

# Heckington Fen Solar Park

EN010123

## Environmental Statement | Volume 3: Technical Appendices Appendix 8.10: Ornithological Survey – Energy Park and Cable Route Corridor

Applicant: Ecotricity (Heck Fen Solar) Limited

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**APPENDIX 8.10- ORNITHOLOGICAL SURVEY**

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**Table of Contents:**

8.1 Executive Summary..... 2  
8.2 Introduction ..... 4  
8.3 Survey Methods ..... 6  
8.4 Field Survey Results .....11  
8.5 Evaluation And Recommendations..... 16  
8.6 References..... 20

**List of Tables:**

Table 1: Breeding bird survey schedules 2021 and 2022.....7  
Table 2: Energy Park wintering bird survey schedule 2021/22.....9  
Table 3: Grid connection wintering bird survey schedule 2021/22.....11  
Table 4: Numbers of breeding territories recorded during the breeding bird surveys 2021-22.....12  
Table 5: Numbers of birds recorded on/around the proposed Energy Park during the 2021/22 wintering bird survey.....13  
Table 6: Numbers of waterbirds and raptors recorded on/around all potential grid connection corridor routes during the 2021/22 wintering bird survey.....15  
Table 7: Numbers of waterbirds and raptors recorded overflying all potential grid connection corridor routes during the 2021/22 wintering bird survey.....15  
Table 8: Existing bird data for species that form the qualifying interest of The Wash SPA/SSSI..... 19

**List of Figures:**

- Figure 1: Location of bird survey areas
- Figure 2: Grid connection wintering bird survey search areas
- Figure 3: CONFIDENTIAL Location of breeding Schedule 1/Annex 1 bird species
- Figure 4: Location of breeding BOCC red list bird species

**8.1 EXECUTIVE SUMMARY**

8.1.1 Following extensive baseline ornithological surveys undertaken during 2021-2022 and a review of existing bird data for the area, the ornithological importance of the proposed Heckington Fen Energy Park development site was evaluated.

8.1.2 The Energy Park site was found to be of negligible importance to species that form the qualifying interest of SPAs and SSSIs within 20km of the development. Just one small flock of pink-footed geese, presumably visiting from The Wash SPA/SSSI, were recorded foraging in the vicinity of the proposed grid connection on just one occasion. Alternative foraging habitat is abundant for this species in the wider agricultural landscape.

8.1.3 Three Schedule 1 / Annex I species<sup>1</sup> was found breeding in the area during the surveys (one pair of marsh harrier, three pairs of barn owl and one pair of kingfisher). Existing bird data included an additional potential barn owl breeding site; recorded in 2018-19. However, all nesting locations were sheltered and located considerable distances from any proposed development activities, whilst foraging habitat being used by these birds was not subject to development. Mitigation is recommended to ensure none of these species is disturbed by development activities whilst nesting in the area.

8.1.4 Local bird communities found to be breeding and wintering on and in the vicinity of the Energy Park site were found to be typical of the wider Lincolnshire Fens agricultural landscape. Though a number of additional species of recognised conservation interest (BOCC<sup>2</sup> Red List species and UKBAP/LBAP<sup>3</sup> species) formed part of these communities, none were found to be breeding or wintering in significant numbers.

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<sup>1</sup> i.e. species listed in Schedule 1 of the Wildlife and Countryside Act 1981 and/or on Annex I of EC Directive 79/409/EEC on the Conservation of Wild Birds 1979

<sup>2</sup> Birds of Conservation Concern

<sup>3</sup> UK/Local Biodiversity Action Plan

**8.2 INTRODUCTION****Aim of report**

8.2.1 This report presents an evaluation of the current ornithological importance of the proposed Heckington Fen Energy Park and its surrounding area. The evaluation is based upon:

- extensive baseline ornithological surveys of the proposed energy park and its grid connection; undertaken during April 2021 – June 2022;
- documented existing bird data within at least a 5km radius of the development; kindly provided by Greater Lincolnshire Nature Partnership.

8.2.2 The baseline surveys and evaluation was undertaken by Kevin Shepherd - Consultant Ornithologist Ltd.

**Site location**

8.2.3 The Energy Park is located within the county of Lincolnshire on an area of agricultural land approximately 3.7km east of the village of Heckington and 8.9km west of the town of Boston. The connecting cable route extends approximately 8.5km in length from the Energy Park to the connection point at the National Grid Bicker Fen Substation.

**Site description**

8.2.4 The proposed Energy Park site is comprised of flat, low lying farmland in intensive arable wheat-production. It is subdivided into rectilinear field parcels by long, linear tracks and drainage ditches, the ditches having an engineered profile, some supporting occasional shrubs, reeds and emergent aquatic vegetation. Intermittent hedgerows form additional boundary features in places, tree cover limited to four small plantation woodland blocks.

8.2.5 Connecting the proposed Energy Park to the existing Bicker Fen Substation, the proposed underground cable grid connection runs through a similar agricultural landscape, also intensively arable, supporting a wide variety of crops, primarily wheat and oilseed rape.

**Proposed development**

8.2.6 The Proposed Development comprises the construction, operation (including maintenance) and decommissioning of ground mounted solar PV panel arrays, an energy storage facility and supporting infrastructure. The Proposed Development includes the following key components: Solar PV panels; PV module mounting structures; Inverters; Transformers; Switchgear; Cabling (including extra high, high, and low voltage power, earthing, communication, and control) – below ground for the grid connection to Bicker Fen, and in trenches and/or behind the panels on the Energy Park; Energy Storage Systems (ESS) (technology not determined at this time); Onsite Substation comprising a substation and control buildings; Fencing, gatehouses, and security measures; Internal access tracks; Community orchard; Permissive path; Construction of new access point onto highway (previously consented as part of the previous wind park application); Landscaping including creation of new habitat areas; Construction areas, worker facilities, temporary compounds, and infrastructure; Digging of cable trench and laying cables for connection to the National Grid Bicker Fen Substation; Installing above ground grid cable access points along the Grid Route;

and Extension of National Grid Bicker Fen Substation and installation of above ground equipment.

### **Report limitations**

8.2.7 In general, some bird species are more secretive and unobtrusive than others, whilst field surveys are inevitably representative of surveyors' detection/recording of bird activity only during survey visits; hence, to a certain degree, in 'snapshots' of time. Best practice was therefore followed to ensure that all field surveys were undertaken at appropriate times of day and season, in appropriate weather conditions and at appropriate intervals and intensity to maximise the detection and accurate recording of all bird species (especially those of recognised conservation importance) potentially present.

8.2.8 This Energy Park site has also been subject to previous intensive ornithological surveys; conducted in 2008-2010 prior to the submission of wind park planning applications, with further surveys conducted in 2015-2018. These surveys recorded a very similar range of species and in similar densities as found in the current surveys.

8.2.9 Being a highly irruptive summer visitor, numbers of quail arriving into Britain each summer are highly variable. Affected by complex rotational cropping regimes, precise future breeding locations on agricultural land are also impossible to predict (Cramp & Simmons 1979<sup>12</sup>, Balmer *et al* 2013<sup>10</sup>). Quail is therefore always a problem species for bird survey, locations/numbers found breeding in one year usually having little relevance to future years. Despite intensive searching specifically for quail during both the 2021 and 2022 breeding bird surveys, none was recorded. Nevertheless birds could be present in future years. Because of the limited value of the results of current surveys, pragmatic mitigation is therefore outlined in para 8.5.9

### **Background to Kevin Shepherd – Consultant Ornithologist**

8.2.10 Kevin obtained his BSc (Hons) Zoology within the specialist ornithological environs of University of Aberdeen, Scotland in 1993, then worked at centres of field ornithological expertise (including Holme Bird Observatory in England, Fair Isle Bird Observatory in Scotland and Long Point Bird Observatory in Canada) and for eminent nature conservation organisations (including the Royal Society for the Protection of Birds, the Nature Conservancy Council, the Joint Nature Conservation Committee, English Nature, Scottish Natural Heritage and the Irish Wildbird Conservancy) for eleven years. Amongst his many achievements during this period, he co-formulated the universally recognised and applied 'Brown & Shepherd' Upland Bird Survey technique. He became an independent Consultant Ornithologist in 1995 and has spent the past 28 years engaged in ornithological projects for government agencies, local authorities, conservation bodies and private companies, all of which has involved detailed field ornithological survey, assessment and evaluation. Conservation projects have included challenging, large-scale surveys of countless moorland/montane breeding bird communities across Britain, including those in the Cairngorms, Outer Hebrides, the North and South Pennines SSSI/SPA and the Otterburn Military Training Area, as well as a single-season survey of the entire British Dotterel breeding population. Work for private developers has included ornithological survey and evaluation of proposed onshore wind farm, solar farm, opencast coalmine, quarry, industrial, railway, road and housing developments as well as those for extensive water-catchment areas. Kevin has specialised in ornithological survey and assessments of proposed onshore windfarms and has worked on a total of 138 proposed and existing such sites across Britain.

**8.3 SURVEY METHODS****Scope**

8.3.1 Baseline ornithological surveys were undertaken with the following objectives:

- To determine the distribution and abundance of birds breeding on/around the proposed Energy Park (surveys undertaken during April-June 2021), on an extended buffer zone around the proposed Energy Park and on/around all potential grid connection routes (surveys undertaken during April-June 2022);
- To determine the distribution and abundance of birds wintering on/around the proposed Energy Park (surveys undertaken during September 2021 – March 2022);
- To determine the distribution and abundance of birds of highest recognised conservation importance<sup>4</sup> wintering on/around all potential grid connection routes (surveys undertaken during October 2021 – March 2022).

8.3.2 The location of the survey areas referred to above are shown in **Figure 1**.

**Field surveyors**

8.3.3 Field surveys were undertaken primarily by Kevin Shepherd, with assistance provided during the breeding bird survey of the proposed Energy Park by Andy McKee. The surveyors were both expert, highly experienced, field ornithologists. Nevertheless, extensive training was provided both prior to and during survey, irrespective of previous experience. Aspects covered included navigation, application of the survey methods, techniques to minimise fieldworker effects on bird detection, and recognition of birds, bird signs and bird behaviour. Emphasis was placed on the importance of carrying out the surveys in a systematic, standardised way to enable collection of rigorous survey data and direct comparison of data from different areas and survey periods.

**Breeding birds**

8.3.4 The breeding bird survey method was based upon the British Trust for Ornithology's Common Birds Census method (Marchant 1983<sup>13</sup>).

8.3.5 Four visits were made to the proposed Energy Park between 22 April – 10 June 2021 and four visits were made to the extended buffer zone around the proposed Energy Park and all potential grid connection routes between 2 April and 23 June 2022 (**Table 1**). Work was undertaken between dawn and noon BST in optimum weather conditions for survey i.e. light winds, good visibility and lack of precipitation. During each visit, emphasis was placed on thoroughly surveying all parts of the survey areas; achieved by slowly walking around, frequently pausing at appropriate vantage and listening points. All woodland, copse, scrub and field boundaries, hedgerows, ditches, rivers and streams were walked. Water bodies, isolated trees and buildings were carefully approached and examined (buildings both internally and externally). Occupied private dwellings and their adjacent enclosed gardens were not surveyed. All parts of the survey area were approached to within 100m. Access permission could not be obtained to walk some parts of the survey areas (**Figure 1**). These were surveyed from adjacent land, overlooking higher ground and/or public rights of way.

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<sup>4</sup> i.e. qualifying wintering species of Special Protection Areas (SPAs) and Sites of Special Scientific Interest (SSSIs) within 20km of the proposed development

**Table 1 - Breeding bird survey schedules 2021 and 2022. All changes in weather conditions are given; wind direction and force in accordance with the Beaufort Scale, cloud cover in eighths.**

Site	Visit	Date	Time	Weather			
				Wind	Cloud cover	Visibility	Precipitation
<b>Energy park (2021)</b>	<b>1</b>	22 April	0545-1153	Calm-N1	1-2	Excellent	None
		23 April	0542-1147	Calm-ESE1-SE2	1	Excellent	None
		24 April	0540-1003	Calm-ENE1	3-6	Excellent	None
	<b>2</b>	7 May	0511-1157	Calm-WSW2	0-7	Excellent	None
		11 May	0456-1157	SSE2-SW1-S2	1-8	Excellent	None
		12 May	0512-0916	SSW2-SSW3	6-1	Excellent	None
	<b>3</b>	24 May	0441-1149	SSW1-S3	1-7	Excellent	None
		26 May	0442-1103	NW1-W3	7-2-8	Excellent	None
		27 May	0504-0948	Calm-N2	8	Excellent	None
	<b>4</b>	9 June	0432-1046	Calm-SW3	2-1	Excellent	None
		10 June	0421-1027	SW2	1-8	Excellent	None
	<b>Grid connection (2022)</b>	<b>1</b>	2 April	0635-1210	NW1-N1-ENE2	1-5	Excellent
3 April			0634-1225	NW1-WSW2-W2	1-7	Excellent	None
5 April			0629-1100	W3-W4	8	Excellent	None
8 April			0620-1200	W1-NW2-N3	1-3	Excellent	None
9 April			0618-1210	W2-W3	1-5	Excellent	None
10 April			0615-1105	W1-Calm	1-4	Excellent	None
<b>2</b>		25 April	0543-1135	N2-NNE2	6-7	Excellent	None
		26 April	0542-1120	NW2-N2	1-7	Excellent	None
		27 April	0540-1118	NNW2-NNE2	8	Excellent	None
		29 April	0529-1115	N2	8-7	Excellent	None
		30 April	0530-1110	WNW1	1	Excellent	None



Site	Visit	Date	Time	Weather			
				Wind	Cloud cover	Visibility	Precipitation
	3	2 May	0544-1005	Calm-SSW2	7-2	Excellent	None
		14 May	0512-1118	Calm-WSW1	1-4	Excellent	None
		15 May	0528-1115	Calm-E2	7-5-7	Excellent	None
		17 May	0458-1104	Calm-S3	1-5	Excellent	None
		18 May	0501-1047	SW1-SSW3	1-7	Excellent	None
		20 May	0451-1106	WSW1-SW2	8	Excellent	None
		23 May	0458-1038	SW1	8-7	Excellent	None
	4	15 June	0439-1010	Calm-SSW2	3-5	Excellent	None
		16 June	0435-1000	Calm-NW2	1-4	Excellent	None
		19 June	0503-1110	NW2	1-6	Excellent	None
		21 June	0428-0955	SW1	1	Excellent	None
		22 June	0412-0940	Calm-SSE1	1	Excellent	None
		23 June	0441-1005	Calm-SE1	1	Excellent	None

8.3.6 The objective of the fieldwork was to carry out full breeding bird surveys; to map the locations of breeding territories and hence to derive population estimates for all species. Emphasis was therefore placed on accurately mapping the locations of all birds exhibiting breeding behaviour. Birds were considered to be present within breeding territories if any of the following were observed:

- song/courtship/display;
- bird engaged in territorial behaviour/territorial dispute;
- nest-building (including excavating nest-hole);
- adult visiting probable nest-site;
- location of nest or newly fledged young;
- agitated behaviour of adult bird (e.g. repetitive alarm-calling, distractiondisplay) indicating nearby presence of nest or young;
- bird carrying food to nearby nest or young;
- bird removing faecal sac from nearby nest.

8.3.7 During each visit, special care was taken:

- to record each individual bird exhibiting breeding behaviour once only;
- to link observations likely to relate to single breeding pairs (e.g. singingmale / nearby nest-site, two birds repetitively alarm-calling);
- to emphasise observations clearly relating to separate breeding pairs (e.g.males singing simultaneously, males involved in territorial

disputes).

8.3.8 At the end of each visit, a ‘visit-map’ was compiled showing all registrations made.

8.3.9 At the end of the survey, for each species, registrations on the visit-maps were transferred on to ‘species maps’ from which the locations of breeding territories (registrations in suitable breeding habitat, usually in ‘clusters’, relating to the activity of breeding pairs), hence minimum population estimates were derived.

**Wintering birds**

The Proposed Energy Park

8.3.10 Wintering birds on the proposed Energy Park were surveyed once per calendar month during September 2021 - March 2022 (**Table 2**). Work was undertaken in optimum weather conditions for survey i.e. light winds, good visibility and lack of precipitation. During each survey visit, emphasis was placed on thoroughly surveying all parts of the survey area; achieved by slowly walking around, frequently pausing at appropriate vantage and listening points. All woodland, copse and scrub boundaries, hedgerows, ditches, rivers and streams were walked. Water bodies, isolated trees/bushes and buildings were carefully approached and examined. All parts of the survey area were approached to within 100m. All birds using the survey area were counted. Localised movements of birds were carefully noted to avoid double recording. Locations of species of higher conservation interest, i.e. grey partridge, swans, geese, duck (except mallard), waders, egrets, tree sparrow, linnets, corn bunting, yellowhammer and unexpected species, were mapped.

8.3.11 The proposed Energy Park lies within 20km of parts of The Wash SPA/SSSI, a site of exceptional importance for wintering waterbirds. Some of these waterbirds are highly mobile, particularly around high tide when estuarine habitats on The Wash are covered with water. At least one of the survey visits per calendar month was therefore timed to coincide with local high tides (i.e. the time of high tide at Boston, Lincolnshire). Especially during the period 90 minutes before and 90 minutes after these high tides, the Energy Park site as a whole was carefully searched/scanned for evidence of any waterbirds arriving to use the site from The Wash SPA/SSSI. During this element of the survey, northernmost parts of potential grid connection routes visible from the proposed Energy Park were also searched/scanned.

**Table 2 – Energy Park wintering bird survey schedule 2021/22. All changes in weather conditions are given; wind direction and force in accordance with the Beaufort Scale, cloud cover in eighths.**

Month	Date	Time	High tide	Weather			
				Wind	Cloud cover	Visibility	Precipitation
Sep	11	0654-1330	0943	W1-W3	8-7	Excellent	None
	12	0630-1300	1029	W1-NW2	6-7	Excellent	None
	14	0635-1010	1221	NE1-ENE2	7-8	Excellent	Light showers from 0850hrs
Oct	9	0710-1630	0841	Calm-SSE2	6-2-3	Excellent	None
	10	0710-1605	0924	NW1-NW3	8-1-4	Excellent	None

Month	Date	Time	High tide	Weather			
				Wind	Cloud cover	Visibility	Precipitation
	11	0715-1235	1010	NW1	3	Excellent	None
Nov	9	1040-1320	0854	SSW4	4-7	Excellent	None
	10	0718-1505	0944	Calm-NW2	8-7	Excellent	None
	11	1245-1355	1043	S2	8	Excellent	None
	12	0724-1000	1202	SSW4	8-7	Excellent	None
Dec	11	0800-0935	1139	SW1	7	Excellent	None
	13	0810-1600	1421	SSW3	8-7-8	Excellent	None
	16	0810-1425	1650	WNW1-W2	1	Excellent	None
Jan	9	0804-0910	1107	WSW2	1	Excellent	None
	10	0805-1425	1217	SSW1-SSE3	7-8	Excellent	None
	12	0810-1205	1435	WSW1	2	Excellent	None
Feb	5	1051-1300	0900	SW4	5-7	Excellent	None
	9	0740-1330	1233	WSW2	8-6-8	Excellent	None
	11	0755-1210	1451	S1	1	Excellent	None
Mar	10	0630-0910	1120	SSE3	1	Excellent	None
	12	0625-1155	1408	S3-SSW4	7-4-7	Excellent	None
	14	0620-1125	1600	SW2	1	Excellent	None
	15	1530-1740	1640	SSE2	7	Excellent	None

The proposed grid connection corridor

8.3.12 The proposed grid connection corridor lies within 20km of parts of The Wash SPA/SSSI, a site of exceptional importance for wintering waterbirds. Some of these waterbirds are highly mobile, particularly around high tide when estuarine habitats on The Wash are covered with water. Land surrounding all potential grid connections was therefore carefully checked for evidence of any use by wintering waterbirds from The Wash SPA/SSSI.

8.3.13 The lengths of all potential routes of the proposed grid connection corridor were divided into three search areas (**Figure 2**). These search areas were surveyed for three-hour periods, 1.5 hours either side of high tide, once per calendar month during October 2021 - March 2022 (**Table 3**). Work was undertaken in optimum weather conditions for survey i.e. relatively light winds, good visibility and lack of

precipitation. All ground within each search area was carefully scanned from raised vantage/listening points (**Figure 2**), the observer carefully moving position locally around vantage/listening points to maximise visibility of all ground. In addition, all airspace above and surrounding each search area was regularly scanned for flying birds, in particular any waterbirds already present in the area or potentially commuting to/from The Wash SPA/SSSI. The constant presence of foraging raptors, agricultural activities and the frequent visits of local dog-walkers ensured that all waterbirds present were regularly flushed and flying around for prolonged periods, such that it was considered that all waterbirds were readily detected. Although qualifying species of The Wash SPA/SSSI<sup>5</sup> were primarily being searched for, in order to focus and maintain concentration throughout the three-hour recording period, all species of geese, swans, duck, waders, egrets and raptors were recorded both using ground within each search area and also (any additional birds) overflying each search area.

**Table 3 - Grid connection wintering bird survey schedule 2021/22. All changes in weather conditions are given; wind direction and force in accordance with the Beaufort Scale, cloud cover in eighths.**

Month	Search area	Date	High tide	Time of watch	Weather			
					Wind	Cloud cover	Visibility	Precipitation
Oct	1	13	1200	1030-1330	W3	7-8	Excellent	None
	2	16	1630	1500-1800	SSW3-SSW2	7	Excellent	None
	3	14	1320	1150-1450	SW4	8	Excellent	None
Nov	1	12	1202	1032-1332	SSW4	7	Excellent	None
	2	9	0854	0724-1024	SSW3-SSW4	3-4	Excellent	None
	3	11	1043	0913-1213	Calm-S1	8	Excellent	None
Dec	1	11	1139	1009-1309	SW2	7-8	Excellent	None
	2	9	0931	0801-1101	WSW4	7	Excellent	None
	3	10	1028	0858-1158	WNW4-WNW5	6-3	Excellent	None
Jan	1	9	1107	0937-1237	SW3	1-2	Excellent	None
	2	7	0918	0748-1048	SW3	1	Excellent	None
	3	12	1435	1305-1605	WSW2-SW2	1-6	Excellent	None
Feb	1	11	1451	1321-1621	S3	4-7	Excellent	None
	2	5	0900	0730-1030	SW3-SW5	5	Excellent	None

<sup>5</sup> i.e. Brent Goose, Pink-footed Goose, Bewick’s Swan, Shelduck, Gadwall, Wigeon, Pintail, Common Scoter, Goldeneye, Oystercatcher, Grey Plover, Curlew, Bar-tailed Godwit, Black-tailed Godwit, Turnstone, Knot, Sanderling, Dunlin, Redshank

	3	7	1028	0858-1158	WSW2-WSW3	6-5	Excellent	None
Mar	1	12	1408	1238-1538	SSE5	7-6-7	Excellent	None
	2	10	1120	0950-1250	SE4	1-2	Excellent	None
	3	14	1600	1430-1730	WSW3	5-6	Excellent	None

**8.4 FIELD SURVEY RESULTS**

**Breeding birds**

8.4.1 A total of 68 species were recorded breeding during the breeding bird surveys of which 56 species bred (**Table 4**). Three Schedule 1 species were found breeding (one pair of marsh harrier, three barn owl and one kingfisher), the locations of which are shown in **Confidential Figure 3**. Twelve Birds of Conservation Concern (BOCC) Red List species (Stanbury *et al* 2021<sup>14</sup>) were found breeding (16 pairs of grey partridge, two lapwing, 380 skylark, four starling, two mistle thrush, 16 tree sparrow, seven house sparrow, 29 yellow wagtail, five greenfinch, 87 linnets, 25 corn bunting and 55 yellowhammer), the locations of which are shown in **Figure 4**.

**Table 4 - Numbers of breeding territories recorded during the breeding bird surveys 2021-22. F = species foraging, but no evidence of breeding.**

Species	No. territories	Species	No. territories
Greylag goose	3	Carrion crow	29
Mute swan	3	Blue tit	23
Gadwall	4	Great tit	22
Mallard	21	Skylark	380
Tufted duck	F	Sand martin	F
Grey partridge	16	Swallow	10
Pheasant	103	House martin	F
Red-legged partridge	27	Long-tailed tit	1
Swift	F	Willow warbler	11
Stock dove	27	Chiffchaff	18
Woodpigeon	251	Sedge warbler	160
Collared dove	7	Reed warbler	110
Moorhen	50	Blackcap	41
Little grebe	F	Lesser whitethroat	5
Great crested grebe	1	Whitethroat	192
Lapwing	2	Wren	137
Grey heron	F	Starling	4
Little egret	F	Song thrush	6
Sparrowhawk	F	Mistle thrush	2
Marsh harrier	1	Blackbird	75
Red kite	F	Robin	47
Buzzard	7	Tree sparrow	16
Barn owl	3	House sparrow	7
Little owl	2	Dunnock	29
Kingfisher	1	Yellow wagtail	29
Great spotted woodpecker	1	Pied wagtail	5

## ENVIRONMENTAL STATEMENT

### Appendix 8.10 – Ornithological Survey

Green woodpecker	2	Meadow pipit	41
Kestrel	4	Chaffinch	104
Hobby	F	Greenfinch	5
Peregrine	F	Linnet	87
Jay	1	Goldfinch	37
Magpie	14	Corn bunting	25
Jackdaw	34	Yellowhammer	55
Rook	F	Reed bunting	262

#### **Wintering birds**

8.4.2 A total of 71 species was recorded on/around the proposed Energy Park during September 2021 – March 2022 (**Table 5**).

8.4.3 A total of 19 species of waterbird and raptor was recorded using ground on/around all potential grid connection corridor routes during October 2021 – March 2022 (**Table 6**), eleven of these species also recorded overflying the routes (**Table 7**).

**Table 5 - Numbers of birds recorded on/around the proposed Energy Park during the 2021/22 wintering bird survey.**

Species	Sep	Oct	Nov	Dec	Jan	Feb	Mar
Mute swan	1	3	5	2	6	8	6
Gadwall	2	0	0	0	4	0	0
Mallard	87	69	10	32	64	62	37
Teal	0	7	0	0	3	10	4
Grey partridge	2	16	29	0	12	10	2
Pheasant	68	39	49	51	60	58	43
Red-legged partridge	7	8	5	6	5	6	9
Stock dove	30	35	71	158	121	65	20
Woodpigeon	145	562	577	84	161	218	249
Collared dove	6	0	14	2	4	5	4
Moorhen	5	0	3	6	5	8	3
Lapwing	0	120	318	0	223	7	5
Golden plover	0	128	4	5	16	31	19
Snipe	1	0	0	0	0	1	3
Black-headed gull	0	1974	629	56	111	49	12
Common gull	0	174	74	21	37	15	4
Herring gull	2	1	1	0	2	0	0
Lesser black-backed gull	3	1	0	0	0	1	2
Grey heron	3	0	0	2	1	1	1
Great white egret	0	0	1	0	1	1	1
Sparrowhawk	0	2	2	0	1	2	0
Marsh harrier	0	1	0	0	0	0	0
Montagu's harrier	1	0	0	0	0	0	0
Red kite	1	0	0	0	0	0	0
Buzzard	12	7	9	10	6	6	7
Barn owl	1	1	0	1	0	0	1
Little owl	1	1	0	0	0	2	0

# ENVIRONMENTAL STATEMENT

## Appendix 8.10 – Ornithological Survey

Species	Sep	Oct	Nov	Dec	Jan	Feb	Mar
Short-eared owl	1	3	0	2	3	5	1
Kingfisher	0	0	0	0	0	0	1
Great spotted woodpecker	1	1	0	0	2	0	0
Green woodpecker	0	0	0	1	0	1	1
Kestrel	7	5	7	8	5	5	5
Merlin	1	1	0	0	0	0	0
Hobby	1	0	0	0	0	0	0
Peregrine	0	1	1	1	1	1	1
Magpie	10	12	14	16	8	9	9
Jackdaw	58	54	59	14	39	20	28
Rook	177	154	133	66	236	62	76
Carrion crow	57	59	118	69	38	27	44
Blue tit	14	8	8	13	10	8	5
Great tit	7	10	4	4	7	6	7
Skylark	51	130	134	141	61	87	152
Swallow	20	0	0	0	0	0	0
House martin	17	0	0	0	0	0	0
Long-tailed tit	0	0	0	0	2	0	0
Chiffchaff	0	2	0	0	0	0	1
Reed warbler	7	0	0	0	0	0	0
Whitethroat	4	0	0	0	0	0	0
Wren	11	12	13	16	20	17	23
Starling	186	1105	2110	654	144	52	252
Blackbird	0	7	20	13	16	15	18
Fieldfare	0	0	26	240	31	22	1
Song thrush	0	0	0	12	3	5	5
Mistle thrush	1	0	0	4	0	0	1
Redwing	0	0	14	19	11	28	10
Robin	10	13	6	9	9	13	10
Stonechat	0	0	6	4	4	1	0
Wheatear	2	0	0	0	0	0	0
Tree sparrow	11	6	6	0	0	2	8
House sparrow	0	0	0	1	0	0	0
Duncock	2	3	1	1	1	5	4
Pied wagtail	0	3	3	1	1	0	1
Meadow pipit	7	40	12	4	4	9	2
Chaffinch	6	7	4	20	2	11	18
Greenfinch	0	0	3	2	0	1	2
Linnet	12	14	136	184	47	73	6
Goldfinch	22	63	105	28	26	9	7
Lapland bunting	0	0	2	0	0	0	0
Corn bunting	1	0	0	0	0	0	0
Yellowhammer	23	15	7	6	0	0	18
Reed bunting	164	86	44	62	25	29	166

# ENVIRONMENTAL STATEMENT

## Appendix 8.10 – Ornithological Survey

**Table 6 - Numbers of waterbirds and raptors recorded on/around all potentialgrid connection corridor routes during the 2021/22 wintering bird survey.**

Species	Search Area 1						Search Area 2						Search Area 3					
	O	N	D	J	F	M	O	N	D	J	F	M	O	N	D	J	F	M
Pink-footed goose	0	56	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mute swan	0	6	7	0	21	9	0	0	0	1	0	3	5	13	4	0	0	0
Bewick's swan	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
Whooper swan	0	13	28	0	0	0	0	0	0	35	36	6	0	0	2	22	0	0
Mallard	0	4	8	2	0	4	0	39	18	0	0	3	0	0	2	0	0	6
Teal	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
Goosander	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0	1	0
Lapwing	0	0	6	0	0	0	475	352	95	967	983	0	0	180	181	0	0	2
Golden plover	0	0	0	0	0	0	128	172	0	873	177	2	0	0	0	0	0	0
Green sandpiper	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Great white egret	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Little egret	0	0	1	0	2	0	0	0	3	0	0	0	0	0	0	0	0	0
Sparrowhawk	1	1	2	1	0	0	0	0	2	0	1	0	1	0	2	1	0	0
Marsh harrier	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0
Red kite	0	0	0	0	1	0	1	0	1	1	0	0	0	0	0	0	0	0
Buzzard	3	3	3	4	4	3	4	3	2	2	3	5	6	4	5	4	4	6
Kestrel	3	4	4	5	6	2	4	3	4	3	4	3	3	2	4	3	3	4
Merlin	0	0	0	0	0	0	0	1	0	0	0	0	2	0	0	0	1	0
Peregrine	0	0	0	0	0	0	0	2	1	0	1	0	0	1	0	0	0	0

**Table 7 - Numbers of waterbirds and raptors recorded overflying all potentialgrid connection corridor routes during the 2021/22 wintering bird survey.**

Species	Search Area 1						Search Area 2						Search Area 3					
	O	N	D	J	F	M	O	N	D	J	F	M	O	N	D	J	F	M
Greylag goose	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0
Pink-footed goose	86	146	0	842	0	0	0	0	0	0	0	0	0	16	0	0	0	0
Mute swan	2	0	0	0	0	0	8	10	0	0	0	0	5	0	0	2	0	0
Whooper swan	0	0	0	0	0	0	0	3	0	6	0	0	0	0	3	0	0	0
Mallard	0	2	1	0	5	2	21	13	2	29	0	2	0	0	5	7	0	2
Teal	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
Goosander	0	0	4	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0
Lapwing	0	4	16	72	35	0	0	87	52	0	0	0	0	0	56	294	135	0
Golden plover	0	0	69	78	18	92	0	56	1	0	0	0	0	0	0	19	0	0
Snipe	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0	0	0
Great white egret	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0



**8.5 EVALUATION AND RECOMMENDATIONS****Legislation and policy guidance**

8.5.1 This evaluation of the ornithological importance of the Proposed Development site and its surrounding area, with recommendations, takes the requirements of the following legislation, regulations and guidance<sup>6</sup> into account:

- The Ramsar Convention 1971;
- The Wildlife and Countryside Act 1981 (as amended);
- The United Nations Environmental Programme Convention on Biological Diversity 1992;
- EU Directive 92/43/EEC on the Conservation of Natural Habitats and Wild Flora and Fauna ('The Habitats Directive');
- The Conservation (Natural Habitats &c.) Regulations 1994 ('The Habitats Regulations');
- The Natural Environment and Rural Communities Act 2006;
- UK Biodiversity Action Plan (UKBAP) (JNCC, 2006);
- Council Directive 2009/147/EC of the European Parliament and of the Council of 30 November 2009 (the codified version, updated to incorporate the original act and all amendments, of Council Directive 79/409/EEC) on the Conservation of Wild Birds ('EU Birds Directive' 2009/147);
- The Conservation of Habitat and Species Regulations 2017 (2017 Habitat Regulations);
- Guidelines for Ecological Impact Assessment in the United Kingdom and Ireland (CIEEM, 2018<sup>11</sup>);
- The Environment Act 2021.
- Birds of Conservation Concern 5 (Stanbury et al 2021<sup>14</sup>): The status of all regularly occurring birds in the UK, Channel Islands and Isle of Man.

8.5.2 In accordance with the above guidance, the nature conservation importance of bird species present (and therefore potentially affected by development) can be broadly ranked (from highest to least importance) as follows:

- Species that form the qualifying interest of SPAs and SSSIs within 20km of the development;
- Species listed on Annex I of EC Directive 79/409/EEC on the Conservation of Wild Birds 1979 (Annex I species);
- Breeding species listed on Schedule 1 of the Wildlife and Countryside Act 1981 (Schedule 1 species);
- Species present in nationally important numbers (>1% UK population);
- Species listed on the Birds of Conservation Concern (BOCC) 'Red' List Species (Stanbury *et al*, 2021<sup>14</sup>);
- Species listed as UK Biodiversity Action Plan (UKBAP) species;
- Species listed as Local Biodiversity Action Plan (LBAP)<sup>7</sup> species;
- Species present in regionally<sup>8</sup> important numbers (>1% regional population);
- All other species.

8.5.3 The ornithological importance of a given location (e.g. the Proposed

<sup>6</sup> Background and further information on these is presented in Chapter 8: Ecology and Ornithology

<sup>7</sup> In this case species listed on the Lincolnshire Biodiversity Action Plan.

<sup>8</sup> Region is defined as the relevant Natural England Region; in this case East Midlands region.

Development site and its surrounding area) should then be evaluated in relation to the nature conservation importance of local bird populations, particularly of the above species, that it supports.

#### **Breeding birds**

8.5.4 A total of 68 species were recorded during the breeding bird surveys of the proposed Energy Park and its grid connection of which 56 species bred (**Table 4**). These included:

- Three Schedule 1 / Annex I species (marsh harrier, barn owl and kingfisher);
- Twelve BOCC Red List species (grey partridge, lapwing, skylark, starling, mistle thrush, tree sparrow, house sparrow, yellow wagtail, greenfinch, linnet, corn bunting and yellowhammer);
- Thirteen UKBAP/LBAP species (grey partridge, lapwing, skylark, starling, song thrush, tree sparrow, house sparrow, yellow wagtail, dunnoek, linnet, corn bunting, yellowhammer and reed bunting).

8.5.5 No breeding species forming the qualifying interest of SPAs and SSSIs within 20km of the development were found and no breeding species were found to be present in regionally or nationally important numbers.

8.5.6 All nesting locations of the three Schedule 1 / Annex I species (marsh harrier, barn owl and kingfisher) should be carefully conserved. Furthermore, it is an offence liable to a special penalty to disturb any Schedule 1 bird while it is nest-building or is in, on or near a nest containing eggs or young or to disturb the dependent young of such a bird. Fortunately, all nesting locations of the three Schedule 1 / Annex I species are sheltered and located considerable distances from any proposed development activities; the marsh harrier in quiet, dense, tall ground vegetation sheltered by existing development, the barn owls in buildings and/or nest-boxes and the kingfisher low in the bank of a deep drainage ditch. All three species have also become accustomed to regular movement and operation of big machinery locally, particularly in the form of the regular agricultural activities being undertaken in the area. Nevertheless, to avoid any possibility of disturbance, no development activities should be undertaken within 500m of any of the Schedule 1 / Annex I species' nest-sites during the breeding season (March-July).

8.5.7 Foraging habitat used by the three Schedule 1 / Annex I species will also not be subject to development. Located far from it, the breeding pair of marsh harriers were never seen to hunt on the proposed Energy Park, the kingfishers foraged along watercourses well away from the proposed Energy Park and the barn owls foraged along boundary features (rough margins alongside ditches, hedgerows, watercourses, tracks and footpaths) away from or intersecting the open agricultural fields that will hold the solar panels. Indeed the creation/enhancement of rough grassland both on and around the Energy Park should improve barn owl foraging in the longer term.

8.5.8 A variety of additional breeding species were found, including fifteen BOCC Red List and UKBAP/LBAP species. However, this overall breeding bird community was typical of the wider Lincolnshire Fens agricultural landscape, such that no species were found to be breeding in significant numbers. Furthermore, the vast majority of breeding birds were located not in the open fields in which the solar panels will be placed, but in woodland, copses and farm buildings or along hedgerows and drainage ditches outside or intersecting the proposed Energy Park. Only 128 pairs of two species (124 skylark and four yellow wagtail) were found breeding in the open fields in which the solar panels will be placed, numbers representative of a very small proportion (<1%) of regional breeding populations.

8.5.9 No quail were found to be present during the extensive breeding bird surveys undertaken. However, the unavoidable difficulties of predicting future locations of breeding quail (outlined in para 8.2.9) means that the importance of the Proposed Development site and grid connection for breeding quail immediately prior to development is unknown. All parts of the proposed Energy Park and grid connection where any development work is planned to take place during March-July should therefore be carefully surveyed for breeding quail prior to any work commencing. Should any breeding quail be found, work should not be undertaken until after the quail have finished breeding.

### **Wintering birds**

8.5.10 A total of 77 species were recorded during the wintering bird surveys of the proposed Energy Park and its grid connection route corridor (**Tables 5-7**). These included:

- Three species that form the qualifying interest of The Wash SPA/SSSI9 (pink-footed goose, Bewick's swan and gadwall);
- Twelve Annex I species (Bewick's swan, whooper swan, golden plover, great white egret, little egret, marsh harrier, Montagu's harrier, red kite, merlin, peregrine, short-eared owl and kingfisher);
- Seventeen BOCC Red List species (grey partridge, Bewick's swan, lapwing, herring gull, Montagu's harrier, merlin, skylark, house martin, starling, mistle thrush, tree sparrow, house sparrow, yellow wagtail, greenfinch, linnet, corn bunting and yellowhammer);
- Fifteen UKBAP/LBAP species (grey partridge, Bewick's swan, lapwing, herring gull, skylark, starling, song thrush, tree sparrow, house sparrow, yellow wagtail, dunnoek, linnet, corn bunting, yellowhammer and reed bunting).

8.5.11 No wintering species were found to be present in regionally or nationally important numbers.

8.5.12 Of the three species found forming the qualifying interest of The Wash SPA/SSSI (pink-footed goose, Bewick's swan and gadwall), just one observation of Bewick's swan was made; of an immature (first-winter) bird recorded foraging on an agricultural field in grid connection Search Area 2 (**Figure 2**) on 5<sup>th</sup> February 2022. Recorded on just one occasion, the bird was considered to be generally roving around in the much wider agricultural landscape. Recorded transiently, well away from any Proposed Development activities, the proposed development area should therefore be considered to be of negligible importance to this species.

8.5.13 The extensive breeding and wintering bird surveys undertaken located very small numbers of gadwall, which were considered to be generally resident in the area. During the breeding season, four pairs were found breeding along Head Dike (the main drainage canal to the north and north-east of the proposed energy park; running outside and hidden from the energy park) and, during the non-breeding season, very small numbers of these birds (two in September and four in January) were seen foraging in drainage ditches nearby (those surrounding the periphery of the proposed energy park). None of these encounters was considered to have involved birds visiting from The Wash SPA/SSSI.

8.5.14 Roving widely across the surrounding agricultural landscape from the general direction of The Wash, the pink-footed geese recorded during the wintering bird surveys were considered to be part of the very large numbers wintering at The Wash SPA/SSSI. However, no observations were made of any birds using the

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<sup>9</sup> parts of which lie <20km from the proposed development

proposed energy park and just one observation was made of birds using ground in the vicinity of the proposed grid connection; of a flock of 56 birds feeding in a wheat stubble field in grid connection Search Area 1 (**Figure 2**) on 12<sup>th</sup> November 2021. This flock was also transitory; when flushed by a dog-walker, the birds flew several kilometres eastwards to join larger numbers feeding distantly from the proposed development. No evidence could therefore be found of any ground in the vicinity of the proposed Energy Park and grid connection being used regularly by pink-footed geese. The area should therefore be considered to be of negligible importance to pink-footed geese wintering at The Wash SPA/SSSI.

8.5.15 Although a variety of additional species of recognised conservation interest were recorded during the wintering bird surveys, numbers found were small and representative of insignificant proportions of highly mobile, much larger wintering populations roving widely across the wider countryside. The localised wintering bird community found on the proposed development site was therefore found to be typical of the arable landscape across Lincolnshire and East Midlands and therefore of limited nature conservation importance.

**Existing bird data**

8.5.16 All existing bird data (documented since year 2000) within at least a 5km radius of the development was kindly provided by Greater Lincolnshire Nature Partnership. These included:

- Fifteen records of five species that form the qualifying interest of The Wash SPA/SSSI (one record of dark-bellied brent goose, seven of pink-footed goose, two of gadwall, four of wigeon and one of redshank; **Table 8**);
- Twenty records of four Schedule 1 species potentially breeding in the vicinity of the development (three records of marsh harrier, eleven of barn owl, three of kingfisher and three of hobby);

**Table 8 – Existing bird data for species that form the qualifying interest of The Wash SPA/SSSI.**

10 km-square	Species	Counts	Respective year of observation
TF14	Dark-bellied brent goose	1	2017
	Pink-footed goose	150,100,3,50,275,275,50	2008,2013,2013,2013,2014,2015,2019
	Gadwall	9,2	2010,2019
	Wigeon	40,16,4,1	2004,2010,2013,2013
	Redshank	1	2019

8.5.17 Existing bird data for the five species that form the qualifying interest of The Wash SPA/SSSI relate to data recorded on a 10 km-square (not 1km-square or 6-figure grid reference) basis (**Table 8**). Precise locations of sightings are therefore unknown. Whether the data relate to grounded or flying birds is also unknown. All of this data relates to sightings made within 10 km-square TF14, only small parts of which lie in the vicinity of the proposed development. The two sightings of gadwall recorded are highly likely to relate to local birds resident in the area locally, not birds visiting from The Wash SPA/SSSI. The handful of sightings of dark-bellied brent

goose, pink-footed goose, wigeon and redshank, made within 10km-square TF14 over a period of more than twenty years, provide no evidence to suggest that any species that form the qualifying interest of The Wash SPA/SSSI are using habitat in the vicinity of the Proposed Development to any significant degree.

8.5.18 Existing data for the four Schedule 1 species potentially breeding in the vicinity of the development are confidential, so cannot be published. Almost all of this data relates to data recorded within a 10 km-square (not 1km-square) basis. Precise locations of records are therefore unknown. With the exception of one record of barn owl (made within 10 km-square TF24; only small parts of which lie in the vicinity of the proposed development), all of this data relates to sightings made within 10 km-square TF14, only small parts of which lie in the vicinity of the proposed development. Furthermore, the data does not relate to breeding locations; instead merely to sightings of birds made during the breeding season. The small number of these records made over a period of more than twenty years, all of them prior to the recent breeding bird surveys undertaken, are not considered to add anything to knowledge gained during the 2021-22 breeding bird surveys on breeding Schedule 1 species in the area.

8.5.19 The exception is two records of Schedule 1 species (both of barn owl) for which 6-figure grid references have been recorded. These relate to single barn owls recorded at the same (confidential) location in 2018 and 2019; at farm buildings for which access permission could not be obtained for survey in 2021-22. Although breeding status has not been recorded for both sightings, the farm buildings are clearly a potential breeding site. It is an offence liable to a special penalty to disturb any Schedule 1 bird while it is nest-building or is in, on or near a nest containing eggs or young or to disturb the dependent young of such a bird. To avoid any possibility of disturbance, no development activities should therefore be undertaken within 500m of these farm buildings during the breeding season (March-July).

## **8.6 REFERENCES**

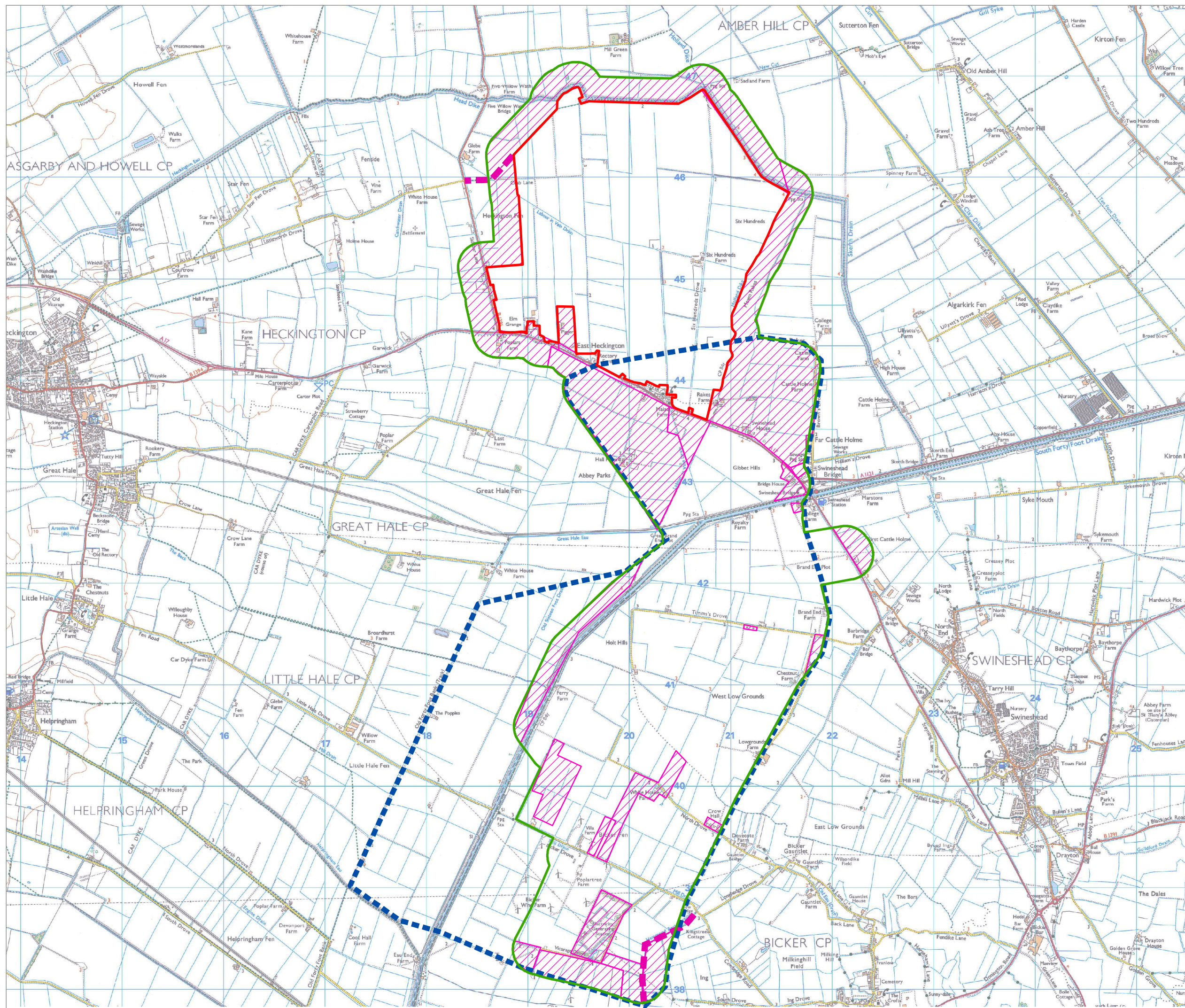
<sup>10</sup> Balmer, D.E., Gillings, S., Caffrey, B.J. & Swann, R.L. (2013) Bird Atlas 2007-11: the breeding and wintering birds of Britain and Ireland. BTO Books, Thetford.

<sup>11</sup> CIEEM (2018) Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine, second Edition. Chartered Institute of Ecology and Environmental Management.

<sup>12</sup> Cramp, S. & Simmons, K.E.L. (1979) Handbook of the Birds of Europe, the Middle East and North Africa: The birds of the Western Palearctic. Volume II (hawks to bustards). Oxford University Press, Oxford.

<sup>13</sup> Marchant, J.H. (1983). BTO Common Birds Census Instructions. British Trust for Ornithology, Thetford.

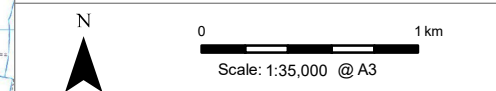
<sup>14</sup> Stanbury, A., Eaton, M., Aebischer, N., Balmer, D., Brown, A., Douse, A., Lindley, P., McCulloch, N., Noble, D., and Win I. (2021). The status of our bird populations: the fifth Birds of Conservation Concern in the United Kingdom, Channel Islands and Isle of Man and second IUCN Red List assessment of extinction risk for Great Britain. British Birds 114: 723-747.



### Legend

- Energy park breeding and wintering bird survey area
- Grid connection and extended energy park buffer zone breeding bird survey area
- Grid connection wintering bird survey area
- Public right of way
- Access permission not obtained

**Figure 1**  
Title: Location of bird survey areas





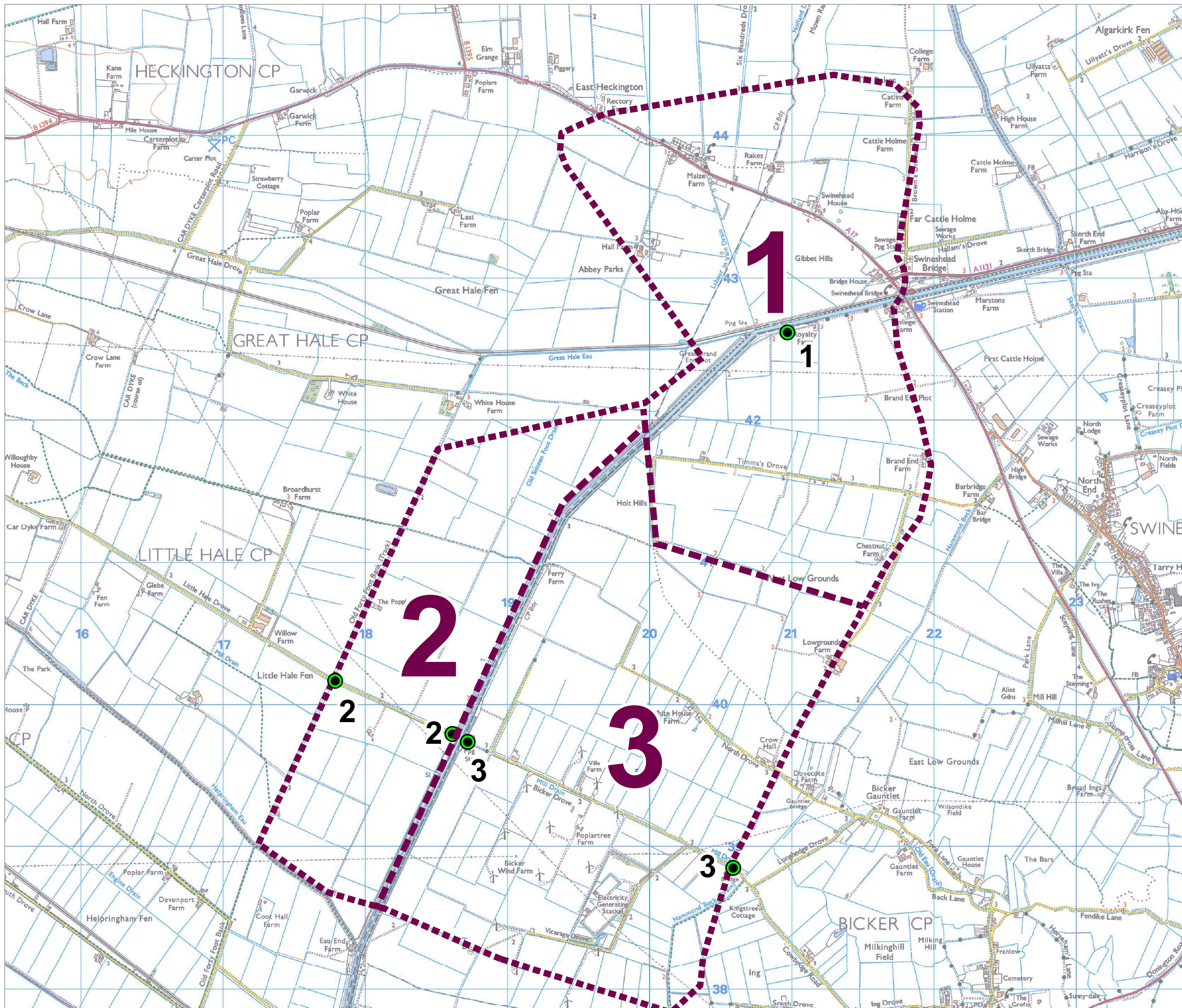
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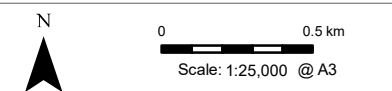
### Heckington Fen Energy Park

Legend

-  Vantage Point
-  Search area boundary



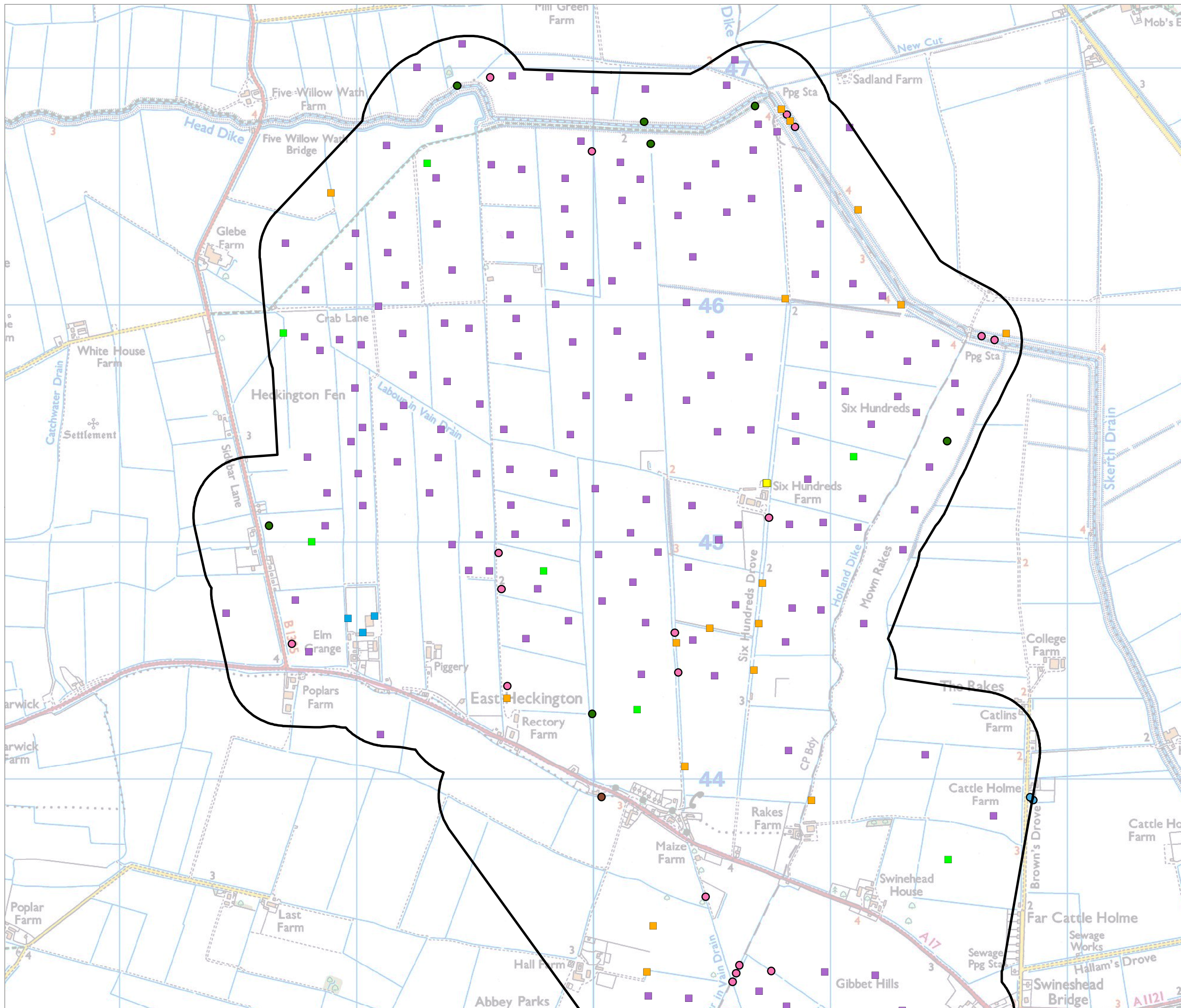
**Figure 2**  
**Title:** Grid connection wintering bird survey search areas



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Heckington Fen Energy Park



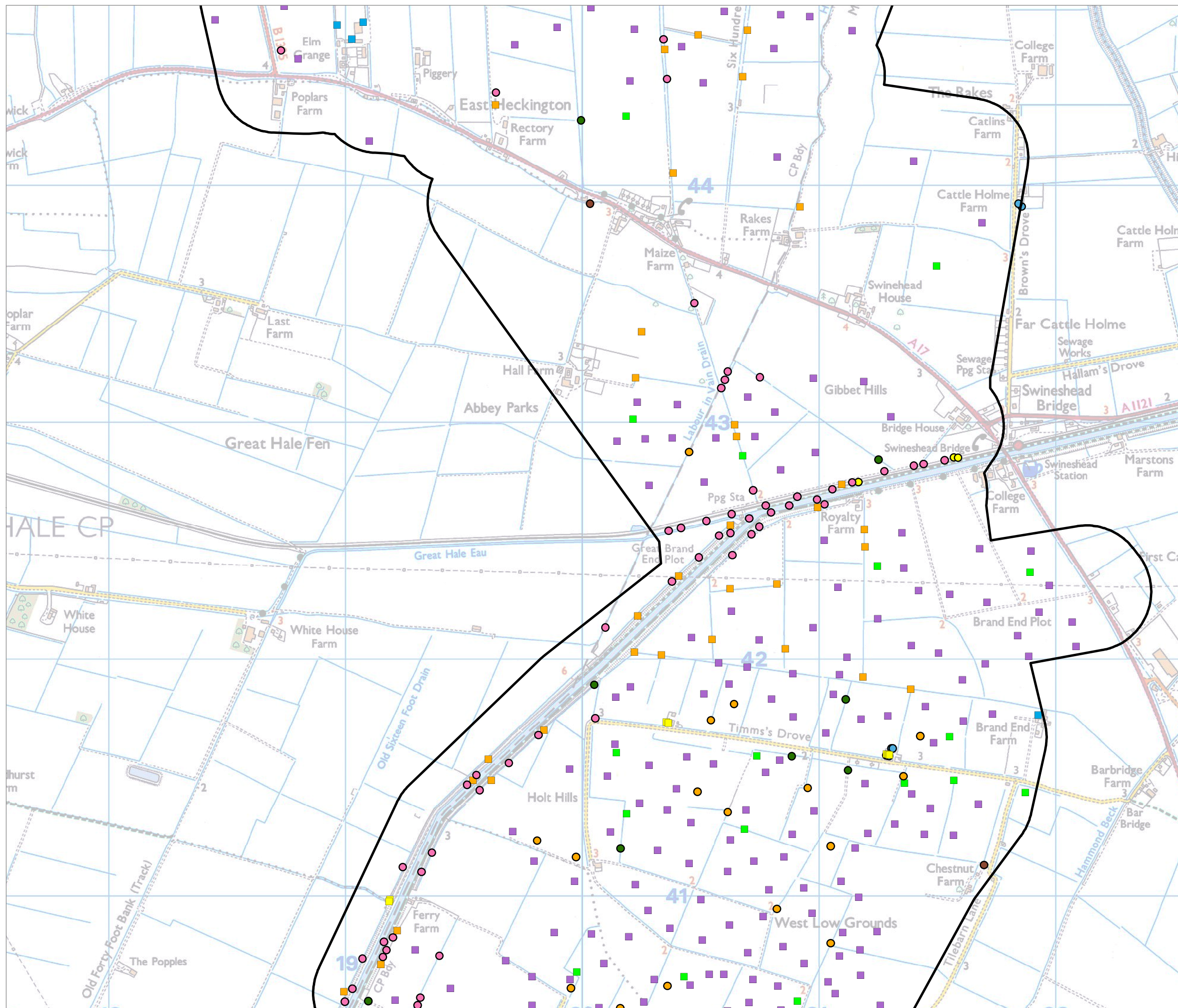
- Legend**
- Breeding bird survey area
  - Grey Partridge
  - House Sparrow
  - Linnet
  - Mistle Thrush
  - Skylark
  - Starling
  - Tree Sparrow
  - Yellow Wagtail
  - Yellowhammer

**Figure 4a**  
**Title:** Location of breeding BOCC red list bird species

N  
 0 ————— 0.4 km  
 Scale: 1:15,000 @ A3

Drawn by:	Checked by:	Approved by:
Ref: 6945_T0052_02		Date: December 2022
<b>Heckington Fen Energy Park</b>		

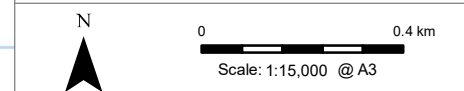




## Legend

- Breeding bird survey area
- Corn Bunting
- Greenfinch
- Grey Partridge
- House Sparrow
- Linnet
- Mistle Thrush
- Skylark
- Starling
- Tree Sparrow
- Yellow Wagtail
- Yellowhammer

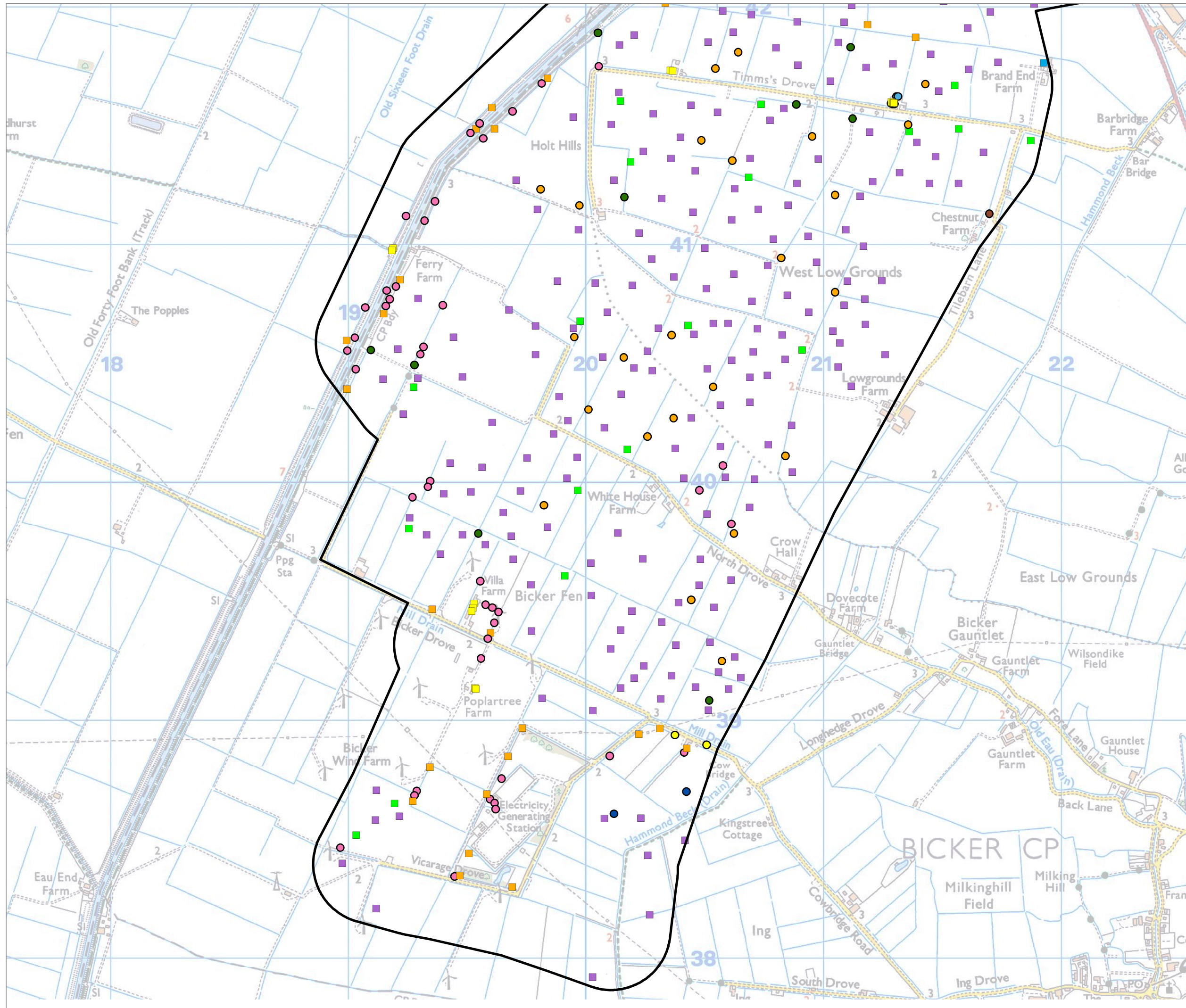
**Figure 4b**  
**Title:** Location of breeding BOCC red list bird species
















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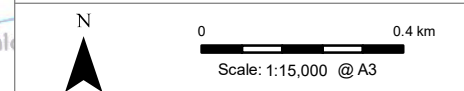
**Heckington Fen Energy Park**



**Legend**

-  Breeding bird survey area
-  Corn Bunting
-  Greenfinch
-  Grey Partridge
-  House Sparrow
-  Lapwing
-  Linnet
-  Mistle Thrush
-  Skylark
-  Starling
-  Tree Sparrow
-  Yellow Wagtail
-  Yellowhammer

**Figure 4c**  
**Title:** Location of breeding BOCC red list bird species



Drawn by: \_\_\_\_\_ Checked by: \_\_\_\_\_ Approved by: \_\_\_\_\_

**Ref:** 6945\_T0052\_02 **Date:** December 2022

**Heckington Fen Energy Park**