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# Belvoir Solar Farm

on behalf of JBM Solar Projects 10 Ltd

Wintering Bird Survey Report 2019-2020



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# 1 INTRODUCTION

- 1.1.1 Avian Ecology Ltd. was commissioned by JBM Solar Projects 10 Ltd (hereafter 'JBM Solar' to undertake wintering bird surveys in relation to a proposed solar farm development, to the west of the village Muston, Lincolnshire (termed 'the Site'). The final layout has since been updated and is reflected within this report.
- 1.1.2 This report presents the results of wintering bird surveys undertaken by Avian Ecology during February and March 2020 across potentially suitable habitats within the Site and the surrounding fields. This report also considers information gathered from winter bird surveys carried out by Grassroots Ecology<sup>1</sup> earlier in the winter period (December 2019 and January 2020).
- 1.1.3 No statutory designated sites are located on Site; however Muston Meadows Site of Special Scientific Interest (SSSI) is located immediately adjacent to the south-east of the Site. There are no Statutory Designated Sites with qualifying interest for migratory bird species within 15km of the Site.

## 2 METHODOLOGY

### 2.1 Grassroots Ecology Wintering Bird Surveys

- 2.1.1 This report considers information gathered from winter bird surveys carried out by Grassroots Ecology between December 2019 and January 2020. It should be noted that the survey area of Grassroots Ecology covered a preliminary Site boundary appropriate at the time of the survey, and which included several additional fields that have since been removed from Site. See **Annex 1**.
- 2.1.2 Grassroots Ecology undertook two wintering bird surveys on 5<sup>th</sup> December 2019 and 30<sup>th</sup> January 2020. All surveys were carried out by Dr. R Holmes (RH). The full report by Grassroots Ecology is presented in **Annex 1**.
- 2.1.3 For the purposes of this report, only those species regarded as Target Species recorded during these surveys are considered. The definition of Target Species is provided in **Section 2.2**.

### 2.2 Avian Ecology Wintering Bird Surveys

- 2.2.1 Wintering bird surveys were undertaken by Avian Ecology on the 25<sup>th</sup> February 2020 and 10<sup>th</sup> March 2020.
- 2.2.2 The survey area comprised of the habitats within the preliminary Site boundary and Wider Survey Area defined as the fields surrounding the preliminary Site within a buffer 600m. This has since been updated to reflect the current Site boundary, henceforth referred to as the 'Site', as shown in **Figure 5.3.1**.
- 2.2.3 A total of two visits were completed with 'walk-over' surveys adopting the 'look-see' methodology (Gilbert *et al.* 1998<sup>2</sup>), observing each field, walking the boundaries, and stopping at intervals and scanning the fields for Target Species, with binoculars. All Target Species heard or seen were recorded onto basemaps. The number of Secondary Species was tallied during the survey, although no attempt to map these species was made.

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<sup>2</sup> Gilbert G, Gibbons D.W. and Evans J. (1998) *Bird Monitoring Methods*. RSPB Sandy.

- 2.2.4 Target Species recorded during the survey were wetland bird species, principally waders, waterfowl and gulls, and Annex 1<sup>3</sup>/Schedule 1<sup>4</sup> raptors. Secondary Species consisted of non-Annex 1/Schedule 1 raptors and owl, notable flocks of non-wetland Birds of Conservation Concern (BoCC Amber and Red List Species (Eaton *et al.* 2015 updated with Stanbury *et al.* (2021)<sup>5</sup>) and Leicestershire and Rutland Biodiversity Action Plan species (LBAP)<sup>6</sup>.
- 2.2.5 All surveys were undertaken during daylight hours in weather conditions conducive to bird surveys.
- 2.2.6 Survey visits were undertaken by Z. Hinchcliffe MRes (ZH) and or A. Morley BSc (AM), both experienced ornithologists.
- 2.2.7 Winter walk-over survey effort completed by Grassroots Ecology and Avian Ecology is summarised in **Table 2.1**. Detailed survey effort is presented in **Annex 1** and **2**.

**Table 2.1: Winter walk-over survey effort.**

Survey Visit	Date	Surveyor	Start Time (24hrs)	End Time (24hrs)	Survey Conditions
1*	05/12/19	RH	-	-	Information not provided
2*	30/01/20	RH	-	-	Information not provided
3	25/02/2020	ZH/AM	12:15	14:30	Dry, clear, gentle breeze. Good visibility.
4	10/03/2020	ZH	09:40	12:15	Dry, clear, fresh breeze. Good visibility.

\*Surveys carried out by Grassroots Ecology

#### Limitations to survey

- 2.2.8 Survey methodology carried out by Grassroots Ecology only surveyed within the redline boundary with additional observations along the Grantham Canal to the south of the Site. Typically surveys use a 600m buffer from the Site as a Wider Survey Area because 600m is considered the maximum distance at which species included as Target Species have been known to be disturbed.
- 2.2.9 Wintering bird surveys are generally undertaken between October and March, for example at locations where there is a likelihood of high levels of bird use by species associated with a designated site such as a Special Protection Area (SPA). However, due to the late commission of the surveys, wintering bird surveys were only undertaken between January and March 2020. This was not considered to be a significant constraint on the ornithological assessment due to very low numbers of Target and Secondary Species recorded and because the Site is not within 15km of any international designated site or within 5km of any nationally designated site; which have migratory and/or wintering wetland birds as qualifying species.

<sup>3</sup> [https://ec.europa.eu/environment/nature/conservation/wildbirds/threatened/index\\_en.htm](https://ec.europa.eu/environment/nature/conservation/wildbirds/threatened/index_en.htm)

<sup>4</sup> <https://www.rspb.org.uk/birds-and-wildlife/advice/wildlife-and-the-law/wildlife-and-countryside-act/schedules/>

<sup>5</sup> 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: 723-747

<sup>6</sup> [https://www.lrwt.org.uk/sites/default/files/2020-01/space\\_for\\_wildlife\\_\\_llrbap\\_2016-26\\_part\\_1.pdf](https://www.lrwt.org.uk/sites/default/files/2020-01/space_for_wildlife__llrbap_2016-26_part_1.pdf)

2.2.10 At the time of survey, BoCC Red and Amber Listed species were listed under Eaton *et al.* (2005)<sup>7</sup> so species that were previously not listed as red or amber species may have been observed but not recorded or recorded with limited detail. For example wren *Troglodytes troglodytes* and woodpigeon *Columba palumbus* were observed during the Grassroots surveys but no further details were recorded. However, most species previously listed as non-BoCC species would be listed as secondary species and as a result, this is not considered to be a significant limiting factor.

### 3 RESULTS

#### 3.1 Grassroots Ecology Survey Results

- 3.1.1 The surveys by Grassroots Ecology recorded no Target Species and six Secondary Species, within the survey area as summarised in **Table 3.1**. Survey results along the Grantham Canal, outside the Site in the Grassroots Wider Survey Area are presented in **Table 3.2**.
- 3.1.2 Detailed locations of bird records can be found in the Grassroots Ecology survey report in **Annex 1**.
- 3.1.3 Only fields containing Target and Secondary Species are shown; all other fields had no Target or Secondary species recorded.

**Table 3.1: Grassroots Ecology - Winter ‘walk-over’ survey results – Grassroots ‘extended’ Site boundary**

Species	Survey visit		Conservation Status
	1	2	
<b>No Target Species</b>			
Secondary Species			
Grey partridge <i>Perdix perdix</i>	-	1	NERC S.41, BoCC - Red
Woodpigeon <i>Columba palumbus</i>	Present		BoCC - Amber
Skylark <i>Alauda arvensis</i>	1	12	NERC S.41, BoCC - Red
Wren <i>Troglodytes troglodytes</i>	Present		BoCC – Amber
Dunnock <i>Prunella modularis</i>	8	3	NERC S.41, BoCC - Amber
Song thrush <i>Turdus philomelos</i>	-	14	NERC S.41, BoCC - Amber
Fieldfare <i>Turdus pilaris</i>	-	86	S1, BoCC- Red
Meadow pipit <i>Anthus pratensis</i>	51	14	BoCC - Amber
‘-’ means that the species was not recorded during that visit.			
<u>Conservation Status</u>			
S1 - Birds listed on Schedule 1 of the Wildlife and Countryside Act			
NERC S 41 - Species listed on Section 41 of the NERC Act (2006)			
BoCC – Species listed on the Birds of Conservation Concern 5			

<sup>7</sup> Eaton MA, Aebischer NJ., Brown AF., Hearn R., Lock L., Musgrove AJ., Noble DG., Stroud D. and Gregory R.D (2015) Birds of Conservation Concern 4: the population status of birds in the United Kingdom, Channel Islands and the Isle of Man. *British Birds* 108, pp 708–746.

**Table 3.2 – Grassroots Ecology - Winter walk-over survey results – Grassroots Wider Survey Area**

Species	Survey visit		Conservation Status
	1	2	
<b>Target Species</b>			
<b>Mute swan <i>Cygnus olor</i></b>	-	<b>3</b>	<b>BoCC - Amber</b>
<b>Mallard <i>Anas platyrhynchos</i></b>	-	<b>1</b>	<b>BoCC - Amber</b>
<b>Coot <i>Fulica atra</i></b>	-	<b>1</b>	-
<b>Secondary Species</b>			
Skylark	1	-	NERC S.41, BoCC - Red
Dunnock	-	1	NERC S.41, BoCC - Amber
Redwing <i>Turdus illicaus</i>	2	-	S1, BoCC- Red
Song thrush	4	-	NERC S.41, BoCC - Amber
Fieldfare	5	24	S1, BoCC- Red
Mistle thrush <i>Turdus viscivorus</i>	1	1	BoCC - Red
Meadow pipit	3	-	BoCC - Amber
<p><b>Target species recorded in bold</b>                      '-' means that the species was not recorded during that visit.</p> <p><u>Conservation Status</u></p> <p>S1 - Birds listed on Schedule 1 of the Wildlife and Countryside Act                      NERC S 41 - Species listed on Section 41 of the NERC Act (2006)                      BoCC – Species listed on the Birds of Conservation Concern 5</p>			

## 3.2 Avian Ecology Survey Results

- 3.2.1 The Site supported no Target Species, and five Secondary Species (skylark, starling *Sturnus vulgaris*, fieldfare, redwing and yellowhammer *Emberiza citrinella*). Results for within the Site are summarised in **Table 3.3**.
- 3.2.2 Only one Target Species (mute swan) was recorded within the Wider Survey Area, along with six Secondary Species (kestrel *Falco tinninulus*, skylark, dunnock, starling, redwing and yellowhammer). Results for within the Wider Survey Area are summarised in **Table 3.4**.
- 3.2.3 Detailed locations of bird observations are presented in **Figure 5.3.2**.
- 3.2.4 Only fields containing Target and Secondary Species are shown; all other fields had no Target or Secondary species recorded.

**Table 3.3: Winter walk-over survey results – The Site.**

Field Number	Species	Survey Visits		Conservation Status
		3	4	
<b>No Target Species</b>				

Secondary Species:				
1	Redwing	-	5	S1, BoCC- Red
	Fieldfare	-	34	S1, BoCC- Red
	Starling	-	2	NERC S.41, BoCC - Red
2	Redwing	4	-	S1, BoCC- Red
3	Fieldfare	55	-	S1, BoCC- Red
	Skylark	1	-	NERC S.41, BoCC - Red
16	Skylark	1	-	NERC S.41, BoCC - Red
18	Yellowhammer	3	-	NERC S.41, BoCC - Red
19	Fieldfare	40	-	S1, BoCC- Red
<p><b>Target species recorded in bold</b>          '-' means that the species was not recorded during that visit.</p> <p><u>Conservation Status</u></p> <p>S1 - Birds listed on Schedule 1 of the Wildlife and Countryside Act          NERC S.41 - Species listed on Section 41 of the NERC Act (2006)  <b>BoCC – Species listed on the Birds of Conservation Concern 5</b></p>				

**Table 3.4: Winter walk-over survey results - Wider Survey Area**

Field Number	Species	Survey Visits		Conservation Status
		3	4	
<b>Target Species</b>				
<b>85</b>	<b>Mute swan</b>	-	<b>2</b>	<b>BoCC - Amber</b>
Secondary Species:				
17	Skylark	1	1	NERC S.41, BoCC - Red
22	Yellowhammer	-	1	NERC S.41, BoCC - Red
23	Skylark	-	2	NERC S.41, BoCC - Red
52	Dunnock	-	1	NERC S.41, BoCC - Amber
58	Starling	-	21	NERC S.41, BoCC - Red
84	Kestrel <i>Falco tinnunculus</i>	1	-	BoCC - Amber
	Dunnock	-	3	NERC S.41, BoCC - Amber
99	Kestrel	-	1	BoCC - Amber
100	Kestrel	1	-	BoCC - Amber



102	Redwing	7	-	S1, BoCC- Red
<p><b>Target species recorded in bold</b>  '-' means that the species was not recorded during that visit.</p> <p><u>Conservation Status</u></p> <p>S1 - Birds listed on Schedule 1 of the Wildlife and Countryside Act  NERC S.41 - Species listed on Section 41 of the NERC Act (2006)  <b>BoCC – Species listed on the Birds of Conservation Concern 5</b></p>				

Figure 5.3.1: Site and Wider Survey Area

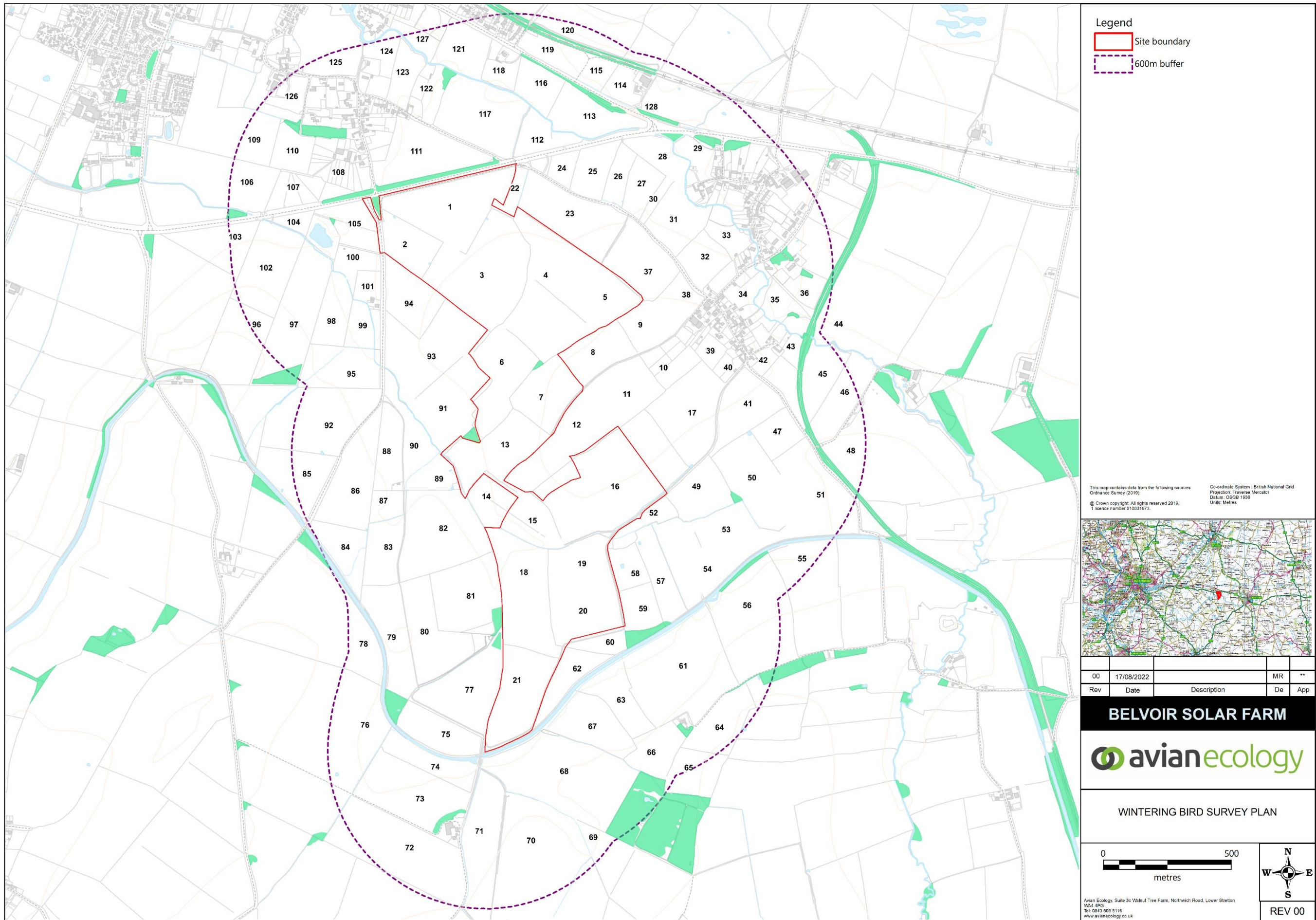
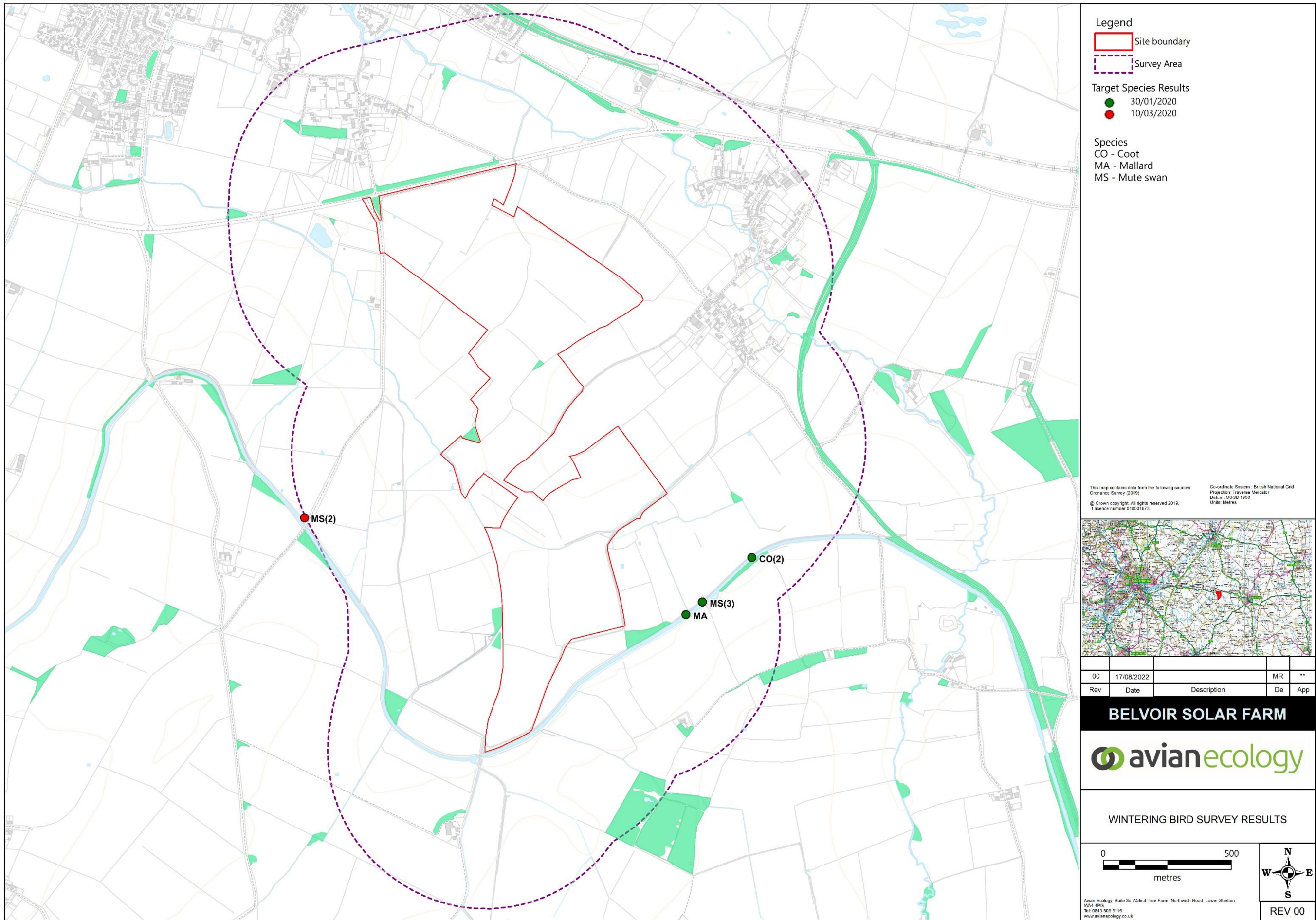


Figure 5.3.2: Wintering Bird Survey Results



**ANNEX 1**  
**GRASSROOTS ECOLOGY SURVEY**

**ANNEX 2**  
**AVIAN ECOLOGY WINTERING BIRD SURVEY EFFORT**

**ANNEX 2: WINTERING BIRD SURVEY EFFORT**

Date	Surveyor	Start Time (24hrs)	Finish Time (24hrs)	Wind Speed	Wind Direction	Rain	Cloud Cover	Cloud Height	Visibility	Frost	Snow	Temperature (°C)
25/02/2020	ZH AM	12:15	14:30	3	W	0	2	2	2	0	0	6
10/03/2020	ZH	09:40	12:15	2	W	0	7	2	2	0	0	13

**Weather Conditions Key**

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							