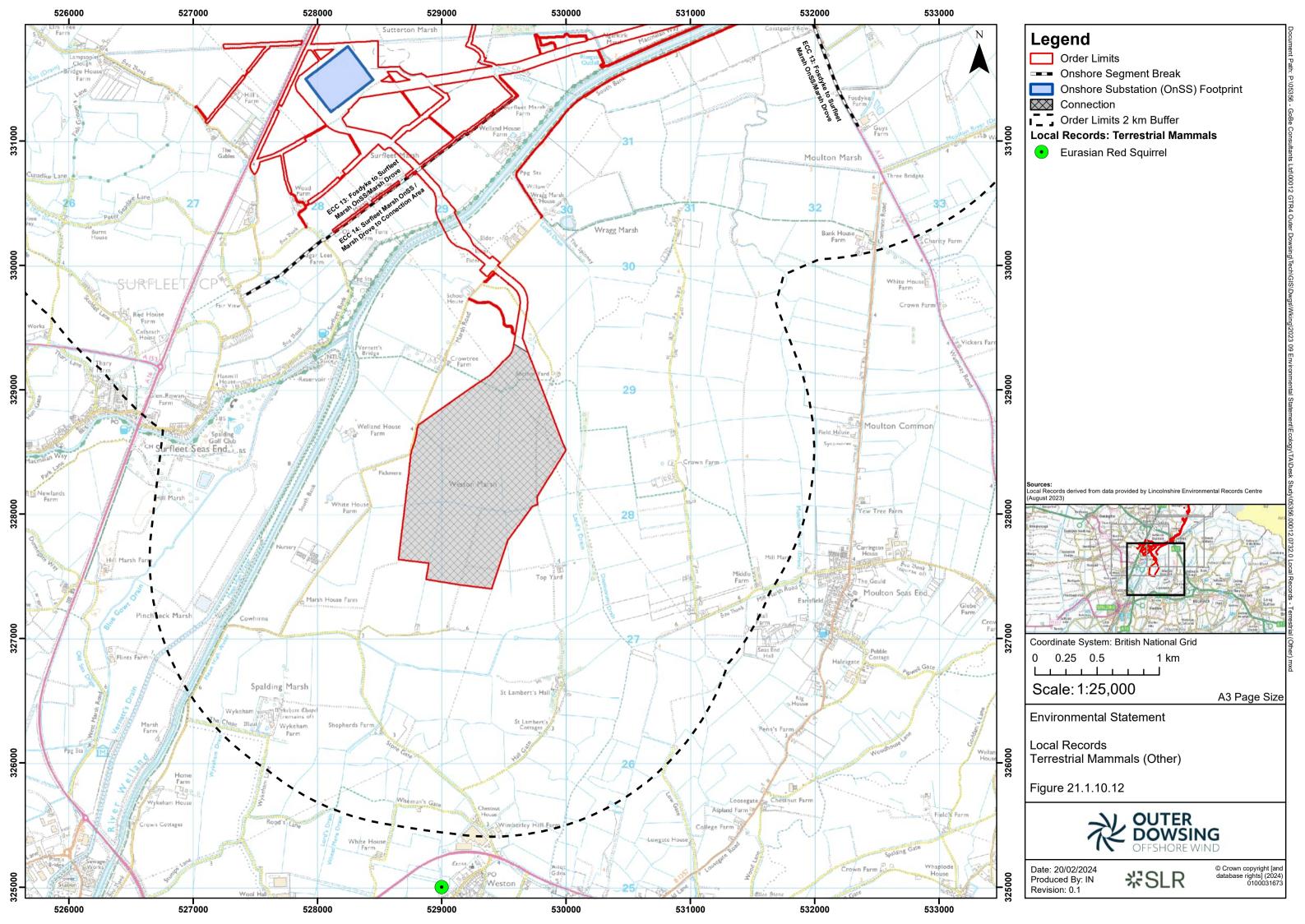


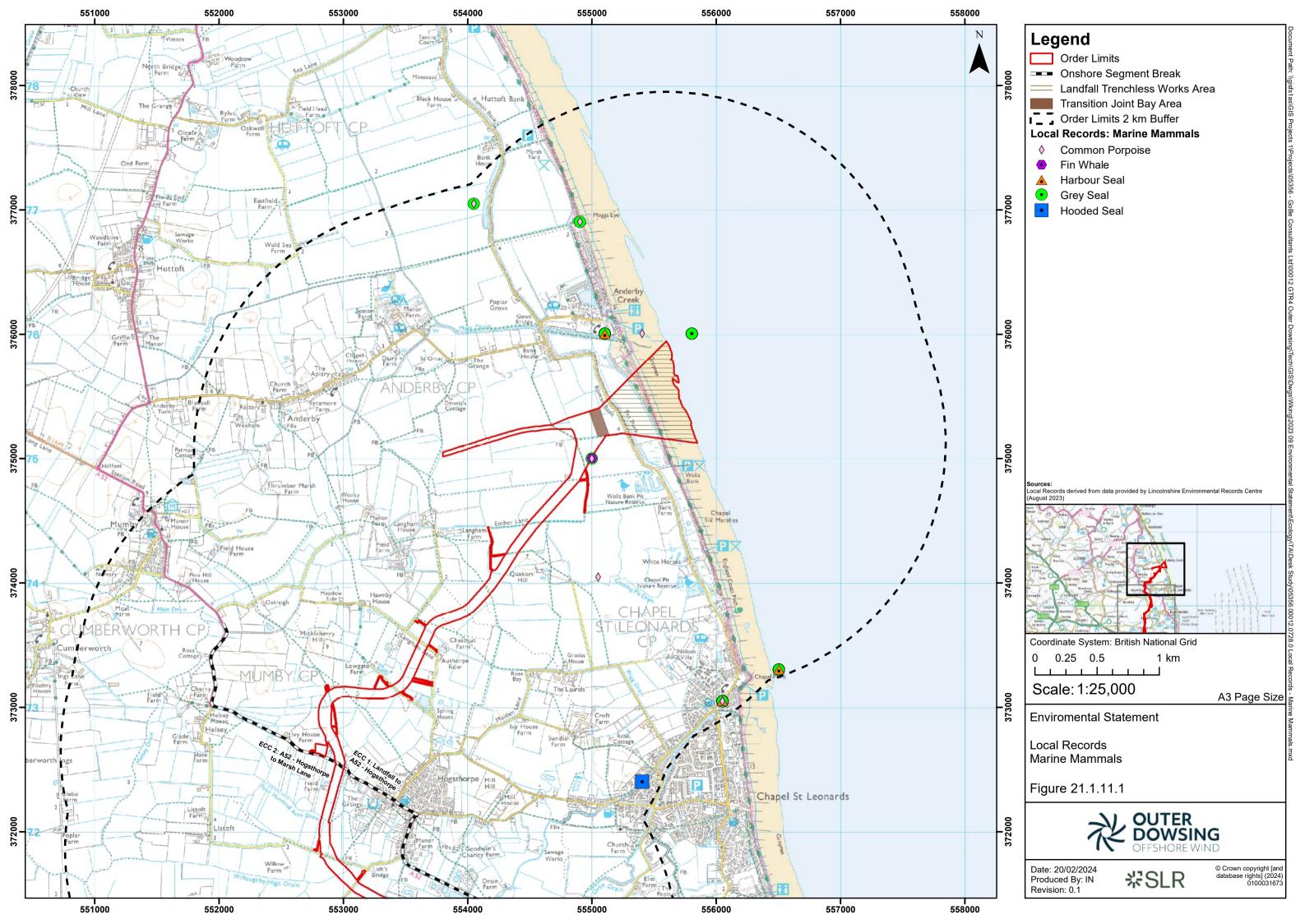


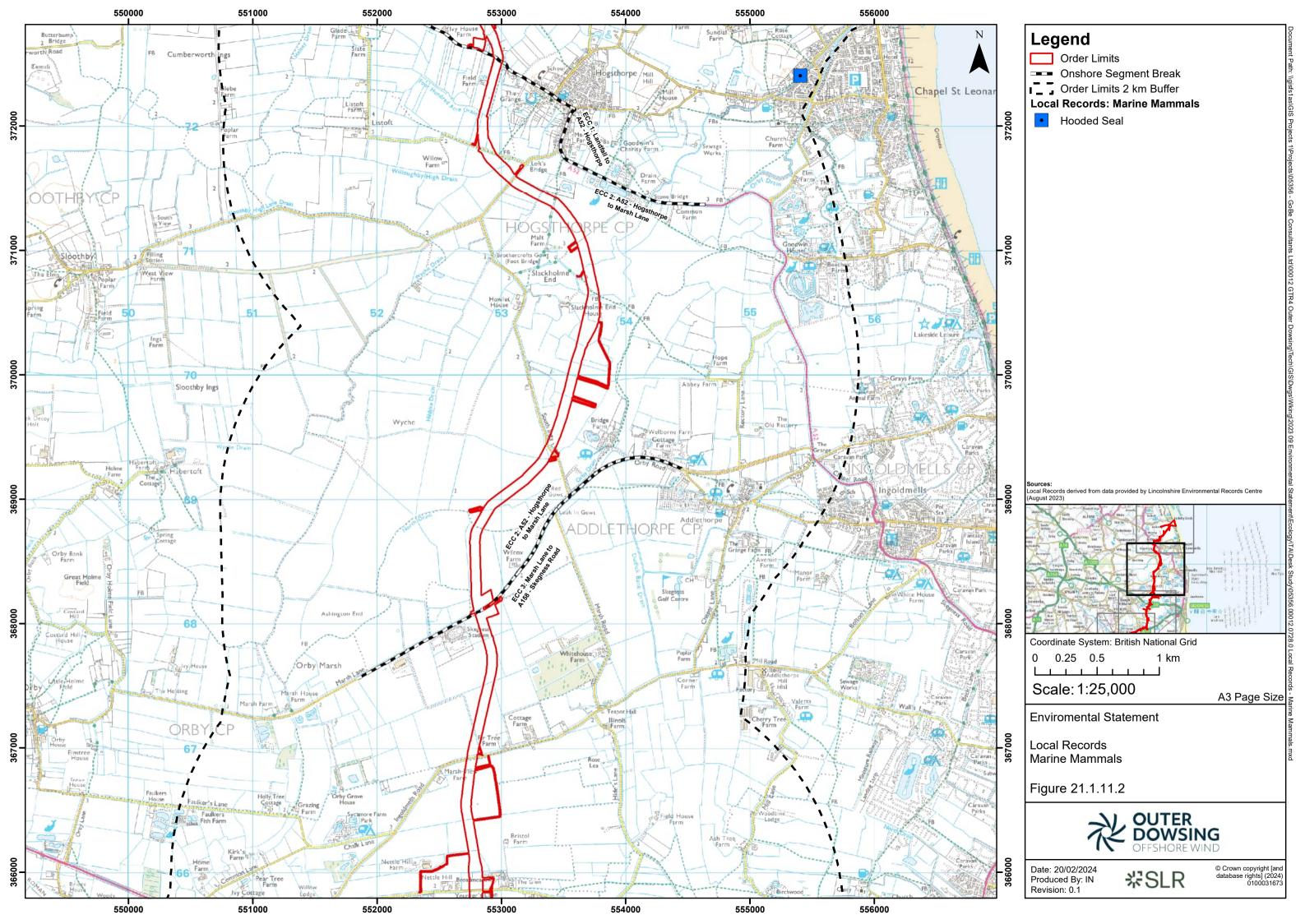


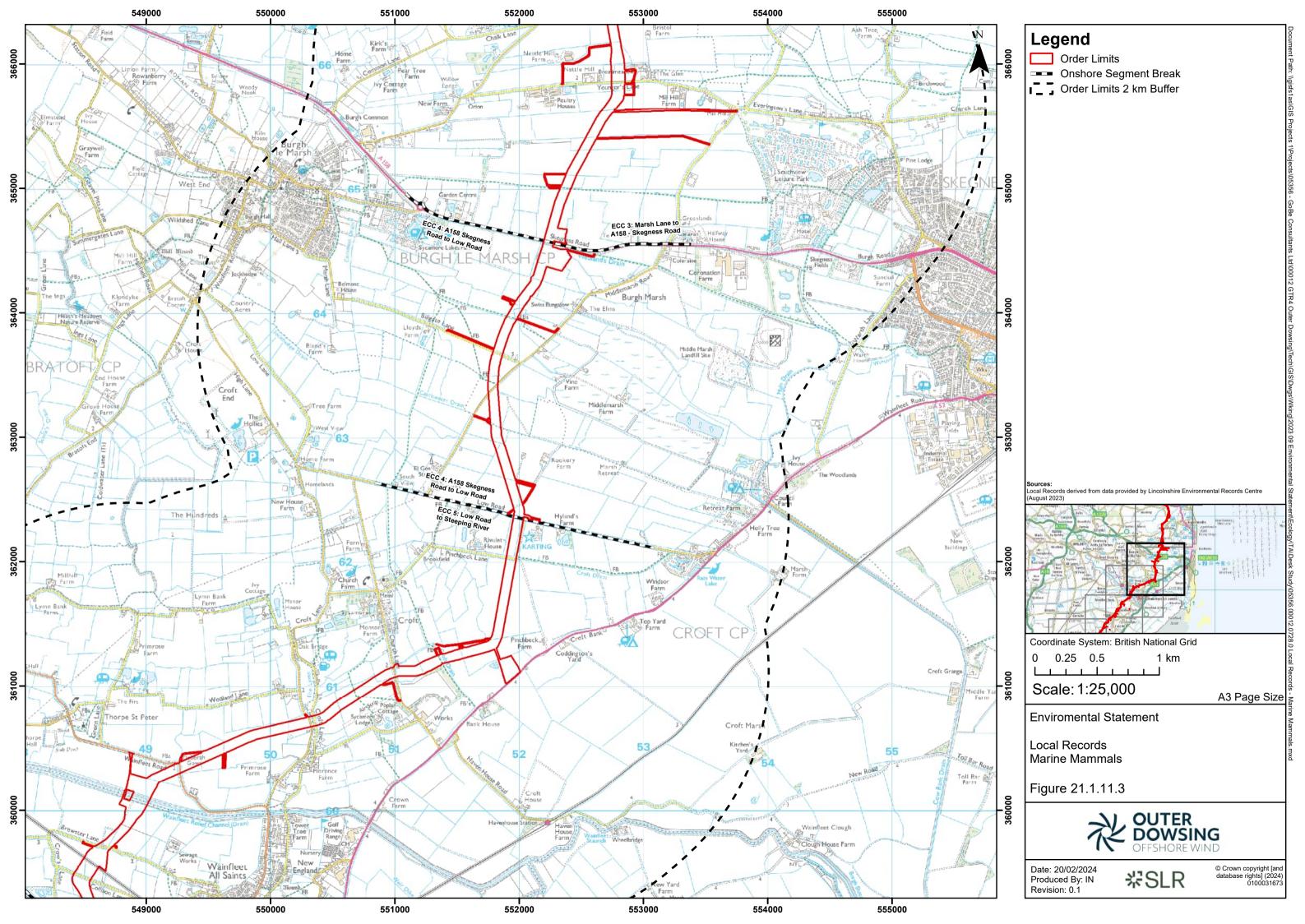


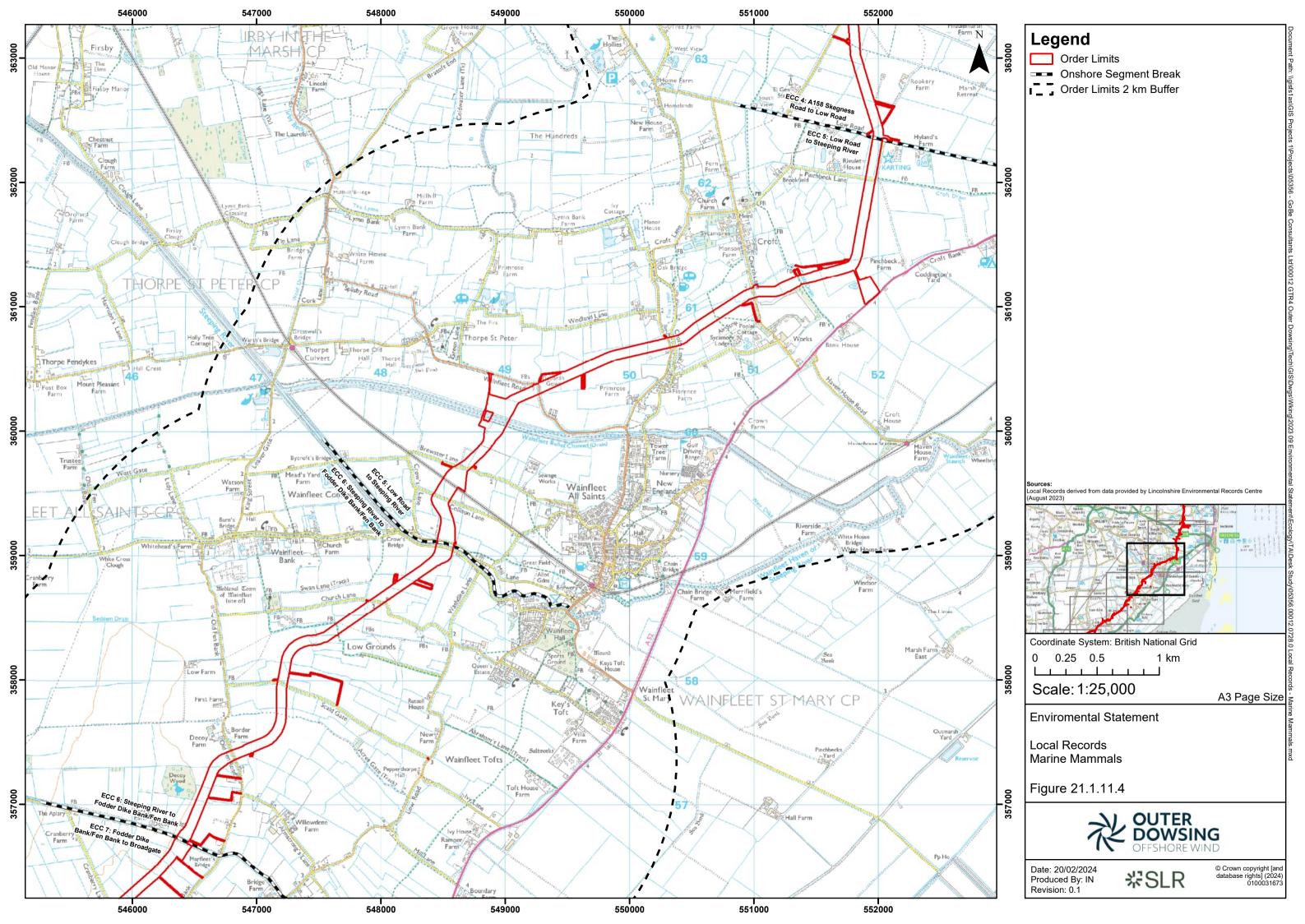


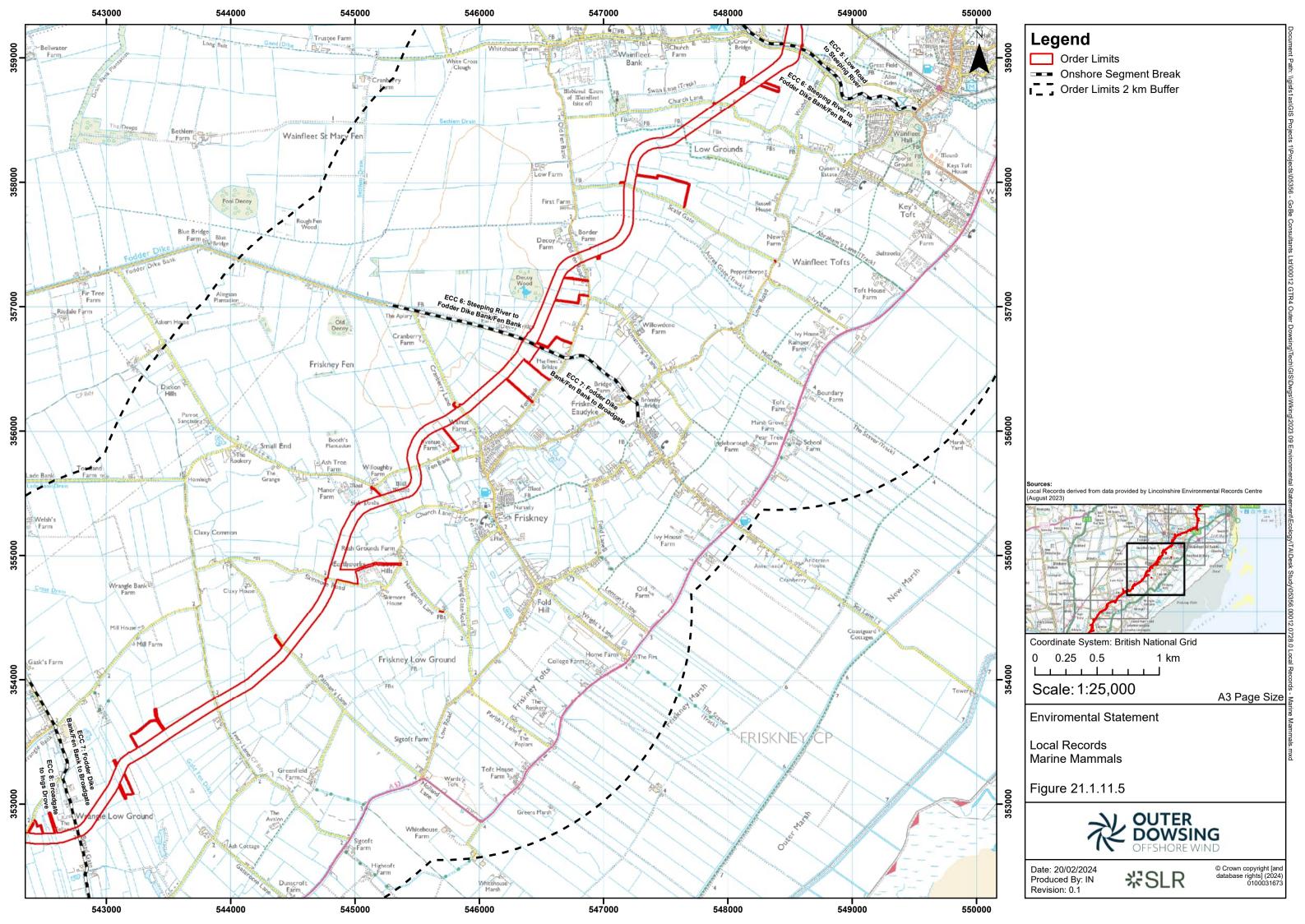


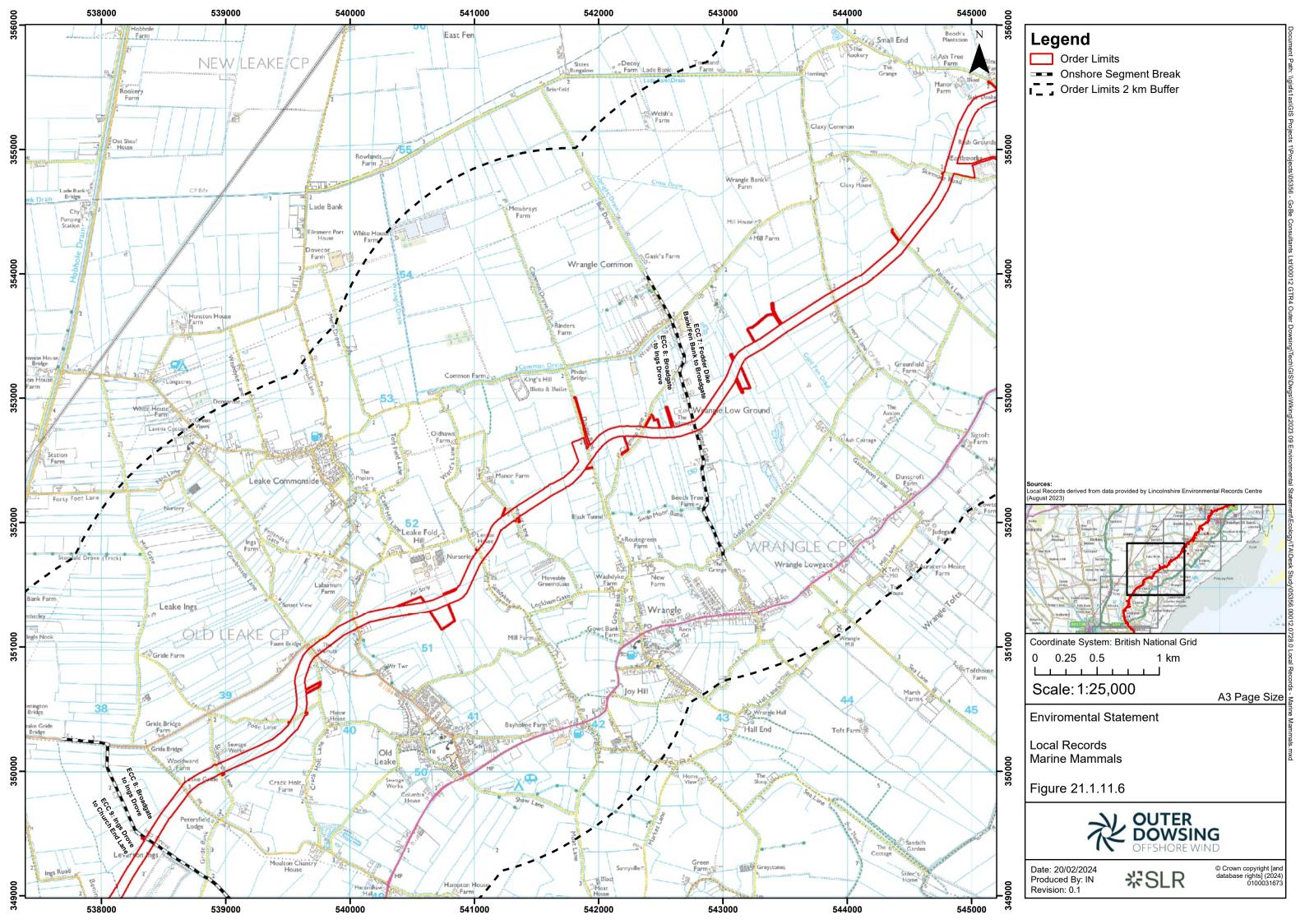


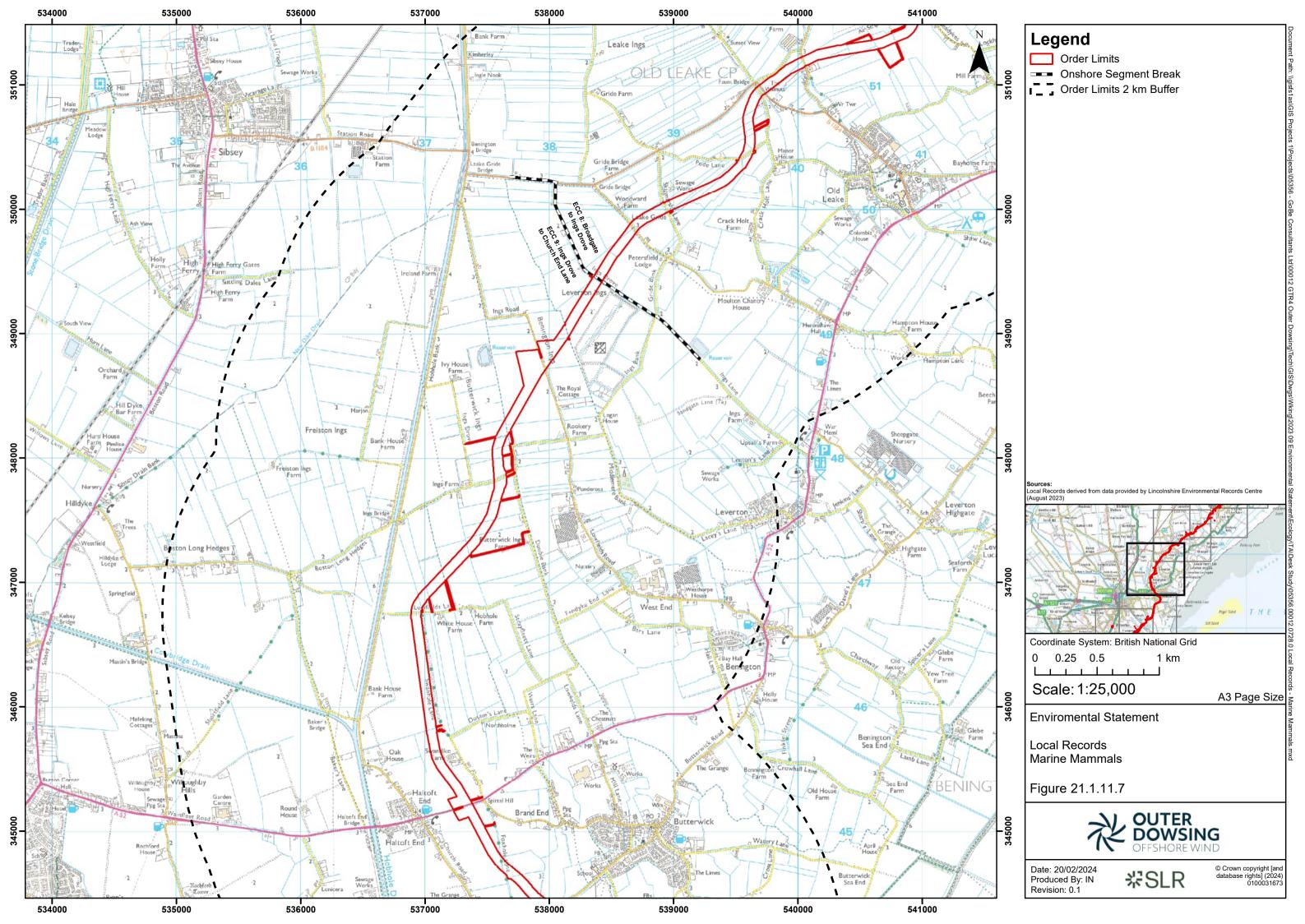


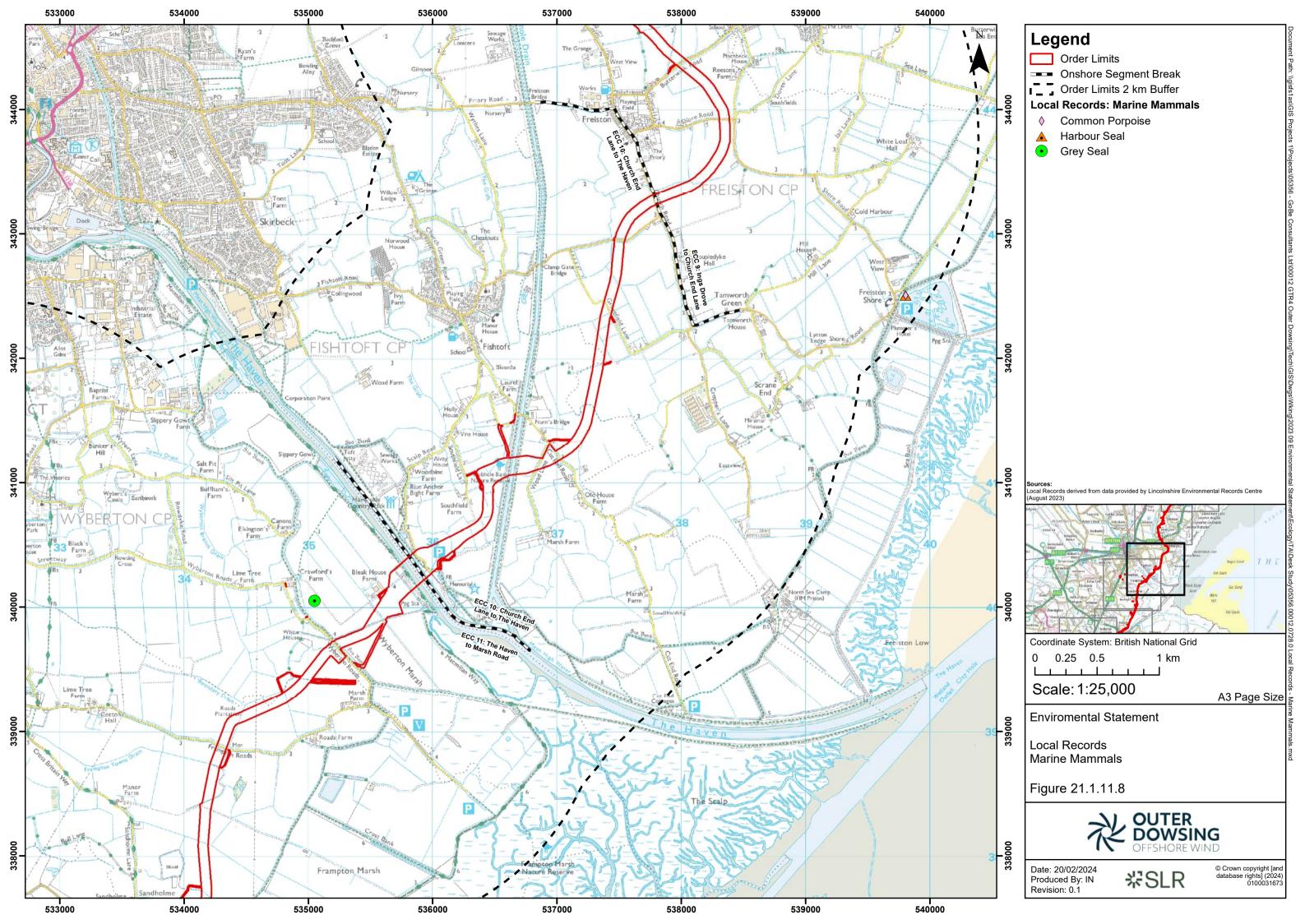


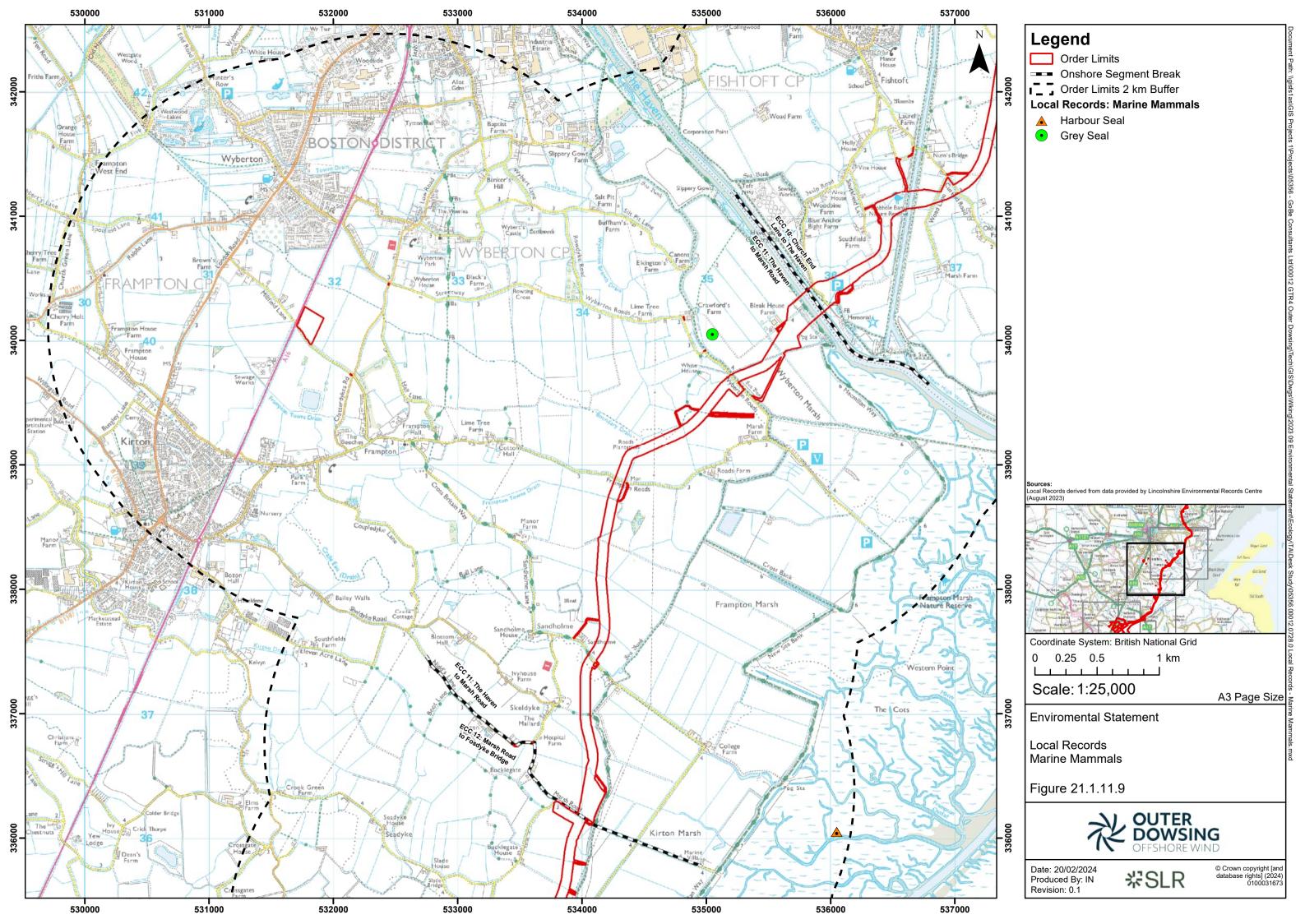


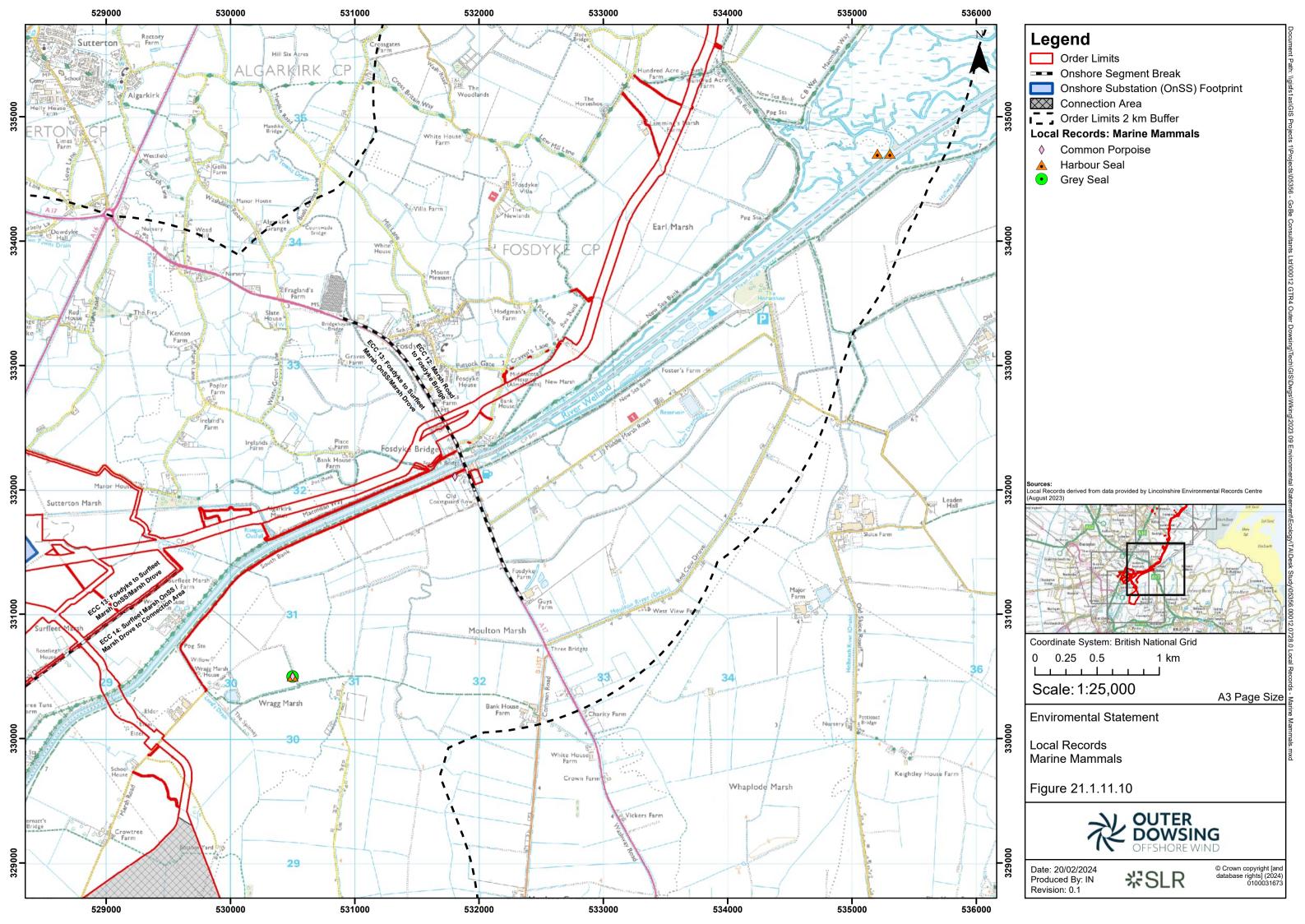


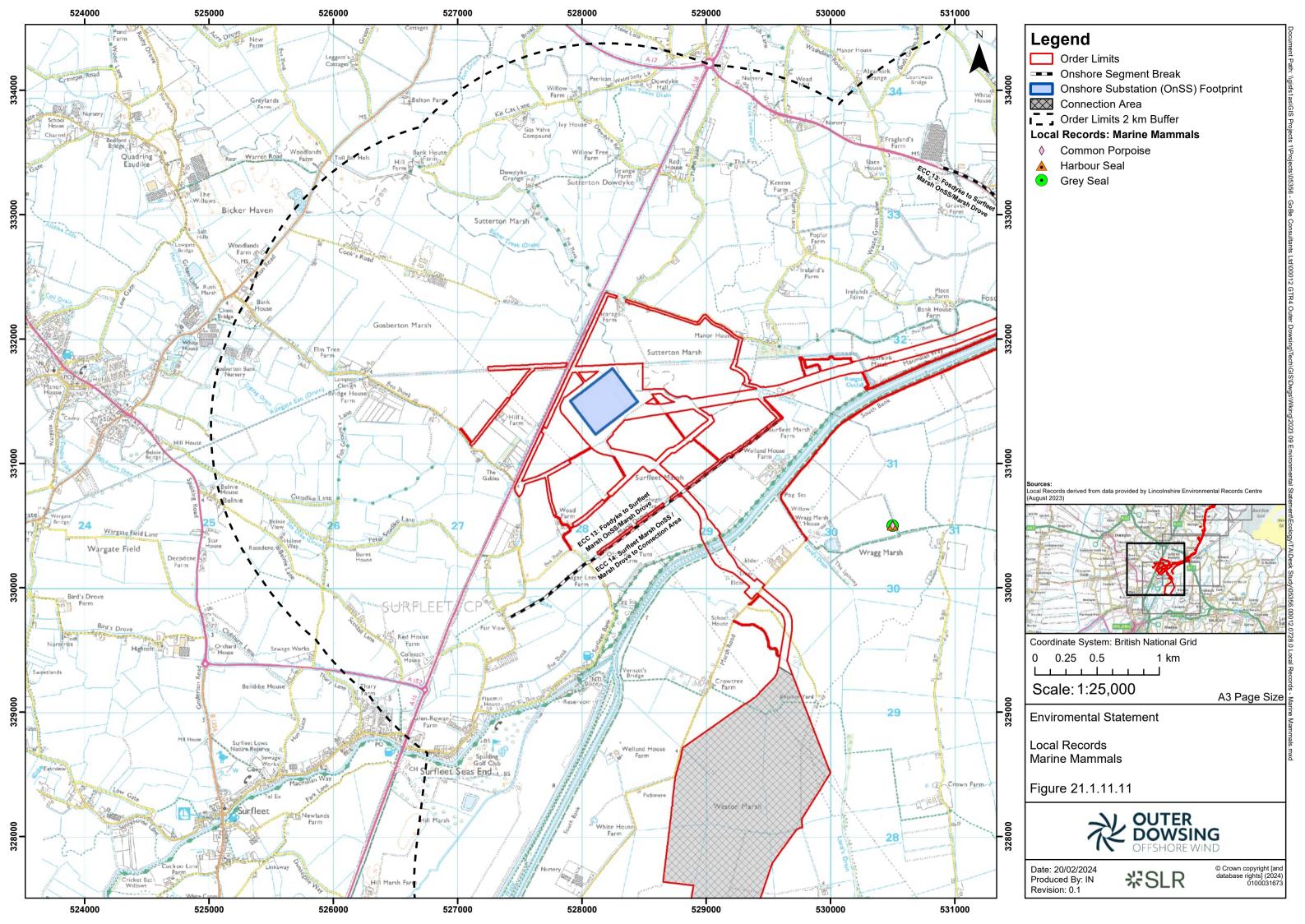


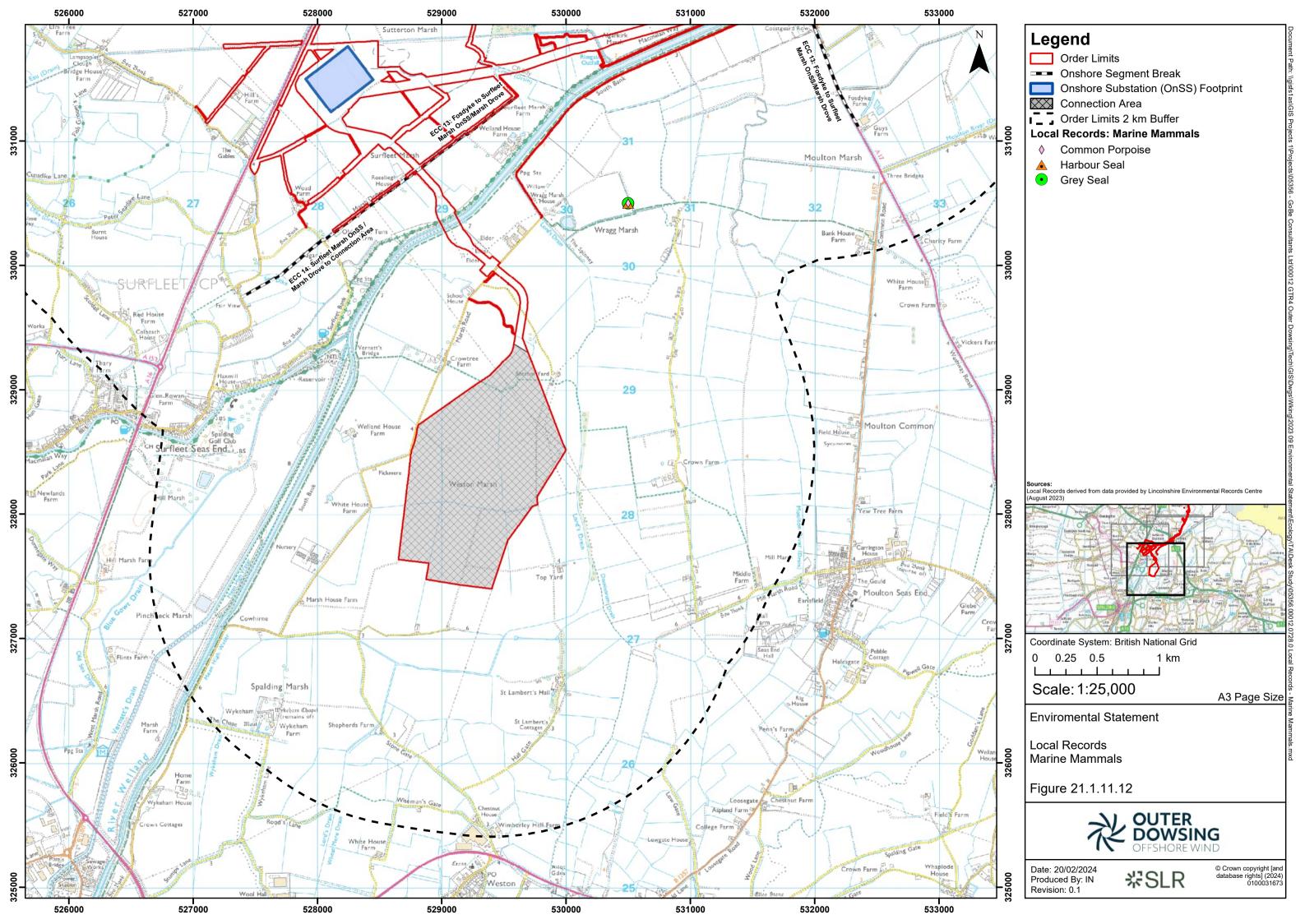


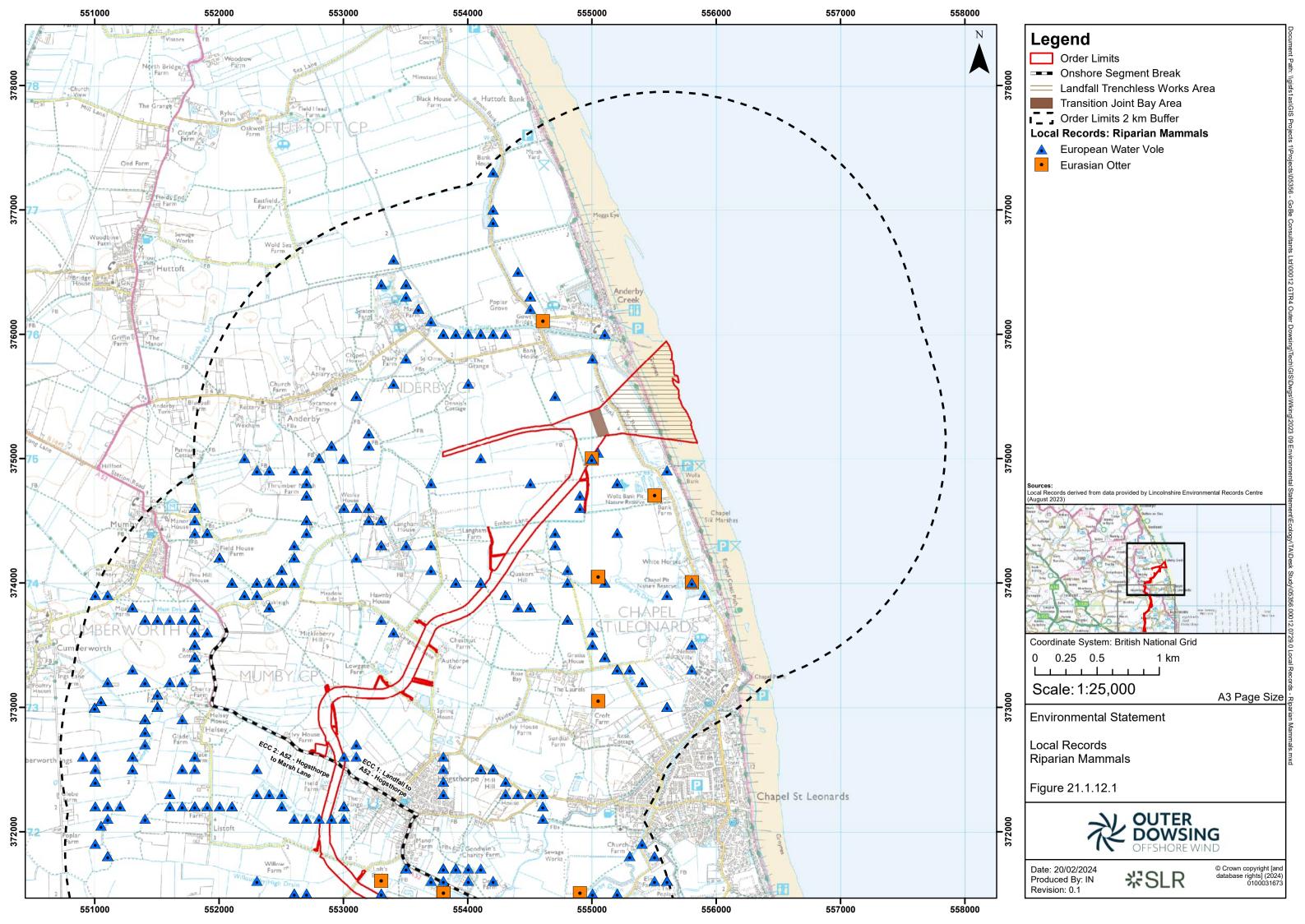


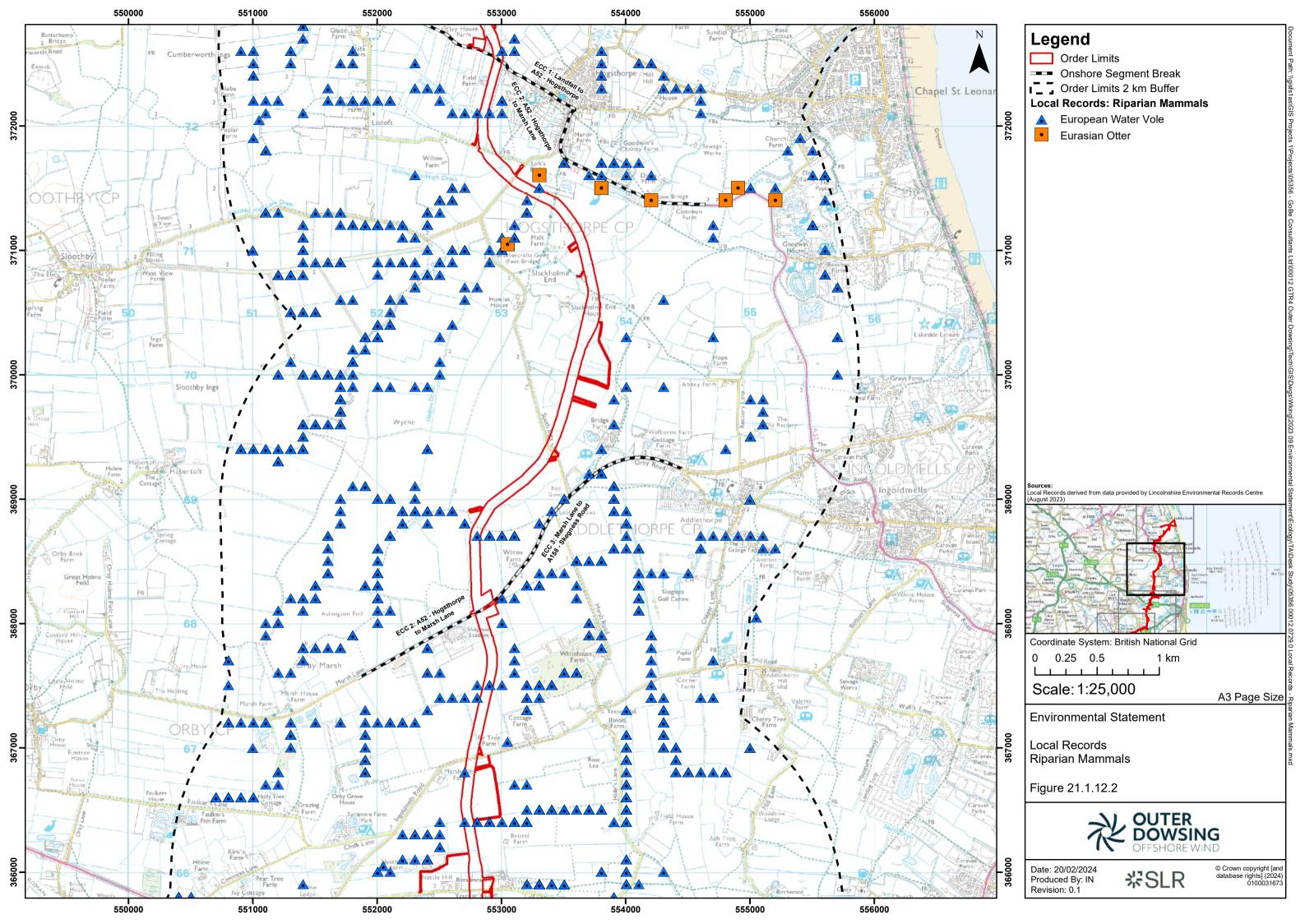


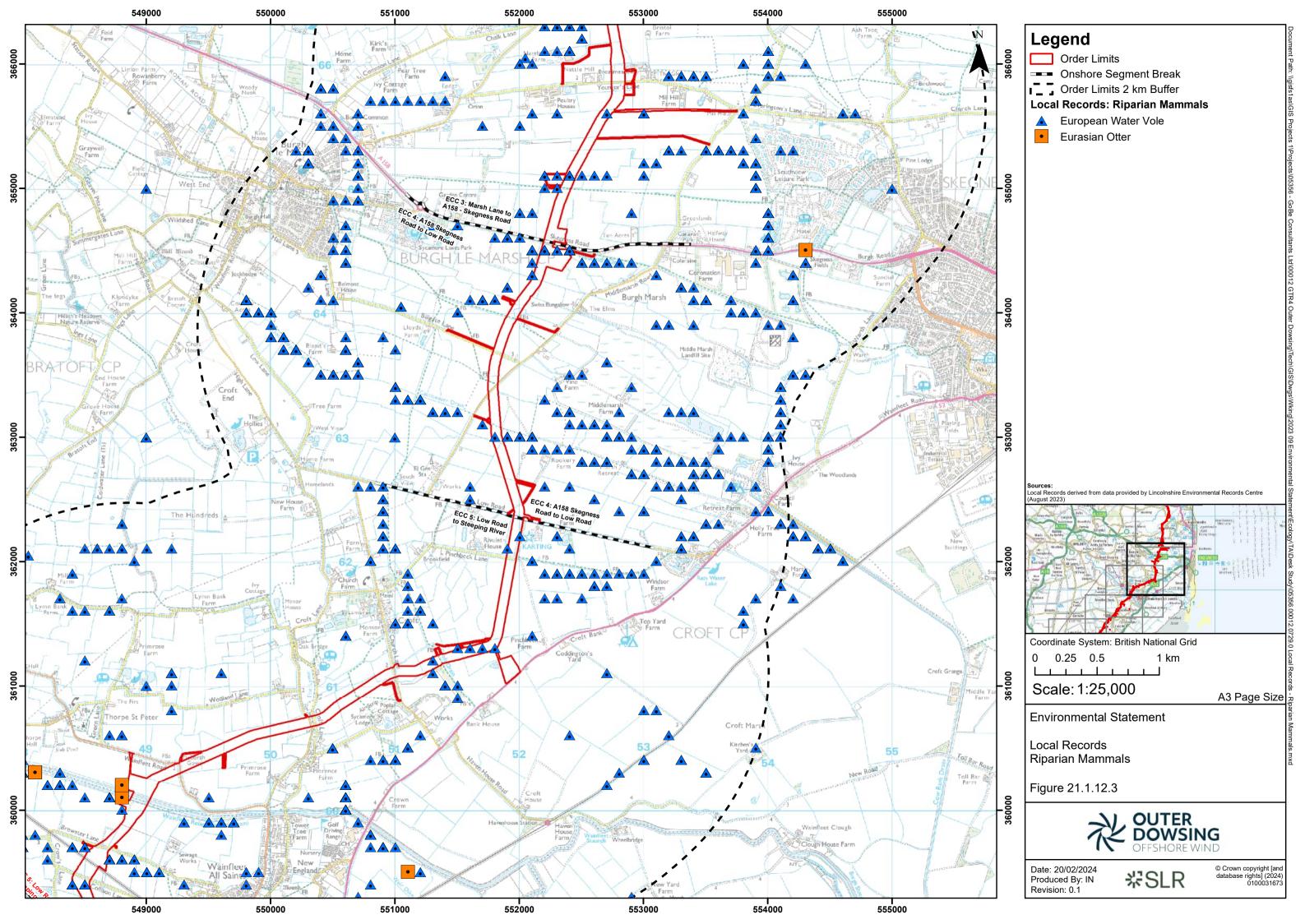


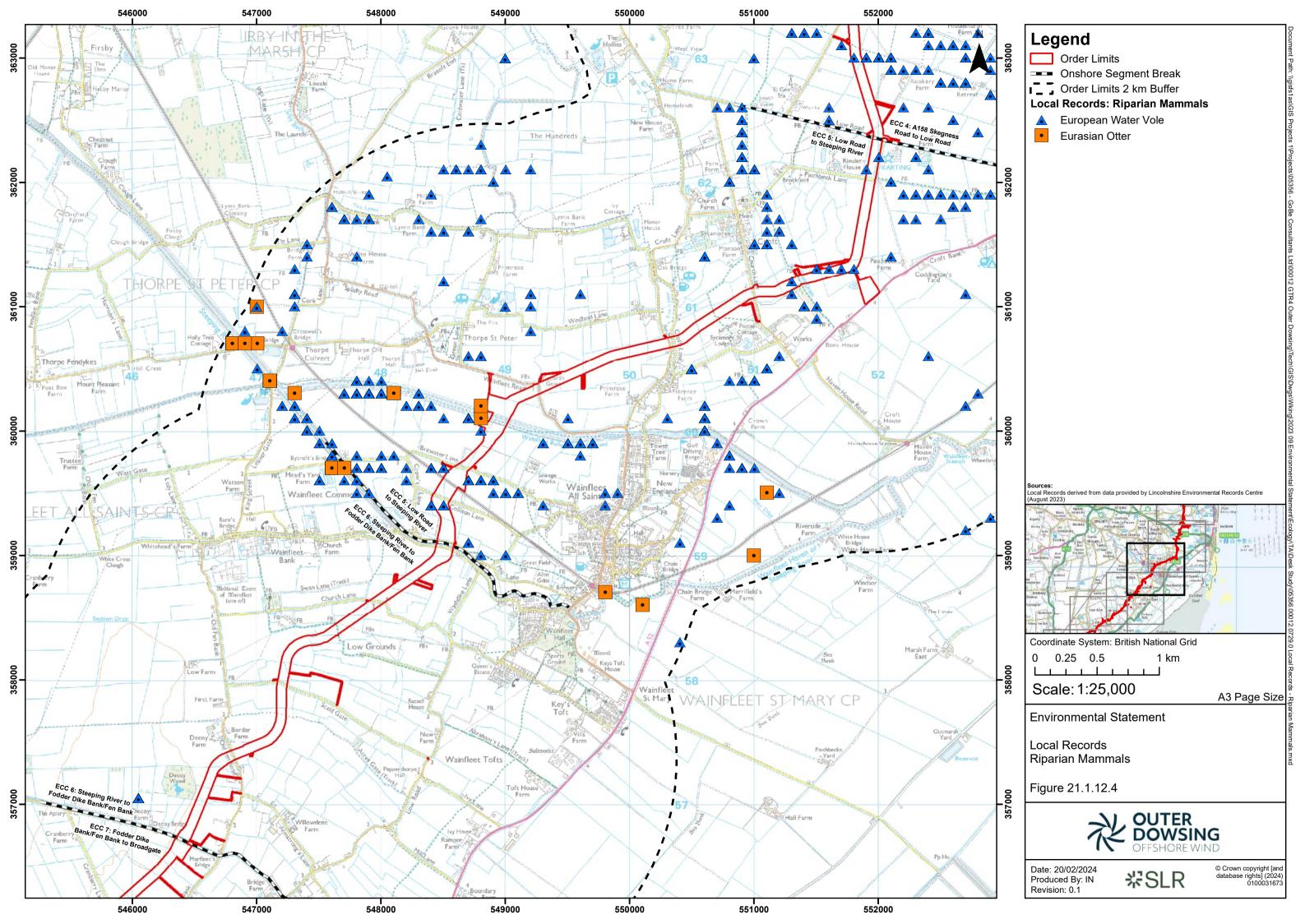


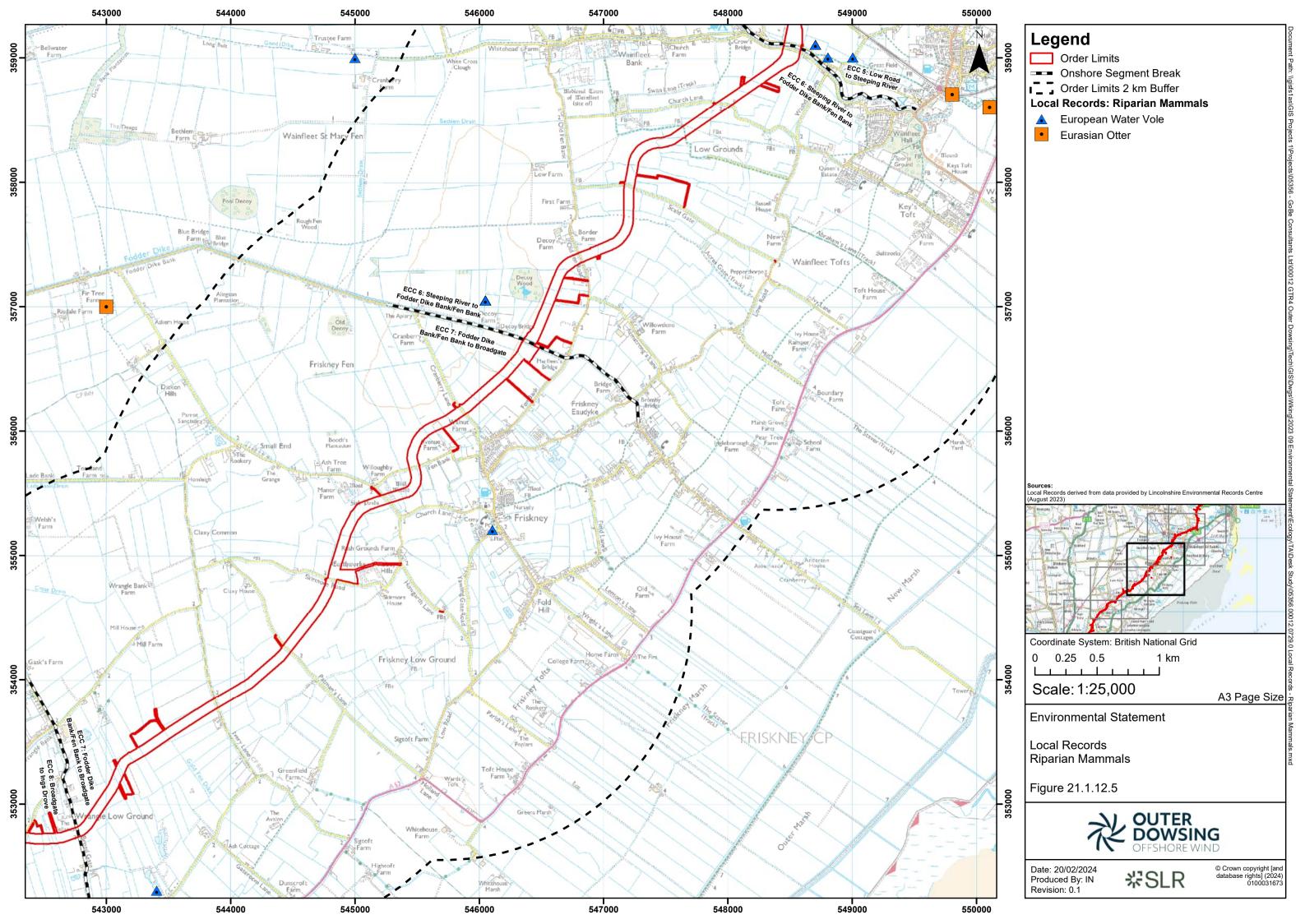


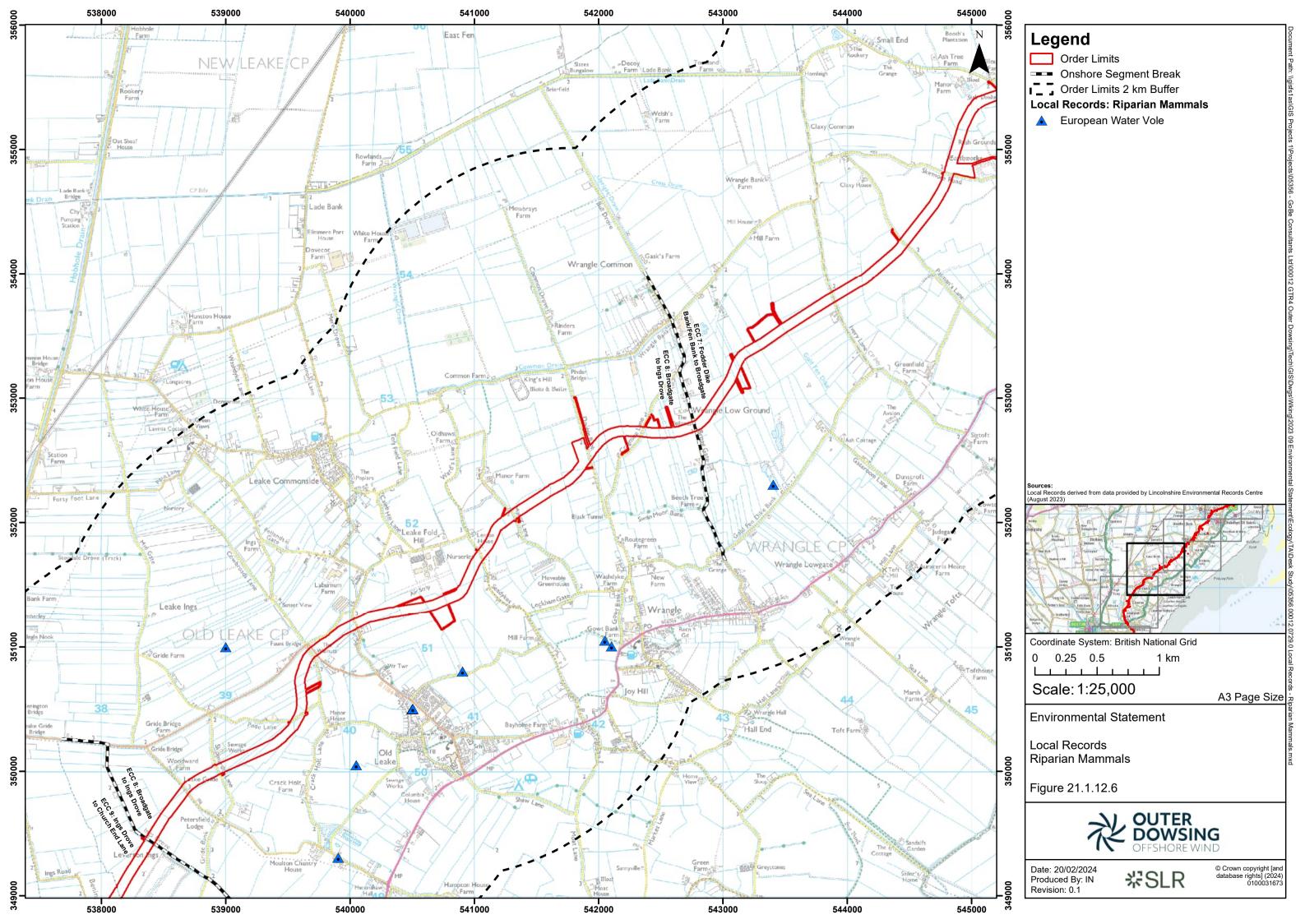


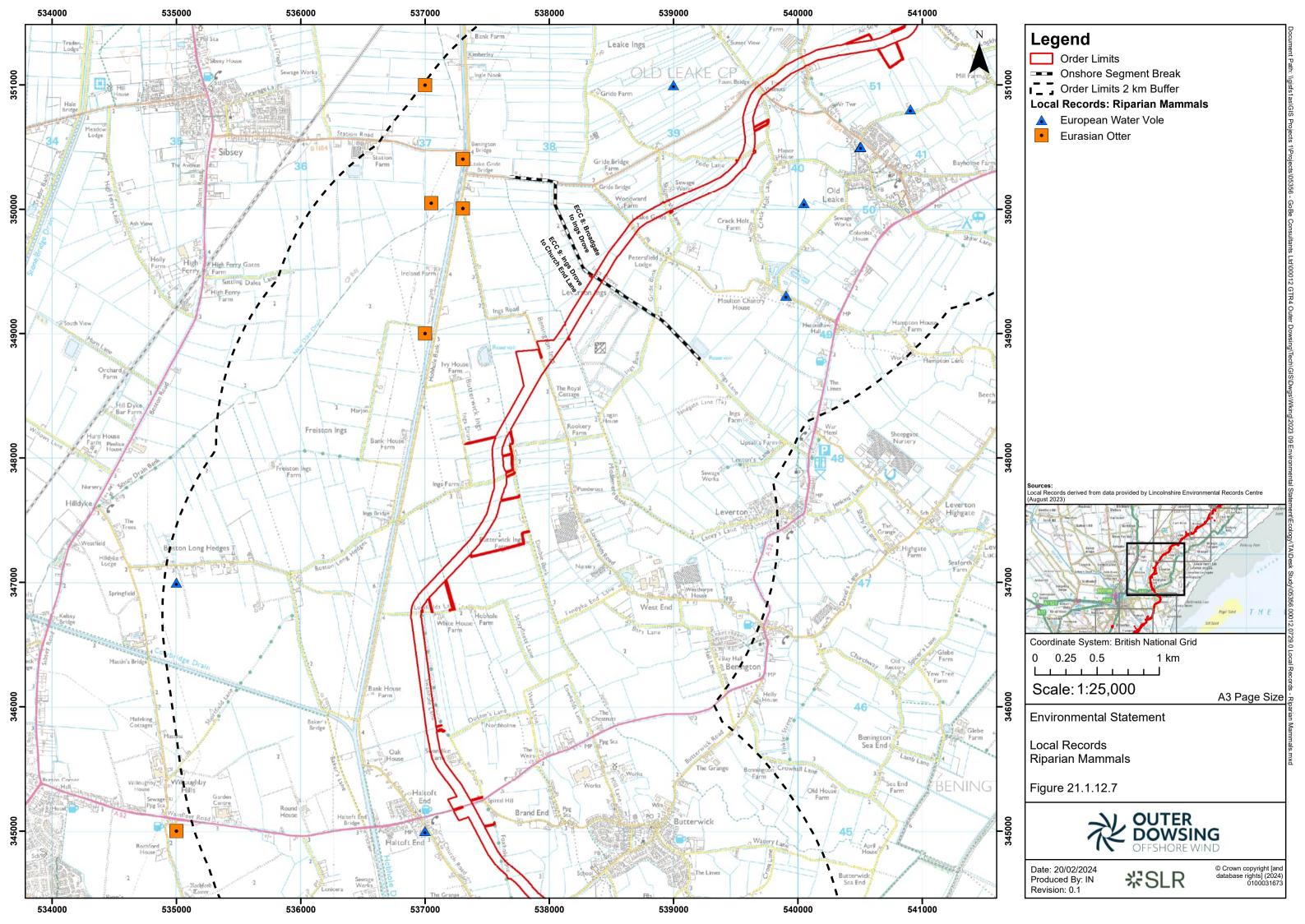


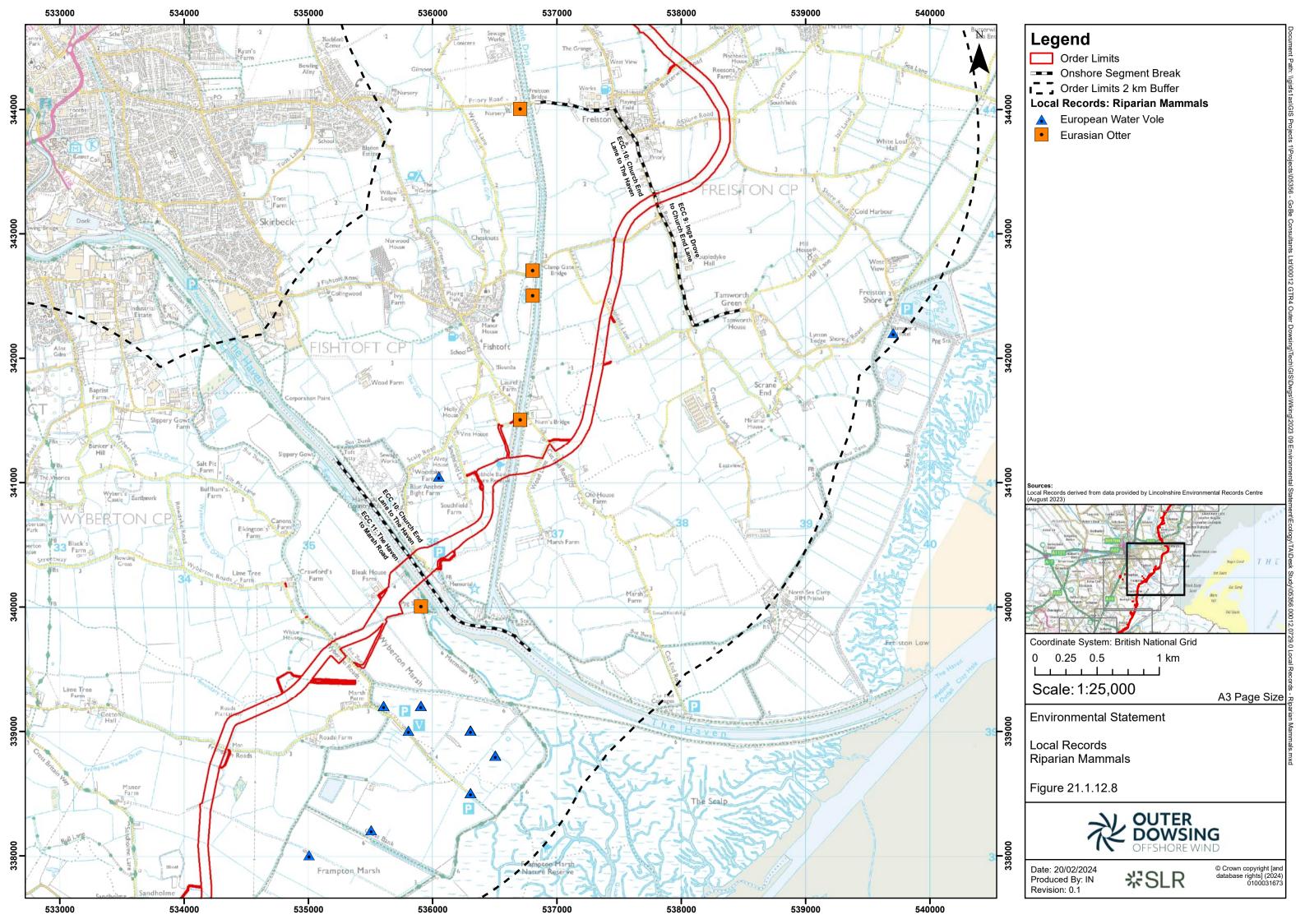


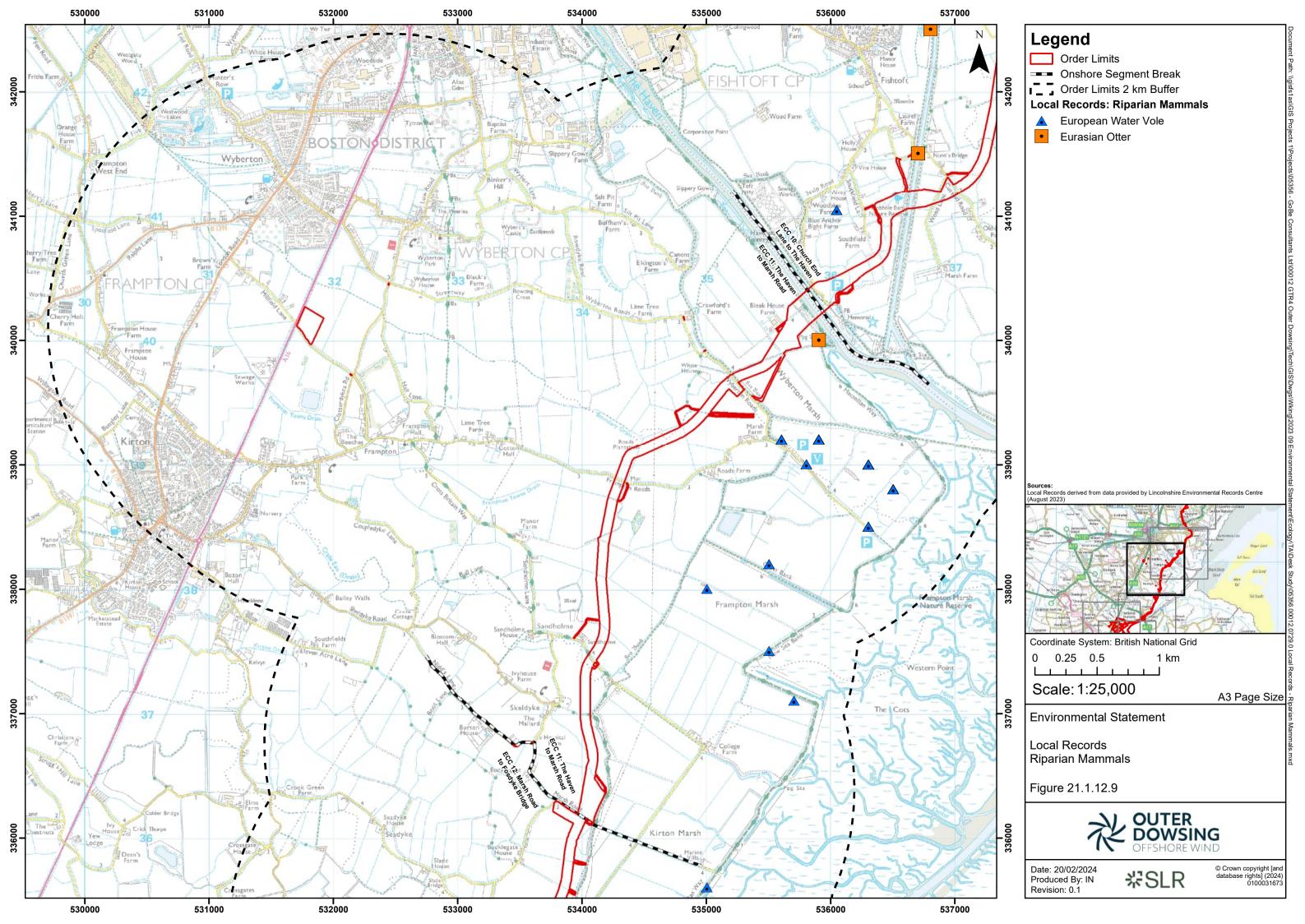


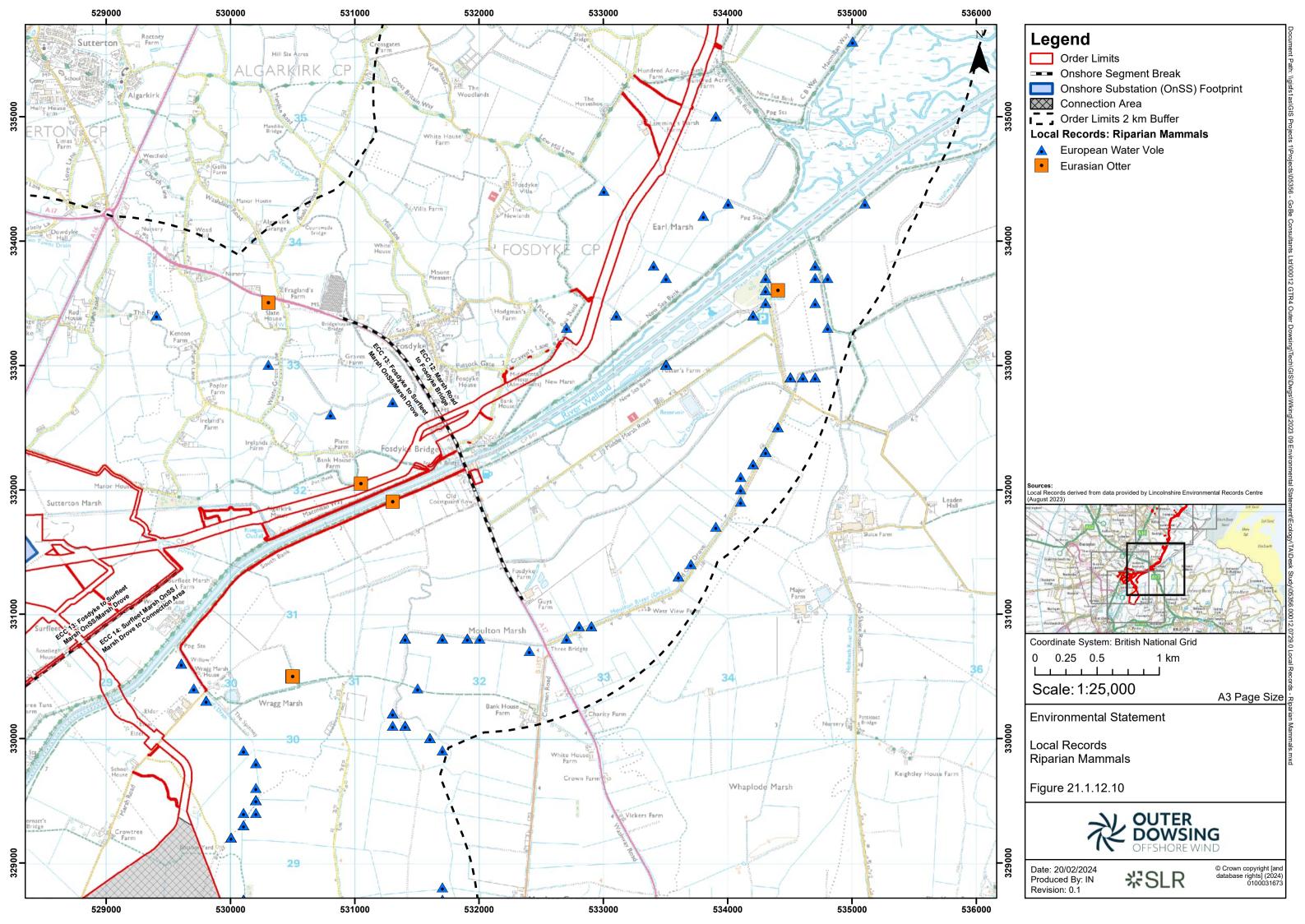


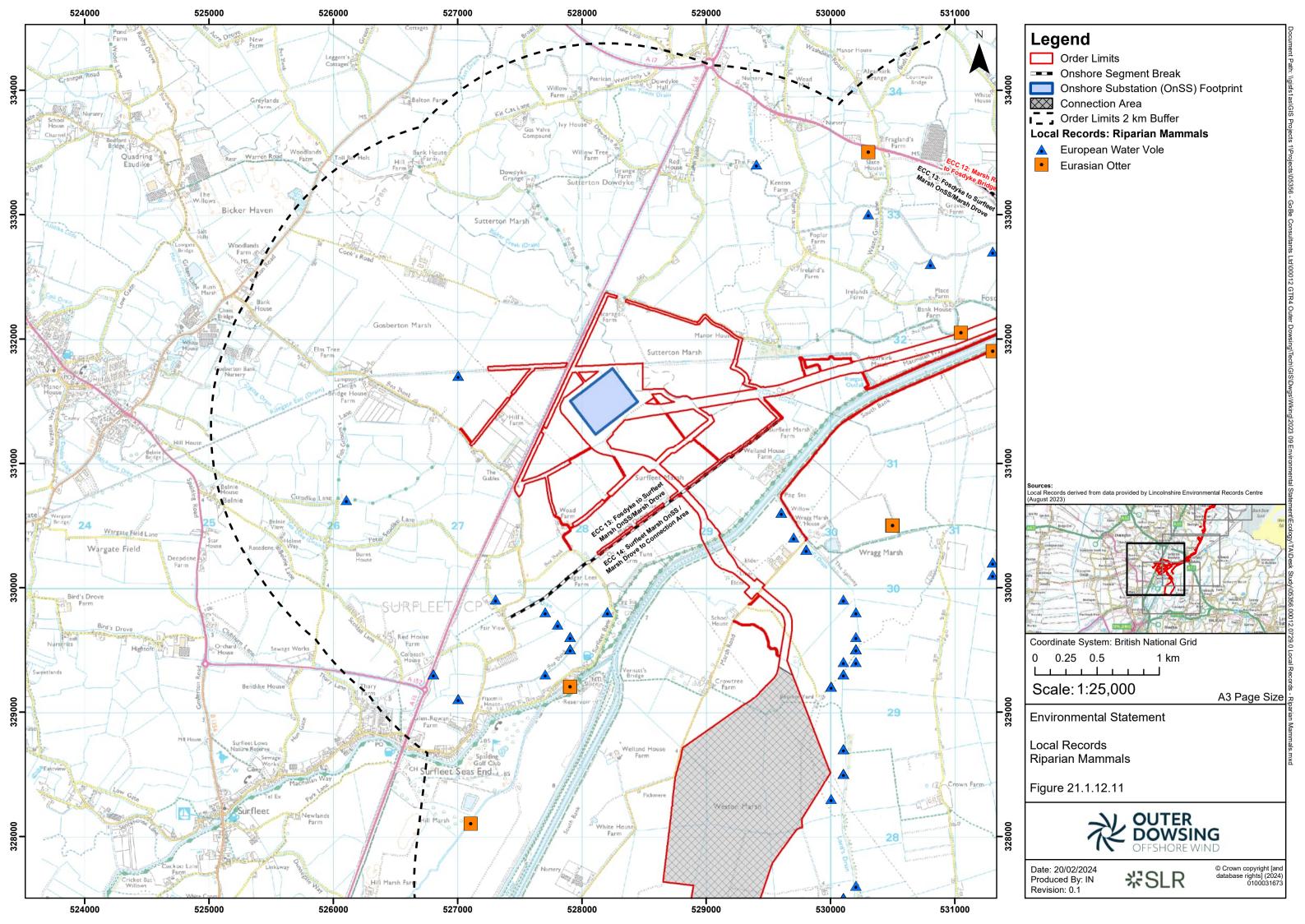


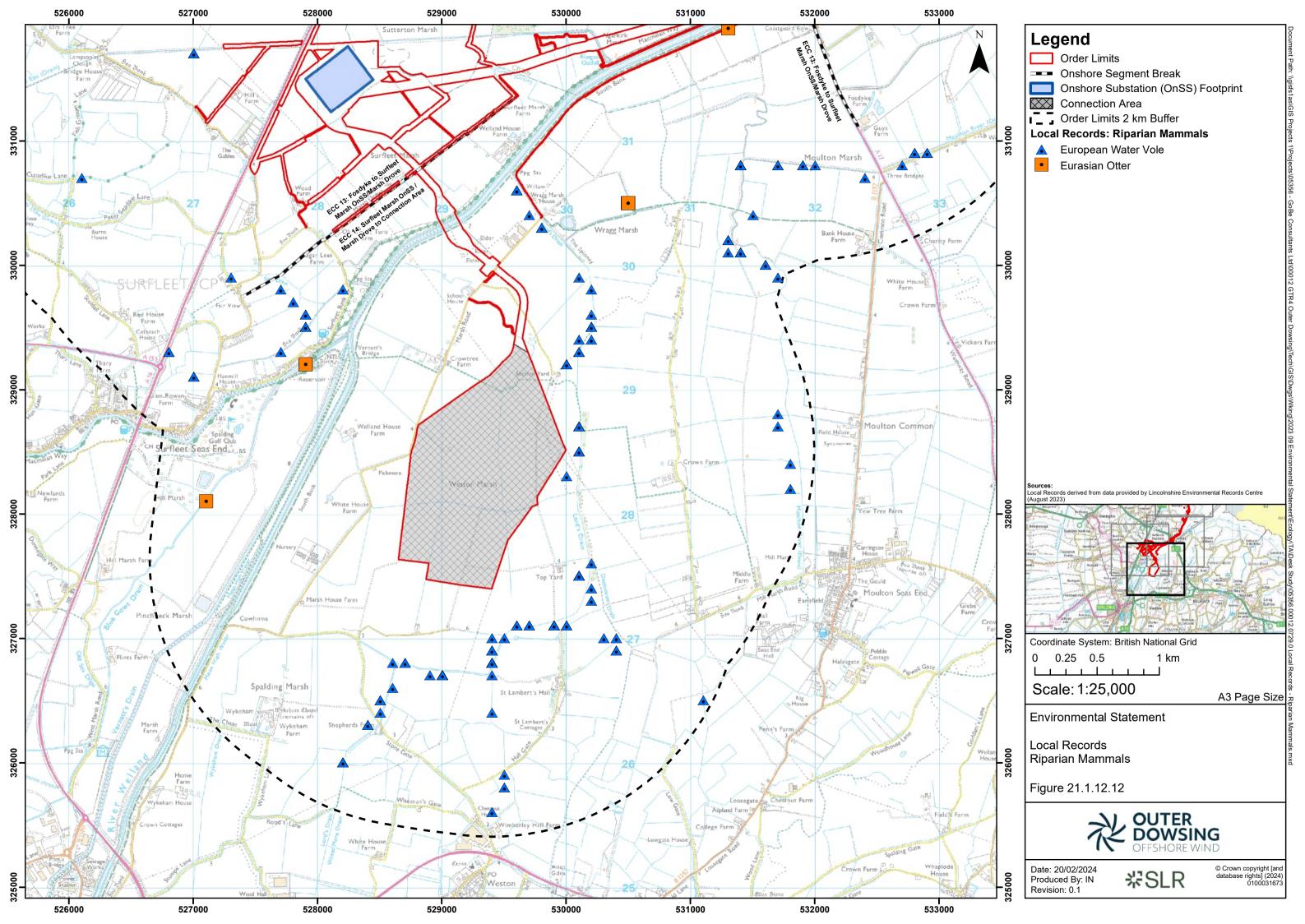












## **Annex A – Site of Special Scientific Interest Citations**

**Volume 3, Appendix 21.1: Onshore Ecology Desk Study** 

Outer Dowsing Offshore Wind Environmental Statement Environmental Statement

GoBe Consultants Ltd.

March 2024



## **Annex B - Local Wildlife Site Citations**

Volume 3, Appendix 21.1: Onshore Ecology Desk Study

Outer Dowsing Offshore Wind Environmental Statement Environmental Statement

GoBe Consultants Ltd.

March 2024



