# EAST YORKSHIRE SOLAR FARM

East Yorkshire Solar Farm EN010143

# **Environmental Statement**

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# **Executive Summary**

- ES1 A survey of breeding birds was undertaken for the proposed East Yorkshire Solar Farm to determine the presence and assemblage of breeding bird species within the Site and up to 200m from the Order limits, with emphasis on species of conservation concern. The surveys were undertaken between April and July 2022 (four survey visits) and, following updates to the Order limits, areas previously not surveyed were surveyed between April and June 2023 (six survey visits).
- Confidential information regarding the locations of any sensitive breeding species recorded, which are included on Schedule 1 of the Wildlife and Countryside Act (1981, as amended) are included separately as **Confidential Figure 8-5-1**<sup>1</sup> and will be provided to key stakeholders separately.
- ES3 A breeding bird assemblage of 49 species was recorded within the Order limits between 2022 and 2023. From the breeding assemblage of 49 bird species, 27 species meet at least one of a range of criteria relating to conservation importance. The breeding assemblage of 49 bird species would place the value of the Site as being of local importance for breeding birds.
- ES4 Of the breeding assemblage of 49 bird species, thirteen species are listed as a priority species in the UK Biodiversity Action Plan and as a species of principal importance under Section 41 of the Natural Environment and Rural Communities (NERC) Act 2006, 11 species are included on the Birds of Conservation Concern Red list and 13 species are included on the Birds of Conservation Concern Amber list.
- No species were present within the Survey Area in numbers of national significance, i.e., 1% or more of the UK population, when compared to national population estimates.
- ES6 The population of curlew (Numenius arquata) within the Survey Area is likely to be of county importance in the East Riding of Yorkshire. The population of skylark recorded within the Site are likely to be of district importance. No other species recorded in the Survey Area were recorded in a figure approaching 1% of the county breeding population estimates in the East Riding of Yorkshire or North Yorkshire. The numbers of individuals for other species recorded were all relatively low and did not represent significant proportions (i.e., 1 % or more) of the county populations in both counties.

<sup>&</sup>lt;sup>1</sup> Breeding territory locations for bird species that are included on Annex 1 of the EU Birds Directive, or listed on Schedule 1 of the Wildlife and Countryside Act 1981 (as amended), is not included within this appendix. This information is confidential and therefore a separate figure will be provided to key stakeholders only with a legitimate need to view the information.

## 1. Introduction

# 1.1 Background

- 1.1.1 Surveys for breeding birds were undertaken for East Yorkshire Solar Farm (hereafter referred to as the 'Scheme') to record the distribution and numbers of territories of breeding bird species within the Site in order to determine the potential impacts of the Scheme on breeding birds. The surveys were undertaken between April and July 2022 (four survey visits) and, following updates to the Order limits, areas previously not surveyed were surveyed between April and June 2023 (six survey visits).
- 1.1.2 The Scheme will comprise the installation of solar photovoltaic (PV) generating panels (the 'Solar PV Site'), associated grid connection (comprising the 'Interconnecting Cable Corridor' and 'Grid Connection Corridor'), access points ('Site Accesses') and 'Ecology Mitigation Area' collectively referred to as the 'Site'. The boundary of the Site is referred to as the 'Order limits'.
- 1.1.3 Further information on the Scheme and Site is provided in **Chapter 2: The Scheme**, **ES Volume 1** [**EN010143/APP/6.1**].
- 1.1.4 In areas around the solar PV arrays and on other land within the Solar PV Site, opportunities for landscaping, biodiversity enhancements and habitat management will be explored.
- 1.1.5 The landscape features within the Site consist predominately of agricultural fields with areas of woodland, grassland and boundary features including hedgerows, tree lines and watercourses/ditches. There are several woodlands located adjacent to the Site and surrounding area, including deciduous woodland Priority Habitat.

# 1.2 Aims and Objectives

- 1.2.1 The objective of the surveys for breeding birds, reported in this document, is to determine the presence, assemblage and distribution of breeding bird species within the Site and identify any potential impacts of the Scheme on breeding birds.
- 1.2.2 This report contains the following information:
  - Relevant legislation, policy and guidance documents (relevant to ornithology);
  - b. Methods for desk and field-based assessments, undertaken in 2022 and 2023;
  - c. Limitations to the surveys undertaken;
  - d. Survey results:
  - e. The approach for determining the nature conservation importance of breeding bird populations recorded during the assessments; and
  - f. Conclusions.
- 1.2.3 This report is presented as a technical appendix to accompany **Chapter 8: Ecology, ES Volume 1 [EN010143/APP/6.1]** for the DCO application.

# 1.3 Relevant Legislation, Policy and Guidance

#### Wildlife and Countryside Act 1981 (as amended)

- 1.3.1 The legislative provisions for the protection of wild birds in the UK are contained primarily in Sections 1-7 of the Wildlife and Countryside Act (WCA), 1981 (as amended) (Ref. 1). Under the WCA, a wild bird is defined as any bird of a species which is ordinarily resident in or is a visitor to the UK or the European Territory of any member state in a wild state but does not include poultry or (except in relation to the power to grant licences and prohibition on certain methods of killing) any game bird.
- 1.3.2 When breeding, all birds, their nest, eggs and nestlings are afforded protection under the WCA. Therefore, during the breeding bird season it is an offence to:
  - a. Intentionally kill, injure or take any wild bird;
  - b. Intentionally take, damage or destroy the nest of any wild bird while it is in use or being built; or
  - c. Intentionally take or destroy the eggs of any wild bird.
- 1.3.3 Typically, the breeding season is defined as between March and August, inclusive, although it is important to note that for some species, breeding can occur outside of these months.
- 1.3.4 Additionally, special penalties exist for offences related to species listed on Schedule 1 of the WCA, for which there are additional offences for intentionally or recklessly disturbing these birds while it is building a nest or is in, on or near a nest containing eggs or young, and of disturbing their dependent young.
- 1.3.5 No licences are available for disturbance of breeding birds during a development even in circumstances where that development is fully authorised by consents, such as a valid DCO.

#### **Directive of the Conservation of Wild Birds**

- 1.3.6 A number of bird species recorded within the UK (including those that are resident, overwintering and migratory) are protected under European legislation under the Directive of the Conservation of Wild Birds (European Union (EU) Birds Directive) (Ref. 2), which lists 193 species, or subspecies, of birds in Annex 1 that are:
  - a. In danger of extinction;
  - b. Are rare, or have restricted local distribution;
  - c. Are vulnerable to specific changes in their habitat; or
  - d. Require particular attention for reasons of the specific nature of habitat.
- 1.3.7 The Birds Directive was most recently transposed into English law by the Conservation of Habitats and Species Regulations 2017 (as amended) (Ref. 3). Although the UK is no longer a member state of the EU, the 2019 amendments (Ref. 4) to the Conservation of Habitats and Species Regulations 2017 make it clear that provisions regarding the protection and designation of Special Protection Areas (SPA) are maintained. Species listed in Annex 1 are those for which the UK government takes special

conservation measures; including the designation of land as SPAs to ensure the survival and reproduction of these species throughout their distributions. These sites are automatically included within the National Site Network (a network of core breeding and resting sites that are protected for rare and threatened species).

#### **Priority Species**

1.3.8 In addition to the above legislation, 49 bird species are listed as being Species of Principal Importance for conservation in England under Section 41 of the Natural Environment and Rural Communities (NERC) Act 2006 (Ref. 5). These species are of material consideration during the planning process. Section 41 of the NERC Act requires the Secretary of State to publish a list of habitats and species which are of Principal Importance for the purpose of conserving or enhancing biodiversity in England. The list has been drawn up in consultation with Natural England, as required by the NERC Act. The Section 41 list is used to guide decision-makers such as public bodies, including local and regional authorities, who must from time to time consider what action they can properly take, consistent with the proper exercise of their functions, to further conservation and enhancement of biodiversity in England as required under Section 40(1) of the NERC Act.

# **UK Biodiversity Action Plan and UK Post-2010 Biodiversity Framework**

1.3.9 The Joint Nature Conservation Committee (JNCC) UK Biodiversity Action Plan (UKBAP) (Ref. 6) was published in 1994 and identified UKBAP priority species of conservation concern that are the most threatened in the UK and requiring action under the UKBAP and for which action plans have been published. However, the work undertaken for the UKBAP is now focussed on country level, rather than UK level, and the UKBAP has subsequently been succeeded by the UK Post-2010 Biodiversity Framework (Ref. 7). Regardless, the UK list of priority species remains an important reference source and has been used to help draw up statutory lists of priority species in England, Scotland, Wales and Northern Ireland. For the purpose of this assessment, the UKBAP is still used as one of the criteria to assist in assigning national value to any given ecological receptor.

# **Local Biodiversity Action Plan Species**

- 1.3.10 Owing to the Site's location within East Riding of Yorkshire and Unitary Authority of North Yorkshire, the relevant Biodiversity Action Plans (BAP) are the East Riding of Yorkshire Biodiversity Action Plan (ERYBAP) (Ref. 8) and the Selby Biodiversity Action Plan (SBAP) (Ref. 9).
- 1.3.11 Neither BAPs specifically set out species action plans for birds. The SBAP includes a list of 'regionally important bird species'; however (using professional judgement) this is a list of bird species recorded within the district rather than those for which priorities for conservation action have been identified.
- 1.3.12 However, the ERYBAP does include a list of Priority Species that have been recorded within the East Riding of Yorkshire and goes further in identifying where the East Riding of Yorkshire supports populations of Priority Species that are important in a national (UK) and regional (Yorkshire and Humber

Region) context. The ERYBAP, therefore, provides context to inform the identification of threatened and/or uncommon species within the district and/or county. The ERYBAP also identifies priorities for conservation and enhancement but confers no particular legislative or policy protection to the species identified. However, in some cases this is provided through related legislation and local planning policy.

- 1.3.13 Table 8 in the ERYBAP lists important bird species (hereafter referred to as ERYBAP 'important' species), occurring within the East Riding of Yorkshire, comprising:
  - a. Bittern (Botaurus stellaris);
  - b. Black-tailed godwit (Limosa limosa);
  - c. Corn bunting (Emberiza calandra);
  - d. Curlew (Numenius arguata);
  - e. Dark-bellied brent goose (Branta bernicla);
  - f. Golden plover (Pluvialis apricaria);
  - g. Grey partridge (*Perdix perdix*);
  - h. Knot (Calidris canutus);
  - i. Linnet (Linaria cannabina);
  - j. Marsh tit (Poecile palustris);
  - k. Roseate tern (Sterna dougallii);
  - I. Skylark (Alauda arvensis);
  - m. Tree sparrow (Passer montanus);
  - n. Turtle dove (Streptopelia turtur);
  - o. Yellowhammer (Emberiza citrinella); and
  - p. Yellow wagtail (Motacilla flava).

#### **Birds of Conservation Concern**

- 1.3.14 The Birds of Conservation Concern (BoCC) is an assessment of the conservation status of all regularly occurring British birds. The lists (categorised as Red, Amber and Green) that indicate the level of conservation importance for each species are derived from quantitative assessments from standardised criteria and are drawn together by the UK's leading bird conservation organisations, including the Royal Society for the Protection of Birds (RSPB) and British Trust for Ornithology (BTO).
- 1.3.15 The most recent assessment, BoCC 5 (Ref. 10), was published in December 2021 and is based on the most up-to-date evidence available and includes conservation status at global and European levels and, within the UK: historical decline, trends in population and range, rarity, localised distribution and international importance.
- 1.3.16 The criteria for birds being included in the BoCC lists are as follows:

#### **Red List**

 Species that are globally threatened (Critically Endangered, Endangered and Vulnerable, but not Near Threatened) under

- International Union for Conservation of Nature and Natural Resources (IUCN) Red List guidelines (Ref. 11);
- Species that have shown a historical decline in breeding populations, declining severely between 1800 and 1995 and have subsequently not recovered;
- c. Species that have suffered a severe (>50%) breeding or non-breeding population decline within the UK in either the last 25 years or the longer-term (since 1969); or
- d. Species whose UK range in either the breeding or non-breeding season has declined by more than 50% between respective breeding and non-breeding atlases.

#### **Amber List**

- e. Species that are threatened in Europe (Critically Endangered, Endangered and Vulnerable, but not Near Threatened as per IUCN Red List Guidelines (Ref. 11));
- f. Species that were previously red-listed for historical population decline, followed by an increase of at least 100% over 25 years or the longerterm period;
- g. Species that have suffered a moderate (>25% but <50%) breeding or non-breeding population decline within the UK in either the last 25 years or the longer-term (since 1969);
- h. Species whose UK range in either the breeding or non-breeding season has declined by more than 25% but less than 50% between respective breeding and non-breeding atlases;
- Breeding or non-breeding rarities (UK population <300 breeding pairs or <900 non-breeding individuals);</li>
- j. Breeding or non-breeding localisation whereby more than 50% of the UK population was found at ten or fewer sites in either the breeding or the non-breeding season; and
- k. Breeding or non-breeding international importance whereby the UK holds at least 20% of the European population in either the breeding or the non-breeding season of a particular species.

#### **Green List**

- I. Species that are not showing moderate or severe declines and do not qualify under any of the above criteria.
- 1.3.17 Although the BoCC lists confer no legal status in themselves, they are useful in evaluating the conservation significance of bird assemblages, and for assessing the potential significance of impacts and informing appropriate levels of mitigation with respect to bird populations that may be affected by a plan or project.

## 2. Methods

# 2.1 Desk Study

- 2.1.1 The North and East Yorkshire Ecological Data Centre (NEYEDC) was contacted in July 2022, and again in August 2023 to gain information on pre-existing ecological information. This included locations of records of protected and notable bird species within 2km of the Site.
- 2.1.2 Only records up to ten years old from the request date were considered within the assessment, as any records older than ten years are unlikely to be still representative of bird species in the local area.

# 2.2 Field Survey

#### **Survey Area**

- 2.2.1 The 'Survey Area' to record the general breeding bird assemblage included all habitats within the Site and a minimum 50m survey buffer from the Order limits. For species of greater conservation value and/or higher sensitivity, e.g., those listed on Schedule 1 of the WCA (Ref. 1) and sensitive to potential noise or visual disturbance, where any such species were recorded, the Survey Area was extended up to 200m from the Order limits.
- 2.2.2 Whilst standardised survey buffers for assessing the impacts of development on bird populations do not exist, the Survey Area used provides information on breeding birds both within the Site and the area immediately surrounding it, including areas contiguous with the Site, where birds may potentially be adversely affected. Therefore, the Survey Area set out above is sufficient to determine the likely impacts of the Scheme on the majority of breeding bird species occurring or likely to occur within the vicinity of the Site.

# Territory Mapping Survey – General Breeding Bird Assemblage

- 2.2.3 The survey was undertaken based on a standard territory mapping methodology for surveying breeding birds, as detailed in Bibby et al., (2000) (Ref. 12) and Gilbert et al., (1998) (Ref. 13). This method is based on the principle that many species during the breeding season are territorial. This is found particularly amongst passerines, where territories are often marked by conspicuous song, display and periodic disputes with neighbouring individuals. Territory mapping methods produce analysis maps of non-overlapping ellipses encircling clusters of records thought to relate to separate pairs of breeding birds. These ellipses may not show the entire extent of the pairs' actual breeding territory which may be significantly larger; however, they are likely to show those areas in which the pair is most active.
- 2.2.4 Within the Solar PV Site, excluding Ecology Mitigation Areas 1g and 1h, and Solar PV Areas 2g and 3a (as presented on **Figure 1-3, ES Volume 3 [EN010143/APP/6.1]**) see limitations in Section 2.4 of this report surveys for the general breeding bird assemblage were undertaken between April and July 2022, with a total of four survey visits taking place. Owing to the size of the Solar PV Site, each survey was split between three to five days. The survey dates were:

- a. Visit 1: 27 to 29 April 2022;
- b. Visit 2: 11 to 13 and 19 to 20 May 2022;
- c. Visit 3: 7 to 10 and 16 June 2022; and
- d. Visit 4: 6 to 8 and 13 to 14 July 2022.
- 2.2.5 Ecology Mitigation Areas 1g and 1h, and Solar PV Areas 2g and 3a were added to the Site after the breeding bird survey period for 2022. Furthermore, access into land parcels within the Grid Connection Corridor (that were not publicly accessible) was not granted in time to undertake surveys of breeding birds in 2022. Therefore, five survey visits within these areas were undertaken on the following dates:
  - a. Visit 1: 28 to 29 March and 3 to 4 April 2023;
  - b. Visit 2: 17 to 20 April 2023;
  - c. Visit 3: 9 to 11 May 2023;
  - d. Visit 4: 24 to 25 May and 30 to 31 May 2023; and
  - e. Visit 5: 13 to 14 June and 28 to 29 June 2023.
- 2.2.6 Additionally, any incidental records of breeding birds, noted during other ecological surveys in July and August 2023 were also recorded.
- 2.2.7 Survey routes followed the majority of hedgerows, fence lines and field margins (including paths, tracks and roads). Deviations into areas of set-aside, stubble fields, scrub, woodland and other uncultivated habitats were made, where possible. The routes did not include ploughed or cultivated fields, due to the possibility of trampling and damaging crops. Regular stopping points were included along the survey route to record any species that may be passing through the Survey Area and to survey birds that were audible or visible within any inaccessible areas.
- 2.2.8 Each survey was undertaken during appropriate conditions for surveying when the weather was dry, warm and with little to no wind. Surveys were undertaken in the morning, commencing just after sunrise and finishing before midday. During these times, breeding birds are more active and can be detected in song more frequently. Survey routes were mapped, and the direction walked alternated on each visit, to ensure that all areas were covered at various times of the morning across the duration of the survey.
- 2.2.9 All birds seen and heard, regardless of activity, were recorded directly onto paper maps or an ArcGIS base map using 'Field Maps' software on handheld digital devices, with a 1:10,000 scale Ordnance Survey base map of the survey area. All bird species were recorded and mapped across the entire survey area. Specific codes were used to record bird behaviour, including singing, calling, flights and movements between areas, carrying food, nest building, aggressive encounters and other bird behaviour.
- 2.2.10 The expected outcome from the surveys is that mapped registrations fall into clusters, approximately coinciding with territories. A cluster is generally a spatially distinct group of registrations that represent the activity of not more than one pair. Ideally, clusters include registrations of territorial behaviour across all visits and are clearly demarcated form adjacent clusters by simultaneous recording of neighbouring birds. Where a species has closely

- packed territories, the mapping of simultaneously singing birds becomes essential. Territory boundaries are assumed to be between such birds.
- 2.2.11 On completion of the surveys, analysis maps were produced for each species, consisting of all registrations recorded during surveys. From these species maps, the number of territories was calculated by identifying the number of clusters present.
- 2.2.12 For late-arriving (to the UK) trans-Saharan migrants, e.g., Spotted Flycatcher (*Muscicapa striata*), for which fewer potential contacts are possible, only one registration is required to form a territory cluster. A number of species are not territorial and are dealt with appropriately, e.g., Linnet, where data represent aggregations or loose colonies.
- 2.2.13 Territory analysis focussed on those species of highest conservation concern i.e., specially protected species (those listed on Schedule 1 of the WCA (Ref. 1) or Annex 1 of the EU Birds Directive (Ref. 2)); Priority species (Ref. 5, Ref. 6); and BoCC Red-listed species (Ref. 10) or BoCC Amber-listed species where impacts were predicted). Therefore, for species which are widespread throughout the Survey Area (e.g., Robin (*Erithacus rubecula*)), and/or are common within both the East Riding of Yorkshire and the UK, and are not of conservation concern (i.e., not listed on one or more of the lists of conservation concern as detailed in this report), the number of breeding territories of these species (including probable or possible) have not been calculated although these are referred to in the results section as having breeding territories present (P) within the Site.
- 2.2.14 The following definitions were used to identify the breeding territory status of each species recorded:
  - a. Confirmed: includes species for which territories were positively identified as a result of the number of registrations recorded; the location of an active nest; or the presence of recently fledged/downy young;
  - Probable: includes a species pair observed in suitable nesting habitat during surveys; or agitated behaviour/anxiety calls from adults (suggesting the presence of a nest or young nearby). Behaviour was observed on insufficient occasions to confirm the presence of a territory;
  - Possible: includes species observed during surveys in suitable nesting habitat; or a singing male present (or breeding calls heard) in suitable breeding habitat; or
  - d. Non-breeding: species-specific information was used to determine flyover species, or species suspected to be summering non-breeder.

# **Determination of Roosting and Nesting Sites for Barn Owl**

- 2.2.15 A survey to determine nesting and roosting sites for barn owl (*Tyto alba*) was undertaken within the Site based on the guidance presented in '*Barn Owl Tyto alba Survey Methodology and Techniques for use in Ecological Assessment*' (Ref. 14).
- 2.2.16 Prior to surveys being undertaken, a desk-top review of the high-level tree constraints report (now updated and included as **Appendix 10-5: Arboricultural Impact Assessment and Tree Protection Report, ES**

- **Volume 2 [EN010143/APP/6.2])** and accompanying figures was made to identify any trees within the Site that were potentially suitable to support barn owl (i.e., those of a suitable size (see Section 2.2.18), where cavities were recorded or where signs of barn owl were recorded). All such trees were then subject to a field survey to determine their suitability to support roosting or nesting barn owl. Furthermore, trees within any proposed 'vegetation clearance areas', as identified at the time, were also subject to field surveys.
- 2.2.17 Mature trees with a trunk diameter of sufficient girth and with a cavity of sufficient quality to support barn owl (e.g., provide a roosting or nesting platform), were highlighted for field survey.
- 2.2.18 As a reference, the trunk diameters detailed by Shawyer (Ref. 14) were used as a guide to determine potentially suitable trees for barn owl. These were:
  - a. Ash (*Fraxinus excelsior*), Sycamore (*Acer pseudoplatanus*) and Crack Willow (*Salix fragilis*): 0.5m diameter or more (>80 years old);
  - b. Horse Chestnut (*Aesculus hippocastanum*) and Beech (*Fagus sylvatica*), 0.75m diameter or more (>150 years); and
  - c. Oak (Quercus robur), 1.5m diameter or more (>250 years).
- 2.2.19 However, only mature trees that stand prominently in fields, hedgerows or are on/near woodland edge were considered for survey as the susceptibility of trees to decay (and hence reduce their suitability as a roosting or nesting site) varies with tree species and age.
- 2.2.20 On determination of suitable trees for survey, these trees were then surveyed on multiple dates between June and August 2023, during daylight hours. The surveys were undertaken by an appropriately licensed ecologist, holding a CL29 class licence, which permits registered persons to disturb nesting barn owl by observation in the course of undertaking presence or absence surveys, nest monitoring and, or, to monitor the effectiveness of conservation efforts.
- 2.2.21 Buildings with features that could support roosting or breeding barn owl, such as agricultural buildings and structures with access to the interior were also recorded during the field survey, along with any signs of barn owl (e.g., pellets, droppings, sightings). Barn owl nest boxes within the survey area were also recorded.
- 2.2.22 Where signs of barn owl were found, these were recorded directly onto a base map of the survey area.
- 2.2.23 Signs of barn owl, that indicate occupation, or potential occupation, typically include:
  - a. Presence of adult birds:
  - b. Nests, eggs, or young (during the breeding season);
  - c. Pellets;
  - d. White 'splashing' caused by droppings;
  - e. Feathers: or
  - f. Small mammal remains.

- 2.2.24 Furthermore, any sightings of barn owl that were observed during the course of other ecological surveys (such as during bat activity surveys) were also recorded.
- 2.2.25 The survey information was used to determine known or likely roosting and nesting sites for barn owl to inform on any required mitigation, with regards to potential construction-related disturbance or loss of habitat, for this species.

# 2.3 Assessment of Ornithological Importance

- 2.3.1 The assessment of the ornithological importance of the survey area during the breeding season was made by evaluating any species afforded special statutory protection or those included on one, or more, of the lists of species of conservation interest, as detailed in Section 2 of this appendix. These include:
  - a. Species listed on Annex 1 of the EU Birds Directive (Ref. 2);
  - b. Species listed on Schedule 1 of the WCA (Ref. 1);
  - c. Priority bird species in the UK (Ref. 5, Ref. 6);
  - d. ERYBAP 'important' species (Ref. 8); and
  - e. Species included in the BoCC Red and Amber Lists (Ref. 10).

#### **Species abundance**

- 2.3.2 In addition to evaluating a site based on its populations of breeding birds in relation to legal status, rarity and biodiversity importance, consideration has to be given to the value of the survey area for the population of individual species that it supports. This can be done by comparing the population present within the survey area with the national and county breeding population for certain species. National estimates for breeding birds are published in a paper: 'Population estimates of birds in Great Britain and the United Kingdom' (Ref. 15). The BTO 'Bird Atlas 2007-2011' (Ref. 16) was also reviewed for species information on a national level.
- 2.3.3 Information on populations of any nationally rare species was sourced from the most recently published paper by the Rare Breeding Birds Panel (RBBP) (Ref. 17).
- 2.3.4 County-level estimates on the breeding bird populations of the majority of species in the East Riding of Yorkshire and North Yorkshire were obtained from online resources, where this information was available. However, professional judgement was applied when determining the geographic importance of species where population estimates were not available.

# Species diversity

- 2.3.5 The number of species recorded in an area is a simple measure of diversity that can indicate its importance at each season of the year.
- 2.3.6 **Table 1** presents the breeding species diversity criteria as outlined in Fuller (1980) (Ref. 18), which provides a method for assessing the ornithological interest of sites for conservation during the bird breeding season, based on the number of species present.

Table 1. Breeding species diversity criteria (Fuller, 1980)

Local	County	Regional	National
25-49 species	50-69 species	70-84 species	85+ species

- 2.3.7 It should be noted that Fuller's analysis was developed in the 1970s and, since then, species diversity has declined significantly. As a result, Fuller's thresholds are, in most circumstances, too high for today's breeding bird populations. However, it is not considered that the differences would be sufficient to increase the geographical scale at which the assemblages are considered to have value.
- 2.3.8 Local Wildlife Sites (LWS) (or County Wildlife Sites [CWS]) are among the most important places for wildlife in the East Riding of Yorkshire, together with legally protected land such as Sites of Special Scientific Interest (SSSI).
- 2.3.9 LWSs are selected for their habitats and can also be designated for particular species and taxons, including birds. The document 'Local Sites in the East Riding of Yorkshire, Part B, LWS Site Selection' (Ref. 19) states that a LWS in the East Riding of Yorkshire can be selected based on the following specific criteria for breeding birds:
  - a. "Criterion B1: Any site that supports 0.5% of the UK breeding population of a bird;
  - b. Criterion B3: Any site that supports a population of a rare breeding bird species in the East Riding. The species to which this guideline should be applied are listed in table 24 of the guidelines [Ref. 19]);
  - c. Criterion B4: Any site that supports a nesting colony of the following species which reaches the population threshold (number of pairs) listed [grey heron (Ardea cinerea), 15 pairs; cormorant (Phalacrocorax carbo), 5 pairs, or common tern (Sterna hirundo), 5 pairs]; and
  - d. Criterion B5: Any site that supports a significant assemblage of breeding birds in the following habitats [Wet grassland, scores 5 or more from table 25 of the guidelines [Ref. 19]; Open water and margins, scores 8 or more from table 26 of the guidelines [Ref. 19]; Woodland, scores 5 or more from table 27 of the guidelines [Ref. 19]]; or
  - e. Criterion B7: Any coastal or wetland site that regularly supports a significant range of migrating birds."
- 2.3.10 Furthermore, in North Yorkshire, the document 'Sites of Importance for Nature Conservation in North Yorkshire: Guidelines for Site Selection' (Ref. 20) states that Sites of Importance for Nature Conservation' (SINC) in North Yorkshire can be selected based on the following specific criteria for breeding birds:
  - a. "Guideline B1: Any grassland, heathland or wetland site regularly supporting three of more species of breeding wader;
  - Guideline B3: Any site which has held one or more breeding pairs of Rare Breeding Birds panel species during at least two of the previous three years;

- c. Guideline B4: Any site holding a cliff-nesting colony of auks or kittiwakes; or
- d. Guideline B5: Any site supporting a breeding, wintering or passage population of any bird of conservation concern which is of district, County or regional importance."

#### Importance of the breeding bird population

- 2.3.11 To support a focussed assessment of the population of breeding birds within the Site, their biodiversity value has been defined with reference to the geographical level at which it matters. The frames of reference used in this report were made using the values presented in the 'Guidelines for Ecological Impact Assessment in the United Kingdom: Terrestrial, Freshwater, Coastal and Marine' (CIEEM, 2018) (hereafter referred to as the 'CIEEM Guidelines') (Ref. 21); and professional judgement.
- 2.3.12 The CIEEM Guidelines use a framework, linked to a geographical scale at which the feature has been valued (i.e., international, national, regional, county, local or site) and this method represents best practice guidance. This assessment criteria, set out in **Table 2**, has been used in conjunction with species rarity, abundance and diversity within the Survey Area to assess the biodiversity importance of the breeding bird populations recorded during the field surveys.

Table 2. Description of geographical scale of ornithological features

# Importance of ornithological features

#### Descriptors and examples of criteria

# International or European

Resident or regularly occurring populations of species which may be considered of value at an international or European level<sup>a</sup> where the:

- Loss of these populations would adversely affect the conservation status or distribution of the species at this geographic scale;
- Population forms a critical part<sup>b</sup> of a wider population at this scale; or
- Species is at a critical phase<sup>c</sup> of its life-cycle at this scale.

#### **UK or National**

Areas of habitats with priority species identified in the UK Post-2010 Biodiversity Framework (Ref. 7), i.e., UKBAP (Ref. 6), including those published in accordance with Section 41 of the NERC Act (Ref. 5) and those considered to be of principal importance for the conservation of biodiversity.

Resident or regularly occurring populations of species which may be considered of value at a UK or a national level<sup>d</sup> where the:

- Loss of these populations would adversely affect the conservation status or distribution of the species at this geographic scale;
- Population forms a critical part of a wider population at this scale; or
- Species is at a critical phase of its life-cycle at this scale.

#### Importance of ornithological features

#### Descriptors and examples of criteria

#### Regional

Populations of species of value at a regional level (i.e., Yorkshire and the Humber). A feature is of Regional importance when it is of greater geographical importance than within the county of East Riding of Yorkshire but does not reach the threshold to be of National importance.

Resident or regularly occurring populations of species which may be considered of value at a regional level<sup>e</sup> where the:

- Loss of these populations would adversely affect the conservation status or distribution of the species at this geographic scale;
- Population forms a critical part of a wider population at this scale; or
- Species is at a critical phase of its life-cycle at this scale.

# Authority or **District**

County or Unitary Populations of species of value at a County (East Riding of Yorkshire, North Yorkshire) level or District (town or parish area, e.g., Spaldington, Wressle).

> Resident or regularly occurring populations of species which may be considered of value at a County (or District)<sup>e</sup> level where the:

- Loss of these populations would adversely affect the conservation status or distribution of the species at this geographic scale;
- Population forms a critical part of a wider population at this scale; or,
- Species is at a critical phase of its life-cycle at this scale.

#### Local

Species populations of value in a local (i.e., within ~2 km of the Site) context.

Populations and, or communities of species considered to appreciably enrich the habitat resource within the local context (such as veteran trees), including features of value for migration, dispersal or genetic exchange.

#### Site\*

Habitats and associated species that is of value in the context of the Site only.

Populations of common and widespread species.

<sup>&</sup>lt;sup>a</sup> Such species include those listed within the Directive 2009/147/EC on the Conservation of Wild Birds (i.e., EU Birds Directive) (codified version of Council Directive 79/409/EEC as amended).

<sup>&</sup>lt;sup>b</sup> Such populations include sub-populations that are essential to maintenance of metapopulation dynamics, e.g., critical emigration and, or immigration links between otherwise discrete populations.

<sup>&</sup>lt;sup>c</sup> Seasonal activity or behaviour upon which survival or reproduction depends.

<sup>&</sup>lt;sup>d</sup> Species which may be considered at the UK or national level mean: birds which receive legal protection on the basis of their conservation interest (those listed within the WCA 1981 (as amended) Schedule 1); species listed for their principal importance for biodiversity (in accordance with the Natural Environment and Communities Act 2006 Section 41 England), priority species listed within the UK Post 2010 Biodiversity Framework (i.e., UKBAP), or species listed within the Red Data Book.

# Importance of Descriptors and examples of criteria ornithological features

# 2.4 Assumptions and Limitations

- 2.4.1 Due to the timing of the commencement of the surveys in 2022, some areas of the Site were not visited during the April survey (i.e., Solar PV Areas 2b, 2e, 2f and 3b, as presented in **Figure 8-5-2** and **Figure 8-5-3** in this appendix). However, sufficient data was gathered during the May, June and July surveys in 2022 (covering the middle and late season survey window) to enable determination of territories within these areas and, where there was any doubt, a precautionary approach to mapping was taken. Therefore, the omission of an April survey in these areas in 2022 is not considered a limitation.
- 2.4.2 Cattle were present in the northern section of Solar PV Area 2a and therefore, due to Health and Safety consideration, no access was made into these fields during 2022 and 2023. Whilst this is a limitation on the distance approached to each habitat type within this land parcel, every effort was made to record breeding bird species through the addition of a stopping point that was used to record birds (particularly ground-nesting birds) that were audible and visible within the areas not accessed. Furthermore, any bird species that are likely to have been missed (such as those holding territory within hedgerows and scrub) will not be impacted upon by the Scheme through the retention and avoidance of such habitats. Therefore, the lack of access in this section of the land parcel does not compromise the efficacy of the survey data, nor the effectiveness of the mitigation proposed.
- 2.4.3 Sufficient representatives of all habitat types and species have been covered within the entirety of the breeding bird survey period, to allow for an assessment of bird species and assemblages present across the Site.

# 3. Results

# 3.1 Desk Study

3.1.1 Records of 83 bird species were returned from NEYEDC from within 2km of the Site and within the last ten years. A list of the 83 species recorded during the desk study is included in **Annex A**.

# 3.2 Field Survey

- 3.2.1 A total of 79 species were recorded within the Survey Area during the surveys for breeding birds undertaken between April and July 2022 and between March and June 2023.
- 3.2.2 Of the 79 species recorded, breeding territories of 39 species were confirmed and a further ten species were holding probable/possible breeding

<sup>&</sup>lt;sup>e</sup> Such species include those at county level (East Riding of Yorkshire, North Yorkshire) including unitary authority area *i.e.* District level (i.e., town or parish area, e.g., Spaldington, Wressle); as listed on the ERYBAP or SBAP.

<sup>\*</sup> Site is not included within the CIEEM Guidelines, but is included hereafter in this appendix

- territories, resulting in a breeding assemblage of 49 species. Records relating to the remaining 30 species were of non-breeding bird species.
- 3.2.3 A summary of the breeding and conservation status, and number of breeding territories held, where relevant, of the 79 species recorded within the Survey Area is provided in **Table 3**.
- 3.2.4 Where non-breeding species were recorded as present within one of the parts of the Site, these are referred to in **Table 3** using a tick (✓) to denote presence.
- 3.2.5 Breeding territory information for records of 'possible' breeders was also not calculated, due to the low number of registrations of birds; however, an estimation of the possible number of territories is included in parentheses in **Table 3**.

Table 3. Breeding status, number of territories and conservation status of birds recorded within the Survey Area

Species (English name) and scientific name	Conservation status (where applicable)	Breeding territory status	Solar PV Site/ Interconnecting Cable Corridor	Grid Connection Corridor	Total number of territories of breeding species (where applicable)	Supporting Notes
Mute Swan (Cygnus olor)	-	Non-breeding	-	✓	0	-
Greylag Goose (Anser anser)	BoCC Amber	Non-breeding	✓	✓	0	-
Mallard (Anas platyrhynchos)	BoCC Amber	Non-breeding	✓	✓	0	-
Grey Heron (Ardea cinerea)	-	Non-breeding	✓	-	0	-
Red-legged Partridge (Alectoris rufa)	-	Confirmed	Р	✓	Р	-
Grey Partridge ( <i>Perdix</i> perdix)	BoCC Red, Priority Species, ERYBAP	Possible	-	(1)	(1)	Ground-nesting species with a single bird recorded on one occasion in suitable habitat.
Quail (Coturnix coturnix)	WCA Sch. 1, BoCC Amber	Confirmed	1	-	1	A ground-nesting species with a singing bird recorded on three occasions.
Pheasant ( <i>Phasianus</i> colchicus)	-	Confirmed	Р	✓	Р	-
Sparrowhawk (Accipiter nisus)	BoCC Amber	Non-breeding	✓	-	0	-
Red Kite (Milvus milvus)	Annex 1, WCA Sch. 1	Non-breeding	✓	-	0	Single birds occasionally recorded flying over the Site in 2023.

Species (English name) and scientific name	Conservation status (where applicable)	Breeding territory status	Solar PV Site/ Interconnecting Cable Corridor	Grid Connection Corridor	Total number of territories of breeding species (where applicable)	Supporting Notes
Marsh Harrier (Circus aeruginosus)	Annex 1, WCA Sch. 1, BoCC Amber	Non-breeding	✓	-	0	Single bird recorded flying over the Site in July 2023.
Hen Harrier (Circus cyaneus)	Annex 1, WCA Sch. 1, BoCC Red	Non-breeding	<b>√</b>	-	0	Single bird recorded flying over the Site in June 2023.
Buzzard (Buteo buteo)	-	Probable	(2)	(1)	(3)	-
Moorhen ( <i>Gallinula</i> chloropus)	BoCC Amber	Non-breeding	-	✓	0	-
Coot (Fulica atra)	-	Confirmed	-	1	1	-
Oystercatcher ( <i>Haematopus</i> ostralegus)	BoCC Amber	Non-breeding	✓	✓	0	-
Lapwing (Vanellus vanellus)	Priority Species, BoCC Red	Confirmed	4	✓	4	In 2022, territories held in Solar PV Areas 1a, 3b and 3c. In 2023, territories held to the north of Solar PV Area 3a and in Ecology Mitigation Areas 1g and 1h.
Golden Plover ( <i>Pluvialis</i> apricaria)	Annex 1, ERYBAP	Non-breeding	✓	-	0	Single bird heard flying over in April 2023.
Curlew (Numenius arquata)	Priority Species, BoCC Red, ERYBAP	Confirmed	3	<b>√</b>		In 2022, territories were held to the north of Solar PV Area 1a, along the River Foulness east of Solar PV Area 1e and in the northern section of Solar PV Area 2a. All territories were considered to be

Species (English name) and scientific name	Conservation status (where applicable)	Breeding territory status	Solar PV Site/ Interconnecting Cable Corridor	Grid Connection Corridor	Total number of territories of breeding species (where applicable)	Supporting Notes
						predominantly outside of the Site. In 2023, two territories recorded – along the River Foulness, including within Ecology Mitigation Area 1h and west of Solar PV Area 2c, with an occupied nest recorded outside of the Site, west of Solar PV Area 2c. It is likely that the territories recorded along the River Foulness in 2022 and 2023 refer to the same returning breeding pair, with a nesting site located to the east of the River Foulness. It is also likely that the breeding territories in Solar PV Area 2a (2022) and Solar PV Area 2c (2023) relate to the same returning pair.
Green Sandpiper ( <i>Tringa</i> ochropus)	WCA Sch. 1, BoCC Amber	Non-breeding	✓	-	0	Single bird flew from Solar PV Area 2g in April 2023.
Black-headed Gull (Chroicocephalus ridibundus)	BoCC Amber	Non-breeding	<b>√</b>	-	0	-
Lesser Black-backed Gull (Larus fuscus)	BoCC Amber	Non-breeding	✓	-	0	-
Herring Gull ( <i>Larus</i> argentatus)	Priority Species, BoCC Red	Non-breeding	<b>√</b>	-	0	-

Species (English name) and scientific name	Conservation status (where applicable)	Breeding territory status	Solar PV Site/ Interconnecting Cable Corridor	Grid Connection Corridor	Total number of territories of breeding species (where applicable)	Supporting Notes
Cuckoo (Cuculus canorus)	Priority Species, BoCC Red	Possible	(1)	-	(1)	Male singing on a single occasion.
Stock Dove (Columba oenas)	BoCC Amber	Probable	(3)	(2)	(5)	Singing birds recorded in suitable habitat, but no confirmed territories held
Woodpigeon (Columba palumbus)	BoCC Amber	Confirmed	Р	Р	Р	-
Barn Owl ( <i>Tyto alba</i> )	WCA Sch. 1	Confirmed	(P)	✓	-	Territory analysis methods do not allow for calculation of territories of barn owl, although based on the number of features present (alongside sightings made) there may be up to five territories/pairs of barn owl within the vicinity of the Solar PV Site.
Swift (Apus apus)	BoCC Red	Non-breeding	-	✓	0	-
Great Spotted Woodpecker (Dendrocopus major)	-	Non-breeding	✓	-	0	-
Green Woodpecker ( <i>Picus viridus</i> )	-	Possible	(1)	(1)	(2)	Calling birds on single occasions only.
Hobby (Falco subbuteo)	WCA Sch. 1	Confirmed	1	-	1	Single territory recorded in 2023.
Kestrel (Falco tinnunculus)	BoCC Amber	Probable	(1)	✓	-	-
Magpie (Pica pica)	-	Confirmed	Р	✓	Р	-

Species (English name) and scientific name	Conservation status (where applicable)	Breeding territory status	Solar PV Site/ Interconnecting Cable Corridor	Grid Connection Corridor	Total number of territories of breeding species (where applicable)	Supporting Notes
Jay (Garrulus glandarius)	-	Non-breeding	✓	-	0	-
Jackdaw (Coloeus monedula)	-	Confirmed	Р	✓	Р	-
Rook (Corvus frugilegus)	BoCC Amber	Confirmed	Р	-	Р	-
Carrion Crow (Corvus corone)	-	Confirmed	1	✓	1	-
Coal Tit (Periparus ater)	-	Non-breeding	-	✓	0	-
Blue Tit ( <i>Cyanistes</i> caeruleus)	-	Confirmed	Р	Р	Р	-
Great Tit (Parus major)	-	Confirmed	Р	Р	Р	-
Skylark ( <i>Alauda arvensis</i> )	Priority Species, BoCC Red, ERYBAP	Confirmed	107	18	125	Ground nesting species, predominantly in arable habitats across the Solar PV Site.
Swallow (Hirundo rustica)	-	Non-breeding	✓	✓	0	-
Sand Martin (Riparia riparia)	-	Non-breeding	-	✓	0	-
House Martin (Delichon urbicum)	BoCC Red	Non-breeding	✓	✓	0	-
Long-tailed Tit (Aegithalos caudatus)	-	Confirmed	Р	Р	Р	-
Willow Warbler (Phylloscopus trochilus)	BoCC Amber	Confirmed	Р	✓	Р	-

Species (English name) and scientific name	Conservation status (where applicable)	Breeding territory status	Solar PV Site/ Interconnecting Cable Corridor	Grid Connection Corridor	Total number of territories of breeding species (where applicable)	Supporting Notes
Chiffchaff ( <i>Phylloscopus</i> collybita)	-	Confirmed	Р	Р	Р	-
Reed Warbler (Acrocephalus scirpaceus)	-	Possible	-	(1)	(1)	-
Sedge Warbler (Acrocephalus schoenobaenus)	BoCC Amber	Confirmed	1	<b>√</b>		-
Blackcap (Sylvia atricapilla)	-	Confirmed	Р	Р	Р	-
Lesser Whitethroat (Sylvia curruca)	-	Confirmed	1	✓	1	-
Whitethroat (Sylvia communis)	BoCC Amber	Confirmed	Р	Р	Р	-
Goldcrest (Regulus regulus)	-	Confirmed	Р	Р	Р	-
Wren ( <i>Troglodytes</i> troglodytes)	BoCC Amber	Confirmed	Р	Р	Р	-
Nuthatch (Sitta europea)	-	Non-breeding	✓	-	0	-
Treecreeper (Certhia familiaris)	-	Possible	-	(1)	(1)	-
Starling (Sturnus vulgaris)	Priority Species, BoCC Red	Non-breeding	<b>√</b>	<b>√</b>	0	-
Blackbird ( <i>Turdus merula</i> )	-	Confirmed	Р	Р	Р	-

Species (English name) and scientific name	Conservation status (where applicable)	Breeding territory status	Solar PV Site/ Interconnecting Cable Corridor	Grid Connection Corridor	Total number of territories of breeding species (where applicable)	Supporting Notes
Fieldfare (Turdus pilaris)	WCA Sch. 1, BoCC Red	Non-breeding	✓	✓	0	-
Redwing (Turdus iliacus)	WCA Sch.1, BoCC Amber	Non-breeding	✓	-	0	-
Song Thrush ( <i>Turdus</i> philomelos)	Priority Species, BoCC Amber	Confirmed	2	4	6	-
Mistle Thrush ( <i>Turdus</i> viscivorus)	BoCC Red	Possible	-	(1)	(1)	Singing on a single occasion.
Robin (Erithacus rubecula)	-	Confirmed	Р	Р	Р	-
Stonechat (Saxicola torquata)	-	Non-breeding	✓	-	0	-
Wheatear (Oenanthe oenanthe)	BoCC Amber	Non-breeding	✓	-	0	-
House Sparrow (Passer domesticus)	Priority Species, BoCC Red	Confirmed	7	1	8	Colonies/singing birds around residential properties.
Dunnock ( <i>Prunella</i> modularis)	Priority Species, BoCC Amber	Confirmed	4	4	8	-
Yellow Wagtail (Motacilla flava)	Priority Species, BoCC Red, ERYBAP	Confirmed	3	-	3	A ground-nesting species recorded mostly outside of the Site, but territories overlapped the Site.

Species (English name) and scientific name	Conservation status (where applicable)	Breeding territory status	Solar PV Site/ Interconnecting Cable Corridor	Grid Connection Corridor	Total number of territories of breeding species (where applicable)	Supporting Notes
Pied Wagtail (Motacilla alba)	-	Confirmed	Р	Р	Р	-
Grey Wagtail ( <i>Motacilla</i> cinerea)	BoCC Red	Non-breeding	✓	✓	0	-
Meadow Pipit ( <i>Anthus</i> pratensis)	BoCC Amber	Non-breeding	✓	-	0	-
Chaffinch (Fringilla coelebs)	-	Confirmed	Р	Р	Р	-
Bullfinch ( <i>Pyrrhula pyrrhula</i> )	Priority Species, BoCC Amber	Probable	<b>√</b>	(1)	(1)	-
Greenfinch (Chloris chloris)	BoCC Red	Confirmed	3	6	9	-
Linnet ( <i>Linaria cannabina</i> )	Priority Species, BoCC Red, ERYBAP	Confirmed	9	5	14	Fourteen colonies/singing birds, associated with hedgerows and scrub.
Goldfinch (Carduelis carduelis)	-	Confirmed	Р	Р	Р	-
Yellowhammer (Emberiza citrinella)	Priority Species, BoCC Red, ERYBAP	Confirmed	54	8	62	Found throughout the Site, associated with hedgerows and scrub.
Reed Bunting (Emberiza schoeniclus)	Priority Species, BoCC Amber	Confirmed	512	7	19	-

Species (English name) and scientific name	Conservation status (where applicable)	Breeding territory status	Solar PV Site/ Interconnecting Cable Corridor	Grid Connection Corridor		Supporting Notes
Corn Bunting ( <i>Emberiza</i> calandra)	Priority Species, BoCC Red, ERYBAP	Confirmed	1	1	2	-
Total number of species	-	79	70	57	-	-
Breeding assemblage	-	49	44	34	-	-

#### **Determination of Roosting and Nesting Sites for Barn Owl**

- 3.2.6 Surveys to determine likely roosting or nesting sites for barn owl identified 31 features (such as boxes, trees or buildings) within the Site (see **Confidential Figure 8-5-1**<sup>2</sup>) that could be of importance to barn owl (using the methods detailed in paragraphs 2.2.15 to 2.2.25). These included:
  - a. two active roost sites;
  - b. two active roost sites/potential nest sites;
  - c. 14 potential roost sites;
  - d. seven potential roost sites/potential nest sites; and
  - e. six owl boxes.
- 3.2.7 Furthermore, there were six sightings of barn owl and a recorded dead barn owl.

## 4. Evaluation

# 4.1 Desk Study

- 4.1.1 Records of 83 bird species (see **Annex A**), including specially protected or notable bird species (see Section 1.3) were returned from the last ten years of the request date and from within 2km of the Site through NEYEDC.
- 4.1.2 Of these 83 bird species:
  - a. Eight species are listed in Annex 1 of the EU Birds Directive (Ref. 2);
  - b. Ten species are listed in Schedule 1 of the WCA, 1981 (as amended) (Ref. 1);
  - c. 19 species are listed as a Priority Species in the UK (Ref. 5, Ref. 6);
  - d. 24 species are included in the BoCC Red List (Ref. 10);
  - e. 26 species are included in the BoCC Amber List (Ref. 10); and
  - f. Ten species listed as ERYBAP 'important' species (Section 1.3.13).
- 4.1.3 None of the eight species listed in Annex 1 of the EU Birds Directive and noted within 2 km of the Site (little egret, marsh harrier, hen harrier, red kite, peregrine, golden plover, common tern and kingfisher (*Alcedo atthis*)) are either likely to breed on the Site, owing to a lack of suitable habitat to support species, or were confirmed as non-breeding species by surveys undertaken in 2022 and 2023.
- 4.1.4 Of the ten species listed on Schedule 1 of the WCA and noted within 2km of the Site (barn owl, brambling (*Fringilla montifringilla*), fieldfare, green sandpiper, hen harrier, kingfisher, marsh harrier, peregrine, red kite and redwing), only barn owl was recorded as a potential breeding species within the Site during field surveys in 2022 and 2023. The remaining species are

<sup>&</sup>lt;sup>2</sup> Breeding territory locations for bird species that are included on Annex 1 of the EU Birds Directive, or listed on Schedule 1 of the WCA, is not included within this appendix. This information is confidential and therefore a separate figure will be provided to key stakeholders only with a legitimate need to view the information.

unlikely to breed on the Site, owing to a lack of suitable habitat and/or were confirmed as non-breeding during surveys undertaken in 2022 and 2023.

# 4.2 Field Survey

- 4.2.1 Breeding territories of 39 species were confirmed within the Survey Area during surveys for breeding birds in 2022 and 2023 and a further ten species were probably or possibly on breeding territories within the Survey Area, resulting in a breeding bird assemblage of 49 species.
- 4.2.2 From the breeding assemblage of 49 species, recorded during field surveys:
  - a. No species are listed in Annex 1 of the Birds Directive (Ref. 2);
  - b. Three species are listed in Schedule 1 of the WCA, 1981 (as amended) (Ref. 1);
  - c. 13 species are listed as a Priority Species in the UK (Ref. 5, Ref. 6);
  - d. 11 species are included in the BoCC Red List (Ref. 10);
  - e. 13 species are included in the BoCC Amber List (Ref. 10); and
  - f. Seven species listed as ERYBAP 'important' species (paragraph 1.3.13).

#### **Specially Protected Species**

- 4.2.3 No species included in Annex 1 of the Birds Directive (Ref. 2) were recorded as breeding within the survey area. However red kite, marsh harrier, hen harrier and golden plover were recorded within the Survey Area.
- 4.2.4 Three species included in Schedule 1 of the WCA, 1981 (Ref. 1) were considered to be holding breeding territories within the Survey Area. These were quail, barn owl and hobby.
- 4.2.5 Quail was recorded singing on several occasions within the Solar PV Site. However, the territory was recorded outside of the developable areas of the Site (see **Confidential Figure 8-5-1**).
- 4.2.6 Whilst no nesting locations were confirmed for barn owl, a number of barn owl boxes and suitable buildings and trees within and adjacent to the Site were recorded and, coupled with sightings of barn owl made, it is highly likely that this species is nesting adjacent to, or within, the Site (see **Confidential Figure 8-5-1**).
- 4.2.7 Hobby was recorded on several occasions within the Survey Area in 2022, although the record related to a single bird flying over and no evidence of territorial behaviour, or behaviour suggestive of nesting within the Survey Area, was recorded. However, in 2023, an active Hobby nest was recorded within the Solar PV Site (see **Confidential Figure 8-5-1**).

# Species of conservation importance

#### **Priority species and BoCC Red-listed species**

4.2.8 Thirteen species (grey partridge, lapwing, curlew, skylark, song thrush, house sparrow, dunnock, yellow wagtail, bullfinch, linnet, yellowhammer, reed bunting and corn bunting) with breeding territories confirmed or having probable, or possible breeding territories within the Survey Area (see **Table** 

- **3**) are listed as Priority Species under Section 41 of the NERC Act 2006. With the exception of song thrush, dunnock, bullfinch and reed bunting, all are also included on the BoCC Red-list.
- 4.2.9 Additionally, mistle thrush and greenfinch are included on the BoCC Red-list and had breeding territories confirmed or had probable, or possible breeding territories within the Survey Area (see **Table 3**).

#### **BoCC Amber-listed species**

4.2.10 Thirteen species (quail, stock dove, woodpigeon, kestrel, rook, willow warbler, sedge warbler, whitethroat, wren, song thrush, dunnock, bullfinch and reed bunting) that are included on the BoCC Amber List had breeding territories confirmed or had probable, or possible breeding territories within the Survey Area.

#### **ERYBAP** 'important' species

4.2.11 Breeding territories were confirmed, or thought probable, or possible for seven species (grey partridge, curlew, skylark, yellow wagtail, linnet, yellowhammer and corn bunting) that are listed as important bird species on the ERYBAP.

#### Species abundance

- 4.2.12 In addition to evaluating a site based on its populations of breeding birds in relation to legal status, rarity and conservation value, consideration has to be given to the value of a site for the population of individual species that it supports. This can be done by comparing the population present within the Site with the national and county breeding populations for that species.
- 4.2.13 No species are present within the Site in numbers of national significance, i.e., 1% or more of the UK population, when compared to national population estimates as presented in Woodward et al., (Ref. 15). Furthermore, the populations of specially protected species occurring within the Survey Area represent <1% of the reported total number of pairs occurring within Yorkshire, as presented in the Rare Breeding Birds Panel annual report for 2020 (Ref. 17).</p>
- 4.2.14 County population estimates for some of the species afforded special statutory protection and/or of conservation importance are not available. However, whilst the majority of species of conservation importance that were recorded within the Site are declining in the UK, most remain widespread.
- 4.2.15 Whilst the majority of species recorded are not present in numbers important at a county scale in the East Riding of Yorkshire or North Yorkshire, up to three territories of curlew within (or partly within) the Survey Area are likely to be of importance at a county scale. Although registrations of curlew were made within the Solar PV Site in both 2022 and 2023, it is considered that the majority of each territory was outside of the Solar PV Site, with a confirmed nest outside of the Solar PV Site, to the west of Solar PV Area 2c in 2023. Territories were defined using the criteria described in paragraph 3.2.12 of this report, however throughout the survey period it was evident from registrations of curlew, that this species was using the Solar PV Site as part of their 'home range' (with birds recorded foraging within the Solar PV Site), but no evidence of nesting was recorded within the Solar PV Site.

- Territories were, however, confirmed on the basis of presence of this species throughout the breeding season.
- 4.2.16 Additionally, the population of skylark (125 territories) within the Site is likely to be of importance at a district scale, in consideration that similar habitat exists throughout the county and is likely to support similar numbers and densities of skylark. The majority of skylark territories were recorded within arable fields of the Solar PV Site.
- 4.2.17 Therefore, besides curlew and skylark, the populations of species occurring within the Survey Area are considered to be of no more than local importance.

## **Species diversity**

- 4.2.18 To measure species diversity, the breeding assemblage (49) recorded in the Survey Area was evaluated against the criteria developed by Fuller (Ref. 17) (see **Table 1**) and taking into consideration that species diversity has declined significantly since the criteria were developed. The breeding assemblage would regard the value of the Site, as being of local importance for breeding birds.
- 4.2.19 Evaluation of the East Riding of Yorkshire CWS selection criteria (see paragraph 2.3.9) against the breeding species and assemblages recorded in 2022 and 2023 indicates that the Site:
  - a. Does not support 0.5% of the UK breeding population of any bird;
  - b. Does not support a population of a rare breeding bird species in the East Riding, as presented in Table 24 of the guidelines (Ref. 19); and
  - c. Does not support a nesting colony of grey heron, cormorant or common tern
- 4.2.20 Furthermore, the Site is not a coastal or wetland site and does not contain wet grassland or open water margins and any species that may be considered as woodland species were recorded below the threshold presented in Table 27 of the guidelines (Ref. 19).
- 4.2.21 Evaluation of the North Yorkshire SINC selection criteria (see paragraph 2.3.10) against the parts of the Site (i.e., the Grid Connection Corridor) and breeding species and assemblages recorded in 2023, indicate that:
  - a. There are not three or more species of breeding wader within the Grid Connection Corridor;
  - b. There are no breeding species of Rare Breeding Birds Panel species;
  - c. There are no cliff-nesting species; and
  - d. The Grid Connection Corridor does not support a breeding population of any species of district, county or regional importance.
- 4.2.22 This assessment further supports that the Site is of no more than local importance for breeding birds.

#### **Species distribution**

4.2.23 The locations of Priority Species and BoCC Red-listed species (see **Table 3**) are presented in **Figure 8-5-2** and **Figure 8-5-3** and locations of specially protected species are presented in **Confidential Figure 8-5-1** which will be

presented to key stakeholders only. In general, concentrations of species were found within the most suitable habitats to support each individual species' needs (i.e., species reliant on woodland habitat were found within or close to woodland habitat on Site).

## 5. Conclusions

- 5.1.1 A total 79 bird species were recorded within the Site, of which 39 were confirmed as holding breeding territories and a further ten species were holding probable/possible breeding territories, resulting in a breeding assemblage of 49 species.
- 5.1.2 From the breeding assemblage of 49 species, three species are listed on Schedule 1 of the WCA; thirteen species are listed as Priority Species in the UK; eleven species are included on the BoCC Red List; thirteen species are included on the BoCC Amber List; and seven species are listed as ERYBAP 'important' species.
- 5.1.3 No species are present within the Site in numbers of national significance, i.e., 1% or more of the UK breeding population.
- 5.1.4 Species breeding assemblage for the Site is of local importance.
- 5.1.5 The population of curlew (three territories) is of county importance in the East Riding of Yorkshire.
- 5.1.6 The population of skylark (125 territories) is of greater than local importance, but less than county importance in the East Riding of Yorkshire and is therefore of district importance.

# 6. References

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- Ref. 3 HMSO (2018). Conservation of Habitats and Species Regulations 2017 (as amended).
- Ref. 4 HMSO (2019). The Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019.
- Ref. 5 HMSO (2006). The Natural Environment and Rural Communities Act 2006 (as amended).
- Ref. 6 JNCC (2007). List of UK BAP Priority Bird Species. Available at: <a href="https://data.jncc.gov.uk/data/98fb6dab-13ae-470d-884b-7816afce42d4/UKBAP-priority-birds.pdf">https://data.jncc.gov.uk/data/98fb6dab-13ae-470d-884b-7816afce42d4/UKBAP-priority-birds.pdf</a> [Access 10/10/23].
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- Ref. 9 North Yorkshire County Council, Selby District Council and the Selby BAP Partnership (2004). The Selby Biodiversity Action Plan.
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- Ref. 14 Shawyer C. (2012). Barn Owl *Tyto alba* Survey Methodology and Techniques for use in Ecological Assessment. Wildlife Conservation Partnership.
- Ref. 15 Woodward, I., Aebischer, N., Burnell, D., Eaton, M., Frost, T., Hall, C., Stroud, D.A. & Noble, D. (2020). Population estimates of birds in Great Britain and the United Kingdom. British Birds 113: 69-104.
- Ref. 16 Balmer, D., Gillings, G., Caffrey, B., Swann, B., Downie, I. and Fuller, R., (2013). Bird Atlas 2007-11: The Breeding and Wintering Birds of Britain and Ireland. BTO.
- Ref. 17 Eaton M. and the Rare Breeding Birds Panel (2022) Rare breeding birds in the United Kingdom in 2020. British Birds 115, 617-692.

- Ref. 18 Fuller, R.J. (1980). A Method for Assessing the Ornithological Interest of Sites for Conservation. Biological Conservation 17, 229-239.
- Ref. 19 Gillespie (2001). Local Sites in the East Riding of Yorkshire. Part B. LWS Site Selection Guidelines. Available at: <a href="https://www.eastriding.gov.uk/EasySiteWeb/GatewayLink.aspx?alId=2294">https://www.eastriding.gov.uk/EasySiteWeb/GatewayLink.aspx?alId=2294</a>
  23 [Accessed April 2023].
- Ref. 20 North Yorkshire SINC Panel (2009) Sites of Importance for Nature Conservation in North Yorkshire, (Outside the Yorkshire Dales and North York Moors National Parks boundaries): Guidelines for Site Selection. [Accessed July 2023].
- Ref. 21 CIEEM (2018). Guidelines for Ecological Impact Assessment in the United Kingdom: Terrestrial, Freshwater, Coastal and Marine.

# **Abbreviations**

## Abbreviation/Term Definition

BAP	Biodiversity Action Plan
BoCC	Birds of Conservation Concern
вто	British Trust for Ornithology
CWS	County Wildlife Site
DCO	Development Consent Order
ERYBAP	East Riding of Yorkshire Biodiversity Action Plan
EU	European Union
IUCN	International Union for Conservation of Nature and Natural Resources
JNCC	Joint Nature Conservation Committee
km	kilometres
LWS	Local Wildlife Site
m	metres
NERC Act	Natural Environment and Rural Communities Act 2006
NEYEDC	North and East Yorkshire Ecological Data Centre
PV	Photovoltaic
RBBP	Rare Breeding Birds Panel
RSBP	Royal Society for the Protection of Birds
SBAP	Selby Biodiversity Action Plan
SINCS	Sites of Importance for Nature Conservation
SPA	Special Protection Area
SSSI	Site of Special Scientific Interest
UKBAP	UK Biodiversity Action Plan
WCA	Wildlife and Countryside Act 1981

# **Glossary of Frequently Used Terms**

Term	Definition	
Biodiversity Action Plan	A programme addressing threatened species and/or habitats.	
Birds of Conservation Concern	An assessment of the conservation status of all regularly occurring British birds.	
Priority Habitat	Habitats deemed to be of principal importance for the purpose of conserving biodiversity, being listed in the UK Biodiversity Action Plan.	
Priority Species	49 bird species that are listed as being Species of Principal Importance for conservation in England under Section 41 of the Natural Environment and Rural Communities Act 2006	
Red/Amber/Green List	Indicate the level of conservation importance for each species, which are derived from quantitative assessments from standardised criteria and are drawn together by the UK's leading bird conservation organisations, including the Royal Society for the Protection of Birds (RSPB) and British Trust for Ornithology (BTO).	
Specially Protected Species	Species listed of Schedule 1 of the Wildlife and Countryside Act 1981 or the EU Birds Directive	
Species Abundance	A measure of the total number of individuals of a particular species in a defined area, population, or community.	
Species Distribution	on The locations of Priority Species, BoCC Red-listed species and Specially Protected Species.	
Species Diversity	The number of different species present in a place and relative abundance of each of those species.	
Survey Area	All habitats within the Site and a minimum 50m survey buffer from the Order limits.	

# Annex A – Data search records from within 2km of the Site

Common name	Scientific name	Year of most recent record	Conservation designation
Barn Owl	Tyto alba	2019	WCA Sch. 1
Black-headed Gull	Chroicocephalus ridibundus	2019	BoCC Amber
Blue Tit	Cyanistes caeruleus	2019	-
Brambling	Fringilla montifringilla	2019	WCA Sch. 1
Bullfinch	Pyrrhula pyrrhula	2019	BoCC Amber
Buzzard	Buteo buteo	2019	-
Canada Goose	Branta canadensis	2019	-
Coal Tit	Periparus ater	2019	-
Collared Dove	Streptopelia decaocto	2019	-
Common Gull	Larus canus	2019	BoCC Amber
Common Tern	Sterna hirundo	2012	Annex 1, BoCC Amber
Coot	Fulica atra	2014	-
Cormorant	Phalacrocorax carbo	2019	-
Corn Bunting	Emberiza calandra	2019	Priority Species, BoCC Red, ERYBAP
Cuckoo	Cuculus canorus	2019	Priority Species, BoCC Red
Curlew	Numenius arquata	2019	Priority Species, BoCC Red, ERYBAP
Dunnock	Prunella modularis	2019	Priority Species, BoCC Amber

Common name	Scientific name	Year of most recent record	Conservation designation
Fieldfare	Turdus pilaris	2019	WCA Sch. 1, BoCC Red
Goldcrest	Regulus regulus	2019	-
Golden Plover	Pluvialis apricaria	2019	Annex 1, ERYBAP
Goldfinch	Carduelis carduelis	2019	-
Great Black-backed Gull	Larus marinus	2019	BoCC Amber
Great Spotted Woodpecker	Dendrocopos major	2019	-
Great Tit	Parus major	2019	-
Green Sandpiper	Tringa ochropus	2019	WCA Sch. 1, BoCC Amber
Green Woodpecker	Picus viridis	2013	-
Greenfinch	Chloris chloris	2019	BoCC Red
Grey Heron	Ardea cinerea	2019	-
Grey Partridge	Perdix perdix	2019	Priority Species, BoCC Red, ERYBAP
Greylag Goose	Anser anser	2019	BoCC Amber
Hen Harrier	Circus cyaneus	2014	Annex 1, WCA Sch. 1, BOCC Red
Herring Gull	Larus argentatus	2019	Priority Species, BoCC Red
House Martin	Delichon urbicum	2019	BoCC Red
House Sparrow	Passer domesticus	2019	Priority Species, BoCC Red
Jack Snipe	Lymnocryptes minimus	2019	-
Kestrel	Falco tinnunculus	2019	BoCC Amber

Common name	Scientific name	Year of most recent record	Conservation designation
Kingfisher	Alcedo atthis	2019	Annex 1, WCA Sch. 1
Lapwing	Vanellus vanellus	2019	Priority Species, BoCC Red
Lesser Black-backed Gull	Larus fuscus	2019	BoCC Amber
Lesser Redpoll	Acanthis cabaret	2019	Priority Species, BoCC Red
Linnet	Linaria cannabina	2019	Priority Species, BoCC Red, ERYBAP
Little Egret	Egretta garzetta	2019	Annex 1
Little Owl	Athene noctua	2019	-
Mallard	Anas platyrhynchos	2019	BoCC Amber
Marsh Harrier	Circus aeruginosus	2019	Annex 1, WCA Sch. 1, BoCC Amber
Marsh Tit	Poecile palustris	2017	Priority Species, BoCC Red, ERYBAP
Meadow Pipit	Anthus pratensis	2019	BoCC Amber
Mistle Thrush	Turdus viscivorus	2019	BoCC Red
Moorhen	Gallinula chloropus	2019	BoCC Amber
Mute Swan	Cygnus olor	2019	-
Oystercatcher	Haematopus ostralegus	2019	BoCC Amber
Peregrine Falcon	Falco peregrinus	2019	Annex 1, WCA Sch. 1
Pied Wagtail	Motacilla alba	2019	-
Pink-footed Goose	Anser brachyrhynchus	2019	BoCC Amber
Red Kite	Milvus milvus	2014	Annex 1, WCA Sch. 1
Redwing	Turdus iliacus	2019	WCA Sch. 1

Common name	Scientific name	Year of most recent record	Conservation designation
Reed Bunting	Emberiza schoeniclus	2019	Priority Species, BoCC Amber
Robin	Erithacus rubecula	2019	-
Rook	Corvus frugilegus	2019	BoCC Amber
Shelduck	Tadorna tadorna	2019	BoCC Amber
Siskin	Spinus spinus	2019	-
Skylark	Alauda arvensis	2019	Priority Species, BoCC Red, ERYBAP
Snipe	Gallinago gallinago	2019	BoCC Amber
Song Thrush	Turdus philomelos	2019	BoCC Amber
Sparrowhawk	Accipiter nisus	2019	BoCC Amber
Spotted Flycatcher	Muscicapa striata	2019	Priority Species, BoCC Red
Starling	Sturnus vulgaris	2019	Priority Species, BoCC Red
Stock Dove	Columba oenas	2019	BoCC Amber
Swallow	Hirundo rustica	2019	-
Swift	Apus apus	2019	BoCC Red
Teal	Anas crecca	2013	BoCC Amber
Tree Sparrow	Passer montanus	2019	Priority Species, BoCC Red, ERYBAP
Treecreeper	Certhia familiaris	2019	-
Tufted Duck	Aythya fuligula	2013	-
Turtle Dove	Streptopelia turtur	2019	Priority Species, BoCC Red, ERYBAP
Wheatear	Oenanthe oenanthe	2019	BoCC Amber

Common name	Scientific name	Year of most recent record	Conservation designation
Willow Warbler	Phylloscopus trochilus	2019	BoCC Amber
Woodcock	Scolopax rusticola	2019	BoCC Red
Wren	Troglodytes troglodytes	2019	BoCC Amber
Yellow Wagtail	Motacilla flava	2019	Priority Species, BoCC Red, ERYBAP
Yellowhammer	Emberiza citrinella	2019	Priority Species, BoCC Red, ERYBAP
Yellow-legged Gull	Larus michahellis	2019	BoCC Amber

# Annex B - Figures

Figure 8-5-1. Locations of Specially Protected Bird Species [CONFIDENTIAL]

Figure 8-5-2. Territory Locations for Priority Species

Figure 8-5-3. Territory Locations for BoCC Red-listed Species

East Yorkshire Solar Farm

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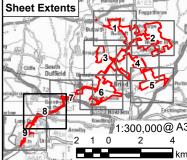
Order limits

Land not included in the Order limits Breeding Bird Survey Area (50m Buffer of the Order limits)

Territory Areas (2022 and 2023 Surveys)

RB. Reed Bunting (Emberiza

S. Skylark (Alauda arvensis)



Labels give bird species based on species

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# ISSUE PURPOSE

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# FIGURE TITLE

Breeding Birds: Territory Locations for Priority Species Sheet 8 of 9

## FIGURE NUMBER

Appendix 8-5-2

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## LEGEND

Order limits

Land not included in the Order limits Breeding Bird Survey Area (50m Buffer of the Order limits)

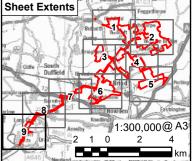
Territory Areas (2022 and 2023 Surveys)

BF. Bullfinch (*Pyrrhula pyrrhula*) D. Dunnock (*Prunella modularis*)

RB. Reed Bunting (Emberiza schoeniclus)

S. Skylark (*Alauda arvensis*)

ST. Song Thrush (*Turdus philomelos*)



## NOTES

Labels give bird species based on species

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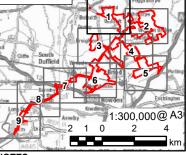
# FIGURE TITLE

Breeding Birds: Territory Locations for Priority Species Sheet 9 of 9

## FIGURE NUMBER

Land not included in the Order limits

Territory Areas (2022 and 2023 Surveys)



# Labels give bird species based on species

Species Codes

East Yorkshire Solar Farm

East Yorkshire Solar Farm Limited

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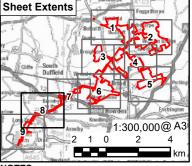
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Order limits Land not included in the Order limits Breeding Bird Survey Area (50m Buffer of the Order limits)

Territory Areas (2022 and 2023 Surveys) GR. Greenfinch (Chloris chloris)

LI. Linnet (*Linaria cannabina*)

Y. Yellowhammer (Emberiza citrinella)



# Labels give bird species based on species

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# FIGURE TITLE

Breeding Birds: Territory Locations for BoCC Red-listed Species

## FIGURE NUMBER

Appendix 8-5-3

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# LEGEND

Order limits

Land not included in the Order limits

Breeding Bird Survey Area (50m
Buffer of the Order limits)

Territory Areas (2022 and 2023 Surveys)

GR. Greenfinch (Chloris chloris)

LI. Linnet (*Linaria cannabina*)

Y. Yellowhammer (Emberiza citrinella)

# Sheet Extents | Focus thirty | Focu

Labels give bird species based on species

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# FIGURE TITLE

Breeding Birds: Territory Locations for BoCC Red-listed Species Sheet 9 of 9

## FIGURE NUMBER

Appendix 8-5-3

# **Annex C – Results for Barn Owl [CONFIDENTIAL]**