

Cottam Solar Project

Environmental Statement

Appendix 9.9: Overwintering Bird Survey Report

Prepared by: Clarkson & Woods Ltd.
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WINTERING BIRDS SURVEY REPORT
COTTAM SOLAR PROJECT

carried out by



commissioned by

COTTAM SOLAR PROJECT LTD.

OCTOBER 2022



WINTERING BIRDS SURVEY REPORT

COTTAM SOLAR PROJECT

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The information, data and advice which has been prepared and provided is true, and has been prepared and provided in accordance with the Chartered Institute of Ecology and Environmental Management's (CIEEM) Code of Professional Conduct. We confirm that the opinions expressed are our true and professional bona fide opinions. This report and its contents remain the property of Clarkson and Woods Ltd. until payment has been made in full.



1 INTRODUCTION

- 1.1.1 Clarkson and Woods Ltd. was commissioned by Cottam Solar Project Ltd to carry out wintering bird surveys for the Cottam Solar Project. The Scheme broadly comprised four Sites: Cottam 1, Cottam 2, Cottam 3a and Cottam 3b, situated in the West Lindsey District of Lincolnshire. These are referred to hereafter as 'the Sites', or individually as given above. Proposals comprise the development of an NSIP-scale solar park, containing solar energy production and storage components.
- 1.1.2 A series of wintering bird surveys were carried out by Clarkson and Woods Ltd between November 2021 and April 2022. Surveys followed a scope agreed through consultation with Natural England via a Discretionary Advice Service dialogue, as well as Lincolnshire Wildlife Trust, and followed survey methodology aligned with the British Trust for Ornithology (BTO) Common Bird Census.
- 1.1.3 Unless the client indicates to the contrary, information on the presence of species collected during the surveys will be passed to the county biological records centre to augment their records for the area. This is in line with the CIEEM code of professional conduct¹.

1.2 Aims and Limitations

- 1.2.1 Given the size of the Scheme and the proposed changes to land use, wintering bird surveys were recommended to ascertain the level of use of the Sites by wintering birds, and thereby the importance of the Site's habitats/ features to wintering birds in the context of the wider landscape.
- 1.2.2 This report details the methods and results of the surveys and provides an overview of the potential impacts that could result from the proposals, to inform the layout of the Scheme.
- 1.2.3 This information will be used within the eventual Cottam Solar Project Environmental Statement to inform the ecological evaluation of the habitats used by wintering birds and to characterise the impacts on them considered likely to result from the Scheme.
- 1.2.4 While the installation of below-ground electrical cabling will be required beyond the boundaries of the Site in order to connect the disparate land parcels, both to one another and to the National Grid, relevant and proportionate ecological baseline information for this cable route element will be presented within a separate document.

1.3 Description of the Survey Area

- 1.3.1 Due to refinement of the Scheme extent and design following the completion of these surveys, the Survey Area covers a slightly larger area than the red line boundary of the Scheme (not including the cable route or 'external' construction access routes). However, the extent of the solar and battery elements is entirely contained within the Survey Area and so will have been fully subject to survey. It is therefore considered that the chosen Survey Area is appropriate for deriving a baseline for the Survey Area. The Survey Area measures approximately 1,260 hectares (ha).
- 1.3.2 The Sites are spread over an approximately 17km area stretching from south to north between the settlements of Coates and Thorpe in the Fallows (Cottam 1), Corringham (Cottam 2) and Blyton (Cottam 3a) as shown in **Figure 1** below. For the purposes of this document Cottam 1 was further split into three distinct areas, namely North, South and West, as shown.
- 1.3.3 The Sites all predominantly comprise large, open and generally flat arable fields characterised by winter-sown cereal crops, bounded by a network of managed hedgerows and ditches with narrow field margins, where present.
- 1.3.4 These Sites' habitats are very much typical of the surrounding landscape, which is dominated by arable farmland interspersed with small settlements and farmsteads linked by minor and single-track roads. The surrounding landscape is mostly flat but becomes more undulating north past Blyton and rises to the east of the Sites at the 'Lincoln Cliff' some 4-5km away, which is a significant north-south escarpment. The River Trent

¹ Code of Professional Conduct. CIEEM, January 2019.



is located approximately 5km west of the Sites as it flows north towards the Humber Estuary, itself some 27km north of Cottam 3a.

- 1.3.5 While no woodland is present within the Sites, several small stands of managed and unmanaged woodland are present adjacent and in the surrounding landscape, often the result of historical game management. Standing water is generally absent from the Sites and the surroundings following the in-filling of traditional livestock drinking ponds, save for a very small number of agricultural pools/pits, decoy ponds or managed recreational fisheries. Flowing water occurs sparsely, centred on the minor River Till (in the case of Cottam 1, and Cottam 2 via the Corringham and Yarthorpe Becks) and River Eau (around Cottam 3a via the Northorpe Beck) and their various feeder streams and managed agricultural drainage ditches which regularly dry out.

1.4 Quality Assurance

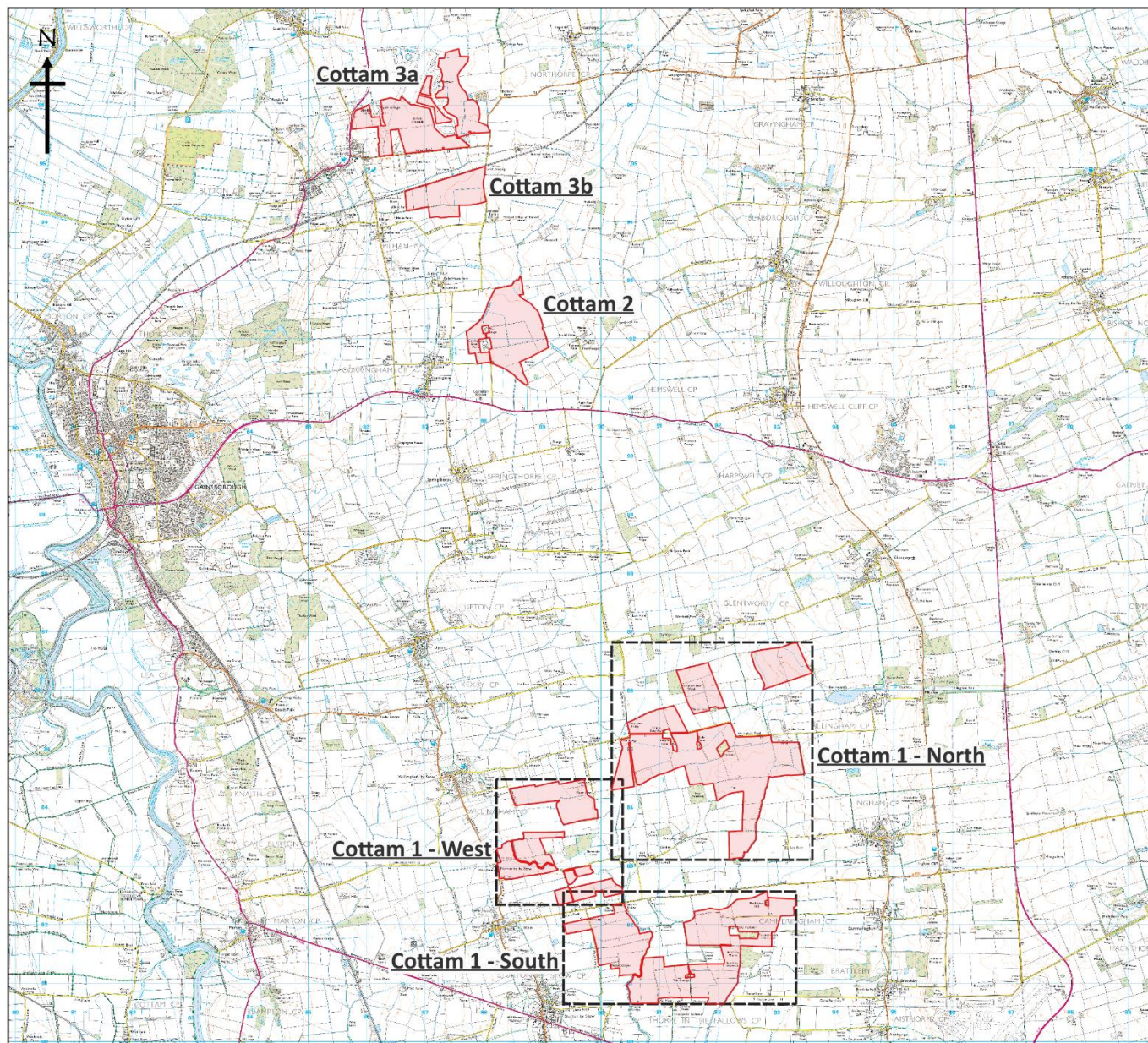
- 1.4.1 All ecologists employed directly by Clarkson and Woods are members or pending members of the Chartered Institute of Ecology and Environmental Management (CIEEM) and follow the Institute's Code of Professional Conduct² when undertaking ecological work.
- 1.4.2 This report has been prepared in accordance with the relevant British Standard: *BS42020: 2013 – Biodiversity: Code of Practice for Planning and Development*³. It has been prepared by an experienced ecologist who is a member of CIEEM. The report has also been subject to a two-stage quality assurance review by appropriately experienced ecologists who are full members of CIEEM.

1.5 Assessment Scope / Consultation



- 1.5.1 The following statutory bodies were consulted to agree the appropriate scope of wintering bird surveys for the project.
- **Natural England** – Advisor assigned at onset of consultation. Paid-for Discretionary Advice Service available outside of statutory consultation process.
 - **Lincolnshire Wildlife Trust** – A principal adviser to West Lindsey District Council on ecological matters.
- 1.5.2 No concerns were raised by these statutory bodies regarding the scope of surveys discussed.

² CIEEM (February 2022). *Code of Professional Conduct* [REDACTED]

³ The British Standards Institution (2013). *BS42020: 2013 – Biodiversity: Code of Practice for Planning and Development*. BSI Standards Ltd.



Key:

-  Site red line boundaries
-  Site bounding box



Project
Cottam Solar Project

Title
Figure 1 - Cottam sites

Date
03/10/2022

Scale  0 1 2 3 4 km



2 METHODOLOGY

2.1 Desk Study

Designated Sites

- 2.1.1 Statutory designated sites focused on wintering birds within the proximity of the application Site (30km for International sites, 5km for National sites and 2km for Local sites) were identified using the Natural England/Defra web-based MAGIC database (<https://magic.defra.gov.uk/>).
- 2.1.2 Non-statutory designated sites focussed on wintering birds within 2km of the application Site were identified using from data searches from Lincolnshire Environmental Record Centre.

Local Conservation Strategies

- 2.1.3 Relevant Local Authority plans and strategies with a biodiversity focus were consulted for aspects relevant to birds, including priority species listed under Section 41 of the Natural Environment and Rural Communities (NERC) Act (2006).

Landscape-scale Conservation Strategies, Initiatives and Records

- 2.1.4 The Birds of Conservation Concern (BoCC) Red List was also consulted. This provides a categorisation of bird species according to their conservation status, based on the assessment criteria. It considers both temporal and spatial trends across their distribution ranges and incorporates the use of a simple traffic light system, with red, amber or green categories used to illustrate risk levels. Red-listed species of high conservation concern are most at risk, reducing to amber and then green.
- 2.1.5 The Lincolnshire Environmental Records Centre (LERC) was consulted for records of bird species within 2km of the Sites.
- 2.1.6 Local county bird group data⁴ were also consulted, where accessible, to identify any local conservation concerns and disparities between national and local trends.

General

- 2.1.7 Where relevant, Ordnance Survey maps (1:25,000) and online aerial images of the Site were examined online to assess habitat connectivity (e.g. [REDACTED]).
- 2.1.8 The data presented within this report constitutes a summary of the data obtained from the local records centre. Should additional detail be required on any of the records described within this report Clarkson and Woods Ltd. should be contacted.

2.2 Field Surveys

- 2.2.1 Each of the Sites was surveyed on six separate occasions between November and early April, as detailed in **Table 1** below.
- 2.2.2 All surveys were only carried out in favourable weather conditions, avoiding strong winds (excess of Beaufort 4/moderate breeze), rain more than a light drizzle, or where visibility was compromised by low cloud/foggy conditions. Detailed weather conditions of each survey have been included within **Table 1**.
- 2.2.3 Surveys typically commenced in the morning, approximately 1hr after sunrise and were completed within 4 hours. Strict limits on the survey timings were not imposed due to the behaviour of wintering birds being less constrained by time of day, as opposed to breeding birds.
- 2.2.4 During each visit, surveys covered the entirety of the red line boundary shown in **Figure 1** above. Given the size of the Sites, they were subdivided into separate survey sections measuring approximately 60-80ha to enable coverage by multiple surveyors in a single visit. These separate areas were indicated on a key plan for each Site to ensure no doubling up of survey effort between surveyors.

⁴ Casey, C. et al. (2021). *The Birds of Lincolnshire*. Lincolnshire Bird Club. Louth



- 2.2.5 The surveys broadly followed British Trust for Ornithology (BTO) Common Birds Census guidelines, where experienced bird surveyors systematically walked through the Site, ensuring that the majority of locations were visited to within 50m. Surveyors would periodically stop to scan habitats of particular interest, such as trees, field margins or ditches, as well as opportunistically throughout each field. In some instances, the observation distance was increased above 50m (e.g., within large fields >20 hectares), but not above 100m. This allowed for the increased distances at which ground nesting birds, such as skylark, are likely to be disturbed and recorded.
- 2.2.6 The location and behaviour of all birds and flocks of birds seen or heard was noted on A3 Ordnance Survey maps at 1:10,000 resolution. Standard BTO Common Birds Census symbology and species codes were used to create a survey map for each individual visit. All surveyors were equipped with binoculars to aid identification.
- 2.2.7 For some Sites, a survey visit comprised transects which were completed across more than one day due to surveyor availability, weather, and to ensure that all surveys were completed during periods of optimal bird activity. Where split across days, the surveys were completed on consecutive days wherever possible or as soon as both weather and surveyor capacity allowed.

Personnel

- 2.2.8 The following surveyors conducted wintering bird surveys across the survey period. All surveyors are highly experienced bird surveyors able to identify all British species by sight and sound.
- Adèle Remazeilles MSc ACIEEM
 - Amy Trewick ACIEEM
 - Brian Hedley MSc MCIEEM CEnv
 - Harry Fox BSc MCIEEM
 - Heather Parris BSc ACIEEM
 - James Gilbert MCIEEM CENV
 - James Latham BSc (Hons) MCIEEM
 - Joel Wright MSc MCIEEM
 - John McLoughlin BSc
 - Lance Degnan BSc
 - Mark Baker BSc MCIEEM
 - Mike Hockey BSc (Hons) ACIEEM
 - Richard Anderton MSc MCIEEM
 - Steve Miller (affiliate member of CIEEM)

Table 1: Survey Dates, Weather Conditions & Surveyor Details

Site Name	Local Site Name	Survey Visit No.	Date	Weather Conditions (Cloud 0-8, Wind 1-12, Precipitation, TeCPCrature °C)	Surveyors
Cottam 1	North	1	17/11/2021	Cloud 0-4, Wind 1-2, Dry, 12°C	AR, AT, JL, MB, RA
		2	22/12/2021	Cloud 5, Wind 0-2, Dry, 1°C	HF, JW, LD, SM
			23/12/2021	Cloud 8, Wind 1-2, Dry, 5-6°C	HF
		3	06/01/2022	Cloud 7-8, Wind 3-4, Dry, -2°C	JM, LD, RA, SM
			09/01/2022	Cloud 1-6, Wind 1, Dry, 1 -5°C	LD
		4	26/01/2022	Wind 2-3, Dry, 1-9°C	AR, BH, HP, MB
		5	23/02/2022	Cloud 2-5, Wind 6-7, Dry, 6-10°C	AR, JG
			24/02/2022	Cloud 4, Wind 5-6, Sunny, 12°C	LD
			26/02/2022	Cloud 0, Wind 2-3, Sunny, 12°C	LD



Site Name	Local Site Name	Survey Visit No.	Date	Weather Conditions (Cloud 0-8, Wind 1-12, Precipitation, Temperature °C)	Surveyors
			27/02/2022	Cloud 0, Wind 3-4, Dry, 10°C	LD
		6	31/03/2022	Cloud 8, Wind 4, Snow showers, 3°C	AR, BH, JM, LD
	South	1	16/11/2021	Cloud 8, Wind 1-2, Light rain, 9°C	AR, JG, MB, RA
		2	21/12/2021	Cloud 8, Wind 0, Dry, 4°C	HF, JW, LD, SM
		3	05/01/2022	Cloud 0, Wind 2-4, Dry, 4-6°C	JM, LD, RA, SM
		4	25/01/2022	Cloud 8, Wind 0, Dry, 2-3°C	AR, HP, LD, MB
		5	22/02/2022	Cloud 2, Wind 6, Dry, 10°C	AR, HF, JG, JL
		6	03/04/2022	Cloud 8, Wind 0, Dry, 0-8°C	LD
			05/04/2022	Cloud 8, Wind 2-4, Dry, 8°C	LD
			06/04/2022	Cloud 6, Wind, Dry, 9°C	JG, JW
		West	1	16/11/2021	Cloud 8, Wind 1-2, Dry, 14°C
	2		23/12/2021	Cloud 8, Wind 0, Light rain, 5-6°C	LD, SM
	3		07/01/2022	Cloud 5, Wind 3, Rain showers, 2°C	JM, LD
	4		27/01/2022	Cloud 2-5, Wind 4, Dry, 9-11°C	AR, HP, MB
	5		22/02/2022	Cloud 2, Wind 4-5, Dry, 7°C	LD, JM
	6		23/03/2022	Cloud 1-4, Wind 1, Dry, 4-14°C	MB
		24/03/2022	Cloud 0, Wind 1, Dry, 6-15°C	JG	
	Cottam 2	Corringham	1	17/11/2021	Cloud 3-6, Wind 1-3, Dry, 8-14°C
2			06/12/2021	Cloud 8, Wind 1-4, Light rain, 3-5°C	AT, LD
3			11/01/2022	Cloud 8, Wind 0, Dry, 9°C	JM, LD
4			27/01/2022	Cloud 3, Wind 4, Dry, 10°C	JM, LD
5			23/02/2022	Cloud 2, Wind 3-4, Dry, 6-8°C	JM, LD
6			21/03/2022	Cloud 0, Wind 1-2, Dry (mist at start), 1-7°C	BH, JM
Cottam 3a	Blyton	1	11/11/2021	Cloud 3, Wind 1-2, Dry, 14°C	BH, JL
		2	16/12/2021	Cloud 1, Wind 0, Dry, 6°C	MH, RA
		3	14/01/2022	Cloud 0, Wind 0, Dry, -1-5°C	JL, LD, RA
		4	02/02/2022	Cloud 8, Wind 2, Dry, 5-10°C	JM, RA
		5	01/03/2022	Cloud 3, Wind 2, Dry, 11°C	RA
			02/03/2022	Cloud 4, Wind 2, Dry, 8°C	JW
6	01/04/2022	Cloud 2, Wind 3-4, Dry, <5°C	JM, LD		
Cottam 3b	Blyton 2	1	11/11/2021	Cloud 0, Wind 0-1, Dry, 10°C	AT
		2	16/12/2021	Cloud 1, Wind 0, Dry, 2-8°C	LD
		3	14/01/2022	Cloud 0, Wind 0-1, Dry, -1-5°C	LD
		4	02/02/2022	Cloud 8, Wind 3, Dry, 11°C	LD
		5	07/03/2022	Cloud 2-0, Wind 2, Dry, 12°C	LD
		6	01/04/2022	Cloud 0, Wind 3, Dry, 2-5°C	BH



2.3 Data Interpretation

- 2.3.1 Data were digitised using QGIS, to allow interpretation of the distribution of different species.
- 2.3.2 Data were collated for interpretation in tables within Microsoft Excel, allowing the number of individuals of each species to be enumerated for each Site/ survey visit, and for different habitats within the Sites.
- 2.3.3 Species not of conservation concern/ non-notable species were not enumerated as they would not be included as Important Ecological Features in the impact assessment. A list of these species is provided.
- 2.3.4 To enable assessment of impacts, each species was categorised based on its primary ecology requirements and habitat use recorded on Site during the wintering season, as follows:
- Open habitats, including use of open, arable, fallow or grassland/pasture fields;
 - Boundary habitats, including hedgerow/scrub, arable margins etc. This includes species that rely on such boundary habitats in combination with adjacent farmland (e.g. yellowhammers utilising field margins and the open arable fields);
 - Waterbodies, such as ponds, rivers, and ditches; and
 - Woodlands and mature trees.
- 2.3.5 It is acknowledged that many species are associated with more than one category of habitat. Such species were allocated to the primary habitat considered to have the greatest risk of being adversely impacted, to ensure appropriate ecological assessment.

2.4 Ecological Assessment

- 2.4.1 To enable assessment of the Survey Area within the associated Environmental Statement on any given wintering bird species, and to measure scale of impacts resulting from loss or change to their habitats, the ecological importance of each species was defined. This was achieved through consideration of the species' national and local conservation status; conservation value in a geographical context; results of the completed surveys (local scale context); and application of professional judgment (which may increase or decrease the ecological importance, based on local knowledge).
- 2.4.2 The national conservation status of any given species was established by their categorisation on the Birds of Conservation Concern (BoCC) Red List and whether they are a Species of Principal Importance under the NERC Act. Their local conservation status was determined through their listing on the Local BAP and consideration of local records.
- 2.4.3 The ecological importance of each species was determined by applying the criteria provided within the CIEEM guidelines for Ecological Impact Assessment (2018)⁵. This enabled the ecological importance of each species to be established and considered within a geographical context. This ensures the appropriate assessment of potential cumulative impacts of the proposals at a landscape scale.
- 2.4.4 The results of the wintering bird surveys provided local contextual information which, combined with professional judgement and local knowledge, enabled reassessment of each species' importance where appropriate.

2.5 Limitations

Desk Study

- 2.5.1 The data search was obtained in 2021 and does not include records made subsequently. The dataset only provides records where information exists and should not be relied upon as a complete listing of all wintering bird species which may occur in the area.

⁵ CIEEM (2018) *Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater and Coastal, Sept 2018*. Chartered Institute of Ecology and Environmental Management. [REDACTED]



Field Surveys

- 2.5.2 It is possible that the presence of certain species has been missed due to their being present in low numbers, or due their cryptic nature. However, the survey methodology ensures that all land is visited to within 50m and so the likelihood of under-recording species is reduced.
- 2.5.3 The surveys offer only 'snapshots' of wintering birds' usage of the Sites, and it is possible that over the course of the winter period the abundance and species of birds using the Sites varies slightly from that recorded by the surveys. However, six separate visits have been conducted, spread across the full winter period, which allows for a representative baseline to be established.
- 2.5.4 On a small number of occasions, the presence of mist made survey conditions suboptimal. In these cases, the surveyors waited until the mist had cleared before proceeding. As such this is not considered a major constraint.
- 2.5.5 Wind levels were high on 22nd, 23rd and 24th February during Visit 5 at Cottam 1 North; South; and West. This may have reduced bird activity, with birds more likely to sit tight. However, the survey methodology – visiting each location to within 50m – means the majority of birds should have been recorded.

Data Analysis

- 2.5.6 Data were collated for analysis for each Site. However, surveys of these Sites were sometimes spread across different dates for the same survey 'visit'. As such, the peak count of birds recorded at each Site within a single survey visit may have been inflated slightly due to the same birds having moved to different areas of the Site between dates. This is acknowledged as a limitation, but in the event that numbers of birds have been slightly inflated, this will only serve to elevate their importance and so the assessment will be more precautionary. As such there is no risk of undervaluing the Sites' importance to wintering birds.



3 RESULTS

3.1 Desk Study Information

Designated Sites

- 3.1.1 The only designated site of relevance to wintering birds in proximity to the Survey Area is the Humber Estuary Special Protection Area (SPA). This site is located 28km from Cottam 2 and 24km from Cottam 3, but beyond 30km from Cottam 1. The SPA is the second largest coastal plain estuary in the UK (approx. 37,000ha) and supports important breeding populations of bittern, marsh harrier, avocet and little tern during summer as well as important numbers of overwintering geese, ducks and waders.
- 3.1.2 Numerous other nationally designated sites were recorded within 5km of Cottam 3 and additional Local Wildlife Sites within 2km of both Cottam 1 and Cottam 3, however none were specifically recognised for their importance to wintering birds.

Local Policy

- 3.1.3 Farmland birds are listed on the Lincolnshire Biodiversity Action Plan⁶ (BAP). This covers the following species which overwinter in the UK: grey partridge *Perdix perdix*, lapwing *Vanellus vanellus*, skylark *Alauda arvensis*, corn bunting *Miliaria calandra*, linnet *Carduelis cannabina*, yellowhammer *Emberiza citronella*, reed bunting *Emberiza schoeniclus*, bullfinch *Pyrrhula pyrrhula*, starling *Sturnus vulgaris*, tree sparrow *Passer montanus*, snipe *Gallinago gallinago*, curlew *Numenius arquata*, redshank *Tringa totanus* and barn owl *Tyto alba*.

Local Records

- 3.1.4 Various species were recorded by the data search within 2km of the Sites, including passerines, raptors, waders and wildfowl. The vast majority of records pertained to locations >250m outside the red line boundary (or undetermined). Most records were made since the year 2000. A broad summary of the findings for each Site is shown below.
- 3.1.5 For **Cottam 1**, 37 bird species of conservation importance which overwinter in the UK were recorded by the data search. House sparrow *Passer domesticus* were recorded within the Site in the Cottam 1 West area, and barn owl were recorded within 250m of the Site near Cottam 1 North and Cottam 1 South.
- 3.1.6 For **Cottam 2**, 17 bird species of conservation importance which overwinter in the UK were recorded by the data search. Barn owl, skylark and lapwing were all recorded within the red line boundary, in the north-west of the Site.
- 3.1.7 For **Cottam 3a**, 13 bird species of conservation importance which overwinter in the UK were recorded by the data search. All records pertained to locations >250m outside the red line boundary.
- 3.1.8 For **Cottam 3b**, 13 bird species of conservation importance which overwinter in the UK were recorded by the data search. All records pertained to locations >250m outside the red line boundary.

3.2 Field Survey Results

Abundance & Species Diversity

All Sites

- 3.2.1 A summary of the notable species recorded by the surveys is shown in **Table 3** overleaf, which gives the number of visits (out of six) in which each species was recorded at each Site; and the peak count of each species within a single visit at each Site.
- 3.2.2 **Table 4** shows a list of the additional non-notable species recorded by the surveys.
- 3.2.3 **Tables 5 to 8** show the number of birds of each species recorded per Site by survey visit. To aid assessment of the impacts of the proposed development, each species has been categorised into the principal habitat type they are associated with during the winter season.

⁶ Lincolnshire Biodiversity Action Plan 2011-2020 (3rd edn., revised in 2015).



3.2.4 The conservation status of each species given in these tables is denoted according to the abbreviations given in **Table 2** below.

Table 2: Key to Conservation Status Abbreviations

Abbreviation	Meaning
S41	Species of Principal Importance under NERC Act 2006
Sch1	Schedule 1 species under the Wildlife & Countryside Act 1981 (as amended)
Red BoCC	'Red listed' species according to BTO/RSPB Birds of Conservation Concern 5 (2021)
Amber BoCC	'Amber listed' species according to BTO/RSPB Birds of Conservation Concern 5 (2021)
UKFBI	UK Farmland Bird Indicator
LBAP	Listed under the Lincolnshire Biodiversity Action Plan 2011-2020 (3rd Edition)
PJ	Included on the basis of professional judgement due to numbers observed

Species Diversity

All Sites

3.2.5 Across all Sites, a total of 86 species were recorded. Of these, 54 were species of conservation concern/ notable species, comprising 16 red-listed and 30 amber-listed species (national status).

3.2.6 Of the red and amber-listed species, 16 were also 'Species of Principal Importance' (SPIs). These species are listed under Section 41 of the NERC Act 2006 and so are capable of being material considerations within the planning process.

3.2.7 A total of 11 species were listed under the Lincolnshire BAP.

3.2.8 In addition, 11 species were also listed under Schedule 1 of the Wildlife & Countryside Act 1981 (as amended). This confers special protection when breeding. Whilst this designation is not directly relevant to wintering birds, the designation is given to species which, in the main, are nationally scarce and therefore notable. Furthermore, some of these species are residents and therefore may also be present during the breeding season.

Cottam 1

3.2.9 Across all visits at Cottam 1, a total of 84 different species were recorded. Of these, 53 were species of conservation concern/ notable, comprising 16 red-listed species; 29 amber-listed species; and 15 SPIs. **Table 5** shows the number of each species recorded during each visit.

Cottam 2

3.2.10 Across all visits at Cottam 2, a total of 52 different species were recorded. Of these, 32 were species of conservation concern/ notable, comprising 11 red-listed species; 16 amber-listed species; and 12 SPIs. **Table 6** shows the number of each species recorded during each visit.

Cottam 3a

3.2.11 Across all visits at Cottam 3a, a total of 58 different species were recorded. Of these, 37 were species of conservation concern/ notable, comprising 13 red-listed species; 19 amber-listed species; and 14 SPIs. **Table 7** shows the number of each species recorded during each visit.

Cottam 3b

3.2.12 Across all visits at Cottam 3b, a total of 56 different species were recorded. Of these, 24 were species of conservation concern/ notable, comprising 9 red-listed species; 13 amber-listed species; and 12 SPIs. **Table 8** shows the number of each species recorded during each visit.



Table 3: Abundance of Each Species of Conservation Concern Recorded Across All Visits

Species	Conservation Status	Cottam 1		Cottam 2		Cottam 3a		Cottam 3b	
		No. of surveys species found (/6)	Peak count on any single visit	No. of surveys species found (/6)	Peak count on any single visit	No. of surveys species found (/6)	Peak count on any single visit	No. of surveys species found (/6)	Peak count on any single visit
Birds predominantly associated with open arable/grassland fields									
Barn Owl	Sch1, LBAP	3	8	1	1	1	1	0	0
Black-headed Gull	Amber BoCC	5	64	1	47	0	0	0	0
Common Gull	Amber BoCC	3	25	1	18	1	7	0	0
Curlew	Red BoCC, S41, UKFBI, LBAP	1	1	0	0	0	0	0	0
Fieldfare	Red BoCC, Sch1	6	700	5	574	6	206	5	130
Golden Plover	PJ	6	887	6	21	1	28	2	48
Greylag Goose	Amber BoCC	3	60	0	0	1	4	0	0
Herring Gull	Red BoCC, S41	1	1	1	1	1	1	0	0
Kestrel	Amber BoCC, UKFBI	6	21	4	3	5	3	6	5
Lapwing	Red BoCC, S41, UKFBI, LBAP	6	427	4	246	1	5	0	0
Lesser Black-backed Gull	Amber BoCC	3	3	0	0	0	0	0	0
Meadow Pipit	Amber BoCC	6	84	4	6	5	35	3	3
Merlin	Red BoCC, Sch1	1	1	0	0	0	0	0	0
Peregrine	Sch1	3	2	1	1	1	2	0	0
Pink-footed Goose (all observations flying over)	Amber BoCC	3	406	0	0	1	1	1	1
Red Kite	Sch1	1	1	0	0	0	0	0	0
Rook	Amber BoCC, UKFBI	4	267	0	0	5	198	1	4
Sanderling	Amber BoCC	0	0	0	0	2	1	0	0
Short-eared Owl	Amber BoCC	2	3	0	0	0	0	0	0
Skylark	Red BoCC, S41, UKFBI, LBAP	6	619	6	38	6	350	5	61
Starling	Red BoCC, S41, UKFBI, LBAP	6	2248	4	141	5	397	1	30
Stock Dove	Amber BoCC, UKFBI	6	315	6	13	4	20	5	11
Whooper Swan	Amber BoCC, Sch1	3	76	0	0	0	0	0	0
Woodcock	Red BoCC	5	8	1	1	0	0	0	0
Woodpigeon	Amber BoCC, UKFBI	6	1620	6	140	6	513	5	160
Birds predominantly associated with arable field margins and hedgerows/scrub boundaries									
Brambling	Sch1	4	10	1	1	1	3	1	1
Bullfinch	Amber BoCC, S41, LBAP	5	23	1	1	3	3	2	1
Duncock	Amber BoCC, S41	6	12	4	3	4	11	1	6
Greenfinch	Red BoCC, UKFBI	2	2	5	9	1	3	1	6
Grey Partridge	Red BoCC, S41, LBAP	6	223	6	61	6	120	5	27
House Sparrow	Red BoCC, S41	6	43	0	0	2	2	2	6
Lesser Redpoll	Red BoCC, S41	1	2	0	0	2	5	0	0
Linnet	Red BoCC, S41, UKFBI, LBAP	6	453	3	9	6	170	6	12



Species	Conservation Status	Cottam 1		Cottam 2		Cottam 3a		Cottam 3b	
		No. of surveys species found (/6)	Peak count on any single visit	No. of surveys species found (/6)	Peak count on any single visit	No. of surveys species found (/6)	Peak count on any single visit	No. of surveys species found (/6)	Peak count on any single visit
Mistle Thrush	Red BoCC	1	5	0	0	1	1	0	0
Redwing	Amber BoCC, Sch1	6	507	2	581	4	59	4	39
Reed Bunting	Amber BoCC, S41, UKFBI, LBAP	6	83	5	10	6	15	4	16
Snow Bunting	Amber BoCC	1	2	0	0	0	0	0	0
Song Thrush	Amber BoCC, S41	6	41	3	4	5	3	3	3
Tree Sparrow	Red BoCC, S41, UKFBI, LBAP	4	21	3	14	1	1	3	6
Wren	Amber BoCC	6	35	4	3	5	10	0	0
Yellowhammer	Red BoCC, S41, UKFBI, LBAP	6	340	6	68	6	51	6	43
Birds predominantly associated with ditches, waterbodies and wetland habitats									
Cetti's Warbler	Sch1	1	1	0	0	0	0	0	0
Gadwall	Amber BoCC	2	5	0	0	0	0	0	0
Great White Egret	Amber BoCC	1	3	0	0	0	0	0	0
Green Sandpiper	Amber BoCC	1	2	0	0	0	0	0	0
Grey Wagtail	Amber BoCC	1	2	4	2	0	0	0	0
Kingfisher	Sch1	1	1	1	1	1	1	0	0
Mallard	Amber BoCC,	6	43	1	4	1	1	0	0
Moorhen	Amber BoCC	3	3	0	0	1	1	0	0
Snipe	Amber BoCC, LBAP	6	8	5	2	3	3	1	1
Teal	Amber BoCC	5	234	0	0	0	0	0	0
Birds predominantly associated with mature trees/woodland									
Goshawk	Sch1	1	1	0	0	0	0	0	0
Sparrowhawk	Amber BoCC	4	2	1	1	2	1	1	2
Tawny Owl	Amber BoCC	1	1	0	0	0	0	0	0

Table 4: List of Additional Species (not of Conservation Concern) Recorded by the Surveys

Species			
Blackbird	Collared Dove	Grey Heron	Nuthatch
Blue Tit	Cormorant	Jackdaw	Pheasant
Buzzard	Feral Pigeon	Jay	Pied Wagtail
Canada Goose	Goldcrest	Little Egret	Red-legged Partridge
Carrion Crow	Goldfinch	Little Owl	Robin
Chaffinch	Great-spotted Woodpecker	Long-tailed Tit	Siskin
Chiffchaff	Great Tit	Magpie	Stonechat
Coal Tit	Green Woodpecker	Mute Swan	Treecreeper



Table 5: Cottam 1 - Abundance of Each Species of Conservation Concern Recorded During each Visit (peak in bold)

Species	Conservation Status	Visit No.					
		1	2	3	4	5	6
Birds predominantly associated with open arable/grassland fields							
Barn Owl	Sch1, LBAP	2	0	1	0	8	0
Black-headed Gull	Amber BoCC	5	13	64	10	1	0
Common Gull	Amber BoCC	1	0	14	25	0	0
Curlew	Red BoCC, S41, UKFBI, LBAP	0	0	0	0	1	0
Fieldfare	Red BoCC, Sch1	573	700	684	539	358	106
Golden Plover	PJ	91	4	887	51	166	238
Greylag Goose	Amber BoCC	0	43	0	0	60	25
Herring Gull	Red BoCC, S41	0	0	0	0	0	1
Kestrel	Amber BoCC, UKFBI	21	14	18	13	15	8
Lapwing	Red BoCC, S41, UKFBI, LBAP	3	1	249	427	115	35
Lesser Black-backed Gull	Amber BoCC	0	1	0	0	1	3
Meadow Pipit	Amber BoCC	84	2	6	18	18	43
Merlin	Red BoCC, Sch1	0	0	0	0	0	1
Peregrine	Sch1	1	2	0	1	0	0
Pink-Footed Goose	Amber BoCC	27	406	270	0	0	0
Red Kite	Sch1	0	0	1	0	0	0
Rook	Amber BoCC, UKFBI	0	0	267	260	121	40
Short-eared Owl	Amber BoCC	0	0	1	3	0	0
Skylark	Red BoCC, S41, UKFBI, LBAP	449	619	562	369	149	278
Starling	Red BoCC, S41, UKFBI, LBAP	374	232	2224	998	2248	2
Stock Dove	Amber BoCC, UKFBI	14	4	86	315	11	17
Whooper Swan	Amber BoCC, Sch1	76	14	0	0	0	26
Woodcock	Red BoCC	0	3	8	1	5	1
Woodpigeon	Amber BoCC, UKFBI	1620	764	1185	1228	663	219
Birds predominantly associated with arable field margins and hedgerows/scrub boundaries							
Brambling	Sch1	0	1	10	3	0	2
Bullfinch	Amber BoCC, S41, LBAP	23	21	12	4	0	4
Duncock	Amber BoCC, S41	12	8	8	8	4	11
Greenfinch	Red BoCC, UKFBI	0	1	2	0	0	0
Grey Partridge	Red BoCC, S41, LBAP	147	223	209	169	115	96
House Sparrow	Red BoCC, S41	13	6	17	43	7	6
Lesser Redpoll	Red BoCC, S41	2	0	0	0	0	0
Linnet	Red BoCC, S41, UKFBI, LBAP	8	34	453	82	85	81
Mistle Thrush	Red BoCC	0	0	0	5	0	0
Redwing	Amber BoCC, Sch1	177	507	216	103	119	39
Reed Bunting	Amber BoCC, S41, UKFBI, LBAP	36	36	59	12	34	83
Snow Bunting	Amber BoCC	0	0	2	0	0	0
Song Thrush	Amber BoCC, S41	4	15	41	14	19	8
Tree Sparrow	Red BoCC, S41, UKFBI, LBAP	18	15	0	21	0	11



Species	Conservation Status	Visit No.					
		1	2	3	4	5	6
Wren	Amber BoCC	35	14	19	21	6	17
Yellowhammer	Red BoCC, S41, UKFBI, LBAP	171	267	340	118	128	220
Birds predominantly associated with ditches, waterbodies and associated habitats							
Cetti's Warbler	Sch1	0	0	0	1	0	0
Gadwall	Amber BoCC	0	5	4	0	0	0
Great White Egret	Amber BoCC	0	0	0	3	0	0
Green Sandpiper	Amber BoCC	2	0	0	0	0	0
Grey Wagtail	Amber BoCC	0	2	0	0	0	0
Kingfisher	Sch1	0	1	0	0	0	0
Mallard	Amber BoCC,	22	27	40	37	28	43
Moorhen	Amber BoCC	1	0	2	0	0	3
Snipe	Amber BoCC, LBAP	4	8	3	1	2	2
Teal	Amber BoCC	70	47	234	64	90	0
Birds predominantly associated with mature trees/woodland							
Goshawk	Sch1	1	0	0	0	0	0
Sparrowhawk	Amber BoCC	2	1	1	2	0	0
Tawny Owl	Amber BoCC	0	0	0	0	1	0

Table 6: Cottam 2 - Abundance of Each Species of Conservation Concern Recorded During each Visit (peak in bold)

Species	Conservation Status	Visit No.					
		1	2	3	4	5	6
Birds predominantly associated with open arable/grassland fields							
Barn Owl	Sch1, LBAP	0	1	0	0	0	0
Black-headed Gull	Amber BoCC	0	47	0	0	0	0
Common Gull	Amber BoCC	0	18	0	0	0	0
Fieldfare	Red BoCC, Sch1	145	574	75	0	85	150
Golden Plover	PJ	15	21	5	13	2	8
Herring Gull	Red BoCC, S41	0	1	0	0	0	0
Kestrel	Amber BoCC, UKFBI	0	0	3	1	3	1
Lapwing	Red BoCC, S41, UKFBI, LBAP	246	1	203	9	0	0
Meadow Pipit	Amber BoCC	1	6	0	3	0	3
Peregrine	Sch1	0	0	1	0	0	0
Skylark	Red BoCC, S41, UKFBI, LBAP	36	6	10	17	24	38
Starling	Red BoCC, S41, UKFBI, LBAP	0	141	30	0	42	24
Stock Dove	Amber BoCC, UKFBI	13	10	4	1	3	4
Woodcock	Red BoCC	0	0	1	0	0	0
Woodpigeon	Amber BoCC, UKFBI	125	115	28	15	140	10
Birds predominantly associated with arable field margins and hedgerows/scrub boundaries							
Brambling	Sch1	1	0	0	0	0	0



Species	Conservation Status	Visit No.					
		1	2	3	4	5	6
Bullfinch	Amber BoCC, S41, LBAP	0	1	0	0	0	0
Duncock	Amber BoCC, S41	0	3	2	1	0	3
Greenfinch	Red BoCC, UKFBI	9	2	1	4	1	0
Grey Partridge	Red BoCC, S41, LBAP	46	16	61	35	26	12
Linnet	Red BoCC, S41, UKFBI, LBAP	1	0	0	0	7	9
Redwing	Amber BoCC, Sch1	1	581	0	0	0	0
Reed Bunting	Amber BoCC, S41, UKFBI, LBAP	5	2	9	0	6	10
Song Thrush	Amber BoCC, S41	0	0	4	2	0	4
Tree Sparrow	Red BoCC, S41, UKFBI, LBAP	2	0	8	0	0	14
Wren	Amber BoCC	2	3	1	0	1	0
Yellowhammer	Red BoCC, S41, UKFBI, LBAP	10	10	68	32	31	34
Birds predominantly associated with ditches, waterbodies and associated habitats							
Grey Wagtail	Amber BoCC	2	2	1	1	0	0
Kingfisher	Sch1	0	0	0	1	0	0
Mallard	Amber BoCC,	0	0	0	0	0	4
Snipe	Amber BoCC, LBAP	1	1	1	1	0	2
Birds predominantly associated with mature trees/woodland							
Sparrowhawk	Amber BoCC	0	0	0	1	0	0

Table 7: Cottam 3a - Abundance of Each Species of Conservation Concern Recorded During each Visit (peak in bold)

Species	Conservation Status	Visit No.					
		1	2	3	4	5	6
Birds predominantly associated with open arable/grassland fields							
Barn Owl	Sch1, LBAP	0	0	0	0	1	0
Common Gull	Amber BoCC	0	0	7	0	0	0
Fieldfare	Red BoCC, Sch1	6	61	61	176	206	4
Golden Plover	PJ	0	28	0	0	0	0
Greylag Goose	Amber BoCC	0	0	0	0	4	0
Herring Gull	Red BoCC, S41	0	0	0	1	0	0
Kestrel	Amber BoCC, UKFBI	3	2	2	2	0	1
Lapwing	Red BoCC, S41, UKFBI, LBAP	5	0	0	0	0	0
Meadow Pipit	Amber BoCC	24	35	25	25	13	0
Peregrine	Sch1	0	0	0	0	0	2
Pink-Footed Goose	Amber BoCC	1	0	0	0	0	0
Rook	Amber BoCC, UKFBI	165	129	168	198	1	0
Sanderling	Amber BoCC	0	0	0	1	0	1
Skylark	Red BoCC, S41, UKFBI, LBAP	126	279	350	112	40	51
Starling	Red BoCC, S41, UKFBI, LBAP	397	154	139	190	200	0
Stock Dove	Amber BoCC, UKFBI	0	10	6	20	0	2



Species	Conservation Status	Visit No.					
		1	2	3	4	5	6
Woodpigeon	Amber BoCC, UKFBI	37	513	431	178	303	16
Birds predominantly associated with arable field margins and hedgerows/scrub boundaries							
Brambling	Sch1	0	0	0	3	0	0
Bullfinch	Amber BoCC, S41, LBAP	1	3	1	0	0	0
Duncock	Amber BoCC, S41	8	11	8	0	3	0
Greenfinch	Red BoCC, UKFBI	0	0	0	0	3	0
Grey Partridge	Red BoCC, S41, LBAP	109	81	120	24	40	4
House Sparrow	Red BoCC, S41	0	1	2	0	0	0
Lesser Redpoll	Red BoCC, S41	0	1	0	5	0	0
Linnet	Red BoCC, S41, UKFBI, LBAP	70	30	7	60	170	16
Mistle Thrush	Red BoCC	0	1	0	0	0	0
Redwing	Amber BoCC, Sch1	4	59	8	35	0	0
Reed Bunting	Amber BoCC, S41, UKFBI, LBAP	3	3	15	2	3	2
Song Thrush	Amber BoCC, S41	3	0	3	1	2	1
Tree Sparrow	Red BoCC, S41, UKFBI, LBAP	0	1	0	0	0	0
Wren	Amber BoCC	4	9	10	3	3	0
Yellowhammer	Red BoCC, S41, UKFBI, LBAP	35	37	29	10	51	7
Birds predominantly associated with ditches, waterbodies and associated habitats							
Kingfisher	Sch1	0	1	0	0	0	0
Mallard	Amber BoCC,	0	0	0	1	0	0
Moorhen	Amber BoCC	0	0	0	0	1	0
Snipe	Amber BoCC, LBAP	3	0	1	0	0	1
Birds predominantly associated with mature trees/woodland							
Sparrowhawk	Amber BoCC	0	0	0	0	1	1

Table 8: Cottam 3b - Abundance of Each Species of Conservation Concern Recorded During each Visit (peak in bold)

Species	Conservation Status	Visit No.					
		1	2	3	4	5	6
Birds predominantly associated with open arable/grassland fields							
Fieldfare	Red BoCC, Sch1	52	6	36	130	85	0
Golden Plover	PJ	0	0	0	48	5	0
Kestrel	Amber BoCC, UKFBI	5	2	2	2	2	2
Meadow Pipit	Amber BoCC	0	3	0	1	0	2
Pink-Footed Goose	Amber BoCC	1	0	0	0	0	0
Rook	Amber BoCC, UKFBI	0	0	0	0	0	4
Skylark	Red BoCC, S41, UKFBI, LBAP	0	28	61	21	1	37
Starling	Red BoCC, S41, UKFBI, LBAP	30	0	0	0	0	0
Stock Dove	Amber BoCC, UKFBI	0	3	4	11	6	1
Woodpigeon	Amber BoCC, UKFBI	80	65	120	25	160	0



Species	Conservation Status	Visit No.					
		1	2	3	4	5	6
Birds predominantly associated with arable field margins and hedgerows/scrub boundaries							
Brambling	Sch1	1	0	0	0	0	0
Bullfinch	Amber BoCC, S41, LBAP	1	0	1	0	0	0
Dunnock	Amber BoCC, S41	0	0	0	0	0	6
Greenfinch	Red BoCC, UKFBI	0	0	0	6	0	0
Grey Partridge	Red BoCC, S41, LBAP	0	27	12	11	10	11
House Sparrow	Red BoCC, S41	0	0	6	3	0	0
Linnet	Red BoCC, S41, UKFBI, LBAP	5	8	3	12	10	4
Redwing	Amber BoCC, Sch1	20	3	0	39	37	0
Reed Bunting	Amber BoCC, S41, UKFBI, LBAP	0	16	4	1	0	2
Song Thrush	Amber BoCC, S41	0	3	2	0	0	2
Tree Sparrow	Red BoCC, S41, UKFBI, LBAP	0	0	6	4	0	3
Yellowhammer	Red BoCC, S41, UKFBI, LBAP	7	43	4	18	3	5
Birds predominantly associated with ditches, waterbodies and associated habitats							
Snipe	Amber BoCC, LBAP	0	0	0	1	0	0
Birds predominantly associated with mature trees/woodland							
Sparrowhawk	Amber BoCC	0	2	0	0	0	0

Distribution & Abundance by Habitat Type

3.2.13 The main habitats utilised by wintering birds across all Sites included:

- Open, arable and fallow fields or grassland/pasture fields
- Arable field margins/ hedgerows and scrub
- Ditches, waterbodies and associated habitats
- Mature trees and woodland

3.2.14 Species associated with each of these broad habitat types are discussed in turn in the text below. Species recorded in low numbers on a limited number of survey visits are generally not discussed, as it is unlikely that the Site(s) are of particular importance to these species.

3.2.15 A general summary of the findings across all Sites is given, followed by an assessment of the findings for each specific Site. The abundance and distribution of key species is discussed in detail.

3.2.16 It is important to note that many species range widely to forage in the winter and use different locations sporadically. Both the frequency of recording and the abundance of each species must be considered, and this data put into context with regard to local and national populations and the availability of similar habitats in the surrounding landscape.

3.2.17 Where data shows a species to have been recorded rarely or in low numbers, this could imply that the Site(s) are not significant contributors to their survival over the winter. However, the detectability of such species should be considered, as some are elusive/ cryptic and may have been missed by the survey. The rarity of certain species may also mean that recording just a few individuals is significant.

3.2.18 Conversely, where a species was recorded regularly and in significant numbers at a particular Site, this could imply a greater level of importance of the Site to this species. However, again this must be contextualised.



Open, arable and fallow fields or grassland/pasture fields

All Sites

- 3.2.19 The greatest diversity of notable species (25) was associated primarily with open habitats. These species also constituted the greatest abundance of birds recorded by the surveys.
- 3.2.20 A total of 13 species associated with open habitats were recorded at all four Sites, with these species tending to be 'core' farmland species, including barn owl, kestrel, lapwing, skylark, starling, stock dove and woodpigeon. Additional species recorded at all four Sites included common gull, fieldfare, golden plover, herring gull, meadow pipit, peregrine. These species are more dependent on arable and grassland habitats over the winter months rather than year-round, although peregrine may well hold permanent territories at the Sites. In general, species recorded across all four Sites were also recorded consistently across the survey period, although some species were recorded infrequently.
- 3.2.21 Species recorded in relatively large numbers at a particular Site included: barn owl, golden plover, greylag goose, kestrel, lapwing, pink-footed goose (flying over only), skylark, starling, stock dove, whooper swan and woodpigeon. These are discussed below within the subheadings for each Site.
- 3.2.22 Rarely recorded notable species included: curlew, merlin and red kite (1 bird on 1 occasion); herring gull (1 bird on 1 occasion at all Sites); sanderling (1 bird on 2 occasions); and short-eared owl (1 to 3 birds on 2 occasions). These species could have been recorded on migratory passage or may range widely in the winter; hence the Site(s) are unlikely to be critical to their survival. However, some of these species are more elusive and may have been missed by the survey on other visits.

Cottam 1

- 3.2.23 Barn owl were recorded on three occasions, with a peak of 8 birds on Visit 5. The Site constitutes a large area, but the presence of 8 individuals indicates that the habitats provide good foraging resources for this species. Barn owl can breed year-round so the numbers could have included juveniles dispersing.
- 3.2.24 Black-headed and common gulls were recorded on five and three visits respectively, in fairly low numbers. They tended to be recorded in the west of Cottam 1 South.
- 3.2.25 A single curlew was recorded on a single occasion in February, flying overhead above field C17 in the approximate centre of the Site. Given it was not recorded using the Site itself and not seen on any of the other five survey visits, it is highly unlikely to be strongly associated with the Site.
- 3.2.26 Fieldfare were recorded on each visit in modest numbers, with a peak of 700 birds in December. This species forages both in pasture, arable fields and boundary habitats. They were widespread, but the greatest numbers were recorded in the south and east of Cottam 1 South. Observations were usually of small to medium-sized flocks either foraging or flying overhead, with a maximum flock size of 300+ individuals recorded on one occasion.
- 3.2.27 Golden plover were recorded consistently, with modest to high numbers present, usually in large flocks which would periodically settle to forage within stubble and pasture fields before taking flight to move around locally throughout the survey visits. The peak count was 887 birds in January, which is a notable observation, although this species is not of any particular conservation concern. Golden plover were recorded especially in the west of Cottam 1 South (key fields D7-D9); the south, north and northeast of Cottam 1 West (key fields F2, F7, G1 and G4); and the northeast of Cottam 1 North (key fields A3, B2, C3 and C22). Appreciable numbers were also recorded off-Site adjacent to fields D25, D30 and D34 and flying over D14.
- 3.2.28 Greylag goose were recorded in modest numbers on three occasions, mainly in the south of Cottam 1 South and the northeast of Cottam 1 North.
- 3.2.29 Fairly high numbers of kestrel were recorded across the Site on each visit. The Site supported a good population during the winter.
- 3.2.30 Lapwing were recorded on each visit, with the greatest numbers in the middle of the winter period: a peak of 427 birds was recorded in February. These birds were widely spread, but the greatest numbers were in the north of the Site. Key fields were: C3, C9, C16, D9, F2, G1 and G4.
- 3.2.31 As with golden plover, these birds would form flocks and periodically take flight to move around locally, taking advantage of the abundance of stubbles, grassland and cultivated fields in the local area. They were



typically present in the middle of fields in groups of varying size, from a few individuals to flocks of 100. Individual birds were recorded at the field edges, and large flocks were seen flying overhead.

- 3.2.32 Meadow pipit were recorded on each visit in low to modest numbers and were widely distributed.
- 3.2.33 A single merlin was recorded on one occasion. This is a notable species but based on the survey data is unlikely to use the Site consistently. This species is, however, fast-flying and elusive and could have been easily missed on other occasions.
- 3.2.34 One or two peregrines were recorded on three occasions, mainly north of Cottam 1 West but also south of Cottam 1 South.
- 3.2.35 Medium and large sized flocks of pink-footed geese species were recorded flying overhead during Visits 1-3, indicating movements between major wintering grounds of the Wash and the Humber Estuary. The large expanse of arable farmland between these act as occasional intermediary foraging habitats, especially on days of low visibility or poor weather. They were recorded mainly in the north and east of Cottam 1 North, west of Cottam 1 South and south of Cottam 1 West. Relatively large numbers were recorded on Visits 2 and 3, with a peak of 406 birds.
- 3.2.36 A single red kite was seen passing through the eastern part of Cottam 1 South on one occasion.
- 3.2.37 Rook were recorded from January onwards in modest numbers. They were widespread but most prevalent in the south and west of the Site.
- 3.2.38 A peak of 3 short-eared owl were recorded in the south and east of Cottam 1 South, specifically in fields D22 and D25, on two occasions. This species may be under-recorded due to being mainly active at dawn and dusk.
- 3.2.39 Skylark were consistently recorded in high numbers, peaking at 619 birds in December. This species was widely distributed but the greatest numbers were in the far east of Cottam 1 North (field C30); west of Cottam 1 West (fields F5 and G1); and west of Cottam 1 South (fields D3 and D9);. This indicates a preference for the relatively few pasture fields present within the Site, which were primarily arable.
- 3.2.40 Starling were recorded in modest to high numbers across the winter, with over 2000 birds recorded on two occasions. They were widespread but the greatest numbers were in the south and west of Cottam 1 South.
- 3.2.41 Generally low numbers of stock dove were recorded, although a peak of 315 birds was recorded in late January. They were widespread but especially prevalent in the south of Cottam 1 North and northwest of Cottam 1 West.
- 3.2.42 Flocks of between 4 and 26 whooper swan were recorded flying overhead on three occasions (Visits 1, 2 and 6), with a peak of 76 birds recorded during Visit 1 in November. They were recorded in the east of Cottam 1 South, rough centre of Cottam 1 North and northwest of Cottam 1 West. Whilst not recorded using the Site itself during the surveys, this species may have taken advantage of seasonal foraging opportunities within the Site, whilst ranging widely over the course of the winter.
- 3.2.43 Low to relatively moderate numbers of woodcock were recorded on 5/6 occasions, with a peak of 8 birds in January. This species is associated with woodland but forages in open fields, typically after dark, during the winter. Numbers are swelled by an influx of visitors from the Continent in winter. They are red-listed but for their breeding population rather than winter numbers.
- 3.2.44 Woodpigeon were recorded in medium to large flocks on all visits, especially in the southeast of the Site.

Cottam 2

- 3.2.45 A single barn owl was recorded on a single occasion.
- 3.2.46 Black-headed and common gull were recorded in fairly low numbers in December only, in the west of the Site.
- 3.2.47 Fieldfare were recorded on each visit except late January, in low to modest numbers, with a peak of 574 birds in December. They were mainly recorded in the southwest and northeast of the Site. Observations were usually of small to medium-sized flocks either foraging or flying overhead, with a maximum flock size of 200 individuals recorded on one occasion.



- 3.2.48 Golden plover were recorded consistently in fairly low numbers (peak count 21 birds in December). They were generally recorded in field H6, with fewer birds also recorded in H8 and H10.
- 3.2.49 A peak of 3 kestrel were recorded across the Site. The Site supports a small population.
- 3.2.50 Lapwing were recorded on Visits 1-4, with high numbers on Visits 1 and 3 (peak 246 birds). These birds were mainly recorded just off-Site along the eastern Site boundary in low numbers. A flock of 200 birds was recorded off-Site to the south-east of field H5 on Visit 3. Individual lapwing were recorded within the Site itself in fields H5 and H9.
- 3.2.51 Meadow pipit were recorded on each 4/6 visits in low numbers and were widely distributed.
- 3.2.52 A single peregrine was recorded on a single occasion in the southwest of the Site.
- 3.2.53 Skylark were consistently recorded in low to modest numbers, peaking at 38 birds in March. This species was widely distributed but the greatest numbers were recorded in fields H5, H6 and H10.
- 3.2.54 Starling were recorded in variable numbers, with a large flock of 141 birds on one occasion. They were generally recorded in the boundaries, especially in the north of the Site, but are likely to forage in the fields.
- 3.2.55 Fairly low numbers of stock dove were recorded (peak 13 birds) across the Site.
- 3.2.56 A single woodcock was recorded on one occasion.
- 3.2.57 Woodpigeon were recorded in small to medium flocks on all visits, especially in the south and northeast of the Site.

Cottam 3a

- 3.2.58 A single barn owl was recorded on a single occasion.
- 3.2.59 A small group of 7 common gulls was recorded on a single occasion.
- 3.2.60 Fieldfare were recorded on each visit in low to modest numbers, with a peak of 206 birds in February. They were especially prevalent in the east and northwest of the Site. They were typically recorded in modest flocks.
- 3.2.61 Golden plover were recorded on just one occasion, with a smallish flock of 25 birds in field K1 in the far west of the Site and a flock of 3 birds in field K7 in the south.
- 3.2.62 Four greylag geese were recorded on one occasion.
- 3.2.63 A peak of 3 kestrel were recorded across the Site. The Site supports a small population.
- 3.2.64 A small group of 5 lapwing was recorded in November only in field K2; the Site does not appear to be important for this species.
- 3.2.65 Modest numbers of meadow pipit (peak 35 birds) were recorded on Visits 1-5 across the Site.
- 3.2.66 Two peregrines were seen in March in the west of the Site.
- 3.2.67 A single pink-footed goose was recorded in November only, flying overhead.
- 3.2.68 Fairly large flocks of rook were recorded on four occasions (peak 198), observed across the Site.
- 3.2.69 A single sanderling was seen in late January in the centre of the Site. This species is likely to have been passing through towards coastal habitats.
- 3.2.70 Skylark were consistently recorded in high numbers, peaking at 350 birds in January. This species was widely distributed but the largest flocks were in the Site centre (field K6 and K9) and far west (K1).
- 3.2.71 Starling were recorded in modest to high numbers on 5/6 visits, with a peak of 397 birds. They were widespread but the greatest numbers were in the centre and east of the Site.
- 3.2.72 Stock dove were recorded in fairly low numbers, with a peak of 20 birds in late January. They were mainly found in the south and southeast of the Site.
- 3.2.73 Woodpigeon were recorded in small to large flocks on all visits, generally in the east and southeast of the Site.



Cottam 3b

- 3.2.74 Fieldfare were recorded on 5/6 visits in low to modest numbers, with a peak of 130 birds in February. They were widespread around the Site boundaries. They were typically recorded in smallish flocks
- 3.2.75 Golden plover were recorded on just two occasions, with a flock of 48 birds in the far west of the Site (field J1) on Visit 4 and a much smaller flock of 5 birds in J5 on Visit 5.
- 3.2.76 A peak of 5 kestrel were recorded across the Site on Visit 1, with 2 birds on all other occasions. The Site appears to support a single pair.
- 3.2.77 Low numbers of meadow pipit (peak 3 birds) were recorded on three occasions, mainly in the south and east of the Site.
- 3.2.78 A single pink-footed goose was recorded in November only off-Site and flying overhead.
- 3.2.79 Four rooks were recorded on just one occasion.
- 3.2.80 Skylark were recorded in low to modest numbers on five occasions, peaking at 61 birds in January. This species was widely distributed but the greatest numbers were in the pasture field to the southeast.
- 3.2.81 A flock of 30 Starling were recorded along the south-western boundary on one occasion.
- 3.2.82 Stock dove were recorded in low numbers on Visits 2-6, with a peak of 11 birds in late January. They were mainly found at the boundaries, especially the northern boundary.
- 3.2.83 Woodpigeon were recorded in fairly large flocks on Visits 1-5. They were mainly found at the boundaries, especially the northern boundary.

Arable field margins/ hedgerow and scrub boundaries

All Sites

- 3.2.84 Proportionately fewer species were associated principally with the boundary habitats (16). These habitats were generally used consistently across all Sites, with just a handful of species being recorded infrequently or restricted to a particular Site. These habitats also supported a high abundance of birds, although much less than the open habitats.
- 3.2.85 Bullfinch, house sparrow, linnet, reed bunting, song thrush and yellowhammer were recorded in much greater numbers at Cottam 1. It is worth noting that Cottam 1 is a much larger Site than Cottam 2 and 3.
- 3.2.86 Three species were recorded rarely: lesser redpoll (small flocks on one or two occasions at two Sites); mistle thrush (low numbers on one occasion at two Sites); and snow bunting (2 birds on one occasion at Cottam 1 only).

Cottam 1

- 3.2.87 A peak of 10 brambling were recorded, with this species being present on four occasions. This winter visitor often forms mixed flocks with other finches. They were recorded in the south of Cottam 1 South and west of Cottam 1 North.
- 3.2.88 Bullfinch were recorded regularly, with a peak of 23 birds in November. These birds are likely to be taking advantage of seasonal berry resources in the hedgerows.
- 3.2.89 Dunnock were recorded across the survey period in low numbers.
- 3.2.90 Grey partridge were present across the survey period in fairly high numbers, with a peak count of 223 birds. This species was widespread but especially abundant in Cottam 1 North, with C23 being the best-used field. This species' success is largely due to management of the Site for game and control of predators.
- 3.2.91 House sparrow were recorded consistently in low to modest numbers (peak 43). This species is associated with buildings and is unlikely to range very far from the buildings in which they roost.
- 3.2.92 Linnet were recorded on each visit, with peak numbers in January (453 birds). They were widespread but especially abundant in the southeast of Cottam 1 South. The number recorded is notable as this is a red-listed SPI.



- 3.2.93 For the size of the Site, fairly low numbers of redwing were recorded. A peak of 507 birds was recorded in December, but numbers were typically much lower. They were widespread, but most commonly found in the south of Cottam 1 West.
- 3.2.94 Reed bunting were consistently present in modest numbers, with a peak of 83 birds in late March. They were widespread, but most commonly found in the south of Cottam 1 West.
- 3.2.95 Two snow bunting were recorded in January only in the northwest of Cottam 1 West. This species is generally associated with coastal habitats and may have been passing through the Site.
- 3.2.96 Song thrush were present on each visit, with a peak of 41 birds in late January, although numbers were typically fewer than 20 birds. This peak count is high and indicates that the Site provides good habitat for song thrush.
- 3.2.97 Tree sparrow were recorded on four occasions, mainly in the south and east of Cottam 1 South. A peak of 21 birds was recorded.
- 3.2.98 Yellowhammer were present in good numbers throughout the survey period and were widespread. A peak of 340 birds were recorded in January. The numbers recorded of this red-listed SPI are fairly high.

Cottam 2

- 3.2.99 Dunnock were recorded in low numbers.
- 3.2.100 Greenfinch were recorded in fairly low numbers on 5/6 visits. A peak of 9 birds was recorded in November.
- 3.2.101 Grey partridge were present across the survey period in modest numbers, with a peak count of 61 birds. They were widely distributed but high numbers were found in fields H1 and H6.
- 3.2.102 Linnet were recorded occasionally in low numbers.
- 3.2.103 Redwing were recorded on just two occasions, with a high number in December only (581 birds). This indicates that the Site may provide a limited foraging resource used opportunistically.
- 3.2.104 Reed bunting were present in fairly low numbers across the survey period and were fairly widespread.
- 3.2.105 Song thrush were recorded on half of the survey visits in low numbers.
- 3.2.106 Tree sparrow were present on three occasions, with a peak of 14 birds in late March. They were mainly recorded in the north and central areas. The Site supports a modest population.
- 3.2.107 Wren were present across the winter period in low numbers.
- 3.2.108 Yellowhammer were present in modest to fairly high numbers across all visits, with a peak of 68 birds recorded in January. The greatest numbers were recorded in the south of the Site.

Cottam 3a

- 3.2.109 Bullfinch were recorded on 3 visits in low numbers.
- 3.2.110 Dunnock were recorded consistently on 4/6 visits in modest numbers.
- 3.2.111 Grey partridge were present across the survey period in modest numbers, especially in the early part of the winter, with a peak count of 120 birds. Numbers dropped significantly in the latter half of the winter. They were widespread, but especially prevalent in the central eastern part of the Site round field K9.
- 3.2.112 House sparrow and lesser redpoll were recorded on two occasions in low numbers.
- 3.2.113 Linnet were recorded across the survey period, but in variable numbers. A peak of 170 birds was recorded in early March, but just 7 birds in January. The Site supports reasonable numbers but is likely to form part of the wider foraging range for local populations of this species.
- 3.2.114 Redwing were present in low numbers on the first four survey visits.
- 3.2.115 Reed bunting were present in fairly low numbers on each visit; mainly recorded in the east of the Site.
- 3.2.116 Song thrush were present on 5/6 visits in low numbers.
- 3.2.117 A single tree sparrow was recorded in the northeast of the Site on one occasion.



- 3.2.118 Wren were present across the majority of the winter period in modest numbers.
- 3.2.119 Yellowhammer were present in modest numbers across all visits, with a peak of 51 birds recorded in early March. They were mainly recorded in the east of the Site.

Cottam 3b

- 3.2.120 A single brambling was recorded in the south of the Site in November.
- 3.2.121 A single bullfinch was recorded in the west of the Site in two occasions.
- 3.2.122 Six dunnocks were recorded in April only across the Site.
- 3.2.123 Six greenfinches were recorded in February only in the northeast of the Site.
- 3.2.124 Grey partridge were present across Visits 2-6 in modest numbers (peak 27) and were widespread.
- 3.2.125 House sparrow and tree sparrow were recorded irregularly in low numbers, mainly in the northeast of the Site.
- 3.2.126 Linnet were recorded across the survey period in low numbers, mainly in the south of the Site.
- 3.2.127 Redwing were present in fairly low numbers on four survey visits and were widespread.
- 3.2.128 Reed bunting were present in low numbers on four survey visits and were widespread.
- 3.2.129 Song thrush were present on three visits in low numbers.
- 3.2.130 Yellowhammer were present in low to modest numbers across all visits, with a peak of 43 birds recorded in December. They were mainly recorded in the south and east of the Site.

Ditches, waterbodies and associated habitats

All Sites

- 3.2.131 Just 10 notable species were primarily associated with water bodies and associated habitats, reflecting the greater degree of specialisation to this habitat type, as well as perhaps the paucity of this habitat across the Sites. The abundance of these species was also generally low; the only exceptions were flocks of mallard and teal at Cottam 1.
- 3.2.132 Six species were only present at Cottam 1, reflecting the greater variety of habitats present. Kingfisher, mallard and snipe were the only species recorded across all Sites.
- 3.2.133 Most species were infrequently recorded, with the exception of grey wagtail at Cottam 2; mallard, moorhen and teal at Cottam 1; and snipe across all Sites.

Cottam 1

- 3.2.134 A single Cetti's warbler was recorded on one occasion. This is a Schedule 1 species which is increasingly common in wetland habitats across the country.
- 3.2.135 Gadwall were recorded in low numbers on two occasions, mainly in the river which runs along the Site boundary. A small number of birds were also seen resting within a field in Cottam 1 West.
- 3.2.136 Great white egret were recorded on a single occasion. Two birds were seen in the west of Cottam 1 West and 1 bird in the east of Cottam 1 South. This is a rare species which has increased its UK population significantly in recent years.
- 3.2.137 Two green sandpiper were seen flying overhead in Cottam 1 West and are unlikely to be associated with the Site. They may use the adjacent river.
- 3.2.138 Two grey wagtail were seen in December only and are likely to be associated with the adjacent river. The Site is unlikely to support significant numbers.
- 3.2.139 A single kingfisher was recorded on a single occasion.
- 3.2.140 Mallard were recorded consistently in fairly low numbers and were associated with the Site's ditches and the adjacent river.
- 3.2.141 Low numbers of moorhen were recorded on three occasions.



3.2.142 Snipe were recorded on each visit in low numbers. They were found in the west of Cottam 1 North, south of Cottam 1 West and west and south of Cottam 1 South.

3.2.143 Teal were present in reasonable numbers on each survey visit except the final visit. A peak of 234 birds was recorded in January. These numbers are notable, however these birds were not using the Site itself but rather the adjacent river.

Cottam 2

3.2.144 Grey wagtail were recorded on Visits 1-4, with 2 birds on the first two visits and 1 bird on the next two. This species is likely associated with the river off-Site.

3.2.145 A single kingfisher was recorded on a single occasion.

3.2.146 Just 4 mallard were recorded on a single occasion. They were recorded in a pond on-Site, as well as on the river adjacent.

3.2.147 Up to 2 snipe were recorded on 5/6 visits. They were found at the Site boundaries and in the south-western field.

Cottam 3a

3.2.148 A single kingfisher, mallard and moorhen was recorded on a single occasion. They were associated with the off-Site pond to the east.

3.2.149 Snipe were recorded on three occasions, with a peak of 3 birds in November. They were recorded in the eastern fields.

Cottam 3b

3.2.150 A single snipe was recorded in the far western field in February.

Mature trees and woodland

All Sites

3.2.151 Woodland was a scarce habitat within the Sites and where present was typically small blocks of plantation. Larger blocks of woodland lay at the Site boundaries, but were not surveyed beyond the immediately abutting areas. Mature trees were present in numerous hedgerows, but were not of principal importance to the bird species recorded during the wintering surveys. The importance of mature trees will be greater in the breeding season when particular species will use them for nesting and foraging.

3.2.152 The only species associated principally with woodland were goshawk, sparrowhawk and tawny owl. Goshawk and tawny owl were recorded at one Site on just one occasion. Sparrowhawk was recorded at all Sites in low numbers.

Cottam 1

3.2.153 A single goshawk was recorded in the northwest of Cottam 1 North in November. This is an uncommon species and is strongly associated with mature woodland. It is likely to have been passing through the Site.

3.2.154 One or two sparrowhawk were recorded on Visits 14.

3.2.155 A single tawny owl was recorded in February. This species is likely to have been under-recorded on account of its largely nocturnal behaviour.

Cottam 2

3.2.156 A single sparrowhawk was recorded on a single occasion.

Cottam 3a

3.2.157 A single sparrowhawk was recorded on two occasions.



Cottam 3b

3.2.158 Two sparrowhawks were recorded on a single occasion.

Summary of Distribution of Key Species

3.2.159 Considering all species of conservation concern together, the key areas of each Site are discussed below.

Cottam 1

3.2.160 This is a large Site with a range of habitats and several species were widely distributed. However, certain areas appear to be more important for particular species/ groups of species.

3.2.161 The south and east of Cottam 1 South was comparatively important for fieldfare, greylag goose, short-eared owl, whooper swan, woodpigeon, linnets and tree sparrow.

3.2.162 The southwest of the Site (Cottam 1 West and the west of Cottam 1 South) was comparatively important for golden plover, pink-footed geese and skylark.

3.2.163 Golden plover and lapwing were recorded in good numbers in the north of the Site.

3.2.164 Cottam 1 North was especially important for grey partridge.

Cottam 2

3.2.165 The north of the Site was of some importance for golden plover and grey partridge.

3.2.166 The east of the Site supported relatively good numbers of lapwing.

3.2.167 The south of the Site was most important for yellowhammer.

Cottam 3a

3.2.168 The west of the Site was important to golden plover, peregrine, skylark and grey partridge.

3.2.169 The east of the Site was important to starling, woodpigeon, reed bunting and yellowhammer.

3.2.170 The rough centre of the Site supported good numbers of skylark, starling and grey partridge.

Cottam 3b

3.2.171 The boundaries supported the majority of birds of conservation concern, but in low numbers.

3.2.172 The pasture field in the southeast supported the highest numbers of skylark.

Non-notable Species/ Species not of Conservation Concern

3.2.173 Additional non-notable species were generally common and widespread residents. The only migratory species recorded was chiffchaff, a summer visitor which is increasingly being recorded in winter.

3.2.174 The majority of species were passerines associated with hedgerows and woodland. Farmland species included goldfinch, pheasant and red-legged partridge, as well as little owl, which nest in burrows and features such as stone walls (where present). The one typically urban species was feral pigeon. Wetland birds included Canada goose, cormorant, grey heron, little egret and mute swan. Stonechat was also recorded – this is a species associated with a range of habitats from uplands to lowlands.

3.2.175 The assemblage is fairly typical of the habitats present within the Sites and local area.

Overview of Potential Impacts

3.2.176 The species considered to be at most risk of impacts are those associated with open habitats and which require open sightlines, or which have a strong dependency on the provision and management of arable crops (including arable field margins). Construction of the solar arrays will result in the loss of open sightlines and the cessation of arable management, which may result in the exclusion of species with such dependencies. This includes gulls, geese, whooper swan and waders (curlew, golden plover, lapwing, snipe and woodcock).



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- 3.2.177 Species like grey partridge are associated with arable systems but may take advantage of grassland habitats and the cover afforded by the panels within the new solar farms. The cessation of predator control may be a greater factor in their continued success.
- 3.2.178 Other species like linnet, meadow pipit, reed bunting, skylark and yellowhammer may also have reduced foraging opportunities, although are expected to utilise the newly created grassland habitats amongst the arrays, which will provide a source of seeds and invertebrates.
- 3.2.179 The installation of arrays should have limited impacts on boundary habitats, waterbodies and woodland, which are expected to be retained. As such, species associated with these habitats are unlikely to be affected.



4 ECOLOGICAL EVALUATION

- 4.1.1 This section provides an analysis of the value of ecological features (birds) identified as occurring within or in proximity of the Survey Area. The valuation of the feature reflects the rarity and conservation status of each species as well as its relative abundance and activity levels on Site.
- 4.1.2 **Table 9** below provides the status of each notable bird species recorded and also the importance of the Site to each species based on the combined survey results.
- 4.1.3 The County status is based on information provided by the Lincolnshire Biodiversity Action Plan (2011-2020). The Lincolnshire population estimate comes from The Birds of Lincolnshire (Casey et al. 2021).
- 4.1.4 A Combined Peak Count (CPC) for the whole Survey Area has been calculated based on a sum of the peak counts of each species recorded at each Site. While this is not intended to provide an accurate population estimate for a particular species' usage of the Sites, it does give a precautionary indication of a reasonable upper estimate of individuals which could be present. Consequently, the determination of Ecological Importance is not solely based on this but takes into consideration various other factors, including the variability of species counts throughout the survey.

Table 9: Ecological Evaluation

Species	National Status	County status	Abundance and Distribution within the Survey Area	Ecological Importance
Birds predominantly associated with open arable/grassland fields				
Barn Owl	Sch1	LBAP Current Lincolnshire population estimated at 1,200 pairs.	Max 8 birds at COT1. Single bird at other Sites. Likely to have large home ranges. CPC 10 (~0.4% of Lincs population).	Local
Black-headed Gull	Amber BoCC	Lincolnshire wintering population at least 45,000 birds, likely much higher.	Present in fairly low numbers at COT1 and COT2. CPC 117 (0.26% of Lincs population).	Local
Common Gull	Amber BoCC	Data deficient, but Lincolnshire wintering population at least 10,000 birds.	Present in low numbers at all Sites. CPC 50 (0.5% of Lincs population).	Local
Curlew	Red BoCC, S41, UKFBI	LBAP Lincolnshire wintering numbers ~3,200 birds.	Single bird at COT1 on one occasion. Considered likely to be dispersing and not regularly using the Site. <0.1% of Lincs wintering population.	Site
Fieldfare	Red BoCC, Sch1	Wintering population estimate data deficient.	Recorded throughout the winter at all Sites in reasonable numbers (peak 700 at COT1). CPC 1,480. But note highly mobile nature and likelihood of double-counting across Sites.	Local



Species	National Status	County status	Abundance and Distribution within the Survey Area	Ecological Importance
Golden Plover	No special designation.	Lincolnshire wintering numbers ~47,000 birds.	Recorded throughout the winter and at all Sites. Relatively large numbers only at COT1 (peak 887). CPC 936 (~2% of Lincs population). But note highly mobile nature and likelihood of double-counting across Sites.	District
Greylag Goose	Amber BoCC	Winter abundance in Lincolnshire ~6,000 birds.	Recorded sporadically at COT1 and COT3. Peak count 60. CPC 64 (~1% of Lincs population).	Local
Herring Gull	Red BoCC, S41	Data deficient, but Lincolnshire wintering population at least 8,500 birds.	Recorded rarely in low numbers. <0.1% of Lincs wintering population.	Local
Kestrel	Amber BoCC, UKFBI	Lincolnshire wintering population data deficient.	Regularly recorded with small populations at each Site (peak 21 birds at COT1 (but much larger area). CPC 27.	Local
Lapwing	Red BoCC, S41, UKFBI	LBAP Data deficient, with winter population variable. Average 21,000 birds in winter from top 10 monitored sites.	Recorded at all Sites. Notable numbers at COT1 and COT2 (peak 427 at COT1). CPC 678 (~3.2% of Lincs population).	District
Lesser Black-backed Gull	Amber BoCC	Data deficient, but Lincolnshire wintering population likely around 100 birds.	Recorded in low numbers at COT1 only. CPC 3 (3% of Lincs population).	Local
Meadow Pipit	Amber BoCC	Lincolnshire population data deficient, but likely around 20,000 pairs.	Regularly recorded at all Sites in modest numbers (peak 84). CPC 125 (~0.3% of Lincs population).	Local
Merlin	Red BoCC, Sch1	Lincolnshire wintering population data deficient.	Single bird at COT1 on one occasion. May be under-recorded.	Local
Peregrine	Sch1	Lincolnshire wintering population data deficient.	1 to 2 birds at all Sites. CPC 5.	Local
Pink-footed Goose	Amber BoCC	Lincolnshire wintering numbers ~30,000 birds.	Recorded flying high overhead at COT1 in good numbers (peak 406). CPC 407 (~1.4% of Lincs population)	Local



Species	National Status	County status	Abundance and Distribution within the Survey Area	Ecological Importance
Red Kite	Sch1	Lincolnshire wintering population data deficient, but count of 25 birds in 2017.	Single bird at COT1 on one occasion. Not likely to be strongly associated with the Site.	Local
Rook	Amber BoCC, UKFBI	Lincolnshire population estimate 38,000 pairs.	Modest flocks recorded regularly at COT1 and COT3. CPC 465 (~0.6% of Lincs population).	Local
Sanderling	Amber BoCC	Wintering population estimate at least 10,000.	Single bird recorded on two occasions at COT3. <0.1% of Lincs population.	Site
Short-eared Owl	Amber BoCC	Lincolnshire wintering population data deficient, but average count 44 birds between 2012 and 2014.	3 birds seen at COT1; recorded on two occasions. CPC 3 (~6.8% of Lincs population).	District
Skylark	Red BoCC, S41, UKFBI	LBAP Estimate of around 70,000 pairs in Lincolnshire.	High numbers recorded at COT1 and COT3 (peak 619 at COT1); lower numbers at COT2. CPC 1,007 (0.72% of Lincs population).	District
Starling	Red BoCC, S41, UKFBI	LBAP Estimate of around 30,000 pairs in Lincolnshire.	High numbers at COT1 (peak 2,248); modest numbers at COT2 and COT3. CPC 2,786 (~4.6% of Lincs population).	District
Stock Dove	Amber BoCC, UKFBI	Estimate of around 11,000 pairs in Lincolnshire.	Generally low numbers at all Sites. High numbers (315) at COT1 on a single occasion. CPC 348 (~1.6% of Lincs population).	Local
Whooper Swan	Amber BoCC, Sch1	Data deficient, but peak count of 864 birds across all monitored sites in Jan 2019.	Recorded at COT1 on three occasions (peak 76). CPC 76 (~8.8% of Lincs population).	District
Woodcock	Red BoCC	Lincolnshire wintering population data deficient.	Recorded in low numbers at COT1 and COT2. CPC 9.	Local
Woodpigeon	Amber BoCC, UKFBI	Estimate of 78,000 pairs in Lincolnshire.	Consistently recorded at all Sites, with high numbers at COT1 especially (peak 1,620). CPC 2,273 (~1.5% of Lincs population). But note highly mobile nature and likelihood of double-counting across Sites.	Local



Species	National Status	County status	Abundance and Distribution within the Survey Area	Ecological Importance
Birds predominantly associated with arable field margins and hedgerows/scrub boundaries				
Brambling	Sch1	Lincolnshire population data deficient, but largest flocks in winter rarely above 25 birds. Much higher numbers on passage.	Recorded at all Sites in low numbers. CPC 14.	Local
Bullfinch	Amber BoCC, S41	LBAP Estimate of around 4,800 pairs in Lincolnshire (from 2016).	Fairly low numbers at all Sites. Peak 23 at COT1 but constitutes a large area. CPC 27 (~0.28% of Lincs population).	Local
Dunnock	Amber BoCC, S41	Lincolnshire population estimate data deficient.	Low to modest numbers at all Sites. CPC 26.	Local
Greenfinch	Red UKFBI BoCC,	Estimate of around 18,000 pairs in Lincolnshire (from 2016).	Low numbers at all Sites. CPC 14 (<0.1% of Lincs population).	Local
Grey Partridge	Red BoCC, S41	LBAP Estimate of around 4,000 pairs in Lincolnshire.	Recorded consistently at all Sites, (peak 223 at COT1). CPC 404 (~10% of Lincs population).	County
House Sparrow	Red BoCC, S41	Estimate of around 130,000 birds in Lincolnshire.	Modest numbers at COT1 (peak 43) and low numbers at COT3. CPC 45 (<0.1% of Lincs population).	Local
Lesser Redpoll	Red BoCC, S41	Wintering population estimate data deficient.	Low numbers at COT1 and COT3 on one or two occasions. CPC 7.	Local
Linnet	Red UKFBI BoCC, S41,	LBAP Estimate of around 30,000 pairs in Lincolnshire from 2016. Largest wintering flocks in recent years average 500 birds in a single flock.	Recorded at all Sites, especially COT1 (peak 453). CPC 632 (~1% of Lincs population).	District
Mistle Thrush	Red BoCC	Lincolnshire population estimate of ~3,000 pairs.	Recorded rarely at COT1 and COT3 in low numbers. CPC 6 (~0.1% of Lincs population).	Local
Redwing	Amber Sch1 BoCC,	Wintering population estimate data deficient.	Recorded at COT1 and COT2 in modest numbers (peak 581 at COT2); low numbers at COT3. CPC 1,147. But note highly mobile nature and likelihood of double-counting across Sites.	Local



Species	National Status	County status	Abundance and Distribution within the Survey Area	Ecological Importance
Reed Bunting	Amber BoCC, S41, UKFBI,	LBAP Lincolnshire population estimate of 32,000 birds in 2016. Largest wintering flocks average 300 in recent years.	Recorded at all Sites. Greatest numbers at COT1 but constitutes a large area. CPC 108 (~0.34% of Lincs population).	Local
Snow Bunting	Amber BoCC	Lincolnshire winter population average 350 birds.	2 birds recorded at COT1 on one occasion. Not strongly associated with the Site. ~0.5% of Lincs population.	Site
Song Thrush	Amber BoCC, S41	Lincolnshire wintering population estimate data deficient.	Recorded regularly at all Sites. Greatest numbers at COT1 but constitutes a large area. CPC 48.	Local
Tree Sparrow	Red BoCC, S41, UKFBI	LBAP Estimate of around 18,000 pairs in Lincolnshire.	Fairly low numbers recorded semi-regularly at COT1 and COT2; a single bird on a single occasion at COT3. CPC 36 (0.1% of Lincs population).	Local
Wren	Amber BoCC	Lincolnshire population data deficient but likely well over 200,000 pairs.	Fairly low numbers at all Sites. CPC 48 (<0.1% of Lincs population).	Local
Yellowhammer	Red BoCC, S41, UKFBI	LBAP Lincolnshire population estimate of 39,000 in 2016. Largest wintering flocks up to 250 in recent years.	Consistently recorded at all Sites. Greatest numbers at COT1 (peak 340). CPC 459 (~1.2% of Lincs population).	District
Birds predominantly associated with ditches, waterbodies and associated habitats				
Cetti's Warbler	Sch1	Estimate of around 40 pairs in Lincolnshire.	A single Cetti's warbler was recorded on one occasion at COT1. CPC 1 (1.25% of Lincs population).	Local
Green Sandpiper	Amber BoCC	Data deficient but likely Lincolnshire wintering population ~200 birds.	Two birds recorded at COT1 on one occasion flying over. Unlikely to be associated with the Site itself.	Site
Great White Egret	Sch1	Lincolnshire wintering population data deficient.	Three birds recorded at COT1 on one occasion.	Local
Grey Wagtail	Amber BoCC	Lincolnshire population data deficient, but likely around 50-100 pairs.	Low numbers (max 2) recorded at COT1 and COT2. CPC 4 (2% of Lincs population).	Local



Species	National Status	County status	Abundance and Distribution within the Survey Area	Ecological Importance
Mallard	Amber BoCC,	Estimate of 4,000 birds for Lincolnshire wintering population.	Regularly recorded at COT1 in modest numbers and rarely at COT2 and COT3 in low numbers. CPC 48 (1.2% of Lincs population).	Local
Moorhen	Amber BoCC	Lincolnshire population estimate of 7,000 pairs.	Recorded infrequently at COT1 and COT3 (peak 3). CPC 4 (<0.1% of Lincs population).	Local
Snipe	Amber BoCC,	LBAP Lincolnshire wintering population estimate data deficient.	Recorded regularly at all Sites in low numbers (peak 8 at COT1). CPC 13.	Local
Teal	Amber BoCC	Estimate of 8,600 birds for Lincolnshire wintering population.	Recorded regularly at COT1 and in good numbers (peak 234), but off-Site. CPC 234 (2.7% of Lincs population).	District (but off-Site)
Birds predominantly associated with mature trees/woodland				
Goshawk	Sch1	Lincolnshire wintering population data deficient.	Single bird at COT1 on one occasion. Unlikely to be associated with the Site itself, but may be under-recorded.	Local
Sparrowhawk	Amber BoCC	Conservative estimate of 1,500 pairs in Lincolnshire.	Small populations at all Sites CPC 4 (0.13% of Lincs population).	Local
Tawny Owl	Amber BoCC	Lincolnshire wintering population data deficient.	Single bird at COT1 on one occasion. Likely to be under-recorded.	Local



5 SUMMARY

- 5.1.1 In total, 86 bird species were recorded across all Sites by the surveys. Of these, 54 were species of conservation concern/ notable species, comprising 16 red-listed and 30 amber-listed species; with 16 also being Species of Principal Importance. In addition, 11 species were also listed under Schedule 1 of the Wildlife & Countryside Act 1981 (as amended). Furthermore, 11 species were listed under the Lincolnshire BAP.
- 5.1.2 In combination, the Sites were considered to be of **District importance** to birds associated with open habitats and boundary habitats; and **Local importance** to birds associated with waterbodies and woodland.
- 5.1.3 The species considered to be at most risk of impacts are those associated with open habitats and which require open sightlines, or which have a strong dependency on the provision and management of arable crops (including arable field margins). Construction of the solar arrays will result in the loss of open sightlines and the cessation of arable management, which may result in the exclusion of species with such dependencies. This includes: gulls, geese and waders (curlew, golden plover, lapwing, snipe and woodcock).
- 5.1.4 Species like grey partridge are associated with arable systems but may take advantage of grassland habitats and the cover afforded by the panels within the new solar farms. The cessation of predator control may be a greater factor in their continued success.
- 5.1.5 The installation of arrays should have limited impacts on boundary habitats, waterbodies and woodland, which are expected to be retained. As such, species associated with these habitats are unlikely to be affected.



CLARKSON & WOODS

Clarkson and Woods Ltd.

Overbrook Business Centre,
Poolbridge Road, Blackford,
Somerset BS28 4PA

t: 01934 712500

e: info@clarksonwoods.co.uk

