Cottam Solar Project

PEIR – Volume 2

Appendices to Chapter 9: Ecology and Biodiversity

Prepared by Clarkson & Woods

June 2022

Cottam
SOLAR PROJECT

Contents

9.1 Preliminary Ecological Appraisals

PRELIMINARY ECOLOGICAL APPRAISAL

COTTAM SOLAR PROJECT

carried out by

CLARKSON & WOODS
ECOLOGICAL CONSULTANTS

commissioned by

COTTAM SOLAR PROJECT LTD.

NOVEMBER 2021

Project title:	Cottam Solar Project		
Document title:	Preliminary Ecological Appraisal	Project number:	7479
Client:	Cottam Solar Project Ltd.	Author:	Harry Fox
Version 1	Final Report	Issued on:	11th November 2021
Quality Assurance	Checked by:	Approved by:	
	Tom Clarkson	Tom Clarkson	
			

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.

CONTENTS

KEY ECOLOGICAL CONSTRAINTS AND OPPORTUNITIES

Item	Key Constraints	Key Opportunities
Local Policy: Central Lincolnshire Local Plan (Adopted 2017)	• Policy LP20: Green Infrastructure Network. *Protection, integration, enhancement and creation of GI wherever possible.* • Policy LP21: Protecting Biodiversity and Geodiversity. *Protection, management and delivery of net gain for biodiversity, focusing on Habitats and Species of Principal Importance.* • Biodiversity Opportunities Mapping (BOM) will drive achievement of local Net Gain targets within forthcoming *draft* version of Central Lincolnshire Local Plan.	Policy compliance achievable through: • Arable reversion to grassland. • Hedgerow planting, in-filling and positive aftercare. • Positive grassland management within adequate buffer zones. • Protection of hedgerows and watercourses during construction. • Strategic use of BOM in guiding habitat enhancements. • Locally-appropriate tree planting in screening. Pre-emptive replacement of ash affected by dieback.
Local Biodiversity Action Plan: Key habitats and species	• Arable field margins • Hedgerows and hedgerow trees • Lowland meadows • Ponds, lakes and reservoirs • Rivers, canals and drains • Bats • Farmland birds • Freshwater fish • Newts • Water vole	Positive effects likely to arise on all features through: • Adequate buffering of hedgerows, ditches and watercourses. • Blend of habitat enhancement options within buffer zones. • Selective grassland enhancement options within array. • Habitat feature provision for bats, reptiles, amphibians for birds as discussed individually.
Biodiversity Net Gain	• Recent amendments to the Environment Bill will extend **obligation to deliver 10% net gain to NSIPs**. • **Cottam 1:** All bar F153 of Coates West, all of Coates North north of the Willingham to Fillingham road, and the western half of Coates South is located within BOM. Designated for key habitat grassland, hedgerow and woodland creation and management opportunities.	**High confidence** in deliverability of BNG due to: • Large scale reversion of arable to grassland. • Cost-effective positive management of field margin buffers. • Hedgerow enhancements and tree planting. • Discrete grassland habitat creation options. Will require habitat mapping (pre-construction state mapping complete) and completion of Habitat Unit change using Defra Metric 3.0 using **iterations of landscape proposals and habitat management plans**.
Designated Sites	• **Willingham to Fillingham Road Verges LWS** – Located along road verges within red line boundary of **Cottam 1** (Coates North) • Laughton and Scotton Commons SSSIs (and component woodland and heathland/grassland LWSs). Located 1.5km north of **Cottam 3.**	• **Willingham to Fillingham Road Verges** LWS – simple habitat enhancement measures (cut-and-collect, over sowing) should realise increases in species diversity.
Arable fields	• Only constraints relate to **ground nesting birds**.	BNG and Policy contribution can be maximised through adoption of **sensitive grassland management** (see Section 3.2): • **'Shade cutting'** rather than wholesale mowing • **Conservation grazing** rates and timings • Selective meadow restoration • 'Aftermath' grazing • Cut-and-collect rather than leaving arisings
Field Margins	• Habitat of Principal Importance (HPI) and on Lincs BAP. • Some in **Cottam 1** are species rich and broad. • Many on all Sites hold potential for **reptiles**.	• Significant BOM overlap at **Cottam 1**. • **River Till corridor** a significant enhancement opportunity. • **Grassy banks** in **Cottam 3** a potential priority. • **Semi-improved grassland fragments** in **Cottam 2** stand to gain from conservation management.

Item	Key Constraints	Key Opportunities
Hedgerows	• HPI and on Lincs BAP. • Most contain at least occasional mature trees. • Abundant nesting birds – constraint to removal. • Key habitat for bats. Minimum recommended buffer zones from hedgerow edge to security fence: • Species-poor hedgerows or hedgerows without trees: **8m** • Species-rich hedgerows or hedgerows with trees: **10m**	• **In-filling or replanting** defunct hedgerows • **New hedgerow planting** along bare field boundaries • Possible new hedgerows in strategic locations for maximum green infrastructure/connectivity benefit. • Pre-emptive **replacement** of large number of **ash-dieback** affected trees.
Ditches and Watercourses	• HPI (rivers) and on Lincs BAP (rivers and drains). • Minimum recommended buffer zones from banktop to security fence proposed of **8m** up to **30m** depending on significance.	• **River Till corridor** grassland mosaic enhancement – Cottam 1 • **Corringham and Yarthorpe Beck** corridor grassland and scrub mosaic creation. • **Northorpe Beck** corridor grassland creation.
Badgers	• **Main setts** found within woodland edge at **Cottam 1.** • **Cottam 3** contained a suspected **small main sett** at field boundary. • **All Sites** contained small setts in boundary features.	• Reversion to grassland will significantly benefit foraging opportunities.
Bats	• Hedgerows and trees of moderate value while arable fields of low value. • Potential for **roosts within hedgerow trees and buildings**. Potentially at risk of fragmentation. Minimum recommended buffer zones from feature edge to security fence proposed: • Ditches, species-poor hedgerows and hedgerows without trees: **8m** • Minor watercourses (streams, becks), species-rich hedgerows and hedgerows with trees of low or negligible roost potential: **10m** • Woodland, in-field trees, hedgerows with trees of moderate or high roost potential: **20m** • Rivers, confirmed roosts in buildings or trees: **30m**	• Grassland management (under array and at buffer zones) will significantly enhance foraging potential. • Standalone and tree-mounted roosting features.
Otters and water voles	• **All Sites** contained habitat of potential value to otters and water voles as well as local records. • **Cottam 1** contained most extensive field signs and habitat. • Buffering of ditches and watercourses to avoid disturbance and habitat damage.	• Periodic ditch and grassland margin maintenance. • Deepening and wetting of ditches to improve connectivity.
Amphibians (incl. GCN) and Reptiles	• One pond positive for GCN eDNA immediately adjacent to **Cottam 1.** Potential for licensing constraints and adoption of precautionary methods within 250m of positive ponds. • **All Sites** contained habitat suitable for reptiles and amphibians in **hedgerows, watercourses and field margins**. Precautions/supervision during any habitat clearance required.	• Selective deepening of on Site ponds to enhance their value. • Construction of new ponds in locations suitable for linking known populations.
Birds	• Significant numbers of **skylark** and other ground nesting birds at **all Sites**, particularly **Cottam 1** (due in part to spring sown-cereal) and **Cottam 3.** • Displacement of territories by solar array anticipated. • Avoidance of disturbance and damage to nests during breeding season.	• Targeted management of **field margin buffers and grassland under panels** for birds such as quail, partridge and turtle dove as well as foraging skylark and yellow wagtail. • Nesting and roosting boxes and standalone habitat features.
Invertebrates	• Low to moderate habitat suitability for invertebrates limited to field margins, hedgerows and ditches/watercourses at **all Sites.**	• Targeted management of field margins to include **scrub and ruderal vegetation mosaic.**

1 INTRODUCTION

1.1.1 Clarkson and Woods Ltd. was commissioned by Cottam Solar Project Ltd. to carry out a Preliminary Ecological Appraisal across three parcels of land known as Cottam 1, 2 and 3 situated in the West Lindsey District of Central Lincolnshire. These parcels are referred to hereafter as 'the Sites', or individually as given above. Proposals are understood to be in an early design stage and comprise the development of an NSIP-scale solar park, containing solar energy production and storage components.

1.1.2 This Preliminary Ecological Appraisal discusses the results collected during an Extended Phase 1 Habitats Survey carried out in April and May 2021 by Clarkson and Woods Ltd, supplemented by partial datasets from breeding bird surveys, bat surveys and great crested newt eDNA surveys carried out in spring and summer 2021.

1.2 Report Aims

1.2.1 The aims of this report are:

- To describe the habitats present within the Sites and their potential to support protected or otherwise notable species and habitats capable of being material considerations within the planning process.
- To set out the results of a desk study based on third party ecological records from the Site and its surroundings supplied by the Lincolnshire Environmental Records Centre (LERC) and in the context of Local Planning Policy.
- To outline any key potential ecological constraints to development of the Site.
- To broadly discuss avoidance, mitigation or compensation measures likely to be required to minimise potential ecological impacts.
- To identify where further surveys to establish baseline conditions or develop mitigation or compensatory measures may be required.
- To identify where further consultation with statutory bodies, planning authorities or other key consultees would be advantageous to determine a robust and acceptable assessment scope.
- To outline options for ecological enhancement and Biodiversity Net Gain and how they may be secured, managed and monitored.

1.3 Appraisal Scope and Limitations

1.3.1 The appraisal recorded habitat information from within the red line boundaries (the option land boundaries) only. However, a desk-based general assessment of the surrounding landscape was made, supported by extensive visual appraisal from public rights of way in the land immediately surrounding the Sites. This information has been factored into the appraisal of habitat suitability for certain species and advice on opportunities for Biodiversity Net Gain.

1.3.2 No appraisal of proposed cable routes is contained within this report.

1.3.3 To date, no consultation with statutory or non-statutory third parties has been carried out. Considering the potential for impacts upon a number of protected and notable species combined with the desired timescales applied to the project, it is recommended that the indicated scope and approach to further survey is consulted on with local authorities, their nature conservation consultees and Natural England at an early stage.

1.3.4 Under CIEEM guidelines, PEA reports are not considered suitable on their own for inclusion with an eventual DCO application. However, information has been provided below with a view to support and enhance the masterplanning process.

1.3.5 It is anticipated that the results of further detailed survey work will be reported separately in due course and will serve to underpin an eventual Preliminary Environmental Information Report and Environmental Impact Assessment.

1.3.6 Records obtained from LERC are not exhaustive or complete and an absence of records for a species does not preclude their possible presence.

1.3.7 The appraisal has been prepared by Harry Fox, an experienced ecologist, who is a full member of the Chartered Institute of Ecology and Environmental Management (CIEEM). The report has been subject to quality assurance review by appropriately experienced senior consultants who are full members of CIEEM.

1.3.8 Unless the client indicates to the contrary, information on the presence of species collected during the surveys will be passed on to the Lincolnshire Environmental Records Centre following submission of a planning

application in order to augment their records for the area. This is in line with the CIEEM code of professional conduct[1].

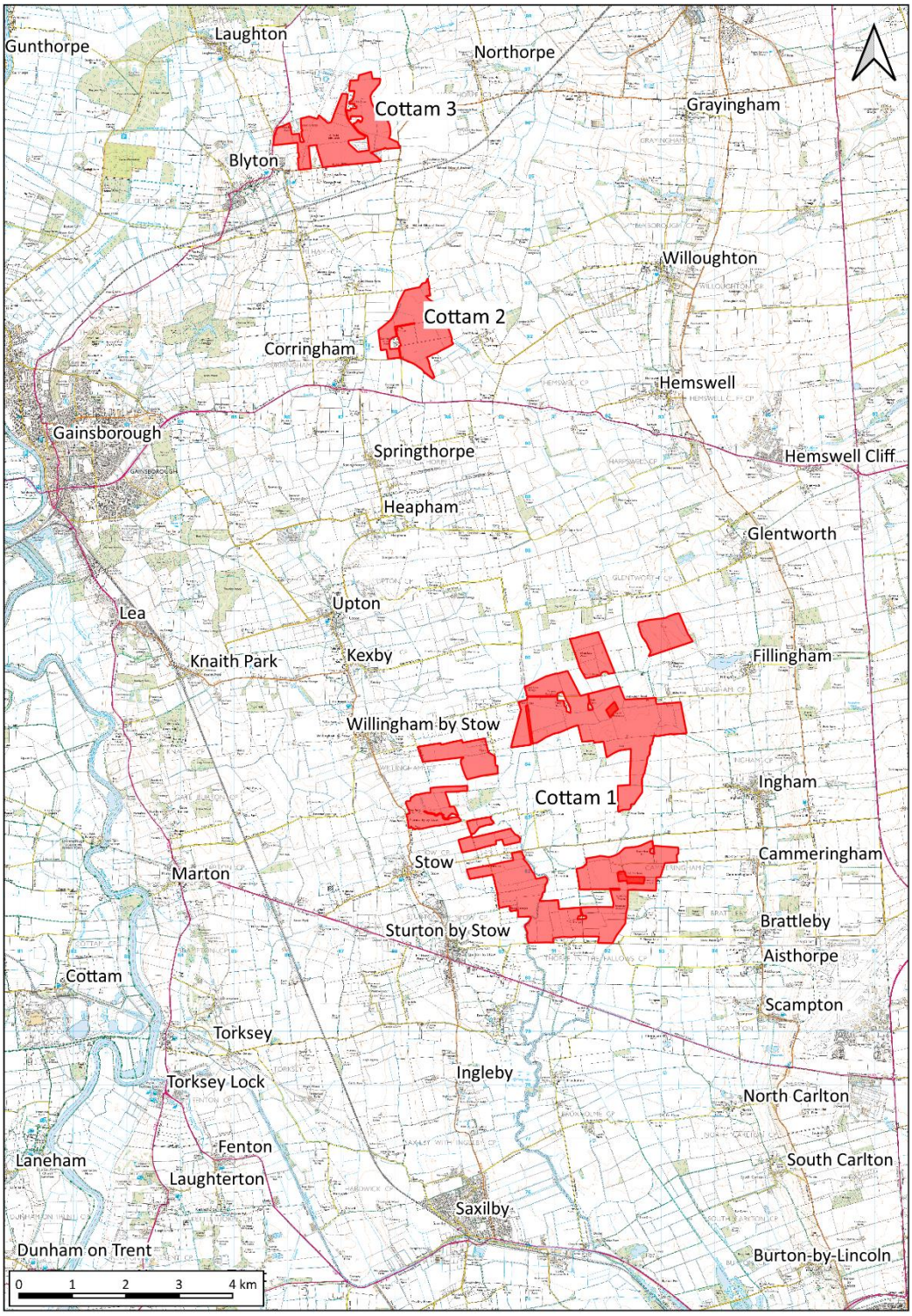


Figure 1. Locations of the Three Proposed Development Sites

[1] Code of Professional Conduct. CIEEM, January 2019.

1.4 Consultation

1.4.1 The following statutory bodies will be consulted in due course:

- **Natural England** – Advisor assigned at onset of consultation. Paid-for Discretionary Advice Service available outside of statutory consultation process should this prove advantageous.
- **West Lindsey District Council** – No district ecology officer. Ecology issues dealt with by planning officer team with reference to Natural England Standing Advice. Therefore, pre-application consultation response likely to be very limited.
- **Lincolnshire County Council** – No County ecologist – ecology matters likely referred to Environmental Services Team and Wildlife Trusts/NE Standing Advice referenced.

1.4.2 It is recommended due to the specific impacts and constraints at the sites that the following organisations are consulted with at the appropriate stage:

- **RSPB** have been approached for consultation but have declined due to a lack of capacity.
- **Lincolnshire Wildlife Trust** will be consulted in due course as part of the pre-application process.

1.5 Site Description Summary

1.5.1 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 3) as shown in Figure 1 above. 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.

1.5.2 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 is located approximately 5km west of the Sites as it flows north towards the Humber Estuary, itself some 27km north of Cottam 3. 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 3 via the Northorpe Beck) and their various feeder streams and managed agricultural drainage ditches which regularly dry out.

1.6 Surveys Carried out to Date

1.6.1 To date, the following surveys have been carried out across all the above sites in 2021:

- Extended Phase 1 Habitats Survey of all land within red line boundaries (completed April/May 2021)
- Four breeding bird survey visits of all land within red line boundaries (May - July 2021)
- One nocturnal/crepuscular bird survey visit (focus on quail and owls) of all land within red line boundaries (late June to early July 2021)
- GCN eDNA survey of all accessible ponds within red line boundaries and land within 250m under same land ownership (June 2021)
- Monthly static bat detector surveys utilising 42 detector locations per month between June and September 2021 inclusive.
- Autumn survey of all water courses and ditches within red line boundaries for water vole and otters.

1.6.2 Surveys currently planned to be carried out at the Sites are:

- Extended Phase 1 Habitats Survey of cable route corridor (estimated Q1 2022)
- Additional early-season breeding bird survey visit of all land within red line boundaries (April 2022)
- Four wintering bird surveys of all land within red line boundaries (monthly November 2021 to February 2022).

- GCN eDNA survey of all accessible ponds within 250m of red line boundaries on third-party land (Mid-April - June 2022)
- Ground-based assessment of all trees within red line boundaries for potential to support roosting bats (under way – expected completion December 2021).
- Daytime inspections of all buildings within red line boundaries for their potential to support roosting bats (December 2021).
- Spring survey of all water courses and ditches within red line boundaries for water vole and otters (May 2022).

2 DESK STUDY

2.1 Local Planning Policy

2.1.1 The following nature conservation-related policies taken from the Central Lincolnshire Local Plan are considered pertinent to the Sites and the proposals. The text of each policy is given in turn in Appendix C at the end of this report.

Central Lincolnshire Local Plan (Adopted April 2017)

- Policy LP19: Renewable Energy Proposals
- Policy LP20: Green Infrastructure Network
- Policy LP21: Biodiversity and Geodiversity

Central Lincolnshire Local Plan (Under Consultation - Anticipated adoption of revised plan in April 2022)

- Policy S13: Renewable Energy
- Policy S58: Green Infrastructure Network
- Policy S59: Protecting Biodiversity and Geodiversity
- Policy S60: Biodiversity Opportunity and Delivering Measurable Net Gains
- Policy S65: Trees, Woodland and Hedgerows

2.1.2 Several Neighborhood Areas have been designated for the purposes of creating Neighborhood Plans. At the time of writing, only Corringham Neighborhood Area (pertinent to **Cottam 2**) had submitted a Plan, which was under review by the District Council. Relevant policies are as follows and are also detailed in Appendix C.

- CNP1: Sustainable Development Principles
- CNP5: Local character and the design of new development
- CNP12: Countryside management
- CNP13: Nature conservation and biodiversity

2.2 Local Biodiversity Action Plan

2.2.1 The following habitats and species have been identified within Lincolnshire Biodiversity Action Plan (BAP) 2011-2020 (3rd Edition) and are considered relevant to the Site. As mentioned above, it is anticipated that alongside the re-drafting and eventual adoption of the new Central Lincolnshire Local Plan, the Lincolnshire BAP will be replaced by a Local Nature Recovery Strategy.

Habitats

- Arable field margins
- Grazing marsh
- Hedgerows and hedgerow trees
- Lowland calcareous grassland
- Lowland meadows
- Lowland dry acid grassland
- Ponds, lakes and reservoirs
- Rivers, canals and drains
- Lowland mixed deciduous woodland
- Wet woodland

Species

- Bats
- Farmland birds
- Freshwater fish
- Greater water-parsnip
- Newts
- Water vole
- White-clawed crayfish
- Invasive non-native species

Habitats

2.3 Protected and Designated Sites

2.3.1 Statutory and non-statutory sites designated for nature conservation were identified within the desk study and are summarised for each Site in Tables 1 and 2 below. Appendix C provides maps showing the relationship between the designated sites and the development Sites.

2.3.2 Many of these sites present potential ecological opportunities for the enhancement of local biodiversity and ecological connectivity.

2.3.3 'International' designated sites are statutory sites designated in response to international law or conventions, including Special Protection Areas (SPAs), Special Areas of Conservation (SACs) and Ramsar wetland sites. The search radius from each Site for these sites used was 10Km

2.3.4 National sites are statutorily protected sites which include Sites of Special Scientific Interest (SSSIs) and National Nature Reserves (NNRs). The search radius from each Site for these sites used was 5Km. Local Nature Reserves (LNRs) are statutorily protected local sites and thus are searched for within 5Km.

2.3.5 Local sites are predominantly non-statutory sites designated by Local Planning Authorities (in this case West Lindsey in collaboration with the Greater Lincolnshire Nature Partnership), including Sites of Nature Conservation Interest (SNCIs) and Local Wildlife Sites (LWSs). The search radius from each Site for these sites used was 2Km.

Cottam 1

2.3.6 Only three designated sites were found in proximity to Cottam 1, which were all Local Wildlife Sites. Two of these were linear features following botanically rich road verges, while the other was a small collection of botanically notable grassland fields. These sites present potential opportunities for enhancement of local ecological connectivity.

Table 1: Designated Sites in Proximity to Cottam 1

Site Name and Map Reference	Size (Ha)	Distance and Direction from Site	Reason for Designation
Local Sites			
1. Willingham to Fillingham Road Verges LWS	1.75	Within or adjacent to Site	These road verges are wide and contain indicators of unimproved/ semi-improved calcareous and neutral grassland. Both verges run alongside ditches with a species-rich hedgerow. A walkover inspection of this site in September 2021 found the verges to be in a sub-optimal condition owing to aggressive management. While a moderate diversity of species was in evidence, they would benefit from further enhancement via sympathetic management.
2. Willingham Parish Fields LWS	1.2	165m north-west	These are two adjacent fields beside Stone Pit Lane that together support a good range of neutral grassland plants, as well as a botanically-rich pond, some woody vegetation and an interesting fauna. The northern field is well grazed by sheep throughout, which have limited access to the southern field late in the growing season.
3. Upton Grange Road Verges LWS	3.1	1.1km north	The north and east verges are exceptionally species-rich with a particular abundance of both meadow barley and zigzag clover. The south and west verges comprise linear herb-rich neutral grassland with adjacent species-poor hedgerows. It is considered that the invertebrate diversity on these verges is likely to be high given the floral diversity and abundance of nectar resources.

Cottam 2

2.3.7 No designated sites in proximity to Cottam 2 were found by the desk study.

Cottam 3

2.3.8 Five SSSIs and one LNR were located at least 1.5Km north of the Site. The SSSIs were components of a complex of sites within Laughton Woods and Scotton common which are large, contiguous Forestry Commission woodland sites which contain important habitats and reserves for protected habitats and species. Similarly, the six LWSs given are also associated with the above SSSI sites, overlapping with, or augmenting them.

Table 2: Designated Sites in Proximity to Cottam 3

Site Name	Size (Ha)	Distance and Direction from Site	Reason for Designation
National Sites			
1. Scotton Common SSSI	15.1	1.5km north	One of the few extant areas of lowland heathland once prevalent over the cover sands of north-west Lincolnshire, Scotton Common's range of habitats support a succession of communities rich in species. Supports adder and common lizard, scarce plants and a diverse assemblage of moths
2. Scotton Beck Fields SSSI	16.7	1.6km north	Scotton Beck Fields comprise an extensive area of acidic unimproved grassland, a habitat of considerable scarcity in the county owing to agricultural improvement and afforestation of much of the cover sands of north-west Lincolnshire. Continued grazing of these fields by cattle has maintained their botanical diversity, which includes several heathland species both of a restricted county and national distribution. The site supports the only known grassland community of this type in the County.
3. Laughton Common SSSI	54.7	2.3km north-west	Laughton Common supports an extensive and diverse range of vegetation communities characteristic of the north Lincolnshire Coversands, including nationally notable areas of lowland acid grassland, inland dune grassland and lowland heath which are scarce in the county and restricted in their distribution across England.
4. Scotton and Laughton Forest Ponds SSSI	48.3	2.4km north	Scotton and Laughton Forest Ponds comprise a number of peaty heathland pools associated with open acid grassland, birch woodland and a distinctive marginal wetland vegetation. This latter habitat, the most important on the site, is a type of base-poor fen/mire with a characteristic suite of plant species, which has formed on permanently wet acid soils. It represents the county's largest resource of this nationally scarce plant community
5. Tuetoes Hills SSSI	12.5	5.0km north	Tuetoes Hills support an important mosaic of dry acid grassland vegetation including an inland example of acid dune grassland dominated by sand sedge Carex arenaria. This type of vegetation, formerly characteristic of active inland dunes of the north Lincolnshire Coversands, is now rare in Lincolnshire and very restricted in its distribution nationally.
6. Owlet LNR	50.3	2.2km west	Birch, oak and pine areas are interspersed among more open heath with scattered mature oak trees. Remnant heath vegetation occurs on more open areas and is home to a wealth of butterflies like the brimstone, small copper and purple hairstreak.
Local Sites			
7. Dallison Plantation LWS	26.8	0.9km north	This is an exceptionally important site that supports a huge number of scarce and interesting plants within a wide range of habitats, some of which are: pine plantation with birch; dry heathland; wet heathland; bracken; neutral grassland; damp grassland and wetland.
8. Scotton Road Verges LWS	1.4	1.5km north	The northern verge comprises species-rich neutral grassland with elements of acidic grassland and heathland. There are also mature trees and scrub in places. The southern verge is exceptionally diverse and contains areas of neutral and acidic grassland and patches of heathland dominated by heather, all three of the county's Erica species being present. There is a central wet ditch extending for the majority of the length of the verge, with three county rare plants present within this ditch: flea sedge, common butterwort and bog pimpernel, the sedge and pimpernel being present in abundance. Multi-stalked spike-rush was also present. A particular feature of these verges was the

			spectacular abundance of common twayblade. Heath spotted orchid was also recorded.
9. Scotton Common, Loates Field LWS	8.2	1.6km north	This is a square-sided sheep pasture within Scotton Common nature reserve. It is bordered to the east by Scotton Beck Fields Site of Special Scientific Interest (SSSI) and to the south by Scotton Common SSSI. A combination of sympathetic management, sandy soil and variable hydrology has encouraged a diverse grassland flora to develop, with the primary habitat being semi-improved neutral grassland.
10. Laughton Forest South-east LWS	51.3	1.6km north	This is a diverse area mostly comprising blocks of pine or beech plantation of various ages separated by rides supporting botanically-rich acidic grassland. One area holds much silver birch and gorse regenerating after clear-fell; another is dominated by bracken. The fern flora is also excellent.
11. Scotton Common East LWS	23.6	1.6km north-east	Contains grazed, semi-improved neutral grassland and unimproved acid grassland with good structural diversity, as well as ditches and a pond
12. Laughton Forest East LWS	56.5	1.8km north	Large areas of heathland and acid peatland occur in this area of Laughton Forest and these were exceptionally species rich with several county rare species of flora and fauna. The site is of importance for breeding birds, including Schedule 1 protected species. Several common lizards were also recorded in the heathland areas.

2.4 Ancient Woodland

2.4.1 According to Defra's Magic Map Application, no stands of ancient woodland occur within 2Km of the Sites.

2.5 Biodiversity Opportunities Mapping

2.5.1 Central Lincolnshire Local Plan Policy S60 relates to the delivery of measurable net gains for biodiversity within the county. Biodiversity Opportunity Mapping (BOM) has been created to show which areas and habitats are of greatest potential strategic value for enhancement in order to achieve this goal. This study built on a previous Central Lincolnshire Green Infrastructure Study and factors in potential beneficial outcomes for the local economy and society as well as nature. Key drivers for the inclusion of land within the mapping included agri-environment scheme targeting, restoring, buffering and connecting Local Wildlife Sites, and targets under Lincolnshire's Biodiversity Action Plan.

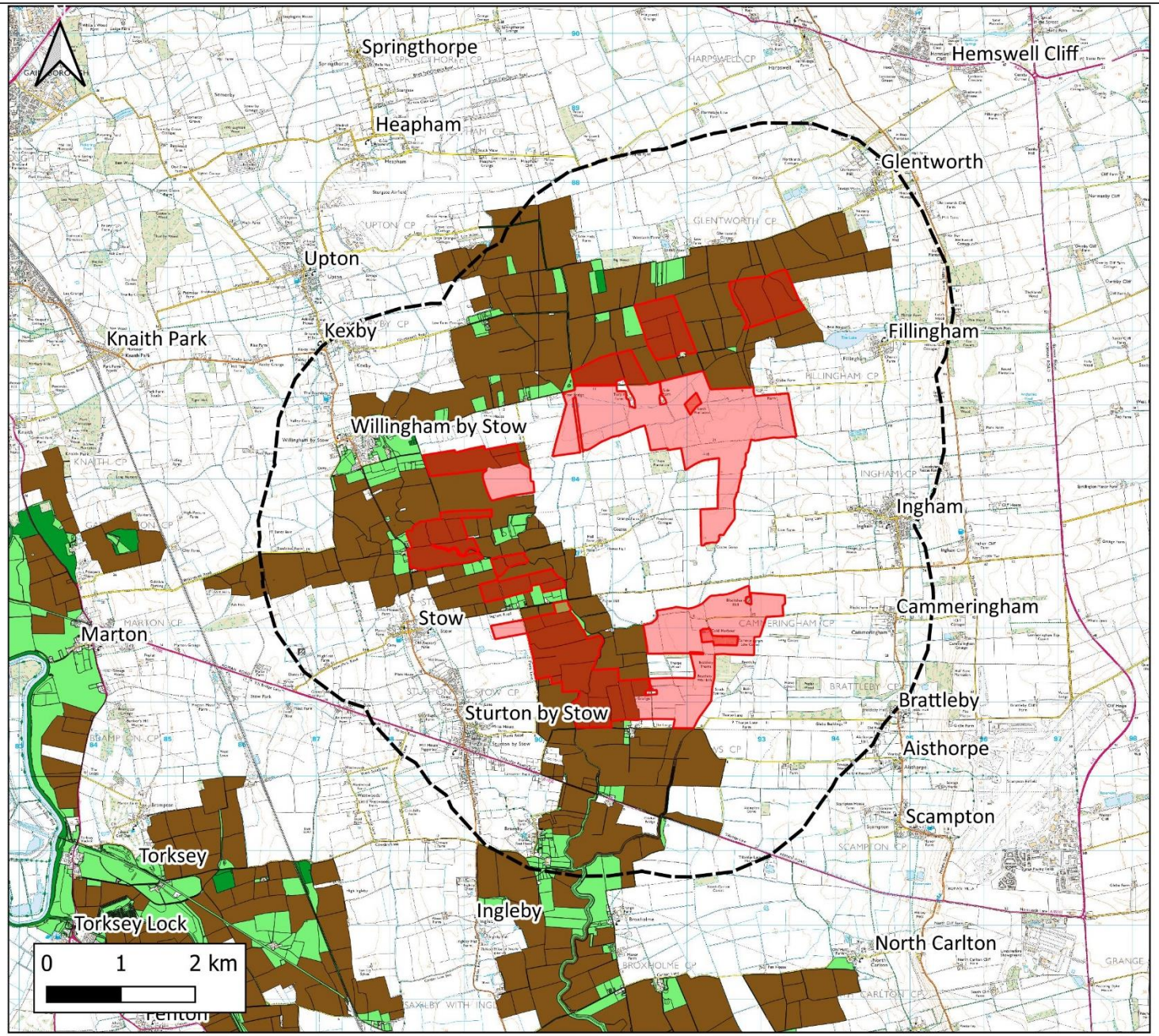
2.5.2 Figures 2 and 3 overleaf show the layout of BOM in relation to the Sites (within approximately 2Km).

2.5.3 Large areas of **Cottam 1;** approximately all of Coates West, half of Coates South and a third of Coates North (land north of the Willingham to Fillingham road) fall within land parcels designated as "Opportunity for Creation". Notably, no areas within the site fall within land classed as "Ecological Network – High Quality". Only one small field of permanent pasture within the north west edge of Coates South is classed as "Ecological Network – Opportunity for Management". Consequently, the BOM presents extensive, LPA-recognised opportunities for ecologically favourable habitat management and very few constraints.

2.5.4 No part of **Cottam 2** falls within or lies within 1Km of any land classed under the BOM. Approximately 2Km west of the Site lies an extensive area of land classed as "Opportunity for Creation".

2.5.5 No part of **Cottam 3** falls within any land classed under the BOM, however the north eastern boundary is adjacent to a large extent of land classed as "Opportunity for Creation", contiguous with high quality ecological sites associated with Laughton and Cotton commons.

2.5.6 According to "Central Lincolnshire Policy S60: Biodiversity Opportunity and Net Gain Evidence Report", dated June 2021, work has begun on the preparation of a Local Nature Recovery Strategy (LNRS) for Lincolnshire which will replace the BAP. The LNRS will be a new system of spatial strategies for nature to support the delivery of biodiversity net gain and provide a tool for the public authorities to guide their approach. The LNRS will map the most valuable habitats for nature and provide specific proposals for effecting net gain opportunities. This will build upon the existing Biodiversity Opportunity Mapping and Areas work.



Key:

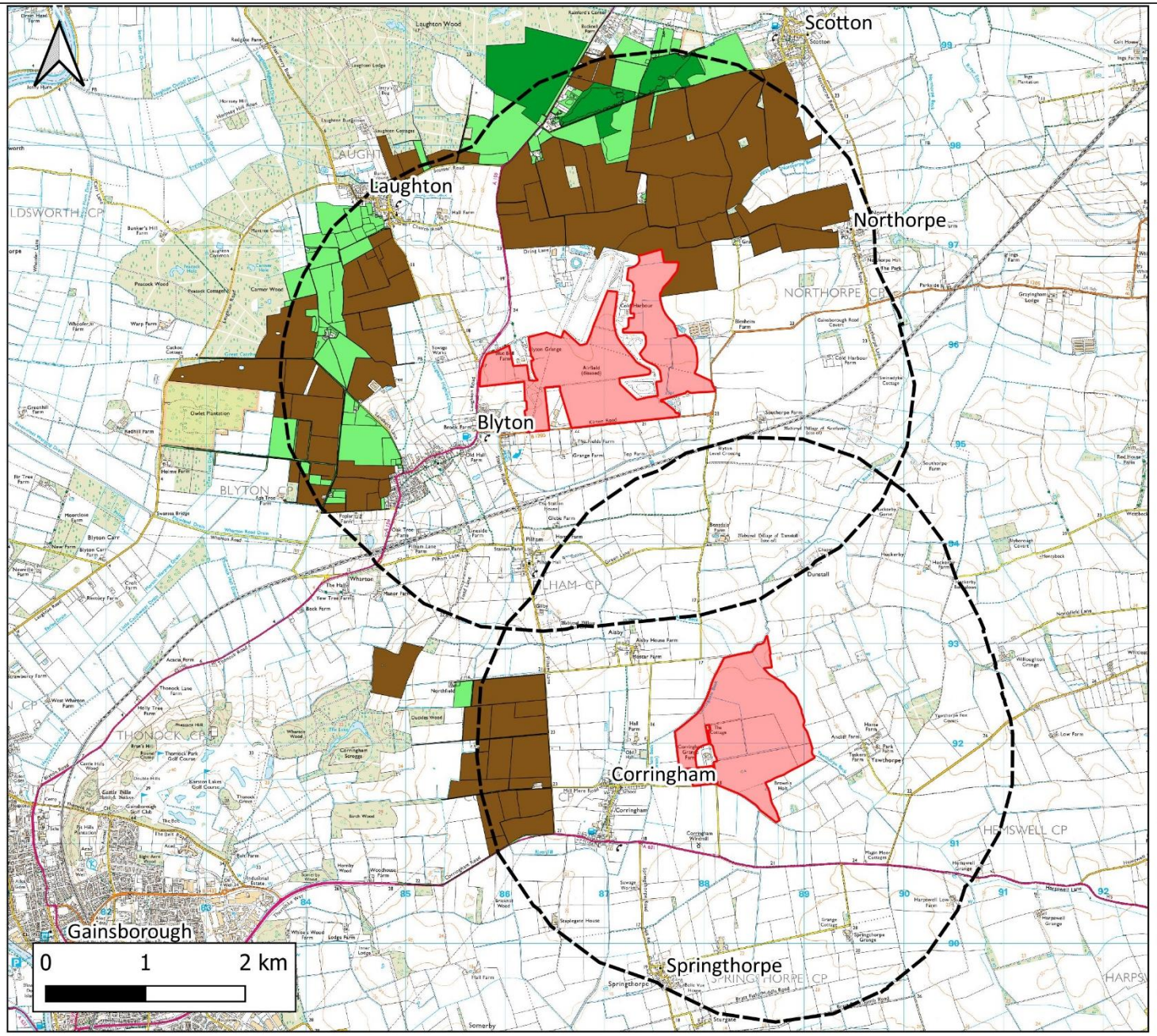
- Red Line Boundary
- Ecological network - high quality
- Ecological network - opportunity for management
- Opportunity for creation
- Opportunity for creation - more joined up
- 2km site buffer

The Biodiversity Opportunity Layers were provided by Greater Lincolnshire Nature Partnership and relate only to the areas nearest the proposed red line.

CLARKSON & WOODS
ECOLOGICAL CONSULTANTS

Project	**Cottam 1**
Title	**Biodiversity Opportunity Map**
Project Number	**7479**
Scale	**See Scalebar**
Date	**19/08/2021**

Figure 2. Biodiversity Opportunity Mapping for Cottam 1.



Key:

- Red Line Boundary
- Ecological network - high quality
- Ecological network - opportunity for management
- Opportunity for creation
- Opportunity for creation - more joined up
- 2km site buffer

The Biodiversity Opportunity Layers were provided by Greater Lincolnshire Nature Partnership and relate only to the areas nearest the proposed red line.

CLARKSON & WOODS
ECOLOGICAL CONSULTANTS

Project	**Cottam 2 & 3**
Title	**Biodiversity Opportunity Map**
Project Number	**7479**
Scale	**See Scalebar**
Date	**19/08/2021**

Figure 3. Biodiversity Opportunity Mapping for Cottam 2 and 3.

3 HABITAT SURVEY

3.1.1 The findings of the habitat survey are discussed in this section, beginning with an overview of habitats common to each Site and a discussion of general opportunities for Biodiversity Net Gain. Thereafter, habitat features and findings particular to each Site are discussed in turn, with suggestions for Site-specific enhancements. Phase 1 habitat maps of each Site are given in Appendix H (supplied as a separate volume) and referred to in the text, along with target notes relating to specific habitat features. Each boundary is given a reference code (D# for ditch and H# for hedgerow), however hedgerows with ditches are referred to with an H# code only.

3.2 Common Habitat Constraints and Opportunities

Arable Fields

3.2.1 The arable fields occupied the vast majority of the Site's areas and were intensively farmed monocultures which are likely to receive periodic fertiliser and pesticide treatments. Vegetated field boundaries were sparse and historical field boundaries can be expected to have been progressively removed over preceding years since the industrialisation of farming. The arable fields across all Sites are therefore generally botanically poor and contained little particular ecological interest, save for their value to a relatively small number of ground-nesting bird species and arable specialists including hunting raptors (several of which are notable species of conservation concern) and brown hare, as described later in this document.

3.2.2 The removal of arable fields is unlikely to result in any intrinsic loss of ecological importance, particularly given the local abundance of this habitat. The arrays and the creation of grassland should help to promote local ecological diversity.

<u>Opportunities for Enhancement and Biodiversity Net Gain</u>

3.2.3 Considerable opportunities for the enhancement of these fields' ecological value compatible with a solar array are available. The reversion from intensive agriculture to low (or no) inputs (fertiliser and soil improvers) grassland alone would be expected to provide a modest net gain in plant and invertebrate species diversity. When multiplied over the large combined area of the Sites, this effect is likely to be significant at a County or District scale.

3.2.4 The benefit described above is able to be further enhanced through favourable and ecologically-led approaches to the ongoing management of the grassland. It is recommended that if grazing is desired, it forms a component of an overall management plan where grassland cutting and meadow management is also present, whereby some areas are not grazed. The establishment of a network of species-rich meadow within the ongoing site management would help realise especially significant net gain. Lowland meadows are a Habitat of Principal Importance under the NERC Act (2006) and are a Lincolnshire BAP priority. Areas identified within the Lincolnshire Biodiversity Opportunities Mapping (especially within **Cottam 1**) would be well suited to creation of this habitat. Furthermore, the proximity to nesting habitat for skylark and ground nesting birds (either on or off-site, if secured) could be another consideration for the most beneficial siting of high-value grassland management.

3.2.5 Further options for grassland habitat management and creation which could be incorporated under panels are given in 3.2.25 below, in relation to field margins and buffers.

3.2.6 While grazing is not necessarily incompatible with net gain for biodiversity or the creation of ecologically valuable grassland, grazing too often or too densely carries the risk of depleting botanical diversity through the raising of nutrient levels, favouring of fewer vigorous species, and inhibition of flowering and seed-setting. Ideal grazing regimes would include the limiting of number of animals per hectare/acre to 'conservation grazing' or Higher Level Stewardship (agri-environment scheme) rates, the seasonal restriction of animals from the land to allow flowering and recovery, or the use of sheep in 'aftermath' grazing in short periods following hay cuts.

3.2.7 Cutting or mowing can be carried out relatively quickly and cost-effectively, although cutting under panels can present a problem where weeds and scrubby vegetation takes hold. This should be treated through spraying or specialist cutting – advances are being made in these areas within solar arrays.

3.2.8 Where possible cutting should be carried out using a cut-and-collect system so as to minimise nutrient build up in the soil which stifles species diversity. Cutting regimes are often dictated by the perceived need to keep the sward height low to minimise shading risk. This can be simply avoided through the use of a 'shade cut', as shown in Figure 4 below, which aims to cut the first 50-100cm of grass out from the toe of each string during spring and mid-summer, while maintaining the invertebrate, bird and mammal value of the remaining grassland.

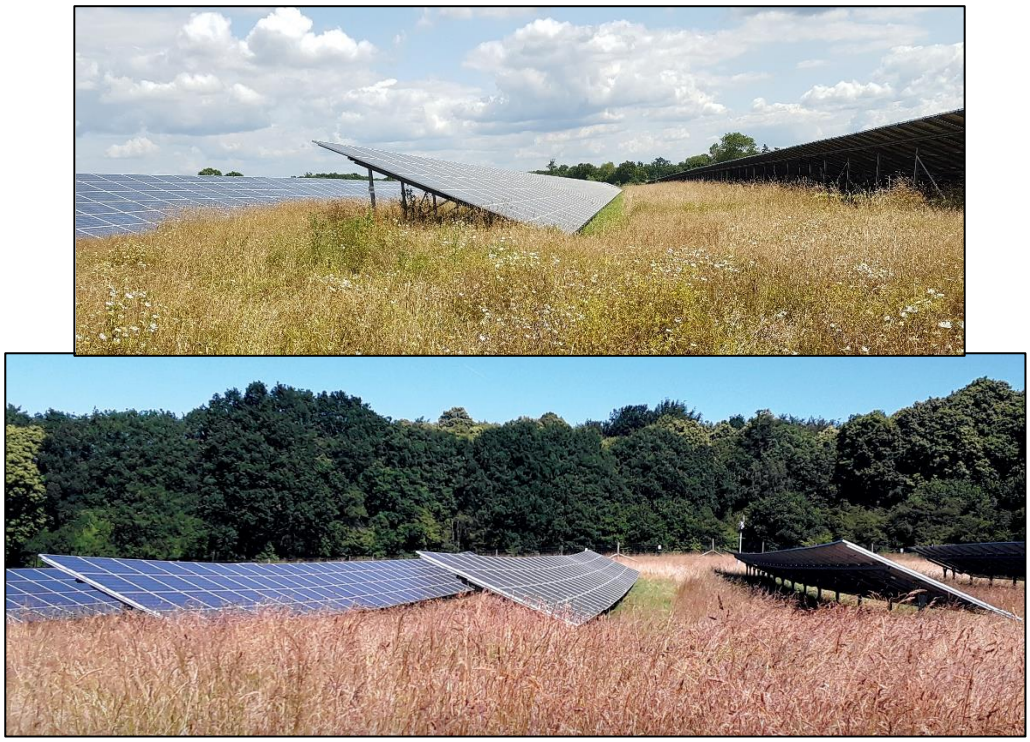


Figure 4. Photographs to show a 'Shade Cut' along the first 1m of grassland from the toe edge of the array, leaving flowering and seeding meadow grassland elsewhere.

3.2.9 In order to calculate a reasonably accurate forecast of Biodiversity Net Gain as a result of development, it will be necessary to formulate an operational land management plan which integrates the above broad management options. As different management techniques will have different ecological outcomes or targets, the management plan will be able to provide representative information on which a calculation can be based. The management approaches and management plan will therefore need to be formulated in due course and ideally in advance of completing a Net Gain assessment.

3.2.10 Regardless of chosen management regimes, the preparation of the fields before reversion to grassland will be key and must aim to minimise the impact of competition between desirable, sown species and unsown agricultural weeds and cereals.[2] This should be done through application of herbicide and, ideally, full cultivation followed by an additional herbicide treatment. Sowing of well-selected (locally-derived and appropriate) seed mixes (and to a lesser extent plug planting, in specific areas) would be carried out in the autumn. This should be followed by regular spring mowing with removal of arisings to control annual weed and nutrient levels in the following year, before establishing the final management regime, whether cut or grazed, from year three onwards. These are basic principles, which should be further investigated and tailored to site-specific conditions.

3.2.11 All habitat restoration and management approaches should be subject to periodic ecological monitoring to establish their success or otherwise to guide future management. This would be set out within a management plan (e.g. Landscape and Ecological Management Plan (LEMP)).

3.2.12 Solar development will drive a diversification of local habitats toward that of historical land use patterns where agriculture in the region was characterised by a mix of arable and pasture farming, which supported a greater abundance of wildlife. It is possible that, other concerns notwithstanding, the reversion of large areas of

[2] Blakesley, D. and Buckley, G.P. (2016) *Grassland Restoration and Management.* Exeter: Pelagic Publishing, UK

intensive arable to grassland, especially if managed with an emphasis on ecological benefit, would be perceived favourably in the local area.

Hedgerows

3.2.13 Hedgerows and Hedgerow Trees are a Habitat of Principal Importance and listed on the Lincolnshire BAP.

3.2.14 The hedgerow network is extensive across the majority of the Sites and is generally well-managed and species-poor, although several sections of species-rich hedgerow are present. It is also generally intact, with few gaps.

3.2.15 Roughly half of the hedgerows were accompanied by drainage ditches or streams, most of which were dry or partially wetted and were relatively narrow features.

3.2.16 Roughly half of the hedgerows contained at least sporadic mature and semi-mature trees. Trees were predominantly restricted to outer boundary hedgerows, while minor internal hedgerows were normally devoid of trees. Typical tree species recorded included ash (showing extensive signs of dieback), field maple, oak, rowan, holly, elder and grey willow. Woody shrub species most frequently recorded in hedgerows were hawthorn, blackthorn, and field rose.

3.2.17 Should any loss of hedgerow or boundary feature be required, it should be replaced on a 2:1 basis through supplementary planting in appropriate locations nearby.

3.2.18 The hedgerow network is probably the single most valuable habitat feature within the Sites and should be protected adequately during construction and operation with sufficient buffers. As a general rule, and in line with recommendations for watercourses and field margins below, recommended minimum buffer widths from hedgerow edge to the security fence are:

- Species-poor hedgerows or hedgerows without trees: 8m
- Species-rich hedgerows or hedgerows with trees: 10m

3.2.19 Perhaps the most pertinent driver of buffer width is the hedgerow's value to bats, therefore recommended buffer widths are likely to vary and increase according to the value of the hedgerows and trees present to bats, as discussed further in the species section.

Opportunities for Enhancement and Biodiversity Net Gain

3.2.20 Much of the hedgerow network will require periodic cutting to maintain a reasonable height and structure. While specific hedgerows may require different management, cutting should generally be carried out on a 3-yearly rotation, with only either side or the top being cut each year. Significant net gains can be had by allowing the currently highly-managed hedgerows to fill out and broaden, encouraging a height of 3m or more, where currently they are often below 1.5m.

3.2.21 Additional hedgerow, tree or shrub planting would also provide significant net gains for biodiversity while contributing to visual screening. This can take the form both of in-filling of gaps in defunct or patchy hedgerows or new hedgerows laid at bare fenced boundaries. Additionally, it may be possible to reinstate a small number of old historical hedgerows which have been grubbed out in the past where the scheme allows (e.g. where advantageous for screening or at easements for PROW and services etc.). Maps such as those on www.old-maps.co.uk can be consulted for this. The planting of a small number of new hedgerows parallel to current ones to create a double hedgerow would contribute significantly to Green Infrastructure policies and aid the connectivity across sites if strategically located.

3.2.22 Species suitable for additional planting due to their abundance locally include blackthorn, hawthorn, elder, field maple, field and dog rose, grey willow, oak and dogwood. Site specific planting recommendations are given in the appropriate sections below.

3.2.23 It may be appropriate and well-received if an emphasis is placed on planting long-lived standard native trees, especially oak, sycamore and disease-resistant elm (but also potentially field maple, birch, lime, rowan, and alder) in order to replace the many ash trees which can be expected to be lost in the next five years due to ash dieback.

Field Margins and Semi-Improved Grassland

3.2.24 Arable field margins are a Habitat of Principal Importance and listed on the Lincolnshire BAP.

3.2.25 The uncultivated arable field margins across the Sites are predominantly absent or very narrow (<2m wide), apart from some areas in **Cottam 1** which have be purposefully left wide, in places approximately 5m. Generally they are species poor and poor in terms of structure, being mown most years in order to halt any scrub encroachment from hedgerows. Parcels of richer grassland habitat have been individually noted within the corresponding Site maps, although these are infrequent.

Opportunities for Enhancement and Biodiversity Net Gain

3.2.26 Considerable cost-effective opportunities for the enhancement of field margins to become wider and more diverse are present. Diversification of grassland management maximises the available niches for invertebrates to lay eggs, overwinter and feed and in turn drive opportunities for diversification up the food chain. Furthermore, widening of existing margins as ecological buffer zones has the beneficial effect of enhancing the neighbouring hedgerows and ditches they frequently run parallel with. This in turn increases the interconnectedness of habitats within the site and within the neighbouring landscape, a key tenet of the NPPF and local planning policy.

3.2.27 The field margins lend themselves to being incorporated into wider buffer zones between hedgerows/field boundaries and the security fence line. Within these, a variety of straightforward management options can be pursued and ideally a mosaic of several techniques would be incorporated into the management of each Site according to Site-specific species conservation opportunities (dealt with separately in sections below). Management would ideally seek to avoid a uniform, regularly-mown grassland habitat as this reduces habitat structure and species diversity and instead follow a low-maintenance regime. Management options include:

- Tussocky grassland, mown no more than once per year (arisings can be left in situ). This can be extended to once per two or three years on a rotational basis where monitoring indicates. A very low-maintenance technique providing habitat for small mammals, invertebrates and winter bird seed sources. See Figure 5.
- Sown and annually mown (arisings removed using cut-and-collect systems) species-rich meadow, potentially with aftermath grazing. Promotes low-growing flowering plants key for spring and summer invertebrate lifestages. See Figure 6.
- Sown wild bird-seed crop (millet, quinoa, kale, linseed, teasel etc). Requires annual or bi-annual cultivation. Provides excellent autumn and winter food for birds.
- Encouragement of a scattered scrub/ruderal vegetation habitat mosaic on a three-year rotational cut basis. Provides invertebrate overwintering habitats as well as year-round foraging habitat for many bird species. See Figure 7.
- Pollen and nectar strips. Fine grassland dominated by low-growing nectar rich species such as clover, bird's-foot trefoil and sainfoin. Requires cultivation and/or sowing approximately every 3 years. See Figure 8.

3.2.28 It is recommended that these field margin buffer zones measure a minimum of approximately 7-10m from boundary (e.g. nearest hedgerow edge) to security fence in order to realise most ecological benefits[3]. Specific ecological constraints can be expected to increase this recommendation as discussed accordingly in the Site-specific species sections.

3.2.29 Locations within **Cottam 1** which appear on the Biodiversity Opportunities Mapping would be well suited to the more diverse habitat management options and mosaics. It is considered that sympathetically managed grassland buffer zones would constitute Arable Field Margin habitat in line with the Lincolnshire BAP.

[3] BRE (2014) Biodiversity Guidance for Solar Developments. Eds G E Parker and L Greene.

Figure 5. Low-maintenance tussocky grassland can provide excellent habitat for small mammals.

Figure 6. Species-rich meadow can be created through well-timed cutting, aftermath grazing and collection of arisings.

Figure 7. Ruderal-encroached grassland can form ecologically valuable habitat in field margins.

Figure 8. Low-growing nectar-rich mixes (clover picutred) are cost-effective under panels and are of value to invertebrates.

Ditches and Watercourses

3.2.30 Rivers are a Habitat of Principal Importance while Rivers, Canals and Drains are listed on the Lincolnshire BAP.

3.2.31 The River Till (**Cottam 1** and to a lesser extent, **Cottam 2** fed by the Corringham and Yarthorpe Becks) and Northorpe Beck (**Cottam 3**) were small but relatively significant watercourses associated with the Sites and were fed by various drainage ditches present at field boundaries. Most of the wetted ditches and becks/streams held emergent vegetation and grassy banks, some of which were relatively diverse. The River Till and the larger watercourses (Predominantly **Cottam 1**) featured wide grassy margins which formed large field headlands and were seen to be relatively diverse and provide key habitat for birds, small mammals and invertebrates.

3.2.32 Water quality appeared to vary, and in many cases was relatively poor owing to the presence of agricultural run-off. Water quality can be expected to significantly increase post-development due to the anticipated reversion to permanent grassland under the array (reduced sediment run-off) and cessation of application of fertilisers and pesticides.

3.2.33 Wetted ditches and watercourses are likely also to be key habitats for otter and water vole, both being legally protected species recorded near to or within all Sites. This will need to be considered when carrying out any engineering works close to or within ditches or river corridors.

3.2.34 Buffer zones along wet ditches and watercourses should be wider than many other simpler boundaries (such as defunct hedgerows or fences) owing to their elevated greater value to wildlife and the pollutant/sediment-attenuating properties of dense grassland vegetation and rich soils. Appropriate buffer widths from feature to security fence should range from 8 to 30m depending on the significance of the watercourse and associated protected species habitat value (e.g. bats, otters, water voles). 8m as a minimum offset from watercourses (including drainage ditches) is a standard Environment Agency and Internal Drainage Board requirement in order to preserve maintenance access and limit risk of pollution events. Significant watercourses clearly attract a wider buffer. These measurements are also discussed in the relevant Site-specific sections below.

Opportunities for Enhancement and Biodiversity Net Gain

3.2.35 The Green Infrastructure value of these features would be maximised through the creation of a wide buffering grassland habitat swathe, contributing to local policy aims and strengthening the value of the watercourse corridor. Habitat management options as listed for arable field margins could be implemented, as well as scattered tree planting.

Ponds and Standing Water

3.2.36 Ponds are a Habitat of Principal Importance and listed on the Lincolnshire BAP.

3.2.37 Few ponds were present at the Sites, most having been filled following the decline of pasture and mixed farming in favour of arable intensification. Those which remain on the Sites tend to be formed by wider, pooled sections of drainage ditches, are agricultural sumps/slurry pits, or are associated with woodland or woodland edge as shooting decoys. **Cottam 2** features the most actual in-field ponds, located toward field margins.

3.2.38 Ponds should receive a buffer of at least 10m unless other ecological constraints are present.

Opportunities for Enhancement and Biodiversity Net Gain

3.2.39 Ponds are of significant ecological value, and as a strong, high-quality pond network is absent within the local landscape, any creation of such features would be beneficial and likely to be favourably received by the LPA. Ponds could be created within field margin buffer zones and have a role to play in flood risk alleviation and water attenuation. These could take the form of linear ponds such as deepened swales as shown in Figure 9 below.

Figure 9. Swales can form intermittently drying linear pond features of value to wildlife if sufficiently deep.

3.3 Cottam 1 Habitat Assessment (Coates North, West and South)

Habitat Map and Target Notes

3.3.1 Please Appendix H (separate document) for individual Phase 1 habitat survey maps for Coates North, West and South. Table 3, below, gives a description of the features referred to on the map by numbered Target Notes.

Table 3: Target Notes For Cottam 1 (Constraints and Opportunities)

No.	Description
Coates North	
TN1	3+ badger sett entrances
TN2	Large main badger sett
TN3	Patch of bramble and ruderal scrub – reptile potential
TN4	Groups of mature crack willows with nesting bird and roosting bat potential
TN5	Disturbed ground – opportunity for seeding to diverse habitat
TN6	Ditch has been filled – opportunity for reinstatement
TN7	Good potential for water voles in ditch
TN8	Badger latrine
TN9	Lime stockpile
TN10	Strong mammal path
TN11	Pellet (not owl) found beneath mature ash
TN12(2x)	Rough grassland suitable for reptiles
TN13	Rubble pile colonised by tall ruderal vegetation – reptile potential
TN14	Shrew in grassland observed –opportunity for retention and enhancement of habitat
TN15(2x)	Several skylark seen
TN16	Southern margin of drain comprises 5m of tussocky grassland and ruderals – reptile potential
TN17	Strong mammal paths in margin
TN18	6 Greylag geese seen
TN19	Mixed woodland with game feeders
TN20	Lapwing seen
TN21	Mature oak in field with high bat potential
Coates West	
TN1(7x)	Rabbit warren
TN2(2x)	Riverbank very tussocky and suitable for reptiles
TN3	Mature ash with high bat roost potential
TN4	Single badger sett/rabbit burrow entrance
TN5	Old badger sett
TN6	Potential badger sett
TN7	Likely rat burrows on south ditch bank
TN8	Woodland copse – opportunity for enhancement of woodland edges
TN9	Log pile (recently felled ash) – reptile potential
TN10	Compost/manure pile – reptile potential
TN11	Blackthorn scrub – opportunity for enhancement
TN12	Potential water vole burrow
TN13	Likely rat burrows on south ditch bank
TN14(2x)	High reptile potential habitat
TN15	Moderately rich semi-improved grassland banks – opportunity for enhancement
TN16	Tussocky wet grassland – lots of rushes and sedges – opportunity for enhancement
TN17	Scrub and tussock rich margin – opportunity for enhancement
TN18	Two lapwing seen
Coates South	
TN1	Badger sett – single partially used entrance

TN2	Badger sett – two entrances, possibly old and now used by rabbits.
TN3	Tussocky grassland with reptile potential
TN4	Badger sett – subsidiary sett or small main – 4 well used, 2 partially used entrances Close to margin of semi improved grassland with marsh orchids.
TN5	Grass snake seen on edge of ditch
TN6	Short eared owl sighted flying towards woodland
TN7	Buzzard nest in woodland
TN8	Probable water vole burrow on north ditch bank
TN9	Mammal paths in grassy margin
TN10	Semi-improved grassland with farm machinery and dumped wood
TN11	Rabbit warren with 1 badger-sized entrance
TN12	Pond just off site. 15m^2, very shaded with poor water quality
TN13(3x)	Pair of lapwing seen
TN14(2x)	Lime and spoil piles. Colonised by ruderal vegetation with reptile potential.
TN15	Barn owl box – likely occupied.

Habitat Overview

3.3.2 Cottam 1 measures approximately 800ha and is characterised by generally large or very large arable fields dominated by winter sown wheat and some areas of spring sown wheat and barley (predominantly Coates South) with a small proportion of permanent pasture and improved grassland silage fields. These fields are separated by drainage ditches of widely varying sizes and habitat value and a network of managed hedgerows, often with intermittent mature trees. Field margins are generally narrow, although in many cases they have been allowed to occupy up to 5-7m widths at headlands. The Site also bordered several small and medium sized copses (often the result of plantation) used as game cover and for pheasant rearing. Several clusters of agricultural buildings, farmsteads and agricultural tracks were present alongside the red line boundary. The River Till bisected parcels of land within Coates South and West.

Arable Fields and Field Margins

3.3.3 The arable fields are all of low botanical interest and general ecological value save for their value to certain species (ground nesting birds and hares, predominantly).

3.3.4 Field margins were wider at Cottam 1 than either of the other Sites, being up to 6 and 7m in places, although generally they were 3-4m. In many areas, predominantly Coates South and close to the River Till in Coates West, the field margins were tussocky and received little management, presumably as part of an agri-environment management option and so held greater species diversity. Some margins, such as those in Coates South between F138 and F139, and next to F107 and F21 (where marsh orchids were recorded – TN4) also in Coates South, also contained greater species diversity. Elsewhere, most margins showed signs of annual mowing and were of a uniform structure with a relatively low diversity.

3.3.5 Most often, margins were dominated by perennial ryegrass, Yorkshire fog, dandelion, rough meadow-grass, with occasional cowslip, cow parsley, wood sage, teasel, yarrow, oxe-eye daisy, rib-wort plantain, docks, meadowsweet, red clover, ground ivy, creeping thistle and cut-leaved cranesbill.

3.3.6 Clearly, the existing grassy field margins hold some key ecological value and should be retained and incorporated into buffer zones extending from their corresponding hedgerows/ditches wherever possible.

<u>Opportunities for Enhancement and Biodiversity Net Gain</u>

3.3.7 As Coates 1 was dominated by cultivated land and did not include any discrete semi-improved grassland or pasture fields, there are few locations where traditional meadow creation would be considered a natural succession of existing habitats. This is not to say that it would not be valuable, but, as set out in Section 3.2, proper ground preparation and aftercare will be essential in order to be successful and minimise the encroachment by unsown arable plants.

3.3.8 Areas in which high value grassland creation, such as traditional meadow, would be most effective would be within the BOM zones, as shown in Figure 2 (pending latest data from LERC). This occupies all of Coates West (apart from Field 153) and much of the western half of Coates South. Presumably the main reason for the BOM

designation here is the proximity of the River Till and the uncultivated field margins shown on the Phase 1 map as semi-improved grassland. All cereal fields would benefit from their reversion to permanent grassland receiving ecologically-sympathetic management as set out in Section 3.2.

3.3.9 An additional consideration for siting such enhancement measures would be the proximity to any on or off-site land secured for skylark mitigation. The success of skylark nesting enhancements off Site can be further improved by better access to productive foraging grounds. As young skylarks are almost exclusively fed on invertebrates, it would be of benefit to have these management methods adjacent to known or targeted skylark nesting habitats. While arrays are not known to support optimally nesting skylarks, they have been found to support foraging skylarks.

3.3.10 TN5 (Coates North) and TN15-17 (Coates West) give further direction on small scale habitat creation. Bee banks and bunds could be created on existing banks

3.3.11 The grassland field margins are generally currently similar in width to the hedgerow and ditch buffer zone widths recommended in Section 3.2. A site of this scale would certainly benefit from a mosaic of several habitat management options as suggested in 3.2.55.

3.3.12 The Willingham to Fillingham Road Verges LWS would stand to gain substantially from an effort to manage them favourably as a species-rich grassland habitat. This would also contribute to local policy objectives. Further botanical details should be taken from them to determine whether oversowing or simple hay-cut management would be most beneficial.

Hedgerows

3.3.13 While most hedgerows were considered species-poor, the majority featured at least intermittent mature and semi-mature trees with accompanying drainage ditches and had been allowed to grow above 1.5m in width and height, in places up to 4m making them valuable nonetheless.

3.3.14 Hedgerows were invariably dominated by hawthorn and blackthorn, with other woody species including elder, dogwood, field and dog rose and bramble. Occasional trees were typically made up of mature ash, horse chestnut, rowan, sycamore and oak with immature field maple, hazel, beech, lime, birch and bird cherry.

Opportunities for Enhancement and Biodiversity Net Gain

3.3.15 A small number of gappy or defunct hedgerows are noted at Cottam 1 which would benefit from planting up and infilling. Other hedgerows without trees would benefit from locally-appropriate planting of intermittent trees managed to become emergent above the surrounding hedgerow as per existing trees. This would also encourage the diversification of species-poor hedgerows to species-rich ones over time.

3.3.16 Bare ditches could have hedgerows or individual trees planted, for instance. However, this should be carefully considered as it may be more appropriate to encourage wide tussocky grassland margins, for example alongside the River Till and many of the larger ditches. It may be appropriate to plant trees or a hedgerow along one banktop only, with the other being enhanced through wide grassland buffer management in order to maintain access.

3.3.17 Pre-emptive replacement of ash trees as described in Section 3.2 would be a good opportunity at Cottam 2.

3.3.18 Generally, the management of hedgerows in order to encourage a tall and bushy form, with incremental and rotational trimming, is advised as per Section 3.2.

Ditches

3.3.19 The ditches on site were predominantly wet and associated with hedgerows, although many significant drainage ditches and watercourses were recorded. These measured up to 7-8m wide and 3-4m deep in places, with tussocky grassland banks colonised by ruderal and marginal wetland plant species. Generally, the ditches at Cottam 1 were of good quality and species diversity so should be protected as far as possible.

Opportunities for Enhancement and Biodiversity Net Gain

3.3.20 Few specific enhancements for the Site's ditches are recommended over and above that of periodic inspection and maintenance wherever necessary in order to ensure proper drainage function, for example at D5 (TN8). However, it is recommended that ditches are not overly dredged or cleared unless they are causing

a drainage issue or at a frequency in line with EA/IDB recommendations. Grassy buffers would help to maintain water quality and mitigate pollution risks.

Ponds and Standing Water

3.3.21 Very few ponds were present within the red line boundary and these were all liable to regular drying. However, the Site was adjacent to land containing many ponds.

Opportunities for Enhancement and Biodiversity Net Gain

3.3.22 Outside of the western half of Coates South which lies adjacent to a pond know to support great crested newts and lies within the BOM zone, pond creation is not considered to be a key priority at Cottam 2. It is therefore suggested that small-scale pond creation could be investigated within this zone, especially within wayleaves, buffers and any suitable habitat found to be within flood risk zones. Swales and other attenuation features could double as valuable aquatic habitat.

3.3.23 Ongoing monitoring and reactive management would help to significantly enhance the ecological contribution made by them. It can be expected that water quality would improve following the reversion of arable to grassland and the completion of construction.

3.4 Cottam 2 Habitat Assessment

Habitat Map and Target Notes

3.4.1 Please refer to Appendix H (separate document) for a Phase 1 habitat survey maps for Cottam 2. Table 4, below, gives a description of the features referred to on the map by numbered Target Notes.

Table 4: Target Notes For Cottam 2 (Constraints and Opportunities)

No.	Description
TN1(5x)	Species rich margin – reptile potential
TN2	Small, wooded coarse grassland strip – opportunity for enhancement
TN3	3 entrance badger sett with fresh bedding material
TN4	Area of set-aside grassland with ruderal vegetation, scattered mature trees and scrub – opportunity for enhancement
TN5	Game pen and feeders
TN6	Moderately herb-rich area – opportunity for enhancement to meadow
TN7	Grassy bank with high levels of ruderal vegetation – reptile potential
TN8	Ditch choked with common reed and greater willowherb – opportunity for restoration

Habitat Overview

3.4.2 Cottam 2 measures approximately 132ha and is characterised by moderately large winter-sown wheat fields separated by mostly species-poor intermittently managed hedgerows with occasional trees and with ditches. Field margins are generally narrow, although many were wider at around 5m, with several further patches of moderately rich uncultivated grassland occurring at some boundaries.

Arable Fields and Field Margins

3.4.3 The wheat fields are all of low botanical interest and general ecological value save for their value to certain species (principally ground nesting birds) discussed in the species section below.

3.4.4 Field margins were generally narrow, although wider semi-improved grassland margins of up to 5m were present at F1, F4 and F9, with patches of moderately diverse semi-improved grassland present at F1 (TN4), and F9 (TN2 and P4) each surrounding in-field ponds which have clearly be avoided during cultivation. Dominant species were cock's foot, meadow foxtail, false oat-grass with hogweed, teasel, cowslip and willowherbs.

3.4.5 Grassy field margins should be retained and incorporated into buffer zones extending from their corresponding hedgerows/ditches wherever possible.

Opportunities for Enhancement and Biodiversity Net Gain

3.4.6 F8 is a field of cattle-grazed semi-improved grassland dominated by perennial ryegrass but which was seen to have a moderate species diversity, including meadow foxtail, oxeye daisy and cowslip. Comfrey, lady's bedstraw and nipple wort frequently present toward the edges. It is considered to hold the potential to be significantly enhanced to a species rich traditional meadow through cessation of regular grazing and introduction of a single hay cut (cut-and-collect) potentially with aftermath grazing. This should have the effect of stifling ryegrass dominance and allowing finer grasses and flowering plants to compete. The sward can be further diversified through over sowing within an appropriate meadow seed mix.

3.4.7 F11 is another grassland field showing signs of heavier enrichment and improvement, being dominated by perennial ryegrass and cocks-foot. However, the northern margins were more diverse (TN6) with cowslip, meadow foxtail, cow parsley, garlic mustard, soft brome, field speedwell and nipplewort. This field would be another good candidate for a potential restoration to traditional meadow as set out above.

3.4.8 All cereal fields would benefit from their reversion to permanent grassland receiving ecologically-sympathetic management as set out in Section 3.2.

3.4.9 Field margin enhancements at Cottam 2 would lend themselves to simple tussocky grassland management, with desirable encroachment by ruderal and scattered scrub habitats, in line with the conditions of the similar habitat fragments found on Site mentioned above.

Hedgerows

3.4.10 Most hedgerows on Site were species-poor, but contained trees and ditches and received minimal management, causing many to have become quite tall and bushy, improving their ecological value. Several internal hedgerows were gappy and classed as defunct. Hedgerows should be adequately buffered as set out in Section 3.2.

3.4.11 Dominant species were hawthorn and blackthorn, with rose, field maple, grey willow, ash, crab apple, elder all regularly present.

Opportunities for Enhancement and Biodiversity Net Gain

3.4.12 The gappy hedgerows (H6, H12, H18, H21, H22, H24, H27 and H29) would lend themselves to being made intact through new planting, including standard trees managed to become emergent above the surrounding hedgerow as per existing trees.

3.4.13 Bare ditches could have hedgerows or individual trees planted, for instance along D2, D5, D6, D7, D9 and D10. However, this should be carefully considered as it may be more appropriate to encourage wide tussocky grassland margins, for example alongside D1.

3.4.14 Pre-emptive replacement of ash trees as described in Section 3.2 would be a good opportunity at Cottam 2.

Ditches

3.4.15 The ditch numbers which form the north western boundary (D7, D9, H9 and H10) are together known as the Corringham Beck which is a minor stream. Similarly, those along the north eastern boundary, predominantly D1, are known as the Yarthorpe Beck, another minor stream. These are the two most significant watercourses on Site and should attract a wider buffer of approximately 10-12m. All other ditches should be buffered by at least the standard 8m as set out in Section 3.2.

3.4.16 Most wetted ditches featured grassy banks and were approximately 2-4m deep and 2-4m wide with emergent vegetation.

Opportunities for Enhancement and Biodiversity Net Gain

3.4.17 Few specific enhancements for the Site's ditches are recommended over and above that of periodic inspection and maintenance wherever necessary in order to ensure proper drainage function, for example at D5 (TN8). However, it is recommended that ditches are not routinely dredged or cleared unless they are causing a drainage issue. Grassy buffers would help to maintain water quality and mitigate pollution risks.

Ponds and Standing Water

3.4.18 Four ponds were present within the Site boundary. These ponds were generally shallow and susceptible to drying out and contained moderate to poor water quality with a comparatively low diversity of aquatic plants.

3.4.19 A buffer of 10m from the pond edges to security fences is considered appropriate for these ponds.

Opportunities for Enhancement and Biodiversity Net Gain

3.4.20 Pond creation is not considered to be a priority at Cottam 2. However, the ponds present would all benefit from positive management, including selective deepening and the planting of marginal and emergent aquatic plants. Ongoing monitoring and reactive management would help to significantly enhance the ecological contribution made by them. It can be expected that water quality would improve following the reversion of arable to grassland, the cessation of fertiliser and pesticide use in the adjacent areas, and the completion of construction.

3.5 Cottam 3 Habitat Assessment

Habitat Map and Target Notes

3.5.1 Please refer to Appendix H (separate document) for a Phase 1 habitat survey maps for Cottam 3. Table 5, below, gives a description of the features referred to on the map by numbered Target Notes.

Table 5: Target Notes For Cottam 3 (Constraints and Opportunities)

No.	Description
TN1	Likely badger sett – single hole – probable outlying sett. Nearby rabbit warren.
TN2(2x)	Earth bund. Covered with grass and ruderal species. Good reptile habitat. Contains rabbit warrens.
TN3	Ditch with pond-like features
TN4	Possible badger sett
TN5	Pond (P7) – located next to spoil heaps containing reptile habitat, rabbit warrens and a small single entrance badger sett.
TN6(2x)	Ditch with pond-like features – opportunity for enhancement.
TN7	Two-entrance badger sett in bank/field margin
TN8	Willow and field maple woodland with badger sett potential. Contains woodland pond (P8).
TN9(5x)	Vegetated bank with high reptile potential
TN10	Pile of brash, wood hay and buried carpet with high reptile potential
TN11	Large pile of cut straw – reptile potential
TN12	Beehives
TN13	Large vegetated spoil pile containing clay beads with leachate ponds around the base. Two rabbit sized burrows noted and high potential for reptiles.
TN14(3x)	Pile of horse manure, mud and straw.
TN15	Willow trees in small patch of semi-improved grassland – opportunity for enhancement
TN16(2x)	1x well used badger sett entrance with high numbers of mammal paths into this hedge and up the bank.
TN17(2x)	Area with large number of badger snuffle holes
TN18(2x)	Half-buried rubble pile – suitable reptile hibernaculum
TN19	Patch of mature hawthorns with 1.5m semi-improved grassland margin and dead wood in understorey – opportunity for enhancement
TN20	Pylon surrounded by scrub-encroach semi-improved grassland – opportunity for enhancement
TN21	3 well-used badger sett entrances with additional paths noted on bank – suspected main or subsidiary sett
TN22	Large pile of garden waste including ornamental plants and rubble – reptile potential

Habitat Overview

3.5.2 Cottam 3 measures approximately 170ha and is characterised by arable fields separated by ditches and is surrounded at the red line boundary by hedgerows. The agricultural fields are occasionally interspersed with features such as earth banks, spoil heaps, tipped material, occasional storage buildings and stored manure.

3.5.3 The Site is dominated principally by large and very large arable fields formed of both spring and winter-sown wheat and barley, with one bean field in the south west. Two fields of improved grassland, presumably fodder crop, were present in the eastern half. Some smaller fields and patches of semi-improved grassland were sporadically distributed in uncultivated corners around earth bunds and storage buildings. Two fallow fields of bare ground were present (F13 and F7) at the time of survey.

3.5.4 The hedgerow network was generally limited to the far perimeter of the Site following the red line boundary. Internal hedgerows were mostly absent in favour of ditches and tracks.

3.5.5 The Site featured an array of drainage ditches which were generally wet, mainly in the eastern half of the Site which connected to the Northorpe Beck which forms the Site's eastern boundary along with a hedgerow and several mature trees.

3.5.6 Immediately surrounding the Site was former airfield infrastructure and an active racetrack with associated facilities. A single wind turbine was present at the south eastern boundary.

Arable and Improved Grassland Fields

3.5.7 The arable and improved grassland fields are all of low botanical interest and general ecological value apart from their value to certain species (ground nesting birds and hares). The crop rotation at Cottam 3 was noted to leave several fields bare and/or uncultivated at certain points through the spring, particularly F13 and F7, which may provide value to birds which feed on fallow or set-aside type vegetation, such as turtle dove.

Opportunities for Enhancement and Biodiversity Net Gain

3.5.8 Considerable opportunities for reversion to grassland or meadows exist at Cottam 3 in line with general grassland creation advice previously discussed in Section 3.2. For example, it is recommended to maintain a small degree of set aside-mimicking habitat mosaic (such as inclusion of ruderal habitat, bird seed crop or scattered scrub) of particular value to species such as turtle dove which are of high conservation concern and have been recorded foraging at the Site.

Field Margins and Semi-Improved Grassland

3.5.9 Uncultivated grassy field margins were generally very poor in terms of extent (0-2m from field boundaries), species diversity and structure. Field margins typically contained species such as cocks-foot, red fescue, false-oat grass, couch grass, perennial ryegrass, common nettle, hogweed, hedge mustard, dandelion and creeping thistle. Most narrow field margins appeared to be periodically mown or strimmed to halt scrub encroachment with arising left in situ. Several grassy banks and other patches of semi-improved grassland were also recorded.

Opportunities for Enhancement and Biodiversity Net Gain

3.5.10 The field margins on Site would benefit significantly from reduced management and extension in width to create either tussocky grassland, species-rich meadow habitat, cultivated wild bird cover crop or scrub-ruderal grassland mosaic.

3.5.11 Grassland bunds and banks which are found in several places, associated with waste ground surrounding the race track and former airfield, could be enhanced for invertebrates and reptiles through periodic scarification (to provide bare ground for basking and burrowing) and rotational cutting to create a mixed habitat structure.

3.5.12 Small patches of semi-improved grassland were present in corners of the Site which were difficult to cultivate or maintain and as such had become tall and tussocky. Although they hold little botanical interest, they offer invertebrate habitat and habitat for small mammals which are hunted by birds of prey. The creation of wide, infrequently maintained grassland buffer zones at the edges of the array would be of considerable value to various species.

Hedgerows

3.5.13 All except three sections of hedgerow at the north eastern and south eastern boundaries of the Site were species-poor. Nearly all hedgerows were managed and featured regular or intermittent semi-mature and mature trees such as ash, elder, hazel, sycamore, and goat willow. The majority of the fields were not bounded

by hedgerows internally. Most hedgerows around the red line boundary, predominantly in the east of the Site, had been allowed to grow tall and bushy, with a height and width of up to 3m.

3.5.14 Dominant hedgerow species within hedgerows were hawthorn and blackthorn, with occasional field rose, elder and dogwood.

Opportunities for Enhancement and Biodiversity Net Gain

3.5.15 Cottam 3 presents many opportunities for new hedgerow planting, particularly at either side of access tracks, bare minor ditches and at field boundaries which currently have no boundary feature (see F2, F3, F5, F6, F10, F11 and F13). New hedgerows each bisecting F9 and F10 interconnecting with new perimeter hedgerows and widened field margins would significantly contribute to local green infrastructure around the Site.

3.5.16 The wider and more vegetated ditches present, such as D1, D7 and D11 would be better suited to grassland margin management than hedgerow creation. Potentially, hedgerow on one side and broad diverse grassland margin on the other would be a good option.

3.5.17 Pre-emptive replacement of ash trees as described in Section 3.2 would be a good opportunity at Cottam 3.

Ditches and Standing Water

3.5.18 Ditches are only present toward the western and eastern edges of the Site. Ditches at H2 and H3 form part of the Northorpe Beck. Generally, ditches are between 1.5 and 4m wide and typically feature grassy banks with some surface and emergent vegetation such as hemlock, hogweed, duckweed, water figwort and willowherbs.

3.5.19 No ponds are present on Site although several occur just off site and had varying levels of water quality and marginal habitat. One ditch contained a pond like feature which could be easily enhanced (TN3).

Opportunities for Enhancement and Biodiversity Net Gain

3.5.20 Few specific enhancements for the Site's ditches are recommended over and above that of periodic inspection and maintenance wherever necessary in order to ensure proper drainage function. However, it is recommended that ditches are not routinely dredged or cleared unless they are causing a drainage issue. Grassy buffers would help to maintain water quality and mitigate pollution risks.

3.5.21 Pond creation is not considered to be a priority at Cottam 3. The single pond-like feature at TN3 could be deepened and widened to provide an online pond connected to flowing watercourses, within a linear feature of ecological value.

4 SPECIES INFORMATION COLLATED TO DATE

4.1.1 This section sets out the results of preliminary species survey work and an appraisal of the Sites' value to various protected and notable species. It also gives recommendations and suggestions for mitigation of potential impacts and opportunities for biodiversity net gain. In the interests of brevity and to avoid repetition, the site-specific results and recommendations are given together under each species' sub-heading in turn.

4.2 Badgers

Desk Study Information

4.2.1 The desk study revealed 18 records within the red line boundary for **Cottam 1**, recorded between 2006 and 2012. These are distributed with six records at Coates North and 12 at Coates West. A further three records are present within 250m of Coates South and another 26 records beyond 250m from the Site boundary.

4.2.2 For **Cottam 2,** eight records all beyond 250m of the Site were revealed.

4.2.3 For **Cottam 3,** 11 records all beyond 500m of the Site were revealed.

Field Survey Results

4.2.4 Woodlands were not extensively searched for badgers during the extended Phase 1 survey as they generally lay outside of the red line boundary. Setts were noted where there was clear evidence visible from the field edges, or within hedgerows.

4.2.5 Several badger setts were recorded within woodland stands adjacent to the likely development footprint, at **Cottam 1**, which contained the greatest number of woodland copses. In addition, smaller badger setts were recorded within hedgerows around this Site.

4.2.6 Only one badger sett (TN3 at H18) was recorded in a hedgerow at **Cottam 2**, located at the southern tip.

4.2.7 Four badger setts, including one subsidiary or small main sett (TN21) were recorded within boundary features at **Cottam 3.** The Site contains several grassy banks at field boundaries that are conducive to digging of setts by badgers.

Potential Constraints, Mitigation and Further Work

4.2.8 An operational solar array would most likely present at worst a neutral impact on badgers provided that appropriate protective measures outlined below are undertaken during construction and maintenance. Potentially, the diversification of habitats by introduction of permanent grassland may help to provide better foraging opportunities for badger in the long term.

4.2.9 The grassland habitats beneath the array are highly likely remain conducive to foraging by badgers (whether grazed or cut) and access to other woodland and farmland likely to remain unimpeded.

4.2.10 The perimeter fencing of the array is not considered to pose a limitation to badger dispersal unless it is deeply buried and of a tight mesh size which is not typical of solar arrays. For this reason, buried fencing is not advised as it would risk leading to its excavation by the badgers in the long term and potential fragmentation of badger social groups.

4.2.11 The use of badger gates in perimeter fencing is also not recommended although is something that is commonly encountered. This is considered unnecessary unless fencing is significantly buried and in our experience of monitoring arrays across the UK we have not encountered a single badger gate in a section of linear fencing which showed any evidence of use. By contrast we have recorded multiple locations where badgers squeeze beneath fencing (often adjacent to a badger gate). Badger gates represent an unnecessary expense and likely just compromise the integrity of the fencing should the intention be to graze areas with livestock.

<u>Protection and Avoidance of Setts</u>

4.2.12 Badgers and their setts are legally protected from disturbance and damage when active (likely to be occupied). Badgers are unlikely to pose a significant constraint to the development at the Site given the general lack of activity at the Site and potential for impact onto significant setts. Constraints are likely only to apply to the construction phase of the development.

4.2.13 As badgers are liable to dig new setts at any time, a pre-construction survey (approximately 3-6months prior) of woodland edges and hedgerows within approximately 30m of any development activities is recommended to ensure any new setts can be mitigated for in advance of commencement. Any setts capable of being impacted should be examined to determine whether they are active or disused. Disused setts generally do not pose a constraint. Such investigation work may require monitoring using cameras over a (minimum) three-week period.

4.2.14 To ensure that construction and operational maintenance works do not cause unlawful impacts on badgers and setts, a 20-30m buffer zone should be established from the perimeter of any active sett. The size of the buffer zone should reflect the status and activity levels within the sett and the nature of the local topography and the direction of tunnels associated with the sett entrances. Within this buffer zone, there should be no movement of plant, excavations or installation of array structures or buried cabling for the life of the scheme. Protective fencing and signage should be installed at the beginning of the construction phase.

4.2.15 If it is not possible to retain an active sett within the proposals, or maintain adequate buffer zones, it is likely to be possible to close (either temporarily or permanently) them under a licence from Natural England. For any main setts, it is probable that an alternative badger sett will need to be constructed in a suitable nearby location in order to ensure sufficient alternative shelter. The artificial sett will also need to be created well in advance of closure operations and uptake by the badgers will need to have been demonstrated by means of video surveillance or similar. It is therefore advisable to undertake artificial sett creation at least six months in advance of sett closure. Sett closure under licence can only take place between the months of July and November inclusive so as to avoid impacts on dependent young underground.

4.2.16 Badgers will forage within grassland creating shallow pits and scrapes down to approximately 15-20mm when excavating earthworms and grubs. To date we have not come across any examples of badger activity causing issues with buried cabling on active solar arrays. We believe that the standard armouring surrounding buried cabling is sufficiently robust enough to not be damaged by badger foraging or digging activity.

Opportunities for Enhancement and Biodiversity Net Gain

4.2.17 The substitution of grassland within areas previously supporting arable land will provide a greater diversity of habitats. Badgers are reliant upon a diversity of foraging opportunities, exploiting different habitat types and areas through the year in response to availability.

4.2.18 The grasslands within arrays generally present good opportunities for forage, the stability and undisturbed nature of soils promotes earth worm abundance, and invertebrate and small mammal populations are generally improved within arrays, all of which provide foraging opportunities for badger.

4.2.19 Consideration might be given to the incorporation of fruiting trees (crab apple, apple and pear for example) within marginal areas as windfall fruits provide an important foraging resource in the autumn when badgers are looking to build weight for the winter period.

4.3 Bats

Desk Study Information

4.3.1 For **Cottam 1**, approximately 200 records for six species were recorded within the desk study data, none of which were recorded within the red line boundary and the vast majority beyond 250m of the Site. The most commonly recorded species was common pipistrelle, followed by brown-long eared bat, Myotis bats (Natterer's and Daubenton's) and noctule bats. This represents a relatively low diversity of species, all of which can be expected to roost within buildings and/or trees in the local area. The species present in the data were generally common and widespread. Most records were made post-2000.

4.3.2 For **Cottam 2** there were only 12 records of bats across two species (common pipistrelle and brown long-eared bat), all of which were located over 1Km from the Site boundary.

4.3.3 For **Cottam 3,** there were only 11 records of bats across two species (common pipistrelle and noctule bat), all of which were located over 700m from the Site boundary.

4.3.4 Bats are Species of Principal Importance under the NERC Act (2006) and are listed on the Lincolnshire BAP.

Field Survey Results

Bat Detector Survey

4.3.5 21 bat detector locations were utilised, with 13 at **Cottam 1** and four each at **Cottam 2** and **3.**

4.3.6 A preliminary inspection of data gathered indicated that a relatively moderate diversity of species was present across the Sites.

4.3.7 The majority of activity was made up of common and soprano pipistrelle, noctule bat and several *Myotis* species, which was expected. Brown long-eared bat is another relatively common species which featured regularly within the assemblage.

4.3.8 Two rarer species featured sporadically and in very low numbers, which were barbastelle and Nathusius' pipistrelle. The Sites are located at the northern edge of the range for these two species. Barbastelle are rare and Nathusius' pipistrelle uncommon in Lincolnshire according to the Lincolnshire BAP. Both species are considered to be most closely linked with woodland edge habitats and tree roosts although they will occasionally roost in buildings. A significant colony of barbastelle bats is known in Norfolk. Nathusius' pipistrelle bats are known to migrate long distances and have strongholds in the east and south east of England. Leisler's bat may also be present within the dataset. This is a rarer species but is difficult to fully separate from noctule bats by call so further analysis will be necessary.

4.3.9 It is considered probable that roosts for some of the species recorded within the data occur either in trees within the Sites, or in trees and buildings in proximity to the Sites.

Habitat Appraisal

4.3.10 Initial fieldwork determined that the suitability of habitats for bats across the option land was generally low, being dominated by monoculture arable and a simple network of managed hedgerows. The arable and relatively small proportion of pasture are intensively farmed environments, receiving pesticide treatments, and would be expected to support a lower abundance and diversity of prey items upon which bats feed.

4.3.11 The linear natural features along which bats tend to navigate and disperse, as well as forage in preference to monoculture arable, were generally highly managed and restricted in size and structure. Woodland stands were sparse within the landscape and generally poorly interlinked, with historic hedgerow removal resulting in large open expanses of arable.

4.3.12 Mature trees are only sporadically present within the hedgerow networks and field edges, along with at the edges of any woodland adjacent to the option land. In-field trees are absent from the option land. Many of these trees hold potential for roosting by bats.

4.3.13 A relatively small number of agricultural buildings and farm dwellings (of varying levels of use and disuse) were present adjacent to the red line boundary

4.3.14 At **Cottam 1,** most hedgerows contained trees, and many mature trees were present within this, especially mature ash with signs of dieback. A small number of in-field trees were present, mainly mature ash in Coates North, as shown on the Phase 1 maps. Many clusters of agricultural buildings were also present, associated with current or disused farmsteads.

4.3.15 At **Cottam 2,** most hedgerows contained at least intermittent semi-mature and mature trees. The farm buildings at Corringham Grange Farm and further north to Corringham Grange Cottage may hold potential to support roosting bats.

4.3.16 At **Cottam 3,** nearly all hedgerows contained trees, although the most abundant and mature trees were located along the Northorpe Beck at the eastern periphery. Many buildings associated with the race track were noted around the perimeter of the Site (beyond the red line boundary) while agricultural buildings were present in the west. Most of these were unlikely to hold any significant bat roost potential but it is considered prudent to inspect those most closely located where possible.

Potential Constraints, Mitigation and Further Work

4.3.17 It is unclear to what extent roosting, foraging and dispersing bats are affected by large scale solar development as research evidence is sparse. Arrays have been demonstrated to increase invertebrate

abundance in comparison with surrounding arable landscapes[4] which is likely to be of benefit to foraging bats, particularly around the perimeters of the arrays. Whether bats use or avoid the centres or arrays and forage within or commute along array strings is currently ambiguous. *Montag et al* found non-significant reduction in abundance of bats from within the centres of arrays compared with surrounding arable fields. There is currently no evidence to significant change in the sizes or abundance of populations of bats in proximity to established array sites, although research on the subject is sparse. As such the most reasonable assumption at this stage is that arrays are broadly neutral upon foraging and commuting bats with the potential to offer enhancement where they are able to promote night flying invertebrate abundance and reinforce or enhance green infrastructure as well as retain all potential roosting features.

Roosts in Buildings and Trees

4.3.18 Clarkson and Woods should be consulted to review any proposals to prune or fell any mature or semi-mature trees, or remove built structures, within or adjacent to the option land.

4.3.19 Inspections of buildings adjacent to the red line boundaries for bat roosts should be carried out to determine the potential for impacts from an array of this scale. Daytime inspections can take place at any time of year to determine levels of potential. Structures with roost potential can be followed up with emergence surveys or static detector surveys completed between May and September.

4.3.20 It may be prudent to carry out close inspections (via a climbing survey) of any semi-mature and mature trees situated in locations at risk of being encircled or at least partially enclosed by solar array. This would establish the potential for impacts upon any roosts therein. Close inspections should be preceded by ground-based inspections to ascertain levels of potential for roosting from negligible to high. Alternatively, a pre-emptive buffer of c.30+m may be appropriate. Such inspection work can be carried out at any time of year, with the potential for follow-up emergence surveys within the months of May and September inclusive.

4.3.21 Likely mitigation for roosts present in trees and buildings will revolve around adequate buffering from development in order to avoid fragmentation of populations.

Habitat Buffers

4.3.22 Pending the detailed results revealed by the static detector surveys and above further surveys, it is likely that few constraints are posed by bats, as long as steps are taken within the design of the scheme to sufficiently buffer the linear vegetated features (hedgerows of differing habitat value, ditches, watercourses and woodland edges) and any adjacent buildings containing bat roosts from the nearest array structures.

4.3.23 For development of this scale, cumulative impacts (both in combination with the other Sites and West Burton Solar Project and other potential forthcoming solar schemes) upon the already limited local dispersal route network and access to foraging habitat are possible and will need to be carefully assessed.

4.3.24 It would be prudent to apply an absolute minimum buffer zone of 8m between all such above key habitat features and the nearest panels. It can be expected that this would increase to around habitat of elevated value to bats, such as hedgerows with trees, buildings with roost potential (or confirmed roosts), woodland edges and watercourses such as the River Till and other rivers and streams. This reflects their importance to navigating and foraging bats in sustaining population movement and long-term genetic flow.

4.3.25 The following is therefore recommended as buffers from habitat edges to nearest array structures (rather than fencing) (in line with Section 3.2), subject to consultation.

- Ditches, species-poor hedgerows and hedgerows without trees: **8m**
- Minor watercourses (streams, becks), species-rich hedgerows and hedgerows with trees of low or negligible roost potential: **10m**
- Woodland, in-field trees, hedgerows with trees of moderate or high roost potential: **20m**
- Rivers, confirmed roosts in buildings or trees: **30m**

[4] Montag, H., Parker, G.T., Clarkson, T. (2016) *The effects of solar farms on local biodiversity: a comparative study.* Clarkson and Woods and Wychwood Biodiversity, UK.

Lighting

4.3.26 Lighting can act as a significant barrier to the movement of bats, potentially also causing unlawful obstruction of roost accesses within trees or adjacent buildings. Any construction phase lighting should be carefully considered and positioned. Details of, and the need for, construction phase lighting should be reviewed by Clarkson and Woods as early as possible. Solar development does not typically require permanent lighting installation, however the need for any such lighting at substations or the proposed battery facility should be reviewed by Clarkson and Woods.

Opportunities for Enhancement and Biodiversity Net Gain

4.3.27 Suggested strategic focal locations for habitat creation and enhancement will follow as part of the bat survey report once bat survey data has been analysed. Bats are Species of Principal Importance and listed on the Lincolnshire BAP, therefore enhancements for them would be favourably received.

4.3.28 Habitat creation opportunities will revolve around the planting of new linear features such as hedgerows and tree lines within the local landscape. Replacement of former, grubbed out hedgerows (through examination of historical maps) could be a valuable technique where the scheme allows. This would benefit dispersal and navigation (providing connectivity and green infrastructure) as well as foraging resources (and in turn, increased reproductive success and population viability).

4.3.29 The most significant habitat enhancement opportunities revolve around the management of the following locations sympathetically for bats in order to maximise their productivity for invertebrates.

- Buffers between boundary habitats and the array
- Grassland habitat beneath the array
- Any off site mitigation land

4.3.30 Sympathetic management for bats generally involves leaving plants to flower before any cutting or mowing, encouragement of a tussocky sward at margins through rotational (less than annual) cutting, and grazing at a low "conversation" density of animals. It is likely that a blended approach to these management techniques would be appropriate across the option sites, to be tailored according to local nature conservation priorities and the results of the surveys.

4.3.31 Roosting opportunities should be incorporated into the scheme through the installation of tree and building-mounted bat roost boxes. A rate of approximately 1-2 boxes per 10ha of development land would be appropriate.

4.3.32 Specialist, bespoke roost buildings could be created in key flyways, for example close to the River Till or stands of woodland at intersections in the hedgerow network or at eventual habitat enhancement zones. Such features, also known as 'wildlife towers' (see Figure 9 below) would comprise small, free-standing timber, brick or block buildings with crevice and void-roosting opportunities on the vertical faces and roof pitches. Alternatively, buildings associated with the array infrastructure could be modified to include roosting features such as roost boxes, but also wooden waney-edge cladding.

Figure 9. Example of a wildlife tower and waney-edge cladding modifications for bats.

4.4 Otter

Desk Study Information

4.4.1 For **Cottam 1**, ten records of otters were present within the red line boundary, all within Coates South, showing association with the River Till and tributaries. A further 15 records were present within 250m of Coates West.

4.4.2 No records of otter within 2Km of **Cottam 2** were present in the Desk Study data.

4.4.3 For **Cottam 3,** there were four pre-2000 records of otter approximately 2Km from the Site.

4.4.4 Otter are a Species of Principal Importance under the NERC Act (2006).

Field Survey Results

4.4.5 Habitat for otters was restricted to river corridors, wet ditches and streams present on or adjacent to the sites. No direct observations of holts or field signs for otters were encountered during the initial walkover survey. Summarised results of the autumn survey of ditches and watercourses found the following.

4.4.6 **Cottam 1** bordered the River Till and several substantial tributaries across Coates West, South and North. One ditch with signs of otter was recorded at the south eastern corner of Coates South and another at the northern boundary of Coates south. Five ditches with field signs were recorded in Coates North while none were recorded in Coates West.

4.4.7 **Cottam 2** contained a moderate number of wetted ditches of good interconnectedness and moderate overall suitability including the Corringham and Yarthorpe Becks. No signs of otter were recorded at Cottam 2.

4.4.8 **Cottam 3** was bordered on its eastern boundary by a tributary of the Northorpe Beck. A single field sign for otter was recorded along the eastern boundary of Cottam 3.

Potential Constraints, Mitigation and Further Work

4.4.9 Otters, as well as their resting places, are legally protected. Should any habitat clearance, excavation or engineering works be required within 5m of any ditch and 10m of any watercourse, a prior survey of the affected area for signs of otters and its suitability should be undertaken. In the event that evidence of any otter shelter is discovered (either in advance through a specific otter survey or during supervised works), works may require a licence from Natural England in order to proceed. In the absence of evidence of a holt or other shelter, the potential for disturbance or damage to habitat should be mitigated for by carrying works out under an Ecological Watching Brief attended by an experienced ecologist.

4.4.10 Otters are able to range over considerable distances and use small streams and ditches occasionally for dispersal and reaching inland waterbodies for hunting. Consequently, the potential for otters within field boundary features should not be entirely ruled out at any of the Sites. The most effective design based mitigation would be to adopt sufficient buffers (>10m) between watercourses and the nearest zone of development activity.

Opportunities for Enhancement and Biodiversity Net Gain

4.4.11 The relative distribution of suitable habitat between the Sites is reflected in the relative distribution of desk study records, in that **Cottam 1** is of elevated potential value to otters than **Cottam 2** and **Cottam 3**, being better connected to river corridors. Habitat enhancements for otter are mostly limited to the favourable management of river and stream banks to encourage a dense growth of vegetation cover in the form of tussocky grassland, as well as thick shrubs and mature trees. Consequently, new tree planting schemes could include a small degree of planting of alder, willow and birch whips at stream and river banks. Grassland field margins should be left to grow long and tussocky within approximately 5-10m from streams and rivers where possible.

4.4.12 Depending on the results of the spring field survey, further opportunities to provide habitat links and improve connectivity between watercourses potentially by deepening or wetting ditches and planting scrub and trees may be possible. Any new waterbodies (for example as GCN enhancement) and swales may also contribute positively to otter conservation.

4.4.13 The potential for pollution events and discharge of sediments and excess agricultural and soil runoff during construction should be avoided through best practice construction measures.

4.5 Water Vole

Desk Study Information

4.5.1 For **Cottam 1**, 12 records of water vole were present within the red line boundary, all within Coates North, showing association with ditch network on Site. A further 19 records were present within 250m of the Site showing association with the ditches and also the River Till. 82 further records are located between 250m and 2km from the Site. Most records were made post-2000.

4.5.2 For **Cottam 2**, 14 records of water vole were present, six of which were located within the red line boundary between 2002 and 2011. Two were located within 250m of the Site.

4.5.3 For **Cottam 3**, 31 records of water vole were present, all located at least 250m from the Site boundary.

4.5.4 Water voles are a Species of Principal Importance under the NERC Act (2006) and listed on the Lincolnshire BAP.

Field Survey Results

4.5.5 As with otters, suitable habitat for water vole was restricted to river corridors, wet ditches and streams present on or adjacent to the Sites. Habitat requirements for water vole are simpler than for otter, just requiring shelter (diggable earth banks), aquatic vegetation and reliable access to water. Consequently water vole are considered likely at **all three Sites**, although probably in greatest numbers at **Cottam 1** where likely water vole burrows were recorded (see Target Notes TN7 – Coates North, TN12 – Coates West and TN8 – Coates South)**.**

4.5.6 In summary, the autumn field survey recorded no field signs at **Cottam 3**, three ditches with field signs at **Cottam 2** and nine at **Cottam 1.**

Potential Constraints, Mitigation and Further Work

4.5.7 Water voles are legally protected from harm as well as disturbance while within burrows. As with otters, should any habitat clearance, excavation or engineering works be required within 5m of any ditch and 10m of any watercourse, a prior survey of the affected area for signs of water voles and its suitability should be undertaken. In the event that evidence of any burrows is discovered (either in advance through a specific water vole survey or during supervised works), works may require a licence from Natural England in order to proceed. In the absence of water voles signs, the potential for minor disturbance or damage to habitat should be mitigated for by carrying works out under an Ecological Watching Brief attended by an experienced ecologist. The most effective design-based mitigation for water voles would be to adopt sufficient buffers (>10m) between watercourses and the nearest zone of development activity.

Opportunities for Enhancement and Biodiversity Net Gain

4.5.8 Enhancements for water voles are similar to those given for otters and revolve around the preservation of stream and river banks, protection from disturbance and damage by buffering and avoidance of pollution events.

4.6 Dormouse

4.6.1 Dormice are not known to be present in the Lincoln to Gainsborough area and are only very locally distributed in Lincolnshire at all. No records for dormice were revealed by the desk study. Habitats on the Sites were considered poor for dormice, being restricted to managed simple hedgerow networks alone. It is highly unlikely that the Sites could be functionally linked to any populations of dormice, therefore this species is not considered a potential constraint to development.

4.7 Great Crested Newts and Other Amphibians

Desk Study Information

4.7.1 For **Cottam 1**, 76 great crested newt records are present beyond 250m of the Site, the closest being 475m south west of the Site. 43 records of toad were present in the dataset, the closest being located 600m west of the

Site. A small number of other amphibian records (smooth newt, common frog and palmate newt) were revealed between 250m and 2km form the Site.

4.7.2 No amphibian records were present within 2Km of **Cottam 2.**

4.7.3 For **Cottam 3**, 36 records of toad were present, mostly made pre-2000, the closest located 500m west of the Site. In addition, there were 34 records of common frog similarly distributed.

4.7.4 Clusters of records persist predominantly around Lincoln, presumably due to a more diverse sub-urban landscape with more permanent coverage and interconnectivity of scrub, grassland, gardens and woodland and greater recording effort. Clusters of records are also present around the Trent valley – especially on floodplain grassland between Cottam power station and Torksey. The dearth of records within the arable landscape may also indicate the influence of under-recording away from established settlements.

4.7.5 Great crested newt and common toad are Species of Principal Importance under the NERC Act (2006) and newts are listed on the Lincolnshire BAP.

Field Survey Results

4.7.6 At **Cottam 1,** 16 ponds were visited to test for GCN environmental DNA. Of these, **one was positive** (Pond 3, Coates South). Six of the ponds visited were dry at the time of survey. See Figure 10 below.

4.7.7 At **Cottam 2,** 6 ponds were visited to test for GCN and **none were positive**. Three of these ponds were dry at the time of survey.

4.7.8 At **Cottam 3,** 4 ponds were visited to test for GCN and **none were positive**. All ponds held water but one gave an 'indeterminate' result due to high sediment or pollutant content.

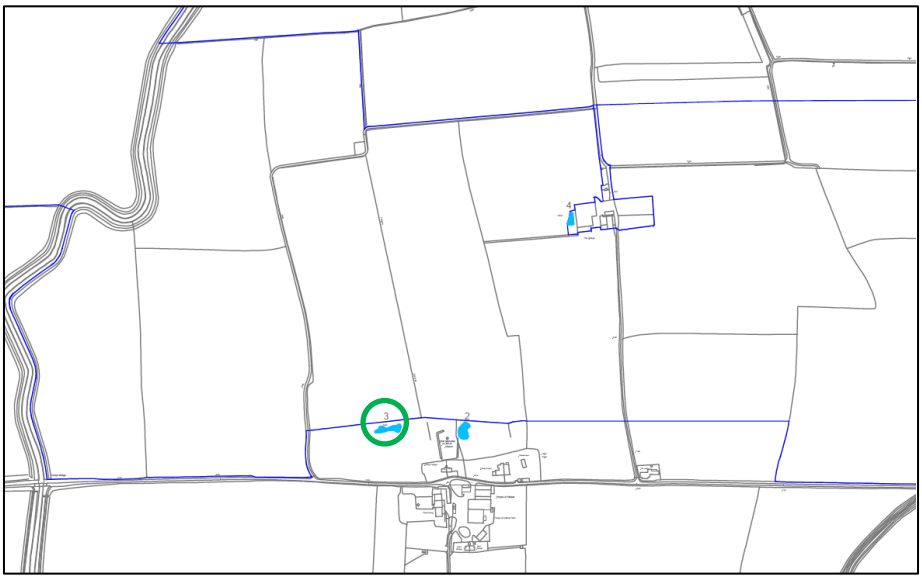


Figure 10. GCN Positive Pond – Coates South (Pond 3)

4.7.9 An indeterminate result occurs where factors such as the presence of contaminants or silt make DNA extraction difficult, as in the case of slurry pits, or waterbodies subject to accumulated leachate or agricultural runoff.

4.7.10 Several waterbodies were found to be dry. This is considered partly as a result of the period of warm weather at the time of surveys, and the fact that many of the mapped waterbodies were in actual fact ephemeral field ponds or are subject to regular drying. Drying out in three or more years in every ten is considered to significantly reduce the suitability of a pond for GCN.

4.7.11 GCN records are very sparsely distributed within the West Lindsey district, reflecting the fact that the intensive agricultural land-use which characterises the landscape provides generally poor habitat for this species. Nevertheless, the Cottam and West Burton project sites are considered to be consistently sub-optimal for GCN in terms of intrinsic habitat value and local population densities.

Potential Constraints and Mitigation

4.7.12 Legal protection afforded to GCN extends to their habitat (breeding and resting places), which includes both aquatic and terrestrial types. Arable and actively cut grassland or grazed pasture, which make up the vast majority of the option land, are considered sub-optimal habitats. Scrub, tussocky or uncultivated grassland, woodland and hedgerows are all optimal (as well as wetland and other aquatic habitat). These habitats typically occur within field margins and boundaries and at field headlands, or in a relatively low number of uncultivated fields, such as those present sporadically within the **Cottam 1** (predominantly Coates South and West) land and to a minor extent in the south eastern corner of **Cottam 3** and in discrete patches within **Cottam 2**. Few other habitats occur within the sites. Hard standing and bare ground are considered unsuitable.

4.7.13 Despite the majority of the option land - or certainly the likely development footprints - occupying sub-optimal habitat, a zoned approach to the risk of unlawful habitat clearance or direct disturbance to GCN should be adopted, in accordance with best practice guidance. This recognises the fact that the likelihood of encountering newts within potentially suitable habitat decreases with distance from ponds known to support them. Table 6 provides general constraints during the construction phase and working methods recommended for all Sites containing or adjacent to positive GCN ponds.

Table 6. Summary of Constraints and Working Methods in Proximity to GCN Breeding Ponds

Zone (Distance from perimeter of nearest known breeding pond)	Temporary or Permanent Loss of, or Disturbance to:	
	Optimal Habitat	**Sub-Optimal Habitat**
0-100m	• Licence from Natural England likely to be required – *see further information below*. • Newt exclusion exercise likely required, involving installation of partially buried fencing and pitfall traps, to be checked daily for 30+ days to declare habitat clear of GCN in advance of works commencing. • Constrained to **active season** (March to October inclusive, weather depending) in order to avoid impacts on hibernating individuals. • Ecological Clerk of Works (ECoW) required to supervise. • Destructive Search methodology to precede works – consists of a staged cutting (mowing or strimming) of vegetation before being methodically removed using an excavator.	• Licence from Natural England potentially required, but unlikely. To be informed through pre-application consultation with LPA and NE. • Due to negligible hibernation potential within these habitats, works likely to be constrained to **winter period** (November to February inclusive, weather depending). • Ecological Clerk of Works (ECoW) required to give tool-box talk to contractors.
101-250m	• Licence only required where approx. 5000m^2 (0.5ha) impacted. • Additional constraints as above.	• Licensing constraints **unlikely** - to be informed through pre-application consultation with LPA and NE. • Potential for restriction to winter working methodology.
251m +	• Licence only required where approx. 50,000m^2 (5ha) impacted. • Additional constraints as above.	• Licensing constraints highly unlikely.

4.7.14 The above construction phase constraints will be the subject of discussion with LPA consultees and Natural England. An acceptable approach to construction during the DCO process will need to be established, therefore the information given in Table 6 above is indicative at this stage subject to amendment. The final, agreed approach to construction and licensing will be detailed within an eventual EIA (and its great crested newt survey report technical appendix) and Construction Ecological Management Plan, or similar document.

4.7.15 Currently, licensing for great crested newts in this region generally involves recourse to a traditional mitigation licence. This typically requires the need for an exclusion, trapping and translocation exercise where suitable habitats in close proximity to breeding ponds are to be lost or temporarily affected. This is seasonally constrained and may require 30 or more days to undertake prior to construction commencement. Licence determination post-construction also takes a statutory 30-day period.

4.7.16 An alternative option exists, known as the Low Impact Class Licence, which is applicable for developments where impacts in proximity to breeding ponds are considered to be small, and do not affect the ponds themselves. These licences are streamlined and far less onerous to apply for and have determined. Should the scheme be designed to minimise impacts to suitable habitats within 100m as far as possible, this licence type may be available. Further consultation will be necessary to determine this.

4.7.17 Finally, it is probable that by the time the scheme is consented, Lincolnshire will be added to the regions eligible to use the District Licence scheme for GCN mitigation. This scheme permits all but the most damaging impacts to breeding ponds and habitat in return for a tailored and proportionate financial contribution to local great crested newt conservation schemes.

Further Work

4.7.18 To underpin the DCO application and finalisation of ES, CEMP and any future licence, water testing of ponds within 250m of the site should be carried out. Best efforts to gain access to third party land should be made. Samples can only be taken between the months of **mid-April to end June each year**.

4.7.19 It is recommended that a proportion of the indeterminate or dry ponds encountered during the 2021 surveys are re-visited in 2022 for completeness and to demonstrate best efforts.

4.7.20 Survey requirements for the cable routes should be determined and planned for the 2022 survey season, especially given the known populations close to Cottam power station.

4.7.21 Recommendations and constraints given above would apply to any newly confirmed breeding ponds.

Opportunities for Enhancement and Biodiversity Net Gain

4.7.22 Construction of new waterbodies within 250m of known breeding ponds would improve the long-term viability of currently sparse and poorly connected local populations. This would contribute substantially to local and national green infrastructure policy and the restoration of local biodiversity.

4.7.23 Planting of new hedgerows, woodland strips and scrub/shrub vegetation in locations strategic to improving corridors for dispersal between existing (and any new) ponds would serve to improve green infrastructure for amphibians and long-term population sustainability.

4.7.24 Management of field edges, hedgerow/woodland/ditch/watercourse buffer zones, wayleaves and easements within 250m of known breeding ponds to create coarse, tussocky grassland or meadow habitat would also contribute to the above aims.

4.7.25 Sympathetic management of fields beneath arrays within 250m of known breeding ponds to form a taller, more diverse grassland sward (managed through low-density/intensity conservation grazing or collection of a late-season hay cut.

4.7.26 As set out in Section 3.4, basic water and habitat quality enhancements at the four ponds within **Cottam 2** would be of benefit for any amphibian populations present. This includes selective deepening and planting.

4.8 Reptiles

Desk Study Information

4.8.1 At **Cottam 1**, 6 historical (pre-2000) records for common lizard located beyond 250m of the Site were present, as well as 32 records for grass snake (4 post 2000) again all beyond 250m from the Site.

4.8.2 No reptile records were present within 2Km of **Cottam 2.**

4.8.3 All reptile records for **Cottam 3** were located approximately 2Km from the Site to the north, presumably close to the populations within Laughton and Scotton commons. These comprised 35 records of common lizard, 39 records of adder and 14 records of grass snake.

4.8.4 Reptiles are Species of Principal Importance under the NERC Act (2006).

Field Survey Results

4.8.5 Habitats for reptiles are generally limited in quality and extent across all the sites, being restricted to hedgerow bases, tussocky field margins and woodland edges only. Almost universally, the development will be sited on

land of poor habitat quality for reptiles. Furthermore, the desk study data shows a lack of records for reptile species within 2km of the sites, with an absence generally within 250m.

4.8.6 **Cottam 1** contained significant habitat of potential suitability for reptiles in field margins and areas of unmanaged grassland (See Target Notes). A grass snake was also seen on the edge of a ditch in Coates South (TN5).

4.8.7 At **Cottam 2**, several tussocky grass margins (TN1) and a grassy bank (TN7) were of some potential for reptiles and connected to the hedgerow network.

4.8.8 At **Cottam 3**, there were many bunds, features of tipped and buried material and earth banks scattered around the peripheries of the arable fields and associated with the agricultural yards and wasteland adjacent the race track which were all considered optimal habitat for reptiles. No reptiles were observed during the survey, however.

Potential Constraints, Mitigation and Further Work

4.8.9 Reptiles are legally protected from reckless and intentional harm, therefore it is recommended that all field margins and hedgerows, as well as target noted locations of discrete reptile habitat are retained and protected wherever possible.

4.8.10 Given the limited records, habitat quality and extent within the development footprint, it is unlikely that a targeted reptile survey would be necessary. Should proposals seek to significantly remove or alter boundary features, the requirement for a reptile survey may need to be re-assessed. Further consultation with LPAs would determine acceptability of this approach.

4.8.11 It should be possible to avoid any impacts on reptiles through the installation of sufficient protective fencing, adherence to a construction methodology which avoids damage to such habitats and the avoidance of any widening of field accesses. A suitable buffer of at least 5m from these habitats would ensure accidental damage during construction and ongoing maintenance is avoided.

4.8.12 A best practice approach to habitat clearance and management is considered appropriate. Where habitat suitable for reptiles (all field margins, hedgerows, tussocky grassland and river corridors) is proposed for clearance, a Reasonable Avoidance Method Statement should be followed. Depending on the amount of land affected, this is likely to involve the phased removal of vegetation in order to dissuade reptiles from that area, followed by a destructive search supervised by an ecologist. Should particularly large areas of habitat be earmarked for removal, a survey and translocation exercise may be a last resort, although considered unlikely.

4.8.13 Should any of the arable fields become dominated by a long or tussocky sward, either through the cessation of cultivation or cutting prior to development, site clearance/preparation may need to be carried out in a sensitive manner. This is to avoid impacts to any reptiles which may have dispersed onto the development footprint as the habitat has increased in suitability. A suitable habitat cutting/clearance methodology (Risk Avoidance Method Statement) would be set out in an eventual Construction Environmental Management Plan.

Opportunities for Enhancement and Biodiversity Net Gain

4.8.14 Optimal reptile habitat includes tussocky grassland, scattered scrub and ruderal vegetation interspersed with physical features conducive to basking on and hibernating in.

4.8.15 The local area is unlikely to support significant populations of reptile species and therefore enhancements specifically for these species are of a low priority, however the following basic measures are suggested.

4.8.16 The creation of a number of appropriately located reptile hibernaculum would improve the Sites' habitat suitability by providing features within which to hibernate during the winter and to bask during the summer. The construction of these habitat piles using partially buried dead wood, earth and stone would also provide invertebrate prey items. Further advice on numbers and locations can be given as the proposals evolve.

4.8.17 The reversion of intensive agriculture to diverse grassland is encouraged as this would improve the plant species diversity and habitat structure within the Sites. In turn, this would provide improved foraging and hibernation habitat for reptiles. Advice on the favourable management of the grasslands on Site for the benefit

of reptiles and other wildlife would be agreed with you and provided within a Landscape Environmental Management Plan.

4.9 Birds

Desk Study Information

4.9.1 At **Cottam 1**, numerous records of 56 species of notable birds, or birds of conservation concern, were revealed by the Desk Study. These are detailed in Appendix B. The only species with records made within the Site boundary was house sparrow (Coates West). The majority of these species records comprise farmland birds such as corn bunting, quail, barn owl and turtle dove as well as waders and raptors.

4.9.2 For **Cottam 2,** numerous records of 23 species of birds were recorded, as detailed in Appendix C. These included several within the red line boundary of the site, which where; two records of barn owl, four records of lapwing and four records of skylark. All other bird species were recorded beyond 250m from the Site, including curlew, tree sparrow and yellowhammer.

4.9.3 For **Cottam 3**, numerous records of 17 bird species were recorded as detailed in Appendix D. One record of cuckoo was located within 250m of the red line boundary. All other records were located beyond approximately 500m of the Site, including species such as yellowhammer, yellow wagtail, nightjar, lapwing and barn owl.

4.9.4 Farmland birds are listed on the Lincolnshire BAP and many species are Species of Principal Importance under the NERC Act (2006).

Field Survey Results

4.9.5 Four daytime breeding bird surveys and one dusk, nocturnal bird survey (with a focus on quail) has been carried out. Winter bird surveys are scheduled for November 2021 to February 2022.

4.9.6 In general, considering the broad similarities in habitat arrangement, topography, field size and agricultural management, the breeding bird species assemblage is consistent across the option sites. Results can be broadly divided into those for ground-nesting birds, birds of hedgerows and boundaries and other bird species.

Ground-nesting Birds

Skylark

4.9.7 This is a red-listed species on account of its declining population trend as a result of agricultural intensification and land-use change. It is also a Species of Principal Importance (SPI) under the NERC Act 2006. Skylark are a resident species whose numbers swell each winter from an influx of visitors from northern Europe. Skylark require long, unbroken sightlines in grassland (including arable or set-aside up to 40cm high) of at least approximately 200m for predator avoidance.

4.9.8 Skylark were recorded on **all Sites** in varying densities. On average, territories occurred at a density of 1 per 5ha. This means there would be approximately 250 territories among all Cottam sites combined.

4.9.9 Particularly dense populations were located at **Cottam 1** and **Cottam 3** as these featured some of the largest arable fields within a similarly open landscape. In addition, some of the barley (predominantly **Cottam 1**) was planted in the spring, allowing for greater nesting success on second broods (due to the lower sward height) and better wintering habitat in the form of stubbles. Therefore a larger residual population is associated with **Cottam 1**. Together, Cottam supports significant populations of skylark, although this would be expected to be in line with population densities in the local landscape.

4.9.10 Winter-sown wheat - as is ubiquitous across most of the Sites - is considered to be a suitable but sub-optimal habitat for skylark on account of its growth above 60cm at a time when skylark are looking to have second or third broods in the mid-late summer. It can reasonably be assumed that a large proportion of the nests present, if not all, would be displaced from solar arrays. There is no robust, long-term evidence indicating that skylark nest within solar arrays, although the reversion from arable to grassland in solar development has been shown to improve foraging opportunities for skylark which are able to include array land within their adjacent territories. This effect is likely to increase nesting and breeding success in adjacent suitable (non-array) habitats. Some nesting may persist within buffers and wayleaves, although it is considered that this reflects a tendency for site-fidelity which may persist for approximately one to three seasons post-construction.

Yellow wagtail

4.9.11 For the same reasons as skylark, yellow wagtail are also red listed, and a SPI. Yellow wagtail migrate to the UK from Africa each spring. Yellow wagtail are a far less numerous bird than skylark and were recorded across all Sites at significantly lower rates than skylark. As above, sites supporting greater numbers were **Cottam 1** and **Cottam 3**. As for skylark, it is likely that yellow wagtail nests would be displaced through solar development, although solar development could be expected to improve foraging opportunities for birds with nearby territories.

Grey Partridge

4.9.12 This is a red listed species and an SPI, typical of lowland arable farmland although having suffered marked recent declines. Grey partridge were recorded across **all Sites**, especially at **Cottam 1** where many pairs have been introduced and specifically managed for the game shoot there. The effects of solar development on grey partridge is unknown. Preferring field edges and proximity to sources of cover, grey partridge may continue to use solar arrays, although potentially at the edges and in lower overall densities. It may also transpire that solar array may provide a desirable shelter from nearby game shooting and therefore provide a valuable refuge for the population.

Quail

4.9.13 This is an amber-listed species for which population and conservation research in the UK is limited on account of its cryptic nature and difficulty of survey. Quail are a summer migrant from Africa and the Mediterranean and closely associated with arable habitats. Quail were recorded on relatively few occasions at **all Sites**. It is not understood whether quail would be displaced by solar development as they do not rely on surveillance for predator avoidance, rather camouflage, secrecy and restriction of most activity to evenings and early mornings. In some regions and countries, quail rely on open woodland and a landscape with a mosaic of grassland and woody cover. It is possible that quail may continue to use solar arrays although further research is needed as the extent and type of cover and shading created by solar installations is not directly analogous to such open woodland habitat. This project would pose a good opportunity to study this effect further.

Birds of Field Boundary Habitats

4.9.14 Significant populations of birds typical of hedgerows, woodland edges, scrub and river corridors in a lowland agricultural setting were recorded throughout the Sites, principally yellowhammer, linnet, common whitethroat, lesser whitethroat, tree sparrow, reed bunting and great spotted woodpecker. Many of these birds will forage within arable field edges or nest in ditches, hedgerow bases or grassy margins as well as the hedgerows themselves. It is expected that the assemblage and abundance would not be significantly affected provided that sufficient buffering is designed into the schemes. These species have been seen to persist on established small and medium-scale solar arrays, although impacts are largely untested at this scale. Given the scale of proposals and likely unbroken expanse of array, it would be prudent to instigate an increased degree of buffering compared to small and medium sized array schemes.

Other Birds

4.9.15 Curlew and lapwing are red listed species and also SPIs. These waders were recorded at **Cottam 1**, close to the banks of the River Till. Solar development can be expected to displace nesting locations for these species for the same reasons of predator surveillance as listed for skylark.

4.9.16 Turtle dove are a red listed species and an SPI and one was recorded one time foraging in uncultivated land at the eastern end of **Cottam 3**. This species is increasingly rare and in danger of extinction in the UK. Turtle dove rely on uncultivated land and arable weeds for seeds, as well as tall hedgerows, open woodland and scrub. Again, no research exists on the effect of solar development on turtle dove, however opportunities exist for the enhancement of foraging habitat and planting of nesting habitat for this key species of local conservation concern.

4.9.17 Barn owl, little owl, short-eared owl and tawny owl were all recorded during the evening surveys, with barn owl being recorded at almost every site in good numbers. Short-eared owl was only recorded at **Cottam 1** (Coates South). Tawny owl and little owl were only recorded in stands of woodland adjacent to the option land. Barn owl and short-eared owl were the most likely owl species to be recorded within the arable fields themselves. River banks, especially at the River Till were regularly-used foraging corridors for these species. The impacts of

solar development on owls are unclear as barn owls in particular as associated with open hunting habitat. However, it is likely that tussocky margins and buffers, as well as sympathetically managed grassland beneath arrays (longer grassland suitable for voles and other small rodents) would support a far greater abundance of prey items than intensive arable.

4.9.18 Buzzard, peregrine, hobby, kestrel, marsh harrier and red kite were all observed during the bird surveys. Nesting buzzard were regularly recorded within woodland edge at the majority of the sites. Potential hobby nesting activity was observed at **Cottam 3**.

Potential Constraints and Options for Mitigation

4.9.19 On account of their status as birds listed on Schedule 1 of the Wildlife and Countryside Act 1981 (as amended) nests of hobby, peregrine, barn owl, quail and red kite will need to be protected from disturbance during any development activity. Consequently, pre-commencement precautionary survey work is likely to be required to establish risks immediately prior to the construction phase.

4.9.20 Similarly, all nests for other species are protected from harm, therefore any potential nesting habitat clearance will need to be carried out either during the period September to February inclusive, under the supervision of an ecologist, or following further survey to confirm absence.

4.9.21 In order to ensure that boundary habitats remain suitable for use by the species recorded, as well as being able to be re-visited and discovered, it is recommended that sufficient buffers to the nearest arrays are implemented. The size of these should be coordinated with other constraints, for example bats, in due course following the completion of survey work and analysis. The following is therefore likely to be recommended, subject to consultation. Hedgerows: 10m. Ditches and minor watercourses: 15m. Woodland, in-field trees and major watercourses: 20m. Ancient woodland: 30m

<u>Skylark and Other Ground Nesting Birds</u>

4.9.22 Impacts on ground nesting birds can be mitigated for either by the creation of newly-available (i.e. not already suitable) compensatory nesting habitat, or the enhancement of existing habitat by the improvement of foraging opportunities causing an increase in carrying capacity and likely knock-on nesting success. Given the scale of likely impacts on these species, mitigation should be achieved through a blend of different mitigation techniques and land management approaches on Site and, potentially locally off-Site. As has been described, solar arrays are not considered suitable nesting habitat for ground nesting species which require long sightlines for predator monitoring, therefore mitigation for these will need to occupy contiguous blocks of land free of solar array and other structures.

4.9.23 On Site, land unviable for development could be managed specifically for ground nesting birds, ideally reverting from intensive arable to non-rotational set-aside or meadow for the greatest capacity to absorb displaced territories. Careful site selection will be necessary as suitable mitigation land for skylark in particular usually requires a radius of >100m from all vegetation and structures above 100cm in height.

4.9.24 Off site, winter sown cereals can be reverted to spring (March) sown crop to enable existing birds to successfully rear a second or third brood. This technique should be supplemented through the inclusion of 'bird foraging plots' whereby 5x5m squares of unsown land are introduced at a rate of at least 2 per hectare into fields by temporarily halting the seed drill during sowing. This has the effect of increasing invertebrate food item abundance, improving the breeding success, number of young reared and densities of territories able to be supported. Additionally, agricultural land can be reverted from unsuitable or sub-optimal habitat to meadow, long cut-rotation silage (>7weeks), and have reduced application of inorganic fertiliser and insecticide. Again, only large, open fields with vegetation below 50-60cm during the majority of the breeding season would be considered suitable.

4.9.25 The precise quantum of land required to achieve an acceptable mitigation for the species can be calculated once bird survey data has been analysed. This would then be refined according to the combination of mitigation techniques listed above that are employed. It is likely that impacts in terms of territory displacement would be greatest at **Cottam 1** owing to the already productive field margins (for invertebrate prey items) and proportion of spring sown barley and winter stubbles.

4.9.26 Furthermore, consultation with Natural England and Local Authorities would be key in establishing an acceptable approach. Indeed, Local Authorities (as well as consultees such as the RSPB and BTO) may be in a position to assist with recommending local conservation initiatives to which the schemes can contribute. The

above mitigation techniques can be expected to be of benefit to a wide variety of birds, not limited to the listed ground nesting species.

Opportunities for Enhancement and Biodiversity Net Gain

4.9.27 Beyond the mitigation options for ground-nesting birds outlined above, substantial nesting and foraging habitat can be created through the planting of new hedgerows, lines of trees and scrub, as well as the management of buffers, wayleaves and other easements for invertebrate and seed eating species. These measures can be tailored to each site and particular bird species of note. For example the creation of tall, bushy hedgerows and thickets at **Cottam 3** for turtle dove would increase nesting opportunities, while sowing strips of wild-bird cover containing kale, quinoa and millet within buffers would create ideal foraging habitat for this key species within agreed buffers and would also benefit other seed-eating birds such as yellowhammer, goldfinch and linnet.

4.9.28 Buffer areas and easements can be managed preferentially for different species. Where raptors such as owls and kestrels are targeted, tussocky grassland valuable for small rodents can be encouraged. This can be diversified with ruderal and flowering meadow plants to be of greater benefit to invertebrate-eating species such as whitethroat, skylark and yellow wagtail. Hobby can be targeted through the inclusion of waterbodies to encourage dragonflies. Further options would be discussed within the dedicated bird survey reports.

4.9.29 An additional consideration for siting such enhancement measures would be the proximity to any on or off-site land secured for skylark mitigation. The success of off Site skylark nesting enhancement can be further improved by better access to productive foraging grounds. As young skylarks are almost exclusively fed on invertebrates, it would be of benefit to have these treatments adjacent to known or targeted skylark nesting habitats. While arrays are not known to support optimally nesting skylarks, they have been found to support foraging skylarks.

4.9.30 Nesting opportunities should be incorporated into the scheme through the installation of tree and building-mounted bird boxes. A rate of approximately 1-2 boxes per 10ha of development land would be appropriate.

4.9.31 Specialist boxes for raptors and owls can be installed in appropriate key locations within the schemes.

Further Survey Considerations

4.9.32 Wintering bird surveys will need to be carried out to determine the potential for impacts upon wetland birds, winter migrants and bird associated with the Humber Estuary SPA.

4.9.33 It may be prudent to carry out further daytime inspection of buildings and mature trees adjacent to the sites capable of being encircled or at least partially surrounded by arrays (for example, all buildings at **Cottam 2**), to determine any impacts on movements or access to habitat by birds such as barn owls nesting or roosting within them.

4.10 Invertebrates

4.10.1 Habitat quality for invertebrates within the development sites is generally low, owing to the intensive agricultural land use and regularity of pesticide use. Boundary habitats are also generally poor for invertebrates, while the River Till corridor, waterbodies and watercourses represent some elevated habitat value. The desk study data on invertebrates will be fully analysed in due course, alongside further consultation, to determine whether any further targeted invertebrate survey may be useful. At this stage, this is considered unlikely.

Desk Study Information

4.10.2 At **Cottam 1**, numerous records of 27 species of notable invertebrate species (three butterfly and 24 moth species), were revealed by the Desk Study. These are detailed in Appendix D. All species were recorded beyond 250m of the Site boundary.

4.10.3 No invertebrate records within 2Km of **Cottam 2** were present in the Desk Study.

4.10.4 The only records of invertebrates given within 2Km of **Cottam 3** were of hazel pot beetle, wall butterfly and two moth species all between 500m and 2Km north of the Site.

Field Survey Results

4.10.5 Habitat quality for invertebrates within the development sites is generally low, owing to the intensive agricultural land use and regularity of pesticide use. Boundary habitats are also generally of lower to moderate value for invertebrates, while the species rich hedgerows, trees, River Till corridor, waterbodies and watercourses represent relatively elevated habitat value.

Potential Constraints, Mitigation and Further Work

4.10.6 The desk study data on invertebrates did not raise any concerns regarding the need for further survey.

Opportunities for Enhancement and Biodiversity Net Gain

4.10.7 The creation of more diverse grassland over time (both under panels and within field margin buffer zones) should provide an increase in habitat value for invertebrates. Alternatively, a new meadow or diverse grassland can be created by cultivation and over seeding, followed by monitoring and timed cutting as described in the Habitats section. The final approach can be discussed for inclusion within an Ecological Management Plan.

4.11 Other Protected Species and Species of Conservation Concern

Desk Study Information

Cottam 1

4.11.1 80 records of brown hare present, with two within Coates West and three close to Coates South.

4.11.2 One record of polecat was present 1.2Km south east of Coates South.

4.11.3 One record of hedgehog close to Coates South was recorded.

4.11.4 40 records of European eel were recorded within 2km of the site, with 23 records located close to Coates West, predominantly associated with the River Till. Similarly, 10 spined loach records in the same locations were recorded.

4.11.5 The only flowering plant records present are for bluebell, of which there were 41 records all beyond 250m from the Site.

4.11.6 Three notable butterfly species (wall, white-letter hairstreak and small heath) were recorded 21 times well beyond 250m from the Site.

4.11.7 25 notable moth species were recorded, almost all of which were 640m west of the Site in 2010.

Cottam 2

4.11.8 31 records of brown hare present, the closest of which being 600m south of the Site.

4.11.9 32 records of hedgehog were present, the closest being approximately 1Km west of the Site.

4.11.10 The only flowering plant records present are for bluebell, of which there were 5 records all beyond 250m from the Site.

Cottam 3

4.11.11 44 records of brown hare were made, the closest located 400m north of the Site.

4.11.12 One record of European eel and one of barbel were recorded between 700m and 1Km west of the Site.

4.11.13 57 records of hedgehog were present, the closest being 600m north west of the Site.

4.11.14 Six records of harvest mouse were present, the closes being 1.6Km north of the Site.

Field Survey Results

4.11.15 At **all sites**, large numbers of brown hare were noted within the fields. **All sites** were conducive to the presence of species such as hedgehog, polecat and other small mammals within hedgerows and field margins. Harvest

mice are assumed to be present to some degree. The larger watercourses are likely to support several species of fish and other aquatic life.

Potential Constraints, Mitigation and Further Work

4.11.16 It is unlikely that significant effects on any of these species would arise from the development provided that steps are taken to protect existing boundary features and maximise their habitat value through simple and sympathetic management practices for the life of the scheme. Mitigation measures given for other species above would serve species mentioned here well. It has been observed that brown hare, in particular, appear to benefit from solar array installations and favour the shelter and longer grass associated with them in preference to pasture grassland. Security fencing is not considered likely to impede movement by these species as long as the mesh size is large enough (e.g. standard deer fencing).

5 FURTHER WORK AND NEXT STEPS

5.1 Recommended and Optional Further Surveys

5.1.1 As derived from the above species and habitats discussions, the following further surveys are either recommended or suggested pending the outcome of consultation on the current proposed survey and assessment scope.

Further Survey to Inform DCO Application			
Species/Item	**Survey Type**	**Timing**	**Comments**
Great Crested Newts	Water sampling	Mid-April and end-June 2022	Survey of all accessible ponds on third party land within 250m of red line boundaries, plus on-site dry ponds. Survey of ponds in proximity to cable route, especially at Torksey/Cottam likely required.
Birds	Wintering birds	Monthly visits between November 2021 and February 2022	Scheduled
Birds	Tree and building inspection	Any time of year, best March to September any year	Scheduled
Bats	Tree and building inspection	Daytime work: any time of year. Emergence Survey (if needed) May to September inclusive.	Scheduled
Otters and Water Voles	Watercourse inspection	spring	Scheduled
Cable Routes	Phase 1 Walkover	Any time of year for walkover	Further survey for GCN, otters and water voles, designated habitats as a minimum likely to be required.

5.2 Anticipated Reporting/Design Milestones

- Input into Pre-App/Early Consultation Docs. Basis formed by PEA but with relevant additions – **September 2021**
- Opinions received on proposed survey scope and early mitigation approach – **August-October 2021**
- Breeding Bird Survey Report – **October 2021** –

  Expanded thereafter following completion of any tree/building surveys.
  Will enable finalisation of on and off-Site mitigation requirements for skylark and associated species.
- Bat Survey Report – **October/November 2021**

  Expanded thereafter following completion of any tree/building surveys.
  Will enable finalisation of buffer widths from hedgerows and trees to security fence.
- Preliminary Biodiversity Net Gain Analysis – **October/November 2021** –

  Will facilitate habitat management plan and landscape enhancement design.
- Wintering Bird Survey Report – **March/April 2022** –

  May have implications for on and off-Site bird mitigation if not already catered for.
- Otter and Water Vole Survey Report (if required by consultees – considered likely) - **March/April 2022**

  Interim report can be provided on basis of 2021 data for purposes or PEIR, scoping and consultation.
  Will help refine recommendations for watercourse buffering and habitat management.
- Great Crested Newt Survey Report following 2022 survey of off-Site ponds – **May 2022**

  Interim report can be provided on basis of 2021 data.
  Will refine constraints in proximity to some ponds.
- PEIR – Spring 2022
- ES Chapter – Summer/Autumn 2022
- Construction Ecological Management Plan (or similar) – **TBC in support of PEIR/ES**
- Landscape and Ecological Management Plan (or similar) – **TBC in support of PEIR/ES**
- Final Biodiversity Net Gain Analysis Report - **TBC in support of PEIR/ES**

5.3 Construction and Landscape Environmental Management Plans (CEMP and LEMP)

5.3.1 The PEIR and ES will likely need to be supported by a document setting out how construction-phase impacts upon sensitive ecological receptors will be avoided and minimised. Typically, a Construction Environmental Management Plan is prepared in collaboration with other environmental and landscape disciplines and an ecology chapter produced. Alternatively, a specific Construction Ecological Protection Plan can be produced as a standalone document.

5.3.2 This document would set out the following:

- Details of protective and permanent fencing including distances from habitat features etc.
- Working methods adopted to avoid accidental damage (including root compaction, contamination and pollution) to retained features such as trees, hedgerows and watercourses.
- Examples of and a plan to show where signage will be installed.
- The roles of different site personnel in protecting and maintaining retained habitat during construction.
- The role of an Ecological Clerk of Works to ensure inspections are carried out and that activities carrying a risk of harm to protected and notable species and habitats can be appropriately planned and carried out.
- Steps taken to prevent the spread of invasive non-native species potentially present.
- Considerations for the minimisation of damage to the ground during the winter months.

5.3.3 The achievement and success of Biodiversity Net Gain is likely to be contingent on the efforts made in the long term management of the Site's habitats. A Landscape and Ecological Management Plan (LEMP) would set out the agreed habitat creation and planting to be undertaken during and immediately after the construction

phase as well as an ecologically-sensitive management schedule for a period of at least 20years. Details on the installation of features of value to wildlife including reptile hibernacula, invertebrate habitats and bird and bat habitat boxes will also be given alongside a monitoring and maintenance schedule. The LEMP is likely to be a requirement of an eventual PEIR/ES in order to demonstrate how proposed mitigation and enhancement will be secured and the various roles and responsibilities for carrying this out.

5.4 Cumulative Impacts

5.4.1 An assessment of cumulative impacts arising from between the sub-sites, between Cottam and West Burton applications and with other large-scale solar in the District will be an essential part of the PEIR/ES. Given the similarities of habitat and value to protected and notable species between the Sites and other applications, the potential for significant cumulative impacts on certain receptors, especially ground nesting birds. This factor will be a key consideration when formulating acceptable mitigation (i.e. its location, quantity and habitat management), not least for ground nesting birds. Preliminary recommendations given in this document, such as buffer widths etc., attempt to take this effect (and the effect of the project scale) into account and apply a precautionary approach.

5.5 Future Baseline and Decommissioning Effects

5.5.1 An assessment of a potential future baseline will be necessary as part of the PEIR/ES in understanding possible effects of decommissioning. Fundamentally, it is impossible to accurately predict the nature of future legal and planning constraints related to ecology in 30-40 years' time. However, on the basis of the current legal and policy situation, it is likely that the biodiversity value of the Sites within the red lines boundaries will overall increase moderately over time and in response to Biodiversity Net Gain-led management principles.

5.5.2 The majority of land where new habitats of value will be created, and colonisation by species of conservation concern most likely to take place, will be at the Sites' boundaries and relatively separated from array infrastructure. This means that future constraints would likely remain similarly distributed to how they are at present. It is considered that the likely DCO requirement (and that of Policy S13 of Central Lincolnshire Local Plan) of an eventual reversion to pre-construction state following decommissioning is compatible with the management of the Sites up to that point as grassland of varying management types.

5.5.3 It is worth noting our experience to date that PINS have been broadly accepting of the view that whilst a robust strategy to protecting valuable ecological features will be required they have also agreed that it is difficult, if not impossible, to prepare or write an ecological strategy to decommissioning now as the conditions and legislative framework at this future point will direct how it would proceed.

APPENDIX A: WILDLIFE LEGISLATION SUMMARY

BADGERS

Badgers and their setts are protected under the Protection of Badgers Act 1992 (as amended) against damage or destruction of a sett, or disturbance, death or injury to the badgers. The Act defines a sett as "any structure or place which displays signs indicating current use by a badger". The definition of current use is subject to considerable debate. Natural England have produced guidance on the definition of current use. (*Badgers and Development – A guide to best practice and development. Natural England 2011*). Given the ambiguity surrounding the definition in all circumstances we would recommend an assessment of current use is always undertaken by a qualified ecologist. Natural Resources Wales (NRW) have a slightly different definition of current use. Please see the NRW website for further information. Penalties for offences against badgers or their setts include fines of up to £5,000 and/or up to six months in prison.

Disturbance of badgers could be caused by any digging activity or scrub clearance within 30 metres of an occupied sett and therefore every case needs to be assessed individually. Felling of trees close to a badger sett may also cause disturbance in some situations. Some activities such as pile driving may cause disturbance at even greater distances, and should be discussed with Natural England or NRW.

Licences are issued by Natural England (or NRW in Wales) to allow the disturbance of badgers, and the destruction of their setts in certain circumstances, in relation to development. Full planning permission must be obtained before a licence application will be considered. Although licences can be applied for at any time of year, disturbance of badgers or exclusion of badgers from a sett can only take place between 1 July and 30 November, to avoid the breeding season when dependant young may be underground. This restriction may be relaxed in some cases where a sett is seasonal and badgers can be shown to be absent from a sett at that time of year.

This report contains information of a confidential nature relating to the location of badger setts. Public access to this data should be restricted to those who have a legitimate need to assess the information and to know the exact situation of the setts rather than simply that badgers are present.

BATS

All 17 species of bat known to breed in England and Wales, and their roost sites, are protected under the Conservation of Habitats and Species Regulations 2017, known as the 'Habitats Regulations'. This makes it an offence to deliberately kill or injure a bat, or to deliberately disturb a bat such that its ability to hibernate, breed or rear young, or such that the species' distribution, were significantly affected. It is also an offence to damage or destroy any breeding site or resting place. Intentional or reckless disturbance of bats in their resting places, and damage to or obstruction of resting places are also offences under the Wildlife and Countryside Act 1981 (as amended). Under UK law a bat roost is "any structure or place which any wild [bat]...uses for shelter or protection". As bats tend to reuse the same roosts, legal opinion is that the roost is protected whether or not the bats are present at the time. Penalties for offences against bats or their roosts include fines of up to £5,000 and/or up to six months in prison.

As a result, development works which are likely to involve the loss of or alteration to roost sites, or which could result in killing of or injury to bats, need to take place under licence. Works which could disturb bats may also be licensable, though this needs to be assessed on a case by case basis, as bats' sensitivity to disturbance varies depending on normal background levels, and the definition of disturbance offences under the Habitats Regulations is complex. In practice this means that works involving modification or loss of roosts (typically in buildings, trees or underground sites) or significant disturbance to bats in roosts are likely to be licensable.

Licences can be obtained from Natural England or the Welsh Government to permit works that would otherwise be illegal, provided it can be demonstrated that the proposed works are needed to protect public health or safety, or for other reasons of overriding public interest including social and economic reasons. It is also necessary to demonstrate that there is no satisfactory alternative to the proposed works, and that the conservation status of bats in the area will be maintained. Appropriate mitigation and post-construction monitoring are therefore a requirement of all licences.

AMPHIBIANS

Great Britain supports seven native amphibian species. The four most widespread species; smooth and palmate newts, common frog, and common toad, receive partial protection under the Wildlife and Countryside Act 1981 (as amended) which prohibits sale, barter, exchange, transporting for sale and advertising to sell or to buy. The great crested newt, pool frog and natterjack toad are also fully protected in England and Wales under the Conservation of Habitats and Species Regulations 2017. Penalties for offences against amphibian species include fines of up to £5,000 and/or up to six months in prison.

Four amphibian species (great crested newt, pool frog, common toad, natterjack toad) are listed as priority species under the UK Biodiversity Action Plan, and are therefore considered to be Species of Principal Importance in England and Wales (excluding the pool frog, which does not occur in Wales) under the Natural Environment and Rural Communities (NERC) Act 2006. All public bodies including local and regional authorities have a duty under this legislation to have regard for the conservation of biodiversity.

GREAT CRESTED NEWTS

Great crested newts are protected in England and Wales under the Conservation of Habitats and Species Regulations 2017, known as the 'Habitats Regulations'. This makes it an offence to deliberately kill or injure a great crested newt, or to deliberately disturb a great crested newt such that its ability to hibernate, breed or rear young, or such that the species' distribution, were significantly affected. It is also an offence to damage or destroy any breeding site or resting place for great crested newts. Intentional or reckless disturbance of great crested newts in places of shelter (ponds or terrestrial refuges), and damage to or obstruction of places of shelter are also offences under the Wildlife and Countryside Act 1981 (as amended). Penalties for offences against great crested newts include fines of up to £5,000 and/or up to six months in prison.

As a result, development works which are likely to involve the loss of ponds or terrestrial habitat, or which could result in killing of or injury to great crested newts, need to take place under licence. Works which could disturb great crested newts may also be licensable, though this is rarely the case unless loss of great crested newt habitat is also proposed, and should be assessed on a case by case basis. In practice this means that works involving any removal of or significant modification to ponds or terrestrial habitats (typically rough grassland, scrub, hedgerow bases and woodland) supporting great crested newts are likely to be licensable.

Licences can be obtained from Natural England or the Welsh Government to permit works that would otherwise be illegal, provided it can be demonstrated that the proposed works are needed to protect public health or safety, or for other reasons of overriding public interest including social and economic reasons. It is also necessary to demonstrate that there is no satisfactory alternative to the proposed works, and that the conservation status of great crested newts in the area will be maintained. Appropriate mitigation and post-construction monitoring are therefore a requirement of all licences.

REPTILES

All six native reptile species receive protection under the Wildlife and Countryside Act 1981 (as amended). The four more common species (common lizard *Zootoca vivipara*, slow-worm *Anguis fragilis*, adder *Vipera berus* and grass snake *Natrix natrix*) receive partial protection which makes it an offence to intentionally kill or injure a reptile. The two other reptile species (smooth snake *Coronella austriaca* and sand lizard *Lacerta agilis*), both of which are rare with very restricted UK ranges receive full protection under the Conservation of Habitats and Species Regulations 2017. Penalties for offences against reptile species include fines of up to £5,000 and/or up to six months in prison.

Works such as site clearance or topsoil stripping which could result in killing or injury of reptiles could be considered result in an offence unless measures are taken to minimise the risk of this occurring. Any inadvertent impacts on common reptile species despite these mitigation measures being in place would be considered an 'incidental result of an otherwise lawful operation' which 'could not reasonably have been avoided' and therefore not an offence. Works which could affect smooth snakes or sand lizards, or their habitats, would need to take place under licence from Natural England or Natural Resources Wales. However sites supporting smooth snakes or sand lizards are very rarely affected by development proposals.

In practice, mitigation for impacts of development on common reptiles generally comprise one or more of the following techniques: displacement, in which reptiles are encouraged to move to suitable retained habitat by changing the management of areas affected by development; exclusion, where reptile-resistant fencing is provided between a development site and suitable retained habitat allowing reptiles to be trapped from the development footprint and released elsewhere on the site; and translocation, where animals are trapped from a development site and released on another suitable site nearby. Reptile mitigation proposals, particularly those involving translocation of animals, should be agreed in advance with the local planning authority.

BIRDS

All British birds, their nests and eggs (with certain exceptions) are protected under the Wildlife & Countryside Act 1981 (as amended) which makes it an offence to: intentionally kill, injure or take a wild bird; intentionally take, damage or destroy nests which are in use or being built; intentionally take or destroy birds' eggs; or possess live or dead wild birds or eggs. A number of species receive additional protection through inclusion on Schedule 1 of the Wildlife and Countryside Act; for these it is also an offence to intentionally or recklessly disturb birds while nest building, or at a nest containing eggs or young, or to disturb the dependant young of such a bird. Penalties for offences against bird species include fines of up to £5,000 and/or up to six months in prison.

General licences for control of some bird species are issued by Natural England and Natural Resources Wales in order to prevent damage or disease, or to preserve public health or public safety, but it is not possible to obtain a licence for control of birds or removal of eggs/nests for development purposes. Consequently if nesting birds are present on a development site when works are programmed to start it is usually necessary to delay works, at least in the areas supporting nests, until any chicks have fledged and left the nest. It is usually possible, once chicks have hatched, for an experienced ecologist to predict approximately when they are likely to fledge, in order to inform programming of works on site.

OTTERS

Otters and their holts are protected in England and Wales under the Conservation of Habitats and Species Regulations 2017, known as the 'Habitats Regulations'. This makes it an offence to deliberately kill or injure an otter, or to deliberately disturb an otter such that its ability to breed or rear young, or such that the species' distribution, were significantly affected. It is also an offence to damage or destroy any breeding site or resting place. Intentional or reckless disturbance of otters in their holts, and damage to or obstruction of

holts are also offences under the Wildlife and Countryside Act 1981 (as amended). Penalties for offences against otters or their holts include fines of up to £5,000 and/or up to six months in prison.

Any development works which are likely to involve the loss of holts, or which could result in killing of or injury to otters (which are only likely to occur extremely rarely), need to take place under licence. Works which could disturb otters may also be licensable, though this is also rarely the case as the majority of developments on watercourses and coastal areas where otters are present can be carried out in a way which avoids significant disturbance.

Where it is necessary, licences can be obtained from Natural England or the Welsh Government to permit works that would otherwise be illegal, provided it can be demonstrated that the proposed works are needed to protect public health or safety, or for other reasons of overriding public interest including social and economic reasons. It is also necessary to demonstrate that there is no satisfactory alternative to the proposed works, and that the conservation status of otters in the area will be maintained. Appropriate mitigation and post-construction monitoring are therefore a requirement of all licences.

WATER VOLES

Water voles *Arvicola amphibius* receive protection under the Wildlife and Countryside Act 1981 (as amended), which makes it an offence to: intentionally kill, injure, or take a water vole; intentionally or recklessly disturb a water vole whilst in its place of shelter; intentionally or recklessly damage, obstruct or destroy a water vole's place of shelter; or intentionally or recklessly obstruct access to a place of shelter. Penalties for offences against water voles include fines of up to £5,000 and/or up to six months in prison.

Works such as watercourse re-profiling, installing culverts, or topsoil stripping close to watercourses and ponds which could result in destruction or obstruction of burrows could be considered reckless, and/or could be considered intentional if water voles are killed or injured, unless measures are taken to minimise the risk of this occurring. Any inadvertent impacts on water voles despite these mitigation measures being in place would be considered an 'incidental result of an otherwise lawful operation' which 'could not reasonably have been avoided' and therefore not an offence.

In practice, mitigation for impacts of development on water voles generally comprise one or more of the following techniques: displacement, in which water voles are encouraged to move to suitable retained habitat by changing the management of areas affected by development; exclusion, where water vole-resistant fencing is provided between a development site and suitable retained habitat allowing animals to be trapped from the development footprint and released elsewhere on the site; and translocation, where animals are trapped from a development site and released on another suitable site nearby. Water vole mitigation proposals, particularly those involving translocation of animals, should be agreed in advance with Natural England or Natural Resources Wales.

PLANNING POLICY IN RELATION TO BIODIVERSITY

The National Planning Policy Framework (NPPF), was published in March 2012 and revised in July 2021. Additional guidance can be found online at http://planningguidance.planningportal.gov.uk/blog/guidance/. The NPPF simplifies and collates a number of previous planning documents and outlines the government's objective towards biodiversity.

The NPPF identifies ways in which the planning system should contribute to and enhance the natural and local environment (Paragraph 174), including:

- (a) protecting and enhancing valued landscapes, sites of biodiversity or geological value and soils (in a manner commensurate with their statutory status or identified quality in the development plan);
- (b) recognising the intrinsic character and beauty of the countryside, and the wider benefits from natural capital and ecosystem services – including the economic and other benefits of the best and most versatile agricultural land, and of trees and woodland;
- (d) minimising impacts on and providing net gains for biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures;
- (e) preventing new and existing development from contributing to, being put at unacceptable risk from, or being adversely affected by, unacceptable levels of soil, air, water or noise pollution or land instability. Development should, wherever possible, help to improve local environmental conditions such as air and water quality, taking into account relevant information such as river basin management plans; and
- (f) remediating and mitigating despoiled, degraded, derelict, contaminated and unstable land, where appropriate. protecting and enhancing valued landscapes, geological conservation interests and soils;

It also emphasises the importance of conserving biodiversity and areas covered by landscape designations (Paragraph 176):

Great weight should be given to conserving landscape and scenic beauty in National Parks, the Broads and Areas of Outstanding Natural Beauty, which have the highest status of protection in relation to landscape and scenic beauty. The conservation of wildlife and cultural heritage are important considerations in all these areas, and should be given great weight in National Parks and the Broads. The scale and extent of development within all these designated areas should be limited, while development within their setting should be sensitively located and designed to avoid or minimise adverse impacts on the designated areas.

When determining planning applications, the NPPF states that local planning authorities should aim to conserve and enhance biodiversity (Paragraph 175) by applying principles including:

- (a) if significant harm to biodiversity resulting from a development cannot be avoided (through locating on an alternative site with less harmful impacts), adequately mitigated, or, as a last resort, compensated for, then planning permission should be refused;

- (b) development on land within or outside a Site of Special Scientific Interest, and which is likely to have an adverse effect on it (either individually or in combination with other developments), should not normally be permitted. The only exception is where the benefits of the development in the location proposed clearly outweigh both its likely impact on the features of the site that make it of special scientific interest, and any broader impacts on the national network of Sites of Special Scientific Interest;
- (c) development resulting in the loss or deterioration of irreplaceable habitats (such as ancient woodland and ancient or veteran trees) should be refused, unless there are wholly exceptional reasons[6] and a suitable compensation strategy exists; and
- (d) development whose primary objective is to conserve or enhance biodiversity should be supported; while opportunities to improve biodiversity in and around developments should be integrated as part of their design, especially where this can secure measurable net gains for biodiversity or enhance public access to nature where this is appropriate..

The following should be given the same protection as habitats sites:

- (a) potential Special Protection Areas and possible Special Areas of Conservation;
- (b) listed or proposed Ramsar sites7; and
- (c) sites identified, or required, as compensatory measures for adverse effects on habitats sites, potential Special Protection Areas, possible Special Areas of Conservation, and listed or proposed Ramsar sites.

There is a general presumption in favour of sustainable development within the NPPF. It is noted in Paragraph 182 that this presumption does not apply where the plan or project is likely to have a significant effect on a habitat site (either alone or in combination with other plans or projects), unless an appropriate assessment has concluded that the plan or project will not adversely affect the integrity of the habitats site.

The Natural Environment and Rural Communities Act (2006) states that a public authority must, "in exercising its functions, have regard, so far as is consistent with the proper exercise of those functions, to the purpose of conserving biodiversity; Conserving biodiversity includes, in relation to a living organism or type of habitat, restoring or enhancing a population or habitat". DEFRA issued further guidance on implementation of this act in the document; Guidance for Local Authorities on Implementing the Biodiversity Duty (May 2007), which notes that "Conserving biodiversity includes restoring and enhancing species populations and habitats, as well as protecting them".

ECOLOGICAL ENHANCEMENTS

The Natural Environment and Rural Communities Act (2006) states that a public authority must, "in exercising its functions, have regard, so far as is consistent with the proper exercise of those functions, to the purpose of conserving biodiversity; Conserving biodiversity includes, in relation to a living organism or type of habitat, restoring or enhancing a population or habitat". DEFRA issued further guidance on implementation of this act in the document; Guidance for Local Authorities on Implementing the Biodiversity Duty (May 2007), which notes that "Conserving biodiversity can include restoring or enhancing a population or habitat"".

In England, the National Planning Policy Framework (NPPF), issued in July 2021, states that the planning system should contribute to "*minimising impacts on and providing net gains for biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures;*. It also states that "*opportunities to incorporate biodiversity in and around developments should be encouraged, especially where this can secure measurable net gains for biodiversity*".

UK BIODIVERSITY ACTION PLANS

The UK Biodiversity Action Plan (UK BAP) 2011 is a policy first published in 1994 to protect biodiversity and stems from the 1992 Rio Biodiversity Earth Summit. The policy is continuously revised to combine new and existing conservation initiatives to conserve and enhance species and habitats, promote public awareness and contribute to international conservation efforts. Each plan details the status, threats and unique conservation strategies for the species or habitat concerned, to encourage spread and promote population numbers.

Species or habitats identified as priorities under the UK Biodiversity Action Plan receive some status in the planning process through their identification as Species/Habitats of Principal Importance in England and Wales, under the Natural Environment and Rural Communities (NERC) Act 2006 (as amended).

Current planning guidance in England, the National Planning Policy Framework, does not specifically refer to Species or Habitats of Principal Importance, though it includes guidance for conservation of biodiversity in general. Supplementary guidance is available online at http://planningguidance.planningportal.gov.uk/blog/guidance/ and this guidance indicates that it is '*useful to consider*' the potential effects of a development on the habitats or species on the Natural Environment and Rural Communities Act 2006 section 41 list.

PROTECTED PLANTS

All wild plants receive some protection under the Wildlife and Countryside Act 1981 (as amended), which makes it an offence for any unauthorised person to intentionally uproot any wild plant. Additionally, certain rare species of plants listed on Schedule 8 of the Act are given greater protection. For these species, it an offence to intentionally pick, uproot or destroy them, or to possess or sell them (live or dead), or anything derived them. Penalties for offences under this legislation include fines of up to £5,000 and/or up to six months in prison.

Schedule 8 of the Act is reviewed every 5 years, but currently it includes 185 species or sub-species of vascular plants, bryophytes (mosses, liverworts and hornworts), lichens and stoneworts (see www.jncc.gov.uk for current list), all protected due to their rarity and/or restricted distributions.

Works which could result in uprooting or destruction of plants listed on Schedule 8 of the Act could result in an offence being committed, unless measures are taken to minimise the risk of this occurring. Any inadvertent impacts on Schedule 8 plants despite these mitigation measures being in place, and impacts on other plant species during development works, would be considered an 'incidental result of an otherwise lawful operation' which 'could not reasonably have been avoided' and therefore not an offence.

In practice, the mitigation measures required on the very rare occasions when Schedule 8 plants are affected by development proposals will be determined by the ecological requirements of the species concerned, and any mitigation strategy should be agreed in advance with Natural England or Natural Resources Wales.

THE HEDGEROWS REGULATIONS

In England and Wales the Hedgerows Regulations (1997) as amended confer a level of protection on hedgerows (though hedgerows within or bordering domestic gardens are excluded), particularly those hedgerows classified as 'Important' under the legislation. The Regulations require those wishing to remove hedgerows to submit a Hedgerow Removal Notice to the Local Planning Authority (LPA), which will then determine whether the hedgerow affected is classified as 'Important' under the Regulations. If it is, the LPA will either approve the proposed hedgerow removal, or issue a retention notice. It is an offence to remove or destroy a hedgerow which is subject to a retention notice, or to remove one without a removal notice.

Routine management of hedgerows, removal of hedgerows for development which has been granted planning consent, and certain other situations are allowed under the Regulations, which also specifically exclude hedgerows within or bordering domestic gardens. Determination of whether a hedgerow should be classified as 'Important' is based on a number of criteria including assessment of its likely historic value (e.g. old parish boundary or part of an ancient monument), ecological value (e.g. presence of protected species, and/or diversity of tree/shrub species in the hedgerow), and landscape value (e.g. associated with a public footpath, or being associated with hedgebanks, ditches, hedgerow trees etc).

Ancient and species-rich hedgerows are listed as a priority habitat in the UK Biodiversity Action Plan (2011)

JAPANESE KNOTWEED

Japanese knotweed *Fallopia japonica* is a non-native invasive species listed on Schedule 9 of the Wildlife and Countryside Act 1981 (as amended). This Act states that it is an offence to plant or otherwise cause this species to grow in the wild. Penalties for offences under this legislation include fines of up to £25,000 and/or up to six months in prison.

In addition to this legislation, all parts of the plant and soil contaminated with plant fragments, is classified as contaminated waste under the Environmental Protection Act 1990, and will require a special waste licence and/or waste transfer note under the Environmental Protection (Duty of Care) Regulations 1991 (as amended).

The Environment Agency has produced a 'Code of Practice for the Management, Destruction and Disposal of Japanese Knotweed' (2001), which provides guidance for developers.

HIMALAYAN BALSAM

Himalayan balsam *Impatiens glandulifera* is a non-native invasive species listed on Schedule 9 of the Wildlife and Countryside Act 1981 (as amended). This Act states that it is an offence to plant or otherwise cause this species to grow in the wild. Penalties for offences under this legislation include fines of up to £25,000 and/or up to six months in prison.

Advice on management and control of Himalayan balsam is provided in the Environment Agency's leaflet 'Managing Invasive Non-native Plants' (2010).

APPENDIX B – SUMMARY OF METHODOLOGIES

Desk Study Methodology

Statutory designated sites for nature conservation were identified using the Natural England/DEFRA web-based MAGIC map database (www.MAGIC.gov.uk). International-level sites such as Special Areas of Conservation (SACs) and Special Protection Areas (SPAs) within 10km from the Site were searched for. National-level sites such as National Nature Reserves (NNRs) and Sites of Special Scientific Interest (SSSIs) within 5km of the Site were searched for.

The Lincolnshire Environmental/ Biological Records Centre (LERC) was consulted for records of protected species and species of conservation concern within 2km of the Site as well as details of locally-designated and non-statutory sites for nature conservation within 2km of the Site.

Ordnance Survey maps (1:25,000) and aerial images of the Site were examined online (bing.com/maps and maps.google.co.uk) to allow a better understanding of the context of the Site and its connections to potentially important habitats, known species records and protected sites.

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.

Species of Conservation Concern are defined as those appearing in any of the following; Priority Habitats and Species under Section 41 of the Natural Environment and Rural Communities Act (2006); red or amber-listed birds within the British Trust for Ornithology's Birds of Conservation Concern (2015); and any specific local conservation priority species such as those listed in Red Data Books.

Habitat Survey Methodology

A habitat survey was carried out based on standard field methodology set out in the *Handbook for Phase 1 Habitat Survey* (2010 edition)[5]. The survey was co-ordinated and led by Harry Fox BSc MCIEEM, Principal Ecologist. Harry has 13 years' experience undertaking ecological surveys and has a BSc in ecology. Harry was assisted by the following personnel in completing the Phase 1 surveys:

- Peter Timms BSc MSc MCIEEM – Senior Ecologist
- Henry Sturgess BSc MCIEEM – Senior Ecologist
- Belinda Howell BSc MCIEEM – Senior Ecologist
- Joel Wright BSc MSc MCIEEM – Senior Ecologist
- Mike Hockey BSc ACIEEM – Senior Ecologist
- Charlie Durigan BSc MSc PgCert ACIEEM - Ecologist

Botanical names follow Stace (1997)[6] for higher plants and Edwards (1999)[7] for bryophytes.

Badgers

A search was made for badger *Meles meles* setts, and any sett entrances found were checked for signs of use by badgers or other mammals. Setts were classified into the following categories; Main, Subsidiary, Annexe or Outlying[8]. Sett entrances found were counted and mapped to record tunnel direction and their relative level of usage.

Field signs such as 'snuffle holes' (holes dug by badgers when searching for invertebrates), pathways through vegetation, 'latrines' (small pits in which badgers deposit their faeces) and 'day nests' (nests of bedding material made by badgers for sleeping above ground) were also mapped, if found.

Areas with dense ground cover (hedges, scrub, woodland etc. were examined closely. If impenetrable vegetation prevented entry then the perimeter was examined in order to detect badger paths suggesting a hidden sett within the area. It cannot be guaranteed that all the entrances have been located, especially if a small sett is currently inactive or used seasonally and concealed in an area of thick scrub. Badgers may dig new holes and create new setts in a very short space of time.

Bats

The assessment of the suitability of the site for foraging and roosting bats was based on current guidance set out by the Bat Conservation Trust[9].

The habitats within the sites were appraised for their suitability for use by foraging and commuting bats. In particular, the connectivity of the habitats on site to those lying beyond was taken into account. Vegetated linear features are typically important for many species to navigate around the landscape, while the presence of woodland, scrub, gardens, grassland and wetland features increases a site's foraging resource value to bats. The potential for noise or lighting disturbance which may affect commuting links was also recorded.

---

[5] Nature Conservancy Council. (1990 - 2010 edition). *Handbook for Phase 1 Habitat Survey – A Technique for Environmental Audit*, Joint Nature Conservation Committee

[6] Stace, C. (1997). *New Flora of the British Isles Second Edition*. Cambridge University Press

[7] Edwards, S.R. (1999). *English Names for British Bryophytes*. BBS, Cardiff

[8] Lewns, P., Clarkson, T. & Lewns, D. (2019). *Badger Survey and Mitigation Guidelines (The Mammal Society Mitigation Guidance Series)*. Eds. Fiona Mathews and Paul Chanin. The Mammal Society, London. (*as yet unpublished*)

[9] Collins, J. (ed) (2016) Bat Surveys for Professional Ecologists: Good Practice Guidelines (3rd edn). The Bat Conservation Trust, London. ISBN-13 978-1-872745-96-1.

It was considered impractical to conduct walked evening transect of all option land given their extent. In accordance with best practice guidance, it was elected that baseline data would be most effectively collected through the use of static bat detectors. An elevated number of detectors and deployments compared to that recommended within The Bat Conservation Trusts' Good Practice Guidelines was used in lieu of walked transect surveys. The guidelines also recommend that, "*if the habitat has been classified as having low suitability for bats, an ecologist should make a professional judgment on how to proceed based on all of the evidence available. It may or may not be appropriate for bat activity survey to be carried out in low suitability habitats.*" It was therefore considered that 42 static bat detector locations spread across all option land, installed at field boundaries and surveyed once per month between June and September inclusive, would enable the proportionate collection of an adequate baseline. It was considered impractical to install detectors within the centres of fields on account of ongoing agricultural activities such as crop spraying and harvesting. In any case, these arable habitats are of comparatively the lowest value to bats within the option sites and the field edges were considered the most conducive to bat activity.

Otter

A brief search was made along the banks of water courses and water bodies and their adjacent habitats for otter *Lutra lutra* signs including spraints, tracks, castling, and rolling. The banks of any water courses were searched for the presence or potential for holts or other sheltering areas.

Water Vole

The banks of the water course were searched for water vole *Arvicola amphibius* signs including latrines, burrow entrances, feeding stations, 'runways' and footprints. Surveys and field recording followed the protocol set out within the Water Vole Mitigation Handbook[10]

GCN and Toads

All waterbodies within 250m / 500m of the Sites were identified using Ordnance Survey maps and aerial imagery. Waterbodies within the site ownership were assessed during the field survey for their suitability to support amphibian species where access was possible.

Where suitable water bodies were identified on accessible land a Habitat Suitability Index (HSI) score was calculated for each one following the methodology described by Oldham et al[11]. HSI scores give a relative indication of the likelihood that a water body would support breeding great crested newts. Factors which increase these scores include the presence of other ponds nearby, water quality, pond size, absence of fish/waterfowl, vegetation cover and shading.

Terrestrial habitats were also assessed for their suitability for foraging and sheltering great crested newts. This species requires habitats such as grassland, scrub, woodland and hedgerows for dispersal and hibernation. Further hibernation features include buried rubble and logs, or mammal burrows.

Where eDNA surveys were taken, a standard methodology was followed according to Natural England best practice guidance and ADAS' laboratory requirements, carried out between the period of 15th April and 30th June.

Reptiles

Features on the Sites were assessed for their potential to provide suitable habitats for use by reptile species. These include rough, tussocky grassland, scrub, disturbed land or refugia such as wood piles, rubble or compost heaps. Where present, suitable existing refugia were inspected for sheltering reptiles, and the ground was scanned whilst walking to look for basking species.

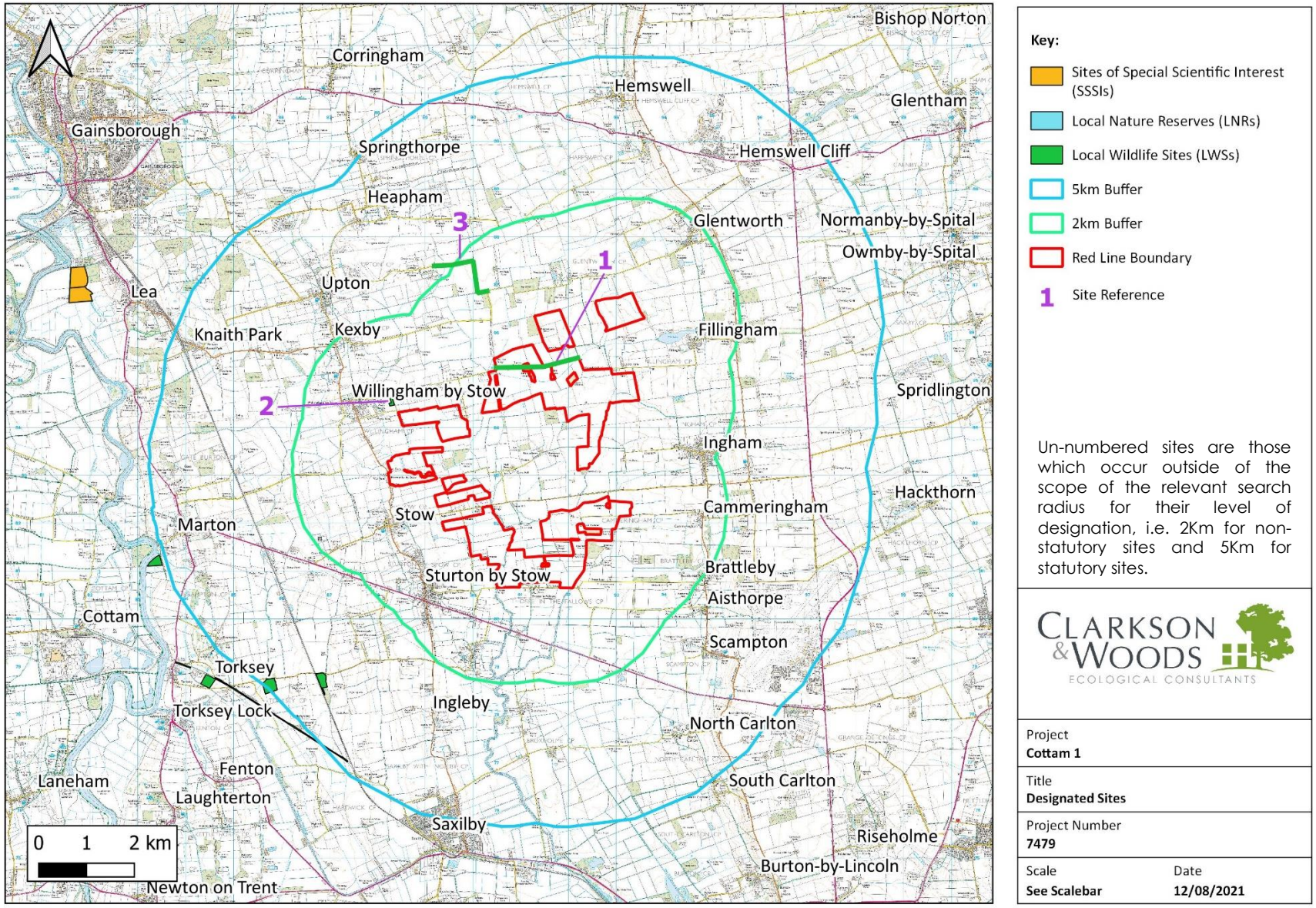
Birds

Any buildings and vegetation were surveyed for signs of use by nesting birds and any birds seen or heard during the survey were noted. The site's potential to support bird species of particular conservation concern (i.e. Schedule 1, NERC S41 and Red List species) was assessed, taking into consideration the bird species assemblage observed during the survey, the habitats present on and around the site, the context of the site in the wider landscape and the results of the desk study.

[10] Dean, M., Strachan, R., Gow, D. and Andrews, R. (2016). *The Water Vole Mitigation Handbook (The Mammal Society Mitigation Guidance Series).* Eds. Fiona Mathews and Paul Chanin. The Mammal Society, London.
[11] Oldham. R.S., Keeble L., Swan M.J.S. & Jeffcote M. (2000). Evaluating the suitability of habitat for the Great Crested Newt (*Triturus cristatus*). Herpetological Journal 10 (4), 143-155.

APPENDIX C – DESIGNATED SITES MAPS

Cottam 1



Key:

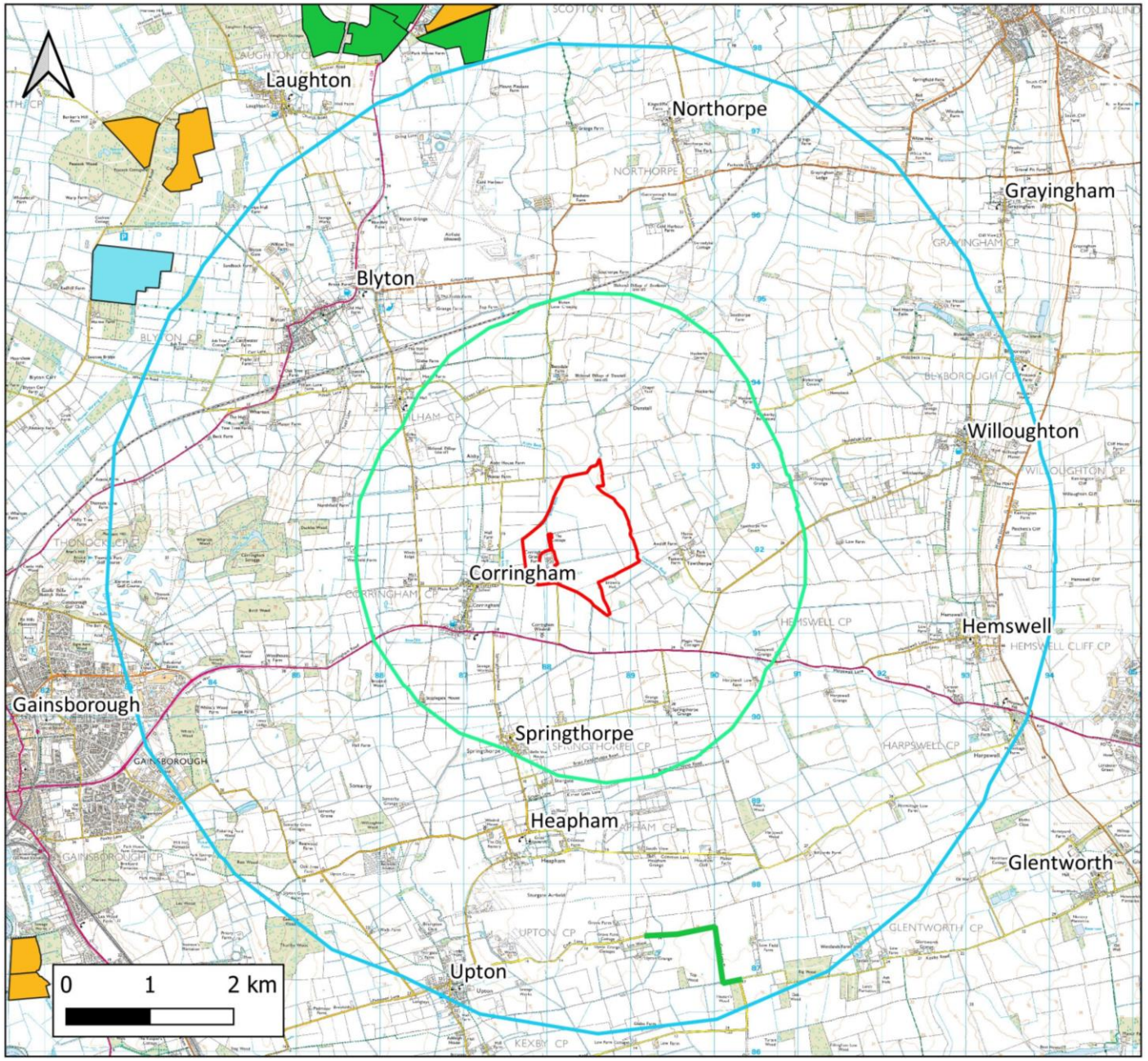
- Sites of Special Scientific Interest (SSSIs)
- Local Nature Reserves (LNRs)
- Local Wildlife Sites (LWSs)
- 5km Buffer
- 2km Buffer
- Red Line Boundary
- 1 Site Reference

Un-numbered sites are those which occur outside of the scope of the relevant search radius for their level of designation, i.e. 2Km for non-statutory sites and 5Km for statutory sites.

CLARKSON & WOODS
ECOLOGICAL CONSULTANTS

Project	**Cottam 1**
Title	**Designated Sites**
Project Number	**7479**
Scale	**See Scalebar**
Date	**12/08/2021**

Cottam 2



Key:

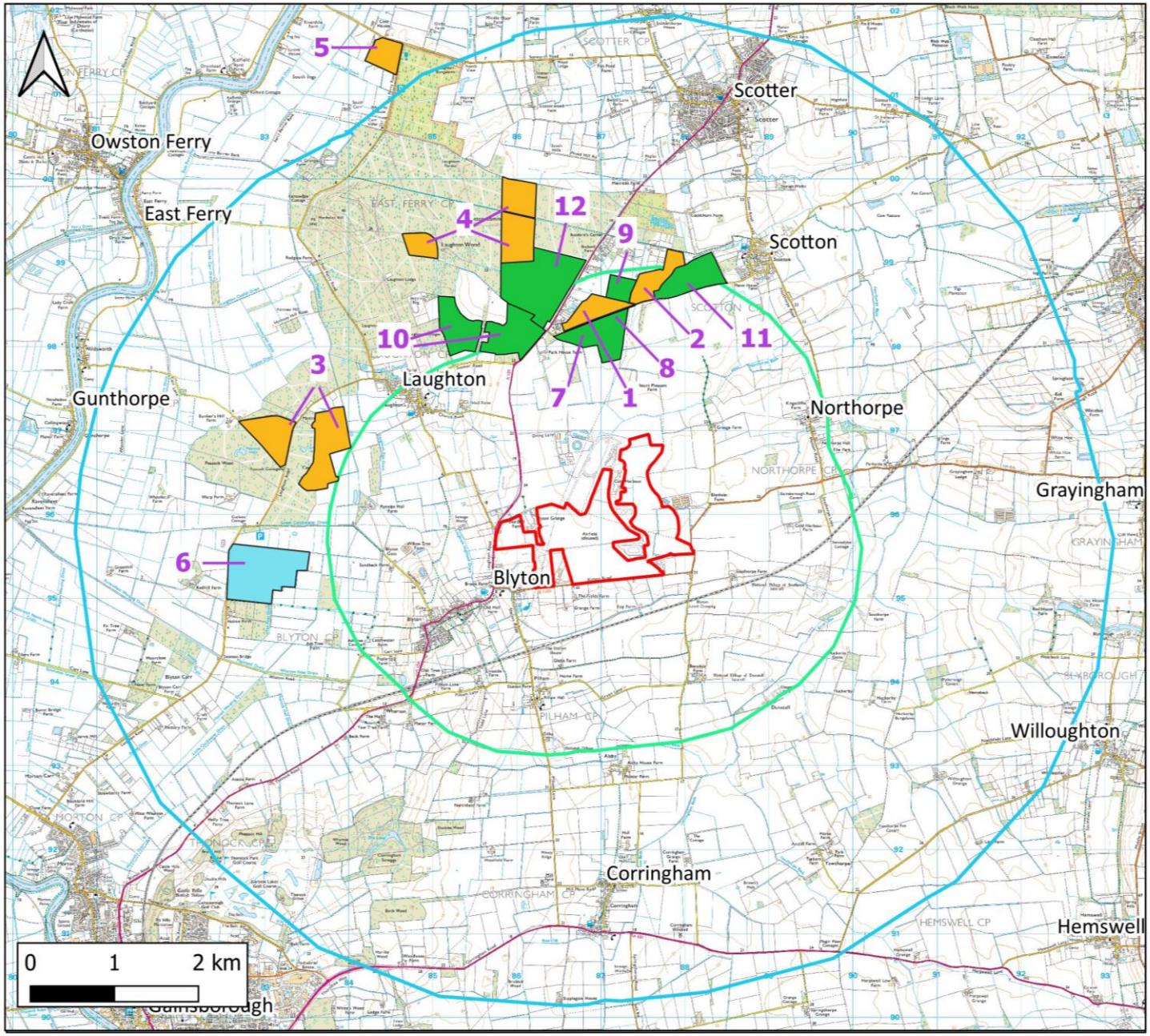
- Sites of Special Scientific Interest (SSSIs)
- Local Nature Reserves (LNRs)
- Local Wildlife Sites (LWSs)
- 5km Buffer
- 2km Buffer
- Red Line Boundary
- 1 Site Reference

Un-numbered sites are those which occur outside of the scope of the relevant search radius for their level of designation, i.e. 2Km for non-statutory sites and 5Km for statutory sites.

CLARKSON & WOODS
ECOLOGICAL CONSULTANTS

Project	**Cottam 2**
Title	**Designated Sites**
Project Number	**7479**
Scale	**See Scalebar**
Date	**12/08/2021**

Cottam 3



Key:

- Sites of Special Scientific Interest (SSSIs)
- Local Nature Reserves (LNRs)
- Local Wildlife Sites (LWSs)
- 5km Buffer
- 2km Buffer
- Red Line Boundary
- 1 Site Reference

Un-numbered sites are those which occur outside of the scope of the relevant search radius for their level of designation, i.e. 2Km for non-statutory sites and 5Km for statutory sites.

CLARKSON & WOODS
ECOLOGICAL CONSULTANTS

Project	**Cottam 3**
Title	**Designated Sites**
Project Number	**7479**
Scale	**See Scalebar**
Date	**12/08/2021**

APPENDIX D – SPECIES RECORDS WITHIN 2KM OF COTTAM 1 (COATES)

Records of Protected and Notable Species Derived from the Desk Study Data Search (LERC)

Group	Scientific Name	Common Name	Records	Location	Date
Amphibians	Bufo bufo	Common Toad	43 records within 2km	All records are located beyond 250m of the site. Closest of which is located ~600m west of the site, with 3 individuals recorded in 2012 (Grid Reference SK876833 - Thorpe Lane Drain, Sturton).	35 records pre 2000 8 records post 2000
Amphibians	Rana temporaria	Common Frog	53 records within 2km	All records are located beyond 250m of the site. Closest records: located 500m west of the site, with two individuals recorded in 1988 (Grid Reference SK8884 - Willingham Stone Pits) Located 515m south-west of the site in 2008 (Grid Reference SK901803 - Sturton by Stow) Located 550m east of the site in 2004 (Grid Ref SK9485 - Fillingham Lake)	40 records pre 2000 13 records post 2000
Amphibians	Triturus cristatus	Great Crested Newt	76 records within 2km	All records are located beyond 250m of the site. Closest of which is located ~475m south-west of the site (Grid Reference SK902803) with up to 56 individuals recorded between 2014 and 2017.	13 records pre 2000 63 records post 2000
Amphibians	Lissotriton helveticus	Palmate Newt	1 record within 2km	Exact location unknown – within 2km of the site.	1 record pre 2000 (1977) 0 records post 2000
Amphibians	Lissotriton vulgaris	Smooth Newt	20 records within 2km	All records are located beyond 250m of the site. Closest of which is located ~550m south-west of the site (Grid Reference SK902802) with up to 4 individuals recorded during botte traps survey between May and June 2008.	9 records pre 2000 11 records post 2000
Reptiles	Zootoca vivipara	Common Lizard	6 records within 2km	Exact location unknown – within 2km of the site.	6 records pre 2000 (1977) 0 records post 2000
Reptiles	Natrix helvetica	Grass Snake	32 records within 2km	All records are located beyond 250m of the site. Closest of which is located ~290m south-west of the site (Grid Reference SK902807, Sturton Drain) in 2008.	28 records pre 2000 (1977) 4 records post 2000
Terrestrial mammal	Arvicola amphibius	European Water Vole	113 records within 2km	12 records (10 dated August 2011 and 2 dated September 2010) are located within the red line boundary all in Coates North. These records are associated with the ditch network present at the site. 19 records are located within 250m of the site (6 records around Coates North, 4 records around Coates West and 9 records around Coates South). Three of these records are located along the River Till corridor and the other records are associated with the ditch network. 82 records are located beyond 250m of the site.	22 records pre 2000 91 records post 2000
Terrestrial mammal	Lepus europaeus	Brown Hare	80 records within 2km	Two records dated 2001 are located within the red line boundary in Coates South. 3 records are located within 250m of the site around Coates South. 75 records are located beyond 250m of the site.	41 records pre 2000 39 records post 2000
Terrestrial mammal	Meles meles	Eurasian Badger	45 records within 2km	18 records are located within the red line boundary and were recorded between 2006 and 2012. Six records are at Coates North and 12 at Coates West. One record is located within 250m of the site around Coates West. 26 records are located beyond 250m of the site.	2 records pre 2000 43 records post 2000
Terrestrial mammal	Lutra lutra	European Otter	37 records within 2km	10 records are located within the red line boundary and were recorded between 1999 and 2009, all in the Coates South area. Two of these records are located along the River Till corridor. 15 records are located within 250m of the site around Coates West and South. Three of these records are located along the River Till corridor. 32 records are located beyond 250m of the site.	16 records pre 2000 21 records post 2000

Terrestrial mammal	Mustela putorius	Polecat	1 record within 2km	Record is located 1.2km south-east of Coates South (Grid Reference SK939810) and is dated 2014.	0 records pre 2000 1 record post 2000 (2014)
Terrestrial mammal	Erinaceus europaeus	West European Hedgehog	136 records within 2km	One record is located within 250m of the site around Coates South (dated 2015). All other records are located beyond 250m of the site. Closest of which is located ~480m east of Coates South (Grid Reference SK937827) in 2015.	41 records pre 2000 95 records post 2000
Bats	Plecotus auritus	Brown Long-eared Bat	16 records within 2km	All records are located beyond 250m of the site. Closest of which is located ~700m west of the site (Grid Reference SK882821) in 2003.	2 records pre 2000 14 records post 2000
Bats	Pipistrellus pipistrellus sensu stricto	Common Pipistrelle	121 records within 2km	Two records are located within 250m of the site around Coates West (dated 2018). All other records are located beyond 250m of the site.	0 records pre 2000 121 records post 2000
Bats	Myotis daubentonii	Daubenton's Bat	1 record within 2km	Record is located 615m east of Coates North (Grid Reference SK940858) and is dated 2007.	0 records pre 2000 1 record post 2000 (2007)
Bats	Myotis nattereri	Natterer's Bat	4 records within 2km	Exact location unknown – within 2km of the site.	0 records pre 2000 4 records post 2000
Bats	Nyctalus noctula	Noctule Bat	4 records within 2km	All records are located beyond 250m of the site. Closest of which is located ~800m west of the site (Grid Reference SK877846) in 2009.	3 records pre 2000 1 record post 2000
Bats	Pipistrellus	Pipistrelle Bat species	22 records within 2km	All records are located beyond 250m of the site. Closest of which is located ~560m east of the site (Grid Reference SK877846) in 2009.	6 records pre 2000 16 records post 2000
Bats	Pipistrellus pygmaeus	Soprano Pipistrelle	1 record within 2km	Record is located 940m east of Coates North (Grid Reference SK945863) and is dated 2015.	0 records pre 2000 1 record post 2000 (2015)
Bats	Unidentified Bat	Unidentified Bat	88 records within 2km	Exact location unknown – within 2km of the site.	20 records pre 2000 68 records post 2000
Birds	Tyto alba	Barn Owl	163 records within 2km	Three records are located within 250m of the site around Coates North and South (dated 2008 and 2016). All other records are located beyond 250m of the site. Closest of which is located ~315m west of Coates South (Grid Reference SK902807) in 2016.	2 records pre 2000 161 records post 2000
Birds	Phoenicurus ochruros	Black Redstart	5 records within 2km	Exact location unknown – within 2km of the site.	1 record pre 2000 4 records post 2000
Birds	Chlidonias niger	Black Tern	1 record within 2km	Exact location unknown – within 2km of the site.	0 records pre 2000 1 record post 2000 (2010)
Birds	Limosa limosa	Black-tailed Godwit	1 record within 2km	Exact location unknown – within 2km of the site.	0 records pre 2000 1 record post 2000 (2009)
Birds	Motacilla flava subsp. flava	Grey Wagtail	2 records within 2km	Exact location unknown – within 2km of the site.	0 records pre 2000 2 records post 2000 (2017)
Birds	Fringilla montifringilla	Brambling	6 records within 2km	Exact location unknown – within 2km of the site.	0 records pre 2000 6 records post 2000
Birds	Loxia curvirostra	Common Crossbill	1 record within 2km	Exact location unknown – within 2km of the site.	0 records pre 2000 1 record post 2000 (2002)
Birds	Emberiza calandra	Corn Bunting	15 records within 2km	Exact location unknown – within 2km of the site.	1 record pre 2000 14 records post 2000
Birds	Crex crex	Corncrake	1 record within 2km	Exact location unknown – within 2km of the site.	0 records pre 2000 1 record post 2000 (2015)
Birds	Cuculus canorus	Cuckoo	6 records within 2km	Exact location unknown – within 2km of the site.	0 records pre 2000 6 records post 2000
Birds	Numenius arquata	Curlew	7 records within 2km	The only known record location is 1.6km west of the site. Exact location unknown for all other records – within 2km of the site.	0 records pre 2000 7 records post 2000

Birds	Anser albifrons subsp. albifrons	European Greater White-fronted Goose	1 record within 2km	Exact location unknown – within 2km of the site.	0 records pre 2000 1 record post 2000 (2015)
Birds	Turdus pilaris	Fieldfare	43 records within 2km	The only known record location is 1.9km west of the site. Exact location unknown for all other records – within 2km of the site.	0 records pre 2000 43 records post 2000
Birds	Oriolus oriolus	Golden Oriole	1 record within 2km	Exact location unknown – within 2km of the site.	0 records pre 2000 1 record post 2000 (2009)
Birds	Bucephala clangula	Goldeneye	1 record within 2km	Exact location unknown – within 2km of the site.	1 record pre 2000 (1997) 0 records post 2000
Birds	Locustella naevia	Grasshopper Warbler	5 records within 2km	Exact location unknown – within 2km of the site.	0 records pre 2000 5 records post 2000
Birds	Tringa nebularia	Greenshank	3 records within 2km	Exact location unknown – within 2km of the site.	0 records pre 2000 3 records post 2000
Birds	Perdix perdix	Grey Partridge	69 records within 2km	All records are located beyond 250m of the site. Closest known location record is ~1.6km east of the site, dated 2017.	2 records pre 2000 67 records post 2000
Birds	Anser anser	Greylag Goose	108 records within 2km	Exact location unknown – within 2km of the site.	35 records pre 2000 73 records post 2000
Birds	Coccothraustes coccothraustes	Hawfinch	2 records within 2km	Exact location unknown – within 2km of the site.	0 records pre 2000 2 records post 2000
Birds	Circus cyaneus	Hen Harrier	5 records within 2km	The only known record location is 1.4km east of the site. Exact location unknown for all other records – within 2km of the site.	0 records pre 2000 5 records post 2000
Birds	Falco subbuteo	Hobby	18 records within 2km	Exact location unknown – within 2km of the site.	0 records pre 2000 18 records post 2000
Birds	Pernis apivorus	Honey-buzzard	2 records within 2km	Exact location unknown – within 2km of the site.	0 records pre 2000 2 records post 2000
Birds	Upupa epops	Hoopoe	1 record within 2km	Exact location unknown – within 2km of the site.	0 records pre 2000 1 record post 2000 (2008)
Birds	Passer domesticus	House Sparrow	94 records within 2km	Two records are located within the red line boundary and were recorded 2009, in the Coates West area. All other records are located beyond 250m of the site.	0 records pre 2000 94 records post 2000
Birds	Alcedo atthis	Kingfisher	33 records within 2km	The only known record location is 1.6km north-west of Coates North in 2014. Exact location unknown for all other records – within 2km of the site.	2 records pre 2000 31 records post 2000
Birds	Vanellus vanellus	Lapwing	42 records within 2km	The only known record locations are 1.5km west of Coates West in 2010 and 1.8km north-west of Coates North in 2014. Exact location unknown for all other records – within 2km of the site.	2 records pre 2000 40 records post 2000
Birds	Acanthis cabaret	Lesser Redpoll	4 records within 2km	Exact location unknown – within 2km of the site.	0 records pre 2000 4 records post 2000
Birds	Linaria cannabina	Linnet	21 records within 2km	The only known record locations are 1.6km west of Coates West in 2010 and 1.7km east of Coates South in 2002. Exact location unknown for all other records – within 2km of the site.	1 record pre 2000 20 records post 2000
Birds	Circus aeruginosus	Marsh Harrier	9 records within 2km	Exact location unknown – within 2km of the site.	0 records pre 2000 9 records post 2000
Birds	Falco columbarius	Merlin	2 records within 2km	Exact location unknown – within 2km of the site.	0 records pre 2000 2 records post 2000 (2015)
Birds	Circus pygargus	Montagu's Harrier	1 record within 2km	Exact location unknown – within 2km of the site.	0 records pre 2000 1 record post 2000 (2018)
Birds	Pandion haliaetus	Osprey	1 record within 2km	Exact location unknown – within 2km of the site.	0 records pre 2000 1 record post 2000 (2004)
Birds	Falco peregrinus	Peregrine	9 records within 2km	Exact location unknown – within 2km of the site.	0 records pre 2000 9 records post 2000

Birds	Anas acuta	Pintail	1 record within 2km	Exact location unknown – within 2km of the site.	0 records pre 2000 1 record post 2000 (2015)
Birds	Coturnix coturnix	Quail	2 records within 2km	Exact location unknown – within 2km of the site.	0 records pre 2000 2 records post 2000 (2012)
Birds	Milvus milvus	Red Kite	6 records within 2km	Exact location unknown – within 2km of the site.	0 records pre 2000 6 records post 2000
Birds	Tringa totanus	Redshank	3 records within 2km	Exact location unknown – within 2km of the site.	0 records pre 2000 3 records post 2000
Birds	Turdus iliacus	Redwing	22 records within 2km	Exact location unknown – within 2km of the site.	0 records pre 2000 22 records post 2000
Birds	Emberiza schoeniclus	Reed Bunting	24 records within 2km	The only record locations are 1.6km west of Coates West in 2010 (Padmoor Drain) and 940m south of Coates South in 2016 (Thorpe Catchwater Drain). Exact location unknown for all other records – within 2km of the site.	0 records pre 2000 24 records post 2000
Birds	Alauda arvensis	Skylark	21 records within 2km	The only record locations are 1.6km west of Coates West in 2010 (Padmoor Drain) and and 1.7km east of Coates South in 2016. Exact location unknown for all other records – within 2km of the site.	1 record pre 2000 20 records post 2000
Birds	Gallinago gallinago	Snipe	6 records within 2km	Exact location unknown – within 2km of the site.	4 records pre 2000 2 records post 2000
Birds	Turdus philomelos	Song Thrush	37 records within 2km	All records are located beyond 250m of the site. Closest of which is located ~745m west of Coates West, in 2009 (Grid Reference SK877844).	0 records pre 2000 37 records post 2000
Birds	Muscicapa striata	Spotted Flycatcher	85 records within 2km	Exact location unknown – within 2km of the site.	0 records pre 2000 85 records post 2000
Birds	Sturnus vulgaris	Starling	90 records within 2km	All records are located beyond 250m of the site. Closest of which is located ~525m west of Coates West, in 2009 (Grid Reference SK888821).	0 records pre 2000 90 records post 2000
Birds	Apus apus	Swift	61 records within 2km	The closest known record location is 790m west of the site in 2012.	0 records pre 2000 61 records post 2000
Birds	Passer montanus	Tree Sparrow	73 records within 2km	Exact location unknown – within 2km of the site.	0 records pre 2000 73 records post 2000
Birds	Streptopelia turtur	Turtle Dove	14 records within 2km	Exact location unknown – within 2km of the site.	2 records pre 2000 12 records post 2000
Birds	Numenius phaeopus	Whimbrel	3 records within 2km	Exact location unknown – within 2km of the site.	0 records pre 2000 3 records post 2000
Birds	Haliaeetus albicilla	White-tailed Eagle	1 record within 2km	Exact location unknown – within 2km of the site.	0 records pre 2000 1 record post 2000 (2005)
Birds	Cygnus cygnus	Whooper Swan	4 records within 2km	Exact location unknown – within 2km of the site.	0 records pre 2000 4 records post 2000
Birds	Motacilla flava	Yellow Wagtail	24 records within 2km	Exact location unknown – within 2km of the site.	0 records pre 2000 24 records post 2000
Birds	Emberiza citrinella	Yellowhammer	35 records within 2km	The closest known record location is 1.3km south-west of the site in 2018.	6 records pre 2000 29 records post 2000
Bony fish (Actinopterygii)	Anguilla anguilla	European Eel	40 records within 2km	23 records are located within 250m of the site around Coates West (22 records) and South (one record), between 1985 and 2014. Most of the records are associated with the River Till. All other records are located beyond 250m of the site.	35 records pre 2000 5 records post 2000
Bony fish (Actinopterygii)	Cobitis taenia	Spined Loach	15 records within 2km	10 records are located within 250m of the site around Coates West between 1985 and 2014. Most of the records are associated with the River Till. All other records are located beyond 250m of the site.	12 records pre 2000 3 records post 2000

Flowering plant	Hyacinthoides non-scripta	Bluebell	41 records within 2km	The closest known record location is 340m north of the site in 2008.	33 records pre 2000 8 records post 2000
Insect - butterfly	Coenonympha pamphilus	Small Heath	6 records within 2km	The closest known record location is 1.5km south-east of the site in 2016.	3 records pre 2000 3 records post 2000
Insect - butterfly	Lasiommata megera	Wall	14 records within 2km	The closest known record location is 560m west of the site in 1996.	11 records pre 2000 3 records post 2000
Insect - butterfly	Satyrium w-album	White-letter Hairstreak	1 record within 2km	Record located 1.4km north of Coates North in 2010 (Grid Reference SK901868).	0 records pre 2000 1 record post 2000 (2010)
Insect - moth	Agrochola lychnidis	Beaded Chestnut	1 record within 2km	Record located 2km south-east of Coates South in 2014 (Grid Reference SK948809).	0 records pre 2000 1 record post 2000 (2014)
Insect - moth	Timandra comae	Blood-vein	5 records within 2km	All records are located 640m west of the site between 2007 and 2010 (Grid Reference SK878844).	0 records pre 2000 5 records post 2000
Insect - moth	Agrochola litura	Brown-spot Pinion	1 record within 2km	Record located 2km south-east of Coates South in 2014 (Grid Reference SK948809).	0 records pre 2000 1 record post 2000 (2014)
Insect - moth	Spilosoma lutea	Buff Ermine	29 records within 2km	28 records are located 640m west of the site between 2007 and 2010 (Grid Reference SK878844).	0 records pre 2000 29 records post 2000
Insect - moth	Atethmia centrago	Centre-barred Sallow	5 records within 2km	All records are located 640m west of the site between 2007 and 2010 (Grid Reference SK878844).	0 records pre 2000 5 records post 2000
Insect - moth	Tyria jacobaeae	Cinnabar	2 records within 2km	All records are located beyond 250m of the site. Closest of which is 640m west of the site in 2010 (Grid Reference SK878844).	0 records pre 2000 2 records post 2000
Insect - moth	Xanthorhoe ferrugata	Dark-barred Twin-spot Carpet	1 record within 2km	Record 640m west of the site in 2010 (Grid Reference SK878844).	0 records pre 2000 1 record post 2000 (2010)
Insect - moth	Melanchra persicariae	Dot Moth	8 records within 2km	7 known location records are located 640m west of the site in 2010 (Grid Reference SK878844).	1 record pre 2000 7 records post 2000
Insect - moth	Graphiphora augur	Double Dart	1 record within 2km	Exact location unknown – within 2km of the site.	1 record pre 2000 (1988) 0 records post 2000
Insect - moth	Ennomos fuscantaria	Dusky Thorn	2 records within 2km	All records are located 640m west of the site in 2007 (Grid Reference SK878844).	0 records pre 2000 2 records post 2000
Insect - moth	Acronicta psi	Grey Dagger	1 record within 2km	Exact location unknown – within 2km of the site.	1 record pre 2000 (1988) 0 records post 2000
Insect - moth	Acronicta rumicis	Knot Grass	1 record within 2km	Record 640m west of the site in 2010 (Grid Reference SK878844).	0 records pre 2000 1 record post 2000 (2010)
Insect - moth	Malacosoma neustria	Lackey	1 record within 2km	Exact location unknown – within 2km of the site.	1 record pre 2000 (1988) 0 records post 2000
Insect - moth	Rhizedra lutosa	Large Wainscot	1 record within 2km	Record located 2km south-east of Coates South in 2014 (Grid Reference SK948809).	0 records pre 2000 1 record post 2000 (2014)
Insect - moth	Caradrina morpheus	Mottled Rustic	4 records within 2km	All records are located 640m west of the site in 2007 (Grid Reference SK878844).	0 records pre 2000 4 records post 2000
Insect - moth	Amphipyra tragopoginis	Mouse Moth	1 record within 2km	Record 640m west of the site in 2007 (Grid Reference SK878844).	0 records pre 2000 1 record post 2000 (2007)
Insect - moth	Hydraecia micacea	Rosy Rustic	7 records within 2km	All records are located 640m west of the site between 2007 and 2010 (Grid Reference SK878844).	0 records pre 2000 7 records post 2000
Insect - moth	Hydraecia micacea	Rustic	11 records within 2km	All records are located 640m west of the site between 2007 and 2010 (Grid Reference SK878844).	0 records pre 2000 11 records post 2000
Insect - moth	Cirrhia icteritia	Sallow	1 record within 2km	Record located 2km south-east of Coates South in 2014 (Grid Reference SK948809).	0 records pre 2000 1 record post 2000 (2014)
Insect - moth	Leucania comma	Shoulder-striped Wainscot	3 records within 2km	All records are located 640m west of the site in 2010 (Grid Reference SK878844).	0 records pre 2000 3 records post 2000 (2010)
Insect - moth	Diarsia rubi	Small Square-spot	2 records within 2km	All records are located 640m west of the site in 2007 (Grid Reference SK878844).	0 records pre 2000

					2 records post 2000 (2007)
Insect - moth	Spilosoma lubricipeda	White Ermine	10 records within 2km	All records are located 640m west of the site between 2007 and 2010 (Grid Reference SK878844).	0 records pre 2000 10 records post 2000

APPENDIX E – SPECIES RECORDS WITHIN 2KM OF COTTAM 2 (CORRINGHAM)

Records of Protected and Notable Species Derived from the Desk Study Data Search (LERC)

Group	Scientific Name	Common Name	Records	Location	Date
Terrestrial mammal	Arvicola amphibius	European Water Vole	14 records within 2km	Six records are located within the red line boundary of the site, with two in the north east area; two separate individuals recorded in 2011 (grid ref SK887926), and four records in the north west area from 2002 (grid ref SK880924). Two records are located within 250m of the site to the north east. Both records are individuals identified through field observations in 2002 (grid ref SK878924).	2 records pre 2000 12 records post 2000
Terrestrial mammal	Lepus europaeus	Brown Hare	31 records within 2km	All records are located beyond 250m of the site. Closest being ~600m south of the site, with field observations in 2006 (grid ref SK892911).	18 records pre 2000 13 records post 2000
Terrestrial mammal	Meles meles	Eurasian Badger	8 records within 2km	All records are located beyond 250m of the site. The closest being ~1.7km south east of the site, with an observation recorded in 2019 (roadkill) (grid ref SK897907).	No records pre 2000 8 records post 2000
Terrestrial mammal	Erinaceus europaeus	West European Hedgehog	32 records within 2km	All records are located beyond 250m from the site. The closest being ~1km west of the site (Grid ref SK869916) with two records (one field observation, one roadkill) in 2009.	18 records pre 2000 14 records post 2000
Bats	Pipistrellus sp.	Pipistrelle Bat species	2 records within 2km	All records are located beyond 250m of the site. Closest of which is located ~1.8km south west of the site (Grid Reference SK870909) in 2011.	No records pre 2000 2 records post 2000
Bats	Pipistrellus pipistrellus	Common Pipistrelle	5 records within 2km	All records are located beyond 250m of the site. Closest located ~1.1km south west of the site, with a field observation of an individual in 2011 (grid ref SK873916).	No records pre 2000 5 records post 2000
Bats	Plecotus auritus	Brown Long-eared	5 records within 2km	All records are located beyond 250m of the site. Closest located ~1.8km south west of the site with four records from 2005 to 2011 (grid ref SK870909).	No records pre 2000 5 records post 2000
Birds	Tyto alba	Barn Owl	11 records within 2km	Two records were found within the red line boundary of the site, to the north west area. Two field observations were recorded in 2011 (grid ref SK880924).	1 records pre 2000 10 records post 2000
Birds	Pyrrhula pyrrhula	Bullfinch	14 records within 2km	All records located beyond 250m of the site. Closest being ~1.2km west of the site, as a field observation in 2018. Grid ref SK853964.	4 records pre 2000 10 records post 2000 (2017)
Birds	Cuculus canorus	Cuckoo	4 records within 2km	All records are located beyond 250m of the site. Closest being ~1.5km north west of the site, with six records of field observations between 1998 and 2013 (grid ref SK872929).	1 records pre 2000 3 records post 2000
Birds	Numenius arquata	Curlew	15 records within 2km	All records are located beyond 250m of the site. Closest being ~600m south of the site, with two records in 2006 (grid ref SK889909).	No records pre 2000 15 records post 2000
Birds	Turdus pilaris	Fieldfare	12 records within 2km	All records are located beyond 250m of the site. Closest being six records of individuals 1.5km north west of the site between 1998 and 2014 (grid ref SK872929).	2 records pre 2000 10 records post 2000
Birds	Perdix perdix	Grey Partridge	29 records within 2km	All records are located beyond 250m of the site. Closest known location record is ~600m south of the site, dated 2006. (grid ref SK889909).	No records pre 2000 29 records post 2000
Birds	Anser anser	Greylag goose	17 records within 2km	All records are located beyond 250m of the site. Closest being two records of individuals 1.5km north west of the site in 2013 (grid ref SK872929).	No records pre 2000 17 records post 2000
Birds	Falco subbuteo	Hobby	11 records within 2km	All records are located beyond 250m of the site. Closest being six records of individuals 1.5km north west of the site in 1998 (grid ref SK872929).	6 records pre 2000 5 records post 2000
Birds	Passer domesticus	House Sparrow	18 records within 2km	All records are located beyond 250m of the site. Closest known location record is ~600m south of the site for two individual sightings, dated 2006. (grid ref SK889909).	No records pre 2000 18 records post 2000
Birds	Alcedo atthis	Kingfisher	10 records within 2km	All records are located beyond 250m of the site. Closest being two records of individuals 1.5km north west of the site in 1998 (grid ref SK872929).	2 records pre 2000 8 records post 2000

Birds	Vanellus vanellus	Lapwing	45 records within 2km	Four records were found within the red line boundary of the site, to the north west area. Four field observations were recorded in 2002 (grid ref SK880924).	4 records pre 2000 41 records post 2000
Birds	Linaria cannabina	Linnet	10 records within 2km	All records are located beyond 250m of the site. Closest being ~1.6km west of the site, with a single field observation in 2013 (grid ref SK872929).	2 records pre 2000 8 records post 2000
Birds	Milvus milvus	Red kite	17 records within 2km	All records are located beyond 250m of the site. Closest being 16 records of individuals 1.5km north west of the site in 2013-2014 (grid ref SK872929).	No records pre 2000 17 records post 2000
Birds	Turdus iliacus	Redwing	2 records within 2km	All records are located beyond 250m of the site. Closest being two records of individuals 1.5km north west of the site in 1998 (grid ref SK872929).	2 records pre 2000 No records post 2000
Birds	Alauda arvensis	Skylark	18 records within 2km	Four records were found within the red line boundary of the site, to the north west area. Four field observations were recorded in 2002 (grid ref SK880924).	2 records pre 2000 18 records post 2000
Birds	Turdus philomelos	Song Thrush	8 records within 2km	All records are located beyond 250m of the site. Closest being ~1.5km north of site, with four individuals identified in 2012 (grid ref SK872929).	No records pre 2000 8 records post 2000
Birds	Sturnus vulgaris	Starling	17 records within 2km	All records are located beyond 250m of the site. Closest being ~1.1km west of the site, with a field observation in 2003 (grid ref SK871915).	No records pre 2000 17 records post 2000
Birds	Apus apus	Swift	4 records within 2km	All records are located beyond 250m of the site. Closest being ~1km west of the site, with a field observation in 2019 (grid ref SK873916).	No records pre 2000 4 records post 2000
Birds	Passer montanus	Tree Sparrow	29 records within 2km	All records are located beyond 250m of the site. Closest being ~1.6km north west of the site, with four records (two in 1983, two in 2013) (grid ref SK872929).	2 records pre 2000 27 records post 2000
Birds	Emberiza citrinella	Yellowhammer	15 records within 2km	All records are located beyond 250m of the site. Closest being ~800m north of the site, with 2 breeding individuals observed in 2009 (grid ref SK878931).	4 records pre 2000 11 records post 2000
Flowering plant	Hyacinthoides non-scripta	Bluebell	5 records within 2km	All records are located beyond 250m of the site. Closest being ~900m west of the site, observed in a field in 1989 (grid ref SK873916).	2 records pre 2000 3 records post 2000

APPENDIX F – SPECIES RECORDS WITHIN 2KM OF COTTAM 3 (BLYTON)

Records of Protected and Notable Species Derived from the Desk Study Data Search (LERC)

Group	Scientific Name	Common Name	Records	Location	Date
Amphibians	Bufo bufo	Common Toad	36 records within 2km	All records are located beyond 250m of the site. Closest of which is located ~500m west of the site buffer, with one individual recorded in 2007 (Grid Reference SK867968).	31 records pre 2000 5 records post 2000
Amphibians	Rana temporaria	Common Frog	34 records within 2km	All records are located beyond 250m of the site. Closest of which is located ~750m west of the site buffer, with one individual recorded in 2007 (Grid Reference SK867968).	30 records pre 2000 4 records post 2000
Reptiles	Zootoca vivipara	Common Lizard	35 records within 2km	All records are located beyond 250m of the site. Closest of which is located ~2km north of the site buffer, with 17 individuals observed in a field (Grid ref. SK8798) in 1995.	25 records pre 2000 (1977) 10 records post 2000
Reptiles	Vipera berus	Adder	39 records within 2km	All records are located beyond 250m of the site. Closest of which is located ~1.8km north of the site buffer, with 17 individuals observed in a field (Grid ref. SK8798) in 1995.	26 records pre 2000 13 records post 2000
Reptiles	Natrix helvetica	Grass Snake	14 records within 2km	All records are located beyond 250m of the site. Closest of which is located ~2km north of the site buffer in 2018, with 3 individuals observed in a field (Grid ref. SK869984).	10 records pre 2000 (1977) 4 records post 2000
Terrestrial mammal	Arvicola amphibius	European Water Vole	31 records within 2km	All records are located beyond 250m of the site. Closest of which is located ~250m west of the site, with a field observation of individuals in 2003 and in 2013.	11 records pre 2000 20 records post 2000
Terrestrial mammal	Lepus europaeus	Brown Hare	44 records within 2km	All records are located beyond 250m of the site. Closest being ~400m north west of the site, with a field observation of one individual in 2003.	33 records pre 2000 11 records post 2000
Terrestrial mammal	Meles meles	Eurasian Badger	11 records within 2km	All records are located beyond 250m of the site. The closest being ~500m south east of the site, with a field observation recorded in 2003.	1 records pre 2000 10 records post 2000
Terrestrial mammal	Lutra lutra	European Otter	4 records within 2km	All records are located beyond 250m of the site. The closest being ~2km west of the site, with a field observation recorded in 1995.	4 records pre 2000 No records post 2000
Terrestrial mammal	Micromys minutus	Harvest mouse	6 records within 2km	All records are located beyond 250m of the site. Closest is one record located 1.6km north of the site (Grid Reference SK873985) in 2019 (deceased).	4 records pre 2000 2 records post 2000 (2014)
Terrestrial mammal	Erinaceus europaeus	West European Hedgehog	57 records within 2km	All records are located beyond 250m from the site. The closest being ~600m north west of the site (Grid ref SK8797) with one record (field observation) in 2003.	29 records pre 2000 28 records post 2000
Bats	Nyctalus noctula	Noctule Bat	4 records within 2km	All records are located beyond 250m of the site. Closest of which is located ~700m north west of the site (Grid Reference SK867968) in 2003.	1 records pre 2000 3 record post 2000
Bats	Pipistrellus	Pipistrelle Bat species	7 records within 2km	All records are located beyond 250m of the site. Closest of which is located ~1.4km north of the site (Grid Reference SK872977) in 2003.	3 records pre 2000 4 records post 2000
Birds	Tyto alba	Barn Owl	43 records within 2km	All records are located beyond 250m of the site. The closest being five records of field observations between 1998 and 2009, ~2km north of the site.	5 records pre 2000 38 records post 2000
Birds	Pyrrhula pyrrhula	Bullfinch	70 records within 2km	All records located beyond 250m of the site. Closest being ~1.2km west of the site, as a field observation in 2018. Grid ref SK853964.	16 records pre 2000 54 records post 2000 (2017)
Birds	Cuculus canorus	Cuckoo	102 records within 2km	One record is found within the 250m buffer, to the north of the site as a field observation in 2003 (grid ref SK871968). The rest are more than 250m from the site, with the closest being ~1.8km north of the site in 2009.	76 records pre 2000 26 records post 2000
Birds	Accipiter gentilis	Goshawk	2 records within 2km	All records are located beyond 250m of the site. Closest being two records in 1996 and 1999 respectively, with individuals observed in a field ~1.9km north of the site (grid ref SK871982).	2 records pre 2000 2 record post 2000 (2009)
Birds	Perdix perdix	Grey Partridge	51 records within 2km	All records are located beyond 250m of the site. Closest known location record is ~600m north east of the site, dated 2003. (grid ref SK867968).	10 records pre 2000 41 records post 2000
Birds	Passer domesticus	House Sparrow	84 records within 2km	All records are located beyond 250m of the site. Closest being ~500m south east of the site, with one field observation of four breeding individuals in 2003 (grid ref SK859953).	3 records pre 2000 26 records post 2000
Birds	Vanellus vanellus	Lapwing	66 records within 2km	All records are located beyond 250m of the site. Closest being ~600m north of the site, with a single field observation in 2009 (grid ref SK869970).	33 records pre 2000 33 records post 2000

Birds	Linaria cannabina	Linnet	48 records within 2km	All records are located beyond 250m of the site. Closest being ~600m north of the site, with a single field observation in 2003 (grid ref SK869970).	10 records pre 2000 38 records post 2000
Birds	Caprimulgus europaeus	Nightjar	182 records within 2km	All records are located beyond 250m of the site. Closest being ~1.8km north of the site, with 27 observations between 1971 and 2004 (grid ref SK871982).	49 records pre 2000 133 records post 2000
Birds	Emberiza schoeniclus	Reed Bunting	23 records within 2km	All records are located beyond 250m of the site. Closest being ~600m north of the site, with field observations of individuals in 2003 (grid ref SK869970).	7 records pre 2000 16 records post 2000
Birds	Alauda arvensis	Skylark	71 records within 2km	All records are located beyond 250m of the site. Closest being ~600m north of the site, with two breeding individuals observed in 2003 (grid ref SK869970).	12 records pre 2000 59 records post 2000
Birds	Turdus philomelos	Song Thrush	56 records within 2km	All records are located beyond 250m of the site. Closest being ~550m north of site, with four breeding individuals identified in 2003 (grid ref SK869970).	21 records pre 2000 35 records post 2000
Birds	Sturnus vulgaris	Starling	59 records within 2km	All records are located beyond 250m of the site. Closest being ~600m north of the site, with two breeding individuals observed in 2003 (grid ref SK869970).	25 records pre 2000 34 records post 2000
Birds	Apus apus	Swift	25 records within 2km	All records are located beyond 250m of the site. Closest being ~1.3km south east of the site, with two breeding individuals observed in 2003 (grid ref SK852948).	7 records pre 2000 18 records post 2000
Birds	Passer montanus	Tree Sparrow	50 records within 2km	All records are located beyond 250m of the site. Closest being ~600m north of the site, with breeding individuals observed in 2003 (grid ref SK869970).	17 records pre 2000 33 records post 2000
Birds	Motacilla flava	Yellow Wagtail	15 records within 2km	All records are located beyond 250m of the site. Closest being ~600m north of the site, with multiple breeding individuals observed in 2003 (grid ref SK869970).	3 records pre 2000 12 records post 2000
Birds	Emberiza citrinella	Yellowhammer	80 records within 2km	All records are located beyond 250m of the site. Closest being ~600m north of the site, with 6 breeding individuals observed in 2003 (grid ref SK869970).	32 records pre 2000 48 records post 2000
Bony Fish	Barbus barbus	Barbel	1 records within 2km	All records are located beyond 250m of the site. Closest being ~700m north west of the site, with a field observation of an individual in 2007 (grid ref SK867968).	No records pre 2000 1 records post 2000
Bony Fish	Anguilla anguilla	European Eel	1 records within 2km	All records are located beyond 250m of the site. Closest being ~1km west of the site, seen in a highland drain in 2010 (grid ref SK852958).	No records pre 2000 1 records post 2000
Insect (beetle)	Cryptocephalus coryli	Hazel Pot Beetle	3 records within 2km	All records are located beyond 250m of the site. Closest being ~2km north of the site, photographed in a field in 2015 (grid ref SK871980).	No records pre 2000 3 records post 2000
Insect (butterfly)	Lasiommata megera	Wall	105 records within 2km	All records are located beyond 250m of the site. Closest being ~550m north of site, with individuals identified in 2003 (grid ref SK869970).	96 records pre 2000 18 records post 2000
Insect (moth)	Acronicta psi	Grey Dagger	10 records within 2km	All records are located beyond 250m of the site. Closest being ~1.9km north of site, with individuals identified in a light trap from 1990 to 2010 (grid ref SK871980).	7 records pre 2000 3 records post 2000
Insect (moth)	Cirrhia icteritia	Sallow	8 records within 2km	All records are located beyond 250m of the site. Closest being ~1.9km north of site, with one individual identified in a light trap in 2010 (grid ref SK871980).	4 records pre 2000 4 records post 2000
Insect (moth)	Scotopteryx chenopodiata	Shaded Broad-bar	7 records within 2km	All records are located beyond 250m of the site. Closest being ~1.9km north of site, with individuals identified in a light trap in 2010 (grid ref SK871980).	3 records pre 2000 4 records post 2000

APPENDIX G: LOCAL PLANNING POLICY

Policy Reference	Key Policy Text
Central Lincolnshire Local Plan (Adopted April 2017)	
Policy LP19: Renewable Energy Proposals	Proposals for non-wind renewable technology will be assessed on their merits, with the impacts, both individual and cumulative, considered against the benefits of the scheme, taking account of the following: The surrounding landscape and townscape; • Heritage assets; • Ecology and diversity; • Residential and visual amenity; • Safety, including ensuring no adverse highway impact; • MoD operations, including having no unacceptable impact on the operation of aircraft • movement or operational radar; and • Agricultural Land Classification (including a presumption against photovoltaic solar farm proposals on the best and most versatile agricultural land). Proposals will be supported where the benefit of the development outweighs the harm caused and it is demonstrated that any harm will be mitigated as far as is reasonably possible. Renewable energy proposals which will directly benefit a local community, have the support of the local community and / or are targeted at residents experiencing fuel poverty, will be particularly supported.
Policy LP20: Green Infrastructure Network	The Central Lincolnshire Authorities will aim to maintain and improve the green infrastructure network in Central Lincolnshire by enhancing, creating and managing multifunctional green space within and around settlements that are well connected to each other and the wider countryside. Development proposals which are consistent with and help deliver the opportunities, priorities and initiatives identified in the latest Central Lincolnshire Green Infrastructure Study and Biodiversity Opportunity Mapping Study, will be supported. Proposals that cause loss or harm to this network will not be permitted unless the need for and benefits of the development demonstrably outweigh any adverse impacts. Where adverse impacts on green infrastructure are unavoidable, development will only be permitted if suitable mitigation measures for the network are provided. Development proposals should ensure that existing and new green infrastructure is considered and integrated into the scheme design from the outset. Where new green infrastructure is proposed, the design should maximise the delivery of ecosystem services and support healthy and active lifestyles. Development proposals must protect the linear features of the green infrastructure network that provide connectivity between green infrastructure assets, including public rights of way, bridleways, cycleways and waterways, and take opportunities to improve such features. Development will be expected to make contributions proportionate to their scale towards the establishment, enhancement and on-going management of green infrastructure by contributing to the development of the strategic green infrastructure network within Central Lincolnshire, in line with guidance set out in LP12.
Policy LP21: Biodiversity and Geodiversity	All development should: • protect, manage and enhance the network of habitats, species and sites of international, national and local importance (statutory and non-statutory), including sites that meet the criteria for selection as a Local Site; • minimise impacts on biodiversity and geodiversity; and • seek to deliver a net gain in biodiversity and geodiversity. Development proposals that will have an adverse impact on a European Site or cause significant harm to a Site of Special Scientific Interest, located within or outside Central Lincolnshire, will not be permitted, in accordance with the NPPF.

Policy Reference	Key Policy Text
	Planning permission will be refused for development resulting in the loss, deterioration or fragmentation of irreplaceable habitats, including ancient woodland and aged or veteran trees, unless the need for, and benefits of, the development in that location clearly outweigh the loss or harm. Proposals for major development should adopt an ecosystem services approach, and for large scale major development schemes (such as Sustainable Urban Extensions) also a landscape scale approach, to biodiversity and geodiversity protection and enhancement identified in the Central Lincolnshire Biodiversity Opportunity Mapping Study. Development proposals should create new habitats, and links between habitats, in line with Biodiversity Opportunity Mapping evidence to maintain a network of wildlife sites and corridors to minimise habitat fragmentation and provide opportunities for species to respond and adapt to climate change. Development should seek to preserve, restore and re-create priority habitats, ecological networks and the protection and recovery of priority species set out in the Lincolnshire Biodiversity Action Plan and Geodiversity Action Plan. Where development is within a Nature Improvement Area (NIA), it should contribute to the aims and aspirations of the NIA. Development proposals should ensure opportunities are taken to retain, protect and enhance biodiversity and geodiversity features proportionate to their scale, through site layout, design of new buildings and proposals for existing buildings. Mitigation Any development which could have an adverse effect on sites with designated features and / or protected species, either individually or cumulatively, will require an assessment as required by the relevant legislation or national planning guidance. Where any potential adverse effects to the biodiversity or geodiversity value of designated sites are identified, the proposal will not normally be permitted. Development proposals will only be supported if the benefits of the development clearly outweigh the harm to the habitat and/or species. In exceptional circumstances, where adverse impacts are demonstrated to be unavoidable, developers will be required to ensure that impacts are appropriately mitigated, with compensation measures towards loss of habitat used only as a last resort where there is no alternative. Where any mitigation and compensation measures are required, they should be in place before development activities start that may disturb protected or important habitats and species.
Policy LP22: Green Wedges	Green Wedges, as identified on the Policies Map, have been identified to fulfil one or more of the following functions and policy aims: • Prevention of the physical merging of settlements, preserving their separate identity, local character and historic character; • Creation of a multi-functional 'green lung' to offer communities a direct and continuous link to the open countryside beyond the urban area; • Provision of an accessible recreational resource, with both formal and informal opportunities, close to where people live, where public access is maximised without compromising the integrity of the Green Wedge; • Conservation and enhancement of local wildlife and protection of links between wildlife sites to support wildlife corridors. Within the Green Wedges planning permission will not be granted for any form of development, including changes of use, unless: a) it can be demonstrated that the development is not contrary or detrimental to the above functions and aims; or b) it is essential for the proposed development to be located within the Green Wedge, and the benefits of which override the potential impact on the Green Wedge. Development proposals within a Green Wedge will be expected to have regard to: c) the need to retain the open and undeveloped character of the Green Wedge, physical separation between settlements, historic environment character and green infrastructure value;

Policy Reference	Key Policy Text
	d) the maintenance and enhancement of the network of footpaths, cycleways and bridleways, and their links to the countryside, to retain and enhance public access, where appropriate to the role and function of the Green Wedge; e) opportunities to improve the quality and function of green infrastructure within the Green Wedge with regard to the Central Lincolnshire Green Infrastructure network and Biodiversity Opportunity Mapping. Development proposals adjacent to the Green Wedges will be expected to demonstrate that: f) they do not adversely impact on the function of the Green Wedge, taking into account scale, siting, design, materials and landscape treatment; g) They have considered linkages to and enhancements of the adjacent Green Wedge.
Policy LP23: Local Green Space and other Important Open Space	An area identified as a Local Green Space on the Policies Map will be protected from development in line with the NPPF, which rules out development on these sites other than in very special circumstances. An area identified as an Important Open Space on the Policies Map is safeguarded from development unless it can be demonstrated that: a) In the case of publicly accessible open space, there is an identified over provision of that particular type of open space in the community area and the site is not required for alternative recreational uses or suitable alternative open space can be provided on a replacement site or by enhancing existing open space serving the community area; and b) In the case of all Important Open Spaces, there are no significant detrimental impacts on the character and appearance of the surrounding area, ecology and any heritage assets.
Central Lincolnshire Local Plan Review – Consultation Draft (June 2021)	
Policy S13: Renewable Energy	The Central Lincolnshire Joint Strategic Planning Committee is committed to supporting the transition to a net zero carbon future and will seek to maximise appropriately located renewable energy generated in Central Lincolnshire (such energy likely being wind and solar based). Proposals for renewable energy schemes, including ancillary development, will be supported where the direct, indirect, individual and cumulative impacts on the following considerations are,or will be made, acceptable: i. As a result of its scale, siting or design, the impacts on the following issues are satisfactorily addressed: landscape character; visual amenity; biodiversity; geodiversity; flood risk; townscape; historic assets; and highway safety… Testing compliance with part (i) above will be via applicable policies elsewhere in a development plan document for the area (i.e. this Local Plan; a Neighbourhood Plan, if one exists; any applicable policies in a Minerals or Waste Local Plan; and any further guidance set out in a Supplementary Planning Document). For all matters in (i)-(iii), the applicable local planning authority may commission its own independent assessment of the proposals, to ensure it is satisfied what the degree of harm may be and whether reasonable mitigation opportunities are being taken. Where significant adverse effects are concluded by the local planning authority following consideration of the above assessment(s), such effects will be weighed against the wider environmental, economic, social and community benefits provided by the proposal. In this regard, and as part of the planning balance, significant additional weight in favour of the proposal will arise for any proposal which is community-led for the benefit of that community. In areas that have been designated for their national importance, as identified in the National Planning Policy Framework, renewable energy infrastructure will only be permitted where it can be demonstrated that it would be appropriate in scale, located in areas that do not contribute positively to the objectives of the designation, is sympathetically designed and includes any necessary mitigation measures. Additional matters for solar based energy proposals Proposals for solar thermal or photovoltaics panels to be installed on existing property will be under a presumption in favour of permission unless there is clear and demonstrable significant harm arising. Proposals for ground based photovoltaics, including commercial large scale proposals, will be under a presumption in favour unless: • there is clear and demonstrable significant harm arising; or

Policy Reference	Key Policy Text
	• the proposal is (following a site specific soil assessment) to take place on Best and Most Versatile (BMV) agricultural land, unless such land is peat based and the proposal is part of a wider scheme to protect or enhance the carbon sink of such land; or • the land is allocated for another purpose in this Local Plan or other statutory based document (such as a nature recovery strategy or a Local Transport Plan), and the proposal is not compatible with such other allocation. Decommissioning renewable energy infrastructure Permitted proposals will be subject to a condition that will require the facility to be removed and the site fully restored to its original condition (or as near as reasonably practical to its original condition) within one year of that facility becoming non-operational.
Policy S58: Green Infrastructure Network	The Central Lincolnshire Authorities will safeguard green infrastructure in Central Lincolnshire from inappropriate development and work actively with partners to maintain and improve the quantity, quality, accessibility and management of the green infrastructure network. Proposals that cause loss or harm to the green infrastructure network will not be supported unless the need for and benefits of the development demonstrably outweigh any adverse impacts. Where adverse impacts on green infrastructure are unavoidable, development will only be supported if suitable mitigation measures for the network are provided. Development proposals should ensure that existing and new green infrastructure is considered and integrated into the scheme design from the outset. Where new green infrastructure is proposed, the design and layout should take opportunities to incorporate a range of green infrastructure to maximise the delivery of multi-functionality and ecosystem services, support climate change adaptation and encourage healthy and active lifestyles. Development proposals must protect the linear features of the green infrastructure network that provide connectivity between green infrastructure assets, including public rights of way, bridleways, cycleways and waterways, and take opportunities to improve and expand such features. Development will be expected to make a contribution proportionate to their scale towards the establishment, enhancement and on-going management of green infrastructure by contributing to the development of the strategic green infrastructure network within Central Lincolnshire, in accordance with the Developer Contributions SPD.
Policy S59: Protecting Biodiversity and Geodiversity	All development should: a) protect, manage and enhance the ecological network of habitats, species and sites of international, national and local importance (statutory and non-statutory), including sites that meet the criteria for selection as a Local Site; b) minimise impacts on biodiversity and features of geodiversity value; c) deliver measurable and proportionate net gains in biodiversity; and d) protect and enhance the aquatic environment within or adjoining the site, including water quality and habitat. Part One: Designated Sites The following hierarchy of sites will apply in the consideration of development proposals: 1. International Sites The highest level of protection will be afforded to internationally protected sites. Development proposals that will have an adverse impact on the integrity of such areas, will not be supported other than in exceptional circumstances, in accordance with the NPPF. Development proposals that are likely to result in a significant adverse effect, either alone or in combination, on any internationally designated site, must satisfy the requirements of the Habitats Regulations (or any superseding similar UK legislation). Development requiring Appropriate Assessment will only be allowed where it can be determined, taking into account mitigation, that the proposal would not result in significant adverse effects on the site's integrity. 2. National Sites (NNRs and SSSIs as shown on the Policies Map)

Policy Reference	Key Policy Text
	Development proposals should avoid impact on these nationally protected sites. Development proposals within or outside a national site, likely to have an adverse effect, either individually or in combination with other developments, will not normally be supported unless the benefits of the development, at this site clearly outweigh both the adverse impacts on the features of the site and any adverse impacts on the wider network of nationally protected sites. 3. Irreplaceable Habitats Planning permission will be refused for development resulting in the loss, deterioration or fragmentation of irreplaceable habitats, including ancient woodland and aged or veteran trees, unless there are wholly exceptional reasons and a suitable compensation strategy will be delivered. 4. Local Sites (LNR, LWS and LGS as shown on the Policies Map) Development likely to have an adverse effect on locally designated sites, their features or their function as part of the ecological network, will only be supported where the need and benefits of the development clearly outweigh the loss, and the coherence of the local ecological network is maintained. Where significant harm cannot be avoided, the mitigation hierarchy should be followed. Part Two: Species and Habitats of Principal Importance All development proposals will be considered in the context of the relevant Local Authority's duty to promote the protection and recovery of priority species and habitats. Development should seek to preserve, restore and re-create priority habitats, ecological networks and the protection and recovery of priority species set out in the Natural Environment and Rural Communities Act 2006, Lincolnshire Biodiversity Action Plan, Lincolnshire Geodiversity Strategy and Local Nature Recovery Strategy. Where adverse impacts are likely, development will only be supported where the need for and benefits of the development clearly outweigh these impacts. In such cases, appropriate mitigation or compensatory measures will be required. Part Three: Mitigation of Potential Adverse Impacts Development should avoid adverse impact on existing biodiversity and geodiversity features as a first principle, in line with the mitigation hierarchy. Where adverse impacts are unavoidable they must be adequately and proportionately mitigated. If full mitigation cannot be provided, compensation will be required as a last resort where there is no alternative. Development will only be supported where the proposed measures for mitigation and/or compensation along with details of net gain are acceptable to the Local Planning Authority in terms of design and location, and are secured for the lifetime of the development with appropriate funding mechanisms that are capable of being secured by condition and/or legal agreement. If significant harm to biodiversity resulting from development cannot be avoided, adequately mitigated, or, as a last resort, compensated for, then planning permission will be refused.
Policy S60: Biodiversity Opportunity and Delivering Measurable Net Gains	Following application of the mitigation hierarchy, development proposals should ensure opportunities are taken to retain, protect and enhance biodiversity and geodiversity features proportionate to their scale, through site layout, design of new buildings and proposals for existing buildings. Development proposals should create new habitats, and links between habitats, in line with Central Lincolnshire Biodiversity Opportunity and Green Infrastructure Mapping evidence, the biodiversity opportunity area principles set out in Appendix 4 to this Plan and the Local Nature Recovery Strategy, to maintain a network of wildlife sites and corridors, to minimise habitat fragmentation and provide opportunities for species to respond and adapt to climate change. Proposals for major and large scale development should seek to deliver wider environmental net gains where feasible. All development proposals must deliver, as a minimum, a 10% measurable biodiversity net gain attributable to the development. The net gain for biodiversity should be calculated using DEFRA's biodiversity metric. Appendix 4: Principles for Development within Biodiversity Opportunity Areas The following guidance provides a set of development principles which should be used when considering site allocations and determining planning applications in the context of the Central Lincolnshire Biodiversity

Policy Reference	Key Policy Text
	Opportunity Mapping (BOM) and the ecological network it alludes to. These principles are to be used in conjunction with policy S60 within this Local Plan. Ecological networks are key to creating a more robust natural environment which will be resilient to future pressures25. They will play an integral role in the creation of Nature Recovery Networks and likely act as the basis of any local work towards a national strategy, for example Local Nature Recovery Strategies. Central Lincolnshire Biodiversity Opportunity Mapping Categories Dark Green: Ecological network - high quality Consists of Priority habitat, these are the core areas of an ecological network and are of high value in terms of distinctiveness. These may require management to either maintain or improve their current condition. Light Green: Ecological network - opportunity for management These areas are not currently Priority habitat, but are important for biodiversity and the functionality of the ecological network of which they are part. They provide an opportunity for their quality to be improved through management, with positive results for biodiversity. Dark Brown: Opportunity for creation - more joined up These are not currently part of an ecological network, but provide opportunities to connect together two or more ecological networks through habitat creation. Light Brown: Opportunity for creation These areas are not currently part of an ecological network, but provide opportunities for increasing the size of an ecological network through habitat creation. Guidance regarding site allocations and planning permission applications in a Biodiversity Opportunity Mapping context. Biodiversity opportunity mapping developed by the Greater Lincolnshire Nature Partnership highlights both the existing ecological network and where the best opportunities lie for improvement in regards to the extent of habitat in the network, the condition or distinctiveness of said habitat and overall connectivity of the network. All policy and decisions should take into account the impact of development to these networks and where possible avoid permitting proposals which may negatively affect the existing network. Where this is not possible, or where development is planned on areas identified as an opportunity for creation, principles should call for quality design which will protect and enhance the existing network. Biodiversity net gain should prioritise onsite habitat creation and management over offsite. Where land earmarked for development contains, either partially or entirely, any areas highlighted by the BOM, these should be seen as opportunities to contribute to onsite biodiversity net gain requirements in a way that will also conserve, restore and enhance ecological connectivity. However, it should be recognised that Ecological network - opportunity for management areas and Opportunity for creation areas identified by the BOM, which are not part of a development area, are well placed as locations for habitat creation or management. Doing so contributes towards any required offsite biodiversity net gain commitments for development. Additionally, habitat created in an ecologically desirable location or in an area identified for biodiversity by a local strategy are valued more highly by Defra's biodiversity net gain metric. Any sites recognised by the BOM which apply to be included on the register of biodiversity gain sites should be given due regard in planning for their importance to enhancing ecological networks. Notes on Development Principles For the purpose of ecological networks "habitat creation" refers to semi natural or natural habitats. Any habitat created should fit with the existing ecological network and be either the same habitat type or related habitat. A related habitat refers to habitats often found in association as part of a dynamic complex. Ecological advice should be sought in the preservation and enhancement of ecological networks and achievement of biodiversity net gain. Development Principles Where allocated sites or sites submitted for planning permission contain or overlap with any **Ecological network – high quality area,** the following principles should apply: 1. **High quality ecological network areas** consist of Priority habitat and contain the most valuable habitats. It should not be built on and should be buffered against impacts of development. Where development is permitted on land containing areas of **high quality ecological network**, the development layout should use the principles of the Mitigation Hierarchy and be designed in such a way as to avoid damage to these areas.

Policy Reference	Key Policy Text
	2. **High quality ecological network areas** should be recognised as a potential opportunity to achieve biodiversity net gain requirements by improving condition through sensitive management. Where allocated sites or sites submitted for planning permission contain or overlap with any Ecological network – opportunity for management area, the following development principles should apply: 1. Proposals should avoid development on **Ecological network – opportunity for management areas** where possible. 2. Where this is not possible, the development layout should ensure that connectivity of the network is maintained. This can be achieved through quality design, for example by leaving strategically important habitat in place to create wildlife corridors or the use of green/brown roofing to act as stepping stones between larger areas of habitat; or through the effective creation of new habitat as part of a landscaping scheme which allows for the migration and dispersal of species. 3. Proposals should fulfil onsite net gain requirements through creation and sensitive management of habitats, in a way that will enhance the ecological network either by ensuring connectivity or improving condition. Where allocated sites or sites submitted for planning permission contain or overlap with any mapped **Opportunity for creation areas,** the following development principles should apply: 1. Where development takes place on **Opportunity for creation areas,** applications should include information clearly demonstrating how opportunities to maintain or enhance the ecological network (in regards to the extent of habitat in the network, the condition or distinctiveness of said habitat) and overall connectivity in the network, have or will be taken. It should include aspects of quality design; for example, by leaving strategically important habitat in place where possible to create wildlife corridors or the use of green/brown roofing to act as stepping stones between larger areas of habitat. It should also take any opportunities for effective habitat creation as part of a landscaping scheme which ensures connectivity between habitats for the species which utilise them. 2. Proposals should prioritise any **Opportunity for creation areas** within the development site for habitat creation. This will ensure that requirements for both biodiversity net gain and the enhancement of ecological networks are achieved in an effective way. Habitat creation onsite should maximise the potential for the ecological network in regards to: the extent of habitat in the network, the condition or distinctiveness of said habitat and the overall connectivity of the network. Additionally, habitat created onsite in an ecologically desirable location or in an area identified by a local strategy, are valued more highly by Defra's biodiversity net gain metric.
Policy S65: Trees, Woodland and Hedgerows	Development proposals should be prepared based on the overriding principle that: • the existing tree and woodland cover is maintained, improved and expanded; and • opportunities for expanding woodland are actively considered, and implemented where practical and appropriate to do so. Existing Trees and Woodland Planning permission will only be granted if the proposal provides evidence that it has been subject to adequate consideration of the impact of the development on any existing trees and woodland found on-site (and off-site, if there are any trees near the site, with 'near' defined as the distance comprising 12 times the stem diameter of the off-site tree). If any trees exist on or near the development site, 'adequate consideration' is likely to mean the completion of a British Standard 5837 Tree Survey and, if applicable, an Arboricultural Method Statement. Where the proposal will result in the loss or deterioration of: a) ancient woodland; and/or b) the loss of aged or veteran trees found outside ancient woodland, permission will be refused, unless and on an exceptional basis the need for, and benefits of, the development in that location clearly outweigh the loss. Where the proposal will result in the loss or deterioration of a tree protected by a Tree Preservation Order or a tree within a Conservation Area, then permission will be refused unless: c) there is no net loss of amenity value which arises as a result of the development; or d) the need for, and benefits of, the development in that location clearly outweigh the loss.

<table>
<tr><th>Policy Reference</th><th>Key Policy Text</th></tr>
<tr><td></td><td>
Where the proposal will result in the loss of any other tree or woodland not covered by the above, then the Council will expect the proposal to retain those trees that make a significant contribution to the landscape or biodiversity value of the area, provided this can be done without compromising the achievement of good design for the site.

Mitigating for loss of Trees and Woodland

Where it is appropriate for higher value tree(s) (category A or B trees (BS5837)) and/or woodland to be lost as part of a development proposal, then appropriate mitigation, via compensatory tree planting, will be required. Such tree planting should be on-site wherever possible and should:

e) take all opportunities to meet the five Tree Planting Principles (see supporting text); and

f) unless demonstrably impractical or inappropriate, provide the following specific quantity of compensatory trees:

<table>
<tr><th>Trunk diameter(mm) at 1.5m above ground of tree lost to development</th><th>Number of replacement trees required, per tree lost*</th></tr>
<tr><td>75-200</td><td>1</td></tr>
<tr><td>210-400</td><td>4</td></tr>
<tr><td>410-600</td><td>6</td></tr>
<tr><td>610-800</td><td>9</td></tr>
<tr><td>810-1000</td><td>10</td></tr>
<tr><td>1000+</td><td>11</td></tr>
</table>
* replacement based on selected standards 10/12 cm girth at 1m

New Trees and Woodland

Where appropriate and practical, opportunities for new tree planting should be explored as part of all development proposals (in addition to, if applicable, any necessary compensatory tree provision). Where new trees are proposed, they should be done so on the basis of the five Tree Planting Principles. Proposals which fail to provide practical opportunities for new tree planting will be refused.

Planting schemes should include provision to replace any plant failures within five years after the date of planting. Planting of trees must be considered in the context of wider plans for nature recovery which seeks to increase biodiversity and green infrastructure generally, not simply planting of trees, and protecting / enhancing soils, particularly peat soils. Tree planting should only be carried out in appropriate locations that will not impact on existing ecology or opportunities to create alternative habitats that could deliver better enhancements for people and wildlife, including carbon storage. Where woodland habitat creation is appropriate, consideration should be given to the economic and ecological benefits that can be achieved through natural regeneration. Any tree planting should use native and local provenance tree species suitable for the location.

Management and Maintenance

In instances where new trees and/or woodlands are proposed, it may be necessary for the council to require appropriate developer contributions to be provided, to ensure provision is made for appropriate management and maintenance of the new trees and/or woodland.

Hedgerows

Proposals for new development will be expected to retain existing hedgerows where appropriate and integrate them fully into the design having regard to their management requirements.

Proposals for new development will not be supported that would result in the loss of hedges of high landscape, heritage, amenity or biodiversity value unless the need for, and benefits of, the development clearly outweigh the loss and this loss can be clearly demonstrated to be unavoidable.
</td></tr>
</table>

Policy Reference	Key Policy Text
	Development requiring the loss of a hedgerow protected under The Hedgerow Regulations will only be supported where it would allow for a substantially improved overall approach to the design and landscaping of the development that would outweigh the loss of the hedgerow. Where any hedges are lost, suitable replacement planting or restoration of existing hedges, will be required within the
Corrignham Draft Neighbourhood Plan	
CNP1: Sustainable Development Principles	All proposals for development should: (i) Be appropriately located; (ii) Be of an appropriate scale and demonstrate a high standard of design; (iii) Have regard to their setting and the character of the local area; (iv) Take account of the key landscape views identified in Policy CNP5; (v) Not adversely affect the amenity of nearby residents; (vi) Where appropriate, provide for sustainable transport modes, including walking and cycling; (vii) Respect the local built, social, cultural, historic and natural heritage assets, and (viii) Encouragement will be given to proposals that seek to achieve (or preferably exceed) design and construction standards for sustainable development and minimise CO2 emissions, including domestic scale green energy solutions and provision for electric vehicles. Whilst the Parish Council supports appropriate development in Corringham, it is clearly recognised that this should not increase the risk of flooding and/or exacerbate existing drainage problems. This is line with the requirements of national policy, advice from the Environment Agency and the provisions set out in Policy LP 14 of the adopted Central Lincolnshire Local Plan (2017).
CNP5: Local character and the design of new development	(A) All development should recognise and complement the local character of the areas identified and described in the Corringham Character Assessment. Where applicable to the development proposal, some or all the following detailed criteria will need to be satisfied: (i) Development should respect; existing plot boundaries, ratios, orientation, historic or traditional forms and the established grain of development within the character area. (ii) The predominant materials used in the area should be respected. These include red brick with red-clay pantiles and natural slate and the occasional use of the local "Waterstone." (iii) The height of new buildings should be in keeping with the height of neighbouring properties and not be over-bearing or dominant in the existing street-scene. (iv) Existing predominant boundary treatments in the immediate area should be reflected. These consist of brick or stone walls or hedges, often behind grass verges. (v) Off-road parking; servicing and access arrangements should be in accordance with the most recently published standards by Lincolnshire County Council. (vi) The open character of prominent private gardens should be retained within any development. (vii) Watercourses should be protected and retained as open features, alongside other Sustainable Urban Drainage (SuDS) measures. (B) Any development alongside or serviced from rural lanes (Pilham Lane, Mill Mere Road, the lanes to and around Aisby and Yawthorpe and Springthorpe Road, as shown on the Proposals Map) should not have an adverse impact upon (and where possible enhance) the rural appearance of these byways and their green verges/hedgerows.
CNP12: Countryside management	Development in the open countryside, related to agriculture, forestry, equine, recreation, tourism, utility infrastructure and other rural land uses, will be supported provided that it does not cause demonstrable harm to: (i) Landscape character and quality. (ii) Sites of ecological value, including roadside verges. (iii) Heritage assets and other sites of archaeological interest. (iv) The intrinsic character, beauty and tranquillity of the countryside. (v) The rural quality and character of lanes, including verges. (vi) The "Dark Skies" quality of the Parish.
CNP13: Nature conservation and biodiversity	Proposals with an impact on biodiversity will be required to demonstrate how any potential effect on local wildlife sites, habitats and species networks has been considered, noting that. (i) If development is permitted, any consequent loss of biodiversity must be minimised and mitigated by the creation of new habitats or the enhancement of existing places. (ii) Development resulting in loss or damage to trees and hedgerows will be resisted and in the event of approval, a scheme for replacements must be agreed. (iii) Projects to enhance wildlife habitats and species based on the Lincolnshire Biodiversity Action Plan and the Natural Environment Strategy will be supported. (iv) Tree planting and hedgerow creation aimed at providing a network of wildlife corridors across the Parish will be supported.

APPENDIX H – PHASE 1 HABITATS MAPS

A3 maps supplied as a separate volume:

Cottam 1 – Coates North
Cottam 1 – Coates West
Cottam 1 – Coates South
Cottam 2
Cottam 3

CLARKSON & WOODS

Clarkson and Woods Ltd.
Overbrook Business Centre,
Poolbridge Road, Blackford,
Somerset BS28 4PA

t: 01934 712500
e: info@clarksonwoods.co.uk

www.clarksonwoods.co.uk

9.2 Extended Phase 1 Habitat Survey Maps

Please note the field margins are not all fully visible at this scale. They include a variety of species rich and species poor semi-improved grassland with some ruderal or scrub encroachment.

Key:

- Red line boundary - approx. location
- Target note
- In-field broadleaved tree
- Arable
- Bare ground
- Broadleaved plantation
- Broadleaved woodland
- Improved grassland
- Pond
- Tall ruderal vegetation
- Dry ditch
- Wet ditch
- Fence
- Intact species rich hedgerow
- Intact species poor hedgerow
- Defunct species rich hedgerow
- Defunct species poor hedgerow
- Intact species rich hedgerow with trees
- Intact species poor hedgerow with trees
- Defunct species rich hedgerow with trees
- Defunct species poor hedgerow with trees
- Line of trees
- Bank of semi-improved grass

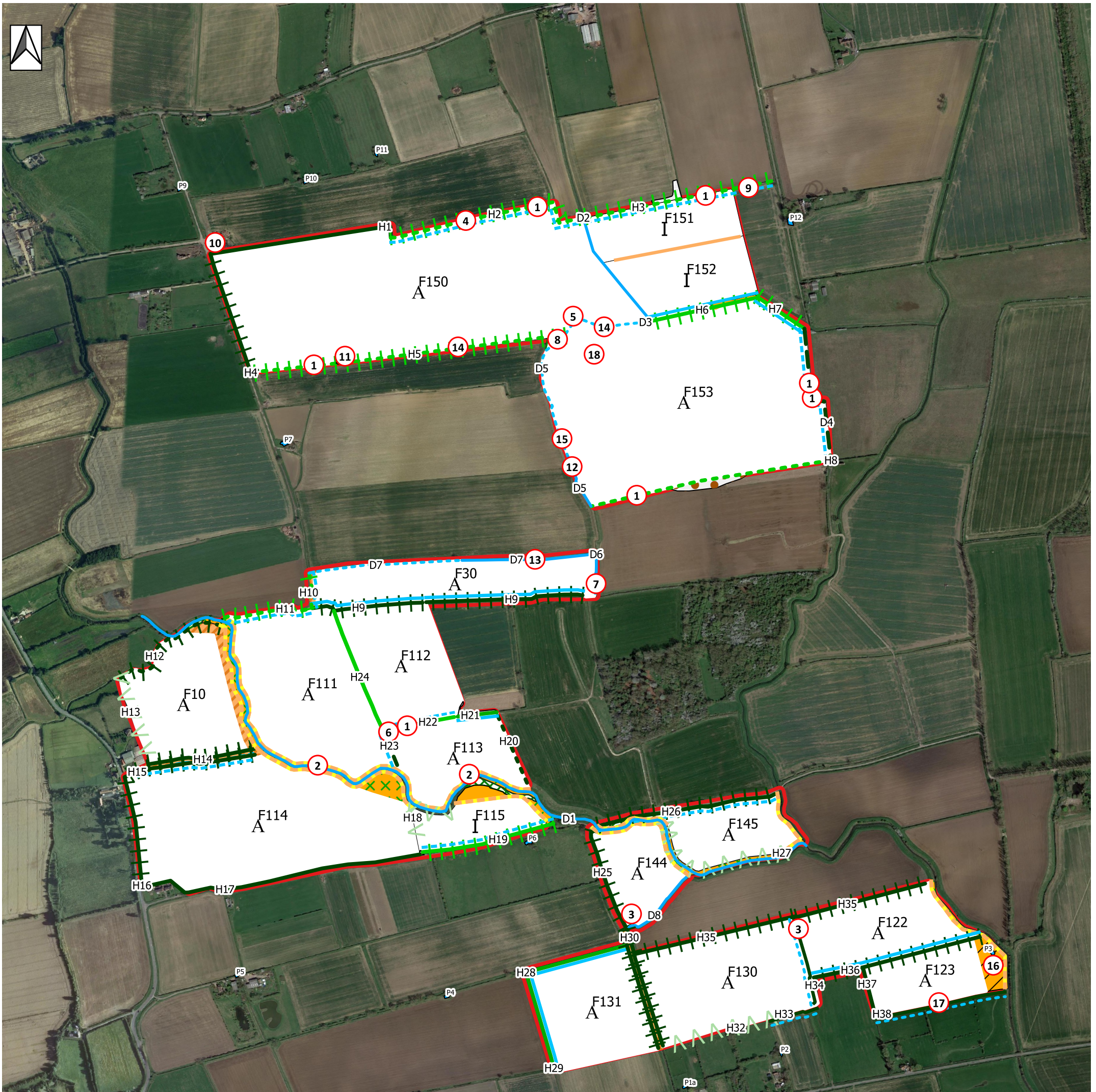
CLARKSON & WOODS
ECOLOGICAL CONSULTANTS

Project
Cottam 1 - Coates North

Title
Phase 1 Habitat Survey Map

Date
12/08/2021

Scale 0 250 500 m



Please note the field margins are not visible at this scale. They include a variety of species rich and species poor semi-improved grassland with some ruderal or scrub encroachment.

Key:

- Red line boundary - approx. location
- Target note
- Dry ditch
- Wet ditch
- Intact species rich hedgerow
- Intact species poor hedgerow
- Defunct species rich hedgerow
- Defunct species poor hedgerow
- Intact species rich hedgerow with trees
- Intact species poor hedgerow with trees
- Defunct species rich hedgerow with trees
- Defunct species poor hedgerow with trees
- Line of trees
- Species poor semi-improved grass verge
- Bank off semi-improved grassland
- A Arable
- Poor semi-improved grassland
- Rich semi-improved grassland
- Wild bird cover
- I Improved grassland
- Bare ground
- Semi-natural broadleaved woodland
- Dense scrub
- Marshy grassland
- Scattered scrub over species rich semi-improved grassland
- Pond

CLARKSON & WOODS
ECOLOGICAL CONSULTANTS

Project
Cottam 1 - Coates West

Title
Phase 1 Habitats Survey Map

Date
12/08/2021

Scale
0 250 500 m

Please note the field margins are not all fully visible at this scale. They include a variety of species rich and species poor semi-improved grassland with some ruderal or scrub encroachment.

Key:

- Red line boundary - approx. location
- Target note
- Dry ditch
- Wet ditch
- Fence
- Bank of semi-improved grass
- Intact species rich hedgerow
- Intact species poor hedgerow
- Defunct species rich hedgerow
- Defunct species poor hedgerow
- Intact species rich hedgerow with trees
- Intact species poor hedgerow with trees
- Defunct species rich hedgerow with trees
- Defunct species poor hedgerow with trees
- Line of trees
- Arable
- Improved grassland
- Poor semi-improved grassland
- Rich semi-improved grassland
- Tall ruderal vegetation
- Semi-natural broadleaved woodland
- Dense scrub
- Bare ground
- Hardstanding
- Pond

CLARKSON & WOODS
ECOLOGICAL CONSULTANTS

Project
Cottam 1 - Coates South

Title
Phase 1 Habitat Survey Map

Date
12/08/2021

Scale
0 250 500 m

Please note the field margins are not all fully visible at this scale. They include a variety of species rich and species poor semi-improved grassland with some ruderal or scrub encroachment.

Key:

- Red line boundary - approx. location
- Target note
- Dry ditch
- Wet ditch
- Fence
- track
- Defunct species poor hedgerow
- Intact species rich hedgerow with trees
- Defunct species poor hedgerow with trees
- Intact species poor hedgerow with trees
- Intact species poor hedgerow
- A Arable
- Bare ground
- Broadleaved woodland
- I Improved grassland
- Semi-improved grassland
- Tall ruderal vegetation
- Track
- Species rich semi-improved grassland
- Pond

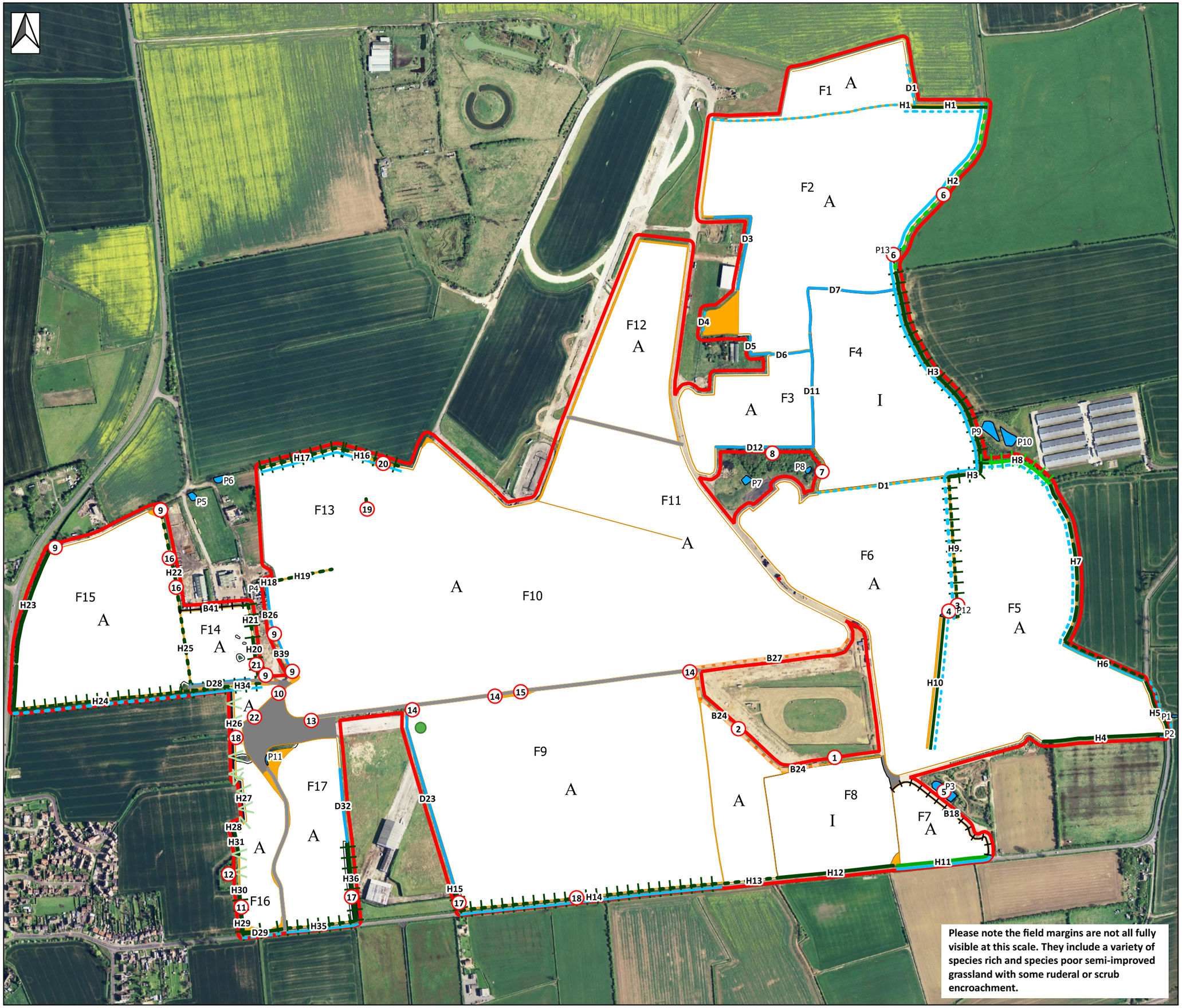
CLARKSON & WOODS
ECOLOGICAL CONSULTANTS

Project
Cottam 2

Title
Phase 1 Habitats Survey Map

Date
16/08/2021

Scale 0 100 200 m



Please note the field margins are not all fully visible at this scale. They include a variety of species rich and species poor semi-improved grassland with some ruderal or scrub encroachment.

Key:

- Red line boundary - approx. location
- Target note
- In field broadleaved tree
- Fence
- Track/footpath
- Bank of semi-improved grass
- Dry ditch
- Wet ditch
- Intact species rich hedgerow
- Intact species poor hedgerow
- Defunct species rich hedgerow
- Defunct species poor hedgerow
- Defunct species rich hedgerow with trees
- Defunct species poor hedgerow with trees
- Intact species rich hedgerow with trees
- Intact species poor hedgerow with trees
- Line of trees
- A Arable
- Bare ground
- Hardstanding
- I Improved grassland
- Pond
- Semi-Improved grassland
- Track

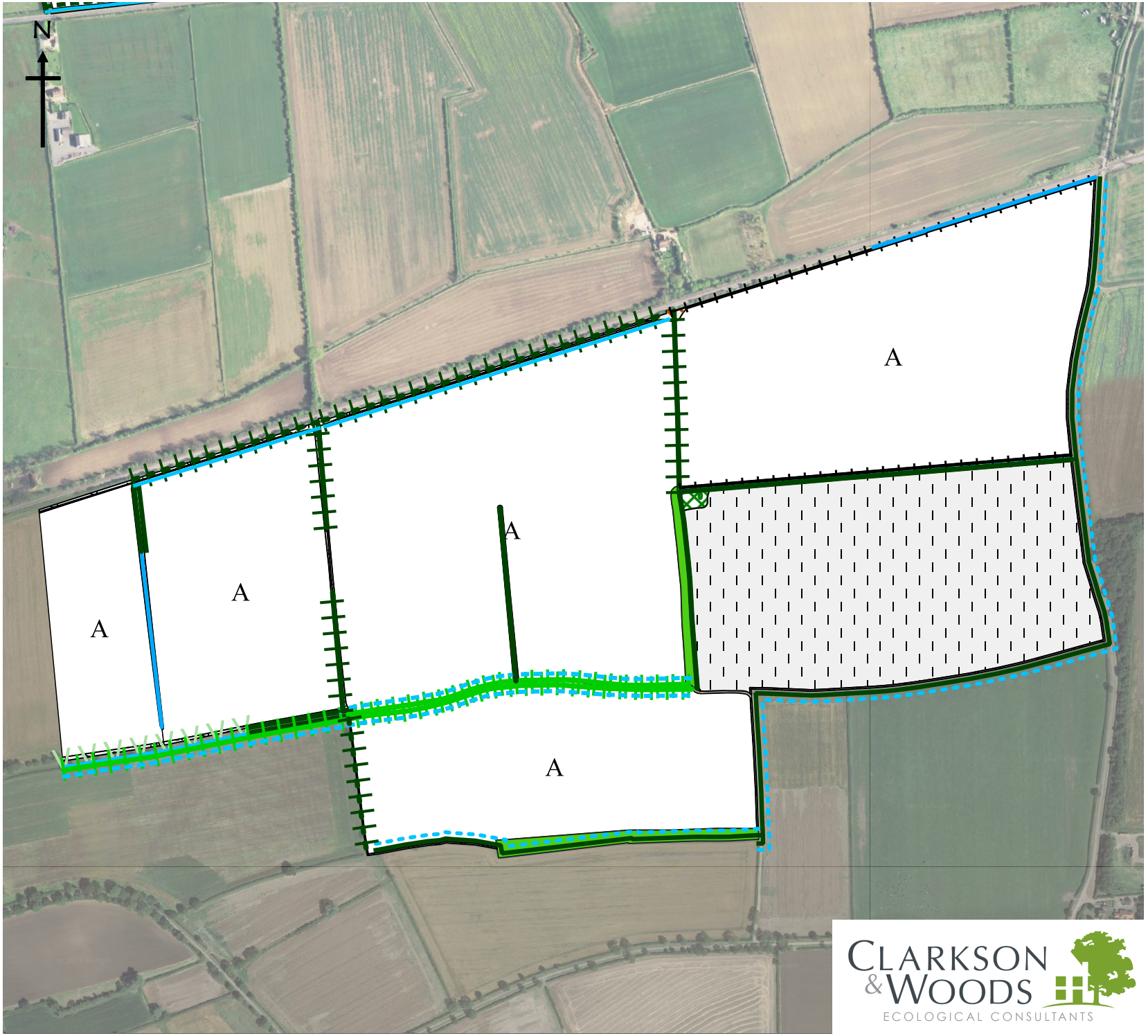
CLARKSON & WOODS
ECOLOGICAL CONSULTANTS

Project
Cottam 3

Title
Phase 1 Habitat Survey Map

Date
12/08/2021

Scale
0 200 400 m



Phase 1 Boundaries

- Dry ditch
- Wet ditch
- Fence
- Intact species poor hedgerow
- Intact species poor hedgerow dry ditch
- Intact species poor hedgerow trees
- Intact species rich hedgerow trees and dry ditch
- Defunct species poor hedgerow trees
- Defunct species poor hedgerow wet ditch
- Line of trees wet ditch
- Intact species poor hedgerow wet ditch
- Defunct species poor hedgerow trees and wet ditch

Phase 1 Habitats

- A Arable
- Bare ground
- Dense scrub
- Game cover
- Improved grassland
- Pond
- SI SI Poor semi-improved grassland
- Tall ruderal

Project
Cottam 3b

Title
Phase 1 habitats survey

Date
24/05/2022

Scale
0 150 300 m

CLARKSON & WOODS
ECOLOGICAL CONSULTANTS

9.3 Ecological Desk Study for Cable Route Search Areas

Cottam & West Burton Solar

Ecological Desk Study for Cable Route Search Areas

Introduction and Limitations

- This desk study provides an overview of potential ecological constraints within and adjacent to the search area within which the CAWB cable routes will be determined.
- It is based on information on sensitive sites, habitats and species derived from Nottinghamshire Environmental Records Centre, Lincolnshire Environmental Records Centre, Natural England and Defra.
- The desk study comprises several figures showing the locations of sites, habitats and species records as well as a table providing cross-referenced detail on each feature's relative risk to the cable route and an indication of the mitigation options available for each.
- In order to focus the desk study on the most relevant and accurate records, it only considers records for which a 6-figure OS Grid Reference is given (i.e. accurate to at least 100m) and records made within the last ten years. In addition, records for highly mobile or transient species (such as migratory birds, brown hare, polecat etc) have been omitted in order to give the most relevant information for route-planning purposes.
- This desk study will enable the search area to be narrowed down in order to provide a survey area for more detailed walkover ecological surveys.
- It is intended that the data presented on the accompanying figures will be supplied to you and/or Lanpro for incorporation into your own systems.

Local Wildlife Sites

- Local Wildlife Sites (LWSs) are wildlife-rich sites selected for their local nature conservation value. They vary in shape and size and can contain important, distinctive and threatened habitats and species. In many parts of the UK, they are the principal wildlife resource but their designation is non-statutory and their only protection comes via the planning system.
- They are not protected by law like SSSIs or National Nature Reserves. Whilst SSSIs meet national criteria, LWSs meet local selection criteria. Many are owned by private individuals.
- Care should be taken to avoid direct impacts on LWSs. However, depending on the circumstances and presence of other constraints, it may be justifiable that impacts proceed if accompanied by sufficient mitigation, compensation and aftercare. If direct impacts are probable, a detailed inspection of the habitat should be undertaken by an ecologist to determine its current condition. In many cases, LWSs have lost condition since designation through poor management. In this situation, impacts may be more justifiable and corresponding opportunities for restoration and net gain are likely to be welcomed. The cost and achievability of any restoration and mitigation would differ according to the complexity, condition and replicability of the habitats present.

Priority Habitats

- This is a UK-habitat classification prepared by the UK Biodiversity Group that classifies all terrestrial and freshwater habitats in the UK into 37 broad habitat types. The list of Priority Habitats has been used to help draw up statutory lists of habitats of principal importance for the conservation of biodiversity in England, Scotland, Wales and Northern Ireland. UK Priority Habitats are a range of semi-natural habitat types that were identified as being the most threatened and requiring conservation action.
- These habitats do not receive statutory protection but are capable of being material considerations within the planning process.
- As with LWSs, impacts on Priority Habitats should be avoided, although detailed inspections may prove helpful in determining current condition should impacts be probable. Again, mitigation and compensation in the form of a habitat restoration plan may be acceptable and welcomed, especially if determined to be in poor condition. Likewise, not all habitats are easily restored or replaced (e.g. some grasslands are more readily restored whereas ancient woodland or heathland is irreplaceable).

Badger Setts

- Badgers and their setts are protected under the Protection of Badgers Act 1992 (as amended). This prohibits damage or destruction of a sett and disturbance, death or injury to the badgers. The Act defines a sett as "any structure or place which displays signs indicating current use by a badger".
- Badger setts can be separated into main setts, subsidiary setts, annexe setts and outlier setts. Generally, main setts should be avoided as far as possible as mitigation for loss of main setts would entail the construction of a replacement artificial sett under a licence which typically stipulates that occupation must be confirmed before impactful works can commence. Avoidance, typically by adopting at least an exclusion zone around a sett would be the simplest solution in the case of all setts. The size of the exclusion zone would depend on the classification of the sett, with 20-30m being appropriate for main setts and 5-10m being appropriate for outlier setts.
- This desk study shows only main setts. Setts other than main setts are able to be closed under licence without the need for compensatory shelter. Any badger setts on site will be identified during the detailed walkover visits.

Species of Principal Importance (SPI)

- In England many of our rarest and most threatened species are listed under Section 41 (S41) of the 2006 Natural Environment and Rural Communities (NERC) Act. These species have been designated to be of "principal importance for the purpose of conserving biodiversity" and are those that are most threatened, in greatest decline, or where the UK holds a significant proportion of the world's total population. This designation confers protection through the planning process as each of these species are capable of being material considerations. In addition, several species such as water vole are SPIs and also fully protected under the Wildlife and Countryside Act 1981 (as amended) (WCA), or are European Protected Species (below).
- Each species has specific habitat requirements and so the risk to the cable route in terms of need for avoidance or mitigation is discussed individually below.

European Protected Species (EPS)

- EPS (such as bats, great crested newts, otters and dormice) receive full protection under The Conservation of Species and Habitats Regulations 2010. This makes it an absolute offence to: deliberately capture, injure or kill any EPS or to deliberately disturb them. For these species, a special mitigation licence issued by Natural England would be required in order to permit activities which might otherwise contravene this protection.
- As for SPI, specific mitigation requirements and risks are discussed individually below.

Key

Impacts avoidable, constraints generally minimal

Some constraints, risks likely can be reduced to minimal through careful planning

Constraints significant, avoid wherever possible

Map Ref	Ecological Receptor	Description / Constraints	Likely Impacts During Construction and Recommendations
Designated Sites			
1	West Burton Meadow LWS	A small reserve that comprises unimproved grassland surrounded by thick and diverse hedges, the site is rich in plants which flourish under the traditional hay meadow management. The Site is owned by the Notts Wildlife Trust. Also appears as Lowland Meadow Priority Habitat. Current condition of this LWS is unknown.	Temporary impacts as a result of trenching and compaction may alter floral composition. Avoid the Site if possible. Directional drilling with a minimum number of drive / reception pits within the LWS should be explored if the site cannot be avoided. Impacts could potentially be mitigated through combination of sensitive timing of works, careful reinstatement of turf following installation and construction mats to minimise compaction if open cut trenching is required. Some re-seeding and aftercare/monitoring likely. Works within LWS would require formal consultation with LPA/Natural England to determine mitigation.
2	Mother Drain, Upper Ings LWS	Linear watercourse site designated for presence of near threatened / nationally scarce water beetles.	Impacts can likely be avoided through use of directional drilling beneath the linear LWS. We would recommend siting drive / reception pits outside of the LWS and >10m from the top of the ditch if possible.
3	Thornhill Lane Drain LWS	Linear watercourse feature designated for presence of near threatened / nationally scarce water beetles	Impacts can likely be avoided through use of directional drilling beneath the linear LWS. We would recommend siting

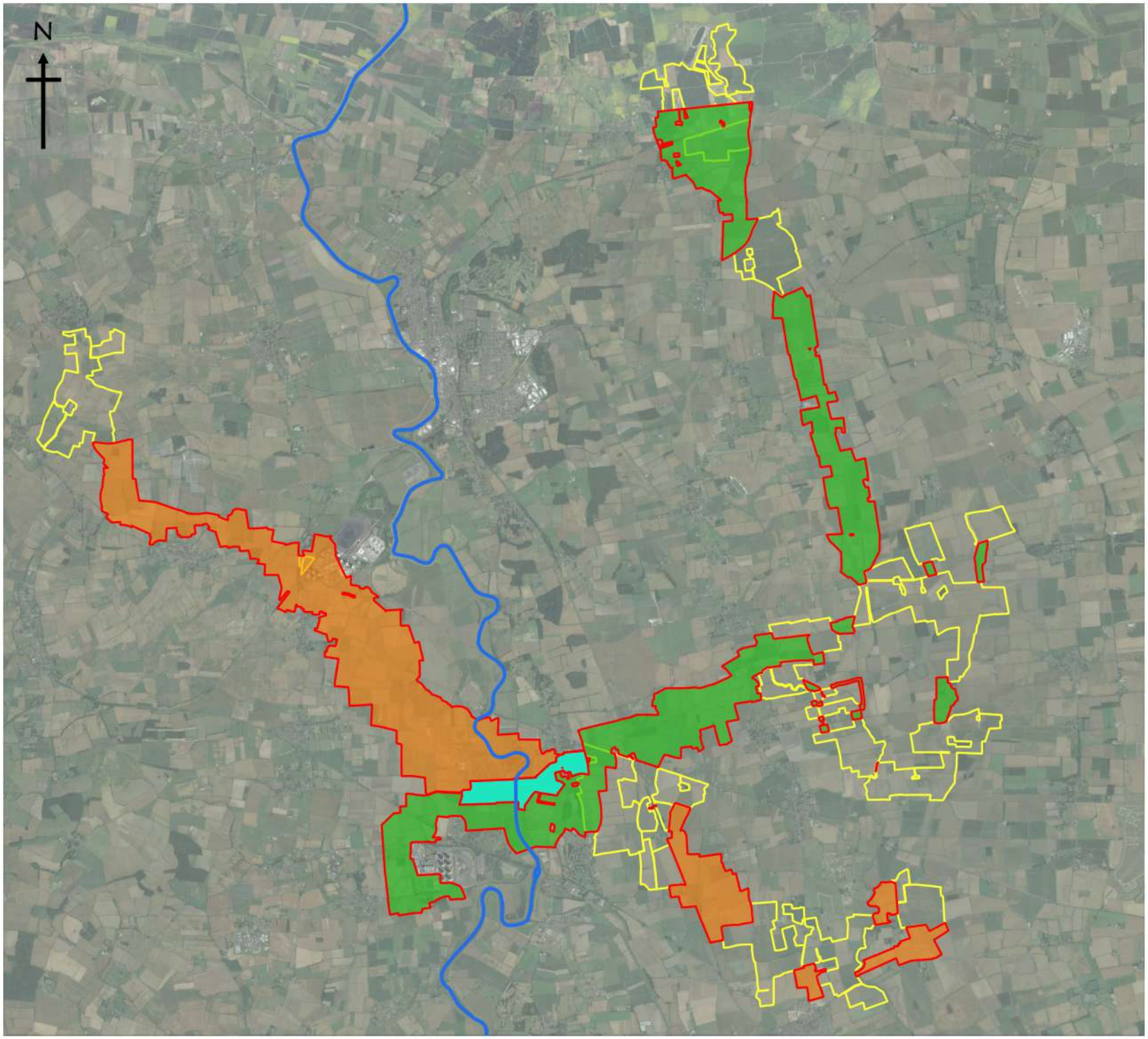
			drive / reception pits outside of the LWS and >10m from the top of the ditch if possible.
4	North Leys Road Ditch LWS	Silty vegetated ditch, designated for presence of near threatened / nationally scarce water beetles	Impacts can likely be avoided through use of directional drilling beneath the linear LWS. We would recommend siting drive / reception pits outside of the LWS and >10m from the top of the ditch if possible.
5	Cow Pasture Lane Drains LWS	Drain which runs alongside Broad Lane and southwards beside Cow Pasture Lane. Meadowsweet *Filipendula ulmaria* grows abundantly in the ditch, while a defunct, rich hedgerow behind supports mature Ash trees. The drain is deeper and wider along Cow Pasture Lane containing a variety of plants.	Impacts can likely be avoided through use of directional drilling beneath the linear LWS. We would recommend siting drive / reception pits outside of the LWS and >10m from the top of the ditch if possible.
6	Coates Wetland LWS	Site comprising a mosaic of habitats including wetland, developing woodland and grassland enclosed within a flood bank	This is a relatively large site comprising wetland habitats that would be difficult to install the cable without causing significant impacts. Recommend avoiding this LWS.
7	Trent Port Wetland LWS	Unmanaged triangular area of floodplain to east of River Trent. Comprises coarse neutral grassland and scattered scrub surrounding a large expanse of shallow water and wetland vegetation. Current condition of this LWS is unknown.	Temporary impacts as a result of trenching and compaction may alter floral composition. Avoid the Site if possible. Directional drilling with a minimum number of drive / reception pits within the LWS should be explored if the site cannot be avoided. Impacts could potentially be mitigated through combination of sensitive timing of works, careful reinstatement of turf following installation and construction mats to minimise compaction if open cut trenching is required. Some re-seeding and aftercare/monitoring likely. Works within LWS would require formal consultation with LPA/Natural England to determine mitigation.
8	Mr Rose's Hay Meadow LWS & Priority Habitat	Large, reasonably species-rich, hay meadow dominated by coarse vegetation with a pond. Current condition of this LWS is unknown.	Temporary impacts as a result of trenching and compaction may alter floral composition. Avoid the Site if possible. Directional drilling with a minimum number of drive / reception pits within the LWS should be explored if the site cannot be avoided. Impacts could potentially be mitigated through combination of sensitive timing of works, careful reinstatement of turf following installation and construction mats to minimise compaction if open cut trenching is required. Some re-seeding and aftercare/monitoring likely.

			Works within LWS would require formal consultation with LPA/Natural England to determine mitigation.
9	Willingham to Fillingham Road Verges LWS	3-3.5m wide roadside verges. Main habitats are calcareous and neutral grassland (unimproved / semi-improved). Additional habitats include coarse grassland, species-rich hedgerow and ditch. Current condition of this LWS appears to be somewhat degraded. Therefore, an opportunity for restoration exists.	Avoid excavations within the LWS if possible. Explore possibility of avoiding impacts by directional drilling under LWS, especially features such as hedgerow & ditch. Avoid grassland habitats if possible. . Impacts could potentially be mitigated through combination of sensitive timing of works, careful reinstatement of turf following installation and construction mats to minimise compaction if open cut trenching is required.
10	Upton Grange Road Verges LWS & Priority Habitat	Species rich neutral grassland. Additional habitats include calcareous grassland & species-poor hedges. N+E verges are exceptionally species-rich and notable due to isolation.	Impacts can likely be avoided through use of directional drilling beneath the linear LWS. We would recommend siting drive / reception pits outside of the LWS and >10m from the top of the ditch if possible.
Priority Habitats *N.B. Current condition of these habitats is as yet unknown*			
Lowland Mixed Deciduous Woodland		A total of 16 sites identified as lowland mixed deciduous woodland within the search area. . The Sites comprise a diverse mix of woodlands that are intrinsically valuable natural assets and are important for a range of wildlife, which includes rare and threatened species. Woodland are a highly distinctive habitat that take a long time to establish and any removal should be avoided.	Avoid the requirement to remove areas listed as lowland mixed deciduous woodland including excavations within 20m of the woodland edge. Some thinner strips of woodland are present and it may be feasible to directionally drill beneath these habitats without the need for excavations within 20m.
River		This habitat type includes a very wide range of types, encompassing all natural and near-natural running waters in the UK. There is one instance of this habitat which has been identified within the search area, the River Trent, which bisects the search area.	Impacts can likely be avoided through use of directional drilling beneath the linear LWS. We would recommend siting drive / reception pits outside of the LWS and >20m from the top of the river if possible.
Lowland Meadow		A very highly distinctive habitat that takes a long time and is difficult to re-create. This habitat occurs has been identified in one location within the search area and is associated with West Burton Meadow LWS.	Temporary impacts as result of trenching and compaction may alter floral composition. Avoid the Site if possible. Directional drilling with a minimum number of drive / reception pits within the habitat should be explored if the habitat cannot be avoided. Impacts could potentially be mitigated through combination of sensitive timing of works, careful reinstatement of turf following installation and construction mats to minimise compaction if open cut trenching is required.

Traditional Orchard		This habitat has been identified in three locations between West Burton 4 and West Burton power station. Traditional orchards are a long-established and widely distributed habitat and make a significant contribution to biodiversity, landscape character and local distinctiveness across the UK.	Avoid this habitat if possible. It may be possible to avoid impacts through the use of directional drilling beneath the orchards if drive / reception pits can be sited >10m outside of the priority habitat.
Floodplain Grazing Marsh		This habitat has been identified in six locations within the search area, predominantly occurring adjacent to the River Trent. Grazing marsh is defined as periodically inundated pasture, or meadow with ditches which maintain the water levels, containing standing brackish or fresh water. Grazing marshes can be particularly important for the number of breeding waders such as snipe, lapwing and curlew they support. Internationally important populations of wintering wildfowl can also occur including Bewick swans and whooper swans.	Temporary impacts as result of trenching and compaction may alter floral composition and may disturb breeding waders if present. This habitat may be inundated during the winter which may present technical issues to installation of cable. Directional drilling with a minimum number of drive / reception pits within the habitat should be explored if the habitat cannot be avoided. Impacts could potentially be mitigated through combination of sensitive timing of works, careful reinstatement of turf following installation and construction mats to minimise compaction if open cut trenching is required.
Fauna and Flora			
Main Badger Sett		Disturbance of badgers could be caused by any digging activity or scrub clearance within 30m of an occupied sett and therefore every case needs to be assessed individually. Licences are issued by Natural England to allow the disturbance of badgers, and the destruction of their setts in certain circumstances, in relation to development. Although licences can be applied for at any time of year, disturbance of badgers or exclusion of badgers from a sett can only take place between 1 July and 30 November. Depending of type & size of sett present, the no-works buffer may be reduced from 30m, assuming other mitigation is in place, such as the use of hand-held tools for certain activities.	An assessment of badger setts likely to be impacted would be required to ascertain the most effective means of ensuring appropriate mitigation for the species. Given the temporary impacts associated with the cabling, avoidance within 20-30m of a main sett is likely to be optimal outcome. For other setts, unavoidable impacts can be licenced more straightforwardly, although the seasonal constraints mentioned opposite would apply.
SPI	Common Lizard	1 record identified. Species widespread, but declining. Habitats likely to be woodland and coarse grassland in this instance.	Works restricted to active season (April – October, inclusive) with Ecological Clerk of Works (ECoW) presence in areas of suitable habitat can avoid impacts on this species. Would form part of a Risk Avoidance Method Statement or similar.
SPI	European Eel	Regarded as critically endangered on the IUCN Red List of Threatened Species. Found in a wide variety of freshwater and estuarine habitats where they spend the majority of their lives.	Where passing waterbodies with known populations of European eel, directional drilling highly recommended to avoid impacts on the species.

SPI	Grass Snake	Protected in the UK under the WCA, 1981. Found in wetland habitats, but also dry grasslands and gardens.	Works restricted to active season (April – October, inclusive) with ECoW presence in areas of suitable habitat can avoid impacts on this species. Would form part of a Risk Avoidance Method Statement or similar.
SPI	Slow-worm	Protected in the UK under the WCA, 1981. Widespread, found in woodland rides and tussocky grassland, mature gardens and allotments.	Works restricted to active season (April – October, inclusive) with ECoW presence in areas of suitable habitat can avoid impacts on this species. Would form part of a Risk Avoidance Method Statement or similar.
SPI	Water Vole	Fully protected in the UK under the WCA. Water voles are listed as endangered on both the GB and the England Red List for Mammals. Lives along rivers, streams and ditches, around ponds and lakes, and in marshes, reedbeds and areas of wet moorland. Suffered significant declines. You must have a licence to displace water voles for development. Licence CL31 allows you to intentionally damage or destroy burrows or displace water voles from their burrows for development projects. This includes: • cutting vegetation back to bare earth in the spring; • carrying out a destructive search of water vole burrows following removal of vegetation; and • destroying water vole burrows after a destructive search.	Where passing waterbodies with known populations of water vole, directional drilling is highly recommended to avoid impacts on the species and the need for a development licence. Further, detailed survey likely to be required for sections of watercourses to be impacted except for through directional drilling. A discussion of the use of directional drilling in relation to watercourses would be required in order to determine the likelihood for disturbance to water voles during drilling activities.
SPI	Bittern, lesser spotted woodpecker, turtle dove	While other SPI bird species are present within the data, these are considered the most faithful to specific habitats and nesting sites which might be impacted by the cable route. Further detail on habitat suitability for these species will be ascertained by the detailed cable route walkover surveys once the route has begun to be narrowed down.	Mitigation will need to be determined according to each species' needs.
EPS	Eurasian Otter	Protected in the UK under the WCA, 1981. European Protected Species under Annex IV of the European Habitats Directive. Listed as Near Threatened on the global IUCN Red List of Threatened Species. This species is highly mobile and uses its shelters transiently throughout the year, therefore impacts are unlikely unless the cable route has the potential to affect a breeding holt (shelter) which is more regularly used. Therefore, detailed survey will be	Unlikely to be constraint due to temporary nature of works. Assumes directional drilling under waterbodies. Further, detailed survey likely to be required for sections of watercourses to be impacted except for through directional drilling. A discussion of the use of directional drilling in relation to watercourses would be required in order to determine the likelihood for disturbance to otters during drilling activities

		required in order to detect the presence of such holts at watercourse crossing/drilling points.	
EPS	Great Crested Newt	Protected in the UK under the WCA, 1981. Listed as a European Protected Species under Annex IV of the European Habitats Directive.	Surveys of ponds within 250m of the cable route may be required. Works within 250m of a pond known or found to support GCN likely to require a mitigation licence depending on the habitat suitability and connectivity within the affected zone. A RAMS may be feasible depending on habitats present, detailing sensitive timings and approaches to habitat clearance. The status of any forthcoming availability of 'district-level licensing' in Lincs and Notts is still, as yet, unknown.
EPS	Bat Roosts	All 17 species of bat known to breed in England and Wales, and their roost sites, are protected under the Conservation of Habitats and Species Regulations 2017. This makes it an offence to deliberately kill or injure a bat, or to deliberately disturb a bat such that its ability to hibernate, breed or rear young, or such that the species' distribution, were significantly affected. It is also an offence to damage or destroy any breeding site or resting place. Intentional or reckless disturbance of bats in their resting places, and damage to or obstruction of resting places are also offences under the WCA, 1981. As no 6-figure grid referenced roosts were provided within the data, no roosts have been depicted. However, further survey will be necessary to determine the presence of any trees or buildings with potential to contain roosts which might be impacted by the works.	Unlikely to be a constraint to cabling installation, assuming no mature trees or potential roost buildings are to be impacted. Where trees require removal to facilitate the cable route or access, these should be closely inspected for bats and their potential to support them. Any lost roosts will need to be mitigated for under licence in proportion to the scale of impacts. Good practice would be to avoid artificial night time lighting during construction. Mitigation likely to recommend replacing any habitat likely to be used by bats to navigate / forage (i.e. trees and hedgerows) that are removed or damaged to facilitate the works on at least a 2:1 basis.



Key:

- Cable route search area
- Cottam search area
- West Burton search area
- Overlapping search area
- Solar sites
- River Trent

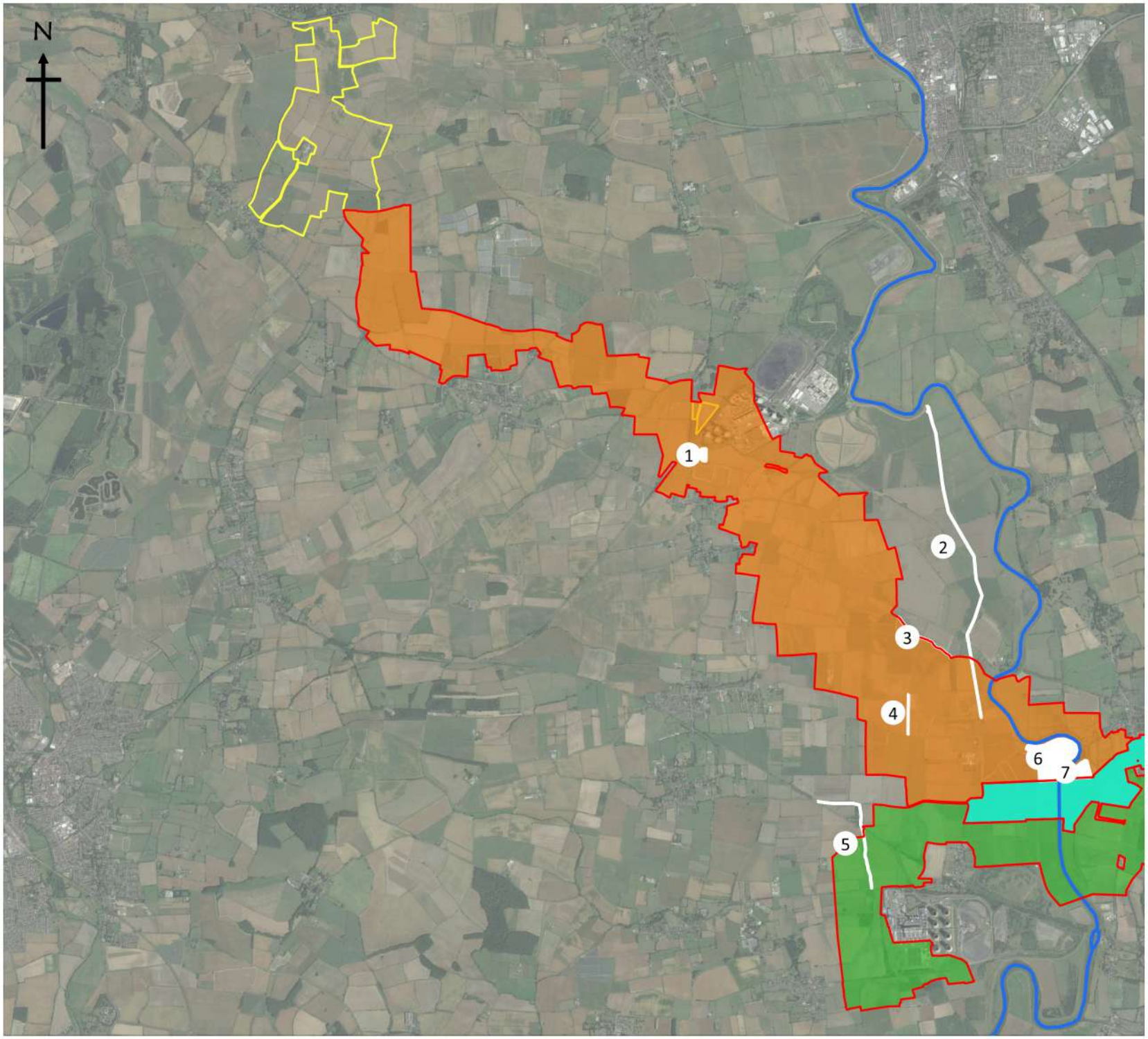
CLARKSON & WOODS
ECOLOGICAL CONSULTANTS

Project
Cottam and West Burton cable route

Title
Cable route search area

Date
25/05/2022

Scale
0 2 4 km



Key:

- River Trent
- Local wildlife sites
- Cable route search area
- Overlapping search area
- Cottam search area
- West Burton search area
- Solar sites

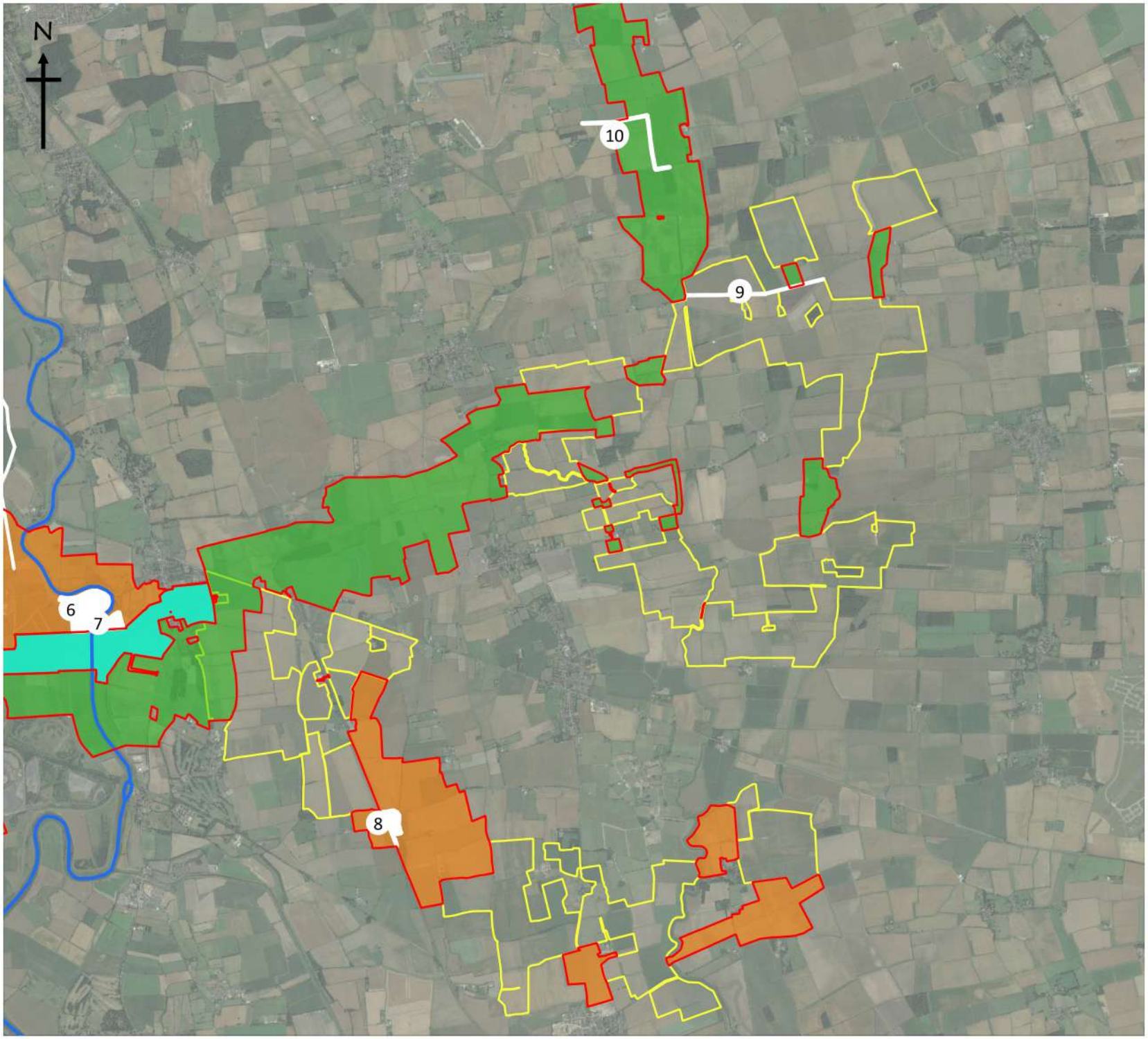
CLARKSON & WOODS
ECOLOGICAL CONSULTANTS

Project
Cottam and West Burton cable route

Title
Local wildlife sites (West)

Date
25/05/2022

Scale
0 1.5 3 km



Key:

- River Trent
- Local wildlife sites
- Cable route search area
- Overlapping search area
- Cottam search area
- West Burton search area
- Solar sites

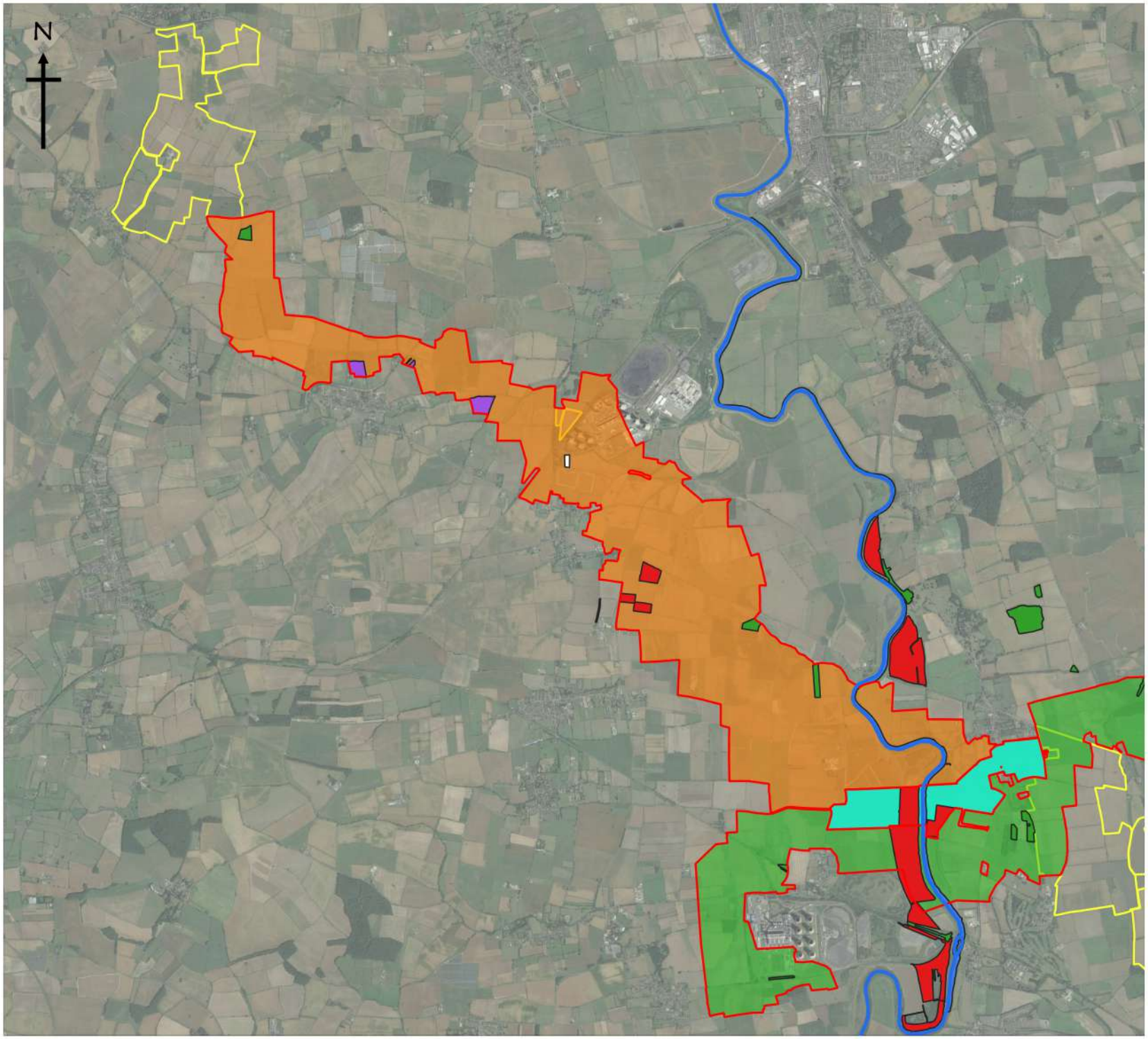
CLARKSON & WOODS
ECOLOGICAL CONSULTANTS

Project
Cottam and West Burton cable route

Title
Local wildlife sites (East)

Date
25/05/2022

Scale
0 1.5 3 km



Key:

Priority habitats

- Deciduous Woodland
- Floodplain Grazing Marsh
- Lowland Meadow
- River
- Traditional Orchard

- River Trent
- Cable route search area
- Overlapping search area
- Cottam search area
- West Burton search area
- Solar sites

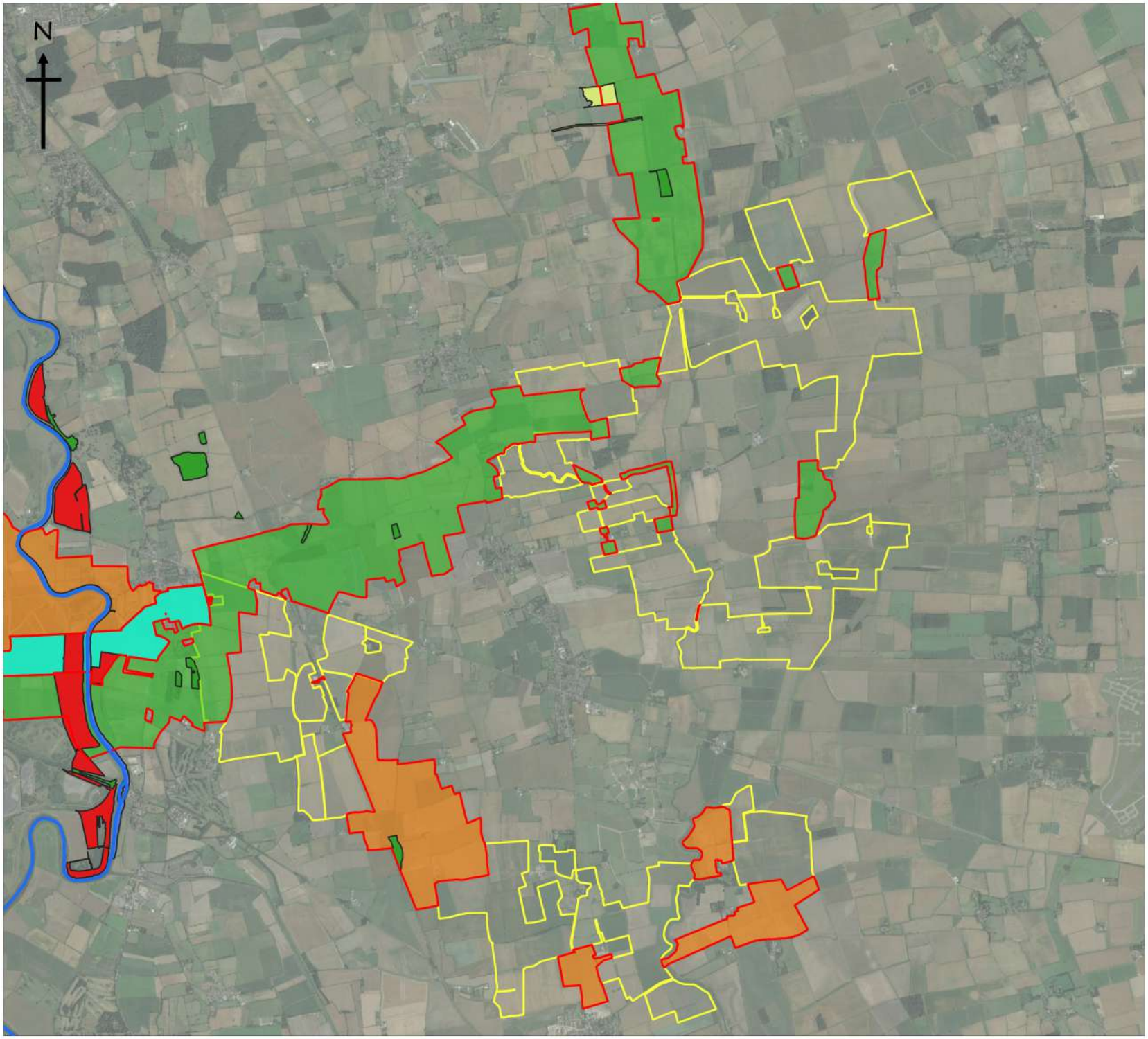
CLARKSON & WOODS
ECOLOGICAL CONSULTANTS

Project
Cottam and West Burton cable route

Title
Priority habitats (West)

Date
25/05/2022

Scale
0 1.5 3 km



Key:

Priority habitats

- Deciduous Woodland
- Floodplain Grazing Marsh
- River
- Semi-Improved Grassland

- River Trent
- Cable route search area
- Overlapping search area
- Cottam search area
- West Burton search area
- Solar sites

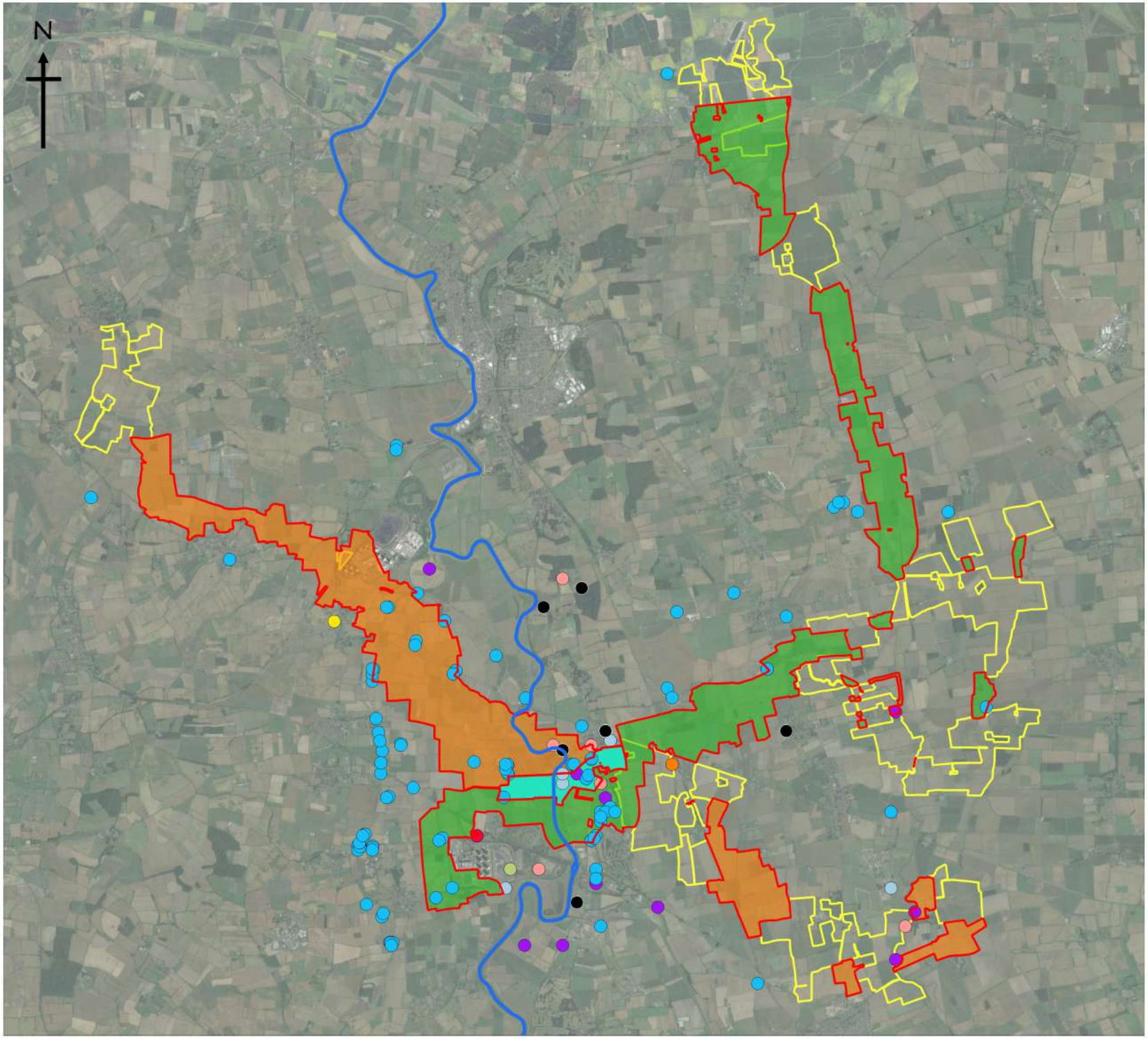
CLARKSON & WOODS
ECOLOGICAL CONSULTANTS

Project
Cottam and West Burton cable route

Title
Priority habitats (East)

Date
25/05/2022

Scale
0 1.5 3 km



Key:

Species of principal importance

- Common Lizard
- Common Toad
- Eurasian Bittern
- European Eel
- Grass Snake
- Lesser Spotted Woodpecker
- Turtle Dove
- Water Vole

- River Trent
- Cable route search area
- Overlapping search area
- Cottam search area
- West Burton search area
- Solar sites

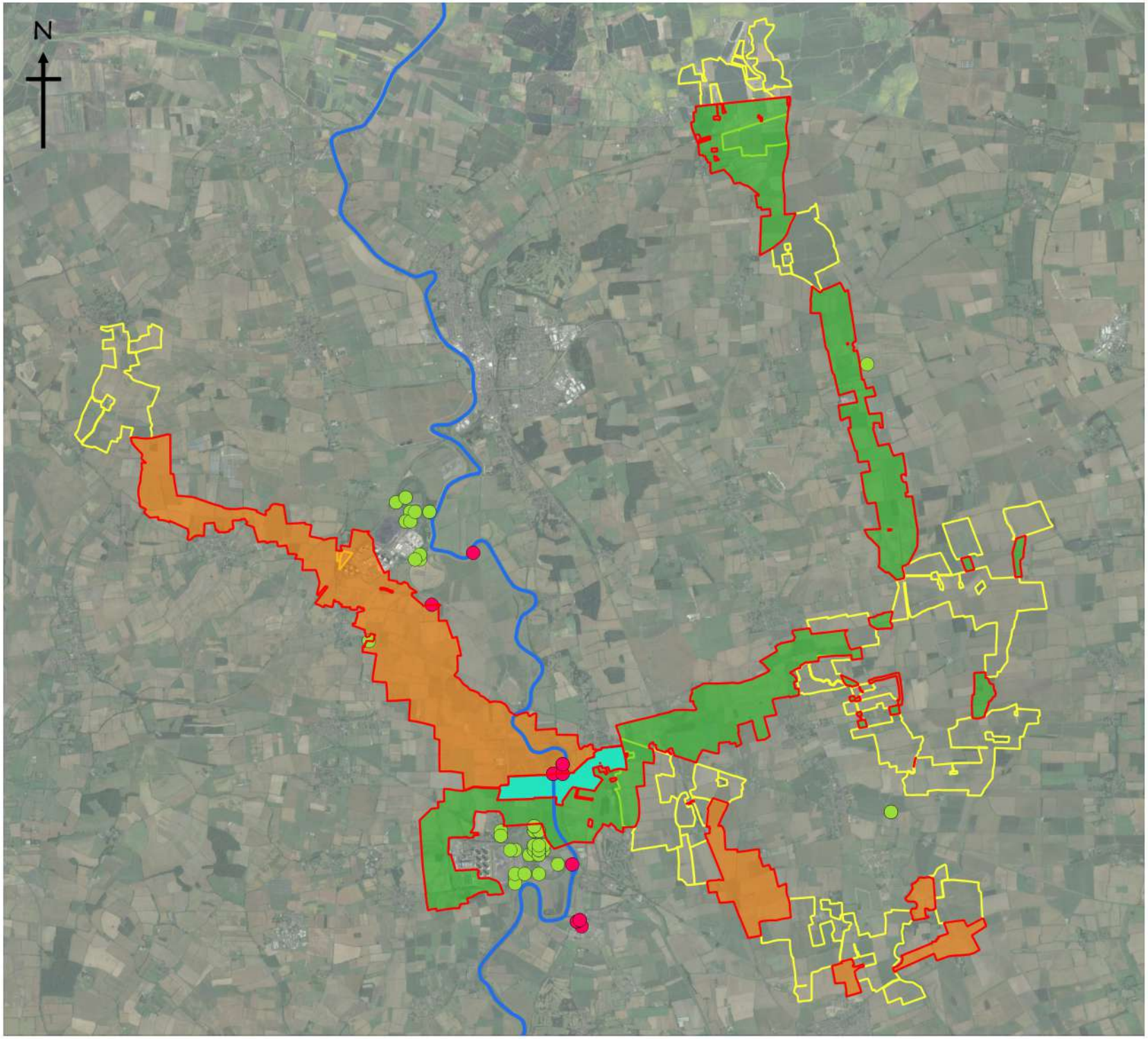
CLARKSON & WOODS
ECOLOGICAL CONSULTANTS

Project
Cottam and West Burton cable route

Title
Species of principal importance

Date
25/05/2022

Scale
0 1.5 3 km



Key:

European protected species

- Eurasian Otter
- Great Crested Newt

- River Trent
- Cable route search area
- Overlapping search area
- Cottam search area
- West Burton search area
- Solar sites

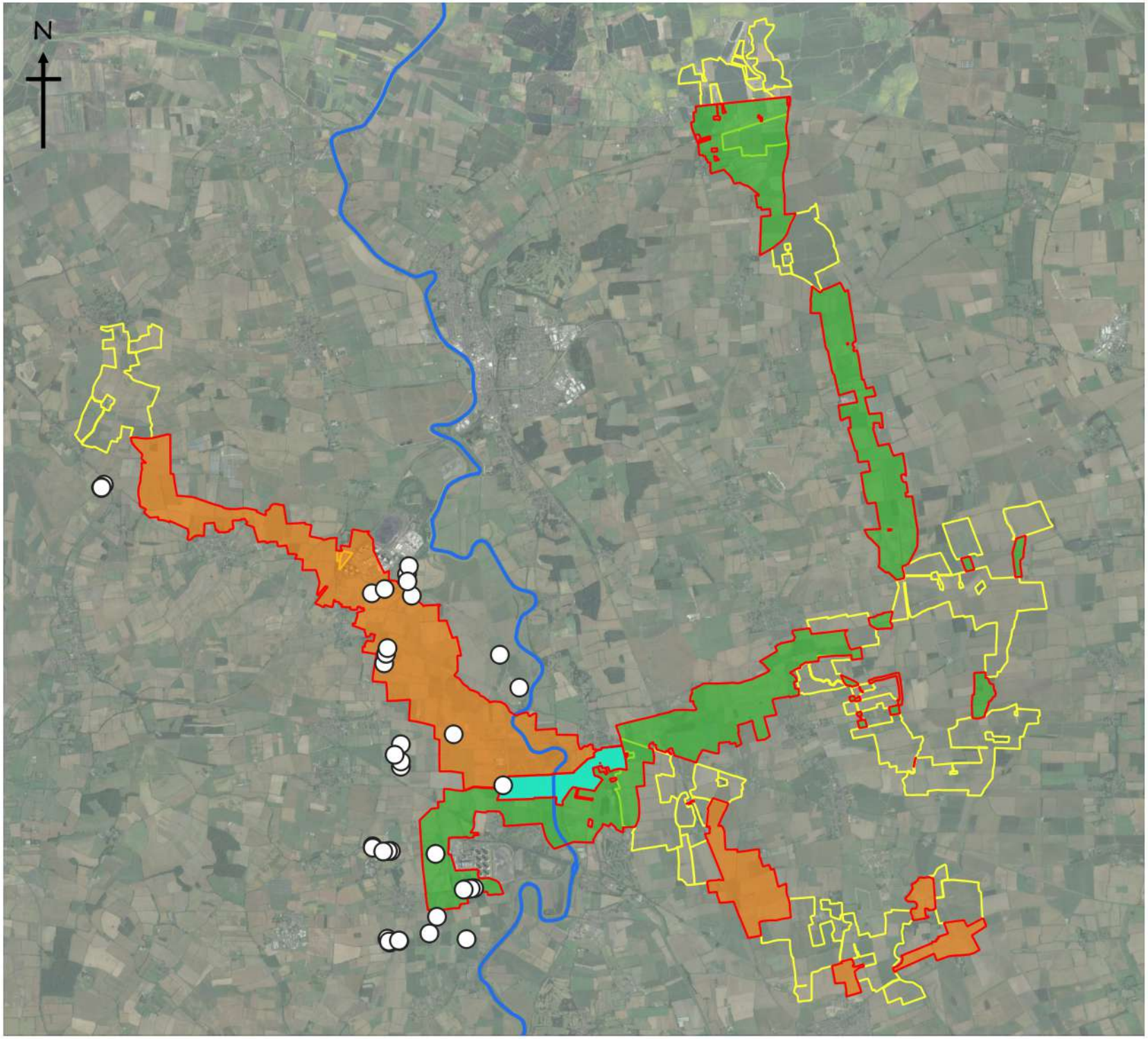
CLARKSON & WOODS
ECOLOGICAL CONSULTANTS

Project
Cottam and West Burton cable route

Title
European protected species

Date
25/05/2022

Scale
0 1.5 3 km



Key:

- Badger setts
- River Trent
- Cable route search area
- Overlapping search area
- Cottam search area
- West Burton search area
- Solar sites

CLARKSON & WOODS
ECOLOGICAL CONSULTANTS

Project
Cottam and West Burton cable route

Title
Badger setts

Date
25/05/2022

Scale
0 1.5 3 km

9.4 Consultation Responses

3.3 Ecology and Biodiversity

(Scoping Report Section 8)

ID	Ref	Applicant's proposed matters to scope out	Inspectorate's comments
3.3.1	8.2.32 and Appendix 8, 4.11.2 and 4.11.15	Polecat	Scoping Report Appendix 8, paragraph 4.11.2 identifies that one polecat record was found 1.2km south east of Coates South. Paragraph 4.11.15 identifies that all Cottam sites are conducive to the presence of polecat therefore impacts cannot be ruled out. On this basis, the Inspectorate does not agree to scope this matter out. The ES should assess impacts to polecats where significant effects are likely to occur.
3.3.2	8.2.32, Table 8.1	Dormice	Desk-based searches found no records of Dormice in the Lincoln to Gainsborough area in which the Proposed Development is located. Additionally, Scoping Report Appendix 8, paragraph 4.6.1 identified that habitats on site are considered poor for dormice and are unlikely to be linked to or support a population. The Inspectorate is content to scope out effects on dormice on this basis.
3.3.3	Table 8.1 and 8.2.51	Fish	Scoping Report paragraph 8.2.51 states that the main potential source of impacts to fish is from pollution events during construction which would be managed through standard avoidance measures secured in the Construction Environment Management Plan (CEMP). The cable route will need to cross rivers but this will be done by using horizontal directional drilling (HDD) methods and buffer zones to avoid direct harm on these watercourses. Night-time working may be proposed for cable route installation and HDD (paragraph 4.3.6). Impacts from vibration, noise and lighting during construction have not been considered. As the red line boundary of the solar array at Cottam one is adjacent to the River Till at multiple locations and

ID	Ref	Applicant's proposed matters to scope out	Inspectorate's comments
			sometimes, on both banks, there is potential for disturbance impacts on fish from activities such as piling for the foundations of the panels and from construction task lighting. Scoping Report paragraph 8.2.51 states that horizontal directional drilling is also proposed for cable crossing of rivers; this has potential to cause impacts on aquatic species due to breakout from drilling fluids and vibration within the riverbed. In the absence of information relating to the potential for impacts from noise, vibration, lighting or sediment breakout from the Proposed Development on fish species the Inspectorate does not agree to scope this matter out. The ES should include a description of the sensitivity of relevant watercourses and any seasonal constraints on such crossings, assessing likely significant effects on riverine species where they are likely to occur from noise, vibration and lighting disturbances.

ID	Ref	Description	Inspectorate's comments
3.3.4	4.4.5, 8.2.40 and 8.3.8 to 8.3.14 and 8.4.35	Skylark, yellow wagtail and lapwing mitigation	Following preliminary surveys, skylark, yellow wagtail and lapwing are identified in the Scoping Report as a ground-nesting bird species likely to be impacted by the Proposed Development as they were recorded across all land parcels for the Proposed Development during surveys. Scoping Report paragraph 8.4.35 states that options for the provision of compensatory measures will be explored and paragraph 4.4.5 states that mitigation land will be provided for Skylarks. The location and area of this mitigation land has not been defined at this stage. It is unclear if this mitigation land is also proposed as mitigation for yellow wagtail and lapwing.

ID	Ref	Description	Inspectorate's comments
			The ES should explain the location of such areas and how compensation areas will be secured, delivered and managed/ maintained to be effective. Species already using the proposed mitigation sites should be identified and any impacts e.g. displacement should be assessed where significant effects are likely to occur.
3.3.5	8.2.42	Bird species breeding in field boundaries	Scoping Report paragraph 8.2.42 states that species breeding in field boundaries are considered less likely to be impacted by the proposals beyond removal of field boundary habitats and that hedgerow removal is anticipated. The ES should assess disturbance impacts to bird species breeding in field boundaries e.g. piling during construction, explain how existing hedgerows within the site will be retained and outline the measures to be taken to mitigate disturbance impacts and the removal of existing field boundary habitats.
3.3.6	8.2.10	Lighting disturbance	Scoping Report paragraph 8.2.10 lists potential impacts during construction but disturbance does not include lighting disturbance. Scoping Report paragraph 4.3.5 identifies that lighting will be required during construction. The ES should assess impacts on ecological receptors from lighting where significant effects are likely to occur and demonstrate measures taken to avoid disruption of ecological corridors such hedgerows that provide flight-lines for bats.
3.3.7	8.2.12	20km study area for designated sites with bats as features	Scoping Report paragraph 8.2.12 states that a 20km search area will be used as a study area to search for designated sites with bats and birds as features. A 30km radius of search should be applied in line with standard practice.

ID	Ref	Description	Inspectorate's comments
3.3.8	8.2.6	Badger surveys	Scoping Report paragraph 8.2.6 sets out the surveys proposed to be carried out to inform the ES baseline. This does not include badger surveys although they are present at Cottam 1 and 3 sites (paragraph 8.2.25). Badger surveys should be carried out to inform the ecological baseline and impacts should be assessed where significant effects are likely to occur.
3.3.9	n/a	Confidential annexes	Public bodies have a responsibility to avoid releasing environmental information that could bring about harm to sensitive or vulnerable ecological features. Specific survey and assessment data relating to the presence and locations of species such as badgers, rare birds and plants that could be subject to disturbance, damage, persecution or commercial exploitation resulting from publication of the information, should be provided in the ES as a confidential annex. All other assessment information should be included in an ES chapter, as normal, with a placeholder explaining that a confidential annex has been submitted to the Inspectorate and may be made available subject to request.

Bassetlaw
DISTRICT COUNCIL
— North Nottinghamshire —

FAO : Emily Park
The Planning Inspectorate
Environmental Services
Central Operations
Temple Quay House
2 The Square
Bristol
BS1 6PN

Our Ref: 22/00124/PREAPP
Your Ref: EN010131-000007
Officer: Clare Cook/Daniel Galphin
Email: planning@bassetlaw.gov.uk

24 February 2022

Dear Emily,

Planning Act 2008 (as amended) and The Infrastructure Planning (Environmental Impact Assessment) Regulations 2017 (the EIA Regulations) – Regulations 10 and 11

Application by Island Green Power Ltd (the Applicant) for an Order granting Development Consent for the Cottam Solar Project (the Proposed Development)

Scoping consultation and notification of the Applicant's contact details and duty to make available information to the Applicant if requested

I refer to your letter and enclosures dated 28th January 2022 regarding the above development.

The District Council understands that its views are sought, as a statutory consultee on the scoping opinion which has been submitted to the Secretary of State under the terms of the Infrastructure Planning (Environmental Impact Assessment) Regulations 2017. The District Council also understands that the Secretary of State will consult all the relevant statutory bodies in respect of this scoping opinion.

This project is cross border with the main element of the proposed solar farm being within West Lindsey District Council and the cabling element and connection being within Bassetlaw District Council. The scoping report refers to the fact that the exact location of the proposed cabling is not yet known although *Appendix 3* of the EIA Scoping Report outlines that potential cable route corridors are currently being consider but only a narrow width within these areas are required. Temporary construction compounds will also be required.

The submitted scoping report contains the following chapters and I comment on them accordingly:

The Scheme

The sites for built development are identified as being within a 19km radius of Cottam Power Station and are identified as Cottam 1, 2 and 3. *Appendix 3* in the EIA Scoping Report shows the exact locations of these sites. It is noted that the report also gives a detailed description of the physical characteristics and constraints of the surrounding areas which is welcomed.

It is noted that the exact type of solar panels is not yet decided and that the options have been separated into 'Option A – Tracking panels' and 'Option B – Fixed panels'. Further

assessment of the potential implications of the design should be considered and assessed in the ES when this option has been decided.

This is even more important when it comes to the cabling, the exact details of which (most notably the routing) are not yet known. This makes it more difficult to scope the overall project in detail.

Alternatives Considered

It is encouraging that the ES will contain a chapter that will consider alternative sites. This overall section of the EIA Scoping Report however is thin in detail as to what the alternative sites will be. Given that the site for the main development has already been selected, it would have been preferable if some consideration had already been given to this.

Consultation

It is promising to see that the applicant has already undertaken early consultation work with both Bassetlaw District Council and West Lindsey District Council alongside other statutory consultees. It is also welcomed that further consultation will be taken with statutory and non-statutory consultees as 2022 progresses. However, there are some concerns about the specific details with regarding to consultation with the community. The term 'local community' has not been clearly defined in terms of its scope. It is important that as many methods are used to consult the local community as possible given the isolated nature of many of the settlement that have the potential to be impacted by the proposals. We would be happy to assist the developer with the specifics of this approach.

Consultation with the Parish Councils, Neighbourhood Planning Groups and elected Members within Bassetlaw will also be very important in the consultation process. However, this will become more important once more details on the cabling are known.

Comments on the general approach

As Bassetlaw District Council's jurisdiction falls within part of the cable search corridor and the anticipated connection point, the Council reserves the right to make further comments when more information is available to review in regards to the exact location of the cable corridor. The section entitled the 'Development Site' focusses on the main sites for the proposed solar panels and gives very little information in respect of the cabling areas (only one paragraph at 3.3). It is understood that at this point in time the precise cabling areas and type of cabling is not known; however once these are established the same exercise should be undertaken for these routes as the exercise that has been undertaken with regards to Cottam 1,2 and 3.

The issue of cumulative impact will need to be carefully considered as there are other NSIP projects in this locality for similar developments along with planning applications for the same. Whilst renewable energy is supported the ES must ensure that these cumulative impacts are assessed within both Bassetlaw, West Lindsey and other adjoining districts. It is noted that the scoping report states significant and committed developments will be assessed in this regard. However it should be noted that there are a number of other NSIPs in this locality that are at a similar stage to this application; these have not yet attained permission but need to be considered within the heading of cumulative impacts. Omitting the other potential NSIP sites gives a false assessment of environmental impacts. The District would be happy to assist in assessing and agreeing the applicant's list of other similar schemes in Nottinghamshire and Lincolnshire.

Each topic chapter should assess mitigation, this should be detailed and include a schedule of deliverable environmental commitments along with monitoring and control mechanisms. The order for mitigation should be avoid, minimise or reduce impact and remedy or compensate.

The ES should contain an appendix which sets out the evidence base documents that are to be used to inform the baseline would be welcomed. The evidence should be up to date and in accordance with the Regulations the District would be happy to assist in providing evidence where possible

In relation to the emerging Local Plan there have been further developments in this regard. The Council has recently undertaken a Regulation 19 Addendum consultation (ended on the 17 February, 2022). This Addendum together with the Publication version of the Plan will be submitted for Examination by the Secretary of State on 11 March 2022. This should be acknowledged and updated (eg at Paragraph 9.2.52)

There has been references made to Policy ST51 throughout the Scoping Document. This policy was part of the focussed Addendum consultation. Therefore, the reference at Paragraph 14.6.4 of the report will need to be updated to reflect this.

One policy included within the Draft Bassetlaw Local Plan that may also be relevant to this proposal and the Scoping Document is Policy ST6: Cottam Priority Regeneration Area (CPRA). Currently, land at the former Cottam Power Station site is identified as a broad location for mixed use regeneration. As such, the site will be safeguarded from development which would jeopardise the comprehensive remediation, reclamation and redevelopment of the whole site.

In paragraph 5.4 it is important to note that Bassetlaw District does have a number of neighbourhood plans which form part of the development plan. Those that are relevant (once the cabling route is fixed) should be assessed in any future ES.

It is important to have a consistent approach is taken with regards to the policy context of each chapter. In any event it appears that little reference has been made to Bassetlaw Local Plan policies, emerging Local Plan policies or made Neighbourhood Plans. Whilst it is appreciated the specific cabling route is not yet known it is crucial that the ES contains a full and up to date reference to Bassetlaw's planning policy.

Proposed Topics

Climate Change

The Council comments as follows in respect of climate change:

The reference at Paragraph 6.2.2 regarding BDC's climate commitment is welcome.

The methodology for climate and biodiversity related assessments are sound. It is noted that it is proposed to scope out climate adaptation as this will be contained within specific chapters of the ES such as 'Hydrology, Flood Risk and Drainage'. This is considered to be satisfactory subject to the impacts of climate change being explicitly referenced and assessed within these chapters. It is considered acceptable to scope out the potential impacts of sea level rise out of the ES.

It is considered that a full climate change chapter should be scoped into the ES rather than a proportionate one to allow a full assessment to be undertaken in this regard.

Landscape and Visual Amenity

7.2.1 – Planning Policy Context and Guidance

No reference is made to the relevant policies within the Bassetlaw Core Strategy, the Emerging Bassetlaw Local Plan (2020 – 2037) or made Neighbourhood Plans.

A further review of relevant policies contained within the NPPF is also recommended eg para 174 is not quoted. It also appears that there are errors in the NPPF paragraph numbering eg should paragraph 98 be paragraph 100?

This is one of the key considerations for the District. However, without more precise details, it is difficult to make full substantive comments on the methodology. It is impossible at this stage to assess whether a 500m study area (para 7.1.9) is going to be sufficient without knowing the full extent and the design of the cabling. Obviously the issue of cumulative development will be critical to this chapter and will need to be considered when agreeing receptor sites. No receptor or viewpoints for Bassetlaw have been included in the scoping report for this chapter and these will need to be agreed. Therefore the distance of a 500m study area is not agreed by the District Council at this point in time.

Bassetlaw District Council has concluded a landscape assessment on Cottam Power Station and the proposals highlighted in ST6. The Bassetlaw Local Landscape Assessment Addendum Document September 2020 suggest that there are important landscape, nature conservation and heritage considerations to take into account in considering a redevelopment of the site. Features including Cottam Wetlands, the former ash tip, existing trees and hedges, recreational routes (including the Torksey Viaduct) must be retained, but there is scope for a successful and sustainable redevelopment of the site. It is acknowledged that the type and scale of development proposed differs but the recommendations of the assessment should be considered as part of the next steps.

I would raise caution with scoping out a preliminary area of 5km. The amount of cumulative development that is proposed within the surrounding area may mean that a greater distance is required. Whilst it is appreciated that the scoping report is trying to set out parameters with regards to landscaping the visual study area needs to be agreed with the Council's consultant (who is in the process of being engaged) and until this time the study areas are not agreed by the District.

It is considered that this chapter is overlapping with other chapters eg heritage and biodiversity. Whilst it is appreciated that there is some overlap the chapter needs to be clear at the beginning as to what it intends to assess otherwise the document will become repetitive and confusing for the reader/assessor.

Once the details are known early discussions are recommended with both District's and their landscape consultant to set out how the landscape and visual assessment chapter will be developed and the proposed viewpoints and study areas should be agreed with the local authorities prior to commencement of the ES.

Ecology and Biodiversity

Please see attached comments from Nottinghamshire Wildlife Trust.

Again there is little reference to the cabling routes other than there will be limited ecological disturbance. This is not agreed at this point in time as the effects on ecology and biodiversity cannot be established until the routes have been defined. It also states that only

a desktop survey is proposed for the cabling routes; again this is not agreed and the District would expect to see full ecological surveys undertaken for these routes.

It is important to mention that the cable search corridor area impacts upon a Main green corridor in the form of the River Trent (Local Plan policy ST39: Green and Blue Infrastructure). Should the area be chosen as part of the cable corridor impact upon the green corridor care should be taken to protect the function, setting, biodiversity value, landscape, access and recreational value of the Main corridor. It is worth noting that in close proximity to the Cottam Power Station site, a Local Wildlife Site designation covers a significant part (Eastern side of the site – site ID 1/101). It is understood that scoping has been undertaken for residual effects on ecological features as indicated in Table 8.1. It would be prudent to understand the level of impact and ensure that mitigation is commensurate to address impacts identified.

Whilst the Bassetlaw Core Strategy 2011 is quoted in the policy section, there is no reference to the emerging Local Plan or any made Neighbourhood Plans. Another key document is 'Biodiversity 2020: A strategy for England's wildlife and ecosystem services' as this is the most recent Defra approved strategy for biodiversity in the UK. For meaningful policy to enhance local biodiversity the core 4 principles ***must*** be included in their enhancement criteria: Better, Bigger, More, Joined.

The need for 10% net gain is welcomed and this should be scoped into the assessment. The Environment Act 2021 promotes biodiversity net gain in new development, albeit from 2023. However, the NPPF recommends securing net gains now. Reflecting the principles of national planning policy and the emerging provisions of the Act we would strongly recommend that the proposal secures at least 10% net gain in biodiversity to ensure that the value of the development exceeds the pre-development on site habitat value by at least 10%.

Lighting, even during construction phase, has the potential to impact on ecology and given the fact that there are still unknowns in respect of the location and design of this proposal it is considered that lighting should remain in the EIA and its effect on ecology should form part of this chapter.

It is considered that nothing should be scoped out of this chapter.

Hydrology, Flood Risk and Drainage

The scoping report acknowledges that the work relating to the cable areas is less advanced than the other 3 sites and therefore at this point in time little comment can be made on the scope in respect of the cabling areas within Bassetlaw.

The council welcomes reference to Policies ST52 Flood Risk and Drainage and ST53 Protecting Water Quality and Management. Further detail on flood impacts and drainage solutions would be welcome. The Level 2 Strategic Flood Risk Assessment in June 2021 concluded that the Cottam Priority Regeneration Area was found to be highly susceptible to groundwater flooding. Whilst it is acknowledged that this proposal may not have the same impact on flood risk as mixed use regeneration, such issues should be given due consideration in the planning process.

It is welcomed that nothing is proposed to be scoped out of this chapter

Ground Conditions and Contamination

Again it is acknowledged that the cabling element in this regard is less advanced. The Council would expect full investigations to be undertaken with respect of this topic for the areas that will affect Bassetlaw.

It is welcomed that this topic is scoped in at this point in time until further discussions with relevant officers have been undertaken.

Minerals

The safeguarding of minerals is given local and national importance in the Section 17 of the NPPF (facilitating the sustainable use of minerals) and the Policy SP7 of the Nottinghamshire County Council Minerals Local Plan. It is proposed to scope consideration of mineral safeguarding out of the ES as the proposed scheme is for a temporary period and as such, any mineral sterilisation would not be permanent. This is considered to be acceptable but it is recommended that ongoing consultation is done with the County Planning Authorities at Nottinghamshire County Council and Lincolnshire County Council to properly determine whether this approach it acceptable. Given that Bassetlaw will only include the cabling it is very possible that there will be no mineral safeguarding consideration as the final routing of cables will only include a very small section of the search area for potential cable routes.

Please see the response from The Coal Authority, this reads as follows:

"I can confirm that the area of cabling and grid connections within the administrative area of Bassetlaw District Council falls outside the coalfield area. Accordingly, if it is considered that the application is EIA development, there is no requirement for the applicant to consider coal mining legacy or mineral safeguarding as part of their Environmental Impact Assessment. In addition, there will be no need to consult us on any subsequent planning application for this site."

Archaeology

Advice from the Council's Archaeological Advisor states:

"The Cottam Solar Project Scoping Opinion provides details for the construction of a 600MW solar farm spread over three sites and a substation/energy store facility and cable corridors. All three main sites are located in Lincolnshire, however part of the proposed cable connection routes and substation will be located in Nottinghamshire (Bassetlaw) with the connection point proposed at the Cottam Power Station. The following relates primarily to the proposed cable connection routes and associated substations/stores proposed for Bassetlaw.

I have not been consulted prior to submission of this scoping report and have significant concerns on the Cultural Heritage section (section 12) of the submitted documents.

I am disappointed to note that the applicant has not engaged prior to this submission or to undertaking/commissioning geophysical survey work, which may not meet the standards and quality control requirements expected.

It is also concerning that the cable corridor routes have not been determined and therefore not considered other than a vague statement in section 12.1.2. The Environmental Impact Assessment (EIA) will need to include all scoped in cable routes and substation sites in the form of desk-based research, non-intrusive and intrusive evaluation and be included in the ES (Environmental Statement) prior to submission of the Development Consent Order (DCO) application.

The review and initial assessment of assets presented in this document is based on very limited data and many of the conclusions drawn cannot be justified at this stage without further desk-based research, non-intrusive and intrusive evaluation. The following are just some of the statements with which I cannot currently agree:

Section 12.2.17 states that 'Despite the lack or limited nature of previously recorded evidence for prehistoric and Roman period activity….the results of the geophysical survey have identified concentrations of anomalies that could represent settlements and enclosures of a late prehistoric or Roman period date.' The lack of site-specific information is an indication of limited investigation rather than limited archaeological potential.

Section 12.2.18 goes on to say that even if archaeological remains of prehistoric or Roman periods are present in the Site 'There is no evidence however to suggest the presence of any remains of a greater than local significance'; Such a statement is entirely unfounded until it is informed by trial trenching. The statement regarding assumed diminished significance is an unhelpful and unjustifiable theme throughout the document. The author is presupposing that locally significant archaeology which is impacted by the development should not be dealt with. As no fieldwork has been completed this is based entirely upon a limited selection of desk-based sources and a partial ongoing geophysical survey. This is entirely insufficient grounds as a basis for competent assessment of the archaeological potential.

The Methodology for further Evaluation and Mitigation states that 'where it is identified that there may be potential…further archaeological evaluation will be taken' (Section 12.3.13) This is unacceptable. This would only give us more information on what is already known. The absence of information does not mean an absence of archaeology. The full extent of the proposed impact zone needs to be evaluated with geophysics informing a programme of trial trenching and those results will inform the archaeological mitigation. This cannot be done until the location, depth, extent and importance of surviving archaeology has been determined through a programme of effective evaluation.

We also disagree with the proposed scoping out of direct impacts upon designated heritage assets (12.4.2) as the potential impacts have not been sufficiently assessed.

There needs to be an approach with sufficient evaluation in order to fully understand the archaeological potential and to inform a reasonable appropriate mitigation strategy to be submitted with the DCO application. The full suite of available desk-based information needs to be competently assessed including all available records, air photos, LiDAR and local sources. This understanding and the geophysical survey results then inform a robust programme of trial trenching to provide evidence for the site-specific archaeological potential of the development.

Given the above, the general methodology proposed in this document is currently insufficient and there is insufficient baseline evidence to support it.

Requirements for Environmental Statement

The ES will require further desk-based research, non-intrusive surveys, and intrusive field evaluation for the full extent of proposed impact areas, including the cable route corridors and any associated structures. The results should be used to minimise the impact on the historic environment through informing the project design and an appropriate programme of archaeological mitigation secured in the DCO.

Regarding desk-based sources, the Environmental Statement will require:

Full LiDAR coverage and assessment; full aerial photo coverage and assessment; archaeological reports; relevant documents from the Record Office covering each site; and the Portable Antiquities Scheme (PAS) data must also be consulted.
Map regression should include all available maps to provide a reasonable understanding of the development of the sites.
The HER search should be for at least 5km for visual impact on designated assets.

The wide-ranging options for the cable routes currently impact known scheduled monuments and highly sensitive areas of known archaeology. There will also be multiple areas of as yet unknown archaeological remains which must be identified and characterised at the assessment phase.

The subsequent mitigation strategy has the potential for significant financial and scheduling impacts. Sufficient evaluation is essential in informing the selection process and in ensuring the subsequent design and work programme is devised with an understanding of the level of archaeological work which may be required before and during the construction phase. Pre-determination evaluation of the cable connection corridors and associated structures can be very useful with informing a decision on the most cost effective and viable route/locations.

Geophysical Survey
It is apparent from the documents that geophysical survey has already commenced. As there has been no engagement to date and no Written Scheme of Investigation has been submitted, I also have concerns about the methodology, practice and extent of the work which is currently being undertaken and what quality control mechanisms have been put in place.

Regardless of the approach to geophysical survey already employed, I would expect the following as a minimum: a single Written Scheme of Investigation that all contractors adhere to. This must include appropriate quality and control measures to ensure consistency of data recovery across the site. The proposed cable route(s) must be included in the survey. Separate reports from each contractor should be supplied in full with an overarching report presenting the combined results as this will be the basis for the subsequent evaluation trenching.

Evaluation Trenching
Trenching results are essential for effective risk management and to inform programme scheduling and budget management. Failing to do so could lead to unnecessary destruction of heritage assets, potential programme delays and excessive cost increases that could otherwise be avoided. A programme of trial trenching is required to inform a robust mitigation strategy which will need to be agreed by the time the Environmental Statement is produced and submitted with the DCO application.

Settings Assessment
Regarding a competent Settings Assessment, the application site may affect the setting of several Scheduled Monuments as well as a large number of designated and non-designated heritage assets. The Settings Assessment/Heritage Impact Assessment needs to begin from an understanding of the significance of each of those assets in order to assess the potential impact of the development on them and put forward any potential benefit or mitigation of proposed negative impact.

In conclusion, the Environmental Impact Assessment (EIA) will require desk-based research, non-intrusive surveys, and intrusive field evaluation for the full extent of proposed impact including the cable connection corridor routes and associated structures. The results should be used to minimise the impact on the historic environment through informing the project design and an appropriate programme of archaeological mitigation. The provision of

sufficient baseline information to identify and assess the impact on known and potential heritage assets is required by Infrastructure Planning (Environmental Impact Assessment) Regulations 2017 (Regulation 5 (2d)), National Planning Statement Policy EN1 (Section 5.8), and the National Planning Policy Framework.

The EIA will need to contain sufficient information on the archaeological potential and must include evidential information on the depth, extent and significance of the archaeological deposits which will be impacted by the development. The results will inform a fit for purpose mitigation strategy which will identify what measures are to be taken to minimise or adequately record the impact of the proposal on archaeological remains.

This is in accordance with The Infrastructure Planning (Environmental Impact Assessment) Regulations 2017 states ***"The EIA must identify, describe and assess in an appropriate manner…the direct and indirect significant impacts of the proposed development on…material assets, cultural heritage and the landscape."*** *(Regulation 5 (2d))"*

Built Heritage

Advice from the Council's Conservation Officer is as follows (also please see enclosed response.):

"This proposal would see a solar farm development comprising 3 distinct sites, all on the east side of the River Trent and some distance from it, very much outside of the Bassetlaw boundary. However, there would be power connections into Bassetlaw, connecting to the existing Cottam substation and land in the vicinity.

- *Within the affected area are 2 Scheduled Ancient Monuments, these being the roman town at Littleborough, and the Fleet Plantation Moated Site. There are a range of Listed Buildings in the vicinity, including Holy Trinity Church and the adjacent Font (both grade II), Church of St Nicholas (grade I), Ferry Farmhouse (grade II) and Littleborough Toll Bar (grade II). There are also several non-designated heritage assets, including the power station and cooling towers at Cottam. These are all identified on the Council's 'Bassetlaw Heritage Mapping' web page: https://www.bassetlaw.gov.uk/planning-and-building/planning-services/conservation-and-heritage/bassetlaw-heritage-mapping/*

- *There are a number of complex archaeological sites in the area affected, identified on aerial photographs/the NMP and from fieldwork. The significance of these, and their implications on this proposal, will be addressed separately by our Archaeologist from Lincolnshire County Council, Matt Adams.(see above)*

- *The majority of the visual impact will be on the Lincolnshire side of the river. Within Bassetlaw, from an above-ground heritage point of view, an underground cable route would be very much preferred to an overhead one. The landscape in that part of Bassetlaw district, being adjacent the Trent, is very flat and open (see attached contour map), so overhead cabling and supporting structures would have a big visual impact for a considerable distance, and will undoubtedly affect the setting of a range of heritage assets along or close to the route.*

- *The proposed Cottam Solar Park would not appear to include any new associated structures such as substations, fencing or cabins, other than temporary ones during the construction phase. This is very much welcomed.*

- *A buried cable option would likely require excavations of 1.4m depth. Archaeological work would be required, including geophysical surveys of the affected areas. I would defer to the views of our Archaeologist on this matter.*

- *During the Gate Burton project meeting, it was considered that a route near or through Littleborough would be the most complex, given the archaeological significance of the Scheduled Ancient Monument and surrounding area, so the southern routes around Cottam village were considered the most likely. I would suggest this also be the case for the Cottam Solar Park project.*

- *Landscape impact surveying should include views from high points within Bassetlaw (contour map attached), both alongside the river and from further away (e.g. Sturton le Steeple, South Leverton, etc), especially having regard to vistas from both roads and public footpaths. Although given the distances involved, it is considered unlikely there would be any visual impact from the Bassetlaw side.*

- *Similarly, views of Bassetlaw assets from the east side of the river should also be considered (e.g. Sturton le Steeple church spire). As we have recently found with several other solar farm proposals in Bassetlaw recently, those key views might extend several miles and be less obvious until seen on the ground. But again, this is considered less likely an issue for Cottam, given the distances involved between those assets and the 3 solar farm sites.*

In reaching these views, I have had regard to: Section 66(1) of the Planning (Listed Buildings & Conservation Areas) Act 1990; Policy DM8 of the Bassetlaw Core Strategy (December 2011); Section 16 of the NPPF (July 2021); and guidance contained in Historic England's Advice Note 15 - Commercial Renewable Energy Development (Feb 2021)."

Transport and Access

Please see the response from Nottinghamshire County Council as the Highway Authority, this reads as follows:

The Grid Connection Corridor (GCC) has the potential to affect several public rights of way in Nottinghamshire. Nottinghamshire County Council's Countryside Access Team will provide a separate response.

"The EIASR confirms that a Transport Assessment (TA), Construction Traffic Management Plan (CTMP), and a Construction Environment Management Plan will form part of the Environmental Impact Assessment to be submitted in support of the proposal. The scope of the TA and CTMP will include the GCC. The CTMP should also include a chapter on construction worker travel patterns and measures to encourage travel by alternative modes to single occupancy vehicle.

The TA methodology is to be based on the DfT Guidance on Transport Assessments, 2007 (GTA) and the Institute of Environmental Management and Assessment Guidelines for the Environmental Assessment of Road Traffic, 1993. Whilst the GTA is now archived, this still would provide a methodology that complies with more recent National Planning Practice Guidance. The methodology is therefore acceptable. The Nottinghamshire Highway Authority will require the scope of the TA to consider all main junctions within Nottinghamshire that would be likely to experience an increase in traffic greater than 30 two-way peak hour movements (based on passenger car units (PCU). This is likely to be limited to the construction of the grid connection and associated infrastructure as the proposed

construction routes to the solar farm sites avoid Nottinghamshire. Where the TA addresses environmental impacts, this should be contained within a separate section to avoid confusion. It would also be helpful if the study area could be split into respective local highway authority areas."

It is crucial that a full analysis of any affected public rights of ways is undertaken once the cabling routes are known. If temporary closures are necessary during the construction phase it is requested that these closures, wherever practicable, are employed sensitively to optimise the connectivity of the wider PROW network. In order to fully consider the PROW network and the impact of the proposal on the network, the applicant should undertake a full assessment of the PROW network and apply for a search of the Definitive Map for Public Rights of Way row.landsearches@nottscc.gov.uk The Nottinghamshire County Council Rights of Way team would welcome discussions regarding the enhancement and improvements to the Public Rights of Way network.

Noise and Vibration

Given the fact that the details of the design and location of the proposed cabling is not yet know it is considered that ground vibration or noise should not be scoped out of the ES.

Glint and Glare

No comment to make on this topic, the District is pleased to see that it is scoped into the ES.

Electromagnetic Fields

Human health is a material consideration and the District consider that this should be scoped into the ES.

Lighting

It is agreed that this does not have to be a standalone chapter; however it will need to be addressed in other relevant chapters such as biodiversity, transport etc.

Major Accidents and Disasters

The scope for this topic is agreed.

Air Quality

The scope for this topic is agreed providing that mitigation measures are reported in the CEMP.

Socio-Economics, Tourism, Recreation and Human Health

As stated in Paragraph 21.2.1 of the Scoping Report, the scale and geographic distribution of the proposals means that its effects have the potential to impact a significant geographic area and the associated population. As part of the cable route and the connection point are within Bassetlaw District, the inclusion of a joint district area assessment in the form of a Local Impact Area for socio-economic, tourism and recreation, and human health impacts is welcomed.

Public Health comments are contained within the response from Nottinghamshire County Council.

Agricultural Circumstances

It is considered that this is an important issue for the relevant Districts, especially when considering these proposals cumulatively with other similar proposals. It therefore should be scoped into the ES. If this approach is not take then it is crucial that it is addressed elsewhere in another topic.

Waste

Please refer to Nottinghamshire County Council response.

Telecommunications, Utilities and Television Receptors

The proposed approach to this chapter is agreed

Summary

The table at 25.1 regarding minerals should state that the cabling areas should be scoped in at this stage as per the main body of the report, or the main body of the report should be changed.

It is considered that all of archaeology and built heritage needs to be scoped in. It is not acceptable to scope out the impacts on some heritage assets or direct impacts on heritage assets.

Noise and vibration should not yet be scoped out in respect of the cabling routes as the exact location is not known.

Light pollution also needs to be covered in the transport topic and human health.

The summary table needs clarification as it states a chapter on lighting is scoped out but will be covered in the landscape chapter; however the landscape chapter states that lighting is scoped out.

This forms a response from Bassetlaw District Council on the applicant's scoping opinion for the Cottam NSIP and we would be grateful if the comments contained within it can be considered as part of your formal scoping response.

Yours faithfully

[redacted]

Development Team Manager

Enc
Archaeological Advice
Bassetlaw Conservation Manager Response
Nottinghamshire County Council Highway Officer's response
Nottinghamshire County Council Response
Nottinghamshire Wildlife Trust response

FAO Island Green Power

Re: West Burton and Cottam Solar Projects

29 October 2021

Thank you for providing an opportunity for Nottinghamshire Wildlife Trust (NWT) to provide comments on the West Burton and Cottam Solar Projects.

NWT supports the deployment of solar arrays on built infrastructure where few if any risks are posed to the natural environment. We also support appropriately sited and managed solar farms that benefit wildlife. Where the development of a solar farm would have a significant and detrimental impact on biodiversity, however, we would oppose it. The wildlife impact of a ground-mounted solar array scheme will be largely determined by location. Where proposals are not within or close to protected areas and functionally linked land, it is unlikely that NWT will have major concerns. However, this will depend on the ecological characteristics of the site and its sensitivity to the proposed changes. In all cases, we would seek to ensure implementation of appropriate mitigation and enhancement measures (see Mitigation and Enhancements).

We note within the literature that cable routes will avoid Sites of Special Scientific Interest (SSSI). We would expect that the solar arrays, storage units and cable routes to not only avoid SSSIs but also there should be a presumption against development of sites of local biodiversity value, that is, Local Wildlife Sites (LWS). LWSs, previously known in Nottinghamshire as 'Sites of Importance for Nature Conservation' are a local, non-statutory designation, that sits below (but complements) the national suite of statutorily designated Sites of Special Scientific Interest (SSSIs). They are of substantive value for the conservation of biodiversity and are home to rare and scarce species, or represent the best surviving examples of habitats that were once widespread and typical of the Nottinghamshire landscape. Collectively, these sites form an essential ecological network and act as wildlife corridors and stepping stones, allowing species to migrate and disperse between sites. The continued existence of these sites is vital to safeguard wildlife from the pressures of development, intensive agriculture and climate change. The LWS network is comprehensive (meaning that every site which qualifies as a LWS is designated as one), whereas SSSIs are representative of the best sites in an area, such that that not all sites which meet the SSSI selection criteria have been, or will be, designated as a SSSI. Because of this, a number of LWS would potentially qualify as SSSIs, meaning that LWS are best described as sites that are of at least county-level importance for their flora and/or fauna.

Proposals having a direct or indirect adverse impact on Habitats and Species of Principal Importance identified under the Natural Environment and Rural Communities Act 2006 including legally protected species, as well as Local Nature Reserves, Local Wildlife Sites or Local Geological Sites and their buffer zones and Local Biodiversity Action Plan species will be required to submit ecological information to enable an assessment of their impact, in accordance with relevant national legislation. In all cases, where the principle of development is considered appropriate the mitigation hierarchy must be applied so that: firstly harm is avoided wherever possible including consideration of other locations; secondly appropriate mitigation is provided to ensure no net loss or a net gain of priority habitat and local populations of priority species; as a last resort, compensation is delivered to offset any residual damage to biodiversity. The objective should be to protect, restore,

Nottinghamshire Wildlife Trust

The Old Ragged School
Brook Street
Nottingham
NG1 1EA
Tel: [redacted]

Email:
info@nottswt.co.uk

Website:
www.nottinghamshirewildlife.org

enhance and provide appropriate buffers around wildlife and geological features at a local and wider landscape-scale to deliver robust ecological networks, to help deliver priorities in the Nottinghamshire Biodiversity Opportunity Mapping (BOM) model for the district of Bassetlaw.

As this is a pre-application consultation and no ecological information is available to review we can only provide general comments. We would therefore, expect a full Ecological Appraisal and Impact Assessment to be undertaken at the site which should include:

- The survey and report to be undertaken using the most recent guidance from CIEEM* and the Bat Conservation Trust (Collins, 2016) as well as British Standard BS 42020: 2013.
- A fully comprehensive desk study and assessment with species and sites data obtained from the Local Records Centre (Nottinghamshire Biological and Geological Records Centre (NBGRC)) and County species recorders
- Outline all methodology used and results of the field survey
- Detail all relevant planning policy and legislation to the proposed scheme
- Provide results and an appropriate ecological assessment for species and habitats
- Provide an assessment and details of any anticipated effects and proposed mitigation measures
- A fully comprehensive assessment of the likely effects the proposed development may have to the LWS and any other statutory and non-statutory sites of nature conservation in the area
- Outlined the results of any protected species surveys undertaken
- Provide scheme specific enhancement measures and recommendations
- Detail further monitoring, compensation and EPS licence (if required)

* CIEEM's Guidelines for Ecological Report Writing (2017), and CIEEM's Guidelines for Preliminary Ecological Appraisal (GPEA) (2017). It should also be noted that CIEEM's Guidelines for Ecological Impact Assessment (EcIA) in the UK September 2018) is recommended to support planning applications.

If the initial field survey identifies the need for further species surveys we would also expect these surveys to be completed within the recommended survey season for that species and the results presented within a suitable format and submitted as part of any application for the proposed application site.

As well as the recommended field survey and report, overall we would expect the hedgerows within the site boundaries to be retained, protected and enhanced as part of any development proposals and the application to contain suitable site specific recommendations for providing net gains for biodiversity and to provide enhancements specific for Nottinghamshire BAP species, Section 41 Species of Principal Importance (NERC Act 2006) and habitats e.g. hedgehogs and hedgerows, as required by the National Planning Policy Framework (2019). With regard to Biodiversity Net Gain (BNG), Defra 3.0 or above should be used (there is soon to be a 3.1), but in addition to the calculations spreadsheet, we would also expect to see the completed conditions assessment and a design stage report if we are expected to provide comments https://cieem.net/wp-content/uploads/2021/07/CIEEM-BNG-Report-and-Audit-templates2.pdf

All new development should make provision for a minimum 10% net biodiversity gain on site, or where it can be demonstrated that for design reasons this is not practicable, off site through a financial contribution. A commuted sum equivalent to 30 years

Nottinghamshire Wildlife Trust

The Old Ragged School
Brook Street
Nottingham
NG1 1EA
Tel: [redacted]

Email:
info@nottswt.co.uk

Website:
www.nottinghamshirewildlife.org

maintenance will be sought to manage the biodiversity assets in the long term. Habitat gain should be maximised to meet Nature Recovery targets and contribute to 30x30. The Wildlife Trusts are calling for at least 30% of our land and sea to be connected and protected for nature's recovery by 2030.

30 by 30 | The Wildlife Trusts

Mitigation and enhancement
If correctly sited (so as not to impact on sensitive sites and species) and with appropriate land / habitat management and other mitigation measures employed, the deployment of solar could be of benefit to wildlife. The following are suggestions for mitigation and enhancement measures that can be adopted by solar developers to reduce their environmental impact and enhance biodiversity on solar sites. The suggestions are taken from a more extensive document produced by the BRE National Solar Centre in conjunction with other conservation organisations that we have also provided. It is important to note, however, that mitigation and enhancement should be considered on a case-by-case basis, and not all of these measures will necessarily be relevant to any particular site.

Mitigation
• Avoid legally protected areas (SSSIs) and sites of county value (LWS).
• Retain landscape features such as hedgerows and mature trees. If removal of a section of hedge is essential, the loss should be mitigated elsewhere on the site.
• All overhead power lines, wires and supports should be designed to minimise electrocution and collision risk (for example, bird deflectors may be necessary).
• Power lines passing through areas where there are species vulnerable to collision and/or electrocution should be undergrounded unless there is adequate evidence that mitigation measures will reduce the risk to an acceptable level.
• Time construction and maintenance to avoid sensitive periods (e.g. during the bird breeding season).
• White borders and white dividing strips on PV panels may reduce attraction of aquatic invertebrates to solar panels (Horváth et al., 2010).

Vegetation will grow under the solar panels and this will require management. Grazing by sheep may be acceptable and is preferable to mowing, spraying or mulching. There may however, be more appropriate management options for wildlife of farmland that could be incorporated. In situations where grazing hasn't been adopted and vegetation clearance is required it **must** first be subject to a vantage point survey for breeding birds followed by ecological supervision. Ideally sites should be maintained without chemicals, fertilisers and pesticides. In terms of future management, it is important the current interest is maintained or enhanced in line with national and local planning policies.

Enhancement
Because panels are raised, a large proportion of a field utilised for solar farm development is still accessible for plant growth and potentially for wildlife enhancements. Furthermore, solar sites are secure sites with little disturbance from humans and machinery once construction is complete. Most sites have a lifespan of at least 20 years which is sufficient time for appropriate land management to yield real wildlife benefits.

• Biodiversity gains are possible where intensively cultivated arable or grassland is converted to extensive grassland and/or wildflower meadows between and/or beneath

Nottinghamshire Wildlife Trust

The Old Ragged School
Brook Street
Nottingham
NG1 1EA
Tel: [redacted]

Email:
info@nottswt.co.uk

Website:
www.nottinghamshirewildlife.org

solar panels and in field margins. The best results are likely to come from sites that contain both wild flower meadows and areas of tussocky un-cropped grassland.
• Planting wild bird seed or nectar mixes could benefit birds and insects. Pollen and nectar strips provide food for pollinating insects through the summer period, and wild bird seed mixes provide food for wild birds through the winter.
• Bare cultivated strips for rare arable plants and invertebrates and rough grassland margins could also be beneficial.
• It may be possible for panels to be at a sufficient height for regular cutting or grazing to be unnecessary. Rough pasture could then develop, potentially providing nesting sites for birds.
• Boundary features such as hedgerows, ditches and field margins can provide nesting and foraging areas, as well as a means for wildlife to move between habitats.
• A variety of artificial structures can be built to provide hibernacula for reptiles and amphibians, log piles for invertebrates, and nesting or roosting boxes for birds and bats. Built structures such as control buildings can be designed to provide access to loft spaces.
• Biodiversity enhancements should be appropriate for the scale of the site and should link with existing habitats on and around the site.

Do not hesitate to contact us if you wish to discuss the above comments.

Kind regards,

[redacted]

Mark Speck
Senior Conservation Officer (North)
Nottinghamshire Wildlife Trust
Tel: [redacted]
https://www.nottinghamshirewildlife.org

Nottinghamshire Wildlife Trust

The Old Ragged School
Brook Street
Nottingham
NG1 1EA
Tel: [redacted]

Email:
info@nottswt.co.uk

Website:
www.nottinghamshirewildlife.org

Canal & River Trust
Making life better by water

Secretary of State
The Planning Inspectorate
Environmental Services
Temple Quay House
2 The Square
Bristol
BS1 6PN

Your Ref EN010133-000007

Our Ref IPP-153

Monday 14th February 2022

BY EMAIL ONLY CottamSolarProject@planninginspectorate.gov.uk

Dear Sirs

EN010133-000007 Cottam Solar Park Project - EIA Scoping Report Notification and Consultation

Thank you for your consultation on the Environmental Impact Assessment Scoping for the above project.

We are the charity who look after and bring to life 2000 miles of canals & rivers. Our waterways contribute to the health and wellbeing of local communities and economies, creating attractive and connected places to live, work, volunteer and spend leisure time. These historic, natural and cultural assets form part of the strategic and local green-blue infrastructure network, linking urban and rural communities as well as habitats. By caring for our waterways and promoting their use we believe we can improve the wellbeing of our nation.

Having reviewed the location of the proposed project and the Scoping Report, we wish to make the following comments:

The Trust are Navigation Authority for the River Trent, and also have freehold landowner interests with respect to the river bed. The Trust also own and manage the Fossdyke Canal, located to the south of the project area.

The river is included within the development boundary of the Cottam Solar Park project, as it is included within the proposed cable corridor search area. Due to the nature of the need for cable connections to the Cottam Power Station site, we understand that a crossing of the river is required. The river is classified as a freight waterway, and can accommodate large craft.

Landscape and Visual Impact Assessment (LVIA)

The Trust note that an LVIA assessment is proposed. Initial scoping details indicate that the permanent solar park elements above ground will not be visible from our waterways (e.g. figures 7.8 – 7.13).

The scoping report does not suggest that impacts from any construction compounds, or disturbance to soil for the construction of caballing between the solar farms, will be considered in the LVIA. We advise that this should be included in the assessment, especially as the cable corridors could result in a significant area of land being disturbed, which could take time to re-seed or restore. We advise that, for any construction compounds near the river corridor, the LVIA should consider views during construction phase and indicate what efforts will be made

Canal & River Trust
Fradley Junction, Alrewas, Burton-upon-Trent, Staffordshire DE13 7DN
T [redacted] E canalrivertrust.org.uk/contact-us W canalrivertrust.org.uk

to minimise the visual impact during the construction works. This may require the analysis of the impact of new viewpoint locations take from the River Trent.

Ecology and Biodiversity

Paragraph 8.2.50 highlights that impacts to fish species will be scoped out of the assessment as directional drilling is proposed under the River Trent, which is considered to not cause direct harm or emissions to the watercourse. We wish to highlight that directional drilling can still cause sediment discharges and problems arising from mud toxicity due to vibration below the river. As a result, we believe the impact should be **scoped in**, with consideration given to the provision of field studies into invertebrates and fish species found in the water to assess the sensitivity of these species to potential sediment movement. A bubble barrier and/or hay bales could be used to manage a portion of suspended sediment.

We note that chapter 18 highlights that impacts on the use of artificial lighting within the development will be assessed as part of other environmental topics, including the Ecology and Biodiversity chapter. We advise that temporary construction lighting, including upon the cable corridor routing, has the potential to disturb wildlife. It is mentioned in the scoping report that barn owls, short-eared owls and little owls breed on site and bats are present, and we advise that the Environmental Assessment should consider the positioning, use and lighting intensity of any construction compounds that may be required, which could impact upon these species.

Ground Conditions and Contamination

We note that it is proposed to scope Ground Conditions and Contamination out of the Environmental Assessment. This is due to the identification of limited potential sources of contamination being identified in the Preliminary Risk Assessments for Sites CO1, CO2 and CO3.

We wish to highlight that the Preliminary Risk Assessment does not appear to have made judgements with regards to the potential for contamination within the cable route areas. As a buried cable is likely to involve the disturbance of soils, there is a risk that the installation works could expose the wider environment to contamination is any contaminants are present that the risk not fully remediated against.

We wish to highlight that there is potential for land used for dredging tips in proximity to the River Trent being included within the cable route search corridor, which may contain elevated levels of contamination. We advise that the applicant should ensure that the cable routing area does not include the potential for the disturbance of land currently or formerly uses as a dredging tip so as to ensure that Ground Conditions and Contamination can be scoped out of the assessment.

The Trust would be able to provide more information to the applicant so as to ensure that the cable search area does not impact with potentially contaminated land associated with dredging tips along the River Trent corridor.

Impact on the use of Dredging Tips

There is potential for the cable routing area to impact upon land used as dredging tips on the River Trent. Any cable routing across an existing dredging tip could reduce the ability of the Trust to carry out dredging activities on the River Trent, especially to enable continued navigation transport on the river.

Whilst the Scoping Report includes an assessment of the impact of the development on highway traffic, we advise that the Scoping Report is amended so that the impact of any cable routing within areas used as dredging tips can be fully considered. For example, the 'Transport and Access' chapter could be expanded so that any impact of the cable routing on the carrying out of Navigable Transport on the river is fully included; or a separate

chapter considering the impacts on the river could be included. Alternatively, the cable routing area could be amended so as to not include existing dredging tips. The Trust would be able to provide more information to the applicant on the location of dredging tips.

Use of the River for Freight

The installation of new solar farm equipment could involve the importation of significant indivisible heavy loads. The River Trent is a commercial waterway, where the transport of equipment may be possible which could help to minimise the need to utilise the Highways Network. We advise that consideration of the use of the Trent should be included within the Transport and Access chapter, so as to ensure that every possibility to reduce the impact on highways is considered.

Noise and Vibration

We note hat vibrational impacts are proposed to be scoped out of the EIA assessment. We wish to highlight that works to install a cable below the River Trent, as suggested in the scoping document, would need to be carefully managed to avoid any significant vibration or loading that could adversely impact the stability of the river bank above.

We advise that methodology and associated risk mitigation details should be submitted prior to the commencement of development on site. We advise that we do not believe this information need to be incorporated into the EIA. However, we would request that the need for this is addressed in any subsequent submission.

General Comment on the Routing of the Cables

The submitted documents indicate that new cables will be sited underground. The Trust generally welcomes this approach, as it would help to minimise any impact on the visual appearance of our waterway corridors. It would also minimise any potential harm to navigation that could be caused through the positioning of cables above navigable channels.

Should the scheme be amended to incorporate above ground caballing or crossings of the River Trent, then we advise that the Scoping Report would need to be amended to ensure that the visual impacts of the cables would be considered and mitigated for.

Should the applicant wish to amend the scheme for an above-river crossing, we advise that consideration should be given to the use of an existing crossing, including Torksey Viaduct or existing cable crossings, so as to minimise any visual and navigational impact on the waterway.

Other Comments

The applicant is advised that the Trust is not a land drainage authority and any surface water discharge to our waterways will require prior consent from the Trust. Such discharges are not granted as of right and when and if they are granted they will usually be subject to completion of a commercial agreement prior to the commencement of any development.

Landowner consent may be required for the installation of a new cable below the River Trent, due to the Trust's land ownership. The applicant is advised to contact the Trust's Utilities section at utilitiesenquiry@canalrivertrust.org.uk for further advice.

Canal & River Trust
Fradley Junction, Alrewas, Burton-upon-Trent, Staffordshire DE13 7DN
T [redacted] E canalrivertrust.org.uk/contact-us W canalrivertrust.org.uk

Please note that the Canal & River Trust is a statutory undertaker which has specific duties to protect the waterways. Accordingly, it is likely that we will resist the use of compulsory purchase powers which may affect our land or undertakings. We reserve the right to seek protections under S16 of the Acquisition of Land Act 1981 should any proposals affect land which has been acquired for the purposes of our undertaking.

Accordingly, we require that the acquisition of any Trust land or rights over Trust land should be secured by agreement.

The proposals include works in close proximity to the Trust's waterways. In our capacity as landowner, we wish to advise that the applicant/landowner would likely be required to comply with the Trust's 'Code of Practice for Works affecting the Canal & River Trust'. The applicant/developer is advised to contact the Canal & River Trust's Works Engineering Team via switchboard on [redacted] should they have any questions or require further information upon the Code.

Yours Sincerely

Simon Tucker MRTPI
Area Planner – Yorkshire and North East

[redacted]@canalrivertrust.org.uk
Fradley Junction, Alrewas, Burton-upon-Trent, Staffordshire, DE13 7DN

https://canalrivertrust.org.uk/specialist-teams/planning-and-design

FAO: Emily Park

By email:
CottamSolarProject@planninginspectorate.gov.uk

Our ref: AN/2022/132733/01-L01
Your ref: EN010133-000007

Date: 24 February 2022

Dear Emily

Application by Cottam Solar Project Limited (the Applicant) for an Order granting Development Consent for the Cottam Solar Project (the Proposed Development)

Thank you for referring the above scoping consultation on the 28 January 2022.

We have reviewed the Scoping Report, prepared by Lanpro and have the following comments to make on topics that fall within our remit.

1. Chapter 8 – Ecology and biodiversity

1.1 We welcome the applicant's intention to carry out spring surveys of all water courses and ditches within the red line boundaries for water voles and otters (May 2022).

1.2 The applicant acknowledges the presence of water voles (paragraph 8.2.28 – 8.2.30) within the scoping report at sites **Cottam 1** and **Cottam 2**. We would add that the Northorpe Beck and its tributaries, which are in proximity to the **Cottam 3** site also have records of water vole. There could be an opportunity to improve these tributaries as a more robust water vole habitat, by providing a greater network of ditches and drains.

1.3 We would like to see an assessment of the potential presence of invasive species which may be present across the sites.

1.4 We welcome the commitment to include a Biodiversity Net Gain (BNG) assessment within the Environmental Impact Assessment (EIA).

1.5 The applicant is encouraged to consider if BNG proposals can incorporate the use of Natural Flood Management (NFM) techniques such as leak dams, field corner bunds, 3d buffer strips with trees, swales and grass edge to promote a slower runoff into the Northorpe beck and its tributaries. The beck feeds into the River Eau and can cause flooding issues in the village of Scotter. NFM benefits water quality as well as flood risk, alongside providing opportunities for BNG.

Environment Agency
Nene House (Pytchley Lodge Industrial Estate),
Pytchley Lodge Road, Kettering, Northants, NN15 6JQ
Email: LNplanning@environment-agency.gov.uk
www.gov.uk/environment-agency

Customer services line: [redacted]
Calls to 03 numbers cost the same as calls to standard geographic numbers (i.e. numbers beginning with 01 or 02).

Cont/d..

2. Chapter 9 - Hydrology, flood risk and drainage

2.1 The comments below relate to flood risk from fluvial and tidal sources only. We do not provide advice on the risk of flooding from ground water, drainage systems, reservoirs, canals or ordinary watercourses.

2.2 The flood risk assessment (FRA) accompanying the EIA should demonstrate that the development is safe from flooding. The FRA should also demonstrate that the development will not increase risk elsewhere and where possible reduce flood risk overall. The supporting FRA must consider the risk from all sources of flooding and suggest mitigation as appropriate to manage the identified risks.

2.3 We suggest that the development would be considered as 'essential infrastructure' as classified in Annex 3 to the National Planning Policy Framework (NPPF). In this instance the essential infrastructure should be designed and constructed to:

- remain operational and safe for users in times of flood;
- result in no net loss of floodplain storage;
- not impede water flows and not increase flood risk elsewhere.

2.4 Where possible, all essential support/control infrastructure should be located in flood zone 1. Where structures are built in the floodplain, floodplain compensation should be provided. Ground levels should also not be raised and the solar arrays should allow water to pass underneath with minimal obstruction. Any fencing within the floodplain should be post and rail or post and wire with wide apertures to allow the free flow of floodwater and minimise debris collection on the fencing during flood events.

2.5 Sequential placement of solar panels outside of flood zones 2 and 3 would be preferred. However, should this not be possible we would recommend raising the solar panels to a minimum of the 1 in 100 year event plus climate change level with 300mm freeboard. We note the solar panels themselves can withstand up to 1 metres depth of flooding (paragraph 9.3.11), this can be explored further within the FRA.

2.6 If there are staff facilities/buildings planned on site they should be located within flood zone 1 where possible. If it is essential to locate them within flood zones 2 or 3 they should have a safe refuge provided above the maximum modelled flood level at the site. Access and egress to the sites during periods of flooding should also be considered within the FRA.

2.7 Our comments below focus on the specific areas of proposed development, based on the boundaries highlighted in Figure 1.1 – Overall Scheme Plan within the Cottam Solar Project EIA Scoping Report dated January 2022.

2.8 We agree that parts of the **Cottam 1** site are within flood zones 2 and 3 (paragraph 3.2.36) and that the majority is within flood zone 1. Some of the development proposed intersects with main rivers and therefore the Environmental Permitting (England and Wales) Regulations 2016 may apply. However, some exemptions to these Regulations exist and we will need to engage in more detail with the applicant regarding their status under the Electricity Act 1989 to determine if any of these apply. If it is determined that the Regulations do still apply, we will also need to discuss whether the applicant is looking to disapply these under Section 150 of the Planning Act 2008.

Cont/d..

2.9 For information, the Environmental Permitting (England and Wales) Regulations 2016 apply for any proposed activities which will take place:

- in, over, under or within 8 metres of a main river (16 metres if tidal)
- on or within 8 metres of a flood defence structure or culvert (16 metres if tidal)
- on or within 16 metres of a sea defence
- within 16 metres of any main river, flood defence (including a remote defence) or culvert for quarrying or excavation
- in a flood plain more than 8 metres from the river bank, culvert or flood defence structure (16 metres if tidal) having the potential to divert flood flows to third parties, if planning permission has not already been granted for the works.

2.10 We agree that a small portion of **Cottam 2** is within flood zone 3 (paragraph 3.2.70). **Cottom 3a and 3b** are in flood zone 1.

2.11 We note that potential impacts on water quality from construction and operation of the proposed development will be included within the scope of the EIA (Chapter 9 p102). Potential surface water impacts should be considered for all of the development sites plus the proposed cabling routes and construction compounds for cabling, in particular where these will be adjacent to or cross surface watercourses.

2.12 Water Framework Directive - We welcome the commitment in paragraph 9.3.7 to undertake a Screening and Scoping assessment to determine the potential for any non-compliance of the development with the Water Framework Directive objectives. We look forward to reviewing this in due course.

3. Chapter 10 - Ground conditions and contamination

3.1 Please note that our comments in respect of this topic relate solely to the protection of the controlled water environment in the vicinity of the site.

3.2 Potential areas of contamination have been scoped out of the assessment. The potential cable route sites are located on either secondary A or B aquifer and not within a Source Protection Zone. The proposal appears to pose a low risk to controlled waters and accordingly, we are satisfied with the conclusions reached and the proposed scope of the EIA.

3.3 The applicant is advised that containment bunds should be able to hold 110% of the volume of the largest container or 25% of a combined total, whichever is the greater. Paragraph 10.4.11 correctly identifies the need for bunding, but only at a 100% volume which does not leave any scope for error.

4. Chapter 23 – Waste

4.1 With regards to paragraph 23.3.3 and the potential re-use opportunities of soil from the burying of cables. The applicant should review the Code of Practice available at https://www.claire.co.uk/projects-and-initiatives/dow-cop which has been updated to include the direct transfer and re-use of naturally occurring soils between sites.

5. Detailed pre-application advice

Cont/d..

5.1. If the applicant wishes to obtain further more detailed advice regarding issues that fall within our remit, we will be able to do this under our discretionary planning advice service. Further details on this service are available on our website, together with the terms and conditions of the service. Under this service our costs have to be recovered and we currently charge £100 per hour, per officer, plus VAT.

Should you require any additional information, or wish to discuss these matters further, please do not hesitate to contact me on the number below.

Yours sincerely

Keri Monger
Sustainable Places - Planning Adviser

Direct dial [redacted]
Direct e-mail [redacted]@environment-agency.gov.uk

End

Gringley on the Hill Parish Council response to West Burton 4 Scoping Report

Dear Ms Park,

Thank you for inviting our Council to respond to this report. At this stage of the process our response falls into nine main areas and broadly reflects the views expressed at our Public Meeting event in the Autumn of 2021.

We would also wish to bring to your attention that although Gringley residents were afforded a Consultation event, the residents of Clayworth, who will be equally impacted by this solar project, were not. Our residents considered the Consultation event to be very poor and are extremely concerned how and why Island Green are continuing with this proposal when the proposed site has failed to meet Island Green's own site selection criteria. To date, Island Green have been unable to provide justification for this site selection and alongside with many other legitimate concerns expressed by residents, many villager's concerns remain unanswered.

We have included an appendix with more detailed information that we would also like you to take into account.

Request for the report to be completely transparent

The report makes no reference or discussion that the chosen site has failed to meet the developer's original own site selection criteria, just one example of non – compliance, the sites should be 'Located in areas that it will not cause any visual obtrusion to existing neighbours.' It is a major concern that the report does not provide any justification as to why non - compliance with IG's own site selection criteria, has been omitted from the report.

Factual Errors and Omissions

This is a lengthy report that contains a significant number of errors and omissions, it is a concern that these factors will have an overall impact upon the transparency and factual accuracy of the final EIA and at this stage, raises a concern around the depth of analysis undertaken. We list a few examples below

Table 13.7 Many of the listed properties are cited as facing North when they face South

10.2.15 Gringley on the Hill referred to as 'Ingleby', we suspect a 'cut and paste' error

3.2.59 River Idle omitted, this is the closest river to the site and runs adjacent to the River Idle Nature Reserve, which is also not mentioned in the report

Under sites of special interest, The Chesterfield Canal, which is a recognised SSSI, it is not cited, the Historic monument, Mattersey Priory has also not been cited.

Loss of highly productive farmland/Agricultural Land Classification

3.2.73 states that it is likely that 82.5% of the land is 3b. However, we note that this refers directly to the 'West Burton land parcels' and not solely to the West Burton 4 site. The amalgamations of the land parcels, we feel risks distorting the agricultural value of each site which are spread geographically very wide across two counties, with West Burton 4 site being topographically, agriculturally and

ecologically, being vastly very different to the flatter Lincolnshire sites. We also understand this ALC is solely based on historical data.

Both of these factors are a significant concern and we would request that a single more detailed analysis of just the West Burton 4 site is undertaken inclusive of detailed soil sampling, with date of when the survey is undertaken. Additionally, the report does not acknowledge that current grading of West Burton 4 cannot be confirmed until current soil analysis is undertaken.

We also understand that the two District Council's, Lincolnshire and Bassetlaw, are going to undertake their own independent soil analysis, yet the report does not note this.

We know that the proposed site is highly productive farming land that has been farmed for hundreds of years, yet the report makes no reference to this fact. Loss of highly productive farming land is a major concern as this affects this country's ability to produce food and to reduce carbon by importing less. Whilst the report states that it will not comment on the safeguards of national agricultural policy, the loss of such a large area of highly productive agricultural land and its impact on the local economy, should not be underestimated. We note that the impact of the loss of this agricultural land to our farming economy and communities has not been scoped within the report.

Conservation area/Topography/Mitigation

The report mentions that both Gringley on the Hill and Clayworth are conservation villages but fails to mention that due to sloping gradient of the chosen site and hills that abound these villages the visual impact on the landscape that link these conservation areas means that the solar site will be highly visible from miles around. The report references the need to mitigate visibility of the site, but the fact remains that no amount of screening is going to obscure the site as the land and the land surrounding it is not flat.

It is important to note that the topography of the West Burton 4 site is significantly different to the other proposed project sites, which are predominantly flat, we would likesome reassurance that this will be taken in account within the EIA. West Burton 4 is not predominantly flat and as a consequence, mitigations of possible effective screening are likely to be ineffective.

Additionally, the size of this development 616 acres is incongruent with the surrounding 3 conservation villages. It is a concern that we feel that the impact level of this has not been afforded sufficient gravitas within the report.

Necessity for a separate EIA for West Burton 4

It is noted that this scoping report appears to be considering all of the sites under one report. Given the significant differences between West Burton 4 and the other sites ie land is not flat, abundant wildlife with large number of badger sets, proximity to the nature reserve with migrating and local birdlife inhabiting the proposed site and the proximity of the river and canal we feel that a separate EIA is essential

Flooding

Whilst Gringley does not have significant flooding issues, Clayworth has a significant history of flooding, this does not appear to have been acknowledged within the report. A potential increased

risk of flooding in Clayworth will have a direct impact upon Gringley. For example, Clayworth is the most direct access route to our neighbouring town of Retford. We are also concerned that the River Idle and the Chesterfield Canal are not mentioned in the report and this omission is significant when assessing flooding risk.

Impact upon Wildlife and close proximity to Nature reserve

4.4.1 states that the site is of 'low ecological value'. This site area is in the heart of the Nottinghamshire countryside and is rich in abundant wildlife (badger sets, deer, hare), we also note there is no evidence in the report of any Badger surveys being undertaken, yet the report admits that there are a large number of sets within West Burton 4. Additionally, with the Idle Valley Nature reserve in close proximity, the Council struggle to understand how the report can conclude that the site is of low ecological value

3.2.61 Again, it is of a concern that there is no mention of the Idle Valley Nature Reserve. The Idle Valley nature reserve attracts not only local bird species but also bird species from all over the world. The Council are concerned that the highly likely negative impact upon birdlife that inhabit and visit the site area and also possibly the nature reserve, will be significant and should have been included within the report.

Continuing access to Public Rights of Way

The report notes the presence of many footpaths and two regional footpaths, the Trent Valley Way and the Cuckoo Way, all of which are extensively accessed by local residents and increasingly also by tourists to our area. We cannot find any reference within the report what impact the construction phase will have upon access to these rights of way, how the development will affect their usage during construction, their use in the future or any acknowledgment as to the high level of footfall that these footpaths currently attract.

Decommissioning of the site

The report details returning the land to agriculture after solar use has ceased. It is felt that the long term effects of the degradation of soil quality following compaction, concrete foundations and reduction in nutrients and increased water run - off requires more detailed scoping than currently detailed.

Gringley Parish Council firmly support the reduction of the National carbon footprint. However, we feel that this scoping report, in its current format has failed to address the significant lasting impact that this site will have on this historical farm land, its 3 conservation villages and the concerns of residents who reside there.

We hope that you find our comments constructive and of assistance and if the opportunity were to arise for ourselves and our residents to discuss these matters further in person, we would welcome the opportunity to do so. **We have included an appendix with more detailed information that we would also like you to take into account.**

We would also appreciate confirmation of receipt of this correspondence.

Yours sincerely,

Mr. Steve Rose

Parish Clerk (For and behalf of Gringley on the Hill parish Council)

(Gringley on the Hill Parish Council's response to West Burton 4 Scoping Report)
APPENDIX

GHG/Climate Change Resilience
We would support the use of a quantitative approach to life cycle GHG emissions assessment. This is to provide a balanced representation of the current land use vs the proposed development and to ensure due consideration is given to the potential carbon emissions during construction i.e., from the level of ground disturbance required to construct the foundations, drainage, and soil handling on site.

Landscape and Visual
The current RVAA proposal appears to suggest only fully assessing residential visual amenity at 15 years post operation for sensitive receptors. Whilst this does in theory allow for the greatest screening potential, this is almost halfway into the operational life span of the project as a whole. For the receptors whose residential view has been adversely impacted, they will have suffered this impact for a considerable duration before this point. We would encourage an alternative in which the RVAA accounts for impacts at the 1 year, 5 year and 15-year post operation as a true representation of the lasting visual impact the proposed development will have for a number of sensitive visual receptors.

Ecology
There appears to be an omission in the ecological surveys which have been undertaken to date, or will be undertaken, with relation to badgers. There is no record of badger surveys having been undertaken within Section 8.2.5, however, we note reference is made to the known presence of badgers within WB4. WB4 has a number of badger setts within the proposed development area which have been an integral part of the landscape and ecosystem for countless years. We would encourage a review of this information to ensure these receptors have been correctly identified and appropriate surveys have/will be undertaken.

Transport and Access
There is no apparent consideration of the potential significant effects associated with walking and cycling delay, in line with the Design Manual for Roads and Bridges (DMRB) and the Institute of Environmental Management and Assessment (IEMA) best practice in EIA. In particular, consideration of Public Rights of Way (PRoW) users as a key receptor during construction and operation. The proposed development area has a number of PRoW within it, including the Trent Valley Way. Consideration should be given to the potential for the proposed development to result in significant delay to users of PRoW, with appropriate PRoW surveys to be undertaken to substantiate this assessment. There is no apparent consideration to the potential effects associated with closure or diversion of any PRoW nor indication that further surveys would be completed between Scoping and the Environmental Statement (ES). WB4 is heavily used by both recreational users of the PRoW and tourists coming to enjoy this landscape and walk the Trent Valley Way.

Agriculture
We note the current proposal is to not include a standalone chapter within the ES to consider impacts on agriculture, agricultural soils and land use. However, IEMA best practice is certainly to include the consideration of soil resources as a standalone chapter, noting the potential for the proposed development to impact soil quality, soil nutrient dynamics and soil function. Particular consideration should be given to the aforementioned on decommissioning of the proposed development. If the loss of viable agricultural land is to be viewed as temporary, this suggests an option to return the land to agriculture. However, construction of the proposed development has potential to significantly impact soil resources, via compaction, poor soil handling techniques, nutrient depletion, introduction of concrete

foundations, all of which reduce the capacity of the soil to recover on decommissioning back to productive agricultural land. These potential effects would not be adequately assessed under the current proposal to exclude agricultural soils from a standalone chapter, and instead consider within the discussion of "socio-economics, tourism and recreation and human health" impacts. Degradation of soil quality following compaction, or poor soil handling, inhibits the soils' ability to retain nutrients (leading to greater risk of run-off), ability to store and sequester carbon, and ability to support productive and healthy ecosystems to name just a few. Consideration should be given to the potential permanent deterioration of this resource and wider ecosystem services this resource provides.

Date: 25 February 2022
Our ref: 381685
Your ref: EN010132-000014

Consultations
Hornbeam House
Crewe Business Park
Electra Way
Crewe
Cheshire
CW1 6GJ

T [redacted]

Emily Park
The Planning Inspectorate
Environmental Services
Central Operations
Temple Quay House
2 The Square
Bristol
BS1 6PN

BY EMAIL ONLY

Dear Emily Park

Environmental Impact Assessment Scoping Consultation (Planning Act 2008 (as amended) and The Infrastructure Planning (Environmental Impact Assessment) Regulations 2017 (the EIA Regulations) – Regulations 10 and 11): Cottam Solar Project

Thank you for seeking our advice on the scope of the Environmental Statement (ES) in the consultation dated 28 January 2022**.**

Natural England is a non-departmental public body. Our statutory purpose is to ensure that the natural environment is conserved, enhanced, and managed for the benefit of present and future generations, thereby contributing to sustainable development.

A robust assessment of environmental impacts and opportunities based on relevant and up to date environmental information should be undertaken prior to a decision on whether to grant a DCO. Annex 1 Provides Natural England's general advice on the scope of Environmental Impact Assessments (EIA). For this specific proposed development the Environmental Statement should particularly consider the following:

1. Impact of the proposed development on the following designated sites

- Laughton Common SSSI
- Scotton Common SSSI
- Scotton Beck Fields SSSI
- Scotton and Laughton Forest Ponds SSSI

We note reference made to these sites within Chapter 8 of the EIA Scoping report; the Environmental Statement would need to show any potential effects on these designations, including via impacts on foraging habitat, noise, water quality, air quality or other disturbance which may damage or destroy the interest features for which these Sites of Special Scientific Interest have been notified. Impacts would need to be considered at all stages of the proposed development i.e. construction, operation and de-commissioning. It should also detail the mitigation required to avoid any identified impacts on designated sites.

Cottam 3 lies within the surface water catchment of Laughton Common SSSI; thus we would like to see an assessment of any potential adverse impact on water quality which may impact the site.

It is noted that the final cable route corridor is yet to be determined, and welcome the intention that searches for designated sites within the cable route search area will be forthcoming. Potential

impacts from the cable route are largely limited to the construction phase due to the underground nature of the cables; the search areas appear to largely avoid any designated sites. However we would still anticipate an assessment to be made on any potential impacts to designated sites and species as a result of the cable route and grid connection infrastructure.

The proposed development is not within any Impact Risk Zones for European Designated sites; thus we would not anticipate any adverse impacts to European designated sites, or the need for HRA.

Natural England are engaging with the applicant, in conjunction with the West Burton Solar project, via our discretionary advice service with regard to avoiding adverse impacts to designated sites and protected species, as well as regarding potential Biodiversity Net Gains, Green Infrastructure Enhancements and Priority Habitat Delivery.

2. In-Combination/Cumulative impacts

The Environmental Statement should include in-combination/cumulative assessment. We welcome section 2.2.15 which notes that projects being considered within the cumulative assessment include West Burton Solar Project and Gate Burton Solar Project. We are aware of a number of other large Solar Infrastructure Projects in the Lincolnshire/North Nottinghamshire area, including **Mallard Pass Solar Project** and **Heckington Fen Solar Project**. Due to the size of each of these individual projects, we would like to see these projects also included within the cumulative assessment, where appropriate.

3. Loss of Agricultural Land (BMV)

It is recognised that due to the nature of the solar panels a good proportion of the agricultural land affected by the development will not be *permanently* lost. However, the large development area and 40 year development lifetime give rise to additional concern with regard to agricultural productivity. In order to both retain the long term potential of this land and to safeguard all soil resources as part of the overall sustainability of the whole development, it is important that the soil is able to retain as many of its many important functions and services (ecosystem services) as possible.

The following issues should be considered and included as part of the Environmental Statement (ES):

- The degree to which soils would be disturbed or damaged as part of the development
- The extent to which agricultural land would be disturbed or lost as part of this development, including whether any best and most versatile (BMV) agricultural land would be impacted.
- The ES should set out details of how any adverse impacts on BMV agricultural land can be minimised through site design/masterplan.
- The ES should also set out details of how any adverse impacts on soils can be avoided or minimised and demonstrate how soils will be sustainably used and managed, including consideration in site design and master planning, and areas for green infrastructure or biodiversity net gain. The aim will be to minimise soil handling and maximise the sustainable use and management of the available soil to achieve successful after-uses and minimise off-site impacts.

It is noted that an *initial* ALC survey has been undertaken, which has indicated that 93.2% of the Cottam site area is grade 3b agricultural land. In order to fully assess the impacts to Best and Most Versatile land, a *detailed* Agricultural Land Classification (ALC) survey may be necessary. Where a detailed ALC and soil survey of the land is required, this should normally be at a detailed level, e.g.

one auger boring per hectare, (or more detailed for a small site) supported by pits dug in each main soil type to confirm the physical characteristics of the full depth of the soil resource, i.e. 1.2 metres.

Further information is available in the Defra Construction Code of Practice for the Sustainable Use of Soil on Development Sites and The British Society of Soil Science Guidance Note Benefitting from Soil Management in Development and Construction. Further guidance is also set out in the Natural England Guide to assessing development proposals on agricultural land.

4. Protected Species

The Environmental Statement should assess the impact of all phases of the proposal on protected species (including, for example, great crested newts, reptiles, birds, water voles, badgers and bats). It should also provide details of any proposed mitigation measures required to protect these species. Consideration should be given to the wider context of the site, for example in terms of habitat linkages and protected species populations in the wider area. It is noted that ground nesting birds may specifically be at risk due to the large land-take involved with the development.

As stated above, Natural England are engaging with the applicant via our Discretionary Advice Service and will be providing advice regarding the potential impacts, mitigation and licence requirements regarding protected species, including: Badgers, Bats, Otters, Water Vole, GCN, Reptiles, Barn Owl, Skylark, Yellow Wagtail and Grey Partridge.

5. Biodiversity Net Gain

The Environmental Statement should include a Biodiversity Net Gain Assessment and Habitat Management Plan. The Habitat Management Plan should explain how the site will continue to be managed and secured for the lifetime of the development. The habitat management plan should also provide details on retention and enhancement of existing habitat features such as hedgerows, woodland and ponds. We would also particularly need details on proposed habitat connectivity to surrounding habitats which would contribute to the wider Nature Recovery Network.

6. After use

The Environmental Statement should include details of the decommissioning and after use of the site, which should include details on how this will avoid impacts to soils and ensure the agricultural land can be restored to its former condition.

7. Impact on local landscapes

The Environmental Statement should include an assessment of local landscape character through the consideration of the relevant National Character Areas (NCAs) and any local landscape character assessments. This should also include any likely in-combination/cumulative effects from other known Solar Projects in the area.

Further guidance is set out in Planning Practice Guidance on environmental assessment, natural environment and climate change.

Should the proposal be amended in a way which significantly affects its impact on the natural environment then, in accordance with Section 4 of the Natural Environment and Rural Communities Act 2006, Natural England should be consulted again.

We would be happy to comment further should the need arise but if in the meantime you have any queries, please do not hesitate to contact us. For any queries relating to the specific advice in this letter please contact Robbie Clarey at [redacted]@naturalengland.org.uk. Please send any new consultations or further information on this consultation to consultations@naturalengland.org.uk.

Yours sincerely,

Robbie Clarey
Lead Adviser – East Midlands Area Delivery
Natural England

Annex A – Natural England's General Advice on EIA Scoping

General Principles

Schedule 4 of the Town and Country Planning (Environmental Impact Assessment) Regulations 2017, sets out the information that should be included in an Environmental Statement (ES) to assess impacts on the natural environment. This includes:

- A description of the development – including physical characteristics and the full land use requirements of the site during construction and operational phases
- Expected residues and emissions (water, air and soil pollution, noise, vibration, light, heat, radiation etc.) resulting from the operation of the proposed development
- An assessment of alternatives and clear reasoning as to why the preferred option has been chosen
- A description of the aspects of the environment likely to be significantly affected by the development including biodiversity (for example fauna and flora), land, including land take, soil, water, air, climate (for example greenhouse gas emissions, impacts relevant to adaptation, cultural heritage and landscape and the interrelationship between the above factors
- A description of the likely significant effects of the development on the environment – this should cover direct effects but also any indirect, secondary, cumulative, short, medium, and long term, permanent and temporary, positive, and negative effects. Effects should relate to the existence of the development, the use of natural resources (in particular land, soil, water and biodiversity) and the emissions from pollutants. This should also include a description of the forecasting methods to predict the likely effects on the environment
- A description of the measures envisaged to prevent, reduce and where possible offset any significant adverse effects on the environment
- A non-technical summary of the information
- An indication of any difficulties (technical deficiencies or lack of know-how) encountered by the applicant in compiling the required information

Further guidance is set out in Planning Practice Guidance on environmental assessment and natural environment.

Cumulative and in-combination effects

The ES should fully consider the implications of the whole development proposal. This should include an assessment of all supporting infrastructure.

An impact assessment should identify, describe, and evaluate the effects that are likely to result from the project in combination with other projects and activities that are being, have been or will be carried out. The following types of projects should be included in such an assessment (subject to available information):

a. existing completed projects;
b. approved but uncompleted projects;
c. ongoing activities;
d. plans or projects for which an application has been made and which are under consideration by the consenting authorities; and
e. plans and projects which are reasonably foreseeable, i.e. projects for which an application has not yet been submitted, but which are likely to progress before completion of the development and for which sufficient information is available to assess the likelihood of cumulative and in-combination effects.

Environmental data

Natural England is required to make available information it holds where requested to do so. National datasets held by Natural England are available at http://www.naturalengland.org.uk/publications/data/default.aspx.

Detailed information on the natural environment is available at www.magic.gov.uk.

Natural England's SSSI Impact Risk Zones are a GIS dataset which can be used to help identify the potential for the development to impact on a SSSI. The dataset and user guidance can be accessed from the Natural England Open Data Geoportal.

Natural England does not hold local information on local sites, local landscape character, priority habitats and species or protected species. Local environmental data should be obtained from the appropriate local bodies. This may include the local environmental records centre, the local wildlife trust, local geo-conservation group or other recording society.

Biodiversity and Geodiversity

General principles

The National Planning Policy Framework (paragraphs174-175 and 179-182) sets out how to take account of biodiversity and geodiversity interests in planning decisions. Further guidance is set out in Planning Practice Guidance on the natural environment.

The potential impact of the proposal upon sites and features of nature conservation interest and opportunities for nature recovery and biodiversity net gain should be included in the assessment.

Ecological Impact Assessment (EcIA) is the process of identifying, quantifying, and evaluating the potential impacts of defined actions on ecosystems or their components. EcIA may be carried out as part of the EIA process or to support other forms of environmental assessment or appraisal. Guidelines have been developed by the Chartered Institute of Ecology and Environmental Management (CIEEM).

Designated nature conservation sites

Nationally designated sites
This development site is within or may impact on the following **Sites of Special Scientific Interest:**

- Laughton Common SSSI
- Scotton Common SSSI
- Scotton Beck Fields SSSI
- Scotton and Laughton Forest Ponds SSSI

Sites of Special Scientific Interest are protected under the Wildlife and Countryside Act 1981 and paragraph 180 of the NPPF. Further information on the SSSI and its special interest features can be found at www.magic.gov .

Natural England's SSSI Impact Risk Zones can be used to help identify the potential for the development to impact on a SSSI. The dataset and user guidance can be accessed from the Natural England Open Data Geoportal.

The Environmental Statement should include a full assessment of the direct and indirect effects of the development on the features of special interest within the SSSIs and identify appropriate mitigation measures to avoid, minimise or reduce any adverse significant effects. The consideration of likely significant effects should include any functionally linked land outside the designated site. These areas may provide important habitat for mobile species populations that are interest features of the SSSI, for example birds and bats. This can also include areas which have a critical function to

a habitat feature within a site, for example by being linked hydrologically or geomorphologically.

Regionally and Locally Important Sites

The ES should consider any impacts upon local wildlife and geological sites, including local nature reserves. Local Sites are identified by the local wildlife trust, geoconservation group or other local group and protected under the NPPF (paragraph 174 and 175). The ES should set out proposals for mitigation of any impacts and if appropriate, compensation measures and opportunities for enhancement and improving connectivity with wider ecological networks. Contact the relevant local body for further information.

Protected Species

The conservation of species protected under the Wildlife and Countryside Act 1981 and the Conservation of Habitats and Species Regulations 2017
is explained in Part IV and Annex A of Government Circular 06/2005 *Biodiversity and Geological Conservation: Statutory Obligations and their Impact within the Planning System*.

The ES should assess the impact of all phases of the proposal on protected species (including, for example, great crested newts, reptiles, birds, water voles, badgers and bats). Natural England does not hold comprehensive information regarding the locations of species protected by law. Records of protected species should be obtained from appropriate local biological record centres, nature conservation organisations and local groups. Consideration should be given to the wider context of the site, for example in terms of habitat linkages and protected species populations in the wider area.

The area likely to be affected by the development should be thoroughly surveyed by competent ecologists at appropriate times of year for relevant species and the survey results, impact assessments and appropriate accompanying mitigation strategies included as part of the ES. Surveys should always be carried out in optimal survey time periods and to current guidance by suitably qualified and, where necessary, licensed, consultants.

Natural England are currently in discussions with the applicant, via our Discretionary Advice Service, regarding impacts to protected species. We aim to work with the applicant to ensure the development proposals will not harm protected species.

District Level Licensing for Great Crested Newts

District level licensing (DLL) is a type of strategic mitigation licence for great crested newts (GCN) granted in certain areas at a local authority or wider scale. A DLL scheme for GCN may be in place at the location of the development site. If a DLL scheme is in place, developers can make a financial contribution to strategic, off-site habitat compensation instead of applying for a separate licence or carrying out individual detailed surveys. By demonstrating that DLL will be used, impacts on GCN can be scoped out of detailed assessment in the Environmental Statement.

Priority Habitats and Species

Priority Habitats and Species are of particular importance for nature conservation and included in the England Biodiversity List published under section 41 of the Natural Environment and Rural Communities Act 2006. Most priority habitats will be mapped either as Sites of Special Scientific Interest, on the Magic website or as Local Wildlife Sites. Lists of priority habitats and species can be found here. Natural England does not routinely hold species data. Such data should be collected when impacts on priority habitats or species are considered likely.

Consideration should also be given to the potential environmental value of brownfield sites, often found in urban areas and former industrial land. Sites can be checked against the (draft) national Open Mosaic Habitat (OMH) inventory published by Natural England and freely available to download. Further information is also available here.

An appropriate level habitat survey should be carried out on the site, to identify any important habitats present. In addition, ornithological, botanical, and invertebrate surveys should be carried out at appropriate times in the year, to establish whether any scarce or priority species are present.

The Environmental Statement should include details of:

- Any historical data for the site affected by the proposal (e.g. from previous surveys)
- Additional surveys carried out as part of this proposal
- The habitats and species present
- The status of these habitats and species (e.g. whether priority species or habitat)
- The direct and indirect effects of the development upon those habitats and species
- Full details of any mitigation or compensation measures
- Opportunities for biodiversity net gain or other environmental enhancement

Ancient Woodland, ancient and veteran trees

The ES should assess the impacts of the proposal on any ancient woodland, ancient and veteran trees, and the scope to avoid and mitigate for adverse impacts. It should also consider opportunities for enhancement.
Natural England maintains the Ancient Woodland Inventory which can help identify ancient woodland. The wood pasture and parkland inventory sets out information on wood pasture and parkland.
The ancient tree inventory provides information on the location of ancient and veteran trees.

Biodiversity net gain

Paragraph 174 of the NPPF states that decisions should contribute to and enhance the natural and local environment by minimising impacts on and providing net gains for biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures.

Biodiversity Net Gain is additional to statutory requirements relating to designated nature conservation sites and protected species.

The ES should use an appropriate biodiversity metric such as Biodiversity Metric 3.0 together with ecological advice to calculate the change in biodiversity resulting from proposed development and demonstrate how proposals can achieve a net gain.
The metric should be used to:
• assess or audit the biodiversity unit value of land within the application area
• calculate the losses and gains in biodiversity unit value resulting from proposed development
• demonstrate that the required percentage biodiversity net gain will be achieved

Biodiversity Net Gain outcomes can be achieved on site, off-site or through a combination of both. On-site provision should be considered first. Delivery should create or enhance habitats of equal or higher value. When delivering net gain, opportunities should be sought to link delivery to relevant plans or strategies e.g. Green Infrastructure Strategies or Local Nature Recovery Strategies.

Opportunities for wider environmental gains should also be considered.

Landscape

Landscape and visual impacts

The environmental assessment should refer to the relevant National Character Areas. Character area profiles set out descriptions of each landscape area and statements of environmental opportunity.

The ES should include a full assessment of the potential impacts of the development on local

landscape character using landscape assessment methodologies. We encourage the use of Landscape Character Assessment (LCA), based on the good practice guidelines produced jointly by the Landscape Institute and Institute of Environmental Assessment in 2013. LCA provides a sound basis for guiding, informing, and understanding the ability of any location to accommodate change and to make positive proposals for conserving, enhancing or regenerating character.

A landscape and visual impact assessment should also be carried out for the proposed development and surrounding area. Natural England recommends use of the methodology set out in *Guidelines for Landscape and Visual Impact Assessment 2013 (*(3rd edition) produced by the Landscape Institute and the Institute of Environmental Assessment and Management. For National Parks and AONBs, we advise that the assessment also includes effects on the 'special qualities' of the designated landscape, as set out in the statutory management plan for the area. These identify the particular landscape and related characteristics which underpin the natural beauty of the area and its designation status.

The assessment should also include the cumulative effect of the development with other relevant existing or proposed developments in the area. This should include an assessment of the impacts of other proposals currently at scoping stage.

To ensure high quality development that responds to and enhances local landscape character and distinctiveness, the siting and design of the proposed development should reflect local characteristics and, wherever possible, use local materials. Account should be taken of local design policies, design codes and guides as well as guidance in the National Design Guide and National Model Design Code. The ES should set out the measures to be taken to ensure the development will deliver high standards of design and green infrastructure. It should also set out detail of layout alternatives, where appropriate, with a justification of the selected option in terms of landscape impact and benefit.

Heritage Landscapes

The ES should include an assessment of the impacts on any land in the area affected by the development which qualifies for conditional exemption from capital taxes on the grounds of outstanding scenic, scientific, or historic interest. An up-to-date list is available at www.hmrc.gov.uk/heritage/lbsearch.htm.

Connecting People with nature

The ES should consider potential impacts on access land, common land, public rights of way and, where appropriate, the England Coast Path and coastal access routes and coastal margin in the vicinity of the development, in line with NPPF paragraph 100. It should assess the scope to mitigate for any adverse impacts. Rights of Way Improvement Plans (ROWIP) can be used to identify public rights of way within or adjacent to the proposed site that should be maintained or enhanced.

Measures to help people to better access the countryside for quiet enjoyment and opportunities to connect with nature should be considered. Such measures could include reinstating existing footpaths or the creation of new footpaths, cycleways, and bridleways. Links to other green networks and, where appropriate, urban fringe areas should also be explored to help promote the creation of wider green infrastructure. Access to nature within the development site should also be considered, including the role that natural links have in connecting habitats and providing potential pathways for movements of species.

Relevant aspects of local authority green infrastructure strategies should be incorporated where appropriate.

Soils and Agricultural Land Quality

Soils are a valuable, finite natural resource and should also be considered for the ecosystem services they provide, including for food production, water storage and flood mitigation, as a carbon

store, reservoir of biodiversity and buffer against pollution. It is therefore important that the soil resources are protected and sustainably managed. Impacts from the development on soils and best and most versatile (BMV) agricultural land should be considered in line with paragraphs 174 and 175 of the NPPF. Further guidance is set out in the Natural England Guide to assessing development proposals on agricultural land.

As set out in paragraph 211 of the NPPF, new sites or extensions to sites for peat extraction should not be granted planning permission.

The following issues should be considered and, where appropriate, included as part of the Environmental Statement (ES):

- The degree to which soils would be disturbed or damaged as part of the development
- The extent to which agricultural land would be disturbed or lost as part of this development, including whether any best and most versatile (BMV) agricultural land would be impacted.

This may require a detailed Agricultural Land Classification (ALC) survey if one is not already available. For information on the availability of existing ALC information see www.magic.gov.uk.

- Where an ALC and soil survey of the land is required, this should normally be at a detailed level, e.g. one auger boring per hectare, (or more detailed for a small site) supported by pits dug in each main soil type to confirm the physical characteristics of the full depth of the soil resource, i.e. 1.2 metres. The survey data can inform suitable soil handling methods and appropriate reuse of the soil resource where required (e.g. agricultural reinstatement, habitat creation, landscaping, allotments and public open space).
- The ES should set out details of how any adverse impacts on BMV agricultural land can be minimised through site design/masterplan.
- The ES should set out details of how any adverse impacts on soils can be avoided or minimised and demonstrate how soils will be sustainably used and managed, including consideration in site design and master planning, and areas for green infrastructure or biodiversity net gain. The aim will be to minimise soil handling and maximise the sustainable use and management of the available soil to achieve successful after-uses and minimise off-site impacts.

Further information is available in the Defra Construction Code of Practice for the Sustainable Use of Soil on Development Sites and
The British Society of Soil Science Guidance Note Benefitting from Soil Management in Development and Construction.

Air Quality

Air quality in the UK has improved over recent decades but air pollution remains a significant issue. For example, approximately 85% of protected nature conservation sites are currently in exceedance of nitrogen levels where harm is expected (critical load) and approximately 87% of sites exceed the level of ammonia where harm is expected for lower plants (critical level of 1µg) [1].A priority action in the England Biodiversity Strategy is to reduce air pollution impacts on biodiversity. The Government's Clean Air Strategy also has a number of targets to reduce emissions including to reduce damaging deposition of reactive forms of nitrogen by 17% over England's protected priority sensitive habitats by 2030, to reduce emissions of ammonia against the 2005 baseline by 16% by 2030 and to reduce emissions of NOx and SO_2 against a 2005 baseline of 73% and 88% respectively by 2030. Shared Nitrogen Action Plans (SNAPs) have also been identified as a tool to reduce environmental damage from air pollution.

[1] Report: Trends Report 2020: Trends in critical load and critical level exceedances in the UK - Defra, UK

The planning system plays a key role in determining the location of developments which may give rise to pollution, either directly, or from traffic generation, and hence planning decisions can have a significant impact on the quality of air, water and land. The ES should take account of the risks of air pollution and how these can be managed or reduced. This should include taking account of any strategic solutions or SNAPs, which may be being developed or implemented to mitigate the impacts on air quality. Further information on air pollution impacts and the sensitivity of different habitats/designated sites can be found on the Air Pollution Information System (www.apis.ac.uk).

Information on air pollution modelling, screening and assessment can be found on the following websites:

- SCAIL Combustion and SCAIL Agriculture - http://www.scail.ceh.ac.uk/
- Ammonia assessment for agricultural development https://www.gov.uk/guidance/intensive-farming-risk-assessment-for-your-environmental-permit
- Environment Agency Screening Tool for industrial emissions https://www.gov.uk/guidance/air-emissions-risk-assessment-for-your-environmental-permit
- Defra Local Air Quality Management Area Tool (Industrial Emission Screening Tool) – England http://www.airqualityengland.co.uk/laqm

Water Quality

The planning system plays a key role in determining the location of developments which may give rise to water pollution, and hence planning decisions can have a significant impact on water quality, and land. The assessment should take account of the risks of water pollution and how these can be managed or reduced.

Climate Change

The ES should identify how the development affects the ability of the natural environment (including habitats, species, and natural processes) to adapt to climate change, including its ability to provide adaptation for people. This should include impacts on the vulnerability or resilience of a natural feature (i.e. what's already there and affected) as well as impacts on how the environment can accommodate change for both nature and people, for example whether the development affects species ability to move and adapt. Nature-based solutions, such as providing green infrastructure on-site and in the surrounding area (e.g. to adapt to flooding, drought and heatwave events), habitat creation and peatland restoration, should be considered. The ES should set out the measures that will be adopted to address impacts.

Further information is available from the Committee on Climate Change's (CCC) Independent Assessment of UK Climate Risk, the National Adaptation Programme (NAP), the Climate Change Impacts Report Cards (biodiversity, infrastructure, water etc.) and the UKCP18 climate projections.

The Natural England and RSPB Climate Change Adaptation Manual (2020) provides extensive information on climate change impacts and adaptation for the natural environment and adaptation focussed nature-based solutions for people. It includes the Landscape Scale Climate Change Assessment Method that can help assess impacts and vulnerabilities on natural environment features and identify adaptation actions. Natural England's Nature Networks Evidence Handbook (2020) also provides extensive information on planning and delivering nature networks for people and biodiversity.

The ES should also identify how the development impacts the natural environment's ability to store and sequester greenhouse gases, in relation to climate change mitigation and the natural environment's contribution to achieving net zero by 2050. Natural England's Carbon Storage and Sequestration by Habitat report (2021) and the British Ecological Society's nature-based solutions report (2021) provide further information.

Contribution to local environmental initiatives and priorities

The ES should consider the contribution the development could make to relevant local

environmental initiatives and priorities to enhance the environmental quality of the development and deliver wider environmental gains. This should include considering proposals set out in relevant local strategies or supplementary planning documents including landscape strategies, green infrastructure strategies, tree and woodland strategies, biodiversity strategies or biodiversity opportunity areas.

Guildhall
Marshall's Yard
Gainsborough
Lincolnshire DN21 2NA

Telephone [redacted]
Web www.west-lindsey.gov.uk

Your contact for this matter is:
Russell Clarkson
[redacted]@west-lindsey.gov.uk
[redacted]

The Planning Inspectorate
Environmental Services, Central Operations
Temple Quay House
2 The Square
Bristol
BS1 6PN

25 February 2022

Dear Sir/Madam

APPLICATION REFERENCE NO: 144351

PROPOSAL: PINS consultation on behalf of the Secretary of State regarding information to be provided in an Environmental Statement - EN010133

LOCATION: Cottam Wind Farm Headstead Bank Cottam Nottinghamshire

Thank you for your consultation request under regulation 10(6) of the EIA Regulations.

West Lindsey District Council, as a consultation body and host authority, wishes to make the following comments in regard to information to be provided with the Environmental Statement. The following comments are made, following the structure of the Environmental Impact Assessment Scoping Report prepared by Lanpro (January 2022).

1. **Introduction (pages 4 - 7)**

We agree that the development falls under paragraph 3(a) of schedule 2. In the absence of an EIA Screening Opinion, we believe the development is likely to have significant effects on the environment, and agree with the applicant's intention that they will submit an Environmental Statement with their application (**paragraph 12.4**).

Whilst it is noted that Nottinghamshire Wildlife Trust have been consulted, the majority of the development falls within the area administered by Lincolnshire Wildlife Trust, who should be consulted (**paragraph 1.4.1**).

Consultation should include Ward members whose Ward will be affected by the development. It should include Parish Councils for whom the development falls within, or adjoins their respective Parish (**section 1.4**).

2. **Methodology (pages 7- 12)**

The proposed methodology is broadly agreeable.

It is noted that the applicant will seek to agree a shortlist of other projects, but that this will include the "West Burton Solar Project" and "Gate Burton Solar Project" (**paragraph 2.2.15**). We agree that these should be included in any "In-combination / cumulative effects" assessment.

Paragraph 4.2.5 of NPS En-1 states that *"When considering cumulative effects, the ES should provide information on how the effects of the applicant's proposal would combine and interact with the effects of other development (**including projects for which consent has been sought** or granted, as well as those already in existence)"* Furthermore, PINS Advice Note 17 states at paragraph 1.4 that it relates to projects that are *'reasonably foreseeable'*, and that the recent High Court judgment Pearce v Secretary of State for Business, Energy, and Industrial Strategy [2021] EWHC 326 (Admin) considers the matter of cumulative environmental effects in detail.

It is understood that all three projects are at a similar "pre-application" stage. They are registered with the Planning Inspectorate and indicate submitting their applications by the end of 2022.

It is anticipated that the impact of the Cottam Solar Project, in combination or cumulatively with, the West Burton and Gate Burton Solar Projects is likely to be significant and it is therefore imperative that any Environmental Impact Assessment considers the cumulative effect of these three solar project NSIP schemes.

3. The Development Site (page 13 – 19)

"Coates" is not identified as a village within the Central Lincolnshire Local Plan's settlement hierarchy. It would be clearer to refer to the established settlements of Stow / Sturton by Stow (**paragraph 3.2.2**).

It is unclear what is meant by *"Initial ALC surveys of the Sites have been carried out at a reconnaissance scale."* and how the figure of 93.2% of land at grade 3b has been derived (**paragraph 3.2.71**). The development is proposed on over 1,250ha of land within West Lindsey that is predominantly in active arable use. Detailed soil surveys undertaken by competent soil specialists (i.e. Members of the British Society of Soil Science, the British Institute of Agricultural Consultants or similar professional body) should be undertaken in accordance with Natural England guidelines.

4. The Development Proposal (page 20 – 30)

We are agreeable to the suggested approach of the "Rochdale envelope" as per Advice Note 9 (**paragraph 4.1.4**). As per paragraph 4.9 of the Advice Note: *"The assessment should establish those parameters likely to result in the maximum adverse effect (the worst case scenario) and be undertaken accordingly to determine significance."*

The ES should therefore be very clear in setting out which parameters are not yet fixed and where maximum parameters are being applied.

It should include the maximum parameters such as the maximum footprint of development, the maximum size and heights of development components and the maximum capacities for output and storage; the likely foundation design for the solar panels and their construction method e.g. if piling will be required; and the locations and voltages of overhead and underground cables.

It is noted that (**paragraphs 4.2.11-4.2.13**) that only "underground" cabling is mentioned – it is therefore presumed that "overground" cables are not being proposed. If this is not the case it must be made clear.

The construction phasing, and proposals to provide a Construction Environmental management Plan (CEMP) are noted (**section 4.3**). The ES should contain details of construction compounds, their locations and likely environmental effects during the construction phases of development.

Recognition of, and proposals to contribute towards *"ecological enhancement and opportunity areas"* identified in the Central Lincolnshire Local Plan are encouraged (**paragraph 4.4.3**).

5. **Legislative Context and Energy Policy (page 31 – 32)**

Whilst the Report recognises (**paragraph 5.4.4**) the Central Lincolnshire Local Plan (2017) and four Neighbourhood Plans, it should also recognise that the review of the Central Lincolnshire Local Plan commenced in 2019 and is now underway – weight should be given to the draft Local Plan, with greater weight the more that it advances. See https://www.n-kesteven.gov.uk/central-lincolnshire/local-plan/

Whist the report recognises four Neighbourhood Plans, it is considered that all of the following should be assessed and considered, as being within, or adjacent to, the application site:

Cottam 1	Cottam 2	Cottam 3a and 3b
- Sturton by Stow and Stow NP - Brattleby NP - Lea NP - Upton and Kexby NP - Ingham NP	- Corringham NP - Laughton NP - Northorpe NP - Willoughton NP - Gainsborough NP - Morton NP - Hemswell and Harpswell NP - Glentworth NP - Hemswell Cliff NP	- Laughton NP - Northorpe NP - Scotter NP - Scotton NP - Gainsborough NP - Morton NP - Willoughton NP - Corringham NP

6. **Climate Change (p33 – 36)**

7. **Landscape and Visual (p37 – 68)**

It is agreed that the LVIA should follow Guidelines for Landscape and Visual Impact Assessment, Third Edition (GLVIA3) (**paragraph 7.12**).

It is considered that a 5km study area, is generally appropriate (**paragraph 7.17**) and that it *"has been chosen as it is considered that beyond this distance based on the desk-based assessment, field work and professional judgement and experience on similar sites that even with good visibility, the Scheme would be barely perceptible in the composite landscape…"*

However, it is noted (**figure 7.1**) that this would exclude a number of visual receptors to the east of Cottam 1 and 2, which are elevated due to the presence of a limestone escarpment. This includes the villages of Grayingham / Blyborough, the Grayingham Crossroads, and the edge of Kirton in Lindsey (in North Lincolnshire). The Zone of Theoretical Visibility (ZTV) (**figure 7.9**) appears to be confined to, and does not appear to go beyond the 5km study zone – it would appear that the "views of the development may be visible" area is cut off by the study area (an arbitrary line) and would in fact extend beyond it, along the escarpment. The study area should be adapted due to local circumstances and topography and to extend further to the north-east, unless it can be shown that the site is barely perceptible – which this Scoping Report does not presently do.

(**Paragraph 7.2.2**) – The West Lindsey Local Plan 2006, was superseded in 2017 by the Central Lincolnshire Local Plan and is no longer part of the development plan. Consideration should however be given to the West Lindsey Landscape Character Assessment published in 1999 (available here: https://www.west-lindsey.gov.uk/my-services/planning-and-building/planning-policy/evidence-base-and-monitoring/landscape-character-assessment/) It is noted that the applicant does intend to "review" this (**paragraph 7.3.35**) and any such review should be made clear, and agreed with the Local Planning Authority.

Proposed viewpoints (**Table 7.6; figures 7.11, 7.12**) are noted. It is likely that more viewpoints should be included within the 2-5km zone, and beyond the 5km zone, along the limestone escarpment. The Local Planning Authority is currently within the process of appointing Landscape Consultants, and it is requested that the applicant continue to liaise with the Authority in order to agree final viewpoints.

8. Ecology and Biodiversity (p69 – 89)

Paragraph 8.2.2 – *"At this stage, we anticipate the locations of these elements will be refined prior to statutory consultation and submission of the DCO application. Therefore, the survey work undertaken for these elements to date is in general less advanced."* Whilst this is noted, applying 'Rochdale Envelope' parameters – the ES should include and be based upon maximum parameters.

Paragraph 8.2.10 – it is noted that Chartered Institute of Ecology and Environmental Management (CIEEM) will be followed. The Report states that *"Typical perimeter fencing is not considered to impede the movement of most mammals, although movement of deer is likely to be impacted."* It is noted later that badgers are present on site – it therefore needs to be expanded and explained as to why these mammals will not be impeded in such a way.

It is noted to scope out the presence of dormice (**paragraph 8.2.31**), based on desk top studies. This is considered to be reasonable, unless signs of dormice (or other protected species) are identified on the site field studies.

Application of DEFRA's biodiversity metric (v3) (**paragraph 8.3.23**) in order to assess both existing and proposed biodiversity value, is welcomed.

9. Hydrology, flood Risk and Drainage (p90 – 102)

It is noted that both Flood Risk Assessments (**Paragraph 9.3.1**) and Hydrological assessments (**9.3.2**) are proposed, and that consultation with the Environment Agency, Lincolnshire County Council (Lead Local Flood Authority) and the Internal Drainage Boards (IDB's) will take place (**paragraph 9.3.5**) which is encouraged.

10. Ground conditions and contamination (p103 – 111)

It is noted that limited potential sources of contamination have been identified within the solar park site and that this is proposed to be scoped out. The Environmental protection Team have reviewed and accept these findings.

11. Minerals (P112 – 114)

It is noted that the site is within areas identified as Mineral safeguarding Areas (MSA). Impact is scoped out on the basis of the expected lifetime of the development. Under paragraph 4.1.1 it is noted the operational life of the development is anticipated to be around 40 years.

West Lindsey District Council is not the Minerals Planning Authority, and will therefore defer to the comments of Lincolnshire County Council in this regard.

12. Archaeology (p115 – 127)

It is noted that designated heritage assets are not found within the site – but the "Thorpe Medieval settlement (NHLE 1016979)" sits immediately on the southern boundary of Cottam 1. Impact upon this designated heritage asset, including its setting, should be in scope (paragraph 12.4.1). It is noted that this is picked up by chapter 13.

13. Built Environment (p128 – 158)

It is noted that eight heritage assets within the 1km zone; the Church of St Cuthbert at Brattleby within the 2km zone; and four conservation areas (Fillingham, Glentworth, Ingham and Brattleby) are proposed for assessment within the ES. These 13 heritage assets are proposed "within scope" (**paragraph 13.3.19**). "All other assets" are scoped out (**13.3.20**).

The table at **13.4.3** in the appendices, identifies 25 designated heritage assets within the 2km zone (and does not include the four conservation areas). Of which, 11 are within 1km.

Consequently – this proposes that there are 16 heritage assets within 2km of the site, including 3 assets within 1km, which are proposed to be 'scoped out'. **Table 13.1** sets out that a number of these are "not visible from the site". As the definition of heritage setting goes beyond direct line of sight in order to appreciate the significance of the asset, there is concern that a number of these assets are being scoped out. Certainly any where harm is identified should be included. Applying the "Rochdale envelope" scenario – the maximum impact of development should be accounted for.

14. Transport and Access (p159 – 170)

Cumulative impacts (**14.7.1**) should include the Gate Burton Solar Project.

We note the low movements that would be generated during the operational phase, and do not object to this being 'scoped out' (**14.9.3**).

15. Noise and Vibration (p171 – p176)

The proposed methodology is noted, and is largely agreeable. However, it is noted that construction vehicle trip generation is still being calculated (**paragraph 14.3.9**) and question therefore whether it is premature to scope out (**15.4.4**) road traffic noise during the construction / decommissioning periods.

16. Glint and Glare (p177 – p185)

It is noted that glint and glare is proposed to be scoped out. However, the Scoping Opinion for the nearby Gate Burton Solar Park had proposed that glint and glare is covered by the ES LVIA Chapter. As a bigger site, with therefore more opportunity for glint and glare – it is recommended that a similar position is taken here.

17. Electromagnetic fields (p186 - 190)

It is noted that *"The Scheme is predicted to have 'minor' impacts in terms of EMF at worst, based on a negligible magnitude and medium sensitivity upon surrounding receptors, and is proposed to be scoped out of the ES."*. As per **paragraphs 4.2.11-4.2.13**, it is noted at **paragraph 17.3.14** that reference is only made to underground cables.

18. Light pollution (page 191)

It is noted that, whilst light pollution will not have a specific chapter, it will be considered under the Landscape/Visual and ecology chapters.

19. Major Accidents and Disasters (pages 192-194)

Whilst it is proposed not to have a standalone chapter, the risk of battery fire / explosion should be clearly addressed with the ES. It is noted that this is picked up in the Air Quality and Socio-Economic chapters.

20. Air Quality (p195-p202)

We do not object to scoping out air quality during the operational phase of development.

21. Socio-Economics, Tourism and Recreation and Human Health (p203 – 210) And
22. Agricultural Circumstances (p211 – 213)

We agree to the proposed 'scope' of the Socio-Economics… chapter (**paragraph 21.4.1**). We anticipate one of the most significant impacts will be the loss of agricultural land and that this is considered in a stand-alone chapter (chapter 22).

It remains unclear as to what is meant by *"initial ALC surveys of the Sites have been carried out at a reconnaissance scale and indicate that that the vast majority (93.2%) of the land proposed for development within the Cottam 1, 2 and 3 Sites comprises Grade 3b*

agricultural land" (paragraph 22.2.4). What surveys have taken place, and how has this figure been derived – there is no supporting data in appendix 22.
It is considered that the effect on agricultural land resource and farming is likely to be significant and must be in scope. However, we do not object to this being covered by the "Socio Economics…" chapter (**paragraph 22.4.1**).
This should include baseline site-specific data across the sites, following Natural England guidance and methodology.

Please consider the above to constitute West Lindsey District Council's formal consultation response under reg10(6) of the EIA Regulations.

23. Waste; and
24. Telecommunications

It is noted that these are proposed to be scoped out.

25. Summary

Subject to the detailed comments above, we are broadly agreeable to the proposed scope and methodology of the ES, as summarised at **table 25.2**. It is noted that whilst Light Pollution will be scoped out and addressed in the "Landscape and Visual" chapter – the "Landscape and Visual" chapter proposes to scope out a Lighting assessment? Agricultural circumstances should not be "scoped out" and should form a significant part of the socio-economic chapter.

Please consider the above to constitute West Lindsey District Council's formal consultation response under reg10(6) of the EIA Regulations.

Yours sincerely,

Russell Clarkson BA(Hons) Dip TP MRTPI
On behalf of West Lindsey District Council

If you require this letter in another format e.g. large print, please contact Customer Services on [redacted], by email customer.services@west-lindsey.gov.uk or by asking any of the Customer Services staff.

If you want to know more about how we use your data, what your rights are and how to contact us if you have any concerns, please read our privacy notice:
www.west-lindsey.gov.uk/planning-privacy

9.5 Location of Static Detectors

Appendix 9.5.1 Location of Static Detectors

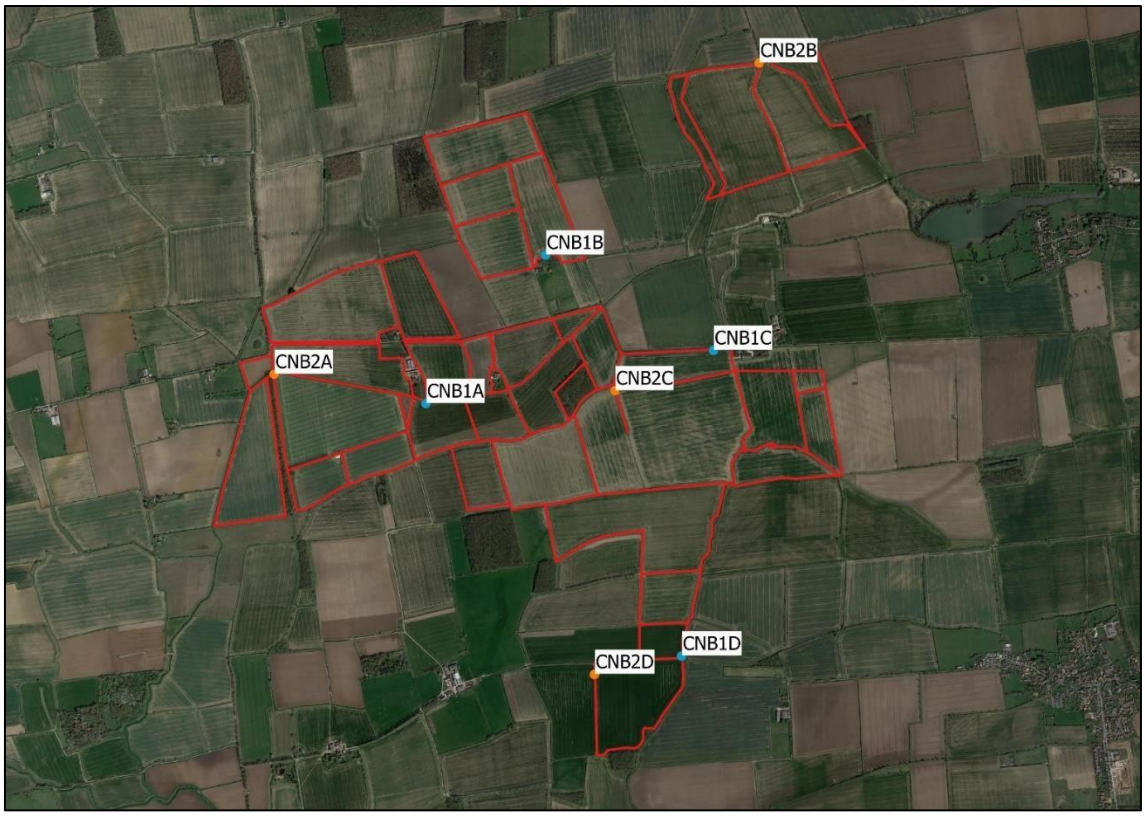


Figure 1: Static Detector Deployment Locations at Cottam 1 (North)

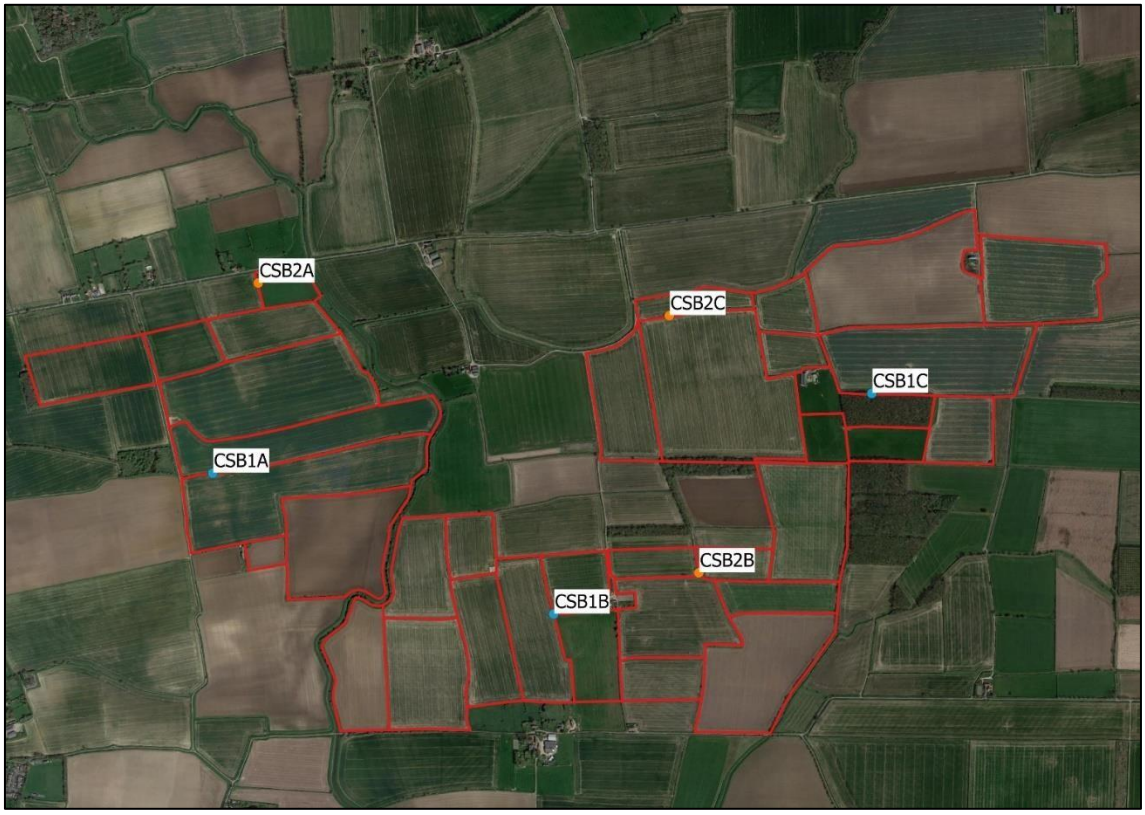


Figure 2: Static Detector Deployment Locations at Cottam 1 (South)

Figure 3: Static Detector Deployment Locations at Cottam 1 (West)

Figure 4: Static Detector Deployment Locations at Cottam 2

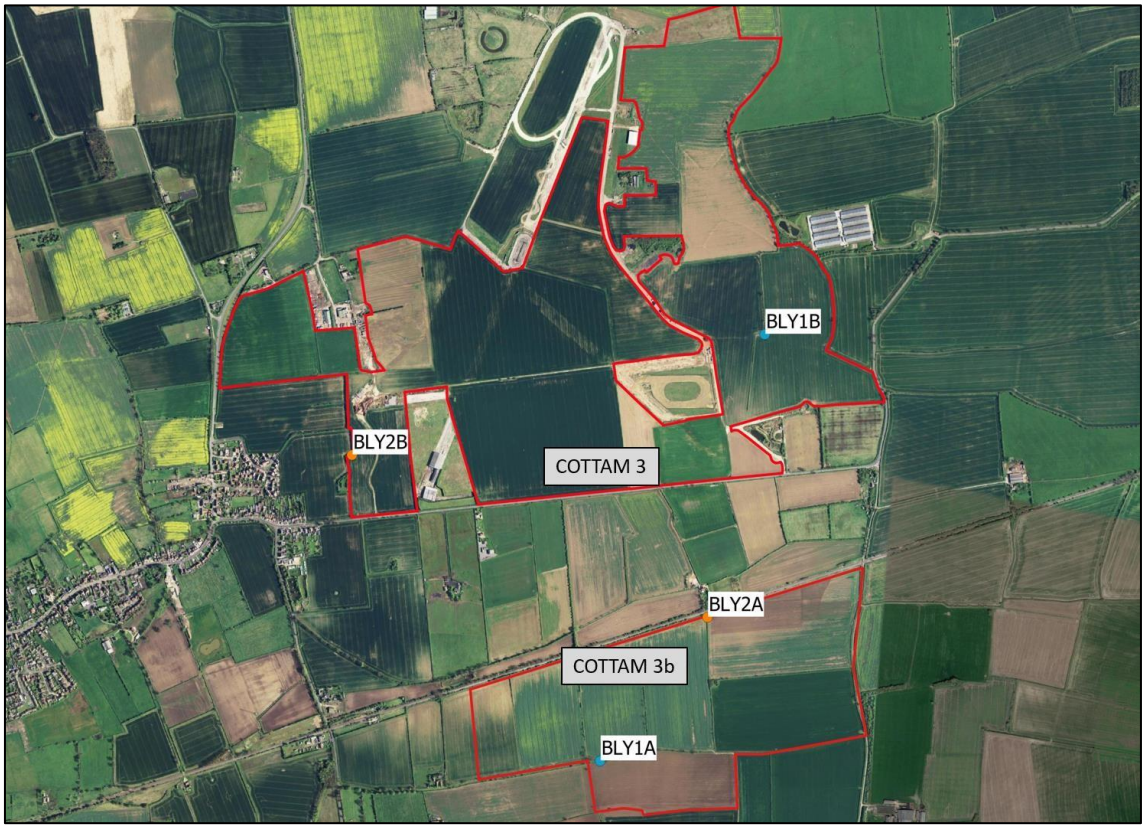


Figure 5: Static Detector Deployment Locations at Cottam 3 and Cottam 3b

Appendix 9.5.2 Results of Static Detector Survey

Table 1: Results of Static Detector Survey at Cottam 1 (Coates North)

Location	Month	Dplyment Number	Survey Nights	Barbastelle	Serotine	*Myotis Sp*	*Nyctalus Sp*	Noctule	Leislers	Nathusius Pipistrelle	Common pipistrelle	Soprano pipistrelle	Brown Long-eared	Total Passes	Passes per night
CNB1A	April	9													
CNB1A	May	11													
CNB1A	June	1	26	0	0	27	0	33	0	0	1812	269	115	**2256**	**86.77**
CNB1A	July	3	9	0	1	5	1	12	0	0	157	65	93	**334**	**37.11**
CNB1A	August	5	12	0	1	28	12	18	0	0	87	29	37	**212**	**17.67**
CNB1A	Sept	7	12	1	0	148	4	93	0	1	253	63	30	**593**	**49.42**
TOTAL	**N/A**	**N/A**	**59**	**1**	**2**	**208**	**17**	**156**	**0**	**1**	**2309**	**426**	**275**	**3395**	**57.54**
CNB2A	April	10													
CNB2A	May	12													
CNB2A	June/July	2	8	0	0	5	9	63	0	0	1031	50	12	**1170**	**146.25**
CNB2A	July/Aug	4	7	0	5	5	0	76	0	1	2214	47	5	**2353**	**336.14**
CNB2A	August	6	10	0	1	65	15	36	6	0	4559	387	12	**5081**	**508.10**
CNB2A	Sept	8	7	0	0	5	77	136	0	0	2410	162	22	**2812**	**401.71**
TOTAL	**N/A**	**N/A**	**32**	**0**	**6**	**80**	**101**	**311**	**6**	**1**	**10214**	**646**	**51**	**11416**	**356.75**
CNB1B	April	9													
CNB1B	May	11													
CNB1B	June	1	26	0	0	22	1	10	0	1	682	1136	27	**1879**	**72.27**
CNB1B	July	3	9	0	0	9	2	23	0	0	660	128	24	**846**	**94.00**
CNB1B	August	5	12	0	3	37	2	14	0	0	1884	1413	31	**3384**	**282.00**
CNB1B	Sept	7	12	0	0	366	0	43	0	1	2610	2074	116	**5210**	**434.17**
TOTAL	**N/A**	**N/A**	**59**	**0**	**3**	**434**	**5**	**90**	**0**	**2**	**5836**	**4751**	**198**	**11319**	**191.85**
CNB2B	April	10													
CNB2B	May	12													
CNB2B	June/July	2	8	0	0	31	0	5	0	0	600	150	7	**793**	**99.13**
CNB2B	July/Aug	4	7	0	0	9	0	11	0	0	291	217	4	**532**	**76.00**
CNB2B	August	6	10	0	1	90	12	36	0	0	1532	394	4	**2069**	**206.90**

CNB2B	Sept	8	7	0	0	4	0	13	0	0	621	213	4	**855**	**122.14**
TOTAL	**N/A**	**N/A**	**32**	**0**	**1**	**134**	**12**	**65**	**0**	**0**	**3044**	**974**	**19**	**4249**	**132.78**
CNB1C	April	9													
CNB1C	May	11													
CNB1C	June	1	26	1	0	328	0	13	0	6	326	180	14	**868**	**33.38**
CNB1C	July	3	9	9	0	189	0	45	0	0	146	134	7	**530**	**58.89**
CNB1C	August	5	12	1	1	82	1	17	0	0	101	115	1	**319**	**26.58**
CNB1C	Sept	7	12	1	1	145	6	50	0	1	360	210	23	**797**	**66.42**
TOTAL	**N/A**	**N/A**	**59**	**12**	**2**	**744**	**7**	**125**	**0**	**7**	**933**	**639**	**45**	**2514**	**42.61**
CNB2C	April	10													
CNB2C	May	12													
CNB2C	June/July	2	0	No data - faulty detector											
CNB2C	July/Aug	4	7	0	1	16	0	12	0	0	131	67	2	**229**	**32.71**
CNB2C	August	6	10	0	0	44	9	20	0	0	188	132	4	**397**	**39.70**
CNB2C	Sept	8	7	0	1	12	1	18	0	0	341	32	6	**411**	**58.71**
TOTAL	**N/A**	**N/A**	**24**	**0**	**2**	**72**	**10**	**50**	**0**	**0**	**660**	**231**	**12**	**1037**	**32.41**
CNB1D	April	9													
CNB1D	May	11													
CNB1D	June	1	26	0	1	4	0	10	2	0	895	402	52	**1366**	**52.54**
CNB1D	July	3	9	0	0	6	3	34	0	0	242	138	17	**440**	**48.89**
CNB1D	August	5	12	0	7	19	0	15	2	0	350	232	45	**670**	**55.83**
CNB1D	Sept	7	12	1	0	34	0	108	0	4	763	403	28	**1341**	**111.75**
TOTAL	**N/A**	**N/A**	**59**	**1**	**8**	**63**	**3**	**167**	**4**	**4**	**2250**	**1175**	**142**	**3817**	**64.69**
CNB2D	April	10													
CNB2D	May	12													
CNB2D	June/July	2	8	1	1	0	0	6	0	0	423	110	2	**543**	**67.88**
CNB2D	July/Aug	4	7	0	0	2	1	7	0	0	451	60	1	**522**	**74.57**
CNB2D	August	6	10	1	1	19	17	43	0	0	664	74	50	**869**	**86.90**
CNB2D	Sept	8	7	0	0	4	0	284	0	0	618	245	5	**1156**	**165.14**

TOTAL	**N/A**	**N/A**	**32**	**2**	**2**	**25**	**18**	**340**	**0**	**0**	**2156**	**489**	**58**	**3090**	**96.56**
OVERALL TOTAL	**N/A**	**N/A**	**356**	**16**	**26**	**1760**	**173**	**1304**	**10**	**15**	**27402**	**9331**	**800**	**40837**	**114.71**

Table 2: Results of Static Detector Survey at Cottam 1 (Coates South)

Location	Month	Dplyment Number	Survey Nights	Barbastelle	Serotine	*Myotis Sp*	*Nyctalus Sp*	Noctule	Leislers	Nathusius Pipistrelle	Common pipistrelle	Soprano pipistrelle	Brown Long-eared	Total Passes	Passes per night
CSB1A	April	9													
CSB1A	May	11													
CSB1A	June	1	26	0	0	11	1	9	0	0	2889	122	1	**3033**	**116.65**
CSB1A	July	3	9	0	2	6	0	1	0	0	545	36	0	**590**	**65.56**
CSB1A	August	5	12	0	1	6	0	6	1	0	226	17	2	**259**	**21.58**
CSB1A	Sept	7	12	0	1	15	0	33	0	1	178	32	9	**269**	**22.42**
TOTAL	**N/A**	**N/A**	**59**	**0**	**4**	**38**	**1**	**49**	**1**	**1**	**3838**	**207**	**12**	**4151**	**70.36**
CSB2A	April	10													
CSB2A	May	12													
CSB2A	June/July	2	8	0	0	14	8	9	4	0	490	22	21	**568**	**71.00**
CSB2A	July/Aug	4	8	0	2	29	3	2	0	6	593	27	12	**674**	**84.25**
CSB2A	August	6	10	1	0	154	3	4	0	22	16385	2568	20	**19157**	**1915.70**
CSB2A	Sept	8	7	1	0	75	5	116	0	177	2029	1171	7	**3581**	**511.57**
TOTAL	**N/A**	**N/A**	**33**	**2**	**2**	**272**	**19**	**131**	**4**	**205**	**19497**	**3788**	**60**	**23980**	**726.67**
CSB1B	April	9													
CSB1B	May	11													
CSB1B	June	1	26	0	0	27	1	18	0	0	911	22	13	**992**	**38.15**
CSB1B	July	3	9	0	1	6	0	8	0	0	285	52	2	**354**	**39.33**
CSB1B	August	5	12	0	0	12	0	4	0	0	196	98	1	**311**	**25.92**
CSB1B	Sept	7	12	1	4	91	0	32	0	0	440	10	5	**583**	**48.58**
TOTAL	**N/A**	**N/A**	**59**	**1**	**5**	**136**	**1**	**62**	**0**	**0**	**1832**	**182**	**21**	**2240**	**37.97**
CSB2B	April	10													
CSB2B	May	12													
CSB2B	June/July	2	8	0	0	161	0	7	0	0	786	42	13	**1009**	**126.13**

CSB2B	July/Aug	4	8	0	0	8	0	3	0	0	2777	71	2	**2861**	**357.63**
CSB2B	August	6	10	0	0	17	1	5	0	0	1105	97	12	**1237**	**123.70**
CSB2B	Sept	8	7	0	0	36	0	57	0	0	813	370	12	**1288**	**184.00**
TOTAL	**N/A**	**N/A**	**33**	**0**	**0**	**222**	**1**	**72**	**0**	**0**	**5481**	**580**	**39**	**6395**	**193.79**
CSB1C	April	9													
CSB1C	May	11													
CSB1C	June	1	26	1	2	90	4	137	6	1	392	161	8	**802**	**30.85**
CSB1C	July	3	9	0	5	18	29	8	0	0	21	5	5	**91**	**10.11**
CSB1C	August	5	12	1	0	28	217	147	40	0	915	687	23	**2058**	**171.50**
CSB1C	Sept	7	12	2	12	61	6	282	0	0	198	395	22	**978**	**81.50**
TOTAL	**N/A**	**N/A**	**59**	**4**	**19**	**197**	**256**	**574**	**46**	**1**	**1526**	**1248**	**58**	**3929**	**66.59**
CSB2C	April	10													
CSB2C	May	12													
CSB2C	June/July	2	8	0	0	1	1	5	0	0	679	50	2	**738**	**92.25**
CSB2C	July/Aug	4	8	0	0	3	4	13	0	1	475	24	3	**523**	**65.38**
CSB2C	August	6	10	0	0	0	0	0	0	0	262	115	8	**385**	**38.50**
CSB2C	Sept	8	7	0	0	1	0	45	0	0	80	42	4	**172**	**24.57**
TOTAL	**N/A**	**N/A**	**33**	**0**	**0**	**5**	**5**	**63**	**0**	**1**	**1496**	**231**	**17**	**1818**	**55.09**
OVERALL TOTAL	**N/A**	**N/A**	**276**	**7**	**30**	**870**	**283**	**951**	**51**	**208**	**33670**	**6236**	**207**	**42513**	**154.03**

Table 3: Results of Static Detector Survey at Cottam 1 (Coates West)

Location	Month	Dplyment Number	Survey Nights	Barbastelle	Serotine	*Myotis Sp*	*Nyctalus Sp*	Noctule	Leislers	Nathusius Pipistrelle	Common pipistrelle	Soprano pipistrelle	Brown Long-eared	Total Passes	Passes per night
CWB1A	April	9													
CWB1A	May	11													
CWB1A	June	1	26	0	0	16	3	0	0	4	3265	36	49	**3373**	**129.73**
CWB1A	July	3	9	0	0	5	0	4	0	0	1080	9	4	**1102**	**122.44**
CWB1A	August	5	12	0	0	21	4	8	0	0	181	14	16	**244**	**20.33**
CWB1A	Sept	7	13	1	0	33	1	31	0	2	5971	20	13	**6072**	**467.08**
TOTAL	**N/A**	**N/A**	**60**	**1**	**0**	**75**	**8**	**43**	**0**	**6**	**10497**	**79**	**82**	**10791**	**179.85**

CWB2A	April	10													
CWB2A	May	12													
CWB2A	June/July	2	8	0	0	8	0	74	0	1	569	6	9	**667**	**83.38**
CWB2A	July/Aug	4	7	0	1	7	2	3	0	3	704	19	8	**747**	**106.71**
CWB2A	August	6	10	4	1	182	2	39	1	0	1279	131	77	**1716**	**171.60**
CWB2A	Sept	8	7	0	0	7	3	10	0	0	487	27	8	**542**	**77.43**
TOTAL	**N/A**	**N/A**	**32**	**4**	**2**	**204**	**7**	**126**	**1**	**4**	**3039**	**183**	**102**	**3672**	**114.75**
OVERALL TOTAL	**N/A**	**N/A**	**92**	**5**	**2**	**279**	**15**	**169**	**1**	**10**	**13536**	**262**	**184**	**14463**	**157.21**

Table 4: Results of Static Detector Survey at Cottam 2

Location	**Month**	**Dplyment Number**	**Survey Nights**	**Barbastelle**	**Serotine**	***Myotis Sp***	***Nyctalus Sp***	**Noctule**	**Leislers**	**Nathusius Pipistrelle**	**Common pipistrelle**	**Soprano pipistrelle**	**Brown Long-eared**	**Total Passes**	**Passes Per Night**
COR1A	April	9													
COR1A	May	11													
COR1A	June	1	27	0	0	1	3	285	0	0	1286	15	3	**1593**	**59.00**
COR1A	July	3	7	0	0	0	0	7	0	0	679	28	3	**717**	**102.43**
COR1A	August	5	8	0	0	1	1	13	0	0	361	17	2	**395**	**49.38**
COR1A	Sept	7	7	0	0	3	1	63	2	1	355	57	8	**490**	**70.00**
TOTAL	**N/A**	**N/A**	**49**	**0**	**0**	**5**	**5**	**368**	**2**	**1**	**2681**	**117**	**16**	**3195**	**65.20**
COR2A	April	10													
COR2A	May	12													
COR2A	June/July	2	11	1	0	4	0	12	0	0	1196	95	35	**1343**	**122.09**
COR2A	July/Aug	4	9	0	0	3	1	8	0	0	836	41	50	**939**	**104.33**
COR2A	August	6	11	0	0	16	3	36	0	0	83	18	11	**167**	**15.18**
COR2A	Sept	8	7	0	0	3	0	53	2	0	107	25	13	**203**	**29.00**
TOTAL	**N/A**	**N/A**	**38**	**1**	**0**	**26**	**4**	**109**	**2**	**0**	**2222**	**179**	**109**	**2652**	**69.79**
OVERALL TOTAL	**N/A**	**N/A**	**87**	**1**	**0**	**31**	**9**	**477**	**4**	**1**	**4903**	**296**	**125**	**5847**	**67.21**

Table 5: Results of Static Detector Survey at Cottam 3

Location	Month	Dplyment Number	Survey Nights	Barbastelle	Serotine	*Myotis Sp*	*Nyctalus Sp*	Noctule	Leislers	Nathusius Pipistrelle	Common pipistrelle	Soprano pipistrelle	Brown Long-eared	Total Passes	Passes Per Night
BLY1B	April	9													
BLY1B	May	11													
BLY1B	June	1	27	0	1	43	2	20	0	0	1613	17	2	**1698**	**62.89**
BLY1B	July	3	8	0	0	115	0	8	0	0	280	15	6	**424**	**53.00**
BLY1B	August	5	11	0	0	41	1	40	0	0	742	37	6	**867**	**78.82**
BLY1B	Sept	7	11	0	0	38	2	114	0	0	1019	52	23	**1248**	**113.45**
TOTAL	**N/A**	**N/A**	**57**	**0**	**1**	**237**	**5**	**182**	**0**	**0**	**3654**	**121**	**37**	**4237**	**74.33**
BLY2B	April	10													
BLY2B	May	12													
BLY2B	June/July	2	7	0	0	1	0	8	0	2	934	22	0	**967**	**138.14**
BLY2B	July/Aug	4	7	0	0	23	0	8	0	0	1519	69	6	**1625**	**232.14**
BLY2B	August	6	9	0	1	35	6	68	0	1	760	65	19	**955**	**106.11**
BLY2B	Sept	8	7	1	0	729	3	32	0	1	5876	215	3	**6860**	**980.00**
TOTAL	**N/A**	**N/A**	**30**	**1**	**1**	**788**	**9**	**116**	**0**	**4**	**9089**	**371**	**28**	**10407**	**346.90**
OVERALL TOTAL	**N/A**	**N/A**	**87**	**1**	**2**	**1025**	**14**	**298**	**0**	**4**	**12743**	**492**	**65**	**14644**	**168.32**

Table 6: Results of Static Detector Survey at Cottam 3b

Location	Month	Dplyment Number	Survey Nights	Barbastelle	Serotine	*Myotis Sp*	*Nyctalus Sp*	Noctule	Leislers	Nathusius Pipistrelle	Common pipistrelle	Soprano pipistrelle	Brown Long-eared	Total Passes	Passes Per Night
BLY1A	April	9													
BLY1A	May	11													
BLY1A	June	1	27	0	2	3	48	47	40	201	6198	4537	13	**11089**	**410.70**
BLY1A	July	3	9	0	4	84	2	40	0	0	1396	1072	27	**2625**	**291.67**
BLY1A	August	5	12	0	2	47	6	120	2	2	1627	545	10	**2361**	**196.75**
BLY1A	Sept	7	11	0	2	57	17	434	0	4	4825	1661	53	**7053**	**641.18**
TOTAL	**N/A**	**N/A**	**59**	**0**	**10**	**191**	**73**	**641**	**42**	**207**	**14046**	**7815**	**103**	**23128**	**392.00**
BLY2A	April	10													
BLY2A	May	12													

BLY2A	June/July	2	8	0	1	12	12	209	3	2	346	11	6	**602**	**75.25**
BLY2A	July/Aug	4	7	0	3	21	1	9	0	0	526	10	7	**577**	**82.43**
BLY2A	August	6	9	0	11	65	8	772	2	2	2343	114	8	**3325**	**369.44**
BLY2A	Sept	8	11	0	0	15	1	373	0	0	684	46	1	**1120**	**101.82**
TOTAL	**N/A**	**N/A**	**35**	**0**	**15**	**113**	**22**	**1363**	**5**	**4**	**3899**	**181**	**22**	**5624**	**160.69**
OVERALL TOTAL	**N/A**	**N/A**	**94**	**0**	**25**	**304**	**95**	**2004**	**47**	**211**	**17945**	**7996**	**125**	**28752**	**305.87**

Appendix 9.5.3 Maps Showing Results of Static Detector Survey

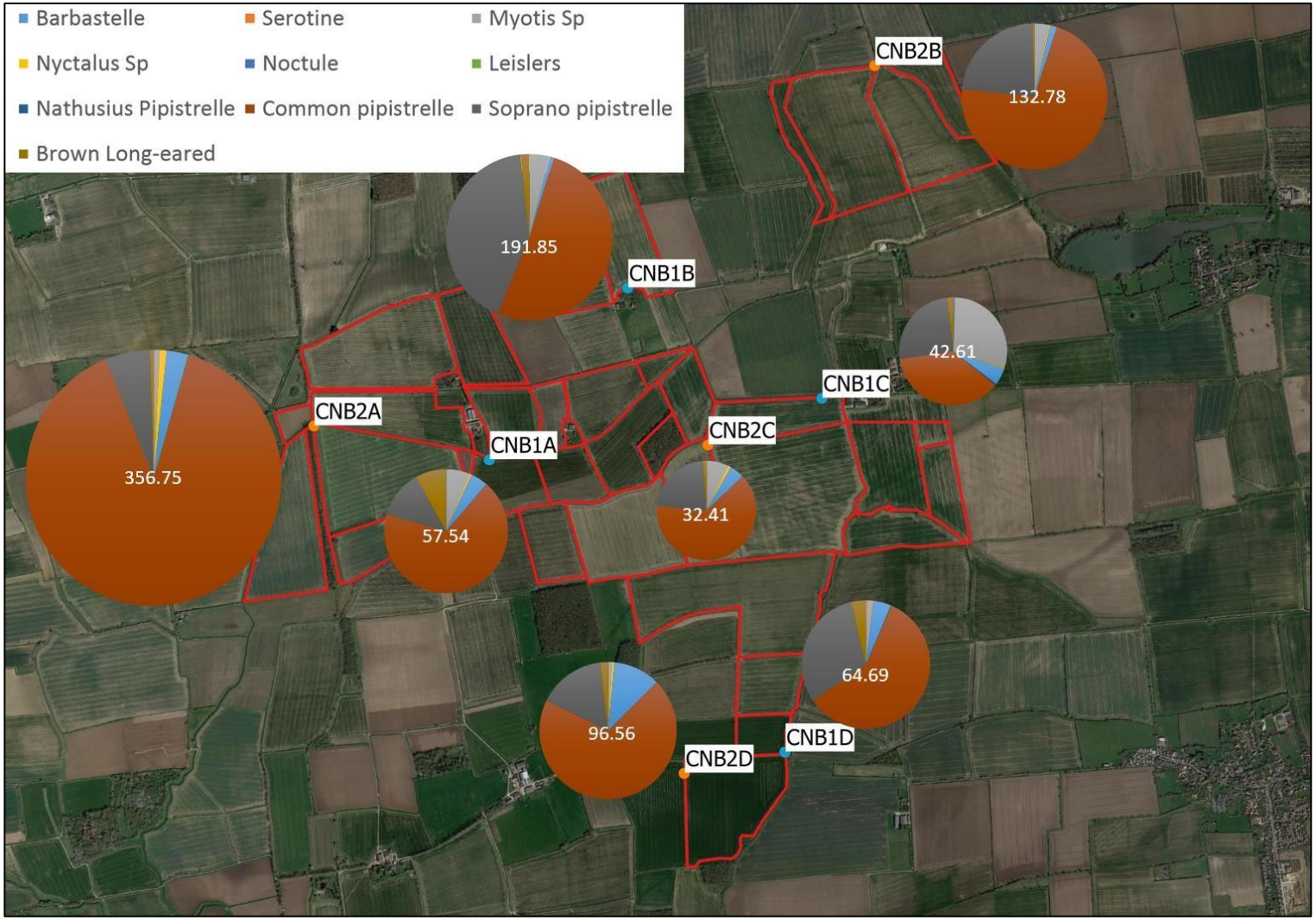


Figure 6: Charts showing Cottam 1 (Coates North) percentage passes by species at each deployment location (with overall passes per night in brackets)

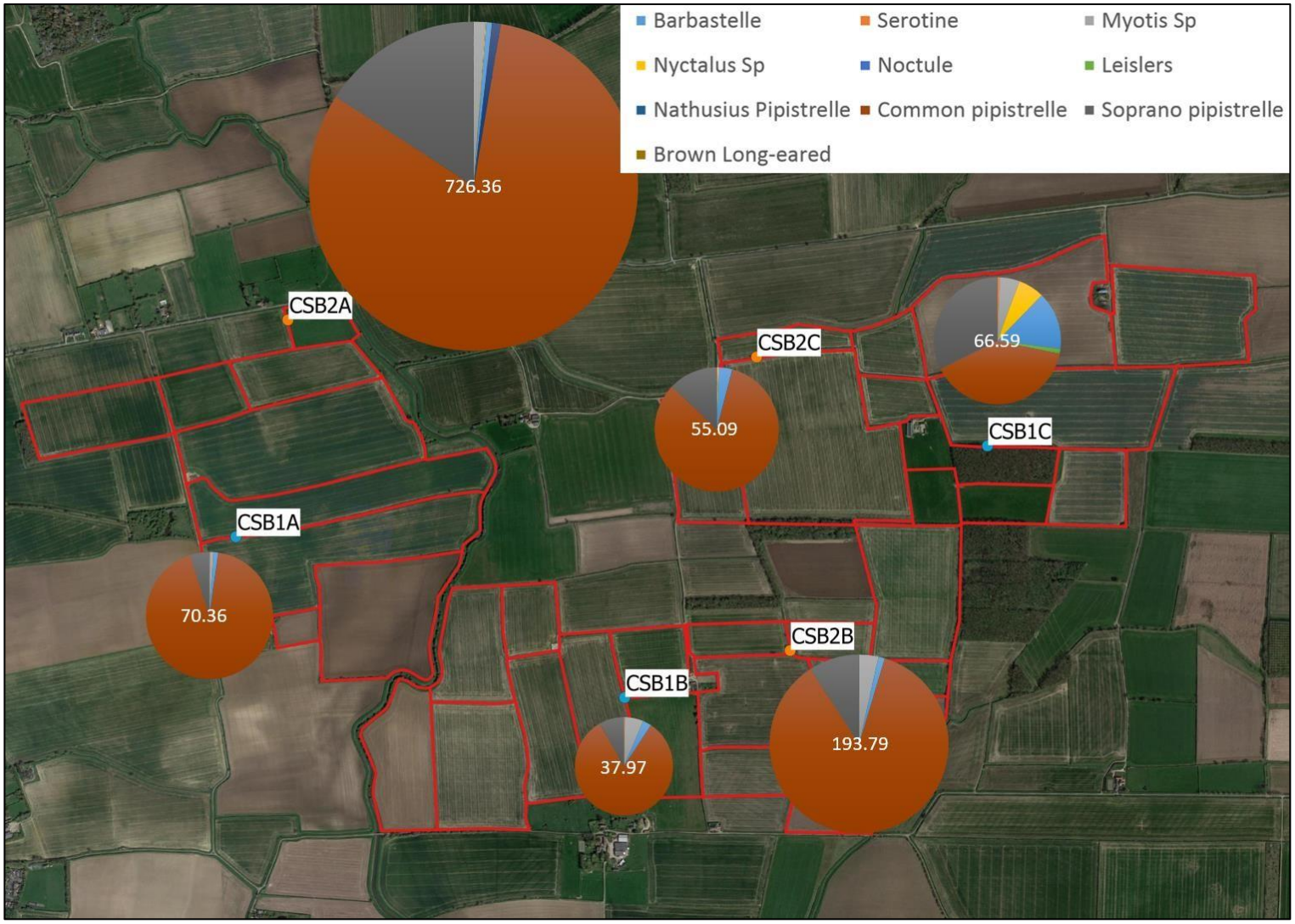


Figure 7: Charts showing Cottam 1 (Coates South) percentage passes by species at each deployment location (with overall passes per night in brackets)

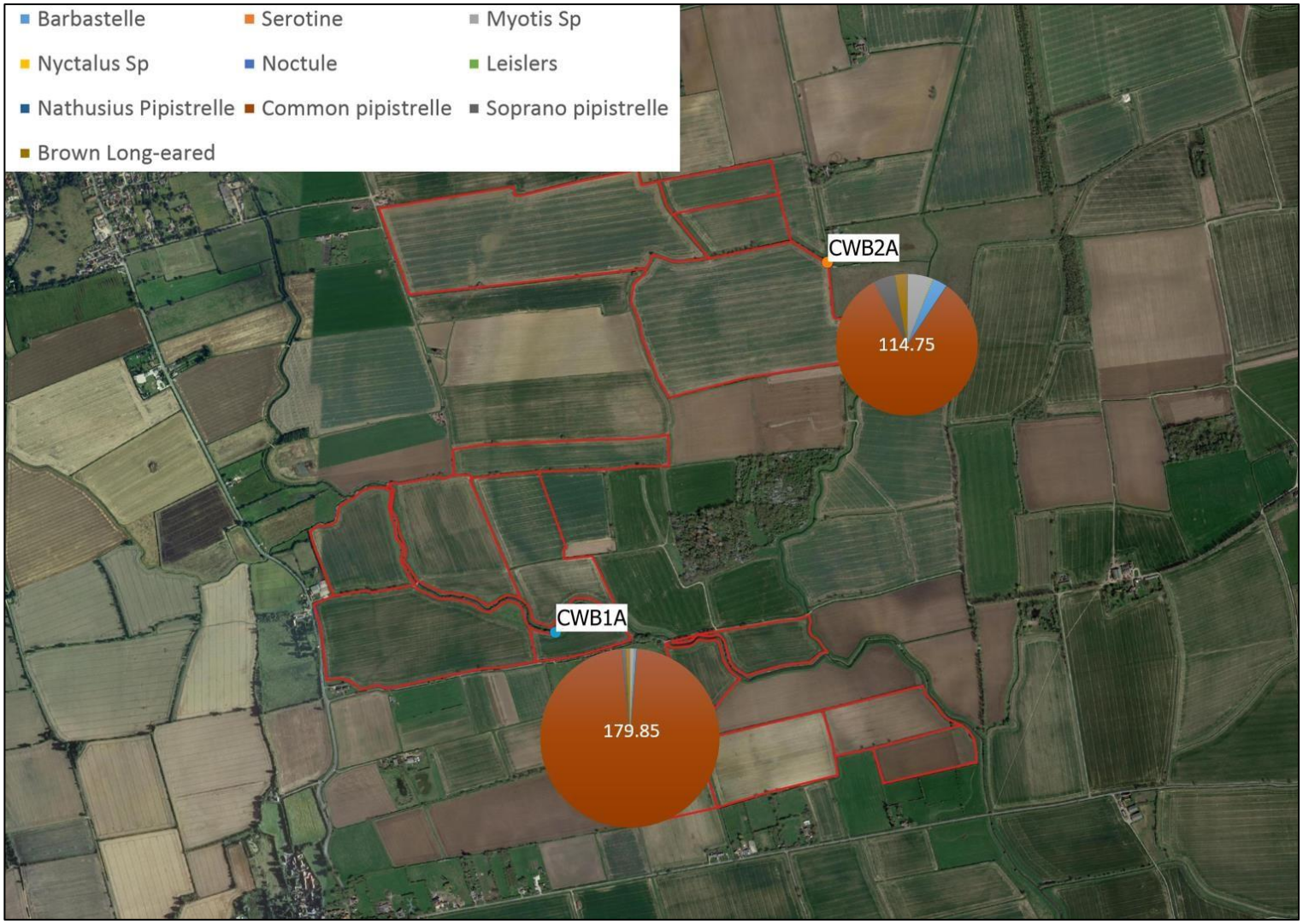


Figure 8: Charts showing Cottam 1 (Coates West) percentage passes by species at each deployment location (with overall passes per night in brackets)

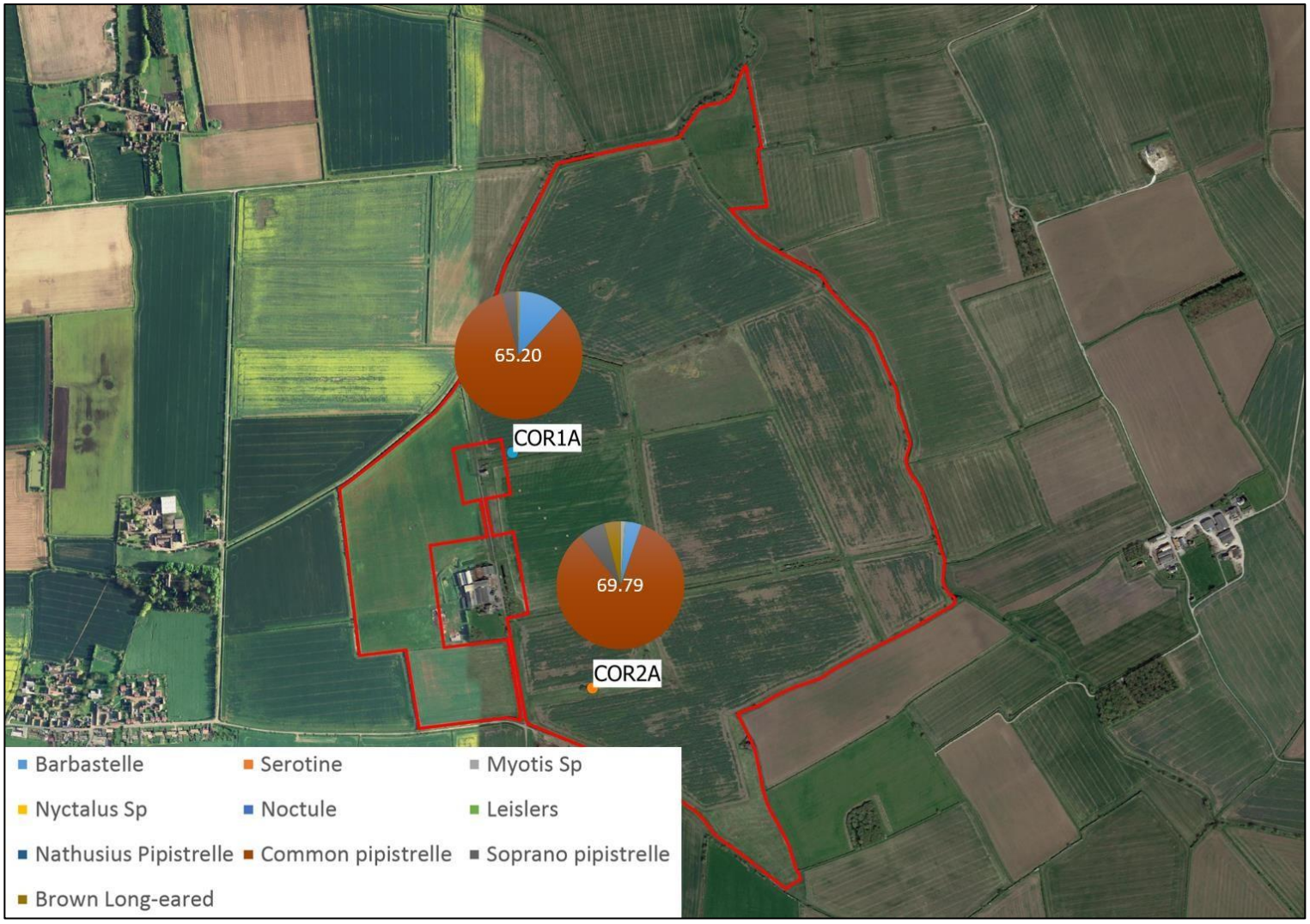


Figure 9: Charts showing Cottam 2 percentage passes by species at each deployment location (with overall passes per night in brackets)

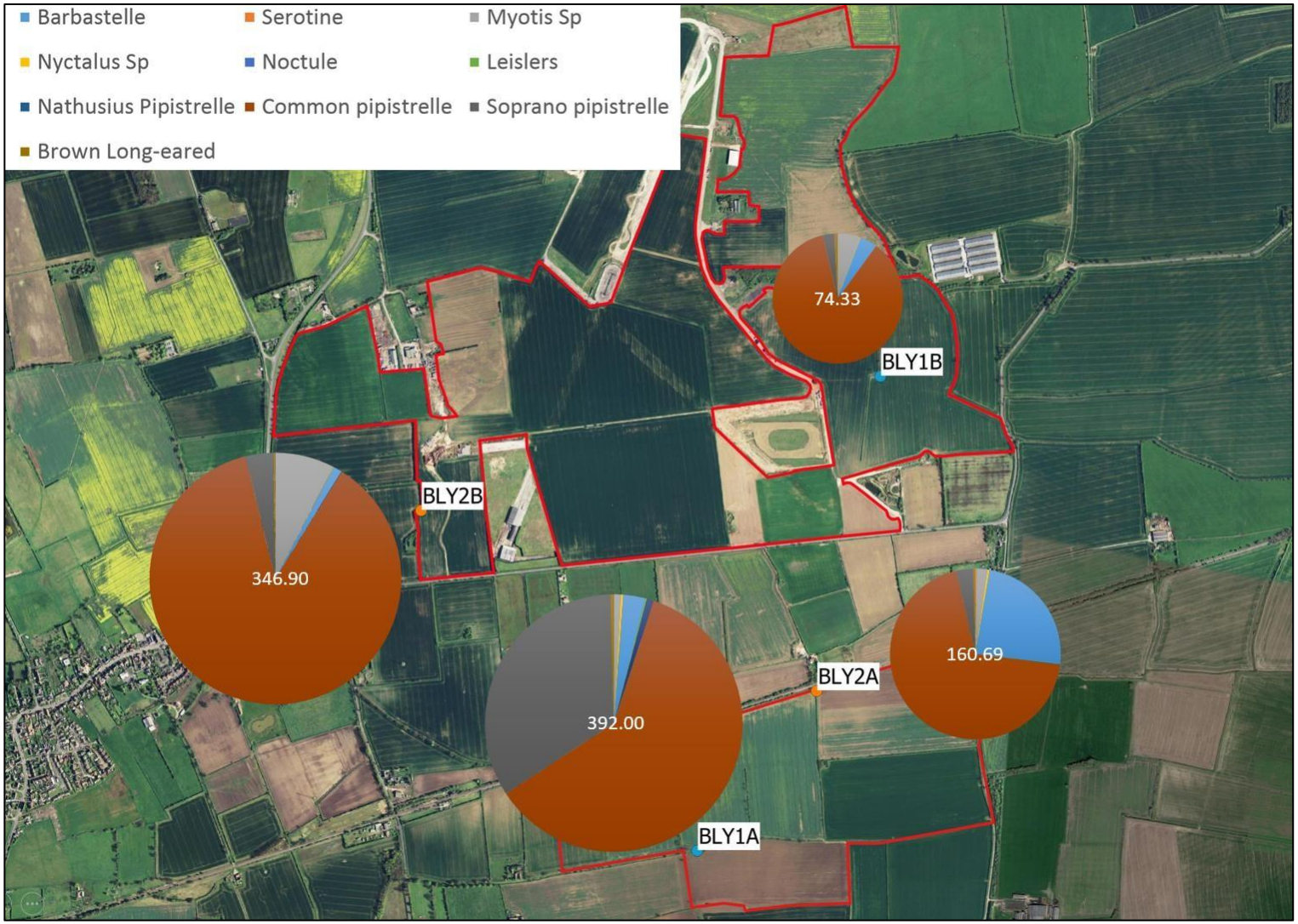


Figure 10: Charts showing Cottam 3 and 3b percentage passes by species at each deployment location (with overall passes per night in brackets)

Appendix 9.5.4 Bat Roost Potential of Trees

Figure 11: Bat Roost Potential of Trees at Cottam 1 (Coates North) (Red: High Potential, Orange: Moderate Potential, Yellow: Low Potential, Green: Negligible Potential)

Figure 12: Bat Roost Potential of Trees at Cottam 1 (Coates South) (Red: High Potential, Orange: Moderate Potential, Yellow: Low Potential, Green: Negligible Potential)

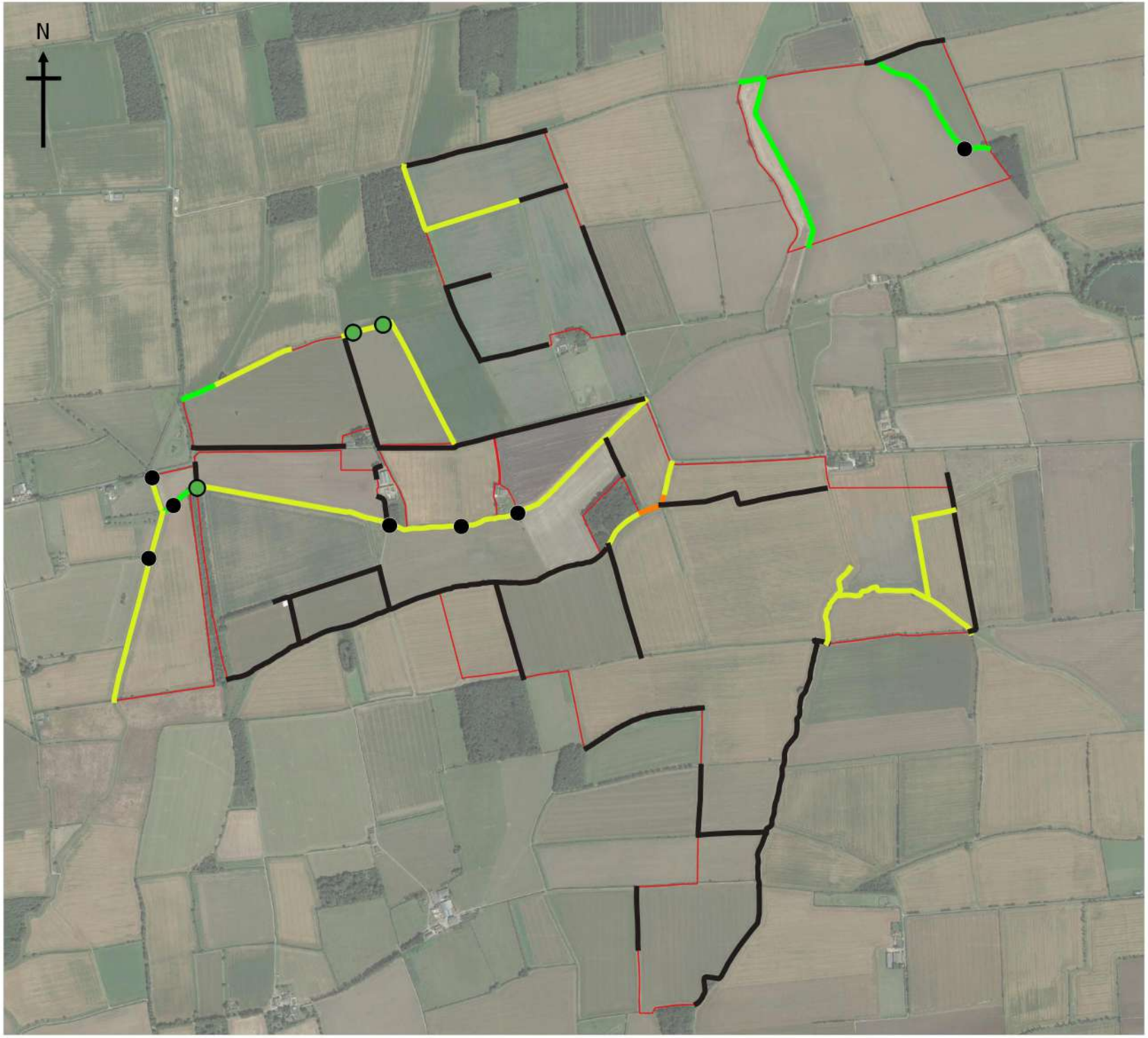
Figure 13: Bat Roost Potential of Trees at Cottam 1 (Coates West) (Red: High Potential, Orange: Moderate Potential, Yellow: Low Potential, Green: Negligible Potential)

Figure 14: Bat Roost Potential of Trees at Cottam 2 (Red: High Potential, Orange: Moderate Potential, Yellow: Low Potential, Green: Negligible Potential)

Figure 15: Bat Roost Potential of Trees at Cottam 3 (Red: High Potential, Orange: Moderate Potential, Yellow: Low Potential, Green: Negligible Potential)

Figure 16: Bat Roost Potential of Trees at Cottam 3b (Red: High Potential, Orange: Moderate Potential, Yellow: Low Potential, Green: Negligible Potential)

9.6 Summary of Otter and Water Vole Survey Results



Key:

- Red line boundary

Ditch suitability for otter

- Good
- Suitable but poor
- Negligible
- Unsuitable/Usually dry

Observations

- Couch
- Footprints
- Cavity with potential for shelter - no signs of otter
- Spraint

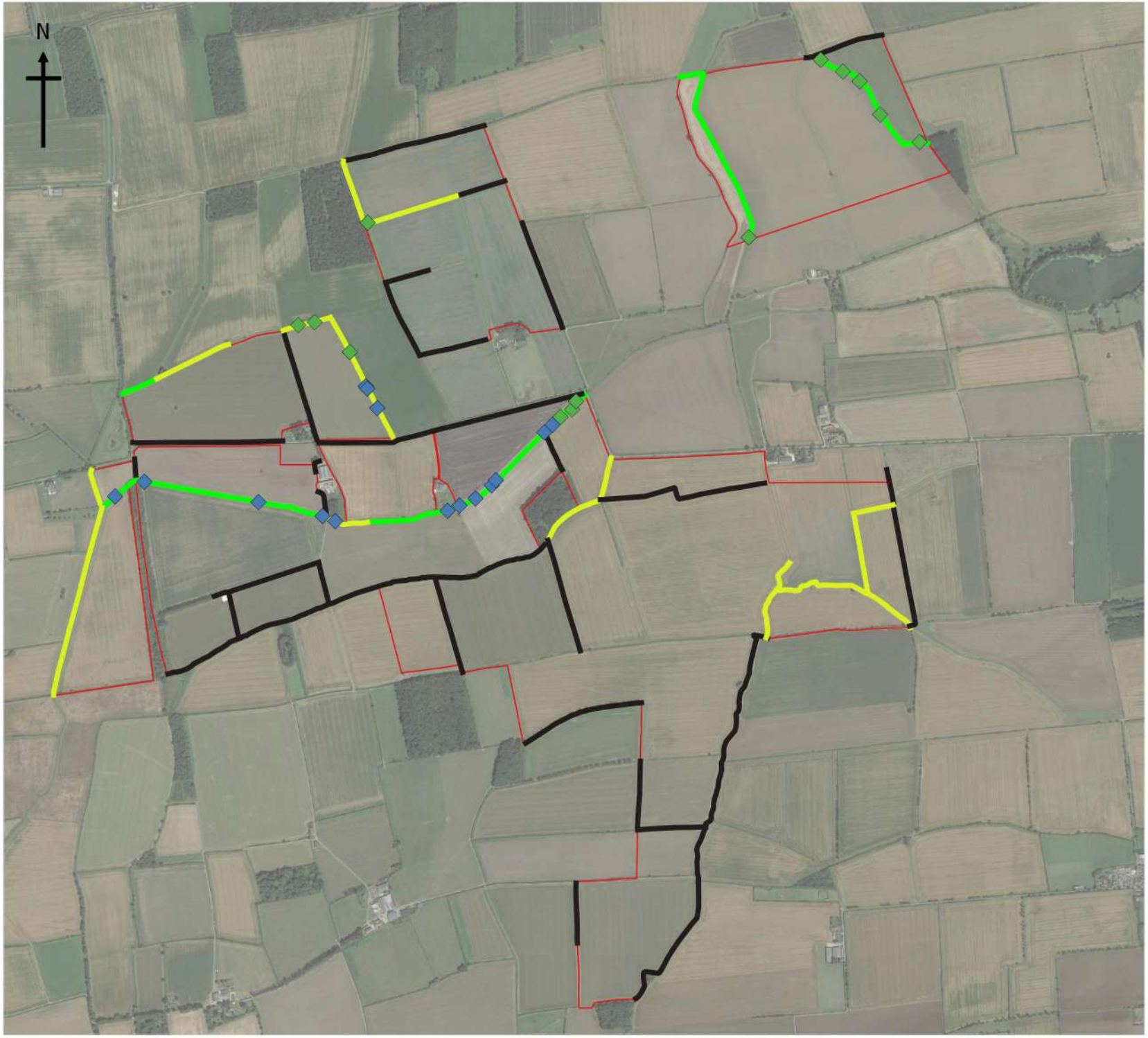
CLARKSON & WOODS
ECOLOGICAL CONSULTANTS

Project
Cottam and West Burton Solar Farms

Title
Cottam 1 North Otter Survey Results

Project Number
7479

Scale 0 250 500 m



Key:

Red line boundary

Suitability of ditches for water vole

- Good
- Negligible
- Suitable but poor
- Unsuitable/Usually dry

Observed signs of water vole

- Burrow
- Feeding remain
- Footprint
- Latrine

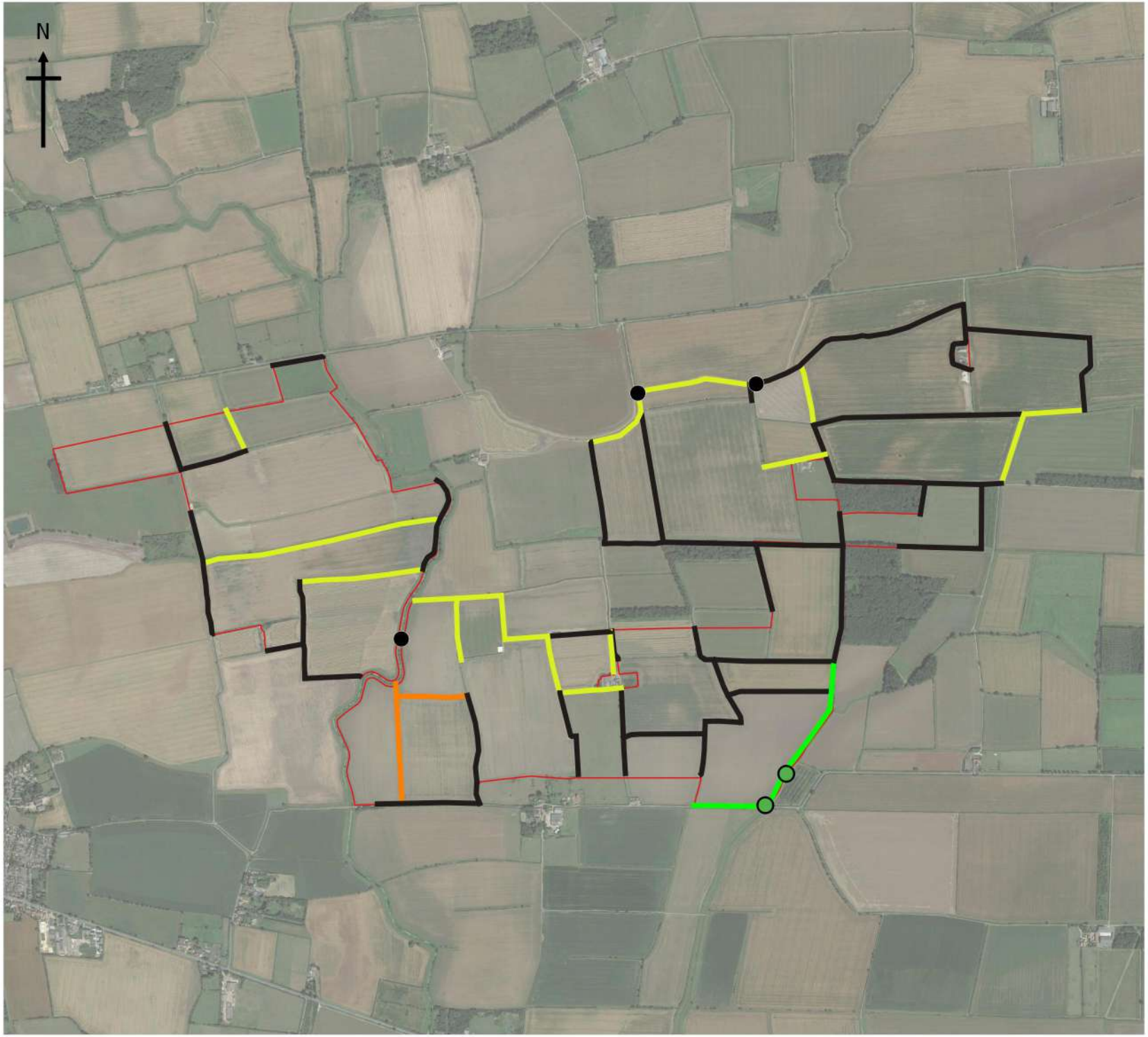
CLARKSON & WOODS
ECOLOGICAL CONSULTANTS

Project
Cottam and West Burton Solar Farms

Title
Cottam 1 North Water Vole Survey Results

Project Number
7479

Scale 0 250 500 m



Key:

- Red line boundary

Ditch suitability for otter

- Good
- Suitable but poor
- Negligible
- Unsuitable/Usually dry

Observations

- Couch
- Footprints
- Cavity with potential for shelter - no signs of otter
- Spraint

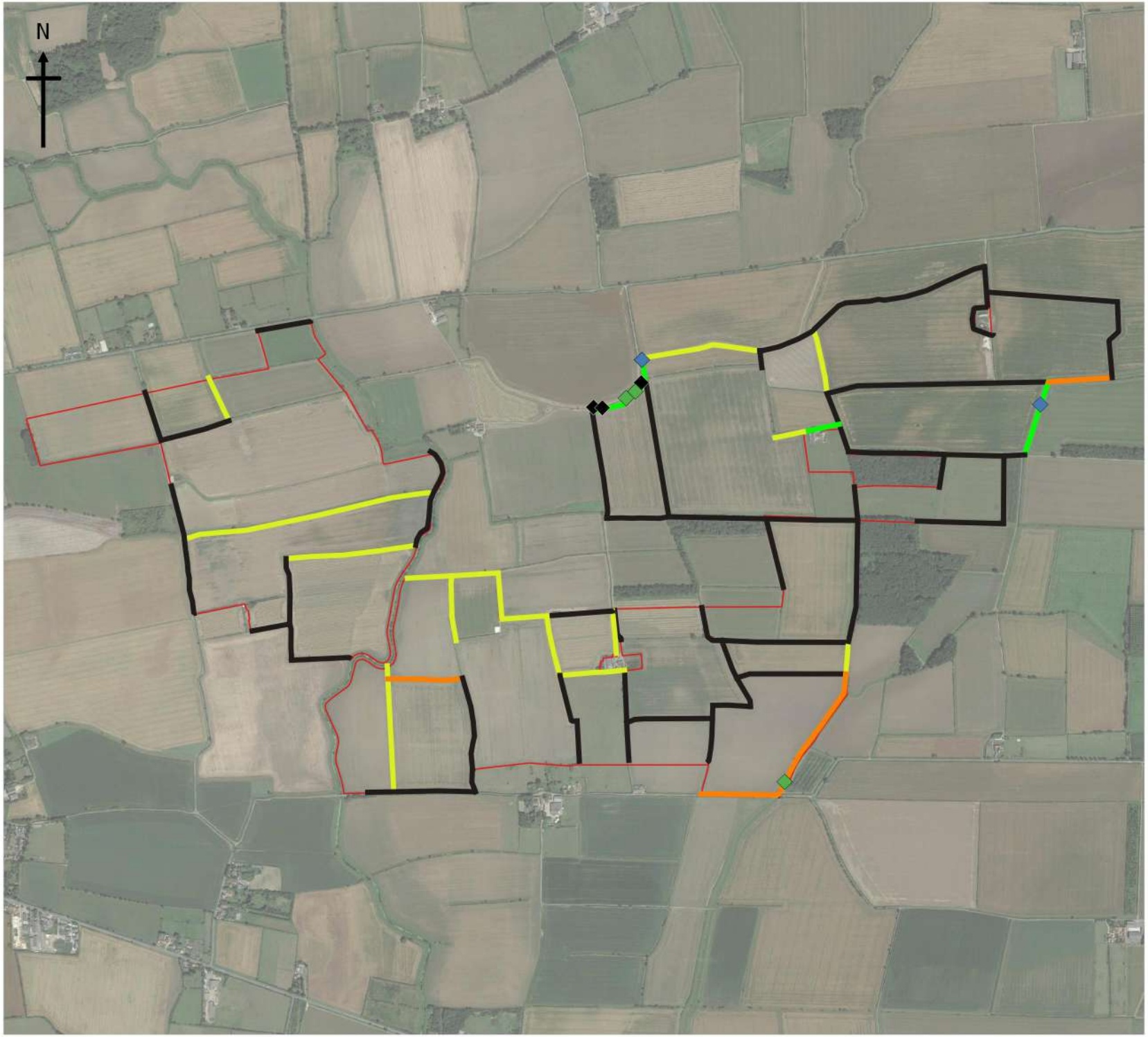
CLARKSON & WOODS
ECOLOGICAL CONSULTANTS

Project
Cottam and West Burton Solar Farms

Title
Cottam 1 South Otter Survey Results

Project Number
7479

Scale 0 250 500 m



Key:

Red line boundary

Suitability of ditches for water vole

- Good
- Negligible
- Suitable but poor
- Unsuitable/Usually dry

Observed signs of water vole

- Burrow
- Feeding remain
- Footprint
- Latrine

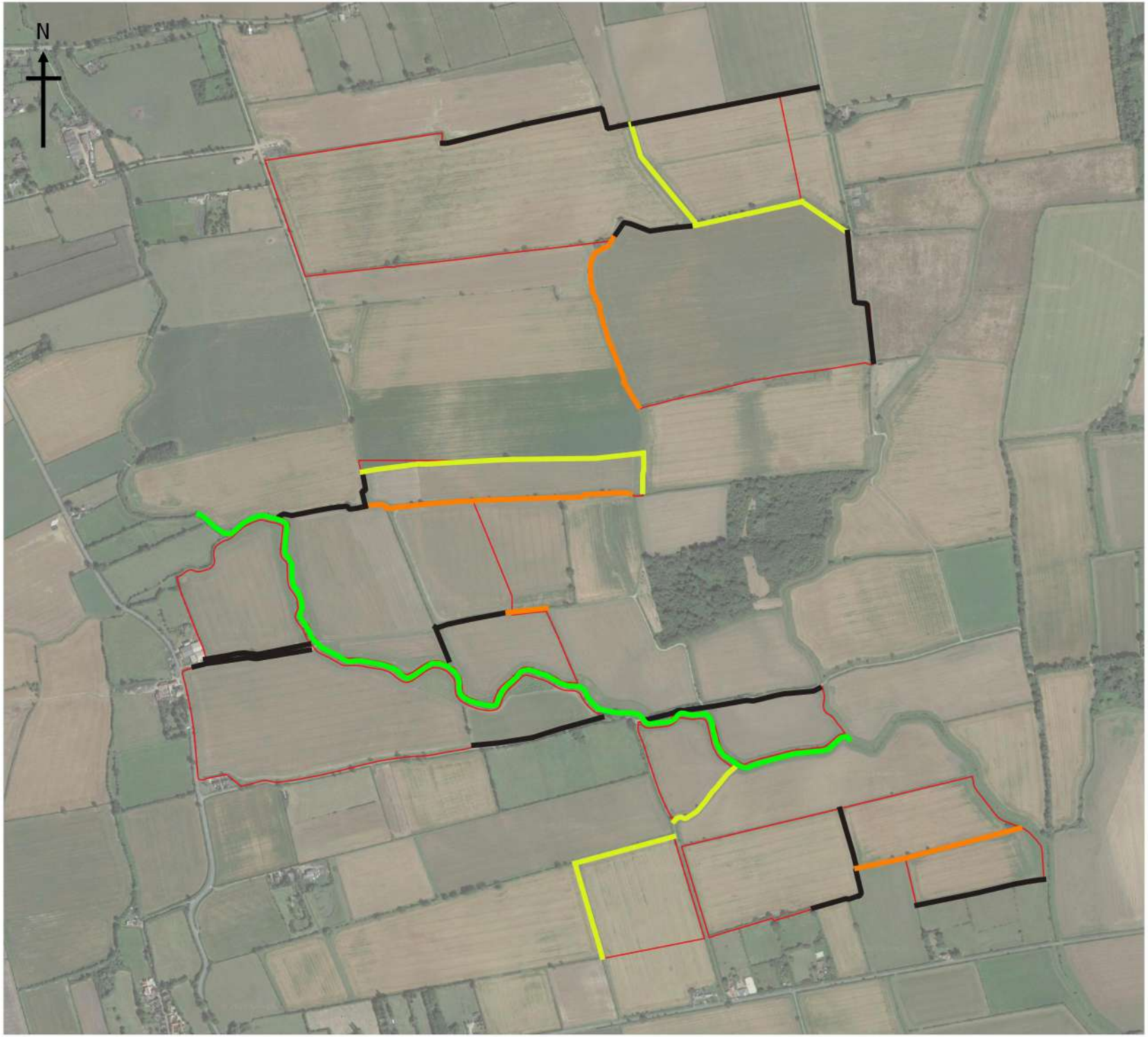
CLARKSON & WOODS
ECOLOGICAL CONSULTANTS

Project
Cottam and West Burton Solar Farms

Title
Cottam 1 South Water Vole Survey Results

Project Number
7479

Scale 0 250 500 m



Key:

Red line boundary

Ditch suitability for otter

- Good
- Suitable but poor
- Negligible
- Unsuitable/Usually dry

Observations

- Couch
- Footprints
- Cavity with potential for shelter - no signs of otter
- Spraint

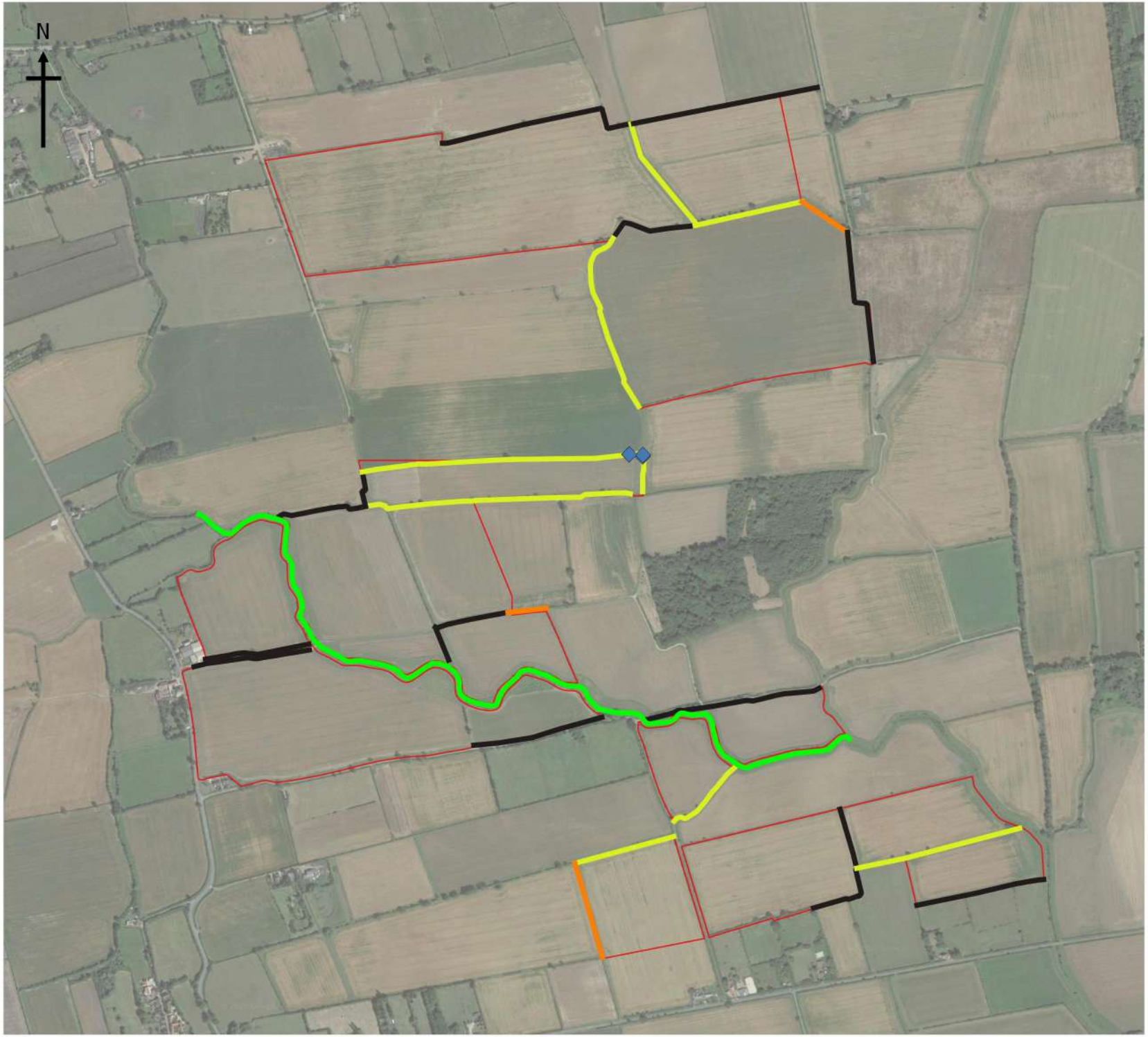
CLARKSON & WOODS
ECOLOGICAL CONSULTANTS

Project
Cottam and West Burton Solar Farms

Title
Cottam 1 West Otter Survey Results

Project Number
7479

Scale 0 250 500 m



Key:

Red line boundary

Suitability of ditches for water vole

- Good
- Negligible
- Suitable but poor
- Unsuitable/Usually dry

Observed signs of water vole

- Burrow
- Feeding remain
- Footprint
- Latrine

CLARKSON & WOODS
ECOLOGICAL CONSULTANTS

Project
Cottam and West Burton Solar Farms

Title
Cottam 1 West Water Vole Survey Results

Project Number
7479

Scale 0 250 500 m

Key:

Red line boundary

Ditch suitability for otter

- Good
- Suitable but poor
- Negligible
- Unsuitable/Usually dry

Observations

- Couch
- Footprints
- Cavity with potential for shelter - no signs of otter
- Spraint

CLARKSON & WOODS
ECOLOGICAL CONSULTANTS

Project
Cottam and West Burton Solar Farms

Title
Cottam 2 Otter Survey Results

Project Number
7479

Scale 0 100 200 m

Key:

Red line boundary

Suitability of ditches for water vole

- Good
- Negligible
- Suitable but poor
- Unsuitable/Usually dry

Observed signs of water vole

- Burrow
- Feeding remain
- Footprint
- Latrine

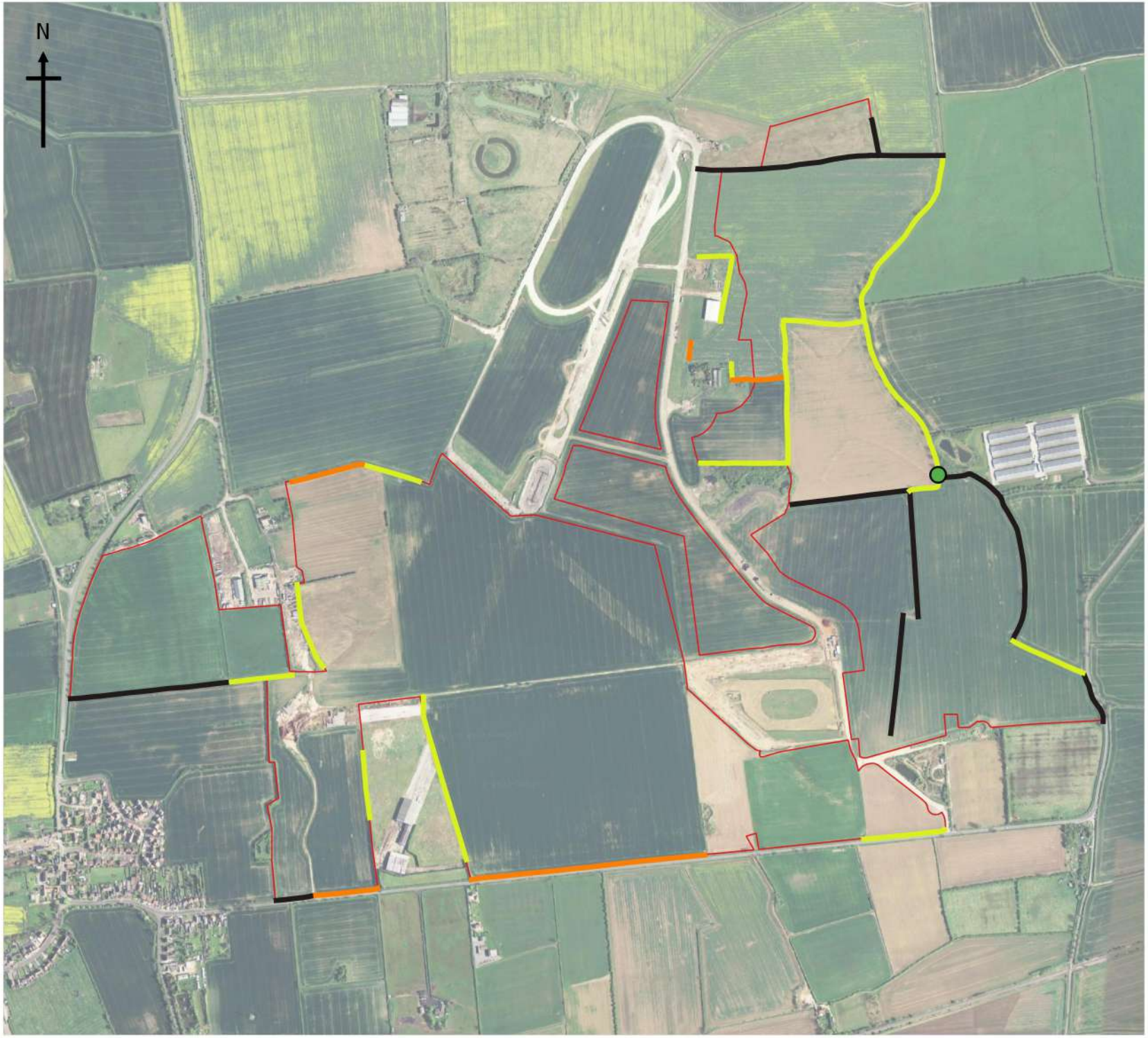
CLARKSON & WOODS
ECOLOGICAL CONSULTANTS

Project
Cottam and West Burton Solar Farms

Title
Cottam 2 Water Vole Survey Results

Project Number
7479

Scale 0 100 200 m



Key:

- Red line boundary

Ditch suitability for otter

- Good
- Suitable but poor
- Negligible
- Unsuitable/Usually dry

Observations

- Couch
- Footprints
- Cavity with potential for shelter - no signs of otter
- Spraint

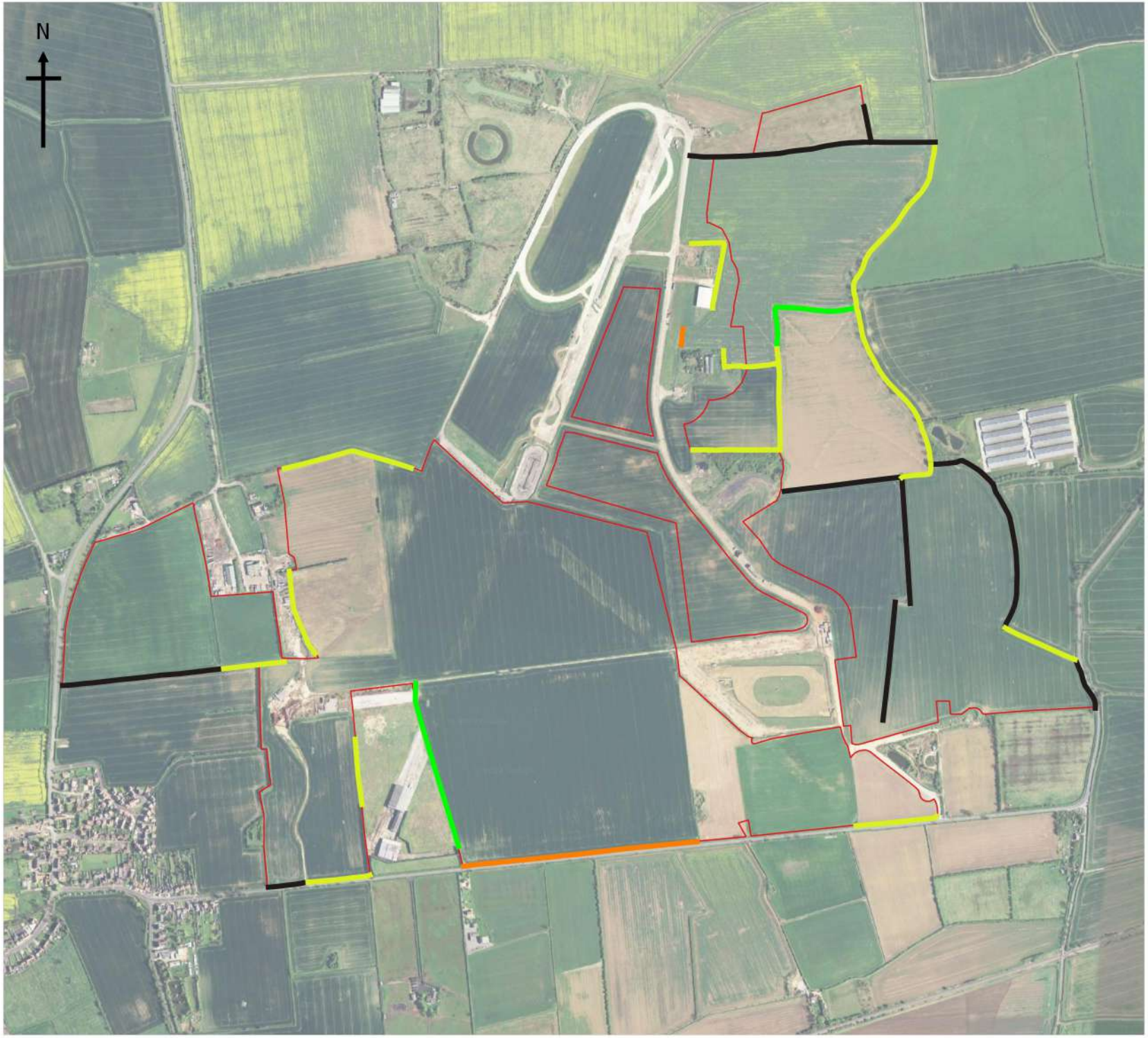
CLARKSON & WOODS
ECOLOGICAL CONSULTANTS

Project
Cottam and West Burton Solar Farms

Title
Cottam 3 Otter Survey Results

Project Number
7479

Scale 0 250 500 m



Key:

Red line boundary

Suitability of ditches for water vole

- Good
- Negligible
- Suitable but poor
- Unsuitable/Usually dry

Observed signs of water vole

- Burrow
- Feeding remain
- Footprint
- Latrine

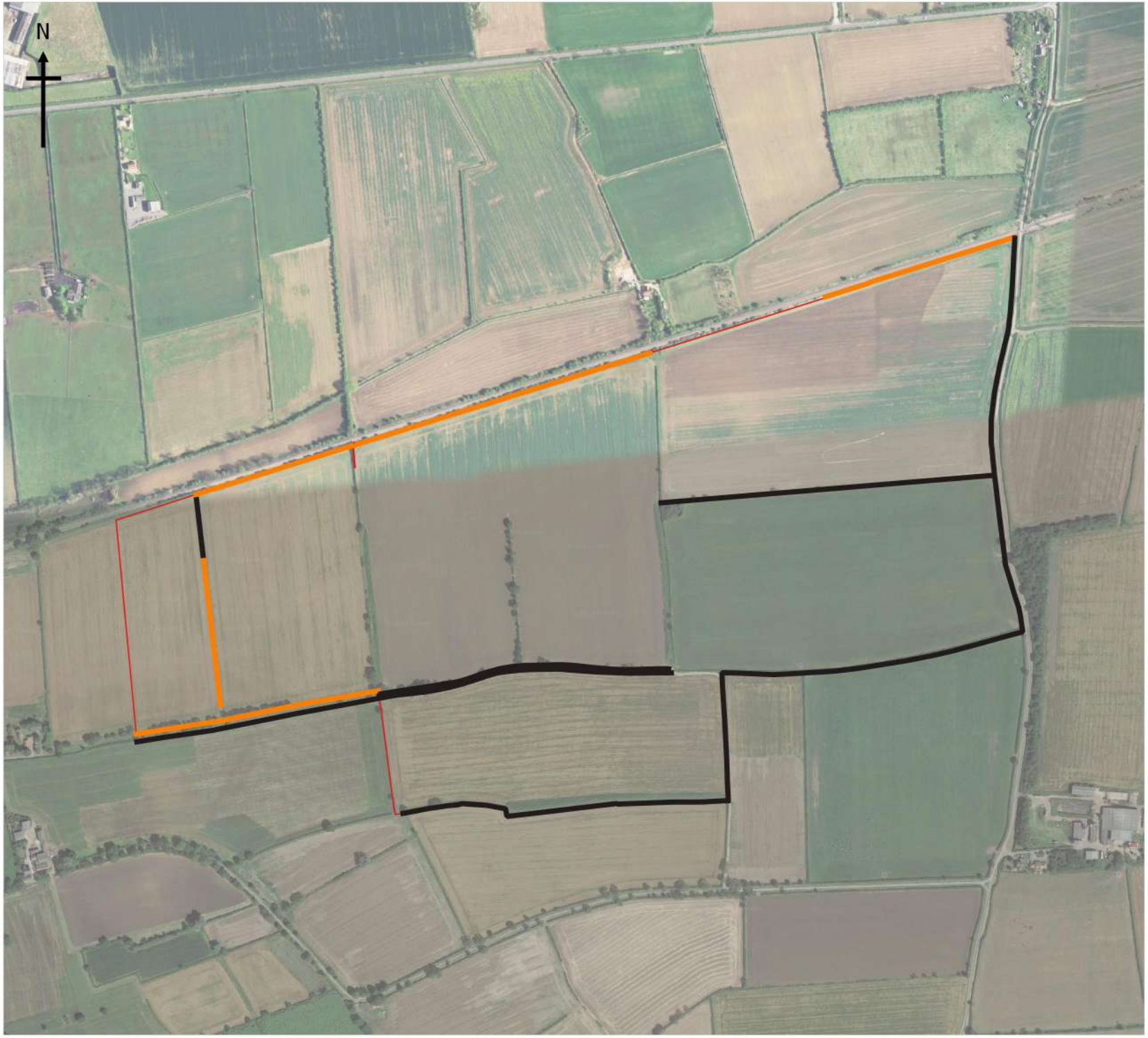
CLARKSON & WOODS
ECOLOGICAL CONSULTANTS

Project
Cottam and West Burton Solar Farms

Title
Cottam 3 Water Vole Survey Results

Project Number
7479

Scale 0 250 500 m



Key:

- Red line boundary

Ditch suitability for otter

- Good
- Suitable but poor
- Negligible
- Unsuitable/Usually dry

Observations

- Couch
- Footprints
- Cavity with potential for shelter - no signs of otter
- Spraint

CLARKSON & WOODS
ECOLOGICAL CONSULTANTS

Project
Cottam and West Burton Solar Farms

Title
Cottam 3b Otter Survey Results

Project Number
7479

Scale 0 100 200 m

Key:

Red line boundary

Suitability of ditches for water vole

- Good
- Negligible
- Suitable but poor
- Unsuitable/Usually dry

Observed signs of water vole

- Burrow
- Feeding remain
- Footprint
- Latrine

CLARKSON & WOODS
ECOLOGICAL CONSULTANTS

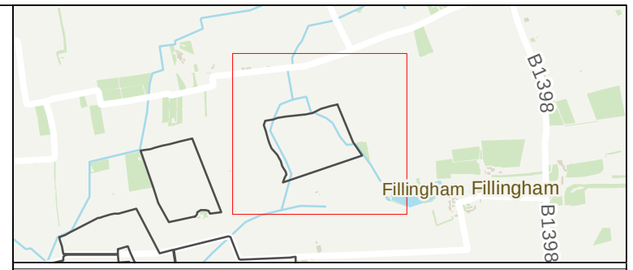
Project
Cottam and West Burton Solar Farms

Title
Cottam 3b Water Vole Survey Results

Project Number
7479

Scale 0 100 200 m

9.7 Schedule of Protective Ecological Buffers



Survey Information

Site boundary

Ecology Buffers

Lone trees

Pond

Linear feature

Distance buffers

5m buffer

8m buffer

10m buffer

12m buffer

20m buffer

30m buffer

50m buffer

Source:
Ordnance Survey © Crown copyright 2022, All rights reserved. License Number 100049837.

N

PROJECT TITLE

COTTAM AND WEST BURTON

DRAWING TITLE

Figure 1 : Ecology Buffers - Cottam 1. 1

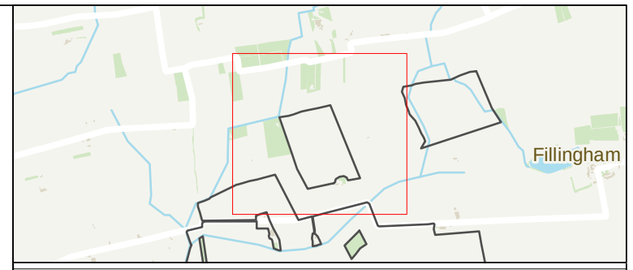
VER	DATE	REMARKS	Drawn	Checked
1.4	13/06/22	Ecology Buffers	MP	HF

DRAWING NUMBER:

ClarksonWoods/EcologyBuffers/Cottam 11

SCALE	1:6,000	PLOT SIZE	A3	DATUM	OSGB	PROJECTION	BNG

CLARKSON & WOODS
ECOLOGICAL CONSULTANTS



Survey Information

Site boundary

Ecology Buffers

Lone trees

Pond

Linear feature

Distance buffers

5m buffer

8m buffer

10m buffer

12m buffer

20m buffer

30m buffer

50m buffer

N

PROJECT TITLE

COTTAM AND WEST BURTON

DRAWING TITLE

Figure 2 : Ecology Buffers - Cottam 1. 2

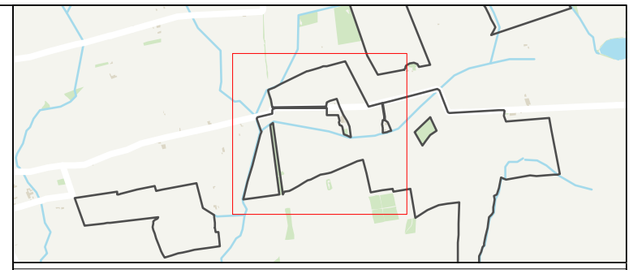
VER	DATE	REMARKS	Drawn	Checked
1.4	13/06/22	Ecology Buffers	MP	HF

DRAWING NUMBER:

ClarksonWoods/EcologyBuffers/Cottam 12

SCALE	1:6,000	PLOT SIZE	A3	DATUM	OSGB	PROJECTION	BNG

CLARKSON & WOODS
ECOLOGICAL CONSULTANTS



Survey Information

Site boundary

Ecology Buffers

Lone trees

Pond

Linear feature

Distance buffers

5m buffer

8m buffer

10m buffer

12m buffer

20m buffer

30m buffer

50m buffer

PROJECT TITLE

COTTAM AND WEST BURTON

DRAWING TITLE

Figure 3 : Ecology Buffers - Cottam 1. 2

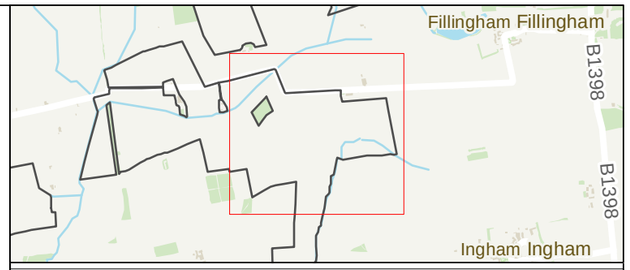
VER	DATE	REMARKS	Drawn	Checked
1.4	13/06/22	Ecology Buffers	MP	HF

DRAWING NUMBER:

ClarksonWoods/EcologyBuffers/Cottam 12

SCALE	1:6,000	PLOT SIZE	A3	DATUM	OSGB	PROJECTION	BNG

CLARKSON & WOODS
ECOLOGICAL CONSULTANTS



Survey Information

Site boundary

Ecology Buffers

Lone trees

Pond

Linear feature

Distance buffers

5m buffer

8m buffer

10m buffer

12m buffer

20m buffer

30m buffer

50m buffer

N

PROJECT TITLE

COTTAM AND WEST BURTON

DRAWING TITLE

Figure 4 : Ecology Buffers - Cottam 1. 3

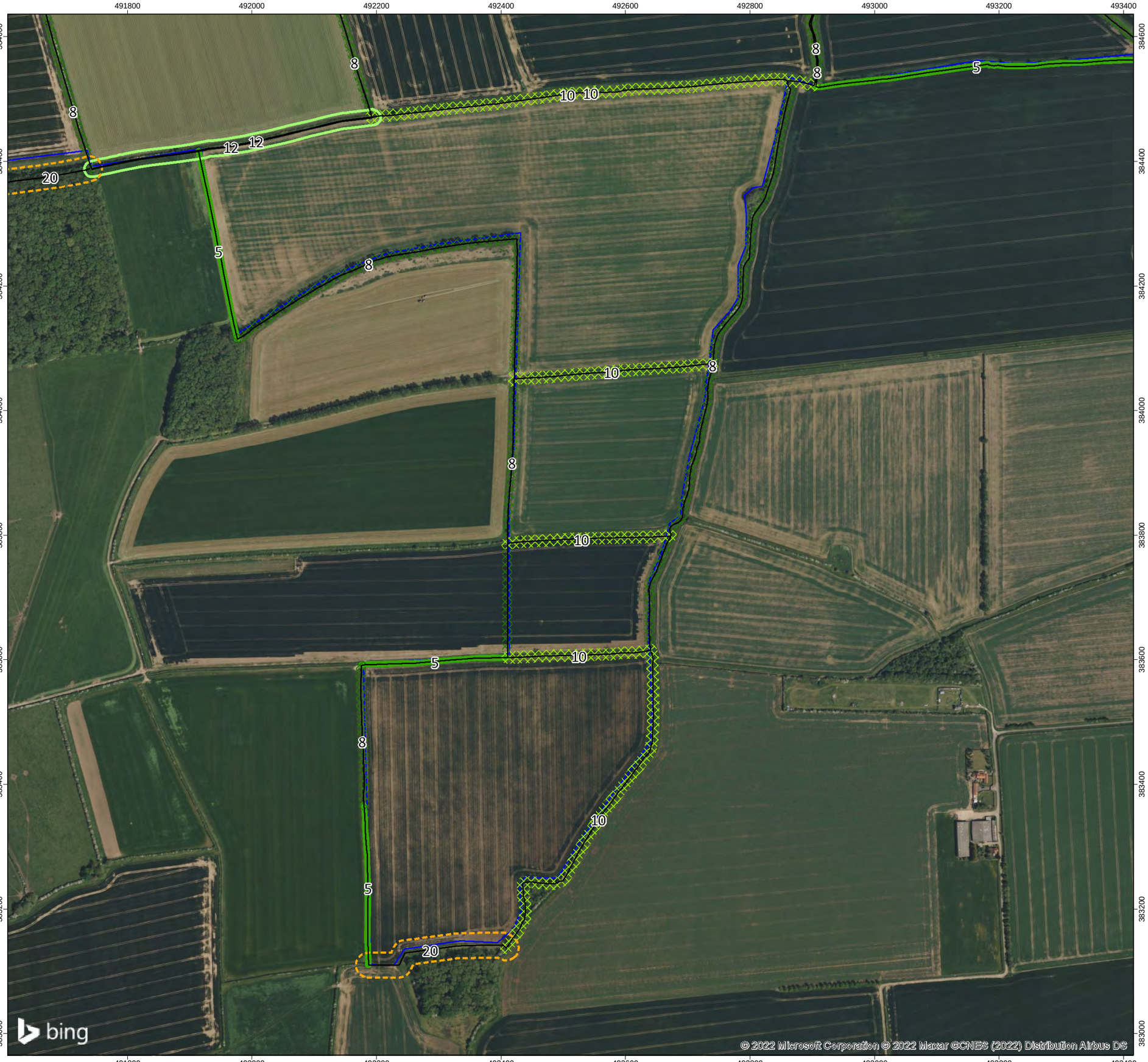
VER	DATE	REMARKS	Drawn	Checked
1.4	13/06/22	Ecology Buffers	MP	HF

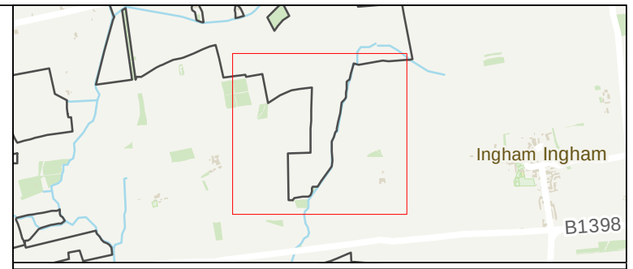
DRAWING NUMBER:

ClarksonWoods/EcologyBuffers/Cottam 13

SCALE	1:6,000	PLOT SIZE	A3	DATUM	OSGB	PROJECTION	BNG

CLARKSON & WOODS
ECOLOGICAL CONSULTANTS





Survey Information

Site boundary

Ecology Buffers

Lone trees

Pond

Linear feature

Distance buffers

5m buffer

8m buffer

10m buffer

12m buffer

20m buffer

30m buffer

50m buffer

N

PROJECT TITLE

COTTAM AND WEST BURTON

DRAWING TITLE

Figure 5 : Ecology Buffers - Cottam 1. 4

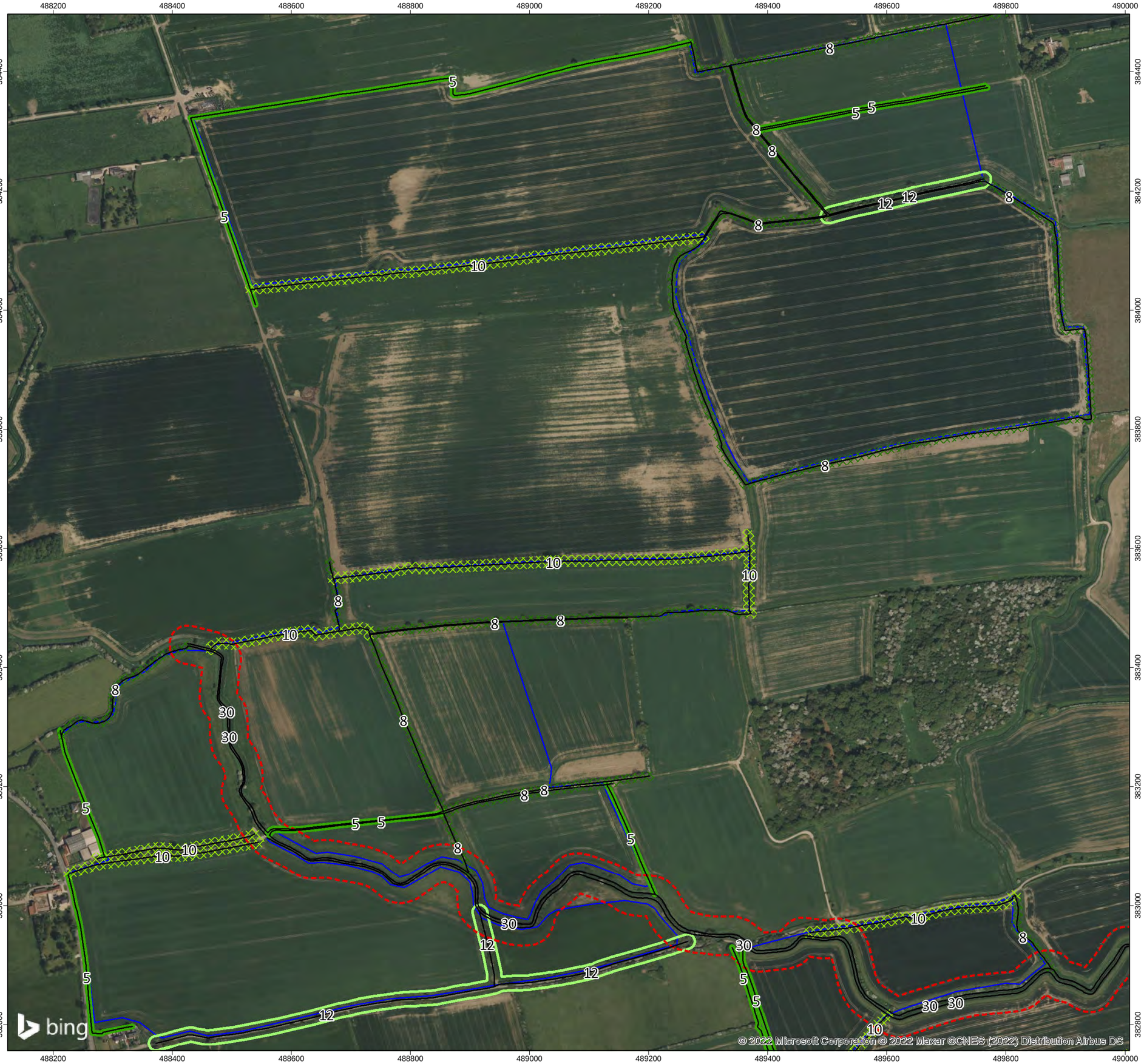
VER	DATE	REMARKS	Drawn	Checked
1.4	13/06/22	Ecology Buffers	MP	HF

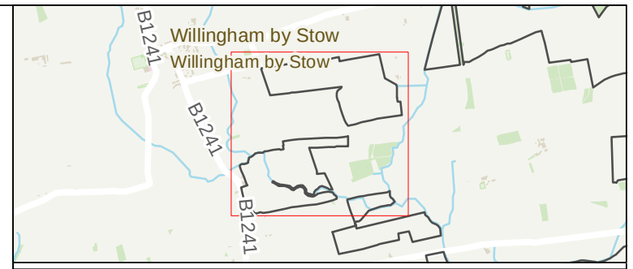
DRAWING NUMBER:

ClarksonWoods/EcologyBuffers/Cottam 14

SCALE	PLOT SIZE	DATUM	PROJECTION
1:6,000	A3	OSGB	BNG

CLARKSON & WOODS
ECOLOGICAL CONSULTANTS





Survey Information

Site boundary

Ecology Buffers

Lone trees

Pond

Linear feature

Distance buffers

5m buffer

8m buffer

10m buffer

12m buffer

20m buffer

30m buffer

50m buffer

Source:
Ordnance Survey © Crown copyright 2022, All rights reserved. License Number 100049837.

N

PROJECT TITLE

COTTAM AND WEST BURTON

DRAWING TITLE

Figure 6 : Ecology Buffers - Cottam 1. 5

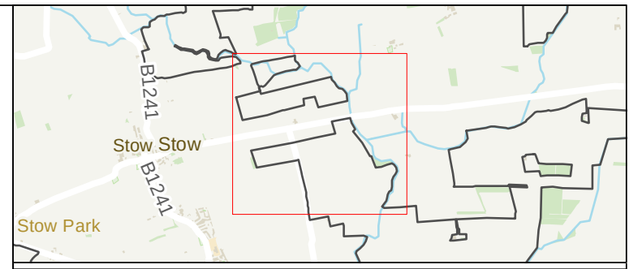
VER	DATE	REMARKS	Drawn	Checked
1.4	13/06/22	Ecology Buffers	MP	HF

DRAWING NUMBER:

ClarksonWoods/EcologyBuffers/Cottam 15

SCALE	1:6,250	PLOT SIZE	A3	DATUM	OSGB	PROJECTION	BNG

CLARKSON & WOODS
ECOLOGICAL CONSULTANTS



Survey Information

Site boundary

Ecology Buffers

Lone trees

Pond

Linear feature

Distance buffers

5m buffer

8m buffer

10m buffer

12m buffer

20m buffer

30m buffer

50m buffer

N

PROJECT TITLE

COTTAM AND WEST BURTON

DRAWING TITLE

Figure 7 : Ecology Buffers - Cottam 1. 6

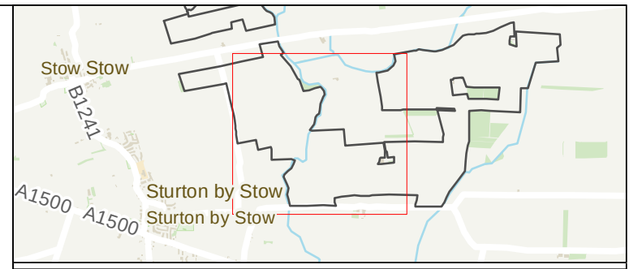
VER	DATE	REMARKS	Drawn	Checked
1.4	13/06/22	Ecology Buffers	MP	HF

DRAWING NUMBER:

ClarksonWoods/EcologyBuffers/Cottam 16

SCALE	1:6,000	PLOT SIZE	A3	DATUM	OSGB	PROJECTION	BNG

CLARKSON & WOODS
ECOLOGICAL CONSULTANTS



Survey Information

Site boundary

Ecology Buffers

Lone trees

Pond

Linear feature

Distance buffers

5m buffer

8m buffer

10m buffer

12m buffer

20m buffer

30m buffer

50m buffer

Source:
Ordnance Survey © Crown copyright 2022, All rights reserved. License Number 100049837.

N

PROJECT TITLE

COTTAM AND WEST BURTON

DRAWING TITLE

Figure 8 : Ecology Buffers - Cottam 1. 7

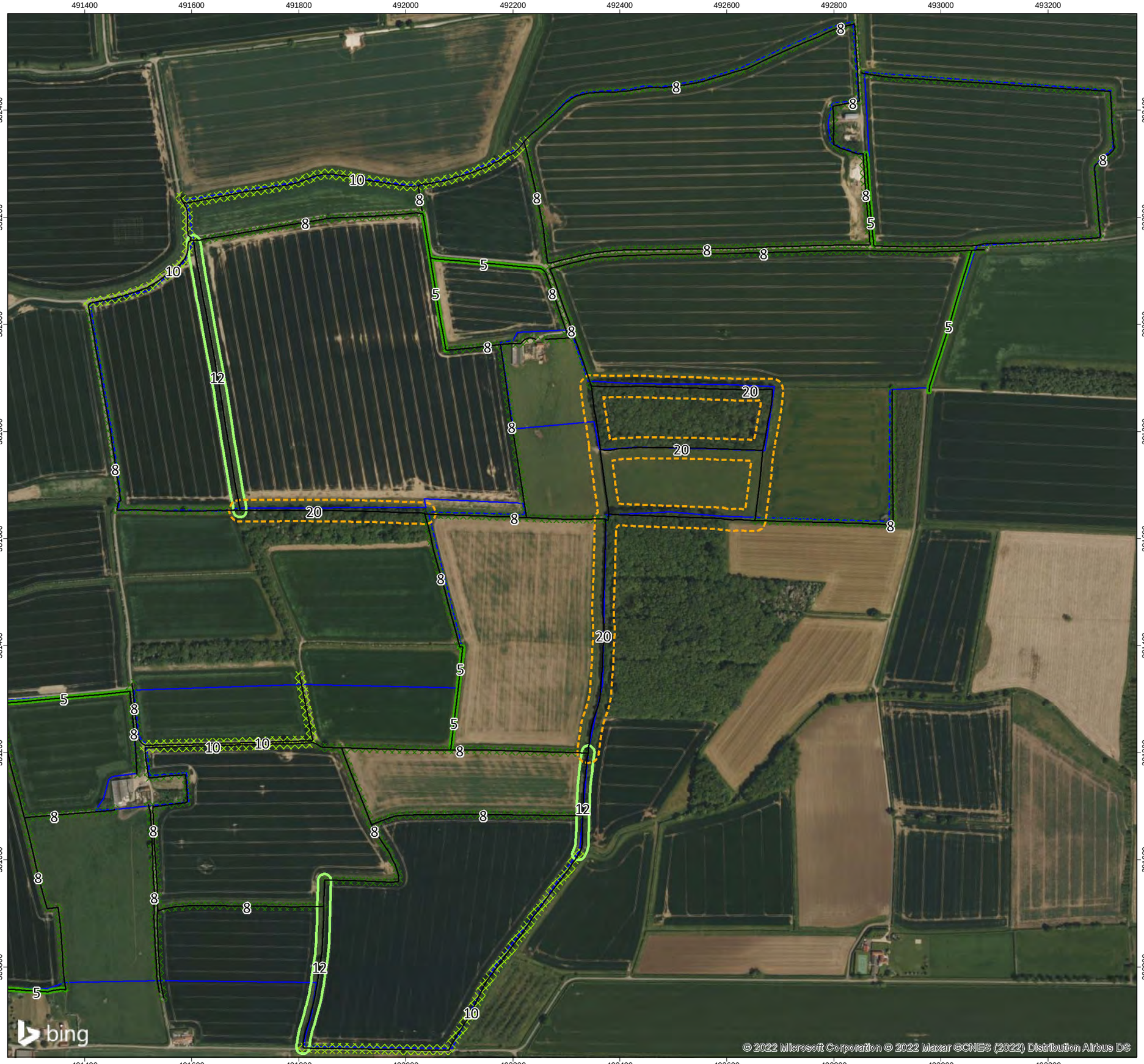
VER	DATE	REMARKS	Drawn	Checked
1.4	13/06/22	Ecology Buffers	MP	HF

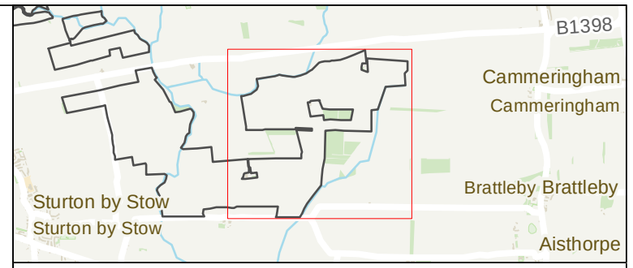
DRAWING NUMBER:

ClarksonWoods/EcologyBuffers/Cottam 17

SCALE	1:6,000	PLOT SIZE	A3	DATUM	OSGB	PROJECTION	BNG

CLARKSON & WOODS
ECOLOGICAL CONSULTANTS





Survey Information

Site boundary

Ecology Buffers

Lone trees

Pond

Linear feature

Distance buffers

5m buffer

8m buffer

10m buffer

12m buffer

20m buffer

30m buffer

50m buffer

N

PROJECT TITLE

COTTAM AND WEST BURTON

DRAWING TITLE

Figure 9 : Ecology Buffers - Cottam 1. 8

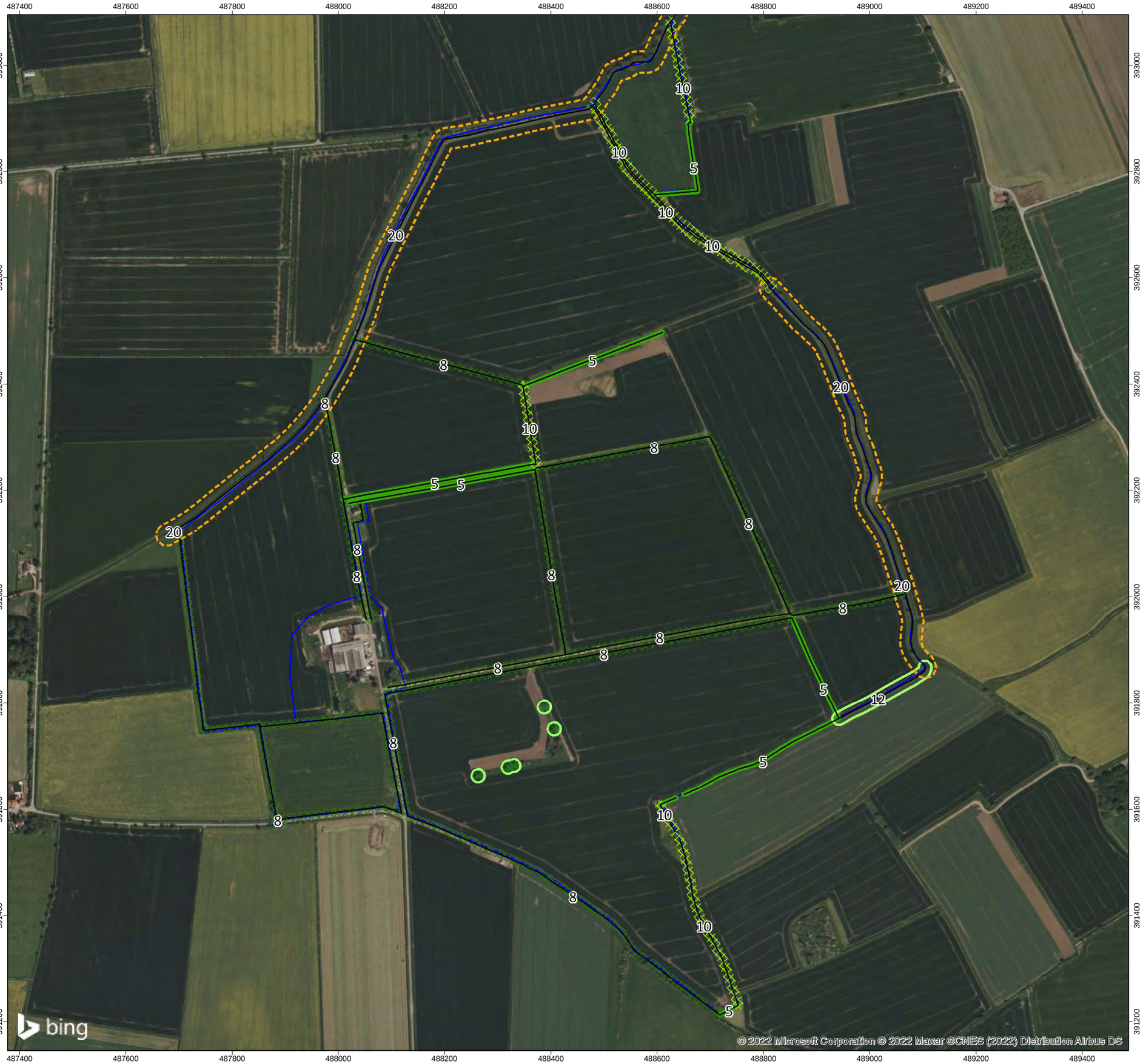
VER	DATE	REMARKS	Drawn	Checked
1.4	13/06/22	Ecology Buffers	MP	HF

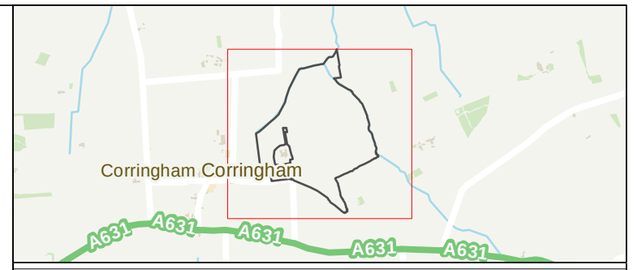
DRAWING NUMBER:

ClarksonWoods/EcologyBuffers/Cottam 18

SCALE	1:7,000	PLOT SIZE	A3	DATUM	OSGB	PROJECTION	BNG

CLARKSON & WOODS
ECOLOGICAL CONSULTANTS





Survey Information

Site boundary

Ecology Buffers

Lone trees

Pond

Linear feature

Distance buffers

5m buffer

8m buffer

10m buffer

12m buffer

20m buffer

30m buffer

50m buffer

N

PROJECT TITLE

COTTAM AND WEST BURTON

DRAWING TITLE

Figure 10 : Ecology Buffers - Cottam 2. 1

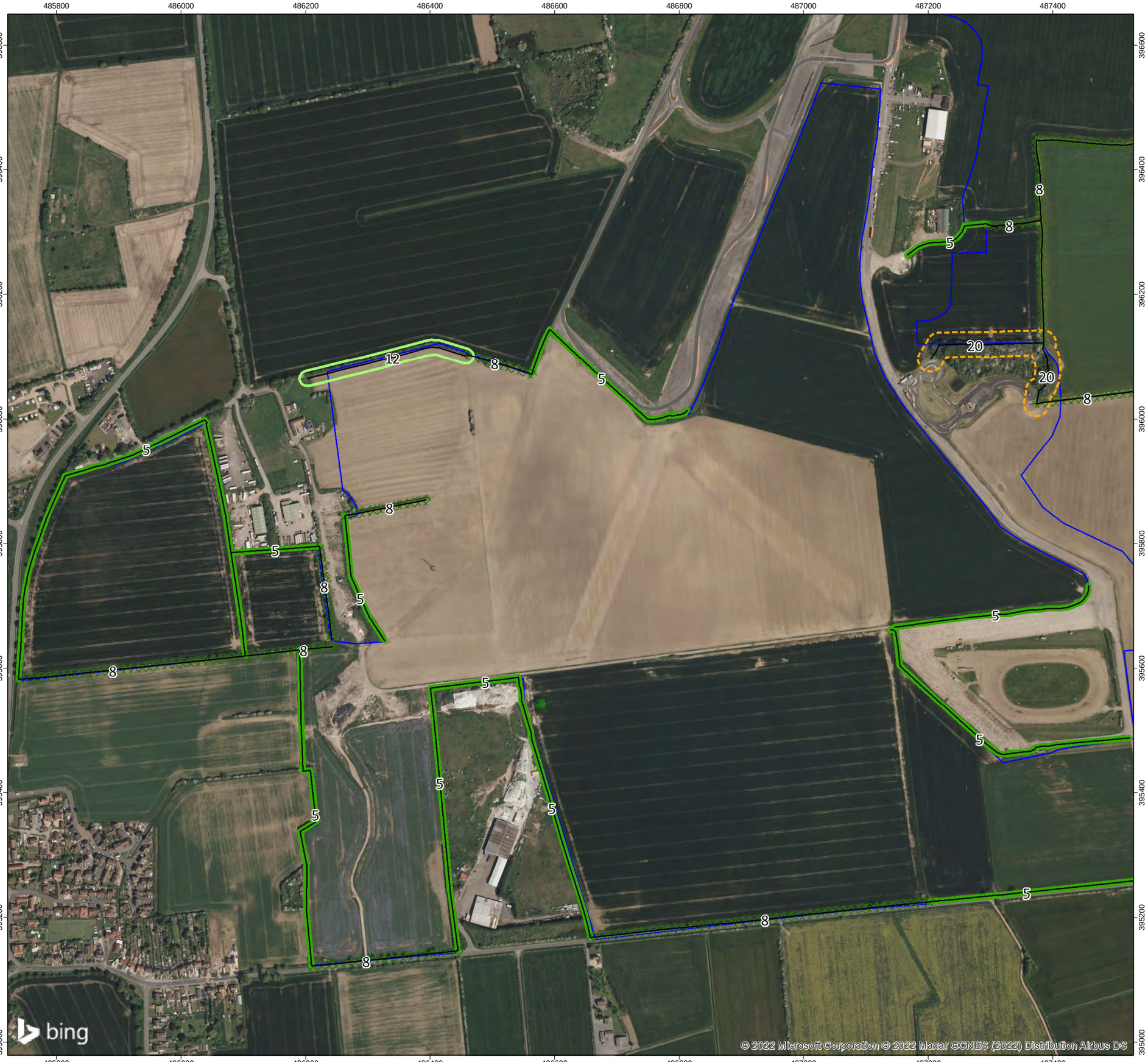
VER	DATE	REMARKS	Drawn	Checked
1.4	13/06/22	Ecology Buffers	MP	HF

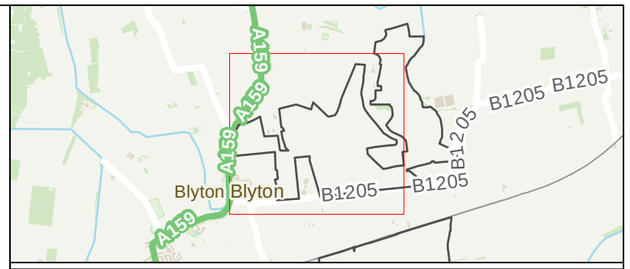
DRAWING NUMBER:

ClarksonWoods/EcologyBuffers/Cottam 21

SCALE	1:7,000	PLOT SIZE	A3	DATUM	OSGB	PROJECTION	BNG

CLARKSON & WOODS
ECOLOGICAL CONSULTANTS





Survey Information

Site boundary

Ecology Buffers

Lone trees

Pond

Linear feature

Distance buffers

5m buffer

8m buffer

10m buffer

12m buffer

20m buffer

30m buffer

50m buffer

Source:
Ordnance Survey © Crown copyright 2022, All rights reserved. License Number 100049837.

N

PROJECT TITLE

COTTAM AND WEST BURTON

DRAWING TITLE

Figure 11 : Ecology Buffers - Cottam 3. 1

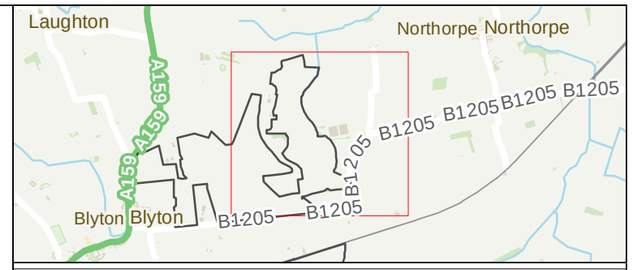
VER	DATE	REMARKS	Drawn	Checked
1.4	13/06/22	Ecology Buffers	MP	HF

DRAWING NUMBER:

ClarksonWoods/EcologyBuffers/Cottam 31

SCALE	1:6,000	PLOT SIZE	A3	DATUM	OSGB	PROJECTION	BNG

CLARKSON & WOODS
ECOLOGICAL CONSULTANTS



Survey Information

Site boundary

Ecology Buffers

- Lone trees
- Pond
- Linear feature

Distance buffers

- 5m buffer
- 8m buffer
- 10m buffer
- 12m buffer
- 20m buffer
- 30m buffer
- 50m buffer

Source:
Ordnance Survey © Crown copyright 2022, All rights reserved. License Number 100049837.

N

PROJECT TITLE

COTTAM AND WEST BURTON

DRAWING TITLE

Figure 12 : Ecology Buffers - Cottam 3. 2

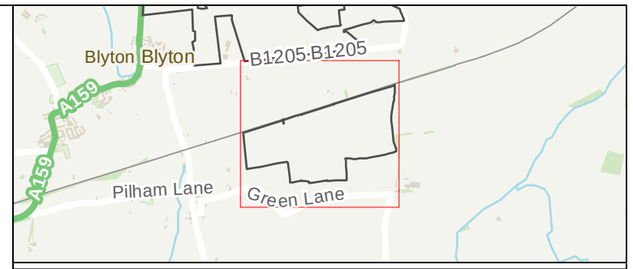
VER	DATE	REMARKS	Drawn	Checked
1.4	13/06/22	Ecology Buffers	MP	HF

DRAWING NUMBER:

ClarksonWoods/EcologyBuffers/Cottam 32

SCALE	1:6,250	PLOT SIZE	A3	DATUM	OSGB	PROJECTION	BNG

CLARKSON & WOODS
ECOLOGICAL CONSULTANTS



Survey Information

Site boundary

Ecology Buffers

- Lone trees
- Pond
- Linear feature

Distance buffers

- 5m buffer
- 8m buffer
- 10m buffer
- 12m buffer
- 20m buffer
- 30m buffer
- 50m buffer

N

PROJECT TITLE

COTTAM AND WEST BURTON

DRAWING TITLE

Figure 23 : Ecology Buffers - Cottam 3b - Bonsdale.

VER	DATE	REMARKS	Drawn	Checked
1.4	13/06/22	Ecology Buffers	MP	HF

DRAWING NUMBER:

ClarksonWoods/EcologyBuffers/Cottam 3b - Bonsdale

SCALE	1:4,750	PLOT SIZE	A3	DATUM	OSGB	PROJECTION	BNG

CLARKSON & WOODS
ECOLOGICAL CONSULTANTS