

REPORT

North Falls Offshore Wind Farm - Extended Phase 1 Habitat Survey Addendum

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1 Introduction

1.1 Project background

The North Falls Offshore Wind Farm project (herein 'the project') is a proposed extension to the Greater Gabbard offshore wind farm, which is located off the east coast of England in the Southern North Sea and was opened in 2013. The project is being developed by North Falls Offshore Wind Farm Ltd. (NFOW), a joint venture between SSE Renewables and RWE.

The project is proposed in response to The Crown Estate's (TCE) extension leasing round, launched in 2017. NFOW was awarded an Agreement for Lease (AfL) from TCE in September 2020. NFOW have begun the process of baseline data collection to inform an EIA for the project in support of a Development Consent Order (DCO) application proposed to be submitted to the Planning Inspectorate in 2024.

To ensure that adequate baseline data was collected to inform the project's EIA, NFOW undertook a suite of ecological surveys in 2021. In the first instance, for these 2021 ecological surveys, NFOW targeted an area immediately landward of the coast between the settlements of Clacton-on-Sea and Frinton as the most likely area in which cable will be brought ashore and connected to a substation.

NFOW undertook an initial site selection exercise to identify potential onshore cable corridor options. These initial onshore cable corridor options were then used as the basis for identifying a footprint (the 'onshore project area') upon which baseline ecological survey data could be collected to inform the Project's DCO application. Royal HaskoningDHV was commissioned to undertake an Extended Phase 1 Habitat Survey within, and up to the 50 m buffer from, the onshore project area. This survey was undertaken and a report (PB9244-ZZ-ON-RP-EC-0085: North Falls Offshore Wind Farm - Extended Phase 1 Habitat Survey, referred to hereafter as the 'Main Report') detailing its findings was published in May 2022.

Since the May 2022 report, the onshore project area has undergone revision, and now includes parcels of land that were not surveyed or assessed in the Main Report. In August 2023, Royal HaskoningDHV undertook a follow up Extended Phase 1 Habitat Survey of these previously unsurveyed parcels. This report serves as an addendum to the Main Report and reports on the findings of the Extended Phase 1 Habitat Survey undertaken in August 2023. The revised onshore project area is shown in **Figure 1, Appendix A** and the area surveyed during the Phase 1 Habitat Survey undertaken in August 2023 is shown in **Figure 4, Appendix A**.

1.2 Purpose of this report

The purpose of this report is to:

- Present the results of the follow up Extended Phase 1 Habitat Survey undertaken in August 2023 of areas previously unsurveyed that are now part of the onshore project area;
- Provide an overall understanding of the existing ecological value of the environment within the onshore project area to characterise the baseline environment and inform the ecological impact assessment of the project's DCO application; and
- Inform the requirements and scope of Phase 2 species-specific surveys of the onshore project area.

In order to achieve this purpose, the Extended Phase 1 Habitat Survey consists of three components, which collectively enable a preliminary understanding of the ecological value of the habitats within and up to 50 m from the onshore project area (hereafter the 'survey area'). These components include:

- A desk-based review that summarises information on existing protected species records and statutory and non-statutory nature conservation designations.
- A field survey, involving:
 - The recording of all habitats within the survey area.
 - An assessment of the likelihood of the survey area to support legally protected species or species of conservation concern.

This report has been prepared in accordance with the guidelines set out in the Chartered Institute of Ecology and Environmental Management (CIEEM) Guidelines on Ecological Report Writing (CIEEM, 2017).

2 Legislation and Policy

For relevant information regarding the legal protection afforded to the habitats and species mentioned in this report, please refer to **Section 2** of the Main Report, where this information is detailed.

3 Methodology

To ensure consistency, the same methodology was followed for the May 2022 and August 2023 field surveys and desk-based reviews. The full methodology is presented in **Section 3** of the Main Report.

3.1 Field survey area

Post May 2022, the onshore cable route was revised and now included new parcels of land. These parcels were identified as requiring Extended Phase 1 Habitat Surveys, and the survey area comprises these newly identified parcels of land, shown in **Figures 4a to 4k** of **Appendix A**.

The 2023 Extended Phase 1 Habitat Surveys covered approximately 9.7% of the total onshore project area (as defined the time of writing), covering approximately 85 ha. Habitats within the onshore project area plus an additional 50 m buffer were surveyed. A buffer of 250 m was used when searching for potential breeding ponds for great crested newts.

3.2 Field survey methodology

The Extended Phase 1 Habitat Survey was undertaken over the 16th – 17th August 2023. The purpose of the Extended Phase 1 Habitat Survey was to record the habitats within the survey area and to assess the suitability of the habitats present for supporting legally protected and notable species. These surveys are useful to provide an overall understanding of the existing ecological value of the environment within the onshore project area. For selected species (e.g., badgers), evidence of presence / likely absence was also recorded.

The Extended Phase 1 Habitat Survey was undertaken in accordance with the methodology set out in the Guidelines for Preliminary Ecological Appraisal (Chartered Institute of Ecology and Environmental Management, 2017). This survey method provides information on the habitats within the survey area and assesses the likelihood of protected species to be present within, or adjacent to, the survey area. Habitats have been recorded within the survey area using the system set out within the Joint Nature Conservation

Committee (JNCC) '*Handbook for Phase 1 habitat survey: A technique for environmental audit*' (JNCC, 2010).

All of the habitats within the survey area, that were accessible at the time of the survey, have been mapped and Target Notes (TN) have been used to provide details of characteristic habitats, species composition and to highlight any features of ecological interest. All TN descriptions, with photographs where available, are presented in **Appendix B – Target Notes**. In addition, areas where landowner access had not been granted at the time of the survey have been digitised using aerial imagery and will be ground-truthed during a further survey effort once landowner access has been agreed.

Habitat data obtained from the field survey were collected in a manner that ensures it can be used to inform a Biodiversity Net Gain assessment, i.e., the data collected has been collected so as to be compatible with the Defra Biodiversity Metric 4.0 (Natural England, 2023)¹ and Biodiversity Net Gain: Good practice principles for development (CIEEM, IEMA and CIRIA, 2016). To this end, all habitats have been subject to a habitat condition assessment using UK Habitat Classification System Version 1.1 (Butcher *et al.*, 2020) during the field survey. In order for the correct conditions assessment to be used, the field surveyors first converted each JNCC habitat to the corresponding UK Habitat Classification using the UK Habitat Classification System conversion tool (Butcher *et al.*, 2020). The habitat conditions assessments and UK Habitats Classification System habitats data have been used to inform a biodiversity net gain baseline, as presented in **Appendix E - Biodiversity Net Gain Baseline Report**.

An assessment of hedgerows within the survey area was also undertaken following the methodology outlined in the Hedgerow Survey Handbook (Defra, 2007) which is in line with The Hedgerow Regulations 1997. All hedgerows were recorded in line with the JNCC habitat classifications (JNCC, 2010). The full hedgerow results are presented in **Appendix C – Hedgerow Results**.

During the survey, field signs of protected species such as birds (nesting habitats), bats (roosting, foraging, commuting opportunities), badgers (setts, snuffle holes, latrines, paw prints, hairs), water voles (latrines, burrows, feeding signs), otter (paw prints, spraints, paths, slides), hazel dormouse (discarded shells, suitable hedgerows, tree holes), and suitable areas for reptiles (either basking or hibernacula) were searched for. The results of any observations can be found in **Section 4.2.2**.

All features deemed suitable for roosting bats (e.g., trees and structures) recorded within the survey area were assessed from the ground level, using binoculars where necessary, to identify cracks, crevices, splits, herein referred to as Potential Roost Features (PRFs). The presence of PRFs, or lack of, allows each feature to be categorised for their suitability to support roosting bats, in accordance with the BCT guidelines (BCT, 2016).

To undertake a HSI for GCN, a numerical score is derived from the ten suitability indices described in the Amphibian and Reptile Groups (ARG) of the United Kingdom Advice Note 5 (Oldham *et al.*, 2000), which broadly considers habitat attributes (i.e., pond size, water quality, presence of fish or fowl etc.), that are considered to influence the suitability of a waterbody for breeding great crested newts. The approximate indication of habitat suitability is seen in **Table 3-1**.

HSI score	Pond suitability
< 0.5	Poor

¹ At the time of the survey, the Defra Biodiversity Metric 4.0 is the most up-to-date

HSI score	Pond suitability
0.5 – 0.59	Below average
0.6 – 0.69	Average
0.7 – 0.79	Good
> 0.8	Excellent

Table 3-1 – ARG UK great crested newt HSI score categorisation

3.3 Surveyors

The Extended Phase 1 Habitat surveys carried out in August 2023 were conducted by a team of two Royal HaskoningDHV ecologists. The survey was led by Kitty Taylor, BSc (Hons), who has 5 years of Extended Phase 1 Habitat surveying experience, and Jessie Balkman, BSc (Hons), who holds a degree in Ecology and has recently applied for qualifying CIEEM member, with around 1 year's field work experience.

The lead surveyor of the surveys undertaken to inform this report was Kitty Taylor, BSc (Hons). Technical guidance was provided by Gordon Campbell, MSc, BSc (Hons) who is an Associate of CIEEM and a Full Member of IEMA with 11 years of experience.

3.4 Survey timing and weather conditions

Table 3-2 summarises the weather conditions encountered during the Extended Phase 1 Habitat Survey. The survey was carried out within the ideal survey season (spring and summer) and at a suitable time of year to identify key identifier species to aid habitat classification. The weather conditions during the survey were favourable.

Table 3-2 – Weather conditions during the Extended Phase 1 Habitat Survey

Survey Date	Weather conditions
16 th August 2023	Dry, sun, and moderate breeze. Approximately 23° Celsius.
17 th August 2023	Dry, sun, and moderate breeze. Approximately 20° Celsius.

3.5 Survey limitations

Some small parts of the survey area could not be fully accessed due to the presence of physical barriers, such as (but not limited to) dense scrub, which prevented safe entry for the surveyors. Target notes highlighting these locations were taken. In the absence of field survey data, the habitats present within the unsurveyed areas have been assumed using aerial imagery.

The survey was undertaken in August during a period considered to be within the optimal surveying window for identifying ground flora species and habitat types.

The survey team made the utmost effort to thoroughly cover the whole of the survey area and pick up all field signs present but it is possible that some field signs may have been missed. However, sufficient evidence of key indicator species was found during the survey enabling the successful identification of habitat types present within the survey area. Additionally, the majority of habitats recorded are consistent of those typical of agricultural landscapes that support readily identifiable species. Therefore, it is considered that the survey (and its findings) is robust in being used to characterise the existing site conditions and in turn be used to inform and support the Project's ecological impact assessment.

4 Results

4.1 Desk study results

4.1.1 Designated sites

The following designated sites are located within a 2 km buffer of the onshore project area:

- Statutory designated sites:
 - Hamford Water (Site of Special Scientific Interest (SSSI), Special Protection Area (SPA), Special Area of Conservation (SAC), Ramsar and National Nature Reserve (NNR);
 - Stour and Orwell Estuaries SPA and Ramsar;
 - Stour Estuary SSSI;
 - Holland Haven Marshes SSSI;
 - Holland On-Sea Cliff SSSI;
 - Holland Haven Local Nature Reserve (LNR); and
 - Pickers Ditch Meadow LNR.
- Non-statutory designated sites:
 - Great Holland Pits Local Wildlife Site (LWS).

The location of these designated sites is shown in **Figure 2** in **Appendix A** and **Table 4-1** summarises the qualifying features/reasons for their notification. Note that Holland On-Sea Cliff is a geological SSSI and is therefore not considered further within this report as it is considered that no direct impacts will occur to this SSSI as a result of the development. Additionally, ecological SSSIs only are considered as part of this report.

Table 4-1 – Designated sites for nature conservation of relevance to the onshore project area

Site Name	Designation	Distance from onshore project area	Qualifying features/reasons for notification
Holland Haven Marshes	SSSI	Within onshore project area	An area of reclaimed estuarine saltmarsh and freshwater marsh situated between Holland-on-Sea and Frinton-on-Sea. The site is bisected by Holland Brook and its tributaries, from which an extensive ditch system radiates. The ditch network represents an outstanding example of a freshwater to brackish water transition intimated by the aquatic plant communities, which include a number of nationally and locally scarce species. The adjoining grasslands are of botanical importance in their own right as well as acting as a buffer zone to the ditch system. Further interest is provided by the aquatic and terrestrial invertebrates and the birds which frequent the area, especially in winter.
Holland Haven	LNR	Within onshore project area	This site comprises mown amenity grassland, hawthorn scrub, rough grassland, wet grazing marsh, scrape area and ponds. This site is known to support invertebrates such as the ruddy darter dragonfly <i>Sympetrum sanguineum</i> , larger carder bee <i>Bombus muscorum</i> , Roesel's bush cricket <i>Metrioptera roeselii</i> . Plants include birds foot trefoil <i>Lotus corniculatus</i> , birds foot fenugreek <i>Trigonella foenum-graecum</i> and soft hornwort <i>Ceratophyllum submersum</i> . A large number of bird species have also been recorded on site including purple sandpiper <i>Calidris maritima</i> , avocet <i>Recurvirostra avosetta</i> and short eared owl <i>Asio flammeus</i> .

Site Name	Designation	Distance from onshore project area	Qualifying features/reasons for notification
Hamford Water	SPA	50 m	Qualifies under Article 4.1 of the EU Birds Directive by supporting: <i>During the breeding season:</i> <i>Sterna albifrons</i> – breeding (Eastern Atlantic) - 2.3% of the UK breeding population. <i>Over winter:</i> <i>Recurvirostra avosetta</i> – breeding (Western Europe/Western Mediterranean) - 25% of the UK population. Qualifies under Article 4.2 of the EU Birds Directive by supporting over winter: <i>Anas crecca</i> (North-western Europe) - 2.7% of the population in UK 5 year peak mean 1991/92-1995/96; <i>Branta bernicla bernicla</i> (Western Siberia/Western Europe) - 2.3% of the population 5 year peak mean 1991/92-1995/96; <i>Charadrius hiaticula</i> (Europe/Northern Africa - wintering) - 1.1% of the population 5 year peak mean 1991/92-1995/96; <i>Limosa limosa islandica</i> (Iceland - breeding) - 1.7% of the population 5 year peak mean 1991/92-1995/96; <i>Pluvialis squatarola</i> (Eastern Atlantic - wintering) - 7.5% of the population in UK 5 year peak mean 1991/92-1995/96; <i>Tadorna tadorna</i> (North-western Europe) - 2.2% of the population in UK 5 year peak mean 1991/92-1995/96; and <i>Tringa totanus</i> (Eastern Atlantic - wintering) - 0.8% of the population 5 year peak mean 1991/92-1995/96.
	Ramsar	50 m	Qualifies under Criterion 6 (A wetland should be considered internationally important if it regularly supports 1% of the individuals in a population of one species or subspecies of waterbird): <i>Species with peak counts in spring/autumn:</i> Ringed plover, <i>Charadrius hiaticula</i> (Europe/Northwest Africa) Common redshank, <i>Tringa totanus totanus</i> <i>Species with peak counts in winter:</i> Dark-bellied brent goose, <i>Branta bernicla bernicla</i>, Black-tailed godwit, <i>Limosa limosa islandica</i> (Iceland/W Europe) Grey plover, <i>Pluvialis squatarola</i> (E Atlantic/W Africa -wintering)²
	SAC	50 m	Annex II species that are a primary reason for selection of the site: 4035 Fisher's estuarine moth <i>Gortyna borelii lunata</i>
	NNR	50 m	Unlike many of the other Essex NNRs, Hamford Water is not an estuary as it does not have a major river running into it. Instead it is classified as a coastal embayment that has been formed due to a natural dip in the underlying geology of the area. The bird life that this variety of habitats attracts is outstanding, especially the waders and waterfowl that can be seen in winter. Main habitats: salt marsh, intertidal mud flats, coastal, grazing marsh, sands, shingle, small freshwater ponds and ditches

² Species/populations identified subsequent to designation for possible future consideration under criterion 6.

Site Name	Designation	Distance from onshore project area	Qualifying features/reasons for notification
	SSSI	50 m	Hamford Water is a tidal inlet whose mouth is about three miles south of Harwich. It is a large and shallow estuarine basin comprising tidal creeks, intertidal mud and sand flats, saltmarshes, islands, beaches and marsh grasslands. The site is of international importance for breeding Little Terns and wintering Dark-bellied Brent Geese, wildfowl and waders, and of national importance for many other bird species. It also supports communities of coastal plants which are rare or extremely local in Britain, including Hog's Fennel <i>Peucedanum officinale</i> which is found elsewhere only in Kent.
Holland on Sea Cliff	SSSI	300 m	Geological SSSI.
Pickers Ditch Meadow	LNR	500 m	Meadow surrounding Pickers Ditch tributary, representing a valuable green space in the Great Clacton area. Hedge planting along the border helps screen the site, whilst tree planting in the adjacent area provides a copse area surrounding the existing footpath.
Great Holland Pits	LWS	Within onshore project area	Old gravel pit that now supports many flowering plants, open grassland and pasture with remnants of old woodland with ponds and wet depressions.
Stour Estuary	SSSI	1.75 km	Nationally important site for 13 species of wintering waterfowl and three species on autumn passage including grey plover, knot <i>Calidris canutus islandica</i>, black-tailed godwit, great crested grebe <i>Podiceps cristatus</i>, cormorant <i>Phalacrocorax carbo</i>, mute swan <i>Cygnus olor</i>, dark-bellied brent goose, shelduck <i>Tadorna tadorna</i>, pintail <i>Anas acuta</i>, curlew <i>Numenius arquata</i>, ringed plover, redshank and dunlin <i>Calidris alpina alpina</i>. The final three are those which are on autumn passage. The saltmarshes of the Stour Estuary form an integral part of the estuarine system and are an essential feeding and roosting habitat. It is also home to scarce marine invertebrates – the starlet sea anemone <i>Nematostella vectensis</i> and tentacled lagoon worm <i>Alkmaria romijni</i> – and a scarce vascular plant assemblage.
Stour and Orwell Estuaries	SPA	1.75 km	Qualifies under Article 4.1 of the EU Birds Directive as the site is used regularly by 1% or more of the Great Britain populations of the following Annex 1 species in any season: Avocet – 3.6% of GB breeding population - 5 year peak mean 1996-2000. Qualifies under Article 4.2 of the EU Birds Directive as it is regularly used by 1% or more of the biogeographical populations of the following regularly occurring migratory species (other than those listed in Annex 1) in any season: Redshank – 2.0% of GB population during autumn passage for five year peak mean 1995/96 – 1999/2000; Dark-bellied brent goose – 1.2% Western Siberia (breeding) 5 year peak mean 1995/96 – 1999/2000; Pintail – 1.2% Northwestern Europe (non-breeding) 5 year peak mean 1995/96 – 1999/2000;

Site Name	Designation	Distance from onshore project area	Qualifying features/reasons for notification
			Grey plover – 1.3% Eastern Atlantic (non-breeding) 5 year peak mean 1995/96 – 1999/2000; Knot – 1.3% <i>islandica</i> 5 year peak mean 1995/96- 1999/2000; Dunlin – 1.4% <i>alpina</i> Western Europe (non-breeding) 5 year peak mean 1995/95 – 1999/2000; Black-tailed godwit – 7.3% <i>islandica</i> 5 year peak mean 1995/96 – 1999/2000; and Redshank – 2.8% <i>britannica</i> 5 year peak mean 1995/96 – 1999/2000.
	Ramsar	1.75 km	The estuary is a wetland of international importance, comprising extensive mudflats, low cliffs, saltmarsh and small areas of vegetated shingle on the lower reaches. It provides wintering habitats for important assemblages of wetland birds and supports internationally and nationally important numbers of wintering wildfowl and waders. Qualified under Criteria 2, 5 and 6 Ramsar Criterion 2 (Contains nationally scarce plants and British Red Data Book invertebrates): <i>Vascular plants considered vulnerable and endangered:</i> <i>Zostera noltei</i> <i>Spartina maritima.</i> Ramsar Criterion 5 (Assemblages of international importance): <i>Species with peak counts in winter:</i> 51,285 waterfowl (5 year peak mean 1998/99-2002/2003) Ramsar criterion 6 (species / populations occurring at levels of international importance. <i>Species with peak counts in winter:</i> Black-tailed godwit (Iceland/W Europe) Common redshank Dark-bellied brent goose Dunlin (W Siberia/W Europe) Grey plover (E Atlantic/W Africa – wintering)

4.1.2 UK Habitats of Principal Importance

The following UK Habitats of Principal Importance are present within the survey area and are shown on **Figure 3, Appendix A:**

- Deciduous woodland; and
- Lowland heath

4.1.3 Protected species

This section summarises the records of all legally protected and notable species which have been obtained from the biological records search provided by the Essex Wildlife Trust and the Essex Field Club. Details of those species which are also Essex BAP species are also provided (whether or not they have been recorded locally).

4.1.3.1 Birds

The Essex Field Club hold records of 240 notable or protected bird species within 5 km of the onshore project area, of which 41 are listed under Schedule 1 of the Wildlife and Countryside Act 1981 (as amended). Two of the bird records are dated from 1985 with the remaining records are within the last 10 years (i.e., from 2011).

The following species are subject to the Essex Species BAP:

- Sky lark *Alauda arvensis*,
- Bittern *Botaurus stellaris*,
- Grey partridge *Perdix perdix*,
- Stone curlew *Burhinus oedichnemus*, and
- Song thrush *Turdus philomelos*.

4.1.3.2 Badgers

Badgers have been recorded at 159 locations by the Essex Field Club within 2 km of the onshore project area. There have been 162 different recordings throughout these locations and 57 of these coming within the last 10 years (since 2011). These sites include the A120 ease of Horsley roundabout, Holland Road, and Lawford Green.

4.1.3.3 Bats

The Essex Field Club hold records of 15 species of bat within 5 km of the onshore project area. Namely the western barbastelle *Barbastella barbastellus*, serotine *Eptesicus serotinus*, natterer's bat *Myotis nattereri*, lesser noctule *Nyctalus leisleri*, Nathusius's pipistrelle *Pipistrellus nathusii*, common pipistrelle *Pipistrellus pipistrellus*, soprano pipistrelle *Pipistrellus pygmaeus* and brown long-eared bat *Plecotus auritus*.

The following species are subject to the Essex Species BAP:

- Common pipistrelle *Pipistrellus pipistrellus*.

4.1.3.4 Water Vole

The Essex Field Club holds 57 records for water vole within 2 km of the survey area. Of the 57 records, three are within the last 10 years. These three records were shown within the Harwich Gateway retail park, the Dovercourt Dock river and the River Colne, which are all outside of the onshore project area.

Consultation with Natural England through the project's Evidence Plan Process (Andrew Hartley, pers. comm., 13 January 2022) indicated that Holland Haven Marshes has historically supported populations of water voles.

Water voles are subject to the Essex Species BAP.

4.1.3.5 Otter

The Essex Field Club holds 14 records for otter within 2 km of the survey area. Of the 14 records, five are within the last 10 years. These five records were shown within Holland Haven, Ardleigh reservoir, Alresford Creek, and Tenpenny Brook.

Otters are subject to the Essex Species BAP.

4.1.3.6 Great crested newts

The Essex Field Club holds 10 records of great-crested newt within 2 km of the survey area. Of the 10 records, four are within the last 10 years. These records are shown within Weeley, Kirby Cross, and Ardleigh.

4.1.3.7 Reptiles

The Essex Field Club holds records of 24 adders *Vipera berus*, 68 common lizards *Zootoca vivipara*, 33 grass snakes *Natrix natrix* and 49 slow-worms *Anguis fragilis* throughout (and up to 2 km from) the survey area.

4.1.3.8 White-clawed crayfish

The Essex Field Club holds no records for white-clawed crayfish within 2 km of the survey area.

White-clawed crayfish are subject to the Essex Species BAP.

4.1.3.9 Invertebrates

The Essex Field Club holds 329 records of invertebrates within 2 km of the survey area, including notable bee, dragonfly, butterfly, moth, cricket, and beetle species.

The following invertebrate species are subject to the Essex Species BAP:

- Bright wave moth *Idaea ochrat*,
- Desmoulin's whorl snail *Vertigo moulinsiana*,
- Fisher's estuarine moth *Gortyna borelii lunata*,
- Heath fritillary *Melitaea athalia*,
- Horner's robber fly *Asilus crabroniformis*,
- Shining ramshorn snail *Segmentina nitida*,
- Shrill carder bee *Bombus sylvarum*, and
- Stag beetle *Lucanus cervus*.

4.1.3.10 Invasive non-native species

The Essex Field Club holds 712 records of different invasive non-native species within 2 km of the survey area.

Japanese knotweed has been recorded at 21 locations, including Clacton-Holland cliffs, Frating Green area, Frinton and Walton cliffs, Great Clacton, Stour Estuary, and Wivenhoe Marshes. In addition, American mink *Neovison vison* and butterfly bush *Buddleja davidii* have also been recorded.

4.1.3.11 Other species

The Essex Field Club holds 29 records of hazel dormouse *Muscardinus avellanarius* and 64 records of brown hare *Lepus europaeus* within 2 km of the survey area.

Both the hazel dormouse and brown hare are subject to the Essex Species BAP.

Notable plant species, primarily associated with the Holland Haven Marshes SSSI and Holland Haven LNR, have also been recorded within the onshore survey area.

4.2 Field survey results

4.2.1 Habitats

Table 4-2 presents the key habitats that were recorded within the survey area during the field survey.

Table 4-2 – JNCC Phase 1 habitat areas recorded during the Extended Phase 1 Habitat Survey

JNCC Phase 1 Habitat Code	JNCC Phase 1 Habitat Survey Description	Area (ha)
A1.1.1	Broadleaved woodland - semi-natural	0.95
A1.1.2	Broadleaved woodland - plantation	0.19
A1.3.1	Mixed woodland – semi-natural	0.12
A1.3.2	Mixed woodland - plantation	1.70
A2.1	Scrub - dense/continuous	0.36
Arable field margin (No code)	Arable Field Margin	0.43
A3.1	Broadleaved Parkland/scattered trees	0.22
B2.2	Neutral grassland - semi-improved	3.91
B4	Improved grassland	0.89
B6	Poor semi-improved grassland	0.01
J1.1	Cultivated/disturbed land - arable	57.56
J1.2	Cultivated/disturbed land – amenity grassland	11.54
J1.3	Cultivated/disturbed land - ephemeral/short perennial	0.50
J3.6	Buildings	1.00
J4	Bare ground	1.03
J5	Other habitat	0.93
JNCC Phase 1 Habitat Code	JNCC Phase 1 Habitat Survey Description	Length (m)
G1	Standing water	453.43
G2	Running water	1.22
J2.1.1	Intact hedge - native species-rich	89.58
J2.1.2	Intact hedge - species-poor	2176.15
J2.2.2	Defunct hedge - species-poor	977.94
J2.3.1	Hedge with trees - native species-rich	253.34
J2.3.2	Hedge with trees - species-poor	1212.17
J2.6	Dry ditch	1434.64

4.2.1.1 Arable land

The largest habitat by area within the survey area is arable land (JNCC Phase 1 Habitat code J1.1). At the time of both the survey, some of these fields were in crop and some had recently been ploughed.

4.2.1.2 Boundary features

Field boundaries within the survey area comprised predominately of hedgerows, with some field margin drainage ditches (both dry and wet), scattered scrub and trees, and short grassland. The predominant type of hedgerow recorded was intact species-poor intact (J2.1.2, total of 24 features), followed by dry ditch (J2.6, total of 16), hedge with trees – species-poor (J2.3.2, total of 14), defunct hedge – species-poor (J2.2.2, total of 10), standing water (G1, total of 8), hedge with trees – native species-rich (J2.3.1, total of 3), intact hedge -native species-rich (J2.3.1, total of 3), intact hedge – native species-rich (J2.1.1, total of 2), and running water (G2, total of 2).

The main species recorded in hedgerows throughout the survey area included hawthorn *Craetagus monogyna* and blackthorn *Prunus spinosa*, with bramble *Rubus fruticosus*, dog rose *Rosa Canina*, oak *Quercus robur/ petraea*, ash *Fraxinus excelsior*, elm *Ulmus spp.* and some hazel *Corylus avellana*.

4.2.1.3 Woodland

A total of 15 areas of woodland were recorded throughout the survey area and included broadleaf woodland, semi-natural and plantation, and mixed woodland. These areas ranged from pockets of woodland to smaller roadside and field margin copses.

Main species recorded included oak, ash, elm, hazel, holly *Ilex aquifolium*, sycamore *Acer pseudoplatanus*, silver birch *Betula pendula*, pines, and conifers.

4.2.1.4 Scrub

A total of four areas of dense and scattered scrub were recorded within the survey area and key species comprised bramble, nettle, bracken *Pteridium aquilinum*, hornbeam *Carpinus betulus* and cleavers. These areas represented a range of habitat sub-types including transitional habitat associated with boundary features, field margins, woodland successional habitats, and watercourse margins.

4.2.1.5 Parkland

A total of four areas of parkland were recorded within the survey area, all of which were recorded as broadleaved parkland. Key species included oak, silver birch, ash, and beech (*Fagus sylvatica*).

4.2.1.6 Improved grassland

A total of seven areas of improved grassland were recorded across the survey area, mainly consisting of grazing pasture for horses and areas of grassland adjacent to roads. These grasslands were characterised by short sward perennial rye grass with limited herbs consisting of ragwort *Jacobea vulgaris*, clover *Trifolium spp.*, dandelion *Taraxacum officinale*, and ribwort plantain.

4.2.1.7 Semi-improved grassland and Poor semi-improved grassland

14 areas of semi-improved and poor semi-improved grassland were within the survey area. These areas comprised coarse ruderal grass and herb species such as cock's foot *Dactylis glomerata* and broadleaf dock *Rumex obtusifolius*. 13 of these records were natural grassland – semi-improved (B2.2) and one poor semi-improved grassland (B6).

4.2.1.8 Amenity grassland

45 areas of amenity grassland were recorded within the survey area, generally consisting of short sward perennial rye grass subject to frequent mowing and occasionally scattered trees and scrub.

4.2.1.9 Standing and running water

There are ten watercourses (i.e. ditches and rivers, excluding ponds) within the survey area and these include both field margin/boundary ditches (wet or dry), standing water and running water such as rivers.

In addition, there was a single pond within the survey area plus a 250 m buffer that required a Habitat Suitability Index (HSI) assessment for great crested newts. The results of the HSI assessment are available in **Section 4.2.2.5**.

4.2.1.10 Other habitats

The following habitat features were also recorded within the survey area (number of areas recorded in brackets):

- Buildings (69);
- Bare ground (12).

4.2.2 Protected species

No protected species were observed during the survey.

4.2.2.1 Birds

All hedgerows, trees, grassland, scrub, and woodland habitats that were recorded potentially provide suitable nesting habitat for protected, notable, and common species of birds.

The following common species of bird were observed utilising habitats within the survey area:

- Robin *Erithacus rubecula*;
- Blue tit *Cyanistes Caeruleus*;
- House sparrow *Passer domesticus*;
- Chiffchaff *Phylloscopus collybita*;
- Pied wagtail *Motacilla alba*;
- Magpie *Pica pica*;
- Crow *Corvus corone*; and
- Woodpigeon *Columba palumbus*

4.2.2.2 Badgers

A single occurrence of badger hairs caught on wire fencing (**Plate 1**) was observed at TM 19931 20337. Additionally, two potential badger setts (**Plate 2**) were also observed, one of which had been made through the wire fencing on which the fur was caught.



Plate 1 Badger hairs attached to wire fencing above dug sett



Plate 2 Potential badger setts

4.2.2.3 Bats

In total, 44 features were assessed for their suitability to support foraging/commuting bats. Of these four were assessed as providing negligible suitability for roosting bats, 15 were assessed as providing low suitability, 18 as providing moderate suitability, and seven as having high suitability.

In total 78 features were assessed for their suitability to support roosting bats. Of these seven were assessed as providing negligible suitability for roosting bats, 44 were assessed as providing low suitability, 25 as providing moderate suitability, and two as having high suitability. The full details for each bat roost assessment are in **Appendix D – Bat Roost Assessment Results**, including a feature description, photograph, and reference.

4.2.2.4 Water vole and otter

A total of 26 watercourses were recorded within the survey area which comprised of standing water, running water (e.g., rivers or ditches) and dry ditches. Of these 26 watercourses, none were assessed as being suitable to support water voles or otters.

This is primarily due to the watercourses being ditches or field drains of insufficient size and depth to support either of these species or were dry at the time of the survey. In addition, these watercourses were not functionally linked to the wider river/ditch network and were therefore considered to be unfavourable to these species.

4.2.2.5 Great crested newt

One pond (PO203) was subject to a Habitat Suitability Index (HSI) assessment for great crested newts (GCN) *Triturus cristatus*, carried out using the procedure outlined in *ARG UK Advice Note 5 Great Crested Newt Habitat Suitability Index* (ARG, 2010), which is taken from Oldham *et al.* (2000).

A summary of the HSI results undertaken during the Extended Phase 1 Habitat Survey is presented in **Table 4-3**, where the suitability of the pond for GCN was determined to be Good.

Table 4-3 – ARG UK Great crested newt HSI calculator (Oldham *et al.*, 2000)

Pond name		PO203
SI No	SI description	SI value
1	Geographic location	1
2	Pond area	0.6
3	Pond permanence	0.9
4	Water quality	0.67
5	Shade	1
6	Waterfowl effect	0.67
7	Fish presence	0.67
8	Pond density	1
9	Terrestrial habitat	0.33
10	Macrophyte cover	0.9
HSI score		0.67

4.2.2.6 Reptiles

One area of habitat potentially suitable for common reptile species was recorded within the survey area (TN604 seen in **Figure 4h Appendix B**). This consisted of an area of piled logs which was determined to be optimal for reptiles. The logs are located within a small area of woodland and close to a field margin. The potential hibernacula is shown in **Plate 3**.

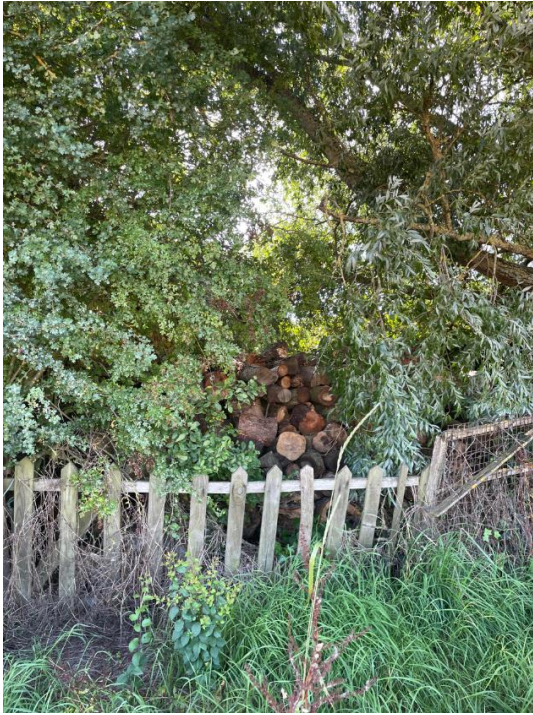


Plate 3 Potential reptile hibernacula (TN604)

4.2.2.7 Hazel dormice

No areas were identified as being suitable for hazel dormice during the field survey. The hedgerows and areas of scrub surveyed were identified as having low suitability and potential for dormice, due to a low species richness or and connectivity to a wider woodland habitat, or areas of scrub. Presence of hazel dormice is not discarded entirely, due to nearby records.³

4.2.2.8 Invasive non-native species

No invasive or non-native species were observed during the field survey.

5 Recommendations

Section 4.2 identifies those habitats within the survey area that have been noted as having the potential to support legally protected or notable species. It also records sightings/field signs for selected legally protected species. In light of these findings, further Phase 2 species-specific surveys have been identified as required prior to any construction works to characterise the ecological baseline and ensure appropriate mitigation, if required, is devised. Details relating to these Phase 2 species-specific surveys are provided in the following sections.

³ *Muscardinus avellanarius*: Hazel Dormouse | NBN Atlas (<https://species.nbnatlas.org/species/NHMSYS0000080214>)

5.1 Phase 2 species specific surveys

5.1.1 Birds (over-wintering and breeding)

Over-wintering and breeding bird surveys have been carried out across much of the onshore project area throughout 2020, 2021 and 2022. The methodology and findings are reported separately and have therefore not been repeated here. No further surveys are required.

5.1.2 Bat roost emergence/re-entry surveys

In accordance with the BCT guidance (BCT, 2023), all trees assessed as providing moderate or high suitability to support roosting bats will require additional surveys to confirm the likely presence or absence of a bat roost.

Furthermore, the guidelines set out by the BCT state that all trees assessed as providing low suitability for supporting roosting bats should still be considered as potentially supporting opportunistic roosts in the future. Further surveys are not required to confirm presence or absence but mitigation measures for trees assessed as providing low suitability for roosting bats will be required (BCT, 2023).

The Extended Phase 1 Habitat Survey identified the following numbers of trees that will require a further survey effort:

- Moderate – 25
- High - 2

Each emergence / re-entry survey must be undertaken in accordance with the methodology outlined in the BCT guidelines (BCT, 2023). For each tree offering moderate suitability, two survey visits (i.e., one dusk emergence survey and one dawn re-entry survey) should be undertaken. Each dusk emergence survey should commence 15 minutes before sunset and will stop 1.5-2 hours after sunset. The dawn re-entry surveys will commence 1.5-2 hours before sunrise and will stop 15 minutes after sunrise. All surveys will be undertaken at least two weeks apart and between May and September with one survey visit between May and August. For each tree offering high suitability, an additional dusk emergence or dawn re-entry survey will be undertaken, totalling three surveys, in line with the BCT guidelines.

Hand-held bat detectors (any type) and recording equipment to record any echolocation calls will be used for each survey. Laboratory sound-analysis will be used to identify the calls of any bat species picked up using the bat detectors. Species, timing, and activity will be noted for each bat picked up during the survey.

Weather conditions including temperature, wind speed and precipitation, will be recorded at the start and end of each survey visit. Surveys will not be carried out when the temperatures are below 10 °C at sunset, or during heavy rain or strong wind unless justified by the surveying ecologist.

5.1.3 Bat activity transects and static detector surveys

Those linear habitats (i.e., hedgerows and watercourses) with the potential to support commuting and foraging bats will be subject to further survey effort to confirm the species assemblage utilising these habitats. In accordance with the BCT guidelines (BCT, 2023), all habitats assessed as providing moderate or high suitability for supporting commuting and/or foraging bats will require further bat activity surveys in order to confirm the number of bats, whether they are used by foraging and/or commuting bats, and to identify the species which might be present.

All features assessed as providing low suitability for supporting commuting and/or foraging bats will still be considered as potentially supporting small numbers of commuting/foraging bats, but further surveys are not necessary to confirm presence or absence, as set out by the BCT guidelines (BCT, 2023). Mitigation measures for features assessed as providing low suitability for commuting and/or foraging bats will be required.

The Extended Phase 1 Habitat Survey identified the following numbers of features that will require a further survey effort:

- Moderate – 18 and
- High – seven.

Each monthly bat activity transect surveys will be undertaken in accordance with the guidelines (BCT, 2023). Transect surveys will involve walking at a constant speed along each linear bat habitat recording observations such as number of bats, flight direction, flight height, behaviour, appearance, and relative speed.

Static detector surveys will comprise the placement of a static detector at locations identified as suitable, such as within hedgerows or along woodland edges. Data from these surveys will be recorded and subject to laboratory sound-analysis to identify species and numbers of passes following each survey.

Each habitat scoped into the survey, and assessed as providing moderate or high suitability for commuting or foraging bats, will be subject to one transect survey visit per month between April and October (a total of seven visits), including one dusk and pre-dawn survey within a 24-hour period, and static bat detector surveys at up to three locations within each habitat collected on five consecutive nights per month, including one dusk and pre-dawn survey within a 24 hour period. Each transect survey will commence at sunset and stop 2-3 hours after sunset. The static detector surveys will commence 30 minutes before sunset and stop 15 minutes after sunrise.

The surveyors will use hand-held bat detectors (any type) and recording equipment to record any echolocation calls picked up during each survey. The same model of detector will be used for all surveys. Laboratory sound analysis will be used to identify the calls of any bat species picked up using the bat detectors.

Weather conditions including temperature, wind speed and precipitation, will be recorded at the start and end of each survey visit. Surveys will not be undertaken when the temperature is below 10°C at sunset, or during heavy rain or strong wind, unless justified by the surveying ecologist.

5.1.4 Badger

A single field signs of badgers and active badger setts were observed during the field survey (**Section 4.2.2.2**), as well as the 162 recordings within the 2 km onshore project area buffer.

Due to evidence of badger activity and considering that badgers can also establish new sett entrances in a matter of days, it is recommended Phase 2 badger surveys be undertaken to ensure badgers have not settled within 30 m of the proposed onshore area.

The survey will cover a 30 m buffer from the location of observed field signs and will involve the use of infrared camera traps to capture any badger activity. If an active badger sett were to be found within 30 m

of the onshore project area, a Natural England license would be required if the sett were to be disturbed. It is recommended further badger surveys be undertaken between October – November and February – April.

5.1.5 Great crested newt

It is recommended that the standing waterbody (PO203), which was determined to have an HSI score of 0.74 (Good), should be subject to an environmental DNA (eDNA) survey in accordance with the field sampling protocol set out in Biggs *et al.* (2014).

The eDNA survey will be undertaken by licenced surveyors (Licence: CL08) at the appropriate time of year (e.g., between mid-March and the end of June (inclusive)). Water samples from the pond will be collected from around the accessible parts of the waterbody perimeter by a GCN licenced ecologist, including open water areas and areas with vegetation present.

The sample will then be sent to an approved laboratory for analysis for eDNA in accordance with approved field and laboratory protocols (Biggs *et al.*, 2014). The presence or absence of GCN from the surveyed pond will be determined based on the results of the eDNA analysis.

5.1.6 Hazel Dormouse

Primarily, works should aim to avoid hedgerows suitable for or with known hazel dormouse presence. Any hedgerow removal to facilitate construction will be completed under an EPS licence from Natural England and in accordance with an agreed method statement.

The Dormouse Conservation Handbook (Bright, Morris and Mitchell-Jones, 2006) recommends ‘persuasion’ as a method for encouraging dormice to relocate of their own accord into adjacent undisturbed habitat. Where practicable, additional nesting boxes should be installed in hedgerows and woodland edges outside of the project area, to accommodate for any hazel dormice disturbed by noise (English Nature, 2006).

5.1.7 Reptiles

A single habitat feature suitable for use as a hibernaculum for potentially large numbers of common reptile species was recorded within the survey area. It is recommended that a reptile presence/likely absence survey should be undertaken in accordance with the protocol set out in the JNCC’s Herpetofauna Worker’s Manual (2003).

The survey will involve the placement of artificial refugia (tiles/tins) within the area of optimal habitat. A total of seven separate visits will be undertaken and during each visit the refugia will be checked for the presence of reptiles. These visits will be undertaken during April, May, and September. A minimum of 48hrs will be left between each survey visit.

Weather conditions will be recorded during each visit. Each survey visit will be undertaken during the morning and/or late afternoon, with the intention to coincide with the optimal temperature window (10-17 degrees Celsius).

5.2 Summary of Phase 2 survey requirements

Table 5-1 provides a summary of the Phase 2 species-specific surveys that have been identified based on the findings of the Extended Phase 1 Habitat Survey. Further information on the suite of Phase 2 surveys is provided in **Section 5.1** and **Plate 4** provides a summary of the appropriate survey window for each species survey required.

Table 5-1 – Summary of Phase 2 survey requirements

Species	Phase 2 survey required (yes/no)
Birds	No – a suite of over-wintering and breeding bird surveys have been undertaken in 2020, 2021 and 2022, no further surveys beyond these are proposed.
Badgers	Yes – further surveys to confirm the presence of badgers using infrared camera trap data is required.
Bats	Yes – further surveys to confirm the presence of roosting bats (dusk/dawn emergence/re-entry survey) and commuting/foraging bats (monthly activity and static detector surveys) will be undertaken within all suitable habitat within the onshore project area.
Water vole and otter	No – no further surveys required.
Great crested newt	Yes – an eDNA survey to establish the presence or likely absence of great crested newts in pond PO203 will be undertaken.
Reptiles	Yes – presence/absence surveys will be undertaken within the identified area of suitable habitat that may support significant populations of common reptile species.
Hazel dormice	No – no further surveys required.

Plate 4 Survey windows for required further species surveys

Required survey	Survey window
Bat emergence/re-entry surveys	May – September
Bat activity surveys	April – October
Badger surveys	October – November and February - April
Great crested newt surveys	Mid-April – June
Reptile surveys	April – June, September

6 Conclusion

An Extended Phase 1 Habitat Survey was undertaken in August 2023 to record the habitats within the Phase 1 survey area of the revised onshore project area plus a 50 m buffer and to identify suitability for these habitats to support legally protected and notable species.

The following designated sites are located within a 2 km buffer of the onshore project area and could potentially be affected by the Project:

- Statutory designated sites:
 - Hamford Water (SSSI, SPA, SAC, Ramsar and NNR);
 - Stour and Orwell Estuaries (SPA and Ramsar);
 - Stour Estuary SSSI;
 - Holland Haven Marshes SSSI;
 - Holland On-Sea Cliff SSSI;
 - Holland Haven LNR; and
 - Pickers Ditch Meadow LNR.
- Non-statutory designated sites:

- Great Holland Pits LWS.

The following UK Habitats of Principal Importance are present within the onshore project area:

- Deciduous woodland; and
- Lowland heath

The onshore project area is dominated by arable fields interspersed with field margin drains, rivers, and areas of scattered and dense scrub. Field boundaries are typically hedgerows (species-poor intact and/or defunct) and dominated by hawthorn and/or blackthorn. Other habitats are present which are considered to be of a higher ecological value such as semi-improved grassland, improved grassland, woodland (broadleaved and mixed semi-natural and plantation), waterbodies, trees, tall ruderal, woodland/scrub successional habitats and areas of scrub.

Key habitat features that could support protected and notable species have been recorded within the onshore project area and further surveys to confirm their presence and/or likely absence have been identified. A summary of the features recorded during the Extended Phase 1 Habitat Survey is provided in **Table 6-1**.

Table 6-1 – Summary of features recorded during the Extended Phase 1 Habitat Survey

Species	Summary of key findings
Bat (roosting)	In total 78 features were assessed for their suitability to support roosting bats. Of these seven were assessed as providing negligible suitability for roosting bats, 44 were assessed as providing low suitability, 25 as providing moderate suitability, and two as having high suitability.
Bats (commuting/foraging)	In total, 44 features were assessed for their suitability to support foraging/commuting bats. Of these four were assessed as providing negligible suitability for roosting bats, 15 were assessed as providing low suitability, 18 as providing moderate suitability, and seven as having high suitability.
Great crested newt	One waterbody was subject to a HSI assessment during the Extended Phase 1 Habitat Survey. The pond scored 0.67 on the HSI and is considered a 'Good' habitat for GCN.
Reptiles	One area of suitable reptile habitat was recorded within the survey area.

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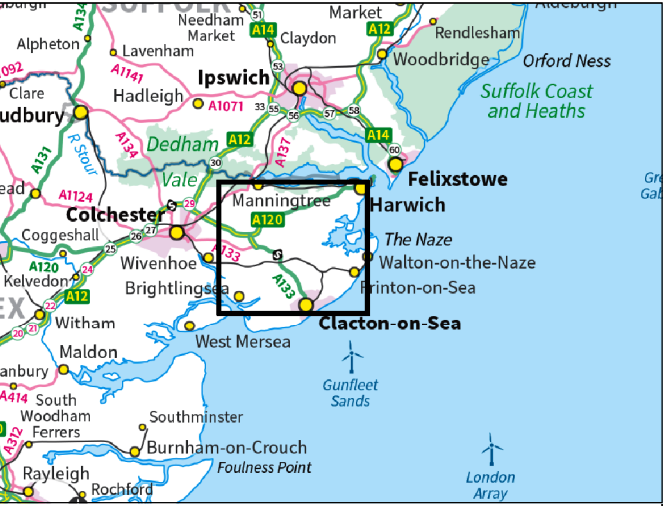
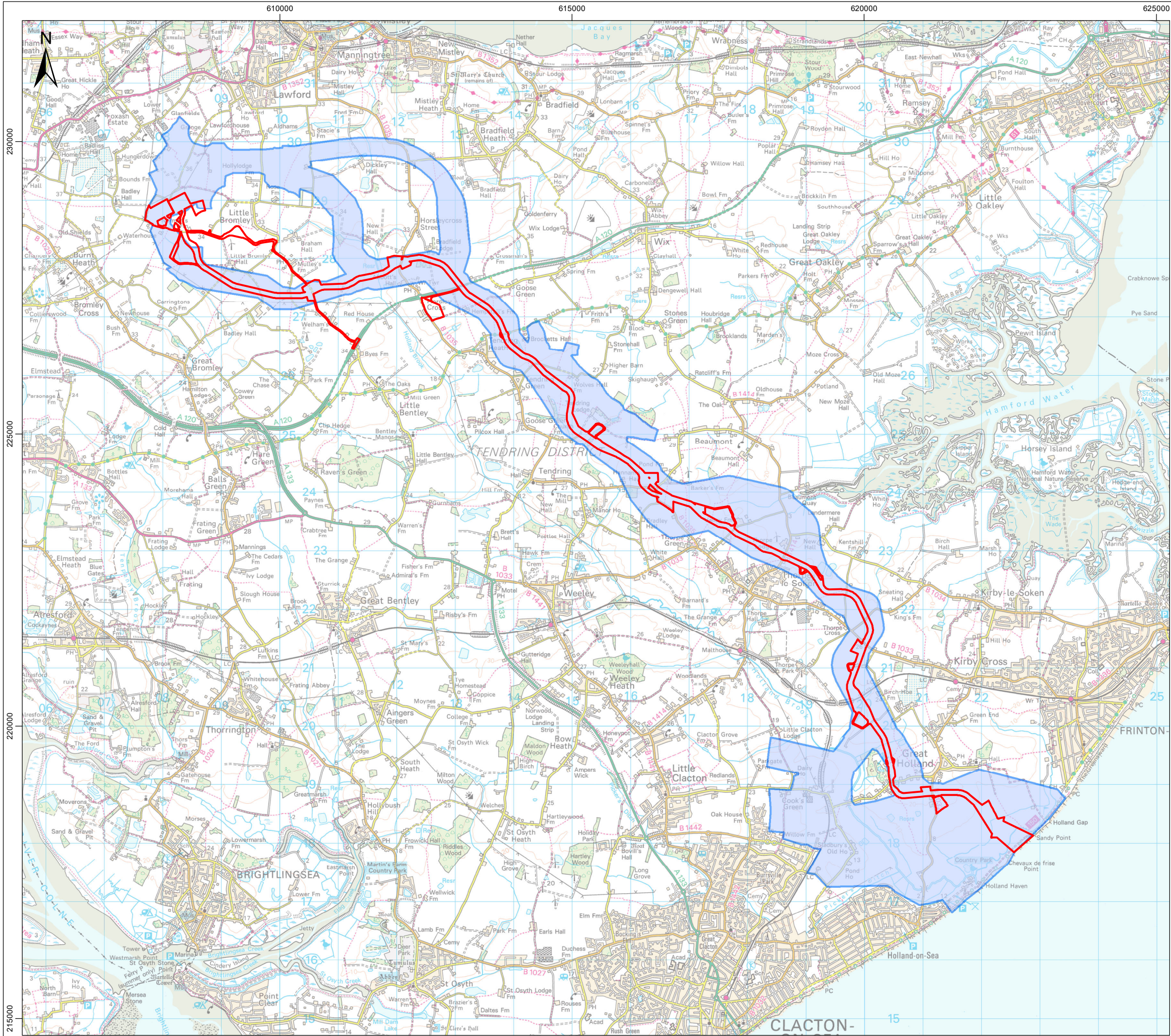
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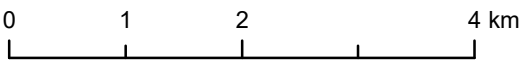


**Royal
HaskoningDHV**

Appendix A – Figures



- Legend**
- North Falls Onshore Project Area
 - North Falls Onshore Project Area (2022)



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Drawing Title

Revised Onshore Project Area

Rev	Date	Remarks	Drwn	Chkd
01	02/10/2023	First issue	FC	GC

Drawing Number		Figure Number	
PB9244-RHD-ZZ-ON-DR-GS-0343		1	

Scale	Plot Size	Datum	Projection
1:65,000	A3	OSGB36	BNG



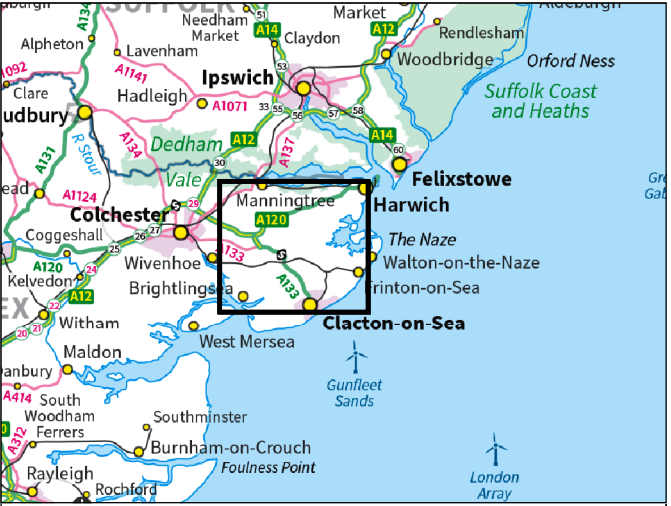
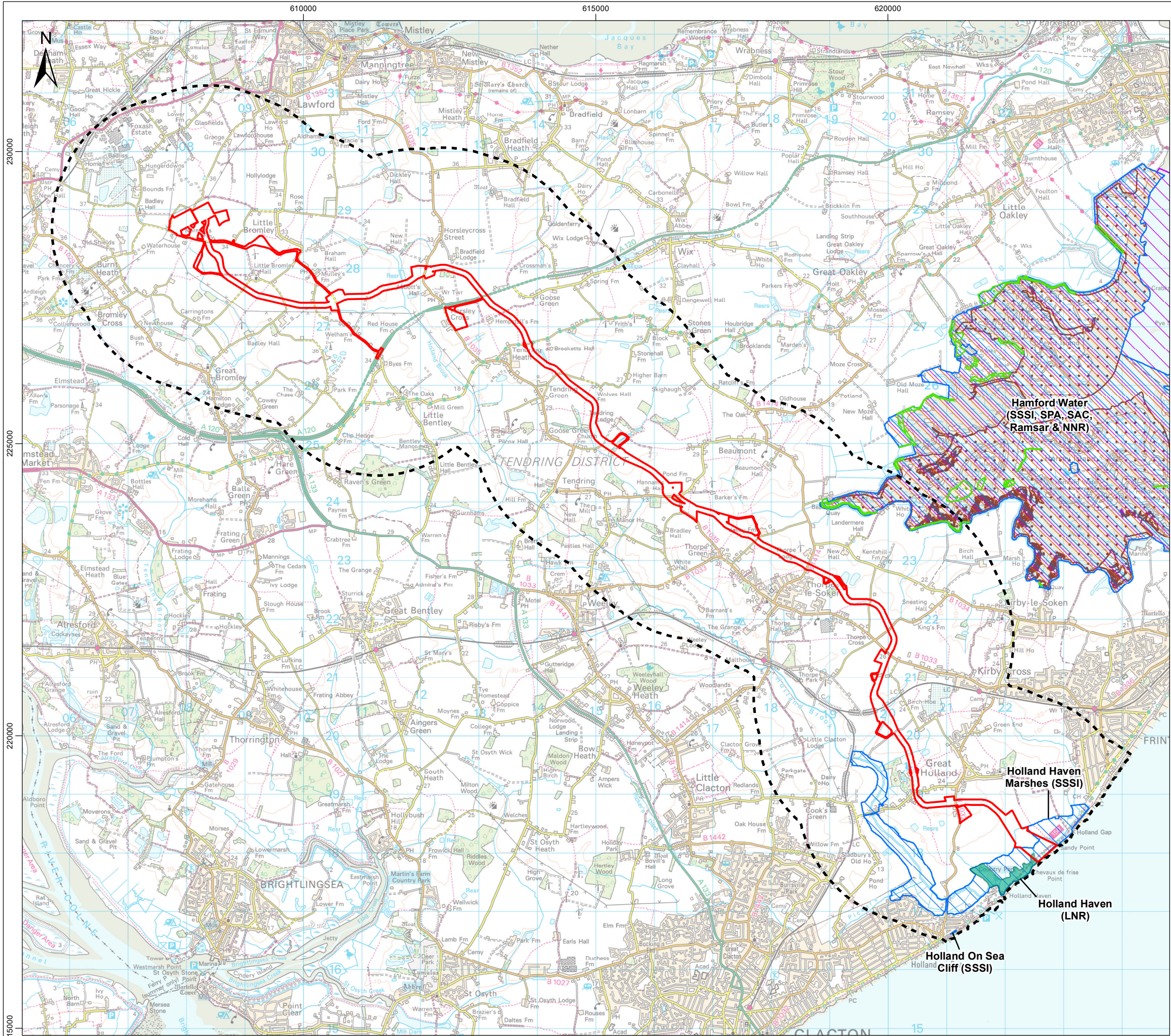
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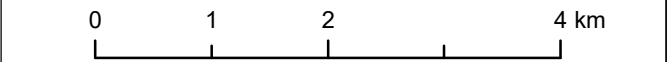


NORTH FALLS

Offshore Wind Farm



- Legend**
- North Falls Onshore Project Area
 - North Falls Onshore Project Area 2km Buffer
 - Site of Special Scientific Interest (SSSI)
 - Special Protection Area (SPA)
 - Special Area of Conservation (SAC)
 - Ramsar
 - National Nature Reserve (NNR)
 - Local Nature Reserve (LNR)



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Drawing Title

Statutory Designated Sites

Rev	Date	Remarks	Drwn	Chkd
01	02/10/2023	First issue	FC	GC

Drawing Number

Figure Number

Scale 1:65,000

Plot Size A3

Datum OSGB36

Projection BNG

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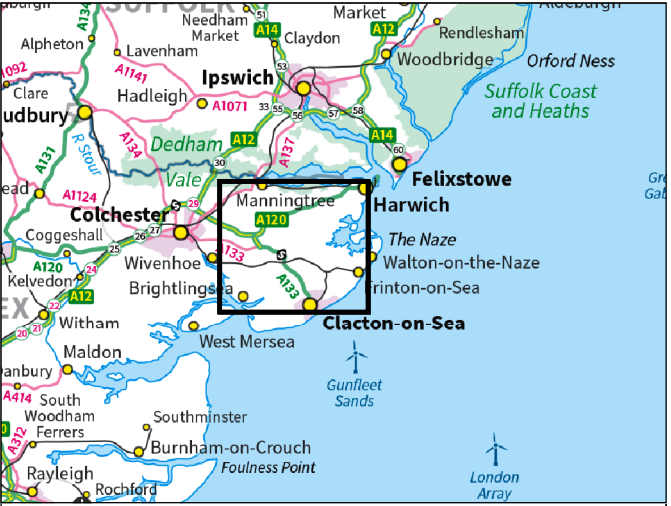
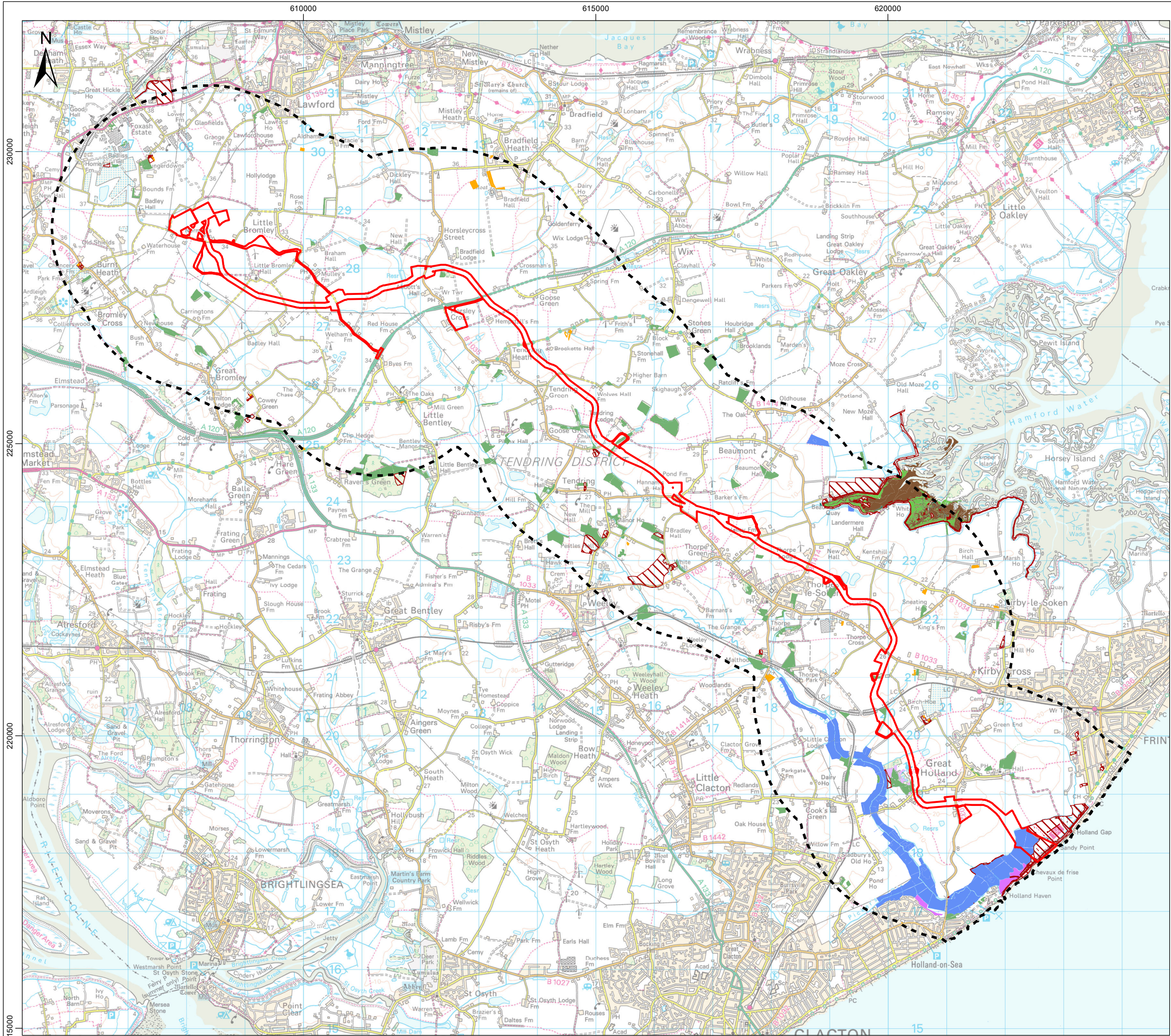
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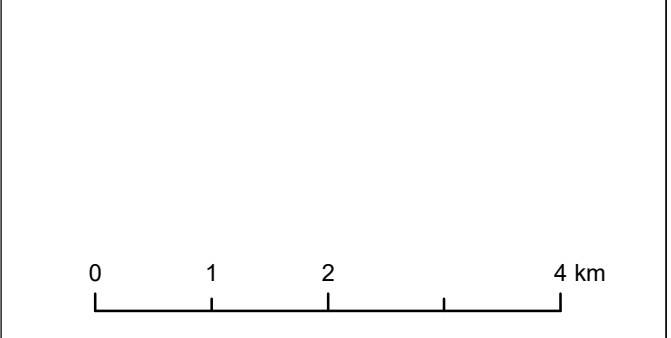
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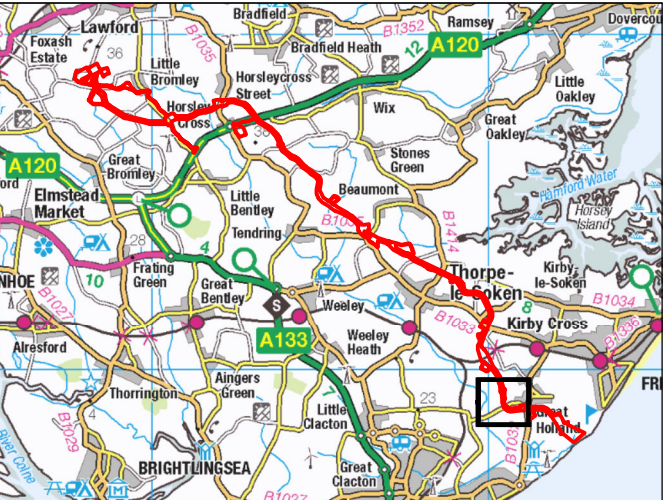
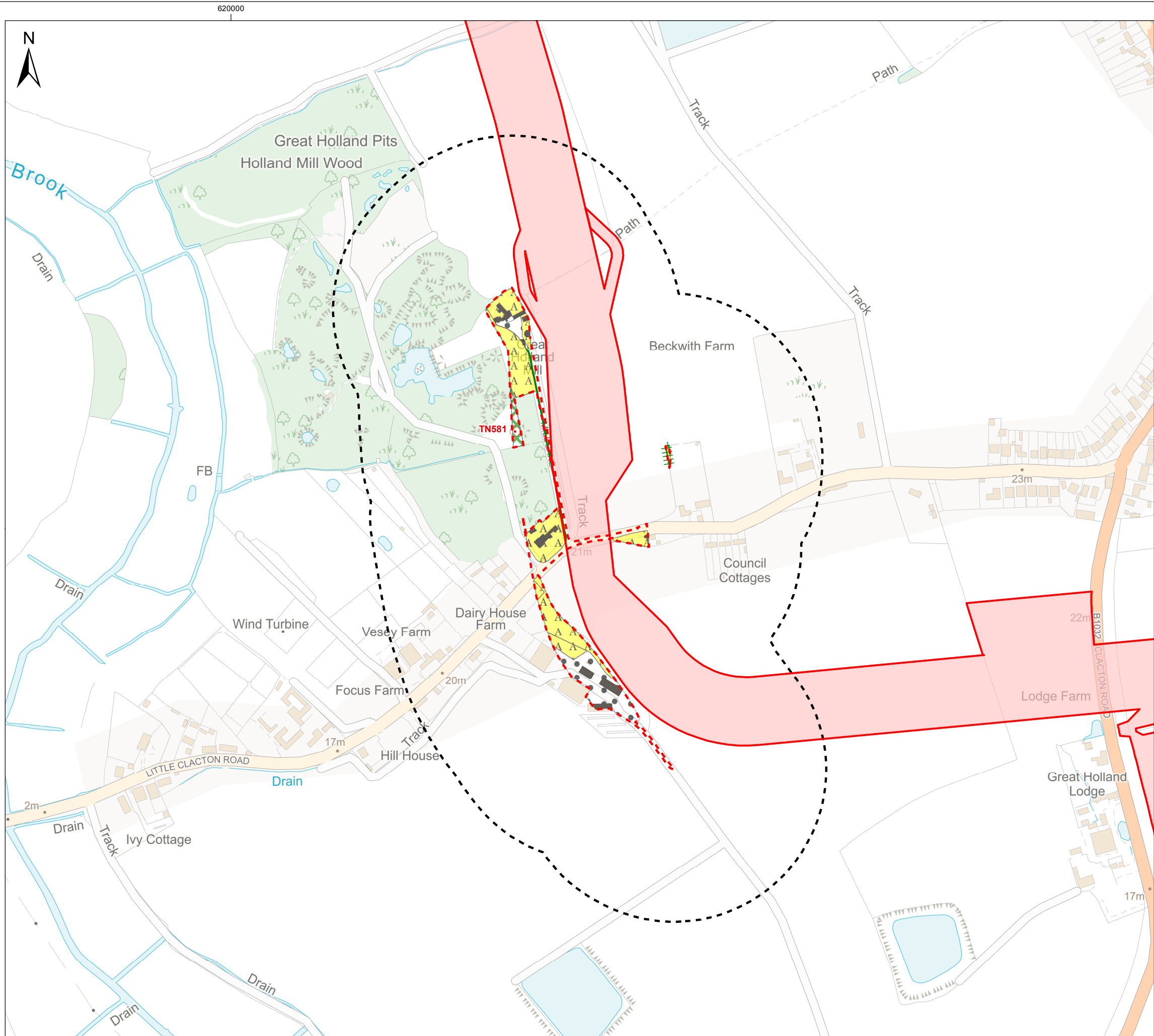
Legend

- North Falls Onshore Project Area
- North Falls Onshore Project Area 2km Buffer
- Priority Habitat Type**
- Coastal and Floodplain Grazing Marsh
- Coastal Saltmarsh
- Deciduous Woodland
- Good Quality Semi-Improved Grassland
- Lowland Fens
- Lowland Heathland
- Mudflats
- No Main Habitat but Additional Habitats Present
- Reedbeds
- Traditional Orchard



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Drawing Title				
Priority Habitat				
Rev	Date	Remarks	Drwn	Chkd
01	02/10/2023	First issue	FC	GC
Drawing Number			Figure Number	
PB9244-RHD-ZZ-ON-DR-GS-0345			3	
Scale	Plot Size	Datum	Projection	
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Legend

- North Falls Onshore Project Area
- North Falls Onshore Project Area Previously Surveyed
- Phase 1 Survey Area
- Great Crested Newt
- 250m Buffer
- Target Note
- Phase 1 Habitat Type**
 - Intact Hedge - Species-Poor
 - Hedge with Trees - Species-Poor
 - Scrub - Dense/Continuous
 - Poor Semi-Improved Grassland
 - Cultivated/Disturbed Land - Amenity Grassland
 - Buildings
 - Bare Ground

0 50 100 200 Metres

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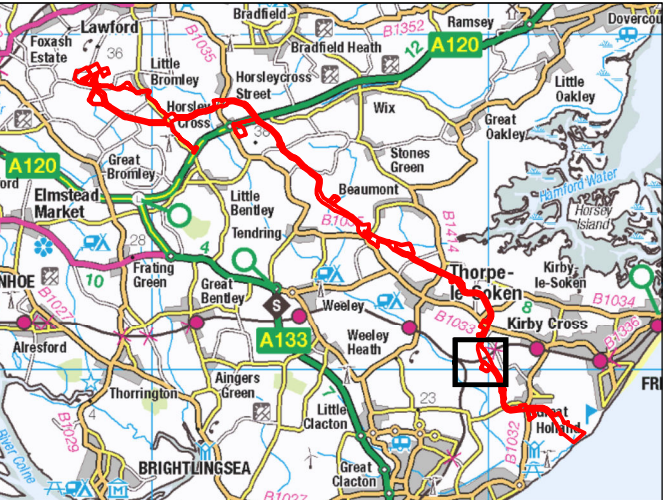
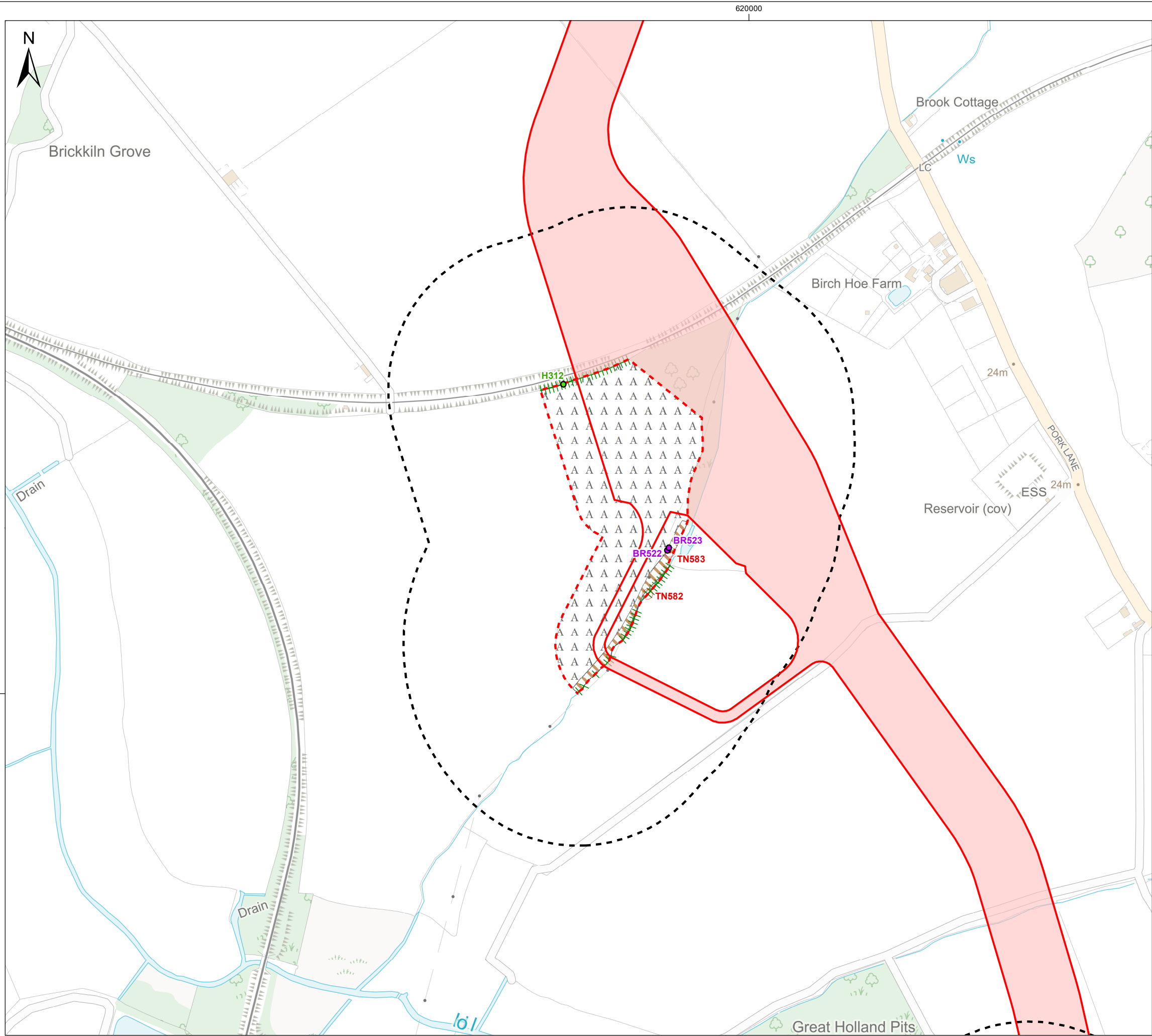
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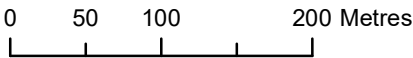


Legend

- North Falls Onshore Project Area
- North Falls Onshore Project Area Previously Surveyed
- Phase 1 Survey Area
- Great Crested Newt
- 250m Buffer
- Bat Roost
- Hedgerow
- Target Note

Phase 1 Habitat Type

- Hedge with Trees - Species-Poor
- Scrub - Dense/Continuous
- Other Tall Herb and Fern - Ruderal
- Cultivated/Disturbed Land - Arable



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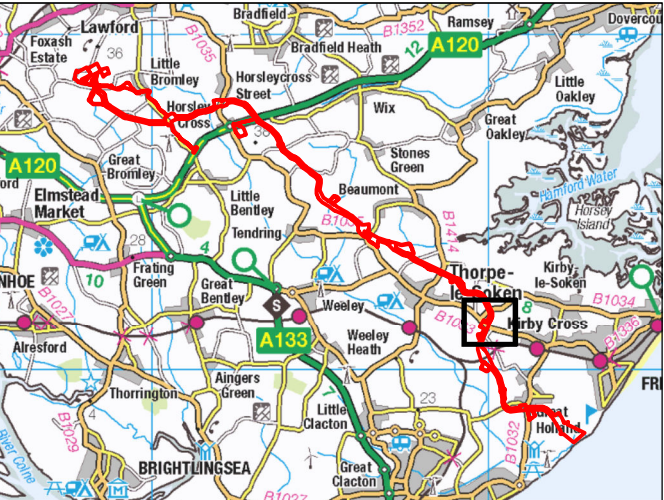
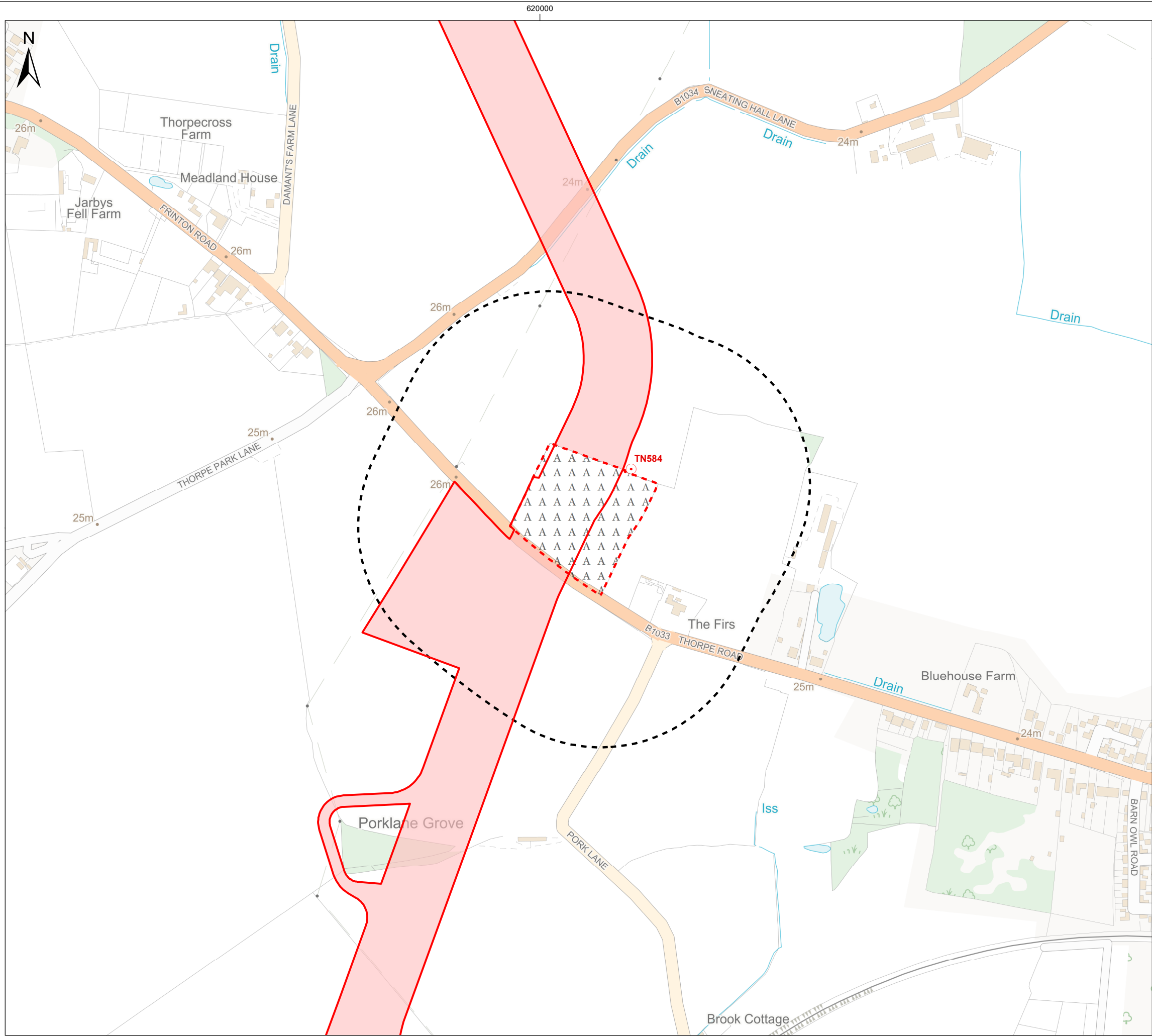
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Legend

- North Falls Onshore Project Area
- North Falls Onshore Project Area Previously Surveyed
- Phase 1 Survey Area
- Great Crested Newt 250m Buffer
- ⊕ Target Note
- A A Cultivated/Disturbed Land - Arable



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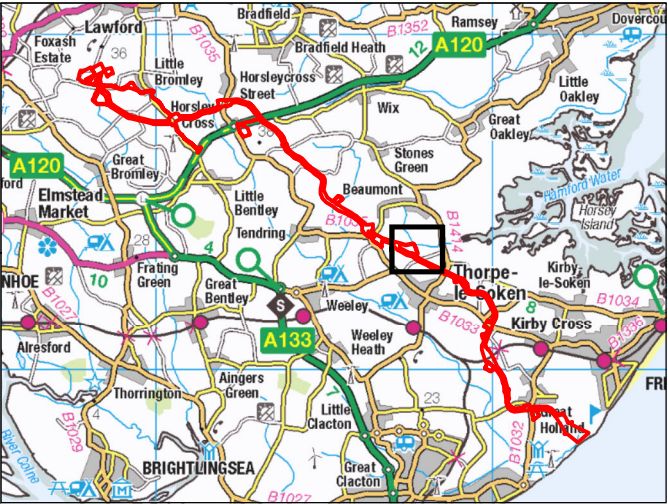
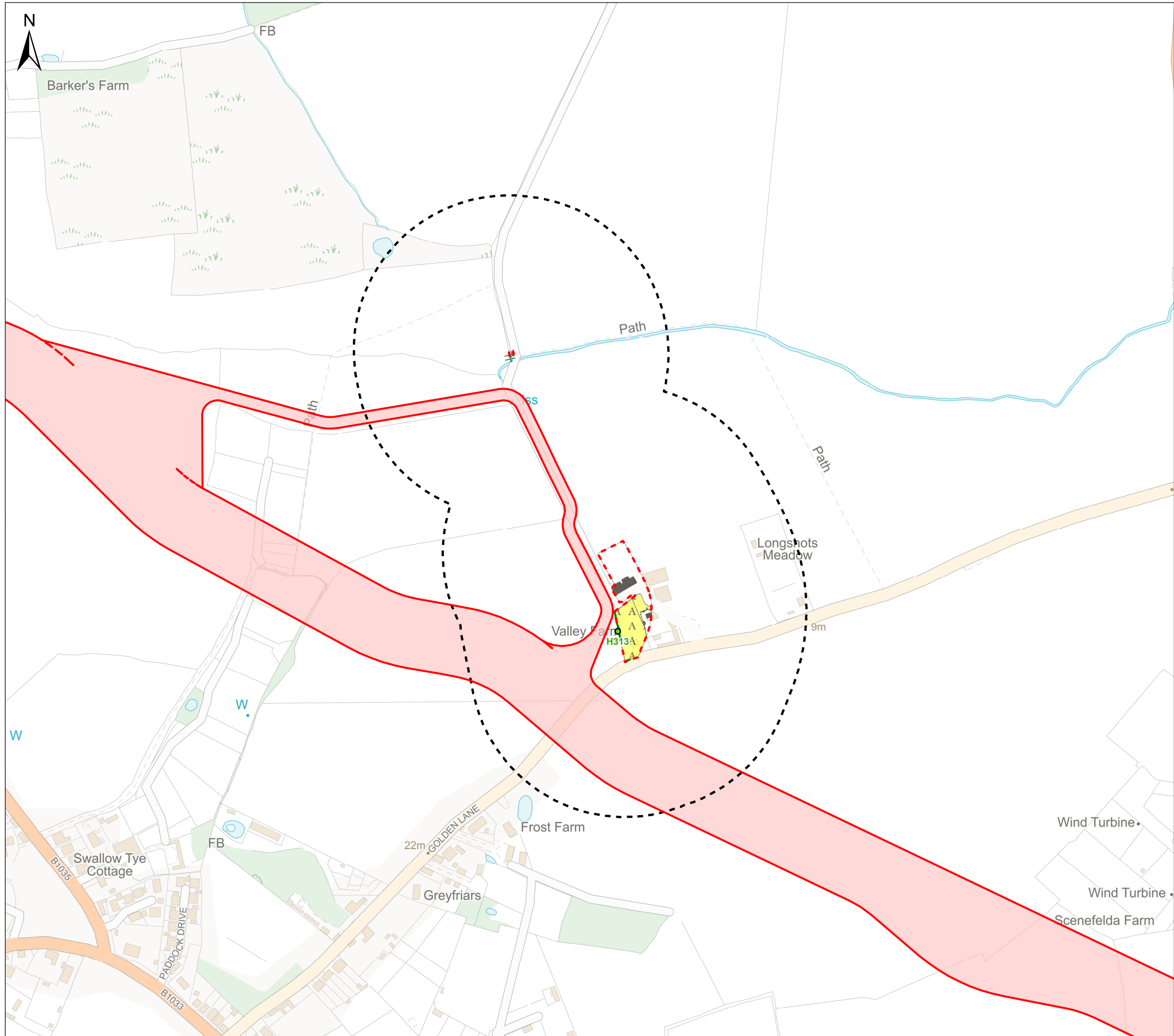
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Legend

- North Falls Onshore Project Area
- North Falls Onshore Project Area Previously Surveyed
- Phase 1 Survey Area
- Great Crested Newt 250m Buffer
- Hedgerow
- Phase 1 Habitat Type**
 - Intact Hedge - Species-Poor
 - Hedge with Trees - Species-Poor
 - Dry Ditch
 - A A Cultivated/Disturbed Land - Arable
 - A A Cultivated/Disturbed Land - Amenity Grassland
 - Buildings
 - Bare Ground
 - Other Habitat



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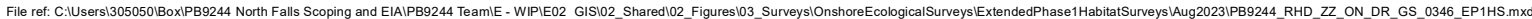
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Drawing Number	Figure Number
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Scale 1:5,000	Plot Size A3	Datum OSGB36	Projection BNG
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Legend

-  North Falls Onshore Project Area
-  North Falls Onshore Project Area Previously Surveyed
-  Phase 1 Survey Area
-  Great Crested Newt 250m Buffer
-  Target Note

Phase 1 Habitat Type

-  Intact Hedge - Native Species-Rich
 Mixed Woodland - Semi-Natural
 Broadleaved Parkland/Scattered Trees



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Drawing Title

Extended Phase 1 Habitat Survey

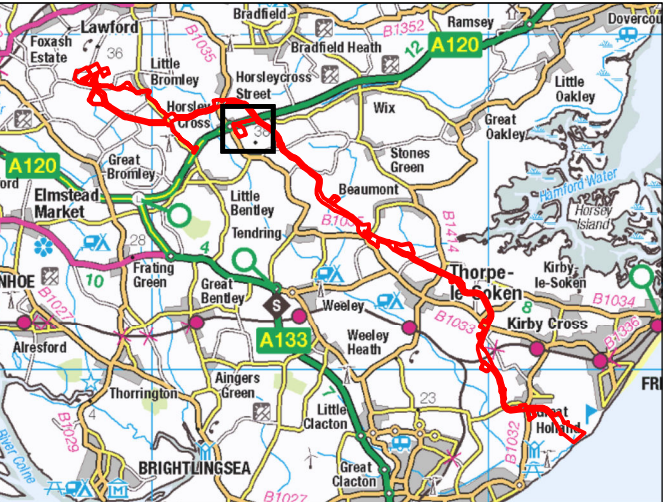
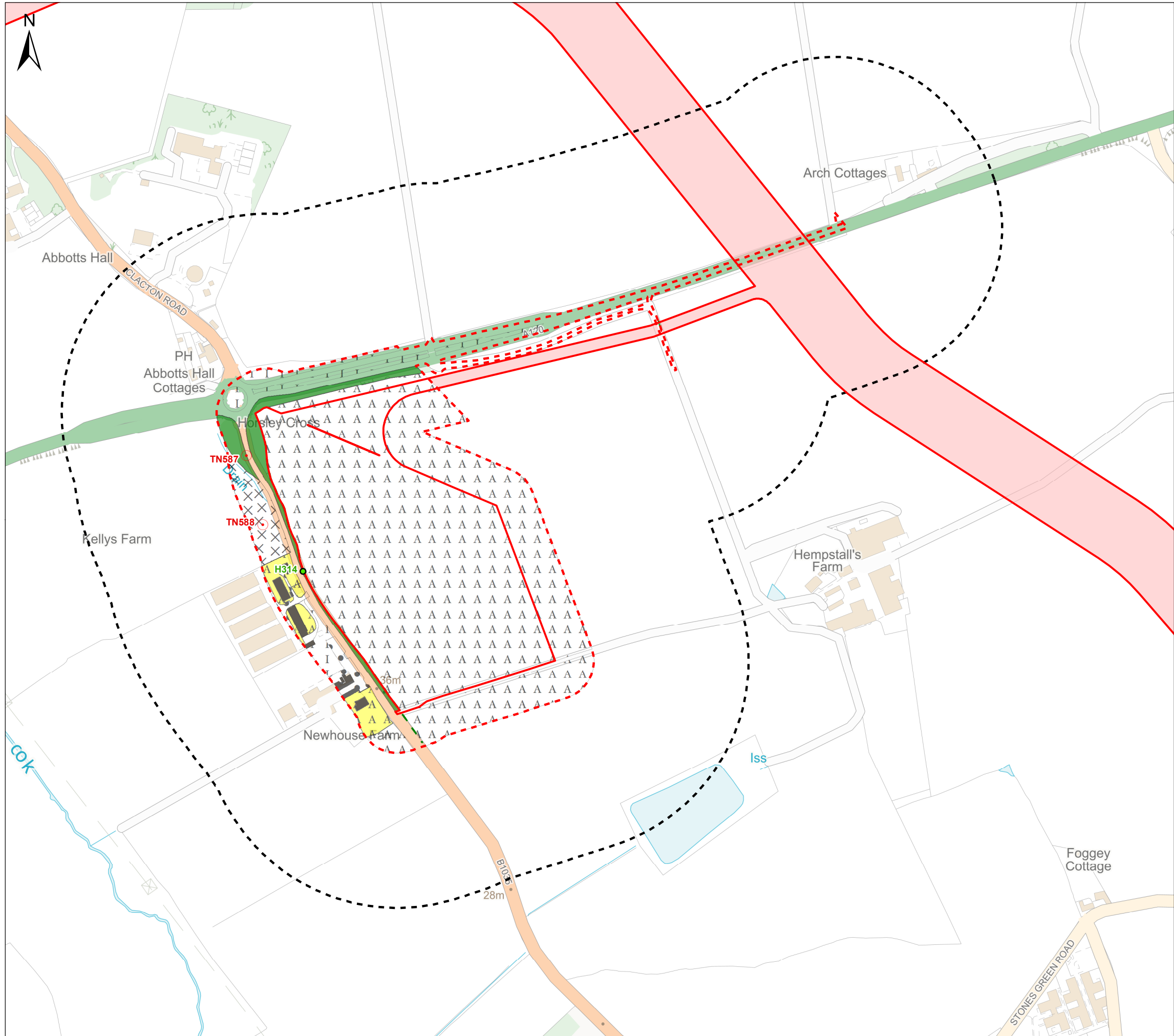
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Legend

North Falls Onshore Project Area

North Falls Onshore Project Area Previously Surveyed

Phase 1 Survey Area

Great Crested Newt 250m Buffer

Hedge row

Target Note

Cultivated/Disturbed Land - Ephemeral/Short Perennial

Buildings

Bare Ground

Phase 1 Habitat Type

Intact Hedge - Species-Poor

Defunct Hedge - Species-Poor

Broadleaved Woodland - Semi-Natural

Improved Grassland

Cultivated/Disturbed Land - Arable

Cultivated/Disturbed Land - Amenity Grassland

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200 Metres

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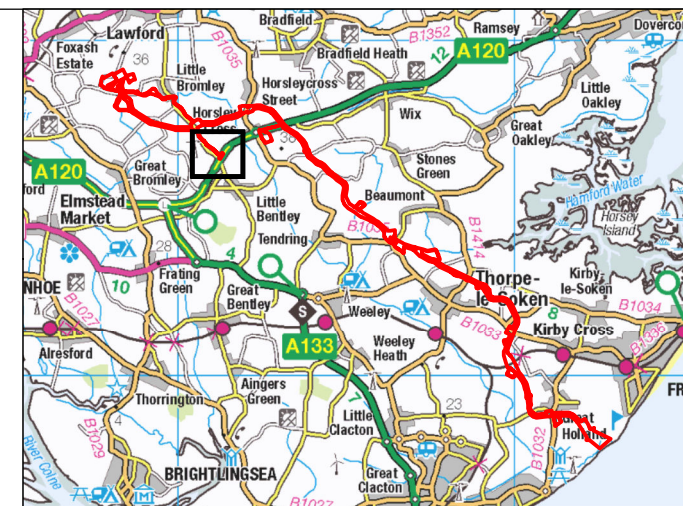
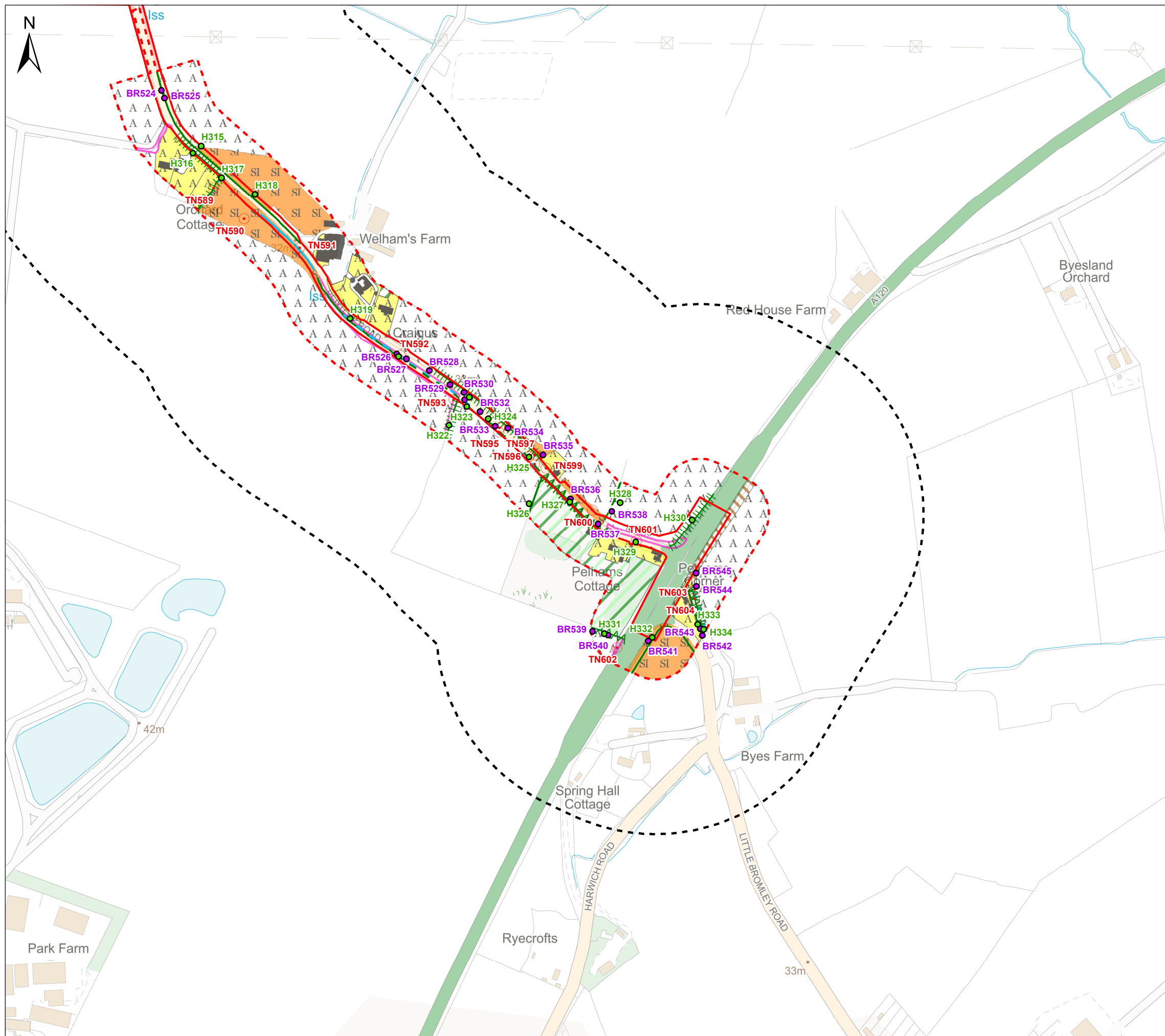
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NORTH FALLS
Offshore Wind Farm



Legend

North Falls Onshore Project Area	Hedge with Trees - Species-Poor
North Falls Onshore Project Area Previously Surveyed	Dry Ditch
Phase 1 Survey Area	Broadleaved Woodland - Plantation
Great Crested Newt 250m Buffer	Mixed Woodland - Plantation
Bat Roost	Arable Field Margin
Hedgerow	Neutral Grassland - Semi-Improved
Target Note	Other Tall Herb and Fern - Ruderal

Phase 1 Habitat Type

Standing Water	Cultivated/Disturbed Land - Arable
Running Water	Cultivated/Disturbed Land - Amenity Grassland
Intact Hedge - Native Species-Rich	Buildings
Intact Hedge - Species-Poor	Bare Ground
Defunct Hedge - Species-Poor	Other Habitat
Hedge with Trees - Native Species-Rich	

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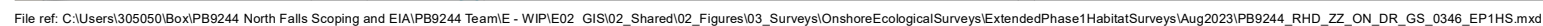
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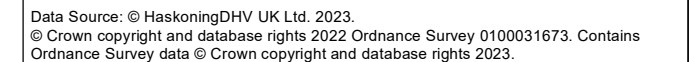
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NORTH FALLS
Offshore Wind Farm



Legend:

- North Falls Onshore Project Area
- North Falls Onshore Project Area Previously Surveyed
- Phase 1 Survey Area
- Great Crested Newt 250m Buffer
- Bat Roost
- Hedgerow
- ⊙ Target Note
- Phase 1 Habitat Type**
 - Standing Water
 - Running Water
 - Intact Hedge - Species-Poor
 - - Defunct Hedge - Species-Poor
 - ||||| Hedge with Trees - Species-Poor
 - - Dry Ditch
 - Broadleaved Woodland - Semi-Natural
 - Broadleaved Woodland - Plantation
 - Mixed Woodland - Semi-Natural
 - Mixed Woodland - Plantation
 - Scrub - Dense/Continuous
 - Broadleaved Parkland/Scattered Trees
 - Arable Field Margin
 - Neutral Grassland - Semi-Improved
 - A A Cultivated/Disturbed Land - Arable
 - A A Cultivated/Disturbed Land - Amenity Grassland
 - Buildings
 - Bare Ground
 - Other Habitat

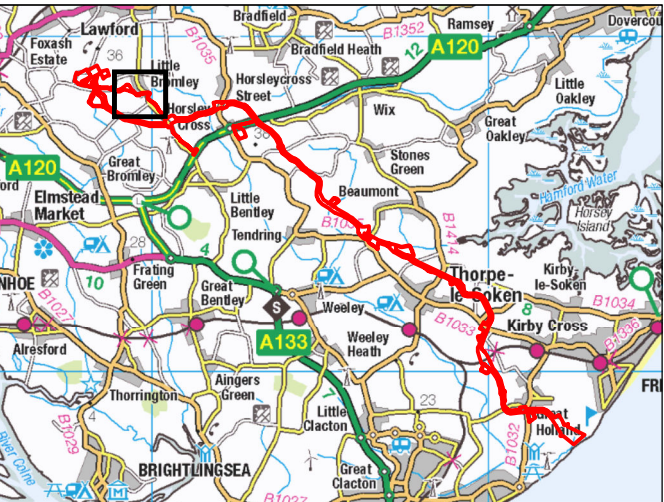
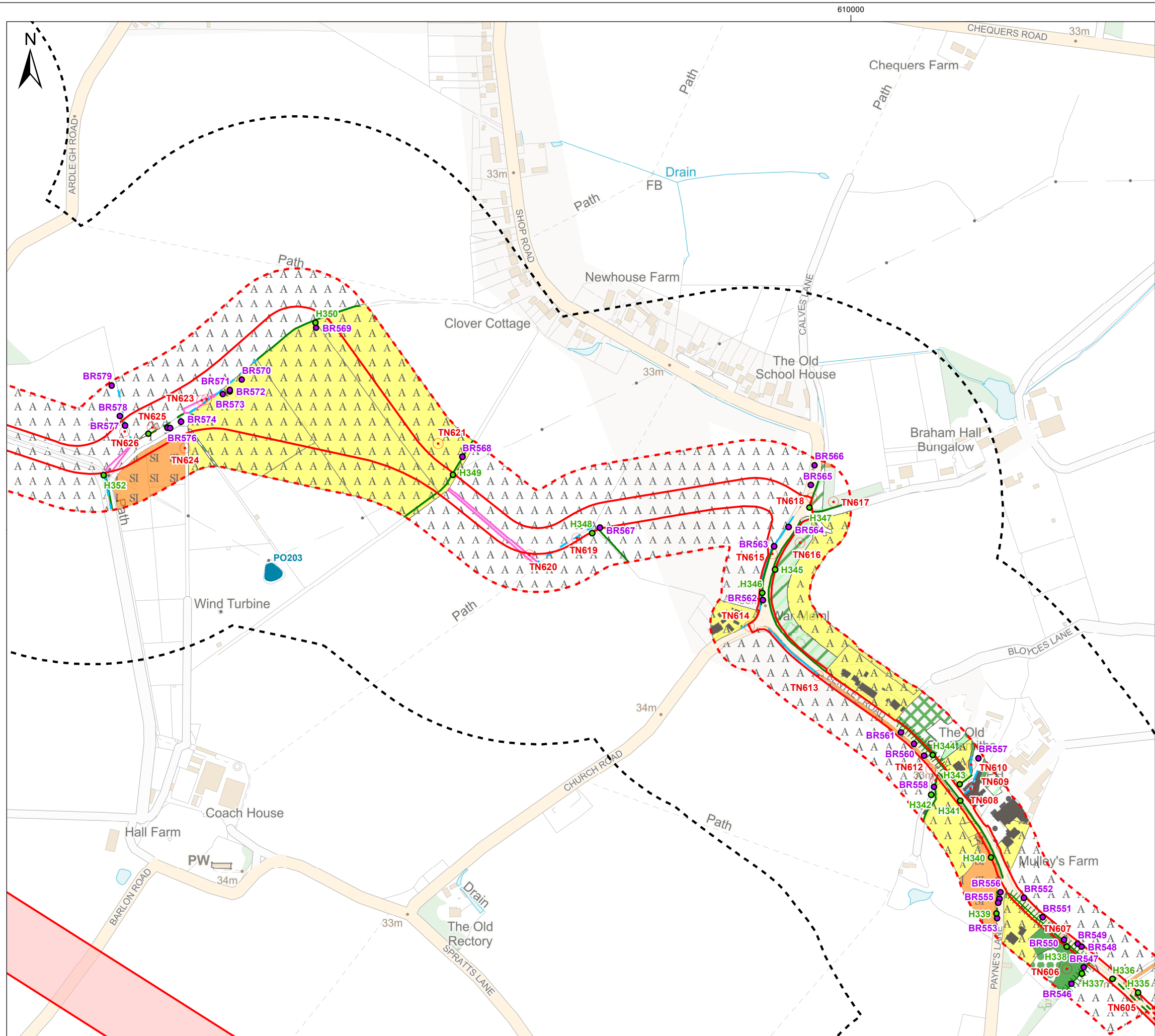


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Legend

- North Falls Onshore Project Area
- North Falls Onshore Project Area Previously Surveyed
- Phase 1 Survey Area
- Great Crested Newt 250m Buffer
- Bat Roost
- Hedgerow
- Target Note
- Phase 1 Habitat Type
- Standing Water
- Intact Hedge - Species-Poor
- Defunct Hedge - Species-Poor
- Hedge with Trees - Species-Poor
- Dry Ditch
- Broadleaved Woodland - Semi-Natural
- Mixed Woodland - Semi-Natural
- Mixed Woodland - Plantation
- Scrub - Dense/Continuous
- Broadleaved Parkland/Scattered Trees
- Arable Field Margin
- Neutral Grassland - Semi-Improved
- Improved Grassland
- Other Tall Herb and Fern - Ruderal
- Cultivated/Disturbed Land - Arable
- Cultivated/Disturbed Land - Amenity Grassland
- Buildings
- Bare Ground
- Other Habitat
- Pond

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Drawing Title

Extended Phase 1 Habitat Survey

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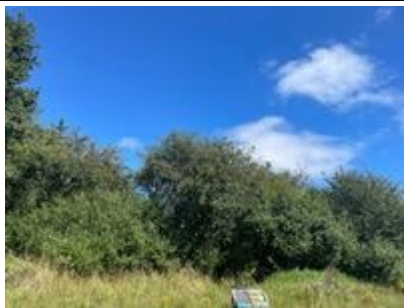


NORTH FALLS
Offshore Wind Farm



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Appendix B – Target Notes

Target note reference	Notes	Photographs
TN581	Scrub	
TN582	Scrub	
TN583	Tall ruderal	
TN584	Veteran tree	

TN585	Garden area	
TN586	Mixed woodland - hawthorn, oak, ash, blackthorn	
TN587	Woodland - Species include oak, ash and hawthorn	
TN588	Disturbed ground	

TN589	Arable grassy field corner with some thistles. Deep dry ditch between hedge and field margin containing tall ruderal vegetation, bindweed, nettles, brambles and dock	
TN590	Grassy field corner	
TN591	Ditch with in channel vegetation including bulrushes and sedges and rose bay willow herb. Bracken alongside it. Between arable field and road	

TN592	Grassy arable field margin including dock, sow thistle, black medic, grass, nettles	
TN593	Field margin	
TN594	Between hedgerow and arable field. Some in channel vegetation including dock grass and nettles	
TN595	Dry ditch	

TN596	Ditch	
TN597	Grassy field corner	
TN598	Dry ditch	
TN599	Garden	

TN600	Grass field margin	
TN601	Field margin	
TN602	Field margin	

TN603	Field and road margin extending between road and arable field. Incorporates grassy track adjacent to field. Species include long grasses, ox-eye daisies, dock, mallow, yarrow, thistle, sow thistle, brambles, bracken, nettles, hogweed	
TN604	Potential reptile hibernacula - pile of logs	
TN605	Gappy hedge with hawthorn and some newly planted plants including field maple and blackthorn	
TN606	Broadleaved woodland - semi-natural	

TN607	Trees may need trimming, mature oak trees	
TN608	Ditch adjacent to car park surrounded by trees, brambles and Ivy. Shady	
TN609	Mixed woodland	
TN610	Ditch	
TN611	Ditch	

TN612	Grass verge	
TN613	Ditch	
TN614	Ditch	

TN615	Ditch	
TN616	Woodland	
TN617	Woodland	

TN618	Betual species - conifers, pine, acer	
TN619	Ditch between field boundaries with rose bay willow herb, nettles, long grass, dock	
TN620	Field margin	

TN621	Grazing field	
TN622	Tall grasses, bracken, thistle, brambles	
TN623	Arable field margin	
TN624	Short grass with some hardstanding, recently mowed, used as path	
TN625	Tall ruderal	

TN626	Field boundary ditch, may be seasonably dry. Lots of long grass, brambles, hogweed, improved generally	
TN627	Woodland	
TN628	Section between road and woodland containing nettles, brambles, hogweed, wild mustard	
TN629	Veteran oak, ivy cover, crevices	
TN630	Veteran oak, covered in ivy, some crevices	

TN631	Dry ditch	
TN632	Dry ditch	
TN633	One veteran oak tree	

TN634	Stinging nettles, thistle, yarrow, hogweed, bracken	
TN635	Dry ditch	
TN636	Area of grassland adjacent to arable field, contains stand of nettles and dock	



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Appendix C – Hedgerow Results

Hedgerow reference	Notes	JNCC Code	Photographs
H312	Oak trees and hedge consisting of elder, brambles, and blackthorn. Bat foraging and commuting potential for Phase 1 hedge line Connected to woodland, field margins either side. Adjacent to road. Some trees along hedge.	J2.3.2	

Hedgerow reference	Notes	JNCC Code	Photographs
H313	Blackthorn. Bat foraging and commuting potential for Phase 1 hedge line Some trees nearby and some connectivity to other hedgerows. Near commercial units and close to field margin	J2.1.2	

Hedgerow reference	Notes	JNCC Code	Photographs
H314	Roadside hedge between road and arable field with hawthorn, scattered oaks, field maple, hazel, field elm saplings, brambles. Bat foraging and commuting potential for Phase 1 hedge line	J2.2.2	

Hedgerow reference	Notes	JNCC Code	Photographs
H315	Hawthorn hedge with blackthorn, ash saplings, brambles, dog rose, elder and field elm. Between road and arable field. Bat foraging and commuting potential for Phase 1 hedge line Defunct hedge between road and field margin. Some native species with potential roosting trees nearby. Not far from a ditch to the north	J2.1.2	

Hedgerow reference	Notes	JNCC Code	Photographs
H316	Roadside hedge with oak trees, blackthorn, field elm, oak, field maple, hawthorn Some potential roosting trees nearby. Not much connectivity but some more mature trees in the vicinity.	J2.3.2	

Hedgerow reference	Notes	JNCC Code	Photographs
H317	Bat foraging and commuting potential for Phase 1 hedge line Some potential roosting trees nearby. Not much connectivity but some more mature trees in the vicinity.	J2.3.2	

Hedgerow reference	Notes	JNCC Code	Photographs
H318	Roadside hedge with hawthorn, oak, blackthorn, bramble, elder, field elm, dog rose, lesser bindweed. Bat foraging and commuting potential for Phase 1 hedge line	J2.1.2	

Hedgerow reference	Notes	JNCC Code	Photographs
H319	Hedge between arable field and road with hawthorn, field elm, bramble and oak and willow. Bat foraging and commuting potential for Phase 1 hedge line Limited connectivity, adjacent to field margin. Some mature trees nearby flagged as having roosting potential.	J2.1.2	

Hedgerow reference	Notes	JNCC Code	Photographs
H320	Species include willow, oak, hawthorn, blackthorn. Between arable field and road. Bat foraging and commuting potential for Phase 1 hedge line Adjacent to field margin, some potential roosting trees nearby. Relatively low connectivity and proximity to wooded areas	J2.2.2	

Hedgerow reference	Notes	JNCC Code	Photographs
H321	Hedge alongside road with many mature oak trees. Species include hawthorn, blackthorn, dog rose, bramble, blackthorn, spindle Potential roosting trees within hedgerow, connectivity to other hedgerows and small pocket trees nearby, hedgerow low biodiversity.	J2.3.2	

Hedgerow reference	Notes	JNCC Code	Photographs
H322	Hedge between arable fields, oak trees, hawthorn, blackthorn, bramble. Bat foraging and commuting potential for Phase 1 hedge line Some connectivity to other hedgerows. Mature trees and potential roosting trees around. Near ditch and field margin.	J2.3.2	

Hedgerow reference	Notes	JNCC Code	Photographs
H323	Newly planted hedge Hedgerow itself has low biodiversity and gaps. Adjacent to potential roost trees and good connectivity to other hedgerows. Small pocket of trees nearby.	J2.2.2	

Hedgerow reference	Notes	JNCC Code	Photographs
H324	Combination of established willow hedge, some scattered oak trees and some newly planted hedge still in plastic and not established. New species include field maple and hawthorn. Between arable field and road. Defunct hedge with gaps. Near some potential roosting trees with some connectivity and proximity to other hedgerows and trees. Near ditch	J2.2.2	

Hedgerow reference	Notes	JNCC Code	Photographs
H325	Newly planted hedge with species including field maple. Bat foraging and commuting potential for Phase 1 hedge line	J2.2.2	

Hedgerow reference	Notes	JNCC Code	Photographs
H326	Largely hawthorn hedge with some dog rose, nettles understorey, brambles. Bat foraging and commuting potential for Phase 1 hedge line Good hedge for connectivity and possible foraging.	J2.1.2	

Hedgerow reference	Notes	JNCC Code	Photographs
H327	Roadside hedge with trees. Bat foraging and commuting potential for Phase 1 hedge line	J2.3.1	

Hedgerow reference	Notes	JNCC Code	Photographs
H328	Hawthorn hedge with some bramble and one oak tree. Two gaps in hedge and arable either side. Bat foraging and commuting potential for Phase 1 hedge line One possible roosting tree within the hedgrows. Adjacent to field margins. Some proximity to trees and other hedgerows.	J2.2.2	

Hedgerow reference	Notes	JNCC Code	Photographs
H329	Old man's beard, Ivy, hawthorn, oak saplings, blackthorn, brambles. Bat foraging and commuting potential for Phase 1 hedge line Trees within hedgrow, relatively well connected to other hedgerows and thicket of trees.	J2.1.2	

Hedgerow reference	Notes	JNCC Code	Photographs
H330	Hawthorn hedge including oak trees and blackthorn with brambles between road and arable field. Bat foraging and commuting potential for Phase 1 hedge line Hedgrows with little connection to others or wooded areas, on a field margin	J2.3.2	

Hedgerow reference	Notes	JNCC Code	Photographs
H331	Hedge including oak, ivy, hawthorn, bramble, dog rose, willow. Bat foraging and commuting potential for Phase 1 hedge line Near some potential bat roost trees, on a field margin and adjacent to a road. Relatively good connectivity to other hedgerows and proximity to wooded areas	J2.1.1	

Hedgerow reference	Notes	JNCC Code	Photographs
H332	Oak, bramble, blackthorn, elder, willow. Bat foraging and commuting potential for Phase 1 hedge line Some connectivity to wooded patches and other hedgerows. On a field margin and adjacent to a road.	J2.1.2	

Hedgerow reference	Notes	JNCC Code	Photographs
H333	Oak, ash sapling, brambles, black poplar, willow, hawthorn, honeysuckle. Bat foraging and commuting potential for Phase 1 hedge line Some potential roosting trees within the hedgerow, some mature trees surrounding the hedge. Adjacent to a field margin	J2.1.2	

Hedgerow reference	Notes	JNCC Code	Photographs
H334	Large hedgerow containing oak, large hawthorn, willow, elm saplings, ivy, dog rose. Bat foraging and commuting potential for Phase 1 hedge line Adjacent to some potential bat roost trees, relatively good connectivity. Near a ditch	J2.3.1	

Hedgerow reference	Notes	JNCC Code	Photographs
H335	Gappy hedge with hawthorn and some newly planted plants including field maple and blackthorn. Bat foraging and commuting potential for Phase 1 hedge line Hedge with gaps, newly planted, near field margin. Negligible commuting or foraging for bats	J2.2.2	

Hedgerow reference	Notes	JNCC Code	Photographs
H336	Newly planted hedge still in plastic. Bat foraging and commuting potential for Phase 1 hedge line Newly planted hedge, unlikely to be used for foraging or commuting by bats	J2.2.2	

Hedgerow reference	Notes	JNCC Code	Photographs
H337	Oak trees in a managed hedgerow of field maple, hawthorn, elder, dog rose. Bat foraging and commuting potential for Phase 1 hedge line Near field margin. Some connectivity to other hedgerows and trees for potential roosting nearby.	J2.3.2	

Hedgerow reference	Notes	JNCC Code	Photographs
H338	Between road and woodland. Species include mature oak, field maple, oak saplings, lords and ladies in understory, hawthorn, dog rose, holly and brambles. Bat foraging and commuting potential for Phase 1 hedge line Mature oaks nearby, relatively good connectivity to other hedgerows and pockets of trees. Near a field margin. Lots of potential roosting trees nearby. Continuous hedge	J2.3.2	

Hedgerow reference	Notes	JNCC Code	Photographs
H339	Beside road, blackthorn trees alongside hawthorn with an understory of nettles. Mature and potential roosting trees within hedgerow, connectivity to other hedgerows with trees. Pond nearby.	J2.2.2	

Hedgerow reference	Notes	JNCC Code	Photographs
H340	Hedge alongside road. Blackthorn with hawthorn. Bat foraging and commuting potential for Phase 1 hedge line. Some tall trees nearby, some potential roosting trees in relatively close proximity. Connectivity fairly low.	J2.1.2	

Hedgerow reference	Notes	JNCC Code	Photographs
H341	Roadside hedge (between road and grass field) comprising ash saplings, brambles, Ivy, hawthorn, bindweed, blackthorn and willow. Bat foraging and commuting potential for Phase 1 hedge line Relatively good connectivity to trees and other hedgerows. Close to ditches. Taller trees and potential roosting trees in the area.	J2.1.2	

Hedgerow reference	Notes	JNCC Code	Photographs
H342	Hedge adjacent to farm track next to arable field and houses. Contains two oak trees. Mainly comprising hawthorn and field maple with some oak sapling and elder. Bat foraging and commuting potential for Phase 1 hedge line Good connectivity to other trees and hedges. Close to field margin. Some potential roosting trees nearby. Near ditches	J2.1.2	

Hedgerow reference	Notes	JNCC Code	Photographs
H343	Hedge including mainly Californian privet, Ivy, bramble, dog rose. Adjacent to pub car park. Bat foraging and commuting potential for Phase 1 hedge line Taller tree species nearby, relatively good connectivity and trees nearby. Ditches nearby, some gaps in hedge	J2.1.2	

Hedgerow reference	Notes	JNCC Code	Photographs
H344	Roadside hedge interspersed with ash, oak and mature hawthorn trees. Blackthorn, Ivy. Bat foraging and commuting potential for Phase 1 hedge line Woodland nearby and fairly well connected. Hedgerow includes taller tree species such as oak and ash. Ditches nearby and potential roosting trees.	J2.3.2	

Hedgerow reference	Notes	JNCC Code	Photographs
H345	Roadside hedge made up of hawthorn, hazel, dog rose, dogwood, sycamore saplings, blackthorn. Bat foraging and commuting potential for Phase 1 hedge line Some taller sections of hedge potentially good for commuting. Relatively poor connectivity to other pockets of woodland/hedges. Some potential roosting trees nearby.	J2.1.2	

Hedgerow reference	Notes	JNCC Code	Photographs
H346	Roadside hedge with blackthorn, knap weed, brambles, ash trees, dog rose. Bat foraging and commuting potential for Phase 1 hedge line Some taller sections of hedge potentially good for commuting. Relatively poor connectivity to other pockets of woodland/hedges. Some potential roosting trees nearby.	J2.1.2	

Hedgerow reference	Notes	JNCC Code	Photographs
H347	Hawthorn and dogwood hedge with bindweed and dog rose and brambles. Roadside hedge. Bat foraging and commuting potential for Phase 1 hedge line Some connectivity to pockets of trees and other hedges. Close to a ditch. Some potential roosting trees nearby.	J2.1.2	

Hedgerow reference	Notes	JNCC Code	Photographs
H348	European plum, brambles, blackthorn. Bat foraging and commuting potential for Phase 1 hedge line Species poor hedge, limited connectivity and proximity to woodland/ other hedges. One potential roost tree	J2.1.2	

Hedgerow reference	Notes	JNCC Code	Photographs
H349	Tall bramble hedge with some hawthorn, blackthorn and thistles. Talk to begin with, turning to cut to the east. Bat foraging and commuting potential for Phase 1 hedge line Limited connectivity to trees or other hedgerows. Potential roosting tree within hedge. Relatively tall hawthorns.	J2.1.2	

Hedgerow reference	Notes	JNCC Code	Photographs
H350	Hedge with bracken, mainly brambles, a couple of mature oak trees, and a willow. Surrounds a fence. Bat foraging and commuting potential for Phase 1 hedge line Some connected hedgerow and trees nearby. Ditch nearby, Some potential roosting trees	J2.1.2	

Hedgerow reference	Notes	JNCC Code	Photographs
H351	Bat foraging and commuting potential for Phase 1 hedge line Defunct hedge with a few trees. Close to ditches, some small pockets of woodland and hedges nearby. Some potential roost trees nearby	J2.2.2	

Hedgerow reference	Notes	JNCC Code	Photographs
H352	Hawthorn hedge, clipped to height. Some brambles, Ivy and nettles. Adjacent to dry ditch and farm track. No connectivity to woodland or other hedgerows. No roosting trees nearby	J2.1.2	

Hedgerow reference	Notes	JNCC Code	Photographs
H353	Hedge adjacent to road with elder, holly, field elm, holly, dog rose, hawthorn, black thorn, oak, bramble, Ivy, Bat foraging and commuting potential for Phase 1 hedge line Close to trees and connected to adjacent hedgerows. Near to ditches for foraging and trees for potential roosting	J2.3.1	

Hedgerow reference	Notes	JNCC Code	Photographs
H354	Hedgerow with trees - Line of trees interspersed with blackthorn and hawthorn adjacent to dry ditch. Bat foraging and commuting potential for Phase 1 hedge line Tall trees in the area potentially good for roosting. Connectivity to other hedgerows and close to ditches	J2.3.2	

Hedgerow reference	Notes	JNCC Code	Photographs
H355	Tall hawthorn hedge with brambles and interspersed with oak trees and dry ditch. Bat foraging and commuting potential for Phase 1 hedge line Hedge with trees, good for foraging. Fairly good connectivity to other hedgerows and pockets of trees. Close to ditches for foraging.	J2.3.2	



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Appendix D – Bat Roost Assessment Results

Bat roost feature reference	Notes	Habitat suitability	Photographs
BR522	Mature oak, some ivy, crevices, and holes. good connectivity	Moderate	

Bat roost feature reference	Notes	Habitat suitability	Photographs
BR523	Oak tree with ivy, woodpecker holes, and crevices	Moderate	

Bat roost feature reference	Notes	Habitat suitability	Photographs
BR524	Oak tree, small holes, moderate connectivity	Low	

Bat roost feature reference	Notes	Habitat suitability	Photographs
BR525	Oak tree, small crevices	Low	

Bat roost feature reference	Notes	Habitat suitability	Photographs
BR526	Large mature oak, crevices and holes visible	Moderate	 

Bat roost feature reference	Notes	Habitat suitability	Photographs
BR527	Oak tree, ivy cover, moderate connectivity	Low	

Bat roost feature reference	Notes	Habitat suitability	Photographs
BR528	Oak tree some crevices, quite good connectivity	Moderate	 

Bat roost feature reference	Notes	Habitat suitability	Photographs
BR529	Oak tree, some holes, quite good connectivity	Low	

Bat roost feature reference	Notes	Habitat suitability	Photographs
BR530	Oak tree, some large crevices, good connectivity via other trees and hedge	Moderate	

Bat roost feature reference	Notes	Habitat suitability	Photographs
BR531	Oak tree, some crevices, linked via hedge	Low	 

Bat roost feature reference	Notes	Habitat suitability	Photographs
BR532	Oak tree, crevices, connected to hedgerow and other trees	Low	

Bat roost feature reference	Notes	Habitat suitability	Photographs
BR533	Veteran oak, some holes and crevices	Low	

Bat roost feature reference	Notes	Habitat suitability	Photographs

Bat roost feature reference	Notes	Habitat suitability	Photographs
BR534	Mature oak, some holes and crevices, close to row of trees	Low	

Bat roost feature reference	Notes	Habitat suitability	Photographs
BR535	Oak tree within garden, small crevices	Negligible	

Bat roost feature reference	Notes	Habitat suitability	Photographs
BR536	Oak tree, some small holes and crevices, within a hedge	Low	

Bat roost feature reference	Notes	Habitat suitability	Photographs
BR537	Oak tree, ivy climbing, next to house	Low	

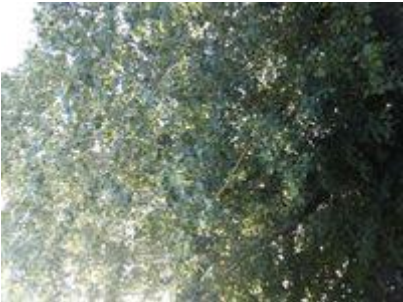
Bat roost feature reference	Notes	Habitat suitability	Photographs
BR538	Mature oak, some small holes and crevices, standalone with arable fields either side	Low	

Bat roost feature reference	Notes	Habitat suitability	Photographs
BR539	Oak tree, linked to other trees via hedgerow	Low	

Bat roost feature reference	Notes	Habitat suitability	Photographs
BR540	Oak tree within hedgerow, links to other trees	Negligible	

Bat roost feature reference	Notes	Habitat suitability	Photographs
BR541	Mature oak, some holes and crevices	Low	

Bat roost feature reference	Notes	Habitat suitability	Photographs
BR542	Mature oak tree, good connectivity to landscape	Low	

Bat roost feature reference	Notes	Habitat suitability	Photographs
BR543	Black poplar, mature, small crevices	Low	

Bat roost feature reference	Notes	Habitat suitability	Photographs
BR544	Mature weeping willow, some crevices, relatively close proximity to woodland	Low	

Bat roost feature reference	Notes	Habitat suitability	Photographs
BR545	Mature weeping willow, relatively close proximity to woodland	Low	

Bat roost feature reference	Notes	Habitat suitability	Photographs
BR546	Oak tree, moderate connectivity	Low	

Bat roost feature reference	Notes	Habitat suitability	Photographs
BR547	Oak tree, moderate connectivity	Low	

Bat roost feature reference	Notes	Habitat suitability	Photographs
BR548	Oak tree, some crevices	Moderate	

Bat roost feature reference	Notes	Habitat suitability	Photographs
BR549	Mature oak tree	Moderate	

Bat roost feature reference	Notes	Habitat suitability	Photographs
BR550	Oak tree, some crevices	Moderate	

Bat roost feature reference	Notes	Habitat suitability	Photographs
BR551	Oak tree, some holes	Low	

Bat roost feature reference	Notes	Habitat suitability	Photographs
BR552	Oak tree	Low	

Bat roost feature reference	Notes	Habitat suitability	Photographs
BR553	Mature oak, quite good connectivity, some holes	Moderate	

Bat roost feature reference	Notes	Habitat suitability	Photographs
BR554	Oak tree, some holes, quite good connectivity	Moderate	

Bat roost feature reference	Notes	Habitat suitability	Photographs
BR555	Mature oak tree, some crevices and holes visible	Moderate	

Bat roost feature reference	Notes	Habitat suitability	Photographs
BR556	Oak tree, some crevices	Moderate	

Bat roost feature reference	Notes	Habitat suitability	Photographs
BR557	Poplar, mature, ivy growing up	Low	

Bat roost feature reference	Notes	Habitat suitability	Photographs
BR558	Mature oak tree, ivy cover and some crevices with good connectivity via hedgerows to wider landscape.	Moderate	

Bat roost feature reference	Notes	Habitat suitability	Photographs
BR559	Ash tree, ivy cover, some connectivity to other trees	Low	

Bat roost feature reference	Notes	Habitat suitability	Photographs
BR560	Oak tree, some ivy cover connectivity to other trees	Low	

Bat roost feature reference	Notes	Habitat suitability	Photographs
BR561	Mature oak tree, ivy cover, some holes and crevices	Low	

Bat roost feature reference	Notes	Habitat suitability	Photographs
BR562	Ash tree with ivy cover, low connectivity but close to plantation woodland	Low	

Bat roost feature reference	Notes	Habitat suitability	Photographs
BR563	Mature oak, close to plantation woodland	Low	

Bat roost feature reference	Notes	Habitat suitability	Photographs
BR564	Oak tree, high ivy cover, close to plantation woodland	Low	

Bat roost feature reference	Notes	Habitat suitability	Photographs
BR565	Ash (some dieback) with ivy cover, close to plantation woodland	Low	

Bat roost feature reference	Notes	Habitat suitability	Photographs
BR566	Ash, ivy cover, close to plantaton woodland	Low	

Bat roost feature reference	Notes	Habitat suitability	Photographs
BR567	Mature oak, some crevices moderate connectivity	Low	

Bat roost feature reference	Notes	Habitat suitability	Photographs
BR568	Mature oaks, high ivy and bramble cover	Low	

Bat roost feature reference	Notes	Habitat suitability	Photographs
BR569	Mature oak, lots of holes and crevices	Moderate	

Bat roost feature reference	Notes	Habitat suitability	Photographs
BR570	Mature oak, negligible bat suitability	Negligible	

Bat roost feature reference	Notes	Habitat suitability	Photographs
BR571	Mature oak some ivy and crevices	Low	

Bat roost feature reference	Notes	Habitat suitability	Photographs
BR572	Mature oak, some ivy and a few holes	Low	

Bat roost feature reference	Notes	Habitat suitability	Photographs
BR573	Mature oak, negligible suitability	Negligible	

Bat roost feature reference	Notes	Habitat suitability	Photographs
BR574	Mature oak, some dead wood, holes and crevices, moderate. proximity to woodland	Moderate	

Bat roost feature reference	Notes	Habitat suitability	Photographs
BR575	Mature oak, some crevices and holes, moderate proximity to woodland	Moderate	

Bat roost feature reference	Notes	Habitat suitability	Photographs
BR576	Nature oak, some dead wood, crevices, moderate proximity to woodland	Moderate	

Bat roost feature reference	Notes	Habitat suitability	Photographs
BR577	Mature oak tree in between two arable fields. Limited connectivity to the wider landscape, some woodland nearby. No obvious crevices or holes and no ivy cover.	Negligible	

Bat roost feature reference	Notes	Habitat suitability	Photographs
BR578	Some dead wood, oak tree, some holes and crevices, moderate connectivity to landscape	Moderate	

Bat roost feature reference	Notes	Habitat suitability	Photographs
BR579	Mature oak, some crevices and holes	Low	

Bat roost feature reference	Notes	Habitat suitability	Photographs
BR580	Holly (ilex), some crevices and holes	Low	

Bat roost feature reference	Notes	Habitat suitability	Photographs
BR581	Mature oak, some ivy, some crevices	Low	

Bat roost feature reference	Notes	Habitat suitability	Photographs
BR582	Oak tree, some ivy, small crevices	Low	

Bat roost feature reference	Notes	Habitat suitability	Photographs
BR583	Mature oak, ivy, crevices along ivy vines	Moderate	

Bat roost feature reference	Notes	Habitat suitability	Photographs
BR584	Some ivy, mature oak, crevices	Moderate	

Bat roost feature reference	Notes	Habitat suitability	Photographs
BR585	Veteran oak, ivy cover, crevices	Moderate	

Bat roost feature reference	Notes	Habitat suitability	Photographs
BR586	Veteran oak with ivy, visible crevices	Moderate	

Bat roost feature reference	Notes	Habitat suitability	Photographs
BR587	Mature oak tree covered in ivy with connectivity to the wider landscape through hedgerows	Low	

Bat roost feature reference	Notes	Habitat suitability	Photographs
BR588	Veteran oak tree, contains holes and crevices for roosting bats	Moderate	 

Bat roost feature reference	Notes	Habitat suitability	Photographs
BR589	Mature oak tree with some small crevices, some connectivity to wider landscape, but sits in a gappy line of trees	Negligible	



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Appendix E – Biodiversity Net Gain Baseline Report

REPORT

Appendix E – Biodiversity Net Gain Baseline Report

Client: North Falls Offshore Wind Ltd

Reference: PB9244-RHD-ZZ-ON-RP-EC-0088

Status: S0/P01.02

Date: 19 October 2023

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Project name: North Falls Offshore Wind Farm
Project number: PB9244
Author(s): Charlotte Clements, Kitty Taylor, Jessie Balkman

Drafted by: Charlotte Clements, Kitty Taylor,
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Checked by: Gordon Campbell

Date: 19 October 2023

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Date: -

Classification

Project related

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1 Introduction

This document presents baseline information gathered as part of the project's Extended Phase 1 Habitat Survey Addendum with regard to biodiversity net gain (BNG), including an outline of the relevant legislation and policy underpinning BNG, details of the methodology used for gathering data, and full details of the information required to undertake a BNG assessment for the North Falls Offshore Wind Farm project (herein 'the project'). This document will be used to further inform the project's BNG approach throughout the project life cycle.

1.1 Project Background

The North Falls Offshore Wind Farm project (herein 'the project') is a proposed extension to the Greater Gabbard offshore wind farm, which is located off the east coast of England in the Southern North Sea and was opened in 2013. The project is being developed by North Falls Offshore Wind Farm Ltd. (NFOW), a joint venture between SSE Renewables and RWE.

The project is proposed in response to The Crown Estate's (TCE) extension leasing round, launched in 2017. NFOW was awarded an Agreement for Lease (AfL) from TCE in September 2020. NFOW have begun the process of baseline data collection to inform an EIA for the project in support of a Development Consent Order (DCO) application proposed to be submitted to the Planning Inspectorate in 2023.

To ensure that adequate baseline data was collected to inform the project's EIA, NFOW undertook a suite of ecological surveys in 2021. In the first instance, for these 2021 ecological surveys, NFOW targeted an area immediately landward of the coast between the settlements of Clacton-on-Sea and Frinton as the most likely area in which cable will be brought ashore (herein the 'cable landfall search area').

NFOW undertook an initial site selection exercise to identify potential onshore cable corridor options. These initial onshore cable corridor options were then used as the basis for identifying a footprint which was the subject of the surveys presented in this report. Royal HaskoningDHV was commissioned to undertake an Extended Phase 1 Habitat Survey within, and up to the 50 m buffer from, the onshore project area. This survey was undertaken and a report (PB9244-ZZ-ON-RP-EC-0085: North Falls Offshore Wind Farm - Extended Phase 1 Habitat Survey (the Main Report)) detailing its findings was published in May 2022.

Since the May 2022 report, the onshore project area has undergone revision, and now includes parcels of land that were not surveyed or assessed in the Main Report. In August 2023, Royal HaskoningDHV undertook a follow up Extended Phase 1 Habitat Survey of these previously unsurveyed parcels. This BNG baseline report serves as an appendix to the addendum and reports on the biodiversity findings of the Extended Phase 1 Habitat Survey undertaken in August 2023.

2 Biodiversity Net Gain definition and methods

2.1 Policy

This BNG assessment has been compiled with reference to the following relevant national and local nature conservation legislation, planning policy and the UK Biodiversity Framework from which the protection of sites, habitats and species is derived in England, including:

- The Environment Act 2021;
- National Planning Policy Framework (NPPF) (MHCLG, 2021);
- UK Government's 25 Year Environment Plan (DEFRA, 2018);
- Tendring District Local Plan 2013-2033 and Beyond, Section 1 (2021) and
- The Natural Environment and Rural Communities (NERC) Act 2006.

2.2 Approach to Biodiversity Net Gain Assessment

2.2.1 Definition

Schedule 14 of the Environment Act 2021 makes provision of BNG a condition of planning permission in England:

"A biodiversity gain objective is an objective that the biodiversity value attributable to development to which a biodiversity gain statement relates exceeds the pre-development biodiversity value of the onsite habitat by at least 10%"

This is likely to apply from January 2024 for developments in the Town and Country Planning Act 1990, unless exempt. It will apply to small sites from April 2024 and implementation for Nationally Significant Infrastructure Projects from is planned for 2025.

Section 1, Policy SP 7 of the Tendring District Local Plan 2013-2033 and Beyond (2021) states:

"All new development should reflect the following place shaping principles, where applicable... incorporate biodiversity creation and enhancement measures".

Irrespective of current legislative and national/local policy requirements the provision of a minimum of 10% BNG is now considered best practice, and a minimum of 10% BNG is being encouraged to be secured for a minimum of 30 years.

2.2.2 Methodology

To ensure standardised methodology of assessing BNG, best practice requires the use of biodiversity calculators to evaluate the biodiversity value of habitats pre- and post-development based on habitat type, distinctiveness and condition. A biodiversity index is derived for the baseline and for the proposed development, and BNG is considered to be achieved where an increase in value is delivered (on or offsite), and where habitats of a higher value are not replaced exclusively with habitats of a lower value. In England, the required calculator for assessing BNG is the Defra BNG Metric 4.0 (latest published at time of writing), to be utilised alongside guidance from Natural England (Natural England, 2023) by a competent person. Natural England defines a competent person as:

“Being able to confidently identify the positive and negative indicator species for the range of habitats likely to occur in a given geographic location at the time of year the survey is undertaken. For a full metric application, the competent person should be an ecologist.”

Condition assessments of terrestrial habitats were carried out during a field survey of the Site by a suitably qualified ecologist and competent person, on 16th and 17th August 2023. The scoring criteria for condition assessments vary depending on broad habitat type, as distinct habitats have differing indicators of condition. The condition assessment criteria for terrestrial habitats are provided by Natural England (Natural England, 2023).

This assessment was undertaken using the Defra Biodiversity Metric version 4.0 which was published on 28 March 2023.

2.2.3 BNG Metric 4.0 trading rules

Rule 3 of the BNG Metric 4.0 User Guide (Natural England, 2023) sets the minimum habitat creation and enhancement requirements to compensate for specific habitat losses (up to the point of no net loss). These requirements are based on habitat type and distinctiveness, as set out in **Table 2.1**.

Table 2.1 BNG Metric 4.0 Trading Rules (Rule 3) to compensate for losses, taken from the Natural England BNG Metric 4.0 User Guide (Table 3-2).

Baseline distinctiveness	habitat	Area module (area units)	Hedgerow module (hedgerow units)	Watercourse module (watercourse units)
Very high		Losses are not permitted within this metric and bespoke assessment and compensation are required	Losses must be replaced with hedgerow units of the same habitat type	Losses are not permitted within this metric and bespoke assessment and compensation are required
High		Losses must be replaced with area units of the same habitat type	Losses must be replaced with hedgerow units of the same habitat type or higher distinctiveness band	Losses must be replaced with watercourse units of the same habitat type
Medium		Losses must be replaced by area units either: Medium distinctiveness habitats within the same broad habitat type OR Any habitat from a higher distinctiveness band (from any broad habitat type).	Losses must be replaced with hedgerow units of the same or higher distinctiveness band	Losses must be replaced with watercourse units of the same habitat type
Low		Losses must be replaced with area units of the same or higher distinctiveness band	Losses must be replaced with hedgerow units of the same or higher distinctiveness band	Losses must be replaced with watercourse units of the same or higher distinctiveness band
Very low		N/A	Losses must be replaced with hedgerow units of the same or higher distinctiveness band	N/A

3 Biodiversity Net Gain Assessment

3.1 Habitats

The conversion tools built in to the 'Technical Data' tab of the Metric were used to convert the JNCC Phase 1 Habitat categories from the field survey into UKHab classifications. These were input into the BNG Metric. A total of five habitats were identified in the field survey of the Site: lowland meadows, mixed scrub, bare ground, fencing and urban trees.

Lowland meadows are considered to be Priority Habitats under Section 41 of the Natural Environment and Rural Communities Act 2006 (Defra, 2022). The extents, distinctiveness, assessed condition and strategic significance of each are summarised below in **Table 3.1**.

Table 3.1 The extents, distinctiveness, assessed condition, strategic significance and resulting terrestrial habitat units produced on site

Habitat type	Area (ha)	Distinctiveness	Condition	Strategic significance	Total habitat units	Required action to meet trading rules
Lowland mixed deciduous woodland	0.97	High	Moderate	Formally identified in local strategy	13.39	Same habitat required (=)
Lowland mixed deciduous woodland	0.04	High	Good	Formally identified in local strategy	0.83	Same habitat required (=)
Other woodland; broadleaved	0.18	Medium	Poor	Formally identified in local strategy	0.83	Same broad habitat or a higher distinctiveness required (≥)
Other woodland; broadleaved	0.02	Medium	Moderate	Formally identified in local strategy	0.18	Same broad habitat or a higher distinctiveness required (≥)
Other mixed woodland;	0.61	Medium	Poor	Formally identified in local strategy	2.81	Same broad habitat or a higher distinctiveness required (≥)
Other mixed woodland;	1.1	Medium	Moderate	Formally identified in local strategy	10.12	Same broad habitat or a higher distinctiveness required (≥)
Mixed scrub	0.02	Medium	Poor	Location ecologically desirable but not in local strategy	0.08	Same broad habitat or a higher distinctiveness required (≥)
Mixed scrub	0.03	Medium	Moderate	Area/compensation not in local strategy/no local strategy	0.24	Same broad habitat or a higher distinctiveness required (≥)
Mixed scrub	0.06	Medium	Good	Area/compensation not in local strategy/no local strategy		Same broad habitat or a higher distinctiveness required (≥)
Wood-pasture and parkland	0.2	V. high	Poor	Location ecologically desirable but not in local strategy	Any loss unacceptable	Bespoke compensation likely to be required
Wood-pasture and parkland	0.02	V. high	Moderate	Location ecologically desirable but not in local strategy	Any loss unacceptable	Bespoke compensation likely to be required
Arable field margins	0.45	Medium	Condition Assessment N/A	Formally identified in local strategy	2.07	Same broad habitat or a higher distinctiveness required (≥)
Other neutral grassland	4.33	Medium	Poor	Location ecologically desirable but not in local strategy	1.1	Same broad habitat or a higher distinctiveness required (≥)

Project related

Habitat type	Area (ha)	Distinctiveness	Condition	Strategic significance	Total habitat units	Required action to meet trading rules
Other neutral grassland	0.39	Medium	Moderate	Location ecologically desirable but not in local strategy	1	Same broad habitat or a higher distinctiveness required ($\geq$)
Modified grassland	0.27	Low	Poor	Area/compensation not in local strategy/no local strategy	1	Same distinctiveness or better habitat required ($\geq$)
Modified grassland	0.11	Low	Moderate	Area/compensation not in local strategy/no local strategy	1	Same distinctiveness or better habitat required ($\geq$)
Modified grassland	0.46	Low	Good	Area/compensation not in local strategy/no local strategy	1	Same distinctiveness or better habitat required ($\geq$)
Ruderal/Ephemeral	0.68	Low	Poor	Location ecologically desirable but not in local strategy	1.1	Same distinctiveness or better habitat required ($\geq$)
Ruderal/Ephemeral	0.27	Low	Moderate	Location ecologically desirable but not in local strategy	1.1	Same distinctiveness or better habitat required ($\geq$)
Cereal crops	57.56	Low	Condition assessment N/A	Area/compensation not in local strategy/no local strategy	1	Same distinctiveness or better habitat required ($\geq$)
Urban - Developed land; sealed surface	1.00	V. low	N/A – Other	Area/compensation not in local strategy/no local strategy	1.15	Compensation not required
Urban - Bare ground	1.03	Low	Poor	Area/compensation not in local strategy/no local strategy	2.06	Same distinctiveness or better habitat required $\geq$
Habitat type	Length (km)	Distinctiveness	Condition	Strategic significance	Total hedgerow units	Required action to meet trading rules
Species-rich native hedgerow	0.45	Medium	Moderate	Formally identified in local strategy	4.17	Same distinctiveness band or better
Species-rich native hedgerow	0.001	Medium	Good	Formally identified in local strategy	0.01	Same distinctiveness band or better
Native hedgerow	2.08	Low	Poor	Formally identified in local strategy	4.78	Same distinctiveness band or better
Native hedgerow	1.07	Low	Moderate	Formally identified in local strategy	4.92	Same distinctiveness band or better
Native hedgerow	0.01	Low	Good	Formally identified in local strategy	0.07	Same distinctiveness band or better

Project related

Habitat type	Area (ha)	Distinctiveness	Condition	Strategic significance	Total habitat units	Required action to meet trading rules
Species-rich native hedgerow with trees	0.05	High	Moderate	Location ecologically desirable but not in local strategy	0.66	Like for like or better
Species-rich native hedgerow with trees	0.2	High	Good	Location ecologically desirable but not in local strategy	3.96	Like for like or better
Native hedgerow with trees	0.49	Medium	Poor	Location ecologically desirable but not in local strategy	2.16	Same distinctiveness band or better
Native hedgerow with trees	0.72	Medium	Moderate	Area/compensation not in local strategy/no local strategy	6.34	Same distinctiveness band or better

4 Summary and Next Steps

The results of the biodiversity net gain habitat conditions assessment for the project, as shown in **Table 3.1**, conclude that the majority of habitats recorded during the Extended Phase 1 Habitat Survey are of a 'poor' condition (58% of the total), with 'moderate' condition habitats encountered less frequently (26% of the total) and 'good' condition habitats encountered even less frequently (only 16% of the total).

This initial assessment potentially provides scope for enhancement opportunities within the footprint of the project infrastructure, from the restoration of poor or moderate condition habitats or the provision of new habitats. These habitats should be designed to provide additional benefits beyond maintaining the current condition and may, for example, provide habitat for protected or rare species or extend the habitat available for locally significant species. Some examples of enhancement opportunities that could be explored as part of the project design could include, but not be limited to, the following:

- Planting of species rich grassland/meadow;
- Tree planting (i.e. incorporated around the landscaping features at the onshore substation);
- Hedgerow reinstatement of higher condition (i.e. 'poor' and 'moderate' hedgerows replanted with native species to obtain a 'good' habitat condition);
- Improvement of existing drainage ditches/watercourses (i.e. bank reprofiling and vegetation planting to encourage native species such as water vole *Arvicola amphibious*);
- Incorporation of 'b-lines' (insect highways that are mapped and recorded within Essex);
- Planting of habitat suitable for specific species, for example the planting of hog's fennel *Peucedanum officinale* within coastal grassland as the key larval food source of the Annex II species Fisher's estuarine moth *Gortyna borelii lunata*.

Key considerations for the above enhancement opportunities will be based on agreement from local landowners, specifically with regard to hedgerow enhancement.

The project has explored initial consultation with stakeholders in regard to obtaining information on potential existing 'off-site' opportunities for biodiversity enhancement within the local area. These tend to consist of local wildlife site initiatives through to larger national projects led by Natural England. Further details on collaboration opportunities will be investigated throughout the project lifecycle and feed into the project biodiversity net gain ambitions.

Whilst this assessment provides an initial scope for biodiversity enhancement opportunities, it should be noted that a full biodiversity net gain assessment using the baseline presented here be required once further details about the project's onshore infrastructure are known. In addition, this baseline will need updating following future survey work and changes to the onshore project area.

5 References

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