



# Mallard Pass

Solar Farm

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## **7.0 Ecology and Biodiversity**

### **7.1. Introduction**

- 7.1.1 This chapter of the ES presents the approach and findings of the assessment of potential impacts on Ecology and Biodiversity. The chapter presents the methodology followed and provides a review of the baseline conditions in the vicinity of the Proposed Development and surrounding area. The chapter then presents the results of the assessment and the impact of the Proposed Development on the baseline environment in order to determine the anticipated magnitude of impact and significance of effect. Full details of the Proposed Development are provided within **Chapter 5: Project Description [EN010127/APP/6.1]** of the ES.
- 7.1.2 This assessment takes into account the embedded impact avoidance design measures and management activities when determining the significance of potential effects. The requirement for any further mitigation measures is then described and mitigation and monitoring measures are also considered in the assessment of potential residual effects. The relevant legislation, policy and guidance pertinent to the Ecology and Biodiversity assessment is provided in **Appendix 7.1**, and Consultation Responses are set out at **Appendix 7.3**.
- 7.1.3 A desk-based study was carried out in May 2021 and an additional search (for a wider area) in January 2022 to gather existing records and information on nationally and locally designated sites and protected or otherwise notable species within the 2km of the Order limits in accordance with guidance on Preliminary Ecological Appraisal prepared by CIEEM (2017) **[Ref 7-1]** considering the ecological context and nature of the Proposed Development. The justification for the study is provided in **Appendix 7.2** and the findings of the surveys of the study area can be found within **Appendix 7.4** of this chapter. Information on non-statutory designated sites, protected, notable and invasive species within a 2km radius of the Order

limits was obtained from the Lincolnshire Environmental Records Centre (LRC) and from the Leicestershire and Rutland Environmental Records Centre (LRERC). The Multi-Agency Geographic Information for the Countryside (MAGIC) database (Defra, 2021; accessed in November 2021 and checked and updated as necessary in August 2022) and Natural England's designated site information (November 2021 and checked and updated as necessary in August 2022) were also consulted to establish the wider ecological context of the Order limits and to search for information on internationally important designated sites up to 10km from the Order limits and internationally designated sites for bats within 30km from the Order Limits. Searches for statutory nationally and locally designated sites and the location of European Protected Species licences and great crested newt records within 2km of the Order Limits was also made. Ponds within 500m of the Order limits were identified from maps and examination of aerial photographs as this is the distance within which Natural England requires information on the presence of great crested newts when considering Mitigation licences for this species. The scope of this desk-based exercise was discussed and agreed at an early stage with the relevant stakeholders as shown in the Consultation Responses are set out at **Appendix 7.3**.

- 7.1.4 A suite of detailed site surveys as set out in **Appendix 7.4** has also been undertaken for the Order limits including:
- a. an extended Phase 1 habitat survey (March & April 2021, January 2022 and August 2022);
  - b. water vole *Arvicola amphibius* and otter *Lutra lutra* surveys (July 2021);
  - c. badger *Meles meles* survey (March & April 2021 and January and August 2022);
  - d. breeding bird survey (April, June and July 2021);

- e. wintering bird surveys (November 2021 to March 2022); and
- f. great crested newt *Triturus cristatus* (GCN) surveys (April 2021 and June 2022).

7.1.5 The ecological and biodiversity assessment follows the general approach to undertaking EIA as explained in Chapter 2 of this ES, albeit it has been modified to take account of the main guidance document used when assessing impacts on ecological features, which is the Ecological Impact Assessment (EclA) guidance [Ref 7-2] published by the Chartered Institute for Ecology and Environmental Management (CIEEM) in 2018. The approach to the assessment of the sensitivity of receptors, the magnitude of impacts and the significance of effect in relation to biodiversity is described in **Appendix 7.2**.

7.1.6 The embedded mitigation measures have been considered as part of this assessment, when considering the potential effects of the Proposed Development. These are described in **Chapter 5: Project Description** of the ES, the **Green Infrastructure Strategy Plans** set out within the **outline Landscape and Ecology Management Plan (oLEMP)** [EN010127/APP/7.9], the Works Plans [EN010127/APP/2.2], and the **Design Guidance** as set out in the **Design and Access Statement** [EN010127/APP/7.3]. These include the retention and offsets to landscape and ecological features and designations.

7.1.7 Further embedded mitigation measures include the details set out in the **outline Construction and Environmental Management Plan (oCEMP)** [EN010127/APP/7.6], **outline Operational Environmental Management Plan (oOEMP)** [EN010127/APP/7.7], **outline Decommissioning and Environmental Management Plan (oDEMP)** [EN010127/APP/7.8] and **oLEMP**. These management plans have been prepared and include mitigation measures which are intended to avoid the risks of effects during

the construction and decommissioning phases, such as indirect and direct damage to retained features, direct damage to active bird nests and injury to protected species or damage to the habitat of those species. The assessment of potential effects takes these measures into account.

- 7.1.8 The **oCEMP**, **oOEMP** and **oDEMP** set out the principals of the measures to be implemented. The production of the **oCEMP**, **oOEMP** and **oDEMP**, to be approved by the local planning authority prior to construction and decommissioning commencing (respectively), are secured via the DCO Requirements in the DCO. The **CEMP**, **OEMP** and **DEMP** will include the details of locations of sensitive and retained features and the measures proposed for their protection and measures such as details of appropriate fencing to prevent accidental direct damage and water pollution control measures, seasonal restrictions of certain activities to avoid bird nesting, injury to reptiles and amphibians etc. The **OEMP** will set out measures which will be implemented to ensure work being carried as part of maintenance or repairs does not result impacts to retained features of individuals of protected species. In order to ensure the beneficial effects of the newly created habitats are fully realised, a management regime will be secured through the production and implementation of a **LEMP**, secured through the DCO requirements. The **LEMP** will set out how the newly created and retained habitats onsite will be managed throughout the operational phase of the Proposed Development.

### **Assessment Methodology and Significance Criteria**

- 7.1.9 The EclA Guidelines (CIEEM, 2018) [Ref 7-2] 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 are adapted from the EclA Guidelines (CIEEM, 2018) are as follows:

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

7.1.10 Professional judgement is used to determine if an effect is significant or not 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 not to be 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. Once the potential effects of the Proposed Development have been assessed as per the geographical scale set out above, an effect at District level or below to an ecological feature is considered not significant in terms of the EIA process.

7.1.11 **Appendix 7.2** sets out the assessment methodology used in this chapter.

### **Consultation**

7.1.12 As part of the pre-application process, consultation has been undertaken with Leicestershire County Council (on behalf of Rutland County Council), and Lincolnshire County Council to present the findings of the baseline survey work undertaken and agree the scope of the surveys required to support the DCO Application.

7.1.13 A summary of the consultation undertaken, setting out the main key matters raised by the stakeholders through engagement, response to the Scoping Request and the Preliminary Environmental Information Report along with a description of how and where the relevant matters have been addressed is provided in **Appendix 7.3**.

### **Legislation, Planning Policy and Guidance**

7.1.14 The relevant legislation, policy and guidance pertinent to the Ecology and Biodiversity assessment is provided in **Appendix 7.1**, a summary of which is provided below:

- Legislation
  - Environment Act 2021 **[Ref 7-3]**
  - Natural Environment and Rural Communities (NERC) Act 2006 - Habitats and species of principal importance (England) **[Ref 7-4]**
  - The Conservation of Habitats and Species Regulations 2017 (as amended) **[Ref 7-5]**
  - Wildlife and Countryside Act 1981 (as amended) **[Ref 7-6]**
  - Protection of Badgers Act 1992 (as amended) **[Ref 7-7]**
  - The Town and Country Planning (Environmental Impact Assessment) Regulations 2017 **[Ref 7-8]**
  - The Wild Mammals (Protection) Act 1996 (as amended) **[Ref 7-9]**
- National Policy Statements
  - Overarching National Policy Statement for Energy (NPS EN-1) **[Ref 7-10]**
  - National Policy Statement for Renewable Energy Infrastructure (NPS EN-3) **[Ref 7-11]**



- Draft National Policy Statement for Renewable Energy Infrastructure NPS EN-3 [Ref 7-12]
- National Planning Policy
  - National Planning Policy Framework (NPPF) [Ref 7-13]
- Local Planning Policy
  - South Kesteven Local Plan Policy 2011 – 2036 (2020) [Ref 7-14]
  - Rutland County Council Core Strategy 2011 to 2026 (2011) [Ref 7-15]
- Local Guidance
  - Leicestershire and Rutland Environmental records Centre (2016). Space for Wildlife - Leicester, Leicestershire and Rutland Biodiversity Action Plan [Ref 7-16]

## 7.2. Assumptions and Limitations

7.2.1 A total of 23 ponds were identified within the Order limits or within 500 m of the Order limits (shown in **Figure 7.2**). Of the offsite ponds, seven were not accessed for collection of water samples for analysis for the presence of great crested newt environmental DNA (eDNA) which would confirm the presence of newts. This was because the ponds were located at such a distance from proposed Solar PV Arrays it was considered that adverse effects such as accidental injury or loss of important terrestrial habitat would be highly unlikely to occur.

7.2.2 As part of the badger surveys, the inner parts of larger woodland parcels were not surveyed as they are sufficiently distant (over 25 m) from the proposed areas for the construction of the PV Arrays such that badger setts would not be adversely affected thus avoiding a likely offence being committed. Even if setts are present within these woodlands, fragmentation of badger foraging habitat will be avoided with measures intended to keep

the Proposed Development permeable by creating gaps accessible by badgers in security fencing, such as mammal gates as set out in the **oLEMP**. Due to some areas of dense vegetation, such as hedgerows, there is a potential for setts to have been missed during baseline surveys, but these are only likely to be smaller setts. Additional pre-construction update surveys, as set out in the **oCEMP**, will be carried out for this species, ensuring any new setts or previously concealed setts are identified.

7.2.3 The majority of the baseline habitat surveys were carried out in 2021, with additional surveys in 2022. These are considered to be up to date as no significant changes have occurred. An update visit to the habitats of higher value (such as grassland) has been carried out in August 2022 to ensure the most up to date information was used in this assessment.

7.2.4 Survey data for breeding birds, badger, great crested newt, water vole and otter were largely gathered in 2021, but as no material changes have occurred to habitats within the Order limits, these are considered accurate and up to date.

7.2.5 Fish and aquatic invertebrate surveys were not carried out as the Proposed Development will not result in hydrological changes. The **oCEMP** and **oDEMP** include measures to avoid or reduce the risk of accidental encroachment and degradation to the West Glen River and therefore likely significant effects to fish and aquatic invertebrate species are not anticipated.

### **7.3. Baseline Conditions**

#### **Current Baseline**

7.3.1 This section provides a summary of the ecological baseline. Full details are presented in the Baseline Ecology Report (**Appendix 7.4**).

### ***Designated Sites***

- 7.3.2 No internationally designated sites for bats are present within 30km of the Order limits. The closest is Eversden and Wimpole Woods Special Areas of Conservation (SAC), located over 60km to the south. This is designated for its population of barbastelle bat *Barbastella barbastellus*.
- 7.3.3 Four internationally designated sites are present within 10km of the Order limits:
- a. The Rutland Water Special Protection Area (SPA) and Ramsar Site, which are located approximately 5.6 km to the west of the Order limits but approximately 8.65 km from the Solar PV Site.
  - b. Baston Fen SAC is located 4.46 km north-east of the Order limits.
  - c. Grimsthorpe SAC is located 4.67 km north of the Order limits.
  - d. Barnack Hills and Holes SAC is located 6.8 km south of the Order limits.
- 7.3.4 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.
- 7.3.5 Grimsthorpe SAC and Barnack Hills and Holes SAC are designated for their calcareous grassland communities and are also orchid rich priority sites. Grimsthorpe is also designated for the presence of early gentian.
- 7.3.6 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.

- 7.3.7 Eight nationally important statutory designated sites are present within 2km of the Order limits. All of these sites are Sites of Special Scientific Interest (SSSI), which include Ryhall Pasture and Little Warren Verges SSSI and Newell Wood SSSI, Great Casterton Road Banks SSSI, Tolethorpe Road Verges SSSI, Tickencote Marsh SSSI, Bloody Oaks SSSI and East Wood, Great Casterton SSSI and Clipsham Old Quarry and Pickworth Great Wood SSSI (see **Figure 7.1**)
- 7.3.8 Ryhall Pasture and Little Warren Verges SSSI is directly adjacent to the north-west of the Order limits with only a small section within the Order limits. This area is included in the Order limits to allow subsequent management of the hedgerows. This SSSI includes an area of semi-natural unimproved limestone grassland and features a characteristic calcareous plant community. The Order limits also includes adjacent species-rich roadside verges which fall within Lincolnshire.
- 7.3.9 Newell Wood SSSI is located approximately 340m north-west of the Order limits. 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.
- 7.3.10 Tolethorpe Road Verges SSSI is located 1.5 km from the Order limits, west of Ryhall and comprises the verges on both sides of Ryhall Road north-east of Great Casterton. These verges support species-rich calcareous grassland. The verges in this and other areas have been included in the Order limits to allow management of the adjacent hedgerows which can be undertaken as part of site maintenance activities.

- 7.3.11 The remaining SSSIs are located more than 400m away from the Order limits and further details regarding these sites can be found in **Appendix 7.4**.
- 7.3.12 A total of 71 Local Wildlife Sites (LWS) are located within 2 km of Order limits. Of these, 16 are located within the Order limits. These are:
- a. Carlby/Essendine Verge
  - b. Essendine, Dismantled Railway Embankment
  - c. Hedge Near North Lodge Farm
  - d. Ryhall/Essendine SE of the Freewards (south side)
  - e. Ryhall RVNR: Crossroads to the Drift junction (west side)
  - f. Essendine, hedgerow S side MacMillan Way
  - g. Ryhall verge (B1176): from crossroads to Ryhall Farm Cott track (east side)
  - h. The Freewards Woodland Verge (N Side)
  - i. Essendine Roadside Verge Nature Reserve
  - j. Essendine Verge (NE Side) Near North Lodge Farm
  - k. Essendine, Hedgerow N Side Macmillan Way
  - l. Carlby to Aunby Road Verges
  - m. The Drift Verge, Ryhall (south side)
  - n. Ryhall/Essendine hedge SE of the Freewards (south side)
  - o. Ryhall Verge: The Drift junction to Ryhall Farm Cott track (west side)

p. Belmesthorpe Railway.

### ***Habitats***

- 7.3.13 The majority of the Solar PV Site and the Mitigation and Enhancement Areas consists of arable farmland which is largely in intensive agricultural management for cereals, with the majority of field margins measuring less than 1m in width. Many fields are very large (the largest being over 58ha). The fields support a very low diversity of arable weeds.
- 7.3.14 The arable fields are of low intrinsic ecological value and are not Habitats of Principal Importance (HPI) for the conservation of biodiversity in England as defined by the Natural Environment and Rural Communities (NERC) Act 2006 (as amended). The intense nature of the agricultural practice and very limited margins mean they are not considered to be ecologically valuable and are not HPIs.
- 7.3.15 Areas of grassland are present across the Order limits, predominantly forming margins to arable fields. Improved grassland areas are dominated by perennial rye grass *Lolium perenne* with very few herbs present (predominantly white clover *Trifolium repens* and creeping buttercup *Ranunculus repens*). At the time of the extended Phase 1 habitat survey, these areas were unmanaged and had relatively long sward (averaging approximately 25cm). This grassland does not meet the description of any HPIs.
- 7.3.16 Areas of species-poor, semi-improved grassland are also present across the Order limits, predominantly forming margins to arable fields. These support a slightly higher plant species diversity, and in addition to the species described above, contain grasses such as cock's-foot *Dactylis glomerata*, false oat grass *Arrhenatherum elatius* and red fescue *Festuca rubra*. Herbaceous species include greater plantain *Plantago major*, broadleaved dock *Rumex obtusifolius*, chickweed *Stellaria media*, dandelion

*Taraxacum agg.*, groundsel *Senecio vulgaris*, spear thistle *Cirsium vulgare*, yarrow *Achillea millefolium*, ragwort *Jacobaea vulgaris*, common mouse-ear *Cerastium fontanum* and creeping thistle *Cirsium arvense*. This grassland does not meet the description of any HPis.

7.3.17 More diverse grassland is present in the Order limits along certain arable field margins, road verges and adjacent to the river and in two small fields on either side of the Essendine Dismantled Railway Embankment LWS. This has been assessed as being semi-improved neutral grassland. In addition to the grassland species listed above, additional grass species such as common bent *Agrostis capillaris*, crested dog's-tail *Cynosurus cristatus*, rough meadow grass *Poa trivialis* and tor grass *Brachypodium pinnatum* are also present. Additional herbaceous species include ribwort plantain *Plantago lanceolata*, meadow buttercup *Ranunculus acris*, bladder campion *Silene vulgaris*, field scabious *Knautia arvensis*, common knapweed *Centaurea nigra*, greater knapweed *Centaurea scabiosa* and red clover *Trifolium pratense*. Species indicative of underlying calcareous conditions are present, but nowhere do these become abundant to determine any given location or parcel is calcareous in nature. Due to the relatively low species richness and absence of indicator species for lowland meadows, this grassland does not meet the description of the Lowland Meadows HPI (Maddock, 2011) [Ref 7-17].

7.3.18 There are multiple parcels of woodland adjacent to the Order limits area, some of which are semi-natural broadleaved woodland, but none are within the Order limits. These woodlands are dominated by pedunculate oak and ash *Fraxinus excelsior*; however, silver birch, willow *Salix* sp., hybrid black poplar *Populus x euramericana* and alder *Alnus glutinosa* are present. Most woodland parcels feature a relatively dense understorey, consisting predominantly of hazel *Corylus avellana*, holly *Ilex aquifolium*, elder *Sambucus nigra* and hawthorn *Crataegus monogyna*. The ground flora is relatively diverse, with species including bluebell *Hyacinthoides non-scripta*,

ground ivy *Glechoma hederacea*, dog's mercury *Mercurialis perennis*, lords-and-ladies *Arum maculatum*, wood sorrel *Oxalis acetosella*, ragged robin *Silene flos-cuculi*, spurge laurel *Daphne laureola*, wood anemone *Anemone nemorosa* and foxglove *Digitalis purpurea*. Some of these species are ancient woodland indicator species; however, MAGIC mapping does not identify any of the woodlands close to the Order limits as ancient semi-natural woodland. This woodland meets the definition of the Lowland mixed deciduous woodland HPI (Maddock, 2011) [Ref 7-17] Additional woodland, including ancient woodland and replanted ancient woodland, is present outside of the Order limits, to the north, south and north-west.

- 7.3.19 There are also parcels of plantation woodland which show clear evidence of recent planting (e.g. presence of tree guards, regular lines of young or semi-mature trees) or have been visibly recently planted based on reviewing older aerial imagery. 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. Approximately 0.2ha of plantation woodland adjacent to the eastern part of the Order limits is dominated by planted non-native coniferous trees including spruce *Picea* sp. and fir *Abies* sp. This woodland does not qualify as an HPI.
- 7.3.20 A former railway embankment in the western extent of the Order limits (designated as the Essendine Dismantled Railway Embankment LWS adjacent to Field 19 as shown on **Figure 3.2**) features dense mixed scrub of comparative high species richness. Woody species include hawthorn, blackthorn, field maple *Acer campestre*, holly, elder, hazel, cherry *Prunus* sp., bramble *Rubus fruticosus*, wych elm *Ulmus glabra*, and occasional dog rose *Rosa canina*. The ground flora is diverse with bluebell, dog's mercury, lords and ladies, wood sorrel, and foxglove all present. Other patches of dense scrub are also present across the western half of the Solar PV Site,



these are all species-poor and often dominated by a single species, generally either bramble, hawthorn or blackthorn *Prunus spinosa*. The ground flora within these patches are either non-existent or very sparse and lacking in diversity. This habitat is not an HPI.

- 7.3.21 Most external boundaries and some internal boundaries of the Order limits feature native hedgerows. Some species-rich sections (as shown in **Figure 7.3**) are present with over five woody species per 30m section. These include hawthorn, blackthorn, field maple, holly, elder, hazel, cherry, bramble, wych elm, field elm *Ulmus minor* with occasional dog rose. The majority of hedgerows onsite are species-poor, and formed by one to three woody species, usually blackthorn and/or hawthorn. Many hedgerows across the Order limits feature one or several standard trees, including mature pedunculate oak, beech *Fagus sylvatica*, ash, hybrid black poplar, and various willow species pp. The hedgerow bases, including verges of roads, largely support common species such as lords-and-ladies, dog's mercury, common nettle *Urtica dioica*, cleavers *Galium aparine*, ground-ivy and common hogweed *Heracleum sphondylium*. However, the first two species are indicative of older hedgerows and predominantly only present in the species rich hedgerows. Most hedgerows, particularly in the east of the Order limits, 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. All the hedgerows onsite are considered to meet the description of the Hedgerows HPI.
- 7.3.22 An analysis of aerial imagery and mapping as well as site visits have revealed the presence of 23 ponds onsite or within 500m of the Order limits. There are nine ponds within the Order limits or adjacent to its boundary, with an additional 14 ponds within 500m of the Order limits (see **Figure 7.2**). Of the nine ponds present within the Order limits or on its boundary, six held water. The majority of these ponds are situated at the edge of

pockets of woodland and are heavily shaded, although most ponds have aquatic and marginal vegetation present. These ponds are described in detail under the 'Amphibians' subheading below. All the ponds onsite holding water have the potential to meet the description of the Ponds HPI (Maddock, 2011) [Ref 7-17] based on the presence of aquatic species and water quality parameters.

- 7.3.23 The West Glen River flows through Fields 20, 21, 24 and 26, as indicated on **Figure 3.2**. This watercourse features a natural river channel dominated by marginal vegetation, predominantly common reed *Phragmites australis* and bulrush *Typha latifolia*. Emergent/submerged plants are also present in patches, but a detailed survey was not undertaken to identify these down to species level. The banks of the river comprise of a mosaic of species poor semi-improved grassland, semi-improved neutral grassland, scattered scrub and tall ruderal vegetation. The river has the potential to meet the description of the Rivers HPI (Maddock, 2011) [Ref 7-17] and as a precautionary approach, this has been assessed as being an HPI.
- 7.3.24 A mixture of dry and wet field ditches are present across the Order limits. 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.
- 7.3.25 Small pockets of tall ruderal vegetation are present, particularly in the western extent of the Order limits. These are too small to map 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.
- 7.3.26 The Solar PV Site and Mitigation and Enhancement Areas also includes small areas of bare ground (e.g. access tracks), scattered trees and hard

standing. There are also several farm buildings present as shown on **Figure 7.3**.

- 7.3.27 The Order limits does not support any ancient woodland; however, there are parcels of this located to the north-east adjacent to the Order limits (replanted ancient woodland at Braceborough Little Wood) and north-west, at a distance of approximately 275m (ancient woodland and replanted ancient woodland at Newell Wood).

### ***Protected and notable species***

- 7.3.28 The relevant legislation and policy on protected and notable species is set out in **Appendix 7.1**.

### **Bats**

- 7.3.29 All species of bats are European Protected Species (EPS) and seven species are also Species of Principal Importance (SPIs) and a local Biodiversity Action Plan (BAP) [Ref 7-18] species in Lincolnshire, Leicestershire and Rutland.
- 7.3.30 Numerous records of bats were returned from the LRC and LRERC with at least eight species, as set out in **Appendix 7.4**. Most are relatively common species, though very low numbers of records of barbastelle *Barbastella barbastellus* and whiskered bat *Myotis mystacinus* were also returned.
- 7.3.31 The three buildings in the eastern part of the Order limits are steel-framed structures and do not support potential roost features (PRF) and have negligible suitability for roosting bats.
- 7.3.32 During the extended Phase 1 habitat survey an assessment of potential roost sites and the foraging quality of different habitat for bats was made as set out in Appendix 7.4. A total of 163 field and hedgerow trees across the Order limits were assessed as having at least Low suitability for roosting

bats with smaller trees being of negligible value and not identified in detail within this report. Additionally, mature patches of woodland onsite are likely to contain further trees with roosting opportunities for bats. The intensively-managed arable fields which make up the majority of the Solar PV Site and Mitigation and Enhancement Areas are considered to be of Very Low suitability for foraging bats as they are dominated by a single species crop and are regularly managed with herbicide, and insecticide. The woodlands (particularly areas of mature woodland with large trees) have moderate to high 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, including grass margins. Small pockets of semi-improved neutral grassland also have moderate suitability for foraging, especially where these are associated with hedgerows or other woody features.

7.3.33 Hedgerows and lines of trees (as well as linear scrub features such as the Essendine Dismantled Railway Embankment LWS) and the West Glen River may also provide important commuting routes for bats, especially where they form continuous corridors across the Order limits or between woodland patches, and/or have wide grassland margins.

7.3.34 Trees with bat roost suitability are indicated on **Figure 7.4**.

#### Badgers

7.3.35 Numerous records of badgers were returned from the LRC and LRERC.

7.3.36 The intensively-managed arable fields, which make up the majority of the Solar PV Site and Mitigation and Enhancement Areas are of Low suitability 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.

7.3.37 A total of 19 badger setts were located across the Order limits (these are presented in a confidential figure within **Appendix 7.4** as is standard practice for this type of information). These are predominantly located in field boundaries, at the edges of woodland and in scrub. Of these badger setts, eleven constituted main or annexe setts with at least three entrances, and the remainder comprised likely outlier setts with a single, isolated entrance. Badgers and their setts are provided a high level of protection from cruel or ill treatment and the interference with, blocking, destroying or damaging of setts under the Protection of Badgers Act 1992 **[Ref 7-7]**

#### Hazel Dormouse

7.3.38 Hazel dormouse is an EPS and an SPI and local BAP species in Leicestershire and Rutland.

7.3.39 No records of hazel dormouse were returned from LRC and LRERC and the species is rare in Rutland and Lincolnshire. The hedgerows, woodland and scrub onsite are suitable for the species, but due to the extent of gaps and connectivity, only low numbers are likely to be present if they occur onsite.

#### Water Vole

7.3.40 Water vole *Arvicola amphibius* and their burrows are protected under the Wildlife and Countryside Act 1981 (as amended) which makes it an offence to: kill or injure water voles; damage, destroy or obstruct access to places they use for protection or shelter; and disturb water voles while they occupy such a place. Water vole an SPI and a local BAP species in Lincolnshire and Leicestershire and Rutland.

7.3.41 Several records of the species were returned from LRC and LRERC including for the West Glen River, 40m from the Order limits.

7.3.42 The ditches onsite are unsuitable for water vole with most being dry at the time of the surveys and intensively managed with only narrow margins of

short grassland present and an absence of aquatic vegetation. The West Glen River does, however, provide suitable habitats for the species and evidence of their presence was recorded where the river crosses the Order limits.

7.3.43 A plan indicating the evidence of water vole is provided at **Figure 7.5**.

#### Otter

7.3.44 Otter is an EPS and an SPI and a local BAP species in Lincolnshire and Leicestershire and Rutland.

7.3.45 The LRC and LRERC returned 20 records of otter. The closest record of an otter to the Order limits was an observation approximately 15m north of the Order limits on the West Glen River, west of Carlby in 2009.

7.3.46 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 water vole survey visits; however, this species may be present along this watercourse.

#### Other SPI mammals

7.3.47 Records were returned from LRC and LRERC for other notable mammals including brown hare *Lepus europaeus* (41 records), hedgehog *Erinaceus europaeus* (38) and harvest mouse *Micromys minutus* (three).

7.3.48 Brown hare is present within the Order limits with the species being recorded during the breeding bird surveys, with a peak of 17 individuals. The arable land comprising the majority of the Order limits, as well as smaller parcels of grassland, are suitable habitat for this species. Brown hare is an SPI.

7.3.49 The closest record of a hedgehog returned from the LRC and LRERC to the Solar PV Site was 30m north, to the east of Braceborough Grange, in 2015.

The Solar PV Site and Mitigation and Enhancement Areas have some suitable habitat for hedgehog in the hedgerows, woodland, and grassland therefore this species may be present onsite. Hedgehog is an SPI.

- 7.3.50 The records returned from the LRC and LRERC for harvest mouse are over 40 years old. The intensive arable farmland which dominates the Solar PV Site and Mitigation and Enhancement Areas 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 within the Order limits in small numbers. Harvest mouse is an SPI.
- 7.3.51 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 Solar PV Site and Mitigation and Enhancement Areas along the Drift (information supplied by Tom Tew of Naturespace). This species is an SPI.
- 7.3.52 A number of other mammals are present within the Solar PV Site and Mitigation and Enhancement Areas, include several deer species. However, as several species such as muntjac *Muntiacus reevesi*, are non-native they are not considered to be a valued ecological feature which requires further consideration within the context of this EIA. The native roe deer *Capreolus capreolus* may also be present; however, this is also not considered to be a valued ecological feature that requires further consideration within the context of this EIA as it is a common and widespread species that is not included in any lists that give it a high conservation concern.

### Birds

- 7.3.53 All wild birds, their nests, eggs and young are protected under the Wildlife and Countryside Act 1981 (as amended). There are many species listed as

SPIs (discussed as relevant below). Lincolnshire has a group BAP for farmland birds.

- 7.3.54 A total 1,775 records of birds were returned from the LRC and LRERC. This included records of three species listed in Schedule 1 to the Wildlife and Countryside Act 1981 (as amended) which have the potential to breed onsite: red kite *Milvus milvus*, kingfisher *Alcedo atthis* and barn owl *Tyto alba*. Schedule 1 species are provided additional protection to other breeding birds as they are further protected from disturbance whilst breeding or with dependent young. A further 16 species included in the records, which are SPIs, may also occur within the Order limits: starling *Sturnus vulgaris*, lapwing *Vanellus vanellus*, skylark *Alauda arvensis*, house sparrow *Passer domesticus*, linnet *Linaria cannabina*, yellowhammer *Emberiza citrinella*, song thrush *Turdus philomelos*, yellow wagtail *Motacilla flava*, reed bunting *Emberiza schoeniclus*, turtle dove *Streptopelia turtur*, tree sparrow *Passer montanus*, bullfinch *Pyrrhula pyrrhula*, cuckoo *Cuculus canorus*, corn bunting *Emberiza calandra*, lapwing *Vanellus vanellus* and grey partridge *Perdix perdix*.
- 7.3.55 A total of 48 bird species were recorded during the bird survey as either confirmed or likely breeding onsite. This included a range of ubiquitous SPIs and those typical of farmland, hedgerows, woodland and scrub habitats. Additionally, species which are typically ground-nesting were also recorded including skylark *Alauda arvensis* (58 pairs), lapwing *Vanellus vanellus* (one pair) and yellow wagtail (two pairs). All three are SPIs. Indicative territories of breeding birds are indicated on **Figure 7.6**.
- 7.3.56 The Solar PV Site and Mitigation and Enhancement Areas support 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 (at least 10km), the winter usage of the Order limits by waders and wildfowl is likely to be very limited.

- 7.3.57 The wintering bird surveys carried out have recorded a very limited number of species wintering on the Solar PV Site and Mitigation and Enhancement Areas, 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).
- 7.3.58 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 Order limits, immediately east of the East Coast Mainline 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).
- 7.3.59 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 offsite to the north-east. The remaining three occasions the birds were onsite but these involved one and two birds only. Golden plover (11 individuals) were recorded on one occasion on 10 January 2022 in an arable field in the northern part of the Solar PV Site and Mitigation and Enhancement Areas.
- 7.3.60 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 Order limits, but very low numbers of these species were recorded at other times (nine or fewer individuals). Field 24 (as shown in **Figure 3.2**) at the centre of the Order limits 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).

- 7.3.61 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 Order limits provides support to bird populations using the designated sites and as such is not considered to be functionally linked land to these designated sites. If the Order limits did support functionally linked land that supports the special interest of the Rutland Water SPA then an appropriate assessment under the Habitats Regulations would need to be undertaken. However, as it has been determined through the survey work undertaken that the Order limits does not act as functionally linked land it is considered the Proposed Development would not result in a likely significant effect that would require further consideration. Further details can be found within the Shadow HRA presented in **Appendix 7.5**.

### Reptiles

- 7.3.62 All reptiles are protected under the Wildlife and Countryside Act 1981 (as amended) and SPIs.
- 7.3.63 A total of 43 records of three reptile species from within 2km of the Order limits: common lizard *Zootoca vivipara* (22 records), grass snake *Natrix helvetica* (19) and slow worm *Anguis fragilis* (two). Two records from the LRC and LRERC for common lizard originate from within the Order limits, one adjacent to an isolated patch of woodland in the eastern extent of the Order limits in 2020, and one adjacent to a road in the north-western extent of the Order limits in 1996.

7.3.64 The arable land which dominates the Solar PV Site and Mitigation and Enhancement Areas is of Very Poor suitability for reptiles but some suitable habitat for reptiles is present onsite, predominantly longer and less-managed grassland, such as that which forms the (albeit narrow) field margins to arable fields. The riparian vegetation along the banks of the West Glen River are also suitable for grass snake.

### Amphibians

7.3.65 A total of 34 records of amphibians were returned from the LRC and LRERC, including ten of Great Crested Newt (GCN) and five of common toad *Bufo bufo*. The closest record of a GCN to the Order limits was located approximately 470m north-east of the Site in Braceborough during 2013. The closest record of a common toad was located approximately 350m from the Order limits in Essendine during 2000.

7.3.66 Of the nine ponds within the or adjacent to the boundary of the Order limits (see **Figure 7.2**), 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 Order limits and accessible from the Order limits (Ponds 1 and 2), were surveyed using HSI and eDNA in April 2021. The eDNA surveys of these eight ponds did not return evidence of GCN suggesting they are absent. The potential of these ponds to support great crested newt was also assessed using the Habitat Suitability Index (HSI) assessment methodology which grades the potential of a pond to support great crested newts based on a range of measurable field characteristics and known density of newts in the wider landscape. Five of the ponds were assessed having poor potential to support great crested newts, one was graded as having below average potential, one pond as average potential and one as having Good potential to support great crested newt.

- 7.3.67 Ponds 9 and 10 are located over 250 m from the proposed Solar PV Area and were therefore not subject to further surveys due to the distance involved and the very low likelihood of individuals from these ponds being present in areas to be subject to works.
- 7.3.68 Pond 11 is located within an extensive area of woodland over 770 m from the nearest proposed works, and has therefore not been subject to further work.
- 7.3.69 Pond 12 is 430m from the Order limits and surrounded by good terrestrial habitat. GCN from both these ponds (if present) are unlikely to be using the Order limits.
- 7.3.70 Pond 16 was found to be dry in June 2022, but a pond not present on online mapping was located during this visit and named Pond 21. Pond 15 was also found to not be a pond, but an area used for compost storage and rotting.
- 7.3.71 In total, eDNA surveys were carried out at four offsite ponds in 2022 (Ponds 13, 14, 17, 21) as these varied between 50m and 250m from the Order limits. The pond locations are indicated on **Figure 7.2**. During the sampling work for these surveys, a great crested newt larva was found in Pond 13. The remaining four ponds returned a negative result of the sample analysis.
- 7.3.72 Two new ponds were also located in a garden adjacent to the western extent of the Order limits, Ponds 22 and 23. These were located after the survey season had finished in 2022, but due to the distance to the nearest proposed works (over 250 m), no additional surveys are required.
- 7.3.73 Overall, therefore presence of great crested newt has been confirmed at Pond 13 only, located 80 m from the Order limits.
- 7.3.74 Detailed surveys are not normally carried out for common toad, but the species may be present in the ponds which hold water.

7.3.75 GCN is an EPS and an SPI, while common toad is an SPI.

#### Invertebrates

7.3.76 The LRC and LRERC returned 681 records of 47 invertebrate species within 2km of the Order limits. The Order limits generally offers habitat of poor or very poor value 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. Given that all these habitats (including the West Glen River) are to be retained detailed surveys of invertebrate communities were not carried out as these would have been disproportionate.

#### Plants

- 7.3.77 The LRC and LRERC returned 1,200 records of 251 plant species within 2km of the Order limits. 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*.
- 7.3.78 The majority of the Solar PV Site and Mitigation and Enhancement Area comprises intensively managed (cultivated and sprayed with fertiliser, herbicide and insecticide), species-poor habitats of low or very low value for plant diversity. During the Phase 1 habitat survey and habitat condition surveys for the Biodiversity Net Gain calculation no notable plants or assemblages of plants were recorded. The more mature woodland areas, hedgerows and aquatic habitats may support some notable species. The grassland areas onsite are of very low diversity and considered based on

the surveys described above unlikely to support notable plant communities. The arable land was not noted to support notable arable weeds during the Phase 1 habitat survey. Overall therefore the habitats within the Order limits are highly unlikely to support significant communities of notable plant species.

### **Future Baseline**

- 7.3.79 This section sets out the predicted changes to the baseline conditions which might occur in the timeframe of the Proposed Development's construction and operational period.
- 7.3.80 During the construction phase (up to approximately 2026) in the absence of any of the proposed works for the Order limits, the baseline conditions are likely to remain much the same, bar natural fluctuations of communities of species and habitats, as continued agricultural management of the area would maintain this baseline in broad terms. Nationwide and local trends in population numbers of the species present might be detectable in this timeframe, which is largely a slow decline of many SPIs such as farmland birds. During the predicted operational phase in the absence of the Proposed Development or new positive land management measures the habitats within the Order limits will continue to be managed as arable farmland and as such the slow decline, nationwide and locally, in species populations are likely take effect more substantially. Whether reversal of declines might occur as a result of national efforts or locally implemented measures is difficult to determine, as this will depend upon the incentives provided in future agri-environment schemes and the willingness of the land owner to enter into such agreements.
- 7.3.81 As is set out in **Chapter 2: Overview of EIA Process**, of the ES, the decommissioning assessment is based on an assumption that decommissioning would take place after 40 years of operation, although it is noted that decommissioning could take place prior to or after this timeframe

subject to how the technology is performing at that time. By the time of the decommissioning phase it is difficult to predict what the baseline would be in the absence of the Proposed Development as there are a number of variables that could affect the future baseline such as new agri-environment schemes or a change in farming practice or ownership. It is reasonable to assume the declines in biodiversity will likely continue and climate change effects would interact with the more localised effects of intensive agriculture. This may affect the type of crops grown, the viability of particular tree species in hedgerows and woodlands and the geographical spread of species in response to changed climatic conditions. However, it is anticipated that the land within the Order limits is likely to remain in intensive agricultural production which will limit the extent of natural habitat and consequently the ability of the Order limits to support an increased variety and abundance of biodiversity.

7.3.82 Given the levels of uncertainty with regard to future ecological and biodiversity baselines, the following assessment is carried out against existing baseline information, which differs from the approaches taken in other chapters and that set out in Chapter 2 of the ES.

#### **7.4. Embedded Mitigation**

7.4.1 The **Works Plans** and the Green Infrastructure Strategy Plans within the **oLEMP** include a series of embedded mitigation measures which will be implemented as they have been designed to avoid certain potential adverse effects. The embedded mitigation measures as described within **Chapter 5: Project Description**, of this ES, which include the retention of existing hedgerows and ditches with minimum offsets to these landscape and ecological features and designations, retained agricultural land that will be managed for skylarks, and the provision of 13.9 km of new hedgerow planting and 7.5 km of new tree belt planting, new wet woodland planting, creation of diverse grassland, all of which have been considered as part of

this assessment, when considering the potential effects of the Proposed Development. These minimum offsets and areas for habitat creation/enhancement have been secured through the Works Plans, Design Guidance set out within the Design and Access Statement **[EN010127/APP/7.3]** and the provision of new hedgerow and tree planting is secured through the **oLEMP**.

- 7.4.2 In addition the **oCEMP**, **oOEMP**, **oLEMP** and **oDEMP** include mitigation measures which are intended to reduce the risks of effects during the construction, operation and decommissioning phase. These include using fencing around the Solar PV Site to prevent damage to retained features (such as hedgerows) or to active bird nests and injury to protected species. The mitigation measures set out in the environmental management plans will be monitored by an Ecological Clerk of Works (ECoW) to ensure they have been implemented and adhered to.
- 7.4.3 The CEMP and DEMP will set out the locations of sensitive and retained features and the measures proposed for their protection. The production of the CEMP, OEMP, LEMP and DEMP is secured through the DCO Requirements and approved by the local planning authority prior to construction and decommissioning commencing, respectively. The **oCEMP** and **oDEMP** include measures such as details of appropriate fencing to prevent accidental direct damage and water pollution control measures, seasonal restrictions of certain activities to avoid bird nesting, injury to reptiles and amphibians etc.
- 7.4.4 In order to ensure the beneficial effects of the newly created habitats are fully realised, a management regime will be secured through the production and implementation of a LEMP which is secured through the DCO Requirements and approved by the relevant planning authorities, following consultation with Natural England. The LEMP will set out how the newly



created and retained habitats onsite will be managed throughout the operational phase of the Proposed Development.

7.4.5 Enhancement measures for certain species are also already committed to and included in the **oLEMP**. This includes artificial otter holts, bat and bird boxes.

7.4.6 The assessment presented below considers the potential impact of the Proposed Development taking account of the measures set out in the **oCEMP, oOEMP, oDEMP and oLEMP**.

## **7.5. Potential Effects**

7.5.1 This section describes the potential effects on Ecology and Biodiversity during the construction, operation and decommissioning phases of the Proposed Development considering the existing baseline conditions. For certain features, where the potential impacts are similar or the same at two or more phases (such as construction and decommissioning), these are assessed together. As set out above, the embedded mitigation measures as described within **Chapter 5: Project Description**, of this ES, have been considered as part of the Proposed Development.

### **Designated Sites**

7.5.2 During all phases, due to the nature of the Proposed Development, no direct adverse effects to statutory and non-statutory designated sites outside the Order limits are considered likely. The shadow Habitat Regulations Assessment provided to support this ES (**Appendix 7.5**) sets out the rationale regarding this conclusion with reference to internationally important designated sites. This is based on the distance to the designated sites and the very low likelihood that the Order limits supports habitats which are functionally linked to the designated sites.

- 7.5.3 The nearest internationally important statutory designated sites identified as part of the desk study work are located approximately 4.6km from the Order limits, therefore no direct or indirect impacts would occur. None of the species for which the Rutland SPA is notified occur within the Order limits on a sufficiently regular basis or in significant enough numbers for the area within the Order limits to be considered functionally linked to the SPA and Ramsar sites. Although linked to the West Glen River via the Glen River no impacts on potential supporting habitat for spined loach will occur as the Proposed Development will not directly or indirectly affect the West Glen River.
- 7.5.4 The majority of the other statutory and non-statutory designated sites as set out above (in **Section 7.2**) within and adjacent to the Order limits will not be directly affected and will be retained and bolstered with the minimum offsets (as secured through the **Design Guidance**) to be used for planting of diverse habitats such as wildflower grassland (as described within the **oLEMP**), though some localised cabling and highways work may be necessary. The verges designated as sites have largely been included in the Order limits to allow management of the adjacent hedgerows which can be undertaken as part of site maintenance activities.
- 7.5.5 There will be a loss of approximately 75m of species-rich hedgerow located in the eastern part of the Order limits, and within the Essendine hedgerow south side MacMillan Way LWS, due to the need to increase visibility splays. This LWS includes approximately 480m of this habitat, therefore this would constitute a loss of approximately 15.6% of the LWS. This is considered to be an adverse effect of significance at a District Level.
- 7.5.6 There is a need to create temporary passing points to be used during the construction phase along the Uffington Lane, each being approximately 20m long and 2m wide. These have been sited in as sensitive a way as possible by using existing bare ground and avoiding the need to remove

hedgerows or trees. However, these are located in areas which currently support grassland verges, including LWSs. The LWS impacted would include: Essendine Verge SE of the Freewards (N Side) with one passing point and Essendine Verge (NE Side) Near North Lodge Farm with one passing point. Given the very small size of the passing points, this is likely to constitute at worst an adverse effect of significance at a District level.

- 7.5.7 There is the potential of accidental damage and other indirect effects to the Ryhall Pasture and Little Warren Verges SSSI and Tolethorpe Road Verges SSSI and LWSs, within and adjacent to the Order limits to occur during the construction or decommissioning phases, such as damage by construction vehicles. These will be avoided or reduced to insignificant impacts by the implementation of the measures set out in the **oCEMP** and **oDEMP**.
- 7.5.8 During the operational phase, appropriate hedgerow management will be implemented as set out in the **oLEMP** to increase the value of these habitats, however in the vicinity of designated sites (such as Ryhall Pasture and Little Warren Verges SSSI), this will be implemented in order to maintain the current overall size of hedgerows to avoid adverse effects on designated grasslands through additional shading.
- 7.5.9 Due to the nature of the Proposed Development, construction methodology and associated levels of traffic movements during all phases, no impacts to the SSSIs are likely to occur as a result of noise or air pollution.
- 7.5.10 At the decommissioning phase, the access points created will be still in place, so no direct impacts will occur. It remains to be determined whether passing points as used during construction will be needed. If so, these will be again designed as to minimise impacts through suitable measures to be set out in the DEM.P.

## **Habitats**

### **Construction**

- 7.5.11 As set out above, the extent of the design of the Proposed Development retains the majority of the HPis within the Order limits. The only substantial loss of habitats will be as a result of arable land being replaced with the PV Arrays and associated infrastructure (such as access tracks and fixed plant), permanent grassland underneath the PV Arrays and wildflower grassland in other areas. Areas within the Mitigation and Enhancement Areas will be retained as arable land for the provision of skylark plots. Offsite ancient and ancient replanted woodland will not be subject to any direct effects as it is not located immediately adjacent to or within 50m of the PV Arrays.
- 7.5.12 Other woodland adjacent to the Order limits will also be retained and protected with stand offs of 15m as per the **Design Guidance** which is secured through the DCO.
- 7.5.13 Where arable land is replaced with hard standing (for example access tracks and Solar Stations, this represents a minor loss in terms of ecological value and is likely to be an adverse effect of significance at a Site level only. However, where arable land is replaced with other habitats such as grassland (even in the case of grazed permanent grassland with a moderate species diversity) the effect is likely to be an overall beneficial effect of significance at a District level.
- 7.5.14 There is the potential for retained habitats on and immediately offsite, such as hedgerows, being damaged during the construction phase. This would be an adverse effect on potentially valuable features. However, measures to reduce the risk of accidental encroachment are set out in the **oCEMP** and are secured through the DCO Requirements. With these measures in place,

any accidental encroachment is likely to be avoided or at worst have an adverse effect of significance at the Site level only.

### ***Operation***

- 7.5.15 During the operational phase, the on-site habitats will be managed in accordance with the Landscape and Ecology Management Plan (LEMP) which is secured through the DCO Requirements. No additional adverse effects therefore will arise during the operational phase. The ongoing management of the retained and created habitats within the Order limits will result in an overall beneficial effect on these habitats, likely to be significant at a Site level.

### ***Decommissioning***

- 7.5.16 At the decommissioning phase, certain habitats, such as the grassland areas underneath the PV Arrays, may be removed and returned to arable land resulting in an adverse effect of significance at up to District level. However, this adverse effect is likely to represent only a return to the pre-development baseline conditions within the Solar PV Site (not accounting for potential changes to the baseline which would have occurred during the intervening period in the absence of the Proposed Development, as this would be impossible to do due to the levels of uncertainty regarding future agri-environmental policies and management changes).
- 7.5.17 Any small scale vegetation removal required to facilitate the decommissioning of the Proposed Development will have an adverse effect of significance only at a Site level.
- 7.5.18 There is the potential risk that, at the decommissioning stage, accidental damage to retained habitats might occur as a result of decommissioning activities. Measures to reduce the risk of accidental encroachment are set out in the ***oDEMP***. With these measures in place, any accidental

encroachment will be avoided or at worst have an adverse effect of significance at the Site level only.

### **Protected and Notable Species**

- 7.5.19 This section sets out the potential impacts to protected and notable species at the construction and operation phases based on the current baseline understanding of protected species. However, species are not always sedentary and circumstances onsite can change over time. As such the proposed mitigation set out to avoid or reduce the predicted impacts will need to be reviewed in light of new information that arises from updated surveys, such as for badgers, water vole and otter (set out in this section). However these changes are only likely to be minor due to changes in locations of protected features such as badger setts, rather than wholesale changes to the fundamental findings of this impact assessment.
- 7.5.20 In the absence of future unknown species information at the time of decommissioning, an assessment of the impacts is presented here in so far as possible. As above this is based on the removal of the PV Arrays and associated infrastructure and grassland being returned to arable. As set out in the **oDEMP**, the updated surveys set out in this section for certain features/species will be carried out approximately one year prior to decommissioning and the relevant legislation and policy background at that point in time will be used to inform the necessary mitigation to be set out in the DEMP.

### **Bats**

#### Construction

- 7.5.21 As the Proposed Development will not remove any trees or buildings suitable for roosting bats, hedgerows or other linear features (with the exception of small breaks which would remain unlit) used by commuting or foraging bats and the lighting scheme will be designed to include lighting

which is not continuously lit, no adverse effects will occur on roosting or foraging bats at any phase of the Proposed Development. This **Design Guidance** (secured through the DCO Requirements) was set out at an early stage hence no activity surveys to identify important commuting or foraging areas or detailed assessments of trees or buildings to identify roosts have been carried out.

- 7.5.22 The loss of approximately 75m of species rich hedgerow in the Essendine hedgerow south side MacMillan Way LWS may result in a small loss of a linear feature used for commuting or foraging by bats. Bats will cross over spaces/gaps in linear features, however continuity of linear habitat is also retained by the parallel hedgerow to the south of that being removed, resulting in the continued presence of linear features overall. This at worst is likely to constitute an adverse effect of significance at a Site level only.
- 7.5.23 There is the potential for retained habitats (such as trees) with suitability to support roosting features being damaged during the construction phases due to accidental damage from machinery. Measures to avoid or reduce the risk of accidental encroachment are set out in the **oCEMP**. With these measures in place, any accidental encroachment is likely to be avoided or at worst have an adverse effect of significance at the Site level only.
- 7.5.24 Additional roosting opportunities in the form of 50 bat boxes will also be provided, as set out in the **oLEMP**, which is likely to constitute a beneficial effect of significance at a Site/District level, depending on the species which use them.

#### Operation

- 7.5.25 The Proposed Development will include a number of habitat creation measures which will deliver a range of benefits for bats, including the provision of much more extensive foraging habitats, for example the buffers to the retained hedgerows and ditches onsite, as set out within the **oLEMP**.

This will result in a beneficial effect for these species of significance at up to a District level.

### Decommissioning

- 7.5.26 At the decommissioning stage the proposed habitats underneath the PV Arrays will be returned to arable farmland, which would result in a loss of foraging habitats and would be an adverse effect on bats of significance at up to District level; however, a beneficial effect will have been delivered at the operational phase of the Proposed Development and the adverse effect is likely to represent only a return to the pre-development baseline conditions (not accounting for potential changes to the baseline which would have occurred during the intervening period in the absence of the Proposed Development, as this would be impossible to do due to the levels of uncertainty regarding future agri-environmental policies and management changes).
- 7.5.27 There is the potential for retained habitats (such as trees) with suitability to support roosting features being damaged during the decommissioning phase due to accidental damage from machinery. Measures to avoid or reduce the risk of accidental encroachment are set out in the **oDEMP**. With these measures in place, any accidental encroachment is likely to be avoided or at worst have an adverse effect of significance at the Site level only.

### ***Badgers***

#### Construction and Decommissioning

- 7.5.28 The Proposed Development will retain the habitats of highest value as a foraging resource for badgers, such as woodland and hedgerows. The habitat creation will also benefit the species to some degree by providing grazed grassland in place of arable land, which is likely to constitute a beneficial effect of significance at a Site level.



- 7.5.29 Due to the mobile nature of the species, and the risk of new setts being excavated, updated badger surveys will be carried out prior to the start of the construction phase to identify any additional setts present within or adjacent to the construction areas. The locations of any setts will be considered and if possible they will be retained with an appropriate buffer (indicatively 30m but this would depend on the nature of construction in the vicinity) or, if impacts to these (damage or disturbance) is considered likely, individual setts will be closed under an appropriate licence. The number of setts to be closed will be limited and priority for retention will be given to the more significant setts, such as main setts. Any small losses in terms of setts would be an adverse impact of significance up to Site level.
- 7.5.30 There is the potential for retained setts being damaged during the construction and decommissioning phases due to accidental encroachment. Measures to avoid or reduce the risk of accidental encroachment are set out in the **oCEMP** and **oDEMP**. With these measures in place, any accidental encroachment will be avoided or at worst will have an adverse effect of significance at the Site level only.
- 7.5.31 At the decommissioning phase, there is potential for an adverse impact of badgers, as they are a highly mobile species and may have established new setts within proximity to potential areas of works. The updated surveys which will be carried out to detect any new setts will inform the level of the impacts and the required mitigation, which would be implemented to avoid an adverse effect on the species.

#### Operation

- 7.5.32 Suitable gaps (indicatively 30 x 30cm) will be incorporated into all lengths of security fencing to allow badgers to pass beneath, as set out in the **oLEMP**. This will also benefit other mammals. The habitat creation and enhancements will likely increase the amount of foraging habitat for badgers, including the extent of grassland beneath the PV Arrays (a more

favourable habitat for foraging than arable land), resulting in a beneficial effect of significance at up to District level.

- 7.5.33 The Solar PV Site could include Single Axis Trackers. However these will have an 800 mm ground clearance secured through the Parameters set out in **Appendix 5.1**, and would not result in animals such as badgers (or other animals such as sheep) being trapped.
- 7.5.34 No operational activities have the potential to adversely impact this species.

#### ***Water vole and otter***

- 7.5.35 The retention of the West Glen River and associated habitats will ensure no adverse effects on these species will occur through habitat loss. The internal cable network will be horizontal directional drilled (HDD) underneath the West Glen River so not to impact on the water course or the immediately adjacent habitat.
- 7.5.36 Any works required to the existing crossing point of the West Glen River will be designed so as to allow continued movement through the area by both species (such as by designing bridges with a tall span clear of the water level).

#### **Construction and Decommissioning**

- 7.5.37 There is, however, the potential for habitats which support water vole and otter to be subject to adverse effects as a result either accidental encroachment or habitat degradation during the construction phase. Small scale habitat losses may be required if upgrades to the existing agricultural crossing of the West Glen River are required. Measures to avoid or reduce the risk of accidental encroachment and degradation are set out in the **oCEMP** and **oDEMP**. With these measures in place, any accidental encroachment would be an adverse effect on these species of significance only at a Site level.

7.5.38 Two artificial otter holts will be provided along the West Glen River as set out in the **oLEMP**. This will likely constitute a beneficial effect of significance at a Site level.

7.5.39 As required in the **oDEMP**, updated surveys would be needed to assess the potential effects of any works on these species. In any case, these works are likely to be limited to very small areas and at worst have an adverse effect of significance at the Site level only.

#### Operation

7.5.40 During the operational phase, no operational activities have the potential to significantly adversely affect this species.

#### ***Hazel Dormouse***

#### Construction and Decommissioning

7.5.41 No records of hazel dormouse were returned from the desk based study and the species is rare in Rutland and Lincolnshire. As the Proposed Development essentially only include losses of arable land (not a suitable habitat for dormice) in favour of grassland and the hedgerows, woodland and scrub will be retained and protected from artificial light pollution or additional fragmentation, no additional surveys for hazel dormouse are proposed as no adverse effects are likely to occur to this species at anything but a very small scale (no greater than Site level). Due to the small scale of impacts a European Protected Species (EPS) licence from Natural England is unlikely to be required.

7.5.42 There is the potential for retained habitats suitable for this species being damaged during the construction and decommissioning phases due to accidental encroachment on a very small scale. The **oCEMP** and **oDEMP** include mitigation measures that will avoid an adverse effect.

- 7.5.43 There is a risk, albeit very low, that in the absence of mitigation, any small amounts of habitat clearance may result in the injury of individual dormice or damage to active nests. Measures to reduce these risks are set out in the **oCEMP** and **oDEMP**. With these measures in place, impacts are likely to be limited and at worst have an adverse effect of significance at the Site level only.
- 7.5.44 During the decommissioning phase, the removal of PV Arrays and the grassland underneath would not affect dormice. The removal of associated infrastructure such as cabling is likely to only affect very small areas, which would constitute an adverse effect of a significance at a Site level only. To ensure compliance with legislation any removal of woody vegetation or scrub at the decommissioning phase would need to be reviewed to determine whether a survey for the species will be needed as set out in the **oDEMP**. This will inform the appropriate mitigation, based on the level of removal and licensing requirements at that time.

#### Operation

- 7.5.45 During the operational phase, no operational activities have the potential to impact these species and therefore no adverse impacts to hazel dormouse are likely to occur. Habitat creation within the buffer zones between retained hedgerows and/or ditches and the security fencing surrounding the PV Arrays will likely result in a beneficial effect on this species, if present, of significance at a Site level.
- 7.5.46 Management of new and retained habitats will be carried out in a way which will avoid direct impacts to the species (cutting outside the nesting bird and dormouse active season only) in accordance with the measures set out in the **oLEMP**.

### ***Other SPI Mammals***

- 7.5.47 The Proposed Development will retain and increase the availability of suitable habitat for hedgehog, brown hare and harvest mouse.

#### Construction and Decommissioning

- 7.5.48 There is the potential for retained habitats suitable for these species being damaged during the construction and decommissioning phases due to accidental encroachment. The **oCEMP** and **oDEMP** include mitigation measures that will avoid or limited these effects which worst would have an adverse effect of significance at the Site level only.
- 7.5.49 At the decommissioning phase, any removal of newly created habitats, such as the grassland underneath the PV Arrays, would potentially have a detrimental effect on these species but will represent only a return to the pre-development baseline conditions (not accounting for potential changes to the baseline which would have occurred during the intervening period in the absence of the Proposed Development, as this would be impossible to do due to the levels of uncertainty regarding future agri-environmental policies and management changes).

#### Operation

- 7.5.50 The small (30 x 30 cm) gaps created in the security fencing (as set out for badger above and the **oLEMP**) will continue to provide access to the Solar PV Site for brown hare and hedgehog, both of which will benefit from the provision of permanent grassland underneath the PV Array in the place of arable land. For these species the Proposed Development will therefore likely result in a beneficial effect of significance at up to District level.
- 7.5.51 Any habitat creation within the minimum offsets to landscape and ecological features and designations, i.e. between retained hedgerows and/or ditches and the security fencing surrounding the PV Arrays (secured through the

**Works Plans** and **Design Guidance**) will likely benefit a range of other larger mammals including roe deer.

- 7.5.52 The Solar PV Site could include Single Axis Trackers. However, these will have a minimum 800 mm ground clearance, as set out in the parameters in **Appendix 5.1** and would not result in animals such as brown hare or hedgehog being trapped.
- 7.5.53 During the operational phase, no operational activities have the potential to impact these species and therefore no adverse impacts are likely to arise during the operational phase.

### ***Birds***

- 7.5.54 The majority of the breeding bird interest within the Order limits is currently supported by the habitats of higher value for birds, such as hedgerow, scrub and woodland, as opposed to the dominant habitat which is arable land. The higher value habitats are to be retained and enhanced within the Solar PV Site, such as by reducing the intensity of hedgerow management (as set out in the **oLEMP**).

### Construction and Decommissioning

- 7.5.55 It is likely there will be a loss of a number of skylark territories as a result of the installation of the PV Arrays. Research has shown that skylark tend not to nest in solar array areas. Therefore the Proposed Development will result in the loss of approximately 30 territories, which are located within the footprint of the Solar PV Site). This would be an adverse effect of significance at up to a District level. However, measures will be put in place to enhance the value of retained arable habitats for nesting as set out in the **oLEMP**. This will include the provision of skylark plots as per guidance for arable land in use for growing cereal crops [**Ref 7-19**] The plots will be provided in retained arable land within the Order limits by switching off the drill during the seeding of crops (or lifting it up) to create undrilled patches at

least 3m wide. Each plot will be between 16m<sup>2</sup> and 24m<sup>2</sup>. Two plots per hectare will be provided in these areas. They will be sited away from field boundaries (at least 24m from the edge of the field) and telegraph poles or overhead lines. Some areas of the newly created grassland may also support the species. The Solar PV Site will likely continue to be used by the species for foraging, providing a more reliable food resource (seeds and insects) than intensive arable farmland. Nesting would also continue in suitable farmland offsite. Pairs from within the Solar PV Site and Mitigation and Enhancement Areas and beyond may benefit from the more diverse foraging resource offered by the newly created habitats.

- 7.5.56 Lapwing and yellow wagtail, also ground nesting species, were recorded during the surveys, but the yellow wagtail is present in very low numbers and the lapwing are unlikely to be affected as the pair recorded were in a field located within the Mitigation and Enhancement Areas. The new grassland areas would also be suitable breeding habitat for yellow wagtail, which use meadows as well as arable land for breeding. Mitigation within retained arable being delivered for skylark will also deliver some benefit for these species, as does the retention of the area shown to be used by lapwing. The effect on yellow wagtail is likely to be an adverse effect of significance at a Site level only.
- 7.5.57 There is a risk of active nests being damaged during vegetation removal (hedgerow gaps) should this be carried out in the absence of mitigation. Additionally, there is a risk that retained habitats in use by nesting birds may be damaged during the construction and decommissioning phases due to accidental encroachment. Measures to avoid or reduce these risks are set out in the **oCEMP** and **oDEMP**. With these measures in place these impacts are likely to be avoided or limited such that at worst would have an adverse effect of significance at the Site level only.

- 7.5.58 A total of 50 nest boxes will be provided, as set out within the **oLEMP**, to benefit house sparrow, starling and spotted flycatcher *Muscicapa striata*, all of which are SPIs. This is likely to result in a beneficial effect of significance at a Site level.
- 7.5.59 During the decommissioning stage, the removal of the PV Arrays and the grassland underneath is highly unlikely to cause damage to nests. The removal of infrastructure such as cabling may result in the need for small scale vegetation removal, therefore this presents the risk of damage to nests. Measures to reduce these risks are set out in the **oDEMP** and with these measures in place, an adverse effect is likely to be limited and at worst have an adverse effect of significance at the Site level only.
- 7.5.60 At the decommissioning stage, the removal of infrastructure works are highly unlikely to affect any wintering birds of note in an adverse way as the works will affect Solar PV arrays and the security fences, which are areas highly unlikely to support wintering birds such as waders and wildfowl and any passerines will be unaffected by these works as they are unlikely to result in removal of habitat of value.

#### Operation

- 7.5.61 The provision of supporting habitat such as diverse grassland beneath the PV Arrays and additional scrub or hedgerow in the margins between retained hedgerows and/or ditches and the security fencing surrounding the PV Arrays will for the majority of breeding bird species result in a beneficial effect of significance at up to District level.
- 7.5.62 The Order limits does not support wintering wildfowl or waders in significant numbers, and species listed as the qualifying interest of with the Rutland SPA do not occur within the Solar PV Site in significant numbers or regularly. The Proposed Development includes the retention of large sections of arable land within the Mitigation and Enhancement Areas,



including where golden plover were recorded. There is unlikely to be any effect on the special interest of the Rutland Water SPA, RAMSAR site. The provision of fruiting species in scrub areas and seed-bearing grasses and wildflowers, to be set out within the LEMP, will provide additional habitat for passerines such as yellowhammer and linnet. Overall, therefore for certain wintering species (i.e. those which use hedgerows and woodland) the Proposed Development will result in a beneficial effect of significance up to a District level and a neutral effect on other species present.

- 7.5.63 During the operational phase, no operational activities have the potential to cause injury or death to breeding birds. Habitat management work (such as vegetation cutting) will be carried out outside the active season for dormice and nesting birds, in accordance with the **oLEMP**, to avoid damage to active nests.

### ***Reptiles***

- 7.5.64 The area within the Order limits supports very limited amounts of habitats suitable for reptiles. The majority of the suitable habitat will be retained and enhanced (hedgerow bases and woodland margins). The grassland areas beneath the PV Arrays and within the buffers are also likely to benefit the reptiles present.

### **Construction and Decommissioning**

- 7.5.65 There is the potential for vegetation clearance work affecting suitable habitats such as small areas of rougher grassland or hedgerow bases at the construction and decommissioning phase to injure or kill individual reptiles. Measures to avoid or limit the risk of killing and injury are set out in the **oCEMP** and **oDEMP**. With these measures in place an adverse effect is likely to be avoided or limited and at worst to an adverse effect of significance at the Site level only.

7.5.66 The removal of the PV Arrays and electrical cables within the PV Arrays and grassland underneath at the decommissioning phase is highly unlikely to have any effect on reptiles, as this would likely be kept short by grazing and be unsuitable.

7.5.67 The removal of infrastructure such as cabling outside of the PV Arrays, the current extent of which is unclear, might have an effect, but as this will be limited to very small areas, the habitat loss will be an adverse effect of significance at a Site level only.

#### Operation

7.5.68 The Proposed Development will likely increase the availability and quality of habitat for reptiles, resulting in a beneficial effect of significance up to a Site level.

7.5.69 During the operational phase, no other operational activities have the potential to adversely affect this species. Vegetation management (such as meadow cutting) will be carried out with cuts no lower than 150 mm to avoid injury to reptiles, in accordance with the **oLEMP**.

#### ***Amphibians***

7.5.70 The area within the Order limits supports few terrestrial habitats with good potential to support amphibians and these are to be retained. Direct impacts are limited to loss of arable land, a habitat of poor suitability for amphibians, though all species may cross it occasionally. All onsite ponds are proposed to be retained. Only one pond within 250 m of the Order limits was found to support GCN, though common toad may be present in several.

#### Construction and Decommissioning

7.5.71 Adverse effects as a result of injury to individual protected species (great crested newt) during the construction and decommissioning phases are highly unlikely, even within 250 m of Pond 13, given the low intrusiveness of

the works, the fact that the only habitats affected directly would be arable farmland and the short duration of the construction period. However, given the presence of the species has been established at Pond 13, a risk of injuring individuals of this species exists. This is however only likely to constitute an adverse effect of significance at a Site level.

7.5.72 Overall the onsite habitat creation, as set out in the **oLEMP**, is likely to benefit common toad as it includes the creation of suitable habitats which offer permanent foraging resources. This is likely to be a beneficial effect of significance at a Site level.

7.5.73 The removal of the grassland under the Solar PV Arrays at the decommissioning phase is highly unlikely to have an adverse effect on any amphibians and is likely to represent, at worst, a return to the pre-development baseline conditions. Small scale removal of habitat to enable the removal of infrastructure outside of the PV Arrays may result in an adverse effect of significance a Site level only, though removal of grassland within 250 m of Pond 13 may result in similar impacts to those during the construction phase.

#### Operation

7.5.74 The Proposed Development will result in the retention of breeding habitat and provide an increase in suitable terrestrial habitat. Therefore, with regard to amphibians, there is likely to be a beneficial effect of significance at up to a District level.

7.5.75 There is a risk of injuring amphibians, including GCN, during vegetation management (such as meadow cutting) within 250 m of Pond 13. This will be avoided by the requirement in the **oLEMP** that all management will be limited to cuts to no lower than 150mm from ground level in this area.

### ***Invertebrates***

7.5.76 The losses of habitat that have the potential to support invertebrates are limited to habitats of very low value. The Proposed Development includes the creation of areas which are of higher value for invertebrates than the arable land being lost, such as wildflower grasslands as set out in the **oLEMP**. The proposals include the retention of the higher value habitats such as hedgerows and the West Glen river and its protection with buffers (secured through the **Works Plans and Design Guidance**), though no enhancement have been proposed to the banks or river itself. Detailed surveys were therefore not carried out of the fish or invertebrate communities.

### Construction and Decommissioning

7.5.77 No impacts to notable invertebrate assemblages are likely to occur at the construction phase as retained habitats will be protected through measures set out in the **oCEMP**, including against spillages into the West Glen river. The retained habitats will also be bolstered with the creation of suitable additional habitats such as hedgerows, tree belts and new wet woodland in the vicinity of the West Glen river (as set out in the **oLEMP**). The removal of agricultural activities in these areas may also provide a small benefit to the invertebrates present in the West Glen river, due to the reduction of run off from arable land. Overall therefore the Proposed Development will result in as a minimum a neutral effect on the invertebrate communities of the West Glen River, and potentially a small beneficial effect of significance at a Site level.

7.5.78 At the decommissioning phase, the removal of the grassland under the PV Arrays is highly unlikely to have an adverse effect on invertebrate populations as these areas will offer very limited habitat for anything but widespread species. Any removal is likely to represent, at worst, a return to the pre-development baseline conditions.

### Operation

- 7.5.79 The Proposed Development will likely result in a small-scale beneficial effect on this species group.
- 7.5.80 No effects are envisaged at the operational phase as retained habitats would be unaffected in such a way that would impact invertebrates (such as additional habitat removal).

### **Climate Change**

- 7.5.81 As set out in **Chapter 13: Climate Change** of the ES, a rise in temperature could affect the composition and growth rates of plant communities and invertebrates, and hence protected species and habitats. However, the uncertainties are high and it is not considered that the effect of increased temperatures on ecological receptors would alter the conclusions of this assessment.

## **7.6. Proposed Additional Mitigation**

- 7.6.1 This section sets out what further mitigation will be implemented to reduce or avoid the impacts of the Proposed Development on the ecological features identified above.

### **Designated Sites**

- 7.6.2 A loss of a section of hedgerow designated as an LWS will occur. It is therefore proposed that the hedgerow be replanted along a new alignment parallel to the original hedgerow further to the south so as to not impede visibility from the proposed access. This will be replanted with an appropriate rich mix of woody species and ground flora will be seeded, so as to reflect the nature of species-rich hedgerows in the wider area. The area between the former and new hedgerow alignment will be seeded to a species rich grassland in order to add to the semi-improved neutral grassland present along this verge.

7.6.3 Where new passing points will be delivered, these will be temporary and very limited in size. Once the construction period is complete, these passing points will be removed, appropriate nutrient poor soil replaced on their footprint and a species rich grassland will be seeded on these. This will also be applied to other passing points outside the LWSs.

7.6.4 These measures are set out in the **oLEMP**.

### **Great crested newt**

7.6.5 Due to the risk of injuring individual newts within 250 m of Pond 13, a licence will be sought for the works in this area. This may need to be supported by additional surveys of the pond where the species is present and involve exclusion of the species from the works area or other appropriate mitigation measures.

## **7.7. Residual Effects**

7.7.1 This section sets out the likely residual effects once all mitigation has been considered, including the additional mitigation set out in the preceding section. The features discussed are only those for which additional mitigation has been put in place as set out above.

### **Designated sites**

7.7.2 Once all mitigation is considered, there is a remaining effect on designated sites, namely the LWS sites where hedgerow will be removed (Essendine hedgerow south side MacMillan Way LWS) and grassland removed to create the temporary passing points (Essendine Verge SE of the Freewards (N Side) and Essendine Verge (NE Side)). The additional mitigation detailed above will in the medium term reinstate the habitats, but an adverse short term effect remains, likely of significance at a District level, but this is not a significant residual effect in EIA terms.

- 7.7.3 The residual effects associated with the risk of accidental damage or contamination to designated sites during construction or decommissioning is very low and likely to have only a negligible effect if any accidental damage did occur, given the measures secured by the **oCEMP** and **oDEMP**.

### **Habitats**

- 7.7.4 The removal of small areas of hedgerow and grassland will have an adverse effect in the short term during the construction phase, but this is not likely to be a significant residual effect.
- 7.7.5 The habitat creation and enhancement works being proposed for within the Order limits will provide a high net gain in biodiversity value for the area within it, as set out in **Appendix 7.6**. This has been shown to be just over 72.19% for habitats and 40.83% for hedgerows with the use of the Biodiversity Metric 3.1, carried out on the basis of the Green Infrastructure Strategy Plans set out within the **oLEMP**. This constitutes a beneficial effect of significance at a District level.

### **Badgers**

- 7.7.6 In the event that any small setts do need to be closed, this would be an adverse effect of significant at a Site level, but this is considered not significant in terms of the EIA process.

### **Water vole and otter**

- 7.7.7 There are no significant residual effects on these species.

### **Dormouse**

- 7.7.8 The proposed review of mitigation prior to the decommissioning stage as detailed in the **oDEMP** will ensure that dormouse is considered as appropriate at the demolition stage. This will result in no significant residual effects on this species.

### **Great crested newt**

- 7.7.9 The measures to be secured via a licence will ensure this feature is not subject to significant residual effects on this species.

### **Breeding birds (skylark)**

- 7.7.10 The skylark plots to be provided within the retained arable fields within the Order limits will ensure the skylark population will be retained within the area to a level comparable to that currently present. Therefore the Proposed Development will have a neutral effect on this feature and have no significant residual effects on this feature.

## **7.8. Monitoring Requirements**

- 7.8.1 Other than the update badger surveys and additional great crested newt surveys required prior to construction, no further monitoring is required, though the **oLEMP** sets out the need for habitat surveys to monitor the establishment of habitats being created and the management of existing and new habitats.

## **7.9. Cumulative Effects**

- 7.9.1 The Proposed Development has been shown to have few adverse effects on any feature of any significance, with the exception of the three LWS (Essendine hedgerow south side MacMillan Way LWS; Essendine Verge SE of the Freewards (N Side) and Essendine Verge (NE Side)). These effects will also be compensated for and the habitats re-created after the construction phase. No other developments included in **Appendix 2.4** are likely to impact these.
- 7.9.2 The residual effects as identified above are beneficial, with no adverse effects of any significance. As there are no adverse residual effects, the cumulative assessment concludes that no significant effect would occur as



a result of the Proposed Development taken cumulatively with any other schemes.

## **7.10. Conclusion**

7.10.1 **Table 7-1** below summarises the effects for each of the phases as described above and identifies the mitigation measures being implemented, with a final assessment of the residual effects.

**Table 7-1 Summary of Effects**

Receptor	Value of Receptor	Description of Effect/Activity	Nature of Effect - duration	Embedded Mitigation Measures	Potential Significance of Effect	Additional Mitigation Measures	Residual Effect Significance	Monitoring Requirement
Construction phase								
Designated sites in or adjacent to Order limits. Priority Habitats Habitats supporting protected species	National / County	Accidental damage or minor temporary loss of habitat	Adverse, dependent of extent of damage	Stand offs and measures in oCEMP, oLEMP, oDEMP	None	None	None	None
Habitats (hedgerow) and Designated site - Essendine	County	Loss of hedgerow for access	Adverse, permanent	None	District	New planting of species rich hedgerow	District	None

<b>Receptor</b>	<b>Value of Receptor</b>	<b>Description of Effect/Activity</b>	<b>Nature of Effect - duration</b>	<b>Embedded Mitigation Measures</b>	<b>Potential Significance of Effect</b>	<b>Additional Mitigation Measures</b>	<b>Residual Effect Significance</b>	<b>Monitoring Requirement</b>
hedgerow south side MacMillan Way LWS								
Habitats (grassland) and Designated Sites – Essendine Verge SE of the Freewards (N Side) LWS and Essendine Verge (NE Side) Near North Lodge Farm LWS	County	Creation of passing points	Adverse, temporary	None	District	New planting and reseeded once works complete	District	None

<b>Receptor</b>	<b>Value of Receptor</b>	<b>Description of Effect/Activity</b>	<b>Nature of Effect - duration</b>	<b>Embedded Mitigation Measures</b>	<b>Potential Significance of Effect</b>	<b>Additional Mitigation Measures</b>	<b>Residual Effect Significance</b>	<b>Monitoring Requirement</b>
Habitats	District	Habitat creation	Beneficial, Long term	Habitat creation set out in oLEMP	District	None	Beneficial - District	As required by oLEMP for habitat establishment
Bats	District – County	Loss of 75 m of hedgerow	Adverse, permanent	oCEMP & oLEMP	Site - District	New planting of species rich hedgerow	Site – District	None
Badgers	District	Damage to setts	Adverse, dependent on extent of damage	Measures set out in oCEMP including avoidance and repeat surveys	Site	None	Site	None
Water vole and otter	District	Accidental encroachment	Adverse, long term	oCEMP & oLEMP	Site	None	Site	None

Receptor	Value of Receptor	Description of Effect/Activity	Nature of Effect - duration	Embedded Mitigation Measures	Potential Significance of Effect	Additional Mitigation Measures	Residual Effect Significance	Monitoring Requirement
		or habitat degradation						
Hazel Dormouse	District	Potential for suitable retained habitats being damaged due to accidental encroachment	Adverse - temporary	oCEMP	Site	None	Site	None
Other SPI Mammals		Potential for suitable retained habitats being damaged due to accidental encroachment	Adverse - temporary	oCEMP	Site	None	Site	None
Skylark	District	Loss of nesting habitat	Adverse, long-term	oLEMP	District	None	None	None

<b>Receptor</b>	<b>Value of Receptor</b>	<b>Description of Effect/Activity</b>	<b>Nature of Effect - duration</b>	<b>Embedded Mitigation Measures</b>	<b>Potential Significance of Effect</b>	<b>Additional Mitigation Measures</b>	<b>Residual Effect Significance</b>	<b>Monitoring Requirement</b>
Yellow wagtail and lapwing	Site	Loss of nesting habitat	Adverse, long-term	oLEMP	Site	None	Site	None
Nesting birds	Dependent on species	Accidental damage to active nests	Adverse, short term	oCEMP	Site	None	Site	None
Reptiles	Site	Injuring of individuals	Adverse, short term	oCEMP	Site	None	None	None
Amphibians	Site	Injuring of individuals	Adverse, short term	oCEMP & oLEMP	Site	Avoidance measures (timing and method of vegetation removal) set out in oCEMP and to be secured	Site	None

Receptor	Value of Receptor	Description of Effect/Activity	Nature of Effect - duration	Embedded Mitigation Measures	Potential Significance of Effect	Additional Mitigation Measures	Residual Effect Significance	Monitoring Requirement
						via a NE licence		
<b>Operational phase</b>								
Habitats	District	Ongoing management of habitats	Beneficial, long term	As set out in oLEMP	Site	None	Site	As required by oLEMP for habitat establishment
Protected species	Dependent on species	Vegetation Management	Adverse, short term	As set out in oLEMP	No effect - Site	None	No effect - Site	As required by oLEMP
Protected species	Dependent on species	Habitat creation	Beneficial, long term	As set out in oLEMP	Site - District	None	Site – District	As required by oLEMP for habitat establishment
<b>Decommissioning phase</b>								
Priority Habitats	District	Accidental damage or minor	Adverse, short or medium term	Stand offs and avoidance	None	None	None	None

<b>Receptor</b>	<b>Value of Receptor</b>	<b>Description of Effect/Activity</b>	<b>Nature of Effect - duration</b>	<b>Embedded Mitigation Measures</b>	<b>Potential Significance of Effect</b>	<b>Additional Mitigation Measures</b>	<b>Residual Effect Significance</b>	<b>Monitoring Requirement</b>
		temporary loss of habitat		measures in oDEMP				
Grassland habitat beneath the PV Arrays	District – but returning to pre-construction conditions	Removal of grassland within the PV Arrays and return to arable land	Adverse, permanent	None	District – but returning to pre-construction conditions	None	District – but returning to pre-construction conditions	None
Protected species	Dependent on species	Accidental damage or minor temporary loss of habitat	Adverse, short or medium term	oDEMP	Site	None	Site	None



## 7.11. References

- Ref 7-1 Chartered Institute for Ecology and Environmental Management (CIEEM) (2017). Guideline for Preliminary Ecological Appraisal (GPEA)
- Ref 7-2 Chartered Institute for Ecology and Environmental Management (CIEEM) (2018). Guidelines for Ecological Impact Assessment (EclA).
- Ref 7-3 Environment Act (2021)
- Ref 7-4 Natural Environment and Rural Communities (NERC) Act 2006 - Habitats and species of principal importance (England)
- Ref 7-5 The Conservation of Habitats and Species Regulations 2017 (as amended)
- Ref 7-6 Wildlife and Countryside Act 1981 (as amended)
- Ref 7-7 Protection of Badgers Act 1992 (as amended)
- Ref 7-8 The Town and Country Planning (Environmental Impact Assessment) Regulations 2017
- Ref 7-9 The Wild Mammals (Protection) Act 1996 (as amended) Overarching National Policy Statement for Energy (NPS EN-1)
- Ref 7-10 Overarching National Policy Statement for Energy (NPS EN-1) (2011)
- Ref 7-11 National Policy Statement for Renewable Energy Infrastructure (NPS EN-3) (2011)
- Ref 7-12 Draft National Policy Statement for Renewable Energy Infrastructure NPS EN-3 (2021)
- Ref 7-13 National Planning Policy Framework (NPPF)
- Ref 7-14 South Kesteven Local Plan Policy 2011 – 2036 (2020)
- Ref 7-15 Rutland County Council Core Strategy 2011 to 2026 (2011)
- Ref 7-16 Leicestershire and Rutland Environmental records Centre (2016). Space for Wildlife - Leicester, Leicestershire and Rutland Biodiversity Action Plan
- Ref 7-17 Maddock, A. (ed) (2011). UK Biodiversity Action Plan Priority Habitat Descriptions (updated Dec. 2011). Joint Nature Conservation Committee, Peterborough.

- Ref 7-18 Lincolnshire Biodiversity Partnership (2011). Lincolnshire Biodiversity Action Plan 2011 – 2020 (3rd edition).
- Ref 7-19 RSPB (Undated) Farming for wildlife – Skylark plots

