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PRELIMINARY

ECOLOGICAL

APPRAISAL

MEERDYKE SOLAR FARM PRELIMINARY ECOLOGICAL APPRAISAL

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Photodoc

LIST OF ABBREVIATIONS

Bat Conservation Trust	BCT
Biodiversity Net Gain	BNG
Construction Environmental Management Plan	CEMP
Ecological Clerk of Works	ECoW
Ecological Impact Assessment	EcIA
European Protect Species	EPS
Great Crested Newt	GCN
Local Nature Reserves	LNR
Local Wildlife Sites	LWS
Natural England	NE
Norfolk Biodiversity Information Service	NBIS
Multi Agency Geographic Information for the Countryside	MAGIC
Special Areas of Conservation	SAC
Special Protection Areas	SPA
Sites of Special Scientific Interest	SSSI
Preliminary Ecological Appraisal	PEA
Zone of Influence	ZOI

1. INTRODUCTION

1.1 Background

Ramboll UK Limited (Ramboll) was commissioned by Jones Lang LaSalle Ltd (JLL) (the Client), to provide a Preliminary Ecological Appraisal (PEA) of two areas of land east of Wisbech, either side of Harp’s Hall Road, Wisbech (the “Site”) on behalf of Downing Renewable Developments LLP (the Applicant).

The Site is located at national grid reference TF 50368 10343 and is shown on Figure 1 below.

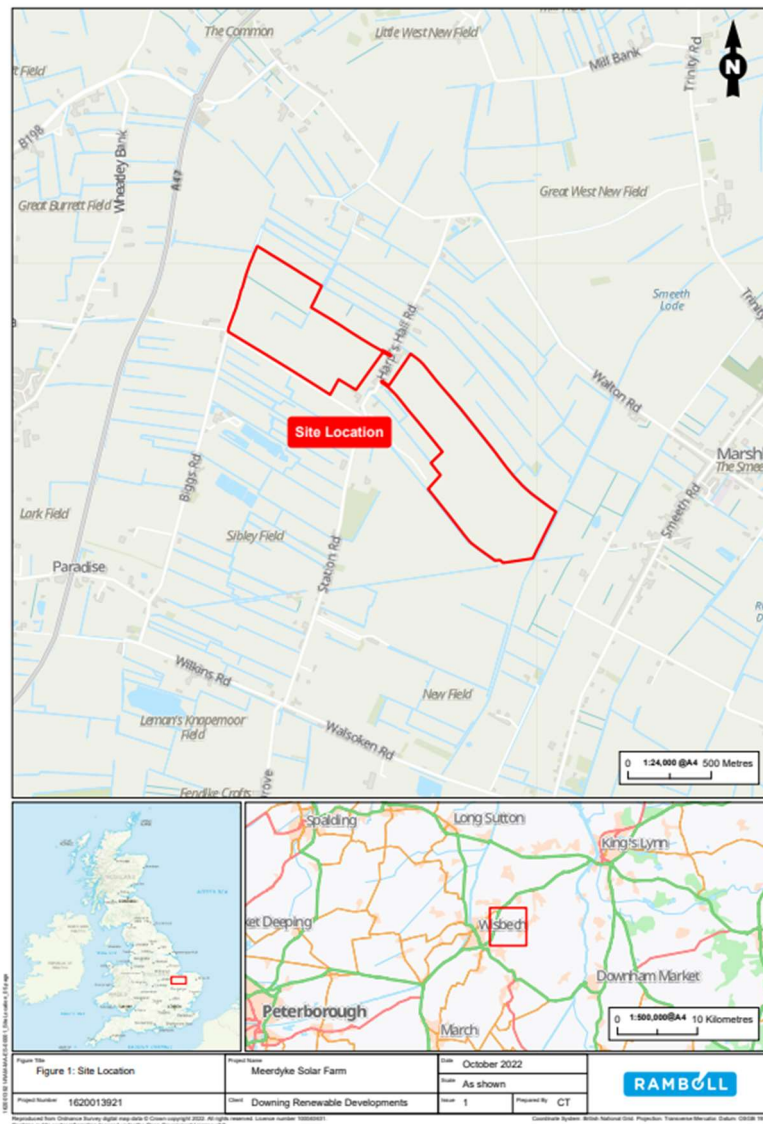


Figure 1: Site location (Reproduced in full in Appendix 1)

1.2 Objectives

The aim of this report is to provide a PEA of the Site (CIEEM, 2017¹). PEA is the term used to describe a rapid assessment of the ecological features present, or potentially present, within a Site and its zone of influence (ZOI). The ZOI is the area over which ecological features may be affected by the biophysical changes caused by demolition of the Site and its associated activities.

¹ CIEEM (2017). Guidelines for Preliminary Ecological Appraisal, Second Edition. Chartered Institute of Ecology and Environmental Management (CIEEM), Winchester

The structure and content of the report is based on current ecological report writing guidance (CIEEM 2017² and BSI Standards Institution 2013³).

The content of this report is based on the findings of:

- a desk study;
- an extended UK Hab survey; and
- a preliminary daytime inspection of trees.

The specific objectives of this report are to:

- assess the potential for the Site to support populations of protected species or species of nature conservation importance⁴;
- record the main habitats and features of ecological interest on the Site;
- assess the overall ecological importance of the Site;
- provide recommendations for any additional further surveys (if required); and
- provide recommendations for the protection of the Site's ecological features during demolition.

The report is supported by the following appendices:

- Appendix 1: Figures;
- Appendix 2: Legislation and Policy Context; and.
- Appendix 3: Photographs.

1.3 Proposed Development

The Site has been proposed for development for a solar farm. This PEA shall contribute towards the design development of the project.

1.4 Legislation and Policy Framework

Various legislation and planning policies refer to the protection of wildlife. These are summarised in Appendix 2 but should not be regarded as a definitive legal opinion. When dealing with individual cases, the full texts of the relevant documents should be consulted, and legal advice obtained if necessary.

² CIEEM (2017) Guidelines on Ecological Report Writing. Chartered Institute of Ecology and Environmental Management, Winchester.

³ BSI Standards Institution (2013). BS 42020:2013. Biodiversity – Code of Practice for Planning and Development. BSI Standards Limited, London.

⁴ The following species are considered to be of nature conservation importance: i) listed as a national priority for conservation (such as those listed as habitats and species of principal importance for the conservation of biodiversity under Section 41 of the Natural Environment and Rural Communities (NERC) Act 2006; ii) listed as a local priority for conservation, for example in the relevant local Biodiversity Action Plan (BAP); iii) assessed as a threatened or near-threatened species according to International Union for the Conservation of Nature (IUCN) red list criteria; iv) Red or Amber Listed species in national Species of Conservation Concern assessments; v) listed as a Nationally Rare or Nationally Scarce species (e.g. in one of the Species Status Project reviews) or a Nationally Notable species where a more recent assessment of the taxonomic group has not yet been undertaken; and/or vi) endemic to a country or geographic location (including endemic sub-species, phenotypes, or cultural behaviours of a population that are unique to a particular place).

2. METHODOLOGY

2.1 Desk Study

The purpose of the desk study was to collect existing baseline data about the Site and the ZOI such as the location of designated sites or other natural features of potential ecological value such as woodland and ponds. The following ZOI has been considered:

- all statutory designated ecological sites up to 2km from the Site, including Special Areas of Conservation (SAC), Special Protection Areas (SPA), Ramsar Sites, National Nature Reserves (NNR), Sites of Special Scientific Interest (SSSI) and Local Nature Reserves (LNR);
- all SACs within a 10km radius of the Site that are designated for bats;
- non-statutory designated sites up to 2km from the Site, including Local Wildlife Sites (LWS); and
- records of European Protected Species licences issued within 2km of the Site.

Norfolk Biodiversity Information Service (NBIS) was contacted to provide the details of the non-designated sites and protected species within 2km of the Site. Due to data ownership restrictions in the reproduction of the NBIS reports, they are not appended to this PEA, but the information provided is summarised in the relevant sections. In addition, the Multi Agency Geographic Information for the Countryside (MAGIC) website⁵ was searched for information on statutory sites. This included a search for European Protected Species licences issued within 2km of the Site. Supplementary information on the application Site and its surroundings were obtained from aerial images available from Google™ Earth.

2.2 Extended UK Hab Survey

An extended UK Hab survey was undertaken by Mark Tarrant (MEECW) of Ramboll on May 6th 2022. Mark has a BSc in Biology and has worked professionally as a consultant ecologist since 2008. The weather during the survey period was warm and sunny with a light wind.

The survey involved a Site walkover and preliminary assessment of key habitats, land use and ecological features. The main habitats present were recorded using standard UK Hab methodology described in the UK Habitat Classification User Manual Version 1.1⁶ and identified the habitats present via the prescribed UK Hab Field Key Version 2.1⁷.

In addition to general habitat classification, a list was compiled of observed plant species (using the nomenclature of Stace, 2010⁸, with common and Latin names referred to in the first instance after which only the common names are used). The abundance of each species was estimated for each habitat respectively using standard 'DAFOR' codes:

- D = Dominant.
- A = Abundant.
- F = Frequent.
- O = Occasional.
- R = Rare.

The Site was assessed for its potential to support protected fauna such as reptiles, amphibians nesting birds and bats. This was in order to identify potential ecological constraints and to guide

⁵ www.magic.gov.uk, accessed 11th July 2018

⁶ Butcher, B., Carey, P., Edmonds, R., Norton, L. and Treweek, J. (2020). The UK Habitat Classification User Manual Version 1.1 at <http://www.UK Hab.org/>

⁷ UK Hab (2020). UK Hab Field Key Version 2.1 at <http://www.UK Hab.org/>

⁸ Stace, C. (2010) *New Flora of the British Isles* 3rd Edition. Cambridge University Press

recommendations for any additional survey requirements (if required) or mitigation for these species, ahead of submitting a planning application for the Site.

2.3 Daytime Evaluation of Trees for Bats

In accordance with the guidance outlined in Bat Surveys for Professional Ecologists: Good Practice Guidelines 3rd edition (Collins, 2016⁹) trees were externally assessed by Mark Tarrant, during the habitat survey in May 2022, for their potential to support bats. Mark has been conducting daytime evaluation of trees for bats as a consultant ecologist since 2008. The following tree features are considered of particular suitability to support roosting bats:

- natural holes;
- woodpecker holes;
- cracks / splits in major limbs;
- loose bark;
- bat, bird or mammal boxes;
- partially detached large-stemmed ivy; and
- other hollows / cavities.

Trees have been classified into a category dependent on the presence of features suitable to support bat roosts. The categories assigned are: Confirmed Roost, High, Moderate, Low and Negligible Potential for use by bats. Table 2.1 provides criteria for each of these categories. In addition, the suitability of the application Site for foraging and commuting bats was assessed.

Table 2.1: Tree Bat Roost Potential Categories	
Roost Potential	Description
Confirmed	A tree that is confirmed to support a bat roost.
High	A tree with one or more potential roost Site that is obviously suitable for use by larger numbers of bats on a regular basis and potentially for longer periods of time due to their size, shelter, protection, conditions and surrounding habitat.
Moderate	A tree with one or more potential roost Site that could be used by bats due to their size, shelter, protection, conditions and surrounding habitat but unlikely to support a roost of high conservation status.
Low	A tree with one or more potential roost Site that could be used by individual bats opportunistically. However, these potential roost Sites do not provide enough space, shelter, protection and / or suitable surrounding habitat to be used on a regular basis or by a large number of bats (i.e. unlikely to be suitable for hibernation or maternity). Trees of sufficient size and age to contain potential roost features but with none seen from the ground or features seen with very limited roosting potential.
Negligible	Negligible habitat features likely to be used by roosting bats and bats very unlikely to be present.
Notes: Category descriptions drawn from Collins (2016)	

2.4 Assessment of Importance of Ecological Features

The importance of ecological features (i.e. designated Sites, habitats and species) identified within the zone of influence has been assessed using a scale that classifies ecological features within a defined geographic context in accordance with CIEEM guidelines (2018¹⁰). The

⁹ Collins, J. (2016). Bat Surveys for Professional Ecologists: Good Practice Guidelines (3rd edition). Bat Conservation Trust (BCT)

¹⁰ CIEEM (2018) Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater and Coastal. Chartered Institute for Ecology and Environmental Management, Winchester.

classification uses recognised and published criteria (e.g. Ratcliffe, 1977¹¹, Wray *et al.* 2010¹²) where the habitats and Site were assessed in relation to their size, diversity, naturalness, rarity, fragility, typicalness, connectivity with surroundings, intrinsic value, recorded history and potential value. The following geographic frame of reference has been adapted for the Site:

- International Importance;
- National Importance (England);
- Regional Importance;
- County Importance;
- Local Importance;
- Site Importance (limited to the application Site boundary); and
- Negligible Importance.

A wide range of sources can be used to assign importance to ecological features, including legislation and policy. In the case of designated Sites, their importance reflects the geographic context of the designation. For example, Sites designated as SACs are recognised as being of importance at an International level. Ecological features not included in legislation and policy may also be assigned importance, due to, for example, local rarity or decline, or provision of a functional role for other ecological features. Professional judgement is used to assign such importance.

2.5 Limitations

It should be noted that availability and quality of the data obtained during desk studies is reliant on third party responses. This varies from region to region and for different species groups. Furthermore the comprehensiveness of data often depends on the level of coverage, the expertise and experience of the recorder and the submission of records to the local recorder. Accordingly, the conclusions in this report are valid only to the extent that the information provided to Ramboll was accurate, complete and available to Ramboll within the reporting schedule.

The extended UK Hab habitat survey provides a snapshot of ecological conditions and does not record plants or animals that may be present on-Site at different times of the year. The survey was undertaken during the optimum April to September survey period when plants are generally visible. If any action has not taken place on this land within twelve months of the date of this report, the findings of this survey should be reviewed by a suitably qualified ecologist and may need to be updated.

It should be noted that under normal circumstances it is not appropriate to submit a PEA in support of a planning application because the scope of a PEA is unlikely to fully meet planning authority requirements in respect of biodiversity policy and implications for protected species. In particular, depending on the proposals for the Site, further protected species surveys may be required, in advance of a planning application being determined. Prior to submitting a planning application the further surveys recommended in Section 5 of this report should be completed, where required, and an Ecological Impact Assessment (EcIA) produced, detailing the results of any further surveys, outlining the impacts of the detailed proposed development on ecological features and making commitments to appropriate mitigation.

¹¹ Ratcliffe, D. (1977) A Nature Conservation Review. Cambridge University Press

¹² Wray, S., Wells, D., Long, E. and Mitchell-Jones, T. (2010) Valuing Bats in Ecological Impact Assessment. In Practice, pp 23-25

3. BASELINE CONDITIONS

3.1 Desk Study

3.1.1 Landscape Context

The Site is located at central grid reference TF 50375 10396 to the east of Wisbech, in a mostly agricultural/horticultural area.

Arable fields surround much of the Site, however there are also two small unmanaged traditional orchards adjacent to the Site, one to the northwest and one to the south. Traditional orchards are listed on the Priority Habitat Inventory (England). There are also some small areas of grazed pasture. The Site is surrounded by a series of drainage ditches that connect to the wider drain network, these offer valuable riparian corridors. The watercourse 'Smeeth Lode' lies to the east of the Site, separated by an access track. Smeeth Lode is a large drain that drains the low lying fenland area from Emneth to Terrington St Clements. Please see figure 2, UK Hab habitat map, below.

3.1.2 Designated Sites

Statutory Sites

There are no statutory designated sites within the Site boundary or within 2km of the Site. The closest SSSI is Islington Heronry SSSI, 8.1km from the Site boundary. Islington Heronry SSSI comprises a small, isolated oak woodland designated for its significant breeding grey heron *Ardea cinerea* population¹³.

The Site falls within the Impact Risk Zone for Islington Heronry SSSI. SSSI Impact Risk Zones are defined zones around each SSSI which reflect the sensitivities of the features for which it is notified and indicate the types of development that could potentially have adverse impacts. The types of development include:

- Infrastructure - Airports, helipads and other aviation proposals;

There are no SAC designated for bats within 10km of the Site. The closest SAC to the Site is Ouse Washes SAC, located 10.7km from the Site boundary and not designated for bats¹⁴.

Non-Statutory Sites

There are no non-statutory sites located within the Site boundary or within a 2km radius of the Site.

Other Habitats

There are no parcels of ancient and semi-natural woodland located within 2km of the Site. There is one ancient, veteran or notable tree within 2 km of the Site boundary. The nearest such tree is a notable beech *Fagus sylvatica* located 1.7 km to the west of the Site.

¹³ Natural England (1984) Islington Heronry SSSI. Available at:

<https://designatedsites.naturalengland.org.uk/PDFsForWeb/Citation/1000618.pdf> (Accessed: 28/04/22).

¹⁴ JNCC (2015) Natura 2000 Standard Data Form – Ouse Washes. Available at: <https://jncc.gov.uk/jncc-assets/SAC-N2K/UK0013011.pdf> (Accessed: 28/04/22).

3.2 Habitats

The following descriptions of habitats should be read in conjunction with Figure 2: Habitats and Protected Species (Appendix 1).

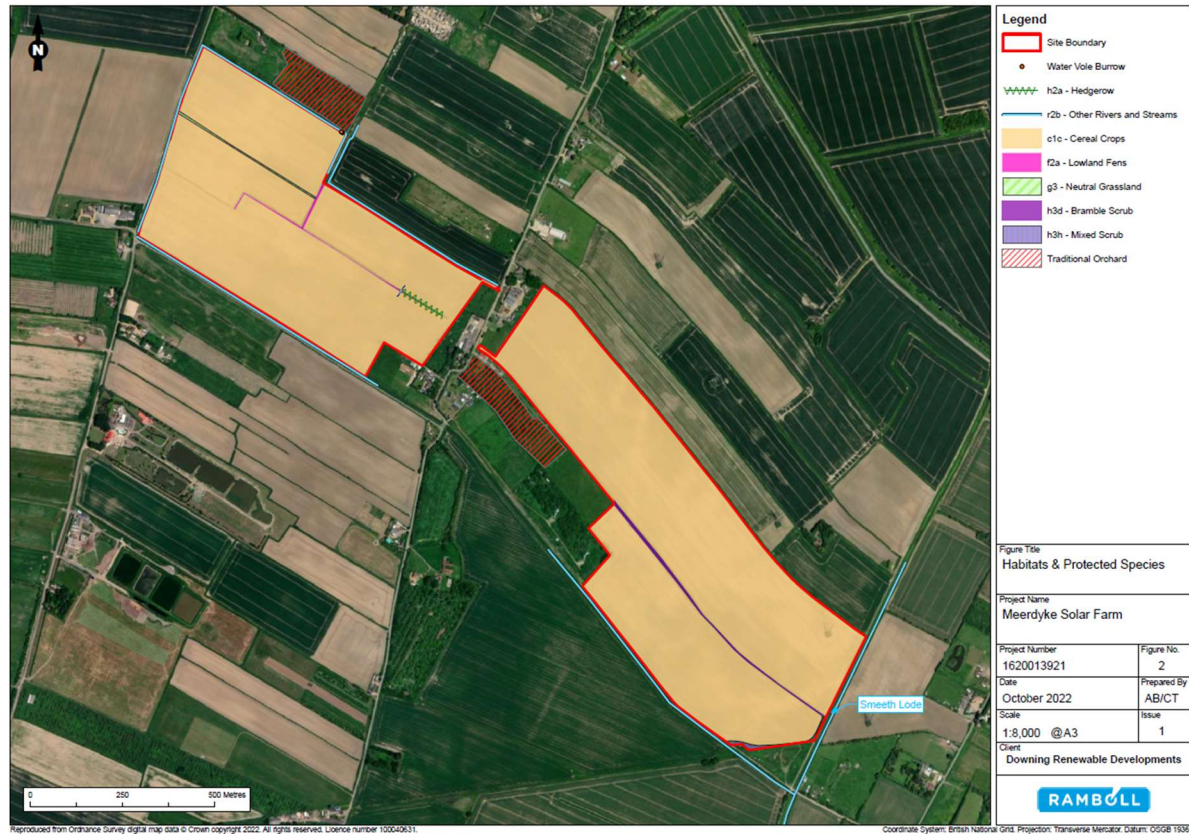


Figure 2: Habitats and Protected Species (reproduced at full size in Appendix 1)

3.2.1 General Site Description

The Site is split into two separate areas totalling approximately 87 ha. These two areas are separated by Harps Hall Road and a small number of residential properties. The Site consists almost entirely of agricultural land, that has recently been prepared and seeded, with associated drainage ditches and one small section of hedgerow.

3.2.2 Arable and Horticulture – Cereal Crops c1c

The majority of the Site has been subject to ground preparation and planting in the recent past, with no crops/vegetation currently showing (Plates 1 – 3). The condition of this habitat is assumed as poor.

3.2.3 Scrub - Bramble Scrub h3d

There is a small area of dense bramble *Rubus fruticosus* scrub in the east of the Site in poor condition. The bramble runs the length of a dry ditch and is interspersed with occasional hawthorn *Crataegus monogyna*. The understorey vegetation consists of nettle *Urtica dioica*, spear thistle *Cirsium vulgare*, broad-leaved dock *Rumex obtusifolius*, and Common hogweed *Heracleum sphondylium*. (Plate 4).

3.2.4 Other neutral grassland G3c

There is a narrow strip of poor condition neutral grassland in the west of the site that represents a boundary between fields, it is approximately 1m at its widest. The area is dominated by a mix

of sweet vernal grass *Anthoxanthum odoratum*, red fescue *Festuca rubra*, perennial rye grass *Lolium perenne*. With occasional nettle *Urtica dioica* and white dead nettle *Lamium album*.

3.2.5 Lowland Fens f2a

A small area of moderate condition lowland fen is present in the western extent of the Site. This habitat follows drains that were dry at time of survey. The area was dominated with common reed *Phragmites australis* with frequent common hogweed *Heracleum sphondylium*, nettle and white dead nettle along the edge of the arable crops.

3.2.6 Hedgerow (Priority habitat) – Native hedgerow associated with bank or ditch

A short section of hedgerow runs along a mostly dry ditch in the northern area of the Site. The hedgerow is of good condition, is unmanaged and is approximately 6m in height by 3m in width. The hedgerow consists solely of hawthorn. (Plate 5).

3.2.7 Other rivers and streams r2b

The Site is bordered on most sides by drainage channels (ditches). These all flow out to connect to Smeeth Lode on the south east boundary of the Site. Common reed dominates the emergent vegetation.

3.3 Species

3.3.1 Invertebrates

NBIS returned no records of invertebrates within 2km of the Site boundary.

The Site provides a very limited amount and range of suitable habitats which may be utilised by invertebrates, such as the scrub, hedgerow and lowland fen. These habitats are widespread in the surrounding area with habitats of higher value also located nearby. It is considered unlikely that the Site would support notable invertebrate assemblages.

3.3.2 Amphibians

NBIS returned 12 records of great crested newt (GCN) *Triturus cristatus* within 2km of the Site boundary, all of which were dated 2006 and found at the same Site approximately 1.5km north of the Site at the closest point. NBIS returned no records of other amphibian species within 2km of the Site.

According to MAGIC, no EPS licenses have been obtained for great crested newt in a 2km radius of the Site.

Great crested newts make use of breeding ponds during the breeding season (March to June), and at other times of year may be present in suitable terrestrial habitats up to 500m from breeding ponds. A visual search using aerial imagery found no ponds on the Site, however seven ponds were identified within 500m of the Site boundary, the closest of which is 233m east of the Site, however this is separated from the site by Smeeth Lode, which represents a barrier to movement. The six remaining ponds within 500m of the Site boundary form a course fishing complex that is also separated from the site boundary by a flowing drain.

There is limited terrestrial habitat available on site, restricted to the lowland fen and bramble scrub habitats, which are isolated in an agricultural environment, and which are not associated with and potential refugia/hibernacula.

Given the lack of suitable terrestrial habitat on site, the nature of the water bodies within 500m of Site and the barriers to dispersal, it is therefore considered unlikely that GCN will be present on site.

3.3.3 Reptiles

NBIS returned no records of reptiles within 2km of the Site boundary.

There is a limited amount of habitat present on Site that offers potential for use by reptiles, this is restricted to the scrub and the marginal/inundation vegetation, which is highly isolated in an agricultural environment. This habitat is not associated with any potential refugia/hibernacula features and it is therefore considered unlikely that reptiles will be present on Site.

3.3.4 Birds

NBIS returned several records of birds within 2 km of the Site boundary including green sandpiper *Tringa ochropus*, turtle dove *Streptopelia turtur*, fieldfare *Turdus pilaris*, song thrush *Turdus philomelos*, spotted flycatcher *Muscicapa striata* and house sparrow *Passer domesticus*.

The scrub, hedgerows and ditches could provide both foraging and nesting habitat for a range of common farmland, wetland and garden birds, albeit in low numbers. All wild birds are protected from being killed, injured or captured, while their nests and eggs are protected from being damaged, destroyed or taken under the Wildlife and Countryside Act 1981 (as amended).

The Site is in the impact risk zone for Islington Heronry, a 1.3 ha site consisting of a stand of mature oaks *Quercus sp.* surrounded by fenland, that holds the largest colony of breeding grey heron *Ardea cinerea*, with about 80 nests occupied each year, with the surrounding dykes providing ideal feeding conditions for the birds. The ditches present on the Site, and the adjacent Smeeths Lode, present suitable foraging habitat for grey heron, however these are unlikely to be impacted by the development and are a common feature through the wider landscape. There is no suitable grey heron nesting habitat on site.

3.3.5 Bats

According to MAGIC, no EPS licenses have been obtained for bats in a 2km radius of the Site.

There are no SACs where bats are mentioned in the citation within a 10km radius of the Site, as detailed in section 3.1.2. NBIS returned numerous records for bats within a 5km radius of the Site. Additionally, NBIS returned several cross-boundary bat records from Cambridgeshire, as the Site lies within 5km of the Norwich – Cambridgeshire border. In total, NBIS returned 51 records for common pipistrelle *Pipistrellus pipistrellus*, 35 for soprano pipistrelle *Pipistrellus pygmaeus*, 29 for brown long-eared bats *Plecotus auritus*, six for Daubenton's bat *Myotis daubentonii*, 2 for Natterer's bat *Myotis nattereri*, two for serotine *Eptesicus serotinus*, seven for noctule *Nyctalus noctula* and 21 for unidentified bat species. The closest record was a brown long-eared bat recorded 230 m east of the Site boundary. Additionally, NBIS returned seven records of Natural England bat roosts within 5km of the Site.

There are no structures present on Site. Those trees that are present on Site consist of the hawthorn hedgerow and do not provide any roost habitat suitable for bats. There is very little in the way of foraging or commuting habitat present on Site. However the Site is bordered in places by traditional orchards and other habitats that offer valuable foraging potential.

All species of bat are protected under Schedule 5 of the Wildlife and Countryside Act 1981 (as amended) and Schedule 2 of The Conservation of Habitats and Species Regulations 2017 (as amended), making all species of bat EPS. The legislation also protects the resting places of bats including roost Sites and it is an offence to intentionally disturb bats occupying places used for shelter or protection.

3.3.6 Badger

Badgers are present within the study area. Full details of badger field signs are provided in the EcIA Report, Appendix 4: Confidential Ecological Report. Badgers are protected under the Badger

Protection Act 1992 due to species persecution by humans. As such, as these results detail the location of setts, results are to remain confidential and not to be made available to the public. Four setts have been identified on Site, therefore, mitigation to prevent disturbance would be required.

3.3.7 Water Vole

NBIS returned no records of water vole *Arvicola amphibius* from within a 2km radius of the Site.

The ditches surrounding the Site are well vegetated and of a good profile and substrate for water vole and are judged to hold water year-round. Those ditches within the Site boundary were dry at the time of survey, as was the ditch on the northern boundary in the east of the Site. The ditches within the Site boundary are therefore considered to be unsuitable to support water vole.

Those ditches on the boundary of the Site however are deemed to be suitable for water vole. In addition, two potential water vole burrows were observed on the north western extent of the Site, indicating the species is present on site.

Water vole is fully protected under Schedule 5 of the Wildlife and Countryside Act 1981 and is listed as principal importance under Section 41 of the NERC Act 2006.

3.3.8 Otter

NBIS returned no records of otter *Lutra lutra* from within a 2km radius of the Site.

There is no potential terrestrial or riparian habitat for otter within the Site. Smeeth Lode, approximately 10m from the eastern edge of the Site, offers some potential for use by otters, however this would most likely be used as a commuting corridor as there are no potential features holt/couch features present.

Otter are protected under Schedule 5 of the Wildlife and Countryside Act 1981 (as amended) and Schedule 2 of The Conservation of Habitats and Species Regulations 2017 (as amended), making them EPS.

3.4 Assessment of Importance of Ecological Features

Table 3.1 presents the ecological importance of habitats present on the Site, in accordance with CIEEM guidance.

Table 3.1: Ecological Importance of Features Present on the Application Site (in accordance with CIEEM Guidelines)		
Feature	Ecological Importance	Rationale
Arable and Horticultural – Cereal Crops	Site Level	The cereal crops have a limited contributions the biodiversity value of the Site.
Other neutral grassland	Site Level	The small strip of grassland has a limited contribution to the biodiversity value of the Site.
Scrub – Bramble scrub	Site Level	The habitat provides foraging habitat for a range of species. The bramble scrub has potential to be used by nesting birds.
Hedgerow (Priority habitat)	Local Level	The hawthorn hedgerow present is a small and isolated section surrounded by arable crops. As such it offers limited use for protected species on Site, with the exception of potential nesting habitat.

Table 3.1: Ecological Importance of Features Present on the Application Site (in accordance with CIEEM Guidelines)		
Invertebrates	Negligible	The habitats on-Site are common in the surrounding areas, of limited use to invertebrates and, as such, are unlikely to support notable invertebrates. Invertebrates are not considered further.
Great Crested Newt	Negligible	There are no water bodies present on Site and only very small areas of terrestrial habitat present. The Site is also bounded on most sides by flowing ditches, presenting partial barriers to movement. As such GCN are deemed as unlikely to present on Site and are not considered further.
Reptiles	Negligible	There is only a small area of habitat present on Site that would be of potential use to foraging reptiles comprising scrub and the marginal/inundation vegetation Further details are outlined under section 4.
Birds	Site level	Small areas of habitat capable of supporting a small population of birds for both foraging and nesting are present.
Bats	Negligible	There is limited potential for bats to be present on Site, there is however good habitat present adjacent to the Site. As such precautionary measures will be required and are outlined in section 4.
Hazel Dormouse	Negligible	There is no habitat present on Site suitable for use by dormouse. As such they are not considered further.
Badger	Local level	Information on Bader can be found in the EcIA Report Appendix 4: Confidential Ecological Report.
Water Vole	Site Level	The ditches bounding the Site offer potential for use by water vole. In addition two potential water vole burrows were found in the north west of the Site.
Otters	Negligible	The Site is not suitable to support otter, however there is potential for them to be using Smeeth Lode adjacent to the eastern end of the Site, as such precautionary measures, outlined in section 4 are required.

4. ECOLOGICAL CONSTRAINTS AND RECOMMENDATIONS

This section collates the information gained during the desk study and Extended UK Hab survey and presents potential ecological constraints and makes recommendations for mitigation. It has been prepared in view of the proposed development at the Site.

4.1 Designated Sites

There are no designated sites within 2km of the Site, the closest SSSI is Islington Heronry, 8.1 km from the Site boundary.

4.2 Habitats

The Site has limited habitats present, mostly consisting of arable crops, with some small areas of bramble scrub, grassland and marginal/inundation vegetation. It is recommended that those habitats other than arable crop are retained wherever possible. In particular, to avoid a significant impact to fauna.

Development taking place in close vicinity to any retained vegetation, should include protection measures, including the provision of appropriate protective fencing to prevent trampling of vegetation or inundation by construction and excavated materials. The potential for temporary impacts can be controlled through a Construction Environmental Management Plan (CEMP). This could include dust and pollution control measures to prevent construction impacting the retained habitats.

A Biodiversity Net Gain (BNG) assessment should be undertaken for planning, to evaluate the net gain / loss of habitat biodiversity from the proposed development.

4.3 Reptiles

There is only limited habitat on Site with potential for use by common reptiles, such as slow worm *Anguis fragilis*, grass snake *Natrix natrix* and common lizard *Zootoca vivipara*, all of which is associated with the ditches and boundaries of Site. Whilst it is recommended suitable habitat is retained, the presence of reptiles on Site is not deemed likely, therefore if any areas of suitable habitat need to be removed, it could be possible to undertake the work following precautionary measures:

- Vegetation can be cleared carefully in stages, under the supervision of an ecologist. This should be timed to take place on a warm day at a time of year when reptiles are active e.g. April to early October. This would encourage reptiles (if present) to move of their own accord into adjacent areas, which are spread around the Site boundary and offer similar conditions.
- This method should be described in detail in a CEMP, prior to undertaking the works.

4.4 Birds

If scrub or tree removal was to take place during the bird nesting season (March to August inclusive), there is a risk that active bird nests would be damaged or destroyed during the process. Works in these habitats, including the removal of vegetation, should therefore aim to take place between September and February, which is outside the bird breeding season and would avoid the potential of damaging bird nests. If this is not possible, these habitats should be checked for the presence of nesting birds by an experienced ecologist no more than 48 hours prior to removal. If active bird nests are found, work should stop and a minimum 5m buffer established around the nest until chicks have fledged.

This method should be described in detail in a CEMP, prior to undertaking the works.

Regarding suitability for wintering birds, habitats within and adjacent to the site are considered suitable for a relatively narrow assemblage of wintering birds, although arable fields and adjoining scrub and hedgerows are suitable for use by wintering wader flocks and foraging flocks of other notable species. As such, wintering bird surveys comprising a series of three survey visits (i.e. one per month from December to February inclusive) are recommended to record the wintering bird populations present and identify any potential development impacts and mitigation requirements.

4.5 Bats

No suitable roost features were identified within the Site, however surrounding habitats around the perimeter of the Site, including traditional orchards, possess suitable foraging and commuting habitat. To prevent any impact upon the retained boundary habitats a detailed construction lighting strategy for the Site should be devised to ensure that spillage of artificial light is minimised to off-Site areas. This method should be described in detail in a CEMP, prior to undertaking the works. In addition to complying with building regulations, the lighting scheme for the completed development should be designed following guidelines from the BCT Bats and Lighting in the UK¹⁵. These include:

- using low or high pressure sodium lights or LEDs instead of mercury or metal halide lamps where possible;
- directing lighting to where needed and avoiding spillage, including the use of hoods, cowls, shields etc. to avoid spillage onto areas of vegetation;
- only lighting areas which need to be lit, and using the minimal level of lighting required to comply with building regulations;
- avoidance of light spillage onto off-Site vegetation; and
- using where possible movement sensors or timers on security lighting; and avoiding the use of lamps greater than 150 W.

4.6 Badger

Four badger setts have been identified on Site. Further details on ecological constraints and recommendations for badger can be found in the EcIA, Appendix 4: Confidential Ecological Report.

4.7 Water Vole

Habitat suitable to support water vole has been identified on Site and two potential water vole burrows were also identified on Site. The habitat and features identified are restricted to the boundary of the Site, as such, if a 5m buffer could be established from those ditches identified as being suitable, then works could proceed without further survey, subject to precautionary methods being included within the CEMP. However, should any works be required to encroach upon the ditches, including drain outfalls etc., then further survey will be required.

Surveys should be undertaken with due consideration for the Water Vole Conservation Handbook. Water vole field signs include droppings and latrines, feeding stations, footprints, runways, lawns, burrows and nests.

The optimal period for water vole survey is late April to early October, with peaks of activity typically in May and August. In-line with guidance in the Water Vole Mitigation Handbook, two survey visits for water vole should be undertaken to account for variability in habitat suitability.

¹⁵ Bat Conservation Trust (2018) Bats Artificial Lighting in the UK. Guidance Note 08/18

5. CONCLUSIONS

The extended UK Hab survey and desk study confirmed that the Site is of nature conservation importance up to the Local Level and potentially contains protected species including reptiles, badger, water vole and nesting birds. Table 5.1 summarises the recommendations that should be implemented to attempt to ensure the development is in conformity with protected species legislation and planning regulations.

Table 5.1: Summary of Recommendations		
Receptor	Recommendations	Timings
Habitats and Designated Sites	It is recommended that the lowland fens, bramble scrub and hedgerow habitat is retained on Site where possible as this offers the greatest opportunities for use by protected species on Site.	Prior to works commencing
	A Construction Environmental Management Plan (CEMP) should be developed for the Site.	Prior to works commencing
	A Biodiversity Net Gain assessment should be undertaken for planning, once the landscape details have been defined.	Prior to planning
Reptiles	If any small areas of suitable habitat need to be removed undertake work carefully in stages, under the supervision of an ecologist.	April to early October
Birds	Works to remove vegetation, should take place between September and February, which is outside the bird breeding season and would avoid the potential of damaging bird nests. If this is not possible, these habitats should be checked for the presence of nesting birds by an experienced ecologist no more than 48 hours prior to removal. If active bird nests are found, work should stop and a 5m no-work zone created around the nest.	March to August
Bats	There is limited habitat on Site with potential for use by bats, however there is good habitat on adjacent land. As such a lighting scheme should be designed following guidelines from the BCT Bats and Lighting in the UK for both construction and operation phases. These should be detailed in the CEMP.	Prior to works commencing
Water vole	If works are designed to encroach upon the drains and a buffer cannot be established, water vole surveys are to be conducted to establish presence and determine required mitigation.	April to October
Badger	Details of recommendations on Badger can be found in the EcIA Report, Appendix 4: Confidential Ecological Report.	N/A

APPENDIX 1

FIGURES

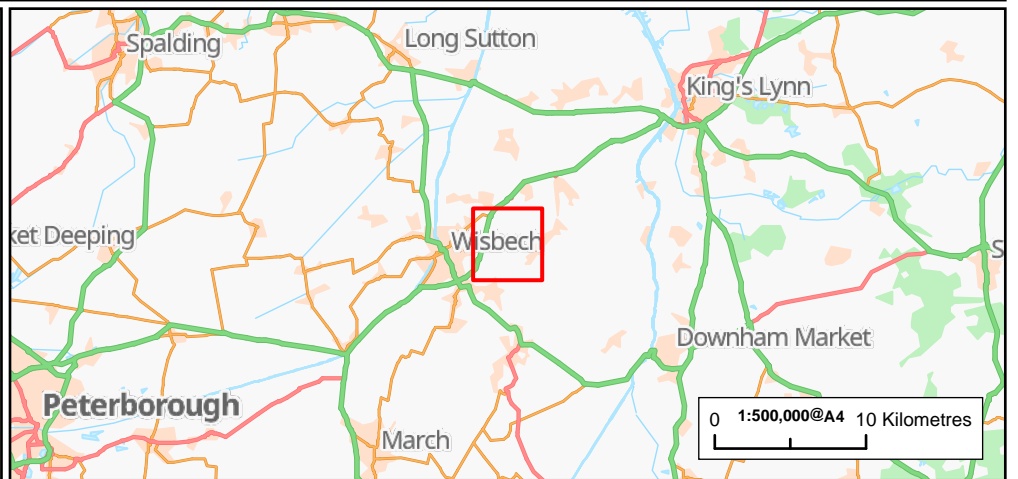
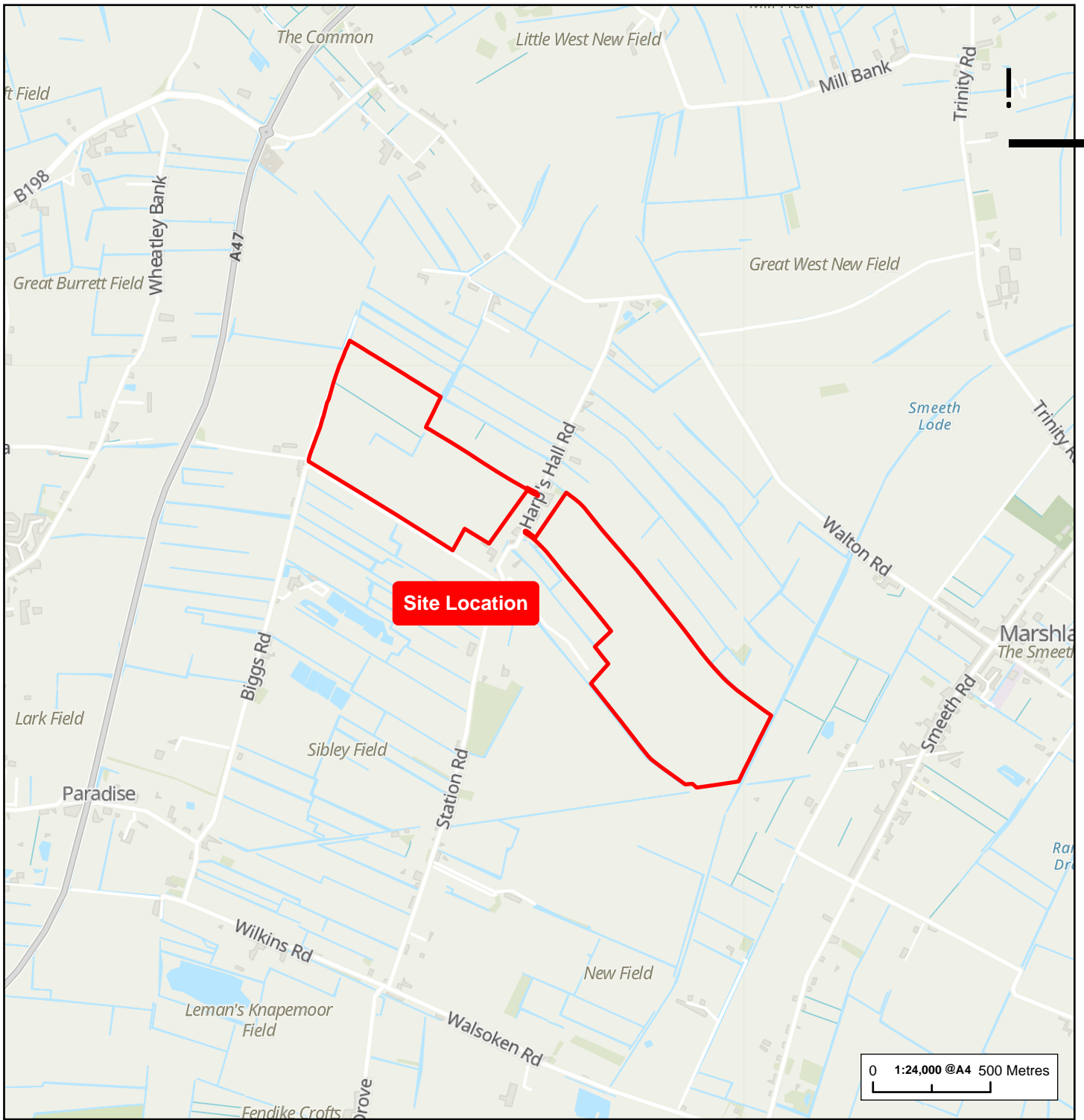


Figure Title Figure 1: Site Location	Project Name Meerdyke Solar Farm	Date October 2022	
		Scale As shown	
Project Number 1620013921	Client Downing Renewable Developments	Issue 1	Prepared By CT




1620013921-RAM-MA-ES-00001_SiteLocation_05.pptx



Legend

- Site Boundary
- Water Vole Burrow
- AAAAA h2a - Hedgerow
- r2b - Other Rivers and Streams
- c1c - Cereal Crops
- f2a - Lowland Fens
- g3 - Neutral Grassland
- h3d - Bramble Scrub
- h3h - Mixed Scrub
- Traditional Orchard

Figure Title	
Habitats & Protected Species	
Project Name	
Meerdyke Solar Farm	
Project Number	Figure No.
1620013921	2
Date	Prepared By
October 2022	AB/CT
Scale	Issue
1:8,000 @ A3	1
Client	
Downing Renewable Developments	
	

1620013921-RAM-MA-ES-00002_Habitats&ProtectedSpecies_07.pagx

APPENDIX 2

RELEVANT LEGISLATION AND POLICY

Ecological features are protected under various United Kingdom (UK) and European legislative instruments. These are described below. European legislation is not included as it is incorporated in UK legislation by domestic provisions.

The Conservation of Habitats and Species Regulations, 2017 (as amended)

The Habitats Directive (Council Directive 92/43/EEC)¹⁶ came into force in 1992 and provides for the creation of a network of protected wildlife areas across the European Union, known as 'Natura 2000'. The Natura 2000 network consists of Special Areas of Conservation (SACs) designated under the Habitats Directive and Special Protection Areas (SPAs) designated under the Birds Directive (Council Directive 79/409/EEC)¹⁷. These Sites are part of a range of measures aimed at conserving important or threatened habitats and species.

The Conservation of Habitats and Species Regulations 2017¹⁸ commonly known as 'the Habitats Regulations' transposes the Habitats Directive into national law and set out the provisions for the protection and management of species and habitats of European importance, including Natura 2000 Sites. The 2017 bill consolidated all previous versions of the regulations and subsequent amendments since initial transposition, bringing them all under the single heading, and made a number of minor amendments. It extends to England and Wales, and to a limited extent Scotland and Northern Ireland. In Scotland, the Habitats Directive is transposed through a combination of the Habitats Regulations 2010 (in relation to reserved matters) and the Conservation (Natural Habitats &c.) Regulations 1994. The Conservation (Natural Habitats, &c) Regulations (Northern Ireland) 1995 (as amended) transposes the Habitats Directive in relation to Northern Ireland.

In addition to providing for the designation and protection of Natura 2000 Sites, the Habitats Regulations provide strict protection for plant and animal species as European Protected Species. Derogations from prohibitions are transposed into the Habitats Regulations by way of a licensing regime that allows an otherwise unlawful act to be carried out lawfully for specified reasons and providing certain conditions are met. Under the Habitats Regulations, competent authorities have a general duty, in the exercise of any of their functions, to have regard to the Habitats Directive and Wild Birds Directive including in the granting of consents or authorisations. They may not authorise a plan or project that may adversely affect the integrity of a European Site, with certain exceptions (considerations of overriding public interest).

The Countryside and Rights of Way Act 2000

The Countryside and Rights of Way Act 2000¹⁹ primarily extends to England and Wales. It provides a new statutory right of access to the countryside and modernises the rights of way system, bringing into force stronger protection for both wildlife and countryside.

The Act is divided into five distinct sections, Part III is of relevance to ecology:

Part III - Nature Conservation and Wildlife Protection: The Act details a number of measures to promote and enhance wildlife conservation. These measures include improving protection for Sites of Special Scientific Interest (SSSIs) and increasing penalties for deliberate damage to SSSIs. Furthermore, the Act affords statutory protection to Ramsar Sites which are wetlands designated under the International Convention on Wetlands²⁰.

¹⁶ European Commission (1992) Council Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora. European Commission, Brussels

¹⁷ European Commission (1979) Council Directive 79/409/EEC on the conservation of wild birds, European Commission, Brussels

¹⁸ Secretary of State (2017) The Conservation of Habitats and Species Regulations. Her Majesty's Stationery Office (HMSO)

¹⁹ Secretary of State (2000) The Countryside and Rights of Way Act. HMSO

²⁰ United Nations Educational, Scientific and Cultural Organization (UNESCO) (1971) Convention on Wetlands of International Importance especially as Waterfowl Habitat, as amended in 1982 and 1987. Ramsar, Iran Published in Paris, 1994

Wildlife and Countryside Act 1981, as Amended in Quinquennial Review and by the Countryside and Rights of Way Act 2000 and the Natural Environment and Rural Communities Act 2006

The Wildlife and Countryside Act 1981²¹ forms the basis of much of the statutory wildlife protection in the UK. Part I deals with the protection of plants, birds and other animals and Part II deals with the designation of SSSIs.

This Act covers the following broad areas:

- Wildlife - listing endangered or rare species in need of protection and creating offences for killing, disturbing or injuring such species. Additionally, the disturbance of any nesting bird during breeding season is also noted as an offence, with further protection for species listed on Schedule 1. Measures for preventing the establishment of non-native plant and animal species as listed on Schedule 9 are also provided;
- Nature Conservation - protecting those Sites which are National Nature Reserves (NNR) and SSSI;
- Public Rights of Way - placing a duty on the local authority (normally the County Council) to maintain a definitive map of footpaths and rights of way. It also requires that landowners ensure that footpaths and rights of way are continually accessible; and
- Miscellaneous General Provisions.

The Act is enforced by Local Authorities.

Natural Environment and Rural Communities (NERC) Act 2006

Under the NERC Act 2006²² Section 40, public authorities must show regard for conserving biodiversity in all their actions. Public authorities should consider how wildlife or land may be affected in all the decisions that they make. The commitment to the biodiversity duty must be measured by public authorities.

NERC Act 2006 Section 41 requires the Secretary of State to publish a list of habitats and species that are of principal importance for the conservation of biodiversity in England.

Protection of Badgers Act 1992

The Protection of Badgers Act 1992²³ consolidated previous legislation relating specifically to badgers. This makes it an offence to kill, injure or take a badger, or to damage or interfere with a sett unless a licence is obtained from a statutory authority.

Biodiversity Action Plans

In 1994, Government produced the UK Biodiversity Action Plan (BAP)²⁴, a national strategy for the conservation of biodiversity. This led to the creation of the UK Biodiversity Steering Group, which has listed 1,150 Species Action Plans (SAPs) and 65 Habitat Action Plans (HAPs). Regional and District/Borough BAPs apply the UK BAP at a local level.

From July 2012, the UK Post-2010 Biodiversity Framework²⁵ succeeds the UK BAP and Conserving Biodiversity - the UK Approach. This is as a result of a change in strategic thinking following the publication of the Convention on Biological Diversity's Strategic Plan for Biodiversity

²¹ Secretary of State (1981) Wildlife and Countryside Act. HMSO

²² Natural Environment and Rural Communities Act 2006. HMSO

²³ Secretary of State (1992) Protection of Badgers Act 1992. HMSO

²⁴ Her Majesty's Stationery Office, 1994. Biodiversity: The UK Action Plan. London

²⁵ JNCC and Defra (on behalf of the Four Countries' Biodiversity Group), 2012. UK Post-2010 Biodiversity Framework. July 2012. jncc.defra.gov.uk/pdf/UK_Post2010_Bio-Fwork.pdf

2011 - 2020 and its 20 'Aichi targets', at Nagoya, Japan in October 2010, and the launch of the new EU Biodiversity Strategy (EUBS) in May 2011.

The UK Post-2010 Biodiversity Framework constitutes the UK's response to these new 'Aichi' strategic goals and associated targets. The Framework recognises that most work which was previously carried out under the UK BAP is now focussed on the individual countries of the United Kingdom and Northern Ireland, and delivered through each countries' own strategies.

Following the publication of the new Framework, the UK BAP partnership no longer operates. However, many of the tools and resources originally developed under the UK BAP remain of use. The UK list of priority species has been used to help draw up statutory lists of priorities in England, Scotland, Wales and Northern Ireland. For England, this is in line with the NERC Act 2006 Section 41.

National Planning Policy Framework, Adopted 2021

The National Planning Policy Framework (NPPF)^[1] adopted in 2021 sets out the Government's planning policies for England and how these are expected to be applied. The NPPF contains the following statements which are of relevance (not an exhaustive list, but including those of highest relevance):

Section 15, paragraph 179 states that to protect and enhance biodiversity and geodiversity, plans should:

- a) 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; wildlife corridors and stepping stones that connect them; and areas identified by national and local partnerships for habitat management, enhancement, restoration or creation; and
- b) promote the conservation, restoration and enhancement 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.

Section 15, paragraph 180 states that when determining planning applications, local planning authorities should apply the following principles:

- a) if significant harm to biodiversity resulting from a development cannot be avoided (through locating on an alternative Site with less harmful impacts), adequately mitigated, or, as a last resort, compensated for, then planning permission should be refused;
- b) development on land within or outside a Site of Special Scientific Interest, and which is likely to have an adverse effect on it (either individually or in combination with other developments), should not normally be permitted. The only exception is where the benefits of the development in the location proposed clearly outweigh both its likely impact on the features of the Site that make it of special scientific interest, and any broader impacts on the national network of Sites of Special Scientific Interest;
- c) development resulting in the loss or deterioration of irreplaceable habitats (such as ancient woodland and ancient or veteran trees) should be refused, unless there are wholly exceptional reasons and a suitable compensation strategy exists; and
- d) development whose primary objective is to conserve or enhance biodiversity should be supported; while opportunities to improve biodiversity in and around developments should be

[1] Ministry of Housing, Communities and Local Government, 2021. National Planning Policy Framework (NPPF), last updated July 2021. London: HMSO.

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.

It further advises 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.

APPENDIX 3 PHOTODOC



Photo 1: View looking south east across Site



Photo 2: View looking south across Site



Photo 3: Bramble scrub



Photo 4: Hawthorn hedgerow.



Photo 5: Lowland fen habitat.



Photo 6: Smeeth Lode.



Photo 7: Boundary drain



Photo 8: Potential water vole burrow