



Elite Ecology

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**Duck Street,
Egginton**



Bat and Bird Activity Survey

June 2019

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0. Executive Summary

0.1 This report has been prepared at the request of Ms. Francine Waring (UK Partnership Homes Ltd). It relates to the potential presence of bats and birds at the proposed development site located at 35 Duck Street, Egginton, Derbyshire, DE65 6HG (OS Grid Reference: SK 26600 28509). To fulfill this brief, Elite Ecology undertook both a desktop study and a field survey.

0.2 The current proposals are for the barns on site to be converted into residential dwellings.

0.3 Due to the amount of potential ingress/egress points and suitable roosting features, the buildings were deemed as having '**high**' potential for bats to roost and '**confirmed**' to support nesting birds. Therefore, a minimum of three further activity surveys were required during the bat survey season (May to September, inclusive). These activity surveys were subsequently undertaken in May and June 2019.

0.4 Ecological Impact Assessment

Bat presence/absence

From the survey visits undertaken on site, it has been concluded that the structure contains a day roost of common pipistrelle (*Pipistrellus pipistrellus*) bats. There are also foraging and commuting opportunities around the site in the form of hedgerows and scattered trees, with bat presence also confirmed around these features

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Bird presence/absence

From the survey visits undertaken on the site, it can be concluded that the surveyed structure contains nesting birds in the form of swallows (*Hirundo rustica*). Additionally, the surrounding landscape provides all of the necessary habitat elements that birds require, and their presence can be seen.

Ecological value of building units

The ecological value of the building has been deemed as 'high' to bats due to the presence of a day roost of common pipistrelle (*Pipistrellus pipistrellus*) bats using the structure. The ecological value of the building has been deemed as 'high' to birds, with multiple active bird nests identified.

0.5 Recommendations

The recommendations for 'Duck Street' can be summarised as follows (please refer to section '5 – Recommendations' for a more in-depth description):

- Apply for a Natural England Development Licence to legally carry out the works.
- No re-development works can proceed on the structure until November when the bats have gone off to their hibernation roosts.
- At the start of works, site supervision by a licenced bat ecologist in accordance with the Natural England Development Licence will be required.
- Install three [bat access tiles](#) and three lifted ridge tiles on the structure post development.
- No works to be done on the structure during the bird breeding season of March to August, inclusive.
- Incorporate eaves/ridge overhangs or easily accessible loft spaces for the swallow (*Hirundo rustica*) populations. These should be enhanced with the inclusion of two [No.10 Schwegler Swallow Nest](#) boxes per feature.
- Optional: Enhance the site by including a variety of [bird boxes](#) to be installed around the site.

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1 Introduction

1.1 Report rationale

This report has been prepared at the request of Ms. Francine Waring (UK Partnership Homes Ltd). It relates to the potential presence of bats and birds at the proposed development site located at 35 Duck Street, Egginton, Derbyshire, DE65 6HG (OS Grid Reference: SK 26600 28509). To fulfill this brief, Elite Ecology undertook both a desktop study and a field survey.

1.2 Site description

The site itself is situated within a rural setting due to it being located on a farm in the Derbyshire village of Egginton. Hard standing ground and grassland are situated in the immediate vicinity of the building, as well as a conglomeration of other buildings (barns and residential dwelling). This report relates to one brick-built barn with a pitched clay tile roof, with this structure measuring approximately 158m². Therefore, the site is considered to contain potential to support the local bat and bird populations by offering roosting/nesting, commuting and foraging opportunities.

Figure 1: An aerial photograph of the surveyed building Duck Street, Egginton (as shown by the red outline).



1.3 **Proposed works**

The current proposals are for the barns on site to be converted into residential dwellings.

1.4 **Aims of surveys**

The aims of the surveys were to undertake an assessment of the building(s), vegetation and surrounding area to establish whether any bats and birds may be present and, if so, in what way they are using the site. The actions of the surveyors on the site and during the production of this report were conducted in accordance with Bat Conservation Trust (BCT) guidelines (3rd edition).

1.4.1 This survey effort considered the potential for all **bat and bird species (including barn owls)** onsite:

- To establish the possibility of bat roosts and bird nests being present at the proposed development site.
- To assess any roost/nest status (i.e. what type and numbers of individuals).
- To assess suitable food, resources and habitat requirements on site and in the local landscape.

1.4.2 The information will subsequently be used in conjunction with the knowledge of the proposed works at the site to determine the potential need for further survey effort, the impacts of the proposed scheme of works, to establish whether a Natural England Development Licence is required along with species-specific mitigation and compensation. This is done in order to keep any protected species at a favourable conservation status on site.

2 Survey Methodology

2.1 Desktop Survey Methodology

2.1.1 A variety of resources were independently consulted to assess the known local records within the nearby area and the importance of the site within the local landscape from an ecological perspective. The resources used were the Local Records Centre, www.naturalengland.org.uk, www.ordnancesurvey.co.uk, Google Maps, Google Earth and Bing Maps. A search of other relevant nature conservation information was made through the use of the Multi-Agency Geographic Information for the Countryside (MAGIC) database.

2.1.2 The local records centre was contacted to provide data on all protected species and designated sites within 2km of the proposed development site. Derbyshire Wildlife Trust (DWT) were the relevant local record centre for this project.

2.2 Field Survey Methodology

2.2.1 Initial Site Survey

This is done by assessing the site by visually inspecting all building/s/structures and any trees/vegetation to be impacted by the proposed works. This is done to assess the resource availability for protected species on site and in the immediate area. Particular reference is made to:

- The presence or absence of bats and birds' onsite.
- Any evidence of potential bat roosts and birds' nests onsite.
- Whether any additional survey effort will be required.

During the initial survey, an internal and external inspection of the building(s) is undertaken to look for signs of bat activity. This is done in accordance with BCT guidelines for the assessment of building(s) and built structures.

2.2.2 External Inspection

This survey method is used to locate potential ingress and egress points around the structures that both bats and birds could use to gain access into the building. It also aims to identify any areas where cracks and crevices are present to be used as roosting/nesting features. This visual inspection is carried out in full daylight using binoculars, endoscope, torches and ladders.

This will allow for the determination of the following information:

- The type of building(s) surveyed.
- The approximate age of building(s) surveyed.
- The construction type and materials used.
- The presence of potential roost features (e.g. missing roof tiles, raised ridge tiles, air vents, cracks and crevices within the mortar).
- The presence of suitable ingress and egress points (e.g. missing windows and doors, missing mortar, lifted tiles).
- The location of any anecdotal evidence for the presence of protected species (e.g. nests, droppings or food remains).

2.2.3 Internal Inspection

This survey method aims to locate and examine areas which potentially provide suitable environmental conditions for bats. This visual inspection was undertaken by using binoculars, endoscope, torches, ladders and bat detectors to inspect internal features of the building(s).

This will allow for the determination of the following information:

- The presence of warm areas, dark areas, joints, crevices, beams and cavities that could be used for roosting and nesting purposes by bats and birds.
- To locate possible bat roost and bird nest sites.
- To listen for social calling bats.
- To locate any evidence of bat and bird presence through the identification of live or dead specimens, grease marks, droppings, food remnants, urine stains and/or the characteristic smell of bats.

2.2.4 Building/Vegetation Classification

A building/vegetation classification will be assigned to each surveyed feature that is proposed to be impacted by the scheme of works. This classification is based on the features potential to support roosting bats. The rating is also influenced by the location of the structure(s) in the local landscape, along with the number of suitable alternative roosting features, the type of features present in the landscape and the surveyor's experience. For example:

A structure that has a high level of anthropogenic disturbance with limited opportunities for access by bats, that is also situated within an urbanised area with few or no mature trees, parkland, woodland or wetland would generally equate to having negligible/low potential.

Conversely, an older structure (e.g. pre 20th century or early 20th century) with multiple features suitable for use by bats that is close to optimal foraging habitat would equate to having high potential.

The amount of additional survey effort required for each feature will depend on its rating:

- Negligible – No further survey effort is required
- Low – One further activity survey is required (structures only).
- Moderate – Two further activity surveys are required.
- High – Three further activity surveys are required.

2.2.5 Roost Categories

Any structures with evidence of bats will be further evaluated to assess which of the following roost categories may be present onsite:

➤ **Day Roost:**

A place where individual bats or small groups of males, rest or shelter during the daytime. These bats are rarely found at night at these sites.

➤ **Feeding Roost:**

A place where individual bats rest or feed during the night, but are rarely present in the day.

➤ **Hibernation Roost:**

A place where bats may be found either individually or together during the winter months. These roosts often have a constant cool temperature and high humidity.

➤ **Maternity Roost:**

A place where female bats give birth and raise their young to independence.

➤ **Mating Roost:**

A place where mating/copulation takes place between male and female bats. These can continue through the winter months.

➤ **Night Roost:**

A place where bats rest and/or shelter during the night, but will rarely be found here during the day. These can be used colonially or individually by the bats.

➤ **Satellite Roost:**

These are alternative roosting sites that are found within close proximity to the main nursery colony within the maternity roost. These are used throughout the breeding season by individual or small groups of female bats.

➤ **Swarming Site:**

A place where large numbers of bats come together during the latter summer months through until Autumn. These sites are classed as being important mating areas.

➤ **Transitional/Occasional Roost:**

A place that is used by individuals or small groups of bats for a small period of time. These are used by the bats prior to hibernation and/or shortly after hibernation.

2.2.6 Bat Detector Survey (presence/absence survey)

If required, the object for this survey method is to detect any bats leaving or returning to their roost sites within the surveyed features. This is achieved by undertaking dusk and dawn activity surveys under the following protocol:

- Commencing the survey 15 minutes before sunset (dusk survey) and 2 hours before sunrise (dawn survey).
- Listening for any social calls at potential roost sites using bat detectors.
- Standing at different survey points around the building(s) and/or vegetation using bat detectors to hear the bat echolocation.
- The survey will attempt to witness the first bats emerging (dusk) and the bats returning (dawn) to their roosts.
- Standing at different transect points at foraging/commuting areas around the site.
- Carrying out this survey methodology for up to two hours after sunset (dusk) and up to 15 minutes after sunrise (dawn). This will cover the emergence and re-entry of the bats at the potential roost site, for some bat species.

- 2.2.7 In order to comply with the required legislation, the results from the surveys will be collated to establish whether a European Protected Species (EPS) development licence will be required. If required, project appropriate species-specific compensation and mitigation measures will be devised to ensure the species remains at a favourable conservation status at the impacted site.

2.3 Surveyors Information

- 2.3.1 The survey was undertaken by licensed bat ecologist/s and members of the Chartered Institute of Ecology & Environmental Management (CIEEM):

Mr. Richard Millington BSc (Hons), ACIEEM, Senior Ecologist, Natural England Bat Survey Licence Number: 2016-26861-CLS-CLS Bat Survey Level 2.

Mr. Adam Harper (BSC), Ecologist.

Mr. Matthew Hodgson, Ecologist.

2.4 Field surveys

2.4.1 Site Surveys

Elite Ecology were not made aware of any previous site surveys.

2.4.2 Roost Surveys

The barn at Duck Street, Egginton was externally and internally inspected for the presence of bats and birds with the use of various types of equipment (including binoculars, torches, endoscope and ladders) in full daylight. Subsequent activity surveys use a variety of bat detectors that include Bat Box Duet, SSF Bat2 and the EcoObs Batcorder. The following table outlines the environmental variables from the survey visits:

Bat and Bird Activity Survey

Environmental variables	PRA and Activity Survey of the Building – 1 st May 2019. Dusk	Activity Survey of the Buildings – 24 th May 2019. Dawn	Activity Survey of the Buildings – 16 th June 2019. Dusk
Temp Start:	10°C	13.5°C	14°C
Temp Finish:	10°C	6.5°C	12°C
Humidity Start:	56%	63.5%	65%
Humidity Finish:	56%	100%	65%
Cloud Cover Start:	100%	0%	30%
Cloud Cover Finish:	100%	0%	30%
Wind Speed Average:	Low	Low	Low
Precipitation:	None	None	None during the survey

3 Results

3.1 Desktop Survey Results

The ecological data search provided by DWT revealed multiple protected bat and bird species within the 2km search radius of Duck Street Egginton.

3.1.1 Bats:

The ecological data search revealed several bat records within the 2km search radius. No UKBAP species recorded in the search were bats. The non-BAP species recorded in the search were common pipistrelle (*Pipistrellus pipistrellus*) and daubenton (*Myotis daubentonii*) bats. In addition to these, a number of sightings of unidentified pipistrelle (*Pipistrellus* sp.) bats were also revealed in the search.

3.1.2 Birds:

Numerous protected bird species have been identified within the 2km search radius. These birds can be split into three categories of conservation importance (red, amber and green – please see [RSPB](#) for more information). The bird species revealed within the 2km search radius are listed within the table below.

Birds	
Common Name	Latin Name
Barn Owl	<i>Tyto alba</i>
Bullfinch	<i>Pyrrhula pyrrhula</i>
Corn Bunting	<i>Miliaria calandra</i>
Cuckoo	<i>Cuculus canorus</i>
Curlew	<i>Numenius arquata</i>
Dunnock	<i>Prunella modularis</i>
Grasshopper Warbler	<i>Locustella naevia</i>
Grey Partridge	<i>Perdix perdix</i>
House Sparrow	<i>Passer domesticus</i>
Kingfisher	<i>Alcedo atthis</i>
Lapwing	<i>Vanellus vanellus</i>
Lesser Spotted Woodpecker	<i>Dendrocopos minor</i>
Linnet	<i>Carduelis cannabina</i>
Little Ringed Plover	<i>Charadrius dubius</i>
Red Kite	<i>Milvus milvus</i>
Reed Bunting	<i>Emberiza schoeniclus</i>
Skylark	<i>Alauda arvensis</i>
Spotted Flycatcher	<i>Muscicapa striata</i>
Starling	<i>Sturnus vulgaris</i>
Swift	<i>Apus apus</i>
Tree Pipit	<i>Anthus trivialis</i>

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Tree Sparrow	<i>Passer montanus</i>
Turtle Dove	<i>Streptopelia turtur</i>
Twite	<i>Carduelis flavirostris</i>
Willow Tit	<i>Parus montanus</i>
Yellowhammer	<i>Emberiza citrinella</i>

Please note: Any records may not truly represent the current species on site. The maps provided by DWT showing the locations of the records obtained through the ecological data search can be found in Appendix B.

3.1.3 Designated sites

As the current proposals remain within the site boundary, it was not necessary to obtain any further information regarding both Statutory and Non-Statutory Nature Conservation Designations. This is due to the proposed works not altering any of the landscape surrounding the site.

3.2 Field surveys

3.2.1 Habitat description

The site itself is situated within a rural setting due to it being located on a farm nearby to the Derbyshire settlement of Egginton. On site, there are buildings and hard standing ground. Within the wider landscape, pastureland, arable land, hedgerows and scattered trees are evident. Therefore, the habitats that are present in and around the site contains all of the elements that are considered to be critical in both bat and bird life cycles.

Figure 2: An aerial photograph of the surveyed site (yellow star) and some of the nearby habitats to Duck Street, Egginton.



3.2.2 Building survey

External Inspection:

The external survey showed the building is of solid brick construction with skylights and air vents, roof slate and ridge tiles. The roof is dropping in and so have many slipped and missing tiles. The window frames are rotten and have no glass, allowing clear access for bats and birds. The doors are also rotten, with some of these replaced with a sheet of plyboard. Finally, the soffit boards are rotten, with large gaps present in some areas. No evidence of nesting birds was found externally.

Internal Inspection:

Internally, the building is split into two sections. The first area is split into units for agricultural purposes, with the roof being constructed of a wooden timber 'A' frame. There are several swallow (*Hirundo rustica*) nests situated on the timber frames, with only one of these active during the internal inspection. The second area of the building is currently used as a toilet and break room, with this section containing a plasterboard ceiling. No evidence of bat or bird presence identified by surveyors within this section.

3.2.3 Summary of the building inspection

Due to the amount of potential ingress/egress points and suitable roosting features, the buildings were deemed as having a ‘**high**’ potential for bats to roost and ‘**confirmed**’ to supporting nesting birds.

Therefore, a minimum of three further activity surveys are required during the bat survey season (May to September, inclusive).

Table 1: Low/Moderate/High potential building(s) survey recommendations. The full guidance can be found in the Bat Conservation Trust Good Practice Survey Guidelines. These guidelines are what all local authorities abide by.

Bat Conservation Trust

Table 7.3 Recommended minimum number of survey visits for presence/absence surveys to give confidence in a negative result for structures (also recommended for trees but unlikely to give confidence in a negative result).

Low roost suitability	Moderate roost suitability	High roost suitability
One survey visit. One dusk emergence or dawn re-entry survey ^a (structures). No further surveys required (trees).	Two separate survey visits. One dusk emergence and a separate dawn re-entry survey. ^b	Three separate survey visits. At least one dusk emergence and a separate dawn re-entry survey. The third visit could be either dusk or dawn. ^b

^a Structures that have been categorised as low potential can be problematic and the number of surveys required should be judged on a case-by-case basis (see Section 5.2.9). If there is a possibility that quiet calling, late-emerging species are present then a dawn survey may be more appropriate, providing weather conditions are suitable. In some cases, more than one survey may be needed, particularly where there are several buildings in this category.

^b Multiple survey visits should be spread out to sample as much of the recommended survey period (see Table 7.1) as possible; it is recommended that surveys are spaced at least two weeks apart, preferably more. A dawn survey immediately after a dusk one is considered only one visit.

3.2.4 DNA Results

No DNA Results were obtained for the site as no droppings were identified from the numerous survey visits.

3.2.5 Activity surveys

Three activity surveys were undertaken on the barn on the 1st and 24th May and the 16th June 2019.

Activity Survey 1 (1st May 2019):

This survey was undertaken at dusk, with sunset being recorded at 20:28. During this survey, very little bat activity was detected. Despite this, one common pipistrelle (*Pipistrellus pipistrellus*) bat was seen to emerge from the barn near the gable end. The barn was sporadically checked during the survey effort for the presence of pre-emergent flights, with none identified. However, commuting and foraging common pipistrelle and noctule (*Nyctalus noctula*) and bats were present.

Activity Survey 2 (24th May 2019):

This survey was undertaken at dawn, with sunrise recorded at 05:11. During this survey, one common pipistrelle (*Pipistrellus pipistrellus*) bat was witnessed entering the barn via a missing soffit board on the southern apex. There were also several common pipistrelle bats seen foraging and commuting in the area.

Activity Survey 3 (16th June 2019):

This survey was undertaken at dawn, with sunrise being recorded at 06:28. During this survey, one common pipistrelle (*Pipistrellus pipistrellus*) bat was seen to return to the barn. Once again, foraging and commuting common pipistrelle bats were identified by the surveyors in low numbers.

Summary:

In summary, the barn at 35 Duck Street contains one **day roost** of common pipistrelle (*Pipistrellus pipistrellus*) bats. In addition to this, it can be confirmed that foraging and commuting common pipistrelle (*Pipistrellus pipistrellus*) and noctule (*Nyctalus noctula*) bats are present.

Figure 3: An aerial photograph of the surveyed buildings (red outline), the surveyor locations (yellow stars), the roost location (blue star) and the identified bat flight paths (blue lines).



4 Impact Assessment

4.1 Constraints

Constraints on:	Survey Information	Equipment Used
Constraint (Yes or No):	No	No
Explanation of Constraints:	N/A	N/A
Action Taken:	N/A	N/A

4.2 Potential Impacts of the re-development

The current planning proposal whereby the barns will be re-developed into residential dwellings, the potential impacts have been identified as follows:

4.2.1 Designated sites

As the proposed works are due to remain within the site boundary, the presence of any designated sites nearby is not applicable to this project. This, therefore, means that any building works would be of no detriment to the surrounding habitats and landscape.

4.2.2 Bat Roosts

Impact	Short-term Impacts: Disturbance	Long-term Impacts: Roost Modification	Long-term Impacts: Roost Loss
Classification:	High	High	High
Justification:	A day roost of common pipistrelle (<i>Pipistrellus pipistrellus</i>) bats was identified in the building.	A day roost of common pipistrelle (<i>Pipistrellus pipistrellus</i>) bats was identified in the building.	A day roost of common pipistrelle (<i>Pipistrellus pipistrellus</i>) bats was identified in the building.
Any further action:	Species specific compensation and mitigation (please see section 5).	Species specific compensation and mitigation (please see section 5)	Species specific compensation and mitigation (please see section 5)

4.2.3 Bird Nests

As multiple bird nests were identified on or within the structures at 'Duck Street', the proposed scheme of works will be of a '**high**' effect to the local bird populations. Due to the identification of these nests, further species-specific mitigation and compensation is required (please refer to section 5).

4.2.4 Foraging and commuting habitat

It is considered that the re-development of the site would have a '**negligible**' effect on potential foraging and commuting habitat. The site itself offers little foraging habitat, with the adjacent land containing better opportunities for bats and birds to use. Post-development, all foraging and commuting habitats will be maintained, thus not negatively affecting the local landscape.

5 Recommendations

From the numerous site surveys, it has been established that the structure at Duck Street, Egginton is being used as a day roost of common pipistrelle (*Pipistrellus pipistrellus*) bats. Due to this a Natural England Development Licence is necessary to legally carry out the works. These licences can take up to 30 working days once the paperwork has been completed and submitted.

All works on the structure must wait until October/November when the bats typically move to their hibernation roosts. It is possible, however, that some bats may stay within their summer roost over the winter months for hibernation purposes. Due to this, at the beginning of the renovation works, a licenced ecologist is required to undertake soft demolition by accompanying building contractors in inspecting the structure by hand. This will ensure that no hibernating bats are harmed by the works. Two [1FS Schwegler Large Colony Bat Box](#) will be required to be installed on the morning of the bat inspection. This will need to be attached to nearby trees (facing north) so that any hibernating bats found can be translocated to this feature and allow the works to commence without impacting upon the bats.

To compensate for the loss of the identified roost, it is recommended that three [bat access tiles](#) are installed onto the structure. Additionally, three ridge tiles should remain lifted, with a minimum of a 15mm gap left underneath to facilitate bat access. It is imperative that these sections avoid the use of felt with a modern breathable membrane as these are known to entangle bats and lead to their demise. These features also need to avoid any artificial lighting effects.

There is the opportunity to incorporate a bat friendly planting scheme into the site post re-development. The table below outlines some species that are of most benefit to wildlife and are considered to be 'bat attracting' flora. These species could be included in the soft landscaping of the survey site.

Flowers for borders
Aubretia
Candytuft
Cherry pie
Corncockle
Corn marigold
Corn poppy
Echniacea
English bluebell
Evening primrose
Field poppies
Honesty
Ice plant 'pink lady'
Knapweed
Mallow
Mexican aster
Michaelmas daisy
Night-scented stock
Ox-eye daisy
Phacelia
Poached egg plant

Primrose
Red campion
Red valerian
Scabious
St. John's Wort
Sweet William
Tobacco plant
Verbena
Wallflowers
Wood forget-me-not
Yarrow
Herbs
Angelica
Bergamot
Borage
Coriander
English marigolds
Fennel
Feverfew
Hyssop
Lavenders
Lemon balm
Marjoram
Rosemary
Sweet Cicely
Thyme
Trees, shrubs & climbers
Bramble
Buddleia
Common alder
Dogrose
Elder
English oak
Gorse
Guelder rose
Hawthorn
Hazel
Honeysuckle (native)
Hornbeam
Ivy
Jasmine
Pussy willow
Rowan
Silver birch
Wild flowers for pond edges & marshy areas
Bog bean
Bugle
Creeping Jenny
Flag Iris
Hemp agrimony
Lady's smock
Marsh mallow
Marsh marigold
Marsh woundwort
Meadowsweet

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Purple loosestrife
Water avens
Wood forge-me-not
Water mint

Due to the presence of nesting birds, no works can be undertaken on the structures during the bird breeding season (March to August, inclusive). If this timescale cannot be achieved, the structures are required to be assessed by a suitably qualified ecologist no more than 24 hours before works commence to confirm the presence or absence of active nests. If active nests are located, exclusion zones around the nest will be required until the chicks have fledged the nest.

For the swallow (*Hirundo rustica*) nests, it will be necessary to incorporate eaves/ridge overhangs or easily accessible loft spaces. This will give these specimens the necessary internal opportunities to continue to nest at the site. These features should be located in the southern section of the re-developed site. These should be enhanced with the inclusion of two [No.10 Schwegler Swallow Nest](#) boxes per feature.

In addition to this, a variety of other [bird boxes](#) can be installed around the site to enhance the nesting opportunities for a variety of species within the local landscape.

6 Summary

6.1 Bat presence/absence

From the survey visits undertaken on site, it has been concluded that the structure contains a day roost of common pipistrelle (*Pipistrellus pipistrellus*) bats. There are also foraging and commuting opportunities around the site in the form of hedgerows and scattered trees, with bat presence also confirmed around these features.

6.2 Bird presence/absence

From the survey visits undertaken on the site, it can be concluded that the surveyed structure contains nesting birds in the form of swallows (*Hirundo rustica*). Additionally, the surrounding landscape provides all of the necessary habitat elements that birds require, and their presence can be seen.

6.3 Ecological value of building units

The ecological value of the building to has been deemed as 'high' to bats due to the presence of a day roost of common pipistrelle (*Pipistrellus pipistrellus*) bats using the structure. The ecological value of the building has been deemed as 'high' to birds, with multiple active bird nests identified.

6.4 Recommendations

The recommendations for 'Duck Street' can be summarised as follows (please refer to section '5 – Recommendations' for a more in-depth description):

- Apply for a Natural England Development Licence to legally carry out the works.
- No re-development works can proceed on the structure until November when the bats have gone off to their hibernation roosts.
- At the start of works, site supervision by a licenced bat ecologist in accordance with the Natural England Development Licence will be required.
- Install three [bat access tiles](#) and three lifted ridge tiles on the structure post development.
- No works to be done on the structure during the bird breeding season of March to August, inclusive.
- Incorporate eaves/ridge overhangs or easily accessible loft spaces for the swallow (*Hirundo rustica*) populations. These should be enhanced with the inclusion of two [No.10 Schwegler Swallow Nest](#) boxes per feature.
- Optional: Enhance the site by including a variety of [bird boxes](#) to be installed around the site.

7 References

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8 Appendices

Appendix A: Site Plans

Appendix B: Eco Data Map

Appendix C: Artificial Light and Bats

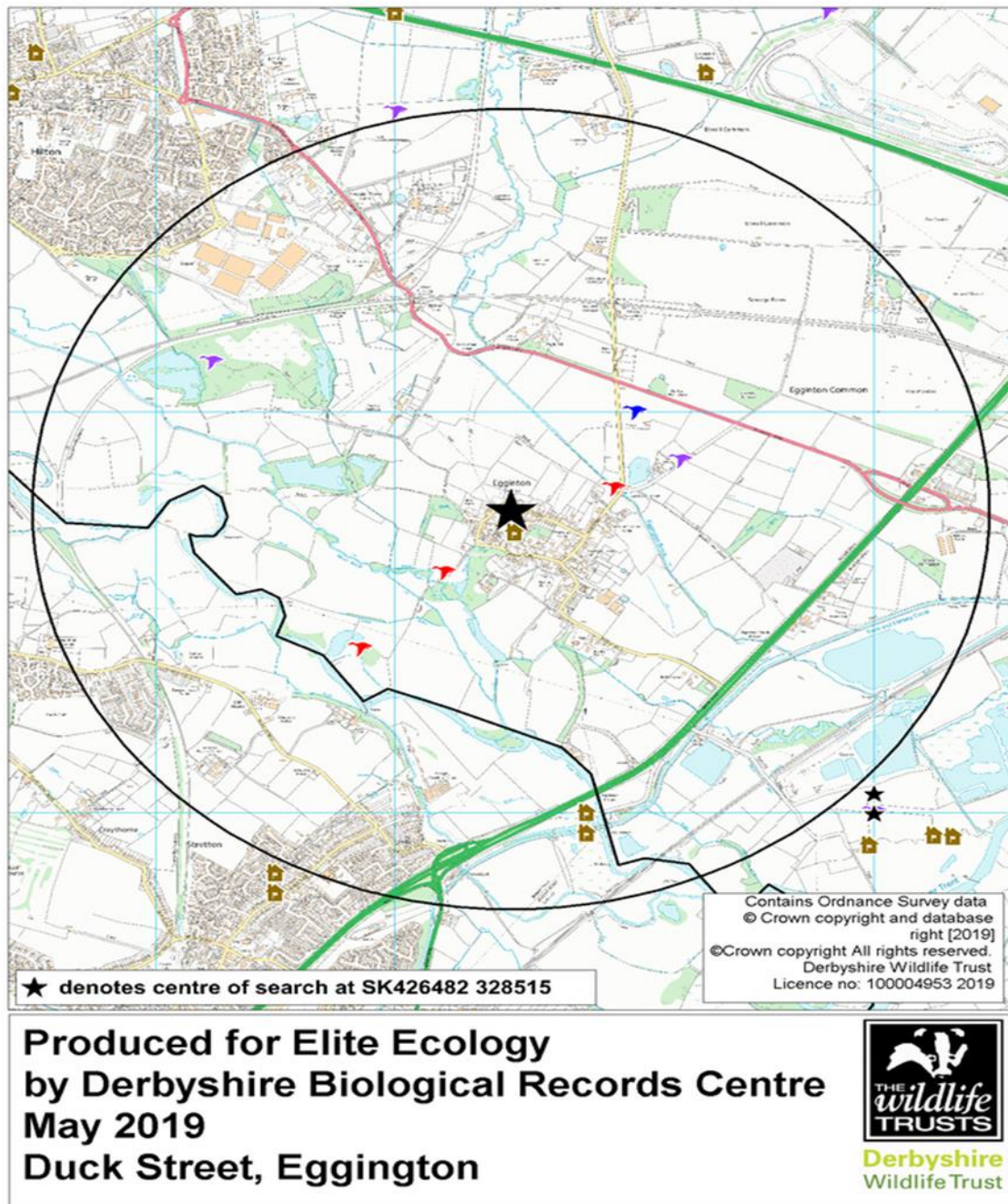
Appendix D: Photographic Records

Appendix E: The Annual Bat Year (BCT)

Appendix F: Legislation

Appendix A: Site Plans

No site plans were made available to Elite Ecology.

Appendix B: The Ecological Data Search Map

Bat and Bird Activity Survey

Key**Species**

	GCN		GCN 500m buffer		White Clawed Crayfish		Otter
	Water Vole		Reptiles		Bat Roosts		Bat Sightings
	Badger Setts		Badger Sightings		BAP Birds		Schedule 1 Birds
	BAP Inverts		BAP Mammals		Toad BAP Crossings		BAP Toads
	BAP Fish		Black Poplar		Veteran Tree		Invasive Species
	Derbyshire Red Data List Plant						

Habitats

	Traditional Orchards
	Open Mosaic
	Purple Moor Grass and Rush Pasture
	Lowland Heathland
	Lowland Fen
	Semi Natural Grassland
	Reedbeds
	Lakes
	Historical Wood Pasture and Parkland
	Ponds
	Notable Invertebrate Ponds
	Ancient & Semi-Natural Woodland
	Ancient Replanted Woodland

Non-Statutory Designations

	Regionally Important Geological and Geomorphological Sites (RIGS)
	DWT Reserves
	Local Wildlife Site (LWS)
	Potential Local Wildlife Site (pLWS)
	Grade 3 Sites

Statutory Designations

	Sites of Special Scientific Interest (SSSI)
	Special Protection Areas (SPA)
	Special Areas of Conservation (SAC)
	National Nature Reserve (NNR)
	Local Nature Reserve (LNR)

Appendix C: Artificial Lighting and Bats

Artificial lighting is known to affect bat's roosting and foraging behaviour, with lighting resulting in a range of impacts that includes roost desertion (BCT, 2009), delayed emergence of roosting bats (Downs et al., 2003), increased activity of some bat species and decreased activity by others (Stone et al., 2012).

An experimental approach using LED units, demonstrated that relatively fast-flying bat species, including the common pipistrelle, showed no significant impacts as a result of new artificial lighting, even when lighting was set at relatively high levels close to 50 lux.

In contrast, slow flying bats such as the myotis bats (*Myotis* spp.) showed sharp reductions in presence, even at low light levels of 3.6 lux (Stone et al., 2012).

Current recommendations for all bat species specifies that no bat roost should be directly illuminated.

Due to the impacts of lighting, mitigation and sensitive lighting design schemes are required for projects where bats are present. These should include bat friendly lighting plans that should aim to avoid lighting wherever possible. If this is not possible, then the minimisation of any lighting impacts is required by adopting the following measures:

➤ **To introduce lighting curfews or use of PIR sensors.**

Lighting curfews can be an effective way of avoiding impacts on bats. These curfews may involve either turning off lighting or dimming light units at specific times of the night, dimming units at key times of the year, providing the luminaire allows for this option via a control unit. Lighting to be triggered by PIR sensors can be expected to be illuminated only when required and for a low proportion of time.

➤ **To consider no lighting solutions where possible.**

Options such as white lining, good signage and LED cat's eyes should be considered as preferable. Reflective fittings may help make use of headlights to provide any necessary illumination in some areas.

➤ **To use only high pressure sodium or warm white LED lamps where possible.**

High pressure sodium and warm white LED lamps emit lower proportions of insect attracting UV light than mercury, metal halide lamps and white LED lighting. Generally, lamps should have a lower proportion of white or blue wavelengths, with a colour temperature <4200 kelvin recommended (BCT, 2014).

➤ **To minimise the spread of light.**

The light spread should be kept at or near horizontal to ensure that only the task area is lit. Flat cut-off lanterns or accessories should be used to shield or direct light to where it is required. Baffles, hoods, louvres and shields should be used where necessary to reduce light spill.

➤ **To consider the height of the lighting column.**

While downward facing bollard lighting is often preferable, it should be noted that a lower mounting height does not automatically reduce impacts to bats as bollard lighting can often be designed to provide up-lighting. Where bollard lighting is considered to be the most appropriate system, bollard spacing or unit density should be kept to a minimum and units should be fitted with the appropriate hoods/deflectors to reduce any up-lighting.

➤ **To avoid reflective surfaces below lights.**

The polarisation of light by shiny surfaces attracts insects increasing bat activity (BCT, 2012). Consequently, surface materials around lighting require consideration.

Appendix D: Photographic Records

Plate 1: A photograph of the surveyed structure.



Plate 2: An image showing the rear of the site with part of the tree line.



Plate 3: A photograph showing the internal space.



Plate 3: A photograph showing the Swallows nest.



Appendix E: The Annual Bat Year (BCT)

A Year in the Life of a Bat		
	January	Hibernating; using up fat reserves.
	February	Still hibernating; few fat reserves left.
	March	Some activity; occasional bat seen feeding.
	April	Awake and feeding at night.
	May	Females looking for nursery sites.
	June	Young born, usually only one.

Bat and Bird Activity Survey

	July	Young still suckling.
	August	Young start catching insects; females leave nursery to find males.
	September	Mating season begins; start building fat reserves for hibernation.
	October	Search for suitable hibernation site.
	November	Hibernation begins although still some activity in warm weather.
	December	Hibernating.

Appendix F: Legislation and Policy

All species of bat are fully protected under a variety of domestic, European and international legislation and conventions. These include:

- Bern Convention (Appendix II)
- Bonn Convention (Appendix II)
- Conservation Regulations (Northern Ireland) 1995
- Conservation of Habitats and Species Regulations 2010
- Countryside Rights of Way Act 2000
- Eurobats Agreement
- Habitats Directive (Annexes IV and II)
- Habitats Regulations 1994 (as amended) Scotland
- NERC Act 2006
- Wildlife and Countryside Act 1981 (as amended)
- Wild Mammals Protection Act

In addition to this, some species have additional protection by being listed on the UK Biodiversity Action Plan (UKBAP).

The legislation afforded to bats makes it illegal to possess or control any live or dead specimens, to damage, destroy or obstruct access to any structure or place used for shelter, protection or breeding, and to intentionally disturb a bat while it is occupying a structure or place which it uses for that purpose.

All nesting birds are protected under the Wildlife and Countryside Act 1981 (as amended), which protects birds, nests, eggs and nestlings from harm. In addition to this, some rarer species, such as barn owls are afforded extra protection.

National Planning Policy Framework, Section 11:

The published framework in 2012 replaces the previous Planning Policy Statement 9.

Section 11: Conserving and enhancing the natural environment reaffirms the government's commitment to maintaining green belt protections and preventing urban sprawl, retains the protection of designated sites and preserves wildlife. It also aims to improve the quality of the natural environment and halt declines in species and habitats, protects and enhances biodiversity and promotes wildlife corridors.

Biodiversity 2020:

This sets out to halt overall biodiversity loss and support healthy well-functioning ecosystems by establishing coherent ecological networks, with more and better places for nature, to the benefit of wildlife and people. The government's policy is aimed at individuals, communities, local authorities, charities, business and government, which all have a role to play in delivering Biodiversity 2020.

9 Notice to Readers: Conditions of this Report

All reports are certified products and cannot be shown, copied or distributed to third parties without the written permission of Elite Ecology. No liability is accepted for the contents of the report, other than to that of the client(s). If any part of this report is altered without the written permission of Elite Ecology, then the whole report becomes invalid.

Elite Ecology agrees to supply ecological consulting services and advice of a preliminary or thorough nature as advised or commissioned. Upon commissioning Elite Ecology to undertake the work, the client(s) grant access to the site upon the agreed date. If no site access is available upon this date, Elite Ecology holds the right to charge the client(s) for lost staffing time and additional travel costs.

Elite Ecology undertake all site surveys with reasonable skill, care and diligence, within the terms of the contract that has been agreed with the client and abiding by the Elite Ecology Terms and Conditions. The actions of the surveyors on site, and during the production of the report, were undertaken in accordance with the Code of Professional Conduct for the Chartered Institute of Ecology and Environmental Management.

The latest good practice guidelines put in place by Natural England or the relevant statutory conservation bodies have been followed by the surveyors on site. If those methodologies fail to identify a protected species during the survey efforts, no responsibility can be attributed to Elite Ecology. If any of these guidelines are adapted between the date(s) of the surveys being undertaken and the submission of this report, then Elite Ecology takes no responsibility for this.

Should any equipment be damaged or lost on site at the fault of the client(s), then Elite Ecology withholds the right to charge 100% above the current market value for that exact product or the nearest similar product.

The survey results purport the current status of the site and its potential for protected species utilisation at the time of surveying. It should not be viewed as a complete list of the possible flora and fauna species that could be using the site at different times of the year.

Elite Ecology has been provided with full payment for this report and thus the product has been released to the client(s) for the purpose of their planning application. If any part of the report is lost or altered without the written permission of Elite Ecology, then the entire report becomes invalid. Due to the potential for continual change within the natural world, this report is valid for **2 years only** from the date of the last survey visit. If this report is submitted after the 2 year deadline, then a further updated inspection will be required to ascertain whether the site remains in the same condition as it was when initially inspected.

No reliance should be made on any such comments in relation to the structural integrity of the features located on the surveyed site. All information within the report is based solely on evidence that has been found on site during the service provided. No individual opinion or inference will be made other than that of the suitably qualified ecologist appointed to the project.