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## **Ecological Appraisal Report**

**PROPOSED SWIMMING POOL, POOL HOUSE AND  
GARDEN STORE EXTENSION**  
**Gosnalls Farm, Flatford Lane, East Bergholt, Suffolk**

30 November 2021



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# Executive Summary

MHE Consulting Ltd were instructed to undertake an ecology survey of land at Gosnalls Farm, Flatford Lane, East Bergholt, Suffolk where a planning application is to be submitted to Babergh District Council to build a swimming pool and convert an outbuilding into a pool house with showers and toilet. In addition, an existing cart lodge will be extended to provide a plant room and potting shed.

The proposed development site comprises an existing outbuilding and a cart lodge and an area of mown lawn. A minor watercourse which drains into the River Stour at Flatford runs adjacent to the southern boundary of the proposed application site and is lined with ruderal vegetation and trees.

Bat surveys have identified the presence of a soprano pipistrelle (*Pipistrellus pygmaeus*) day roost in the outbuilding and a brown long-eared (BLE) (*Plecotus auritus*) feeding perch/night roost. Some BLE droppings were recorded in the cart lodge indicating the presence of a day roost. An adjacent watercourse and trees provide optimal bat commuting and foraging habitat.

An area of species poor lawn will be permanently lost under the footprint of the proposed swimming pool and terrace. The lawn provides foraging habitat for hedgehog (*Erinaceus europaeus*) and potentially amphibians during warm, wet evenings. The outbuilding proposed for conversion into a pool house provides suitable habitat for nesting birds and a black bird (*Turdus merula*) nest was recorded in the building during 2021.

Measures are proposed to avoid, mitigate, and compensate impacts and ecological effects upon habitats and associated species. A Bat Mitigation Class Licence will be required to allow the development to proceed and can be conditioned as part of the planning approval. Enhancements are suggested which could deliver biodiversity gains.

# 1 Introduction

## 1.1 BRIEF

MHE Consulting Ltd were instructed to undertake an ecology survey of land at Gosnalls Farm, Flatford Lane, East Bergholt, Suffolk (Figure 1, TM 07419 33745) where a planning application is to be submitted to Babergh District Council to build a swimming pool and convert an outbuilding into a pool house with showers and toilet. In addition, an existing cart lodge will be extended to provide a plant room and potting shed. A hedgerow is proposed to mark the pool garden area, whilst some specimen hawthorn trees are also proposed.

Planning permission is being sought for the residential conversion of the former woodshed with associated hard standing and the renovation of an existing fire damaged shed into a garage.

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, consistent with national and local planning policy.

This report will be used to develop the proposals as necessary, and to form the basis for the submission of biodiversity information with any planning application. 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 (Photos 1 to 4, Figure 1) comprises an existing outbuilding and a cart lodge and an area of mown lawn. A minor watercourse which drains into the River Stour at Flatford runs adjacent to the southern boundary of the proposed application site and is lined with ruderal vegetation and trees.

Photos referred to within this report are provided within 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).

#### 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. Planning policies and supporting documents that are used to plan, deliver and monitor development across the Babergh District Council area can be found at <https://www.midsuffolk.gov.uk/planning/planning-policy/adopted-documents/babergh-district-council/babergh-local-plan/>

### 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 (hereafter referred to as the Habitat Regulations 2017) consolidate the Conservation of Habitats and Species Regulations 2010 with subsequent amendments. The Regulations transposed Council Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora (EC Habitats Directive), and elements of the EU Wild Birds Directive, into national law. The Regulations provide for the designation and protection of ‘European sites’ (Special Protection Areas, SPAs, and Special Areas of Conservation, SACs), the protection of ‘European Protected Species’ (“EPS”), and the adaptation of planning and other controls for the protection of European Sites.

The Regulations have recently been amended by the Conservation of Habitats and Species Regulations (Amendment) (EU Exit) Regulations 2019 (hereafter “Habitats Regulations (EU Exit) 2019”), which continue the same provision for European protected species, licensing requirements, and protected areas after Brexit.

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 due regard of 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 Preliminary Ecological Appraisal (CIEEM, 2017a);
- Guidelines for Ecological Report Writing (CIEEM, 2017b);
- 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 inform the PEA. 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 proposed development sites to support protected or notable habitats/species:

- Aerial photos, Ordnance Survey maps, and the MAGIC website (<http://magic.defra.gov.uk/>) were used to identify habitat types including priority habitats, suitability for particular species/groups, and the locality of nationally and internationally designated sites;
- Natural England's (NE) great crested newt (GCNs) (*Triturus cristatus*) class licence return data and eDNA survey data;
- Historical biological records: species and locally designated site records within 2km of the site 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<sup>2</sup> and reptiles<sup>3</sup> including widespread species such as GCNs, toads (*Bufo bufo*) and grass snake (*Natrix helvetica*);
- Mammals including badgers (*Meles meles*)<sup>4</sup> and bats<sup>4</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*) and brown hare (*Lepus europaeus*).

## 3.3 FIELD SURVEY

A site walkover was undertaken on the 20 August 2021 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.

<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'.



### 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 each 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 ponds exist within the 250m zone of the site. The suitability of the ponds was assessed from the public highway.

#### b) Reptiles

The application site was assessed with respect to the known foraging and refuge habitat preferences of widespread reptile species.

### 3.3.3 *Bats*

#### a) Preliminary Roost Assessment

The outbuilding and cart lodge were assessed with regards to their suitability for supporting roosting bats with reference to the Natural England's (NE) Bat Mitigation Guidelines (Mitchell-Jones, 2004) and the Bat Conservation Trust (BCT) "Bat Surveys: Good Practice Guidelines, 3rd edition" (Collins, 2016).

#### b) Tree Roost Assessment

Existing trees were visually checked to assess their Bat Roosting Potential (BRP) using the following criteria:

1. All potential roosting cavities (e.g. natural cavities, rot holes, woodpecker holes, splits, peeling bark) were inspected from the ground, using binoculars where necessary;
2. All potential niches would be assigned a category according to Bat Conservation Trust (BCT) protocols (Collins, 2016). These categories are listed below:
  - High Suitability: Trees with one or more potential roost sites that are obviously suitable for use by larger numbers of bats on a more regular basis and potentially for longer periods of time due to their size, shelter, protection, conditions and surrounding habitat;
  - Moderate Suitability: Trees with one or more potential roost sites that could be used by bats due to their size, shelter, protection, conditions and surrounding habitat but unlikely to support a roost of high conservation;
  - Low Suitability: A tree of sufficient size and age to contain potential roosting features but with none seen from the ground or features seen with only very limited roosting potential. However, the tree(s) are of a size and age that elevated surveys may result in features being found; or features which may have limited potential to support bats; and
  - Negligible Suitability: Trees with negligible bat roost potential.
3. Where potential niches existed, niches below 5m high were physically inspected, using ladders where appropriate. Any cavities with the potential to support roosting bats were inspected with a SeeSnake endoscope and/or a small LED torch as necessary; and

4. All potential roosting niches were checked for the presence of bats (alive or dead), faecal staining, fur and/or scratch marks around the entrance and droppings within the cavities or attached to the trunk/bough below the entrance.

c) Bat dusk emergence surveys

Surveys of the site were undertaken on the 23 August 2021 and the 29 September 2021 as per the following methodology:

- The emergence survey commenced 15 minutes prior to and for up to 1.5 hours after sunset to cover the main emergence period and when some bats may return to the roost;
- Bat activity such as bats leaving or returning to roost within buildings and trees on site was recorded. In addition, commuting bats and foraging bats were recorded; and
- Numbers and species of bats were recorded to determine the significance of any roosts identified.

An Elekon Batlogger A+ full spectrum bat detector was positioned inside the outbuilding for 5 days after the initial site walkover to record any bats active in the building.

3.3.4 *Nesting birds*

The value of each site 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 proposed development sites 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 list habitats and species*

Each site was surveyed to determine the presence of any S. 41 habitats such as native species-rich hedgerows. The 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*

Each site was inspected for Schedule 9 species such as Japanese knotweed and giant hogweed.

**3.4 SURVEY CONSTRAINTS**

None.

**3.5 SURVEYORS**

Christian Whiting BSc (Hons) MSc MCIEEM MEECW has over 20 years' experience working as an ecologist and holds NE survey licences for bats (2015-14745-CLS-CLS – Bat Survey Level 2, and GCNs (Level 1 licence 2015-17633-CLS-CLS). He is a Registered Consultant (Registration RC089) on NE's Bat Low Impact Class Licence. He is registered on the NE water vole (*Arvicola amphibius*) Developers Class Licence CL31 (Intentional disturbance of water voles and damage/destruction of water vole burrows by means of 'Displacement') and the Environment Agency's and IDB water

vole organisational and class licences respectively. His main areas of expertise are bats, vascular plants, amphibians and reptiles, otter (*Lutra lutra*) and water vole.

The dusk emergence surveys were undertaken by Christian Whiting (first emergence survey) and Leonie Washington (Level 1 survey licence) (both emergence surveys) and Carrie Riddleston (second emergence survey).

### 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 within 2km, nationally designated sites within 5km, and internationally designated sites within 13km of the application site are shown in Table 4.1.

**Table 4.1 Locally and Internationally designated sites**

Site name and designation(s)
The Haugh CWS*
Gibbonsgate Field (Flatford Mill) CWS
Stour Estuary RSPB reserve
Cattawade Marshes SSSI
Colne Estuary (Mid Essex Coast Phase 2) SPA and Ramsar
Orwell Estuary SSSI
Stour Estuary SSSI
Stour and Orwell Estuaries SPA and Ramsar

*\*listed on the Ancient Woodlands Inventory*

### Local sites

None of the sites will be directly impacted by the proposed scheme.

### National sites

None of the sites will be directly impacted by the proposed scheme for a single dwelling. The SSSI Impact Risk Zones state: *For new residential development in this area financial contributions are required towards the Suffolk Recreational Disturbance Avoidance & Mitigation Strategy (RAMS). Contact the Local Planning Authority for further advice.* However, as this development comprises the provision of a swimming pool, pool house and extension to a cart lodge, the Suffolk RAMS is not relevant.

### International sites

The Colne Estuary (Mid Essex Coast Phase 2) SPA and Ramsar sites and The Stour and Orwell Estuaries SPA and Ramsar sites are Internationally important mosaics of estuarine habitats designated for the presence of several species of nationally scarce plants, British Red Data Book invertebrates, and numerous species of overwintering birds with c. 65,000 individuals supported.

Where a development or project may, alone or in combination, have a 'likely significant effect' upon the features of the Natura 2000 (i.e. SPA or SAC) or Ramsar site, The Habitats Regulations 2017 require a Habitats Regulations Assessment (HRA) to be undertaken. Updated interim advice from Natural England states that increased housing located within 1km by foot and 13km by car of these sites may potentially cause disturbance to the interest features due to walkers (and dogs). Disturbance to bird

species that breed and/or overwinter within the sites is considered to cause the greatest impact.

HRAs are undertaken by a "competent authority" (CA), which in the case of Local Plans and most planning applications is the LPA. Within Suffolk, Ipswich Borough Council in partnership with the neighbouring authorities Babergh and Suffolk Coastal have developed the Suffolk RAMS to address likely significant effects upon Internationally designated sites resulting from development within the area. Once in place, new residential developments will be required to make financial contributions towards the RAMS, to satisfy the need for mitigation of likely significant effects.

**A contribution to the Suffolk RAMS will not be required for this scheme as the proposed do not comprise residential development (e.g. no new dwellings are proposed). No further consideration of impacts upon the Stour and Orwell Estuaries will be made in this document.**

#### 4.2.2

##### Species

Records of species present within 0.5km and 2km of the application site boundaries are listed in Table 4.2 below.

**Table 4.1 Protected and notable species within 0.5km (bold) and 2km**

Common name	Scientific name	Legal/conservation status
<i>Bufo bufo</i>	Common toad	Sch. 5;
<i>Lissotriton vulgaris</i>	Smooth newt	Sch. 5; S. 41
<i>Rana temporaria</i>	Common frog	Sch. 5;
<i>Triturus cristatus</i>	Great crested newt	Eps; Sch. 5; S. 41
<i>Natrix natrix</i>	Grass snake	Sch. 5; S. 41
<i>Zootoca vivipara</i>	Common lizard	Sch. 5; S. 41
<i>Alauda arvensis</i>	Skylark	Red status; S. 41
<i>Apus apus</i>	Swift	Amber status
<i>Cettia cetti</i>	Cetti's warbler	Sch. 1
<i>Emberiza citrinella</i>	Yellowhammer	Red status; S. 41
<i>Emberiza schoeniclus</i>	Reed bunting	Amber status; S. 41
<i>Linaria cannabina</i>	Linnet	Red status
<i>Luscinia megarhynchos</i>	Nightingale	Red status
<i>Passer domesticus</i>	House sparrow	Red status; S. 41
<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
<i>Turdus pilaris</i>	Fieldfare	Red status; Sch. 1
<i>Tyto alba</i>	Barn owl	Sch. 1
<i>Eptesicus serotinus</i>	Serotine	EPS; Sch. 5; S. 41
<i>Myotis daubentonii</i>	Daubenton's	EPS; Sch. 5
<i>Myotis nattereri</i>	Natterer's	EPS; Sch. 5
<i>Nyctalus noctula</i>	Noctule	EPS; Sch. 5; S. 41

Common name	Scientific name	Legal/conservation status
<i>Pipistrellus pipistrellus</i>	Common pipistrelle	EPS; Sch. 5
<i>Pipistrellus pygmaeus</i>	Soprano pipistrelle	EPS; Sch. 5; S. 41
<i>Plecotus auritus</i>	Brown long-eared	EPS; Sch. 5; S. 41
<i>Arvicola amphibius</i>	Water vole	Sch. 5; S. 41
<i>Erinaceus europaeus</i>	Hedgehog	S. 41
<i>Lutra lutra</i>	Otter	EPS; Sch. 5; S. 41
<i>Meles meles</i>	Badger	PBA 1992
<i>Neomys fodiens</i>	Water shrew	
<i>Coenonympha pamphilus</i>	Small heath	S. 41
<i>Limnitis camilla</i>	White admiral	S. 41
<i>Lucanus cervus</i>	Stag beetle	Sch. 5; S. 41

#### 4.2.3

#### NE open source GCN data

Assessment of NE's GCN class licence return data shows the closest record to be located c. 0.4km to the south-east of the application site from a pond near Flatford Mill.

### 4.3

#### **BASELINE ECOLOGICAL CONDITIONS – FIELD SURVEY**

#### 4.3.1

##### *Habitats and vascular plants*

The proposed development site (Photos 1 to 2, Figure 1) comprises an outbuilding and cart lodge with areas of species poor lawn, with a minor watercourse immediately adjacent to the southern site boundary with broad-leaved trees.

#### 4.3.2

##### *Amphibians and reptiles*

##### a) Ponds

No ponds are located within 250m of the application site with the minor watercourse acting a potential barrier to the movement of GCNs that have been recorded in a pond by the RSPB wildlife garden (C. Whiting *pers. obs.*) and from pods by Flatford Mill.

##### b) Terrestrial habitat

The mown lawn is considered unsuitable for GCNs as refuge habitat, though amphibians will forage over lawns at night during warm, wet evenings. Grass snakes may use the adjacent watercourse to move between ponds and to hunt, but the application site support no suitable terrestrial habitat as it comprises of mown lawn and buildings.

#### 4.3.3

##### *Bats*

##### a) Preliminary Roost Assessment

The outbuilding B1 proposed for conversion into a pool house has a pantile roof and some traditional roofing underfelt (Photos 1 and 2). A building inspection found a small number of brown long-eared feeding remains and some scattered droppings of BLE and pipistrelle.

An inspection of the cart lodge B2 roof void recorded some BLE droppings indicating probable day roosting. The eaves are tight such that any bat access into the roof void is likely to be under the roof tiles.

b) Dusk emergence and dawn swarming surveys

i) *Dusk emergence survey (23/08/21)*

Weather during the survey was suitable with no rain, low wind, a starting temperature of 16°C. The survey commenced at 19:45 with sunset at 20:03. A single soprano pipistrelle exited from the eaves on the north elevation at 20:14 (Figure 3). Occasional passes by soprano pipistrelle were also recorded along with noctule, and a single serotine registration.

ii) *Dusk emergence survey (29/09/21)*

Weather during the survey was suitable with no rain, low wind, a starting temperature of 19C. Sunset was at 18:38 and the survey commenced at 18:20. Soprano pipistrelle were observed foraging along the watercourse adjacent to the site, but no bats were observed exiting the outbuilding or the east side of the cart lodge where an extension is proposed.

c) Foraging and Commuting Habitat

The application site supports few trees and mostly lawn and is considered of low value bat commuting and foraging habitat. However, the tree lined watercourse immediately to the south of the site is of high bat commuting and foraging habitat.

4.3.4 *Nesting birds*

The outbuilding provides opportunities for common nesting birds with a blackbird nest present in the building whilst small passerines such as house sparrow and wren (*Troglodytes troglodytes*) could potentially nest in the ridge.

Adjacent trees along a minor watercourse that runs adjacent to the proposed application site provide potential nesting and song perch habitat with a spotted flycatcher (*Muscicapa striata*) seen using one of the trees as a vantage point to hunt from.

4.3.5 *Badger*

No evidence of badger (e.g., snuffle holes, runs, latrines, setts) was observed at either allocated site.

4.3.6 *Otter*

No evidence of any otter holts was found within or adjacent to the application site. However, a SBIS record exists for an otter killed on the road close to Gosnalls Farm. This would indicate the minor watercourse provides a dispersal corridor for otters.

4.3.7 *S. 41 list habitats and species*

No S. 41 list habitats exist within the application site, though a small orchard exists to the north of the outbuilding. The minor watercourse adjacent to the application site is considered to be too small to meet the qualifying criteria as a S. 41 river habitat.

The site supports suitable hedgehog foraging habitat.

4.3.8 *Non-native invasive plants*

None present on or immediately adjacent to the site.

# 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 swimming pool and terrace will result in the loss of lawn habitat, whilst the proposed conversion of the outbuilding into a pool house will result in the destruction of a soprano pipistrelle day roost and a BLE night roost. The extension of the cart lodge will not impact any existing bat roosts as existing access points will be retained.

The assessment and recommendations below provide preliminary recommendations for mitigation, compensation and enhancements for the proposed development. They are based on drawings by Roger Balmer Design available at the time of writing and should be updated accordingly as 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, the baseline walkover 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. Therefore, depending on the timing of any planning application submission a repeat walkover survey may also be required.

## 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) Impacts*

Within the application site boundaries, vegetation clearance, and construction activities will result in the permanent loss of a small area of species-poor lawn. Excavation of the swimming pool and related groundworks could cause the siltation and chemical pollution (e.g. fuel oil spill) of the adjacent minor watercourse. Together these impacts could have significant negative ecological effects at the local scale.

### *b) Mitigation*

Retained areas of lawn and trees should be protected from damage with Heras (or similar) fencing during the construction phase.

Given the close proximity of the site to a minor watercourse, 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.

Measures may include, but are not exclusive to:

- Limiting topsoil removal as required;
- The installation of a silt curtain/impermeable membrane parallel to the watercourse and draining to an infiltration ditch or silt trap to allow the safe removal of silt;
- Excavated material to be removed to a skip or taken off site the same day as it is excavated;
- Any temporary stockpiles to be positioned away from the watercourse and it should be covered with a tarpaulin, or an infiltration ditch should be excavated across any sloping ground. The trench should be partially filled with straw bales to help filter out sediment;
- Cleaning machinery in designated areas with a sump and re-using wastewater where possible or discharging via a sewer or tanker only;
- Storing chemical and fuels securely within double-banded bowsers or chemical stores (with a 110% capacity to contain any spillage);
- Using water based, non-toxic and biodegradable chemicals and fuels where possible;
- Mixing and washing chemicals and associated equipment in designated areas with wastewater 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.

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*

None predicted.

## 5.6

### **AMPHIBIANS AND REPTILES**

*a) Potential impacts*

Vegetation clearance will result in temporary and permanent losses of lawn which provides potential foraging habitat, but no refuge habitat will be impacted. The excavation of the swimming pool and any services could result in the potential entrapment, injury and mortality of individuals especially should any come into contact with wet concrete/cement. Such impacts would result in negative effects upon low numbers of individuals.

During the operational phase amphibians could potentially get trapped within filtration system for the swimming pool, whilst chlorinated water would harm any amphibians should they enter the swimming pool. Amphibians can also become trapped in gully pots taking roof water off the pool house or the cart lodge if the down pipes discharge to attenuation crates or to silt traps so that animals become trapped (Muir *et al.*, 2012). Such impacts could result in permanent negative effects upon low numbers of individuals.

*b) Mitigation*

To avoid harm to amphibians and reptiles good practice site clearance and construction measures (See section 5.5b) are recommended:

- Existing mown lawn to be kept short with regular mowing;
- Longer vegetation including ruderal vegetation and scrub adjacent to the minor watercourse should be taken down in layers if >300 mm in height and amphibians are active (i.e. early February to October inclusive) as follows:
  - Vegetation should be trimmed to ground level using a 2-stage cut with the first cut to c. 150 mm above ground level; and
  - The area should be left for at least 1 hour before cutting to ground level.
- During the construction phase, trenches should be filled on the same day as excavation where possible.
- Trenches left overnight should be covered with ply/OSB sheets and any gaps filled with damp sharp sand or mammal ladders used to allow animals to escape;
- The swimming pool will remain open for an extended period and should have a temporary slope excavated which amphibians and small mammals can use to get out.
- Alternatively, mammal ladders should be installed to allow animals to escape. It should be inspected on a daily basis and water should be removed to avoid a temporary pond forming;
- Footings and concrete slabs should be poured during the morning to ensure it has hardened off prior to evening to reduce the risk of animals coming into contact with wet concrete;
- Any hand mixing of mortar or concrete should be on ply boarding over a tarpaulin which is folded over at the end of each day to prevent animals coming into contact;

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

- Any excess cement/concrete should be poured into a concrete skip, so it can then set to prevent animals coming into contact. Equipment must be cleaned off in a location to avoid pollution of the watercourse;
- All building materials and waste should be stored on bare ground or hard standing, or stored off the ground on pallets or in skips to prevent amphibians or reptiles from seeking refuge;
- Should any potential GCNs (Appendix A4) be encountered, works should stop immediately, and advice be sought from a suitably experienced ecologist;
- **Gully pots should be avoided;** and
- **Drainage hoppers for down pipes should use small diameter (6mm) grates where possible but they should preferably be sealed at ground level by using a leaf and debris screen<sup>9</sup> to prevent amphibians entering drains.**

c) *Residual effects*

None predicted as long as the mitigation approach is implemented.

## 5.7

### BATS

a) *Mitigation*

i) Roost loss

The proposed conversion of the outbuilding into a pool house will result in the loss of a soprano pipistrelle day roost, whilst the extension to the cart lodge will result in the disturbance to brown long-eared bats roosting in the roof void. These impacts are considered a significant negative effect at the local scale.

ii) Foraging and commuting habitats

No impacts predicted.

iii) Light disturbance

Lighting during the construction and operational phases can impact bat foraging behaviour and increase the risk of predation, which could affect foraging success and population recruitment, a potentially significant effect upon the conservation status of bats at a local scale.

iv) Roofing membranes

Research has shown bats can become entangled in modern breathable roofing membranes (BRMs) such as Tyvek and other woven membranes, causing injury or death to individuals (Waring *et al.*, 2013). Certain roof coverings such as handmade roof tiles including reclaimed tiles allow bats to access under the tiles more easily and hence come into contact with a modern BRM.

b) *Mitigation*

i) Roosts

A European Protected Species Mitigation licence will be required to 1) legalise the destruction of the roosts in the outbuilding (B1) and 2) disturb roosting bats in the roof void of the cart lodge (B2).

The following measures should be implemented:

- The removal of the roof tiles and any timber cladding must be supervised by a licensed ecologist;

<sup>9</sup> <https://www.drainagepipe.co.uk/leaf-and-debris-gully-110mm-p-D94G/>

- Any bats encountered must be moved to a holding box or left overnight to move by their own volition if the bats are in a small crevice. The area should be reinspected the next day before works recommence; and
- The works should commence in the spring to autumn period when bats are active and not torpid.

ii) Foraging and commuting habitat

Protective fencing should be installed between the fruit trees and the outbuilding with all plant access preferably from the south of the outbuilding.

iii) Light disturbance

Exterior lighting (as well as temporary security lighting during the construction phase) design must minimise lighting impacts upon retained natural habitats (e.g., the minor watercourse and trees), and should follow current guidance as necessary<sup>10,11</sup>:

- *Type of lamp (light source)*: Light levels should be as low as possible as required to fulfil the lighting need. Lamps should have a maximum of 7.5 to 10 lux and LED lights should be used using the warm white (or amber) spectrum, with peak wavelengths >550nm (2700 or 3000°K) and no UV component; and
- *Lighting design*: Lighting should be directed to where it is needed, with minimal horizontal spillage towards retained habitats including hedgerows. This can be achieved by restricting the height of the lighting columns/fixtures and the design of the luminaire, including the following measure:
  - ❖ Light columns/fixtures in general should be as short as possible as light at a low level reduces the ecological impact.
  - ❖ Luminaires with an upward light ratio of 0% should be mounted on the horizontal i.e. with no upward tilt.
  - ❖ If taller lights are required, and as a last resort, accessories such as baffles, hoods or louvres can be used to reduce light spill; and
  - ❖ PIR movement sensors and timers should be used to minimise the 'lit time'.

iv) Roofing membranes

Any re-roofing of the pool house should use a bat friendly roofing membrane (e.g. type 1F bitumastic roofing felt or a wood fibre breathable sarking board such as Pavatex Isolair) if the existing clay pantiles and peg tiles are used to prevent bat entanglement.

c) *Residual effects*

The loss of bat roosting niches must be compensated.

## 5.8

### NESTING BIRDS

a) *Potential impacts*

During construction works including the conversion of the outbuilding (including any stripping of roofs and timber cladding) and working in close proximity to retained trees could impact nesting birds if undertaken during the breeding season. These impacts could result in the disturbance of adult birds incubating eggs resulting in the eventual abandonment/failure of the nest or the injuring/killing of young in the nest considered a significant effect at the local scale.

<sup>10</sup> <https://www.theilp.org.uk/documents/guidance-note-8-bats-and-artificial-lighting>

<sup>11</sup> [www.eurobats.org/sites/default/files/documents/publications/publication\\_series/WEB\\_DIN\\_A4\\_EUROBATS\\_08\\_ENGL\\_NVK\\_28022019.pdf](http://www.eurobats.org/sites/default/files/documents/publications/publication_series/WEB_DIN_A4_EUROBATS_08_ENGL_NVK_28022019.pdf)

*b) Mitigation*

As per 5.5.

Any dense ruderal vegetation or trees that require removal should be done during October to February inclusive to avoid the bird breeding season. At other times of the year a nesting bird check is required including the buildings proposed for conversion or alteration to ensure no nests are present. If any active nests are present, then works must not commence until the young have fledged.

*c) Residual impact*

Impacts upon active nests during construction will be avoided. The loss of nesting habitat (within the building to be converted into a pool house) should be compensated. Some hawthorn trees are proposed which will compensate for any trees that require removal.

**5.9**

**OTTER**

*a) Impacts*

No otter holts or resting sites will be impacted by the proposed works, but animals may use the minor watercourse adjacent to the site such that construction works could cause disturbance including any lighting of the watercourse and trees growing along it. Construction traffic could potentially result in the injuring or killing of animals should they cross Flatford Road, e.g., during times of high flow. Together these impacts would be considered negative (e.g., noise and light disturbance) to significant negative (road traffic casualty).

*b) Mitigation*

As per Section 5.7b) iii). Contractors should be made aware of the potential for otters crossing Flatford Road early in the morning or at night, especially following periods of heavy rainfall when the watercourse may fill any road culvert.

*c) Residual impacts*

No significant residual impacts are predicted.

**5.10**

**OTHER S. 41 LIST SPECIES**

*a) Impacts*

Vegetation clearance, ground-breaking, and construction works including the construction of excavations may result in the death or injury of hedgehog injured during the clearance works or if they fell into open trenches considered a potentially significant negative effect at the local scale.

Erection of ecological barriers such as walls and fencing would impact dispersal capabilities of hedgehog, affecting long-term fitness. No close board fencing is proposed with only a short section of red brick wall proposed between the outbuilding and cart lodge with a gate which could impact the movement of animals between the orchard and lawn. Together these impacts would be considered a negative effect at the local scale.

*b) Mitigation*

As per 5.5.

During construction, concrete should be poured early in the day or covered with ply boarding or membrane overnight to prevent animals coming into contact. Trenches should be covered overnight.

A hedgerow is proposed around the swimming pool and terrace such that animals could potentially access the swimming pool area. The swimming pool should be covered when not in use to avoid hedgehogs drowning.

The proposed short section of red brick wall and gate could restrict hedgehog movement. The gate should be raised a minimum of 130mm to allow animals to pass under the gate. If the gate cannot be raised, then a hedgehog highway (e.g. 130mm x 130mm holes) could be created in the brick wall to allow hedgehogs to move between gardens when foraging (<https://www.hedgehogstreet.org/help-hedgehogs/link-your-garden/>).

*c) Residual effects*

If mitigation is implemented correctly no significant residual effects are predicted.

**5.10**

**COMPENSATION**

A minimum of 2 bat boxes (a mix of timber and woodcrete/woodstone) on trees (Appendix A5) and 2 access points within the ridge of the pool house. One of the bat boxes should be a Vincent Pro bat box.

Bird boxes (Appendix A6) for small passerines (a minimum of 1 sparrow terrace, and 2 robin/wren boxes) should be erected on suitable mature trees or the north elevation of the cart lodge.

**5.11**

**CUMULATIVE EFFECTS**

The Babergh District Council planning website was searched (30/11/21) for relevant applications dating back two years. A small number of minor householder applications were returned, including those concerning extensions to existing dwellings and the erection. Refused and withdrawn applications were not considered in relation to potential cumulative ecological impacts.

Due to the nature of the results returned, no potential cumulative effects are identified in combination with the current scheme.

**5.12**

**ENHANCEMENT OPPORTUNITIES**

A minimum of 4 of the 6 biodiversity enhancements listed in Table 5.1 should be implemented to ensure compliance with the NERC Act 2006 and deliver a significant biodiversity enhancement.

**Table 5.1 Enhancement opportunities**

Feature	Enhancement suggestion
Hedgerow planting	1 A section of native hedgerow planting is proposed to mark the swimming pool garden area. Native species that do not 'shed' their leaves, creating a year-round dense screen and a formal hedgerow, whilst providing an important habitat for garden birds, small mammals, invertebrates and amphibians include: <ul style="list-style-type: none"> <li>• Beech (<i>Fagus sylvatica</i>); and</li> </ul>

Feature	Enhancement suggestion
	<ul style="list-style-type: none"> <li>• Hornbeam (<i>Carpinus betulus</i>).</li> </ul> <p>Species that add colour in autumn and winter and a source of berries fruit include:</p> <ul style="list-style-type: none"> <li>• Hawthorn;</li> <li>• Dogwood (<i>Cornus sanguinea</i>);</li> <li>• Guelder rose (<i>Viburnum opulus</i>)</li> <li>• Holly (<i>Ilex aquifolium</i>); and</li> <li>• Field maple (<i>Acer campestre</i>).</li> </ul>
Tree planting	2 Six specimen standard hawthorn trees are proposed as part of the site landscaping.
Flowering lawns	3 Any lawn areas created around the pool could be established as flowering lawns seeded or turfed with a suitable flowering lawn seed mixture <sup>12</sup> or turf <sup>13</sup> , following supplier guidance on creation and long-term management.
Bird boxes	<p>4 An open fronted bird box (Appendix A6) for spotted flycatcher could be erected on the north elevation of the pool house by the down pipe and a native climber such as honeysuckle (<i>Lonicera periclymenum</i>) should be planted and trained up the wall/down pipe to provide cover around the bird box.</p> <p>5 Barn owl box or kestrel box could be erected on a mature tree within the applicant's land holding.</p>
Stag beetle	6 A stag beetle loggery could be created (Appendix A7) using any broad leaved (untreated) logs and wood chip to the north of the orchard.

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

Subject to securing the relevant NE licence(s) the proposed mitigation, compensation and enhancement measures will ensure the proposed scheme avoids net losses of biodiversity and will maximise biodiversity enhancements provided.

Measures proposed should be secured through appropriate planning conditions as per the British Standard (BS 42020:2013<sup>1</sup>). These could include conditions specific to a Biodiversity Method Statement (BS 42020:2013 D.2.1) to provide detailed guidance for mitigation, compensation, and enhancement measures.

<sup>12</sup> E.g. <https://www.bostonseeds.com/products/wildflowers-seed/wildflower-seed-mixtures-20/bs12m-low-growing-wildflower-meadow-seeds.html?> or <https://wildseed.co.uk/mixtures/view/56/flowering-lawn-mixture>

<sup>13</sup> <https://www.wildflowerlawnsandmeadows.com/wild-flower-turf/extra-floristic-low-flowering-lawn-turf-with-wild-orchid-seed/> or <https://www.turfonline.co.uk/meadowmat/species-rich/>.

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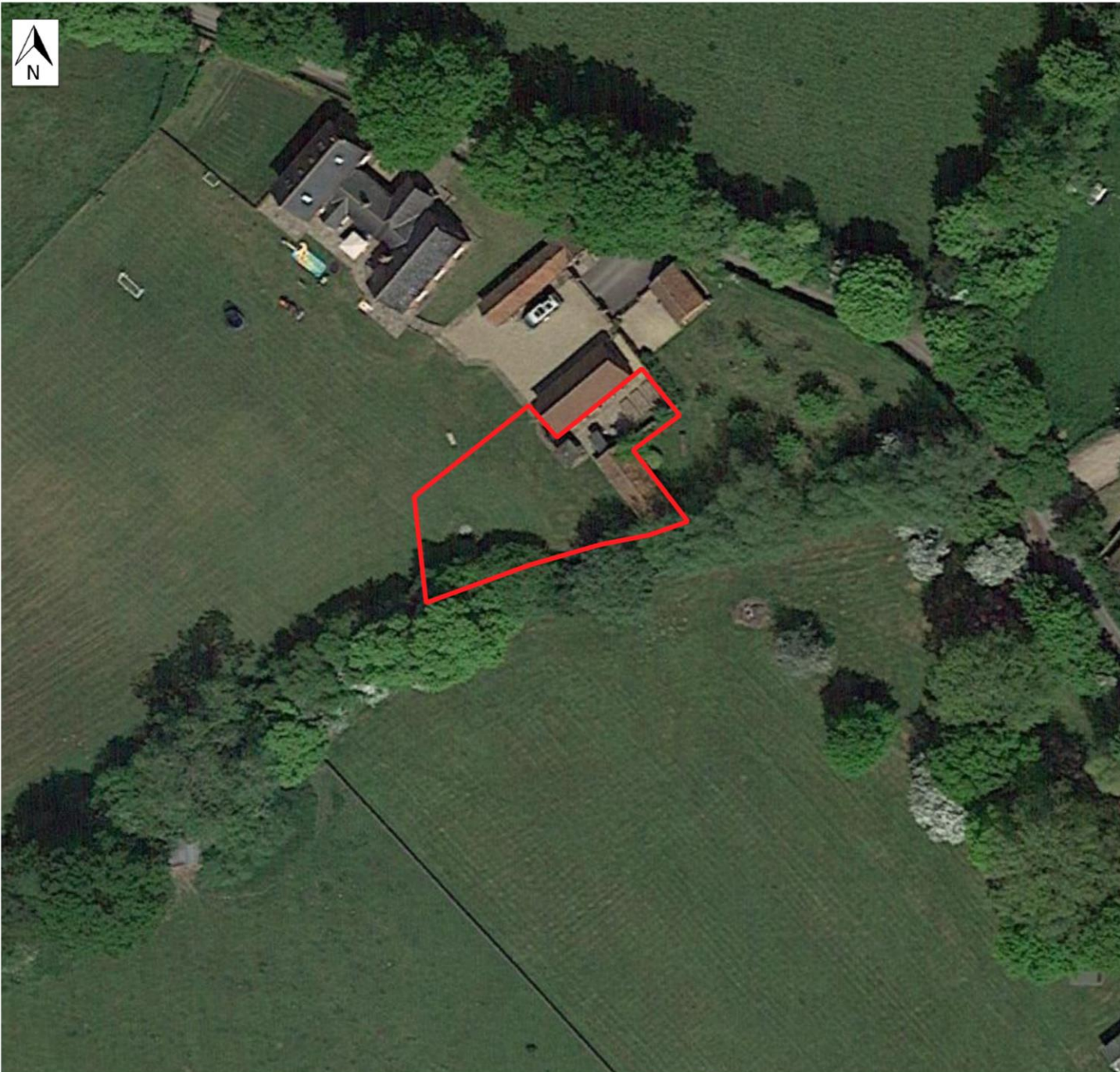
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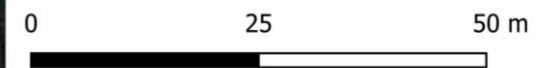


## Figures



## Legend

 Application site

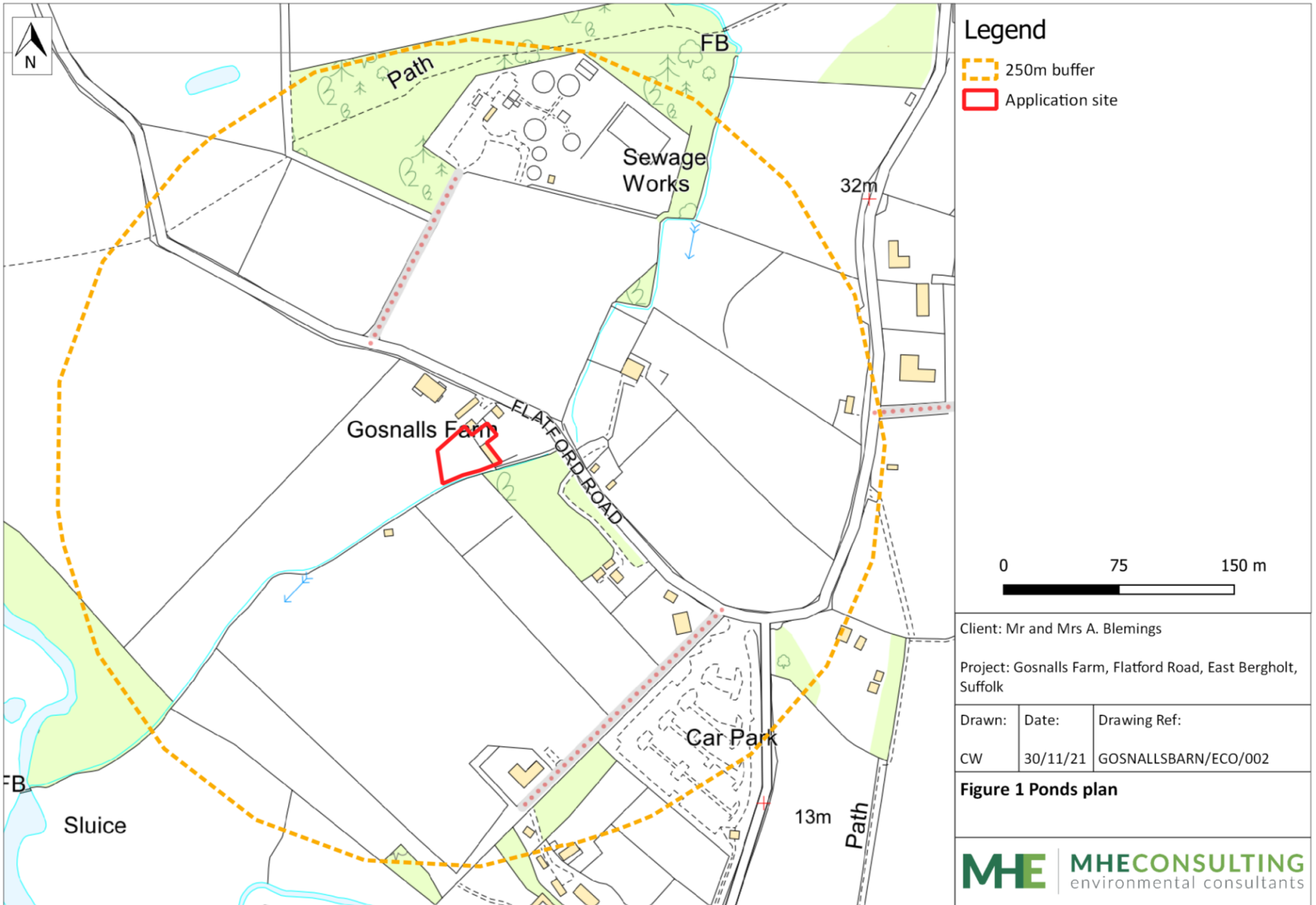


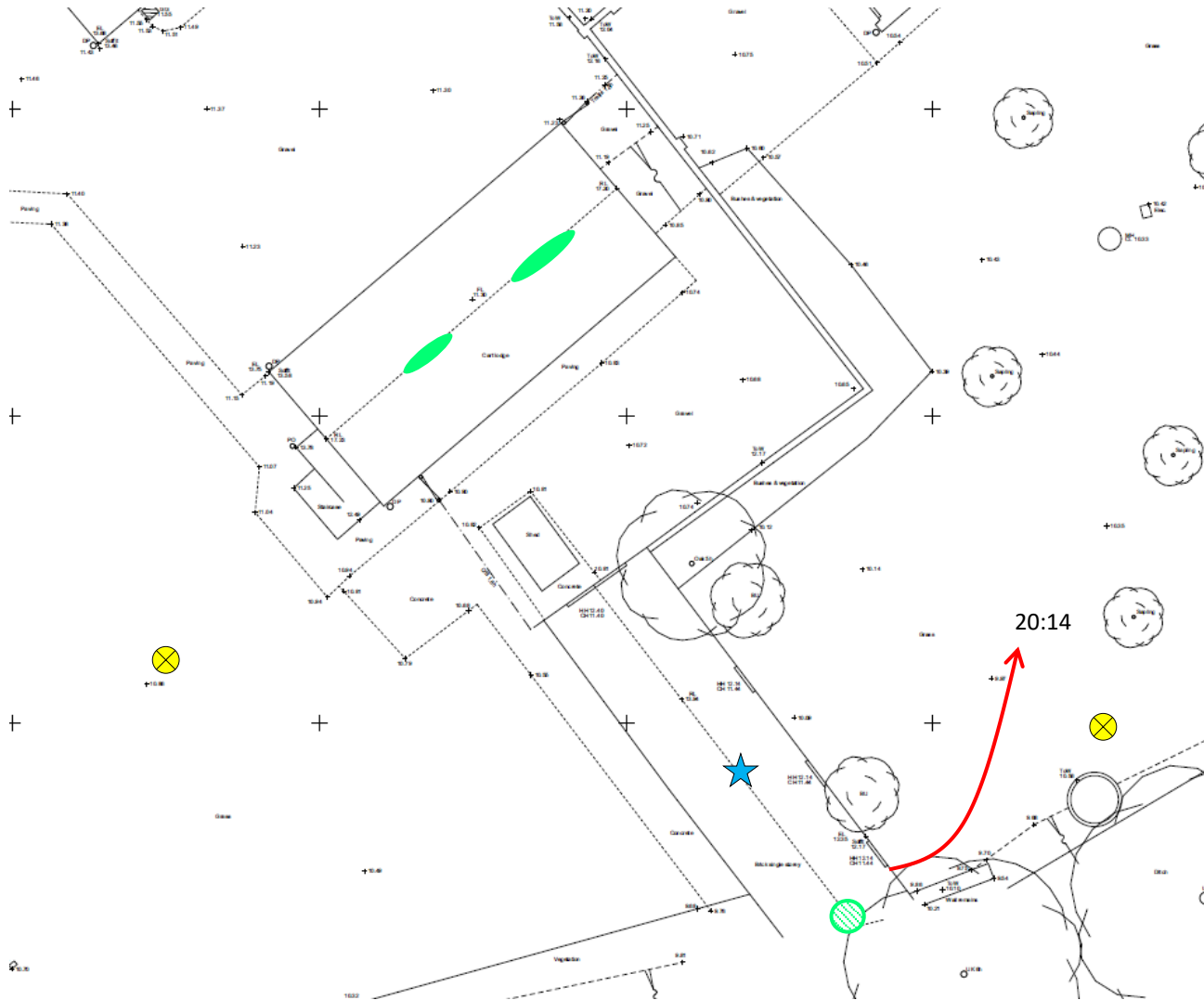
Client: Mr and Mrs A. Blemings

Project: Gosnalls Farm, Flatford Road, East Bergholt, Suffolk






Drawn:	Date:	Drawing Ref:
CW	25/11/21	GOSNALLSBARN/ECO/001

**Figure 1 Site location plan**





## Legend

-  Brown long-eared droppings
-  BLE feeding remains
-  Soprano pipistrelle exiting roost (dusk survey – 19/05/21)
-  Surveyor
-  Elekon Batlogger A+

Client: Mr and Mrs A. Blemings

Project: Gosnalls Farm, Flatford Road, East Bergholt, Suffolk

Drawn:	Date:	Drawing Ref:
CW	30/11/21	GOSNALLSBARN/ECO/003

**Figure 3 Bat survey results**

## Appendices

## Appendix A1 Photos



**Photo 1** View of the proposed location for the swimming pool and the outbuilding proposed for conversion



**Photo 2** Cart lodge where an extension is proposed



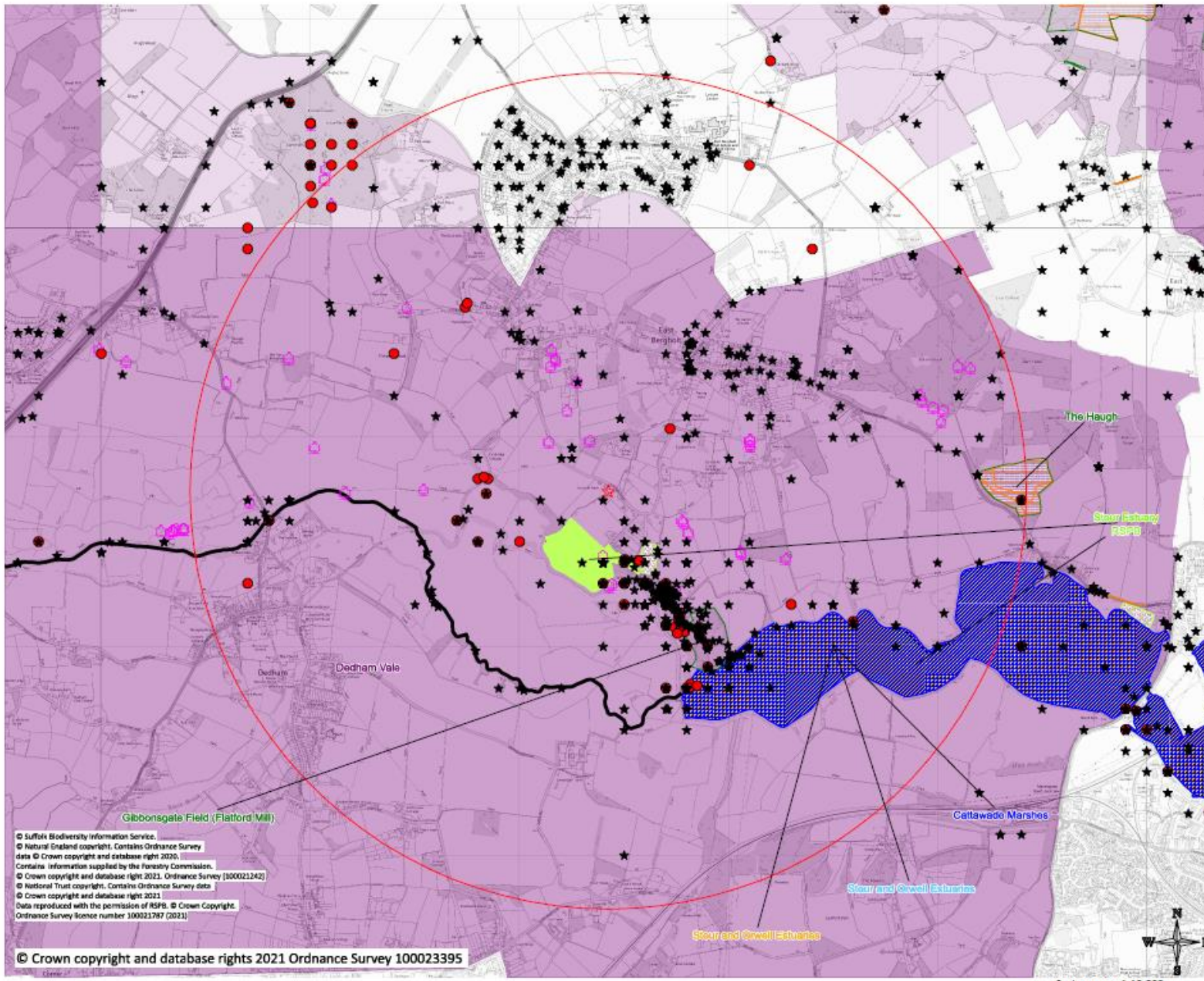
**Photo 3** Internal view of the outbuilding



**Photo 4** Butterfly wings from a likely BLE feeding perch

**Appendix A2 SBIS data search**





**Data Enquiry**

- ☆ Search Point
- Search Area

**Protected, Locally Scarce and Rare Species**

- ★ Record Locations (for grids of 6 fig. or greater)

**Schedule 9 Species**

- Record Locations (for grids of 6 fig. or greater)

**Ancient/Veteran/Notable Trees**

- 🌳

**Roadside Nature Reserve**

- ▭

**County Wildlife Sites**

- ▭

**County GeoSites**

- ▭

**SSSI**

- ▨

**LNR**

- ▨

**SPA**

- ▨

**SAC**

- ▨

**RAMSAR**

- ▭

**NNR**

- ▨

**SWT Reserve**

- ▨

**Ancient Woodland Inventory**

- ▨

**ACNB**

- ▨ Suffolk Coast and Heaths or Dedham Vale

**National Park**

- ▨ The Broads

**Other Public or Conservation Ownership/Management**

- ▨ Forestry Commission, National Trust (public access), RSPB (public access)

**County Border**

- ▭

Gibbonsgate Field (Flatford Mill)

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Scale report: 1:18,000



Suffolk Biodiversity Information Service

Date: 03/11/2021 | Drawn by: Andy Mercer

## MHE Consulting (Gosnalls Farm, Flatford TM07424 33742) 2km Data Enquiry

**Appendix A3 EclA criteria**

### A3.1 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>• Any 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 A4 GCN 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 A5 Bat boxes**



Vincent Pro Bat Box

gardenature.co.uk/product/large-multi-chamber-woodstone-bat-box



Woodstone multi-chamber box

### The Kent bat box

Simple to construct, self-cleaning and low maintenance.

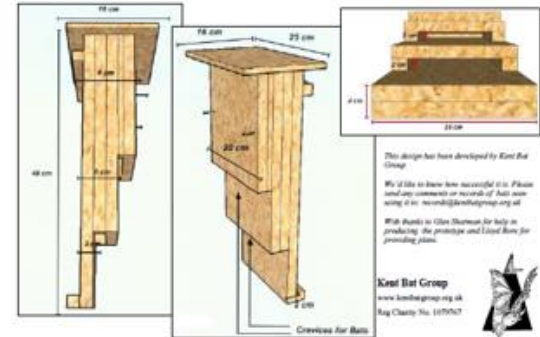
The only critical measurement is the width of the crevices—these should be no larger than suggested. Other measurements are approximate.

#### Materials and construction

Box to be made from untreated rough-sawn timbers  
 Timber should be c.20mm thick  
 The box should be rainproof and draught-free  
 Crevices can be between 15 and 25 mm wide  
 Fixing may be by use of brackets, durable bands or wires

#### Location

Boxes are best fixed as high as possible in a sheltered wind-free position, exposed to the sun for part of the day.  
 They can be fitted to walls, other flat surfaces or trees  
 A clear flight line to the entrance is important





Kent bat box

## **Appendix A6 Bird boxes**



shopping.rspb.org.uk/bird-feeders-boxes-tables/bird-houses-nest-boxes/garden-bird-nest-boxes/schwegler-open-front-nestbox.html?gclid=Cj0KCQIAh2MBHDNARisAXXU5GS8gdBNrvhts...



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RSPB Sparrow terrace nest box Qty

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## Apex starling nestbox

Product Code: R405836

Qty

**£ 23.99**



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## **Appendix A7 Stag beetle loggery**

# Build a log pyramid for stag beetles

BACK  
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people's  
trust for  
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species

Stag beetles are one of the largest insects in the UK. They are in decline across Europe but there are many simple things you can do to help.

## How you can help stag beetles

Stag beetles don't move far from where they emerge. Although males can fly up to 500m, most female stag beetles don't travel more than 20m and return to where they emerged to lay eggs. This means populations are vulnerable to becoming isolated and if there isn't enough dead wood nearby, dying out all together.

Private gardens are very important habitats for stag beetles. They rely on decaying wood that is in contact with the soil, both to feed on as larvae and in which to lay their eggs.

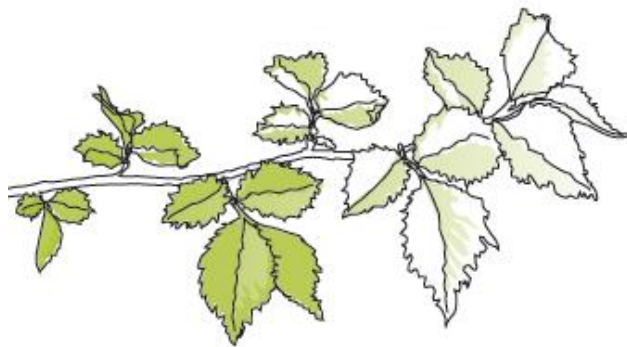
You can help by building a log pile in your garden to ensure that there is a good supply of suitable dead wood nearby for females to lay their eggs in.



## Stag beetle facts

- ▶ They are Britain's largest native terrestrial beetle
- ▶ The larvae develop underground in rotting wood for several years
- ▶ The adult only lives for a few weeks in the summer with the sole purpose of finding a mate
- ▶ Adult beetles don't eat but rely on the fat stores built up during their larval stage
- ▶ The male's antler-like jaws are used to fight off rival males

Images: Peter Cox, Ben Andrew, PTES



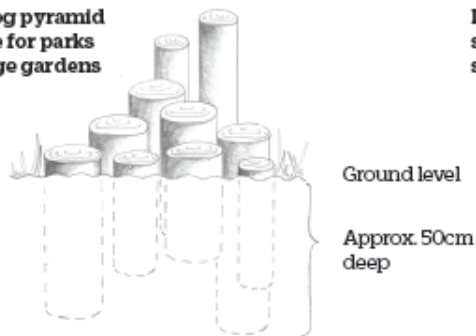
# How to make a log pyramid

- ▶ Log pyramids can be built at any time of year
- ▶ Use wood from any broadleaved tree
- ▶ The logs should be at least the thickness of an adults arm
- ▶ Site the logs in partial shade if possible to prevent them drying out
- ▶ Partially bury the logs in the soil so that they don't dry out
- ▶ Allow plants to grow over the log pyramid to retain moisture and provide shade

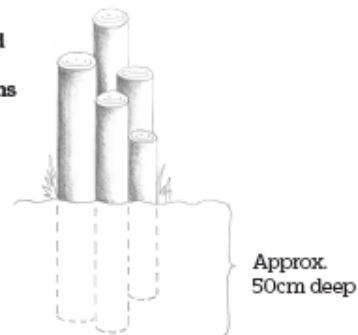
Your log pyramid will also benefit a range of other species including fungi, dead wood invertebrates and the animals that feed on them. It will be a great place for foraging small mammals, basking reptiles and potentially solitary bees.



**Large log pyramid suitable for parks and large gardens**



**Log pyramid suitable for small gardens**



**Or, if space is limited, a single log on or in the soil will be appreciated**



## More tips for stag beetle friendly gardening

- ▶ Leave tree stumps in place if possible; they can become garden features with plants growing over them
- ▶ Try not to use pesticides
- ▶ Keep a lid on your water butt as stag beetles are known to fall in and drown
- ▶ Avoid using polythene sheeting to control weeds. Newly emerging stag beetles can get trapped beneath it in spring and die
- ▶ If you find larvae in the bottom of rotten fence posts and need to move them, dig a hole elsewhere in your garden and put them in together with some of the rotting wood from the original site. Cover loosely with soil



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