Tween Bridge Solar Farm

5.3 Report to Inform Habitat Regulations Assessment

Planning Act 2008
Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulations 2009

APFP Regulation 5(2)(g)

Document Reference: 5.3

August 2025

Revision 1

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1 Summary

1.1.1. This 'shadow' HRA has been prepared by Tyler Grange Group Ltd on behalf of RWE Renewables UK Solar and Storage Ltd. It has been prepared to accompany an application under Section 37 of the Planning Act 2008 to the Secretary of State for the Department of Energy Security and Net Zero for a Development Consent Order for the Tween Bridge Solar Farm.

1.1.2. The following Natura 2000 sites were screened in for sHRA:

- Humber Estuary SPA (7.7 km north);
- Humber Estuary Ramsar (1.3km northeast)
- Humber Estuary SAC (1.3km north);
- Thorne Moor SAC (0.53ha located within the Scheme on the northern boundary, with other sections adjacent to the northern boundary);
- Thorne and Hatfield Moors SPA (0.53 ha located within the Scheme on the northern boundary, with other sections adjacent to the northern boundary).
- Hatfield Moor SAC (0.1 km south)

1.1.3. Potential LSEs include impacts form construction as a consequence of damage, run-off, air quality, noise and disturbance and also from loss of functionally linked land associated with Humber Estuary SPA / Ramsar.

1.1.4. Mitigation measures have been proposed with further details being provided in the **Outline Ecological Construction Management Plan [Document Reference: 7.5]** and **Outline Landscape Ecological Management Plan (LEMP)[Document Reference: 7.6]**.

1.1.5. These mitigations, if implemented successfully, would enable the Scheme to be constructed, operated and decommissioned with no likely significant effects on the features of the above designations which were screened in for Appropriate Assessment.

1.1.6. Furthermore, once applied, the mitigation measures would render any potentially significant effects as either neutral or at such a negligible level that they would not

result in any in combination effects arising from the cumulative developments considered in **ES Chapter 7 Ecology and Nature Conservation [Document Reference: 6.2.6].**

2 Introduction

2.1.1. This 'shadow' Habitats Regulations Assessment (sHRA) has been prepared by Tyler Grange (TG) Group Ltd. on behalf of RWE Renewables UK Solar and Storage Ltd. It has been prepared to accompany an application under Section 37 of the Planning Act 2008 to the Secretary of State (SoS) for the Department of Energy Security and Net Zero (DESNZ) for a Development Consent Order (DCO) known as 'the Scheme'.

2.1.2. The Order Limits consist of approximately **1,831 ha** of agricultural land, the majority of which consists of arable farmland with cereal and non-cereal crops. Fields are bounded by ditches as well as fences, hedgerows and tree lines. Modified grassland used as pastoral land is also present within the Order Limits as well as a woodland copse and a number of ponds.

2.1.3. The operational Tween Bridge Wind Farm is located within the Order Limits, and consists of twenty-two operational wind turbines. The Stainforth and Kneadby Canal crosses the Order Limit from west to east.

2.1.4. In the wider context, the Order Limits is surrounded by extensive areas of farmland and areas of woodland, with areas of lowland peat bog (Thorne & Hatfield Moors) located to the north and south of the Order Limits.

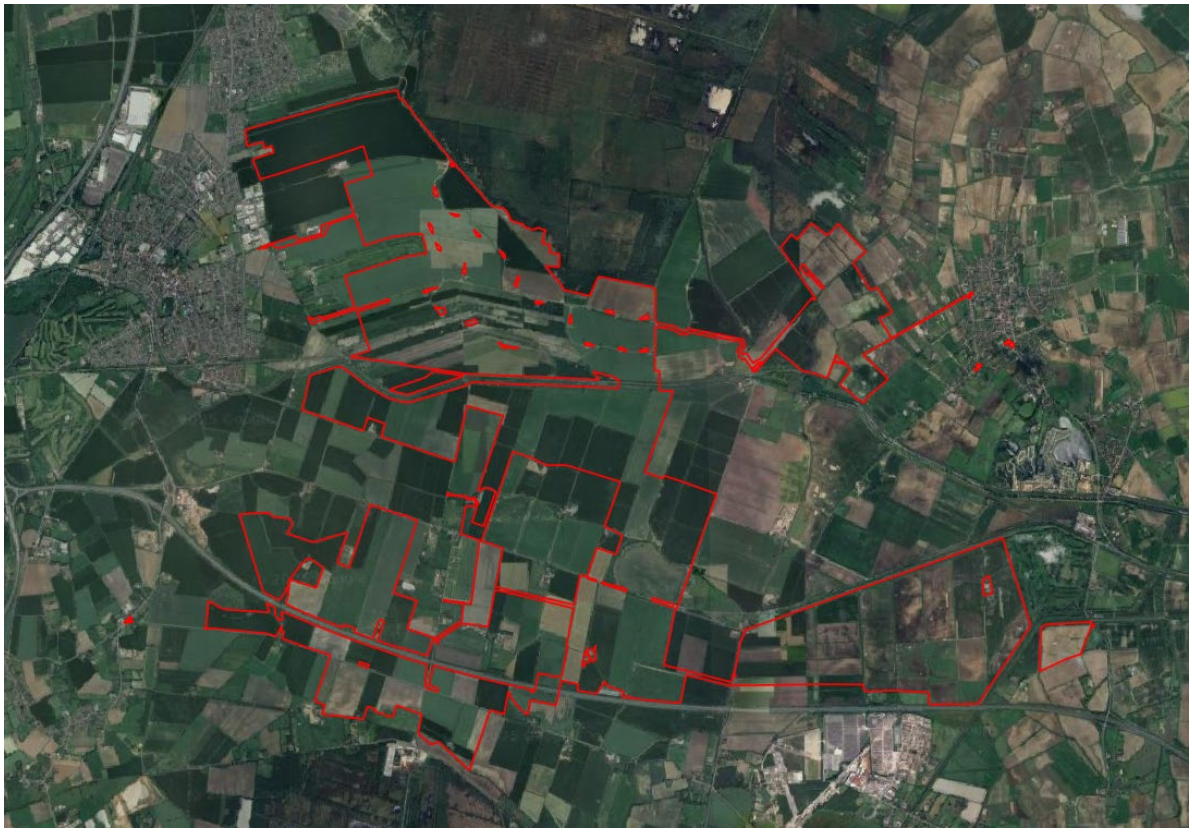

Figure 2-1: Site Context and Order Limits (Aerial Imagery © Google Earth 2025)

2.1.5. The proposals for the Order Limits are for the creation of a ground mounted solar farm and battery energy storage systems (BESS), together with associated infrastructure.

2.1.6. Two options in the design layout are considered for a fixed and tracker design and fixed design with further details set out in **ES Chapter 2 Scheme Description [Document Reference: 6.4.2]**. However, the parameters of the development are the same with only minor differences. As such the 'Assessment of Likely Effects' and 'Residual Effects' assess both design options as there are no significant differences.

2.1.7. The construction phase assumes the Scheme will be built out over up to a 54 month-period (2028- 2032) in either a single phased approach (development of Land Parcels completed one after another with the potential for breaks between development of Land Parcels) or through multiple phases (development of Land Parcels concurrently). For the multiple phase construction option, no more than two land parcels (within land parcels A-E) would be built out at the same time. ES

Environmental Aspect Chapters determine in the methodology 'Assessment Approach' section which of the two options for the construction phasing approach would give rise to the 'worst-case scenario' for the purpose of their assessment. The current connection date for the Scheme, within the NESO Connection Agreement, is 2029. As with all electricity generation projects, this date is under review by NESO as part of the ongoing connections reform process.

2.1.8. If the NESO Connection Agreement remains with the connection date of 2029, it would be possible to operate a phased start to operational generation. This phased approach would connect each Land Parcel to the RWE on-site 400kV substation when construction of that Land Parcel was completed. In this operational scenario there would be partial Scheme operation from 2029-2032 (3 years). From 2032 onwards the full Scheme would be generating at full operational capacity. The full Scheme would operate for 40 years until 2072. If the NESO Grid Connection date varies, which is not within the Applicants direct control, the timeframe where there could be partial operation of the Scheme could reduce or fail to materialise. In this situation the full operational Scheme would operate for 40 years from its new grid connection date. In either connection scenario there will be full operational generation for 40 years, which would be the worst-case scenario operational time period for the Scheme.

2.1.9. Following 40 years of a fully operational Scheme, it is proposed that the Scheme will be decommissioned. This decommissioning with take approximately 24 months and will be in a phased approach.

2.1.10. The Order Limits lies outside designated sites with the exception of a small 0.53ha area of Thorne & Hatfield Moors Special Protection Area (SPA), Thorne Moor Special Area of Conservation (SAC), Thorne, Crowle and Goole Moors Site of Special Scientific Interest (SSSI) and Hatfield Chase Ditches SSSI, which is located in Land Parcel A. Whilst the Thorne & Hatfield Moors SPA/SAC/SSSI lies within the Draft Order Limit, it is outside the development footprint and this area is to be buffered from any development. Therefore no Scheme works are scheduled within these designated sites.

2.1.11. Details of the European statutory designated sites that occur within 10km of the Order Limits boundary, which is defined as the Zone of Influence (ZoI), are on Figure 2-2 below and include:

- Humber Estuary SPA;

- Humber Estuary Ramsar;
- Humber Estuary SAC;
- Thorne & Hatfield Moors SPA;
- Thorne Moor SAC; and
- Hatfield Moor SAC.

2.1.12. The Scheme will result in the loss of habitat that is used by species that are a qualifying feature of some of the above designated sites and is functionally linked to the SPA, specifically non-breeding birds, and without mitigation could also impacts the water quality and quantity leaving the Order Limits boundary, which could have a detrimental impact to the designated sites detailed above.

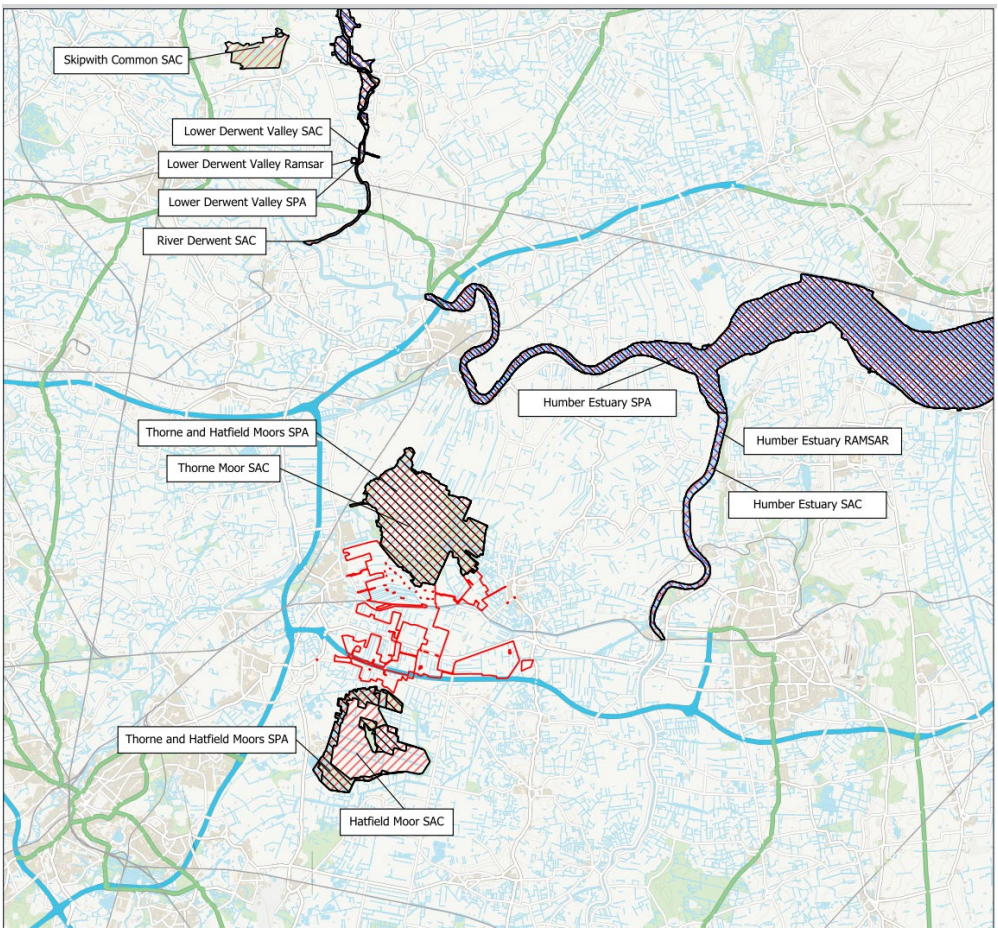

Figure 2-2: European Conservation Designations within ZoI to the Order Limits

2.1.13. In addition to the designated sites located within 10km, an extended search was also made for any European designated sites that are up to 30km away:

- Lower Derwent Valley SPA - 17.2km north;
- Lower Derwent Valley RAMSAR - 17.1km north;
- Lower Derwent Valley SAC - 17.1km north;
- Skipwith Common SAC - 22.2km north;
- River Derwent SAC - 13.8 km north.

2.1.14. However, given the distances of the above designated sites, it is only those designated for mobile species that are relevant. The Lower Derwent Valley SAC and Skipwith Common SAC are designated for a variety of habitats and so can be screened out of further assessment. The River Derwent SAC is designated due to comprising habitats, and also white-clawed crayfish, sea, river and brook lampreys, bullhead, Atlantic salmon and otter as a qualifying feature. However, given the distance from the Order Limits and lack of hydrological connectivity, this SAC can also be screened out.

2.1.15. Lower Derwent Valley SPA and Ramsar is included within this Report to Inform HRA, with this designated site supporting a range of wintering and breeding bird species.

2.2. Planning Context

2.2.1. The National Policy Statement (NPS), taken together with the overarching National Policy Statement for Energy (EN-1) and the Nationally Significant Infrastructure Projects: Advice on Habitats Regulations Assessments produced by the Planning Inspectorate and last updated in March 2025[1], provide the primary policy and guidance for decisions by the Secretary of State on applications they receive for nationally significant renewable energy infrastructure.

[1] Planning Inspectorate. March 2025. Projects: Advice on Habitats Regulations Assessments **produced by the Planning Inspectorate**

2.3. Purpose

2.3.1. This report sets out 'shadow' HRA stage 1 screening and provides information to inform HRA stage 2 Appropriate Assessment (AA).

3 Legislation and Planning Policy

3.1.1. The European Council Directive on the Conservation of Natural Habitats and of Wild Flora and Fauna, 1992, often referred to as the 'Habitats Directive', provides for the protection of key habitats and species considered of European importance (listed under Annex I, II and IV of the Directive). The Birds Directive (formally known as Council Directive 2009/147/EC on the conservation of wild birds) was also adopted in 2009. These directives have been transposed into UK law through The Conservation of Habitats and Species Regulations, hereafter referred to as 'the Habitats Regulations 2017 (as amended)', and incorporated protections for European sites.

3.1.2. It should be noted that the UK's departure from the European Union (EU) does not alter the implementation of this legislation in the UK at the time of writing. Section 6 of the EU (Withdrawal) Act 2018 (as amended) requires retained EU law such as the Conservation of Habitat and Species Regulations 2017 (as amended) to be interpreted in line with "retained case law" which includes retained EU case law.

3.1.3. European sites comprise:

- Special Areas of Conservation (SAC) and candidate SACs (cSACs) designated under the Habitats Directive;
- Special Protection Areas (SPA) and potential SPAs (pSPAs), classified under the Birds Directive;
- Ramsar sites, designated under the Convention on Wetlands of International Importance; and
- European Marine Sites (EMS).

3.1.4. Under the Habitats Regulations, competent authorities are required to consider impacts of any plans / projects which may result in Likely Significant Effect (LSE) and/or adverse effects on the integrity of European sites - either alone or in-

combination with other plans / projects. The assessment of the potential effects is termed an HRA, which is split into four stages, as described below, and shown in **Figure 3-1** of this report:

- **Stage 1** is a screening stage to determine if the proposed development is expected to have an LSE on a European site. If an LSE is determined, AA, Stage 2, is required;

- If required, **Stage 2** refers to an AA which is used to determine whether the project will adversely affect the integrity of any given European site(s) (through also considering proposed avoidance and mitigation measures), in view of their conservation objectives. Conservation objectives specify the overall target for a site's qualifying features (habitats and species / populations listed in Annex I and II) in order for that feature to be maintained or restored, to reach favourable conservation status;

- **Stage 3** is triggered if significant adverse effects are identified in stage 2 that cannot be avoided or mitigated. This stage requires alternative options to be examined to avoid significant impacts on European sites; and

- If it is deemed that the project should proceed for Imperative Reasons of Overriding Public Interest (IROPI), **Stage 4** comprises an assessment of compensatory measures which would be required.

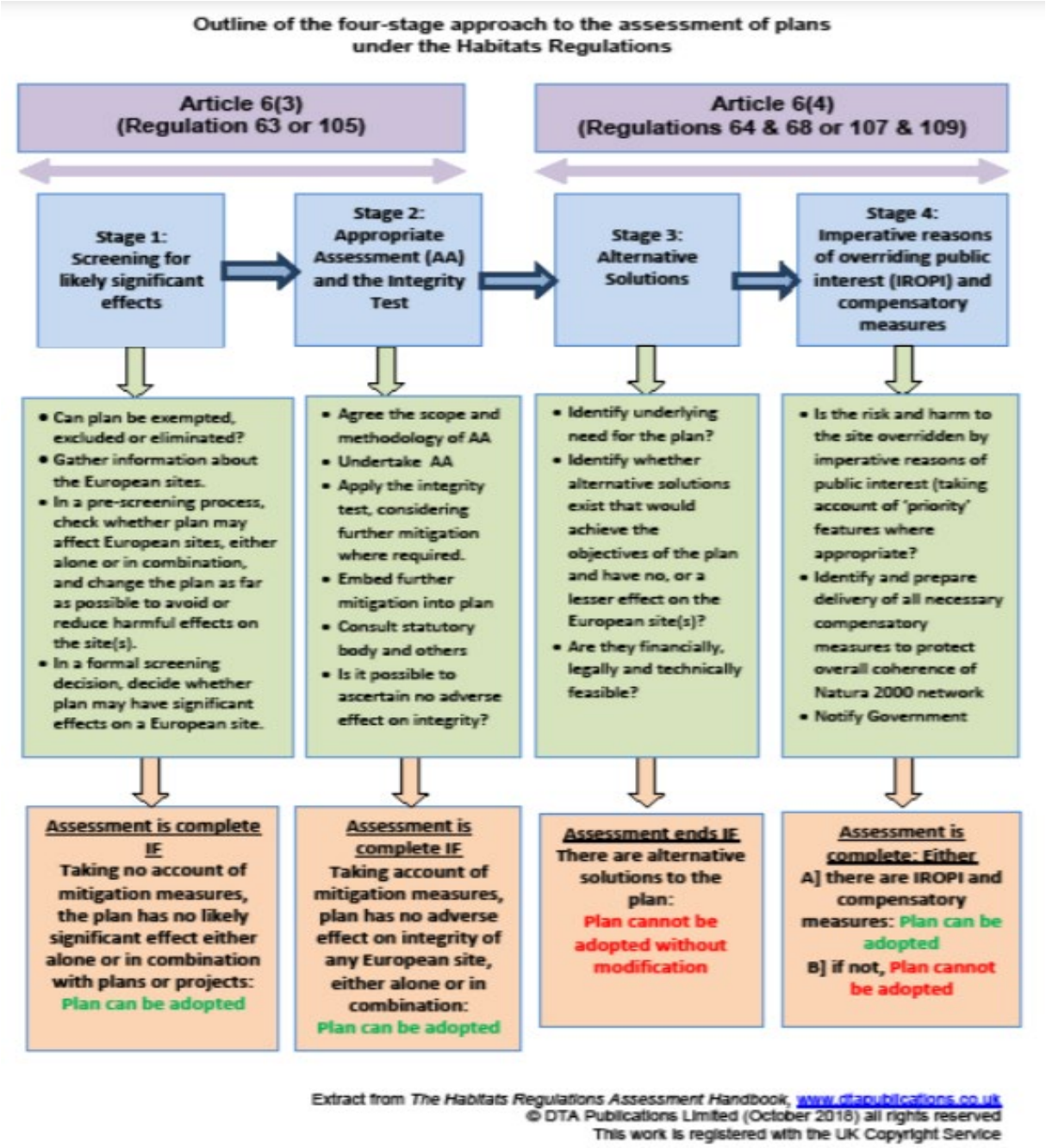

Figure 3-1: HRA stages[2]

2 Reproduced from DTA publications (2018) HRA handbook [Online] Available at: https://www.dtapublications.co.uk [Accessed: 14/11/2022].

3.1.5. The responsibility for undertaking the HRA, if required, lies with the competent authority who is responsible for granting consent for the scheme - in this case, this will be the Secretary of State. However, it is the Applicant's obligation to provide information to the competent authority to enable them to undertake the assessment. In this case, the applicant is RWE Renewables UK Solar and Storage Limited.

3.1.6. This report aims to provide sufficient information relevant to HRA screening (HRA stage 1) and to provide sufficient information for appropriate Assessment (AA) (HRA stage 2) of impacts which are not screened out.

3.2. National Planning Policy

3.2.1. The National Planning Policy Framework (NPPF), (December 2024) requires development plans to identify, map and safeguard international, national and locally designated sites of importance for biodiversity, such as European designated sites. Under the requirements of the NPPF, unless it has been concluded that the proposed development will not adversely affect the integrity of European designated sites, the usual presumption in favour of sustainable development does not apply.

3.3. Local Policy

3.3.1. The Order Limits is located within the boundaries of City of Doncaster Council and North Lincolnshire, with relevant policies detailed below.

Doncaster Council Local Plan (2021-35) [3]

Policy 30: Valuing Biodiversity and Geodiversity (Strategic Policy)

3.3.2. City of Doncaster Council has a range of internationally, nationally, and locally important habitats, sites and species that will be protected through the following principles:

- All proposals shall be considered in light of the mitigation hierarchy in accordance with National Policy.

[3] Doncaster City Council. Doncaster Local Plan. 2021 - 2035

- Proposals which may harm designated Local Wildlife Sites, Local Geological Sites, Priority Habitats, Priority Species, protected species or non-designated sites or features of biodiversity interest, will only be supported where:
    - they use the DEFRA biodiversity metric to demonstrate that a proposal will deliver a minimum 10% net gain for biodiversity;
    - they protect, restore, enhance and provide appropriate buffers around wildlife and geological features and bridge gaps to link these to the wider ecological network;
    - they produce and deliver appropriate long term management plans for local wildlife and geological sites as well as newly created or restored habitats;
    - they can demonstrate that the need for a proposal outweighs the value of any features to be lost; and
    - if the permanent loss of a geological site is unavoidable, then provision will be made for the site to first be recorded by a suitably qualified expert.
- Proposals which may impact Special Areas of Conservation, Special Protection Areas or RAMSAR Sites will only be supported where it can be demonstrated that there will be no likely significant effects and no adverse effects on the integrity of European sites, unless there are no alternative solutions, and it is justified by an "imperative reasons of overriding public interest" (IROPI) assessment under the Habitats Directives.
- Proposals that may either directly or indirectly negatively impact Sites of Special Scientific Interest will not normally be supported. Proposals should seek to protect and enhance Sites of Special Scientific Interest and maintain, strengthen, and bridge gaps to link them to the wider ecological network wherever possible.
- In order to ensure development does not negatively impact on nightjar populations, proposals located within 3km of Thorne and Hatfield Moors Special Protection Area, that impact habitats that nightjars may use for feeding

on, will only be supported where they deliver a net gain in nightjar foraging habitat.

The North Lincolnshire Local Development Framework[4]

Spatial Objective 6: Protecting and Enhancing The World Class Environment

3.3.3. To conserve and enhance our world class environments of the Humber Estuary and Crowle Moors Crowle Moors and improve our other natural, historic and built landscapes as well as guiding changes in a way which reduces and takes proper account of environmental impact, climate change and sea level rise.

CS17: Biodiversity

3.3.4. The council will promote effective stewardship of North Lincolnshire's wildlife through:

- Safeguarding national and international protected sites for nature conservation from inappropriate development.
- Appropriate consideration being given to European and nationally important habitats and species.
- Maintaining and promoting a North Lincolnshire network of local wildlife sites and corridors, links and stepping stones between areas of natural green space.
- Ensuring development retains, protects and enhances features of biological and geological interest and provides for the appropriate management of these features.
- Ensuring development seeks to produce a net gain in biodiversity by designing in wildlife, and ensuring any unavoidable impacts are appropriately mitigated for.
- Supporting wildlife enhancements that contribute to the habitat restoration targets set out in the North Lincolnshire's Nature Map and in national, regional and local biodiversity action plans.

[4] North Lincolnshire Local Development Framework. June 2011

- Improving access to and education/interpretation of biodiversity sites for tourism and the local population, providing their ecological integrity is not harmed.

4 Methodology

4.1.1. This report provides information relevant to HRA screening (stage 1) and AA (stage 2) and aims to determine if the Scheme is likely to have an LSE on any European sites screened in and the mitigation required.

4.1.2. The approach and methodology have also been determined following the detailed consultation process detailed in the **ES Chapter 7 Ecology and Nature Conservation [Document Reference: 6.2.6].**

4.1.3. Over the duration of the survey programme the Draft Order Limits were revised as the project design evolved. Ornithology survey results in Appendix 1 of this report (and at ES Appendix 7.3 – Non Breeding Bird Survey Report (Year 1 and 2) and at ES Appendix 7.2 – Breeding Bird Survey Report are presented based on the Draft Order Limits (survey area) as applicable at the time of survey, so as to fully present the extent of data collection including adjacent land which could potentially be impacted by the Scheme. It should therefore be noted that impact assessment utilises all data collected over the course of the survey programme, including the final Draft Order Limits, and is consequently robust.

4.1.4. Detailed methodology at each stage is set out below.

4.1.5. To inform the scope of the Stage 1 Screening and potential for LSEs, the detail within the Ecology ES Chapter was used for reference.

4.1.6. The methodology utilised for the non-breeding bird surveys used to determine the potential for impact on bird populations forming part of nearby Special Protection Areas (SPA) and Ramsar is outlined in **Chapter 7 Ecology and Nature Conservation [Document Reference 6.2.7]**.

4.1.7. The methodology used to determine the potential for impacts on water quality and quantity is also detailed within **Chapter 7 Ecology and Nature Conservation [Document Reference 6.2.7]**.

4.2. HRA Stage 1: Screening

4.2.1. Screening aims to determine if the Scheme is expected to have any LSEs on European sites. An effect is considered 'likely significant' if, in the absence of mitigation, it cannot be excluded based on objective information and it might undermine a European site's conservation objectives.

4.2.2. To assess whether LSEs may occur, the following information is provided:

- Identification of relevant European sites and their respective qualifying features (presented in **Section 4, European sites**);
- Identification and understanding of the conservation objectives of the identified sites (presented in **Section 4, European site**s);
- Where relevant, an estimation of the likely magnitude, duration, location and extent of effects on European sites if any are anticipated (presented in **Section 5, HRA screening (stage 1);** and
- Identification of whether any element of the Scheme will have an LSE on any qualifying feature, either alone or in-combination with other projects and plans (presented in **Section 5, HRA screening (stage 1)**).

4.2.3. This assessment has been informed by thorough review of the Scheme (set out in **Section 1** above) and **the ES.** In addition, the following resources were reviewed to inform this report:

- The Habitats Regulations 2017 (as amended);
- UK government guidance on the use of Habitats Regulations Assessment1F[5];
- Joint Nature Conservation Committee for citations of European sites and associated conservation objective and site improvement plan documents[6];
- Natural England's web resources for citations of European sites and associated conservation objectives and site improvement plan documents;

5 Ministry of Housing, Communities and Local Government (2019) Guidance Appropriate assessment: Guidance on the use of Habitats Regulations Assessment, [Online] Available at: https://www.gov.uk/guidance/appropriate-assessment [Accessed: April 2023].

6 JNCC (2020) Joint Nature Conservation Committee for citations of internationally designated sites, [Online] Available at: https://jncc.gov.uk/our-work/uk-protected-areas/ [Accessed April 2023].

- Multi-Agency Geographic Information for the Countryside (MAGIC) interactive maps for locations of statutory sites (DEFRA 2020) within a 30km search radius of the site[7];
- Doncaster Council Local Plan; and
- North Lincolnshire Core Strategy.

4.2.4. In order to establish the European sites which may be affected by the Scheme, a 10km search radius was used from the site boundary, which was defined as the Zone of Influence (ZoI). An additional search for designated sites that support mobile species was also undertaken up to 30km from the Order Limits boundary

4.2.5. **Figure 2-2** shows the locations of the European Conservation Designations within the 10km search radius.

4.2.6. The CJEU in the case of People Over Wind, Peter Sweetman v Coillte Teoranta ruled that "*in order to determine whether it is necessary to carry out, subsequently, an appropriate assessment of the implications, for a site concerned, of a plan or project, it is not appropriate, at the screening stage, to take account of the measures intended to avoid or reduce the harmful effects of the plan or project on that site*"[8]. Hence it is not acceptable for the stage 1 screening assessment to rely on avoidance or reduction (mitigation) measures. Therefore, if it cannot be concluded that there will be no LSE in the absence of mitigation measures at the screening stage, HRA stage 2 (AA) is required.

4.3. In-combination Assessment

4.3.1. This report considers the potential for 'in-combination effects' on European sites from the Scheme. The list of cumulative sites used is the same as that used for the cumulative impact assessment completed as part of the ES.

4.4. Assessment of Effects and Mitigation Measures

7 [Online] Available at: https://magic.defra.gov.uk/ [Accessed April 2023]
8 Court of Justice of the European Union (CJEU) (2018) Judgement of 12.4.2018 - Case C-323/17 People Over Wind and Sweetman

4.4.1. An assessment of the potential effects for European sites in view of their conservation objectives is made, in terms of the magnitude, duration, location and extent of effects, both alone and in-combination with other developments.

4.4.2. Mitigation measures can include both avoidance measures and reduction measures, but the former approach is preferred.

4.5. Integrity Test

4.5.1. The integrity test requires the competent authority to ascertain if the Scheme (alone and in-combination with other plans / projects) will not have a significant adverse effect on a European site's integrity, which is defined as:

"*The coherence of its ecological structure and function, across its whole area, that enables it to sustain the habitat, complex of habitats and/or the level of populations for the species for which it was classified.*"[9]

4.6. Consultation

4.6.1. Consultations with the following statutory bodies to inform the Ecological Assessment use to inform this sHRA were undertaken:

- Natural England (NE);
- Doncaster Council; and
- North Lincolnshire Council.

4.6.2. The ES provides a table of issues consulted on as part of the ES process, together with copies of advice provided by NE via Discretionary Advice Service (DAS).

5 European Sites

5.1.1. The site falls within the Zone of Influence for six European Conservation Designations identified by MAGIC, listed in **Table 5-1** below. Qualifying features and threats of each European conservation designated site are provided in **Table 5-2**.

9 The Department for Levelling Up, Housing and Communities and Ministry of Housing, Communities & Local Government (2019) Guidance: Appropriate Assessment, [Online] Available at: https://www.gov.uk/guidance/appropriate-assessment [Accessed: April 2023]

5.1.2. Designated sites which are identified for consideration within the screening assessment (HRA Stage 1) have been identified following the below criteria, which have been adapted from Highways England guidance[10]:

- Criterion 1: A designated site or functionally linked land (i.e. land that is used by mobile qualifying species) within, or within 10km of the proposed development (30km for European designated sites that support mobile species was also undertaken).
- Criterion 2: The proposed development crosses or lies adjacent to, upstream of, or downstream of, a watercourse which is designated in part or wholly as a designated site (i.e. is hydrologically linked);
- Criterion 3: The proposed development has a potential hydrogeological linkage to a designated site; and
- Criterion 4: Any designated sites within 10 km of the proposed development with relevant QIs which may be impacted by changes in air quality (i.e. aerially linked).

Table 5-1: European Statutory Designated Sites within the search radius of 10km

Site Name	Designation	EU Code	Area (ha)	Distance and Direction from Site
Humber Estuary	SPA	UK9006111	37630	7.7km north
	SAC	UK0030170	36657	5.6km northeast
	Ramsar	663	37,988	5.6km northeast
Thorne and Hatfield Moors	SPA	UK9005171	2438	0.53 ha within the site
Thorne Moor	SAC	UK0012915	1911	0.53 ha within the site

[10] Highways England (2020) Design Manual for Roads and Bridges LA 115 Habitats Regulations Assessment, Revision 1.

Hatfield Moor	SAC	UK0030166	1359	0.1 km south

5.1.3. In addition to the above, European designated sites that are located within 30km of the Order Limits and which are designated due to comprising relevant mobile species that have not been scoped out earlier, include:

- Lower Derwent Valley SPA - 17.2km north;
- Lower Derwent Valley Ramsar- 17.1km north;

5.1.4. The non-breeding and breeding bird surveys did not record any significant numbers of the Lower Derwent SPA and Ramsar species utilising the Order Limits.

5.1.5. The distance of this SPA and Ramsar to the Order Limits also ensures any impacts are unlikely. As such, these designated sites are not considered further and are screened out of the sHRA.

5.1.6. Given that the Order Limits does not lie within the ZoI for any other European sites, and none are present within 10km of the Order Limits, effects on European sites other than those listed in **Table 5-1** have been scoped out of this assessment and are discussed no further within this report.

5.1.7. **Table 5-2**. below sets out the qualifying features and threats relating to each of the European conservation designated sites assessed as part of the HRA, which includes all potential threats and not just as a consequence of the Scheme.

Table 5-2: Qualifying Features and Threats for European Designations assessed as part of the HRA

Site Name	Qualifying Features	Threats[11]
Humber Estuary SPA	This site is designated as a Special Protection Area under Article 4.1 of the Directive 79/409/EEC for the following species:	Threats to the various components of the estuary include habitat degradation, both to the qualifying SAC habitats and supporting SPA

[11] Information on threats to designations were taken from their respective Natura 2000 Standard Data Forms, Site Improvement Plans and/ or Supplementary Advice Documentation.

	Wintering Avocet *Recurvirostra avosetta* (1.7% of the GB Population 5 year peak mean 1996/7-2000/01); Bittern *Botaurus stellaris* (4.0% of the GB Population 5 year peak mean 1998/99-2002/03); Hen harrier *Circus cyaneus* (1.1% of the GB Population 5 year peak mean 1997/98-2001/02); Golden Plover *Pluvialis apricaria* (12.3% of the GB Population 5 year peak mean 1996/97-2000/01); Bar-tailed godwit *Limosa lapponica* (4.4% of the GB Population 5 year peak mean 1996/97-2000/01); **On passage** Ruff *Philomachus pugnax* (1.4% of the GB Population 5 year peak mean 1996-2000); **In the breeding season** Bittern *Botaurus stellaris* (10.5% of the GB Population 3 year peak mean 2000-2002); Marsh harrier *Circus aeruginosus* (6.3% of the GB Population 5 year peak mean 1998-2002); Avocet *Recurvirostra avosetta* (8.6% of the GB Population 5 year peak mean 1998-2002); Little tern *Sterna albifrons* (2.1% of the GB Population 5 year peak mean 1998-2002); This site is also designated as a Special Protection Area under Article 4.2 of the Directive 79/409/EEC for the following species:	habitats, through recreational usage. The SPA component is also under threat through the loss of functionally linked land associated with development. Construction activities also put all components under threat through uncontrolled pollution/run-off. Located beyond the distance that impacts could occur from air quality and noise. Abiotic (slow) natural processes Invasive non-native species Changes in biotic conditions Changes in abiotic conditions

	Wintering Shelduck *Tadorna tadorna* (1.5% of subspecies/ Population 5 year peak mean 1996/97-2000/01); Knot *Calidris canutus* (6.3% of the subspecies/ Population 5 year peak mean 1996/97-2000/01); Dunlin *Calidris alpina* (1.7% of the subspecies/ Population 5 year peak mean 1996/97- 2000/01); Black-tailed godwit *Limosa limosa* (3.2% of the subspecies/ Population 5 year peak mean 1996/97- 2000/01); Redshank *Tringa totanus* (3.6% of the subspecies/ Population 5 year peak mean 1996/97- 2000/01); **On passage** Knot *Calidris canutus* (4.1% of the subspecies/ Population 5 year peak mean 1996-2000); Dunlin *Calidris alpina* (1.5% of the subspecies/ Population 5 year peak mean 1996- 2000); Black-tailed godwit *Limosa limosa* (2.6% of the subspecies/ Population 5 year peak mean 1996- 2000.); Redshank *Tringa totanus* (5.7% of the subspecies/ Population 5 year peak mean 1996- 2000); The site also qualifies under Article 4.2 of Directive 79/409/EEC for its 'internationally important assemblage of birds over winter', which include: Dark-bellied brent goose *Branta bernicla bernicla*;	

	Shelduck *Tadorna tadorn*; Wigeon *Anas penelope*; Teal *Anas crecca*; Mallard *Anas platyrhynchos;* Pochard *Aythya ferina;* Scaup *Aythya marila;* Goldeneye *Bucephala clangula;* Bittern *Botaurus stellaris;* Oystercatcher *Haematopus ostralegus* Avocet *Recurvirostra avosetta;* Ringed plover *Charadrius hiaticula;* Golden plover *Pluvialis apricaria;* Grey plover *P. squatarola;* Lapwing *Vanellus vanellus* Knot *Calidris canutus* Sanderling *C. alba* Dunlin *C. alpina* Ruff *Philomachus pugnax;* Black-tailed godwit *Limosa limosa* Bar-tailed godwit *L. lapponica* Whimbrel *Numenius phaeopus;* Curlew *N. arquata* Redshank *Tringa tetanus;* Greenshank *T. nebularia*; and Turnstone *Arenaria interpres*.	

Humber Estuary Ramsar	The Humber Estuary is designated a Ramsar due to comprising the following Ramsar criteria[12]: Criterion 1 – estuarine habitat Criterion 3 – breeding colony of grey seals Criterion 3 – breeding natterjack toad Criterion 5 – waterfowl assemblage in non-breeding season Criterion 6 – golden plover (passage) Criterion 6 – red knot (passage and wintering) Criterion 6 – dunlin (passage and wintering) Criterion 6 – black-tailed godwit (passage and wintering) Criterion 6 – redshank (passage and wintering) Criterion 6 – Shelduck (wintering) Criterion 6 – golden plover (wintering) Criterion 6 – bar-tailed godwit (wintering) Criterion 8 – migration route for river lamprey and sea lamprey.	Disturbance to vegetation through cutting / clearing Vegetation succession Water diversion for irrigation/domestic/industrial use Overfishing Pollution – domestic sewage Pollution – agricultural fertilisers Recreational/tourism disturbance (unspecified) Coastal squeeze causing loss of intertidal habitats and saltmarsh due to sea level rise and fixed defences.
Humber Estuary SAC	The site is designated as an SAC for the presence of the following Annex I habitats which are a primary reason: 1130 Estuaries 1140 Mudflats and sandflats not covered by seawater at low tide	Industrial or commercial areas; Pollution to groundwater (point sources and diffuse sources); Human induced changes in hydraulic conditions;

[12] JNCC. 31 August 2007. Information Sheet on Ramsar Wetlands (RIS) . Humber Estuary

	The following Annex I habitats are also present as a qualifying feature, but not a primary reason for selection 1110 Sandbanks which are slightly covered by sea water all the time 1150 Coastal lagoons 1310 Salicornia and other annuals colonizing mud and sand 1330 Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*) 2110 Embryonic shifting dunes 2120 "Shifting dunes along the shoreline with *Ammophila arenaria* (""white dunes"")" 2130 "Fixed coastal dunes with herbaceous vegetation (""grey dunes"")" * Priority feature 2160 Dunes with *Hippopha rhamnoides* The following Annex II habitats are also present as a qualifying feature, but not a primary reason for selection 1095 Sea lamprey *Petromyzon marinus* 1099 River lamprey *Lampetra fluviatilis* 1364 Grey seal *Halichoerus grypus*	Abiotic (slow) natural processes; Changes in abiotic conditions. Construction activities also put all components under threat through uncontrolled pollution/run-off.
Thorne and Hatfield Moors SPA	**ARTICLE 4.1 QUALIFICATION (79/409/EEC)** During the breeding season the area regularly supports nightjar *Caprimulgus europaeus* (66 breeding pairs), 1.9% of the GB breeding population 5 count peak mean 1993, 1995-1998	Other urbanisation, industrial and similar activities. Outdoor sports and leisure activities, recreational activities. Construction activities also put all components under threat through uncontrolled pollution/run-off.

Thorne Moors SAC	**Annex I habitats** Degraded bogs still capable of regeneration Active raised bogs Thorne Moor is England's largest area of raised bog, lying a few kilometres from the smaller Hatfield Moors, both within the former floodplain of the rivers feeding the Humber estuary (Humberhead Levels), and includes the sub-components Goole Moors and Crowle Moors.	Outdoor sports and leisure activities, recreational activities. Air pollution, air-borne pollutants. Human induced changes in hydraulic conditions. Biocenotic evolution, succession. Other human intrusions and disturbances Construction activities also put all components under threat through uncontrolled pollution/run-off. Invasive non-native species.
Hatfield Moors SAC	**Annex I habitats** 7120 Degraded raised bogs still capable of natural regeneration Like Thorne Moors, Hatfield Moors is a remnant of the once-extensive bog and fen peatlands within the Humberhead Levels, and is still the second-largest area of extant lowland raised bog peat in England	Outdoor sports and leisure activities, recreational activities. Other human intrusions and disturbances. Invasive non-native species. Air pollution, air-borne pollutants. Human induced changes in hydraulic conditions. Biocenotic evolution, succession.

		Construction activities also put all components under threat through uncontrolled pollution/run-off.

5.1. Conservation Objectives

5.1.1. Conservation objectives are set out by NE to help public bodies comply with the law and to protect European sites.

5.1.2. Conservation objectives for the European protected sites are set out below in **Table 5-3**. '*To ensure that the integrity of the site is maintained or restored as appropriate, and ensure that the site contributes to achieving the aims of the Wild Birds directive by maintaining or restoring*':

5.1.3. The conservation objectives for both the Humber Estuary SPA and Thorne and Hatfield Moors SPA are the same and are detailed on the table below**.**

Table 5-3: Humber Estuary SPA and Thorne and Hatfield Moors SPA **Conservation Objectives**

SPA Conservation Objectives
• Ensure that the integrity of the site is maintained or restored as appropriate, and ensure that the site contributes to achieving the aims of the Wild Birds Directive, by maintaining or restoring; • The extent and distribution of the habitats of the qualifying features; • The structure and function of the habitats of the qualifying features; • The supporting processes on which the habitats of the qualifying features rely; • The population of each of the qualifying features; and • The distribution of the qualifying features within the site.

5.1.4. The conservation objectives for the Humber Estuary SAC are detailed on the table below.

Table 5-4: Humber Estuary SAC Conservation Objectives

SAC Conservation Objectives
Ensure that the integrity of the site is maintained or restored as appropriate, and ensure that the site contributes to achieving the Favourable Conservation Status of its Qualifying Features, by maintaining or restoring;

- The extent and distribution of qualifying natural habitats and habitats of qualifying species
- The structure and function (including typical species) of qualifying natural habitats
- The structure and function of the habitats of qualifying species
- The supporting processes on which qualifying natural habitats and habitats of qualifying species rely
- The populations of qualifying species, and,
- The distribution of qualifying species within the site.

5.1.1. The conservation objectives for Thorne Moors SAC and Hatfield Moors SAC are the same and are detailed on the table below.

Table 5-5: Thorne Moors SAC and **Hatfield Moors SAC Conservation Objectives**

SAC Conservation Objectives
Ensure that the integrity of the site is maintained or restored as appropriate, and ensure that the site contributes to achieving the Favourable Conservation Status of its Qualifying Features, by maintaining or restoring; • The extent and distribution of qualifying natural habitats ¬ • The structure and function (including typical species) of qualifying natural habitats, and • The supporting processes on which qualifying natural habitats rely

5.1.2. Ramsar sites do not have conservation objectives detailed in the same way as they are for SPAs and SACs, although there is an overall Humber Management Scheme (HMS)[13] that provides a coordinated approach for the management of the Humber Estuary European Marine Site (EMS). With support from both statutory and non-statutory organisations, actions are developed and delivered to bring the estuary into what is known as 'favourable condition'.

6 HRA Screening (Stage 1)

[13] The Humber Management Scheme

6.1.1. The aim of the HRA Screening is to establish whether construction or operation of the Scheme is likely to result in a LSE on European Sites, either alone or in combination with other projects / plans.

6.1.2. In this stage, the following information is required:

- Identification of internationally designated sites;
- Identification / understanding of conservation objectives of each interest/ qualifying feature;
- Estimation of the likely magnitude, duration, location and extent of effects of the changes on internationally designated sites, as far as can be reasonably predicted; and
- Identification of whether any element of the development will have an LSE on any feature or interest, either alone or in combination with other projects / plans.

6.2. Site Context

6.2.1. Figure 2-1 illustrates the location of the Order Limits in relation to the European Sites concerned and they are summarised below.

Thorne Moor SAC & Hatfield Moors SACs

6.2.2. Both SAC's are designated for their 'degraded raised bogs still capable of natural regeneration'. Hatfield Moors SAC is situated approximately 100m south of the Order Limits. A small section of the northeastern boundary of the Order Limit extends into Thorne Moor SAC. Whilst this small 0.53ha area is included within the Order Limits, no development works are proposed within the SAC. The Order Limits is dominated by intensively managed arable farmland and the habitat survey did not identify any areas of bog habitat. Areas of peat are shown as present within the Order Limits based on geological and Natural England maps. However, no evidence of peat/heath/bog mire communities were recorded during the habitat surveys.

LSEs during Construction

6.2.3. The SAC is linked to the Order Limits by a network of drainage ditches and impacts could occur to this SAC from any changes in water quality and quantity. Polluting incidences and run-off could detrimentally impact the SAC including the flora and fauna it supports. Furthermore, run-off including from mud and debris arising from construction works entering the surface water / land drainage system, causing blockages and restricting flow could result in a negative impact.

6.2.4. Impacts from air quality during construction, including dust and vehicle emissions, could detrimentally impact the qualifying features.

LSEs during Operation

6.2.5. Operational effects are defined as effects following the construction of the Scheme. Operational effects generally relate to the change to land use and/or operational disturbance of habitats or species within or adjacent to the Order Limits, on either a temporary or permanent basis. Some effects may reduce with habituation or remain for the lifetime of The Scheme.

6.2.6. There are no operational effects relating to land take or habitat loss additional to those already addressed under Construction.

6.2.7. In addition, as the Scheme is for renewable energy generation and energy storage there will be no impacts as a consequence of increases in population size or recreation.

Thorne & Hatfield Moors SPA

6.2.8. This is designated for its population of breeding nightjar and is divided into two different areas that comprise the same boundaries as the SAC detailed above. The southern section is located approximately 100m south of the Order Limits and a small section of the northeastern boundary of the Order Limit extends into the northern section, although no development works are proposed within the SPA.

6.2.9. The survey scope and the scope for assessment of impacts to nightjar was agreed with Natural England, with information provided by them through two different DAS responses, as well as an online Teams meeting (see Appendix 4). In addition, Natural England's comments on the PEIR Chapter, which included detail on the approach for nightjar was used to inform the ES and this Report to Inform HRA.

6.2.10. Nightjar surveys of the SPA were undertaken in 2022, as part of ongoing monitoring works for the Tween Bridge Wind Farm instructed by RWE. Please refer to **Technical Appendix 7.4 [Document Reference 6.3.7.4]** within **ES Chapter 7 Ecology and Nature Conservation [Document Reference: 6.2.6]** for full details. In summary, surveys found 58 churring males in Thorne and Crowle Moors (to the north of the Order Limits), which is the highest number on record since 2017. Surveys of Hatfield Moors (south of the Order Limits) found 52 churring males or territories which is the highest number since survey began in 2005. Surveys were focused within the SPA boundaries but no churring males/territories were noted within the Order Limits or immediately adjacent.

6.2.11. Following information from Natural England, nightjar data was requested from the nightjar study undertaken in the area *'LIFE+ - 'That's Life' Monitoring of European Nightjar'*. This data was received in May and June 2025 and has informed this assessment and is included in **Appendix 7.4 Nightjar Survey Results [Document Reference 6.3.7.4]** within **ES Chapter 7 Ecology and Nature Conservation [Document Reference: 6.2.6].**

6.2.12. Radio-tracking studies were carried over this period with a number of male nightjar tagged and tracked from the Thorne and Hatfield Moors SPA.

6.2.13. The records provided that been reviewed appear to show territories that occur on the edges of the moorland sites (Thorne and Hatfield). The locations cluster in areas outside of the Scheme strongly suggesting that nesting did not occur within the Order Limits boundary. This is supported by the Breeding Bird Survey results and would be consisted with the known nesting preferences for this species i.e. heathland, moorland and young conifer woodland.

6.2.14. Some of the less clustered, outer territory location points fall within the Order Limits and it can be reasonably presumed that these outliers are more closely associated with foraging behaviour. Several studies have highlighted the importance of habitats beyond the song territories **[Ref: 7-47]** for foraging Nightjar. The same study also demonstrated the importance of having foraging and nesting habitats in close proximity and that these are not always the same habitat type. Additional research **[Ref: 7-48]** showed that Nightjar avoided conifer plantations and arable for improved grassland for foraging.

LSEs during Construction

6.2.15. No development is proposed within the SPA boundary, so no impacts from land take will occur.

6.2.16. Habitats within the Order Limits have limited potential for the species, consisting of intensively managed arable farmland, which holds little value as a habitat or foraging resource for this specialist species and therefore the loss of this habitat will not be significant for nightjar.

6.2.17. No moorland habitat was found within the Order Limits and usage by this species is restricted to occasional use as a foraging resource along boundaries that will be retained and protected.

6.2.18. No development is proposed within the SPA boundary, so no impacts from land take will occur.

6.2.19. No moorland habitat was found within the Order Limits and usage by this species is restricted to occasional use as a foraging resource along boundaries that will be retained and protected.

6.2.20. Given the close proximity of the SPA to the Order Limits boundary, should construction take place during the time nightjar are present between April and August[14], there is potential that disturbance impact from construction could occur from noise and lighting.

6.2.21. Polluting incidences and run-off could detrimentally impact the SPA including the flora and fauna it supports. Furthermore, run-off including from mud and debris arising from construction works entering the surface water / land drainage system, causing blockages and restricting flow could result in a negative impact.

6.2.22. Impacts from air quality during construction, including dust and vehicle emissions, could detrimentally impact the qualifying features.

LSEs during Operation

6.2.23. There are no operational effects relating to land take or habitat loss additional to those already addressed under Construction.

[14] Nightjar Bird Facts | Caprimulgus Europaeus

6.2.24. In addition, as the Scheme is for renewable energy generation and energy storage there will be no impacts as a consequence of increases in population size or recreation.

Humber Estuary SAC

6.2.25. The SAC is located approximately 5.6km from the Order Limits. This SAC is designated for its estuarine habitats including coastal plain-mudflats and sandflats. It also supports populations of sea and river lampreys as well as grey seals which are qualifying features of the SAC.

LSEs during Construction

6.2.26. No direct impacts are anticipated on the predominantly coastal and maritime habitats and species the SAC supports, due to the separation distance of over 5.6km. Whilst drains and ditches within and adjacent to the Order Limits could support lamprey species, no records of them were returned within the data search and therefore they are considered unlikely to be present. However, buffers around drains and watercourses as well as measures set out within the eCMP would ensure the habitat is retained and protected suitable to support lamprey and their free movement in the future.

6.2.27. The potential impacts from airborne pollutants and any changes in water quality and quantity could impact this SAC and the species that are present including sea and river lamprey.

LSEs during Operation

6.2.28. There are no operational effects relating to land take or habitat loss additional to those already addressed under Construction.

6.2.29. In addition, as the Scheme is for renewable energy generation and energy storage there will be no impacts as a consequence of increases in population size or recreation.

Humber Estuary SPA

6.2.30. The Humber Estuary SPA is situated approximately 7.7km northeast of the Order Limits. Species associated with the Humber Estuary SPA and Ramsar recorded

within the Order Limits included: Mallard, teal, lapwing, golden plover, grey plover, curlew, hen harrier and marsh harrier.

6.2.31. Within the Wider Survey Area (WSA) which comprised surrounding fields up to 600m from the Order Limits in line with best practice, target species comprised: mallard, teal, golden plover, hen harrier and marsh harrier.

6.2.32. Additionally, species associated with the Humber Estuary SPA were listed in the WSA and included marsh harrier, hen harrier, lapwing, mallard and teal.

6.2.33. **Table 6-1 and 6-2** below summarises peak counts of each qualifying species recorded within the Order Limits and are a direct extract from Appendix 1.

Table 6-1: SPA qualifying species recorded within and outside of the Draft Order Limits during 2022/23. Note that nocturnal and diurnal surveys were combined and peak count of the two is provided, alongside the percentage of the moving (2022/23) WeBS 5-year moving mean totals.

Species	2022				2023		
	Sep	Oct	Nov	Dec	Jan	Feb	Mar
Within the Draft Order Limits							
Curlew Humber Estuary 5 year mean 2022/23 **2,473**	0	0	0	0	0	0	2 (0.08%)
Golden plover Humber Estuary 5 year mean 2022/23	53 (0.25%)	0	0	37 (0.17%)	21 (0.10%)	0	0

21,160							
Green sandpiper Humber Estuary 5 year mean 2022/23 **14**	**1 (7.14%)**	**1 (7.14%)**	**1 (7.14%)**	0	**1 (7.14%)**	0	0
Greylag goose Humber Estuary 5 year mean 2022/23 **2,569**	375 (14.60%)	0	19 (0.74%)	0	0	0	8 (0.31%)
Lapwing Humber Estuary 5 year mean 2022/23 **15,951**	390 (2.44%)	25 (0.16%)	31 (0.19%)	127 (0.8%)	260 (1.63%)	32 (0.20%)	32 (0.20%)
Little egret Humber Estuary 5 year mean 2022/23 **215**	0	1 (0.47%)	1 (0.47%)	0	0	0	1 (0.47%)
Mallard Humber Estuary 5	**92 (6.31%)**	**24 (1.64%)**	0	12 (0.82%)	**27 (1.85%)**	**64 (4.39%)**	6 (0.41%)

year mean 2022/23 **1,459**							
Pink-footed goose Humber Estuary 5 year mean 2022/23 **23,330**	**330 (1.41%)**	**360 (1.54%)**	0	0	0	0	0
Shoveler Humber Estuary 5 year mean 2022/23 **317**	0	0	0	0	2 (0.63%)	0	0
Teal Humber Estuary 5 year mean 2022/23 **9,994**	0	2 (0.02%)	0	3 (0.03%)	6 (0.06%)	0	4 (0.04%)
Outside of the Draft Order Limits							
Golden plover	76	480	21	20	1	0	38
Green sandpiper	0	0	0	1	0	0	0

Greylag goose	150	0	0	0	0	155	34
Lapwing	260	136	1	71	14	6	13
Little egret	1	2	1	1	1	0	0
Mallard	60	2	5	42	21	17	10
Pink-footed goose	700	42	0	0	0	21	0
Shoveler	1	0	0	0	0	0	0
Teal	0	0	0	0	23	3	9
Common crane	3	0	0	0	0	0	2

Table 6-2: SPA qualifying species and species part of the wider waterbird assemblage recorded within and outside of the Draft Order Limits during the Winter Walkover and Nocturnal Bird Surveys combined during 2023/24.

Note that nocturnal and diurnal surveys were combined and the maximum peak count of the two is provided alongside the percentage of the most up to date (2023/24) WeBS 5-year mean totals.[15]

Species	2023				2024			
	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr
Within the Draft Order Limits								

[15] Calbrade, N.A., Birtles, G.A., Woodward, I.D., Feather, A., Hiza, B., Caulfield, E., Balmer, D.E., Peck, K., Wotton, S.R., Shaw, J.M., and Frost, T.M. 2025.
Waterbirds in the UK 2023/24: The Wetland Bird Survey and Goose & Swan Monitoring Programme. BTO/RSPB/JNCC/NatureScot. Thetford.

Curlew WeBS 5-year mean for the Humber Estuary **2,473**	0	0	0	0	0	0	2 (0.16%)	2 (0.16%)
Dunlin WeBS 5-year mean for the Humber Estuary **22,346**	0	6 (0.027 %)	27 (0.121 %)	0	0	0	0	0
Little egret WeBS 5-year mean for the Humber Estuary **226**	0	1 (0.442 %)	0	0	0	0	1 (0.442%)	0
Green sandpiper WeBS 5-year mean for the Humber Estuary **19**	0	0	0	**1 (5.26 %)**	0	0	0	0
Greylag goose WeBS 5-year average for the Humber Estuary	0	**210 (9.19%)**	**157 (6.87 %)**	12 (0.52%)	0	**27 (1.18%)**	**76 (3.33%)**	9 (0.39%)

2285 [16] [17]								
Golden plover (WeBS 5-year mean for the Humber Estuary **21,623)**	0	0	82 (0.38 %)	2 (0.00 9%)	84 (0.389%)	0	6 (0.028%)	0
Lapwing WeBS 5-year mean for the Humber Estuary **11,859**	5 (0.042 %)	**220 (1.855 %)**	**371 (3.129 %)**	53 (0.447 %)	79 (0.666%)	**147 (1.24%)**	11 (0.093%)	4 (0.034%)
Mallard WeBS 5-year mean for the Humber Estuary 1,459	2 (0.14%)	**33 (2.26 %)**	**78 (5.35 %)**	**125 (8.567 %)**	**49 (3.357%)**	**92 (6.305 %)**	**16 (1.096%)**	10 (0.685%)
Oystercatcher WeBS 5-year mean for the Humber Estuary 7,218	0	0	0	0	0	0	2 (0.028%)	0

[16] Contains Wetland Bird Survey (WeBS) data from Waterbirds in the UK 2023/24 © copyright and database right 2025. WeBS is a partnership jointly funded by the BTO, RSPB and JNCC, with fieldwork conducted by volunteers.

[17] Contains Goose and Swan Monitoring Programme (GSMP) data from Waterbirds in the UK 2023/24 © copyright and database right 2025. GSMP is a partnership, run by and jointly funded by BTO, JNCC and NS, with fieldwork conducted by both volunteer and professional surveyors.

Pink-footed goose WeBS 5-year mean for the Humber Estuary **27,329**	0	**1600* (5.85 %)**	**620 (2.27 %)**	194 (0.71%)	0	**1530 (5.63%)**	0	0
Teal WeBS 5-year mean for the Humber Estuary **9,994**	0	0	0	2 (0.020 %)	12 (0.120%)	2 (0.020%)	2 (0.020%)	1 (0.010%)
Wigeon WeBS 5-year average for the Humber Estuary **6,452**	0	6 (0.093 %)	0	0	0	42 (0.651%)	0	0
Outside of the Draft Order Limits								
Little egret	2	2	6	4	0	0	0	0
Greenshank	1	0	1	0	0	0	0	0
Greylag goose	0	184	36	64	0	0	22	1
Golden plover	0	3	20	0	1	0	0	0
Lapwing	54	48	28	12	27	66	29	2
Mallard	49	57	28	30	8	63	47	2

Pink-footed goose	0	1120	0	668	14	0	0	0
Teal	3	4	5	18	8	9	6	2

6.2.34. Based on the Year 1 and Year 2 survey results, the non-breeding bird assemblage recorded within the Order Limits is typically representative of farmland habitats.

6.2.35. An assessment of significance has been undertaken to determine if the Order Limits are considered to be 'functionally linked' to the Humber Estuary SPA, which is situated approximately 7.7km northeast. Functional linkage is not defined in case law but is generally considered to be relevant when over 1% of a given SPAs population of qualifying features are regularly present and the site is considered 'important' in the life cycle of the qualifying species.

6.2.36. Greylag goose, lapwing, mallard, and pink-footed goose exceeded the 1% threshold of their WeBS 5-year mean[18] from the Humber Estuary SPA within the Order Limits, indicating potential use of Functionally Linked Land (FLL).

6.2.37. Although greylag geese are not a qualifying feature of the SPA[19], in accordance with advice from Natural England within their DAS response data 04.04.25 (see Appendix 5), as numbers recorded exceeded the 1% threshold of their WeBS 5-year mean, impacts to loss of functionally linked land for this species is assessed.

6.2.38. Although the numbers of golden plover recorded in the Order Limits demonstrates that the Order Limits is not functionally linked to the SPA for this species, the numbers in the Wider Survey Area indicate that the habitats there could be functionally linked to the SPA.

Other Features Considered in Screening

6.2.39. Common crane were recorded during the surveys, but only three were recorded on the ground during surveys in September 2022, three in October 2022 and two

[18] Contains Wetland Bird Survey (WeBS) data from Waterbirds in the UK 2023/24 © copyright and database right 2025. WeBS is a partnership jointly funded by the BTO, RSPB and JNCC, with fieldwork conducted by volunteers.

[19] JNNC. STANDARD DATA FORM for sites within the 'UK national site network of European sites' – Humber Estuary

in March 2023, although all these recordings were not within the Order Limits itself, but within the WSA (see Appendix 1).

6.2.40. Two common cranes were also recorded flying over the Order Limits in January 2024 from the direction of Hatfield Moors SSSI, but not landing within the Order Limits boundary.

6.2.41. Based on the survey results, the Order Limits is not functionally linked to any designated site for common cranes and the Order Limits do not comprise important habitat for this species.

6.2.42. Although the number of golden plover recorded within the Order Limits demonstrates that the Order Limits is not functionally linked to the SPA for this species, given the number recorded in the wider survey area, measures have been provided for this species too.

6.2.43. The breeding bird surveys undertaken in 2022, 2023 and 2025 demonstrate that the Order Limits does not comprise important habitat or functionally linked land for breeding species associated with the Humber Estuary SPA. Occasional Marsh Harrier were recorded flying over with no breeding activity recorded.

LSEs during Construction

6.2.44. Potential impacts on non-breeding birds associated with the Humber Estuary SPA include loss of functionally linked land for lapwing, mallard, pink-footed goose and greylag goose and disturbance to these species and golden plover in adjacent land during construction.

6.2.45. Field boundaries including ditches, drains and hedgerows will be retained and protected, and these habitats will be enhanced as part of the mitigation, with species diverse grassland along field margins and hedgerow planting. Details including management practices are set out within the **eCMP [Document Reference: 7.9.5]** and **LEMP [Document Reference 7.9.6]**. Ditch habitats will be retained and therefore remain available for water birds such as mallard and teal, and hen harrier and marsh harrier will be able to continue to hunt along field boundaries, which will be enhanced. However, these species could be temporarily disturbed during construction.

LSEs during Operation

6.2.46. There are no operational effects relating to land take or habitat loss additional to those already addressed under Construction.

6.2.47. In addition, as the Scheme is for renewable energy generation and energy storage there will be no impacts as a consequence of increases in population size or recreation.

Humber Estuary Ramsar

6.2.48. The Humber Estuary Ramsar is situated approximately 5.6km northeast. Species associated with the Humber Estuary Ramsar recorded within the Order Limits included: golden plover and dunlin (see Appendix 1).

6.2.49. Within the Wider Survey Area (WSA) which comprised surrounding fields up to 600m from the Order Limits in line with best practice, Ramsar species comprised: golden plover.

6.2.50. The numbers of golden plover recorded within the Order Limits are detailed above with regards to the Humber Estuary SPA. Although the numbers of golden plover recorded in the Order Limits demonstrates that the Order Limits is not functionally linked to the SPA for this species, the numbers in the Wider Survey Area, indicate that the habitats there could be functionally linked to the SPA and therefore of importance to the Ramsar too.

6.2.51. Dunlin were recorded on three occasions during all surveys, with a peak count of 27 on one occasion, which equates to 0.121% of the Humber Estuary population. As such, the Order Limits is not functionally linked to this species, although the habitats are used occasionally (see Appendix 1).

6.2.52. Based on the habitats present within the Order Limits, there is no potential for Grey seal.

LSEs during Construction

6.2.53. Potential impacts on non-breeding birds associated with the Humber Estuary Ramsar are the same as detailed for the SPA, include disturbance to golden plover outside of the Order Limits during construction due to the numbers recorded in the WSA during surveys.

6.2.54. No direct impacts are anticipated on the predominantly coastal and maritime habitats and species the Ramsar supports, due to the separation distance of over 5.6km. Whilst drains and ditches within and adjacent to the Order Limits could support lamprey species, no records of them were returned within the data search and therefore they are considered unlikely to be present. However, buffers around drains and watercourses as well as measures set out within the eCMP would ensure the habitat is retained and protected suitable to support lamprey and their free movement in the future.

6.2.55. The potential impacts from airborne pollutants and any changes in water quality and quantity could impact sea and river lamprey that utilise the Ramsar.

LSEs during Operation

6.2.56. There are no operational effects relating to land take or habitat loss additional to those already addressed under Construction.

6.2.57. In addition, as the Scheme is for renewable energy generation and energy storage there will be no impacts as a consequence of increases in population size or recreation.

LSEs during Decommissioning – All Internationally Designated Sites

6.2.58. Decommissioning effects are considered to be similar to those already described in relation to the construction phase, namely direct and indirect disturbance, temporary/permanent habitat loss and vegetation removal. Updated ecological desk study and species-specific surveys will therefore be undertaken prior to decommissioning in order to record the presence of protected and notable species and habitats, identify potential effects and any necessary protection and mitigation measures in order to comply with planning policy and wildlife legislation applicable at the time. Further detail is provided in section 6.

Potential Likely Significant Effects

6.2.59. **Table 6-3** below summarises the potential impact pathways and LSEs considered as part of this assessment. The following section outlines the potential LSEs on the nearby European protected sites.

Table 6-3: European sites assessed as part of the screening stage

Designated Site	Qualifying Feature	Potential Impact	Screened in / out
Thorne and Hatfield Moors SPA	Breeding nightjar	Disturbance to nightjar utilising adjacent Moors during construction phase, including from noise. Degradation of habitat quality within the SPA during construction, including dust and run-off. Changes to hydrological regime during construction	Screened in
Thorne and Hatfield Moors SAC	Degraded raised bogs still capable of natural regeneration	Degradation of habitat quality to SAC during construction, including dust and run-off. Changes to hydrological regime during construction.	Screened in
Humber Estuary SPA	Avocet (wintering)	No habitat with potential to support species within Order Limits. SPA too far to be directly impacted.	Screened out
	Bittern (wintering)	No habitat with potential to support species within Order Limits. SPA too far to be directly impacted.	Screened out
	Hen harrier (wintering)	Only low numbers recorded and Order Limits not functionally linked for this species. SPA too far to be directly impacted.	Screened out
	Golden plover (wintering)	Order Limits not functionally linked, but disturbance to foraging/roosting habitat	Screened **in**

		adjacent to Draft Order Limits in use by this species.	
	Bar-tailed godwit (wintering)	No habitat with potential to support species within Order Limits. SPA too far to be directly impacted.	Screened out
	Ruff (passage)	No habitat with potential to support species within Order Limits. SPA too far to be directly impacted.	Screened out
	Bittern (breeding)	No habitat with potential to support species within Order Limits. SPA too far to be directly impacted.	Screened out
	Marsh harrier (breeding)	Only low numbers recorded and Order Limits not functionally linked for this species. SPA too far to be directly impacted.	Screened out
	Avocet (breeding)	No habitat with potential to support species within Order Limits. SPA too far to be directly impacted.	Screened out
	Little tern (breeding)	No habitat with potential to support species within Order Limits. SPA too far to be directly impacted.	Screened out
	Shelduck (wintering)	No habitat with potential to support species within Order Limits. SPA too far to be directly impacted.	Screened out
	Knot (wintering)	No habitat with potential to support species within Order Limits. SPA too far to be directly impacted.	Screened out

	Dunlin (wintering)	No habitat with potential to support species within Order Limits. SPA too far to be directly impacted.	Screened out
	Black-tailed godwit (wintering)	No habitat with potential to support species within Order Limits. SPA too far to be directly impacted.	Screened out
	Redshank (wintering)	No habitat with potential to support species within Order Limits. SPA too far to be directly impacted.	Screened out
	Knot (passage)	No habitat with potential to support species within Order Limits. SPA too far to be directly impacted.	Screened out
	Dunlin (passage)	No habitat with potential to support species within Order Limits. SPA too far to be directly impacted.	Screened out
	Black-tailed godwit (passage)	No habitat with potential to support species within Order Limits. SPA too far to be directly impacted.	Screened out
	Redshank (passage)	No habitat with potential to support species within Order Limits. SPA too far to be directly impacted.	Screened out
	Assemblage qualification (non-breeding season)		
	Dark-bellied brent goose	Only low numbers recorded and Order Limits not functionally linked for this species. SPA too far to be directly impacted.	Screened o**ut**

	Pink-footed goose	Loss of over-wintering foraging/roosting habitat Disturbance to foraging/roosting habitat adjacent to Draft Order Limits	Screened in
	Shelduck	No habitat with potential to support species within site	Screened out
	Wigeon	Only low numbers recorded and Order Limits not functionally linked for this species. SPA too far to be directly impacted.	Screened out
	Teal	Only low numbers recorded and Order Limits not functionally linked for this species. SPA too far to be directly impacted.	Screened out
	Mallard	Loss of over-wintering foraging/roosting habitat Disturbance to foraging/roosting habitat adjacent to Draft Order Limits	Screened in
	Pochard	Only low numbers recorded and Order Limits not functionally linked for this species. SPA too far to be directly impacted.	Screened out
	Scaup	Only low numbers recorded and Order Limits not functionally linked for this species. SPA too far to be directly impacted.	Screened out
	Goldeneye	Only low numbers recorded and Order Limits not functionally linked for this species. SPA too far to be directly impacted.	Screened out

	Bittern	No habitat with potential to support species within site	Screened out
	Oystercatcher	Only low numbers recorded and Order Limits not functionally linked for this species. SPA too far to be directly impacted.	Screened out
	Avocet	No habitat with potential to support species within site	Screened out
	Ringed plover	Only low numbers recorded and Order Limits not functionally linked for this species. SPA too far to be directly impacted.	Screened out
	Golden plover	Order Limits not functionally linked, but disturbance to foraging/roosting habitat adjacent to Draft Order Limits in use by this species.	Screened in
	Lapwing	Loss of over-wintering foraging/roosting habitat Disturbance to foraging/roosting habitat adjacent to Draft Order Limits	Screened in
	Knot	No habitat with potential to support species within site	Screened out
	Sanderling	No habitat with potential to support species within site	Screened out
	Dunlin	No habitat with potential to support species within site	Screened out
	Ruff	No habitat with potential to support species within site	Screened out

	Black-tailed godwit	No habitat with potential to support species within site	Screened out
	Bar-tailed godwit	No habitat with potential to support species within site	Screened out
	Whimbrel	Only low numbers recorded and Order Limits not functionally linked for this species. SPA too far to be directly impacted.	Screened out
	Curlew	Only low numbers recorded and Order Limits not functionally linked for this species. SPA too far to be directly impacted.	Screened out
	Redshank	No habitat with potential to support species within site	Screened out
	Greenshank	No habitat with potential to support species within site	Screened out
Humber Estuary Ramsar	Criterion 3 – breeding colony of grey seals	No habitat with potential to support species within site	Screened out
	Criterion 3 – breeding natterjack toad	No habitat with potential to support species within site	Screened out
	Criterion 5 – waterfowl assemblage in non-breeding season	Loss of over-wintering foraging/roosting habitat Disturbance to foraging/roosting habitat adjacent to Draft Order Limits	Screened in
	Criterion 6 – golden plover (passage)	Order Limits not functionally linked, but disturbance to foraging/roosting habitat adjacent	Screened in

		to Order Limits in use by this species.	
	Criterion 6 – knot (passage and wintering)	No habitat with potential to support species within site	Screened out
	Criterion 6 – dunlin (passage and wintering)	No habitat with potential to support species within site	Screened out
	Criterion 6 – black-tailed godwit (passage and wintering)	No habitat with potential to support species within site	Screened out
	Criterion 6 – redshank (passage and wintering)	No habitat with potential to support species within site	Screened out
	Criterion 6 – Shelduck (wintering)	No habitat with potential to support species within site	Screened out
	Criterion 6 – golden plover (wintering)	Order Limits not functionally linked, but disturbance to foraging/roosting habitat adjacent to Order Limits in use by this species	Screened in
	Criterion 6 – bar-tailed godwit (wintering)	No habitat with potential to support species within site	Screened out
	Criterion 8 – migration route for river lamprey and sea lamprey	No direct impacts but potential for dust pollution/degradation of watercourses and could affect migration corridors	Screened in
	Criterion 1 – estuarine habitat	The Scheme is considered to be sufficiently distant from the estuarine habitats associated with	Screened out

		the estuary to avoid any direct or indirect impacts.	
Humber Estuary SAC	**1130** Estuaries, 1110 Sandbanks which are slightly covered by sea water all the time, 1150 coastal lagoons 1310 salicornia and other annuals colonizing mud and sand, 1330 Atlantic salt meadows, 2110 embryonic shifting dunes, 2120 shifting dunes along the shoreline with *Ammophilia arenaria*, fixed coastal dunes with herbaceous vegetation, 2160 dunes with *hippopha rhamnoides*, 1095 sea lamprey, 1099 river lamprey 1364 grey seal	Potential for impacts from any changes in water quality or quantity, although the Scheme is considered to be sufficiently distant from the estuarine habitats associated with the estuary to avoid any additional direct or indirect impacts. No direct impacts but potential for dust pollution/degradation of watercourses and could affect migration corridors for river and sea lamprey	Screened in

6.2.60. In addition to the above, greylag geese have been screened in as detailed above, due to potential habitat loss as a consequence of the Scheme.

7 Appropriate Assessment (Stage 2)

7.1. Approach to Appropriate Assessment

7.1.1. Where significant effects are likely, or it is uncertain if there would be likely significant effects, an AA is required.

7.1.2. For an AA, the implication of the plan/project on each affected site must be assessed in light of its conservation objectives. The development of conservation objectives is required by the 1992 Habitats' Directive (92/43/EEC); an objective of this legislation is to achieve 'favourable conservation status' (see **Box 6.1**) of the habitats and / or species features for which the site is designated.

Box 7-1: Favourable conservation status, as defined in the Habitats Directive

Conservation status for habitats is defined in Article 1(e) as:

"[The] *conservation status of natural habitats* [is] *the sum of influences acting on a natural habitat and its typical species that may affect its long-term natural distribution, structure and functions as well as the long-term survival of its typical species… The conservation status of natural habitats will be taken as 'favourable' when:*

- *its natural range and areas it covers within that range are stable or increasing; and*
- *the species structure and functions which are necessary for its long-term maintenance exist and are likely to continue to exist for the foreseeable future; and*
- *the conservation status of its typical species is favourable.*"

Conservation status for species is defined in Article 1(i) as:

"[The] *conservation status of a species means the sum of the influences acting on the species concerned that may affect the long-term distribution and abundance of its populations within* [its] *territory…The conservation status of species will be taken as 'favourable' when:*

- *population dynamics data on the species concerned indicate that it is maintaining itself on a long-term basis as a viable component of its natural habitats; and*
- *the natural range of the species is neither being reduced for the foreseeable future; and*

7.2. Appropriate Assessment

7.2.1. Following the screening, the need for an AA has been identified based on the information included on Table 6.3.

7.2.2. Information to inform an Appropriate Assessment for each of the relevant designated sites is given below. This information includes an impact assessment comprising descriptions of the qualifying features of the designated sites and their conservation objectives, as well as in-combination mitigation measures.

Impact Assessment

7.2.3. The design of the Scheme includes a range of inherent embedded elements which avoid or reduce the potential for adverse ecological impacts, including retaining existing identified higher value habitat features such as hedgerows, ponds, ditches, and woodlands, and focusing the majority of the Scheme proposals within lower ecological value agricultural land. Additionally, sensitive, or high value ecological features outside the Order Limits, which are described below, have been protected as part of the design which sets in place buffer zones and other safeguarding measures, all of which has been built-in to as part of the iterative design process.

Construction

7.2.4. Given the nature of the Scheme, solar and BESS, construction works will be minimal, with most potential construction impacts likely to occur through construction vehicle movements, security fence installation and the placement of the Panel Areas and BESS on the ground. In addition, potential impacts could occur due to the construction of cables and other infrastructure, although such impacts will, in the main, be temporary.

7.2.5. The potential for adverse effects during the construction phase have been 'designed out' where practicable, and these will be controlled through standard good construction and environmental working practices as an integral part of the Scheme, detailed within the CEMP **[Document Reference: 7.9.1]** and within the eCMP **[Document Reference: 7.9.5]**. Nonetheless, further detail relating to potential ecological impacts during construction prior to the implementation of mitigation is provided below.

Thorne & Hatifeld Moors SPA

7.2.6. This is designated for its population of breeding nightjar.

7.2.7. No infrastructure development is proposed within the SPA boundary, so no impacts from land take will occur.

7.2.8. Habitats within the Order Limits have limited potential for nightjar, consisting of intensively managed arable farmland, which holds little value as a habitat or foraging resource for this specialist species (see previous section) and therefore the loss of this habitat will not be significant for nightjar.

7.2.9. Higher value boundary habitats that are likely to support invertebrate species will be retained and protected during works, followed by habitat enhancement for this species with the introduction of species-rich neutral grassland around field boundaries, which will also provide strengthened dispersal corridors throughout the landscape for this species.

7.2.10. No moorland habitat was found within the Order Limits and usage by nightjar is restricted to occasional use as a foraging resource along boundaries that will be retained and protected.

7.2.11. Given the close proximity of the SPA to the Order Limits boundary, should construction take place during the time nightjar are present between April and August [20]there is potential that disturbance impact from construction could occur from noise and lighting.

7.2.12. Polluting incidences and run-off during construction could detrimentally impact the SPA including the flora and fauna it supports. Furthermore, run-off including from mud and debris arising from construction works entering the surface water / land drainage system, causing blockages and restricting flow could result in a negative impact, such as to invertebrates that nightjar forage on.

7.2.13. Impacts from air quality during construction, including dust and vehicle emissions, could also detrimentally impact the qualifying features.

Thorne Moor & Hatfield Moors SACs

7.2.14. Both SACs are designated for their 'degraded raised bogs still capable of natural regeneration'. Hatfield Moors SAC is situated 100m south of the Order Limits. A small section of the northeastern boundary of the Order Limit extends into Thorne Moor SAC. Whilst this small 0.53ha area is included within the Order Limits (Land

[20] RSPB (2025) Nightjar Bird Facts | Caprimulgus Europaeus https://www.rspb.org.uk/birds-and-wildlife/nightjar

Parcel A), no development works are proposed within the SAC. The Order Limits is dominated by intensively managed arable farmland and the habitat survey did not identify any areas of bog habitat. Areas of peat are shown as present within the Order Limits based on geological and Natural England maps. However, no evidence of peat/heath/bog mire communities was recorded during the habitat survey. With no construction activities occurring within the SAC boundaries, including the area within the Order Limits, there will be no direct construction impacts (such as habitat loss or land take) on the SAC.

7.2.15. The SAC is linked to the Order Limits by a network of drainage ditches and impacts could occur to this SAC from any changes in water quality and quantity. Polluting incidences and run-off could detrimentally impact the SAC including the flora and fauna it supports. Furthermore, run-off including from mud and debris arising from construction works entering the surface water / land drainage system, causing blockages and restricting flow could result in a negative impact.

7.2.16. Impacts from air quality during construction, including dust and specifically vehicle emissions, could detrimentally impact the qualifying features.

Humber Estuary SPA

7.2.17. The SPA is designated for its assemblage of birds including wintering, passage and breeding birds. Such birds may use the Order Limits on occasion as part of a wider territory to forage and roost. Habitats which they can utilise include agricultural and arable fields, and if more than 1% of the qualifying number of each individual species is found to be present then this is considered to be functionally linked land. As suitable habitat is present within the Order Limits and results have recorded these habitats to be used by SPA bird species, there is the potential for likely significant effects to lapwing, mallard, pink-footed geese and greylag geese through loss of habitat.

7.2.18. Given the numbers of golden plover within the survey area, impacts could also take place to this species through a loss of habitat and disturbance during construction.

7.2.19. Given the low numbers recorded (i.e. below significance threshold of 1% of SPA population) – and general absence of suitable habitat, the following wintering species do not require any specific mitigation: curlew, marsh harrier, hen harrier and teal.

7.2.20. The results of the breeding bird surveys undertaken in 2023 and 2025 demonstrate that the Order Limits does not comprise important habitat or functionally linked land for breeding species associated with the Humber Estuary SPA.

7.2.21. The field boundaries including ditches, drains and hedgerows will be retained and protected, and these habitats will be enhanced with species diverse grassland along field margins and hedgerow planting that will enhance foraging opportunities for breeding and wintering bird species. Details including management practices are set out within **LEMP [Document Reference: 7.9.6]**.

7.2.22. Given the distance of the SPA from the Order Limits there will be no impacts from direct land take or airborne emissions, including dust with dust only considered to be significant within 200m. However, as the Order Limits are functionally linked to a number of species for which the SPA is designated the construction of the Scheme could result in impacts from noise, disturbance and habitat loss to these species including, pink-footed geese, mallard, lapwing and greylag geese.

7.2.23. Although given the distance of the SPA form the Order Limits impacts from water quality and quantity are not likely, the extensive ditch network in the area could result in impacts arising from any changes in water quality and quantity. Polluting incidences and run-off could detrimentally impact the SAC including the flora and fauna it supports. Furthermore, run-off including from mud and debris arising from construction works entering the surface water / land drainage system, causing blockages and restricting flow could result in a negative impact.

Humber Estuary Ramsar

7.2.24. The Ramsar is designated for its estuarine habitats, populations of grey seals and assemblage of birds including wintering, passage and breeding birds and migrating river and sea lamprey.

7.2.25. No direct impacts are anticipated on the predominantly coastal and maritime habitats and species the Ramsar supports, such as grey seal , due to the separation distance of over 5.6km. Whilst drains and ditches within and adjacent to the Order Limits could support lamprey species, no records of them were returned within the data search and therefore they are considered unlikely to be present. However, buffers around drains and watercourses would ensure the habitat is retained and protected suitable to support lamprey and their free movement in the future.

7.2.26. Field boundaries including ditches, drains and hedgerows will be retained and protected, and these habitats will be enhanced with species diverse grassland along field margins and hedgerow planting. Details including management practices are set out within **LEMP [Document Reference: 7.9.6]**.

Humber Estuary SAC

7.2.27. The SAC is designated for its estuarine habitats including coastal plain-mudflats and sandflats. It also supports populations of sea and river lampreys as well as grey seals which are qualifying features of the SAC.

7.2.28. No direct impacts are anticipated on the predominantly coastal and maritime habitats and species the SAC supports, due to the separation distance of over 5.6km. Whilst drains and ditches within and adjacent to the Order Limits could support lamprey species, no records of them were returned within the data search and therefore they are considered unlikely to be present. However, buffers around drains and watercourses would ensure the habitat is retained and protected suitable to support lamprey and their free movement in the future.

7.2.29. Field boundaries including ditches, drains and hedgerows will be retained and protected, and these habitats will be enhanced with species diverse grassland along field margins and hedgerow planting. Details including management practices are set out within **LEMP [Document Reference: 7.9.6]**.

Operational

7.2.30. There will be no operational negative effects on any designated sites over and above those described in the Construction section above.

7.2.31. Landscape planting will take place under and around the solar panels and above ground infrastructure (further detail below) and will be managed throughout the lifetime of the Scheme in accordance with the LEMP **[Document Reference: 7.9.6]** to deliver biodiversity benefits and enhanced natural habitats. These benefits will therefore be long-term.

7.2.32. Designated sites within and adjacent to the Scheme will benefit from enhanced habitat connections, opportunities for species dispersal within the Order Limits subject to very low levels of disturbance and the cessation of soil disturbance (ploughing) and inputs of agricultural chemicals to waterways and wetlands.

7.2.33. Improvement to water quality as a consequence of arable reversion and the cessation of agrichemical inputs is likely to result in an enhancement for aquatic flora and fauna.

7.2.34. Once constructed, the Scheme will be fenced and there will be limited disturbance, noise or lighting associated with the Scheme. The operational solar facility will not be lit, with lighting for example typically restricted to the entrance doorways of the small number of structures that require occasional maintenance visits and designed to minimise light spill. The operational Scheme is likely to result in less overall human activity and disturbance than is associated with current normal farming practices, to which local bird populations have already become relatively tolerant. Periodic cleaning and maintenance of PV modules will take place although will be temporary and not considered significant.

Decommissioning

7.2.35. Baseline conditions within the Order Limits are likely to change over the 40 years of operation, and prediction of these conditions at this point is considered unreliable in terms of predicting likely future decommissioning effects on biodiversity. However, potential impacts from decommissioning are considered to be similar to those already described in relation to the construction phase, namely direct and indirect disturbance, temporary/permanent habitat loss and vegetation removal.

Mitigation Measures

7.2.36. The 'Information to Inform an AA' looks at potential mitigation measures which would be required to determine if the magnitude, duration, location and extent of effects can be reduced/removed. These have been designed following the consultation undertaken with Natural England and detailed in the **ES Chapter 7 Ecology and Nature Conservation [Document Reference: 6.2.6].**

7.2.37. Full details on construction methods is detailed in the **Outline eCMP [Document Reference 7.9.5]** and **CEMP [Document Refence: 7.9.1],** with a summary below.

7.2.38. These mitigation measures would form part of the planning consent, including related DCO requirements, for the Scheme, if approved. Mitigation measures can include both avoidance measures and reduction measures, but the former

approach is preferred. Mitigation measures for each qualifying feature of the SPA/Ramsar/SAC are considered separately, below.

7.2.39. Construction is to be undertaken in phases and has been designed minimise disturbance and vehicle movements in order to reduce potential effects from disturbance and air quality / pollution.

7.2.40. Habitat protection buffers will be maintained throughout the construction phase and will be implemented as part of the **Outline eCMP [Document Reference 7.9.5]**a **CEMP [Document Refence: 7.9.1]**, and identified with appropriate fencing in line British Standards BS5837:2012 to prevent accidental damage and signage along with team briefings at 'tool box talks'.

7.2.41. Measures are to be implemented during construction to prevent impacts from contaminated run-off, including from silt and mud, preventing impacts to water quality and quantity within designated sites and habitats that could be used by species that originate from the designated sites.

7.2.42. Standard measures will also be undertaken to prevent impacts from lighting, noise and airborne pollutants such as from dust, with further detail below.

7.2.43. **Damage** - Throughout the construction period, the site manager will be responsible for ensuring that the protective fencing of retained habitats remains in place and fit for purpose. The maintenance of all such protection measures will be the responsibility of the site manager, however, an experienced ecologist acting as an ECoW will be available to attend the Order Limits, if required, throughout the construction period should any issues arise. This will prevent impacts to adjacent. Retained designated sites.

7.2.44. **Air pollution** –Air pollution from non-road mobile machinery (NRMM) is unlikely to affect local air quality significantly. However there are potential impacts on sensitive habitats when NRMM are located near designated sites. These impacts could occur when NRMM are within a 200m proximity of these sites. As detailed in **ES Chapter 14 Air Quality [Document Reference 6.2.14]** if there are fewer than 1,000 movements per day, no significant effect is anticipated. Nevertheless any vehicles and NRMM operating within 200m will remain as distant as practicable from the designation boundaries.

7.2.45. This will be controlled through locating site compounds away from any of these areas, the implementation of signs within the Order Limits to designate any areas where sensitive habitats are located. Workers will be informed during inductions, toolbox talks, and regular briefings about the importance of minimising vehicle use in these areas, ensuring operations are conducted in a manner that adheres to ecological protection guidelines.

7.2.46. **Lighting** - In order to prevent disturbance to nocturnal species no construction works will occur after dusk, except for potential Horizontal Directional Drilling (HDD) (see below for further detail). Shorter hours will be undertaken during winter months, due to less daylight hours, with working hours starting one hour after sunrise and still finishing one hour after sunset where possible.

7.2.47. It is therefore anticipated that no construction lighting will be required for the majority of works with the exception of HDD. Any dusk to dawn light which could occur would likely be restricted to vehicle headlights entering or leaving the Order Limits at the start of end of the working day which would be nominal and restricted in both extend and duration.

7.2.48. In the event any lighting is required, such as for security, this will follow the measures detailed above, e.g. utilise cool white light (2700K) LED lamps; and avoid the lighting of hedgerows and retained offsite habitats through sensitive placement of lighting and choice of luminaire.

7.2.49. Some nightwork may be required as part of HDD, subject to requirements of rail networks, but if this is the case lighting will be directed to only where it is needed to avoid any retained sensitive habitats and will only be short-term and temporary. As such, potential impacts from this work would not be significant.

7.2.50. **Noise** – The majority of construction activity will comprise earth excavation and movement of plant through the Order Limits. It is expected that the majority of construction activity will be below 70dB and would therefore not cause any disturbance response to birds which may be utilising retained or adjacent land, including golden plover. Consequently, no specific mitigation is considered necessary for noise impacts with regards to the Humber Estuary SPA/Ramsar and SAC.

7.2.51. Given the proximity of Thorne and Hatfield Moors SPA to the Order Limits and the fact it is designated for breeding nightjar, impacts from noise could occur during construction in proximity to the SPA boundary.

7.2.52. To prevent impacts, the following measures will be adopted and included in the **Outline eCMP [Document Reference 7.9.5]**.

- Ensuring vehicles and machinery are regularly serviced and in good condition;
- Speed limits;
- Installing silencers or attenuators where applicable;
- Replacing older equipment with quieter alternatives;
- Using broadband reversing alarms;
- Not leaving engines idling when not in use; and
- Siting any generators in the east of the Order Limits.

7.2.53. In addition, construction will be timed to avoid being undertaken during sensitive periods adjacent to the Thorne and Hatfield Moors SPA when nightjar could be present, generally between April to August, with no construction to take place within 50m of this SPA within this period.

7.2.54. **Visual Disturbance** – as qualifying birds of the nearby Humber Estuary SPA/Ramsar are known to use adjacent land, there is a risk that construction activity comprising regular human presence and plant movement could disturb birds in adjacent land. Some of this land is visually separated/screened from the proposed construction areas by existing hedgerows/built form, which would negate the need for any additional screening. In some instances, however, and depending on the phasing of construction activity, there may be areas where construction activity would not be visually screened from adjacent land and would, therefore, require a degree of mitigation.

7.2.55. In these instances, the appointed ECoW will review the proposed working areas and risk to birds in adjacent land (if a given phase would require works at a time of year when sensitive estuary birds would be present, taken to be September – March in any given year) and advise if additional screening in the form of

hoarding/hessian mesh on the perimeter Heras fencing is necessary. Such features will provide visual separation between the construction areas and adjacent land, and mitigate for any visual disturbance risk. It is expected, however, that not all of the Scheme would be 'built out' at the same time, so in the event of any visual disturbance, birds would be able to relocate to undisturbed parts of the Order Limits without conflicting with the conservation objectives of the Humber Estuary SPA/Ramsar.

7.2.56. **EcOW**. A suitably qualified and experienced ECoW will be appointed prior to the commencement of construction activities and through whom appropriate ecological advice will be provided throughout. The ECoW will be responsible for undertaking and/or coordinating checks for protected species before the various phases of construction and decommissioning activities commence. The ECoW (or appointed 'clerk' on behalf of the ECoW) will also maintain a watching brief and advisory role as necessary throughout the construction phase to ensure compliance with the approved methods and relevant legislation.

7.2.57. **Habitats**. Higher value boundary habitats that are likely to support invertebrate species will be retained and protected during works, followed by habitat enhancement with the introduction of species-rich neutral grassland around field boundaries, which will also provide strengthened dispersal corridors throughout the landscape for wildlife. These measures will create habitats of more importance to nightjar, creating a significant enhancement compared to the existing situation. In addition, these measures will benefit mallard.

7.2.58. Retention and enhancement of ponds and ditches, through improved habitat management, as detailed in the **LEMP [Document Reference: 7.9.6]**, along with the cessation of agricultural farming, will improve water quality of these habitats and enhance opportunities for mallard. These measures will help increase invertebrate numbers and aquatic vegetation, therefore improving foraging opportunities[21].

7.2.59. A non-breeding bird mitigation strategy (see Appendix 2) has been produced and the premise of this is to mitigate for non-breeding birds associated with the Humber Estuary SPA that utilise the habitats within the Order Limits, through the provision of appropriate habitat that is managed for the benefit of the birds,

[21] Mallard Duck Facts | Anas Platyrhynchos

including the retention of some areas of arable and the reversion of existing arable land to a permanent species-diverse pasture..

7.2.60. Multiple parcels have been selected across the Order Limits to provide such mitigation strategy (see Appendix 2). These parcels have been selected so as to:

- broaden the coverage of the mitigation parcels over larger areas, accessing different and unique micro-climates/ground conditions per area; and
- allow birds to move between different areas and not be reliant on a single parcel. The locations are also beneficial as they are not proposed to be 'encompassed' by the proposed Panel Areas but share boundaries with retained area (i.e. the canal and surrounding agricultural land), providing more naturalised and preferred buffers to the mitigation areas. The location of the areas that comprise the mitigation land are illustrated in Figure 2-1.

7.2.61. The mitigation strategy detailed in Appendix 2 demonstrates that there is more than enough land that can provide suitable mitigation for non-breeding birds. The delivery of the mitigation strategy will be secured through a requirement to implement the accompanying **LEMP [Document Reference: 7.9.6]**.

7.2.62. The principles of management are set out in the accompanying **LEMP [Document Reference: 7.9.6]** and comprise:

- Seeding grassland with an appropriate mix and utilizing existing topography (or creating such with equipment) to create shallow scrapes which will not be intended to permanently hold water, but to occasionally hold water over-winter during periods of prolonged rainfall. Such areas are particularly beneficial for the non-breeding birds recorded within the Order Limits and associated with the Humber Estuary;
- Once the grassland is established, the first cut to 15cm undertaken in late summer after core breeding season. The cut will be rotational, so that not all of the mitigation parcels are cut at once – another benefit of having the mitigation response spread across multiple parcels. This will ensure that skylark and other ground-nesting birds have continued access to suitable nesting habitat;

- Second cut to 5cm in Autumn and retained as such until beginning of March (i.e. over the passage and over-wintering season.
- The second cut is important as it will ensure that smaller wading birds such as lapwing and golden plover have adequate access to the soil directly, where these species forage. Grass left too long would impede this ability. Geese would not compete with lapwing and golden plover as they forage upon the grass itself.
- Providing arable land for the duration of the proposals within the Order Limits boundary, to ensure that foraging opportunities for pink footed and greylag geese is secured and provided, in addition to grassland areas. The main principles to be implemented as part of the arable management for the benefit of pink footed and greylag geese will include:
    - Use sugar beet where possible;
    - Use other appropriate crops on rotation when sugar beet is not being grown, such as winter cereal crops, oil seed rape, Post-harvest cereal stubbles, potatoes[**Ref. 7-34**];
    - Post-harvest, the fields should be left until the spring before ploughing to maximise the foraging resource, with the geese foraging on roots chopped into fragments by the harvester, as well as unharvested roots;
    - Avoidance of deep ploughing; Incorporation of a ley crop within the management rotation; Inclusion of permanent grass margins to the fields measuring a minimum 2 metres.

7.2.63. The provision of the land detailed above and the management proposed will ensure that there is sufficient land available for those non-breeding bird species associated with the Humber Estuary SPA and Ramar, resulting in no overall impact to these species as a consequence of the Scheme.

7.2.64. The table below summarises the sites and features 'screened in' for further assessment, potential effects and proposed mitigation.

Table 7-2: Mitigation Measures for Internationally Designated Sites

Site	Qualifying Features	Likely Significant Effects	Embedded/Additional Mitigation and Enhancements
Thorne and Hatfield Moors (SPA)	Breeding nightjar	Disturbance to nightjar utilising adjacent Moors during construction phase Degradation of habitat quality	Timing of construction works in proximity to the SPA to avoid the breeding period of nightjars. Noise reduced during construction and no lighting towards SPA Retention and protection of hedgerows, creation of neutral grassland margins and species-rich neutral grassland in place of intensively managed arable, adoption of Outline eCMP and Outline LEMP
Thorne and Hatfield Moors (SAC)	7120 Degraded raised bogs still capable of natural regeneration	Degradation of habitat quality Changes to hydrological regime	Implementation of appropriate drainage strategy to prevent impacts to water quality and quantity. Improved water quality due to cessation of arable farming. Adoption of and adherence to the Outline eCMP and Outline LEMP
	Golden plover (wintering)	Disturbance to foraging/roosting habitat adjacent to Order Limits	Adoption of measures detailed in the Outline eCMP will ensure any birds using adjacent land

			outside of the Order Limits are not disturbed Although not required, habitat creation created as part of additional mitigation to comprise large areas of open, permanent pasture with scrapes.
	Assemblage qualification (non-breeding season)		
	Pink-footed goose (wintering)	Loss of over-wintering foraging/roosting habitat Disturbance to foraging/roosting habitat adjacent to Order Limits	Embedded mitigation not sufficient to mitigate for loss of open land which is required by this species. Additional mitigation to comprise large areas of open, permanent pasture with scrapes and arable managed for their benefit. Adoption of Outline eCMP will ensure any birds using adjacent land outside of the Order Limits are not disturbed.
	Greylag goose (wintering)	Loss of over-wintering foraging/roosting habitat Disturbance to foraging/roosting	Embedded mitigation not sufficient to mitigate for loss of open land which is required by this species. Additional mitigation to comprise large areas of open, permanent pasture

		habitat adjacent to Order Limits	with scrapes and arable managed for their benefit. Adoption of Outline eCMP will ensure any birds using adjacent land outside of the Order Limits are not disturbed.
	Mallard (wintering)	Loss of over-wintering foraging/roosting habitat Disturbance to foraging/roosting habitat adjacent to Order Limits	Additional mitigation to comprise large areas of open, permanent pasture with scrapes and arable t Drainage strategy and Outline eCMP and LEMP to prevent impacts to water quality and quantity and to improve water quality. Adoption of Outline eCMP will ensure any birds using adjacent land outside of the Order Limits are not disturbed.
	Golden plover (wintering)	Disturbance to foraging/roosting habitat adjacent to Order Limits	Adoption of Outline eCMP will ensure any birds using adjacent land outside of the Order Limits are not disturbed. Although not required, additional mitigation to comprise large areas of open, permanent pasture with scrapes will benefit this species.

	Grey plover (wintering)	Loss of over-wintering foraging/roosting habitat Disturbance to foraging/roosting habitat adjacent to Order Limits	Additional mitigation to comprise large areas of open, permanent pasture with scrapes. Adoption of Outline eCMP will ensure any birds using adjacent land outside of the Order Limits are not disturbed.
	Lapwing (wintering)	Loss of over-wintering foraging/roosting habitat Disturbance to foraging/roosting habitat adjacent to Order Limits	Embedded mitigation not sufficient to mitigate for loss of open land which is required by this species. Additional mitigation to comprise large areas of open, permanent pasture with scrapes. Adoption of Outline eCMP will ensure any birds using adjacent land outside of the Order Limits are not disturbed.
	Whimbrel (wintering)	Loss of over-wintering foraging/roosting habitat Disturbance to foraging/roosting habitat adjacent to Order Limits	Additional mitigation to comprise large areas of open, permanent pasture with scrapes. Adoption of Outline eCMP will ensure any birds using adjacent land outside of the Order Limits are not disturbed.

Humber Estuary Ramsar	Criterion 5 – waterfowl assemblage in non-breeding season	Loss of over-wintering foraging/roosting habitat Disturbance to foraging/roosting habitat adjacent to Order Limits	Embedded mitigation not sufficient to mitigate for loss of open land which is required by this species. Additional mitigation to comprise large areas of open, permanent pasture with scrapes and arable. Adoption of Outline eCMP will ensure any birds using adjacent land outside of the Order Limits are not disturbed.
	Criterion 6 – golden plover (passage)	Loss of over-wintering foraging/roosting habitat Disturbance to foraging/roosting habitat adjacent to Order Limits	Embedded mitigation not sufficient to mitigate for loss of open land which is required by this species. Additional mitigation to comprise large areas of open, permanent pasture with scrapes. Adoption of Outline eCMP will ensure any birds using adjacent land outside of the Order Limits are not disturbed.
	Criterion 6 – golden plover (wintering)	Loss of over-wintering	Embedded mitigation not sufficient to mitigate for loss of open land

		foraging/roosting habitat Disturbance to foraging/roosting habitat adjacent to Order Limits	which is required by this species. Additional mitigation to comprise large areas of open, permanent pasture with scrapes. Adoption of Outline eCMP will ensure any birds using adjacent land outside of the Order Limits are not disturbed.
	Criterion 8 – migration route for river lamprey and sea lamprey	No direct impacts but potential for dust pollution/degradation of watercourses and could affect migration corridors	Adoption of Outline eCMP

Operational

7.2.65. Once operational the provision of landscaping and ecological buffers around ditches and hedgerows and their long-term maintenance and management will ensure that impacts on the adjacent statutory designated sites are avoided and that foraging opportunities for species such as nightjar are enhanced compared to the current situation. No impact pathways exist which would warrant the need for additional mitigation measures.

7.2.66. The cessation of intensive arable management, resulting in a reduction in agrichemical use in the Order Limits boundary could have a significant improvement to water quality within the ditch network present that extends to the designated sites creating an enhancement for aquatic fauna and flora. This could improve the water quality in the area and increase foraging opportunities for nightjar and other species.

7.2.67. The buffers to be provided to ditches and the designated sites will also reduce potential impacts to invertebrates, including solar arrays being mistaken for open water.

7.2.68. The Scheme will not result in the inclusion of permanent lighting, preventing impacts to any nocturnal invertebrates.

7.2.69. The Scheme will have no impacts as a consequence of increases in population size or recreation.

Decommissioning

7.2.70. Baseline conditions within the Order Limits are likely to change over the 40 years of operation, and prediction of these conditions at this point is considered unreliable in terms of predicting likely future decommissioning effects on biodiversity. As such, updated ecological desk study and species-specific surveys will be undertaken prior to decommissioning in order to record the presence of protected and notable species and habitats, identify potential effects and any necessary protection and mitigation measures in order to comply with planning policy and wildlife legislation applicable at the time.

7.2.71. Long term land management within the Order Limits post decommissioning phase will be largely based and managed in adherence to agricultural / land management government policies and agri-environmental grant opportunities available at that time.

7.2.72. An Outline plan provided with DCO Submission Outline Decommissioning Environmental Management Plan (DEMP) [Document Reference 7.9.3] (secured by requirement of the DCO which would be finalised once the party responsible for undertaking decommissioning works on the Order Limit has been appointed) will form an integral element of the decommissioning phase. This will set out the methods by which decommissioning will be managed to avoid, minimise, and mitigate any adverse effects on the local and wider environment. Further information is provided below.

In Combination Integrity Test

7.2.73. It is considered that adverse effects on the integrity of the designated sites detailed can be ruled out, based on the assessment of residual effects to passage / non-breeding birds arising from the Scheme in combination with the potential

effects arising from other projects identified as detailed in the Cumulative Impacts Chapter of the ES –**Chapter 17 [Document Reference: 6.2.6]**.

7.2.74. This assessment has been made in consideration of the timing and scale of the projects included in the in combination assessment, the mitigation proposed for those projects and considering the mitigation and assessment results pertaining to the Scheme including:

- Onsite mitigation for loss of habitats used by passage and non-breeding birds: golden plover, lapwing, pink-footed geese and greylag geese, including the provision of large areas of neutral grassland and also arable provision, with both habitats managed specifically for these bird species that are associated with the Humber Special Protection Area (SPA) and have been recorded utilising the Order Limits.

- Adoption of measures to avoid / mitigate habitat loss, run-off, pollution, air quality, noise and disturbance during the construction phase outlined within the Outline Ecological Construction Management Plan (eCMP) [Document Reference 7.9.5] and decommissioning detailed in the Decommissioning Environmental Management Plan (DEMP) [Document Reference 7.9.3]. These measures will prevent impacts to retained habitats and the designated sites in the area, including Thorne and Hatfield Moors SPA, Thorne Moors Special Area of Conservation (SAC) , Hatfield Moors SAC, Humber Estuary SPA / Ramsar and SAC.

- Adoption of the Outline Landscape Ecological Management Plan (LEMP) [Document Reference 7.9.6] for the lifetime of the proposed development to ensure the quality of habitat provided on site for passage / non-breeding birds associated with Humber Estuary SPA / Ramsar and nightjar, which are associated with Thorne and Hatfield Moors SPA, is maintained. The measures will additionally assist with providing biodiversity gains.

7.2.75. In addition to the above, the Scheme will result in the cessation of intensive agricultural management in the area, such as the regular application of agrichemical input, soil exposure and disturbance through cropping and ploughing. Therefore, water quality both within the Order Limits and wider area, including the adjacent European designated sites will improve.

7.2.76. Given the nature of the proposals, solar, there will be no impacts as a consequence of the proposals from recreation or increases in population size to any European designated site.

7.2.77. The implementation of the above mitigation measures allows the competent authority to conclude that there will be no Likely Significant Effects arising from the proposed Scheme, on the Conservation Objectives or the qualifying features of the designated sites either alone or in-combination.

Monitoring

7.2.78. Details of required monitoring are described, either for the purposes of validating the findings of the AA, or as an early warning which would enable any actions resulting in an unexpected adverse impact to be stopped, paused, reduced, altered or removed.

7.2.79. A Condition Assessment of habitats on site would be undertaken as part of the LEMP **[Document Reference: 7.9.6]** (standard monitoring would be a condition assessment at years 1,2,3,5,20 and 30). Where the condition of habitats does not meet the criteria set out in the LEMP remedial action to restore the habitat would be undertaken following agreement with the relevant Local Planning Authorities and Natural England, as necessary.

8 Conclusions

8.1.1. Mitigation measures have been proposed as summarised in Table 7-2 and if implemented successfully will enable the Scheme to be constructed and operated with no likely significant effects to the qualifying features of the designations detailed which were screened in for Appropriate Assessment.

8.1.2. Furthermore, once applied the mitigation will render any potentially significant effects as either neutral or at a negligible level that would mean they would be unlikely to lead to any in combination effects arising from the cumulative developments considered as part of the ES.

8.1.3. As such, with the implementation of the mitigation measures detailed the Scheme will have no impacts either alone or in combination with any other plan or project.

Appendix 1: Non-Breeding Bird Survey Report (Year 1 and Year 2)

Tween Bridge NSIP Solar Farm

on behalf of Pegasus Planning Ltd.

Technical Appendix 7.3: Non-Breeding Bird Survey Report

avianecology

Document Control	
Project Name:	Tween Bridge NSIP Solar Farm
Project Number:	Pegas-075-1622
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Issue	Date	Notes	Prepared	Reviewed
V1	31/07/2023		[redacted] *MRes BSc (Hons)*	[redacted] *MSc BSc (Hons) ACIEEM*
V2	03/09/2024	Additional Year 2 data added	[redacted] *MRes Bsc (Hons.)*	[redacted] *MSc BSc (Hons) MCIEEM*
V3	12/02/2025	Minor amendments		[redacted] *MRes Bsc (Hons.)*
V3	14/07/2025	General amendments and update to SPA assessment	[redacted] *MSc BSc (Hons) MCIEEM*	[redacted] *BSc (Hons) MCIEEM*

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INTRODUCTION

1.1 Project Background

1.1.1 Avian Ecology Ltd. was commissioned by Pegasus Planning Ltd. to undertake non-breeding bird surveys in the 2022/2023 (Year 1) and 2023/2024 (Year 2) (passage and winter) periods in relation to a proposed renewable energy generating project ('The Order Limits'); consisting of ground-mounted solar photovoltaic ('PV') arrays, together with on-site energy storage and associated infrastructure.

1.1.2 The Scheme is located on land to the east of the town of Thorne and to the west of the town of Crowle (the ' Order Limits'), South Yorkshire at approx. central OS grid reference: SE 72436 11486.

1.1.3 This report presents the detailed methodologies and findings from surveys conducted between September 2022 and March 2023, and again between September 2023 and April 2024.

The objectives of this report are to:

- Identify the presence of non-breeding bird species (waterbirds) within the Order Limits, and on adjacent land; and,
- Assess the potential importance of the non-breeding waterbird bird assemblages which the Order Limits and adjacent land supports.

1.1.4 The English vernacular bird names used in this report follows that of 'The British List: A Checklist of Birds of Britain (10th edition)' (British Ornithologists' Union, 2022).

1.2 The Order Limits

1.2.1 The Order Limits (see Figure 1) encompass a series of connected agricultural land parcels, predominantly under arable management. The fields are bounded by a network of watercourses, hedgerows, fences, and tree lines. A broadleaved woodland plantation copse is present within the area, along with several ponds.

1.2.2 The Tween Bridge Wind Farm, comprising twenty-two operational wind turbines, is located within the Order Limits. The Stainforth and Keadby Canal also intersects the centre of the Order Limits, running from west to east.

1.2.3 Several internationally and nationally designated sites of ornithological importance lie within proximity to the Order Limits. Within 10 km are key international sites such as the Humber Estuary SPA and Ramsar site, and the Thorne & Hatfield Moors SPA, all of which are designated for their ornithological importance.

1.2.4 Nationally, the Humberhead Peatlands National Nature Reserve, located directly adjacent to the Order Limits, includes the Thorne, Crowle and Goole Moors SSSI and Hatfield Moors SSSI sites, which are known to support ornithological populations.

1.2.5 The Order Limits also fall within Natural England's SSSI Impact Risk Zones (IRZs) for these sites, highlighting potential sensitivities to bird populations from nearby developments.

1.3 Bird Species Definitions

1.3.1 All non-breeding waterbird species will be hereafter referred to as "notable species".

1.3.2 Notable species also includes species comprising non-breeding (i.e. passage and wintering) qualifying interests of the Humber Estuary SPA and Ramsar site, otherwise referred to as "main component species" in line with

Annex B Humber Estuary Special Protection Area: non-breeding waterbird assemblage (Version 1.2, June 2023) guidance. [1]

1.3.3 *Main Component species are defined as:*

- *All species listed individually under the assemblage feature on the SPA citation (i.e. the species that qualified in 2007 when the site was designated);*
- *Species which might not be listed on the SPA citation but occur at site levels of more than 1% of the national population according to the most recent Humber Estuary Wetland Bird Survey (WeBS) 5-year average count;*
- *Species where more than 2000 individuals are present according to the most recent Humber Estuary WeBS count.*

1.3.4 *Natural England advises that the main component species of the Humber Estuary SPA non-breeding waterbird assemblage include (June 2023):*

Species listed individually under the assemblage feature on the SPA citation:

- *Avocet;*
- *Bar-tailed godwit;*
- *Bittern*
- *Black-tailed godwit;*
- *Brent goose;*
- *Curlew*
- *Dunlin*
- *Golden plover*
- *Golden eye*
- *Greenshank*
- *Grey plover;*
- *Knot;*
- *Lapwing;*
- *Mallard;*
- *Oystercatcher;*
- *Pochard;*
- *Redshank;*
- *Ringed plover;*
- *Ruff;*
- *Sanderling;*
- *Scaup;*
- *Shelduck;*
- *Teal;*
- *Turnstone;*
- *Whimbrel;*
- *Wigeon;*

1.3.5 *Species not listed on the SPA citation but occurring at site levels of more than 1% of the national population according to the most recent Humber Estuary Wetland Bird Survey (WeBS) 5-year average count:*

- *Green sandpiper;*
- *Greylag goose;*
- *Little egret;*

[1] Natural England (2023) *Annex B: Humber Estuary Special Protection Area: non-breeding waterbird assemblage*. Version 1.2, June 2023. Available at: https://nsip-documents.planninginspectorate.gov.uk/published-documents/EN020036-000104-Natural%20England.pdf (Accessed: 16 July 2025).

- *Pink-footed goose;*
- *Shoveler;*
- *Crane*

1.3.6 *Other species required for consideration but are not considered to be non-breeding waterbirds but are listed in the citation include:*

- *Hen harrier;*
- *Marsh harrier;*
- *Little tern;*
- *Avocet; and*
- *Bittern*

Annex 1 and Schedule 1 species

1.3.7 Schedule one of the Wildlife and Countryside Act 1981 (as amended[2]) and Annex 1 species listed under Annex I of the EU Birds Directive (Directive 2009/147/EC[3]) recorded during the surveys will be referred to as such, unless included in the notable species definition above.

Secondary Species

1.3.8 All other species will be referred to as "Secondary Species". These are species that are neither Schedule one, Annex I, or notable species.

2 METHODOLOGY

2.1 Desk study

2.1.1 A desk study was undertaken during 2023, to identify any existing ornithological records within a 2km radius of the Order Limits. Records were requested from the Doncaster Local Records Centre (DLRC) and Greater Lincolnshire Nature Partnership (GLNP).

2.1.2 For the purposes of this report, the search was refined to species listed as qualifying interest of the International sites within Humber Estuary Ramsar site and SPA, Amber List, Red List, NERC S41, Birds of Conservation Concern (BoCCs) Amber and Red List species (as per Stanbury *et al*., 2021[4]), Doncaster and Lincolnshire Local Biodiversity Action Plan, Annex 1 and/or Schedule 1 species only and which may use the Order Limits for winter foraging.

2.1.3 Furthermore, the search was restricted to only those records for the last 10 years (2013; as part of the 2023 desk study search during the first issue of the report in 2023), to ensure the most up to date information is considered, and less relevant historic records discounted.

2.1.4 The results of the desk study are summarised in Section 3.1, with further details presented in Annex 1.

[2] UK Government, 2025. Wildlife and Countryside Act 1981. [online] Legislation.gov.uk. Available at: https://www.legislation.gov.uk/ukpga/1981/69 [Accessed 16 Jul. 2025].
[3] European Commission, 2023. Birds Directive. [online] Environment.ec.europa.eu. Available at: https://environment.ec.europa.eu/topics/nature-and-biodiversity/birds-directive_en [Accessed 16 Jul. 2025].
[4] Stanbury, A.J., Eaton, M.A., Aebischer, N.J., Balmer, D., Brown, A.F., Douse, A., Lindley, P., McCulloch, N., Noble, D.G. & Win, I. 2021. The status of our bird populations: the fifth Birds of Conservation Concern in the United Kingdom, Channel Islands and Isle of Man and second IUCN Red List assessment of extinction risk for Great Britain. British Birds 114: 747.

2.2 Non-breeding bird surveys methods during Year 1 and Year 2

2.2.1 Surveys were carried out within all suitable habitats within the Order Limits, and all suitable fields within a 600m buffer (the Wider Survey Area) of the Order Limits, as shown in Figure 1. The combination of the Order Limits and Wider Survey Area will be termed 'Survey Area' hereafter.

2.2.2 A total of 14 walkover survey visits (two per month) were completed between September 2022 and March 2023, one diurnal and one nocturnal, with 23 walk-over surveys (three per month, two in April) completed between September 2023 and April 2024. All walk-overs used the 'look-see' methodology as described in Gilbert *et al*. 1998[5]. During each survey visit surveyors observed each field within the Survey Area, walking the boundaries and stopping at intervals and scanning the fields for bird species, with binoculars.

2.2.3 All bird species seen and (or) heard were recorded onto field maps. The number of Secondary Species were tallied during the survey, however these were not formally mapped.

2.2.4 A total of seven Nocturnal walkover survey visits were completed adopting an adapted version of the 'look-see' methodology (Gilbert *et al*. 1998[8]). During each survey visit surveyors observed each field within the Study Area, walking the boundaries and stopping at intervals and scanning the fields for bird species, with thermal imaging cameras and recording vocalisations of birds where possible.

2.2.5 Surveys were carried out using Pulsar Lexion thermal imaging cameras used to aid detection of species and where possible record the birds to species level. Where individual birds were unidentifiable due to distance or small size of the species, surveyors used knowledge of behaviour and suitable habitat for these species to make an informed estimate of a species group e.g., *Calidris* wader (sanderling or dunlin).

Survey Area

2.2.6 For ease of interpreting the survey results, fields within the Survey Area were numbered 1-570. Fields within the Order Limits and within the Wider Survey Area are defined in **Table 2.1 below** and illustrated on **Figures 2-7**.

Table 2.1: Field allocations for Order Limits and Wider Survey Area.

Land Parcel	Field Number Range
The Order Limits	1-13, 15-35, 37-43, 45-54, 60-64, 67-106, 113-120, 122, 129-130, 132-138, 141-142, 150-154, 168-176, 180, 217-218, 220-222, 226, 243-246, 248-249, 253-256, 275, 279-285, 289-292, 392, 394, 402, 407-413, 415-416, 420, 436-437, 496-500, 521, 563-564, 570-624 and 626.
Outside of the Order Limits	14, 36, 44, 55-59, 65-66, 107-112, 121-128, 131, 139, 140, 143-149, 155-167, 177-178, 181-216, 219, 223-242, 247, 250-252, 257-274, 276-278, 286-288, 293-406, 414, 417-435, 438-495, 501-543, 545-562, 565-569 and 625.

Survey Effort

Year 1 (2022/23)

2.2.7 Non-breeding bird surveys (diurnal and nocturnal) were undertaken between September 2022 and April 2023.

2.2.8 During year 1, Nocturnal Bird Surveys were carried out in tandem with the diurnal non-breeding Bird Surveys.

Year 2 (2023/24)

2.2.9 A second year of non-breeding bird surveys were undertaken between September 2023 and March 2024.

[5] Gilbert G, Gibbons D.W. and Evans J. (1998) *Bird Monitoring Methods*. RSPB Sandy.

2.2.10 Nocturnal Bird Surveys were carried out separately from diurnal non-breeding Bird Surveys and were carried out monthly between September 2023 and March 2024.

Vantage Point Surveys

2.2.11 Between September 2023 and March 2024 (not carried out during the April 2024 passage period), Vantage Point (VP) flight activity surveys were undertaken from six VP locations:

- VP1 – SE 72180 11755;
- VP2 – SE 70377 08799;
- VP3 – SE 72059 09720;
- VP4 – SE 75858 10057;
- VP5 – SE 74195 12713; and,
- VP6 – SE 71099 15154.

2.2.12 Figure 8 shows the VP locations used and their viewshed coverage which appropriately covered the Order Limits.

2.2.13 The VP flight activity surveys followed the NatureScot guidance (SNH, 2017[6]) which although is intended for wind farm developments, is considered appropriate to use for the Scheme, in the absence of guidance specific to solar farm developments. Surveys were carried out over a 3hr period and flights and activity of Important Ornithological Features were recorded onto basemaps. Any activity by Secondary Species was also recorded every 15 minutes, but detailed flights of these species were not recorded.

2.2.14 All VP surveys were undertaken during daylight hours, and throughout the survey period surveys were timed to cover the full range of low and high tide times which are likely to influence bird use of nearby terrestrial habitats, such as within the Survey Area.

2.2.15 Survey effort for VP flight activity surveys and a breakdown of survey conditions are presented in **Annex 2**. A summary of VP survey effort is presented below in **Table 2.2.**

Table 2.2: VP Flight Activity Survey Effort (hrs)

VP	2023				2024			Total
	September	October	November	December	September	October	November	
1	3	3	3	3	3	3	3	21
2	3	3	3	3	3	3	3	21
3	3	3	3	3	3	3	3	21
4	3	3	3	3	3	3	3	21
5	3	3	3	3	3	3	3	21
6	3	3	3	3	3	3	3	21

Field Survey Limitations

2.2.16 In response to scheme design, the Order Limits boundary has evolved over time. As such, a c.25ha area beyond the southern boundary of the Survey Area was not subject to survey in 2022/23. This area consists of intensively managed agricultural land which is consistent with the majority of the Study Area. This area was surveyed in 2023/24, so was surveyed throughout the Year 2 survey period. It is therefore considered, that this combined with the relatively small extent of the area is not a limitation to the survey and subsequent assessment.

[6] Scottish Natural Heritage (2017) - *Guidance Note - Recommended Bird Survey Methods To Inform Impact Assessment of Onshore Windfarms* – available at https://www.nature.scot/doc/recommended-bird-survey-methods-inform-impact-assessment-onshore-windfarms

2.2.17 Access was permitted to all other parts of the Order Limits during all surveys. All fields considered suitable for notable species within the Wider Survey Area were visible from the Order Limits and/or PRoWs.

2.2.18 Nocturnal surveys were aided by Pulsar nightvision scopes however, it is appreciated that identification to species level is not always possible, so observers used knowledge of likely species and their behaviour to identify species as best as possible.

2.2.19 No significant limitations in the field survey data in informing the design and assessment of the Scheme are therefore identified.

Assessing Importance

2.2.20 For the purposes of this report, the importance of the Survey Area to qualifying species and the wider assemblage of the nearby Humber Estuary Ramsar site and SPA is assessed using functional linkage, by comparing the relevant WeBS 5 year mean to the field surveys data (monthly peak counts). This was done with the most up to date WeBS data available 2022/23 and 2023/34 and therefore were compared against that year of data that was collected (**Table 3.1** and **3.2**).[7]

3 RESULTS

3.1 Desk Study Results

3.1.1 Over the duration of the survey programme the Draft Order Limits were revised as the project design evolved. Ornithology survey results in this appendices are presented based on the Draft Order Limits (survey area) as applicable at the time of survey, so as to fully present the extent of data collection including adjacent land which could potentially be impacted by the Scheme. It should therefore be noted that impact assessment utilises all data collected over the course of the survey programme, including the final Draft Order Limits, and is consequently robust.

3.1.2 **Annex 1** provides details of relevant recent historical ornithological records returned from the Devon Biodiversity Records Centre (DBRC) and Gloucestershire Local Nature Partnership (GLNP).

3.1.3 In summary relevant records included notable species, such as pink-footed goose, white-fronted goose, whooper swan, greylag goose, redshank and oystercatcher.

3.1.4 The most frequent records referred to those observations of birds within Crowle Moor and Thorne Moor within the Thorne & Hatfield Moors SPA to the immediate northeast of the Order Limits.

3.1.5 These records informed the identification of notable species for survey and recording and the approach to surveys, including the requirement for nocturnal surveys.

3.1.6 Although this data search was carried out in 2023, it remains relevant as the landscape has not changed, the species involved are highly mobile, and the data provides a good overall representation.

3.2 Non-Breeding Bird Surveys – Year 1 (2022/23)

3.2.1 Ten qualifying species and species part of the wider waterbird assemblage were identified during the non-breeding bird surveys, within the Order Limits. The general trend of peak bird activity during autumn and early winter (September–January), with notable declines from February onward. greylag and pink-footed geese, lapwing, and golden plover were especially abundant in the earlier months. By March and April, most species

[7] Calbrade, N.A., Birtles, G.A., Woodward, I.D., Feather, A., Hiza, B., Caulfield, E., Balmer, D.E., Peck, K., Wotton, S.R., Shaw, J.M., and Frost, T.M. 2025.
Waterbirds in the UK 2023/24: The Wetland Bird Survey and Goose & Swan Monitoring Programme. BTO/RSPB/JNCC/NatureScot. Thetford.

had decreased significantly or disappeared altogether, indicating seasonal migration patterns or reduced local presence in late winter to early spring.

3.2.2 Other notable waterbird species recorded within the Order Limits include whooper swan (Annex 1) with two flocks of 23 and 34 recorded as utilising the area during February and January. Other records include grey heron (peak count 1), and little grebe (2).

3.2.3 Marsh harrier, a qualifying non-breeding species of the Humber Estuary SPA and Ramsar was recorded during September and December.

3.2.4 Schedule 1 bird species recorded within the Order Limits include barn owl (2), hen harrier (1), peregrine (1), osprey (1).

3.2.5 Outside of the Order Limits, seasonal patterns in bird activity, with peak counts occurring primarily in autumn and early winter were evident. Pink-footed goose (peak 700) and lapwing (peak 260) showed the highest numbers, especially in September and October, which coincides with the autumn migration period. Golden plover also peaked sharply in October (480) and did not reach numbers similar to this hereafter. Greylag goose numbers were minimal early on but rose significantly in February and March (peaks of 155 and 34), suggesting a later seasonal presence. Mallard exhibited steady presence through the winter months, peaking in January (42). Most other species appeared in low numbers or sporadically, with only isolated records, such as common crane (3) and marsh harrier (2).

3.2.6 Schedule one species recorded outside of the Order Limits, include barn owl (1), hen harrier (1), osprey (1), peregrine (1) and red kite (1).

3.2.7 All data collected can be found in **Annex 3**.

Table 3.1: SPA qualifying species recorded within and outside of the Order Limits during 2022/23. Note that nocturnal and diurnal surveys were combined and peak count of the two is provided, alongside the percentage of the moving (2022/23) WeBS 5-year moving mean totals.

Species	2022				2023		
	Sep	Oct	Nov	Dec	Jan	Feb	Mar
Within the Order Limits							
Curlew Humber Estuary 5 year mean 2022/23 **2,473**	0	0	0	0	0	0	2 (0.08%)
Golden plover Humber Estuary 5 year mean 2022/23 **21,160**	53 (0.25%)	0	0	37 (0.17%)	21 (0.10%)	0	0
Green sandpiper Humber Estuary 5 year mean 2022/23 **14**	**1 (7.14%)**	**1 (7.14%)**	**1 (7.14%)**	0	**1 (7.14%)**	0	0
Greylag goose Humber Estuary 5 year mean 2022/23 **2,569**	375 (14.60%)	0	19 (0.74%)	0	0	0	8 (0.31%)
Lapwing Humber Estuary 5 year mean 2022/23 **15,951**	390 (2.44%)	25 (0.16%)	31 (0.19%)	127 (0.8%)	260 (1.63%)	32 (0.20%)	32 (0.20%)
Little egret Humber Estuary 5 year mean 2022/23 **215**	0	1 (0.47%)	1 (0.47%)	0	0	0	1 (0.47%)

Mallard Humber Estuary 5 year mean 2022/23 **1,459**	**92 (6.31%)**	**24 (1.64%)**	0	12 (0.82%)	**27 (1.85%)**	**64 (4.39%)**	6 (0.41%)
Pink-footed goose Humber Estuary 5 year mean 2022/23 **23,330**	**330 (1.41%)**	**360 (1.54%)**	0	0	0	0	0
Shoveler Humber Estuary 5 year mean 2022/23 **317**	0	0	0	0	2 (0.63%)	0	0
Teal Humber Estuary 5 year mean 2022/23 **9,994**	0	2 (0.02%)	0	3 (0.03%)	6 (0.06%)	0	4 (0.04%)
Outside of the Order Limits							
Golden plover	76	480	21	20	1	0	38
Green sandpiper	0	0	0	1	0	0	0
Greylag goose	150	0	0	0	0	155	34
Lapwing	260	136	1	71	14	6	13
Little egret	1	2	1	1	1	0	0
Mallard	60	2	5	42	21	17	10
Pink-footed goose	700	42	0	0	0	21	0
Shoveler	1	0	0	0	0	0	0
Teal	0	0	0	0	23	3	9
Common crane	3	0	0	0	0	0	2

3.3 Non-Breeding Bird Surveys – Year 2 (2023/24)

3.3.1 Twelve notable non-breeding bird species that are qualifying features and part of the wider bird assemblage were recorded within the Order Limits during the non-breeding bird surveys.

3.3.2 Non-breeding bird species recorded within the Order Limits show clear seasonal trends among the bird species recorded throughout the Survey Area. Many species recorded, including dunlin, lapwing, greylag goose, golden plover, and pink-footed goose, peak in autumn (October–November), suggesting migratory stopovers or early winter arrivals. Several waterfowl, such as mallard, wigeon, and teal, are more prominent during winter months (December–February), indicating overwintering behaviour. In early spring (March–April), species such as curlew, little egret, and oystercatcher begin to appear, likely reflecting returning migrants. Overall, there is a pattern of sharp autumn influxes followed by gradual winter declines and early spring arrivals.

3.3.3 Outside of the Order Limits shows that most species peak in autumn (September–November), especially pink-footed goose, greylag goose, and golden plover, indicating migratory movement. Lapwing, Mallard, and Teal maintain more consistent presence across months, with Mallard and Lapwing showing slight increases in February–March. Little egret appeared most common in early autumn, disappearing by winter. Overall, the area appears to support autumn migration activity, with fewer species and lower numbers through winter and early spring.

3.3.4 Only a small number of fields and months exceeded the 1% threshold of the Humber Estuary 5-year mean (2022/23) for each species within the Order Limits. These were: mallard in field 20 (92 birds in September 2022), lapwing in field 65 (260 in September 2022), green sandpiper in fields 50 and 63 (1 in October 2022) and field 129 (1 in November 2022), and pink-footed goose in field 39 (475 in October 2022), field 31 (360 in November 2022), and field 42 (330 in September 2022). All other records were below the 1% threshold.

3.3.5 All data collected can be found in **Annex 3**

Table 3.2. SPA qualifying species and species part of the wider waterbird assemblage recorded within and outside of the Order Limits during the Winter Walkover and Nocturnal Bird Surveys combined during 2023/24.

Note that nocturnal and diurnal surveys were combined and the maximum peak count of the two is provided alongside the percentage of the most up to date (2023/24) WeBS 5-year mean totals.[8]

Species	2023				2024			
	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr
Within the Order Limits								
Curlew WeBS 5-year mean for the Humber Estuary **2,473**	0	0	0	0	0	0	2 (0.16%)	2 (0.16%)
Dunlin WeBS 5-year mean for the Humber Estuary **22,346**	0	6 (0.027%)	27 (0.121%)	0	0	0	0	0
Little egret WeBS 5-year mean for the Humber Estuary **226**	0	1 (0.442%)	0	0	0	0	1 (0.442%)	0
Green sandpiper WeBS 5-year mean for the Humber Estuary **19**	0	0	0	**1 (5.26%)**	0	0	0	0
Greylag goose WeBS 5-year average for the Humber Estuary **2285** [9] [10]	0	**210 (9.19%)**	**157 (6.87%)**	12 (0.52%)	0	**27 (1.18%)**	**76 (3.33%)**	9 (0.39%)
Golden plover (WeBS 5-year mean for the Humber Estuary **21,623)**	0	0	82 (0.38%)	2 (0.009%)	84 (0.389%)	0	6 (0.028%)	0
Lapwing WeBS 5-year mean for the Humber Estuary **11,859**	5 (0.042%)	**220 (1.855%)**	**371 (3.129%)**	53 (0.447%)	79 (0.666%)	**147 (1.24%)**	11 (0.093%)	4 (0.034%)
Mallard WeBS 5-year mean for the Humber Estuary 1,459	2 (0.14%)	**33 (2.26%)**	**78 (5.35%)**	**125 (8.567%)**	**49 (3.357%)**	**92 (6.305%)**	**16 (1.096%)**	10 (0.685%)
Oystercatcher WeBS 5-year mean for the Humber Estuary 7,218	0	0	0	0	0	0	2 (0.028%)	0
Pink-footed goose	0	**1600* (5.85%)**	**620 (2.27%)**	194 (0.71%)	0	**1530 (5.63%)**	0	0

[8] Calbrade, N.A., Birtles, G.A., Woodward, I.D., Feather, A., Hiza, B., Caulfield, E., Balmer, D.E., Peck, K., Wotton, S.R., Shaw, J.M., and Frost, T.M. 2025.
Waterbirds in the UK 2023/24: The Wetland Bird Survey and Goose & Swan Monitoring Programme. BTO/RSPB/JNCC/NatureScot. Thetford.

[9] Contains Wetland Bird Survey (WeBS) data from Waterbirds in the UK 2023/24 © copyright and database right 2025. WeBS is a partnership jointly funded by the BTO, RSPB and JNCC, with fieldwork conducted by volunteers.

[10] Contains Goose and Swan Monitoring Programme (GSMP) data from Waterbirds in the UK 2023/24 © copyright and database right 2025. GSMP is a partnership, run by and jointly funded by BTO, JNCC and NS, with fieldwork conducted by both volunteer and professional surveyors.

WeBS 5-year mean for the Humber Estuary **27,329**								
Teal WeBS 5-year mean for the Humber Estuary **9,994**	0	0	0	2 (0.020%)	12 (0.120%)	2 (0.020%)	2 (0.020%)	1 (0.010%)
Wigeon WeBS 5-year average for the Humber Estuary **6,452**	0	6 (0.093%)	0	0	0	42 (0.651%)	0	0
Outside of the Order Limits								
Little egret	2	2	6	4	0	0	0	0
Greenshank	1	0	1	0	0	0	0	0
Greylag goose	0	184	36	64	0	0	22	1
Golden plover	0	3	20	0	1	0	0	0
Lapwing	54	48	28	12	27	66	29	2
Mallard	49	57	28	30	8	63	47	2
Pink-footed goose	0	1120	0	668	14	0	0	0
Teal	3	4	5	18	8	9	6	2

∗ Single large flock spread across four fields (1,600, 1,400, 84 and 9 birds) showing large flock of 3,133 birds

3.3.6 Other notable waterbirds recorded during the non-breeding bird surveys and are not considered part of the SPA wider assemblage, include gull species (black-headed, common, herring, lesser black-backed and greater black-backed), cormorant, Canada goose, Egyptian goose, gadwall, goosander, grey heron, mute swan and tufted duck.

3.3.7 Schedule 1 species recorded within the Order Limits also include barn owl, merlin and peregrine, where a single bird was recorded during the surveys. Marsh harrier (peak count of one individual), an SPA qualifying species were also recorded within the Order Limits foraging, as well as outside of the Order Limits.

3.3.8 Several species exceeded the 1% threshold of their WeBS 5-year mean within the Order Limits, indicating potential use of Functionally Linked Land (FLL). Notably, greylag goose, lapwing, mallard, and pink-footed goose regularly surpassed this threshold across multiple months, while green sandpiper exceeded it in January due to a low baseline.

3.3.9 Fields 17 and 18 appeared to support the following qualifying species, greylag goose, pink-footed goose, lapwing and mallard in numbers close to or exceeding the 1% threshold. Field 17 showed significant exceedances, especially in autumn, with high counts for both Greylag Goose (210 individuals in mid-September and 27 in early October) and Pink-footed Goose (1440 individuals, mid-September). Lapwing numbers (up to 100 in February) also approached the threshold here, highlighting this site's consistent value for multiple species.

3.3.10 Field 18 similarly demonstrated considerable importance, notably for Lapwing with high counts recorded in late September (371 individuals) and again in late November (147 individuals), exceeding the WeBS 1% thresholds. Greylag Goose was recorded at 157 individuals in late September. Mallard numbers were particularly notable, peaking at 29 in September and 125 birds in October.

3.3.11 Field 16 appeared to support geese during September, greylag (135) and pink-footed goose (1600).

3.3.12 See below for a summary of field usage and 1% threshold exceedance of SPA qualifying features and the wider assemblage.

- Field 8: mallard in November (17 individuals);

- Field 11: lapwing (111 in September) and pink-footed goose (1530 in January).
- Field 16: Key site for geese in September—Greylag (135) and Pink-footed (1600).
- Field 17: greylag goose (210, 27) and pink-footed goose (1440).
- Field 18: lapwing (371, 147), greylag goose (157), and mallard (125, 29).
- Field 37: Green Sandpiper (1), exceeding its threshold) in October.
- Field 86: Important mallard (78) in early October.
- Field 115: Notable mallard site during winter (49, 28 individuals in Jan-Feb).
- Field 168: pink-footed goose (620) and greylag goose (38).
- Field 253: mallard (33, 37).
- Field 280: mallard (37 in March).
- Field 281: lapwing site (220).
- Field 289: Important greylag goose area (57 in September).
- Field 291 & 292: lapwing during September (129 and 257 respectively).
- Field 402: greylag goose (76 in December).

3.4 Vantage Point Flight Activity Survey Results

3.4.1 Over the six surveys undertaken from each of the six vantage points between September 2023 and March 2024, species associated with the Humber Estuary SPA and Ramsar site included golden plover, pink-footed goose lapwing and marsh harrier. Additional IOFs comprised common crane.

3.4.2 Flocks that exceeded 100 birds included pink-footed goose (eight flocks of between 107 and 220 birds between September 2023 and November 2023) and lapwing (six flocks of between 130 and 310 birds in October 2023, January 2024 and February 2024). Observations generally involved flocks flying over the Order Limits, with the exception of two flocks of lapwing (127 birds in October 2023 and 156 birds in January 2024) seen to land and/or be present feeding on the ground throughout the survey, which is located outside of the Order Limits.

3.4.3 Birds recorded during the vantage point flight activity surveys both on the ground and in flight are summarised in **Table 3.3**. Full survey effort is shown in **Annex 2** with the details of each flight observation shown in **Annex 4**.

Table 3.3: Vantage point flight activity survey results during 2023/24

Vantage Point	Species	No. Observations	No. Birds	On Ground?	Fields
1	Pink-footed goose	4	223	No	Flew over the Order Limits and study area in flocks of up to 148 birds
	Golden plover	1	23	No	Flew over the Order Limits
	Marsh harrier	5	5	No	Hunting over fields
2	Pink-footed goose	5	143	No	Flew over the Order Limits in flocks of up to 47 birds
	Lapwing	3	384	No	Flew over the Order Limits in
	Marsh harrier	4	4	No	Hunting over fields
3	Pink-footed goose	7	376	No	Flew over the Order Limits in flocks of up to 141 birds

Vantage Point	Species	No. Observations	No. Birds	On Ground?	Fields
	Common crane	1	2	No	Flew from the adjacent Hatfield Moors SSSI
	Lapwing	1	2	No	Flew over the Order Limits
	Marsh harrier	2	2	No	Hunting over fields.
4	Pink-footed goose	304	11	Yes/No	Flew over the Order Limits in flocks of up to 107 birds and birds foraging on the ground of up to 7 birds.
	Lapwing	855	7	Yes/No	Flew over the Order Limits in flocks of up to 310 birds and birds foraging on the ground of up to 127 birds.
	Marsh harrier	3	3	No	Hunting over fields
5	Pink-footed goose	9	607	No	Flew over the Order Limits in flocks of up to 220 birds
	Marsh harrier	4	4	No	Hunting over fields
6	Pink-footed goose	15	611	No	Flew over the Order Limits in flocks of up to 140 birds
	Marsh harrier	4	4	No	Hunting over fields

ANNEX 1: DESK STUDY RESULTS

Table A1.1 provides a list of the species returned from the desk study from DLRC and GLNP.

Table A1.1: Desk study results provided by GLNP and DLRC.

Common name	No. of records	Source	Most recent record
Barn owl	22	GLNP	2022
	2	DLRC	2015
Bittern	3	GLNP	2021
Black Tern	1	DLRC	2018
Black stork	2	GLNP	2014
Black-headed gull	15	DLRC	2020
Black-necked grebe	1	GLNP	2018
Bullfinch	14	GLNP	2021
	15	DLRC	2018
Cetti's warbler	27	GLNP	2022
	7	DLRC	2021
Common gull	7	DLRC	2018
Corn bunting	4	GLNP	2021
	3	DLRC	2018
Common crane	1	DLRC	2019
Cuckoo	35	GLNP	2022
	3	DLRC	2021
Curlew	7	GLNP	2021
	6	DLRC	2018
Dunnock	1	GLNP	2021
	9	DLRC	2018
Fieldfare	25	GLNP	2022
	16	DLRC	2020
Gadwall	9	GLNP	2017
	16	DLRC	2018
Garganey	3	GLNP	2015
Golden oriole	1	GLNP	2018
Goldeneye	1	DLRC	2018
Golden plover	7	DLRC	2018
Goosander	11	DLRC	2021
Grasshopper warbler	7	GLNP	2020
Great white egret	1	DLRC	2018
Green sandpiper	2	GLNP	2014
	4	DLRC	2018
Greenland white-fronted goose	1	GLNP	2017

Common name	No. of records	Source	Most recent record
Greenfinch	5	DLRC	2018
Grey partridge	10	GLNP	2022
Grey wagtail	2	DLRC	2020
Greylag goose	34	GLNP	2022
	11	DLRC	2018
Hawfinch	1	DLRC	2014
Hen harrier	10	GLNP	2020
Herring gull	4	DLRC	2020
Hobby	25	GLNP	2022
Honey buzzard	2	GLNP	2015
House sparrow	15	GLNP	2021
	3	DLRC	2019
Kestrel	30	DLRC	2020
Kingfisher	2	GLNP	2021
Lapwing	14	GLNP	2022
	17	DLRC	2020
Lesser black-backed gull	2	DLRC	2018
Lesser redpoll	24	GLNP	2021
	14	DLRC	2018
Linnet	27	GLNP	2022
	9	DLRC	2021
Little egret	1	GLNP	2022
	1	DLRC	2021
Little ringed plover	2	DLRC	2018
Mallard	20	DLRC	2019
Marsh harrier	37	GLNP	2022
	10	DLRC	2018
Meadow pipit	16	DLRC	2018
Merlin	1	GLNP	2020
	5	DLRC	2018
Mistle thrush	6	DLRC	2020
Mute swan	6	DLRC	2021
Nightjar	21	GLNP	2017
	81	DLRC	2021
Oystercatcher	1	DLRC	2019
Peregrine	2	GLNP	2014
Pink-footed goose	13	DLRC	2018
Pochard	4	DLRC	2018
Quail	1	GLNP	2013

Common name	No. of records	Source	Most recent record
Red kite	1	GLNP	2014
Red-necked grebe	2	DLRC	2012
Redshank	7	DLRC	2018
Redwing	21	GLNP	2021
	13	DLRC	2018
Reed bunting	43	GLNP	2022
	11	DLRC	2018
Ring ouzel	4	GLNP	2015
Ringed plover	1	DLRC	2018
Rook	2	DLRC	2020
Shelduck	7	DLRC	2018
Short-eared owl	1	DLRC	2012
Shoveler	13	DLRC	2018
Skylark	27	GLNP	2021
	9	DLRC	2018
Snipe	10	GLNP	2021
	11	DLRC	2018
Song thrush	24	GLNP	2022
	9	DLRC	2018
Sparrowhawk	9	DLRC	2018
Spotted flycatcher	4	GLNP	2021
Starling	23	GLNP	2022
	11	DLRC	2018
Stock dove	3	DLRC	2018
Swift	32	GLNP	2020
Teal	20	DLRC	2018
Tree pipit	23	GLNP	2022
	3	DLRC	2014
Tree sparrow	20	GLNP	2020
	1	DLRC	2018
Tufted duck	12	DLRC	2018
Turtle dove	14	GLNP	2020
Water pipit	2	DLRC	2021
Whitethroat	2	DLRC	2018
Whooper swan	6	GLNP	2022
	9	DLRC	2021
Wigeon	6	DLRC	2018
Willow tit	8	DLRC	2018
Willow warbler	2	DLRC	2018
Woodcock	4	DLRC	2018

Common name	No. of records	Source	Most recent record
Woodlark	6	GLNP	2015
Woodpigeon	10	DLRC	2020
Wren	10	DLRC	2018
Yellow wagtail	2	GLNP	2014
Yellowhammer	44	GLNP	2022
	12	DLRC	2018
Yellow-legged gull	1	DLRC	2018

ANNEX 2: NON-BREEDING BIRD SURVEY EFFORT AND METADATA

Table A2.1: Survey Conditions Criteria

Wind Speed		**W-Direction**	**Rain**		**Cloud Cover**		**Cloud Height**	
Calm	0	Use 16 point Compass	None	0	In eighths e.g.	3/8	<150m	0
Light air	1		Drizzle/Mist	1			150-500m	1
Light breeze	2	N	Light showers	2			>500m	2
Mod. breeze	4	NE	Heavy showers	4				
Fresh breeze	5	ENE	Heavy showers	4				
Strong breeze	6	E						
Mod. gale	7	Etc	Visibility		Snow		Frost	
Fresh gale	8		Poor	0	None	0	None	0
Strong gale	9		< 1km	1	On site	1	Ground	1
Whole gale	10		>1km	2	High ground	2	All day	2
Storm	11							

Table A2.2: Non-Breeding Bird Survey Effort 2022/23

Date	Surveyor	Start Time (24 hrs)	End time (24 hrs)	Wind Speed	Wind Direction	Rain	Cloud Height	Cloud Cover	Visibility	Frost	Snow	Notes
19/09/2022	CG/TJ	06:45	14:45	1	WNW	1	2	8	2	0	0	Light showers
20/09/2022	CG/TJ	06:45	14:45	1	W	0	2	6	2	0	0	
21/09/2022	CG/TJ	07:00	15:00	2	S	0	2	6	2	0	0	
22/09/2022	CG/TJ	07:00	12:45	2	S	0	2	4	2	0	0	
26/09/2022	CG/TJ	06:30	14:30	3	NW	0	2	6	2	0	0	
27/09/2022	CG/TJ	07:00	14:00	2	W	0	2	6	2	0	0	
28/09/2022	CG/TJ	07:00	14:00	2	NW	1	2	6	2	0	0	Light showers
29/09/2022	CG/TJ	07:00	14:00	1	N	0-2	2	6	2	0	0	Showers
30/09/2022	CG/TJ	10:00	18:00	3-4	S	2-4	2	8	2	0	0	Heavy showers and heavy rain.
13/10/2022	GT	09:00	14:00	0	-	0	-	-	2	0	0	
14/10/2022	GT	09:00	14:00	2	SW	0	2	1	2	0	0	
15/10/2022	GT	09:00	14:00	4	SW	0	2	3	2	0	0	
19/10/2022	GT	09:00	14:00	3	E	0	2	4	2	0	0	
21/10/2022	GT	09:00	14:00	4	E	2	2	8	2	0	0	Showers
25/10/2022	GT	09:00	14:00	3	SW	0	2	3	2	0	0	
26/10/2022	GT	09:00	14:00	5	SW	0	2	5	2	0	0	
27/10/2022	GT	09:00	14:00	2	S	1	2	8	2	0	0	Showers
28/10/2022	GT	09:00	14:00	3	S	2	2	7	2	0	0	Heavy showers
30/10/2022	GT	09:00	14:00	4	SW	0	2	7	2	0	0	
11/11/2022	GT	09:00	14:00	6	SW	0	2	6	1	0	0	
13/11/2022	GT	09:00	14:00	0	-	0	2	8	1	0	0	Fog
14/11/2022	GT	09:00	14:00	0	-	0	2	8	1	0	0	Fog
17/11/2022	GT	09:00	14:00	4	SW	3	2	8	1	0	0	Heavy rain
20/11/2022	GT	09:00	14:00	3	SW	0	2	8	1	0	0	
24/11/2022	GT	09:00	14:00	3	SE	0	2	8	2	0	0	
26/11/2022	GT	09:00	14:00	4	S	0	2	4	2	0	0	
27/11/2022	GT	09:00	14:00	4	S	0	2	8	2	0	0	
28/11/2022	GT	09:00	14:00	2	S	0	2	8	2	0	0	Misty
29/11/2022	GT	09:00	14:00	1	S	0	2	8	2	0	0	Misty
07/12/2022	GT/AH	17:00	00:00	2	SW	0	-	0	2	1	0	
08/12/2022	GT/AH	17:00	00:00	2	NW	0	2	7	2	0	0	
09/12/2022	GT/AH	17:00	01:30	0	-	0	-	0	1	1	0	Foggy
15/12/2022	GT	09:00	16:00	2	NW	0	-	0	2	1	0	
16/12/2022	GT	09:00	16:00	1	S	0	2	4	2	1	0	
19/12/2022	GT	09:00	16:00	5	SW	0	2	7	2	0	0	
29/12/2022	GT	09:00	16:00	6	SW	2	2	4	2	0	0	Heavy showers

12/01/2023	GT	09:00	16:00	5	SW	0	2	8	2	0	0	
13/01/2023	GT	09:00	16:00	3	N	0	2	1	2	1	0	
18/01/2023	GT	09:00	16:00	2	N	0	2	2	2	1	0	
20/01/2023	GT	09:00	16:00	3	W	0	-	0	2	0	0	
24/01/2023	GT	17:00	23:00	0	-	0	-	0	2	0	0	
25/01/2023	GT	17:00	00:00	3	NW	0	-	0	2	0	0	
27/01/2023	GT	17:00	23:00	3	SW	0	2	8	2	0	0	
30/01/2023	GT	17:00	00:00	3	W	0	2	5	2	0	0	
10/02/2023	GT	10:00	15:30	3	S	0	2	8	2	0	0	
14/02/2023	GT	09:45	15:15	0	N/A	0	2	8	2	0	0	Foggy
15/02/2023	GT	09:00	15:30	1	SW	0	2	5	2	0	0	
20/02/2023	GT	09:00	12:45	4	W	0	2	8	2	0	0	
22/02/2023	GT	18:00	23:45	2	N	3	2	8	2	0	0	
23/02/2023	GT	20:15	23:30	2	N	0	2	8	2	0	0	
26/02/2023	GT	18:30	22:45	4	NE	0	2	4	2	0	0	
27/02/2023	GT	18:00	23:00	4	NE	0	2	4	2	0	0	
05/03/2023	GT	09:00	13:00	2	W	0	2	8	2	0	0	
07/03/2023	GT	10:00	17:00	4	N	0	2	1	1	0	0	
09/03/2023	GT	09:00	15:30	3	E	0	2	8	2	0	1	Sleet
10/03/2023	GT	09:00	13:45	6	N	0	2	8	2	0	1	Flurry
29/03/2023	GT	11:00	17:30	3	SW	2	2	8	2	0	0	
31/03/2023	GT	09:15	16:15	3	NE	4	2	8	1	0	0	
01/04/2023	GT	10:00	16:30	2	NE	0	2	8	2	0	0	
02/04/2023	GT	09:30	13:45	1	E	0	2	4	2	0	0	

Table A2.3: Non-Breeding Bird Survey Effort 2023/24

Start Date	End Date	Surveyor	Start Time (24 hrs)	End time (24 hrs)	Wind Speed	Wind Direction	Rain	Cloud Height	Cloud Cover	Visibility	Frost	Snow	Notes
13/09/2023	18/09/2023	GT	N/R	N/R	4/4/2/3/4	NE/NE/SW/E/E	3/0/2/0/0	8/6/8/8/3	2/2/2/2/2	2/2/2/2/2	0/0/0/0/0	0/0/0/0/0	
25/09/2023	29/09/2023	GT	N/R	N/R	4/3/3/6/4	SW/SW/S/SW/W	0/0/0/0/0	2/4/5/8/3	2/2/2/2/2	2/2/2/2/2	0/0/0/0/0	0/0/0/0/0	
01/10/2023	06/10/2023	GT	N/R	N/R	4/5/4/3/5	S/W/SW/SW/SW	3/0/0/0/4	8/3/8/8/8	2/2/2/2/2	2/2/2/2/1	0/0/0/0/0	0/0/0/0/0	
23/10/2023	27/10/2023	GT	N/R	N/R	1/2/1/4/1	NE/NE/SE/SE/SE	0/4/0/3/0	8/8/8/8/3	0/1/2/2/2	0/2/2/2/2	0/0/0/0/0	0/0/0/0/0	
05/11/2023	09/11/2023	GT	N/R	N/R	4/3/5/3/2	NW/W/W/SE/SW	3/2/0/3/0	8/8/8/8/3	2/2/2/1/2	2/2/2/2/2	0/0/0/0/0	0/0/0/0/0	
24/11/2023	30/11/2023	GT	N/R	N/R	7/5/2/2/4	NW/W/NW/NW/NW	0/4/0/0/2	8/8/1/1/5	2/1/2/2/2	2/1/2/2/2	0/0/0/2/0	0/0/0/0/0	
08/12/2023	14/12/2023	GT	N/R	N/R	3/3/1/3/4	SW/W/SW/N/SW	0/0/0/0/0	8/6/8/5/8	2/2/1/2/2	2/2/1/2/2	0/0/0/0/0	0/0/0/0/0	Misty
20/12/2023	29/12/2023	GT	N/R	N/R	5/5/2/4/5	W/N/W/SE/SW	0/0/0/2/0	7/5/3/8/6	2/2/2/2/2	2/2/2/2/2	0/0/0/0/0	0/0/0/0/0	
05/01/2024	11/01/2024	GT	N/R	N/R	1/3/3/4	NE/E/E/NW	1/0/0/0	8/5/6/4	1/2/2/2	2/2/2/2	0/0/0/0	0/0/0/0	
16/01/2024	20/01/2024	GT	N/R	N/R	4/1/2/4	SW/W/W/SW	0/0/0/0	8/0/0/8	1/-/-/2	1/2/2/2	2/2/2/0	1/0/0/0	Light snow flurries
05/02/2024	09/02/2024	GT	N/R	N/R	4/3/1/6/1	W/W/E/E/SW	0/0/0/2/0	8/8/2/8/8	2/2/2/2/2	2/2/2/2/2	0/0/0/0/0	0/0/0/0/0	
19/02/2024	24/02/2024	GT	N/R	N/R	4/5/4/2	W/SW/W/SW	0/3/0/0	7/8/4/2	2/1/2/2	2/2/2/2	0/0/0/0	0/0/0/0	
03/03/2024	08/03/2024	GT	N/R	N/R	2/3/4/4/5	SW/E/SE/E/E	0/0/1/1/0	3/5/8/8/3	2/2/1/2/2	2/2/1/2/2	0/0/0/0/0	0/0/0/0/0	
25/03/2024	31/03/2024	GT	N/R	N/R	3/3/4/5/4	NE/E/S/SE/SE	0/0/0/0/0	6/3/1/3/4	2/2/2/2/2	2/2/2/2/2	0/0/0/0/0	0/0/0/0/0	

Table A2.4: Nocturnal Bird Survey Effort 2023/24

Date	Surveyor	Start Time (24 hrs)	End time (24 hrs)	Wind Speed	Wind Direction	Rain	Cloud Height	Cloud Cover	Visibility	Frost	Snow	Notes
28/09/2023	GT	19:30	23:30	6	SW	0	2	2	-	0	0	
29/09/2023	GT	19:30	00:30	2	W	1	8	2	-	0	0	
30/09/2023	GT	19:15	22:45	1	W	0	0	-	2	0	0	
10/10/2023	GT	N/R	N/R	2	SW	0	2	2	0	0	0	
11/10/2023	GT	N/R	N/R	4	SW	0	9	2	0	0	0	
12/10/2023	GT	N/R	N/R	4	SW	0	8	2	0	0	0	
13/11/2023	GT	N/R	N/R	5	S	0	5	2	2	0	0	
14/11/2023	GT	N/R	N/R	3	W	0	3	2	2	0	0	
15/11/2023	GT	N/R	N/R	5	W	0	8	2	2	0	0	
16/11/2023	GT	N/R	N/R	2	SE	0	8	2	2	0	0	
17/11/2023	GT	N/R	N/R	2	SW	0	8	2	2	0	0	
11/12/2023	GT	N/R	N/R	3	W	0	8	2	1	0	0	
12/12/2023	GT	N/R	N/R	1	SW	1	8	1	0	0	0	Foggy
13/12/2023	GT	N/R	N/R	3	N	0	0	0	2	0	0	
16/01/2024	GT	N/R	N/R	4	SW	0	2	2	2	2	1	Light snow flurries
17/01/2024	GT	N/R	N/R	1	W	0	0	-	2	2	0	
18/01/2024	GT	N/R	N/R	2	W	0	0	-	2	2	0	
06/02/2024	GT	N/R	N/R	4	W	0	8	2	2	0	0	
07/02/2024	GT	N/R	N/R	2	E	0	2	2	2	0	0	
13/02/2024	GT	N/R	N/R	4	SW	0	7	2	2	0	0	
11/03/2024	GT	N/R	N/R	4	NE	1	8	1	2	0	0	
12/03/2024	GT	N/R	N/R	3	SE	0	3	2	2	0	0	
13/03/2024	GT	N/R	N/R	5	SW	0	6	2	2	0	0	

Table A2.5: Vantage Point Survey Effort 2023/24

Start Date	Vantage Point	Surveyor	Start Time (24 hrs)	End time (24 hrs)	VP Hours	Wind Speed	Wind Direction	Rain	Cloud Height	Cloud Cover	Visibility	Frost	Snow
27/09/2023	1	GT	12:40	15:40	3	4/4/4	SE/SE/SE	0/0/0	8/8/8	2/2/2	2/2/2	0/0/0	0/0/0
23/09/2023	2	GT	15:00	18:00	3	2/1/1	SW/SW/SW	0/0/0	6/6/6	2/2/2	2/2/2	0/0/0	0/0/0
30/09/2023	3	GT	12:00	15:00	3	3/3/3	SW/SW/SW	0/3/4	7/8/8	2/2/2	2/2/2	0/0/0	0/0/0
25/09/2023	4	GT	16:00	19:00	3	3/2/1	SW/SW/SW	0/0/0	7/6/7	2/2/2	2/2/2	0/0/0	0/0/0
29/09/2023	5	GT	13:40	16:40	3	4/4/3	W/W/W	0/0/0	2/3/2	2/2/2	2/2/2	0/0/0	0/0/0
28/09/2023	6	GT	15:30	18:30	3	4/4/4	SW/SW/SW	0/0/0	8/7/8	2/2/2	2/2/2	0/0/0	0/0/0
15/10/2023	1	GT	10:30	13:30	3	2/3/3	W/W/W	0/0/0	0/0/0	-/-/-	2/2/2	0/0/0	0/0/0
16/10/2023	2	GT	13:10	16:10	3	0/0/1	-/-/E	0/0/0	7/3/3	2/2/2	2/2/2	0/0/0	0/0/0
26/10/2023	3	GT	08:30	11:30	3	1/2/2	SE/SE/SE	0/1/4	8/8/8	2/2/2	2/2/2	0/0/0	0/0/0
15/10/2023	4	GT	14:05	17:05	3	1/1/1	W/W/W	0/0/0	0/0/0	-/-/-	2/2/2	0/0/0	0/0/0
30/10/2023	5	GT	12:05	15:05	3	4/3/3	E/E/E	0/1/1	8/8/8	2/2/2	2/2/2	0/0/0	0/0/0
13/10/2023	6	GT	15:30	18:30	3	1/1/1	NW/NW/NW	3/0/0	8/4/0	2/2/2	2/2/2	0/0/0	0/0/0
14/11/2023	1	GT	13:00	16:00	3	2/3/3	W/W/SW	0/2/0	6/8/7	2/2/2	2/2/2	0/0/0	0/0/0
05/11/2023	2	GT	08:55	11:55	3	2/2/2	SE/SE/SE	0/0/0	4/2/2	2/2/2	2/2/2	0/0/0	0/0/0
27/11/2023	3	GT	10:00	13:00	3	4/4/4	NW/NW/NW	4/3/0	8/8/8	2/2/2	2/2/2	0/0/0	0/0/0
27/11/2023	4	GT	13:10	16:10	3	4/3/3	NW/NW/NW	0/0/0	8/6/6	2/2/2	2/2/2	0/0/0	0/0/0
23/11/2023	5	GT	10:50	13:50	3	5/5/5	SW/SW/SW	1/1/1	8/8/8	2/2/2	2/2/2	0/0/0	0/0/0
16/11/2023	6	GT	13:10	16:10	3	0/0/1	0/0/E	0/0/0	8/8/8	2/2/2	2/2/2	0/0/0	0/0/0
24/12/2023	1	GT	08:40	11:40	3	5/5/5	SW/SW/SW	0/0/0	8/6/6	2/2/2	2/2/2	0/0/0	0/0/0
26/12/2023	2	GT	08:40	11:40	3	2/3/3	W/W/W	0/0/0	0/0/0	-/-/-	2/2/2	0/0/0	0/0/0
18/12/2023	3	GT	13:00	16:00	3	4/5/5	SW/SW/SW	0/0/0	6/6/8	2/2/2	2/2/2	0/0/0	0/0/0
18/12/2023	4	GT	09:45	12:45	3	3/3/3	SW/SW/SW	0/0/0	6/8/7	2/2/2	2/2/2	0/0/0	0/0/0
24/12/2023	5	GT	12:05	15:05	3	6/6/6	W/W/W	0/0/0	5/6/4	2/2/2	2/2/2	0/0/0	0/0/0
03/12/2023	6	GT	13:00	16:00	3	3/3/3	N/N/N	0/0/0	4/5/4	2/2/2	2/2/2	0/0/0	0/0/0
14/01/2024	1	GT	13:00	15:00	3	2/2/2	NW/NW/NW	0/0/0	7/6/7	2/2/2	2/2/2	0/0/0	0/0/0
14/01/2024	2	GT	09:45	12:45	3	2/2/2	NW/NW/NW	0/0/0	1/3/6	2/2/2	2/2/2	1/0/0	0/0/0
31/01/2024	3	GT	11:00	14:00	3	4/4/4	SW/SW/SW	0/0/0	8/7/7	2/2/2	2/2/2	0/0/0	0/0/0
20/01/2024	4	GT	12:45	15:45	3	4/4/4	SW/SW/SW	0/1/4	8/8/8	2/2/2	2/2/2	0/0/0	0/0/0
22/01/2024	5	GT	09:20	12:20	3	5/5/5	SW/SW/SW	0/0/0	2/2/3	2/2/2	2/2/2	0/0/0	0/0/0
30/01/2024	6	GT	10:50	13:50	3	3/3/3	NW/NW/NW	0/0/0	6/5/6	2/2/2	2/2/2	0/0/0	0/0/0
26/02/2024	1	GT	12:50	15:50	3	4/4/4	N/N/N	0/0/2	2/6/8	2/2/2	2/2/2	0/0/0	0/0/0
26/02/2024	2	GT	09:40	12:40	3	4/5/4	N/N/N	3/2/0	5/3/6	2/2/2	2/2/2	0/0/0	0/0/0
23/02/2024	3	GT	10:45	13:45	3	4/4/4	W/SW/SW	0/0/0	4/2/3	2/2/2	2/2/2	0/0/0	0/0/0
11/02/2024	4	GT	10:20	13:20	3	2/2/3	W/W/W	0/0/0	7/5/5	2/2/2	2/2/2	0/0/0	0/0/0
11/02/2024	5	GT	13:35	16:35	3	3/4/4	W/NW/NW	0/0/0	1/1/5	2/2/2	2/2/2	0/0/0	0/0/0
19/02/2024	6	GT	12:00	15:00	3	5/5/6	W/W/W	0/0/0	4/5/2	2/2/2	2/2/2	0/0/0	0/0/0
22/03/2024	1	GT	11:55	14:55	3	5/5/6	W/W/W	0/0/0	4/4/8	2/2/2	2/2/2	0/0/0	0/0/0
31/03/2024	2	GT	11:30	14:30	3	4/4/4	SE/SE/SE	0/0/0	4/4/3	2/2/2	2/2/2	0/0/0	0/0/0
26/03/2024	3	GT	15:30	18:30	3	4/4/4	NE/NE/NE	0/0/0	8/8/8	2/2/2	2/2/2	0/0/0	0/0/0
22/03/2024	4	GT	08:45	11:45	3	4/4/5	W/W/W	0/0/0	6/6/4	2/2/2	2/2/2	0/0/0	0/0/0
12/03/2024	5	GT	15:00	18:00	3	3/3/4	SW/SW/SW	0/0/0	6/7/8	2/2/2	2/2/2	0/0/0	0/0/0
27/03/2024	6	GT	11:20	14:20	3	5/5/5	S/SW/SW	0/0/2	7/8/8	2/2/2	2/2/2	0/0/0	0/0/0

ANNEX 3: BIRD SPECIES RECORDED DURING 2022/23 AND 2023/24

Table A3.1: Bird species Recorded within the Order Limits during the 2022/2023 walk over surveys. Note that this includes diurnal and nocturnal walk-over surveys

Field No	Species	Survey Visits													
		Sep 2022		Oct 2022		Nov 2022		Dec 2022		Jan 2023		Feb 2023		Mar 2023	
1	**Mallard**	4	-	-	-	-	-	-	-	-	-	-	-	-	-
4	**Mallard**	7	-	-	-	-	-	-	-	-	-	-	-	-	-
	Grey heron	2	-	-	-	-	-	-	-	-	-	1	-	-	-
	Snipe	1	-	-	-	-	-	-	-	-	-	-	-	-	-
5	Little owl	-	-	-	-	-	-	-	-	-	-	-	1	-	-
8	**Lapwing**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**1**	-
	Little owl	-	-	-	-	-	-	-	-	-	-	-	1	-	-
10	Mute swan	8	-	-	-	-	-	-	-	-	-	-	-	-	-
	Mallard	-	-	-	-	-	-	-	-	-	-	-	-	4	1
	Little grebe	2	-	-	-	-	-	-	-	-	-	-	-	-	-
11	Mute swan	-	-	-	6	-	-	-	2	-	-	-	-	1	1
	Pink-footed goose	**-**	**-**	**156**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
	Grey heron	-	-	-	-	-	-	-	1	-	-	-	-	-	-
	Lapwing	-	-	-	-	-	-	-	-	-	-	-	-	**32**	-
	Marsh harrier	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**(1)**	**-**	-	-
	Peregrine	-	-	1	-	-	-	-	-	-	-	-	-	-	-
12	**Pink-footed goose**	**(22)**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
15	**Lapwing**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**20**	-	-

Field No	Species	Survey Visits													
		Sep 2022		Oct 2022		Nov 2022		Dec 2022		Jan 2023		Feb 2023		Mar 2023	
	Curlew	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**2**	-
16	**Mallard**	-	-	-	-	-	-	-	-	-	-	-	1	4	-
17	**Mallard**	-	-	-	-	-	-	-	-	-	-	-	-	2	-
	Lapwing	-	-	-	-	-	-	-	-	-	-	-	-	**2**	-
18	Mute swan	-	-	-	-	9	-	-	-	-	-	-	-	-	-
	Mallard	-	-	-	-	-	-	-	-	-	-	-	1	-	2
	Lapwing	**-**	**-**	**-**	**23**	**31**		**2**	**19**	**64**	**-**	**-**	**-**	-	-
	Golden plover	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**11**	**-**	**-**	**-**	-	-
	Snipe	-	-	-	-	-	-	10	-	-	-	-	-	-	-
	Marsh harrier	**(1)**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	-	-
	Barn owl	-	-	-	-	-	-	1	-	-	-	-	-	-	-
20	**Mallard**	92	-	-	-	-	-	-	-	-	-	-	-	-	-
	Grey heron	-	-	-	-	-	1	-	-	-	-	-	-	-	-
21	**Lapwing**	**-**	**26**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	-	-
22	Woodcock	-	-	-	-	-	2	-	-	-	-	-	-	-	-
24	**Lapwing**	**94**	**24**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	-	-
26	Barn owl	-	-	-	-	-	-	1	-	-	-	-	-	-	-
29	**Pink-footed goose**	**-**	**-**	**6**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
30	**Marsh harrier**	**-**	**-**	**(2)**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	-	-
31	**Pink-footed goose**	**-**	**-**	**360**	**1**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**

Field No	Species	Survey Visits													
		Sep 2022		Oct 2022		Nov 2022		Dec 2022		Jan 2023		Feb 2023		Mar 2023	
34	**Mallard**	-	-	-	-	-	-	-	-	-	-	-	-	1	-
35	Mute swan	-	-	-	-	-	2	-	-	2	-	2	-	-	-
	Whooper swan	-	-	-	-	-	-	-	-	-	-	23	-	35	-
	Mallard	-	-	-	-	-	-	-	-	-	-	7	-	-	-
	Lapwing	-	-	-	-	-	-	-	-	-	-	-	-	-	**2**
36	**Lapwing**	-	-	-	-	-	-	-	-	-	-	-	-	-	**2**
39	**Pink-footed goose**	**-**	**(475)**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
	Golden plover	**-**	**53**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	-	-
	Woodcock	-	-	-	-	-	-	-	-	-	2	-	-	-	-
41	Woodcock	-	-	-	-	-	-	-	-	-	1	-	-	-	-
42	**Pink-footed goose**	**-**	**330**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
	Golden plover	**-**	**27**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	-	-
43	**Pink-footed goose**	**-**	**135**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
50	**Green sandpiper**	**-**	**1**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
	Woodcock	-	-	-	-	-	-	-	-	-	2	-	-	-	-
	Marsh harrier	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**1**	**-**	**-**	**-**	**-**	-	-
61	**Pink-footed goose**	**(1)**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
	Mallard	-	2	-	-	-	-	-	-	-	-	-	-	-	-
	Grey heron	1	-	-	-	-	-	-	-	-	-	-	-	-	-
63	**Green sandpiper**	**-**	**1**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**

Field No	Species	Survey Visits													
		Sep 2022		Oct 2022		Nov 2022		Dec 2022		Jan 2023		Feb 2023		Mar 2023	
64	**Little egret**	**(1)**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
65	Grey heron	3	-	-	-	-	-	-	-	-	17	-	-	-	-
	Lapwing	**260**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	-	-
	Red kite	(1)	-	-	-	-	-	-	-	-	-	-	-	-	-
69	**Lapwing**	**-**	**-**	**-**	**-**	**-**	**-**	**14**	**-**	**-**	**-**	**-**	**-**	-	-
70	Barn owl	-	-	-	-	-	-	-	-	-	-	-	1	-	-
73	**Golden plover**	**-**	**12**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	-	-
	Marsh harrier	-	-	-	-	-	-	-	-	-	-	-	-	-	**(1)**
74	Grey heron	-	1	-	-	-	-	-	-	-	-	-	-	-	-
75	**Mallard**	-	-	-	-	-	-	-	-	-	-	-	-	-	1
	Snipe	-	-	-	-	-	-	1	-	-	-	-	-	-	-
76	**Teal**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**4**	**-**	**-**	-	-
	Snipe	-	-	-	-	-	-	-	-	-	1	-	-	-	-
	Jack snipe	-	-	-	-	-	-	-	-	-	1	-	-	-	-
79	**Lapwing**	**-**	**19**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	-	-
81	Barn owl	-	-	-	-	-	-	-	-	-	2	-	-	-	-
83	**Mallard**	-	-	-	-	-	-	-	-	-	-	-	-	-	1
84	**Little egret**	**-**	**-**	**-**	**-**	**-**	**1**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
	Lapwing	**-**	**-**	**-**	**-**	**-**	**-**	**53**	**-**	**-**	**-**	**-**	**-**	-	-
86	**Lapwing**	**-**	**-**	**-**	**-**	**-**	**-**	**18**	**-**	**-**	**-**	**-**	**-**	-	-

Field No	Species	Survey Visits													
		Sep 2022		Oct 2022		Nov 2022		Dec 2022		Jan 2023		Feb 2023		Mar 2023	
	Woodcock	-	-	-	-	-	-	-	-	-	-	-	1	-	-
87	**Lapwing**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**12**	**-**	**-**	**-**	**-**	-	-
92	Woodcock	-	-	-	-	-	-	1	-	-	-	-	-	-	-
93	**Pink-footed goose**	**-**	**(1)**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
	Peregrine	1	1	-	-	-	-	-	-	-	-	-	-	-	-
94	Grey heron	-	1	-	-	-	-	-	-	-	-	-	-	-	-
95	**Mallard**	-	-	-	-	-	-	-	-	-	-	-	-	-	2
	Grey heron	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	-	1
	Marsh harrier	**-**	**(1)**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	-	-
	Barn owl	-	-	-	-	-	-	-	-	-	-	-	1	-	-
98	**Lapwing**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**9**	**-**	**-**	**-**	**-**	-	-
100	**Mallard**	-	-	-	-	-	-	-	-	-	-	-	-	2	-
	Grey heron	1	-	-	-	-	-	-	-	-	-	-	-	-	-
	Woodcock	-	-	-	-	-	-	2	-	-	-	-	-	-	-
103	**Lapwing**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**1**	**-**	**-**	**-**	**-**	-	-
	Golden plover	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**1**	**-**	**-**	**-**	**-**	-	-
104	**Mallard**	-	-	-	9	-	-	-	-	-	-	-	-	-	-
	Teal	**-**	**-**	**-**	**-**	**-**	**-**	**3**	**-**	**-**	**-**	**-**	**-**	**4**	-
105	**Pink-footed goose**	**(36)**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
	Grey heron	-	-	3	-	-	-	-	-	-	-	-	-	-	-

Field No	Species	Survey Visits													
		Sep 2022		Oct 2022		Nov 2022		Dec 2022		Jan 2023		Feb 2023		Mar 2023	
106	**Greylag goose**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**8**
	Mallard	-	-	12	-	-	-	-	-	-	27	-	-	-	3
	Teal	**-**	**-**	**2**	**-**	**-**	**-**	**-**	**-**	**-**	**6**	**-**	**-**	-	-
	Shoveler	-	-	-	-	-	-	-	-	-	2	-	-	-	-
	Grey heron	-	-	-	1	-	-	-	-	-		-	-	-	-
	Lapwing	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**112**	**-**	**32**	-	-
113	**Pink-footed goose**	**-**	**(1)**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
	Woodcock	-	-	-	-	-	-	5	-	-	3	-	-	-	-
114	Grey heron	-	1	-	-	-	-	-	-	-	-	-	-	-	-
	Woodcock	-	-	-	-	-	-	2	-	-	9	-	-	-	-
115	Mute swan	-	-	-	-	-	-	2	-	-	-	-	-	-	-
	Mallard	-	-	-	24	-	-	12	-	-	-	-	-	-	2
	Teal	-	-	-	-	-	-	-	-	-	-	-	-	-	**3**
	Woodcock	-	-	-	-	-	-	1	-	-	-	-	-	-	-
116	Woodcock	-	-	-	-	-	-	-	-	-	3	-	-	-	-
	Peregrine	-	-	-	-	-	-	-	-	-	-	1	-	-	-
	Barn owl	-	-	-	-	-	-	-	-	-	-	-	1	-	-
117	Mute swan	1	-	-	-	-	-	-	-	-	-	-	-	-	-
	Mallard	-	-	-	-	-	-	3	-	-	-	-	-	-	-
	Woodcock	-	-	-	-	-	-	-	-	-	1	-	-	-	-

Field No	Species	Survey Visits													
		Sep 2022		Oct 2022		Nov 2022		Dec 2022		Jan 2023		Feb 2023		Mar 2023	
118	**Golden plover**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**21**	**-**	**-**	-	-
	Woodcock	-	-	-	-	-	-	-	-	-	-	-	1	-	-
	Hen harrier	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**(1)**	**-**	**-**	**-**	**-**	-	-
	Marsh harrier	**-**	**(1)**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	-	-
119	**Lapwing**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**3**	**-**	**-**	**-**	**-**	-	-
	Snipe	-	-	-	-	-	-	-	2	-	-	-	-	-	-
120	**Mallard**	-	-	-	-	-	-	4	-	-	-	1	-	-	-
	Little egret	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**1**	**-**
	Golden plover	**17**	**3**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	-	-
	Woodcock	-	-	-	-	-	-	-	-	-	-	-	4	-	-
121	Woodcock	-	-	-	-	-	-	-	-	-	-	-	1	-	-
129	**Green sandpiper**	**-**	**-**	**1**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
130	**Lapwing**	**-**	**-**	**25**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	-	-
132	Grey heron	-	-	-	2	-	-	-	-	-	-	-	-	-	-
135	Woodcock	-	-	-	-	-	-	-	-	-	-	-	1	-	-
136	**Pink-footed goose**	**-**	**-**	**(209)**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
	Snipe	-	-	-	-	-	-	-	-	-	-	-	1	-	-
137	**Grey plover**	**(17)**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	-	-
	Snipe	(1)	-	-	-	-	-	-	-	-	-	-	-	-	-
	Marsh harrier	**(1)**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	-	-

Field No	Species	Survey Visits													
		Sep 2022		Oct 2022		Nov 2022		Dec 2022		Jan 2023		Feb 2023		Mar 2023	
175	**Greylag goose**	**7**	-	-	-	-	-	-	-	-	-	-	-	-	-
252	**Mallard**	-	-	-	-	-	-	-	-	-	-	-	-	2	-
275	**Lapwing**	-	-	-	-	-	-	-	-	-	-	-	-	-	**2**
282	Whooper swan	-	-	-	-	-	-	-	-	-	-	-	-	8	-
	Pink-footed goose	-	-	-	-	-	**(320)**	-	-	-	-	-	-	-	-
	Lapwing	-	-	-	-	-	-	-	**16**	-	-	-	-	-	-
284	**Lapwing**	-	-	-	-	-	-	-	-	-	-	-	-	**14**	**2**
285	Woodcock	-	-	-	-	-	-	-	-	-	-	-	4	-	-
288	**Lapwing**	-	-	-	-	-	-	-	-	-	**9**	-	-	**13**	-
290	**Mallard**	-	8	-	-	-	-	-	-	-	-	-	-	-	-
	Lapwing	-	-	-	-	-	-	-	-	-	-	-	**2**	-	9
	Woodcock	-	-	-	-	-	-	2	-	-	-	-	2	-	-
497	**Pink-footed goose**	**32**	-	-	-	-	-	-	-	-	-	-	-	-	-
	Lapwing	-	-	-	-	-	-	**78**	**77**	-	**32**	-	-	-	-
	Golden plover	-	-	-	-	-	-	-	**11**	-	-	-	-	-	-
	Barn owl	-	-	-	-	-	-	1	-	-	-	-	-	-	-
498	**Mallard**	-	-	-	-	-	-	-	-	-	-	-	1	-	-
	Lapwing	-	**390**	-	-	-	-	-	-	-	**7**	-	-	-	-
	Woodcock	-	-	-	-	-	-	-	-	-	-	-	1	-	-
	Osprey	1	-	-	-	-	-	-	-	-	-	-	-	-	-

Field No	Species	Survey Visits						
		Sep 2022	Oct 2022	Nov 2022	Dec 2022	Jan 2023	Feb 2023	Mar 2023
Species associated with the Humber Estuary SPA recorded in **bold** '-' means that the species was not recorded during that visit. Those in brackets were recorded in flight only.								

Table A3.2: Bird species Recorded within the Wider Survey Area 2022/23. Note that this includes diurnal and nocturnal walk-over surveys

Field №	Species	*Survey Visits*													
		Sep 2022		Oct 2022		Nov 2022		Dec 2022		Jan 2023		Feb 2023		Mar 2023	
58	**Golden plover**	**-**	**-**	**23**	**480**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	-	-
59	**Lapwing**	-	-	-	-	-	-	-	-	-	-	-	-	**2**	-
66	**Lapwing**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**2**	**-**	**-**	-	-
124	Grey heron	-	-	-	-	-	-	-	-	-	-	-	-	-	1
	Woodcock	-	-	-	-	-	-	-	-	-	-	-	1	-	-
125	**Mallard**	-	-	-	-	-	-	-	-	-	-	-	4	-	-
	Woodcock	-	-	-	-	-	-	-	-	-	-	-	3	-	-
140	Barn owl	-	-	-	-	-	-	-	-	-	(1)	-	-	-	-
144	**Marsh harrier**	**-**	**(1)**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	-	-
149	**Lapwing**	**9**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	-	-
	Golden plover	**16**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	-	-
158	**Pink-footed goose**	**5**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
164	**Pink-footed goose**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**9**	**-**	**-**
	Goose (*Anser*) sp	-	-	-	-	-	-	-	-	-	49	-	-	-	-
	Mallard	-	-	-	-	-	-	-	-	-	-	-	-	7	-
	Woodcock	-	-	-	-	-	-	-	-	-	1	-	-	-	-
168	Mute swan	-	-	-	-	-	-	-	-	-	-	2	-	-	-
	Pink-footed goose	**(26)**	**-**	**(752)**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
	Grey heron	-	-	-	-	1	-	-	-	-	-	1	-	-	-

Field №	Species	*Survey Visits*													
		Sep 2022		**Oct 2022**		**Nov 2022**		**Dec 2022**		**Jan 2023**		**Feb 2023**		**Mar 2023**	
	Little egret	**-**	**-**	**-**	**1**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
169	Mute swan	-	-	-	-	-	-	-	-	-	-	-	-	-	2
	Whooper swan	-	-	-	-	8	8	-	-	-	-	-	-	-	-
	Pink-footed goose	**(23)**	-	-	-	-	-	-	-	-	-	-	-	**-**	**-**
	Greylag goose	**-**	**-**	**-**	**-**	**19**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
	Mallard	-	-	-	-	-	-	-	-	-	-	-	2	-	-
	Grey heron	-	-	-	-	-	1	-	-	-	-	-	-	-	-
	Lapwing	**-**	**-**	**-**	**-**	**-**	**-**	**96**	**-**	**5**	**2**	**-**	**-**	-	-
	Woodcock	-	-	-	-	-	-	-	-	-	-	-	1	-	-
	Hen harrier	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**(1)**	**-**	**-**	**-**	**-**	-	-
173	**Lapwing**	**-**	**-**	**-**	**-**	**-**	**-**	**127**	**-**	**-**	**-**	**-**	**-**	-	-
	Barn owl	-	-	-	-	-	-	-	-	-	1	-	-	-	-
182	Mute swan	-	-	-	-	-	-	-	-	-	-	-	-	3	-
	Common crane	-	-	3	-	-	-	-	-	-	-	-	-	-	-
185	Grey heron	1	-	-	-	-	-	-	-	-	-	-	-	-	-
	Lapwing	**-**	**-**	**136**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	-	-
187	Woodcock	-	-	-	-	-	-	-	-	-	-	-	2	-	-
191	**Mallard**	60	-	-	-	-	-	-	-	-	-	-	-	-	-
194	**Pink-footed goose**	**-**	**-**	**(251)**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**

Field №	Species	*Survey Visits*													
		Sep 2022		Oct 2022		Nov 2022		Dec 2022		Jan 2023		Feb 2023		Mar 2023	
195	**Pink-footed goose**	-	-	**(234)**	-	-	-	-	-	-	-	-	-	-	-
216	**Pink-footed goose**	**24**	-	-	-	-	-	-	-	-	-	-	-	-	-
	Mallard	5	-	-	-	-	-	-	-	-	-	-	-	-	-
	Grey heron	-	-	-	1	-	-	-	-	-	-	-	-	-	-
217	**Mallard**	-	-	-	-	-	-	-	-	-	-	8	-	6	-
	Lapwing/Golden Plover	-	-	-	-	-	-	-	-	-	**6**	-	-	-	-
220	**Mallard**	40	-	-	-	-	-	-	-	-	-	-	-	-	-
221	Barn owl	-	-	-	-	-	-	-	-	-	1	-	-	-	-
222	**Pink-footed goose**	**46**	**67**	-	-	-	-	-	-	-	-	-	-	-	-
	Greylag goose	**375**	-	-	-	-	-	-	-	-	-	-	-	-	-
	Mallard	16	-	-	-	-	-	-	-	-	-	-	-	-	-
	Hen harrier	-	-	**(1)**	-	-	-	-	-	-	-	-	-	-	-
	Tawny owl	-	-	-	-	-	1	-	-	-	-	-	-	-	-
223	**Hen harrier**	-	-	**(1)**	-	-	-	-	-	-	-	-	-	-	-
224	**Hen harrier**	-	-	**(1)**	-	-	-	-	-	-	-	-	-	-	-
	Pink-footed goose	-	-	-	**(19)**	-	-	-	-	-	-	-	-	-	-
	Mallard	-	-	2	-	-	-	-	-	-	-	-	-	-	-
225	**Pink-footed goose**	-	-	**42**	-	-	-	-	-	-	-	-	-	-	-
	Hen harrier	-	-	**(1)**	-	-	-	-	-	-	-	-	-	-	-

Field №	Species	*Survey Visits*													
		Sep 2022		Oct 2022		Nov 2022		Dec 2022		Jan 2023		Feb 2023		Mar 2023	
226	**Pink-footed goose**	-	-	-	**(73)**	-	-	-	-	-	-	-	-	-	-
	Mallard	-	-	-	-	-	-	-	-	-	-	-	-	1	2
229	**Common crane**	3	-	-	-	-	-	-	-	-	-	-	-	-	-
	Snipe	1	-	-	-	-	-	-	-	-	-	-	-	-	-
	Hen harrier	-	-	**(1)**	-	-	-	-	-	-	-	-	-	-	-
230	**Pink-footed goose**	-	-	-	**(16)**	-	-	-	-	-	-	-	-	-	-
238	**Little egret**	-	-	-	-	-	-	-	-	**1**	-	-	-	-	-
242	**Pink-footed goose**	-	**217**	-	-	-	-	-	-	-	-	-	-	-	-
243	**Pink-footed goose**	-	**48**	-	-	-	-	-	-	-	-	-	-	-	-
249	Mute swan	-	-	-	-	-	-	-	2	-	-	-	-	-	-
250	Mute swan	-	-	-	-	-	-	-	-	-	-	4	-	-	-
264	Whooper swan	-	-	-	-	5	-	-	-	-	-	-	-	-	-
265	Mute swan	-	-	-	-	2	-	-	-	-	-	-	-	-	-
277	**Lapwing**	-	-	-	-	-	-	-	-	-	**12**	-	-	-	-
	Golden plover	-	-	**43**	-	-	-	-	-	-	-	-	-	-	-
278	Woodcock	-	-	-	-	-	-	-	-	-	-	-	3	-	-
279	**Lapwing**	-	-	-	-	-	-	-	-	**3**	-	-	-	-	-
286	**Greylag goose**	-	-	-	-	-	-	-	-	-	-	-	-	**2**	-
	Lapwing	-	-	-	-	-	-	-	-	**14**	-	-	-	-	-

Field №	Species	*Survey Visits*													
		Sep 2022		Oct 2022		Nov 2022		Dec 2022		Jan 2023		Feb 2023		Mar 2023	
287	**Greylag goose**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**1**
	Mallard	-	-	-	-	3	-	-	-	-	-	-	-	-	-
291	**Pink-footed goose**	**-**	**(3000)**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
	Mallard	-	4	-	-	-	-	-	-	-	-	-	-	-	-
292	**Lapwing**	**17**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	-	-
293	**Common crane**	-	-	(2)	-	-	-	-	-	-	-	-	-	-	-
304	**Little egret**	**-**	**-**	**-**	**-**	**1**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
309	**Lapwing**	**-**	**-**	**-**	**-**	**1**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	-	-
319	**Greylag goose**	**(20)**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
	Mallard	-	-	-	-	-	-	-	-	-	-	-	-	3	-
323	**Lapwing**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**14**	**-**	**-**	-	-
	Woodcock	-	-	-	-	-	-	-	-	-	-	-	1	-	-
325	Woodcock	-	-	-	-	-	-	-	-	-	5	-	-	-	-
340	Barn owl	-	-	-	-	-	-	-	-	-	-	-	1	-	-
358	Grey heron	-	-	2	-	-	-	-	-	-	-	-	-	-	-
361	Woodcock	-	-	-	-	-	-	1	-	-	-	-	-	-	-
363	Barn owl	-	-	-	-	-	-	-	-	-	1	-	-	-	-
366	Barn owl	-	-	-	-	-	-	(1)	-	-	-	-	-	-	-
	Golden plover	**-**	**38**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
367	**Golden plover**	**-**	**23**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**

Field №	Species	*Survey Visits*													
		Sep 2022		**Oct 2022**		**Nov 2022**		**Dec 2022**		**Jan 2023**		**Feb 2023**		**Mar 2023**	
368	Mute swan	-	-	-	-	-	-	-	-	-	-	7	-	-	-
	Mallard	4	-	-	-	-	-	-	-	-	-	-	-	-	-
	Golden plover	**-**	**-**	**-**	**-**	**8**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
	Snipe	-	-	-	-	-	-	1	-	-	-	-	-	-	-
369	**Little egret**	**-**	**-**	**-**	**2**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
	Golden plover	**-**	**14**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
370	Grey heron	-	-	-	-	-	-	1	-	-	-	-	-	-	-
371	**Golden plover**	**-**	**76**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
372	Mallard	-	-	-	-	(1)	-	-	-	-	-	-	-	-	-
	Golden plover	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**1**	**-**	**-**	**-**	**-**
373	**Mallard**	-	22	-	-	-	-	-	-	-	-	-	-	-	-
	Shoveler	-	1	-	-	-	-	-	-	-	-	-	-	-	-
	Grey heron	-	-	-	1	-	-	-	-	-	-	-	-	-	-
	Lapwing	**-**	**-**	**37**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	-	-
376	Woodcock	-	-	-	-	-	-	-	-	-	1	-	-	-	-
378	Grey heron	2	-	-	-	-	-	-	-	-	-	-	-	-	-
380	**Golden plover**	**-**	**(130)**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	-	-
	Snipe	1	-	-	-	-	-	-	-	-	-	-	-	-	-
382	**Pink-footed goose**	**-**	**(160)**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
	Little egret	**1**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**

Field №	Species	*Survey Visits*													
		Sep 2022		**Oct 2022**		**Nov 2022**		**Dec 2022**		**Jan 2023**		**Feb 2023**		**Mar 2023**	
383	**Mallard**	5	-	-	-	-	-	-	-	-	-	-	-	-	-
384	**Pink-footed goose**	**-**	**-**	**-**	**12**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
	Mallard	-	-	-	-	-	5	-	-	-	-	-	-	10	-
	Teal	-	-	-	-	-	-	-	-	-	-	-	-	**9**	-
	Grey heron	-	-	-	-	-	-	-	-	-	-	1	-	-	-
	Little egret	**-**	**-**	**-**	**-**	**-**	**1**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
	Lapwing	**-**	**-**	**-**	**-**	**-**	**1**	**-**	**-**	**-**	**-**	**-**	**-**	-	-
	Golden plover	**25**	**43**	**-**	**-**	**21**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	-	-
	Jack snipe	-	-	-	-	-	-	1	-	-	-	-	-	-	-
385	**Mallard**	-	-	-	-	-	-	-	-	21	-	-	-	-	-
	Teal	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**23**	**-**	**-**	**-**	-	-
386	**Mallard**	-	-	-	-	-	-	-	-	-	-	-	-	3	-
	Teal	-	-	-	-	-	-	-	-	-	-	-	-	**8**	-
387	**Mallard**	-	16	-	-	-	-	-	22	-	18	17	12	-	-
	Teal	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**3**	**2**	-	-
	Grey heron	2	-	-	-	-	-	-	-	-	-	-	-	-	-
	Golden plover	**-**	**-**	**-**	**-**	**-**	**12**	**-**	**-**	**-**	**-**	**-**	**-**	-	-
388	**Mallard**	-	9	-	-	-	-	31	-	-	-	-	-	-	-
390	**Golden plover**	**-**	**-**	**-**	**-**	**-**	**-**	**20**	**-**	**-**	**-**	**-**	**-**	-	-
	Little owl	-	-	-	-	-	-	1	1	-	-	1	-	-	-

Field №	Species	*Survey Visits*													
		Sep 2022		**Oct 2022**		**Nov 2022**		**Dec 2022**		**Jan 2023**		**Feb 2023**		**Mar 2023**	
391	Mute swan	-	-	-	-	-	-	-	-	9	-	11	-	2	-
398	**Mallard**	-	-	-	-	-	-	-	42	-	-	-	-	-	-
	Grey heron	-	-	-	-	-	1	-	-	-	-	-	-	-	-
	Woodcock	-	-	-	-	-	-	1	-	-	-	-	-	-	-
416	**Golden plover**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**37**	**-**	**-**	**-**	**-**	-	-
417	**Lapwing**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**6**	-	-
428	Barn owl	-	-	-	-	-	-	(1)	-	-	-	-	-	-	-
429	Woodcock	-	-	-	-	-	-	-	-	-	2	-	1	-	-
431	**Pink-footed goose**	**(190)**	**(216)**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
	Woodcock	-	-	-	-	-	-	-	-	-	-	-	1	-	-
436	Snipe	-	-	-	-	-	-	-	-	-	1	-	1	-	-
	Woodcock	-	-	-	-	-	-	-	-	-	-	-	2	-	-
	Marsh harrier	**-**	**(2)**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	-	-
443	**Pink-footed goose**	**-**	**-**	**2**	**-**	**-**		**-**	**-**	**-**	**-**	**21**	**-**	**-**	**-**
	Greylag goose	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**155**	**-**	**-**	**34**
	Lapwing	**-**	**-**	**-**	**-**	**-**	**-**	**71**	**-**	**-**	**-**	**-**	**-**	-	-
444	**Greylag goose**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**34**	**-**
450	**Mallard**	-	-	-	-	-	-	-	-	-	-	-	-	-	1
	Snipe	-	-	-	-	-	-	-	-	-	2	-	-	-	-
464	Barn owl	-	-	-	-	-	-	1	-	-	-	-	-	-	-

Field №	Species	*Survey Visits*													
		Sep 2022		Oct 2022		Nov 2022		Dec 2022		Jan 2023		Feb 2023		Mar 2023	
465	Little owl	-	-	-	-	-	-	-	-	-	1	-	-	-	-
466	**Lapwing**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**4**	-	-
	Snipe	-	-	-	-	-	-	-	-	-	-	-	1	-	-
476	**Little egret**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**1**	**-**	**-**	**-**	**-**	**-**	**-**
485	**Lapwing**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**16**	**-**	**-**	-	-
	Golden plover	-	-	-	-	-	-	-	-	-	-	-	-	**38**	-
486	Peregrine	-	-	-	-	1	-	-	-	-	-	-	-	-	-
488	Woodcock	-	-	-	-	-	-	-	-	-	-	-	1	-	-
	Barn owl	-	-	-	-	-	-	-	-	-	-	-	1	-	-
489	**Lapwing**	**-**	**19**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**3**	**-**	**-**	-	-
490	Woodcock	-	-	-	-	-	-	-	-	-	-	-	2	-	-
492	**Lapwing**	**21**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	-	-
493	**Lapwing**	**(4)**	**8**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	-	-
494	**Lapwing**	**(17)**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	-	-
496	**Lapwing**	**-**	**-**	**-**	**-**	**-**	**-**	**37**	**-**	**260**	**27**	**-**	**-**	-	-
	Woodcock	-	-	-	-	-	-	1	-	-	-	-	-	-	-
501	**Pink-footed goose**	**700**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
	Greylag goose	**150**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
	Mallard	30	-	-	-	-	-	-	-	-	-	-	-	-	-
504	**Greylag goose**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**2**	**-**

Field №	Species	*Survey Visits*													
		Sep 2022		**Oct 2022**		**Nov 2022**		**Dec 2022**		**Jan 2023**		**Feb 2023**		**Mar 2023**	
	Grey heron	-	-	-	-	-	-	-	1	-	-	-	-	-	-
	Lapwing	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**6**	-	-
505	**Lapwing**	**-**	**-**	**-**	**-**	**-**	**-**	**1**	**-**	**-**	**-**	**-**	**-**	-	-
	Woodcock	-	-	-	-	-	-	1	-	-	-	-	-	-	-
506	Woodcock	-	-	-	-	-	-	-	-	-	-	-	1	-	-
507	**Pink-footed goose**	**13**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
508	**Pink-footed goose**	**36**	**22**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
509	Osprey	1	-	-	-	-	-	-	-	-	-	-	-	-	-
511	**Mallard**	-	-	-	-	-	-	-	-	-	-	-	-	-	1
512	Woodcock	-	-	-	-	-	-	-	-	-	1	-	-	-	-
514	**Lapwing**	**-**	**53**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	-	-
	Woodcock	-	-	-	-	-	-	2	-	-	-	-	-	-	-
515	Mute swan	-	-	-	-	-	-	-	-	-	-	-	-	2	-
	Lapwing	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**14**	**-**	**-**	-	-
516	Woodcock	-	-	-	-	-	-	1	-	-	-	-	1	-	-
	Barn owl	-	-	-	-	-	-	(1)	-	-	-	-	-	-	-
518	**Pink-footed goose**	**-**	**(1)**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
519	**Pink-footed goose**	**-**	**49**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
521	Mute swan	-	-	-	1	-	-	-	-	2	-	-	-	-	-
	Greylag goose	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**2**	**2**

Field №	Species	*Survey Visits*													
		Sep 2022		**Oct 2022**		**Nov 2022**		**Dec 2022**		**Jan 2023**		**Feb 2023**		**Mar 2023**	
	Mallard	-	-	-	-	-	-	-	-	-	-	64	-	-	-
	Grey heron	-	-	1	-	-	-	-	-	1	-	-	-	-	-
	Lapwing	**-**	**-**	**-**	**-**	**-**	**-**	**45**	**8**	**-**	**-**	**-**	**-**	-	-
	Green sandpiper	**-**	**-**	**-**	**-**	**1**	**1**	**-**	**-**	**1**	**-**	**-**	**-**	**-**	**-**
	Snipe	-	-	-	-	-	-	3	-	-	-	-	-	-	-
	Jack snipe	-	-	-	-	-	-	1	-	-	-	-	-	-	-
	Woodcock	-	-	-	-	-	-	-	-	-	1	-	-	-	-
	Tawny owl	-	-	-	-	-	-	-	-	-	1	-	-	-	-
523	Tawny owl	-	-	-	-	-	-	-	-	-	-	-	1	-	-
545	Woodcock	-	-	-	-	-	-	-	-	-	-	-	4	-	-
546	**Lapwing**	**-**	**-**	**-**	**-**	**-**	**-**	**7**	**-**	**-**	**1**	**-**	**-**	-	-
548	**Green sandpiper**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**1**	**-**	**-**	**-**	**-**	**-**	**-**
550	**Marsh harrier**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**(2)**	**-**	**-**	**-**	**-**	-	-
553	**Common crane**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**2**	-

Species associated with the Humber Estuary SPA recorded in **bold**

'-' means that the species was not recorded during that visit.

Those in brackets were recorded in flight only.

Table A3.3: Bird species Recorded within the Order Limits 2023/24. Winter walk-over (WWO) refers to diurnal surveys and "NOC" denotes nocturnal walk-over surveys. Numbers in brackets denote flying over.

		13/09/2023	25/09/2023	28/09/2023	01/10/2023	10/10/2023	23/10/2023	05/11/2023	13/11/2023	24/11/2023	08/12/2023	11/12/2023	20/12/2023	05/01/2024	16/01/2024	16/01/2024	05/02/2024	06/02/2024	19/02/2024	03/03/2024	11/03/2024	25/03/2024	16/04/2024	25/04/2024
		Sep	Sep	Sep	Oct	Oct	Oct	Nov	Nov	Nov	Dec	Dec	Dec	Jan	Jan	Jan	Feb	Feb	Feb	Mar	Mar	Mar	Apr	Apr
Field	Species Name	WWO	WWO	NOC	WWO	NOC	WWO	WWO	NOC	WWO	WWO	NOC	WWO	WWO	NOC	WWO	WWO	NOC	WWO	WWO	NOC	WWO	WWO	WWO
1	Buzzard																1							
2	Buzzard																							1
	Grey Partridge																2							
	Mallard																					2		1
	Peregrine							1																
	Pink-footed Goose						56																	
	Woodcock											1												
4	Buzzard										1													
	Canada Goose						14																	
	Greylag Goose						1																	9
	Mallard																4						10	
	Mute Swan																			3		1		
	Woodcock														1									
5	Grey Partridge							6																
	Partidge sp.											10												
6	Buzzard							2																
7	Fieldfare									74														
8	Lapwing																				11	2	4	2
	Mallard											4						17				1	4	2

	Partidge sp.														8								
	Pink-footed Goose						28																
	Woodcock														1								
9	Lesser Black-backed Gull																					2	
10	Buzzard		1											1									1
	Fieldfare										110												
	Grey Partridge																	2					
	Mallard																				1	4	3
	Partidge sp.														4								
	Redwing										175												
	Woodcock																			2			
11	Barn Owl																(1)						
	Buzzard															1							
	Canada Goose						17																
	Curlew																				1	2	
	Fieldfare										70												
	Greylag Goose						13																
	Lapwing								111														
	Mallard	(12)																				2	
	Pink-footed Goose						84											1530					
12	Black-headed Gull						172																
	Buzzard						1														1		
	Common Gull						15																
	Lapwing						38										26						

	Lesser Black-backed Gull						18																	
	Mallard																					2		
13	Lapwing																					4		
	Mallard																		4					
15	Buzzard						1																	
	Curlew																							2
	Fieldfare						430																	
	Lapwing																							2
	Mallard																							2
16	Black-headed Gull						88																	
	Curlew																						1	
	Greylag Goose						135				12													
	Kestrel																					1		
	Lapwing																					2	4	
	Mallard										11							6	4			2	6	
	Pink-footed Goose						1600																	
	Woodcock																	1						
17	Black-headed Gull							47																
	Buzzard																		1					
	Canada Goose						70																	
	Chaffinch																6							
	Fieldfare										140						85							
	Greylag Goose						210												27					
	Kestrel																			2				
	Lapwing																	100						

	Mallard			2			8														8			
	Marsh Harrier							(1)																
	Pink-footed Goose						1440																	
	Redwing																10							
	Starling																32							
18	Black-headed Gull						412	257		89	491		169	125			248		94	31				
	Buzzard																					1		
	Common Gull						52	9		4	4						1							
	Cormorant							1																
	Curlew																					2		
	Dunlin						6	27		13														
	Egyptian Goose										1													
	Fieldfare																			19				
	Golden Plover													66										
	Great Black-backed Gull						9																	
	Greylag Goose							157											14		76			
	Herring Gull						49																	
	Kestrel		2																					
	Lapwing							371		36	53			79			147				6			
	Lesser Black-backed Gull						41	4																
	Mallard						4	29			15		125				3	92	6		11			
	Mute Swan													4										

	Oystercatcher																			2		2		
	Pink-footed Goose						9	4																
	Teal										1													
	Wigeon						6																	
19	Buzzard																1							
20	Lapwing																	9						
	Mallard											4						5						
	Snipe											5												
21	partridge sp.			5																				
22	Mallard																		4					
23	Kestrel																					1		
	Mallard																	2						2
	Woodcock																	2						
24	Mallard																	5						
26	Buzzard																					1		
28	Kestrel							1																
31	Black-headed Gull									22														
	Common Gull									3														
	Pink-footed Goose		(11)																					
35	Great Black-backed Gull						3																	
	Herring Gull						6																	

	Lesser Black-backed Gull						1																	
	Starling										85													
37	Black-headed Gull										27		17	33								2		
	Green Sandpiper												1											
	Mallard																	2			2			
	partridge sp.											8												
	Woodcock																				1			
39	Fieldfare						390																	
	Kestrel																					1		
41	Woodcock																				1			
45	Golden Plover															6								
	Lapwing									24						47								
46	Barn Owl														1									
	Lapwing																				1			
	Woodcock																	6			1			
47	Kestrel																							(1)
	Mallard																				1			
	Woodcock																	1						
50	Black-headed Gull																							37
	Kestrel		1																					
	Lapwing														47								2	
	Mallard																							1
	partridge sp.																				4			
	Red-legged Partridge														5									

	Woodcock														1						6			
51	Lapwing									16														
52	Black-headed Gull						21																	
	Golden Plover								1															
	Great Black-backed Gull						4																	
	Herring Gull						9																	
	Lapwing						3					23												
	Woodcock														1						1			
53	Barn Owl														(1)									
54	Black-headed Gull										60												2	
	Buzzard																			1				
	Common Gull										4											3		
	Greylag Goose																							8
	Lapwing					63									17						6		1	
	Partidge sp.								4			6												
	Woodcock																				1			
62	Black-headed Gull		1																					
	Great Black-backed Gull		5																					
	Herring Gull		1																					

63	Black-headed Gull																		20				
64	Buzzard																		1				
67	Fieldfare																		64				
	Redwing																		44				
	Starling																		30				
69	Buzzard						2																
70	Buzzard	1					2							1									
	Fieldfare																			60			
	Kestrel																			1			
	Starling																			80			
71	Buzzard						1																
72	Fieldfare						47																
	Woodcock																				1		
73	Black-headed Gull																		2				
	Lapwing								8														
	Skylark																			1			
	Starling													80									
75	Kestrel																					(1)	
	Mallard						2																
	partridge sp.			7																			
77	Buzzard									1													
79	Buzzard																			1			
	Fieldfare														8				26				
	Lapwing/ Golden plover								23														
	Merlin																				(1)		
	partridge sp.														2								

80	Fieldfare															82							
	Partidge sp.			7																			
81	Fieldfare																210						
	Starling																275						
82	Fieldfare															163							
	Goosander																					4	
83	Chaffinch									40													
	Fieldfare															20							
	Reed Bunting									25													
	Skylark															6							
	Sparrowhawk																					(1)	
	Yellowhammer									36													
84	Chaffinch															6							
	Fieldfare																			49			
	Greenfinch															2							
	Lapwing											12											
	Reed Bunting															10							
	Skylark									4													
	Starling									30										80			
	Yellowhammer															4							
85	Stonechat									2													
86	Barn Owl																	1					
	Black-headed Gull				129		11																
	Caspian Gull				2																		
	Chaffinch															40							
	Common Gull						38																

	Great Black-backed Gull																				2		
	Herring Gull				199		41																
	Lapwing					6		26			44												
	Lesser Black-backed Gull				82		13																
	Mallard								78												7		
	Woodcock																				2		
87	Buzzard									1													
	Mallard																					2	1
88	Woodcock								1								1						
89	Skylark																		2				
91	Skylark									2		4					1						
92	Fieldfare															2							
	Kestrel										1												
	Mallard																					1	
	Partidge sp.																2						
	Skylark					1													2				
93	Black-headed Gull							53		89	117												
	Buzzard							1															
	Common Gull							4		14	6												
	Herring Gull							2															
	Woodcock																1						
94	Buzzard																1						
	Chaffinch													15									
	Fieldfare															82							

	Starling													17									
	Stonechat									2			1							2			
	Yellowhammer													36								6	
95	Brambling										1												
	Chaffinch										15												
	Kestrel												(1)				1		1				
	Linnet																		16				
	Starling									26													
	Stonechat															2	1						
	Yellowhammer										10												
96	Buzzard							1															
	Fieldfare															3							
	Kestrel						1																
	Little Egret																			1			
	Mallard																	4					
	Peregrine										1												
	Woodcock																				1		
97	Mallard								9														
	Starling										120												
	Woodcock								2														
98	Black-headed Gull										29												
	Fieldfare															10							
	Starling															130							
99	Buzzard	1																					
100	Herring Gull	11																					
	Lesser Black-backed Gull	190																					

101	Buzzard				1																			
103	Buzzard						1									3								
	Lapwing															12								
	Starling																320							
	Stonechat															1								
104	Fieldfare																		37					
	Golden Plover																				6			
	Jack Snipe																				1			
	Linnet				120																	1		
	Mallard												6					13	2		3	2		
	Pied Wagtail																					1		
	Redwing																		2					
	Starling													180										
	Wheatear																					1	1	
	Woodcock																	3			4			
105	Black-headed Gull		151		211		132	160								71								
	Buzzard															2	1							
	Caspian Gull				1																			
	Common Gull						30	8								43	20							
	Golden Plover														7									
	Great Black-backed Gull						10																	
	Herring Gull		233		144		31	37																
	Lapwing					2																		
	Lesser Black-		34		14		4	2																

	backed Gull																							
	Marsh Harrier																					(1)		
	Woodcock								1						1									
	Yellow-legged Gull						1																	
106	Fieldfare													12										
	Linnet																		18					
	Mallard				2														2		2, 1	2		
	Marsh Harrier		(1)																					
	Skylark											2												
	Teal																			2				
113	Black-headed Gull							47		84				36						84				
	Buzzard							1		5	2		2	4						1		1		
	Common Gull	1						47		15				182						9				
	Fieldfare															46								
	Golden Plover											2				79								
	Great Black-backed Gull							1																
	Grey Heron							2															1	
	Herring Gull	8						27																
	Lapwing			5																				
	Lesser Black-backed Gull	175						1																
	Little Egret						1																	
	Skylark																		1		1			
	Woodcock											7						3						

	Yellow Wagtail																							1
114	Black-headed Gull									131														
	Buzzard							2		4														
	Common Gull									46														
	Golden Plover														78									
	Woodcock											4												
115	Buzzard				2						1								1	1				
	Grey Heron										1													
	Kestrel				1																			
	Mallard												8		49	28				2		5	1	
	Meadow Pipit									12														
	Pink-footed Goose												(51)											
	Teal															12				2				
	Woodcock																				3			
116	Black-headed Gull									138														
	Buzzard																1							
	Common Gull									12														
	Fieldfare															5								
	Grey Heron						1																	
	Herring Gull	4								24														
	Kestrel				(1)											1								
	Lesser Black-backed Gull	34																						
	Mallard																			2				

	Peregrine													1									
	Skylark																				2		
	Stonechat									2													
117	Black-headed Gull						204																
	Buzzard																1		1				
	Common Gull						68																
	Great Black-backed Gull						1																
	Herring Gull	15			65		50																
	Lesser Black-backed Gull	39			14		8																
	Skylark																	2					
	Stonechat										1												
	Woodcock								2														
	Yellow-legged Gull	1			1																		
118	Black-headed Gull							13															
	Buzzard				1																1		
	Common Gull							25															
	Herring Gull							31															
	Lesser Black-backed Gull							2															
	Merlin				1																		
	Woodcock											2											
	Buzzard																		1				

119	Jack Snipe								2		1							2			3			
	Snipe										3													
120	Black-headed Gull									10	126													
	Buzzard									1	1								1	1			1	
	Common Gull									36	198						3							
	Fieldfare															53								
	Golden Plover																				1			
	Grey Heron											1			1	2								
	Herring Gull										6													
	Mallard											4												
	partridge sp.														6									
	Redwing															30								
	Skylark																				1		1	
	Starling						300																	
	Tawny Owl			1																				
	Teal																							1
	Woodcock								2			16						5			1			
122	Barn Owl											(1)												
	Woodcock								10			4									6			
129	Woodcock											1												
130	Buzzard						1	1																
	Pink-footed Goose	(1)		(6)	154																			
	Woodcock																				2			
132	Black-headed Gull															340								

	Lapwing															17							
	Starling															110							
134	Black-headed Gull																5						
	Golden Plover															20							
	Marsh Harrier							(1)															
	Meadow Pipit															1							
	Snipe															4							
	Woodcock																	1					
135	Black-headed Gull												14										
136	Mallard				5																		
	Skylark							2															
	Woodcock											1											
137	Pink-footed Goose				3																		
	Skylark															8	3						
138	Common Gull						3																
	Golden Plover															38							
	Lapwing											1											
	Mallard				3																		
	Skylark																1						
	Woodcock														1								
141	Black-headed Gull																54		18	40			2
	Common Gull																5			2			
	Woodcock																	1					

168	Black-headed Gull						39							6									
	Common Gull						1																
	Greylag Goose						38																
	Mallard																					3	
	Pink-footed Goose							620			194												
169	Barn Owl					(1)																	
	Kestrel				1																		
	Lesser Black-backed Gull	76																					
	Mallard																			2	6		
	Mistle Thrush													4									
	Mute Swan																3		3	3		3	
	Red-legged Partridge																				2		
	Tufted Duck																					2	
	Woodcock																				2		
170	Kestrel							1															
171	Gadwall																						2
	Mallard						2													16			6
	Marsh Harrier													(1)									
172	Pink-footed Goose		(32)																				
173	Black-headed Gull																		368				

	Mallard																					1	
175	Buzzard																				1		
	Herring Gull						1																
	Lesser Black-backed Gull						28																
217	Lapwing																2						
	Mallard	2															9			2			
	Mute Swan																		2				
	Teal																2						
220	Fieldfare							40															
	Mallard									22		2	26		4								
	Teal												2										
221	Fieldfare															14							
	Hobby	(1)																					
222	Kestrel	1			(1)																		
	Mallard	(3)																					
	Skylark				6																		
249	Lapwing									33													
	Pink-footed Goose																1						
253	Black-headed Gull							198					380	101								93	11
	Buzzard																					1	
	Common Gull												21										
	Fieldfare																		91				
	Lapwing																8						
	Mallard				33												37			8	5		
	Mute Swan																				2	2	2

	Pied Wagtail												31										
	Starling											220											
275	Starling												44										
279	Black-headed Gull																	193					
	Mallard																			2			
	Snipe																			2			
	Woodcock																			1			
280	Gadwall																7						
	Lapwing								32														
	Mallard																37	6				2	
281	Lapwing				220										39								
282	Black-headed Gull				4		219	102			58		3	43							2		
	Common Gull						3	2															
	Golden Plover							16															
	Herring Gull				4								1										
	Lapwing				3		41	53		5		27											
	Lesser Black-backed Gull				76																		
	partridge sp.			6																			
	Starling						230																
283	Barn Owl											(1)											
	Lapwing								2											5			
	Linnet				40																		
	Mallard																			9			

285	Woodcock													4									
289	Greylag Goose						57																
	Mallard																			2			
290	Black-headed Gull																				3		
	Fieldfare												19										
	Greylag Goose																					2	2
	Lapwing											9					1			4		2		1
	partridge sp.													2									
	Redwing												10										
	Woodcock					1						2											
291	Black-headed Gull							94			72						49						
	Buzzard																			1		1	
	Golden Plover									82													
	Herring Gull							37															
	Kestrel									(1)													
	Lapwing									129				43	3	25							
	Marsh Harrier	(1)																					
292	Black-headed Gull									7	38		33	46			6						
	Buzzard															1			1				
	Fieldfare															12							
	Great Black-backed Gull							5															
	Lapwing							257		29	48		12			1							

	Lesser Black-backed Gull							16																
	Mallard											4	6											
	Starling										197													
402	Black-headed Gull	12					245	14			49		22				1							
	Buzzard							4									1							
	Common Gull						61	1			4		49				32			141				
	Golden Plover															9								
	Great Black-backed Gull						6	1																
	Herring Gull						44										9							
	Lesser Black-backed Gull						20																	
	Woodcock											1			1									
413	Fieldfare																			41				
	Starling																			65				
416	Fieldfare									4														
	Lapwing									72														
436	Barn Owl											(1)												
	Black-headed Gull							49		12			26											
	Buzzard							1		1										2				
	Common Gull							84		39			41											
	Golden Plover															84								

	Great Black-backed Gull							1																
	Grey Heron											1												
	Herring Gull							60																
	Linnet																		2					
	Marsh Harrier																							(1)
	Skylark																		2		1			
	Wheatear																						1	
	Woodcock					1			12			12			1			12			3			
	Yellowhammer									26														
437	Black-headed Gull							22																
	Grey Heron							2																
	Herring Gull							2																
	Mallard																	2						
	Peregrine												(1)											
	Pied Wagtail																						1	
	Wheatear																						1	
	Woodcock											13						2			2			
	Yellowhammer										32													
496	Lapwing						4					19												
	Woodcock											3									1			
497	Black-headed Gull									9														
	Buzzard																2							
	Fieldfare															10								
	Lapwing														1									

	Mallard				(8)																1			
	Partidge sp.																		2					
	Reed Bunting							2																
	Skylark																2							
	Woodcock														20				6			6		
	Yellowhammer							25						40		25								
498	Golden Plover									22														
	Starling						120																	
499	Mallard									(1)														
521	Buzzard		1		1		1						1											
	Grey Heron	1					1																	
	Greylag Goose																					2		
	Mallard																	2						2
	Sparrowhawk		(1)																					
563	Gadwall																				1			
	Greenfinch													8										
	Greylag Goose																				6	2		
	Kestrel																					1		
	Lapwing									8														
	Mallard																				2			
	Wigeon																	42						
570	Black-headed Gull						86																	

A3.4: Bird species Recorded within the Wider Survey Area 2023/24. Numbers in brackets denote flying over.

		Sep	Sep	Sep	Oct	Oct	Oct	Nov	Nov	Nov	Dec	Dec	Dec	Jan	Jan	Jan	Feb	Feb	Feb	Mar	Mar	Mar	Apr	Apr
Field	**Species Name**	WWO	WWO	NOC	WWO	NOC	WWO	WWO	NOC	WWO	WWO	NOC	WWO	WWO	NOC	WWO	WWO	NOC	WWO	WWO	NOC	WWO	WWO	WWO
14	Mallard																					4		
36	Black-headed Gull												50											
	Common Gull												11											
	Fieldfare							48																
	Grey Heron						1																	
	Herring Gull												8											
	Lapwing											6												
	Starling							105																
	Woodcock																	2						
56	Black-headed Gull																							12
	Lapwing																						2	
	Snipe			1																				
58	Mute Swan																		2	2				
59	Black-headed Gull	2					77	22		72	31			63						1				3
	Buzzard						1				1													
	Common Gull						6	3			2		2	1		6								
	Golden Plover								12															
	Great Black-backed Gull	13					4	11																
	Grey Partridge													3										
	Herring Gull	6					11	4						1										
	Lapwing						48			8														

	Lesser Black-backed Gull	3					1																	
	Mallard						47													4			2	
	Mute Swan																						2	
	Patridge sp.			5, 6		8						10								2				
65	Buzzard																1							
	Common Gull							4																
	Marsh Harrier																							1
66	Black-headed Gull																		6				2	
	Green Sandpiper																		1					
	Woodcock																	5						
109	Buzzard												1											
112	Buzzard										1													
	Grey Heron								1															
	Woodcock								4															
121	Woodcock											6												
123	Buzzard	1									1													
	Fieldfare										41													
	Grey Heron															1								
124	Woodcock											19									12			
125	Marsh Harrier									1														
126	Buzzard		1																					
	Woodcock																	5						
127	Kestrel		1																					
128	Kestrel						1																	
	Little Egret						2																	
	Marsh Harrier	(1)																						
	Sparrowhawk							(1)																(1)
	Tawny Owl			(1)																				
131	Marsh Harrier				(1)																			
139	Skylark								1											2				

	Woodcock																	5						
140	Jack Snipe								2															
	Skylark								1															
	Woodcock														2									
149	Yellowhammer							30																
156	Snipe																	1						
160	Canada Goose												84											
	Greylag Goose												64											
	Pink-footed Goose												476											
163	Black-headed Gull							87																
	Common Gull							6																
164	Black-headed Gull						17							69										
	Lapwing																	8						
	Pink-footed Goose											2												
165	Black-headed Gull													20										
	Buzzard																			1				
	Mallard																			2				
166	Black-headed Gull												6											
	Buzzard							1																
177	Black-headed Gull															522								
	Lapwing															27								
181	Black-headed Gull																			47				
182	Black-headed Gull																			11		2		
	Green Sandpiper																					1		
	Mallard																					2		
	Mute Swan																						1	
184	Buzzard																						1	
185	Buzzard										1					1								
	Grey Heron						1																	
	Sparrowhawk																					1		

	Yellowhammer															46								
186	Buzzard																		1					
	Fieldfare														76									
	Red-legged Partridge							15							19									
	Redwing														5									
	Reed Bunting																		2					
	Yellowhammer																		6					
188	Linnet															80								
191	Teal														8									
193	Woodcock											1												
195	Marsh Harrier				(1)																			
196	Pink-footed Goose				480																			
207	Mallard																						1	
	Teal																						2	
209	Mallard																			5				
	Teal																				6			
223	Lapwing											11												
	Mallard																			2				
224	Buzzard							1																
	Marsh Harrier				(1)																			
	partridge sp.								5			6												
	Skylark				38																			
	Starling									140														
225	Buzzard						1																	
227	Pink-footed Goose				56																			
228	Kestrel						1																	
	Linnet									80														
229	Greylag Goose												51											
	Patridge sp.								7															
	Pink-footed Goose												668											

	Skylark				17																			
230	Buzzard										1													
	Mallard	(6)																	2					
	Starling									195														
231	Black-headed Gull									19														
	Mallard																			2				
232	Mallard																					2		
	Sparrowhawk									(1)														
233	Buzzard															1								
	Woodcock																				1			
238	Kestrel															(1)								
	Woodcock																				2			
241	Woodcock																	7						
242	Black-headed Gull									36														
	Common Gull									4														
251	Lapwing											5												
252	Barn Owl																	(1)						
	Lapwing/ Golden plover								37															
	Woodcock																	10			1			
259	Black-headed Gull										125													
261	Little Owl																	1						
262	Black-headed Gull																					2		
	Mallard																						2	
263	Mute Swan													4		5								
265	Lapwing																	21						
	Mute Swan																		4	4				
277	Black-headed Gull										95													
	Kestrel													1		1								
	Mallard																						2	

	Patridge sp.								5			9												
	Starling										40													
286	Mallard																					2		
	Marsh Harrier																(1)							
287	Barn Owl					(1)																		
	Buzzard						1																	
	Mallard																3							
	Moorhen					(2)																		
288	Barn Owl			(1)																	1			
	Black-headed Gull						74	287			26		68	41										5
	Buzzard									1				1										
	Common Gull						1																	
	Golden Plover															1								
	Greylag Goose								36															
	Herring Gull						7						1											
	Kestrel																1							
	Lapwing								23					6		11	12	24	66	29	19	2		
	Lesser Black-backed Gull						5																	
	Little Egret							6			4		1											
	Mallard																	3						
	Woodcock								2						1									
306	Buzzard				1																			
308	Great Black-backed Gull						5																	
	Herring Gull						7																	
309	Black-headed Gull		1																					
	Great Black-backed Gull		1																					
	Herring Gull		5																					
	Patridge sp.																				2			
	Woodcock														1									

310	Black-headed Gull																					4		
	Woodcock								1															
312	Black-headed Gull																					2		
316	Black-headed Gull		26																					
	Great Black-backed Gull		6																					
	Herring Gull		1																					
317	Lapwing											12												
318	Buzzard									1														
	Common Gull																				2			
	Great Black-backed Gull		6																					
	Herring Gull		1																					
	Lapwing		32	54																				
	Mallard																	31						
319	Black-headed Gull															12			3					
	Buzzard															2		1						
	Skylark																		4					
	Woodcock					1																		
320	Lapwing								28															
322	Skylark																		2					
323	Black-headed Gull						118				22		6						11	1				9
	Common Gull						1				2		1						3					
	Crane																				(3)			
	Great Black-backed Gull						6																	
	Herring Gull						2																	
	Mallard						18																	1
	Partidge sp.											9												
	Skylark																		2					

325	Great Black-backed Gull							4																
	Lesser Black-backed Gull							2																
	Patridge sp.											7						2						
	Woodcock			1																				
338	Black-headed Gull												1						3					
	Kestrel										1		(1)											
340	Black-headed Gull										48													
	Common Gull										1													
343	Barn Owl											(1)												
345	Black-headed Gull												22											
355	Barn Owl														1									
	Black-headed Gull																			11			3	
	Greylag Goose																				22			
	Lapwing																	6			16			
	Mallard												16					7	63	2	47			1
	Snipe																	12						
358	Black-headed Gull		18																					
	Common Gull		1																					
	Herring Gull		30																					
	Lesser Black-backed Gull		25																					
359	Lapwing								11															
361	Black-headed Gull							59																28
	Common Gull							2																
	Fieldfare																			70				
	Herring Gull							8																
	Lesser Black-backed Gull							6																
	Starling																			210				

363	Mallard																						1
365	Woodcock																2						
366	Black-headed Gull						87	8															
	Common Gull							3															
	Golden Plover						3																
	Great Black-backed Gull						2	2															
	Herring Gull						12																
367	Lapwing											10											
	Woodcock																3						
368	Black-headed Gull						14																
	Buzzard													1									
	Fieldfare															94							
	Kestrel										1												
	Snipe								1														
369	Lapwing								3														
	Snipe								1														
370	Black-headed Gull																					2	
	Great Black-backed Gull							1															
	Grey Partridge															4							
	Woodcock											3											
371	Barn Owl																1						
	Black-headed Gull						24			14													
	Common Gull									1													
	Great Black-backed Gull						2																
	Lapwing								6														
	Little Egret		2																				
	Mallard						9																
	Mute Swan						6											2					
	Snipe														2								

372	Little Egret												1											
373	Black-headed Gull						9			10													17	
	Common Gull									1														
375	Barn Owl			1																				
376	Kestrel																1							
383	Little Egret									1														
	Mallard					6				28														
	Moorhen					2																		
	Teal									1														
384	Barn Owl														(1)									
	Buzzard				1																			
	Common Gull										4													
	Herring Gull										19													
	Jack Snipe																			1				
	Kestrel																				(1)			
	Mallard							18										6			2			
	Teal							2																
385	Lapwing														2									
	Mallard													8			36	2					1	
	Snipe																	3						
	Teal													1		2	9							
	Woodcock														5			2						
386	Fieldfare													8										
	Woodcock														4									
387	Mallard	49		5	6		57						30					3	17	5		4		2
	Moorhen			3																				
	Teal	3					4						18						1	3		6		1
388	Barn Owl											1												
389	Teal									5			4											
390	Black-headed Gull													1										
	Common Gull													4										
	Fieldfare							13																

	Herring Gull												25										
	Mallard												6		2	6	3				1	1	
	Snipe													14									
	Starling															320							
	Teal															2			2	1			
	Woodcock													1									
391	Chaffinch						12																
	Fieldfare						120																
	Mallard																			2			
	Starling						50																
396	Mallard																4						
397	Black-headed Gull							28															
	Mallard		31			4	4																
	Yellowhammer											12											
398	Fieldfare												83										
	Mallard										5									3			1
	Mistle Thrush												2										
	Patridge sp.			8																			
	Redwing												16										
	Sparrowhawk							(1)															
	Woodcock			1													2						
400	Black-headed Gull							27			46		17					4					
	Common Gull																	7					
	Sparrowhawk												(1)										
401	Black-headed Gull							28			22		11					31	10	1			
	Common Gull							3										71					
	Mallard																2						
	Woodcock																2						
417	Buzzard									1													
	Fieldfare														2								

	Lapwing															19								
	Stonechat												1											
419	Little Egret										2													
421	Kestrel															1								
428	Buzzard												1											
	Common Gull																			1				
	Fieldfare															20								
	Herring Gull																			2				
	Woodcock											1												
429	Fieldfare															12								
	Kestrel																					2		
430	Buzzard	(1)																						
431	Buzzard																						1	
448	Pink-footed Goose															14								
	Tawny Owl																	1						
450	Greylag Goose																			2				
	Little Egret				1																			
	Patridge sp.														6									
	Snipe																	9						
451	Buzzard															1								
	Snipe															1					10			
460	Reed Bunting							4																
	Yellowhammer							17																
466	Barn Owl					1																		
	Meadow Pipit																			38				
	Skylark							1	1															
467	Green Sandpiper								1															
	Skylark								1									2		2				
	Woodcock																	1						
468	Jack Snipe																	1						
	Kestrel				1			1									1							
	Little Egret							1																

	Skylark								1														
469	Linnet																		9					
475	Starling																			260				
476	Linnet																				4			
	Reed Bunting							8																
	Skylark																			1				
479	Kestrel															(1)								
	Skylark							2																
480	Lapwing																			12				
	Woodcock											8												
483	Lapwing																			2				
	Snipe																	8						
	Woodcock														6									
484	Skylark															2								
485	Green Sandpiper			1																				
	Kestrel						1																	
	Little Owl																			2				
	Mallard											8												1
	Skylark							4									1							
	Snipe																	6						
	Teal														1									
	Woodcock											1						1						
486	Golden Plover									20														
	Lapwing																			2				
487	Jack Snipe																			2				
	Snipe																			15				
	Woodcock											1												
488	Barn Owl																	(1)						
	Grey Partridge																		2					
	Skylark						8							2		4		1						
	Woodcock											1								2				

489	Black-headed Gull							24																
	Common Gull							2																
	Pied Wagtail																		76					
490	Black-headed Gull						34			6				5										
	Common Gull						3																	
	Skylark						2																	
492	Black-headed Gull							27		13				20										
	Greylag Goose																					2		
	Mallard																					2		
494	Black-headed Gull									3				27										
502	Marsh Harrier									(1)														
504	Buzzard				1																			
	Skylark				6																			
506	Barn Owl								1															
507	Greylag Goose																						1	
508	Grey Heron									1														
	Kestrel				1																			
	Skylark				4																			
510	Kestrel							1																
512	Skylark							2																
514	Barn Owl											(1)												
	Buzzard																			1				
	Peregrine												1											
515	Caspian Gull	1																						
	Herring Gull	16																						
	Lesser Black-backed Gull	325																						
	Starling															200								
	Woodcock																	3			1			
	Yellow-legged Gull	6																						
516	Black-headed Gull							194																

	Buzzard												1										
	Common Gull							50															
	Herring Gull							9															
	Lapwing				30																		
	Lesser Black-backed Gull							6															
	Marsh Harrier	(1)																					
	Reed Bunting							24								3							
	Skylark							1															
	Starling							1000															
	Stonechat															1							
517	Woodcock													1									
519	Kestrel							1															
	Pink-footed Goose				1120																		
523	Buzzard																	2					
524	Buzzard																	2					
531	Kestrel																					(1)	
534	Black-headed Gull						264	235		80			194			102							
	Common Gull						12	2		19			8			9							
	Herring Gull						2			6			4										
	Kestrel														1								1
	Linnet																	17					
	Mallard						6					4	2				4			8		1	
	Starling						170											9					
	Woodcock																1						
535	Black-headed Gull															39							
	Mallard																			3			
	Woodcock											1											

536	Common Gull									2														
545	Buzzard																					1		
	Greylag Goose																				7	3		
	Lapwing														2									
	Skylark				27		5																	
	Woodcock														1									
546	Barn Owl														1									
	Lapwing														4									
	Meadow Pipit															22								
	Patridge sp.														4									
	Woodcock																				1			
547	Black-headed Gull																					2		
548	Black-headed Gull																					1		
	Buzzard															1								
	Grey Partridge																					2		
	Jack Snipe																	1						
	Kestrel																			1				
	Linnet																			30				
	Mallard																							1
	Snipe														1			4						
	Woodcock																	10						
550	Marsh Harrier									(1)														
	Pink-footed Goose					1000																		
553	Pink-footed Goose				420																			
555	Marsh Harrier							(1)																
566	Black-headed Gull																					2		
	Greylag Goose						184																	
	Marsh Harrier							(1)																

ANNEX 4: VANTAGE POINT SURVEY DATA 2023/24

Table A4.1: Vantage Point Survey Data 2023/24

Date	VP	Flight/ Perched	Species	Number	Start time	Duration	HT 1 (0-10m)	HT 2 (10-50m)	HT 3 (50m+)
27/09/2023	1	F	Pink-footed goose	148	12:47	65	0	0	65
27/09/2023	1	F	Grey heron	1	13:20	12	12	0	0
27/09/2023	1	F	Marsh harrier	1	14:04	20	20	0	0
23/09/2023	2	F	Marsh harrier	1	15:24	120	120	0	0
23/09/2023	2	F	Pink-footed goose	46	15:47	75	0	0	75
23/09/2023	2	F	Marsh harrier	1	16:06	110	110	0	0
30/09/2023	3	F	Pink-footed goose	27	12:36	110	0	0	110
30/09/2023	3	F	Greylag goose	1	12:56	230	0	230	0
30/09/2023	3	F	Greylag goose	11	13:52	75	0	30	45
25/09/2023	4	F	Pink-footed goose	16	18:52	35	0	15	20
25/09/2023	4	F	Sparrowhawk	1	18:55	20	20	0	0
29/09/2023	5	F	Marsh harrier	1	13:56	110	15	95	0
29/09/2023	5	F	Pink-footed goose	220	14:17	150	30	75	45
29/09/2023	5	F	Pink-footed goose	58	14:30	95	20	30	45
29/09/2023	5	F	Marsh harrier	1	14:40	270	0	270	0
29/09/2023	5	F	Peregrine	1	15:01	170	45	125	0
29/09/2023	5	F	Pink-footed goose	6	15:42	82	22	15	45
29/09/2023	5	F	Pink-footed goose	31	16:04	60	15	15	30
29/09/2023	5	F	Pink-footed goose	7	16:11	50	20	30	0
29/09/2023	5	F	Peregrine	1	16:22	35	0	35	0
28/09/2023	6	F	Pink-footed goose	62	15:44	140	0	0	140
28/09/2023	6	F/P	Grey heron	1	16:37	15	15	0	0
28/09/2023	6	F/P	Grey heron	1	17:02	10	10	0	0
28/09/2023	6	F/P	Grey heron	1	18:01	35	35	0	0
28/09/2023	6	F/P	Grey heron	2	18:03	20	20	0	0
28/09/2023	6	F/P	Grey heron	1	18:08	25	25	0	0
16/10/2023	2	F	Pink-footed goose	37	14:16	120	0	120	0
16/10/2023	2	F	Lapwing	81	14:40	300	45	255	0
26/10/2023	3	F	Pink-footed goose	31	08:42	50	0	0	50
26/10/2023	3	F	Pink-footed goose	6	08:50	35	0	0	35
26/10/2023	3	F	Pink-footed goose	76	09:17	80	0	0	80
26/10/2023	3	F	Pink-footed goose	141	09:43	60	0	0	60
26/10/2023	3	F	Grey heron	1	10:50	25	25	0	0
15/10/2023	4	P	Lapwing	127	14:07	10,800	0	0	0
15/10/2023	4	F/P	Grey heron	1	14:21	20	20	0	0
30/10/2023	5	F	Marsh harrier	1	12:27	80	0	80	0
30/10/2023	5	F	Pink-footed goose	132	12:30	300	0	0	300
30/10/2023	5	F	Pink-footed goose	99	12:59	145	0	0	145
30/10/2023	5	F	Golden plover	9	13:45	75	0	0	75
30/10/2023	5	F	Snipe	1	13:49	135	0	0	135
30/10/2023	5	F	Great white egret	2	14:06	60	0	0	60
13/10/2023	6	P	Grey heron	1	15:30	10,800	0	0	0
13/10/2023	6	F	Pink-footed goose	18	15:36	30	0	0	39
13/10/2023	6	F	Pink-footed goose	14	16:04	150	30	30	90
13/10/2023	6	F	Pink-footed goose	21	16:05	150	30	60	60
13/10/2023	6	F	Grey heron	1	16:20	25	25	0	0

13/10/2023	6	F	Marsh harrier	1	16:30	65	65	0	0
14/11/2023	1	F	Kestrel	1	13:00	75	75	0	0
14/11/2023	1	F	Pink-footed goose	1	13:13	135	0	0	135
14/11/2023	1	F	Pink-footed goose	6	13:29	140	0	0	140
14/11/2023	1	F	Marsh harrier	1	14:48	150	150	0	0
14/11/2023	1	F	Marsh harrier	1	15:11	45	15	30	0
16/11/2023	6	F	Peregrine	1	13:54	40	0	40	0
16/11/2023	6	F	Pink-footed goose	88	14:20	150	0	0	150
16/11/2023	6	F	Pink-footed goose	43	14:22	150	0	0	150
16/11/2023	6	F	Pink-footed goose	3	14:31	60	0	60	0
16/11/2023	6	F	Pink-footed goose	140	14:49	120	0	0	120
16/11/2023	6	F	Pink-footed goose	106	14:57	150	0	0	150
16/11/2023	6	F	Marsh harrier	1	15:23	30	0	30	0
16/11/2023	6	F	Pink-footed goose	26	15:49	100	0	0	100
16/11/2023	6	F	Grey heron	2	16:04	75	75	0	0
05/11/2023	2	F/P	Greylag goose	75	09:04	65	65	0	0
05/11/2023	2	F	Pink-footed goose	3	10:20	85	0	85	0
05/11/2023	2	F	Pink-footed goose	47	10:21	40	0	40	0
05/11/2023	2	F	Marsh harrier	1	10:48	120	0	60	60
05/11/2023	2	F	Pink-footed goose	10	10:57	140	0	0	140
27/11/2023	3	F	Pink-footed goose	83	11:17	90	0	0	90
27/11/2023	4	F	Greylag goose	28	13:11	20	20	0	0
27/11/2023	4	P	Greylag goose	71	13:10	10,800	0	0	0
27/11/2023	4	P	Pink-footed goose	7	13:10	10,800	0	0	0
27/11/2023	4	F	Golden plover	73	13:49	105	45	60	0
27/11/2023	4	F	Pink-footed goose	109	13:51	90	0	0	90
27/11/2023	4	F	Pink-footed goose	9	14:03	60	30	30	0
27/11/2023	4	F	Pink-footed goose	8	14:10	45	0	45	0
27/11/2023	4	F	Golden plover	6	15:01	40	0	0	40
27/11/2023	4	F	Pink-footed goose	33	15:16	150	0	0	150
27/11/2023	4	F	Pink-footed goose	107	15:23	120	0	0	120
27/11/2023	4	F	Lapwing	60	15:29	120	0	0	60
27/11/2023	4	F	Pink-footed goose	11	15:37	135	0	0	135
27/11/2023	4	F	Barn owl	1	16:00	45	45	0	0
23/11/2023	5	F	Whooper swan	4	12:11	75	0	75	0
23/11/2023	5	F	Pink-footed goose	15	12:17	125	0	0	125
23/11/2023	5	F	Pink-footed goose	39	13:09	45	0	45	0
24/12/2023	1	F	Golden plover	23	09:57	45	0	45	0
24/12/2023	1	F	Peregrine	1	10:27	40	40	0	0
24/12/2023	1	F	Pink-footed goose	68	11:08	120	0	0	120
18/12/2023	4	F	Marsh harrier	1	10:31	135	135	0	0
18/12/2023	4	F/P	Pink-footed goose	2	12:01	105	45	60	0
18/12/2023	4	P	Lapwing	12	09:45	10,800	0	0	0
24/12/2023	5	F	Greylag goose	9	14:04	80	0	0	80
03/12/2023	6	F	Grey heron	1	13:56	45	45	0	0
03/12/2023	6	F	Pink-footed goose	90	14:50	120	0	120	0
03/12/2023	6	F	Marsh harrier	1	15:00	210	210	0	0
14/01/2024	1	F	Marsh harrier	1	14:17	180	0	0	180
14/01/2024	2	F	Lapwing	147	11:28	100	0	100	0
14/01/2024	2	F/P	Lapwing	156	11:50	60	60	0	0
14/01/2024	2	F	Little egret	1	12:14	20	20	0	0
14/01/2024	2	F	Marsh harrier	1	12:35	60	60	0	0

31/01/2024	3	F	Common crane	2	12:04	135	0	0	135
22/01/2024	4	F	Marsh harrier	1	09:26	110	0	110	0
22/01/2024	4	F	Pintail	1	09:51	50	0	50	0
22/01/2024	4	F	Marsh harrier	1	10:29	40	0	40	0
22/01/2024	4	F	Lapwing	130	11:06	60	30	30	0
26/02/2024	1	F	Marsh harrier	1	13:12	270	90	180	0
26/02/2024	1	F	Snipe	1	14:30	70	0	0	70
23/02/2024	3	F	Peregrine	1	10:45	180	0	180	0
23/02/2024	3	F	Marsh harrier	1	10:54	170	170	0	0
23/02/2024	3	F	Mute swan	6	11:22	75	75	0	0
23/02/2024	3	F	Marsh harrier	1	11:50	480	0	90	390
23/02/2024	3	F	Lapwing	2	12:23	100	0	100	0
11/02/2024	4	F	Lapwing	180	10:38	330	0	0	330
11/02/2024	4	F	Lapwing	310	11:26	480	0	0	480
11/02/2024	4	F	Pink-footed goose	1	11:36	75	0	75	0
11/02/2024	4	F	Pink-footed goose	1	11:59	90	0	0	90
11/02/2024	4	F	Lapwing	36	12:17	140	50	60	30
11/02/2024	4	F	Golden plover	30	12:25	75	30	30	15
11/02/2024	5	F	Marsh harrier	1	14:06	90	0	90	0
11/02/2024	5	F	Wigeon	6	15:29	45	0	0	45
26/03/2024	3	F	Mute swan	1	16:10	60	60	0	0
26/03/2024	3	F	Grey heron	1	16:54	95	0	0	95
26/03/2024	3	F	Pink-footed goose	12	17:31	160	0	0	160
22/03/2024	4	F	Oystercatcher	2	11:20	90	45	45	0
22/03/2024	4	F	Grey heron	1	11:26	135	0	135	0
12/03/2024	5	F	Gadwall	1	16:11	40	0	40	0
27/03/2024	6	F	Marsh harrier	1	11:52	90	90	0	0

ANNEX 5: FIGURES

MAP 1

MAP 2

MAP 3

MAP 4

MAP 5

MAP 6

THORNE CP

Thorne

Crowle

Hatfield Chase

Thorne Waste or Moors

Crowle Waste or Moors

Humberhead Peatlands National Nature Reserve

Dirtness Levels

Tween Bridge Moors

South or Sand Moors

Nun Moors

Tween Bridge Wind Farm

Wike Well End

Crowle Common

Legend

Site

600m Site Buffer

Rev	Date	Description	De	App
00	31/08/2023		ZH	HD

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TWEEN BRIDGES NSIP

WBS OVERVIEW PLAN

avianecology

Avian Ecology, Suite 3c Walnut Tree Farm, Northwich Road, Lower Stretton
WA4 4PG
Tel: 0843 506 5116
www.avianecology.co.uk

0 1 kilometres

N W E S

Legend

Site

600m Site Buffer

Rev	Date	Description	De	App
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0 500 metres

N W E S

Legend

Site

600m Site Buffer

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0 350

metres

N E S W

Legend

Site

600m Site Buffer

Rev	Date	Description	De	App
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0 500

metres

N E S W

Legend

Site

600m Site Buffer

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0 350

metres

N W E S

Legend

Site

600m Site Buffer

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0 500

metres

N W E S

Legend

Site

600m Site Buffer

Rev	Date	Description	De	App
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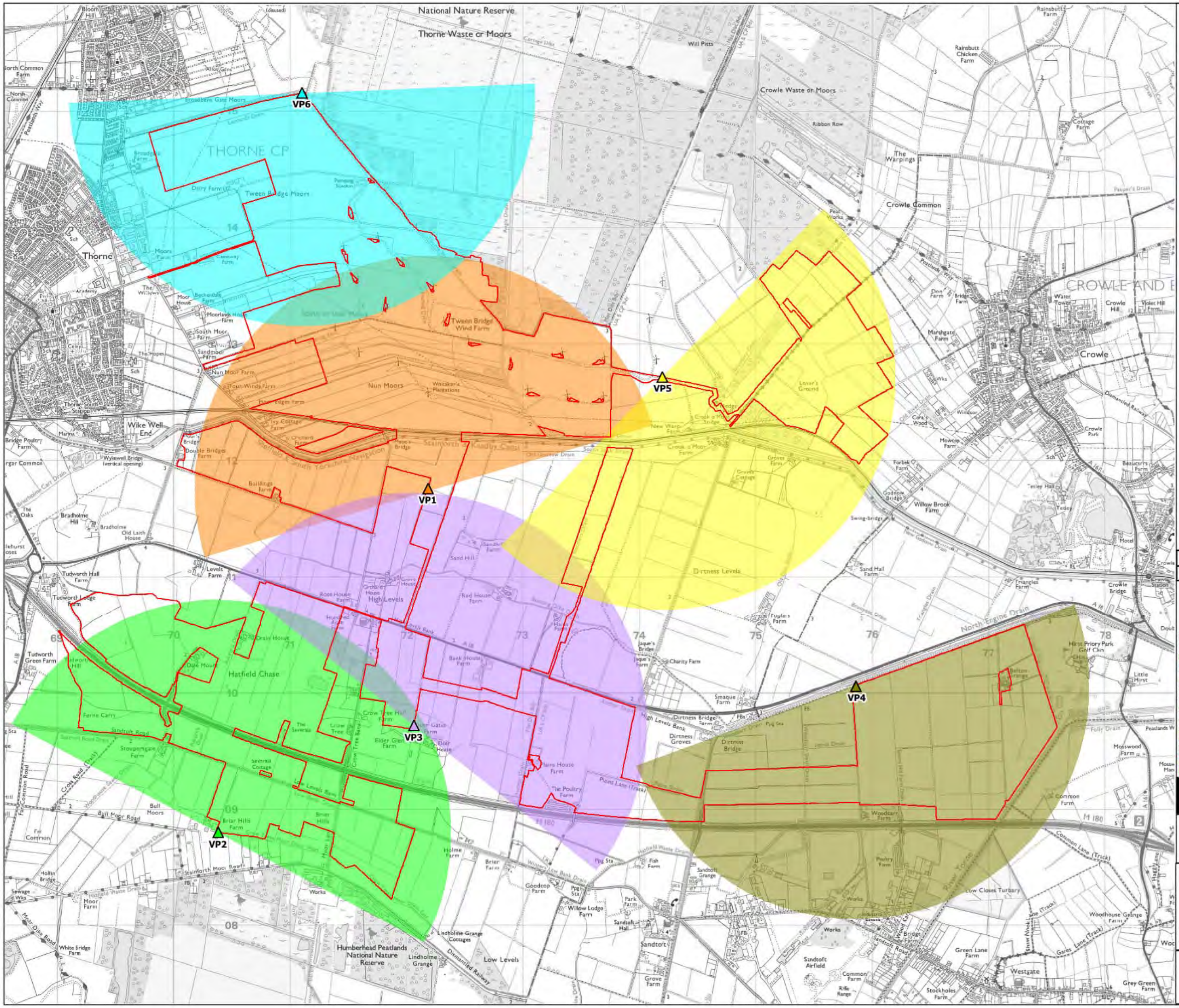
0 350

metres

N W E S

Crowle Common
Peat Works
Moor Middle Drain
Moor Bottom Drain
Peatlands Way
Don Farm
Bridge Farm
Marshgate Farm
Old River Don
Old River Drain
Cora's Wood
Mowcop Farm
Forbek Farm
Godnow Bridge
Willow Brook Farm
Swing-bridge
New Godnow R
Met Dist Bdy
UA & CP Bdy
Boundary Drain
Lover's Ground
Medge Hall
Crook o'Moor Bridge
New Warp Farm
Crook o'Moor Farm
Groves Farm
Groves Cottage
North Soak Drain
South Soak Drain
Old Godnow Drain
Peatlands Way



Legend

Site

Vantage Point (VP)

- VP1 - SE7218011755
- VP2 - SE7037708799
- VP3 - SE7205909720
- VP4 - SE7585810057
- VP5 - SE7419512713
- VP6 - SE7109915154

- Viewshed 1
- Viewshed 2
- Viewshed 3
- Viewshed 4
- Viewshed 5
- Viewshed 6

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00	18/09/2023		HD	MJR

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TWEEN BRIDGE

VANTAGE POINT LOCATION PLAN

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0 1 kilometres

N W E S

Legend

Site

Survey Area

Target Species

Curlew (CU)

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00	18/09/2024		ZH	HD

Co-ordinate System : British National Grid
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WINTERING BIRD SURVEY RESULTS - YEAR 1
(CURLEW)

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0 1
kilometres

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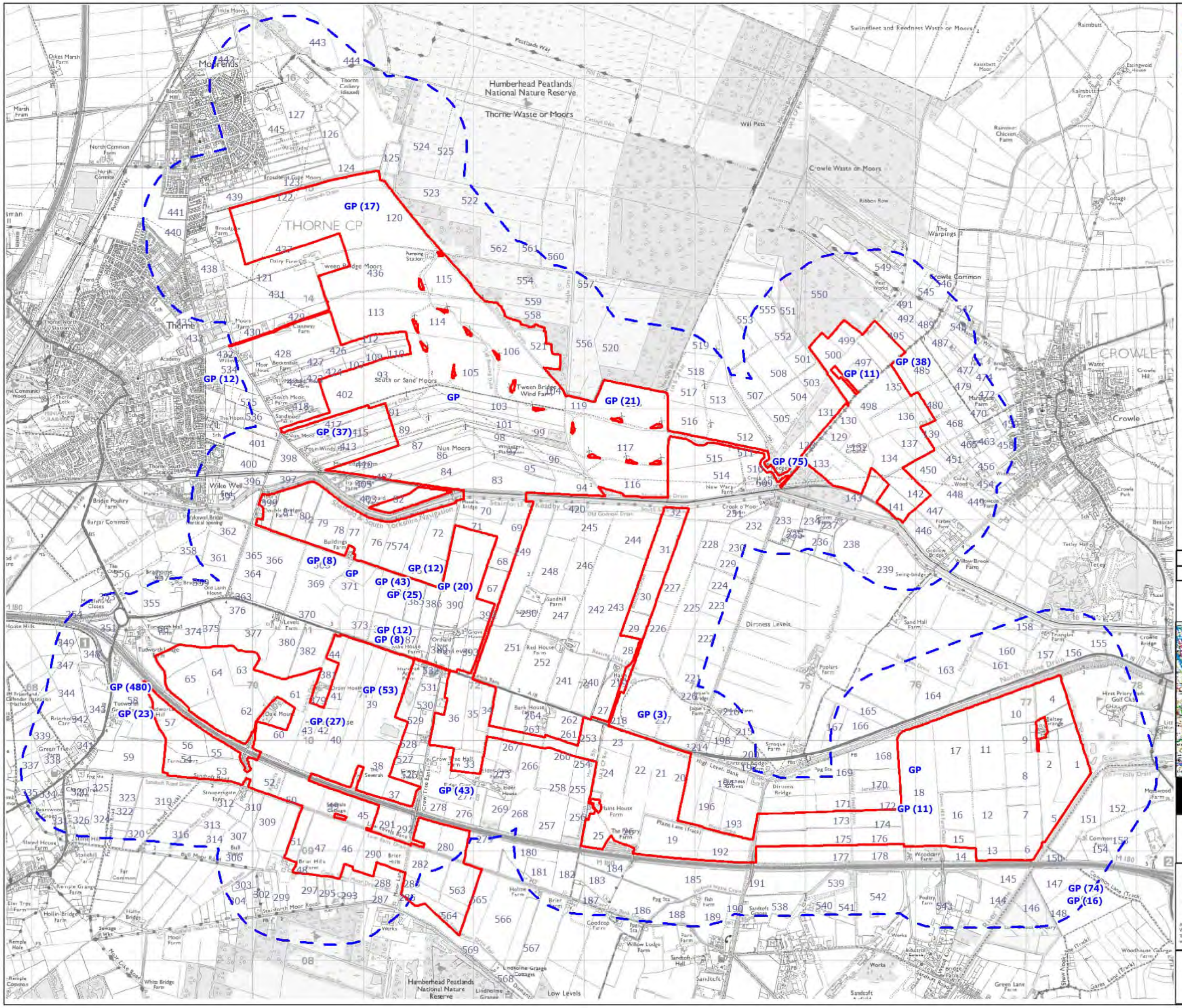
S



Legend

Site

Survey Area

Target Species

Golden plover (GP)

Rev	Date	Description	De	App
00	18/09/2024		ZH	HD

Co-ordinate System : British National Grid
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WINTERING BIRD SURVEY RESULTS - YEAR 1
(GOLDEN PLOVER)

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0 1
kilometres

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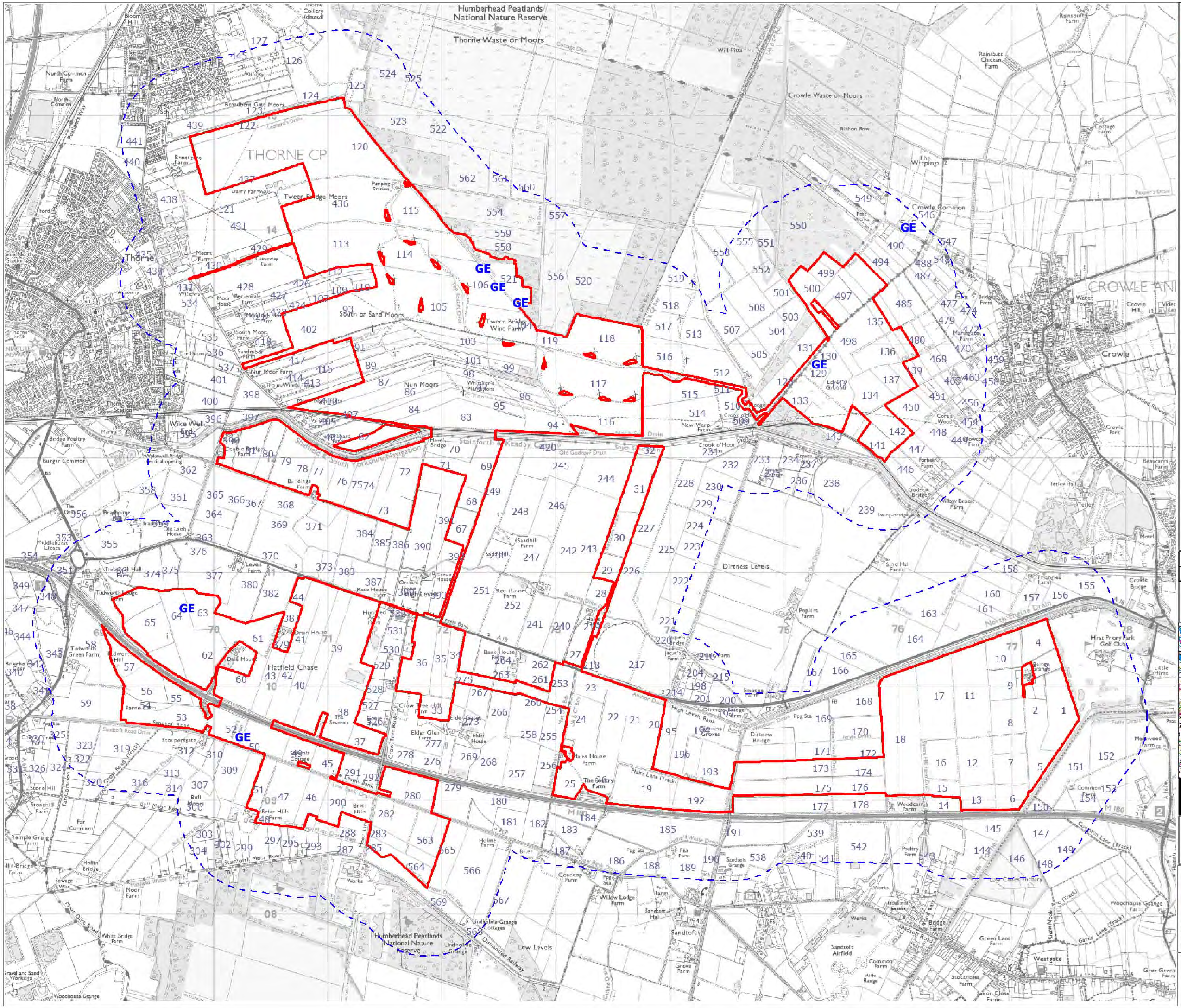

Legend

Site

600m Site Buffer

Target Species

Green Sandpiper (GE)

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00	09/09/2024		ZH	HD

Coordinate System : British National Grid
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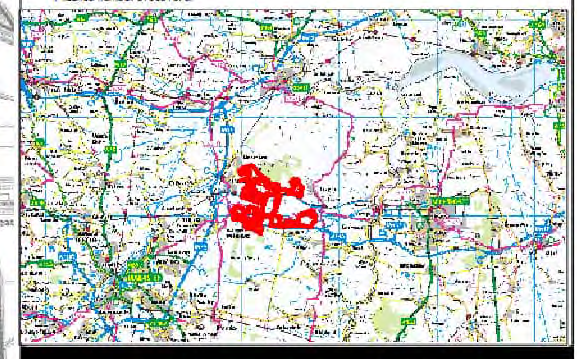
Datum: OSGB 1936
Units: Metres



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WINTERING BIRD SURVEY RESULTS - 2022 TO 2023 (GREEN SANDPIPER)

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0 1 kilometers

N W E S

Legend

Site

Survey Area

Target Species

Grey plover (GV)

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WINTERING BIRD SURVEY RESULTS - YEAR 1
(GREY PLOVER)

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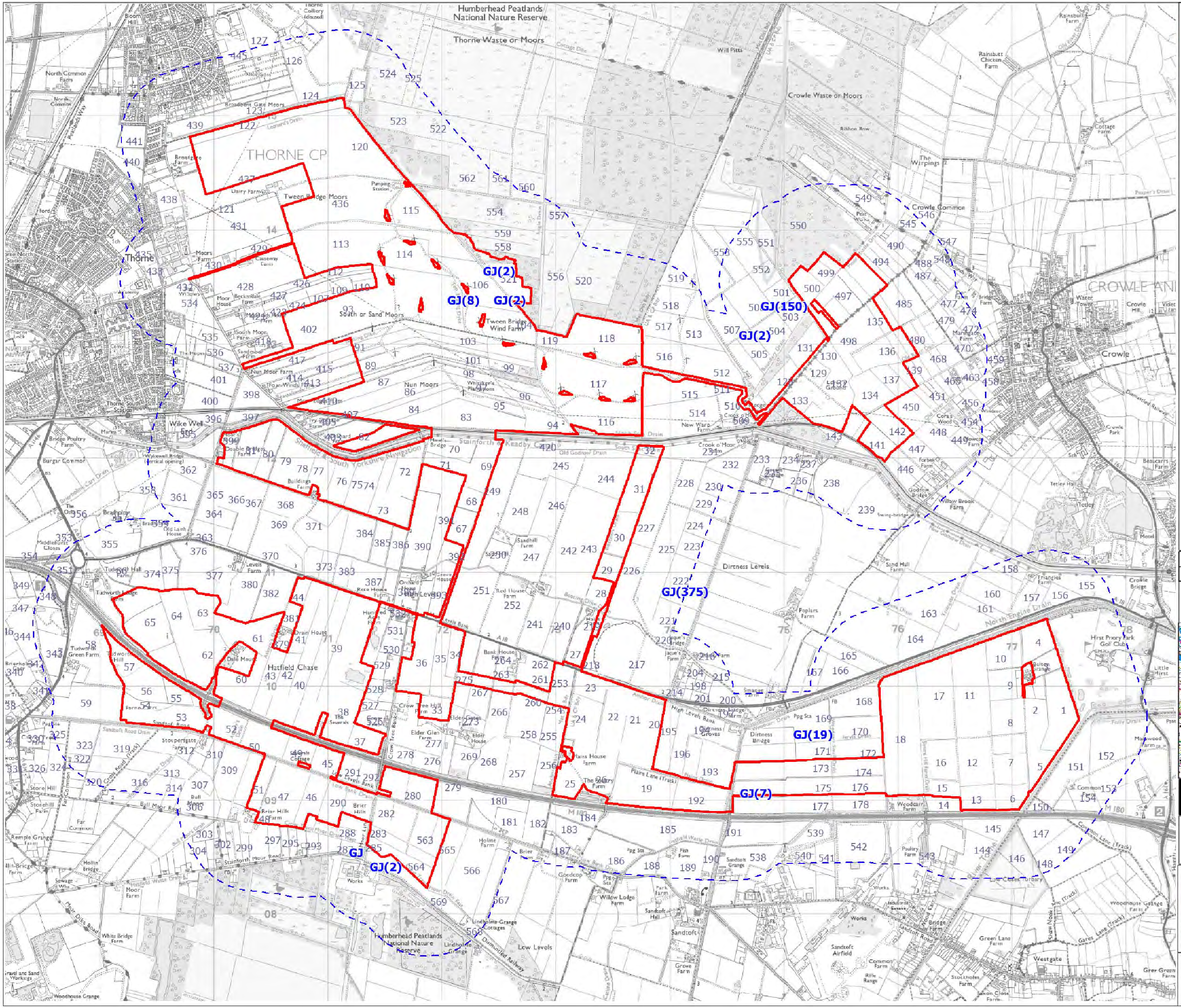
0 1
kilometres

N W E S



Legend

- Site
- 600m Site Buffer

Target Species

Greylag goose (GJ)

Rev	Date	Description	De	App
00	09/09/2024		ZH	HD

Coordinate System : British National Grid
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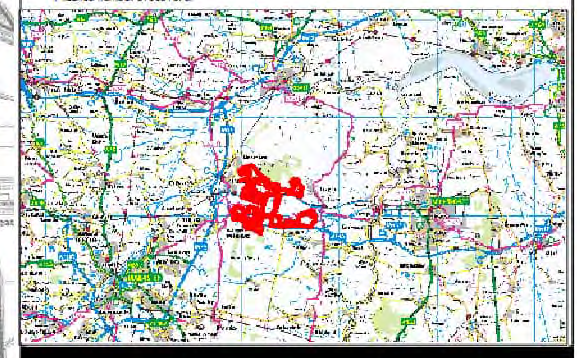
Units: Metres



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WINTERING BIRD SURVEY RESULTS - 2022 TO 2023 (GREYLAG GOOSE)

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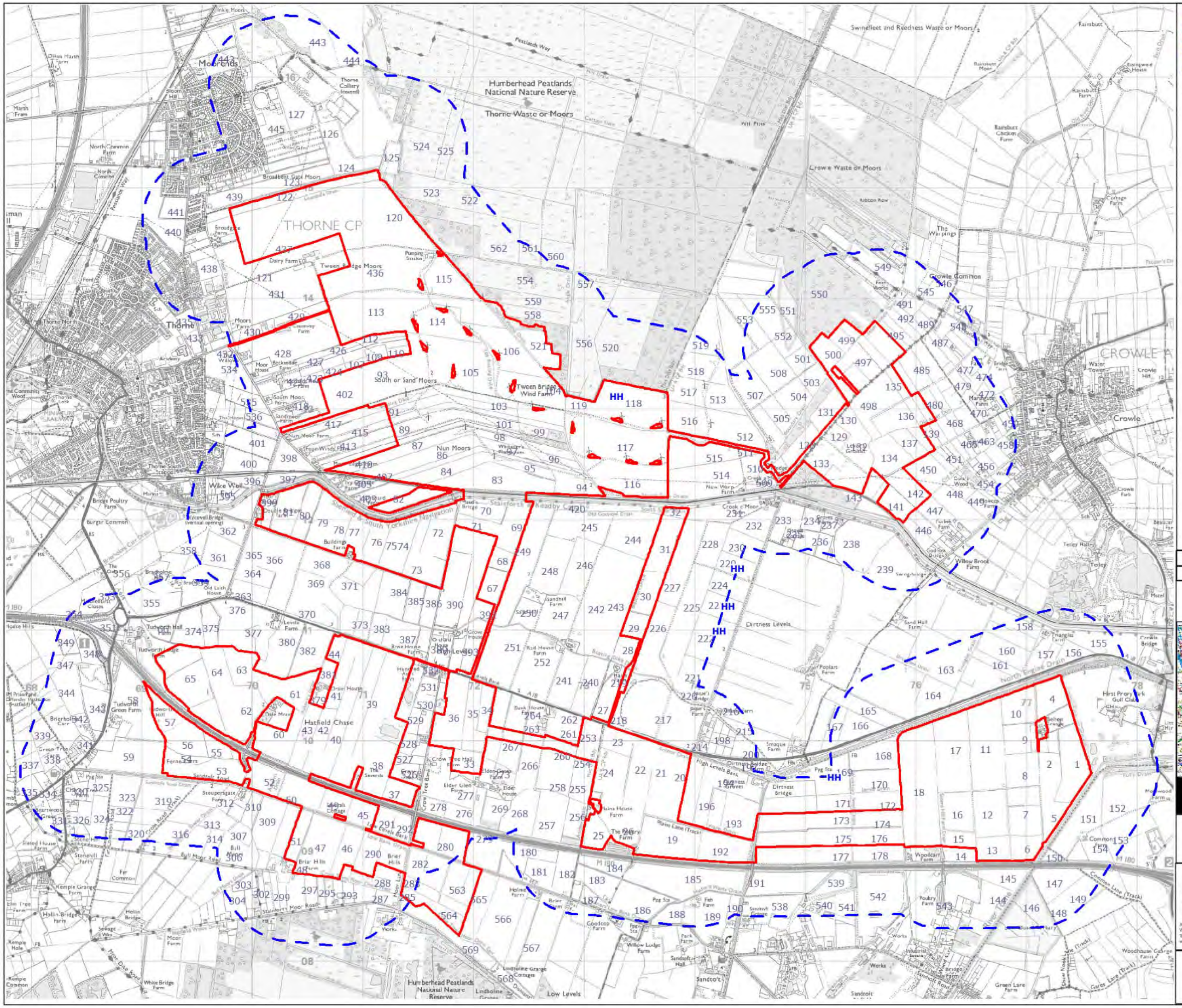
0 1 kilometers

N W E S



Legend

Site

Survey Area

Target Species

Hen harrier (HH)

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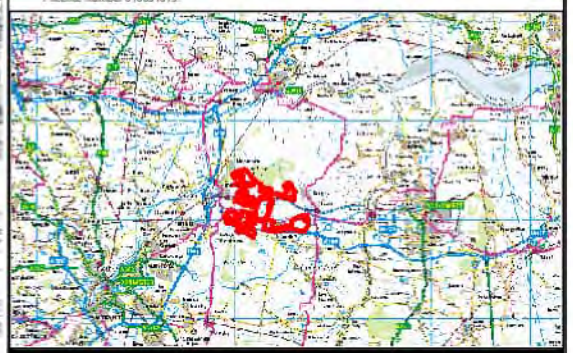
00	18/09/2024		ZH	HD

Co-ordinate System: British National Grid
Projection: Transverse Mercator
Datum: OSGB 1936
Units: Metres



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WINTERING BIRD SURVEY RESULTS - YEAR 1
(HEN HARRIER)

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0 1
kilometres

N W E S

Legend

Site

Survey Area

Target Species

Lapwing (L.)

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WINTERING BIRD SURVEY RESULTS - YEAR 1 (LAPWING)

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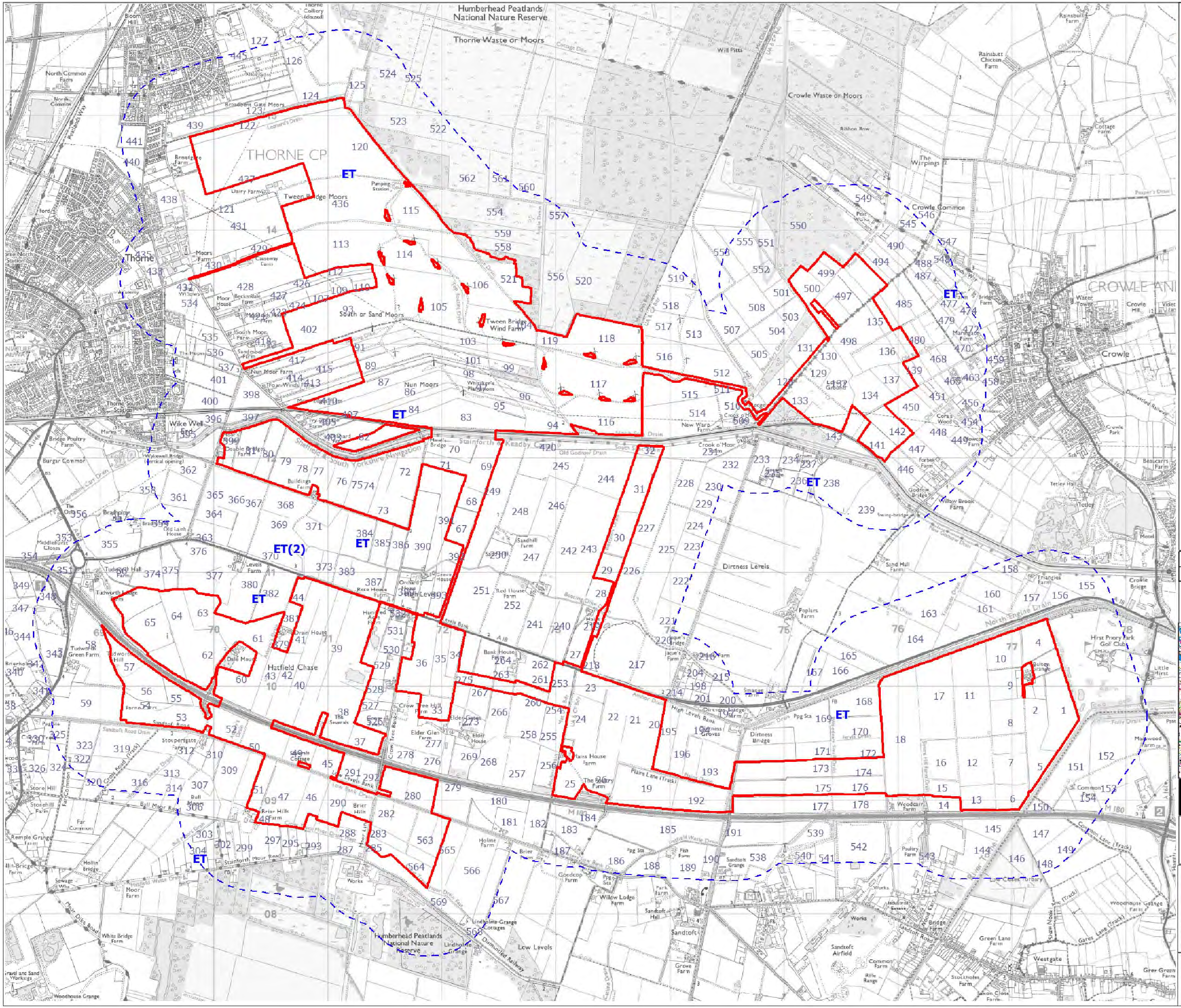
0 1 kilometres

N W E S



Legend

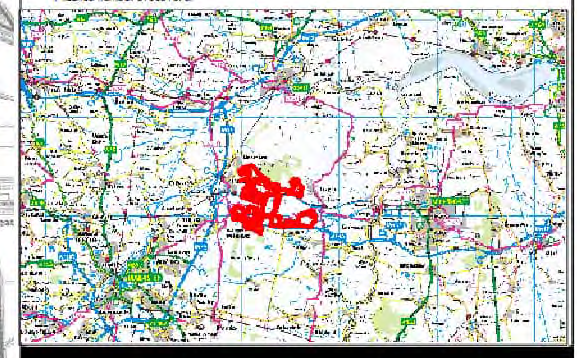
- Site
- 600m Site Buffer

Target Species

Little egret (ET)

Rev	Date	Description	De	App
00	09/09/2024		ZH	HD

Coordinate System : British National Grid
Projection : Transverse Mercator
Datum: OSGB 1936
Units: Metres



TWEEN BRIDGES NSIP

WINTERING BIRD SURVEY RESULTS - 2022 TO 2023 (LITTLE EGRET)

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0 1 kilometers

N W E S

Legend

Site

Survey Area

Target Species

Marsh harrier (MR)

Rev	Date	Description	De	App
00	18/09/2024		ZH	HD

Co-ordinate System: British National Grid
Projection: Transverse Mercator
Datum: OSGB 1936
Units: Metres

TWEEN BRIDGES NSIP

WINTERING BIRD SURVEY RESULTS - YEAR 1
(MARSH HARRIER)

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0 1
kilometres

N
W E
S

Legend

Site

Survey Area

Target Species

Pink-footed goose (PG)

Rev	Date	Description	De	App
00	18/09/2024		ZH	HD

Co-ordinate System: British National Grid
Projection: Transverse Mercator
Datum: OSGB 1936
Units: Metres

TWEEN BRIDGES NSIP

WINTERING BIRD SURVEY RESULTS - YEAR 1
(PINK-FOOTED GOOSE)

avianecology
Avian Ecology, Suite 3c Walnut Tree Farm, Northwich Road, Lower Stretton
WA4 4PG
Tel: 0843 506 5116
www.avianecology.co.uk

0 1
kilometres

N W E S

Legend

Site

Survey Area

Target Species

Teal (T.)

Rev	Date	Description	De	App
00	18/09/2024		ZH	HD

This map contains data from the following sources:
Ordnance Survey (2021)

© Crown copyright. All rights reserved 2021.
Licence number 0100031673.

Co-ordinate System - British National Grid
Projection: Transverse Mercator
Datum: OSGB 1936
Units: Metres

TWEEN BRIDGES NSIP

WINTERING BIRD SURVEY RESULTS - YEAR 1 (TEAL)

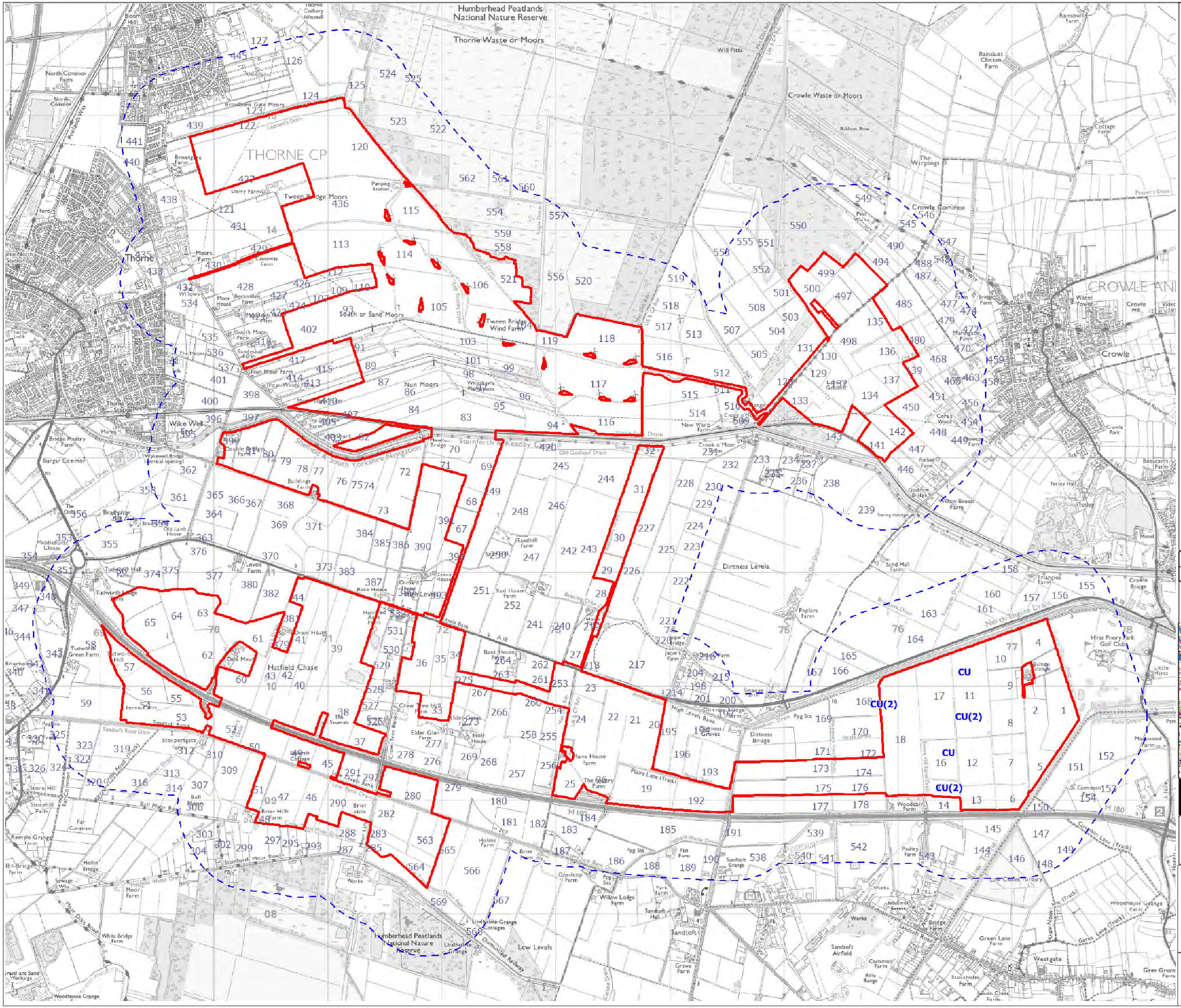
avian ecology

Avian Ecology, Suite 3c Walnut Tree Farm, Northwich Road, Lower Stretton
WA4 4PG
Tel: 0843 506 5116
www.avianecology.co.uk

0 1

kilometres

N W E S



Legend

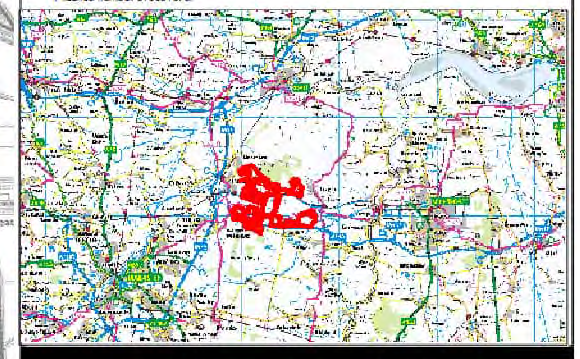
- Site
- 600m Site Buffer

Target Species

Curlew (CU)

Rev	Date	Description	De	App
00	09/09/2024		ZH	HD

Coordinate System : British National Grid
Projection : Transverse Mercator
Datum: OSGB 1936
Units: Metres



TWEEN BRIDGES NSIP

WINTERING BIRD SURVEY RESULTS - 2023 TO 2024 (CURLEW)

avian ecology
Avian Ecology, Suite 3a Walnut Tree Farm, Northwich Road, Lower Stretton WA4 4PG
Tel: 0843 506 5118
www.avianecology.co.uk

0 1 kilometers

N W E S

Legend

Site

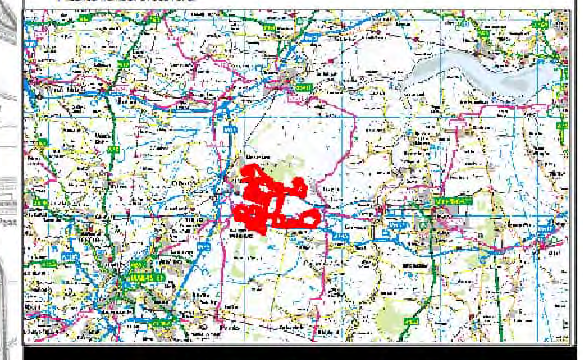
600m Site Buffer

Target Species

Dunlin (DN)

Rev	Date	Description	De	App
00	09/09/2024		ZH	HD

Coordinate System : British National Grid
Projection: Transverse Mercator
Datum: OSGB 1936
Units: Metres



TWEEN BRIDGES NSIP

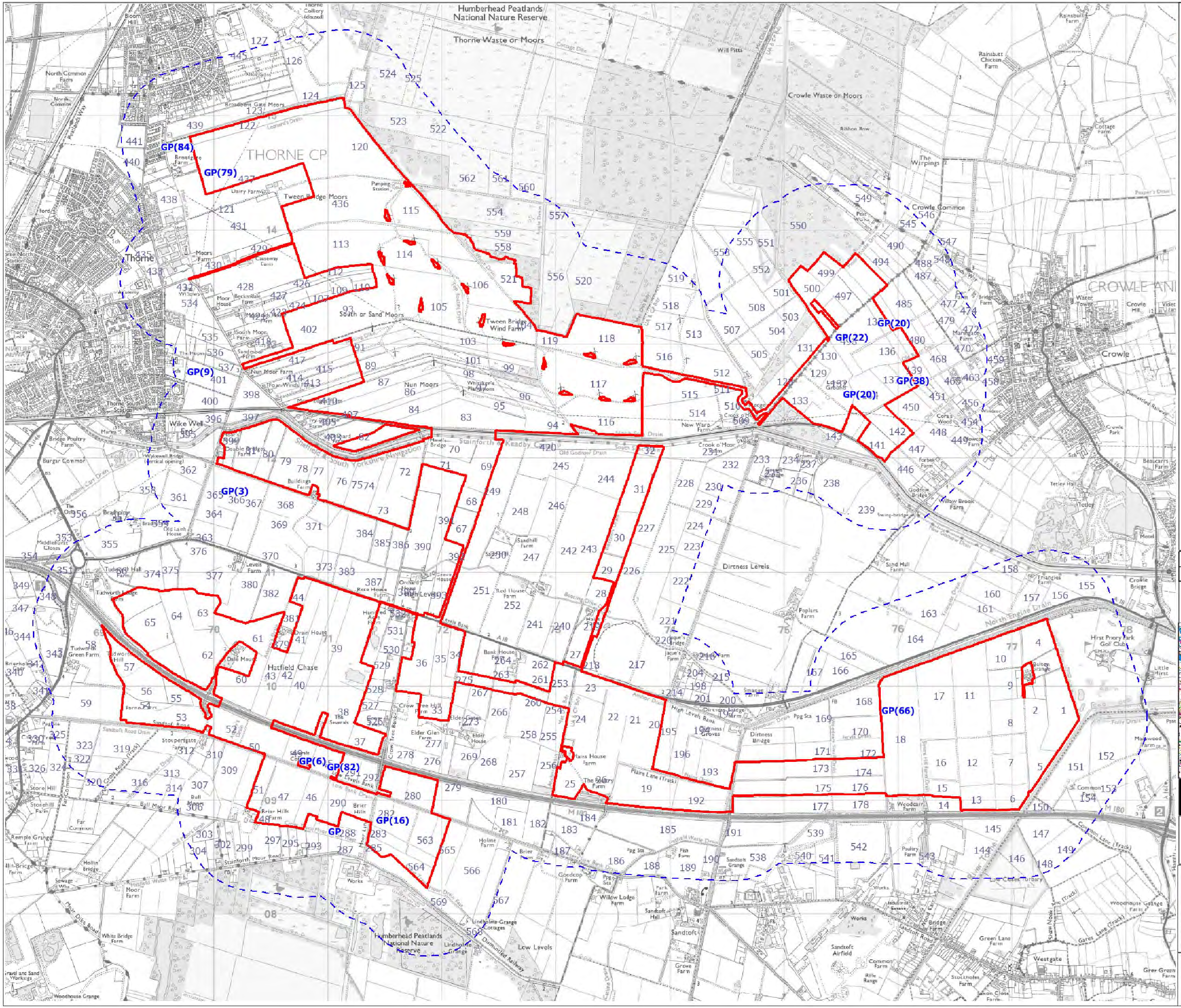
WINTERING BIRD SURVEY RESULTS - 2023 TO 2024 (DUNLIN)

avian ecology

Avian Ecology, Suite 3a Walnut Tree Farm, Northwich Road, Lower Stretton
WA4 4PG
Tel: 0843 506 5118
www.avianecology.co.uk

0 1 kilometers

N W E S



Legend

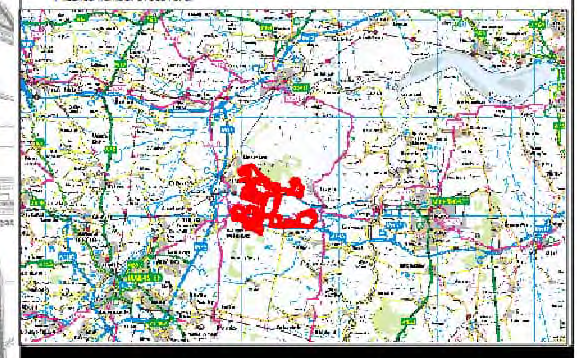
- Site
- 600m Site Buffer

Target Species

Golden plover (GP)

Rev	Date	Description	De	App
00	09/09/2024		ZH	HD

Coordinate System : British National Grid
Projection: Transverse Mercator
Datum: OSGB 1936
Units: Metres



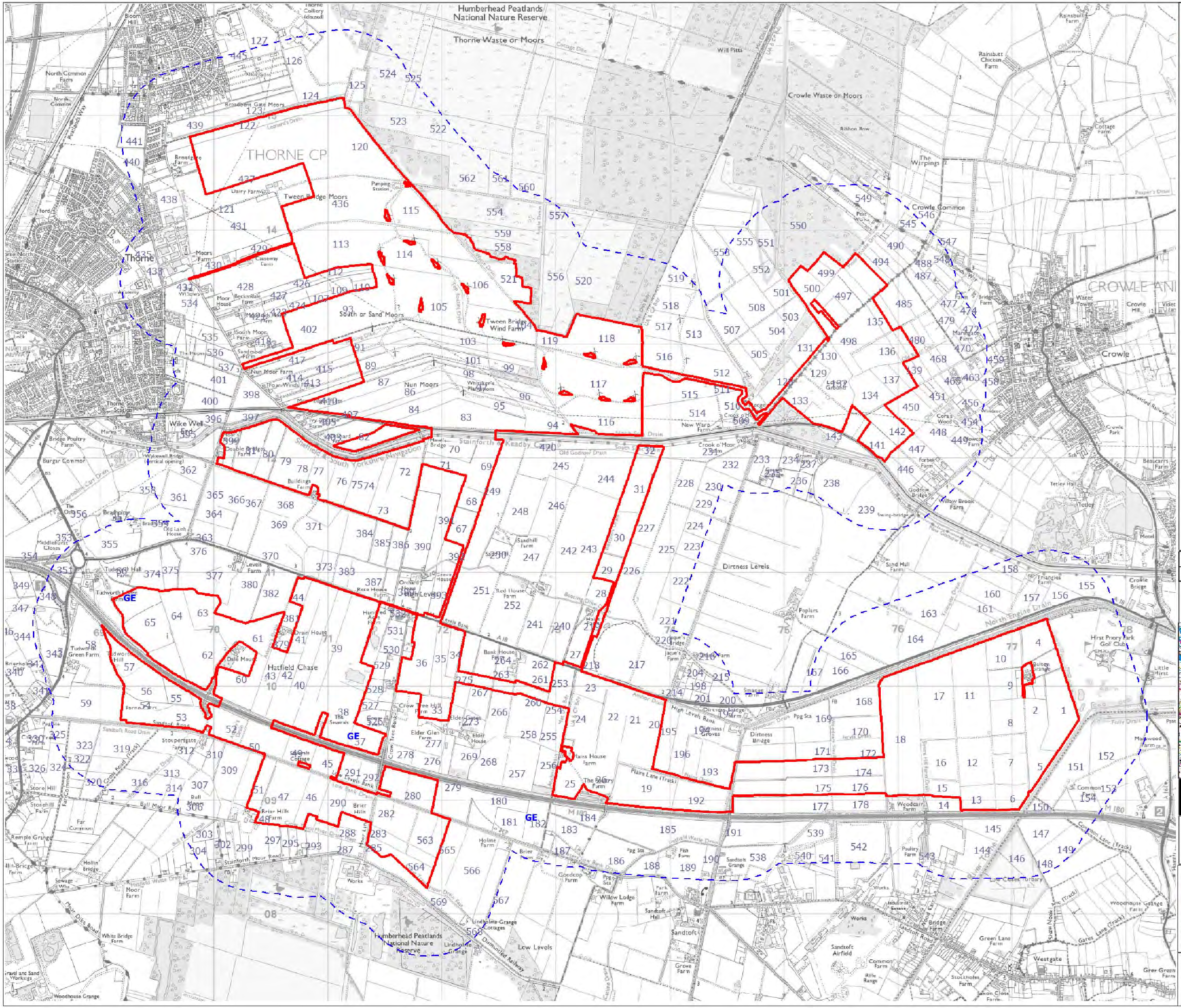
TWEEN BRIDGES NSIP

WINTERING BIRD SURVEY RESULTS - 2023 TO 2024 (GOLDEN PLOVER)

avian ecology
Avian Ecology, Suite 3a Walnut Tree Farm, Northwich Road, Lower Stretton WA4 4PG
Tel: 0843 506 5118
www.avianecology.co.uk

0 1 kilometers

N W E S



Legend

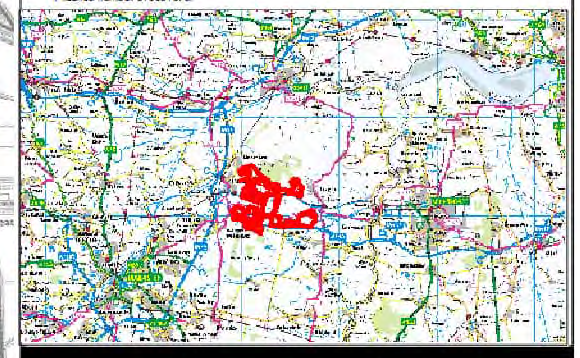
- Site
- 600m Site Buffer

Target Species

Green sandpiper (GE)

Rev	Date	Description	De	App
00	09/09/2024		ZH	HD

Coordinate System : British National Grid
Projection: Transverse Mercator
Datum: OSGB 1936
Units: Metres



TWEEN BRIDGES NSIP

WINTERING BIRD SURVEY RESULTS - 2023 TO 2024 (GREEN SANDPIPER)

avian ecology
Avian Ecology, Suite 3a Walnut Tree Farm, Northwich Road, Lower Stretton WA4 4PG
Tel: 0843 506 5118
www.avianecology.co.uk

0 1 kilometers

N W E S

Legend

Site

600m Site Buffer

Target Species

Greylag goose (GJ)

Rev	Date	Description	De	App
00	09/09/2024		ZH	HD

Coordinate System : British National Grid
Projection: Transverse Mercator
Datum: OSGB 1936
Units: Metres

TWEEN BRIDGES NSIP

WINTERING BIRD SURVEY RESULTS - 2023 TO 2024 (GREYLAG GOOSE)

avian ecology

Avian Ecology, Suite 3a Walnut Tree Farm, Northwich Road, Lower Stretton
WA4 4PG
Tel: 0843 506 5118
www.avianecology.co.uk

0 1 kilometers

N W E S

Legend

Site

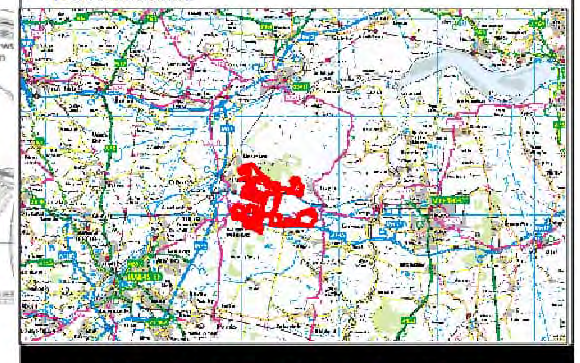
600m Site Buffer

Target Species

Lapwing (L.)

Rev	Date	Description	De	App
00	09/09/2024		ZH	HD

Coordinate System: British National Grid
Projection: Transverse Mercator
Datum: OSGB 1936
Units: Metres



TWEEN BRIDGES NSIP

WINTERING BIRD SURVEY RESULTS - 2023 TO 2024 (LAPWING)

avian ecology

Avian Ecology, Suite 3a Walnut Tree Farm, Northwich Road, Lower Stretton
WA4 4PG
Tel: 0843 506 5118
www.avianecology.co.uk

0 1 kilometers

N W E S

Legend

Site

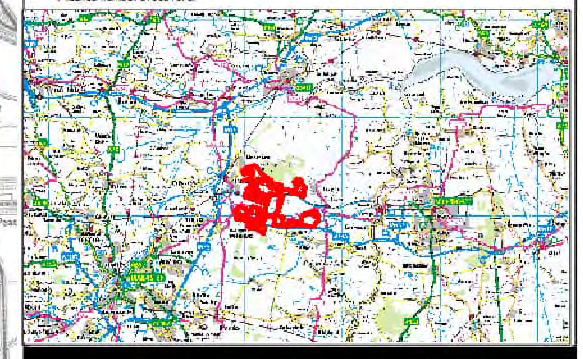
600m Site Buffer

Target Species

Little egret (ET)

Rev	Date	Description	De	App
00	09/09/2024		ZH	HD

Coordinate System : British National Grid
Projection: Transverse Mercator
Datum: OSGB 1936
Units: Metres



TWEEN BRIDGES NSIP

WINTERING BIRD SURVEY RESULTS - 2023 TO 2024 (LITTLE EGRET)

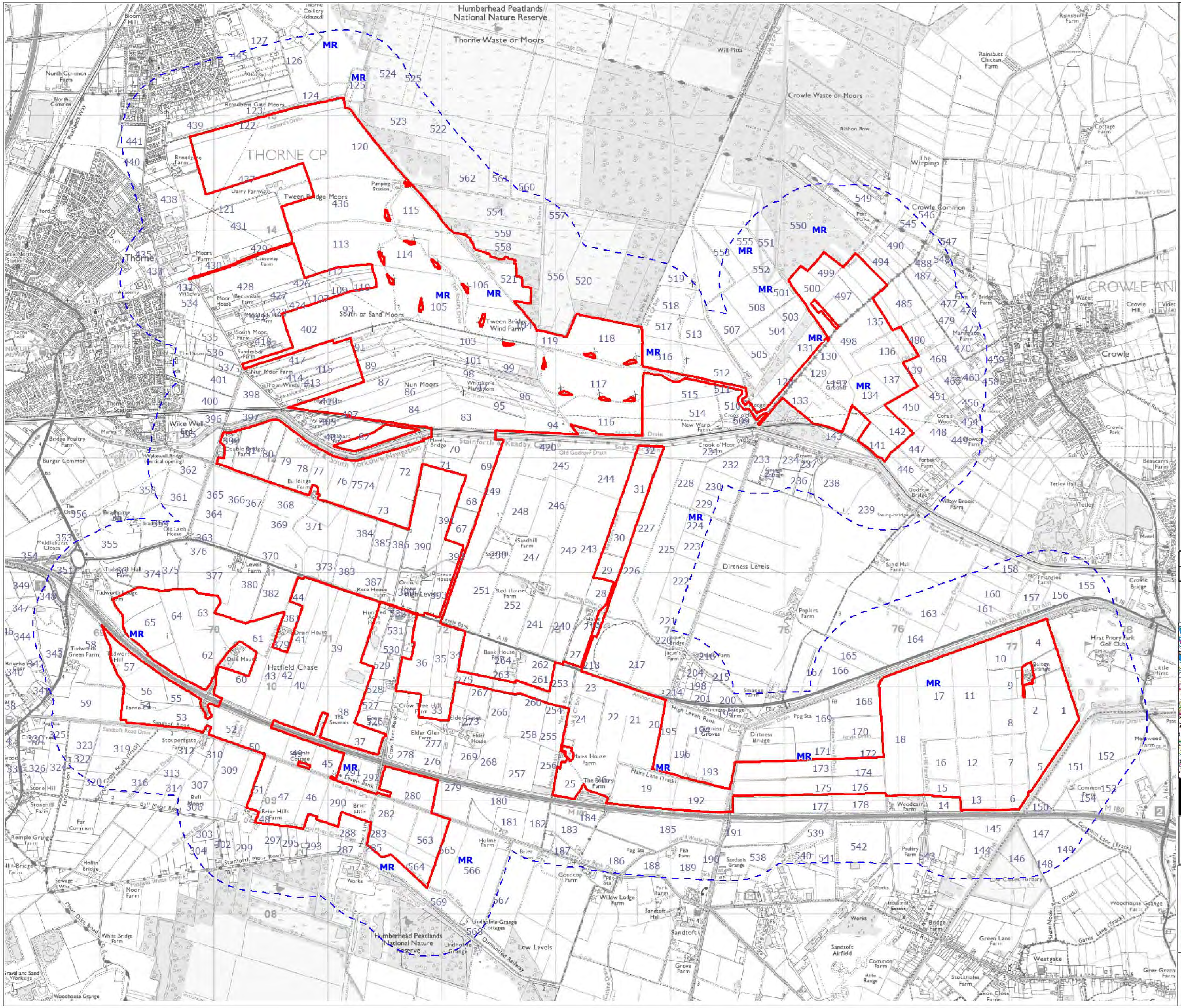
avian ecology

Avian Ecology, Suite 3a Walnut Tree Farm, Northwich Road, Lower Stretton
WA4 4PG
Tel: 0843 506 5118
www.avianecology.co.uk

0 1

kilometers

N W E S



Legend

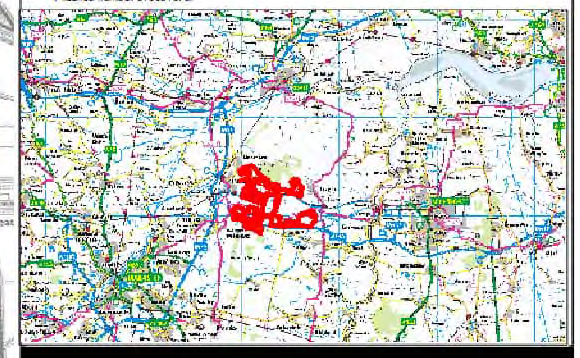
- Site
- 600m Site Buffer

Target Species

Marsh harrier (MR)

Rev	Date	Description	De	App
00	09/09/2024		ZH	HD

Coordinate System : British National Grid
Projection: Transverse Mercator
Datum: OSGB 1936
Units: Metres



TWEEN BRIDGES NSIP

WINTERING BIRD SURVEY RESULTS - 2023 TO 2024 (MARSH HARRIER)

avian ecology
Avian Ecology, Suite 3a Walnut Tree Farm, Northwich Road, Lower Stretton WA4 4PG
Tel: 0843 506 5118
www.avianecology.co.uk

0 1
kilometers

N W E S

Legend

Site

600m Site Buffer

Target Species

Oystercatcher (OC)

Rev	Date	Description	De	App
00	09/09/2024		ZH	HD

Coordinate System : British National Grid
Projection: Transverse Mercator
Datum: OSGB 1936
Units: Metres

TWEEN BRIDGES NSIP

WINTERING BIRD SURVEY RESULTS - 2023 TO 2024 (OYSTERCATCHER)

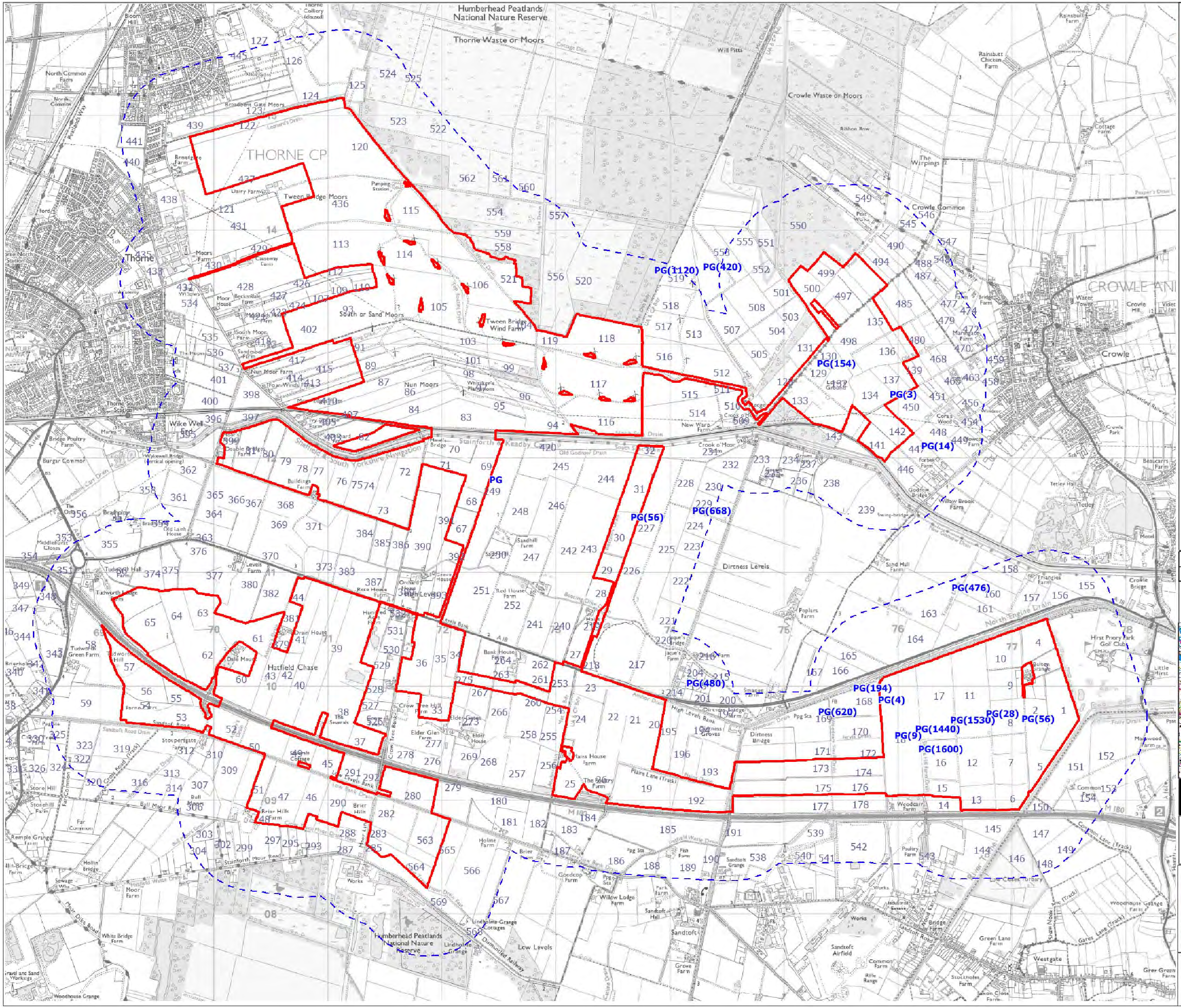
avian ecology

Avian Ecology, Suite 3a Walnut Tree Farm, Northwich Road, Lower Stretton WA4 4PG
Tel: 0843 506 5118
www.avianecology.co.uk

0 1

kilometers

N W E S



Legend

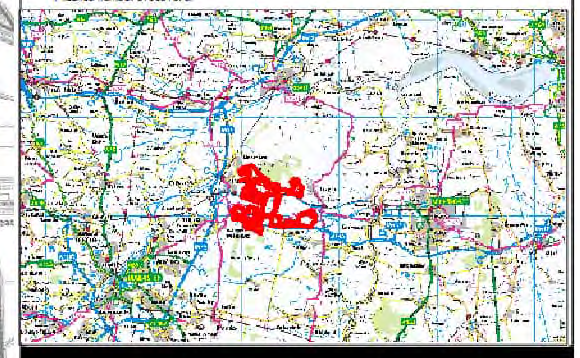
- Site
- 600m Site Buffer

Target Species

Pink-footed goose (PG)

Rev	Date	Description	De	App
00	09/09/2024		ZH	HD

Coordinate System : British National Grid
Projection: Transverse Mercator
Datum: OSGB 1936
Units: Metres



TWEEN BRIDGES NSIP

WINTERING BIRD SURVEY RESULTS - 2023 TO 2024 (PINK-FOOTED GOOSE)

avian ecology
Avian Ecology, Suite 3a Walnut Tree Farm, Northwich Road, Lower Stretton WA4 4PG
Tel: 0843 506 5118
www.avianecology.co.uk

0 1 kilometers

N W E S

Legend

Site

600m Site Buffer

Target Species

Teal (T.)

Rev	Date	Description	De	App
00	09/09/2024		ZH	HD

Coordinate System: British National Grid
Projection: Transverse Mercator
Datum: OSGB 1936
Units: Metres

TWEEN BRIDGES NSIP

WINTERING BIRD SURVEY RESULTS - 2023 TO 2024 (TEAL)

avian ecology

Avian Ecology, Suite 8a Walnut Tree Farm, Northwich Road, Lower Stretton
WA4 4PG
Tel: 0843 506 5118
www.avianecology.co.uk

0 1
kilometers

N
W E
S

Legend

Site

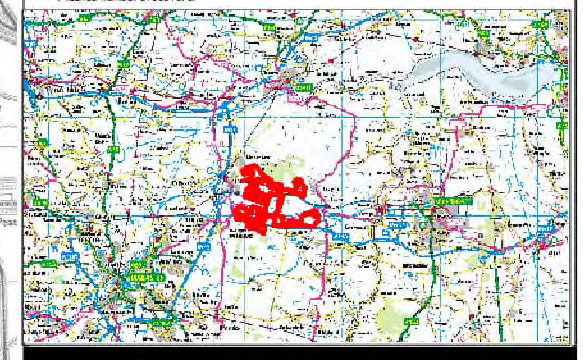
600m Site Buffer

Target Species

Wigeon (WN)

Rev	Date	Description	De	App
00	09/09/2024		ZH	HD

Coordinate System : British National Grid
Projection : Transverse Mercator
Datum: OSGB 1936
Units: Metres



TWEEN BRIDGES NSIP

WINTERING BIRD SURVEY RESULTS - 2023 TO 2024 (WIGEON)

avian ecology

Avian Ecology, Suite 3a Walnut Tree Farm, Northwich Road, Lower Stretton
WA4 4PG
Tel: 0843 506 5118
www.avianecology.co.uk

0 1 kilometers

N W E S

Appendix 2: Non-Breeding Bird Mitigation Strategy

Non-Breeding Bird Mitigation

Tween Bridge

August 2025

Tyler Grange

TG Report No. 16413_R03e_JD

Project No:	Report No.	Date	Revision
16413	R03	August 2025	e

Admin QA	Author	Checked	Approved
-	[redacted] BSc (Hons) MCIEEM	[redacted] BA MSc MCIEEM	[redacted] CEcol MCIEEM CEnv

Disclosure:

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Contents:

Appendices:

Figures:

Section 1: Introduction

1.1. This report has been produced by Tyler Grange Group Ltd (TG) on behalf of RWE Renewables in relation to 'Tween Bridge' solar farm. It has been produced to summarise the proposed mitigation strategy for the project in relation to non-breeding birds. This is informed by the data obtained from the 'Year 1' of the non-breeding bird surveys, completed between 2022 – 2023 and Year 2' non-breeding bird surveys, completed between 2023-2024, presented within Technical Appendix 7.3 of the **ES Chapter 7 Ecology and Nature Conservation [Document Reference: 6.2.6]**.

1.2. Natural England (NE) was consulted on an earlier iteration of this strategy (DAS A010619 / 441464 and UDS-A017176) via their Discretionary Advice Service (DAS); the strategy has responded to NE's comments.

1.3. The non-breeding bird survey data is provided in **Appendix 7.3 Non-breeding Bird Survey Report (Year 1 and Year 2) [Document Reference 6.3.7.3]**. This data comprise the locations of birds recorded within the survey area (Order Limits [OL] + 600m buffer around) which are listed as a qualifying feature under the Humber Estuary Special Protection Area (SPA). **Table 1 and 2** below also summarise peak counts of each qualifying species recorded within the Order Limits and are a direct extract from Technical Appendix 7.3 of the **ES Chapter 7 Ecology and Nature Conservation [Document Reference: 6.2.6]**.

Table 1: SPA qualifying species recorded within and outside of the Draft Order Limits during 2022/23. Note that nocturnal and diurnal surveys were combined and peak count of the two is provided, alongside the percentage of the moving (2022/23) WeBS 5-year moving mean totals.

Species	**2022**				**2023**		
	Sep	**Oct**	**Nov**	**Dec**	**Jan**	**Feb**	**Mar**
Within the Draft Order Limits							
Curlew Humber Estuary 5 year mean 2022/23 **2,473**	0	0	0	0	0	0	2 (0.08%)
Golden plover Humber Estuary 5 year mean 2022/23 **21,160**	53 (0.25%)	0	0	37 (0.17%)	21 (0.10%)	0	0
Green sandpiper	**1 (7.14%)**	**1 (7.14%)**	**1 (7.14%)**	0	**1 (7.14%)**	0	0

Humber Estuary 5 year mean 2022/23 **14**							
Greylag goose Humber Estuary 5 year mean 2022/23 **2,569**	375 (14.60%)	0	19 (0.74%)	0	0	0	8 (0.31%)
Lapwing Humber Estuary 5 year mean 2022/23 **15,951**	390 (2.44%)	25 (0.16%)	31 (0.19%)	127 (0.8%)	260 (1.63%)	32 (0.20%)	32 (0.20%)
Little egret Humber Estuary 5 year mean 2022/23 **215**	0	1 (0.47%)	1 (0.47%)	0	0	0	1 (0.47%)
Mallard Humber Estuary 5 year mean 2022/23 **1,459**	**92 (6.31%)**	**24 (1.64%)**	0	12 (0.82%)	**27 (1.85%)**	**64 (4.39%)**	6 (0.41%)
Pink-footed goose Humber Estuary 5 year mean 2022/23 **23,330**	**330 (1.41%)**	**360 (1.54%)**	0	0	0	0	0
Shoveler Humber Estuary 5 year mean 2022/23 **317**	0	0	0	0	2 (0.63%)	0	0
Teal Humber Estuary 5 year mean 2022/23 **9,994**	0	2 (0.02%)	0	3 (0.03%)	6 (0.06%)	0	4 (0.04%)
Outside of the Draft Order Limits							
Golden plover	76	480	21	20	1	0	38
Green sandpiper	0	0	0	1	0	0	0
Greylag goose	150	0	0	0	0	155	34
Lapwing	260	136	1	71	14	6	13

Little egret	1	2	1	1	1	0	0
Mallard	60	2	5	42	21	17	10
Pink-footed goose	700	42	0	0	0	21	0
Shoveler	1	0	0	0	0	0	0
Teal	0	0	0	0	23	3	9
Common crane	3	0	0	0	0	0	2

Table 2. SPA qualifying species and species part of the wider waterbird assemblage recorded within and outside of the Draft Order Limits during the Winter Walkover and Nocturnal Bird Surveys combined during 2023/24.

Note that nocturnal and diurnal surveys were combined and the maximum peak count of the two is provided alongside the percentage of the most up to date (2023/24) WeBS 5-year mean totals.[1]

Species	**2023**				**2024**			
	Sep	**Oct**	**Nov**	**Dec**	**Jan**	**Feb**	**Mar**	**Apr**
Within the Draft Order Limits								
Curlew WeBS 5-year mean for the Humber Estuary **2,473**	0	0	0	0	0	0	2 (0.16%)	2 (0.16%)
Dunlin WeBS 5-year mean for the Humber Estuary **22,346**	0	6 (0.027%)	27 (0.121%)	0	0	0	0	0
Little egret WeBS 5-year mean for the Humber Estuary **226**	0	1 (0.442%)	0	0	0	0	1 (0.442%)	0
Green sandpiper WeBS 5-year mean for the Humber Estuary **19**	0	0	0	**1 (5.26%)**	0	0	0	0
Greylag goose WeBS 5-year average for the Humber Estuary	0	**210 (9.19%)**	**157 (6.87%)**	12 (0.52%)	0	**27 (1.18%)**	**76 (3.33%)**	9 (0.39%)

[1] Calbrade, N.A., Birtles, G.A., Woodward, I.D., Feather, A., Hiza, B., Caulfield, E., Balmer, D.E., Peck, K., Wotton, S.R., Shaw, J.M., and Frost, T.M. 2025.
Waterbirds in the UK 2023/24: The Wetland Bird Survey and Goose & Swan Monitoring Programme. BTO/RSPB/JNCC/NatureScot. Thetford.

2285 [2] [3]								
Golden plover (WeBS 5-year mean for the Humber Estuary **21,623)**	0	0	82 (0.38%)	2 (0.009%)	84 (0.389%)	0	6 (0.028%)	0
Lapwing WeBS 5-year mean for the Humber Estuary **11,859**	5 (0.042%)	**220** **(1.855%)**	**371** **(3.129%)**	53 (0.447%)	79 (0.666%)	**147** **(1.24%)**	11 (0.093%)	4 (0.034%)
Mallard WeBS 5-year mean for the Humber Estuary 1,459	2 (0.14%)	**33** **(2.26%)**	**78** **(5.35%)**	**125** **(8.567%)**	**49** **(3.357%)**	**92** **(6.305%)**	**16** **(1.096%)**	10 (0.685%)
Oystercatcher WeBS 5-year mean for the Humber Estuary 7,218	0	0	0	0	0	0	2 (0.028%)	0
Pink-footed goose WeBS 5-year mean for the Humber Estuary **27,329**	0	**1600*** **(5.85%)**	**620** **(2.27%)**	194 (0.71%)	0	**1530** **(5.63%)**	0	0
Teal WeBS 5-year mean for the Humber Estuary **9,994**	0	0	0	2 (0.020%)	12 (0.120%)	2 (0.020%)	2 (0.020%)	1 (0.010%)
Wigeon WeBS 5-year average for the Humber Estuary **6,452**	0	6 (0.093%)	0	0	0	42 (0.651%)	0	0
Outside of the Draft Order Limits								
Little egret	2	2	6	4	0	0	0	0
Greenshank	1	0	1	0	0	0	0	0
Greylag goose	0	184	36	64	0	0	22	1

[2] Contains Wetland Bird Survey (WeBS) data from Waterbirds in the UK 2023/24 © copyright and database right 2025. WeBS is a partnership jointly funded by the BTO, RSPB and JNCC, with fieldwork conducted by volunteers.

[3] Contains Goose and Swan Monitoring Programme (GSMP) data from Waterbirds in the UK 2023/24 © copyright and database right 2025. GSMP is a partnership, run by and jointly funded by BTO, JNCC and NS, with fieldwork conducted by both volunteer and professional surveyors.

Golden plover	0	3	20	0	1	0	0	0
Lapwing	54	48	28	12	27	66	29	2
Mallard	49	57	28	30	8	63	47	2
Pink-footed goose	0	1120	0	668	14	0	0	0
Teal	3	4	5	18	8	9	6	2

1.4. Based on the Year 1 and Year 2 survey results, the non-breeding bird assemblage recorded within the Order Limits is typically representative of farmland habitats.

1.5. The Order Limits surround Tween Bridge Wind Farm, which is an operational wind farm with 22 turbines. It is therefore considered that this northern section of the Order Limits is already impacted for non-breeding birds due to displacement caused by the presence of the turbines.

1.6. An assessment of significance has been undertaken to determine if the Order Limits are considered to be 'functionally linked' to the Humber Estuary SPA/Ramsar, which is situated approximately 7.7km northeast. Functional linkage is not defined in case law, but is generally considered to be relevant when over 1% of a given SPAs population of qualifying features are regularly present and the site is considered 'important' in the life cycle of the qualifying species.

1.7. Greylag goose, lapwing, mallard, and pink-footed goose exceeded the 1% threshold of their WeBS 5-year mean[4] from the Humber Estuary SPA within the Order Limits, indicating potential use of Functionally Linked Land (FLL).

1.8. Potential impacts on non-breeding birds associated with the Humber Estuary SPA/Ramsar therefore include loss of functionally linked land for lapwing, pink-footed goose, greylag goose and mallard and disturbance to these species. Consideration for golden plover in adjacent land has also been had due to the numbers recorded, with measures to be implemented during construction to minimise disturbance, The potential for adverse effects during the construction phase have been 'designed out' where practicable, and these will be controlled through standard good construction and environmental working practices as an integral part of the Scheme, detailed within the CEMP **[Document Reference: 7.9.1]** and within the eCMP **[Document Reference: 7.9.5]**.

1.9. In addition to the above, although greylag geese are not a qualifying feature of the SPA[5] as they occur at site levels of more than 1% of the national population according to the most recent Humber Estuary WeBS 5-year average count, impacts to loss of functionally linked land

[4] Contains Wetland Bird Survey (WeBS) data from Waterbirds in the UK 2023/24 © copyright and database right 2025. WeBS is a partnership jointly funded by the BTO, RSPB and JNCC, with fieldwork conducted by volunteers.

[5] JNNC. STANDARD DATA FORM for sites within the 'UK national site network of European sites' – Humber Estuary

for this species is assessed within this strategy. This requirement was also confirmed by Natural England within their DAS response dated 04.04.25.

1.10. Mallard, lapwing, pink-footed goose and greylag goose have been noted as present in areas which would currently be subject to solar panel installations during the lifetime of the development. To this end, a mitigation response has been proposed tailored to these species. As detailed in **Appendix 7.3 Non-breeding Bird Survey Report (Year 1 and Year 2) [Document Reference 6.3.7.3]**, these species were recorded in the following habitats:

- Cereal;
- Oilseed rape;
- Stubble;
- Tilled;
- Rough grassland (only lapwing);

Section 2: Mitigation Strategy

2.1. Prior to any construction commencing at the Order Limits the measures detailed within the Outline Ecological Construction Management Plan (eCMP) [Document Reference 7.5] will be implemented to ensure no impacts occur to bird species and the habitats that they utilise.

2.2. The general approach to the mitigation response has been to target areas which are currently used by the qualifying species of note. The overall objective is to turn what is currently agricultural land, with no specific objectives of benefitting non-breeding birds, into land which is secured long-term for the lifetime of the development specifically for the benefit of lapwing, pink-footed goose and greylag goose. These measures will also benefit golden plover, although the Order Limits is not functionally linked for this species.

2.3. Each species detailed above forage on the following resources:

- Lapwing - Worms and insects[6].
- Pink-footed geese - Grain, winter cereals, potatoes and grass[7].
- Greylag geese- Grass, roots, cereal leaves and spilled grain.[8]
- Mallard - Seeds, acorns and berries, plants, insects and shellfish[9].

2.4. There is research, as detailed within REP7-011 of the Cleve Hill Solar Park Habitat Regulations Assessment, that there is no competition between these species as *'golden plover and lapwing feed on surface invertebrates, whereas brent goose feeds on vegetation, meaning there is no competition for foraging resources between these species'* (Paragraph 4.28 of the HRA). Whilst brent goose is not relevant here, pink-footed geese and greylag goose have similar requirements to brent geese, and therefore differing foraging/habitat requirements to lapwing and mallard, so the same principles are considered valid.

2.5. This was confirmed within Natural England's consultation response dated April 2024, in which they stated that acknowledge that 'both waders and geese can be accommodated as they do not compete with each other for food', although NE continued by stating that *'management to maximise the food for one group might impact the other.'* This has been factored into the design and approach on the non-breeding birds detailed below.

[6] Lapwing Bird Facts | Vanellus Vanellus
[7] Pink Footed Goose Facts | Anser Brachyrhynchus
[8] RSPB. Greylag Goose Facts | Anser Anser
[9] Mallard Duck Facts | Anas Platyrhynchos

2.6. At present, the land is intensively farmed for crops, which will result in a high nutrient content and inhibit the biodiversity of the soil in terms of invertebrate populations for lapwing in particular. The approach of the mitigation response is, therefore, to turn existing areas of sub-optimal cropland into permanent pasture sensitively managed for lapwing, mallard, pink-footed goose and greylag goose in particular, but which will undoubtedly have benefits for other non-breeding bird species, such as golden plover, and biodiversity in general. **Table 1** below summarises the principles of the mitigation strategy proposed.

2.7. Scrapes are also proposed to provide additional optimal habitat for all species, including mallard and lapwing, as part of the mitigation design.

2.8. In addition, it is proposed to maintain and secure areas in arable production in order to provide the optimal habitat requirements for pink footed geese and greylag geese.

Habitat Intervention and Rationale	**Management and Rationale**
Reversion of existing agricultural land into a tussocky meadow grassland. An example grass mixture is Emorsgate EM1 or EM2. This will provide suitable breeding habitat for ground-nesting farmland birds and foraging/roosting/loafing habitat for non-breeding birds (primarily pink-footed geese, graylag geese and lapwing). Subject to topography, consideration will also be given to the creation of shallow scrapes (in consultation with engineering/attenuation requirements) in these areas which can be designed to function as either a permanently marshy grassland (Emorsgate EM8), or ephemeral pools. Both of these habitats will be suitable as mitigation for both breeding and non-breeding birds. It would also be preferable to work with the topography of the land and create ground which is not completely flat. This will introduce a natural variation in the cutting height of the grass, leaving some areas longer and some areas possibly scalped, creating arounds of bare ground which will ultimately allow new grass growth to develop. These interventions would introduce more botanically diverse grassland and provide the wetland mosaics in strategic locations, particularly along the central canal corridor.	The management of the grassland can be achieved in a number of ways, set out below. <u>Traditional Hay Management</u> This would comprise bi-annual cuts, with the first cut to 15cm undertaken in late summer after the core breeding season for ground-nesting farmland birds. The arisings would need to be removed from the area following the cut to allow new growth. A second cut should then be taken to 5cm in Autumn (no later than September), at the time when non-breeding birds will be arriving on passage, and kept like this until the beginning of March. This can be achieved with low intensity grazing (see below), or infrequent cuts/topping, and arisings removed. From March and during the breeding season, approximately 50% of the grassland should be less than 5cm in height to benefit early-season nesters such as skylark and lapwing, and approximately 25% of the grassland should be cut between 5cm and 15cm, and the remainder left long.

Providing arable land on rotation for the duration of the proposals, to ensure that foraging opportunities for pink footed geese is secured and provided, in addition to grassland areas.	The main principles to be implemented as part of the rotational arable management for the benefit of pink footed geese will include: ○ Use sugar beet where possible. ○ Use other appropriate crops on rotation when sugar beet is not being grown, such as winter cereal crops, oil seed rape, post-harvest cereal stubbles, potatoes[10]. ○ Post-harvest, the fields should be left until the spring before ploughing to maximise the foraging resource, with the geese foraging on roots chopped into fragments by the harvester, as well as unharvested roots. ○ Avoidance of deep ploughing. ○ Incorporation of a ley crop within the management rotation. ○ Inclusion of permanent grass margins to the fields measuring a minimum 2 metres.

Table 2 – Summary of mitigation measures and management strategy

2.10. In Natural England's recent comments, they state that '*The addition of manure subject to a reasonable agricultural cycle'* would be beneficial. However, it is understood that this is not normal farming practice for this area, due to the area mainly comprising arable with no livestock that create manure. Therefore this is not currently proposed.

2.11. The Scheme layout also ensures that all ditches and pond are retained and enhanced, through improved management removing excessive scrub and vegetation as well as invasive species.

2.12. The cessation of agricultural farming in adjacent habitats will also improve water quality and reduce disturbance, ensuring that foraging opportunities within these features for mallards, and other species, will be improved.

2.13. The locations proposed for the mitigation response have, where possible, been chosen to broadly align with recorded locations of the relevant species and to also provide opportunities

[10] https://www.rspb.org.uk/birds-and-wildlife/pink-footed-goose

spread across the Order Limits. (**Appendix 1**). **Drawing 16413/P07a** attached to this report shows and numbers the parcels detailed for the mitigation responses outlined above.

2.14. **Table 3** below summarises the current baseline/use of these parcels and their hectarage.

Mitigation Parcel	Total Area (ha)	Total Area (ha) with 150m buffer to PV panels, buildings, hedgerows and woodland	Current baseline
M1	10.44	0	Rough grassland set on edge of adjacent SPA, noted to be used by lapwing (peak counts of 45 and 8 birds) and graylag geese (2 birds). Lapwing also recorded in adjacent fields in larger numbers (112 and 32 birds).
M2	13.42	0	Arable land located in proximity to the canal
M3	6.73	1.90	Not noted to be used by target species during Year 1 of surveys, but adjacent to plots of similar habitat.
M4	19.94	2.97	Directly adjacent to plots used by lapwing.
M5	19.24	3.20	Peak count of 360 pink-footed geese recorded within plot, and directly adjacent to other fields where pink-footed geese and lapwing were recorded.
M7	4.76	0.64	Forms one continuous parcel with parcel 8, albeit separated by a hedge and ditch. Had pink-footed geese recorded present.
M8	10.71	1.17	Forms a continuous parcel with parcel 7, albeit separated by a hedge and ditch.
M11	20.84	5.14	Arable land located in proximity to parcels M12 and M13, providing a

			large connected area over 77ha that would not be 'encompassed' by solar development, so would retain attractiveness to over-wintering birds in particular. The field compartments are relatively open, further increasing attractiveness as a mitigation area. The fact that they are prone to flooding is also attractive as it would naturally lend itself to the creation of scrapes suitable for the wading birds of target. Pink-footed geese recorded using fields in close proximity that comprise similar habitats.
M12	34.83	12.83	Arable land located in proximity to parcels 12 and 13, providing a large connected area over 77ha that would not be 'encompassed' by solar development and are relatively open. These compartments are located in one connected area and would allow the birds to move around between seasons and within seasons, depending on the specific ground conditions. Pink-footed geese recorded using fields in close proximity that comprise similar habitats.
M13	29.55	14.03	Arable land located in proximity to parcels 12 and 13, providing a large connected area over 77ha that would not be 'encompassed' by solar development and are relatively open. These compartments are located in one connected area and would allow the birds to move around between seasons and within seasons, depending on the specific ground conditions.

			Pink-footed geese recorded using fields in close proximity that comprise similar habitats.
M15	16.85	3.01	Arable land located to the east of the OL and located away from any solar arrays.
Total	**c. 187.32ha**	**c. 44.88ha**	

Table 3 – Summary of baseline use of mitigation parcels by qualifying bird species, and hectarage.

2.20. Table 3 provides the total area of each potential mitigation parcel, as well as the area of land within the parcel that will be located beyond 150m from any solar arrays, in line with Natural England's comments. It can be seen from looking at the table that over 44.88ha of potential mitigation land can be provided that is located over 150m from any solar arrays.

2.21. However, it must be noted that during the non-breeding bird surveys, some bird species, including pink-footed geese, were recorded utilising habitats that are located in close proximity to barriers, such as tree lines and hedgerows, which would affect open vistas, indicating that birds will utilise habitat to forage within 150m of existing barriers. This took place in a number of locations including in the southeast of the Order Limits within fields that have hedgerows and tree lines as boundaries creating vistas less than 150m in places (see Technical Appendix 7.3 of the **ES Chapter 7 Ecology and Nature Conservation [Document Reference: 6.2.6]**.

2.22. In addition, research has demonstrated that pink-footed geese forage within habitat that is located within 50m of built structures[11].

2.23. Therefore, although over 44.88ha of core mitigation land can be provided beyond 150m of any barriers, there is an additional 142.44ha of land that will be available and managed for the benefit of non-breeding birds within 150m of solar arrays and which contributes to the overall mitigation strategy.

2.24. Bird Days calculations have been completed to inform the extent of mitigation land required and can be seen in Appendix 1. From these calculations, that the maximum extent of non-breeding bird mitigation land required for pink-footed geese, lapwing and greylag geese are:

- Pink-footed geese – 22.98

[11] Jesper Kyed Larsen∗ and Jesper Madsen. Effects of wind turbines and other physical elements on field utilization by pink-footed geese (*Anser brachyrhynchus):* A landscape perspective. Landscape Ecology 15: 755–764, 2000.

- Lapwing – 24.99
- Greylag geese – 12.28
- **Total: 60.25**

2.25. Based on the above figures and considering that geese forage on different resources to lapwing, as confirmed within Natural England's consultation response dated April 2024, and so will utilise the same habitats without competing for the same resource, it can be seen that there is more than sufficient land within the Order Limits to provide the required non-breeding bird mitigation.

2.26. No sufficiently up to date and relevant data has been available to inform bird days calculations for mallard, but it is considered that the extent of mitigation land and the retention and enhancement of all the pond and ditches, ensure that sufficient habitat for this species.

2.27. In total an overall area of approximately 2.14ha of ponds will be available and enhanced and approximately 105.29km of ditches available and enhanced increasing foraging opportunities for mallard and other species.

2.28. This mitigation land will also be utilised as part of the breeding bird mitigation for species such as skylark.

2.29. Further to the above, in line with Natural England's recent comments (December 2024), additional management is proposed within Parcel 1 due to its proximity to Humber Estuary SPA/Ramsar/SSSI and Thorne & Hatfield Moors SPA/Thorne Moor SAC/SSSI **(see Figure 1).** A wet grassland scheme will be implemented with ditch raising and water level management in this location. Suitable removal of tree cover at the edge of the moors will be undertaken to improve suitability of this area for wading birds.

2.30. No management of habitats is proposed within the SPA or SAC, only within the land parcel located outside of designated site boundaries.

2.31. Appropriate management of the northern and southern margins of parcel 1 will also be undertaken to benefit the adjacent SAC, with management to be agreed with Natural England.

2.32. The management of the mitigation land can be secured through the implementation of the Outline Landscape Ecological Management Plan (LEMP) [Document Reference 7.6]

Figures

Figure 1: Non Breeding Bird Mitigation Plan

The mitigation land has been carefully designed and calculated to ensure clear sightlines for the intended bird species.

The Scheme will turn what is currently agricultural land, with no specific objectives of benefitting non-breeding birds, into land which is secured long-term for the lifetime of the development specifically for the benefit of lapwing, golden plover, pink-footed goose and greylag goose.

Higher value boundary habitats that are likely to support invertebrate species will be retained and protected during works. Species-rich grasslands will be introduced around field boundaries to enhance habitat for invertebrates and to strengthen dispersal corridors across the landscape.

Measures will be implemented during construction to prevent impacts such as from accidental damage, run-off including mud and silt, airborne pollutants including dust and noise

The cessation of intensive agricultural management and agrichemical inputs will improve water quality in ditches and off-site waterbodies improving thier suitability for birds.

Arable land will be provided on rotation for the duration of the proposals to ensure continued foraging opportunities for pink-footed geese, alongside grassland areas. The rotational arable management will include using sugar beet where possible, with other appropriate crops such as winter cereals, oilseed rape, post-harvest cereal stubbles, and potatoes included in rotation when sugar beet is not grown. Following harvest, fields will be left until spring before ploughing to maximise the foraging resource, allowing geese to feed on fragmented and unharvested roots.

Deep ploughing will be avoided, a ley crop will be incorporated within the rotation, and permanent grass margins measuring a minimum of 2 metres will be included around the fields to support foraging and shelter opportunities for the geese.

In addition to habitat reversion and scrape creation, management will include traditional hay cuts to provide a mosaic of sward heights suitable for lapwing and skylark, as well as geese. The inclusion of permanent grass margins, shallow scrapes will further diversify habitat, supporting a wider range of non-breeding birds.

Substantial areas of agricultural land offsite will remain unaffected by the proposals which will provide oppotunities for non-breeding birds.

Scrapes are proposed to provide additional optimal habitat for waders as part of the mitigation design.

The locations proposed for the mitigation response have, where possible, been chosen to broadly align with recorded locations of the relevant species and to also provide opportunities spread across the Order Limits.

Buffers of of 9m from all IDB watercourses, and a 5-8m from all other non-IDB ditches will comprise neutral grassland, providing further foraging and potentially nesting opportunities.

The scheme will provide an increase in native habitats through the site in place of intesively managed arable.This will improve connectivity across the Order Limits for a range of bird species.

Timings of works in proximity to potential habitat that could Schedule 1 species to avoid impacts and the implementation of targeted Non Breedin Bird Mitigation Plans including buffer zones if Schedule 1 species are found to be nesting in the vicinity of construction works.

Reversion of existing agricultural land into a tussocky meadow grassland will provide suitable breeding habitat for ground-nesting farmland birds and foraging/roosting/loafing habitat for non-breeding birds (primarily pink-footed geese, lapwing and golden plover). These habitats will be suitable as mitigation for both breeding and non-breeding birds.

- Draft Order Limit
- Mitigation Land
- Mitigation Land with a 50m Buffer from Vertical Features
- Mitigation Land with a 100m Buffer from Vertical Features
- Mitigation Land with a 150m Buffer from Vertical Features
- Mitigation Land (Managed As Arable)
- Special Protection Area (SPA)
- Scrapes

N

0 0.75 km

Project	Tween Bridge
Drawing Title	Figure 1: Non Breeding Bird Mitigation Plan
Scale	As Shown (Approximate)
Drawing No.	16413/P14a
Date	August 2025
Checked	TLR/RR

Tyler Grange

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Appendix 1: Bird Days Calculations

Pink footed goose

Year 1 (2022/23)	
Sep 2022 Peak Count	330
Oct 2022 Peak Count	360
Nov 2022 Peak Count	0
Dec 2022 Peak Count	0
Jan 2023 Peak Count	0
Feb 2023 Peak Count	0
Mar 2023 Peak Count	0
Months surveyed (Sep 2022 to March 2023)	7
Winter Peak Mean=Sum of Monthly Peaks/Number of months	98.57143
Number of Days in Survey Period	195
Bird Days per Winter=Winter Peak Mean×Number of Days in Survey Period	19221.43
Bird Days per Hectare for Pink footed goose	4290
Required Area (hectares)= Bird Days Supported per Hectare / Bird Days per Winter	
Potential Mitigation Area	4.480519

Pink footed goose

Year 2 (2023/24)	
Sep 2023 Peak Count	0
Oct 2023 Peak Count	1600
Nov 2024 Peak Count	620
Dec 2023 Peak Count	194
Jan 2023 Peak Count	0
Feb 2024 Peak Count	1530
Mar 2024 Peak Count	0
Apr 2024 Peak Count	0
Months surveyed (Sep 2022 to March 2023)	8
Winter Peak Mean=Sum of Monthly Peaks/Number of months	493
Number of Days in Survey Period	200
Bird Days per Winter=Winter Peak Mean×Number of Days in Survey Period	98600
Bird Days per Hectare for Pink footed goose	4290
Required Area (hectares)= Bird Days Supported per Hectare / Bird Days per Winter	
Potential Mitigation Area	22.98368

Lapwing

Year 1 (2022/23)	
Sep 2022 Peak Count	390
Oct 2022 Peak Count	25
Nov 2022 Peak Count	31
Dec 2022 Peak Count	127
Jan 2023 Peak Count	260
Feb 2023 Peak Count	32
Mar 2023 Peak Count	32
Months surveyed (Sep 2022 to March 2023)	7
Winter Peak Mean=Sum of Monthly Peaks/Number of months	128.1429
Number of Days in Survey Period	195
Bird Days per Winter=Winter Peak Mean×Number of Days in Survey Period	24987.86
Bird Days per Hectare for Lapwing	1000
Required Area (hectares)= Bird Days Supported per Hectare / Bird Days per Winter	
Potential Mitigation Area	24.98786

Lapwing

Year 2 (2023/24)	
Sep 2023 Peak Count	5
Oct 2023 Peak Count	220
Nov 2024 Peak Count	371
Dec 2023 Peak Count	53
Jan 2023 Peak Count	79
Feb 2024 Peak Count	147
Mar 2024 Peak Count	11
Apr 2024 Peak Count	4
Months surveyed (Sep 2022 to March 2023)	8
Winter Peak Mean=Sum of Monthly Peaks/Number of months	111.25
Number of Days in Survey Period	200
Bird Days per Winter=Winter Peak Mean×Number of Days in Survey Period	22250
Bird Days per Hectare for Lapwing	1000
Required Area (hectares)= Bird Days Supported per Hectare / Bird Days per Winter	
Required Mitigation Area	22.25

Greylag Goose

Year 1 (2022/23)	
Sep 2022 Peak Count	375
Oct 2022 Peak Count	0
Nov 2022 Peak Count	19
Dec 2022 Peak Count	0
Jan 2023 Peak Count	0
Feb 2023 Peak Count	0
Mar 2023 Peak Count	8
Months surveyed (Sep 2022 to March 2023)	7
Winter Peak Mean=Sum of Monthly Peaks/Number of months	57.42857
Number of Days in Survey Period	195
Bird Days per Winter=Winter Peak Mean×Number of Days in Survey Period	11198.57
Bird Days per Hectare for Greylag goose	1000
Required Area (hectares)= Bird Days Supported per Hectare / Bird Days per Winter	
Required Mitigation Area	11.19857

Greylag Goose

Year 2 (2023/24)	
Sep 2023 Peak Count	0
Oct 2023 Peak Count	210
Nov 2024 Peak Count	157
Dec 2023 Peak Count	12
Jan 2023 Peak Count	0
Feb 2024 Peak Count	27
Mar 2024 Peak Count	76
Apr 2024 Peak Count	9
Months surveyed (Sep 2022 to March 2023)	8
Winter Peak Mean=Sum of Monthly Peaks/Number of months	61.375
Number of Days in Survey Period	200
Bird Days per Winter=Winter Peak Mean×Number of Days in Survey Period	12275
Bird Days per Hectare for Greylag goose	1000
Required Area (hectares)= Bird Days Supported per Hectare / Bird Days per Winter	
Potential Mitigation Area	12.275

Total Required Mitigation Area = largest potential mitigation area for each species

Pink footed goose	22.98
Lapwing	24.99
Greylag Goose	12.28
Total Required Mitigation Area For Functionally Linked	60.25

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Appendix 3: Non-Breeding Bird Mitigation Plan

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N

0 0.75 km

Project	Tween Bridge
Drawing Title	Figure 1: Non Breeding Bird Mitigation Plan
Scale	As Shown (Approximate)
Drawing No.	16413/P14a
Date	August 2025
Checked	TLR/RR

Tyler Grange

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Appendix 4: Meeting Minutes - Tyler Grange and Natural England 17.03.25

Tween Bridge

Meeting 17th March 2025 15:00 - -Natural England and Tyler Grange

Attendees:

AM: [redacted] - Natural England

JS: [redacted] - Natural England

JA: [redacted] - Tyler Grange

RR: [redacted] - Tyler Grange

TLR: [redacted] - Tyler Grange

No.	Topic
1	**Introductions** JA and RR: Note that it is beneficial to engage with NE throughout the process and look forward to advice and further consultation. JA/RR: Would like to set up a meeting with TG, NE and the relevant LPAs to discuss the scheme further. AM: Potential for hosting a meeting nearby and site meeting. AM: Costs have been agreed at £1150 per person per hour.
2	**Pier Chapter** AM: NE have not yet received the latest version of the PEIR chapter and will review and provide feedback. Also confirmed that they have not yet time to review the updated non-breeding bird mitigation strategy (dated 04.03.25) that has been provided, but will do so and provide any comments as necessary. RR: Highlighted some of the updates within the PEIR chapter, this includes further detail on the non-breeding bird mitigation following NE's previous response, such as the provision and management of arable land for the benefit of non-breeding birds. Sugar beet was discussed to be of importance and would need to be implemented on rotation with other crops for the benefit to non-breeding birds. RR explained that the use of bird days calculations has been used to help inform the extent of mitigation land and asked NE for their opinion on the use of these calculations. RR described how the update non-breeding bird mitigation included extra detail on providing combined mitigation land for more than one species, specifically pink-footed geese, lapwing and golden plover, and asked if there was a specific ratio of land required for each different

	species when considering that there is some overlap on the type of habitat each species requires. AM: NE welcomed the provision of arable land as part of the mitigation and explained that, while arable already exists, the proposed control of cropping and avoiding deep ploughing (which encourages more invertebrates) improves this habitat when compared to existing management. Continued by stating that the provision of arable and grassland will have different benefits at different times of year, for instance if the ground is frozen, geese would use grassland more than arable. AM agreed that although arable is already present, that securing arable land and the specific management for the benefit of non-breeding birds is acceptable as part of the mitigation strategy. AM stated that she was not aware of a ratio for land required for different species when there is an overlap in habitat types utilised, but would ask colleagues. AM will review the non-breeding bird mitigation and the bird days calculations and will provide any comments. Advised that the calculations have been used before on other solar scheme, but common sense should be used for the implementation of the mitigation land. For example if the mitigation land is too narrow or adjacent to tall vertical features, this would affect sight lines and it is less likely to be used by non breeding birds. Also agreed that some species will utilise the same habitat and therefore the full extent of mitigation land for each species will not be required, but that it will be important to demonstrate that the carrying capacity of the mitigation land is sufficient for all relevant species. RR raised that following NE's previous comments, 150m buffers to solar panels have been considered in the design of the mitigation, but detailed that birds are still likely to use some land within 150m of the solar arrays and vertical features such as hedgerows, as has been confirmed during surveys at the site. AM: Noted that impacts from panels are likely to be less than buildings as they will likely be hedgerow height and acknowledged that some birds will use land within 150m of the solar arrays and other vertical features, although stated that numbers will decrease within this buffer and that sufficient habitat that is beyond 150m from the arrays will be needed. AM will check if there is an accepted ratio of land to determine non breeding bird use within 150m of vertical features. NE will review the bird days calculations, the extent of mitigation land to be provided and the non-breeding bird mitigation strategy as a whole and then will comment further.

3	**Skylark** RR/JA detailed that skylark mitigation will be included within in the non breeding bird mitigation land. AM stated that commenting on the provision of skylark mitigation land is outside their current remit (this is a matter for the LPAs), although agreed that it can be possible to combine the mitigation land for non-breeding birds and skylark. Stated that further advice from NE on this matter can be secured through the DAS process.
4	Nightjar JA/RR detailed that potential impacts to nightjar have been raised and discussed how the habitats within the DOL are not optimal for nightjar, with their most optimal habitat comprising woodland and heathland. Explained how the provision of grassland, tree planting and other habitat creation that supports large moth prey as part of the non breeding bird mitigation provision, will provide some enhanced foraging opportunities for nightjar. AM/JS: Advised that nightjar have been recorded in the area, including data from a tracking study. NE to confirm if tracking data can be provided. AM provided confirmation via email on 10/03/25 that licensing for the outputs of the nightjar tagging study on Thorne and Hatfield Moors, and the IP rights sit with the researcher. The email includes the researcher's contact details. Noted that there is a lack of previous solar schemes which have encountered this as a potential issue, so this will be a good opportunity to identify potential impacts and enhancements. Local policy requires enhancements within 3km of known populations/breeding sites. JS: agreed that the habitats within the DOL are not optimal for nightjar and that grassland and new tree planting provision could enhance foraging opportunities for nightjar and would expect to see detail on nightjar enhancements provided within the ES. Confirmed no breeding opportunities for nightjar within the DOL. Explained how nightjar numbers have been increasing in the Thorne and Hatfield Moors SPA.
5	Cumulative Impacts

	RR/JA explained that potential for cumulative impacts was limited assuming that mitigation for effects from this site are adequately addressed. Asked if based on their local knowledge AM and JS consider any other sites in the area that would need consideration as part of cumulative impacts. JS explained that it is just a 3-4km buffer for cumulative impacts with regards to nightjar. Detailed that the Humber Carbon Capture pipeline is a large scheme so effects should be assessed in-combination but that impacts from this will only be temporary ~~so not likely to have a cumulative impacts. .~~ AM detailed that the Fenwick solar scheme should be included in the in-combination assessment. It is located at a relatively large distance away from this site and significant effects have been ruled out, but residual effects should be assessed.~~so there would be no cumulative impacts.~~ Explained that there are no other large solar schemes we're aware of in close proximity ~~that would have a cumulative impacts~~ but other large scale schemes and the wider area should be looked at~~.~~ AM explained that residual effects from this proposed development are key in the in-combination assessment.~~and that there must be no in-combination effects or likely significant effects from the proposed development.~~
6	Deer Management JS: Population of deer has the potential to have impacts on adjacent designated sites and that this will need to be considered.
7	Drainage, Peat Cuttings and Carbon Capture JS explained how changes to drainage and reprofiling of land adjacent to statutory designated sites could cause an impact. Advised that there is evidence of buried/old peat cuttings within and around mitigation area 1. Explained that there is potential for enhancement with appropriate management through increasing flow of water into ditches and ensuring ditches can hold onto water that would prevent peat from drying out and help reduce carbon impacts. Continued by stating that this would be a potential benefit of the scheme and a good news story, especially when considering the reduction in carbon impacts as a consequence of a solar development. .
8	Other All agreed that a site meeting would be useful and that it would be beneficial to include the relevant LPAs as part of this. Continued by stating that it would be beneficial to not include other non statutory consultees at this stage.

	AM and JS detailed that the habitat changes could be a positive for bat species and that surveys should enable future monitoring and comparison of data. AM stated that the ecology strategy was progressing in a positive direction. Water voles were briefly discussed and AM stated that any questions can be sent through and that further engagement may be required through the DAS process. AM stated that it will take around 3 weeks for NE to review any issued documents

Appendix 5: Natural England DAS 04.04.2025

Date: 20 December 2024
Our ref: 495970, UDS-A017176

Customer Services
Hornbeam House
Crewe Business Park
Electra Way
Crewe
Cheshire
CW1 6GJ

T 0300 060 3900

BY EMAIL ONLY

Dear [redacted]
Cc [redacted],

Discretionary Advice Service (Charged Advice) UDS-A017176
Development proposal and location: EN010148 Tween Bridge Solar Farm, land to the east of Thorne & west of Ealand, South Yorkshire.

Thank you for your consultation on the above dated 21st October 2024.

This advice is being provided as part of Natural England's Discretionary Advice Service (DAS). Pegasus Planning Group Limited has asked Natural England to provide comments upon:

- Summary of proposed non-breeding bird mitigation strategy.

This advice is provided in accordance with the DAS Quotation and Agreement dated 19th December 2024.

The following advice is based upon the information within:

- Non-Breeding Bird Mitigation Tween Bridge (Tyler Grange, 3rd October 2024)

Please note that the advice provided by Natural England in this letter should be read alongside the advice given in our previous responses both via Natural England's DAS and the Section 42 response.

As stated in our Section 42 response dated 29th November 2023, it is not possible to provide comprehensive comments on required mitigation at this stage, in the absence of a robust assessment of the potential impacts to the Humber Estuary designated sites, informed by non-breeding bird survey data from Year 2 (2023/24) and previously requested updates to the PEIR Technical Appendix 07.3: Non-Breeding Bird Survey Report. Therefore, our comments are limited to the information available at this stage and may be subject to changes when the required additional information and assessment is provided.

Non-Breeding Bird Mitigation Tween Bridge (3rd October 2024)

Natural England broadly welcomes the commitment to implement a mitigation strategy for impacts to non-breeding bird species associated with the Humber Estuary SPA/Ramsar/SSSI, including golden plover, lapwing and pink-footed goose. However, we advise that the Year 2 (2023/24) bird

surveys are required to determine the extent of mitigation required and whether mitigation is also required for other species.

In terms of the proposed scheme, it is therefore difficult to provide comprehensive comments at this stage, but we have highlighted some overarching comments and key principles to consider below.

Draft Order Limits

We acknowledge that there may be changes to the draft Order Limits included in the current documents prior to Examination. However, we advise that any resulting effects on the type/extent/scale of environmental impacts from the proposal and suitability of the proposed mitigation scheme should be adequately addressed in the relevant updated assessments. It will also be important to assess the impacts associated with the proposed cable route, informed by suitable levels of data collection. Should overhead cabling be required, we advise that further assessment should be provided for potential bird collision risk.

Habitat types and carrying capacity of the proposed mitigation areas

Overall, Natural England welcomes the proposed outline approach to grassland creation for waders (lapwing and golden plover), based on the information provided to date. We welcome that *"the locations proposed for the mitigation response have, where possible, been chosen to align with recorded locations of the relevant species (Appendix 1)."* It is helpful to see the baseline usage of the proposed mitigation areas in Table 2. However, further assessment is required of the capacity of the proposed mitigation areas to support the required number of birds to mitigate for impacts associated with the proposals. As stated above, this should be underpinned by an appropriate assessment of the impacts to the Humber Estuary designated sites, informed by non-breeding bird survey data from Year 2 (2023/24) and previously requested updates to the PEIR Technical Appendix 07.3: Non-Breeding Bird Survey Report.

We note the justification provided in Section 1.5 of the Mitigation Strategy that waders and pink-footed geese will not compete for foraging resources due to their differing foraging/habitat requirements. Natural England acknowledges that, in theory, both waders and geese can be accommodated as they do not compete with each other for food. However, in practice, management to maximise the food for one group might impact the other. For example, if the aim is to maximise the amount of grass for geese, then a dense even sward might hinder the waders' ability to get to soil invertebrates. Therefore, ideally the mitigation area would be larger than would be required for either one group (but not adding the two area requirements together as the two groups are not in competition and are being accommodated on the same land) so that suitable habitat types for each species can be provided. The inclusion of scrapes and muddy areas would be of particular benefit to waders.

We advise that consideration is also given to the foraging preferences of pink-footed geese in the mitigation design. Pink-footed geese are generally more likely to feed on arable land with high levels of carbohydrates than grassland, particularly earlier on in the winter season. They tend to preferentially feed on sugar beet tops, then winter cereal crops, oil seed rape or post-harvest cereal stubbles. Therefore, we would encourage consideration of the incorporation of areas of suitably managed winter crop rotation for pink-footed goose (including sugar or fodder beets, where possible), in addition to the grassland areas.

The arable rotation would need to be managed with consideration of the needs of SPA species. Factors to consider include, but are not limited to:

- A suitable cropping regime, such as sugar beet tops, oil seed rape, winter cereal crops and post-harvest cereal stubbles for geese.

- The avoidance of deep ploughing.
- The addition of manure subject to a reasonable agricultural cycle.
- The incorporation of a ley crop within the management rotation.
- The inclusion of permanent grass margins to the fields.

The connectivity of mitigation areas is important. For the provision of grassland, one or two larger areas is generally preferable to a fragmented design which spreads the mitigation areas throughout the site. Consideration should also be given to whether these proposed fields would adequately function in the context of surrounding proposed solar infrastructure. Golden plover and lapwing rely on open vistas to forage. As a result, if an existing smaller field becomes enclosed by infrastructure, the suitability of the field for these species may diminish. Therefore, Natural England generally advises that an undeveloped / undisturbed 150m buffer around the core mitigation areas is secured to ensure continued effective functioning of the mitigation area. If solar panels are proposed to be situated in the 150m buffer area, evidence should be presented to determine whether the siting of the panels will affect the usage of the core mitigation area by birds. If sufficient evidence is not available, we would continue to recommend that a 150m buffer free from solar infrastructure is used.

Management and monitoring

All mitigation areas should be adequately managed, monitored and secured in-perpetuity, at least for the lifetime of the development. This should be clearly demonstrated in the relevant assessments.

We note that Table 1 states *"The management of the grassland can be achieved in a number of ways, set out below."* However, we advise that it should be clarified which management approach/es will be secured and how these will effectively deliver the required outcomes.

In addition, Natural England advises an ecological mitigation plan should be secured and include the following:

- Clear objectives.
- Target/s for each objective, including SPA bird use targets and habitat targets.
- Details of required management and monitoring (including who is responsible and when it will take place).
- Details of limits of acceptable change.
- Details of remedial actions, where appropriate.

Other advice

Parcel 1

Natural England would welcome continued engagement on the proposed design and management of Parcel 1 to provide suitable mitigation for Humber Estuary SPA/Ramsar/SSSI wading birds, alongside water management improvements for Thorne & Hatfield Moors SPA/Thorne Moor SAC/SSSI. This is considered to be an important opportunity for Nature Recovery in the area.

We recommend that a wet grassland scheme with ditch raising and water level management would be the most suitable mitigation approach in this location. Natural England would also encourage suitable removal of tree cover at the edge of the moors to improve suitability of this area for wading birds. As above, the assessment will need to adequately demonstrate suitable carrying capacity, management and monitoring of this area for the relevant wading bird species.

Please confirm whether the mitigation plans for Parcel 1 include the current arable habitat only. It appears that some sections of the wider parcel are within the designated site boundary. Therefore, habitat within the designated site boundary cannot be considered towards the delivery of mitigation for loss of functionally linked land. Suitable habitat enhancement within this area may be possible; however, this would need to be delivered outside the HRA mitigation process for loss of functionally linked land.

Natural England would also encourage suitable management of the Thorne Moor SAC fringe areas immediately to the north and the south of Parcel 1. Our Humberhead Peatlands National Nature Reserve (NNR) Team would be happy to discuss this in more detail.

Nightjar

Natural England would welcome an update on the assessment of potential impacts to nightjar associated with Thorne and Hatfield Moors SPA. As stated in our Section 42 response, Natural England has been involved in nightjar tagging studies in the area, which we can discuss upon request. We highlight the results from the 'LIFE+ - 'That's Life' Monitoring of European Nightjar 2015 – 2017' project that showed tagged nightjars foraged within the proposed application site boundary. Nightjar were also recorded nesting in proximity to the site boundary. Therefore, we advise that further assessment of impacts to nightjar should be provided.

Protected species

Natural England Wildlife Licensing Service (NEWLS) Chargeable Advice and Strategic Casework (CASC) Team encourage early consultation on NSIP schemes likely to impact protected species and/or their habitats. The CASC Team would particularly encourage developers to consult Natural England on draft Licence Applications during the pre-application period in pursuit of a Letter of No Impediment (LONI). Where capacity allows, the NEWLS CASC team can also provide comments/advice on (but generally not design):

- Surveys.
- Impacts, methods and mitigation in support of a licence.
- Compensation where required.

Applicants seeking protected species advice via the Discretionary Advice Service (DAS) and pre-submission screening service (PSS) should submit enquiries and requests for charged advice to PSSEnquiries@naturalengland.org.uk.

Please note that the NEWLS CASC Team will deliver advice separately from the Area Team's advice on designated sites and other areas within Natural England's remit on NSIPs. However, the advice can be delivered under the existing DAS agreement, where relevant. Please let us know if you have any questions on this process.

[X] The advice provided in this letter has been through Natural England's Quality Assurance process

The advice provided within the Discretionary Advice Service is the professional advice of the Natural England adviser named below. It is the best advice that can be given based on the information provided so far. Its quality and detail is dependent upon the quality and depth of the information which has been provided. It does not constitute a statutory response or decision, which will be made by Natural England acting corporately in its role as statutory consultee to the competent authority after an application has been submitted. The advice given is therefore not binding in any way and is provided without prejudice to the consideration of any statutory consultation response or decision

which may be made by Natural England in due course. The final judgement on any proposals by Natural England is reserved until an application is made and will be made on the information then available, including any modifications to the proposal made after receipt of discretionary advice. All pre-application advice is subject to review and revision in the light of changes in relevant considerations, including changes in relation to the facts, scientific knowledge/evidence, policy, guidance or law. Natural England will not accept any liability for the accuracy, adequacy or completeness of, nor will any express or implied warranty be given for, the advice. This exclusion does not extend to any fraudulent misrepresentation made by or on behalf of Natural England.

Yours sincerely

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