

## Ecology Report

**PROPOSED SOLAR PANEL ARRAY**  
Thorpe Morieux Hall, Thorpe Morieux, Bury St Edmunds,  
Suffolk



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# Executive Summary

MHE Consulting Ltd were instructed to undertake an ecological survey and assessment of land at Thorpe Morieux Hall, Bury Road, Thorpe Morieux, Suffolk, IP30 0NW. This report is produced in support of a planning application, to be submitted to Babergh and Mid Suffolk District Council, for the installation of two ground mounted solar panel arrays in an existing meadow to provide an energy supply to the hall. A cable will connect the panels to the house and will be excavated into a shallow trench.

The proposed development site comprises a meadow with a native species-rich hedgerow H1 at the north boundary of the field. The meadow has historically been grazed with a roadside hedgerow (Photo 4) along the western field boundary. A further smaller meadow exists to the north of hedgerow H1. A species rich native hedgerow with trees (H2) exists along the roadside boundary of the meadow. The hedgerows provide connectivity to habitats in the wider grounds of the applicant's landholding and the adjacent local landscape. Hedgerows H1 is dominated by hawthorn (*Crataegus monogyna*) where it abuts the proposed solar arrays and meets the criteria as a S. 41 priority habitat as listed by the Natural Environment and Rural Communities (NERC) Act 2006.

Habitats in the wider landscape include residential properties with gardens containing ponds, arable farmland, some small areas of woodland and the River Brett which is c. 135m east of the proposed solar arrays and runs along the east and south boundaries of the meadow.

Any amphibians present in surrounding water bodies may forage over the meadow, particularly on nights with heavy dew and following/during rainfall. Individuals may seek refuge/disperse along the base of hedgerows and within areas of longer vegetation. The overall habitat suitability of the site has been assessed as *moderate* as GCNs have been recorded within 1km of the site. The meadows supports *low* habitat suitability for reptiles as the short sward provides inadequate cover for species such as slow-worm (*Anguis fragilis*) and common lizard (*Zootoca vivipara*), which favour a greater mosaic of habitats with areas of open habitat for basking and foraging habitat dominated by rough grassland and scrub. Some limited refuge habitats, including for overwintering, exists within the base of hedgerow H1. The likelihood of any significant reptile populations being present is low, and perhaps limited to the occasional grass snake (*Natrix helvetica*) passing through the site on-route to forage in the nearby waterbodies.

The meadow has the potential to support hedgehog (*Erinaceus europaeus*) and brown hare (*Lepus europaeus*). Hedgerows on site provide suitable nesting and foraging habitat for a range of bird species. The development proposals will not directly impact bats with no roosts being impacted or loss of commuting and foraging habitat. No lighting impacts will occur as all the works will be done in daylight hours and no lighting is required once the solar panels are operational.

Measures are proposed to avoid, mitigate and compensate impacts and ecological effects upon habitats and associated species, whilst enhancements are suggested which could deliver biodiversity gains.

# 1 Introduction

## 1.1 BRIEF

MHE Consulting Ltd were instructed to undertake an ecological survey and assessment of land at Thorpe Morieux Hall, Bury Road, Thorpe Morieux, Suffolk, IP30 0NW (TL 94150 53197; Figure 1). This report is produced in support of a planning application, to be submitted to Babergh and Mid Suffolk District Council, for the installation of two ground mounted solar panel arrays in an existing meadow to provide an energy supply to the hall. A cable will connect the panels to the house and will be excavated into a shallow trench.

The ecological survey and this report are necessary to:

- Identify the existing ecological value of the site;
- Identify the need for further (e.g., protected species) surveys;
- Assess any potential adverse impacts of the proposed development on ecological features of the site or nearby designated sites;
- Make recommendations for mitigation (if required); and
- Identify opportunities for biodiversity enhancements and net gains.

This report will be used to develop the proposals and to form the basis for the submission of biodiversity information to the Local Planning Authority (LPA). It reflects the site at the time of the survey and should be reviewed and revised as appropriate.

## 1.2 SITE LOCATION AND DESCRIPTION

The proposed development site is located off the east of Bury Road, Thorpe Morieux (Figure 1) and comprises a meadow (Photos 1 to 4) with a native species-rich hedgerow H1 at the north boundary (Photos 1 to 3, Figure 2). The meadow has historically been grazed with a roadside hedgerow (Photo 4) along the western field boundary. The hedgerows provide connectivity to habitats in the wider grounds of the applicant's landholding and the adjacent local landscape.

Habitats in the wider landscape include residential properties with gardens containing ponds, arable farmland, some small areas of woodland and the River Brett which is c. 135m east of the proposed solar arrays and runs along the east and south boundaries of the meadow. Photos of the application site are provided in Appendix A1.

## 2 Planning policy and legislation

### 2.1 INTRODUCTION

This chapter summarises the key legislation and policies relevant to assessing the biodiversity impacts of the scheme upon habitats and species.

### 2.2 PLANNING POLICY

#### 2.2.1 *National Planning Policy Framework (NPPF)*

The National Planning Policy Framework was originally published in 2012 and recently revised in February 2019. The document sets out the Government's planning policies for England and provides guidance on how these policies are expected to be applied. It provides a framework for, and must be taken account of within, locally prepared plans for housing and other development, and is a material consideration in planning decisions.

An overarching objective of the NPPF, which aims to secure net gains, is to contribute to protecting and enhancing the natural, built and historic environment; including making effective use of land, helping to improve biodiversity, using natural resources prudently, minimising waste and pollution, and mitigating and adapting to climate change, including moving to a low carbon economy.

The full NPPF is available to view online using the gov.uk website: [https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/779764/NPPF\\_Feb\\_2019\\_web.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/779764/NPPF_Feb_2019_web.pdf) Policies of particular relevance to development and biodiversity include 170, 175, 176 and 177.

**170.** Planning policies and decisions should contribute to and enhance the natural and local environment by:

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

**175.** When determining planning applications, local planning authorities should apply the following principles:

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

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

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

**177.** The presumption in favour of sustainable development does not apply where the plan or project is likely to have a significant effect on a habitats site (either alone or in combination with other plans or projects) unless an appropriate assessment has concluded that the plan or project will not adversely affect the integrity of the habitats site.

## 2.2.2

### *Local Plan*

Adopted local plans provide the framework for development across England, and include policies related to conserving and enhancing the natural environment. The Babergh and Mid Suffolk Local Plans set out the long-term planning and land use policies within Babergh and Mid Suffolk. A new joint local plan is due to be adopted in November 2023, covering planning policy in the area until 2037. The Planning policies and supporting documents of the adopted local plan are used to plan, deliver, and monitor development across the Babergh and Mid Suffolk District Council areas can be found at:

<https://www.babergh.gov.uk/adopted-documents>

<https://www.midsuffolk.gov.uk/adopted-documents>

## 2.3

### **LEGISLATION**

### 2.3.1

*Natural Environment and Rural Communities (NERC) Act 2006*

Section 40 places a duty on every public body in exercising its functions, to have regard to the purpose of conserving biodiversity; this includes restoring or enhancing

populations or habitats. A key purpose of this duty is to embed consideration of biodiversity as an integral part of policy and public-sector decision making. *Species and habitats of principal importance* in this respect are those published under Section 41 (“S. 41”) of the NERC Act 2006.

### 2.3.2 *Wildlife and Countryside Act 1981 (as amended)*

Rare and scarce habitats and species are afforded varying levels of protection under the Wildlife and Countryside Act 1981 (as amended) (hereafter “WCA 1981”). Some species and groups are afforded full protection (e.g., Schedule 1 bird species, bats), whilst others receive partial protection (e.g., widespread reptiles). Section 3.1 provides further detail relevant to this scheme. Species afforded legal protection are referred to by their relevant schedule (“Sch.”) within the act, i.e., “Sch. 1” (birds), “Sch. 5” (other animals), or “Sch. 8” (plants).

Invasive plant species such as Japanese knotweed (*Fallopia japonica*) and giant hogweed (*Heracleum mantegazzianum*) are listed on Schedule 9 of the WCA 1981. It is an offence to plant or otherwise cause these species to grow in the wild and this includes the development of sites such that the plant colonises land owned by a third party.

### 2.3.3 *The Countryside and Rights of Way (CROW) Act 2000*

The CROW Act 2000 strengthened and updated elements of the WCA 1981, and gave a statutory basis to biodiversity conservation, requiring government departments to have regard for biodiversity in carrying out its functions and to take positive steps to further the conservation of listed habitats and species. It strengthened the protection of SSSI and threatened species. Many of its provisions have been incorporated as amendments into the WCA 1981 and some have been superseded by the NERC Act 2006

### 2.3.4 *The Conservation of Habitats and Species Regulations 2017*

The Conservation of Habitat and Species Regulations 2017 (as amended) transposed the land and marine aspects of the Habitats Directive (Council Directive 92/43/EEC) and certain elements of the Wild Birds Directive (Directive 2009/147/EC) into UK law. They have been recently amended by the Conservation of Habitats and Species Regulations (Amendment) (EU Exit) Regulations 2019, which continue the same provision for European Protected Species, licensing requirements, and protected areas (National Site Network) after Brexit.

Under the Regulations, competent authorities i.e. any Minister, government department, public body, or person holding public office, have a general duty, in the exercise of any of their functions, to have regard to the Regulations.

### 2.3.5 *Protection of Badgers Act 1992*

The Protection of Badgers Act 1992 (hereafter “PBA 1992”) consolidates and improves upon the previous Badgers Act 1973, Badgers Act 1991, and Badgers (Further Protection) Act 1991. Under the PBA 1992 (except when holding a licence to do so) it is illegal for a person to wilfully; kill, injure, take, possess, sell, or otherwise cruelly treat a badger. It is also illegal to dig out, damage, destroy, or obstruct entry to setts (including by use of dog(s)). Further information on offences, exceptions, and penalties are listed on the PBA 1992 on [legislation.gov.uk](http://legislation.gov.uk).



# 3 Methodology

## 3.1 INTRODUCTION

This report has been produced with reference to relevant guidance, most notably:

- Guidelines for Ecological Report Writing (CIEEM, 2017);
- Biodiversity – Code of Practice for Planning and Development (BS 42020:2013<sup>1</sup>);
- Guidelines for Ecological Impact Assessment in the UK and Ireland (CIEEM, 2018); and
- Biodiversity Net Gain: good practise principles for development (CIRIA, CIEEM and IEMA, 2016).

The following sections summarise the approaches used to review existing data, and to undertake appropriate field surveys to scope and inform an Ecological Impact Assessment (EclA) for the scheme. Where further surveys are considered necessary, this is identified in section 5.

## 3.2 DESK SURVEY

The following data sources were consulted to assess the potential for the application site to support protected or notable habitats/species:

- Aerial photos, Ordnance Survey maps, Natural England (NE) open-source data, and the MAGiC website (<http://magic.defra.gov.uk/>): These were used to identify habitat types including priority habitats, suitability for particular species/groups, and the presence of local, national and international designated sites;
- NE's great crested newt (GCN) (*Triturus cristatus*) survey licence record data were plotted to determine the shortest distance from the application site and assess this in the context of landscape cover and connectivity; and
- Historical biological records within 2km of the sites were provided by the Suffolk Biodiversity Information Service (SBIS).

From this exercise, it was concluded that the following legally protected species/groups may be present on the site and/or land immediately adjacent to it:

- Amphibians including great crested newts (GCN) (*Triturus cristatus*)<sup>2</sup> and reptiles such as grass snake (*Natrix helvetica*)<sup>3</sup>;
- Mammals including badgers (*Meles meles*)<sup>4</sup> and bats<sup>2</sup>;
- Breeding birds<sup>5</sup> including Red and Amber Status<sup>6</sup> species; and
- S. 41<sup>7</sup> list habitats such as hedgerows, and species such as hedgehog (*Erinaceus europaeus*).

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<sup>1</sup> BSI Standards publication BS 42020:2013 Biodiversity – Code of practice for planning and development.

<sup>2</sup> GCNs and all species of bats receive full protection under the WCA 1981 and Habitats Regulations 2017.

<sup>3</sup> Widespread reptiles and amphibians receive partial protection under the WCA 1981.

<sup>4</sup> Badgers and their setts are afforded protection by the PBA 1992.

<sup>5</sup> All wild birds, their nests and eggs are protected under the WCA 1981 (as amended), level of protection varies per species.

<sup>6</sup> The conservation statuses of UK bird species are listed within the Birds of Conservation Concern 4 (Eaton *et al.*, 2015).

<sup>7</sup> S. 41 of the NERC Act 2006 lists 'habitats and species which are of principal importance for the conservation of biodiversity in England'.

In the context of the setting and nature of the development, the 'zone of influence' of the scheme is considered restricted to habitats on the site and species within 250m of the site boundary, unless stated otherwise.

### **3.3 FIELD SURVEY**

An initial site walkover was undertaken on 20 October 2023 to 1) record habitats present, and 2) assess the value of the habitats present for protected and notable species. A list of vascular plants and a description of the vegetation was made, including the location and extent of any Schedule 9 (WCA 1981) plants. Photos of the habitats present, and any field signs are provided in Appendix A1.

#### **3.3.1 *Habitats and vascular plants***

The site was walked with all distinct vegetation and habitat types, and any features of interest identified. Care was taken to record as many species as possible.

#### **3.3.2 *Amphibians and reptiles***

##### **a) Amphibians**

The terrestrial habitat suitability of the site was assessed with respect to refugia and foraging habitat based on the known habitat preferences of GCNs and widespread amphibians such as common frog (*Rana temporaria*), smooth newt (*Lissotriton vulgaris*), and common toad.

No water bodies exist within the application site boundary, however two (WB1 and WB2) exist within 100m of the proposed scheme (Figure 1) with two other within 150m (WB3 and WB4). The River Brett is located c. 135m east of the proposed location of solar panel arrays (Figure 1).

##### **b) Reptiles**

Habitats on and around the application site were assessed with respect to the known foraging and refuge habitat preferences of widespread reptile species.

#### **3.3.3 *Bats***

##### **a) Foraging and commuting habitat**

Consideration was given to the value of any potential foraging and commuting habitats (i.e., hedgerows, trees, ponds) on or adjacent to the application site (Collins, 2016).

#### **3.3.4 *Nesting birds***

The value of the barn was assessed in relation to nesting birds. This was supplemented with field records of birds seen or heard within the site, or nests observed.

#### **3.3.5 *Badger***

The application site and adjacent habitats were surveyed for evidence of badger activity including setts, day beds, latrines, diggings/snuffle holes, paths/runs, scratching posts, hair, and footprints. Any potential sett found was then assessed for evidence of recent use by badger and classified as per current guidance (Scottish Badgers, 2018).

#### **3.3.6 *S.41 habitats and species***

The site was surveyed to determine the presence of any S. 41 habitats and site's suitability for S. 41 list species such as hedgehog was assessed based on their habitat preferences.

3.3.7 *Non-native invasive plant species*  
The site was inspected for Schedule 9 species such as Japanese knotweed and giant hogweed.

3.4 **SURVEY CONSTRAINTS**  
Given the nature of the site and limited extent of works, the timing of the survey visit was considered appropriate for this report.

3.5 **SURVEYORS**  
The survey was undertaken by Christian Whiting BSc (Hons) MSc MCIEEM MEECW who has over 20 years' experience working as an ecologist. He holds NE survey licences for bats (2015-14745-CLS-CLS - Bat Survey Level 2, barn owl and great crested newts (Class A licence 2015-17633-CLS-CLS). He is a Registered Consultant (Registration RC089) on NE's Bat Low Impact Class Licence and is an authorised agent on the Environment Agency's and Water Management Alliance IDB water vole class licences respectively. His main areas of expertise are bats, vascular plants, amphibians and reptiles, otter (*Lutra lutra*) and water vole.

3.6 **ASSESSMENT**  
Impacts and effects upon habitats and species are assessed with reference to the CIEEM Guidelines for Ecological Impact Assessment (2018) and are reported in Section 5, based on the baseline conditions reported in Section 4.

The assessment includes potential impacts upon habitats and species during the construction and operational phases of the scheme. It considers positive and negative impacts, their extent, magnitude and duration, frequency and timing, and reversibility.

# 4 Results

## 4.1 INTRODUCTION

This chapter summarises the results of the desk and field surveys.

## 4.2 BASELINE ECOLOGICAL CONDITIONS - DESK STUDY

### 4.2.1

#### *Designated sites*

Any locally designated sites (e.g. Local Nature Reserves) within 2km and nationally designated sites within 5km of the application site, with the approximate straight line distances, are listed in Table 4.1. There are no internationally designated sites located within 13km of the application site.

**Table 4.1 Relevant designated sites**

Site name	Site designation	Distance
Knightshill Grove*	CWS	1km SE
Morieux Wood*	CWS	1km E
Rams Wood*	CWS	1.8km NE
Roadside Nature Reserve 213	RNR	500m NW
Bradfield Woods*	NNR; SSSI	4km N
Brent Eleigh Woods*	SSSI	3.8km S
Thorpe Morieux Woods*	SSSI	1.2km NE

\*Listed on the Ancient Woodland Inventory for England.

#### Locally designated sites

No Local Nature Reserves (LNR) are located within 2km of the application site, though 3 County Wildlife Sites (CWS) and one Roadside Nature Reserve (RNR) which exist within 2km are listed below:

- Knightshill Grove CWS (Dove Farm Wood) is a small ancient woodland situated between the Villages of Thorpe Morieux and Brettenham. Oak (*Quercus* sp.) and ash (*Fraxinus excelsior*) standards predominate the wood, with an understorey of hazel coppice (*Corylus avellana*) and hawthorn (*Crataegus monogyna*). An abundance of dead wood and impenetrable shrub growth supports breeding birds and their invertebrate prey.
- Morieux Wood CWS (Little Hastings Wood) is a small ancient woodland enclosed by ditches on all sides and bordered by a stream along the northwestern boundary. Very little mature timber exists within the wood, though standing dead wood provides woodland invertebrates and birds with food and nesting sites. The wood is used extensively for shooting.
- Rams Wood CWS is a small ancient woodland surrounded by arable land. The wood supports several ancient woodland indicator plants including pendulous sedge (*Carex pendula*) whilst numerous diseased elms (*Ulmus* sp.) provide an important breeding habitat for spotted woodpeckers (*Dendrocopos* spp.).
- RNR 213 is of ecological interest for supporting the rare and vulnerable plant sulphur clover (*Trifolium ochroleucon*).

No formal public access exists within or adjacent to the three woodland CWSs. Therefore, no direct impacts/disturbance is anticipated.

#### Nationally designated sites

Bradfield Woods National Nature Reserve (NNR) and Site of Special Scientific Interest (SSSI) comprises a series of ancient woodlands which have been traditionally coppiced since the mid-13<sup>th</sup> Century. The combination of coppice management and great complexity of soil types and drainage present throughout the site has produced diverse and unusual communities of plants; over 370 species of plants have been recorded, a total only surpassed in 2-3 other locations. Notable species present include oxlip (*Primula elatior*), herb paris (*Paris quadrifolia*), ramsons (*Allium ursinum*), water avens (*Geum rivale*), wood spurge (*Euphorbia amygdaloides*) and several species of orchid.

The woods support hazel dormouse (*Muscardinus avellanarius*) and other small mammals, which favour coppiced stools, a range of woodland birds, including a large breeding population of nightingale (*Luscinia megarhynchos*), and numerous species of invertebrate. A large pond adds extra ecological value and several small streams and ephemeral pools support plants which require high humidity such as bryophytes and ferns.

Brent Eleigh Woods SSSI comprises a group of small ancient woodlands of the wet ash-maple, English oak – hornbeam (*Carpinus betulus*) and ash-maple types. Component woods feature medieval boundary banks, well-formed hazel (*Corylus avellana*) coppice, and a diversity of tree species including goat willow (*Salix caprea*), hawthorn (*Crataegus monogyna*), small leaved lime (*Tilia cordata*), spindle (*Euonymus europaea*) and blackthorn (*Prunus spinosa*). A species-rich ground flora is present including several ancient woodland indicator plants such as dog's mercury, common spotted orchid (*Dactylorhiza fuchsii*), wood sorrel (*Oxalis acetosella*) and bluebell (*Hyacinthoides non-scripta*). Two sizeable but heavily shaded ponds are present within the woods.

Thorpe Morieux Woods SSSI incorporates three ancient coppice woodlands on poorly drained boulder clays (Bulls Wood; Great Hastings Wood and Thorpe/Felsham Woods). The woods show a graduation from alkaline to acidic conditions depending on the thickness of surface deposits of sand and loess. Pedunculate oak-hazel-ash woodland and wet ash-maple woodland types predominate. All three woods are actively coppiced and support a diverse ground flora including large populations of oxlip: a scarce local species. Wet rides have been created in two of the woods and several wet hollows support species such as marsh marigold (*Caltha palustris*) and lesser pond sedge (*Carex acutiformis*).

**The application site falls within SSSI Impact Risk Zone but does not meet the criteria to be considered a significant risk to the ecological features of nearby designated sites. Given the small scale of the development, no impacts are predicted.**

#### 4.2.2

##### *Priority habitats*

No priority habitats, other than H1, exist within the application site boundary. Some deciduous woodland (broadleaved) and wood pasture and parkland are present on the

grounds of the wider site to the east of the field, adjacent to the river Brett. No ecologically significant impacts are anticipated upon this habitat.

#### 4.2.3

#### Species

##### a) Relevant biological records

Table 4.2 identifies species records for within 2km the application site boundary and within the 250m zone of influence of the proposed scheme (**in bold**).

**Table 4.2 Protected/notable species within 2km of the application site.**

Scientific name	Common name	Legal /conservation status
<b>Amphibians</b>		
<i>Lissotriton vulgaris</i>	Smooth newt	WCA5; S. 41
<i>Rana temporaria</i>	Common frog	WCA5; S. 41
<i>Triturus cristatus</i>	Great crested newt	EPS; Sch. 5; S. 41
<b>Reptiles</b>		
<i>Anguis fragilis</i>	Slow-worm	WCA5; S. 41
<i>Natrix helvetica</i>	Grass snake	WCA5; S. 41
<i>Zootoca vivipara</i>	Common lizard	WCA5; S. 41
<b>Bats</b>		
<i>Pipistrellus pipistrellus</i>	Common pipistrelle	EPS; WCA5
<i>Plecotus auritus</i>	Brown long-eared	EPS; WCA5; S. 41
<b>Birds</b>		
<i>Accipiter nisus</i>	Sparrowhawk	CITIESA
<i>Alcedo atthis</i>	Kingfisher	Amber Status; WCAi1
<i>Anas platyrhynchos</i>	Mallard	Amber Status
<i>Apus apus</i>	Swift	Amber Status
<i>Buteo buteo</i>	Buzzard	CITIESA
<i>Columba oenas</i>	Stock dove	Amber Status
<i>Delichon urbicum</i>	House martin	Amber Status
<i>Emberiza citrinella</i>	Yellowhammer	Red Status; S. 41
<i>Falco tinnunculus</i>	Kestrel	Amber Status
<i>Linaria cannabina</i>	Linnet	Red Status; WCAi1
<i>Motacilla cinerea</i>	Grey wagtail	Red Status
<i>Muscicapa striata</i>	Spotted flycatcher	Red Status; S. 41
<i>Passer domesticus</i>	House sparrow	Red Status; S. 41
<i>Prunella modularis</i>	Dunnock	Amber Status
<i>Pyrrhula pyrrhula</i>	Bullfinch	Amber Status
<i>Streptopelia turtur</i>	Turtle dove	Red Status; S. 41
<i>Sturnus vulgaris</i>	Starling	Red Status
<i>Turdus philomelos</i>	Song thrush	Red Status; S. 41
<i>Turdus pilaris</i>	Fieldfare	Red Status; WCAi1
<i>Turdus viscivorus</i>	Mistle thrush	Red Status
<i>Tyto alba</i>	Barn owl	WCAi1
<b>Plants</b>		
<i>Euphorbia exigua</i>	Dwarf spurge	RLENG/GB.VU
<i>Trifolium ochroleucon</i>	Sulphur clover	RLENG/GB.VU
<b>Mammals</b>		
<i>Arvicola amphibius</i>	Water vole	EPS; WCA5; S.41
<i>Erinaceus europaeus</i>	Hedgehog	S. 41

Scientific name	Common name	Legal /conservation status
<i>Lepus europaeus</i>	Brown hare	S. 41
<b><i>Lutra lutra</i></b>	<b>Otter</b>	<b>EPS; WCA5; S.41</b>
<b><i>Meles meles</i></b>	<b>Badger</b>	<b>PBA 1992</b>
<i>Micromys minutus</i>	Harvest mouse	S. 41
<i>Muscardinus avellanarius</i>	Hazel dormouse	EPS; WCA5; S. 41
<b>Invertebrates</b>		
<i>Limenitis camilla</i>	White admiral	RL(GB).VU; WCA5; S. 41
<i>Nymphalis polychloros</i>	Large tortoiseshell	RLGB.RE; WCA5

#### 4.2.4

##### GCN records

Assessment of NE's GCN class licence return data, EPSML application and pond survey records showed the closest record to be a licence (2018-38577-EPS-MIT) granted (in 2019) for the damage and destruction of a resting place of GCN at a location c. 2.7km south of the application site, which is outside the normal dispersal range of the species.

### 4.3

#### BASELINE ECOLOGICAL CONDITIONS – FIELD SURVEY

#### 4.3.1

##### Habitats and vascular plants

Descriptions of the habitats and the characteristic plants/species present are provided below, with photos provided in Appendix A1 (Figure 2).

##### a) Grassland (g4 modified grassland, 100 grazed, 16 tall forbs)

The field (Photos 1 to 3) contains managed grassland (g4), grazed (100) to create a homogenous sward of short meadow vegetation, with some longer vegetation (16) at the margins, adjacent to boundary trees and hedgerows. Several common forbs were recorded growing within the area immediately to the south of H1. These include common daisy (*Bellis perennis*), common knapweed (*Centaurea nigra*), groundsel (*Senecio vulgaris*), common cat's-ear (*Hypochaeris radicata*), dove's-foot crane's-bill (*Geranium mole*), ground ivy (*Glechoma hederacea*), scarlet pimpernel (*Anagallis arvensis*), ribwort plantain (*Plantago lanceolata*), dandelion (*Taraxacum officinale* agg.), ragwort (*Jacobaea vulgaris*), oxeye daisy (*Leucanthemum vulgare*) and bulbous buttercup (*Ranunculus bulbosus*).

A cable will run from the solar arrays and connect to the hall (See architect's drawing 806\_010 Rev D) and will initially pass through the hedgerow and then through another area of grazed pasture of similar condition to the field where the panels will be mounted on a metal frame. The cable will then run along the edge of the driveway up the Hall.

##### b) Hedgerow (h2a native hedgerow H1, priority habitat, h2a5 species-rich native hedgerow H2)

A native (h2a) hedgerow (H1) runs along the boundary immediate adjacent to where the solar arrays will be positioned. The hedge is primarily hawthorn (*Crataegus monogyna*) indicating it was planted in the last c. 15 to 20 years. Occasional dog rose (*Rosa canina*) and common dogwood (*Cornus sanguinea*) are present towards the western end of the northern field boundary with some ash (*Fraxinus excelsior*) seedlings present in the hedgerow adjacent to a property. The western end of the hedge has been cut to a lower level where it creates the south boundary of a neighbouring residence. Adjacent to this is a field access off the east of Bury Road. The eastern end of the hedge is unmanaged and more lapsed, eventually transitioning

into a line of trees, abutted by an area of more mature trees to its northern aspect and in the northeast corner of the site (classified as wood pasture and parkland), extending along the eastern field boundary. This connection creates a continuous linear feature, of trees and hedges, surrounding the meadow and delineating the remaining field boundaries.

Hedgerow H2 (Photo 4) runs along the western boundary of the meadow where the solar arrays are proposed and it contains several native woody shrubs and trees such that it is considered to be species rich.

**NB The species composition and regular maintenance of the hedge, together with it being unaffected by works, means hazel dormice have been screened out of further ecological assessment within this report. Should any hedgerow require removal**

#### 4.3.2 *Amphibians and reptiles*

##### a) Amphibians

No ponds are present within the application site boundary but pond WB1 is located c. 12m from the cable route at the nearest point. Pond WB1 and a lake WB2 will not be directly impacted by the development proposals and the proposed footprint of the works is very small with no permanent loss of terrestrial habitat, whilst the cable could be installed and back filled on the same day. Common toad, GCNs and smooth newt have been historically recorded within 1km of the location of the proposed scheme (dated 2005), whilst GCNs were recorded at Moat Farm, Thorpe Morieux (c. 1km to the north) by MHE Consulting Ltd in April 2021.

Any amphibians present in surrounding water bodies may forage over the meadows, particularly on nights with heavy dew and following/during rainfall. Individuals may seek refuge/disperse along the base of hedgerows such as H1 and within areas of longer vegetation. The overall habitat suitability of the site has been assessed as *low*.

##### b) Reptiles

In general, the grazed meadows support *low* habitat suitability for reptiles as the short sward provides inadequate cover for species such as slow-worm (*Anguis fragilis*) and common lizard (*Zootoca vivipara*), which favour a greater mosaic of habitats with areas of open habitat for basking and foraging habitat dominated by rough grassland and scrub. Some limited refuge habitats, including for overwintering, exists within the base of hedgerow H1. Grass snake, slow worm and common lizard have all been historically recorded within 1km of the application site, although the most recent records date from 2002. However, due to the nature of adjacent habitats (e.g., gardens, river, woodland and arable farmland) significant populations of reptiles are not expected to inhabit the site, possibly limited to individual grass snake which may occasionally pass through the site on-route to hunt in local waterbodies.

#### 4.3.3 *Bats*

##### a) Tree roost assessment

No trees in the immediate vicinity of the area where the array is proposed to be installed (ash saplings) have the potential to support roosting bats. Some mature broadleaved trees exist to the east of this location (along the north field boundary), leading to an



area of woodland containing trees that are of a sufficient age and size to support features suitable for roosting bats.

b) Foraging and commuting habitat

The majority of the meadow is of *low* value to foraging and commuting bats. Boundary hedgerow H1 is connected to other habitats (e.g., hedgerows and trees) in the wider landscape and will support numerous invertebrate prey species (Collins, 2016). It was therefore assessed as providing *Moderate* foraging and commuting value for bats.

4.3.4 *Nesting birds*

The hedgerow H1 provides potential nesting, foraging and song perch habitat for a range of garden birds including species such as dunnock (*Prunella modularis*) (Amber Status; S. 41 List), song thrush (*Turdus philomelos*) (Red List; S. 41 List), blackbird (*Turdus merula*) and wren (*Troglodytes troglodytes*). Other bird nesting opportunities exist in mature trees around the boundaries of the wider field.

4.3.5 *Badger*

No evidence of badger (e.g., snuffle holes, runs, latrines, setts) was observed, although the species have been historically recorded in adjacent fields to the west of the application site.

4.3.6 *S. 41 list habitats and species*

a) Habitats

Hedgerow H1 comprises c. 100% of a native shrub species, primarily hawthorn, and is over 20m in length with gaps of less than 5m, therefore meets the qualifying criteria to be listed as a S. 41 hedgerow habitat. Offsite priority habitats include wood pasture and parkland, deciduous woodland and a river, all immediately adjacent to the east field boundary.

b) Species

The meadow provides some suitable hedgehog foraging habitat and the boundary hedgerow H1 may be used for refuge and dispersal, it may also support some S. 41 list invertebrates. Brown hare may also be present on the site.

4.3.7 *Non-native invasive plants*

No non-native invasive species were recorded within the application site boundary.

**4.4 GEOGRAPHIC CONTEXT**

The geographic context of a feature is a useful consideration within an assessment of impacts. For this report, the geographic frames of reference for the habitats and species present on sites are provided in Table 4.3; values are based upon the criteria in Table A2.1 (Appendix A2) and expert best judgements.

**Table 4.3 Feature value based on geographic context**

<b>Feature</b>	<b>Value</b>
Manage grassland, trees, hedgerow	Local
Amphibians and reptiles	Local
Bats	Local
Nesting birds	Local

S. 41 habitats and species	Local
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## **5 Assessment and recommendations**

### **5.1 INTRODUCTION**

The following section provides a summary description of the proposed development, with an assessment of associated impacts and likely significant effects upon biodiversity.

The assessment and recommendations are based on use of the mitigation hierarchy, which in the first instance aims to avoid impacts. Where impacts cannot be avoided, they should be minimised (through mitigation). Only where impacts cannot be avoided or minimised should there be compensation for biodiversity harm.

Ecological enhancements are suggested, and consideration is given to individual as well as overall net gains or losses of biodiversity.

### **5.2 DESCRIPTION OF PROPOSED DEVELOPMENT**

The installation of a ground mounted solar array will result in the localised disturbance a small area of a periodically grazed meadow where the solar arrays will be positioned next to a hawthorn hedgerow (H1). The installation of a power cable between the arrays and Thorpe Morieux Hall will result in the temporary disturbance of a meadow to the north and it will then run along the existing driveway to the Hall. The metal frames that the solar panels will be fixed to will occupy a very small area with the grassland allow to grow under the panels with periodic cutting (especially along the front edge) to prevent any shading of the panels.

The assessment and recommendations below provide preliminary recommendations for mitigation, compensation, and enhancements for the proposed development. They are based on drawings available at the time of writing (MS<sup>2</sup> Architectural Consultants Ltd.) and should be updated accordingly if the scheme is subsequently amended.

### **5.3 FURTHER SURVEYS REQUIRED**

It is generally advised that subject to no significant change in site management regimes, and dependent on the species present, baseline survey results remain valid for approximately 12 – 18 months (CIEEM, 2019). Exceptions include where mobile species are/may be present, where site management practices cease or change, or where existing guidance indicates otherwise.

Existing management regimes should be maintained on the site prior to works commencing.

### **5.4 ASSESSMENT OF IMPACTS**

The EclA assessment process (CIEEM, 2018) involves:

- Identifying and characterising impacts and their effects;
- Incorporating measures to avoid and mitigate negative impacts and effects;
- Assessing the significance of any residual effects after mitigation;
- Identifying appropriate compensation measures to offset significant residual effects;
- and
- Identifying opportunities for ecological enhancement.

The emphasis in EclA is on the assessment of 'significant effects' i.e. an effect that either supports or undermines biodiversity conservation objectives for 'important ecological features' or for biodiversity in general. In broad terms significant effects encompass impacts on structure and function of defined sites, habitats or ecosystems and the conservation status of habitats and species including extent, abundance, and distribution.

The ecological features to be subject to detailed assessment in this report are those judged to be important and potentially affected by the project; protected species are included where the development will result in a potential breach of legislation.

## 5.5 HABITATS AND VASCULAR PLANTS

### *a) Potential impacts*

The proposed installation of a ground mounted solar array will result in the permanent loss of a very small area of grassland where the metal frame is fixed into the ground. Localised disturbance of the grassland will occur with a 150mm x 300mm trench through the grassland areas and the cable will be installed under any hedges using moling equipment. Once operational the grassland will be kept short around the arrays to prevent shading of the panels. The adjacent hedgerow will also be periodically cut.

The construction phase has the potential to accidentally damage the existing boundary hedgerow and trees. Such impacts would have a significant negative effect at the Local level.

### *b) Mitigation*

Given the nature of the proposed works and the short build period required to erect the supporting framework and attach the solar panels, no site compound is considered necessary with materials brought to site by the contractor on a daily basis.

Temporary (e.g., Heras) fencing and Root Protection Areas (RPAs) must be used as necessary to protect retained trees, areas of grassland and hedgerows. Where the cable passes through the adjacent hedgerow a trench will be hand dug after the ground vegetation has been cleared to ground level or a

A contractor Risk Assessment Method Statement (RAMS) should be developed ahead of works commencing to ensure Good Practice measures are used to avoid and/or minimise the risk of pollution upon waterbodies. Measures may include, but are not exclusive to:

- Locating any site compounds (including any fuel storage) away from the east field boundary
- Placing straw bales along the eastern edge of the field boundary
- Limiting topsoil removal as required and covering topsoil whilst stockpiled;
- Cleaning machinery in designated areas with a sump and re-using waste water where possible or discharging via a sewer or tanker only;
- Storing chemical and fuels securely within double-banded bowzers or chemical stores (with a 110% capacity to contain any spillage) away from the eastern boundary;
- Using water based, non-toxic and biodegradable chemicals and fuels where possible;
- Mixing and washing chemicals and associated equipment in designated areas with waste water safely disposed of via mains sewerage or tanker as appropriate;

- Use of biodegradable hydraulic and fuel oils;
- Having adequate site security in place; regularly checking equipment for failures and/or leaks; and
- Keeping spill kits and booms present on the site and ensuring staff are trained in their use.

Although prepare for other areas of the UK, useful further information is available via the Guidance for Pollution Prevention - Works and maintenance in or near water: GPP 5 January 2017 document, produced by Natural Resources Wales (NRW), the Northern Ireland Environment Agency (NIEA) and the Scottish Environment Protection Agency (SEPA)<sup>8</sup>.

*c) Residual effects*

With mitigation measures implemented, there will be no significant residual effects for the scheme. None the less, a loss of any mature tree is undesirable and so like for like replacement planting is recommended in section 5.10 if any trees require removal.

## 5.6

### **AMPHIBIANS AND REPTILES**

*a) Potential impacts*

Any removal of vegetation from the meadows to install the cable and the Solar panel mounting frame is unlikely to result in the injury or mortality of amphibians as the vegetation is maintained relatively short. However, given the proximity of the cable route to pond P1 the presence of open trenches and caustic materials (for the mounting frame) could result in the injury and mortality of amphibians, including potentially GCNs.

Pollution of pond P1 could potentially kill or injure amphibians, including GCNs and affect breeding success. However, as the trench for the cable route will be backfilled using material dug on site, any impacts would relate to siltation and as there is

Combined, the above impacts are considered a significant negative effect at the local scale.

*b) Mitigation*

As per section 5.5.

Given the extremely limited footprint of the proposed scheme and the likely absence of GCN from the site, the risk of harm to the species is low. Good working practises should be employed to further reduce any risk and to avoid direct impacts upon other amphibian species that could potentially be present. These should include:

1. Mowing of the cable under hedgerows will ensure no impacts to any amphibians seeking refuge within the base of hedgerows as it will be at a depth below where animals could be positioned.
2. The areas of grassland to be removed (and adjacent) should be kept short with regular mowing;
3. Clearance of any taller vegetation should be undertaken sensitively during the months of April to September inclusive. Hand tools (e.g., strimmers and hedge trimmers) should be used to take taller vegetation down to ground level using a 2-stage cut as follows:

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<sup>8</sup> <http://www.netregs.org.uk/media/1418/gpp-5-works-and-maintenance-in-or-near-water.pdf>

- The first cut should be to no lower than 150mm above ground level with brash raked removed from site; and
  - The area should be left for a minimum of 1 hr to allow any animals to move and the second cut should be to just above ground level. The arising should again be raked off and removed from site to prevent any wildlife seeking refuge.
4. Excavations should be filled on the same day they are dug or covered overnight with ply boarding and any gaps filled with damp sharp sand;
  5. If this is not feasible access ramps should be created to allow animals to escape and the excavations should be inspected prior to infilling. Any animals (except for GCN) present should be moved into retained hedgerows.
  6. Uncovered excavations should be checked daily and immediately prior to filling;
  7. Footings and concrete slabs should be poured during the morning where possible to ensure it has solidified prior to dusk to reduce the risk of animals coming into contact with wet concrete;
  8. Any hand mixing of mortar or concrete should be on ply boarding over a tarpaulin which is folded over the boarding at the end of each day to prevent animals coming into contact;
  9. Any excess concrete should be poured into a concrete skip, so it can then set to prevent animals coming into contact. Concrete mixers and shovels, rakes, boots etc. must be cleaned off in a safe location.
  10. All building materials and waste materials should be stored on bare ground or hard standing, or stored off the ground on pallets to reduce risk of animals seeking refuge; and
  11. Should any GCNs be encountered, works must stop immediately, and advice be sought from a suitably experienced ecologist. Any other animals should be allowed to move out of the works area, or safely relocated. The poster in (Appendix A3) should be erected in the welfare facilities provided for construction staff onsite.

*c) Residual effects*

With mitigation implemented there will be no significant residual effects.

## 5.7

### **BATS**

*a) Potential impacts*

i) Roosting bats

No trees that have the potential to support roosting bats will be removed from the site and therefore the risk of negative impacts is considered to be negligible.

ii) Commuting and foraging bats

The removal of grassland and tall vegetation to accommodate the installation of the solar array will result in a small net loss of low value bat foraging habitat, albeit very small in extent and not considered to be significant upon conservation status.

iii) Light disturbance

No lighting will be required during the construction or operational phases of the solar arrays such that no impacts are predicted.

*b) Mitigation*

Temporary fencing of any trees and hedgerows to avoid damage from the moling equipment and excavator to be used for the installation of the cable.

*c) Residual effects*

Subject the appropriate mitigation there will be no residual effect.

**5.8**

**NESTING BIRDS**

*a) Potential impacts*

The installation of the cable where it passes under any hedgerows or close to any trees could cause disturbance to nesting birds during the breeding/nesting season (1st March to 31st August). Although considered unlikely, the destruction of nests and possible injury or death of nesting young birds present, through accidental damage to retained hedgerows and trees would be considered a significant negative effect (as an offence under wildlife legislation) at the Local level. Disturbance effects can impact upon breeding and fledging success.

*b) Mitigation*

As per section 5.5.

If building works are proposed to commence during the bird breeding season (e.g. March to August inclusive for most species) a nesting bird check is required prior to works commencing. If any nests are found, exclusion zones must be established until young have fledged. The builder's compound (if required) should be sited on hard standing away from any trees and hedgerow H1 along the northern field boundary.

*c) Residual impact*

No significant effects.

**5.9**

**OTHER S. 41 LIST HABITATS AND SPECIES**

*a) Potential impacts*

During the construction phase hedgehog could potentially fall into excavations including wet concrete resulting in injury or death. Such impacts could have a significant negative effect upon individuals at the Local level.

*b) Mitigation*

Habitat avoidance and mitigation as per section 5.5 and 5.6.

*c) Residual effects*

No significant effect.

**5.10**

**COMPENSATION**

The development will result in the permanent loss of a small area of low value grassland and, this does not require compensation.

**5.11**

**CUMULATIVE EFFECTS**

The Babergh and Mid Suffolk District Council planning website was searched on 20 October 2023 for relevant applications within a 1km buffer of the application site dating back 2 years. Refused and withdrawn applications were not considered in relation to cumulative ecological effects. The search returned a low number of householder applications for extensions and material amendments, some applications for discharge of conditions for small schemes granted planning permission more than two years ago. Details of the two approved full planning applications (both for minor developments) are summarised below:

- Permission was granted (DC/22/03483) for the conversion of an existing outbuilding to a holiday let/ancillary annex, along with the change of land use to create a residential garden at The Nook, Almshouse Green, Thorpe Morieux, Bury St Edmunds, Suffolk, IP30 0NP. A Biodiversity Enhancement Strategy (BES) was recommended by the LPA Ecologist (Place Services Ltd.), in response to an ecology statement. No formal ecology report was submitted in support of the application.
- Permission was granted (DC/22/05136) for an amendment to a previously approved full planning application (DC/20/04096) for the erection of one detached dwelling on land to the West of Bury Road, Thorpe Morieux, Suffolk. An Ecological Survey Report submitted with the application concluded that the proposed development site was of *low ecological value* and, subject to suggested mitigation and enhancement measures being implemented, no significant ecological effects were anticipated. Places Services Ltd raised no objections on the condition that a BES be submitted prior to the commencement of any works.

There is no indication from the above applications that there will be any significant cumulative impact with the current application.

## 5.12

### ENHANCEMENT OPPORTUNITIES

To achieve a gain in the biodiversity value of the site, it is recommended that 2 out of the following 5 measures (Table 5.1) are implemented as part of the scheme.

**Table 5.1 Enhancement opportunities**

Feature	Enhancement suggestion
Landscaping	1. A mixture of wild clematis ( <i>Clematis vitalba</i> ) and honeysuckle ( <i>Lonicera periclymenum</i> ) could be trained up the posts to provide nectar sources for pollinator species.
Small passerine bird boxes	2. Three small passerine nest boxes (Appendix A6) could be erected on local trees with exact locations agreed with a suitably experienced ecologist.
Bats	3. Three bat boxes (Appendix A6) could be mounted on suitable trees in the wider site (exact locations agreed with a suitably experienced ecologist).
Amphibians and reptiles	4. A grass snake egg laying heap (Appendix A7) could be created in the field adjacent to the east boundary woodland, using arisings generated during the vegetation clearance required for the solar array installation.  5. Logs from felled broadleaved trees (from the owners' wider landholdings) could be used to create log piles, which would provide refuge habitat for amphibians (Appendix A6).

Peat based composts should not be used for any planting or landscaping in order to preserve existing carbon stores and avoid damage to sensitive habitats.



## 5.13

### **CONCLUSIONS**

The proposed mitigation, compensation and enhancement measures will ensure the proposed scheme avoids net losses of biodiversity and will maximise biodiversity enhancements provided.

To maximise potential biodiversity benefits the measures proposed should be secured through detailed design and appropriate planning conditions as per the British Standard BS 42020:2013):

1. BS 42020:2013 D.2.1: A Biodiversity Enhancement Strategy plan to detail mitigation, compensation and enhancement measures, to be reflected in the detailed landscaping proposals and site plans for the scheme.

## 6 References

CIEEM (2017) Guidelines for Ecological Report Writing. Second edition. Chartered Institute of Ecology and Environmental Management, Winchester.

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

CIEEM (2019) Advice Note: on the lifespan of ecological reports and surveys.

CIRIA, CIEEM and IEMA (2016) Biodiversity Net Gain: good practice principles for development.

Collins, J. (ed) (2016) Bat Surveys for Professional Ecologists: Good Practice Guidelines (3rd Edition), Bat Conservation Trust, London.

Eaton, M.A., Brown, A.F., Noble, D.G., Musgrove, A.J., Hearn, R., Aebischer, N.J., Gibbons, D.W., Evans, A. and Gregory, R.D. (2015) Birds of Conservation Concern 4: the population status of birds in the United Kingdom, Channel Islands and the Isle of Man. *British Birds* 102, pp296-341.

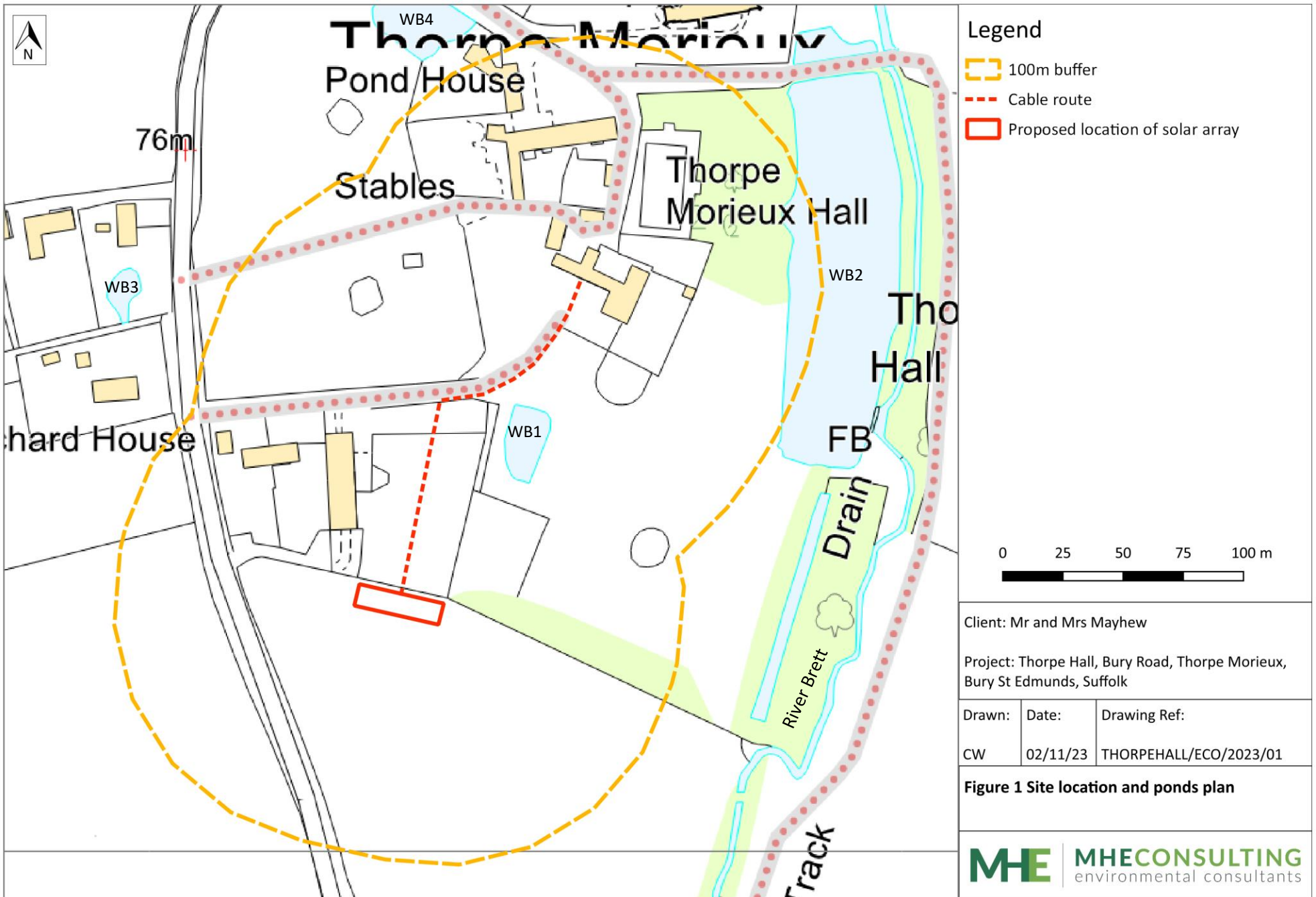
JNCC (2010) Handbook for Phase 1 habitat survey – A technique for environmental audit, JNCC, Peterborough.

Oldham, R.S., Keeble, J., Swan, M.J.S. and Jeffcote, M. (2000), Evaluating the suitability of habitat for the great crested newt (*Triturus cristatus*), *Herpetological Journal*: 10(4): 143-155.

Scottish Badgers. (2018) Surveying for Badgers: Good Practice Guidelines. Version 1.

Waring, S., Essah, E., Gunnell, K. and Bonser, R. (2013) Double jeopardy: the potential for problems when bats interact with breathable roofing membranes in the United Kingdom. *Architecture & Environment*, 1 (1). pp. 1-13.

## Figures

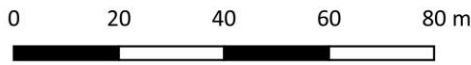






**Legend**

- - - Cable route
- Proposed location of solar array



Client: Mr and Mrs Mayhew  
 Project: Thorpe Hall, Bury Road, Thorpe Morieux, Bury St Edmunds, Suffolk

Drawn:	Date:	Drawing Ref:
CW	02/11/23	THORPEHALL/ECO/2023/02

**Figure 2 Habitats plan**

# Appendices

## Appendix A1 Photos





**Photo 1** Hedgerow H1, with a margin of grasses/ruderal vegetation and permanent pasture where the solar array is proposed. View looking east.



**Photo 2** Existing site entrance into the meadow. View looking west from where the solar array is proposed.



**Photo 3** View looking east of the proposed location for the solar array.



**Photo 4** Adjacent pasture and roadside hedgerow H2 (western site boundary)





**Appendix A2 EclA criteria**

## A2.1 General criteria for geographic context/value

Designation	Example
<b>International</b>	<ul style="list-style-type: none"> <li>• SPA, SAC and Ramsar sites and the features that they have been designated for.</li> <li>• A sustainable area of habitat listed in Annex I of the Habitats Directive or smaller areas of such habitat which are essential to maintain the viability of a larger whole.</li> <li>• A sustainable population of an internationally important species e.g. UK Red Data Book (RDB) species or European Protected Species (EPS) of unfavourable conservation status in Europe (e.g. Annex II species: bats, GCNs etc.), of uncertain conservation status or of global conservation concern in the UK BAP.</li> </ul>
<b>National</b>	<ul style="list-style-type: none"> <li>• SSSI or a discrete area that meets the selection criteria for designation.</li> <li>• A sustainable area of priority habitat identified included on the S. 41 NERC Act list or smaller areas of such habitat that are essential to maintain the viability of a larger whole.</li> <li>• A sustainable population of priority species (listed under S. 41 of the NERC Act 2006).</li> <li>• A sustainable population of a nationally important species i.e. RDB species not included in above category but which is listed on Schedules 5 or 8 of the WCA 1981 (as amended). Also, sites supporting a breeding population of such species or supplying a critical element of their habitat requirements.</li> <li>• A sustainable population of uncommon or threatened Annex IV EPS species at a UK level.</li> <li>• A nationally scarce species (occurs in 30-100 10km squares in the UK) that has its main UK population within the district.</li> </ul>
<b>County</b>	<ul style="list-style-type: none"> <li>• A viable area of habitat identified in the county BAP.</li> <li>• A County Wildlife Site.</li> <li>• A sustainable population of common or non-threatened Annex IV EPS species at a UK level.</li> <li>• A Nationally Scarce species that does not have its main population within the county.</li> <li>• A sustainable population of a BAP species not included in the 'national' category above for which a county Action Plan exists.</li> </ul>
<b>Local</b>	<ul style="list-style-type: none"> <li>• Individual members of local populations of priority or other nationally/internationally important species which are not in themselves key for maintaining a sustainable population (e.g. individual dog otter passing through area with no holts or resting sites).</li> <li>• Other habitats and species not in the above categories but are considered to have some value at the district/borough level.</li> </ul>

## **Appendix A3 Great-crested newt poster**

# Great Crested Newt

If seen by any employee, works must cease immediately and an ecologist be contacted for advice

It is an offence to intentionally or recklessly disturb, injure or kill great crested newts

Further information can be found at [www.arguk.org](http://www.arguk.org)



## **Appendix A4 Bat boxes**



Chillon WoodStone Bat Box

**£26.35** ex VAT



Eco Bat Shelter

Price From:  
**£15.93** ex VAT



Beaumaris Bat Box

Price From:  
**£26.39** ex VAT



Large Multi-Chamber Bat Box

**£42.23** ex VAT



Woodstone Interconnecting Bat Box

**£52.54** ex VAT



Class Bat Box Making Kit - Single Kit

**£8.80** ex VAT



Kent Bat Box

**£15.73** ex VAT



Chavenage Cavity Bat Box

**£17.00** ex VAT



Improved Crevice Bat Box, Triple

**£29.83** ex VAT



Almodovar Bat Box

**£39.38** ex VAT

## **Appendix A5 Small passerine bird boxes**




barkboxes.co.uk/product/open-fronted-nest-box/

Sign In | Fulcrum ... UK Grid Reference... National Biodiversit... Bing Maps ~ Santander Online... Microsoft Office Ho... Jacobs Engineering... Jacobs Engineering... Worldw...

**BARK BOXES**  
Conserve and Enhance

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### Open Fronted Nest Box

£25.00

For birds such as robin and pied wagtail. Open fronted but with a generous canopy to screen from aerial predators. Place in good cover not in the open.

43 in stock

- 1 + **Add to basket**

Category: bird and bat boxes

Description	Additional information	Reviews (0)
<p><i>Description</i></p> <p>Height tbc</p> <p>Width</p> <p>Depth</p> <p>Typical Weight</p>		

RSPB Sparrow terrace nest box

Product Code: R407816

Qty 1




**£ 29.99**

In Stock **ADD TO BASKET**

Product Information Product details Ratings & Reviews

**PROMOTIONAL NEST BOXES!**

- Add two promotional nest boxes to your basket to save £2
- Offer ends 5th January 2020 and is subject to availability
- Loyalty points can be collected/redeemed as usual
- Not available in conjunction with any other offer

Please allow 2 - 3 days for delivery. [Details](#)

[Home](#) > [Bird care](#) > [Bird houses & nest boxes](#) > [Garden bird nest boxes](#) > Apex starling nestbox

 Print



## Apex starling nestbox

Product Code: R405836

**£ 23.99**

★★★★☆ [Read all reviews](#)

Beautifully made FSC ® certified timber nest box designed with starlings in mind. The 45mm entry hole allows the larger birds to nest in the box.

Features include drainage holes and one side that pivots open for easy end-of-season cleaning.

Nest box measures 31.5 x 18.5 x 18cm.

[Read full information](#)

**SAVE £2 WHEN YOU BUY TWO PROMOTIONAL NEST BOXES!**

- Add two promotional nest boxes to your basket to save £2
- Offer ends 6th July 2021 and is subject to availability
- Loyalty points can be collected/redeemed as usual
- Not available in conjunction with any other offer



Currently unavailable

**£ 23.99**

## **Appendix A6 Grass snake egg laying heap & log pile examples**



# Creating grass snake egg-laying heaps



RAVON



ARG UK

## Identification

The grass snake *Natrix helvetica* is the largest British native snake, and can grow to over 1 metre in length. Grass snakes range from grey to green or brown in colour. They have a distinctive yellow or cream collar, bordered to the rear by contrasting dark markings. There is a series of dark bars running along the flanks and some individuals have dark spots on the back as well. Often found near water, grass snakes can sometimes be spotted swimming, or hunting for favoured prey species, which are mainly amphibians. Grass snakes are non-venomous, but they can exude an unpleasant smelling musk if caught. They can live for up to 15 years in the wild.

## Introduction



## Life cycle

In common with other native reptiles, grass snakes hibernate over winter from October to March, emerging as the weather warms in early spring to replenish their energy reserves by feeding and basking. During April and May they find a mate, and in June or July females lay 10 to 40 leathery white eggs, often in warm compost, piles of leaves or manure heaps, which helps the eggs to incubate and hatch. Several females may use the same egg laying spot, so it may be possible to find large numbers of eggs in a suitable heap. After 6 to 10 weeks the pencil sized (14-22 cm long) young grass snakes emerge. Hatchlings cut their way out of the egg with an egg tooth, which they lose once they have emerged. It then takes three to four years for the young grass snakes to reach adulthood and sexual maturity.



Hatched grass snake eggs

Grass snake distribution  
in the British Isles  
(© NBN Atlas)



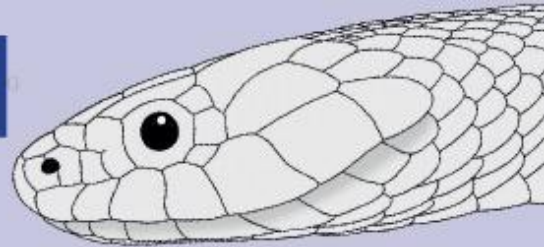
## Distribution and habitat

Grass snakes are widely distributed across much of England and Wales, though they are less commonly recorded in the North East of England, and Scotland. Generally, grass snakes prefer to live near water, where they can readily find their amphibian prey; but two other essential habitat features are egg-laying sites and places to hibernate. Natural grass snake egg-laying sites include heaps of organic material, or rotted tree stumps. Many grass snakes, however, take advantage of human activities and lay their eggs in manure or compost heaps. As a result, grass snakes are sometimes seen near riding stables and allotments during the spring and summer months. Over-wintering or hibernation occurs in dry, frost free and relatively undisturbed locations. Hibernation sites may be located in burrows or holes, heaps of rubble or wood, or dilapidated stone walls or buildings. In some areas, a vegetated earth bank or hedge bank, sea wall or even a road or rail embankment may be used.





## Why create egg-laying heaps?



### How you can help grass snakes

Grass snakes and humans have been intricately linked through livestock husbandry for many thousands of years across large parts of Europe. Historically, grass snakes have made use of manure heaps, and latterly compost heaps, as egg-laying sites, since these structures generate the heat that the snakes need to incubate and successfully hatch their eggs. In previous times this close association led to the grass snake being regarded as a house god in some parts of Europe, the symbol of spring, wisdom and protecting livestock.

However, in common with much of our native wildlife, we are seeing declines in grass snakes as agricultural and livestock husbandry practices change. One factor is thought to be availability of egg-laying sites, since there are fewer suitable heaps of manure accessible to grass snakes in the wider countryside. One means of boosting grass snake numbers may therefore be to create egg-laying heaps. These heaps also provide shelter and overwintering sites for slow-worms, amphibians, invertebrates and small mammals such as hedgehogs, mice and voles.



### How to create a grass snake egg-laying heap



- **Where:** In a sunny spot, adjacent to tall vegetation, away from busy roads and no more than 400m from a water body. Female grass snakes become habituated to using a successful heap for several years, so when refreshing a heap, ensure you always use the same location.
- **When:** Mid-March to late April
- **Materials:**
  - One third fresh horse manure
  - One third vegetation (leaves, clippings) or compost.
  - One third large sticks or branches.
- **Instructions:**
  - Clear the ground where you want the heap
  - Create a base layer of leaves and clippings
  - Lay the largest sticks/branches on top of this
  - Place half of the horse manure on top of the sticks and branches.
  - Add another layer of smaller sticks.
  - Mix the remaining manure with the vegetation/compost and add this to the heap. Add some branches and smaller sticks to keep these layers well ventilated.
  - Ensure that the egg-laying heap is not too compacted, so the animals can easily get into it, and to prevent it from overheating.





#### For more information about grass snakes

Amphibian and Reptile Groups of the UK (ARG UK) - [www.arguk.org](http://www.arguk.org)  
 Amphibian and Reptile Conservation - [www.arc-trust.org](http://www.arc-trust.org)  
 Froglife - [www.froglife.org](http://www.froglife.org)

If you find a dead or diseased grass snake please report the incident to the Garden Wildlife Health Project (GWH) - [www.gardenwildlifehealth.org](http://www.gardenwildlifehealth.org).  
 GWH investigates disease threats to British wildlife.

If you spot a grass snake at any stage of its life cycle (eggs, juvenile, adult), or even a shed skin, please share the information either through Record Pool - [www.recordpool.org.uk](http://www.recordpool.org.uk), or your preferred biological recording scheme.

#### ARG UK

The Amphibian and Reptile Groups of the UK (ARG UK) is a network of volunteers committed to the conservation of native amphibians and reptiles. ARG UK is a registered charity (no. 1165504).

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**Log pile**



**Log pile with vegetation growing through it providing more cover for wildlife.**