

New House Farm, Etwall Road, Mickleover.

Preliminary Ecological Appraisal & Daytime Bat Inspection Survey

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1 Introduction

This report presents the results of a Preliminary Ecological Appraisal and Daytime Bat Inspection Survey undertaken on an area of land at New House Farm, Etwall Road, Mickleover, DE3 0DN.

The survey was undertaken to provide supporting information in relation to the proposed residential development of the site.

The site is located at OS grid reference SK 30055 33915 and comprises a farm complex to the north of the site with a field dominated by poor semi-improved grassland and bordering hedgerows to the south (Figure 1). The southern boundary of the site is situated adjacent to the A516 running west to east. The site is approximately 2.5 ha and is located on the western outskirts of the suburb Mickleover and approximately 5.5 km west of the city Derby.

The aim of the survey was to determine the potential for the proposed development to affect protected/notable species and habitats, and to provide recommendations for mitigation and/or compensation input if required.

The Preliminary Ecological Appraisal and Daytime Bat Inspection Survey was undertaken on 2nd August 2019 by Ben Mclean BSc (Hons) MCIEEM.

Figure 1. Approximate site boundary shown in red (aerial imagery dated 2017).



2 Methodology

2.1 Desk Study

An ecological data search of protected / notable species was commissioned from Derbyshire Wildlife Trust (DWT) and the Derbyshire Bat Conservation Group (DBCG) in order to identify any existing records of protected / notable species within 2 km of the site. The search included non-statutory sites within the search area. In addition, the following web sources were searched for statutorily protected sites and additional ecological data of most relevance;

- Multi-Agency Geographic Information for the Countryside (MAGIC).
- Ordnance Survey 1:25,000 mapping.
- Aerial imagery (dated 2017).

In addition, this report also reviews relevant survey data from adjacent planning application 9/2017/0349 for 1,100 dwellings.

2.2 Personnel

The site was subject to an ecological walkover survey on 2nd August 2019 by Ben McLean BSc (Hons) MCIEEM of Quants Environmental Ltd. The surveyor is registered with Natural England as a great crested newt and level two bat survey licence holder (registration numbers: 2015-16728-CLS-CLS & 2016-24500-CLS-CLS, respectively).

2.3 Preliminary Ecological Appraisal

The site visit on 2nd August 2019 was completed using extended Phase 1 habitat survey techniques as defined in the standard methodology¹.

The aim of the site visit was to gather sufficient baseline information on the habitats within the site in order to allow an interpretation of the associated ecological value. In addition, the site was searched for incidental evidence of protected / notable fauna and assessed in terms of its potential to support protected / notable fauna including species listed within European, national and local legislation and policies. For example, badgers were accounted for within the site visit by way of documenting any incidental evidence of badger activity within or adjacent to the site.

The features subject to visual assessment included the proposed development site and land adjacent where access was available. The weather conditions at the time of survey were: 23°C, dry, cloud cover 50%, wind 1 (Beaufort Scale) with good visibility.

2.4 Daytime Bat Inspection Survey

All buildings were subject to detailed internal and external inspection for signs of bats during the survey. This involved searching the interior and exterior of the buildings for signs of bats such as droppings and for potential bat roost locations. The survey was undertaken in accordance with current good practice guidelines².

The buildings were searched for bats, evidence of bat use and for potential roost access points/roost features in accordance with the standard methodology as far as was practical. Evidence of bats can include droppings, scratches, staining, urine marking, dead bats and feeding remains (e.g. moth wings). A high-powered LED torch, ladders and binoculars were used during the survey.

¹ JNCC, (2010), Handbook for Phase 1 habitat survey - a technique for environmental audit, ISBN 0 86139 636 7.

² Hundt L (2012) Bat Surveys: Good Practice Guidelines, 2nd edition, Bat Conservation Trust. ISBN-13: 9781872745985.

The extent of the structural features of the building that were suitable to support a bat roost defined an assessment of the potential of bats being present within the building/feature. This potential was categorised as negligible, low, moderate, high or confirmed roost (based on the presence of bats or sufficient evidence of a bat roost) as per BCT Guidelines outlined in Table 1.

Other considerations which influence the potential of the structure for use by bats were also taken into account including the site location and the suitability of the surrounding habitats for bats. This data was obtained from the site visit and desktop sources including Ordnance Survey mapping and Google Earth Pro (imagery dated 2017).

Table 1: BCT Guidelines for assessing the potential suitability of proposed development sites for bats

Suitability	Description of Roosting Habitats	Emergence Survey Requirements
Negligible Potential	Negligible habitat features on site likely to be used by roosting bats.	No further surveys required
Low Potential	A structure with one or more potential roost sites that could be used by individual bats opportunistically. However, these potential roost sites do not provide enough space, shelter, protection, appropriate conditions and/or suitable surrounding habitat to be used on a regular basis or by large numbers of bats (i.e. unlikely to be suitable for maternity or hibernation).	One survey emergence survey (May to August)
Moderate Potential	A structure or tree 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 status (with respect to roost type only)	Two emergence surveys spread between May to September with at least one between May to August.
High Potential	A structure or tree with one or more potential roost sites that are obviously suitable for use by large 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.	Three emergence surveys spread between May to September with at least two between May to August.

2.5 *Limitations*

The site visit was completed within the optimal period for extended Phase 1 habitat surveys (May to September). Sufficient information was gathered on protected / notable species in terms of the likelihood of occurrence at the site (as far as is reasonably possible).

The surveys were undertaken within the main bat survey season (May to August/September inclusive). The interiors the buildings were fully inspected, and all external elevations were fully inspected externally.

To conclude, there were no major constraints to the survey objectives.

3 Desk Study

3.1 Desk Study

The most relevant ecological data as supplied by DBGRC and DBCG and a search for Statutory Wildlife Sites on MAGIC is included below. In addition, relevant data produced for adjacent planning application 9/2017/0349 (1,100 dwellings) is also reviewed.

3.2 Protected Sites

3.2.1 Statutory Wildlife Sites

There are no statutorily designated nature conservation sites within 2 km of the application site. The closest site is Hilton Gravel Pit (SSSI) located approximately 5.5 km south-west of the site.

3.2.2 Non-Statutory Wildlife Sites

There are three Local Wildlife Sites within 2 km of the site:

- Ladybank Wood (LWS) – A 1.8 ha secondary broad-leaved plantation located approximately 1.35 km north-east of the site.
- Black and Osierbed Wood (LWS) – A 5.9 ha secondary broad-leaved wet woodland located approximately 1.53 km north-north-east of the site.
- Mickleover – Egginton Greenway (LWS) – A 12.4 ha habitat mosaic located approximately 0.794 km north-west of the site.

3.3 Protected and Notable Species

3.3.1 Bats

Multiple records of bat species were provided by DBCG and DBGRC. Species include soprano pipistrelle, common pipistrelle, nathusius' pipistrelle, pipistrelle species, brown long-eared bat, noctule, Leisler's bat, *Nyctalus* species, *Myotis* species *Myotis* sp., Daubenton's bat *Myotis daubentonii*, Natterer's bat *Myotis nattereri*, whiskered bat *Myotis mystacinus* and unknown bat species.

No records relate to the site itself. The closest roost is a pipistrelle species roost, approximately 470m south-west of the site.

3.3.2 Great Crested Newts

DBGRC provided nine records of great crested newt (GCN) up to 3km from the site; the closest record is approximately 1.5 km north of the site.

In addition to the local record centre data search, a search of the planning portal for relevant local developments was also undertaken. Specifically, the desk-based study reviewed GCN surveys undertaken by Baker Consultants (2017)³ of ponds within a minimum of 500m of the site. The Ecology Report was conducted in relation to planning application 9/2017/0349.

It should be noted that the pond location maps are incorrect within the above report, and instead the below assessment is based on the pond location descriptions and grid references provided within the report.

³ Baker Consultants (February 2017). *Land at New House Farm, Mickleover. Ecological Appraisal*. Available on South Derbyshire District Council Planning Portal.

A revised map of the waterbodies based on the description/grid reference provided in the report can be seen within Figure 2.

Baker Consultants undertook GCN surveys of all three ponds with use of standard methods (i.e. torching, bottle trapping, egg searches and netting) in 2014. No GCN were recorded through the four surveys undertaken during this time. Smooth newts were recorded within all ponds.

To update the survey findings in 2016, Baker Consultants undertook eDNA surveys to sample for GCN DNA on Ponds 1 & 3. Pond 1 returned negative for GCN eDNA. However, Pond 3 had a low positive score: 1 out of 12 replicates was positive for the presence of great crested newts. As the result was unexpected based on the previous survey effort in 2014 and the unlikely recruitment of GCN within a relatively short timeframe, Baker Consultants carried out a single GCN survey using conventional survey methods in May 2016. Although the conditions were suitable during the survey, no GCN were recorded. Based on this, Baker Consultants assessed the sample as likely to be a false positive and no adverse impacts were predicted to GCN due to the development (1100 houses) - Planning Permission was subsequently granted based on this evidence.

Figure 2. Ponds surveyed by Baker Consultants in 2014 and 2016



3.3.3 *Reptiles*

DBGRC provided no records of reptiles within the search radius.

3.3.4 *Birds*

DBGRC provided the following records of notable birds within 2km of the site: swift, song thrush, spotted flycatcher, red kite, kingfisher and cuckoo.

3.3.5 *Other Species*

DBGRC provided no records of badgers within the site or within 30m of the site. [REDACTED]

DBGRC also provided records of hedgehog, hare and water vole within the wider area.

4 Results

4.1 Phase 1 Habitat Survey

The application site covers approximately 2.5 ha and comprises of a farm complex to the north of the site with a main farmhouse, multiple associated buildings and hardstanding. The south of the site is a triangle shaped field dominated by poor semi-improved grassland, with tall ruderal to the western corner and bounded by hedgerows with scattered mature trees. A minor unnamed road, providing access to the site only, intervenes the north and south of the site.

For ease of reference, the site will be categorised as Area 1, the farmstead to the north of unnamed road, and Area 2, the area of land to the south of the unnamed road. See Phase 1 Map in Figure 3 and photos in Appendix 2.

4.1.1 Area 1

This area is dominated by buildings and hardstanding. The buildings will be discussed in detail within Section 4.3.

In addition to the above, there is amenity lawn to the front (south) of the farmhouse and adjacent buildings, scattered ornamental shrubs, occasional bare earth and an old unused allotment at the west which is dominated by tall ruderal species.

The lawn is dominated perennial ryegrass *Lolium perenne*, white clover *Trifolium repens*, Yorkshire fog *Holcus lanatus*, creeping buttercup *Ranunculus repens* and chickweed *Stellaria media*, with bordering non-native ornamental shrubs. In addition, the following species were recorded scattered on the hardstanding and bare earth, chickweed, knotgrass *Polygonum aviculare*, square stalked willowherb *Epilobium tetragonum*, greater plantain *Plantago major*, perennial ryegrass, nettle, spear thistle *Cirsium vulgare*, creeping bent *Agrostis stolonifera*, Yorkshire fog, white clover, broadleaved dock *Rumex obtusifolius* and rosebay willowherb *Chamerion angustifolium*.

An old allotment section to the west of the site is clearly high in nutrient content, with spear thistle, sow thistle *Sonchus oleraceus*, nettle *Urtica dioica*, ragwort, cleavers *Galium aparine* and rosebay willowherb dominant throughout. A hawthorn *Crataegus monogyna* hedge with bramble *Rubus fruticosus*, semi mature ash *Fraxinus excelsior* and damson *Prunus domestica* is located at the west and south of this area.

There are small numbers of scattered trees along the north of the site, including crab apple *Malus sp.* and wych elm *Ulmus glabra*.

4.1.2 Area 2

The poor semi-improved grassland which dominates the triangular field at the south of the site is dominated by perennial ryegrass with dandelion *Taraxacum officinale*, broad-leaved dock, creeping buttercup and nettle.

The field margins comprise common field margin species, including false oat-grass *Arrhenatherum elatius*, creeping bentgrass, nettle, bramble, creeping thistle *Cirsium arvense*,

The western corner has been left unmanaged and is dominated by tall ruderal, species include bramble, nettle, creeping thistle, cock's-foot *Dactylis glomerata*, ragwort *Senecio jacobaea* and yarrow *Achillea millefolium*.

The field is bordered by mature hedgerows/treelines with scattered mature trees. Species include hawthorn, bramble, elder *Sambucus nigra*, wych elm, holly *Ilex aquifolium*, oak *Quercus robur*, field maple *Acer campestre*, sycamore *Acer pseudoplatanus*, ash, silver birch *Betula pendula*, scots pine *Pinus sylvestris* and blackthorn *Prunus spinosa*. Of note, four mature oaks and a single mature copper beech *Fagus sylvatica purpurea* border the site.

Figure 3. Phase 1 Habitat Map (Area 1 to north and Area 2 to south)



4.1.3 *Overview of Surrounding Habitats*

The site is bordered by a new housing estate immediately to the north (section of 1100 residential properties included within planning application 9/2017/0349); the development of this area is not yet present on Google Imagery. A public footpath is located within the treeline immediately south and east of the site, with the A516 immediately to the south and adjoining road to the east. A pond and offices are also located immediately east of the site, with agricultural land dominant to the west.

The wider area is dominated by residential properties and private gardens to the north and east, and agricultural land to the west. Residential properties, a golf course and agricultural fields are present to the opposite side of the A516 to the south.

4.2 *Bats*

4.2.1 *Buildings – Daytime Inspection Survey*

For ease of reference all buildings within the site have been numbered, as seen in Figure 4. All numbers correspond with the details provided in Table 2 on the following page. Also, see photos in Appendix 2.

Figure 4. Building Reference Numbers (brown lined structure no longer present)



Table 2. Building descriptions and bat roost potential assessment

Ref no.	Building Description	Bat Roost Potential
B1	B1 is the main farmhouse and is actively tenanted. The double storey building is rendered on the externals and has a ceramic tiled roof. Internally, stairs lead up to the loft void. The roof is lined with Bitumen felt with wooden support beams, and rock wool insulation on the flooring. Two intervening chimneys are situated within the void. The internals appear to be tightly sealed with no obvious access points. No evidence of bats i.e. droppings, was recorded within the loft. A cellar is also present within the building. There was no access to the cellar, however, there does not appear to be any crawl or flight access into the cellar for bats. Externally, the walls are rendered with no visible gaps observed and the majority of roof tiles are tight to the roof. Bat roost potential features were limited to: • Isolated missing tile on the south; • Small crevice below led flashing along the chimney; • Isolated missing mortar on ridge tiles; • Occasional gap between the wall and the roof; • Gaps under ridge valley tiles on north of the building.	Moderate
B2	B2 is a single storey, double skinned, redbrick outbuilding with a ceramic tiled pitched roof. The building is open fronted to the north, with a missing window on the west. The building immediately adjoins B3 on the east. Internally, the building is lined with sarking boarding. A single dropping indicative of pipistrelle species was located in a gap above the sarking on the west of the building with 5x droppings below. Due to the location of the droppings, the building is considered to be a confirmed bat. In addition to the above, approx. 10 droppings indicative of pipistrelle species and 3 droppings indicative of brown long-eared bat, were scattered in the building i.e. not confirming a roost. The floor is full of detritus, limiting the view of other potential droppings. In addition to the confirmed bat roost (based on dropping location), other potential bat roost features include: • Gaps below tiles, verge tiles and ridge tiles; • The window lintel; • Crevices in the brickwork; • Crevice between sarking and tiles.	Confirmed roost
B3	B3 is a single storey red brick garage with a pitched ceramic tiled roof. The building has a single door and has no direct flight access. Internally, the walls are rendered, the roof has wooden support beams and is lined with Bitumen felt. The building adjoins B2 and B4. Bat roost features were limited to: • Gaps between the tiles and roof felt (particularly considering that there is direct crawl access from B2). • Internally within the void.	Moderate
B4	B4 is a single storey, redbrick workshop with a ceramic tiled roof. The roof is pitched with approx. 1/5 lined with sarking board and the remainder unlined. Lining from B3 intrudes approximately 5cm into the building. There is no direct flight access into the building.	Confirmed

	Approximately 20 droppings indicative of brown long-eared bat were observed within the building, with no feeding remains observed. As there is crawl access into the building only i.e. no flight access, the building is considered to be a confirmed roost. Bat roost features were limited to: - Internally within the void itself; - Raised tiles; - Gaps between sarking and tiles.	
B5	The building is a large 'L' shaped, double storey, redbrick farm building with a pitched ceramic tiled roof. Externally, the building is in a good state of repair and well pointed with no gaps in the brickwork or tiles observed. There is direct flight access via a missing window on the second floor at the south of the building. The ground floor rooms were previously used as a stable and for storage, with a wood boarded ceiling. There are gaps between the wood trusses and walls on this floor which present some potential for roosting bats. The second floor is open vaulted and lined throughout with Bitumen felt, with both wooden and metal support beams. The second floor is approximately 4.5m high from floor to apex. There are windows throughout the building i.e. light, aside from a small protruding annex on the north which is pitched and approx. 1m in height. Approximately 80 droppings, indicative of brown long-eared bat were scattered throughout the building. No pile of droppings or feeding pile was observed. Due to the number of scattered droppings observed, the building is highly likely to be used by roosting bats. Potential bat roost features include: - Gaps between the support beams and wall; - Isolated gaps within the lining; - Gaps between the segregating walls and roof; - A hanging hessian bag; - Window lintels; - The void itself. There are two adjoining areas at the north of the building that are open fronted to the west, with corrugated cement roofs and metal support beams.	Likely roost / High potential
B6	B6 is a detached breeze block workshop and kennels with a corrugated cement roof. There is wooden wavy boarding on both gable ends, but these go straight through with no feature behind to provide a suitable crevice. No suitable crevices were observed within the building.	Negligible
B7	B7 adjoins B1, B8 and B9. The building is redbrick with a ceramic tiled roof and used for storage including a tractor. The building is flat to the north and pitched to the south. The roof is Bitumen lined with wooden support beams and large skylights. The vast majority of the building is on a single floor only, however, there is a small section with a second floor to the west with a water tank. There is no open flight access into the building and no evidence of roosting bats was recorded within the building. There are a number of raised tiles and gaps below lead flashing on an out pipe which provide access between the tiles and Bitumen felt.	Moderate
B8	B8 is a single storey redbrick building with a ceramic tiled pitched roof. There are raised tiles and ridge tiles, but the building is unlined i.e. straight to tiles, with	Low

	small crevices for small numbers of bats only. The building does not appear to be in current use, with no direct flight access present. The building adjoins B7. There was no evidence of bats recorded and dense spider webs were recorded along the internal roof apex.	
B9	B9 is a single storey redbrick building with a ceramic tiled, unlined pitched roof and wooden support beams. The building adjoins B7 and B12. There is no direct flight access into the building. The walls are rendered internally with no bat roost potential. Bat roost potential was isolated to: • Gaps under tiles and ridge tiles; • Isolated gaps behind led flashing; • Crevice along the wall and wooden support beams.	Moderate
B10	B10 is a single storey detached building constructed from redbrick with a ceramic tiled pitched roof. There are raised tiles and ridge tiles, but the building is unlined i.e. straight to tiles, with small crevices for small numbers of bats only. No evidence of bats was recorded during the assessment and the building was densely cobwebbed along the apex.	Low
B11	B11 is a detached single storey, breeze block structure with a corrugated cement roof. No gaps or crevices suitable for roosting bats were observed within the building.	Negligible
B12	B12 is a large agricultural unit constructed from breeze block with metal support beams and a corrugated cement roof and gable end. The building adjoins B7 and B9. No suitable bat roost features were observed within the building.	Negligible
B13	B13 consists of a large agricultural unit and attached open unit. The structures are presumably used for grain storage, although largely empty at the time of survey, as well as to house tractors. The structures are constructed of corrugated metal and cement with cement and metal support beams. Rat droppings were observed within the building. No suitable bat roost features were observed within the building.	Negligible
B14	A small, single storey detached red bricked structure with a pitched ceramic tiled roof with sarking board. The structure is used for storage and rendered internally. The building is well sealed and pointed with no access between the tiles and sarking board. Due to the lack of access into the building, B14 is considered to be of negligible value to roosting bats.	Negligible
B15 B16	B15 and B16 are large agricultural units towards the west of the site. Both units are open sided and constructed from corrugated metal and corrugated cement with metal support beams. No suitable bat roost features were observed within the buildings.	Negligible

4.2.2 *Trees – Daytime Inspection Survey*

A single oak on the northern boundary of Area 2 was found to have features of moderate bat roost potential, these being shearing splits, knot holes and lifted bark. Other trees along the south of Area 2 may also contain bat roost features, however, it was not possible to fully inspect the trees from ground level due to the density of the canopy.

Other trees along the site's boundary were assessed as having negligible bat roost potential due to the absence of suitable roost features, e.g. in cracks and rot holes.

In addition, the boundary treelines/hedgerows along Area 2 are considered to be of some value to foraging and commuting bats.

4.3 *Great Crested Newts*

DBGRC provided nine records of GCN within the wider area, with the closest record approximately 1.5 km north of the site.

Two ponds are located within a 500m radius of the site; one approximately 2m east of Area 2 and one approximately 380m north-west of the site – these ponds relate to P1 and P3 within Figure 2 respectively. For continuity and ease of reference, the pond numbering within this report, will follow that of Figure 2.

Pond 1 was fully inspected during the survey. Pond 3 is now located to the opposite side of the new residential development on private land and it is unclear if this pond is still present.

Baker Consultants undertook GCN surveys of both ponds with use of standard methods (i.e. torching, bottle trapping, egg searches and netting) in 2014 (in relation to planning application 9/2017/0349). No GCN were recorded through the four surveys undertaken during this time.

To update the survey findings in 2016, Baker Consultants undertook eDNA surveys to sample for GCN DNA on Ponds 1 & 3. Pond 1 returned negative for GCN eDNA. However, Pond 3 had a low positive score: 1 out of 12 replicates was positive for the presence of great crested newts. As the result was unexpected based on the previous survey effort in 2014 and the unlikely recruitment of GCN within a relatively short timeframe, Baker Consultants carried out a single GCN survey using conventional survey methods in May 2016. Although the conditions were suitable during the survey, no GCN were recorded. Based on this, Baker Consultants assessed the sample as likely to be a false positive and no adverse impacts were predicted to GCN due to the development (1100 houses).

4.3.1 *Pond 1*

Although the last presence/likely absence survey for GCN was undertaken on Pond 1 in 2016, no other ponds are located within 500m of the pond. Given the survey effort implemented on the pond and as the risk of recruitment from other ponds appears to be negligible (i.e. due to distance/barriers), the results of the surveys undertaken by Baker Consultants in 2014 and 2016 are considered to remain valid, and GCN are considered likely to be absent from the pond.

4.3.2 *Pond 3*

Due to the distance between Pond 3 and the site, and the intervening habitat between the pond and the site i.e. residential estates, the potential low population of GCN within Pond 3 (worst case scenario) is not considered to be a constraint to the proposed development.

4.4 *Nesting Birds*

A total of 5x active barn swallow nests were recorded within B2 and B5, as well as old nests within B3, B4 and B13 (although it is noted that there is no longer flight access into B3 and B4). Pigeon nests were also recorded in B5 and B13.

The buildings and hedgerows/treelines bordering the site offers high potential to support a variety of common birds such as dunnock, robin, blackbird, blue tit and possibly house sparrows (red listed

4.5 ***Badger***

DBGRC provided no records of badgers within the site or within 30m of the site, [REDACTED]

No evidence of badger activity was observed during the survey. The site was generally considered to be unsuitable for sett digging [REDACTED].

4.6 ***Other species***

UKBAP species such as hedgehog may occur within the area.

The site does not support or border suitable features likely to be used by water vole or otter i.e. watercourses or waterbodies.

No further protected / notable species such as reptiles are considered likely to be affected by the proposed development.

5 Conclusions and Recommendations

5.1 Protected Sites

5.1.1 Conclusions

There are no statutorily designated nature conservation sites within a 2 km radius with the nearest site being Hilton Gravel Pit SSSI located 5.5 km to the south-west. It is not considered that the development will impact such sites within the local area.

There are three Local Wildlife Sites within 2 km of the site. Based on the distances between the site and local wildlife sites, the development is highly unlikely to have an adverse impact on the conservation interests of such sites located within the surrounding area.

5.1.2 Recommendations

No further recommendations are considered necessary.

5.2 Habitats

5.2.1 Conclusions

The site supports hard standing and bare earth, amenity grassland, buildings, tall ruderal and poor semi improved grassland. These habitats are widespread within the immediate and wider area and are considered to be of limited value. As such, these habitats are considered as being of ecological value within the immediate zone of influence of the site only.

The bordering hedgerows, treelines and standard trees are of greater ecological value and should be retained where possible.

5.2.2 Recommendations

It is recommended that hedgerows and treelines are retained with appropriate buffer zones as part of any development scheme i.e. in line with roost protection zones.

The creation of new hedgerow is an ideal opportunity to increase the botanical diversity of the site. It is recommended to use British native species and preferably of local provenance. Species recommended for inclusion in the planting scheme includes oak *Quercus robur*, beech *Fagus sylvatica*, hawthorn *Crataegus monogyna*, rowan *Sorbus aucuparia*, blackthorn *Prunus spinosa*, elder *Sambucus nigra*, hazel *Corylus avellane*, holly *Ilex aquifolium*, field maple *Acer campestre*, silver birch *Betula pendula*, dogwood *Cornus sanguinea*, hornbeam *Carpinus betulus* and whitebeam *Sorbus aria*.

5.3 Bats

5.3.1 Conclusions

B2 and B4 are considered to be confirmed bat roost due to the number and location of droppings observed; B4 is considered to be of high bat roost potential (although roost likely due to number of droppings observed); B1, B3 and B9 are considered to be of moderate bat roost potential; B8 and B10 are considered to be of low bat roost potential; and B6, B7, B11 to B16 are considered to be of negligible bat roost potential.

A single oak on the northern boundary of Area 2 was found to have features of moderate bat roost potential and other trees along the south of Area 2 may also contain bat roost features. Other trees along the site's boundary were assessed as having negligible bat roost potential due to the absence of suitable roost features, e.g. in cracks and rot holes.

The boundary treelines/hedgerows along Area 2 are considered to be of some value to foraging and commuting bats.

5.3.2 *Recommendations*

In line with best practice guidelines, up to three emergence surveys should be undertaken on confirmed and high bat roost building - B2, B4 and B5 (dependant on findings of the initial two surveys); two surveys should be undertaken on buildings of moderate bat roost potential – B1, B3 and B9; and, a single survey should be undertaken on buildings with low bat roost potential – B8 and B10.

In line with the best practice guidelines, no further surveys are required on buildings with negligible bat roost potential.

It is understood that no trees with bat roost potential will be directly impacted by the works i.e. boundary trees only, the following mitigation should be adhered to:

- A minimum of a 3m buffer zone should be maintained between trees along the boundary of Area 2 and the works;

Artificial lighting also causes disturbance to foraging and commuting bats; it is therefore recommended to avoid/minimise external lighting in close proximity to any existing or newly planted treelines/hedgerows. This should be in accordance with the latest guidance on bats and artificial lighting⁴.

5.3.3 *Natural England - European Protected Species Mitigation (EPSM) Licence*

A European Protected Species Mitigation (EPSM) Licence would be required where any of the buildings be found to support a bat roost. As a minimum, Buildings 2 and 4 are confirmed bat roost and will require a EPSM licence.

A EPSM licence is required to allow an activity to occur that would otherwise be classed as unlawful i.e. damage/destruction and/or disturbance of a roost. Natural England can issue bat EPSM licences for this purpose on application and presentation of evidence-based mitigation.

Before issuing a licence, Natural England will need to be satisfied that the following '3 tests' are met (this will include measures to minimise impacts on bats through design/mitigation/timings etc.):

- That the action is for the purpose of preserving public health or public safety or other imperative reasons of overriding public interest including those of a social or economic nature;
- that there is no satisfactory alternative; and
- that the action authorised will not be detrimental to the maintenance of the species concerned at a favourable conservation status in their natural range.

Please note. Natural England would only assess a licence once planning permission is granted and within 3 months of the works start date. Natural England takes approximately 30 working days to turnaround a licence.

5.4 *GCN*

5.4.1 *Conclusions*

With use of OS mapping and where possible 'ground truthing', two ponds have been located within 500m of the site (P1 and P3 as seen in Figure 2); P1 approximately 2m east of Area 2 and P3 approximately 380m north-west of the site.

⁴ Bat Conservation Trust / Institute of Lighting Professionals. (2018). Guidance Note 08/18. Bats and artificial lighting in the UK. Bats and the Built Environment series.

With use of surveys undertaken by Baker Consultants in 2014 and 2016 in relation to adjacent planning application 9/2017/0349 and given the distance of P1 from other ponds within the wider area, GCN are considered to be absent from the pond.

Given the results of surveys undertaken by Baker Consultant and due to the distance between Pond 3 and the site, and the intervening habitat between the pond and the site i.e. residential estates, the potential low population of GCN within Pond 3 (worst case scenario) is not considered to be a constraint to the proposed development.

5.4.2 *Recommendations*

No further recommendations or mitigation are considered necessary.

5.5 *Birds*

5.5.1 *Conclusions*

A total of 5x active barn swallow nests were recorded within B2 and B5, as well as old nests within B3, B4 and B13 (although it is noted that there is no longer flight access into B3 and B4). Pigeon nests were also recorded in B5 and B13.

The buildings and hedgerows/treelines bordering the site offers high potential to support a variety of common birds such as dunnock, robin, blackbird, blue tit and possibly house sparrows (red listed).

5.5.2 *Recommendations*

Any works affecting potential nesting areas must be undertaken outside the main nesting period of March-September if possible. Where this is not possible, nesting bird checks should be undertaken by a suitably qualified ecologist. In line with current legislation (The Wildlife & Countryside Act 1981), if active nests are present, these must be retained in-situ undisturbed by the works until the nests are no longer active.

To compensate for the loss of barn swallow nesting locations, it is recommended that 7x barn swallow nest cups are installed in suitable locations within the site. The nest cups must be installed within an outbuilding such as a shed, stable or barn where there is constant access for birds through a door, window or open sides. Swallows are sociable birds, but the nest cups must not be placed too close together. A minimum distance of 1 m between nest cups is recommended with at least 6 cm free space above the nest cup.

Provision for nesting birds (e.g. house sparrow terrace boxes) would be recommended for inclusion within the site; ideally these should be permanent features built into the dwellings. Compensation input, in the form of artificial nest boxes, should be included within the new dwellings for species such as swift (Schwegler No. 17B) and house sparrow (Schwegler No. 1SP). Exact details to be confirmed at the detailed design stage.

5.6 *Badgers*

5.6.1 *Conclusion*

A full walkover of the site was undertaken, and no evidence of badger activity was recorded i.e. setts, latrines, snuffle holes etc.

5.6.2 *Recommendations*

Badgers are highly mobile animals and can build setts within a relatively short period. As there may be a prolonged period between the site survey and the actual development, a badger survey is recommended to be undertaken prior to the commencement of the development to gather information relating to the presence or absence of badgers at the site.

5.7 *Other Fauna*

5.7.1 *Conclusion*

No other potential ecological constraints have been identified.

5.7.2 *Recommendations*

In the interest of animal welfare, during construction any deep excavations should be either fenced-off, covered overnight or fitted with an exit ramp to avoid the trapping of mammals.

Appendix 1. Legislation and Conservation Context

Bats

All British bat species are fully protected through The Conservation of Habitats and Species Regulations 2017 as European Protected Species (EPS). They also receive some protection through inclusion in Schedule 5 of the Wildlife and Countryside Act 1981 (as amended).

It is an offence to deliberately capture, injure or kill a bat. It is an offence to damage or destroy a breeding site or resting place of a bat. It is an offence to deliberately disturb a bat; in particular any disturbance which is likely (a) to impair their ability - (i) to survive, to breed or reproduce, or to rear or nurture their young, or (ii) in the case of animals of a hibernating or migratory species, to hibernate or migrate; or (b) to affect significantly the local distribution or abundance of the species to which they belong.

Under the Wildlife and Countryside Act 1981 (as amended), it is also an offence to intentionally or recklessly disturb a bat while it is occupying a structure or place which it uses for shelter or protection; or obstruct access to any structure or place which any such animal uses for shelter or protection.

The 'appropriate authority' (Natural England in England) has powers to issue licences for various purposes including - (a) scientific or educational purposes... and (e) preserving public health or public safety or other imperative reasons of overriding public interest including those of a social or economic nature and beneficial consequences of primary importance for the environment. The appropriate authority shall not grant a licence under this regulation unless they are satisfied - (a) that there is no satisfactory alternative, and (b) that the action authorised will not be detrimental to the maintenance of the population of the species concerned at a favourable conservation status in their natural range. It is an offence for any person authorised by virtue of a licence to which this paragraph applies to contravene or fail to comply with any condition which the licence requires him to comply with.

Several species of bat including brown long-eared and soprano pipistrelle *Pipistrellus pygmaeus* are identified as UK Biodiversity Action Plan (BAP) priority species.

Great Crested Newts

Great crested newts are fully protected under the Wildlife and Countryside Act, 1981 (as amended) and under the Conservation of Habitats and Species Regulations 2017. This makes it an offence to:

- Deliberately capture or kill a great crested newt;
- Deliberately disturb a great crested newt;
- Deliberately take or destroy the eggs of a great crested newt; or
- Damage or destroy a breeding site or resting place of a great crested newt.

Great crested newt is a priority species under the LBAP and UK BAP and a *Species of Principal Importance* for the Conservation of Biodiversity in England under Section 41 of the Natural Environment and Rural Communities Act 2006.

Reptiles

Smooth snake and sand lizard are fully protected under the Conservation of Habitats and Species Regulations 2017 and the Wildlife and Countryside Act 1981 (as amended).

Adder, grass snake, common lizard receive protection from killing and injury, under the Wildlife and Countryside Act 1981 (as amended). However, it is not illegal to damage or destroy the places that these species use for shelter.

All UK reptiles are priority species in the UK Biodiversity Action Plan and *Species of Principal Importance* for the Conservation of Biodiversity in England under section 41 of the Natural Environment and Rural Communities Act 2006.

Nesting Birds

All wild birds in the UK are protected under Section 1 of the Wildlife and Countryside Act 1981 (as amended) which makes it an offence to intentionally kill, injure or take any wild bird or take, damage or destroy the nest (whilst being built or in use) or its eggs.

Badgers

Badgers and their setts are protected under the Protection of Badgers Act 1992. This legislation protects badgers from killing, injuring or disturbance.

Water Vole & Otter

Water vole are listed on Schedule 5 of the Wildlife and Countryside Act 1981 (as amended) and is protected by Section 9 of the Act. Under the Act it is an offence to:

- Intentionally capture, injure or kill a water vole;
- Possess a live or dead water vole;
- Damage, destroy or obstruct access to any structure or place which water voles use for shelter or protection; or
- Disturb water voles whilst they are using such a place.

Otter is listed on Annexes II & IV of the Habitats Directive, Schedule 2 of the Habitats Regulations 2010 and Schedule 5 of the Wildlife and Countryside Act 1981 (as amended). In England and Wales, this species is protected by the Habitats Regulations 2010 and by Section 9 of the Wildlife and Countryside Act 1981 (as amended).

This protection means that it is an offence to:

- Intentionally kill, injure or capture an otter;
- Deliberately or recklessly disturb an otter; or
- Deliberately or recklessly damage, destroy or obstruct access to a breeding site or resting place of an otter.

Both water vole and otter are priority species under the LBAP and UK BAP and a *Species of Principal Importance* for the Conservation of Biodiversity in England under Section 41 of the Natural Environment and Rural Communities Act 2006.

Appendix 2. Photographs

Photo 1. B1 – south elevations



Photo 2. B1 – north elevations



Photo 3. B1 – example access between tiles and lining



Photo 4. B1 – example access to cavity



Photo 5. B1 – internals



Photo 6. B2



Photo 7. B2 – internals



Photo 8. B2 – example bat droppings, indicative of pipistrelle species, below sarking



Photo 9. B3



Photo 10. B3 – internals



Photo 11. B4



Photo 12. B4 – internals



Photo 13. B4 – droppings indicative of brown long-eared bat



Photo 14. B5



Photo 15. B5 – internals



Photo 16. B5 – internals



Photo 17. B5 – annex small void at north



Photo 18. B5 – example scattered bat dropping



Photo 19. B5 – example active barn swallow nest



Photo 20. B5 – north of B5



Photo 21. B6



Photo 22. B6 – internals



Photo 23. B7



Photo 24. B7 – gaps below tiles



Photo 25. B7 – internals



Photo 26. B8



Photo 27. B8 – internals



Photo 28. B9



Photo 29. B9 – gaps below tiles / led flashing



Photo 30. B9 – internals



Photo 31. B10



Photo 32. B10 – internals



Photo 33. B11



Photo 34. B11 – internals



Photo 35. B12



Photo 36. B12



Photo 37. B12 – internals



Photo 38. B13



Photo 39. B14



Photo 40. B14 – well sealed



Photo 41. B15



Photo 42. B16



Photo 43. Area 2



Photo 44. West of Area 2



Photo 45. Oak containig moderate bat roost potential on north of Area 2



Photo 45. Pond 1



Photo 47. Old allotment area to the west of Area 1



Photo 48. Lane running between Area 1 and Area 2



