



ARCUS

ORNITHOLOGICAL IMPACT ASSESSMENT

SWEETBRIAR SOLAR FARM



LIGHTROCKPOWER

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1 SUMMARY

This report has been produced for Lightrock Power Ltd and forms part of a planning application for a proposed solar photovoltaic (PV) farm (the 'Development') on land known as 'Sweetbriar Farm', approximately 6 km north west of Immingham, Northeast Lincolnshire (the 'Site').

Breeding bird surveys (BBS) were carried out between April and June 2021 to provide the basis on which to assess the potential for effects on bird species during the construction and operation of the Development. The BBS data has been combined with desk study information, and a desk-based review of habitats, to predict potential effects throughout the year.

Based on a review of available data, two features were identified for assessment: farmland bird species of conservation concern and Schedule 1-listed birds. The assessment of potential effects of the Development concluded that, subject to appropriate mitigation, compensation and enhancement measures, there would be no adverse effects on these features, or the wider bird assemblage at the Site, and the Development will offer long-term benefits for birds.

2 INTRODUCTION

Arcus Consultancy Services Limited (Arcus) were instructed by Lightrock Power Ltd to carry out an Ornithological Impact Assessment (OIA) on land known as 'Sweetbriar Farm', approximately 6 km north west of Immingham, northeast Lincolnshire, DN39 6TR (the 'Site'), centred approximately on Ordnance Survey Grid Reference (OSGR) TA 11023 16739. The OIA has been prepared to accompany a planning application for a proposed photovoltaic ('PV') solar farm (the Development). Full details of the Development are available in the associated planning submission documents¹.

The Site is predominantly arable farmland with fields separated by ditches, with some hedgerows and scattered mature trees. Habitats are comparable to the wider landscape. A series of surveys were carried out between April and June 2021, with the aim of determining the assemblage and spatial distribution of birds within the Site and immediate surrounds, thus providing a basis on which to assess potential effects during the construction, operational and decommissioning phases of the Development.

This report describes the methods and results of these surveys and provides an assessment of potential impacts on the bird interest at the Site, with mitigation and compensation recommendations where necessary.

The report is supported by the following appendices:

- Appendix A – Legislation and policy;
- Appendix B – Bird species names and conservation designations; and
- Appendix C – Figure.

The following planning policy and legislation was consulted during preparation of this report, with a further summary of each provided in Appendix A:

- The Wildlife and Countryside Act 1981 (as amended)²;
- The Conservation of Habitats and Species Regulations 2017³;
- Natural Environment and Rural Communities (NERC) Act 2006⁴; and
- The National Planning Policy Framework (NPPF) 2021⁵.

English (British) vernacular and scientific names of bird species follow the British List maintained by the British Ornithologists' Union (BOU)⁶, and a full list of species referred to in this report is provided in Appendix B.

Lightrock Power Ltd have an advisory partnership with the Royal Society for the Protection of Birds (RSPB) and we are grateful for their consultation and comments on a draft version of this report.

3 METHODS

3.1 Desk Study

A desk study was undertaken as part of the Ecological Impact Assessment (EcIA)⁷ for the Development, and this was reviewed to inform this report. The desk study included a search of designated sites within and around the Site, such as Local Nature Reserves (LNR) and

¹ Arcus (2021) Planning, Design and Access Statement

² Wildlife and Countryside Act 1981. Available from: <https://www.legislation.gov.uk/ukpga/1981/69>. (Accessed: July 2021)

³ The Conservation of Habitats and Species Regulations 2017. Available from: <https://www.legislation.gov.uk/uksi/2017/1012/contents/made>. (Accessed: July 2021)

⁴ Natural Environment and Rural Communities Act 2006. Available from: <https://www.legislation.gov.uk/ukpga/2006/16/contents>. (Accessed: July 2021)

⁵ National Policy Planning Framework 2021. Available from: <https://www.gov.uk/government/publications/national-planning-policy-framework--2>. (Accessed: July 2021)

⁶ <https://bou.org.uk/british-list/>.

⁷ Arcus (2021) *Sweetbriar Solar Farm, Ecological Impact Assessment* [Report].

Sites of Special Scientific Interest (SSSI) within 2 km of the Site, and sites within the National Site Network, including Special Areas of Conservation (SAC), Special Protection Areas (SPA) and Ramsar sites, within 5 km of the Site.

In addition, Lincolnshire Environmental Records Centre (LERC) was consulted for records of notable and protected bird species within 2 km of the Site. Records were filtered to include only those recorded since 1st January 2011.

3.2 Breeding Bird Surveys

A Breeding bird survey (BBS) was carried out between April and June 2021 to quantify the breeding bird assemblage within the Site. The BBS was carried out within the BBS Area, which included the Site and immediate surrounds, with a buffer of up to 250 m where accessible (Figure 1).

The BBS followed a reduced version of the British Trust for Ornithology's (BTO) method for the Common Birds Census (CBC)⁸. The surveyor walked slowly around the BBS Area recording and mapping all species encountered, including behavioural observations where applicable. Survey efforts focused on field margins and hedgerows, with open habitats searched using binoculars. This is considered the most appropriate method for the predominantly lowland farmland habitats present in the BBS Area.

Surveys were carried out in generally good weather and lasted for up to six hours. Further details of the survey times and weather observations during each visit are provided in Table 3.1.

Table 3.1: Dates, times and weather conditions during the BBS

Date	Start	Finish	Wind*	Cloud**	Other
16.04.2021	06:10	13:00	NW-E, 1–2	4-8	Light rain for a short period during the survey, excellent visibility
20.05.2021	05:15	11:15	SSW, 1	3-8	Light showers at end of survey, excellent visibility
21.06.2021	04:50	10:50	NNE, 1-3	4–7	No rain, excellent visibility

* Direction per 16-point compass, strength per Beaufort Scale. ** Recorded in Oktas

3.2.1 BBS Data Analysis

Data analysis focused on identifying breeding territory locations of species of conservation concern, which included any bird species matching one or more of the following criteria:

- Schedule 1-listed species on the Wildlife and Countryside Act 1981 (as amended)²;
- Annex I-listed species on the Birds Directive⁹;
- Species of Principal Importance listed on the NERC Act, 2006⁴; and/or
- Red- and Amber-listed birds of conservation concern¹⁰.

To analyse the data, all registrations of these species were transferred from the field maps to produce 'species summary maps' from which the number and distribution of likely territories for each species could be determined. The method was based on that described by Bibby (2000)¹¹, with an element of professional judgement.

⁸ Marchant, J. (1983) *Common Birds Census Instructions*. British Trust for Ornithology, Thetford.

⁹ The Birds Directive (2009/147/EC). Available from: https://ec.europa.eu/environment/nature/legislation/birdsdirective/index_en.htm. (Accessed July 2021)

¹⁰ Eaton M.A., Aebischer N.J., Brown A.F., Hearn R.D., Lock L., Musgrove A.J., Noble D.G., Stroud D.A. and Gregory R.D. (2015). *Birds of Conservation Concern 4: the population status of birds in the United Kingdom, Channel Islands and Isle of Man*. British Birds 108, 708–746.

¹¹ Bibby, C.J., Burgess, N.D., Hill, D.A. and Mustoe, S.H. (2000). *Bird Census Techniques, 2nd edition*. Academic Press, London

For most species, a precautionary approach was taken and a bird was deemed to be holding a territory if it was recorded singing or exhibiting other behaviour indicative of breeding during just one of the three BBS visits or, in some instances, if a pair was recorded in apparently suitable breeding habitat.

3.3 Survey Limitations

Outside of the Site boundary, access was restricted to the landownership boundary and public rights of way (PRoW); however, observing from these areas and scanning adjacent areas from within the Site offered very good coverage of much of the 250 m buffer area.

The weather conditions were generally good; however, some rain showers were encountered on some BBS visits.

The bird breeding season can be protracted and influenced by local and national weather events, species ecology, the annual variation in on-site farming practice, and many other factors. It is inevitable that not all birds will be recorded during every visit and as a result some species may be over- or under-recorded. All survey data was considered, combined with desk-based resources where appropriate. This precautionary approach to analysis aims to provide the most accurate baseline possible from the available data.

Despite the limitations identified, the survey results are considered to be an accurate reflection of the ornithology interest at the Site.

4 RESULTS

4.1 Desk Study

4.1.1 Designated Sites

There are no National Site Network sites within 5 km of the Site. The nearest such site is The Humber Estuary SPA, located approximately 5.6 km north-northeast of the Site, at its closest point. Given the distance and features of the designated site, there is considered to be very limited pathway for adverse effects from the Development; however, this is discussed further in section 5.3.

There are no nationally designated sites within 2 km of the Site.

There are two non-statutory designated sites within 2 km of the Site: South Cloister Covert LWS, which is considered an important breeding site for grey heron, and Abbot's Lodge Grassland LWS, which has no cited ornithological interest/features. Further details are available in the EcIA⁷.

4.1.2 Existing Records

The desk study data from LERC included 3859 bird records, over a thousand of which are since 2011. However, due to the low precision of the grid references, many of these are outside the 2 km search radius. The records cover a large area and wide diversity of habitats including Killingholme Haven Pits, for example, which is located more than 5 km from the Site. As such, the desk study data is considered of limited value, but is referred to where relevant within this assessment, and to provide some contextual information about the bird assemblage in the region.

4.2 Breeding Bird Surveys

A total of 44 species were recorded during the BBS. Of these, 19 were species of conservation concern (as defined in section 3.2.1) including 13 that showed evidence of breeding or holding territory within the BBS Area. Breeding and non-breeding species of conservation concern are summarised in Tables 4.1 and 4.2 respectively.

Territory locations of species of conservation concern are provided in Figure 1, Appendix C, and are shown as the approximate mid-point of observations that were used to identify the territory.

The conservation status of all species recorded is provided in Appendix B.

Table 4.1: Species of conservation concern considered to be breeding or holding territory within the BBS Area

Species	Number of Territories	Details
Grey partridge	1	One pair considered likely to be holding territory in arable habitats in the west of the Site.
Kestrel	1	One pair recorded regularly within the south of the Site. Although breeding was not proven and no nest site was identified, they may have bred within the BBS Area or immediate surrounds.
Skylark	15	Widespread across suitable arable habitat within the BBS Area, including seven territories within the Site.
Willow warbler	2	Two territories were recorded within the BBS Area, all of which were outside the Site, in scrub and tree habitats.
Starling	3	Three pairs holding territory in buildings within the BBS Area, two to the west and one to the east of the Site.
Song thrush	4	Four territories within the BBS Area, all in areas with suitable dense vegetation, such as hedgerows and gardens outside the Site.
House sparrow	42	Five colonies were identified within the BBS Area, none of which were within the Site. Two colonies (an estimated 18 pairs) were in farm buildings to the west of the Site and three colonies (an estimated 24 pairs) in buildings to the east of the Site.
Dunnock	21	Widespread across the BBS Area within suitable habitat such as hedgerows and areas of wood/scrub. One territory within the Site.
Yellow wagtail	1	One pair holding territory in suitable arable habitat within the Site.
Bullfinch	2	Two pairs were located to the east of the Site in areas of scrub.
Linnet	18	Up to eighteen pairs were estimated to be breeding across the BBS Area, with two within the east of the Site. All pairs were utilising scrub and hedgerow habitats.
Yellowhammer	9	Widespread across the BBS Area in hedgerows and ditches, though none were identified as holding territory within the Site.
Reed bunting	3	Two pairs in a ditch in the south of the BBS Area and one pair in a ditch to the east of the BBS Area.

Table 4.2: Species of conservation concern recorded during the BBS but not considered to be holding territory

Species	Details
Greylag goose	A single bird flying south over the Site during the April survey was the only record from the BBS Area.
Stock dove	Observed during all BBS visits, but there was no evidence of breeding within the BBS Area. Two pairs were present around farm buildings to the west, just outside the BBS Area, and it is likely that this species breeds in the wider area.
Black-headed gull	A single bird flying north over the Site during the April survey was the only record within the BBS Area.
Lesser black-backed gull	Two single birds, one flying south and one flying north, both over the Site during the April survey, were the only records within the BBS Area.

Species	Details
House martin	Between two and four birds were recorded foraging or passing through the wider BBS Area during the May and June surveys; however, there was no evidence of breeding within the BBS Area and the species was not recorded within the Site.
Meadow pipit	Three birds recorded during the May survey (one within the Site and two to the west of the Site), and one recorded during the June survey to the south of the Site, were the only records within the BBS Area. There was no evidence of territorial behaviour but this species may breed in the wider area.

A further 24 bird species (not of conservation concern¹²) were recorded, many of which were considered likely to be breeding or holding territory within BBS Areas: red-legged partridge, pheasant, wood pigeon, collared dove, grey heron, buzzard, little owl, great spotted woodpecker, magpie, rook, carrion crow, blue tit, great tit, swallow, chiffchaff, blackcap, garden warbler, whitethroat, wren, blackbird, robin, pied wagtail, chaffinch, greenfinch, and goldfinch. See also Endnote (section 8).

4.3 Schedule 1-listed bird species

Peregrine was recorded during the surveys, but outside the BBS Area (therefore not reported above). This is a Schedule 1 species and is subject to enhanced legal protection during the breeding season. A pair and two fledged juveniles were observed more than 750 m from the Site suggesting this species bred locally; however, the precise nest location is not known. There were no observations of peregrine foraging within or over the Site during the BBS.

No other evidence of Schedule 1-listed species was recorded during the BBS, or other ecology surveys carried out at the Site⁷. Although the desk study did return records of barn owl from the wider area, no boxes or potential nesting locations suitable for this species were found and good barn owl foraging habitat within the Site is very limited.

4.4 Appraisal of Non-breeding Season Bird Assemblage

No surveys have been carried out during the non-breeding season and a habitat-based appraisal is considered sufficient to provide a basis to assess the potential effects of the Development on bird interests during this period (approximately September–March).

The desk study returned numerous records during the non-breeding season; however, given the low precision of the data points, it was not possible to determine how close these are to the Site. Nonetheless, the desk study does provide a broad picture of the bird assemblage in the wider area. During the non-breeding season, records of species of conservation concern included starling, bullfinch, song thrush and skylark. Some wader and wildfowl records were returned from the wider area; however, these are unlikely to be close to the Site due to the Site location and available habitats, both within the Site and wider area.

It is likely that some of the species recorded during the BBS will be present in the area throughout the year, including species of conservation concern such as house sparrow, linnets and yellowhammer. Fieldfare and redwing may occur, but the lack of tall vegetation cover makes the Site suboptimal, as it does for many finch and bunting species that could forage within the fields during the winter.

There are no wetlands nearby and the Site is unlikely to support wildfowl. Aggregations of gulls, lapwing or golden plover are feasible if crop types and timings suit; however, the arable habitats used by these species are widely available in the area and, if these species

¹² Green-listed BoCC, not matching the criteria listed in section 3.2.1.

do occur within the Site, the resources available are unlikely to be important in the context of the wider landscape.

Overall, due to the habitats present, and in the context of the wider area, the Site is considered highly unlikely to be important or to hold significant numbers of birds during passage or winter periods. As such, impacts to non-breeding birds during all stages of the Development are expected to be low and not significant, and are not considered further. Proposed enhancement measures (section 6) will provide improved resources for some bird species during the non-breeding season, including enhanced foraging opportunities, and better connectivity between habitats within the Site and wider area.

5 ASSESSMENT

The species recorded during the BBS are considered an accurate reflection of the breeding bird interests at the Site, based on the geographic location and habitats present.

The Development has the potential to impact birds (either positively or negatively) in the following ways:

- Habitat loss/change;
- Direct harm and disturbance during construction; and/or
- Disturbance during operation.

Although direct mortality of birds through collisions with panels has been reported, many of these incidents occurred overseas under very different scenarios to solar developments in the UK, both in terms of development scale and surrounding habitat/landscape. Although there is a recognised lack of research on the ecological impacts of solar farms, there is a general consensus that, within the UK, the risk of harm through collision with panels is very low and this potential effect is not considered further^{13,14}.

A review of the available data identified one assemblage of local importance that will be considered within this assessment, namely farmland bird species of conservation concern, which is discussed in section 5.1. Additionally, one species is considered due to legal protections (section 5.2) and a desk-based assessment of potential effects on The Humber Estuary designated site is also provided (section 5.3).

5.1 Farmland Species of Conservation Concern

Priority farmland bird species, including grey partridge, skylark, yellow wagtail, linnet, reed bunting and yellowhammer, were recorded breeding in low numbers within the BBS Area. Few birds were recorded within the Site, likely due to the openness of the habitats, which comprise a contiguous area of arable farmland, with limited tall vegetation or boundary features. However, seven skylark territories, one grey partridge and one yellow wagtail were recorded from arable habitats within the Development footprint, and have greater potential to be affected by the development as the core habitats within their territory fall within the areas subject to the greatest levels of change. Hedgerow and woodland species such as dunnock, song thrush and willow warbler were recorded holding territory in small numbers in the wider BBS Area. These species of conservation concern, typical of farmland habitats across much of the UK, are collectively considered a feature of local importance.

Habitat loss/change has the potential to affect farmland bird species through loss and/or change of resources available for activities such as nesting, foraging or roosting. All hedgerows, field boundary habitats (i.e., ditches and associated vegetation) and trees will be retained, and, given the limited availability of these habitats within the Site and the low

¹³ Taylor, R., Conway, J., Gabb, O. & Gillespie, J. (2019) *Potential ecological impacts of ground-mounted photovoltaic solar panels*. Available online at: <https://www.bsg-ecology.com/wp-content/uploads/2019/04/Solar-Panels-and-Wildlife-Review-2019.pdf>. (Accessed July 2021)

¹⁴ Natural England (2017) *Evidence review of the impact of solar farms on birds, bats and general ecology 2016 (NEER012)*. Available online at: <http://publications.naturalengland.org.uk/publication/6384664523046912>. (Accessed July 2021)

numbers of birds present, effects on these habitats will be small and not significant. Habitat enhancements, further summarised in section 6, will enhance these habitats, and offer benefits for the birds that use them.

Impacts on birds breeding within the fields, such as grey partridge, skylark and yellow wagtail, have the potential to be greater. The impact of solar farms on skylark is not fully understood, although the creation of suitable habitats beneath and between the panels will provide good habitat for nesting and foraging, even if current evidence of use is mixed¹⁵.

A study by Montag *et al.* (2016)¹⁶ is widely cited as evidence that skylark do not nest in solar sites; however, this unpublished study is not peer-reviewed and is subject to a range of methodological and analytical limitations. As such, the conclusions regarding skylark are unsupported by the evidence presented, and potentially quite misleading as they demonstrate that skylark do use habitats within solar sites, often in comparable numbers to arable habitats. Recent research funded by the Royal Society for the Protection of Birds (RSPB) has suggested that skylark hold territory and likely nest within many solar developments¹⁷, highlighting skylark as one of the most frequently observed species:

"Prior to the study we didn't think that we'd see many skylarks, as we know they like big open spaces. However, we now know they're using the solar panel arrays to sing from: flying high and then parachuting down between the rows. They were present on eight out of my nine study sites."

Skylarks readily nest in arable habitats; however, these are often suboptimal and the increasing density of autumn or winter-sown crops has an adverse effect on breeding success, often forcing skylark to forage outside of their nesting fields, which may involve a long commute in expansive areas of similar habitat¹⁸. The creation and management of suitable grassland beneath the panels has the potential to provide a more consistent, undisturbed habitat and provide opportunities not just for skylark that nest within the Site, but also foraging opportunities for birds breeding in the wider area. The Development includes land around the edges and within the Site that is excluded infrastructure, notably beneath power cables and above gas pipeline, which will offer areas of open grassland habitat that will benefit skylark and may be preferred as nesting areas.

The impacts of solar developments on yellow wagtail are not known, and it is possible the pair will be displaced from the Site. The habitat used by this species is widely available in the wider area and the desk study returned 31 records, including four since 2011, although the species is likely to be under-recorded in the extensive arable habitats across much of the region. As such, it is considered that the loss of a single pair will not have a significant adverse effect on the local or regional population. Similarly, the effects on grey partridge are not known, although the grassland habitat created within the Site does have the potential to support this species, especially in combination with habitats in the wider area.

Good practice measures, summarised in section 6.3, will be adhered to avoid direct loss or damage to active nests and ensure compliance with prevailing legislation; however, there is also the potential for disturbance to nesting birds during the construction phase. Given the scale of the development, it is likely that some construction works will occur within the breeding season (approximately March to August) which may cause disturbance to nesting birds. This will be a temporary effect, compensated by the enhancement of habitats that will last for the lifetime of the Development, improving foraging and nesting resources (see section 6.1).

¹⁵ Natural England (2016) *Evidence review of the impact of solar farms on birds, bats and general ecology*. Available online at: <http://publications.naturalengland.org.uk/publication/6384664523046912>. (Accessed July 2021)

¹⁶ Montag, H., Parker, G., & Clarkson, T. (2016) *The Effects of Solar Farms on Local Biodiversity; A Comparative Study*. Clarkson and Woods and Wychwood Biodiversity.

¹⁷ <https://community.rspb.org.uk/ourwork/b/biodiversity/posts/bird-use-of-solar-farms-interim-results>. (Accessed July 2021)

¹⁸ <https://farmwildlife.info/how-to-do-it/farmed-area/skylark-plots/>. (Accessed July 2021)

Overall, with successful implementation of the compensation and enhancement measures recommended, and adherence to the safeguarding measures to protect nesting birds, as outlined in Section 6, adverse effects on farmland species of conservation concern at all stages of the Development are expected to be negligible and not significant. There is evidence to suggest that solar sites can support a greater number and diversity of birds than arable habitats¹⁶, and the recommended enhancements are expected to deliver long-term benefits to farmland birds.

5.2 Schedule 1-listed bird species

One Schedule-1 listed species was recorded during the BBS: peregrine. This species has experienced population increases in recent decades and is of low conservation concern^{10,19}; however, due to the greater level of legal protection (i.e., protection from disturbance when nesting), peregrine is considered here.

Peregrine is likely to have nested within the wider area. The nest site is not known; however, based on the observations of the species during the BBS and the lack of suitable nesting locations, the nest is likely to be greater than 800 m from the Site. Although potential disturbance effects are likely to be site and situation-specific, the maximum recommended buffer to avoid disturbance is typically up to 750 m from the nest²⁰. With recent population increases in the UK this species is often found in areas subject to anthropomorphic disturbance²¹, and it is likely that any disturbance buffer at the Site (if required) could be less than this. The Site itself likely does not form an important part of the foraging area of the breeding peregrine pair, with no observations of hunting birds during the BBS.

Under the current baseline no adverse effects are considered likely. However, if the construction period overlaps with the peregrine breeding season, mitigation in the form of a pre-construction survey is recommended to ensure there are no changes to the status of peregrine in the area (i.e., use of a nest site that is closer to the Site) that could increase the risk of disturbance, which may constitute a legal offence.

5.3 The Humber Estuary

The Humber Estuary is designated as an SPA, SSSI and Ramsar site, each designation including a range of listed and notified waterbird features. At its closest point, the Humber Estuary designated sites lie approximately 5.6 km east-northeast of the Site. Based on this separation distance, and the habitats present within and around the Site, connectivity between the Humber Estuary and the Site is considered negligible.

Features of The Humber Estuary designations recorded within the Site were limited to a single yellow wagtail territory, a listed component of the breeding bird assemblage feature of the SSSI. However, given the separation distance between the Site and the SSSI, it is highly unlikely that there is any connectivity between yellow wagtails breeding on site and the SSSI breeding population.

Most features of the designations are associated with coastal or wetland habitats and are unlikely to occur at or around the Site in any season. During the non-breeding season, the Site is potentially suitable for lapwing, golden plover or curlew; however, the Site is small and suboptimal compared to other habitats in the wider area that are likely to be less disturbed and much closer to the estuary. The desk study returned no records of golden

¹⁹ Eaton, M., Holling, M. & The Rare Breeding Bird Panel (RBBP) (2020) *Rare breeding birds in the UK in 2018*. British Birds 113, December 2020, 737–791

²⁰ Ruddock, M. & Whitfield, D. P. (2007) *A Review of Disturbance Distances in Selected Bird Species*. A report from Natural Research (Projects) Ltd to Scottish Natural Heritage

²¹ Wilson, M. W., et al. (2018) The breeding population of Peregrine Falcon *Falco peregrinus* in the United Kingdom, Isle of Man and Channel Islands in 2014. *Bird Study*, 65:1, 1-19, DOI: 10.1080/00063657.2017.1421610

plover, and no evidence of curlew, lapwing or any wildfowl species occurring close to the Site during the non-breeding season.

Overall, in the context of the wider area and surrounding habitats, the Site is highly unlikely to be used by any features of the Humber Estuary designations in notable numbers or with any regularity. As such, it is not considered to be important to any designated features, and the Site is not considered functionally linked to The Humber Estuary. Therefore, there will be no direct or indirect adverse effects of the Development on The Humber Estuary SPA, SSSI or Ramsar site.

5.4 Future Baseline and Decommissioning

It is understood that the farmland habitats within the Site will be maintained until the start of construction and, as such, the baseline condition at the Site is not expected to change substantially between completion of the surveys and the start of construction.

Following the operational phase of the Development, anticipated to be 40 years, the Development will be decommissioned, including the removal of the Site infrastructure. Potential impacts of this work on ornithology interests at the Site will likely be similar to those during construction and, prior to decommissioning, it is recommended that the Site is assessed by an ecologist to identify the need for any mitigation or best practice measures, in accordance with prevailing guidance and legislation.

6 MITIGATION, COMPENSATION AND ENHANCEMENT

6.1 Farmland Species of Conservation Concern

Due to potential adverse impacts on farmland bird species of conservation concern, and to increase the biodiversity value of the Site and to adhere to Government guidance set out in the NPPF 2021⁵, a range of compensation and enhancement measures will be incorporated into the Development. These include:

- Creation of species-rich grassland or meadow habitat beneath the panels that will provide undisturbed nesting opportunities for some species, such as skylark, and increased foraging resources for many others, compensating for the loss of arable habitats;
- Use of an appropriate grazing regime to manage the grassland for biodiversity value, or, if this isn't possible, a sensitive cutting program to promote biodiversity and minimise potential adverse effects to ground-nesting birds;
- Provision of an area of managed bird cover crop which will benefit a range of farmland species throughout the year. The areas will offer nesting and foraging resources in the breeding season, and foraging resources in the non-breeding season, particularly for granivorous species such as linnet and yellowhammer;
- Retention and strengthening of existing hedgerow habitats, and creation of new hedgerows. The planting plan will include use of fruit-bearing species beneficial to birds, to ensure year-round shelter and enhanced foraging resources. Much of the proposed planting is necessary to provide visual screening, as specified within the Landscape and Visual Assessment; however, where possible without compromising this aim, areas of scrub will be incorporated into the planting plan;
- Planting of woodland blocks around some boundaries and individual trees within hedgerow that are permitted to mature;
- Provision of two kestrel nest boxes in suitable locations, as directed by an ECoW. The box can be located on a tree, pole or building, in undisturbed locations close to grassland and with good visibility²².

²² <https://www.rspb.org.uk/birds-and-wildlife/advice/how-you-can-help-birds/nestboxes/nestboxes-for-owls-and-kestrels/kestrel-nestboxes/>

- Provision of ten passerine nest boxes targeted toward tree sparrow, and mounted together (in a small area spanning no more than five posts) on the security fence adjacent to hedgerow habitat, with the location to be determined by an ECoW

Further details and locations of the measures are available in the Landscape and Biodiversity Management Plan (LBMP)²³.

6.2 Schedule 1-listed Bird Species

Under the current baseline condition, no adverse effects are predicted and no mitigation is necessary; however, as the status of peregrine could change within the Site, the following precautionary mitigation is proposed:

- If construction is to start between March and August of any year, surveys will be carried out prior to commencement of works to identify the present status of peregrine within the Site and 1 km buffer.
- If peregrine is considered likely to be nesting within the survey area, an assessment will be made of the potential for disturbance and, if required, an appropriate exclusion area will be established to prevent disturbance.
- The extent of the exclusion area will be dictated by site-specific conditions, such as the location of the nest, habitats in the area and the nature of the planned works. It may be necessary to agree the extent of the exclusion area with consultees.
- The nest will be monitored, and the exclusion area will be subject to review. It may be modified or removed, subject to the breeding status of the birds, observed behaviour of the birds and/or the nature of the construction works being carried out.

No other Schedule 1-listed species are considered to be breeding within the Site or surrounds; however, if any species are detected during construction, works will cease and an ecologist will be contacted for advice.

6.3 General Mitigation

Birds are subject to varying levels of legal protection. Therefore, to adhere to good practice guidelines and ensure compliance with the Wildlife and Countryside Act 1981 (as amended)², avoidance and/or mitigation measures will be required.

Assuming the habitats within the Site are comparable to the conditions at the time of the surveys, no substantive vegetation removal is required to facilitate the Development. However, any small-scale clearance, such as removal of ruderal vegetation, widening access tracks or cutting back overhanging vegetation, will be subject to the following best practice measures:

- To ensure compliance with the Wildlife and Countryside Act 1981 (as amended)², any work involving vegetation clearance during the peak bird nesting season (March to August) must be avoided where possible, or will be subject to pre-construction nest searches;
- If any clearance works to nesting habitats are required during the nesting season, then pre-construction checks for nesting birds would need to be carried out by a suitably experienced ecologist no more than 48 hours prior to the works commencing:
 - If any nesting birds are found to be present, an appropriate buffer zone would be implemented, within which works are excluded, for the duration of the breeding attempt. Any active nests will need to be left *in situ* until a suitably experienced ecologist confirms that the nesting attempt has reached a natural conclusion.
 - In the unlikely event that any birds listed under Schedule 1 of the Wildlife and Countryside Act 1981 (as amended)² above²⁴ are found to be nesting within or

²³ Arcus (2021) *Landscape and Biodiversity Management Plan. Sweetbriar Solar Farm.*

²⁴ <https://www.rspb.org.uk/birds-and-wildlife/advice/wildlife-and-the-law/wildlife-and-countryside-act/schedules/>

close to the Site, works will stop and an ecologist will need to be contacted for further advice.

- Consideration will be given to mitigation measures for other ecological interests, such as those required to safeguard herptiles. If any potential conflict is identified, works/situation-specific advice can be provided on-site by an appropriately qualified and experienced ECoW.

7 CONCLUSION

Bird surveys and a desk study have been carried out to determine the baseline conditions at the Site, to inform an assessment of the potential impacts of a solar development on birds. Based on a review of available data, two ornithological features, namely farmland birds of conservation concern and peregrine, were identified as important and potential impacts on these features have been assessed. With the implementation of appropriate mitigation and compensation, impacts on these assemblages will be negligible. Compensation and enhancement measures are included in the Development design that will offer long-term benefits for ornithology interests at the Site, including improved nesting and foraging resources for numerous species of conservation concern.

8 ENDNOTE

Between completion of this assessment and submission of the application, the Birds of Conservation Concern 5 was published²⁵. This is a standard reference for categorising the conservation status of the UK's bird species and helps inform the valuation of features within as part of the EcIA process.

Several species have been elevated to Amber- or Red-listings, including wood pigeon, rook, common whitethroat, wren and greenfinch, all of which were recorded during the BBS. Detailed information is not available for all of these species; however, a brief summary of their status is provided here.

Woodpigeon and Wren are amber-listed species of conservation concern, both for the importance of the British population in the context of wider European populations. Both species are abundant in the UK with notable population increases recorded since the 1970s, and are among the UK's most numerous birds. Both species are present within the Site but, given the population status and trend within the UK, including their ubiquity across many areas and regular presence in heavily disturbed habitats, these species are not considered an important feature. Rook likely forages within the Site on occasion; however, there was no evidence of a nesting colony in the area. The foraging habitats used by rook are widely available in the area, and the loss of the Site is not considered significant. Whitethroat were recorded in the hedgerows within and around the Site. These habitats will be retained and improved. Greenfinch was not recorded within the Site, but was present in habitats in the wider BBS Area, notable around the farm and nearby gardens. All habitats that will be retained, and greenfinch may benefit from the proposed improvements to hedgerows within the Site.

Overall, the changed status of these species does not alter the assessment presented. The mitigation proposed is still relevant and the conclusions still considered valid.

²⁵ Stanbury, A., et al. (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, December 2021. 723–747. PDF Available online at: https://britishbirds.co.uk/sites/default/files/BB_Dec21-BoCC5-IUCN2.pdf

APPENDIX A – LEGISLATION AND POLICY

The Wildlife and Countryside Act 1981

The Wildlife and Countryside Act 1981², as amended by the Countryside and Rights of Way Act (CROW) 2000²⁶ and the Natural Environment and Rural Communities Act (NERC) 2006⁴, is the main legislation that protects wildlife in Great Britain, and is the mechanism for defining and protecting nationally important Sites of Special Scientific Interest (SSSI).

The legislation makes it an offence to intentionally kill, injure or take any wild bird or their eggs or nests (with certain exceptions) and to disturb any bird species listed under Schedule 1 of the Act, or its dependent young while it is nesting.

The Conservation of Habitats and Species Regulations 2017

The Conservation of Habitats and Species Regulations 2017³ (the 'Habitat Regulations'), as amended by The Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019²⁷, transposes elements of the Habitats Directive (92/43/EEC)²⁸ and the Birds Directive (2009/147/EC)⁹ into domestic UK legislation. It establishes the requirements for protecting sites that are internationally important for threatened habitats and species – the National Site Network – and thus the requirement for a 'Habitat Regulations Assessment' (HRA) of plans or developments with the potential to affect them.

Natural Environment and Rural Communities (NERC) Act 2006

The NERC Act 2006⁴ places a duty on local planning authorities to have due regard for biodiversity and nature conservation during the course of their operations, and thus ensures that biodiversity is a key consideration in the planning process. The Act also establishes a list of species and habitats of principal importance for the conservation of biodiversity.

National Planning Policy Framework 2021

The National Planning Policy Framework (NPPF) 2021⁵ sets out the Government's requirement for the planning system in England, and in doing so, establishes the framework within which local planning authorities can develop their own planning policies. The NPPF explicitly addresses the conservation and enhancement of the natural environment, including biodiversity, through paragraphs 174–177.

²⁶ The Countryside and Rights of Way Act 2000. Available from: <https://www.legislation.gov.uk/ukpga/2000/37/contents>.

²⁷ The Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019 Available from: <https://www.legislation.gov.uk/ukdsi/2019/9780111179512/contents>.

²⁸ The Habitats Directive (92/43/EEC). Available from: https://ec.europa.eu/environment/nature/legislation/habitatsdirective/index_en.htm.

APPENDIX B – BIRD SPECIES NAMES AND CONSERVATION DESIGNATIONS

Table A1 list provides English vernacular and scientific names for all bird species mentioned in this report.

Nomenclature and taxonomic order are based on the BOU 'British List'⁶.

Table A1: List of English vernacular and scientific names of bird species

Species		Schedule 1/ Annex I Listings	SPI and/or BoCC Listing*
English (British) Vernacular Name	Scientific Name		
Greylag goose	<i>Anser anser</i>		Amber
Red-legged partridge	<i>Alectoris rufa</i>		
Grey partridge	<i>Perdix perdix</i>		SPI, Red
Pheasant	<i>Phasianus colchicus</i>		
Stock dove	<i>Columba oenas</i>		Amber
Woodpigeon	<i>Columba palumbus</i>		
Collared dove	<i>Streptopelia decaocto</i>		
Lapwing	<i>Vanellus vanellus</i>		SPI, Red
Golden Plover	<i>Pluvialis apricaria</i>	Annex I	
Curlew	<i>Numenius arquata</i>		SPI, Red
Black-headed gull	<i>Chroicocephalus ridibundus</i>		Amber
Lesser black-backed gull	<i>Larus fuscus</i>		Amber
Grey heron	<i>Ardea cinerea</i>		
Buzzard	<i>Buteo buteo</i>		
Barn owl	<i>Tyto alba</i>	Schedule 1	
Little owl	<i>Athene noctua</i>		
Great spotted woodpecker	<i>Dendrocopos major</i>		
Kestrel	<i>Falco tinnunculus</i>		Amber
Peregrine	<i>Falco peregrinus</i>	Schedule 1, Annex I	
Magpie	<i>Pica pica</i>		
Rook	<i>Corvus frugilegus</i>		
Carrion crow	<i>Corvus corone</i>		
Blue tit	<i>Cyanistes caeruleus</i>		
Great tit	<i>Parus major</i>		
Skylark	<i>Alauda arvensis</i>		SPI, Red
Swallow	<i>Hirundo rustica</i>		
House martin	<i>Delichon urbicum</i>		
Willow warbler	<i>Phylloscopus trochilus</i>		Amber
Chiffchaff	<i>Phylloscopus collybita</i>		
Blackcap	<i>Sylvia atricapilla</i>		
Garden warbler	<i>Sylvia borin</i>		
Whitethroat	<i>Sylvia communis</i>		
Wren	<i>Troglodytes troglodytes</i>		

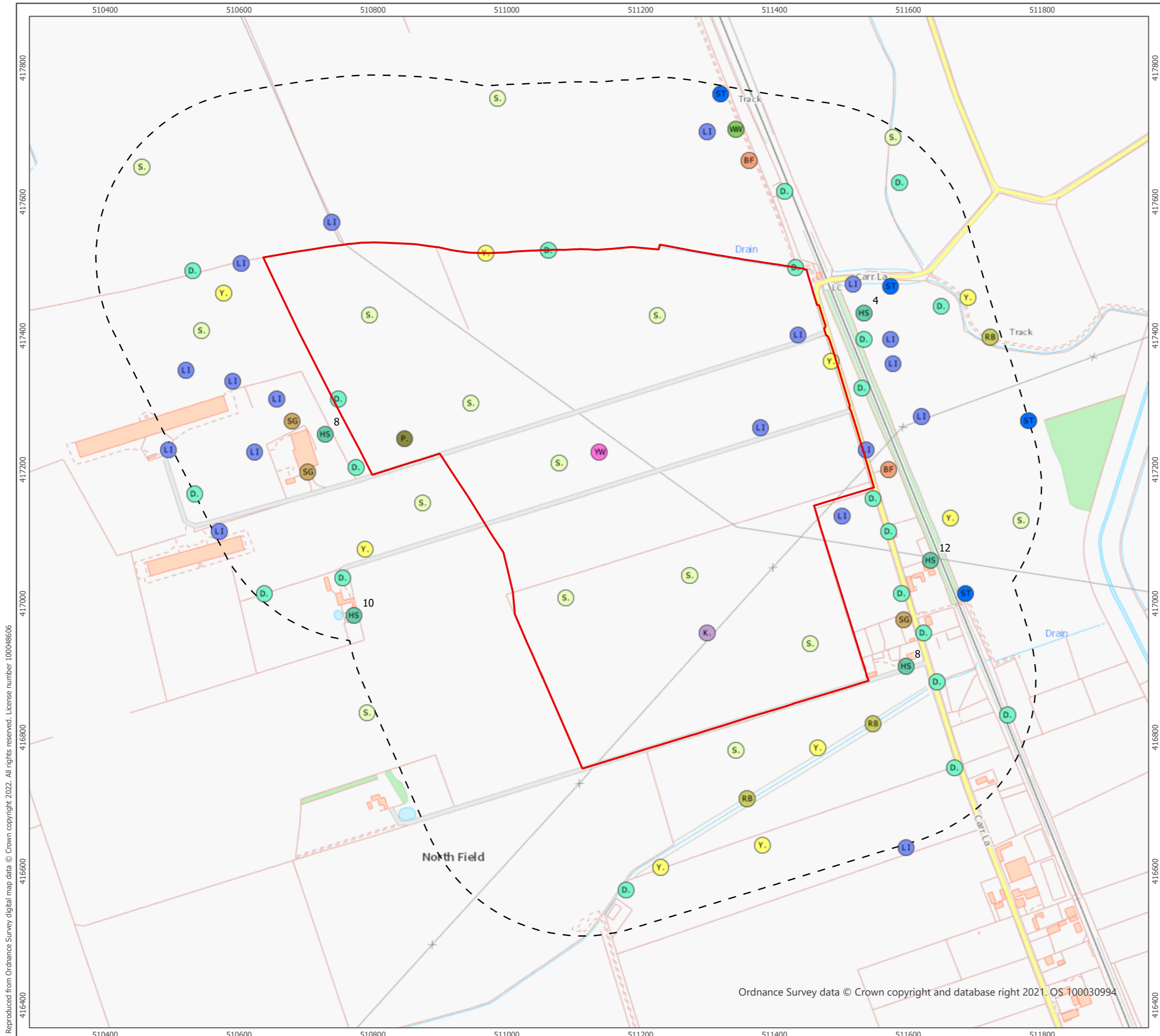
Species		Schedule 1/ Annex I Listings	SPI and/or BoCC Listing*
English (British) Vernacular Name	Scientific Name		
Starling	<i>Sturnus vulgaris</i>		SPI, Red
Song thrush	<i>Turdus philomelos</i>		SPI, Red
Redwing	<i>Turdus iliacus</i>	Schedule 1**	Red
Blackbird	<i>Turdus merula</i>		
Fieldfare	<i>Turdus pilaris</i>	Schedule 1**	Red
Robin	<i>Erithacus rubecula</i>		
House sparrow	<i>Passer domesticus</i>		SPI, Red
Dunnock	<i>Prunella modularis</i>		SPI, Amber
Yellow wagtail	<i>Motacilla flava</i>		SPI, Red
Pied wagtail	<i>Motacilla alba</i>		
Meadow pipit	<i>Anthus pratensis</i>		Amber
Chaffinch	<i>Fringilla coelebs</i>		
Bullfinch	<i>Pyrrhula pyrrhula</i>		SPI, Amber
Greenfinch	<i>Chloris chloris</i>		
Linnet	<i>Linaria cannabina</i>		SPI, Red
Goldfinch	<i>Carduelis carduelis</i>		
Yellowhammer	<i>Emberiza citronella</i>		SPI, Red
Reed bunting	<i>Emberiza schoeniclus</i>		SPI, Amber

* SPI = Species of Principal Importance (NERC, 2006)⁴ and BoCC = Birds of Conservation Concern 4 (Eaton, et al., 2015)¹⁰ - See also Endnote, Section 8.

Where no BoCC listing is shown, species are Green-listed, or do not have a listing as they are introduced or non-native (e.g. pheasant and little owl).

** Schedule 1 listed species have a greater level of protection during the breeding season; however, in this instance this designation is unlikely to be relevant to these species which are widespread and expected within the Site during the non-breeding season but do not breed in the area.

APPENDIX C – FIGURE



- BBS Area
- BF Bullfinch
- D Dunnock
- P Grey Partridge
- HS House Sparrow
- K Kestrel
- LI Linnet
- RB Reed Bunting
- ST Song Thush
- S Skylark
- SG Starling
- WW Willow Warbler
- YW Yellow Wagtail
- Y Yellowhammer

1:5,500 Scale @ A3



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Breeding Bird Survey
Figure 1

Sweetbriar Solar Farm
Ornithological Impact Assessment

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