



**Barns at Gaylors Farm, Cherry Green Lane,  
Westmill, SG9 9LD**

**Preliminary Ecological Appraisal Report**



May 2022



Client	[REDACTED]
Job title	Barns at Gaylors Farm, Westmill, SG9 9LD
Job number	0371.01
Date	11/05/2022

	Name	Position	Date
Author	Dr Matthew Denny	Director	11/05/2022

## Table of contents

Summary.....	2
<b>1. Introduction .....</b>	<b>4</b>
<b>1.1 Aims of Study.....</b>	<b>4</b>
<b>1.2 Site Location .....</b>	<b>4</b>
<b>1.3 Site Description .....</b>	<b>4</b>
<b>1.4 Proposed Works .....</b>	<b>4</b>
<b>2. Methods.....</b>	<b>7</b>
<b>2.1 Desktop Survey.....</b>	<b>7</b>
<b>2.2 Field Survey.....</b>	<b>7</b>
2.2.1 Extended Phase 1 habitat Survey .....	7
2.2.2 Buildings Inspection.....	7
<b>3. Results.....</b>	<b>8</b>
<b>3.1 Desktop Survey.....</b>	<b>8</b>
3.1.1 Ponds.....	8
3.1.2 Designated Sites .....	8
3.1.3 Protected and Notable Species .....	9
<b>3.2 Extended Phase 1 Habitat Survey.....</b>	<b>11</b>
<b>3.4 Building inspection survey .....</b>	<b>15</b>
<b>3.4 Protected species.....</b>	<b>19</b>
<b>4. Conclusions and Recommendations.....</b>	<b>20</b>
<b>5. References.....</b>	<b>23</b>

## Summary

Considerations	Description	Comments & Recommendations
<b>Ecological Importance of the Site</b>	The site comprised five habitats (scattered trees, semi-improved grassland, tall ruderal vegetation, buildings, hardstanding)	The site was considered to be of low ecological importance. The two mature oak trees and the defunct species-poor hedgerow with trees should be retained. Any loss of hedgerows should be compensated for by planting and species-rich hedgerows where possible on-site.
<b>Further Assessments / Surveys</b>	Reptile Survey	Precautionary avoidance working methods are recommended to avoid any potential impacts, assuming reptiles are present.
	Badger Survey	A post-planning badger survey of the site prior to works commencing is recommended.
<b>Avoidance and General Mitigation</b>	Trees with Low Bat Roost Potential (BRP)	The two mature oaks with low BRP should be retained.
	Retain	The two mature oak trees and the defunct hedgerow with trees should be retained and buffered from damage during works.
	Mitigation	Avoid reptiles, which may be present, by clearance in winter (Nov-Feb), or by strimming vegetation in advance of clearance. Minimise external lighting to prevent disturbance to commuting and foraging bats.
	Site measures	Cover trenches or provide planked escape routes to allow escape for any animals that fall in. Store materials off the ground and do not leave temporary standing water. Avoid the use of pesticides and slug pellets during landscaping and management in construction and operational phases.

Considerations	Description	Comments & Recommendations
<p style="text-align: center;"><b>Habitat Replacement and Enhancements</b></p>	<p>To ensure no net biodiversity loss, and to provide increase in the ecological value of the site</p>	<p>Install nest/roost boxes for bats and house sparrows on the new buildings and provide two 'owl holes' with internal or external owl nesting boxes at gable ends, if appropriate to the design (alternatively, provide two owl boxes in suitable trees or on tall posts within the landholding). Include hedgehog links in any new fencing and provide a log pile or hedgehog house.</p> <p>Provide an area of species-rich wildflower meadow grassland and native scrub patches on a designated nature area within the undeveloped eastern section of the land holding. Plant native hedgerow wherever possible on-site.</p>

# 1. Introduction

## 1.1 Aims of Study

Denny Ecology was commissioned to undertake a Preliminary Ecological Appraisal of the potential development area (from hereon referred to as 'the site') in November 2019 and to update this work in May 2022. This report details the methods and results of this study and assesses these results in relation to the potential ecological effects of the proposed development.

## 1.2 Site Location

The site is located in Hertfordshire, to the west of the village of Westmill, which is located to the west of the A10, close to the town of Buntingford. The wider landscape around the site is largely arable farmland, with some small, scattered blocks of deciduous woodland, with dwellings to the east, in the village of Westmill.

## 1.3 Site Description

The proposed development site is comprised of two agricultural livestock barns of modern construction, within a rural setting. The red-line development area is limited to existing barn areas, whilst the developer landholding extends across a wider well-vegetated former farmyard area and, to the east, former arable land left fallow, which has recently been colonised by rank grassland.

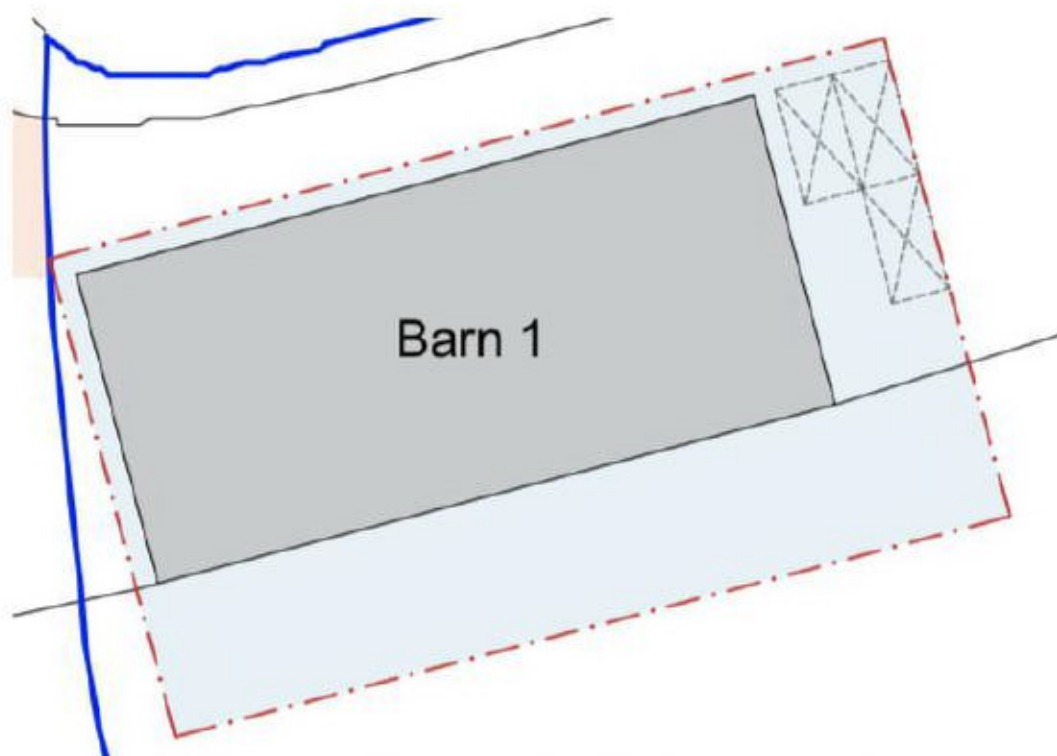
## 1.4 Proposed Works

It is proposed to convert two barns from agricultural to residential use under permitted development rights as set out in Class Q planning policy, and to demolish a further single barn. Therefore, this report does not support a planning application, but is required to ensure that the development complies with wildlife legislation.

Figure 1 shows the site location, the extent of existing barns, and the blue line land ownership boundary. Figures 2 & 3 show the layout plans for Barns 1 & 2 respectively. The footprint of the buildings will sit within those of the current barns, and the existing barn to the southwest of Barn 2 (Turkey Barn) will be demolished, such that some of the existing hardstanding/barn areas will become soft landscaped areas. Two large mature oaks *Quercus robur* located east of Barn 1 will be retained.



**Figure 1.** Existing site with dashed red lines showing limit of proposed development and wider land ownership outlined in blue.



**Figure 2.** Proposed layout plan for Barn 1 (B1)



**Figure 3.** Proposed layout plan for Barn 2 (B2). Note that the barn to the west/southwest (B3, also known as the Turkey Barn) will be demolished and replaced with soft landscaping, with a small area replaced by parking areas for the new units.



## **2. Methods**

### **2.1 Desktop Survey**

We undertook a search for existing ecological data freely available online. This included internationally designated statutory sites, nationally and locally designated statutory sites, locally designated non-statutory sites and habitats and species with statutory protection or of principal importance that occur in the local area. Statutory site information and European protected species licence spatial data were determined using the government mapping website Magic. Local planning documents were also used.

The OS 1:10,000 map of the area and an aerial photograph on Google Earth (Google Inc 2011) were also used to determine the possible habitats present on, and adjacent to the site. We searched for ponds within a 500m buffer of the site, to assess potential for great crested newts *Triturus cristatus* to disperse to the site.

### **2.2 Field Survey**

Rebecca Cattell undertook the main survey on 19 November 2019. The temperature was 8°C, with 80% cloud cover, light wind (Beaufort 2), and it was dry. All of the outdoor area of the site was accessed. The site was walked to create a phase 1 habitat map. The buildings were inspected and assessed from inside and outside. An updating survey was undertaken in July 2021.

#### **2.2.1 Extended Phase 1 habitat Survey**

The survey area was walked to assess habitats according to standard survey methodology (JNCC 2010, CIEEM 2017). In addition, evidence of, and potential for habitats to support protected species and other species of importance, was recorded, and general potential ecological constraints for the proposed development were assessed. In particular, buildings and trees on the site were assessed for potential to support roosting bats (following methods recommended by the Bat Conservation Trust (BCT 2016)) and nesting birds, and habitats were assessed for their potential to support amphibians, reptiles, badgers and other protected species. Where possible the surrounding area up to 30m away was searched for evidence of badgers.

#### **2.2.2 Buildings Inspection**

The three barns were inspected from the inside and outside during the survey, searching for evidence of, and potential to support roosting bats, following methods recommended by the Bat Conservation Trust (BCT 2016). The buildings were also inspected for evidence of use by barn owls and other nesting birds.

## 3. Results

### 3.1 Desktop Survey

#### 3.1.1 Ponds

A pond was identified to the east, approximately 415m from the site (location shown in Figure 4 below). Great crested newts tend to stay within 500m of their breeding pond. There was a minor road in between, which would not serve as a significant barrier to newt movement. However, the pond was separated from the site by a number of houses and gardens, providing a significant barrier to great crested newt movement (particularly in terms of garden fences and walls). The intervening gardens also provide good quality terrestrial newt habitat, which would discourage great crested newts from venturing further to the more distant site. As such great crested newt was scoped out of further survey.



**Figure 4.** Site (within the land ownership area outlined in red) with a 500m buffer zone (red circle) and pond (circled in blue)

#### 3.1.2 Designated Sites

There are no statutory designated sites within 2km of the site. Moor Hall Meadows SSSI is located approximately 3.1km to the west and the site falls just outside the associated impact risk zone (IRZ) as defined by Natural England.

There are two Local Wildlife Sites within 1km of the site, which the Wildlife Sites Inventory for

East Herts 2013 (Hertfordshire Biological Records Centre 2013) describes as follows (quoted text in italics):

*Westmill Bury Farm (Wildlife Site reference 24/067), OS grid reference TL37-27. Buildings and environs important for protected species. Wildlife Site criteria: Species.*

It is likely that this designation relates to roosting bats, as it specifies the importance of the buildings for protected species, and is consistent with bat mitigation licence records as described in 3.1.3 below. The proposed development will not have direct impacts on these Local Wildlife Site bat roosts, and is unlikely to impact any linked roosts as the barns to be developed have no bat roosting potential, and the development proposals will not impact potential bat roosting features (see below). However, as the site is within routine bat flying distance (<1km) of the Wildlife Site, and as the proposed development could result in increased light pollution cast across adjacent hedgerows and trees, which could provide bat foraging and commuting habitat, without mitigation it is likely to have some minor impacts on bats using the Wildlife Site at the Local level. This potential impact and a recommended strategy to avoid it over the longer term, is discussed in detail in the bat section below.

*Thrift Wood (Wildlife Site reference 24/073), OS grid reference TL365263. Ancient semi-natural woodland with some planting. Woodland originally Hornbeam (Carpinus betulus) coppice with Ash (Fraxinus excelsior) and Pedunculate Oak (Quercus robur). The woodland is currently dominated by Ash standards with a scrubby subcanopy of Hazel (Corylus avellana), Elder (Sambucus nigra) and Sycamore (Acer pseudoplatanus). There is some Hornbeam around the woodland edge. The ground flora supports woodland indicators and is typically Bramble (Rubus fruticosus agg.), Dog's Mercury (Mercurialis perennis), wood grasses and occasional patches of Bluebell (Hyacinthoides non-scripta). Wildlife Site criteria: Ancient Woodland Inventory site.*

Increased visitor pressure to Thrift Wood has the potential to impact the Wildlife Site and its special features through increased human disturbance and erosion. However, there are no direct footpaths from the proposed development site to Thrift Wood, which is located over 400m to the south. Thrift Wood is also separated from the site by large open arable fields, with no connecting linear potential wildlife corridors, such as hedgerows or watercourses, between the two. Given the above, a development of this size and nature (conversion of existing buildings to five residential units) is predicted very unlikely to result in any significant ecological effects on Thrift Wood.

### **3.1.3 Protected and Notable Species**

#### *Birds*

Eighty-nine bird species have been recorded within 2km of the site, according to the web-based search. Several Red and Amber Listed (Eaton et al. 2015) declining farmland bird species, which may use the wider site (particularly the rough grassland and species-rich hedgerow), have been recorded in the area. These are the following resident species: corn bunting *Emberiza calandra*, yellowhammer *Emberiza citronella*, grey partridge *Perdix perdix*, stock dove *Columa livia*, house sparrow *Passer domesticus*, mistle thrush *Turdus viscivorus*, song thrush *Turdus philomelos*, meadow pipit *Anthus praetensis*; the following breeding summer visitors: yellow wagtail *Motacilla flava* turtle dove *Streptopelia turtur* and swift *Apus apus*; and the following non-breeding winter visitors: redwing *Turdus iliacus* and fieldfare *Turdus pilaris*, Barn owl has not been recorded, but little owl *Athene noctua* has. However, of these species, only stock dove and little owl have the potential to use the existing disused barns, and therefore potentially be impacted by the proposed development.

#### *Reptiles*

There are no existing reptile records within 2km of the site (although a lack of records is not proof of absence) but there is a record of adder *Vipera berus* approximately 2.4km to the south-west. There are no suitable reptile habitats within the proposed development area, although some exist

across the wider land ownership on site (the rough grass, scrub, and hedgerow). The general area of East Hertfordshire is known to be a stronghold for common reptile species, and they are often present where suitable habitat is available.

#### *Amphibians*

There are two old (1984) records of great crested newt approximately 937m to the south-west. The nearest great crested newt mitigation licence on the Natural England Magic database is over 1km to the south. Given that these were recorded over 500m away and that there are no ponds on site or within 500m of the site with no significant barriers to newt dispersal, it is considered highly unlikely that great crested newts utilise the site.

#### *Bats*

Within 2km of the site there are general records of Daubenton's bat *Myotis daubentonii*, Natter's bat *Myotis natterii* and common pipistrelle *Pipistrellus pipistrellus*. Westmill Bury Farm Local Wildlife Site is located 600m to the east of the site. A bat mitigation licence for Westmill Bury Farm held on the Natural England Magic database, confirms it is a non-maternity roost site for common pipistrelle, Natterer's bat, brown long-eared bat *Plecotus auritus* and soprano pipistrelle *Pipistrellus pygmaeus* (see also Local Wildlife Site section above).

#### *Mammals (Excluding Bats)*

There are records of 13 mammal species within 2km of the site. Of these, notable species that may use the site are hedgehog *Erinaceus europaeus*, brown hare *Lepus europaeus*, weasel *Mustela nivalis* and polecat *Mustela putorius*.

#### *Invertebrates*

There are two old (1970) records of Roman snail *Helix pomatia* approximately 1km and 1.2km to the east of the site.

## 3.2 Extended Phase 1 Habitat Survey

### *Phase 1 Habitats*

All habitats on and immediately surrounding the proposed development site are shown in Figure 5. The buildings are shaded grey, and the other habitats are shown as separate compartments divided by black lines and labeled accordingly.

### *Buildings*

The majority of the development area comprised buildings in the form of Barn 1 (B1) at the west end of the site, and Barn 2 (B2) to the east, with another larger barn known as the Turkey Barn (B3) adjoining B2 to the west. All three barns were of negligible intrinsic ecological value, but did provide potential nesting bird habitat. These buildings are described and assessed for their ecological value in more detail under 3.4 Building Inspection Survey.

### *Species-poor Semi-improved Grassland*

Southeast of the barns was an area of species-poor semi-improved grassland, which merged into an area of tall ruderal vegetation immediately surrounding the barns. Grass species recorded were meadow oat-grass *Avenula pratensis*, false oat-grass *Arrhenatherum elatius*, smaller cat's-tail *Phleum bertolonii*, bearded couch *Elymus caninus*, common couch *Elytrigia repens* and creeping bent *Agrostis stolonifera*. Forb species were greater plantain *Plantago major*, ribwort plantain *Plantago lanceolata*, germander speedwell *Veronica chamaedrys*, mugwort *Artemisia vulgaris*, bristly ox-tongue *Picris echioides*, creeping buttercup *Ranunculus repens*, broad-leaved dock *Rumex obtusifolius* and abundant creeping thistle *Cirsium arvense*.

Only a very small section of this habitat, to the southeast of B2, will be impacted by the proposed development. Whilst the semi-improved grassland is suitable habitat for reptiles, the small section to be impacted is unlikely to support any more than a few individuals, if present. However, further action is recommended to avoid the potential of impacting reptiles and nesting birds (see below).



**Photo 1.** Species-poor semi-improved grassland south of barn B2

### *Tall Ruderal Vegetation*

The semi-improved grassland merged into tall ruderal vegetation to the south of the barns, and to the east and north of B2 & B3. This habitat comprised broad-leaved willowherb *Epilobium montanum*, Canadian fleabane *Conyza canadensis*, spear thistle *Cirsium vulgare*, common ragwort *Senecio jacobaea*, groundsel *Senecio vulgaris*, cleavers *Gallium aparine*, scentless mayweed *Tripleurospermum inodorum*, common mallow *Malva sylvestris* with some cock's foot *Dactylis glomerata* and volunteer wheat *Triticum aestivum*.

Sections of this habitat are likely to be impacted by the proposed development. Whilst this habitat is sub-optimally suitable habitat for reptiles and nesting birds, the small sections to be impacted are unlikely to support any more than a few individuals, if present. However, further action is recommended to avoid the potential of impacting reptiles and nesting birds (see below).



**Photo 2.** Tall ruderal vegetation south of the Turkey Barn B3

### *Hardstanding*

To the northwest of B3 and surrounding B1 is an area of hardstanding, extending into the site from the proposed access track. This habitat is of negligible ecological value. No further action is recommended.

### *Scattered Trees*

There were two mature oaks *Quercus robur* growing at the western end of B3 with low to moderate bat roost potential. These trees are of high local ecological value and they are to be retained.



**Photo 3.** Mature oaks at western end of B3, to be retained

*Species-poor Defunct Hedgerow*

A line of young ash *Fraxinus excelsior* and the remains of a defunct hawthorn *Crataegus monogyna* hedge ran along the northern site boundary. To the east and off-site, this merged into a species-rich hedgerow with trees. These trees and hedgerow are to be retained.



**Photo 4.** Species-poor defunct hedgerow with trees, north of barn B2

In order to ensure retained hedgerows and trees are not damaged during site clearance and the construction phase, an adequate root protection zone will be calculated before site clearance commences, and will be clearly marked on the Site with high visibility tape or with Heras fencing in compliance with tree protection specifications in BS 5837 (2012). The root protection zone is usually taken to be the diameter of the tree trunk multiplied by 12, which is then implemented as the radius of a circular zone around the tree. This should be applied along the length of the adjacent treeline/hedgerow.

Supplementary planting of the defunct hedgerow and new hedgerow planting are recommended.



**Figure 5.** Map of Phase 1 habitats on the site, with buildings labelled as noted in the text

### ***Habitats Legend***

- Black = Building
- Grey = Hardstanding
- Orange = Tall ruderal vegetation
- Yellow = Species-poor semi-improved grassland
- Green = Scattered trees (two mature oak trees)
- Green line = Species-poor defunct hedge with trees



### 3.4 Building inspection survey

*B1*

A disused pig barn, constructed of breeze blocks and corrugated possible asbestos sides with a corrugated metal roof with timber beams. Internally divided up into breezeblock stalls, and partially open to the sides. No evidence of bats. Negligible bat roost potential due to lack of suitable features, drafty interior and low thermal insulation. Evidence of birds nesting within in the form of old nests.

Negligible bat roost potential. Further action is recommended in terms of avoiding nesting birds.



**Photo 5.** B1 north side, showing surrounding hardstanding



**Photo 6.** B1 internal

## *B2*

An open sided shelter, constructed of machine-cut timber posts and beams and a corrugated metal roof. No evidence of bats. Negligible bat roost potential due to lack of suitable features, drafty interior and low thermal insulation. In 2019, two barn owl boxes were present on the underside of the roof. There was no evidence that either had been used by barn owl, and no evidence of barn owl use was found in the barn. Following our initial recommendations to the client, these were removed outside the breeding season. There is potential for birds to nest in the building.

Negligible bat roost potential. Further action is recommended to avoid impacts on nesting birds.



**Photo 7.** Barn 2 (B2) taken from the southeast corner looking northwest

*B3 (Turkey Barn)*

A disused livestock barn, constructed of machine-cut timber posts and beams and a corrugated metal roof. Partially open sides with a lean-to enclosed compartment. No evidence of bats. Negligible bat roost potential due to lack of suitable features, drafty interior and low thermal insulation. There was potential for birds to nest within.

Negligible bat roost potential. Further action is recommended to avoid nesting bird impacts.



**Photo 8.** Exterior of the Turkey Barn (B3) to be removed, taken at southwest corner of building looking northeast, with Barn 2 (B2) in the background



**Photo 9.** Interior of B3

### 3.4 Protected species

#### *Bats*

No evidence of roosting bats was recorded during the survey. However, the two mature oaks west of B3 had low bat roost potential. All three buildings had negligible bat roost potential.

The two mature oaks, the line of trees/defunct hawthorn hedge along the northern boundary, and the hedgerows and other trees across the wider land ownership site have high potential for foraging for bats and have potential to provide a bat dispersal corridor through the wider landscape. Further recommendations to avoid casting light from potential external lighting during the construction and operational phases are given below.

#### *Birds*

The scattered trees/hawthorn defunct hedge, the oak trees and the buildings, have potential to support nesting birds. The tall ruderal and semi-improved grassland have potential to be used by foraging and ground-nesting birds.

#### *Reptiles*

The semi-improved grassland and tall ruderal vegetation, and have potential to be used by reptiles. Only small areas of this habitat are to be impacted by the potential development, and appropriate working methods to avoid impacts on reptiles (should they be present) are recommended (see below).

#### *Great Crested Newts (GCN)*

There was no pond within 500m without significant barriers to great crested newt dispersal. As such it is considered highly unlikely that great crested newts utilise the site.

#### *Other Species of Principal Importance*

A hedgehog *E. europaeus* dropping was found to the west of the proposed development area, but within the wider land ownership site. The majority of the site other than the buildings provides suitable foraging habitat for hedgehogs.

The semi-improved grassland may also support brown hare *L. europaeus*, of which there are records in the area.

## 4. Conclusions and Recommendations

Section 40 of the Natural Environment and Rural Communities Act 2006 (NERC Act), and the National Planning Policy Framework (NPPF) (2018), place a duty on public authorities in England to conserve and enhance biodiversity. Enhancing, restoring or protecting a species population or habitat can achieve this.

### *Bats*

All species of bat and their roosts are protected under UK and European law. These findings indicate that the two oak trees on site have low potential to support roosting bats. The two mature oaks and the defunct hawthorn hedgerow with trees should be retained. These areas should be appropriately buffered during works to avoid root damage.

It is recommended that bat roosting provision should be made on converted buildings to enhance the ecological value of the site in line with planning policy. This can be in the form of integrated bat bricks, bat tiles or bat boxes. These should be located close to hedges and tree-lines, at least 4m above the ground, facing away from north and allow unobstructed access below. Two such features should be included on each converted building (minimum total of ten). Alternatively, up to four of these boxes could be installed on the retained oak trees, with the remaining six on the buildings.

There is potential for bats to use the site for foraging and commuting/dispersal, especially along the northern boundary hedgerows. To minimise disturbance to foraging bats, it is recommended that lighting introduced as part of the redevelopment of the site (during both construction and operational development phases), should be kept to a minimum sufficient to meet health and safety requirements and is designed specifically to reduce impacts on bats.

The following is recommended:

1. During the construction phase, lighting should be kept to a minimum by minimising the requirement to work during hours of darkness, and by putting in place working practices/mechanisms to ensure all lights are switched off when the site is unoccupied.
2. During the operational phase, external lighting will only be at parking space/outside the access doors to units, where required. They will consist of low level bollard lights with suitable shielding to further minimise upward light spill. These will be spaced as far apart as possible without compromising their utility. They will be movement activated on a 1-minute timer to minimise the duration of illumination.

### *Birds*

All wild birds, their nests, eggs and dependent young are protected from destruction, killing and injuring.

The easiest method to avoid breaching this is to clear and/or exclude all known or potential bird-nesting habitat in the period September-February, which is outside the bird-nesting season (October-February for barn owls). This will mitigate any short-term impacts and legislative issues. Should this not prove possible, nesting bird surveys will need to be undertaken by an ecologist to ensure no active nests are present before clearance work commences.

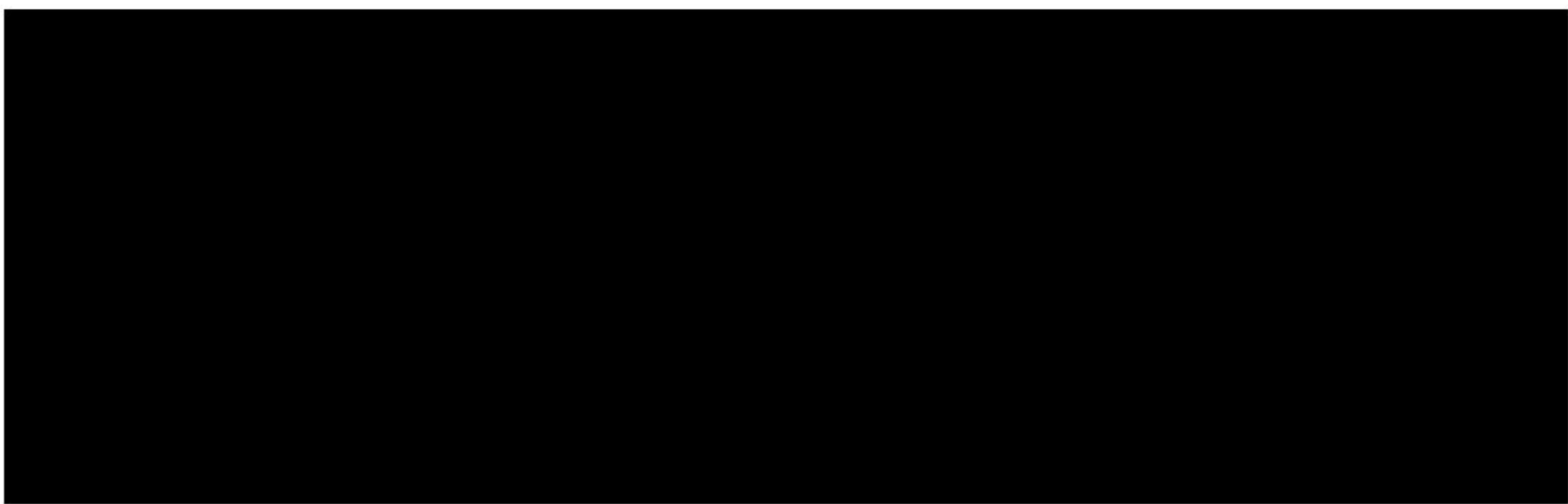
It is recommended that two barn owl nesting boxes or integrated holes be placed on the gable

ends, or on free-standing poles on the site. These should be at least 3m off the ground and visible from the surrounding landscape. They should be out of direct sun (not south facing) and away from areas with strong artificial light at night. See The Barn Owl Trust website for further information or consult a qualified ecologist for advice.

As a number of Red List and Amber List Birds of Conservation Concern and UK Biodiversity Action Plan (BAP) bird species have been recorded in the local area, some provision should be made for those species that may use the habitat on site. Nesting provision should be made for house sparrow *P. domesticus* in the form of four 'sparrow terrace' boxes.

Birds may use the site for foraging. Retention of the two mature oaks and the northern boundary hedgerow with trees will be of benefit to these species. Supplementary planting of the defunct hawthorn hedgerow, filling gaps with native hedgerow species good for birds is recommended. Suggested native fruiting species include firethorn *Pyracantha coccinea*, wild privet *Ligustrum vulgare*, guelder rose *Viburnum opulus*, dog rose *R. canina* and hawthorn *C. monogyna*.

To provide suitable further bird nesting and foraging habitat, ecological enhancements in compliance with the NPPF (2018) and NERC Act (2006), it is also recommended that a mosaic of native-species scrub and species-rich meadow be created on the former arable farmland in the east section of the site.



#### *Great Crested Newts*

The proposed works are unlikely to affect great crested newts. However, should a great crested newt be found during works, work should stop immediately and an ecologist should be consulted.

#### *Reptiles*

Reptiles are protected from killing and injury, and the semi-improved grassland and tall ruderal vegetation have potential to support reptiles. As a precautionary measure, in case reptiles are present, clearance works should be carefully coordinated to avoid breaching legislation. As no reptile hibernation features are located within the working area, it is recommended that clearance take place during the hibernation period (November-February). If this is not possible, grassland and tall ruderal vegetation should be cleared using hand-strimmers, either during the winter period, when reptiles will be hibernating below ground, or to a height of 10cm during the active reptile season (March-October) to encourage reptiles to move away from these areas over a 48-hour period, before further work is undertaken. As only small sections of potential reptile habitat is to be impacted, should reptiles be present, the working methods will allow them to disperse into adjacent habitats within the wider land ownership and avoid harm.

To provide replacement and a net gain in suitable reptile foraging and hibernating habitat, in compliance with the NPPF (2018) and NERC Act (2006), it is recommended that a mosaic of native-species scrub and species-rich meadow be created on the former arable farmland in the east section of the land ownership site. Specific reptile hibernacula, for example comprising subterranean log or rubble piles, are also recommended.

#### *Other Species of Principal Importance*

The survey found evidence that hedgehog *E. europaeus* occurs on the site. Retention of the native species-rich hedge with trees will be of benefit to this species. If close-board fencing is to divide the new gardens, they should have hedgehog links between (either fence bases raised 15cm above ground level or 15cmx15cm holes cut every 10m into the fence base), allowing the animals to move around the habitat. An area of rough habitat should be left/created for them, with the provision of a log pile or hedgehog house located in a sheltered place.

#### *Summary recommendations*

Site clearance work should be undertaken at an appropriate time of year, or using specific methods, to avoid impacts on nesting birds, reptiles (assuming presence), hedgehogs and badgers (pending further post-planning survey prior to works commencing).

Existing features of highest wildlife value should be retained and incorporated into the development (the two oak trees and northern defunct hedgerow/trees), and be appropriately buffered during clearance and construction work.

We recommend provision of the following biodiversity features and habitats to replace features lost through the development, and to achieve overall ecological gain:

- **Install bird-nesting and bat-roosting features within the site**
- **Supplementary planting to the defunct hawthorn hedgerow forming the northern boundary**
- **If appropriate, plant a new species-rich hedgerow to form boundary features within and around the development site**
- **Within the eastern former arable farmland section, located outside the development area, plant and manage species-rich grassland and scrub habitats**

A Biodiversity Enhancement and Management Plan should be written ensure these enhancements are appropriately implemented and managed.

#### *Summary assessment*

Assuming impacts on nesting birds, hedgehogs and reptiles (if present) can be avoided, and impacts on commuting foraging bats (if present) can be avoided (as per current plans, with appropriate external lighting), the proposed development is likely to have no negative ecological impacts. Should the recommended ecological enhancements be implemented, it should achieve a net gain in biodiversity on the site in line with the National Planning Policy Framework (2018) and NERC Act (2006).



## 5. References

Bat Conservation Trust (2016). Bat Surveys for Professional Ecologists: Good Practice Guidelines (3rd edition)

Department for Communities and Local Government (2018). National Planning Policy Framework

CIEEM (2017) *Guidelines for Preliminary Ecological Appraisal*, Institute of Ecology and Environmental Management. [www.cieem.net](http://www.cieem.net)

Eaton, M.A., Aebischer, N.J., Brown, A., Hearn, R.D., Lock, L., Musgrove, A.J., Noble, D.G., Stroud, D.A., & Gregory, R.D. (2015). Birds of Conservation Concern 4: the population status of birds in the UK, Channel Islands and Isle of Man. *British Birds* 108: 708-746.

Hertfordshire Biological Records Centre (2013). Wildlife Sites Inventory for East Herts 2013

Joint Nature Conservation Council (JNCC) (2010). *Handbook for Phase 1 Habitat Survey – a Technique for Environmental Audit*. JNCC Publications, Peterborough.

Land Use Consultants (2011). EAST HERTS GREEN INFRASTRUCTURE PLAN - FINAL REPORT. Prepared for East Herts Council