
Belvoir Solar Farm
on behalf of JBM Solar Projects 10 Ltd
Breeding Bird Survey Report - 2020



Document Control				
Project Name:		Belvoir Solar Farm		
Project Number:		Pegas-075-1270		
Report Title:		Breeding bird Survey Report - 2020		
Issue	Date	Notes	Prepared	Reviewed
V1	14/10/2020	Draft for Client Approval	A. Morley <i>BSc</i>	Dr C Bonnington <i>DPhil MSc BSc (Hons.) MCIEEM</i>
V2	11/11/2021	Updated with new site boundary	S. Turner <i>MSc MCIEEM</i>	B. Walker <i>MSc MCIEEM</i>
V3	15/09/2022	Updated– any amendments from previous version marked in red	A. Hulme <i>BSc</i>	N. Robinson <i>MSc BSc (Hons.) ACIEEM</i>

This report has been prepared in accordance with the terms and conditions of appointment [on request]. Avian Ecology Ltd. (6839201) cannot accept any responsibility for any use of or reliance on the contents of this report by any third party.

CONTENTS

1	INTRODUCTION	1
1.1	Project Background.....	1
1.2	Site Overview.....	1
2	METHODOLOGY.....	1
2.1	Breeding Bird Survey.....	1
3	RESULTS	2
4	CONCLUSION	4

FIGURES

Figure 5.4.1 – Breeding Bird Survey Results

ANNEXES

Annex 1 – Bird Species Summary

Annex 2 – Breeding Bird Survey Effort

1 INTRODUCTION

1.1 Project Background

1.1.1 Avian Ecology Ltd. was commissioned by JBM Solar Projects 10 Ltd to undertake breeding bird surveys in relation to a proposed solar farm development, on land to the west of the village Muston, Lincolnshire (termed 'the Site'). **The final Site boundary and Proposed Development layout has since been updated and is reflected within this report (termed 'the Site').**

1.1.2 The objectives of this report are:

- Provide baseline information on the current breeding ornithological features within the Site; and,
- Identify the presence of notable breeding bird species within the Site.

1.1.3 Only common bird species names are referred to within the main text of this Appendix. **Annex 1** provides a summary of all bird species recorded during the surveys. Both common and species names together with a summary of their conservation status as relevant is provided.

1.2 Site Overview

1.2.1 The dominant habitats within the Site are arable and improved grassland with some broad-leaved woodland, species-poor hedgerows and scattered trees within field boundary hedgerows. No statutory designated sites for migratory bird species Site; however Muston Meadows Site of Special Scientific Interest (SSSI) which is located immediately adjacent to the south-east of the Site is designated for its botanical interest. There are no Statutory Designated Sites with qualifying interest for migratory bird species within 15km of the Site.

2 METHODOLOGY

2.1 Breeding Bird Survey

2.1.1 A Breeding bird survey was undertaken monthly between May and July 2020 (total of three surveys). All three surveys were carried out from dawn and finished by 10:30hrs and were carried out in conditions conducive for breeding bird surveys (avoiding heavy rain and strong winds).

2.1.2 **The survey area for the breeding bird survey comprised a preliminary Site boundary, and adjoining habitats within 100m of this (termed 'the Survey Area'). Only Notable Species were recorded within the extended 100m buffer. The Study Area is shown in Figure 5.4.1.**

2.1.3 Breeding bird surveys were undertaken by A. Morley (BSc) and Z. Hinchcliffe MRes who are both experienced ornithologists. Survey effort is summarised in **Table 2.1** with further details presented in **Annex 2**.

2.1.4 **The methodology employed was based upon a scaled-down version of the British Trust for Ornithology (BTO) Common Bird Census (CBC) technique, as detailed in Gilbert *et al.* (1998¹). All bird registrations were recorded on suitably scaled field maps using standard BTO species codes and behaviour notations (such as singing, carrying food, active nest). The approximate locations of bird territories within the Site were determined using standard territory mapping techniques to identify and Records of birds just visiting the Site (e.g. gulls feeding in fields) and birds flying over the Site were also made and the records of these summarised, however these have been discounted from further analysis,**

given they are not breeding within the Site and are therefore not considered relevant to the assessment.

Table 2.1: Breeding bird survey effort.

Date	Start time (24hrs)	End time (24hrs)	Sunrise times (24hrs)	Survey conditions
14/05/2020	07:23	10:10	05:10	South westerly breeze (2 on Beaufort Scale), cloudy with sunny spells, good visibility.
09/06/2020 ²	07:15	10:30	04:45	South westerly gentle breeze (1 on Beaufort Scale), overcast, dry. Good visibility.
16/07/2020	06:45	10:20	05:03	Moderate westerly breeze (2 on Beaufort Scale), overcast but very warm at 15°C and dry, good visibility.

Limitations

- 2.1.5 Access was permitted to all parts of the 'Survey Area during all surveys and as such no access limitations were experienced.
- 2.1.6 Surveys were carried out in May, June and July with no surveys undertaken in April. Given the habitats present it is predicted that early breeding birds that use these habitats, would have been recorded during this survey, so the omission of an April survey is not considered a material limitation to the objectives of the survey.

3 RESULTS

- 3.1.1 The breeding bird assemblage recorded within the Site is representative of farmland habitats. Nine breeding Notable Species were recorded within the Survey Area, consisting of five Amber List species (quail, song thrush, wren, reed bunting and dunnock), and four Red List species (skylark, linnet, grey partridge and yellowhammer). Of these, three are also species listed as rare and most threatened species under Section 41 (S41) of the Natural Environment and Rural Communities (NERC) Act (2006) (yellowhammer, grey partridge and linnet). Furthermore, five species are also Lincolnshire Biodiversity Action Plan (LBAP)² species (grey partridge, skylark, yellowhammer, reed bunting and linnet). The number of breeding territories of these species were typically low (≤ 4 territories), with skylark (10 territories within Site) and yellowhammer (9 territories within Site).
- 3.1.2 The Notable Species breeding assemblage (which included dunnock, reed bunting and yellowhammer) was typically associated with vegetation along field boundaries within the Survey Area, principally hedgerows, scrub, tree-lines and woodland habitats.
- 3.1.3 Ground-nesting Notable Species which use open fields onsite and within the 100m buffer consisted of skylark (10 territories within the Site) and quail (1 territory within the buffer).
- 3.1.4 All breeding species recorded along with an estimated number of territories are detailed within **Table 3.1**. Those species in **bold** are considered Notable Species.
- 3.1.5 For the purposes of the assessment, although the estimated number of breeding territories for all species is provided only the breeding territories of Notable Species are mapped, given these are the most relevant species to the assessment. Notable Species consist of Birds of Conservation Concern

² <http://www.southkesteven.gov.uk/CHttpHandler.ashx?id=7371&p=0> [Accessed 22/08/2022].

(BoCC Amber and Red List Species (updated since V2 to reflect current guidance; Stanbury *et al.* 2021³) and Annex 1/Schedule 1 raptors and owls.

3.1.6 The indicative locations of the territories of Notable Species are provided in **Figure 5.4.1**.

Table 3.1: Breeding bird survey results.

Common name	Estimated number of territories within the Site (additional territories within the Survey Area)	Comments
Quail	0 (1)	Two males singing in arable crop fields.
Grey Partridge	1	Present in the northern area of the Site.
Blue Tit	2	Associated with vegetation along field boundaries, some individuals observed carrying food.
Great Tit	3	Associated with hedgerows and trees along field boundaries.
Skylark	10	Singing males in suitable breeding habitat (open fields across the Site).
Blackcap	2	Singing males associated with vegetation along field boundaries, mainly hedgerows and trees.
Chiffchaff	7	Singing males associated with vegetation along field boundaries.
Sedge Warbler	1	Single male singing along southern boundary.
Whitethroat	7	Singing males within hedgerows and along field boundaries.
Song Thrush	1	Singing males within hedgerows and along field boundaries.
Blackbird	4	Associated with field boundaries and hedgerows.
Blackcap	2	Associated with field boundaries and hedgerows.
Chaffinch	5	Associated with field boundaries and hedgerows.
Carrion crow	1	Associated with field boundaries and hedgerows.
Wren	4	Associated with vegetation along field boundaries and hedgerows.
Robin	2	Associated with vegetation along field boundaries.
Dunnock	4	Associated with vegetation along field boundaries.
Reed Bunting	2 (1)	Associated with hedgerows and boundary vegetation of the Site.

³ Stanbury, A., Eaton, M., Aebischer, N., Balmer, D., Brown, A., Douse, A., Lindley, P., McCulloch, N., Noble, D., and Win I. (2021) The status of our bird populations: the fifth Birds of Conservation Concern in the United Kingdom, Channel Islands and Isle of Man and second IUCN Red List assessment of extinction risk for Great Britain. *British Birds* 114, pp. 723-747

Linnet	2 (1)	Associated with arable crop.
Yellowhammer	9	Singing males within hedgerows and along field boundaries.

3.1.7 During the surveys a small number of species were recorded which were not considered as breeding within the Survey Area. These consisted of species flying over the Survey Area only (red kite, buzzard and kestrel), and those considered only visiting the Survey Area to feed (meadow pipit, pied wagtail, magpie, greylag goose, starling, carrion crow, goldfinch, woodpigeon, jackdaw, lapwing, collared dove, swallow, swift, stock dove and meadow pipit)⁴.

4 CONCLUSION

4.1.1 The updated Site and immediately surrounding land support a breeding bird assemblage indicative of farmland habitats. Most breeding species (including Notable Species) were associated with the field boundary vegetation (such as hedgerows, trees and woodland). Ground-nesting notable species which use open ground recorded were skylark (estimated 10 breeding territories within the Site) and quail (estimated 1 territory within the buffer). Notable Species were recorded in modest numbers with breeding territories typically ≤ 4 within the Site, with skylark (10 territories) and yellowhammer (9 territories) being the only exceptions.

⁴ This was based on a number of factors including the number and gender of birds recorded (e.g. only one record of one female during the survey period), unsuitability of habitats onsite for breeding of some species, and movement of birds from Site to a suspected nest site offsite.

ANNEX 1. BIRD SPECIES SUMMARY

Table A1-1 provides a list of bird species recorded during the breeding bird surveys. Both common and species names are presented along with a summary of each species conservation status using the following abbreviations:

- Annex 1 – species listed on Annex 1 of the EU Birds Directive as threatened;
- S1- species listed on Schedule 1 of the Wildlife and Countryside Act 1981 (as amended – species listed on this Schedule, but are provided more protection from harassment;
- BoCC - BoCCs as listed by leading bird conservation organisations in the UK, including the RSPB and BTO. Red and Amber categories are given (Eaton *et al.*, 2015);
- NERC S41 - species listed as rare and most threatened on the NERC Act (2006); and,
- LBAP – species on the Lincolnshire Local Biodiversity Action Plan.

Table A1-1: Summary of bird species.

Common name	Species name	Conservation status
Greylag Goose	<i>Anser anser</i>	BoCC – Amber
Carrion crow	<i>Corvus corone</i>	-
Blackcap	<i>Sylvia atricapilla</i>	-
Starling	<i>Sturnus vulgaris</i>	BoCC – Red, NERC S41, LBAP
Goldfinch	<i>Carduelis carduelis</i>	-
Woodpigeon	<i>Columba palumbus</i>	-
Reed Bunting	<i>Emberiza schoeniclus</i>	BoCC – Amber
Song Thrush	<i>Turdus philomelos</i>	BoCC – Red, NERC,
Blackbird	<i>Turdus merula</i>	-
Grey Partridge	<i>Perdix perdix</i>	BoCC – Red, NERC S41, LBAP
Kestrel	<i>Falco tinnunculus</i>	BoCC – Amber
Blue Tit	<i>Cyanistes caeruleus</i>	-
Skylark	<i>Alauda arvensis</i>	BoCC – Red, NERC S41, LBAP
Great tit	<i>Parus major</i>	-
Dunnock	<i>Prunella modularis</i>	BoCC – Amber, NERC S41
Wren	<i>Troglodytes troglodytes</i>	-
Robin	<i>Erithacus rubecula</i>	-
Whitethroat	<i>Sylvia communis</i>	-
Yellowhammer	<i>Emberiza citrinella</i>	BoCC – Red, NERC S41, LBAP
Quail	<i>Citurnix coturnix</i>	BoCC – Amber
Chiffchaff	<i>Phylloscopus collybita</i>	-
Sedge warbler	<i>Acrocephalus schoenobaenus</i>	-

Common name	Species name	Conservation status
Linnet	<i>Linaria cannabina</i>	BoCC – Red, NERC S41, LBAP
Pied Wagtail	<i>Motacilla alba</i>	-
Jackdaw	<i>Corvus Monedula</i>	-
Red Kite	<i>Milvus milvus</i>	BoCC – Red, NERC S41, LBAP, Annex 1, Sch1
Magpie	<i>Pica pica</i>	-
Lapwing	<i>Vanellus vanellus</i>	BoCC – Red, NERC S41, LBAP
Collard Dove	<i>Streptopelia decaocto</i>	-
Swallow	<i>Hirundo rustica</i>	-
Swift	<i>Apus apus</i>	BoCC – Amber
Stock Dove	<i>Columba oenas</i>	BoCC – Amber
Meadow Pipit	<i>Anthus pratensis</i>	BoCC – Amber
Chaffinch	<i>Fringilla coelebs</i>	-

ANNEX 2: BREEDING BIRD SURVEY EFFORT

Date	Surveyor	Start Time (24 hrs)	End time (24 hrs)	Wind Speed	Wind Direction	Rain	Cloud Height	Cloud Cover	Visibility	Frost	Snow	Temperature (°C)
13/05/2020	ZH	07:23	10:10	2	South West	0	2	8	2	0	0	7°C
09/06/2020	AM	07:15	10:30	2	South West	0	2	6	2	0	0	10°C
16/07/2020	AM	06:45	10:20	4	West	0	2	8	2	0	0	15°C

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