



Mallard Pass

Solar Farm

Mallard Pass Solar Farm

Preliminary Environmental Information Report

Volume 3: Appendices

Appendix 7.1: Ecological Baseline Report

May 2022

Mallard's Pass Solar Farm
Ecological Baseline Report

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Client	LDA Design
Project	Mallard's Pass Solar Farm
Version	FINAL
Project number	P21-135 Ecology baseline report

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Reviewed	John Baker	Principal Ecologist	17 January 2022
Reviewed	Peter Shepherd	Director	17 January 2022
Revised	John Baker	Principal Ecologist	31 March 2022
Revised	John Baker	Principal Ecologist	10 May 2022
Approved for issue to client	Peter Shepherd	Director	11 May 2022
Issued to client	John Baker	Principal Ecologist	11 May 2022

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1 Introduction

Background to commission

- 1.1 BSG Ecology was commissioned by LDA design in March 2021 to conduct ecological surveys at an area of land surrounding Essendine on the Lincolnshire-Rutland border, to inform a preliminary environmental information report required for a future application for development consent for a solar farm.

Site description

- 1.2 The "Site" comprises approximately 880 ha of predominantly arable agricultural land north of Stamford, Rutland (see Figure 1 for the Site boundary). The Site is adjacent to the village of Essendine and straddles the boundary between Rutland and Lincolnshire. Also included within the Site are a range of small areas of woodland, hedgerows, field margins and other patches of grassland, farm buildings, ditches, ponds and a section of the West Glen River.
- 1.3 The Site is surrounded by predominantly flat or gently undulating agricultural land of similar character. The town of Stamford is approximately 1.1 km to the south west, and two relatively large areas of woodland, Newell Wood and Braceborough Wood are directly adjacent to the north-west and north, respectively. The East Coast main railway line bisects the Site in a north-west to south-east direction.

Description of project

- 1.4 The Site is being brought forward for a Nationally Significant Infrastructure Project (NSIP) for the installation of solar photovoltaic (PV) generating Modules and associated infrastructure which would allow for the generation and export of electricity at land at Mallard Pass, Essendine.

Scope of Study

- 1.5 This Ecological Baseline Report presents the methods and results of a desk study, extended Phase 1 habitat survey, badger survey, breeding bird survey and great crested newt survey conducted in 2021 by BSG Ecology. Winter bird surveys are also ongoing at the Site. This report presents the baseline ecological condition of the Site and is intended to inform subsequent assessment of ecological impacts of the Proposed Development in the Ecological Statement of an Environmental Impact Assessment.

2 Methods

Desk study

- 2.1 A desk study was carried out to gather existing records and information on designated sites and protected or otherwise notable¹ species within the local area.
- 2.2 Information on non-statutory designated sites, protected, notable and invasive species within a 2 km radius of the Site boundary was obtained from the Lincolnshire Environmental Records Centre (LRC) and from the Leicestershire and Rutland Environmental Records Centre (LRERC). Data were received on 04 May 2021. Due to a change in the Site boundary, additional data on Local Wildlife Sites within 2km of the additional area (Ryhall Road) were requested from LRERC on 7 January 2022.
- 2.3 The Multi-Agency Geographic Information for the Countryside (MAGIC) database (Defra, 2021; accessed most recently 17 November 2021) and Natural England's designated site information (Natural England, 2021) were also consulted to establish the ecological context of the Site and to search for information on internationally important designated sites up to 10 km from the Site and other statutory designated sites within 2 km. This was also searched for internationally important statutory sites designated for bats.
- 2.4 Mapping available on MAGIC was also used to identify ponds within 500 m of the main part of the Site and for locations of ancient woodland.
- 2.5 Additional information pertaining to species recorded along the Drift, an openly accessible lane adjacent to the western Site boundary, was supplied by Tom Tew of NatureSpace Partnership in an email dated 2 January 2022. This information has been considered where relevant below.
- 2.6 Detail of the legal and policy protection afforded to relevant protected and notable species and designated sites is provided in Annex 2.

Field survey

Extended Phase 1 habitat survey

- 2.7 The majority of the Phase 1 habitat survey was undertaken by Jamie Peacock BSc GradCIEEM, Ecologist at BSG Ecology, and Peter Newbold BSc MEnvSci MCIEEM CEcol, Principal Ecologist at BSG Ecology and Dr Philip Chapman Ecologist at BSG Ecology. All three are capable and experienced habitat surveyors and field botanists.
- 2.8 Due to the size of the Site it was surveyed in sections over three dates: 30 March, 31 March and 29 April 2021. This survey involved a walkover with reference to the industry standard guidance (JNCC, 2010), during which the habitats present were recorded and mapped, with notes made on the species present and any features of ecological interest. Photographs were taken to provide supporting evidence (see Section 7). Two fields in the north-western part of the Site were covered on a visit in December 2021 as these were subsequently added to the Site.
- 2.9 The Phase 1 habitat survey was "extended" to include an assessment of the potential of the survey area to support protected and other species of conservation importance. This included an assessment of habitat suitability for bats, hazel dormouse, reptiles and amphibians.
- 2.10 A preliminary ground-level roost assessment of the trees and buildings within the Site was carried out with reference to industry standard guidance (Collins, 2016). The surveyors searched for Potential Roost such as slipped roof tiles, woodwork rot holes and wall cavities (buildings) or knot holes, lightning scars and lifted bark (trees) which could provide roosting space for bats.

¹ Notable species here include those of national or local conservation interest. Species of national conservation interest are Species of Principal Importance (Section 41 of the NERC Act), those listed in Red Data Lists for England or the UK, red-listed species in *Birds of Conservation Concern* list (Eaton *et al.*, 2015), and species designated Nationally Scarce or Nationally Notable. Species of local conservation interest are those for which Leicestershire and Rutland or Lincolnshire have Biodiversity Action Plans.

Water vole and otter

- 2.11 To determine whether water vole *Arvicola amphibius* is present along the Wests Glen River along the northern boundary of the Site and in wet ditches onsite, a water vole survey was undertaken on 09 July 2021 by Peter Newbold, with reference to industry standard guidance (Strachan *et al.* 2011). Peter is an experienced mammal surveyor and is capable of identifying all field signs of water vole confidently.
- 2.12 This guidance recommends two survey visits during the best period for determining presence, with one survey in spring-early summer and a second visit (if required, e.g. if presence is not confirmed during the first visit) between late summer and mid-autumn. Due to the confirmation of presence of water vole on the West Glen River during the early summer visit and the classification of the onsite ditches as unsuitable (see 'Results' section below), the second visit was not considered to be required.
- 2.13 During the survey visit, the surveyor slowly walked along the banks (both sides) and waded within the channel (where accessible and safe to do so). The surveys covered the 1.48 km course of the West Glen River where it crosses the Site south of the East Coast Mainline Railway line. The survey also covered all ditches on Site which held water at the time of survey. Evidence and potential evidence of water vole was noted, and the locations of field signs were marked on an annotated map.
- 2.14 Evidence of water vole can include droppings, latrines (used to mark territory boundaries or close to burrows), feeding signs (neat piles of vegetation close to the water's edge with a 45° cut at the end), footprints and burrows (typically a series of holes along the water's hedge, but occasionally up to 3 m up the bankside).
- 2.15 Due to the suitability of the West Glen River, for otter *Lutra lutra*, this watercourse was also concurrently searched for evidence of this species during the water vole surveys. Evidence of otter can include droppings, footprints, holts, feeding remains (chewed fish debris), and characteristic muddy slides used to access the water.

Badger

- 2.16 A survey for badger *Meles meles* was undertaken by Peter Newbold and Jamie Peacock in 2021 during the extended Phase 1 habitat survey. Both surveyors have extensive experience of surveying for badger. This survey included searching suitable habitats within the Site for evidence of badgers (setts, paths, latrines, foraging holes). The survey covered all linear features and open areas. The inner parts of larger woodland parcels were not surveyed as these are all to be retained and no setts directly impacted on.
- 2.17 Any setts located were recorded with information on number of entrances, extent of apparent activity in the vicinity and the presence of paths or latrines noted. This information was then used to determine the likely nature of the setts and whether they are in current use.
- 2.18 The setts have been classified based on the following adapted definitions from Neal and Cheeseman (1996) and Harris *et al.* (1994):
- Main sett - Normally where cubs are raised and in continuous and regular use throughout the year. Typified by large spoil heaps/mounds and well-trodden paths. There can be many entrances to the sett (often with some of these disused), although a main sett can sometimes only have a single entrance. There may be a scratching tree or playing area near the sett and usually a sizable latrine nearby.
 - Annexe sett - Intermediate-sized and may be used by breeding badgers. Normally close (<150m) to a main sett and connected to it by obvious paths. They may not be in use all the time, even if the main sett is very active but will be most of the time. May support a second litter if there is one.
 - Subsidiary sett - Similar to annexe setts but are likely to be further away (at least 50 m from the main sett) and not as well connected to the main sett as annexe setts. May only be used intermittently.

- Outlier sett - Small setts with one or two entrance holes which are used sporadically by badgers as a temporary refuge (Neal & Cheeseman, 1996). Spoil heaps are likely to be small and there may not be obvious paths connecting to other setts.

Breeding bird surveys

- 2.19 To determine the value of the Site for breeding birds, four breeding bird surveys were undertaken in April, June and July 2021. Surveys were undertaken by Peter Newbold, assisted by Joe Bishop BSc qualCIEEM, Dr. Philip Chapman BA MSc PhD qualCIEEM (both Ecologists at BSG Ecology) and Stuart Elsom, an independent ornithological surveyor. All personnel are experienced ornithological surveyors and can identify all UK species likely to be encountered by sight and sound.
- 2.20 Due to the size of the Site and the need to focus survey effort on the morning peak activity period of most bird species, the Site was covered simultaneously by a pair of surveyors. Survey dates and weather conditions recorded during the surveys are summarised in Table 1. The weather conditions during all survey visits were suitable (i.e. no rain or strong winds and good visibility).

Table 1: Dates, personnel and conditions of breeding bird survey visits

<i>Date</i>	<i>Personnel</i>	<i>Conditions</i>
29/04/2021	Peter Newbold and Philip Chapman	7°C, light wind, partial cloud, dry
11/06/2021	Peter Newbold and Stuart Elsom	16 °C, light wind, partial cloud, dry
09/07/2021	Peter Newbold and Joe Bishop	14 °C, light wind, cloudy, dry
23/07/2021	Peter Newbold and Joe Bishop	15 °C, light wind, overcast, dry

- 2.21 During each visit the Site was walked at a slow pace to enable all birds detected to be identified and located. Frequent stops were made to scan suitable habitats and to listen for singing and calling birds. All areas of suitable breeding habitat within the Site boundary and immediately adjacent areas were approached to within 50 m.
- 2.22 During the survey the location and activity of each bird detected (including those seen or heard) was recorded and mapped using standard two-letter British Trust for Ornithology (BTO) species codes combined with activity symbols.
- 2.23 Birds exhibiting breeding behaviour were assigned to one of two categories as part of the interpretation carried out after the surveys: likely breeding or confirmed breeding:
- Likely breeding: birds heard singing or alarm calling or simply present in suitable breeding habitat on one of the survey visits; a pair of birds present in suitable breeding habitat; a repeat observation of territorial behaviour (song or alarm calling) on two or more different visits in the same location; courtship behaviour or display in suitable breeding habitat; birds apparently visiting a nest site; or evidence of nest building (including excavation of a hole).
 - Confirmed breeding: one or more adults undertaking a distraction display; the presence of a used nest or eggshells; the presence of recently fledged or downy young (that are clearly of local origin); apparently incubating adults or adults commuting to and from a nest hole; adult birds carrying faecal sacs or food for young; or a nest with eggs or young present.

Wintering Birds

- 2.24 The Site has also been subject to wintering birds surveys to identify the levels of use of the Site by notable species of wintering birds, such as high numbers of farmland passerines, waders or wildfowl. Two visits per month were carried out between November 2021 to March 2022 and on each visit, an experienced ornithologist surveyed all onsite fields and adjoining fields, where possible, and recorded the presence of any waders, any wildfowl, and notable passerines if present in significant numbers (e.g. over 30 individuals of a SPI). Each visit was either split over two days or two surveyors

covering approximately half of the survey area each (as on 14 December 2021). All survey visits were carried out in suitable weather conditions (i.e. avoiding high winds, rain or mist which would limit visibility). The Survey Area included the entire Site and adjacent fields, which were viewed from within the Site or Public Rights of Way.

2.25 The surveys have been undertaken on the following dates:

- 24 and 25 November 2021.
- 29 and 30 November 2021
- 6 and 7 December 2021.
- 14 December 2021.
- 10 and 11 January 2022.
- 8 and 9 February 2022.
- 22 and 23 February 2022.
- 3 and 4 March 2022.
- 21 and 22 March 2022

Great crested newt

HSI assessment

2.26 To determine the suitability of onsite and offsite ponds for great crested newt *Triturus cristatus* (GCN; see “*Amphibians*” under Results below) they were subject to a Habitat Suitability Index (HSI) assessment, with reference to industry standard guidance (Oldham, 2000; ARG UK, 2010). The HSI assessment was carried out by Peter Newbold and Jamie Peacock on 21 May 2021 during the Phase 1 habitat survey visit. Both surveyors are experienced at carrying out HSI assessments.

2.27 The HSI assessment method involves allocating scores to features associated with a pond such as size, quality of surrounding habitat and presence of fish. These scores are then combined to calculate the overall HSI score for each pond as a number between 0 and 1, with 0 being the least suitable and 1 being the most suitable. The HSI score allows each pond to be placed in one of five pre-defined categories defining its suitability for great crested newt as follows: <0.5: poor; 0.5–0.59: below average; 0.6–0.69: average; 0.7 – 0.79: good; >0.80: excellent.

eDNA survey

2.28 Following the HSI assessment and identification of suitable waterbodies on Site for GCN, an environmental DNA (eDNA) survey was conducted on 29 April 2021 by Peter Newbold (Natural England Licence 2015-18530-CLS-CLS) and Jamie Peacock (Natural England Licence 2016-20471-CLS-CLS) with reference to industry standard guidance (Biggs *et al.*, 2014).

2.29 This survey involved collection of water samples from each suitable waterbody and subsequent analysis by an approved laboratory (Surescreen Scientifics Ltd). Online weather forecasts were monitored during the fortnight preceding the eDNA sample collection, which confirmed that the weather had been suitable for great crested newt survey throughout this period (i.e. overnight temperatures generally above 5°C). Following collection of the eDNA samples they were returned to the laboratory. The analysis was undertaken by Surescreen and the results returned on 06 May 2021.

Other protected species surveys

2.30 Surveys for foraging and commuting bats, roosting bats, hazel dormouse, reptiles, invertebrates and plants (detailed botanical survey) were not undertaken, despite some habitats on Site being suitable for these species (see “Results” below). The Proposed Development will retain all woody habitats (including scattered trees and hedgerows) with a buffer to include existing field margins, as well as

trees, ponds, and ditches. Since the remaining habitats on Site (arable farmland) are of negligible value to these species, further protected species surveys were not considered proportionate.

Limitations to methods of field surveys

- 2.31 A total of 24 ponds were identified within the Site or within 500 m of the Site. Of the offsite ponds 13 (see Figure 2) were not accessed for eDNA survey. Two of these ponds (Ponds 12 and 24) are located over 250 m from the Site boundary, and if great crested newt is present and breeding in these ponds, terrestrial newts are considered unlikely to be using the Site. The remaining 11 ponds range from 50 to 240 m from the Site boundary, and if GCN are present and breeding within these ponds, individual terrestrial-phase newts may be found within grassland (including field margins) and hedgerows in the nearby areas of the Site. Additional surveys of these ponds (eDNA) will be carried out in 2022 with additional surveys (population estimates) to be carried out if needed.
- 2.32 As part of the badger surveys, the inner parts of larger woodland parcels were not surveyed. This is not likely to be a significant limitation as the woodlands are all to be retained and no setts were present on the edges of the woodland, therefore no setts directly impacted on. Even if setts are present within these woodlands, fragmentation will be avoided with measures intended to keep the Proposed Development permeable by creating gaps accessible by badgers in security fencing.
- 2.33 No other limitations were identified for the field surveys.

3 Results and Evaluation

Designated sites

- 3.1 No internationally important designated sites for bats are present within 30 km of the Site. The closest is Eversden and Wimpole Woods Special Areas of Conservation (SAC), located over 60 km to the south. This is designated for its population of barbastelle bat *Barbastella barbastellus*.
- 3.2 Four international designated sites are present within 10km of the Site, the Rutland Water Special Protection Area (SPA) and Ramsar Site, which are located approximately 4.8km to the south-west of the Site, Baston Fen SAC is located 4.46 km north-east of the Site boundary, Grimethorpe SAC is located 4.67 km north of the Site boundary and Barnack Hills and Holes SAC is located 6.8 km south of the Site boundary.
- 3.3 The Rutland Water SPA is designated primarily for its wintering population of shoveler *Anas clypeata*, teal *Anas crecca*, wigeon *Anas penelope*, gadwall *Anas strepera*, tufted duck *Aythya fuligula*, goldeneye *Bucephala clangula*, mute swan *Cygnus olor*, coot *Fulica atra*, merganser *Mergus merganser* and great crested grebe *Podiceps cristatus*. This site is also designated as an SPA for its assemblage of water fowl including the species above.
- 3.4 It is also designated as a Ramsar site for its wintering population of gadwall and shoveler and the overall assemblage of waterfowl.
- 3.5 Grimethorpe SAC and Barnack Hills and Holes SAC are designated for their calcareous grassland communities and are also orchid rich priority sites. Grimethorpe is also designated for the presence of early gentian.
- 3.6 Baston Fen SAC is designated for its population of spined loach fish. It is located on the Glen River, a tributary of which is the West Glen River.
- 3.7 A total of eight national statutory designated sites are present within 2 km of the Site. All these are Sites of Special Scientific Interest (SSSIs) (see Figure 1).
- 3.8 Ryhall Pasture and Little Warren Verges SSSI is directly adjacent to three parcels of land in the north-west of the Site. This SSSI includes an area of one of the semi-natural unimproved limestone grassland and features a characteristic calcareous plant community. This site also includes with adjacent species-rich roadside verges which fall within Lincolnshire.
- 3.9 Newell Wood SSSI is 340 m north-west of the Site. This SSSI comprises an area of semi-natural woodland on the site of former clay pits. The woodland is dominated by pedunculate oak *Quercus robur* and silver birch *Betula pendula* with a predominantly acidic ground flora, although some open areas with distinctly calcareous plant species are also present.
- 3.10 Great Casterton Road Banks SSSI is located 915m from the Site. This comprises a small area of calcareous grassland with a mosaic of open grassland and scrub.
- 3.11 Tolethorpe Road Verges SSSI comprises the verges on both sides of Ryhall Road along the site boundary north-east of Great Casterton. These verges support species-rich calcareous grassland.
- 3.12 Tickencote Marsh SSSI is located approximately 1 km west of the site boundary and Great Casterton. This supports species rich grazing marsh.
- 3.13 Bloody Oaks Quarry SSSI is located approximately 430 m west of the site at the junction included in the site boundary on the A1. This supports species-rich calcareous grassland.
- 3.14 East Wood, Great Casterton SSSI is located approximately 1.3 km north west of the site boundary. It supports ash-oak-wych elm woodland with a rich flora typical of ancient woodland.

- 3.15 A total of 98 non-statutory sites designated as Local Wildlife Sites (LWS) are present within 2 km of the Site. The majority of these are designated for habitats (predominantly hedgerows, grassland and woodland) with many also featuring locally or nationally scarce species. These LWS are listed in Table A in Annex 1 and shown in Figure 1.
- 3.16 Nine of these LWSs are located wholly or in part within the Site boundary. These are:
- Carlby/Essendine Verge LWS.
 - Essendine Dismantled Railway Embankment LWS.
 - Essendine, Hedgerow south side MacMillan Way LWS
 - Ryhall/Essendine south-east of the Freewards (south side) LWS.
 - Ryhall/Essendine Hedge south-east of the Freewards (south side) LWS.
 - Essendine Verge south-east of The Freewards (north side) LWS.
 - Ryhall RVNR: Crossroads to the Drift junction (west side) LWS.
 - Ryhall Verge (B1176): from crossroads to Ryhall Farm Cott track (east side) LWS.
 - Essendine, Hedgerow north side MacMillan Way LWS.
- 3.17 An additional 26 LWS are directly adjacent to the Site boundary or within 10 m (generally separated by a minor road). Most of these sites are protected hedgerows of lengths of road verge.
- 3.18 The remaining sites are between 15 m and 2 km from the Site boundary.

Habitats

- 3.19 The habitats present within the Solar PV Site and the Mitigation and Enhancement Areas are shown in Figure 3 and described in Table 2 below.
- 3.20 Some areas of woodland on Site, together with all the boundary and internal hedgerows, qualify as Habitats of Principal Importance (HPI)². Depending on hydrological characteristics and aquatic species present, the West Glen River and the onsite ponds have the potential to be HPI.
- 3.21 *Table 2. Habitats present at the Site.*

Habitat	Description/notes
Broadleaved semi-natural woodland	<p>There are multiple parcels of woodland distributed across the Site, some of which are semi-natural broadleaved woodland (see Photographs 1-2). These woodlands are dominated by pedunculate oak <i>Quercus robur</i> and ash <i>Fraxinus excelsior</i>, but silver birch <i>Betula pendula</i>, willow <i>Salix</i> sp., hybrid black poplar <i>Populus x euramericana</i> and alder <i>Alnus glutinosa</i> are present. Most woodland parcels feature a relatively dense understorey, consisting predominantly of hazel <i>Corylus avellana</i>, holly <i>Ilex aquifolium</i>, elder <i>Sambucus nigra</i> and hawthorn <i>Crataegus monogyna</i>.</p> <p>Ground flora is relatively diverse, with species including bluebell <i>Hyacinthoides non-scripta</i>, ground ivy <i>Glechoma hederacea</i>, dog's mercury <i>Mercurialis perennis</i>, lords and ladies <i>Arum maculatum</i>, wood sorrel <i>Oxalis acetosella</i>, ragged robin <i>Silene flos-cuculi</i>, spurge laurel <i>Daphne laureola</i>, wood anemone <i>Anemone nemorosa</i> and foxglove <i>Digitalis purpurea</i>.</p> <p>Some of these species are ancient woodland indicator species, however MAGIC does not identify any of the woodlands as ancient semi-natural woodland. This woodland meets the definition of the <i>Lowland mixed deciduous woodland</i> HPI (Maddock, 2011).</p>

² As defined under Section 41 of the Natural Environment and Rural Communities Act 2006. See Annex 2

Hedgerows	<p>Most external boundaries and some internal boundaries of the Site feature native hedgerows (Photographs 3-4).</p> <p>Some species-rich sections (as shown in Figure 3) are present with over five woody species per 30 m section. These include hawthorn, blackthorn <i>Prunus spinosa</i>, field maple <i>Acer campestre</i>, holly, elder, hazel, cherry <i>Prunus</i> sp., bramble <i>Rubus fruticosus</i>, wych elm <i>Ulmus glabra</i>, field elm <i>Ulmus minor</i> with occasional dog rose <i>Rosa canina</i>. The majority of hedgerows on Site are species-poor, and formed by one to three woody species, usually blackthorn and/or hawthorn.</p> <p>Many hedgerows across the Site feature one or several standard trees, including mature pedunculate oak <i>Quercus robur</i>, beech <i>Fagus sylvatica</i>, ash, hybrid black poplar, and various willow species <i>Salix</i> spp. (Photograph 4).</p> <p>The hedgerow bases largely support common species such as lords and ladies, dog's mercury, common nettle <i>Urtica dioica</i>, cleavers <i>Galium aparine</i>, ground-ivy and common hogweed <i>Heracleum sphondylium</i>, however the first two species are indicative of older hedgerows and predominantly only present in the species rich hedgerows.</p> <p>Most hedgerows, particularly in the east of the Site, are intensively managed by cutting and show structural indicators of poor condition (abundant horizontal and vertical gaps), with some hedgerows defunct and/or left to grow out into scrubby treelines.</p> <p>All the hedgerows on Site are considered to meet the description of the <i>Hedgerows</i> HPI (Maddock, 2011).</p>
Ponds	<p>An analysis of aerial imagery and mapping revealed the presence of 24 ponds on Site or within 500 m of it. There are nine ponds on the Site or on its boundary, with an additional 13 ponds within 500 m of the Site boundary (see Figure 2).</p> <p>Of the nine ponds present within the Site or on its boundary, six held water (including Pond 3 in Photograph 5 – see Figure 2). The majority of these ponds are situated at the edge of pockets of woodland and are heavily shaded, although most ponds had aquatic and marginal vegetation present. These ponds are described in detail under “<i>Amphibians</i>” below. All the ponds on Site holding water have potential to meet the description of the <i>Ponds</i> HPI (Maddock, 2011) based on the presence of aquatic species and water quality parameters. With the exception of the eDNA survey (see below) these was not assessed in detail.</p>
Flowing water	<p>The West Glen River flows through the west of the Site (Photographs 6-7). This watercourse features a natural river channel dominated by marginal vegetation, predominantly common reed <i>Phragmites australis</i> and bulrush <i>Typha latifolia</i>. Emergent/submerged plants were also present in patches, but a detailed survey was not undertaken to identify these down to species level.</p> <p>The banks of the river comprise of a mosaic of species poor semi-improved grassland, semi-improved neutral grassland (see below), scattered scrub and tall ruderal.</p> <p>The river has the potential to meet the description of the <i>Rivers</i> HPI (Maddock, 2011) based on the presence of aquatic species and water quality and hydrological parameters. As a precaution this is considered to be an HPI,</p>
Arable farmland	<p>The majority of the Site consists of arable farmland (Photographs 8-9). This is largely in intensive agricultural management, with the majority of field margins measuring less than 1 m in width, particularly in the west and east of the Site. Many fields are very large (the largest being over 58 ha),. The fields supported a very low diversity of arable weed species.</p>

	<p>During the surveys, the fields were either bare having recently been ploughed, supported cereal stubble or young crops.</p> <p>The arable fields are of low intrinsic ecological value and are not HPis. The intense nature of the agricultural practice and very limited margins mean they are not considered to be ecologically valuable.</p>
Improved grassland	<p>Areas of improved grassland are present across the Site, predominantly forming margins to arable fields. (All arable field margins are this habitat type or poor semi-improved grassland as described below; only margins over 1 m in width are mapped as grassland on Figure 1).</p> <p>Improved grassland areas are dominated by perennial rye grass <i>Lolium perenne</i> with very few herbs present (predominantly white clover <i>Trifolium repens</i> and creeping buttercup <i>Ranunculus repens</i>). At the time of the survey, these areas were unmanaged and had relatively long sward (averaging approximately 25 cm).</p> <p>This grassland does not meet the description of any HPis.</p>
Poor semi-improved grassland	<p>Areas of species-poor semi-improved grassland are present across the Site (Photograph 10), predominantly forming margins to arable fields (see above). These support a slightly higher plant species diversity, and in addition to the species described above, contain grasses such as cock's-foot <i>Dactylis glomerata</i>, false oat grass <i>Arrhenatherum elatius</i> and red fescue <i>Festuca rubra</i>. Herbaceous species include greater plantain <i>Plantago major</i>, broadleaved dock <i>Rumex obtusifolium</i>, chickweed <i>Stellaria media</i>, dandelion <i>Taraxacum</i> agg., groundsel <i>Senecio vulgaris</i>, spear thistle <i>Cirsium vulgare</i>, yarrow <i>Achillea millefolium</i>, ragwort <i>Jacobaea vulgaris</i>, and common mouse-ear <i>Cerastium fontanum</i> and creeping thistle <i>Cirsium arvense</i>.</p> <p>This grassland does not meet the description of any HPis.</p>
Semi-improved neutral grassland	<p>Slightly more diverse grassland is present in the west of the Site, adjacent to the river and in two small fields either side of the Essendine Dismantled Railway Embankment LWS (Photograph 11). This is considered to be semi-improved neutral grassland. In addition to the grassland species listed above, additional grass species such as common bent <i>Agrostis capillaris</i>, crested dog's-tail <i>Cynosurus cristatus</i> and rough meadow grass <i>Poa trivialis</i> are also present. Additional herbaceous species include ribwort plantain <i>Plantago lanceolata</i>, meadow buttercup <i>Ranunculus acris</i> and red clover <i>Trifolium pratense</i>.</p> <p>Due to the relatively low species richness and absence of indicator species for lowland meadows, this grassland does not meet the description of the <i>Lowland Meadows</i> HPI (Maddock, 2011).</p>
Broadleaved plantation woodland	<p>Many of the broadleaved woodland parcels on Site show clear evidence of recent planting (tree guards, regular lines of young or semi-mature trees) or have been visibly recently planted on historic aerial imagery (Photograph 12). The majority of plantation woodland is broadleaved, with a mixture of similar native species to the semi-natural woodland. Due to the recent age of the plantations, the understorey layer is poorly developed or absent, and the ground layer is species-poor. This woodland does not qualify as an HPI.</p>
Coniferous plantation woodland	<p>Approximately 0.2 ha of woodland towards the east of the Site is dominated by planted non-native coniferous trees including spruce <i>Picea</i> sp. and fir <i>Abies</i> sp. This woodland does not qualify as an HPI.</p>
Dense scrub	<p>A former railway embankment in the west of the Site (designated as the Essendine Dismantled Railway Embankment LWS) features dense mixed scrub of comparative high species richness (Photograph 13). Woody species include hawthorn, blackthorn, field maple, holly, elder, hazel, cherry <i>Prunus</i> sp., bramble, wych elm <i>Ulmus glabra</i>, and occasional dog rose <i>Rosa canina</i></p>

	<p>all present. The ground flora was diverse with bluebell, dog's mercury, lords and ladies, wood sorrel, and foxglove all present.</p> <p>Other patches of dense scrub were also present across the western half of the site, these were all species-poor and often dominated by a single species, generally either bramble, hawthorn or blackthorn. The ground flora within these patches was either non-existent or very sparse and lacking in diversity.</p>
Tall ruderal vegetation	<p>Small pockets of tall ruderal vegetation are present, particularly in the western half of the Site. These are too small to map (and are not shown on Figure 3) and often form transitional areas between other habitat types. Species noted included common nettle, broad-leaved dock and common hogweed. This habitat does not meet the description of any HPis.</p>
Ditches	<p>A mixture of dry and wet field ditches are present across the Site (Photograph 14). These generally did not feature aquatic vegetation, with any vegetation present reflecting the surrounding habitat (generally species-poor grassland field margins as described above). This habitat does not meet the description of any HPis.</p>
Scattered trees	<p>A variety of scattered mature trees are located across the Site. These are dominated by pedunculate oak and ash, and often indicate the lines of former hedgerows. In one location in the east of the Site two lines of planted oaks form an avenue each side of a farm track (Photograph 18). Many of these trees have suitability for roosting bats as discussed below.</p>
Bare ground	<p>Some access tracks and an area around farm buildings in the east of the Site are compacted gravel with little or no vegetation and are classified as bare ground. This habitat does not meet the description of any HPis.</p>
Buildings	<p>Nine farm buildings are present in the Site. These are discussed in detail under "Bats" below". This habitat does not meet the description of any HPis.</p>
Hardstanding	<p>Parts of the area around the buildings in the east of the Site and short sections of metalled road within the Site boundary are classed as hardstanding. This habitat does not meet the description of any HPis.</p>

- 3.22 The Site does not support any ancient woodland, however there are parcels of this outside the Site on the north-eastern site boundary (replanted ancient woodland at Braceborough Little Wood) and north-western site boundary (ancient woodland and replanted ancient woodland at Newell Wood).

Protected species

- 3.23 The relevant legislation and policy on protected and notable species is set out in Annex 2.

Bats

- 3.24 All bats and their roosts are a European Protected Species (see Annex 2). Seven species area also SPIs and local BAPs exist for these species in Lincolnshire, Leicestershire and Rutland.
- 3.25 Combined, the records centres returned 205 records of at least eight bat species from within 2 km of the Site. Of these, 96 were identified to species level. These comprised brown long-eared bat *Plecotus auritus* (28 records), common pipistrelle *Pipistrellus pipistrellus* (19), soprano pipistrelle *Pipistrellus pygmaeus* (17), Daubenton's bat *Myotis daubentonii* (ten), noctule *Nyctalus noctula* (nine), Natterer's bat *Myotis nattereri* (five), Leisler's bat *Nyctalus leisleri* (four), barbastelle (three) and whiskered bat *Myotis mystacinus* (one).
- 3.26 The remaining records comprised unknown bat species (79 records), unidentified *Pipistrellus* species (18) and unidentified *Myotis* species (11).
- 3.27 The closest record of a bat to the Site was a roost of an unknown bat species recorded from droppings 120 m west of Site boundary near Essendine Church in 2005. All bats are European

protected species (see Annex2) while soprano pipistrelle, Barbastelle and brown long-eared bat are additionally Species of Principal Importance (SPI)³.

Roosting

- 3.28 The southern group of three buildings in the east of the Site are agricultural barns built around a steel frame with corrugated asbestos cement and/or corrugated steel cladding. These barns were not accessed internally during the Phase 1 habitat survey; however, no PRFs were visible externally and given the structure of the buildings they are considered unlikely to present any roosting opportunities internally. These buildings have Negligible suitability for roosting bats.
- 3.29 A total of 163 field and hedgerow trees across the Site were assessed as having at least Low suitability for roosting bats, although due to the scale of the Site and the fact that all mature trees are proposed for retention in the development, detailed identification of potential roost features and grading of suitability was not carried out. Trees with bat suitability are shown in Figure 4. Additionally, mature patches of woodland on Site are likely to contain further trees with roosting opportunities for bats.

Foraging and commuting

- 3.30 The intensively-managed arable fields which make up the great majority of the Site are likely to be of very low value for foraging bats.
- 3.31 The parcels of woodland (particularly areas of mature woodland with large trees) have suitability for foraging, as do hedgerows, scrub and lines of trees, especially where mature trees and other features such as ponds are present and the boundary features are reasonably continuous. Small pockets of semi-improved neutral grassland also have moderate suitability for foraging, especially where these are associated with hedgerows or other woody features.
- 3.32 Hedgerows and lines of trees (as well as linear scrub features such as the Essendine Dismantled Railway Embankment LWS) may also provide important commuting routes for bats, especially where they form continuous corridors across the site or between woodland patches, and/or have wide grassland margins. The West Glen River represents a High Suitability feature for both foraging and commuting bats.
- 3.33 Due to the likely retention in the proposed development of all buildings, mature trees, woodland, scrub and hedgerows and the likely enhancements associated with conversion of intensively-managed arable land to grazed grassland around the solar panels plus additional landscaping and planting, further survey for bats was not considered proportionate.

Badger

- 3.34 Badger is protected under the Protection of Badgers Act 1992 (see Annex 2).
- 3.35 Combined, the records centres returned 98 records of badger *Meles meles* from within 2 km of the Site. Seven records originated from the Site, five of which relate to sets within the Essendine Dismantled Railway Embankment LWS in the centre of the Site.
- 3.36 The intensively-managed arable fields which make up the great majority of the Site are of low value for foraging badgers. However, the woodland, hedgerows, scrub and other woody features have suitability for foraging and sett-building this species, and patches of non-woody, semi-natural habitats such as grassland field margins and tall ruderal vegetation provide additional suitable habitat.
- 3.37 A total of 18 badger setts were located across the Site (see Confidential Figure 7). The details are given in Confidential Annex 4.

³ As defined under Section 41 of the Natural Environment and Rural Communities Act 2006. See Annex 2.

Hazel Dormouse

- 3.38 Hazel dormouse is a European Protected Species (see Annex 2) as well as an SPI and local BAP species in Leicestershire and Rutland.
- 3.39 The records centres returned no records of hazel dormouse *Muscardinus avellanus* from within 2 km of the Site. This species is rare but present in Rutland and Lincolnshire. The hedgerows and woodland patches provide suitable habitat for this species, although the relatively poor connectivity of hedgerows (particularly in the eastern part of the Site where hedgerows have frequent gaps) limit the suitability of the Site at a landscape level. It is therefore possible that this species is present on Site.

Water vole

- 3.40 Water voles and their burrows are fully protected under the Wildlife and Countryside Act 1981 (as amended - see Annex 2) and are an SPI and a local BAP species in Lincolnshire and Leicestershire and Rutland.
- 3.41 The records centres returned 12 records of water vole *Arvicola amphibius* from within 2 km of the Site. The closest record of this species to the Site was approximately 40 m west of the Site boundary in the West Glen River near Essendine and dates from 1996.
- 3.42 During the water vole survey visit, the field ditches on site were found to be unsuitable for water vole. Most of those which held water during the extended Phase 1 habitat survey were dry at the time of the water vole survey visit and all ditches are intensively managed, with only narrow margins of short semi-improved grassland and an absence of suitable dense aquatic or marginal vegetation (such as rushes, sedges or reeds) that could provide cover either for feeding water voles, or for water vole burrows. The arable farmland and woodland that comprises the majority of the Site is not suitable for water vole.
- 3.43 The West Glen River does feature extensive cover of aquatic and marginal plants and is suitable habitat for water vole. During the survey visit, evidence of the presence of water voles was found along a stretch of the West Glen River measuring approximately 180 m where it crosses the Site. This comprised six burrows, five latrines and four feeding stations (see Figure 5).

Otters

- 3.44 Otter is a European Protected Species (see Annex 2) and a local BAP species in Lincolnshire and Leicestershire and Rutland.
- 3.45 The records centres returned 20 records of otter. The closest record of an otter to the Site was an observation approximately 15 m north of the Site boundary on the West Glen River west of Carlby in 2009.
- 3.46 The West Glen River has suitability for this species, with areas of dense cover for holt-building. No evidence of otter was returned from the West Glen River during the otter and water vole survey visits; however, this species may be present along this watercourse.

Other mammals

- 3.47 Combined, the records centres returned 82 records of three other protected and notable mammal species from within 2 km of the Site. These comprise brown hare *Lepus europaeus* (41 records), hedgehog *Erinaceus europaeus* (38), and harvest mouse *Micromys minutus* (three).
- 3.48 One record of brown hare from 1977 was returned within the Site, although this record was only returned to 2 km precision and may or may not correspond to this species on Site. The next closest record of a brown hare to the Site was 250 m south-west of the Site in 1977. The arable land comprising the majority of the Site, as well as smaller parcels of grassland, are suitable habitat for

this species and it was recorded during all breeding bird survey visits with a peak count of 17 individuals on 09 July. Brown hare is an SPI and a local BAP species in Lincolnshire.

- 3.49 The closest record of a hedgehog to the Site was 30 m north, to the east of Braceborough Grange, in 2015. The Site has some suitable habitat for hedgehog in the hedgerows, woodland, and grassland therefore this species may be present on Site. Hedgehog is an SPI.
- 3.50 The closest record of a harvest mouse originates from 1.0 km west of the Site in 1977, and all three records are over 40 years old. The intensive arable farmland which dominates the Site represents sub-optimal habitat for this species, with the poor semi-improved grassland patches and field margins providing habitat of a higher suitability. No evidence of harvest mouse was detected during the extended Phase 1 habitat survey, although this species is hard to detect and may be present on Site. Harvest mouse is an SPI.
- 3.51 No records of polecat *Mustela putorius* were returned by the LRC or LRERC but this species is reportedly present on the western edge of the Site along the Drift (information supplied by Tom Tew). This is an SPI.

Birds - breeding

- 3.52 All wild birds, their nests, eggs and young are protected under the Wildlife and Countryside Act 1981 (as amended; see Annex 2).
- 3.53 Combined, the records centres returned 1,775 records of birds from within 2 km of the Site, comprising 80 species.
- 3.54 Of these, the Site has suitability for breeding for three species specially protected under schedule 1 of the Act: red kite *Milvus milvus* (116 records), kingfisher *Alcedo atthis* (66) and barn owl *Tyto alba* (30).
- 3.55 The woodland, farm buildings and mature trees are suitable for barn owl; the closest records of this species were onsite south-west and north-west of Essendine in 2001 and 2010 respectively. The woodland and mature trees are suitable for red kite, although this species is gradually expanding its range and is still scarce as a breeding species in Northamptonshire. The closest record of this species was onsite south-west of Essendine in 2019. The West Glen River corridor is suitable for kingfisher; the closest record of this species was 50 m east of the Site near Banthorpe Lodge in 2017.
- 3.56 In addition, the Site has suitability for 15 species listed as SPI: starling *Sturnus vulgaris* (189), lapwing *Vanellus vanellus* (93), skylark *Alauda arvensis* (73), house sparrow *Passer domesticus* (68), linnets *Linaria cannabina* (35), yellowhammer *Emberiza citrinella* (32), song thrush *Turdus philomenos* (27), yellow wagtail *Motacilla flava* (21), reed bunting *Emberiza schoeniclus* (19), turtle dove *Streptopelia turtur* (14), tree sparrow *Passer montanus* (12), bullfinch *Pyrrhula pyrrhula* (10), cuckoo *Cuculus canorus* (10), corn bunting *Emberiza calandra* (nine) and grey partridge *Perdix perdix* (seven).
- 3.57 The arable farmland on Site is suitable for breeding by skylark, lapwing, yellow wagtail and grey partridge, which are ground nesting species. Suitable habitat for the remaining SPI species listed above is confined to the woodland, hedgerows and scrub.
- 3.58 Records of bullfinch, corn bunting, lapwing, linnets, skylark, turtle dove, yellow wagtail and yellowhammer were returned from onsite, although the majority of returned records were to 1km of 2km precision so these may or may not correspond to actual observation from within the Site boundary.

Breeding bird survey

- 3.59 A total of 48 bird species were recorded during the bird survey as either confirmed or likely breeding on Site. These are listed in Table 9. The indicative central point of each territory or location of individual bird records is shown in Figure 6.

Table 9: Summary results of breeding bird survey

Common name	Scientific name	Breeding Status		Total pairs
		Confirmed	Likely	
Blackbird	<i>Turdus merula</i>		✓	32
Blackcap	<i>Sylvia atricapilla</i>		✓	21
Blue tit	<i>Cyanistes caeruleus</i>	✓	✓	63
Carrion crow	<i>Corvus corone</i>	✓	✓	11
Chaffinch	<i>Fringilla coelebs</i>		✓	28
Chiffchaff	<i>Phylloscopus collybita</i>	✓	✓	42
Coal tit	<i>Periparus ater</i>		✓	11
Collared Dove	<i>Streptopelia decaocto</i>		✓	3
Dunnock	<i>Prunella modularis</i>		✓	20
Garden warbler	<i>Sylvia borin</i>		✓	1
Goldcrest	<i>Regulus regulus</i>		✓	4
Goldfinch	<i>Carduelis carduelis</i>		✓	15
Great spotted woodpecker	<i>Dendrocopos major</i>		✓	1
Great tit	<i>Parus major</i>		✓	24
Greenfinch	<i>Chloris chloris</i>		✓	3
Green woodpecker	<i>Picus viridis</i>		✓	3
Heron	<i>Ardea cinerea</i>		✓	1
House sparrow	<i>Passer domesticus</i>		✓	4
Jackdaw	<i>Coloeus monedula</i>	✓	✓	6
Jay	<i>Garrulus glandarius</i>		✓	1
Kestrel	<i>Falco tinnunculus</i>	✓	✓	4
Lapwing	<i>Vanellus vanellus</i>		✓	1
Lesser whitethroat	<i>Curruca curruca</i>		✓	1
Linnet	<i>Linaria cannabina</i>		✓	12
Little Egret	<i>Egretta garzetta</i>		✓	1
Long-tailed tit	<i>Aegithalos caudatus</i>	✓	✓	2
Magpie	<i>Pica pica</i>	✓	✓	8
Mistle thrush	<i>Turdus viscivorus</i>		✓	4
Nuthatch	<i>Sitta europaea</i>		✓	3
Pheasant	<i>Phasianus colchicus</i>		✓	10
Pied wagtail	<i>Motacilla alba</i>		✓	1
Raven	<i>Corvus corax</i>		✓	1
Red kite	<i>Milvus milvus</i>	✓	✓	3
Red-legged partridge	<i>Alectoris rufa</i>		✓	2
Reed bunting	<i>Emberiza schoeniclus</i>		✓	6
Robin	<i>Erithacus rubecula</i>		✓	37
Rook	<i>Corvus frugilegus</i>		✓	1
Skylark	<i>Alauda arvensis</i>	✓	✓	58
Song thrush	<i>Turdus philomelos</i>		✓	11
Starling	<i>Sturnus vulgaris</i>		✓	7

Stock dove	<i>Columba oenas</i>		✓	3
Treecreeper	<i>Certhia familiaris</i>		✓	1
Whitethroat	<i>Curruca communis</i>	✓	✓	36
Willow warbler	<i>Phylloscopus trochilus</i>		✓	1
Woodpigeon	<i>Columba palumbus</i>	✓	✓	31
Wren	<i>Troglodytes troglodytes</i>		✓	58
Yellow wagtail	<i>Motacilla flava</i>		✓	2
Yellowhammer	<i>Emberiza citrinella</i>		✓	35

3.60

In addition to the above, a further 12 bird species were recorded during the survey visits for which no evidence of breeding was noted. This included individuals flying over the Site or species which may breed locally but for which suitable nesting habitat either does not occur on Site, or where no behaviour suggesting breeding was recorded. These species are summarised in Table 10 below together with notes on use of the Site.

Table 10: Non-breeding bird species recorded during surveys.

Common name	Species name	Notes
Barn owl	<i>Tyto alba</i>	Pellets in a barn immediately adjacent to the Site boundary east of Ryhall, however this appears to be a roost with no indication of breeding.
Black-headed gull	<i>Chroicocephalus ridibundus</i>	Occasional flyovers. No suitable breeding habitat.
Buzzard	<i>Buteo buteo</i>	Occasional hunting or roosting birds in eastern parts of the Site. Suitable breeding habitat (mature trees) but no breeding behaviour noted.
Grey partridge	<i>Perdix perdix</i>	Two flushed from the eastern part of the Site close to the railway on the April visit. Suitable habitat present and may breed but no breeding behaviour noted.
House martin	<i>Delichon urbicum</i>	Observed foraging close to the Site boundary south of Essendine village on the early July visit. Some suitable habitat present (old farm buildings) but no breeding behaviour noted.
Mallard	<i>Anas platyrhynchos</i>	Three flushed from pond in east of Site on April visit. Suitable breeding habitat present (river edges, ponds) and may breed but no breeding behaviour observed.
Moorhen	<i>Gallinula chloropus</i>	One individual calling from West Glen River on early July visit. Suitable breeding habitat present (river edges, ponds) and may breed but no breeding behaviour observed.
Siskin	<i>Spinus spinus</i>	One flyover during April visit. Small pockets of suitable habitat present (coniferous/mixed woodland) but no breeding behaviour noted.
Spotted flycatcher	<i>Muscicapa striata</i>	Observed in vicinity of farm buildings in east of Site on both July visit. Possibly breeds but no breeding behaviour observed.
Swallow	<i>Hirundo rustica</i>	Many foraging flyovers during later visits. Some suitable habitat present (old farm buildings) but no breeding behaviour noted.
Swift	<i>Apus apus</i>	One flyover during second July visit. Some suitable habitat present (old farm buildings) but no breeding behaviour noted.

Wheatear	<i>Oenanthe oenanthe</i>	Male observed on April visit in east of Site. No suitable habitat and probably a migrant.
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3.61 Of the 48 species of bird recorded as breeding within or adjacent to the Site, 15 appear on one or more schedules or lists of species of conservation importance (see Table 11).

3.62 *Table 11: Birds of conservation importance breeding on Site.*

Species	WCA Schedule 1	SPI	Red List ¹	Amber List ¹
Duncock		✓		✓
Greenfinch			✓	
House sparrow		✓	✓	
Kestrel				✓
Lapwing		✓	✓	
Linnet		✓	✓	
Mistle thrush			✓	
Moorhen				✓
Red kite	✓			
Reed bunting		✓		✓
Skylark		✓	✓	
Song thrush		✓		✓
Starling		✓	✓	
Stock dove				✓
Whitethroat				✓
Willow warbler				✓
Woodpigeon				✓
Wren				✓
Yellow wagtail		✓	✓	
Yellowhammer		✓	✓	

¹ Species of high (red list) and medium (amber list) conservation concern included in Birds of Conservation Concern 4 (Eaton *et al.*, 2015)

3.63 The surveys have recorded several breeding bird species listed as SPIs, and species which are local BAP species in Lincolnshire and Leicestershire and Rutland.

Birds-wintering

3.64 Of the 1775 birds of 80 species returned by the records centres, the arable farmland on Site has suitability to support some wintering waterbirds. Due to the relatively dry, undulating topography of the Site and lack of low-lying areas prone to flooding, suitability is likely to be confined to wader species preferring open dry ground such as lapwing (93 records) and golden plover (no records). One record of lapwing from 2019 was on Site south of Essendine. The Site is also suitable for loafing gulls such as herring gull *Larus argentatus*, lesser black-backed gull *Larus fuscus* and black-headed gull *Chroicocephalus ridibundus*, although no records were returned of these species.

3.65 The Site is not considered suitable supporting habitat for any of the species listed under the designation of the Rutland Water SPA and Ramsar site (see 'Designated Sites' section above) all of which require extensive areas of aquatic habitats not present on Site.

3.66 The Site supports a small number of larger fields, but these are largely in intensive arable use. Therefore, there is potential for wintering species to include species such as lapwing and golden

plover *Apicaria pluvialis* as well as very small numbers of ducks. However, given that the larger fields are limited in number and that there are no SPAs for these species in the vicinity, the winter usage of the Site by waders and wildfowl is likely to be very limited.

- 3.67 The wintering bird surveys carried out have recorded a very limited number of species wintering on the Site, above the species listed above which are residents. Of note have been small flocks of yellowhammer with a peak of 50 individuals, skylark with a peak of 40 individuals, redwing with a peak of 200, fieldfare with a peak of 450 (but lower numbers at other times).
- 3.68 A larger flock of starling estimated at 3,000 individuals was noted feeding on 24 November 2021 in a field which was recently ploughed located in the centre of the Site, immediately east of the railway. It should be noted however that this large flock was mobile and only much smaller flocks have been recorded on other occasions (peaks of 500 and 200).
- 3.69 Waders have been observed very infrequently. Lapwing was recorded on four occasions, with a peak of 90 individuals on 27 January 2022 but this was in a field off site to the north-east. The remaining three occasions the birds were on the Site but these involved one and two birds only golden plover (11 individuals) recorded on one occasion on 10 January 2022 in an arable field in the northern part of the Site.
- 3.70 Wildfowl were noted very infrequently. One more sizeable flock of mallard *Anas platyrhynchos* was noted on 14 December 2021 with 60 individuals present in an arable field near the centre of the Site, but very low numbers of these species were recorded at other times (nine or fewer individuals). A small field at the centre of the Site immediately south of the West Glen River supported wigeon on one occasion (six individuals), gadwall (two individuals) on one occasion and tufted duck (three individuals) on one occasion. These individuals are likely to have been opportunistically using a small wet area and were not recorded here at other times. Mute swan was recorded very infrequently as well (one observation of two individuals).
- 3.71 Given the very low numbers and frequency of records of wildfowl and the distance from the Rutland Water SPA and Ramsar site, it is highly unlikely that the Site provides functionally linked land to these designated sites.

Reptiles

- 3.72 All reptiles are fully protected under the Wildlife and Countryside Act 1981 (as amended; see Annex 2) and all six species are also SPIs.
- 3.73 Combined, the records centres returned 43 records of three reptile species from within 2 km of the Site: common lizard *Zootoca vivipara* (22 records), grass snake *Natrix helvetica* (19) and slow worm *Anguis fragilis* (two). Two records of common lizard originate from within the Site, one adjacent to an isolated patch of woodland in the east of the Site in 2020, and one adjacent to a road in the north-west of the Site in 1996.
- 3.74 The Site has some suitable habitat for reptiles, predominantly longer and less-managed grassland forming field margins to arable fields. The riparian vegetation along the banks of the West Glen River are also suitable for grass snake.

Amphibians

- 3.75 GCN is a European protected species and an SPI as well as a local BAP species in Lincolnshire, while common toad is an SPI.
- 3.76 Combined, the records centres returned 34 records of amphibians from within 2 km of the Site. These included 10 records of great crested newt *Triturus cristatus* (GCN) and five records of common toad *Bufo bufo*. The closest record of a GCN to the Site was 470 m north-east of the Site in Braceborough during 2013. The closest record of a common toad was 350 m from the Site boundary in Essendine during 2000. The remaining records related to the common and widespread common frog *Rana temporaria* and smooth newt *Lissotriton vulgaris*.

3.77 An analysis of aerial imagery and mapping revealed the presence of nine ponds on site, with an additional 13 ponds offsite but within 500 m of the Site (see Figure 2). Of the on site ponds, three were found to be dry or absent altogether (ponds 18, 19 and 20) during the extended Phase 1 habitat survey. The remaining six onsite ponds (Ponds 3, 4, 5, 6, 7 and 8) held water and these, plus two offsite ponds which were immediately adjacent to the Site boundary and accessible from the Site (Ponds 1 and 2), were surveyed using HSI and eDNA.

3.78 Of these ponds, six were scored as “poor” or “below average” using the Habitat Suitability Indicators, while one scored “average” and another scored “good” (see Table 3)

3.79 *Table 3. Description and HSI results of onsite and adjacent ponds*

Pond	Description	HSI score	HSI classification
1	Small isolated field pond surrounded by scrub, trees and grassland, heavily shaded and likely to dry frequently. No wildfowl or fish present. Moderate water quality and 75% aquatic vegetation cover.	0.48	Poor
2	Large pond or small lake (old flooded pit). Minimal shading, moderate terrestrial habitat surrounding the pond. Abundant wildfowl and fish likely to impede survival of GCN. Good water quality, 5% aquatic vegetation cover.	0.32	Poor
3	Moderately-sized pond in woodland near edge. Completely shaded and likely to dry frequently. Good terrestrial habitat around pond. No fish and low numbers of wildfowl but water quality poor and minimal aquatic vegetation.	0.37	Poor
4	Large pond in woodland near edge. 50% shaded, likely to dry occasionally. Good terrestrial habitat around pond. No fish and low numbers of wildfowl, water quality moderate. 25% aquatic vegetation cover.	0.77	Good
5	Small pond at edge of wooded strip at field boundary with minimal shading. Likely to dry frequently. Some surrounding grassland and other nearby woodland (good terrestrial habitat surrounding pond). No wildfowl or fish, water quality good. 75% aquatic vegetation cover.	0.56	Below average
6	Moderate to large pond in small pocket of woodland by farm buildings used for rearing of captive wildfowl. Heavily shaded, unlikely to dry. Poor terrestrial habitat surrounding (small amount of surrounding woodland heavily disturbed by wildfowl and game rearing, minimal cover). Fish likely absent but abundant wildfowl. Water quality very poor and no aquatic vegetation.	0.24	Poor
7	Small to moderate pond at edge of hedgerow otherwise surrounded by arable field. 45% shaded, likely to dry occasionally. Moderate terrestrial habitat surrounding (hedgerow, arable margin, small pocket of scrub/grassland). Fish and wildfowl absent, water quality moderate. 45% aquatic vegetation cover.	0.63	Average
8	Small pond at edge of woodland strip. Heavily shaded, likely to dry occasionally. Good terrestrial habitat surrounding (adjacent woodland). Fish and wildfowl	0.48	Poor

Pond	Description	HSI score	HSI classification
	absent, water quality moderate. Negligible aquatic vegetation cover.		

- 3.80 Ponds 1-8 were accessed for eDNA survey. The results for all eight ponds were negative (Annex 3) indicating that GCN are likely absent from these ponds.
- 3.81 Ponds 12 and 24 (see Figure 2) are 430 m and 360 m respectively from the Site boundary and surrounded by good terrestrial habitat. GCN from these ponds (if present) are unlikely to be using the Site. Ponds 21, 22 and 23 form a small cluster on the far side of a water course with the closest pond (Pond 21) being 230 m from the Site and are also surrounded by suitable terrestrial habitat, meaning any newts present are unlikely to then be present on the Site.
- 3.82 The remaining nine offsite ponds (Ponds 9, 10, 11, 13, 14, 15, 16, 17, 21, 22 and 23) vary between 50 m and 250 m from the Site boundary and were not accessed for survey.

Invertebrates

- 3.83 Combined, the records centres returned 681 records of 47 invertebrate species from within 2 km of the Site. The Site generally offers poor or very poor habitat for invertebrates due to the intensive management of the arable land, and the majority of habitats are unlikely to support any notable populations or assemblages of invertebrates. The more mature woodland areas and veteran trees within field boundary features may support some saproxylic (dead wood-reliant) species, while the aquatic habitats (particularly the West Glen River) may support notable aquatic species.

Plants

- 3.84 The LRC and LRERC returned 1,200 records of 251 plant species within 2km of the Site. This includes a range of notable species which are typical of more diverse grassland such as bee orchid *Ophrys apifera*, man orchid *Orchis anthropophora*, and arable weeds including corn chamomile *Anthemis arvensis*, hound's -tongue *Cynoglossum officinale*, night-flowering catchfly *Silene noctiflora*, sharp-leaved fluellen *Kickxia elatine*, sulphur clover *Trifolium ochroleucon* and venus' looking-glass *Triodanis perfoliata*.
- 3.85 The majority of the Site comprises intensively managed, species-poor habitats of low or very low value for plant diversity, and is unlikely to support any notable populations or assemblages of plants. The more mature woodland areas and aquatic habitats may support some notable species.

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5 Figures

Figure 1. Site boundary and location of designated sites

Figure 2. Ponds within 500 m of the Site

Figure 3. Phase 1 habitats plan.

Figure 4. Trees with bat roost suitability.

Figure 5. Water vole evidence.

Figure 6. Breeding bird indicative territory map.

Figure 7: Confidential: locations of badger setts

Label	Name	Label	Name
10	The Drift Verge, Ryhall (North Side)	80	Rutland County Golf-Club (A1) Verge - South
21	The Drift, Pickworth (south side)	81	Bloody Oaks
22	The Drift Verge, Ryhall (south side)	82	Golf Club Hedgerow, NW Side Of Road
25	The Drift, Pickworth (north side)	83	Hedgerow, Empingham Adj Golf Club (SE Side)
31	Tolethorpe Oaks and Adj Scrub	84	Rutland County Golf-Club (A1) Verge - North
32	Turnpole wood	85	Hardwick Wood
33	Aunby Valley	86	The Coppice
34	Mill Farm Holywell road verges	87	Little Oaks Wood
39	Ryhall Rd hedge SE of Frith Farm (north side)	88	Empingham Old (Lane) Wood
40	Ryhall Rd hedge SE of Frith Farm (south side)	89	Empingham Old Wood Grassland
41	Ryhall Rd hedge SW of Frith Farm (north side)	90	Empingham Old (Keepers) Wood
42	Docksight Wood	91	Empingham Old (Lodge) Wood
45	Ryhall Rd hedge W of Tolethorpe Mill junction (north side)	92	Empingham Old Wood
46	Little Casterton Hedgerow N Of Tolethorpe Mill (West Side)	93	Empingham Rvnr W Of Cross Roads Farm (Both Sides)
47	Little Casterton Hedgerow N Of Tolethorpe Mill (East Side)	94	Hedgerow W Of Empingham Old Wood, N Side
48	Tolethorpe Mill Verge	95	Loves Lane Verge (Both Sides), Empingham
49	Trackside Hedge, to Disused Pit Off Ryhall Rd N	96	Empingham Estate Roadside Verge
50	Tolethorpe Mill Wet Grassland	97	Exton Rvnr (Crossrds S Exton to Loves Lane Cross Rds - Both Sides)
51	Tolethorpe, Ryhall Rd Verge	98	North Brook Exton Estate
52	Home Farm		
53	Pickworth Road Rvnr (East) S Of Mounts Lodge		
54	Pickworth Road Rvnr (West) S Of Mounts Lodge		
55	Pickworth Road Rvnr East: N Of Mounts Lodge		
56	Pickworth Road Rvnr West: N Of Mounts Lodge		
57	Woodhead and Castle Mound		
58	Little Casterton Verge (East)		
59	Little Casterton Verge (West)		
60	Former Limestone Quarry, Stamford		
61	Great Casterton A1-A606 Verge (North)		
62	Great Casterton A1-A606 Verge		
63	Great Casterton Lane Hedgerow, (East Side), Tinwell		
64	Hedge Opp the Rookery (East Side) Tinwell		
65	Tinwell Roadside Verge (West Side)		
66	Tinwell Roadside Verge (East Side)		
67	Ryhall Rd Hedgerow S Of Ingethorpe (West Side) Tinwell		
68	A1 Old Gt N Rd Sliproad, Great Casterton		
69	Field East Of Chapel Field Spinney		
70	Field West Of Chapel Lane Spinney		
71	Tickencote Laund		
72	Empingham Verge (S Of Crossroads Farm) West Side		
73	Empingham Hedge, S Of Cross Roads Farm (W)		
74	Empingham Crossroads to Bloody Oaks Verge		
75	Empingham Roadside Verge		
76	Hedge Near Cross Roads Farm Cottages		
77	Grassland In 3-Corner Plantation		
78	Hedge Near Three-Corner Plantation Empingham		
79	Empingham (Bloody Oaks) Roadside Verge Nature Reserve		
80	Rutland County Golf-Club (A1) Verge - South		



LEGEND

Internationally designated sites within 10 km

- Special Protection Area (SPA)
- RAMSAR site

Nationally designated sites within 2 km

- Site of Special Scientific Interest (SSSI)
- Local Wildlife Site (LWS)

- Site boundary
- 2 km buffer
- 10km buffer



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PROJECT TITLE
**MALLARD PASS SOLAR FARM:
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DRAWING TITLE
**Figure 1: Site boundary and location of
 designated sites (Map 1 of 2)**

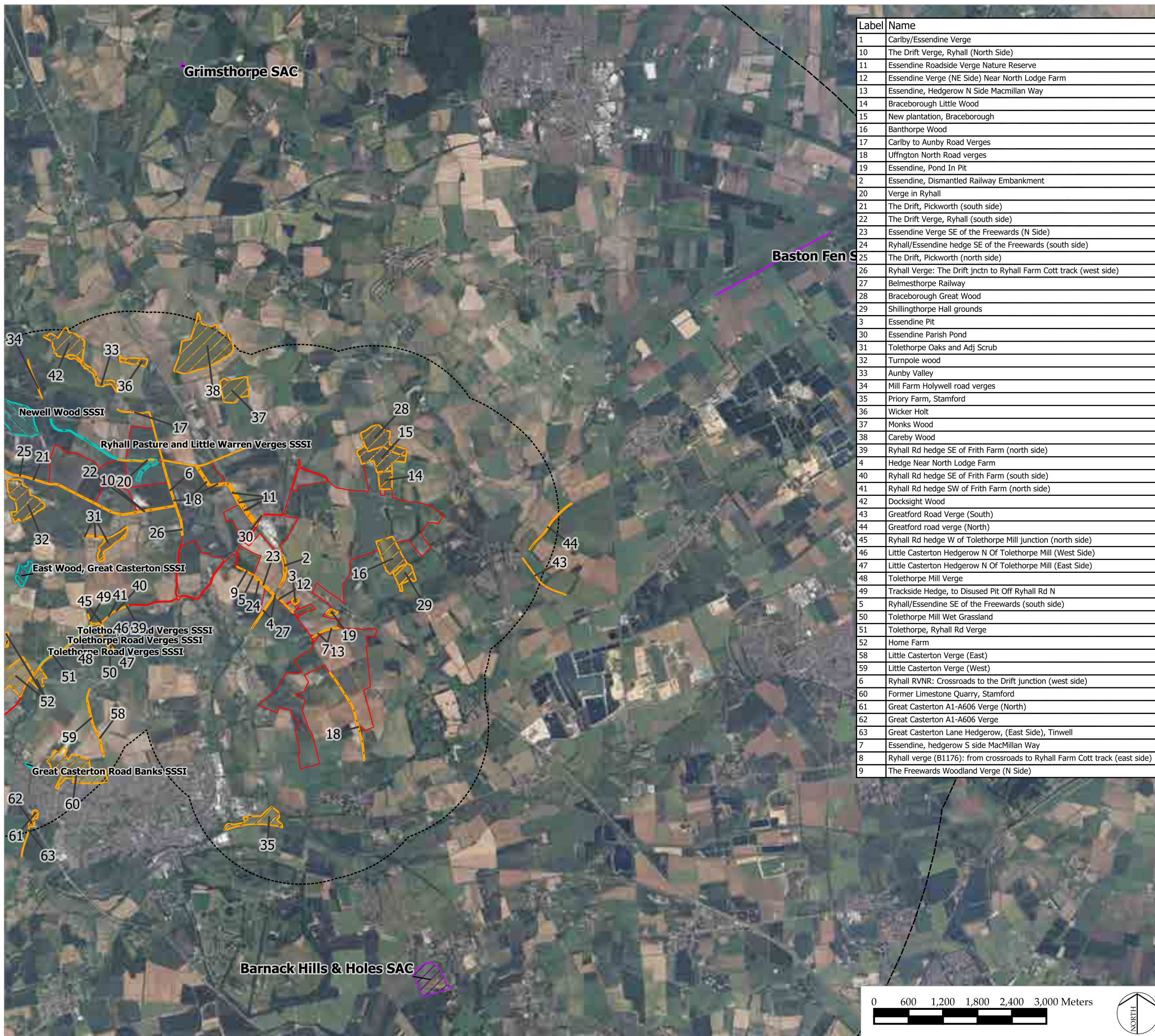
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Sources: BSG Ecology survey data, Ordnance survey



Label	Name
1	Carlby/Essendine Verge
10	The Drift Verge, Ryhall (North Side)
11	Essendine Roadside Verge Nature Reserve
12	Essendine Verge (NE Side) Near North Lodge Farm
13	Essendine, Hedgerow N Side Macmillan Way
14	Braceborough Little Wood
15	New plantation, Braceborough
16	Banthorpe Wood
17	Carlby to Aunby Road Verges
18	Uffington North Road verges
19	Essendine, Pond In Pit
2	Essendine, Dismantled Railway Embankment
20	Verge in Ryhall
21	The Drift, Pickworth (south side)
22	The Drift Verge, Ryhall (south side)
23	Essendine Verge SE of the Freewards (N Side)
24	Ryhall/Essendine hedge SE of the Freewards (south side)
25	The Drift, Pickworth (north side)
26	Ryhall Verge: The Drift jnctn to Ryhall Farm Cott track (west side)
27	Belmesthorpe Railway
28	Braceborough Great Wood
29	Shillingthorpe Hall grounds
3	Essendine Pit
30	Essendine Parish Pond
31	Tolethorpe Oaks and Adj Scrub
32	Turnpole wood
33	Aunby Valley
34	Mill Farm Holywell road verges
35	Priors Farm, Stamford
36	Wicker Holt
37	Monks Wood
38	Careby Wood
39	Ryhall Rd hedge SE of Frith Farm (north side)
4	Hedge Near North Lodge Farm
40	Ryhall Rd hedge SE of Frith Farm (south side)
41	Ryhall Rd hedge SW of Frith Farm (north side)
42	Docksight Wood
43	Greatford Road Verge (South)
44	Greatford road verge (North)
45	Ryhall Rd hedge W of Tolethorpe Mill junction (north side)
46	Little Casterton Hedgerow N Of Tolethorpe Mill (West Side)
47	Little Casterton Hedgerow N Of Tolethorpe Mill (East Side)
48	Tolethorpe Mill Verge
49	Trackside Hedge, to Disused Pit Off Ryhall Rd N
5	Ryhall/Essendine SE of the Freewards (south side)
50	Tolethorpe Mill Wet Grassland
51	Tolethorpe, Ryhall Rd Verge
52	Home Farm
58	Little Casterton Verge (East)
59	Little Casterton Verge (West)
6	Ryhall RVNR: Crossroads to the Drift junction (west side)
60	Former Limestone Quarry, Stamford
61	Great Casterton A1-A606 Verge (North)
62	Great Casterton A1-A606 Verge
63	Great Casterton Lane Hedgerow, (East Side), Tinwell
7	Essendine, hedgerow S side MacMillan Way
8	Ryhall verge (B1176): from crossroads to Ryhall Farm Cott track (east side)
9	The Freewards Woodland Verge (N Side)

LEGEND

Internationally designated sites within 10 km

Special Area of Conservation (SAC)

Nationally designated sites within 2 km

Site of Special Scientific Interest (SSSI)

Local Wildlife Site (LWS)

Site boundary

2 km buffer

10km buffer



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MALLARD PASS SOLAR FARM:
PRELIMINARY ENVIRONMENTAL INFORMATION REPORT

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Figure 1: Site boundary and location of designated sites (Map 2 of 2)

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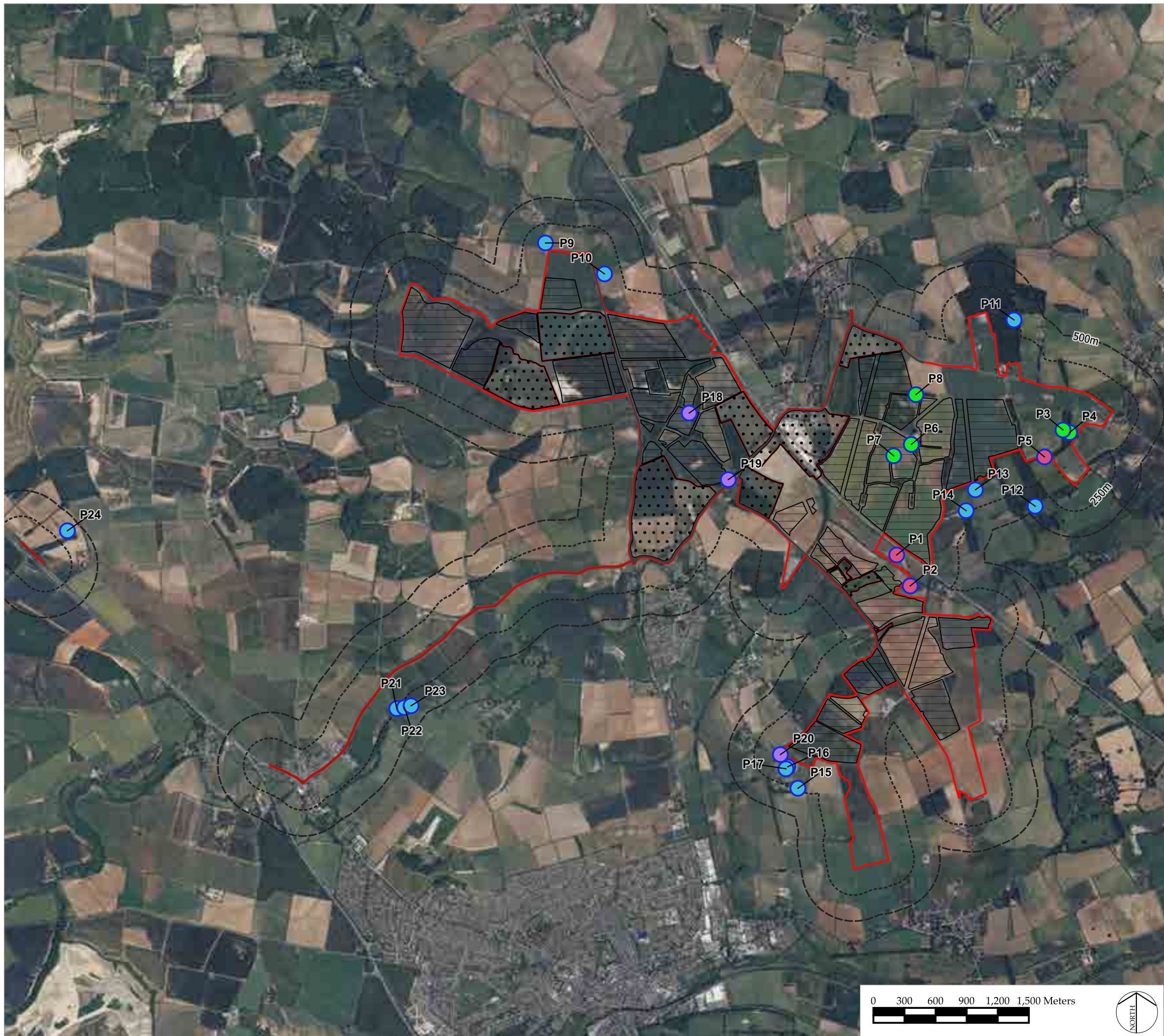
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Sources: BSG Ecology survey data, Ordnance survey

0 600 1,200 1,800 2,400 3,000 Meters





LEGEND

- Onsite pond sampled for eDNA
- Onsite pond dry or absent
- Offsite pond sampled for eDNA
- Offsite pond not sampled for eDNA
- Site boundary
- Solar PV Site
- Potential highways works
- Areas outside site boundary
- 250m from site boundary
- 500m from site boundary

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 MALLARD PASS SOLAR FARM:
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 Figure 2: Ponds within 500m of the Site

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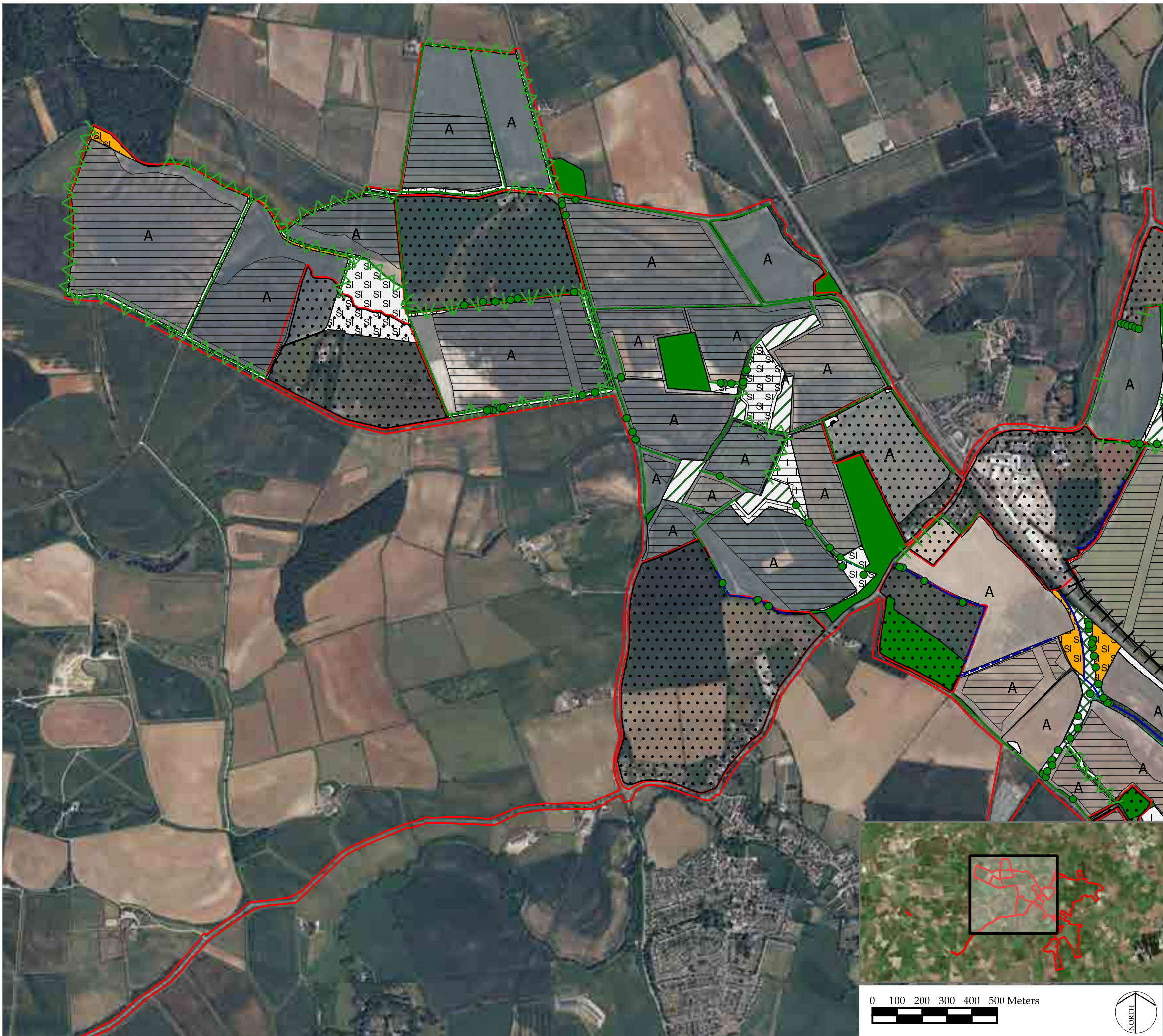
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Sources: BSG Ecology survey data, Ordnance survey

0 300 600 900 1,200 1,500 Meters





LEGEND

- Scattered trees
- Running water
- - - Dry ditch
- ▲▲ Intact hedge - native species-rich
- Intact hedge - species-poor
- - - Defunct hedge - species-poor
- ▼▲ Hedge with trees - native species-rich
- Hedge with trees - species-poor
- ⊥ Fence
- ▤ Matrix of semi-improved neutral grassland, poor semi-improved grassland, tall ruderal vegetation and scattered scrub
- Broadleaved woodland - semi-natural
- ▨ Broadleaved woodland - plantation
- ▩ Scrub - dense/continuous
- Neutral grassland - semi-improved
- Improved grassland
- ▤ Poor semi-improved grassland
- ▤ Cultivated/disturbed land - arable
- Bare ground
- ▭ Site boundary
- ▭ Solar PV Site
- ▭ Areas outside site boundary

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PROJECT TITLE
 MALLARD PASS SOLAR FARM:
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 Figure 3: Phase 1 habitats plan
 Map 1 of 3

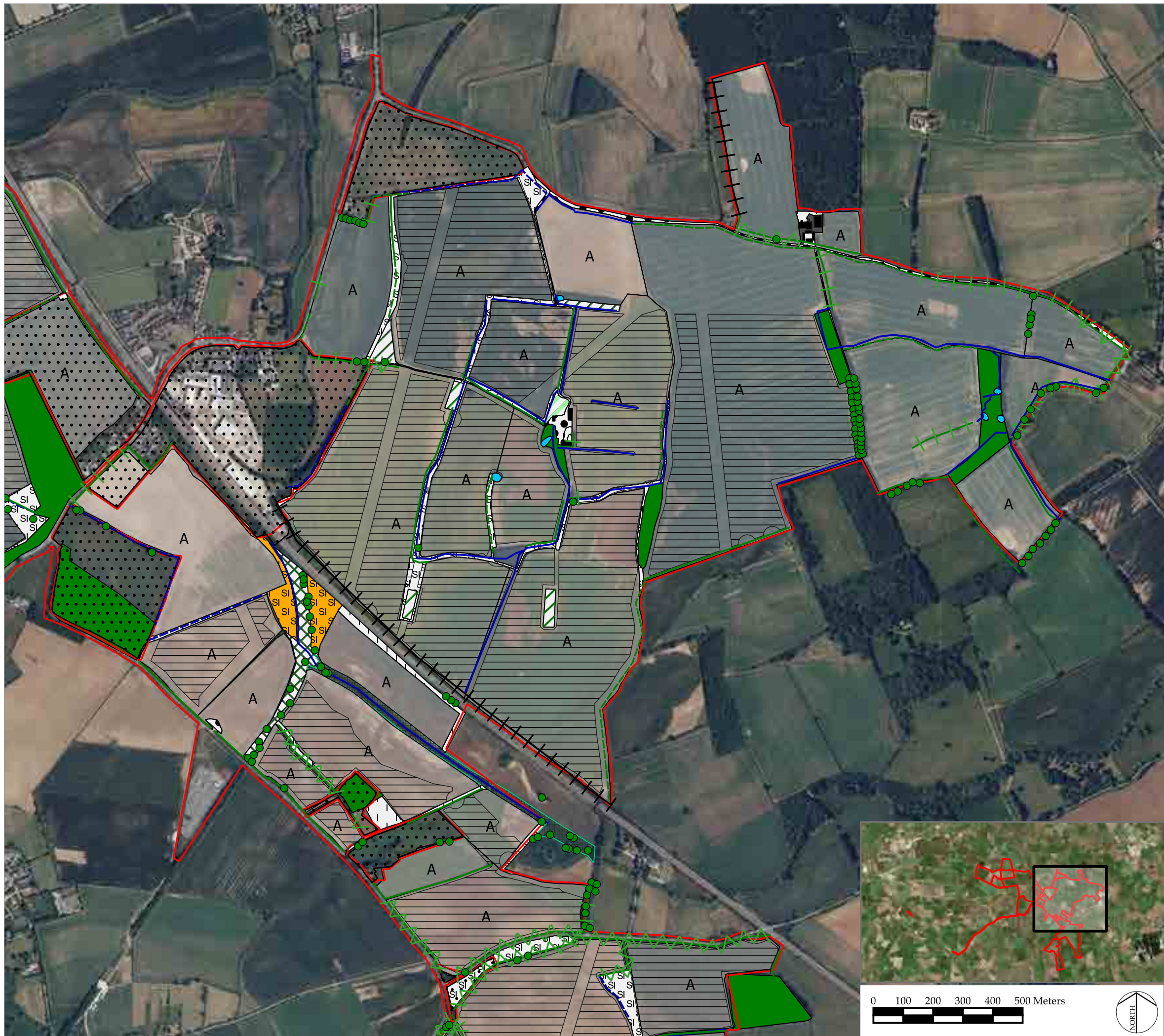
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LEGEND

- Scattered trees
- Running water
- - - Dry ditch
- ▲▲ Intact hedge - native species-rich
- Intact hedge - species-poor
- - - Defunct hedge - species-poor
- ▼▲ Hedge with trees - native species-rich
- Hedge with trees - species-poor
- ⊥ Fence
- ▤ Matrix of semi-improved neutral grassland, poor semi-improved grassland, tall ruderal vegetation and scattered scrub
- Broadleaved woodland - semi-natural
- ▨ Broadleaved woodland - plantation
- ▧ Coniferous woodland - plantation
- ▩ Scrub - dense/continuous
- Neutral grassland - semi-improved
- ▤ Improved grassland
- ▥ Poor semi-improved grassland
- Standing water
- ▤ Cultivated/disturbed land - arable
- Buildings
- Bare ground
- Hardstanding
- ▭ Site boundary
- ▭ Solar PV Site
- ▭ Areas outside site boundary

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MALLARD PASS SOLAR FARM:
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Figure 3: Phase 1 habitats plan
Map 2 of 3

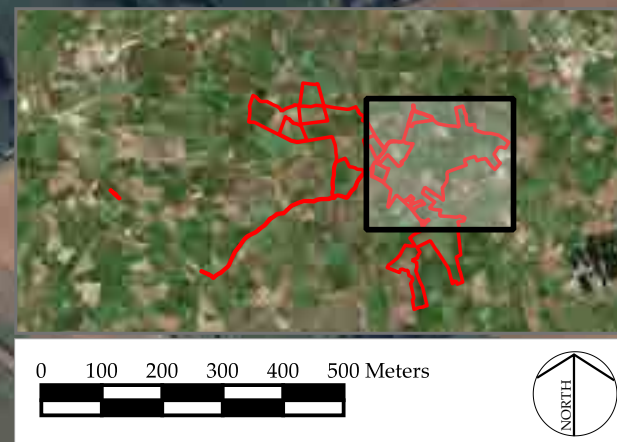
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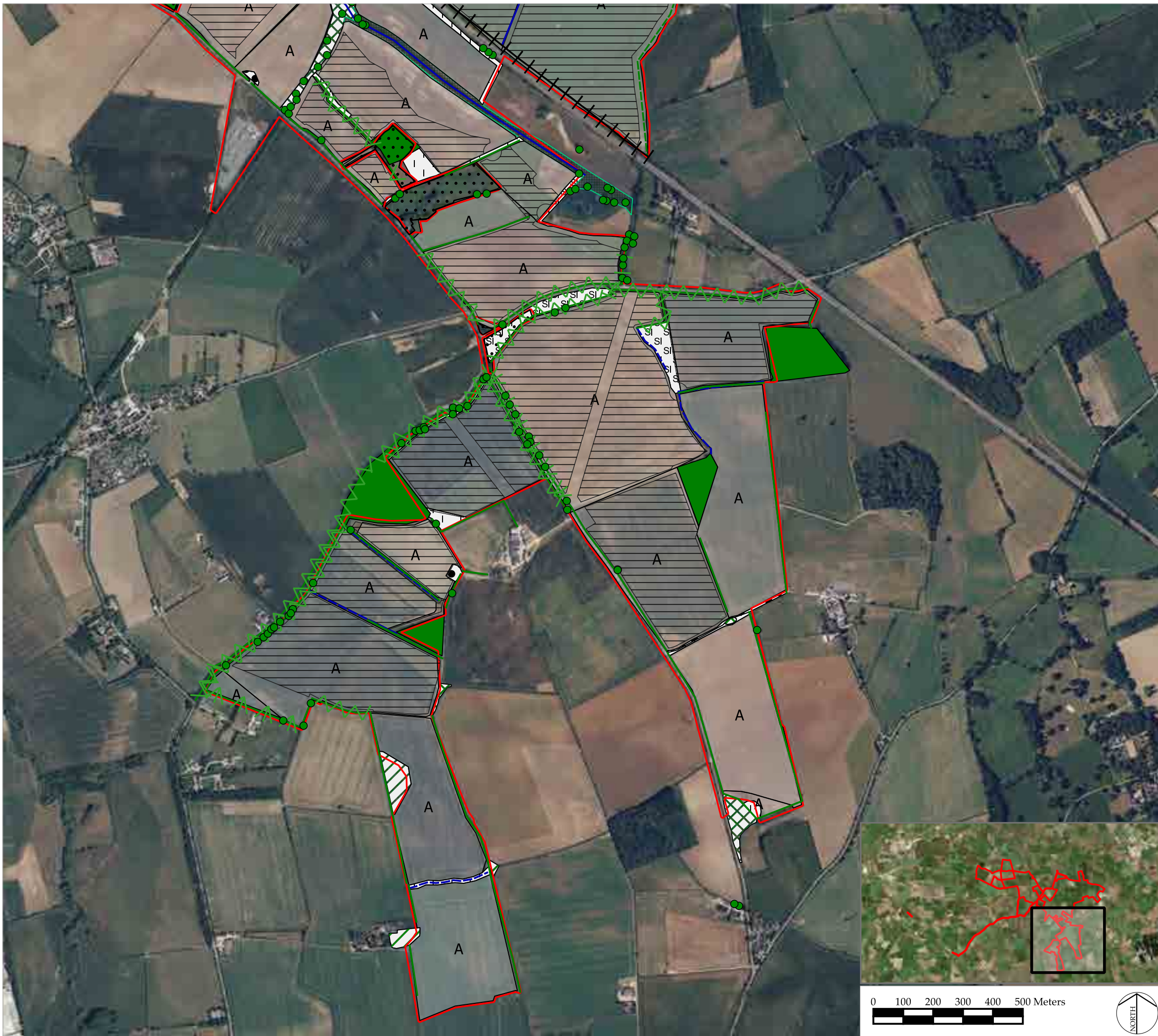
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LEGEND

- Scattered trees
- Running water
- - - Dry ditch
- ▲▲ Intact hedge - native species-rich
- Intact hedge - species-poor
- - - Defunct hedge - species-poor
- ▲▲ Hedge with trees - native species-rich
- Hedge with trees - species-poor
- ⊥ Fence
- ▨ Matrix of semi-improved neutral grassland, poor semi-improved grassland, tall ruderal vegetation and scattered scrub
- Broadleaved woodland - semi-natural
- ▨ Broadleaved woodland - plantation
- ▨ Scrub - dense/continuous
- Neutral grassland - semi-improved
- ▨ Improved grassland
- ▨ Poor semi-improved grassland
- ▨ Cultivated/disturbed land - arable
- Bare ground
- ▭ Site boundary
- ▨ Solar PV Site
- ▨ Areas outside site boundary

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**MALLARD PASS SOLAR FARM:
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DRAWING TITLE
**Figure 3: Phase 1 habitats plan
 Map 3 of 3**

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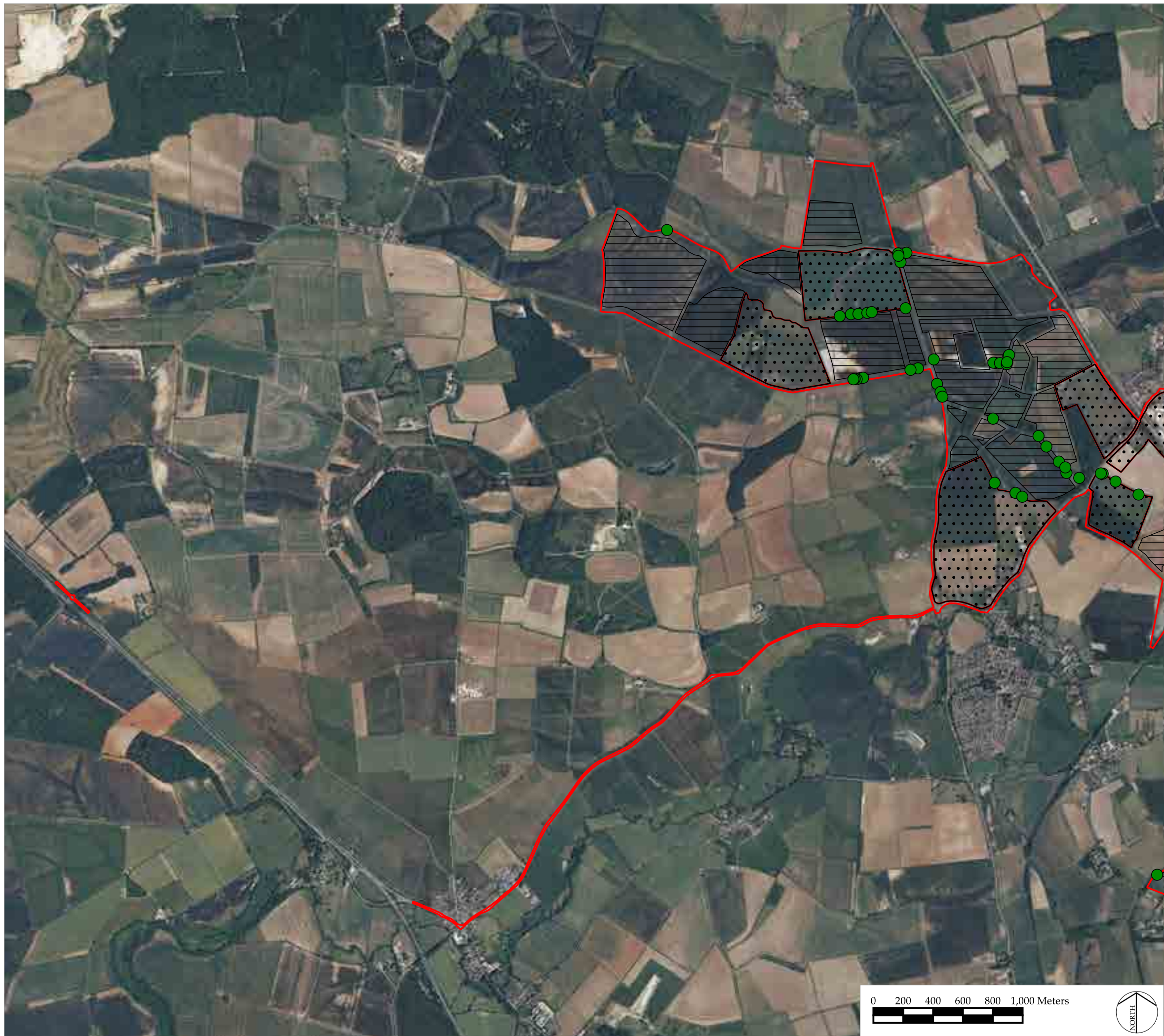
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LEGEND

- Trees with bat roost suitability
- Solar PV Site
- Site boundary
- Areas outside Site boundary



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**MALLARD PASS SOLAR FARM:
 PRELIMINARY ENVIRONMENTAL INFORMATION REPORT**

DRAWING TITLE
**Figure 4: Trees with bat roost suitability Map
 1 of 2**

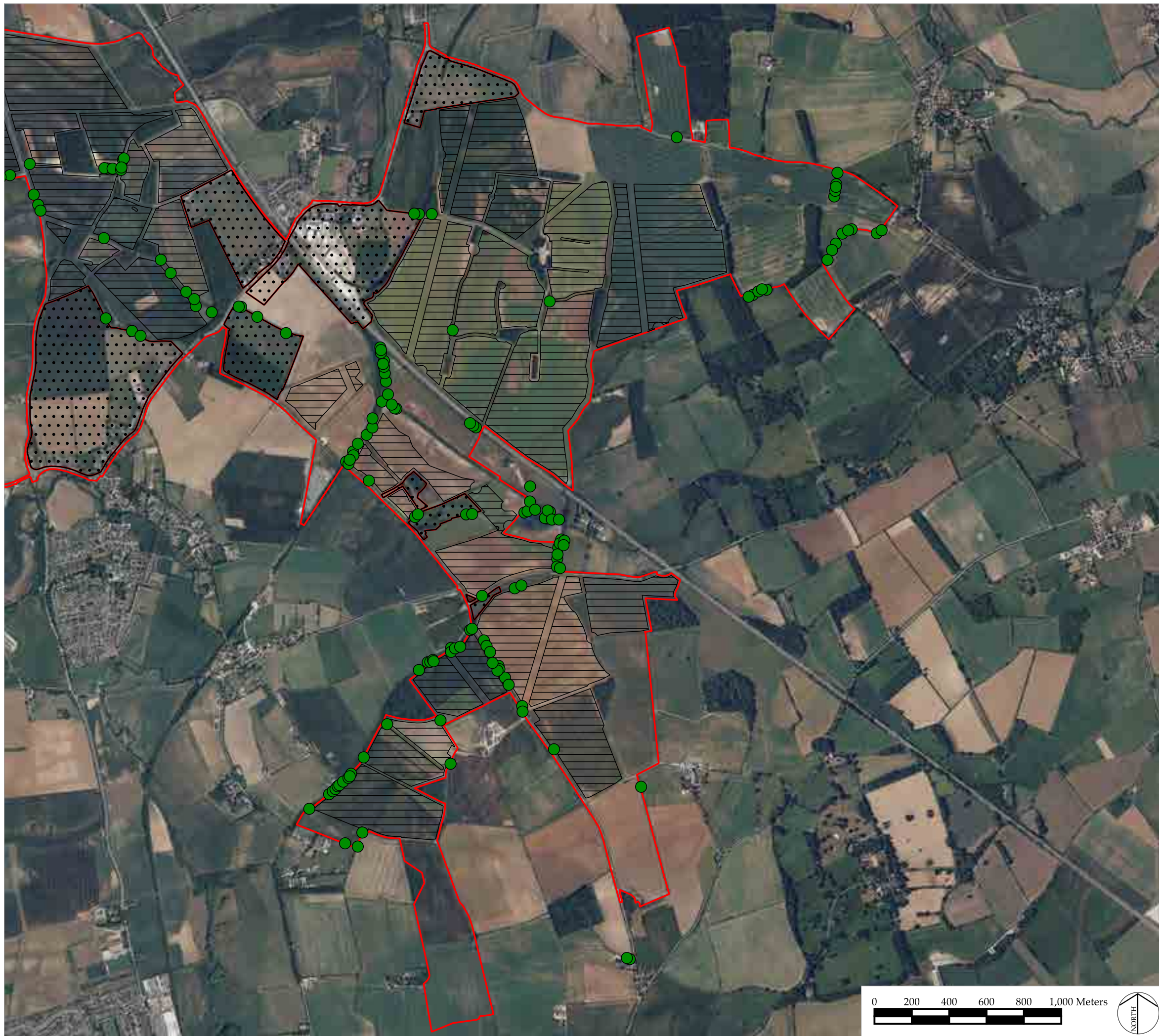
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Sources: BSG Ecology survey data, Ordnance survey



LEGEND

- Trees with bat roost suitability
- Solar PV Site
- Site boundary
- Areas outside Site boundary



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**MALLARD PASS SOLAR FARM:
 PRELIMINARY ENVIRONMENTAL INFORMATION REPORT**

DRAWING TITLE
**Figure 4: Trees with bat roost suitability
 Map 2 of 2**

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Sources: BSG Ecology survey data, Ordnance survey



LEGEND

Water vole evidence

- Feeding station
- ◆ Burrow
- Latrine
- River surveyed for water vole
- - - River not surveyed for water vole
- Solar PV Site
- Potential highways works
- Site boundary
- Areas outside Site boundary



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**MALLARD PASS SOLAR FARM:
 PRELIMINARY ENVIRONMENTAL INFORMATION REPORT**

DRAWING TITLE
Figure 5: Water vole evidence

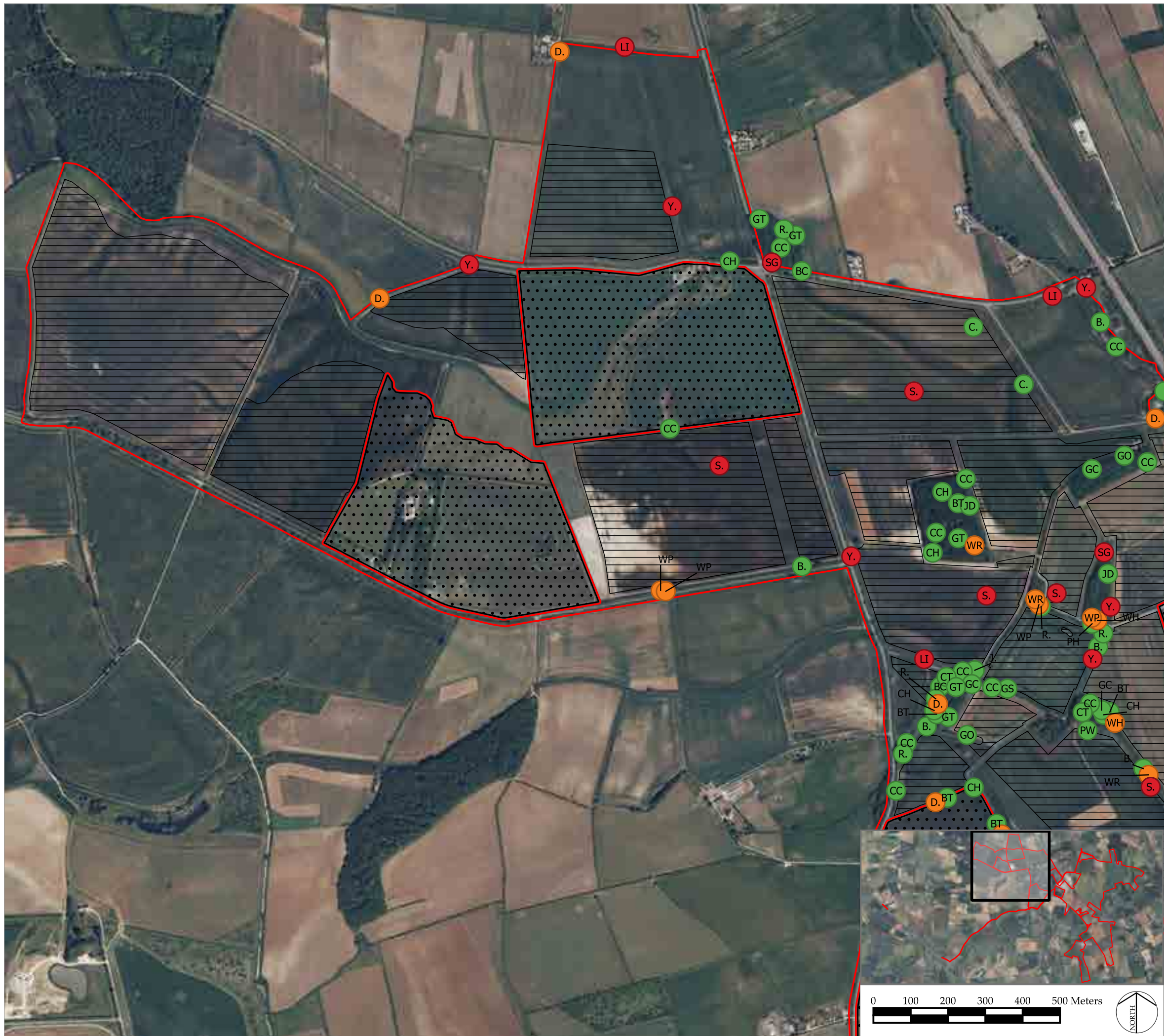
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DWG. NO. 7863_SK_319

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 Area measurements for indicative purposes only.

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Sources: BSG Ecology survey data, Ordnance survey



LEGEND

Birds of Conservation Concern (BoCC) Status

- Red
- Amber
- Green

Solar PV Site

Site boundary

Areas outside Site boundary

BTO code	Common name	Scientific name
S.	Skylark	<i>Alauda arvensis</i>
B.	Blackbird	<i>Turdus merula</i>
WR	Wren	<i>Troglodytes troglodytes</i>
WH	Common Whitethroat	<i>Sylvia communis</i>
CH	Chaffinch	<i>Fringilla coelebs</i>
BT	Blue Tit	<i>Cyanistes caeruleus</i>
GC	Goldcrest	<i>Regulus regulus</i>
CC	Chiffchaff	<i>Phylloscopus collybita</i>
Y.	Yellowhammer	<i>Emberiza citrinella</i>
R.	Robin	<i>Erithacus rubecula</i>
PH	Pheasant	<i>Phasianus colchicus</i>
WP	Woodpigeon	<i>Columba palumbus</i>
J.	Jay	<i>Garrulus glandarius</i>
GS	Great Spotted Woodpecker	<i>Dendrocopos major</i>
GO	Goldfinch	<i>Carduelis carduelis</i>
CT	Coal Tit	<i>Periparus ater</i>
D.	Dunnock	<i>Prunella modularis</i>
BC	Blackcap	<i>Sylvia atricapilla</i>
GT	Great Tit	<i>Parus major</i>
LI	Linnet	<i>Carduelis cannabina</i>
C.	Carrion Crow	<i>Corvus corone</i>
SG	Common Starling	<i>Sturnus vulgaris</i>
JD	Jackdaw	<i>Corvus monedula</i>
PW	Pied/White Wagtail	<i>Motacilla alba</i>

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PROJECT TITLE

MALLARD PASS SOLAR FARM:
PRELIMINARY ENVIRONMENTAL INFORMATION REPORT

DRAWING TITLE

Figure 6: Breeding bird indicative territories
Map 1 of 5

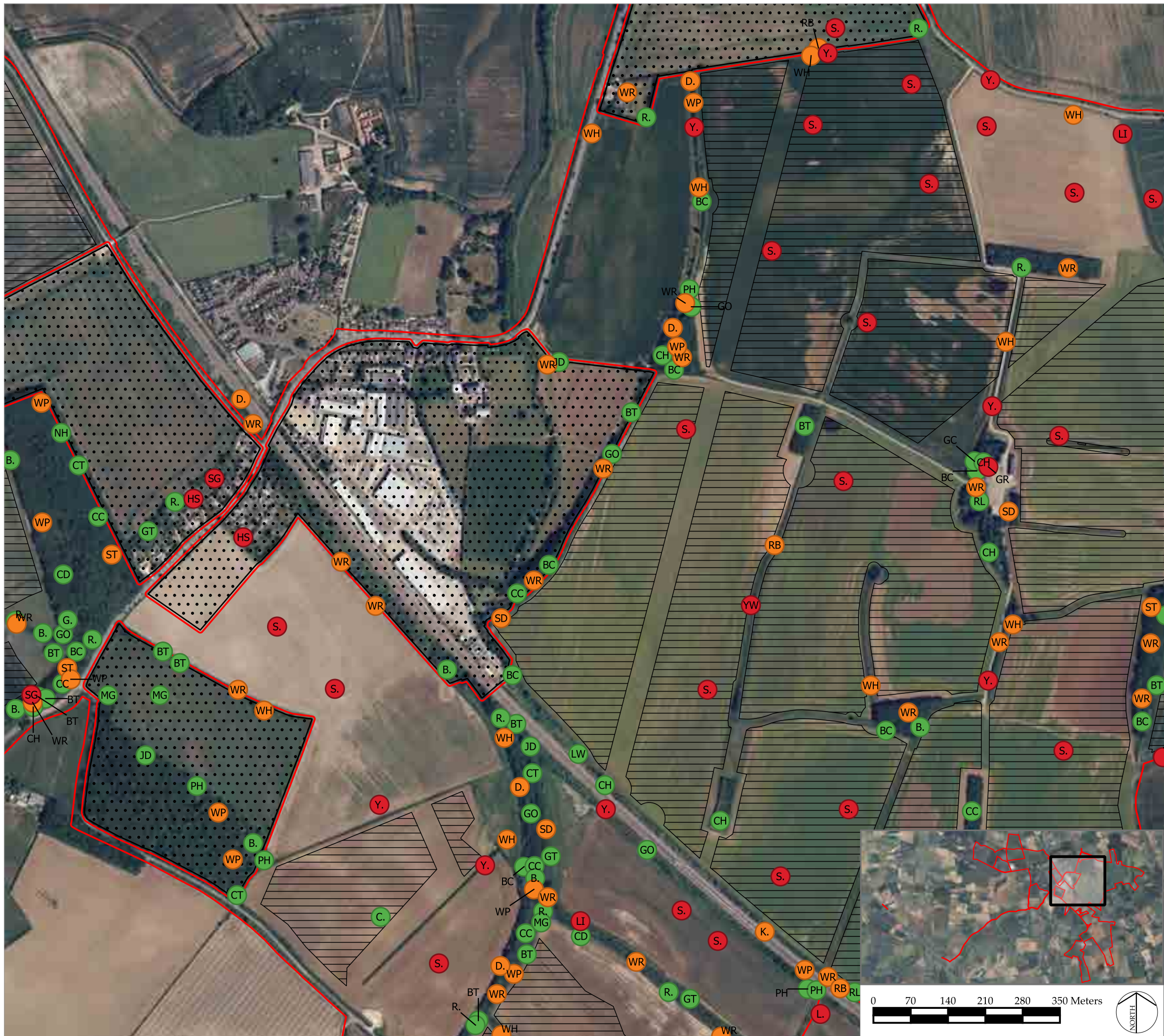
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STATUS	Final	APPROVED	PS

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Sources: BSG Ecology survey data, Ordnance survey



LEGEND

Birds of Conservation Concern (BoCC) Status

- Red
- Amber
- Green

▭ Solar PV Site

▭ Site boundary

▭ Areas outside Site boundary

BTO code	Common name	Scientific name
WR	Wren	Troglodytes troglodytes
WH	Common Whitethroat	Sylvia communis
R.	Robin	Erithacus rubecula
D.	Duncock	Prunella modularis
WP	Woodpigeon	Columba palumbus
Y.	Yellowhammer	Emberiza citrinella
JD	Jackdaw	Corvus monedula
BC	Blackcap	Sylvia atricapilla
PH	Pheasant	Phasianus colchicus
GO	Goldfinch	Carduelis carduelis
CH	Chaffinch	Fringilla coelebs
BT	Blue Tit	Cyanistes caeruleus
CC	Chiffchaff	Phylloscopus collybita
SD	Stock Dove	Columba oenas
RB	Reed Bunting	Emberiza schoeniclus
GR	Greenfinch	Carduelis chloris
GC	Goldcrest	Regulus regulus
RL	Red-legged Partridge	Alectoris rufa
YW	Yellow Wagtail	Motacilla flava
B.	Blackbird	Turdus merula
LI	Linnet	Carduelis cannabina
ST	Song Thrush	Turdus philomelos
LW	Lesser Whitethroat	Sylvia curruca
S.	Skylark	Alauda arvensis
GT	Great Tit	Parus major
MG	Magpie	Pica pica
CD	Collared Dove	Streptopelia decaocto
CT	Coal Tit	Periparus ater
HS	House Sparrow	Passer domesticus
G.	Green Woodpecker	Picus viridis
SG	Common Starling	Sturnus vulgaris
NH	Eurasian Nuthatch	Sitta europaea
L.	Lapwing	Vanellus vanellus
K.	Common Kestrel	Falco tinnunculus
C.	Carrion Crow	Corvus corone

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**MALLARD PASS SOLAR FARM:
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DRAWING TITLE
**Figure 6: Breeding bird indicative territories
 Map 2 of 5**

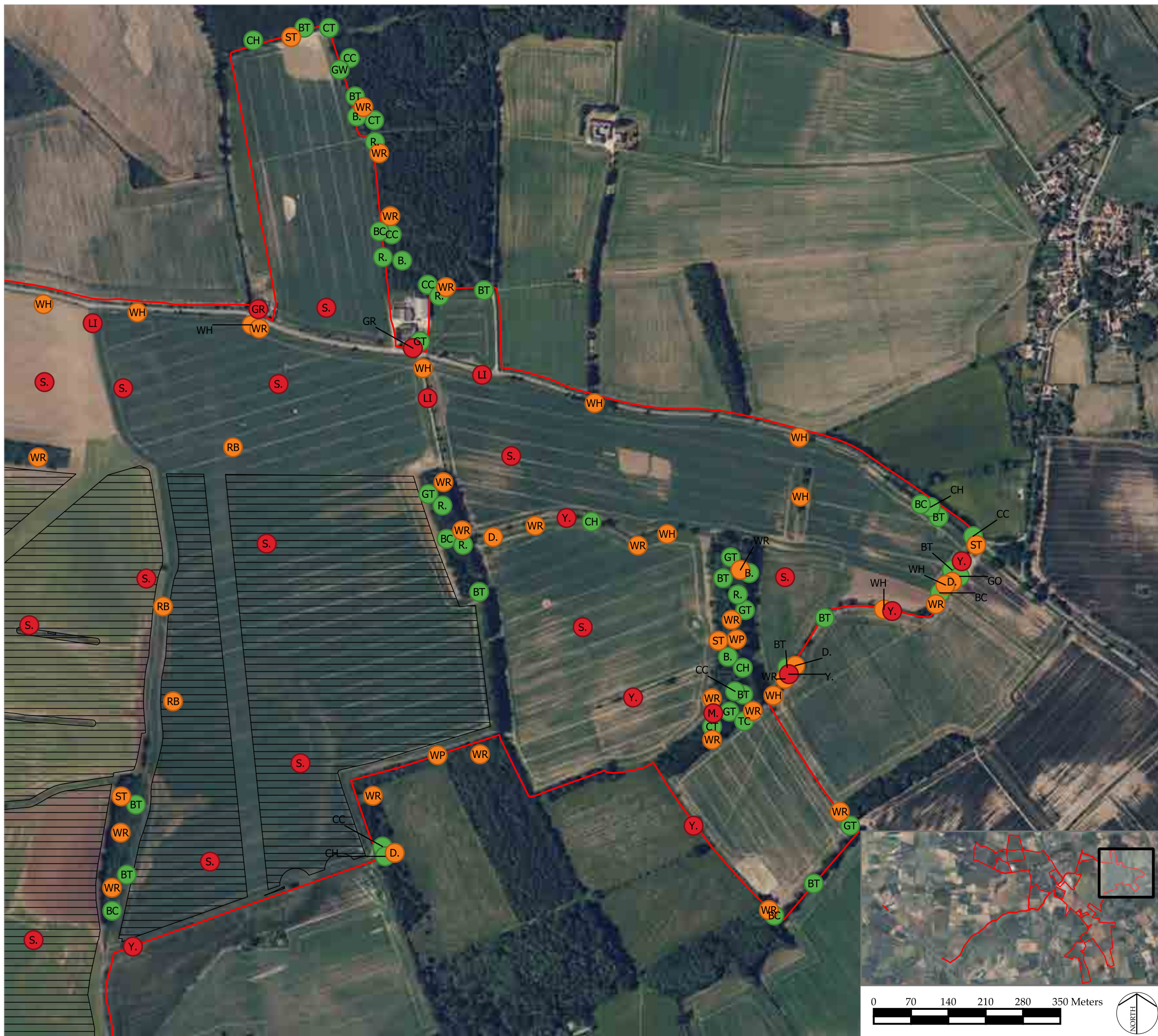
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LEGEND

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- Red
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- Green
- Solar PV Site
- Site boundary

BTO code	Common name	Scientific name
WR	Wren	Troglodytes troglodytes
LI	Linnet	Carduelis cannabina
WH	Common Whitethroat	Sylvia communis
RB	Reed Bunting	Emberiza schoeniclus
BT	Blue Tit	Cyanistes caeruleus
BC	Blackcap	Sylvia atricapilla
ST	Song Thrush	Turdus philomelos
CT	Coal Tit	Periparus ater
CH	Chaffinch	Fringilla coelebs
CC	Chiffchaff	Phylloscopus collybita
GW	Garden Warbler	Sylvia borin
B.	Blackbird	Turdus merula
R.	Robin	Erithacus rubecula
GR	Greenfinch	Carduelis chloris
GT	Great Tit	Parus major
Y.	Yellowhammer	Emberiza citrinella
D.	Dunnock	Prunella modularis
WP	Woodpigeon	Columba palumbus
M.	Mistle Thrush	Turdus viscivorus
TC	Treecreeper	Certhia familiaris
GO	Goldfinch	Carduelis carduelis
S.	Skylark	Alauda arvensis

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MALLARD PASS SOLAR FARM:
PRELIMINARY ENVIRONMENTAL INFORMATION REPORT

DRAWING TITLE

Figure 6: Breeding bird indicative territories
Map 3 of 5

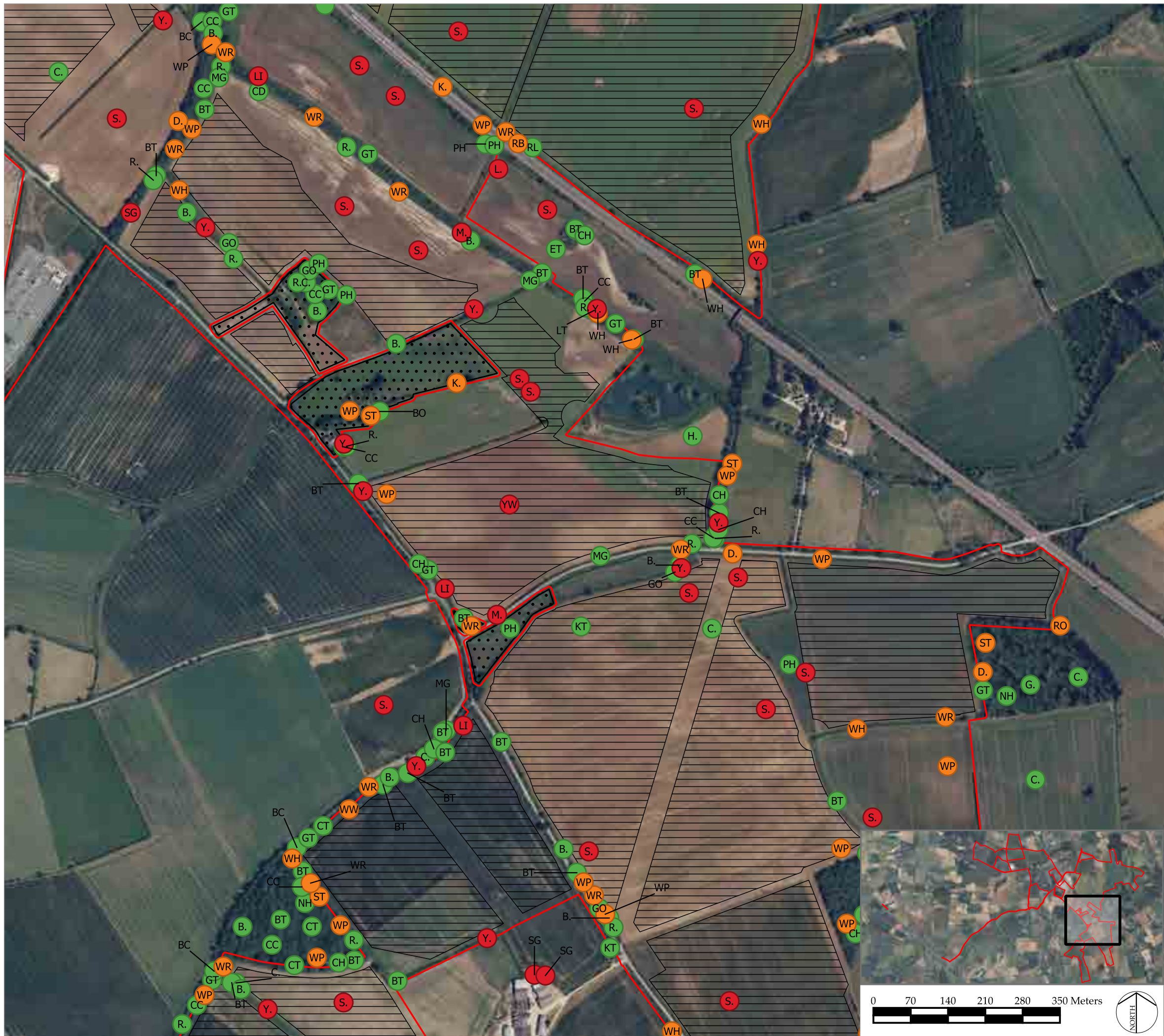
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LEGEND

Birds of Conservation Concern (BoCC) Status

- Red
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- Green

- Solar PV Site
- Site boundary
- Areas outside Site boundary

BTO code	Common name	Scientific name
WH	Common Whitethroat	<i>Sylvia communis</i>
Y.	Yellowhammer	<i>Emberiza citrinella</i>
BT	Blue Tit	<i>Cyanistes caeruleus</i>
WR	Wren	<i>Troglodytes troglodytes</i>
RL	Red-legged Partridge	<i>Alectoris rufa</i>
RB	Reed Bunting	<i>Emberiza schoeniclus</i>
S.	Skylark	<i>Alauda arvensis</i>
LT	Long-tailed Tit	<i>Aegithalos caudatus</i>
ST	Song Thrush	<i>Turdus philomelos</i>
CC	Chiffchaff	<i>Phylloscopus collybita</i>
K.	Common Kestrel	<i>Falco tinnunculus</i>
R.	Robin	<i>Erithacus rubecula</i>
H.	Grey Heron	<i>Ardea cinerea</i>
MG	Magpie	<i>Pica pica</i>
B.	Blackbird	<i>Turdus merula</i>
CH	Chaffinch	<i>Fringilla coelebs</i>
GO	Goldfinch	<i>Carduelis carduelis</i>
D.	Dunnock	<i>Prunella modularis</i>
WP	Woodpigeon	<i>Columba palumbus</i>
C.	Carrion Crow	<i>Corvus corone</i>
PH	Pheasant	<i>Phasianus colchicus</i>
GT	Great Tit	<i>Parus major</i>
G.	Green Woodpecker	<i>Picus viridis</i>
KT	Red Kite	<i>Milvus milvus</i>
LI	Linnet	<i>Carduelis cannabina</i>
WW	Willow Warbler	<i>Phylloscopus trochilus</i>
BC	Blackcap	<i>Sylvia atricapilla</i>
CT	Coal Tit	<i>Periparus ater</i>
NH	Eurasian Nuthatch	<i>Sitta europaea</i>
M.	Mistle Thrush	<i>Turdus viscivorus</i>
BO	Barn Owl	<i>Tyto alba</i>
SG	Common Starling	<i>Sturnus vulgaris</i>
CD	Collared Dove	<i>Streptopelia decaocto</i>
ET	Little Egret	<i>Egretta garzetta</i>
YW	Yellow Wagtail	<i>Motacilla flava</i>
L.	Lapwing	<i>Vanellus vanellus</i>
JD	Jackdaw	<i>Corvus monedula</i>
RO	Rook	<i>Corvus frugilegus</i>

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PROJECT TITLE

MALLARD PASS SOLAR FARM:
PRELIMINARY ENVIRONMENTAL INFORMATION REPORT

DRAWING TITLE

Figure 6: Breeding bird indicative territories
Map 4 of 5

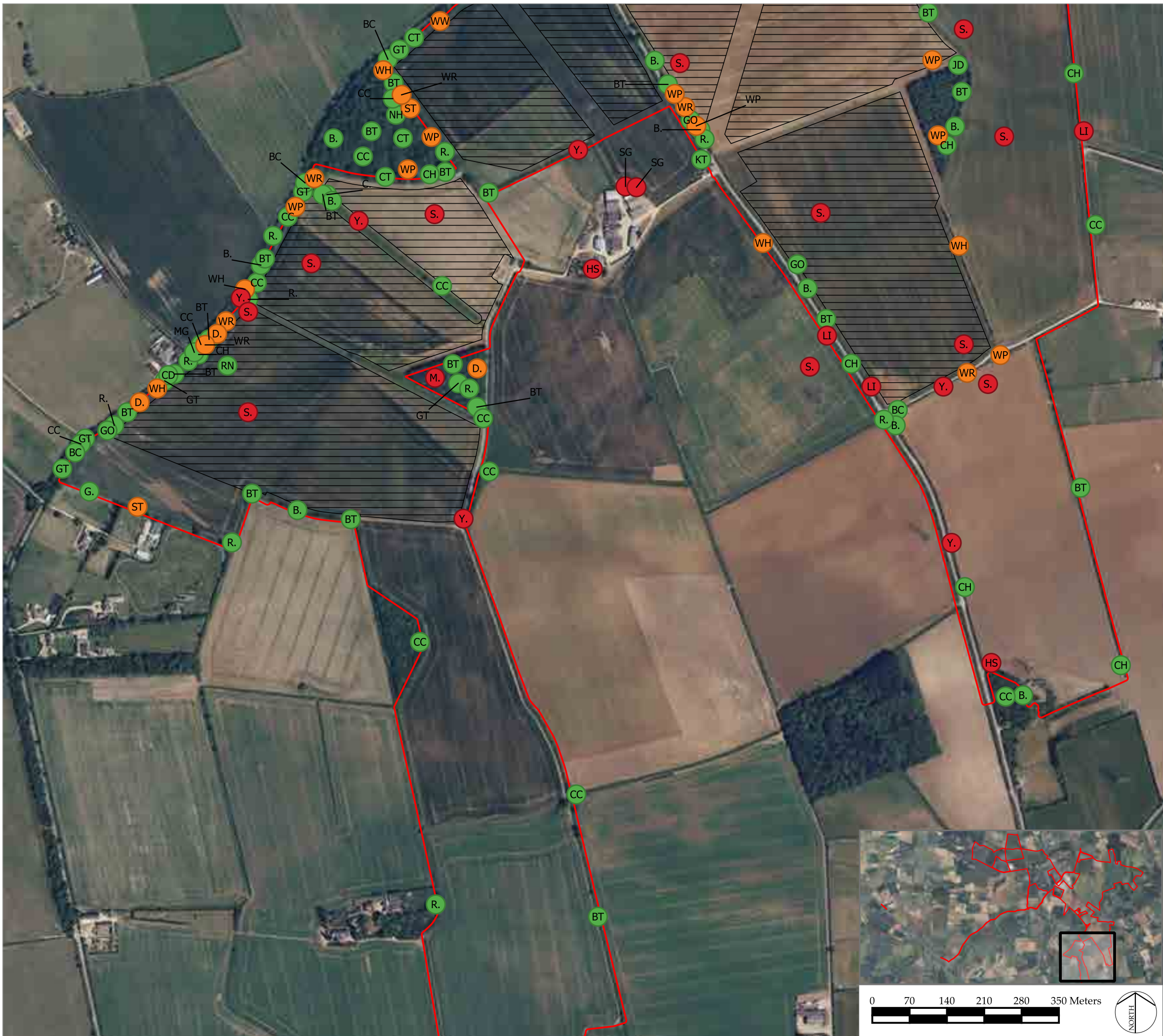
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LEGEND

Birds of Conservation Concern (BoCC) Status

- Red
- Amber
- Green
- Solar PV Site
- Site boundary

BTO code	Common name	Scientific name
BT	Blue Tit	Cyanistes caeruleus
S.	Skylark	Alauda arvensis
WP	Woodpigeon	Columba palumbus
CH	Chaffinch	Fringilla coelebs
B.	Blackbird	Turdus merula
WH	Common Whitethroat	Sylvia communis
WR	Wren	Troglodytes troglodytes
Y.	Yellowhammer	Emberiza citrinella
BC	Blackcap	Sylvia atricapilla
R.	Robin	Erithacus rubecula
LI	Linnet	Carduelis cannabina
GO	Goldfinch	Carduelis carduelis
KT	Red Kite	Milvus milvus
WW	Willow Warbler	Phylloscopus trochilus
CT	Coal Tit	Parus ater
GT	Great Tit	Parus major
ST	Song Thrush	Turdus philomelos
NH	Eurasian Nuthatch	Sitta europaea
CC	Chiffchaff	Phylloscopus collybita
C.	Carrion Crow	Corvus corone
HS	House Sparrow	Passer domesticus
RN	Raven	Corvus corax
CD	Collared Dove	Streptopelia decaocto
G.	Green Woodpecker	Picus viridis
D.	Dunnock	Prunella modularis
M.	Mistle Thrush	Turdus viscivorus
MG	Magpie	Pica pica
JD	Jackdaw	Corvus monedula
SG	Common Starling	Sturnus vulgaris

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**MALLARD PASS SOLAR FARM:
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**Figure 6: Breeding bird indicative territories
 Map 5 of 5**

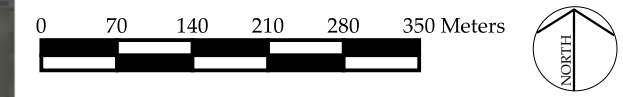
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6 Photographs

<p>Photograph 1: Patch of broadleaved semi-natural woodland in the west of the Site.</p>	<p>Photograph 2: Typical understorey and ground vegetation in broadleaved woodland in south of the Site.</p>
	
<p>Photograph 3: Hedgerow in the west of the Site.</p>	<p>Photograph 4: Typical hedgerow with standard trees.</p>
	
<p>Photograph 5: Pond 3, located in the east of the Site.</p>	<p>Photograph 6: West Glen River in the centre and west of the Site showing well-vegetated banks suitable for water vole.</p>
	
<p>Photograph 7: Photograph 6: West Glen River in the centre and west of the Site.</p>	<p>Photograph 8: Intensively managed arable farmland.</p>



Photograph 9: Intensively-managed arable farmland.



Photograph 10: Poor semi-improved grassland forming an arable field margin.



Photograph 11: Good semi-improved neutral grassland adjacent to the Essendine Dismantled Railway Embankment LWS.



Photograph 12: Broadleaved plantation woodland in the west of the Site.



Photograph 13: Dense scrub along Essendine Dismantled Railway Embankment LWS.



Photograph 14: Typical dry ditch in south of the Site.



Annex 1. Local Wildlife Sites within 2 km of the Site boundary

Number on Figure 1	Site name	Note/reasons for designation ⁴
1	Carlby/Essendine Verge	Calcareous grassland and Red Data Book species.
2	Essendine, Dismantled Railway Embankment	Stream and Red Data Book species, with scrub and calcareous grassland.
3	Essendine Pit	Red Data Book species present in mesotrophic grassland.
4	Hedge Near North Lodge Farm	Species-rich hedgerow
5	Ryhall/Essendine SE of the Freewards (south side)	Mesotrophic grassland.
6	Ryhall RVNR: Crossroads to the Drift junction (west side)	Transitional calcareous/mesotrophic grassland.
7	Essendine, hedgerow S side MacMillan Way	Species-rich hedgerow.
8	Ryhall verge (B1176): from crossroads to Ryhall Farm Cott track (east side)	Calcareous grassland.
9	The Freewards Woodland Verge (N Side)	Red Data Book species present in mesotrophic grassland.
10	The Drift Verge, Ryhall (North Side)	Calcareous grassland.
11	Essendine Roadside Verge Nature Reserve	Mesotrophic grassland and Red Data Book species.
12	Essendine Verge (NE Side) Near North Lodge Farm	Mesotrophic grassland and Red Data book species.
13	Essendine, Hedgerow N Side Macmillan Way	Species-rich hedgerow.

⁴ From information provided by LRERC and LERC

14	Braceborough Little Wood	
15	New plantation, Braceborough	
16	Banthorpe Wood	
17	Carlby to Aunby Road Verges	
18	Uffington North Road verges	
19	Essendine, Pond In Pit	Pond in disused pit with <i>Potamogeton crispus</i> and <i>Myriophyllum</i> sp.
20	Verge in Ryhall	Calcareous grassland
21	The Drift, Pickworth (south side)	Transitional mesotrophic/calcareous grassland.
22	The Drift Verge, Ryhall (south side)	Calcareous grassland and Red Data Book species.
23	Essendine Verge SE of the Freewards (N Side)	Mesotrophic grassland
24	Ryhall/Essendine hedge SE of the Freewards (south side)	Species-rich hedgerow.
25	The Drift, Pickworth (north side)	Transitional mesotrophic/calcareous grassland and Red Data Book species.
26	Ryhall Verge: The Drift jctn to Ryhall Farm Cott track (west side)	Calcareous grassland.
27	Belmesthorpe Railway	Red Data Book species present in scrub, adjacent to other LWS.
28	Braceborough Great Wood	
29	Shillingthorpe Hall grounds	
30	Essendine Parish Pond	Red Data Book species present in pond.
31	Tolethorpe Oaks and Adj Scrub	No recent survey information
32	Turnpole wood	No recent survey information
33	Aunby Valley	
34	Mill Farm Holywell road verges	
35	Priory Farm, Stamford	

36	Wicker Holt	
37	Monks Wood	
38	Careby Wood	
39	Ryhall Rd hedge SE of Frith Farm (north side)	Species-rich hedgerow.
40	Ryhall Rd hedge SE of Frith Farm (south side)	Species-rich hedgerow.
41	Ryhall Rd hedge SW of Frith Farm (north side)	Species-rich hedgerow.
42	Docksight Wood	
43	Greatford Road Verge (South)	
44	Greatford road verge (North)	
45	Ryhall Rd hedge W of Tolethorpe Mill junction (north side)	Species-rich hedgerow.
46	Little Casterton Hedgerow N Of Tolethorpe Mill (West Side)	Species-rich hedgerow.
47	Little Casterton Hedgerow N Of Tolethorpe Mill (East Side)	Species-rich hedgerow.
48	Tolethorpe Mill Verge	Calcareous grassland
49	Trackside Hedge, to Disused Pit Off Ryhall Rd N	Species-rich hedgerow.
50	Tolethorpe Mill Wet Grassland	Wet grassland, with pond.
51	Tolethorpe, Ryhall Rd Verge	Calcareous grassland.
52	Home Farm	Arable plant community and Red Data Book species.
53	Pickworth Road Rvnr (East) S Of Mounts Lodge	Calcareous grassland and Red Data Book species.
54	Pickworth Road Rvnr (West) S Of Mounts Lodge	Calcareous grassland.
55	Pickworth Road Rvnr East: N Of Mounts Lodge	Transitional mesotrophic/calcareous grassland.

56	Pickworth Road Rvnr West: N Of Mounts Lodge	Mesotrophic grassland.
57	Woodhead and Castle Mound	No recent survey information
58	Little Casterton Verge (East)	Transitional mesotrophic/calcareous grassland.
59	Little Casterton Verge (West)	Transitional mesotrophic/calcareous grassland.
60	Former Limestone Quarry, Stamford	Mesotrophic and wet grassland, ponds, woodland scrub and early successional communities in former quarry; Great Crested Newt; Orchids, Sulphur clover, Narrow-lvd Birdsfoot Trefoil, Grass Vetchling
61	Great Casterton A1-A606 Verge (North)	Calcareous grassland.
62	Great Casterton A1-A606 Verge	Calcareous grassland.
63	Great Casterton Lane Hedgerow, (East Side), Tinwell	Species-rich hedgerow.
64	Hedge Opp the Rookery (East Side) Tinwell	Species-rich hedgerow.
65	Tinwell Roadside Verge (West Side)	Transitional mesotrophic/calcareous grassland and Red Data Book species.
66	Tinwell Roadside Verge (East Side)	Transitional mesotrophic/calcareous grassland and Red Data Book species.
67	Ryhall Rd Hedgerow S Of Ingethorpe (West Side) Tinwell	Species-rich hedgerow.
68	A1 Old Gt N Rd Sliproad, Great Casterton	Calcareous grassland.
69	Field East Of Chapel Field Spinney	Arable field margin; Valerianella dentata, Legousia hybrida
70	Field West Of Chapel Lane Spinney	Arable Field margin; Valerianella dentata, Viola tricolor
71	Tickencote Laund	No recent survey information
72	Empingham Verge (S Of Crossroads Farm) West Side	Calcareous grassland.
73	Empingham Hedge, S Of Cross Roads Farm (W)	Hedgerow

74	Empingham Crossroads to Bloody Oaks Verge	Transitional calcareous/mesotrophic grassland.
75	Empingham Roadside Verge	Calcareous grassland
76	Hedge Near Cross Roads Farm Cottages	Species-rich hedgerow.
77	Grassland In 3-Corner Plantation	Calcareous grassland.
78	Hedge Near Three-Corner Plantation Empingham	Hedgerow
79	Empingham (Bloody Oaks) Roadside Verge Nature Reserve	Calcareous grassland.
80	Rutland County Golf-Club (A1) Verge - South	Calcareous grassland and Red Data Book species.
81	Bloody Oaks	Ancient semi-natural woodland.
82	Golf Club Hedgerow, NW Side Of Road	Species-rich hedgerow.
83	Hedgerow, Empingham Adj Golf Club (SE Side)	Species-rich hedgerow.
84	Rutland County Golf-Club (A1) Verge - North	Transitional calcareous/mesotrophic grassland.
85	Hardwick Wood	No recent survey information
86	The Coppice	No recent survey information
87	Little Oaks Wood	Woodland closely associated with other woodland LWS.
88	Empingham Old (Lane) Wood	Ancient semi-natural woodland, with adjacent plantation.
89	Empingham Old Wood Grassland	Transitional mesotrophic/wet grassland and Red Data Book species.
90	Empingham Old (Keepers) Wood	Ancient semi-natural woodland.
91	Empingham Old (Lodge) Wood	Ancient semi-natural woodland.
92	Empingham Old Wood	Ancient semi-natural woodland.

93	Empingham Rvnr W Of Cross Roads Farm (Both Sides)	Transitional calcareous/mesotrophic grassland.
94	Hedgerow W Of Empingham Old Wood, N Side	Hedgerow
95	Loves Lane Verge (Both Sides), Empingham	Mesotrophic grassland.
96	Empingham Estate Roadside Verge	Calcareous grassland.
97	Exton Rvnr (Crossrds S Exton to Loves Lane Cross Rds - Both Sides)	Calcareous grassland.
98	North Brook Exton Estate	Small stream with Water Vole

Annex 2: Summaries of Relevant Policy, Legislation and Other Instruments

This section briefly summarises the legislation, policy and related issues that are relevant to the main text of the report. The following text does not constitute legal or planning advice.

Overarching National Policy Statement for Energy (EN-1)

The Overarching National Policy Statement for Energy (EN-1) contains several sections specific to ecological impact assessments as pertain to new infrastructure proposals. Text excerpts are included below relevant to this Site.

International Sites

“The most important sites for biodiversity are those identified through international conventions and European Directives. The Habitats Regulations provide statutory protection for these sites but do not provide statutory protection for potential Special Protection Areas (pSPAs) before they have been classified as a Special Protection Area. For the purposes of considering development proposals affecting them, as a matter of policy the Government wishes pSPAs to be considered in the same way as if they had already been classified. Listed Ramsar sites should, also as a matter of policy, receive the same protection” (Section 5.3.9).

There is no further policy guidance on addressing impacts on International Sites, therefore the Habitats Regulations process will be applied as appropriate.

Sites of Special Scientific Interest (SSSIs)

“Many SSSIs are also designated as sites of international importance and will be protected accordingly. Those that are not, or those features of SSSIs not covered by an international designation, should be given a high degree of protection. All National Nature Reserves are notified as SSSIs.

Where a proposed development on land within or outside an SSSI is likely to have an adverse effect on an SSSI (either individually or in combination with other developments), development consent should not normally be granted. Where an adverse effect, after mitigation, on the site’s notified special interest features is likely, an exception should only be made where the benefits (including need) of the development at this site, clearly outweigh both the impacts that it is likely to have on the features of the site that make it of special scientific interest and any broader impacts on the national network of SSSIs. The IPC should use requirements and/or planning obligations to mitigate the harmful aspects of the development and, where possible, to ensure the conservation and enhancement of the site’s biodiversity or geological interest” (Sections 53.10 and 5.3.11).

Regional and Local Sites (including LWS)

“Sites of regional and local biodiversity and geological interest, which include Regionally Important Geological Sites, Local Nature Reserves and Local Sites, have a fundamental role to play in meeting overall national biodiversity targets; contributing to the quality of life and the well-being of the community; and in supporting research and education. The IPC should give due consideration to such regional or local designations. However, given the need for new infrastructure, these designations should not be used in themselves to refuse development consent” (Section 5.3.13).

Ancient Woodland and Veteran Trees

“Ancient woodland is a valuable biodiversity resource both for its diversity of species and for its longevity as woodland. Once lost it cannot be recreated. The IPC should not grant development consent for any development that would result in its loss or deterioration unless the benefits (including need) of the development, in that location outweigh the loss of the woodland habitat. Aged or ‘veteran’ trees found outside ancient woodland are also particularly valuable for biodiversity and their loss should be avoided. Where such trees would be affected by development proposals the applicant should set out proposals for their conservation or, where their loss is unavoidable, the reasons why” (Section 5.3.14).

Biodiversity within Developments

“Development proposals provide many opportunities for building-in beneficial biodiversity or geological features as part of good design. When considering proposals, the IPC should maximise such opportunities in

and around developments, using requirements or planning obligations where appropriate” (Section 5.3.15).

Protection of Habitats and Other Species

“Many individual wildlife species receive statutory protection under a range of legislative provisions.

Other species and habitats have been identified as being of principal importance for the conservation of biodiversity in England and Wales and thereby requiring conservation action¹⁰⁶.

The IPC should ensure that these species and habitats are protected from the adverse effects of development by using requirements or planning obligations. The IPC should refuse consent where harm to the habitats or species and their habitats would result, unless the benefits (including need) of the development outweigh that harm. In this context the IPC should give substantial weight to any such harm to the detriment of biodiversity features of national or regional importance which it considers may result from a proposed development” (Sections 5.3.16 and 5.3.17).

Mitigation

“The applicant should include appropriate mitigation measures as an integral part of the proposed development. In particular, the applicant should demonstrate that:

- during construction, they will seek to ensure that activities will be confined to the minimum areas required for the works;*
- during construction and operation best practice will be followed to ensure that risk of disturbance or damage to species or habitats is minimised, including as a consequence of transport access arrangements;*
- habitats will, where practicable, be restored after construction works have finished; and*
- opportunities will be taken to enhance existing habitats and, where practicable, to create new habitats of value within the site landscaping proposals” (Section 5.3.18).*

National Policy Statement for Renewable Energy Infrastructure (EN-3)

National Policy Statement for Renewable Energy Infrastructure EN3 has some high level recommendations on good design and refers back to EN1, but section 2.4.2 states: *“Proposals for renewable energy infrastructure should demonstrate good design in respect of landscape and visual amenity, and in the design of the project to mitigate impacts such as noise and effects on ecology.”*

National Planning Policy Framework (England)

The Government issued the National Planning Policy Framework (NPPF) in July 2021. Text excerpts from the NPPF are shown where they may be relevant to planning applications and biodiversity including protected sites, habitats and species.

The Government sets out the three objectives for sustainable development (economy, social and environmental) at paragraphs 8-10 to be delivered through the plan preparation and implementation level and ‘are not criteria against which every decision can or should be judged’ (paragraph 9). The planning system’s environmental objective is ‘to protect and enhance our natural, built and historic environment; including making effective use of land, improving biodiversity...’ (paragraph 8c).

In conserving and enhancing the natural environment, the NPPF (Paragraph 174) states that ‘planning policies and decisions should contribute to and enhance the natural and local environment’ by:

- Protecting and enhancing...sites of biodiversity value... ‘(in a manner commensurate with their statutory status or identified quality in the development plan)’.
- Recognising the wider benefits from natural capital and ecosystem services including trees and woodland.
- Minimising impacts on and providing net gains for biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures.

- Preventing both new and existing development from contributing to or being put at unacceptable risk from, or being adversely affected by unacceptable levels of soil, air, water or noise pollution or land instability.

In respect of protected sites, at paragraph 175, the NPPF requires local planning authorities to distinguish, at the plan level, '...between the hierarchy of international, national and locally designated sites; allocate land with the least environmental or amenity value...take a strategic approach to maintaining and enhancing networks of habitats and green infrastructure; and plan for the enhancement of natural capital at a catchment or landscape scale across local authority boundaries.' A footnote to paragraph 175 refers to the preferred use of agricultural land of poorer quality if significant development of agricultural land is to take place.

Paragraph 179 refers to how plans should aim to protect and enhance biodiversity. Plans should: 'identify, map and safeguard components of local wildlife-rich habitats and wider ecological networks, including the hierarchy of international, national and locally designated sites of importance for biodiversity [a footnote refers to ODPM Circular 06/2005 for further guidance in respect of statutory obligations for biodiversity in the planning system], wildlife corridors and stepping stones that connect them and areas identified by national and local partnerships for habitat management, enhancement, restoration or creation;' and to 'promote the conservation, restoration and re-creation of priority habitats, ecological networks and the protection and recovery of priority species; and identify and pursue opportunities for securing measurable net gains for biodiversity.'

Paragraph 180 advises that, when determining planning applications, '...local planning authorities should apply the following principles:

- 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;
- 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;
- 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 and a suitable compensation strategy exists; and
- 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.'

In paragraph 181, the following should be given the same protection as habitats sites:

- potential Special Protection Areas and possible Special Areas of Conservation;
- listed or proposed Ramsar sites; and
- 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.'

In paragraph 182 the NPPF refers back to sustainable development in relation to appropriate assessment and states: 'the presumption in favour of sustainable development does not apply where the plan or project is likely to have a significant effect on a habitats 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'.

In paragraph 183, the NPPF refers to planning policies and decisions taking account of ground conditions and risks arising from land instability and contamination at sites. In relation to risks associated with land remediation account is to be taken of 'potential impacts on the natural environment' that arise from land remediation.

In paragraph 185 the NPPF states that planning policies and decisions should ensure that development is appropriate to the location and take into account likely effects (including cumulative) on the natural environment and, in doing so, they 'should limit the impact of light pollution from artificial light on local amenity, intrinsically dark landscapes and nature conservation' (paragraph 185c).

Government Circular ODPM 06/2005 Biodiversity and Geological Conservation (England only)

Paragraph 98 of Government Circular 06/2005 advises that "the presence of a protected species is a material consideration when a planning authority is considering a development proposal that, if carried out, would be likely to result in harm to the species or its habitat. Local authorities should consult Natural England before granting planning permission. They should consider attaching appropriate planning conditions or entering into planning obligations under which the developer would take steps to secure the long-term protection of the species. They should also advise developers that they must comply with any statutory species' protection provisions affecting the site concerned..."

Paragraph 99 of Government Circular 06/2005⁵ advises that "it is essential that the presence or otherwise of protected species, and the extent that they may be affected by the proposed development, is established before the planning permission is granted, otherwise all relevant material considerations may not have been addressed in making the decision. The need to ensure ecological surveys are carried out should therefore only be left to coverage under planning conditions in exceptional circumstances, with the result that the surveys are carried out after planning permission has been granted".

Standing Advice (GOV.UK - England only)

The GOV.UK website provides information regarding protected species and sites in relation to development proposals: 'Local planning authorities should take advice from Natural England or the Environment Agency about planning applications for developments that may affect protected species.' GOV.UK advises that 'some species have standing advice which you can use to help with planning decisions. For others you should contact Natural England or the Environment Agency for an individual response.'

The standing advice (originally from Natural England and now held and updated on GOV.UK⁶) provides advice to planners on deciding if there is a 'reasonable likelihood' of protected species being present. It also provides advice on survey and mitigation requirements.

When determining an application for development that is covered by standing advice, in accordance with guidance in Government Circular 06/2005, Local planning authorities are required to take the standing advice into account. In paragraph 82 of the aforementioned Circular, it is stated that: 'The standing advice will be a material consideration in the determination of the planning application in the same way as any advice received from a statutory consultee...it is up to the planning authority to decide the weight to be attached to the standing advice, in the same way as it would decide the weight to be attached to a response from a statutory consultee.'

Natural Environment and Rural Communities (NERC) Act 2006 – Habitats and species of principal importance (England)

The Natural Environment and Rural Communities (NERC) Act came into force on 1st October 2006. Section 41 (S41) of the Act require the Secretary of State to publish a list of habitats and species which are of principal importance for the conservation of biodiversity in England. The list has been drawn up in consultation with Natural England as required by the Act. In accordance with the Act the Secretary of State keeps this list under review and will publish a revised list if necessary, in consultation with Natural England.

The S41 list is used to guide decision-makers such as public bodies, including local authorities and utilities companies, in implementing their duty under Section 40 of the NERC Act 2006, to have regard to the conservation of biodiversity in England, when carrying out their normal functions, including development control and planning. This is commonly referred to as the 'Biodiversity Duty.'

⁶ <https://www.gov.uk/guidance/protected-species-how-to-review-planning-applications#standing-advice-for-protected-species>

Guidance for public authorities on implementing the Biodiversity Duty⁷ has been published by Defra. One of the key messages in this document is that 'conserving biodiversity includes restoring and enhancing species populations and habitats, as well as protecting them.' In England the administration of the planning system and licensing schemes are highlighted as having a 'profound influence on biodiversity conservation.' Local authorities are required to take measures to "promote the preservation, restoration and re-creation of priority habitats, ecological networks and the protection and recovery of priority species. The guidance states that 'the duty aims to raise the profile and visibility of biodiversity, clarify existing commitments with regard to biodiversity, and to make it a natural and integral part of policy and decision making.'

In 2007, the UK Biodiversity Action Plan (BAP) Partnership published an updated list of priority UK species and habitats covering terrestrial, freshwater and marine biodiversity to focus conservation action for rarer species and habitats in the UK. The UK Post-2010 Biodiversity Framework⁸, which covers the period from 2011 to 2020, now succeeds the UK BAP. The UK priority list contained 1150 species and 65 habitats requiring special protection and has been used as a reference to draw up the lists of species and habitats of principal importance in England.

In England, there are 56 habitats of principal importance and 943 species of principal importance on the S41 list. These are all the habitats and species found in England that were identified as requiring action in the UK BAP and which continue to be regarded as conservation priorities in the subsequent UK Post-2010 Biodiversity Framework.

European protected species (Animals)

The Conservation of Habitats and Species Regulations 2017 (as amended) consolidates various amendments that have been made to the original (1994) Regulations which transposed the EC Habitats Directive on the Conservation of Natural Habitats and of Wild Fauna and Flora (Council Directive 92/43/EEC) into national law.

"European protected species" (EPS) of animal are those which are shown on Schedule 2 of the Conservation of Habitats and Species Regulations 2017 (as amended). They are subject to the provisions of Regulation 43 of those Regulations. All EPS are also protected under the Wildlife and Countryside Act 1981 (as amended). Taken together, these pieces of legislation make it an offence to:

- a. Intentionally or deliberately capture, injure or kill any wild animal included amongst these species
- b. Possess or control any live or dead specimens or any part of, or anything derived from a these species
- c. deliberately disturb wild animals of any such species
- d. deliberately take or destroy the eggs of such an animal, or
- e. intentionally, deliberately or recklessly damage or destroy a breeding site or resting place of such an animal, or obstruct access to such a place

For the purposes of paragraph (c), disturbance of animals includes in particular any disturbance which is likely—

- a. to impair their ability—
 - i. to survive, to breed or reproduce, or to rear or nurture their young, or
 - ii. in the case of animals of a hibernating or migratory species, to hibernate or migrate; or
- b. to affect significantly the local distribution or abundance of the species to which they belong.

Although the law provides strict protection to these species, it also allows this protection to be set aside (derogated) through the issuing of licences. The licences in England are currently determined by Natural England (NE) for development works and by Natural Resources Wales in Wales. In accordance with the requirements of the Regulations (2017, as amended), a licence can only be issued where the following requirements are satisfied:

⁷ Defra, 2007. *Guidance for Public Authorities on Implementing The Biodiversity Duty*. (<http://www.defra.gov.uk/publications/files/pb12585-pa-guid-english-070516.pdf>)

⁸ JNCC and Defra (on behalf of the Four Countries' Biodiversity Group). 2012. *UK Post-2010 Biodiversity Framework*. July 2012. (<http://jncc.defra.gov.uk/page-6189>)

- a. The proposal is necessary 'to preserve public health or public safety or other imperative reasons of overriding public interest including those of a social or economic nature and beneficial consequences of primary importance for the environment'
- b. 'There is no satisfactory alternative'
- c. The proposals 'will not be detrimental to the maintenance of the population of the species concerned at a favourable conservation status in their natural range.'

Definition of breeding sites and resting places

Guidance for all European Protected Species of animal, including bats and great crested newt, regarding the definition of breeding and of breeding and resting places is provided by The European Council (EC) which has prepared specific guidance in respect of the interpretation of various Articles of the EC Habitats Directive.⁹ Section II.3.4.b) provides definitions and examples of both breeding and resting places at paragraphs 57 and 59 respectively. This guidance states that 'The provision in Article 12(1)(d) [of the EC Habitats Directive] should therefore be understood as aiming to safeguard the ecological functionality of breeding sites and resting places.' Further the guidance states: 'It thus follows from Article 12(1)(d) that such breeding sites and resting places also need to be protected when they are not being used, but where there is a reasonably high probability that the species concerned will return to these sites and places. If for example a certain cave is used every year by a number of bats for hibernation (because the species has the habit of returning to the same winter roost every year), the functionality of this cave as a hibernating site should be protected in summer as well so that the bats can re-use it in winter. On the other hand, if a certain cave is used only occasionally for breeding or resting purposes, it is very likely that the site does not qualify as a breeding site or resting place.'

Competent authorities

Under Regulation 7 of the Conservation of Habitats and Species Regulations 2017 (as amended) a "competent authority" includes "any Minister of the Crown..., government department, statutory undertaker, public body of any description or person holding a public office.

In accordance with Regulation 9, "a competent authority must exercise their functions which are relevant to nature conservation, including marine conservation, so as to secure compliance with the requirements of the [Habitats and Birds] Directives. This means for instance that when considering development proposals a competent authority should consider whether EPS or European Protected Sites are to be affected by those works and, if so, must show that they have given consideration as to whether derogation requirements can be met.

Birds

All nesting birds are protected under Section 1 of the Wildlife and Countryside Act 1981 (as amended) which makes it an offence to intentionally kill, injure or take any wild bird or take, damage or destroy its nest whilst in use or being built, or take or destroy its eggs. In addition to this, for some rarer species (listed on Schedule 1 of the Act), it is an offence to disturb them whilst they are nest building or at or near a nest with eggs or young, or to disturb the dependent young of such a bird.

The Conservation of Habitats and Species Regulations 2017 (as amended) places duties on competent authorities in relation to wild bird habitat. These provisions relate back to Articles 1, 2 and 3 of the EC Directive on the conservation of wild birds (2009/147/EC, 'Birds Directive'¹⁰) (Regulation 10 (3)) requires that the objective is the 'preservation, maintenance and re-establishment of a sufficient diversity and area of habitat for wild birds in the United Kingdom, including by means of the upkeep, management and creation of such habitat, as appropriate, having regard to the requirements of Article 2 of the new Wild Birds Directive...' Regulation 10 (7) states: 'In considering which measures may be appropriate for the purpose of security or contributing to the objective in [Regulation 10 (3)] Paragraph 3, appropriate account must be taken of economic and recreational requirements'.

In relation to the duties placed on competent authorities under the 2017 Regulations, Regulation 10 (8) states: 'So far as lies within their powers, a competent authority in exercising any function [including in relation to town and country planning] in or in relation to the United Kingdom must use all reasonable endeavours to avoid any

⁹ Guidance document on the strict protection of animal species of Community interest under the Habitats Directive 92/43/EEC. (February 2007), EC.

¹⁰ 2009/147/EC Birds Directive (30 November 2009. European Parliament and the Council of the European Union.

pollution or deterioration of habitats of wild birds (except habitats beyond the outer limits of the area to which the new Wild Birds Directive applies).’

Badger

Badger is protected under the Protection of Badgers Act 1992. It is not permitted to wilfully kill, injure, take, possess or cruelly ill-treat a badger, or to attempt to do so; or to intentionally or recklessly interfere with a sett. Sett interference includes disturbing badgers whilst they are occupying a sett, as well as damaging or destroying a sett or obstructing access to it. A badger sett is defined in the legislation as “a structure or place, which displays signs indicating current use by a badger”.

ODPM Circular 06/2005¹¹ provides further guidance on statutory obligations towards badger within the planning system. Of particular note is paragraph 124, which states that “The likelihood of disturbing a badger sett, or adversely affecting badgers’ foraging territory, or links between them, or significantly increasing the likelihood of road or rail casualties amongst badger populations, are capable of being material considerations in planning decisions.”

Natural England provides Standing Advice¹², which is capable of being a material consideration in planning decisions. Natural England recommends mitigation to avoid impacts on badger setts, which includes maintaining or creating new foraging areas and maintaining or creating access (commuting routes) between setts and foraging/watering areas.

Reptiles

All native reptile species receive legal protection in Great Britain under Schedule 5 of the Wildlife and Countryside Act 1981 (as amended). Viviparous lizard, slow-worm, grass snake and adder are protected against killing, injuring and unlicensed trade only. Sand lizard and smooth snake receive additional protection as “European Protected species” under the provisions of the Conservation of Habitats and Species Regulations 2017 (as amended) and are fully protected under the Wildlife and Countryside Act 1981 (as amended).

All six native species of reptile are included as ‘species of principal importance’ for the purpose of conserving biodiversity under Section 41 (England) of the NERC Act 2006 and Section 7 of the Environment (Wales) Act 2016.

Current Natural England Guidelines for Developers¹³ states that ‘where it is predictable that reptiles are likely to be killed or injured by activities such as site clearance, this could legally constitute intentional killing or injuring.’ Further the guidance states: ‘Normally prohibited activities may not be illegal if ‘the act was the incidental result of a lawful operation and could not reasonably have been avoided’. Natural England ‘would expect reasonable avoidance to include measures such as altering development layouts to avoid key areas, as well as capture and exclusion of reptiles.’

The Natural England Guidelines for Developers state that ‘planning must incorporate two aims where reptiles are present:

- To protect reptiles from any harm that might arise during development work;
- To ensure that sufficient quality, quantity and connectivity of habitat is provided to accommodate the reptile population, either on-site or at an alternative site, with no net loss of local reptile conservation status.

Water vole

Water vole is protected under the Wildlife and Countryside Act 1981 (as amended). This makes it an offence to kill, injure or take any water vole, damage, destroy or obstruct access to any place of shelter or protection that the animals are using, or disturb voles while they are using such a place. Water vole is listed as a Species of Principal Importance under the provisions of the NERC Act 2006 in England and under the provisions of the Environment (Wales) Act 2016.

¹¹ ODPM Circular 06/2005. *Government Circular: Biodiversity and Geological Conservation – Statutory Obligations and their Impacts within the Planning System* (2005). HMSO Norwich.

¹² <http://www.naturalengland.org.uk/ourwork/planningdevelopment/spatialplanning/standingadvice/specieslinks.aspx>

¹³ English Nature, 2004. *Reptiles: guidelines for developers*. English Nature, Peterborough. <https://webarchive.nationalarchives.gov.uk/20150303064706/http://publications.naturalengland.org.uk/publication/76006>

Wild mammals in general

The Wild Mammals (Protection) Act 1996 (as amended) makes provision for the protection of wild mammals from certain cruel acts, making it an offence for any person to intentionally cause suffering to any wild mammal. In the context of development sites, for example, this may apply to rabbits in their burrows

Invasive non-native species

An invasive non-native species is any non-native animal or plant that has the ability to spread causing damage to the environment.

Under the Wildlife and Countryside Act 1981 (as amended) it is an offence to release, or to allow to escape into the wild, any animal which is not ordinarily resident in and is not a regular visitor to Great Britain in a wild state or is listed under Schedule 9 of the Act.

It is an offence to plant or otherwise cause to grow in the wild invasive non-native plants listed on Schedule 9 of the Wildlife and Countryside Act 1981 (as amended).

Hedgerows

Article 10 of the Habitats Directive¹⁴ requires that 'Member States shall endeavour...to encourage the management of features of the landscape which are of major importance for wild fauna and flora. Such features are those which, by virtue of their linear and continuous structure...or their function as stepping stones...are essential for the migration, dispersal and genetic exchange of wild species'. Examples given in the Directive include traditional field boundary systems (such as hedgerows).

The aim of the Hedgerow Regulations 1997¹⁵, according to guidance produced by the Department of the Environment¹⁶, is "to protect important hedgerows in the countryside by controlling their removal through a system of notification. In summary, the guidance states that the system is concerned with the removal of hedgerows, either in whole or in part, and covers any act which results in the destruction of a hedgerow. The procedure in the Regulations is triggered only when land managers or utility operators want to remove a hedgerow. The system is in favour of protecting and retaining 'important' hedgerows.

The Hedgerow Regulations set out criteria that must be used by the local planning authority in determining which hedgerows are 'important'. The criteria relate to the value of hedgerows from an archaeological, historical, wildlife and landscape perspective.

¹⁴ Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora.

¹⁵ Statutory Instrument 1997 No. 1160 – The Hedgerow Regulations 1997. HMSO: London

¹⁶ The Hedgerow Regulations 1997: a guide to the law and good practice, HMSO: London

Annex 3. GCN eDNA results

[overleaf]

Folio No: E9927
 Report No: 1
 Purchase Order: P21-135
 Client: BSG ECOLOGY LTD
 Contact: Jamie Peacock

TECHNICAL REPORT

ANALYSIS OF ENVIRONMENTAL DNA IN POND WATER FOR THE DETECTION OF GREAT CRESTED NEWTS (TRITURUS CRISTATUS)

SUMMARY

When great crested newts (GCN), *Triturus cristatus*, inhabit a pond, they continuously release small amounts of their DNA into the environment. By collecting and analysing water samples, we can detect these small traces of environmental DNA (eDNA) to confirm GCN habitation or establish GCN absence.

RESULTS

Date sample received at Laboratory: 05/05/2021
Date Reported: 06/05/2021
Matters Affecting Results: None

Lab Sample No.	Site Name	O/S Reference	SIC	DC	IC	Result	Positive Replicates
4261	Pond 3, Essendine	TF0733 1248	Pass	Pass	Pass	Negative	0
4263	Pond 4, Essendine	TF0735 1245	Pass	Pass	Pass	Negative	0
4264	Pond 5, Essendine	TF0713 1225	Pass	Pass	Pass	Negative	0
4266	Pond 6, Essendine	TF0588 1239	Pass	Pass	Pass	Negative	0
4267	Pond 8, Essendine	TF0590 1287	Pass	Pass	Pass	Negative	0
4268	Pond 1, Essendine	TF0571 1131	Pass	Pass	Pass	Negative	0
4269	Pond 7, Essendine	TF0570 1227	Pass	Pass	Pass	Negative	0



If you have any questions regarding results, please contact us: ForensicEcology@surescreen.com

Reported by: Chris Troth

Approved by: Chris Troth

METHODOLOGY

The samples detailed above have been analysed for the presence of GCN eDNA following the protocol stated in DEFRA WC1067 'Analytical and methodological development for improved surveillance of the Great Crested Newt, Appendix 5.' (Biggs et al. 2014). Each of the 6 sub-sample tubes are first centrifuged and pooled together into a single sample which then undergoes DNA extraction. The extracted sample is then analysed using real time PCR (qPCR), which uses species-specific molecular markers to amplify GCN DNA within a sample. These markers are unique to GCN DNA, meaning that there should be no detection of closely related species.

If GCN DNA is present, the DNA is amplified up to a detectable level, resulting in positive species detection. If GCN DNA is not present then amplification does not occur, and a negative result is recorded.

Analysis of eDNA requires scrupulous attention to detail to prevent risk of contamination. True positive controls, negative controls and spiked synthetic DNA are included in every analysis and these have to be correct before any result is declared and reported. Stages of the DNA analysis are also conducted in different buildings at our premises for added security.

SureScreen Scientifics Ltd is ISO9001 accredited and participate in Natural England's proficiency testing scheme for GCN eDNA testing. We also carry out regular inter-laboratory checks on accuracy of results as part of our quality control procedures.

INTERPRETATION OF RESULTS

- SIC:** **Sample Integrity Check** [Pass/Fail]
When samples are received in the laboratory, they are inspected for any tube leakage, suitability of sample (not too much mud or weed etc.) and absence of any factors that could potentially lead to inconclusive results.
- DC:** **Degradation Check** [Pass/Fail]
Analysis of the spiked DNA marker to see if there has been degradation of the kit or sample between the date it was made to the date of analysis. Degradation of the spiked DNA marker may lead indicate a risk of false negative results.
- IC:** **Inhibition Check** [Pass/Fail]
The presence of inhibitors within a sample are assessed using a DNA marker. If inhibition is detected, samples are purified and re-analysed. Inhibitors cannot always be removed, if the inhibition check fails, the sample should be re-collected.
- Result:** **Presence of GCN eDNA** [Positive/Negative/Inconclusive]
Positive: GCN DNA was identified within the sample, indicative of GCN presence within the sampling



location at the time the sample was taken or within the recent past at the sampling location.

Positive Replicates: Number of positive qPCR replicates out of a series of 12. If one or more of these are found to be positive the pond is declared positive for GCN presence. It may be assumed that small fractions of positive analyses suggest low level presence, but this cannot currently be used for population studies. In accordance with Natural England protocol, even a score of 1/12 is declared positive. 0/12 indicates negative GCN presence.

Negative: GCN eDNA was not detected or is below the threshold detection level and the test result should be considered as evidence of GCN absence, however, does not exclude the potential for GCN presence below the limit of detection.





Mallard Pass

Solar Farm

Mallard Pass Solar Farm

Preliminary Environmental Information Report

Volume 3: Appendices

Appendix 7.2: Ecology and Biodiversity

Assessment Methodology

May 2022

Appendix 7.2: Ecology and Biodiversity Assessment Methodology

1.1. Methodology for the Assessment of Effects

- 1.1.1. The potential effects of the Proposed Development are considered during the construction, operation and decommissioning phases of the Proposed Development.
- 1.1.2. The evaluation and assessment has been undertaken with reference to relevant parts of the 2018 Guidelines for Ecological Impact Assessment in the United Kingdom developed by the Chartered Institute of Ecology and Environmental Management (CIEEM, 2018). Although this is recognised as current best practice for ecological assessment, the guidance itself recognises that it is not a prescription about exactly how to undertake an ecological impact assessment (EclA); rather, it aims to *"provide guidance to practitioners for refining their own methodologies"*.
- 1.1.3. The nature of each impact is characterised with reference (as appropriate) to the following factors:
 - Direction (adverse, beneficial or neutral/negligible);
 - Magnitude (i.e. the 'size' or 'amount' of an impact which is quantified where possible);
 - Extent (area in hectares, linear metres);
 - Duration (in time or related to species life-cycles);
 - Reversibility (i.e. is the effect permanent or temporary); and
 - Timing and frequency (e.g. related to breeding seasons).

Determining the Ecological Significance of Effects

1.1.4. The EclA Guidelines (CIEEM, 2018) states that impacts should be determined as having a significant ecological effect when they have an adverse or beneficial impact on the integrity of a defined site or ecosystem and/or the conservation status of habitats or species within a given geographical area. This constitutes the guiding principle in determining whether an effect is ecologically significant, and if so at what level. The levels used as recommended in the EclA Guidelines are as follows:

- International (Europe);
- National (England);
- Regional (East Midlands);
- County (Leicestershire and Rutland / Lincolnshire);
- District (Rutland / South Kesteven); and
- Site.

1.1.5. In determining the geographical context, the EclA Guidelines recommend that expert judgement is to be applied when identifying the importance of ecological features. Section 4.6 of the EclA Guidelines list the characteristics which contribute to the importance of ecological features and include, inter alia, factors such as the naturalness; rarity of species and habitats and whether they are in decline; habitat connectivity; and habitat diversity.

1.1.6. An effect is determined to be significant or not, in ecological terms, in relation to the integrity of the defined site or ecosystem(s) and/or the

conservation status of habitats or species within a given geographical area, which relates to the level at which it has been valued. If an effect is found to be non-significant at the highest geographical level at which the resource or feature has been valued, it may be significant at a lower geographical level. By way of example, limited impacts on a woodland of county importance might be assessed as being significant at a district level of importance.

- 1.1.7. The integrity of a protected/designated site is defined in relation to guidance given in connection with EC Habitats Directive 92/43/EEC as the coherence of its ecological structure and function across its whole area that enables it to sustain the habitat, complex of habitats and/or the levels of populations of the species for which it was classified.
- 1.1.8. The conservation status for habitats is determined by the sum of the influences acting on the habitat and its typical species that may affect its long-term distribution, structure and functions as well as the long-term survival of its typical species within a given geographical area. The conservation status for species is determined by the sum of influences acting on the species concerned that may affect the long-term distribution and abundance of its populations within a given geographical area.
- 1.1.9. Taking into account the EclA Guidelines (CIEEM, 2018), features of District importance and below are generally considered unlikely to trigger the need for mitigation or to conflict with policy and not significant.