HT ECOLOGY

Ecological Impact Assessment Report

Land adjoining the Rose and Crown Public House, Aston, Stevenage

Prepared for:
Annakut Ltd

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Executive summary

Introduction and approach

HT Ecology was commissioned by GML Scott Hill Ltd on behalf of Annakut Ltd to undertake an Ecological Impact Assessment (EcIA) to support a planning application for a barn conversion and construction of 6 residential units on land adjoining the Rose and Crown Public house, Bennington Rd, Aston, Hertfordshire. The EcIA followed Chartered Institute of Ecology and Environmental Management (CIEEM) Guidelines (2018) and BS42020:2013. The ecological baseline of the site was derived through desk study and ecological site surveys, including Extended Phase 1 habitat, reptile and bat surveys. The work was carried out in accordance with CIEEM's Code of Conduct and following standard published methods.

Baseline

Designated sites

There are no statutory designated sites of nature conservation value within or immediately adjacent to the site. A single statutory site, Bennington High Wood Site of Special Scientific Interest, occurs approximately 1km to the north-east of the site. Seventeen non-statutory sites occur within 2km of the site. The closest of these is Poplars Meadow and Pond South LWS approximately 0.8km to the north-west of the site.

Habitats

The site comprised modified grassland, scattered trees, introduced and bramble scrub, non-native hedgerows, ruderal/ephemeral and hardstanding. A Grade II listed barn occurred in the east of the site and the Rose and Crown Public House occurred in the south.

Protected / notable species

The site provided suitable nesting and/or foraging habitat for a variety of common and widespread birds. All birds, their nests, eggs and young are legally protected. Great crested newt is deemed unlikely to occur on site as the ponds in the wider area are separated by barriers. Low numbers of brown long-eared, common pipistrelle and soprano pipistrelle bats were recorded roosting within the barn, and a single common pipistrelle bat was recorded roosting in the public house. Bats are legally protected and Priority Species. The site provided suitable foraging and commuting bat habitat. The site provided suitable habitat for hedgehog and common toad, which are both Priority Species. No badger setts were recorded during the survey, although this species could periodically forage within the site. Badgers are legally protected.

Potential effects, mitigation, compensation and enhancement

No negative effects on designated sites of nature conservation value were predicted as a result of the development proposals. The proposed development would incorporate the following features:

- Retention of the semi-mature trees within the site;
- Creation of new native species-rich hedgerow planted within the site;
- Creation of a mosaic of native wildflower meadow and perennial planting adjacent the driveway in the northwest of the site;
- Native tree planting within the site;
- 'Grasscrete' carparking spaces;
- A Bat Loft within the barn and bat boxes on trees; and
- Bird boxes on buildings and trees within the site.

Construction would lead to the removal of 1,0270m^2 of modified grassland, 376m^2 bramble scrub, 110m^2 ruderal/ephemeral, 68m^2 of introduced scrub and approximately 100m length of non-native hedgerows.

The planting of new species-rich hedgerow within the site would offset the loss of the non-native hedgerow and result in a beneficial effect at the Sub-parish level. The remaining habitat creation measures proposed as part of the development would partially mitigate for the habitat removal; however, a negative effect at the Sub-Parish (low) level would remain in the long-term.

Measures undertaken to avoid, mitigate and compensate adverse effects and provide ecological enhancement would include the following:

- Retained trees within and adjacent the site would be protected during construction by tree protection fencing in line with BS5837:2012;
- Measures would be undertaken to ensure legal compliance with regard to nesting birds. This would comprise the removal of bird nesting habitat outside of nesting bird season;
- No security lighting would be left on at night during the construction period. The lighting design for the development would ensure that lighting effects to bats were reduced by directing the light away from the proposed bat loft and adjacent habitats and keeping lighting to the minimum required for safety purposes;
- The barn conversion works to be undertaken following receipt of a Natural England (NE) Bat Mitigation Licence under the supervision of a NE licensed bat ecologist. A Bat Loft would be installed in the barn along with associated bat access points via bat access tiles. Bat boxes would be installed on trees along the western site boundary;
- Construction site management measures would be put in place to minimise potential negative effects on badgers;
- Site clearance of the non-native hedgerow and grassland would be preceded by a hand search of suitable habitats for hedgehogs and amphibians by an experienced ecologist. Any amphibians or hedgehogs found would be captured and moved to suitable habitat away from the works area; and,
- A Landscape and Ecological Management Plan (LEMP) would be produced for the development which would include details of the habitat creation, management and monitoring within the site.

Residual effects

The proposed development would result in no significant loss of habitats. However, in order to ensure Biodiversity Net Gain, discussions will be undertaken with East Herts District Council to agree appropriate compensation.

No significant residual effects to protected or notable species are predicted. No adverse effects to the Favourable Conservation Status of bats in the locality is expected.

Conclusions

The proposed development would protect and maintain biodiversity in accordance with policies concerning the conservation of biodiversity in the National Planning Policy Framework (2021) and the relevant policies within the East Herts District Plan 2011-2033 (October 2018).

1 Introduction, background and methodology

1.1 Introduction

1.1.1 HT Ecology Ltd was commissioned by GML Scott Hill Ltd on behalf of Annakut Ltd to produce an Ecological Impact Assessment (EcIA) Report to support a full planning application for a barn conversion and 6 residential units on Land adjoining the Rose and Crown public House in Aston, Stevenage, SG2 7DX (refer to Aerial photo below and Figure 1 for site location; hereafter referred to as the 'site'); approximate Grid Ref. TL274227.

1.1.2 This report was undertaken in accordance with BS42020:2013 and Chartered Institute of Ecology and Environmental Management (CIEEM) Guidelines (2018) and includes the following sections:

- Description of the existing ecological baseline;
- Assessment of the effects of the proposals during the construction and operational phase;
- Provision of mitigation, compensation, enhancement measures to address negative effects and to ensure compliance with nature conservation legislation; and
- Summary of residual effects following incorporation of avoidance and mitigation measures.

Aerial photograph showing site location

1.2 Legislation and planning policy

Wildlife legislation

1.2.1 The following wildlife legislation is relevant to the proposed scheme; refer to Appendix 1:

- Conservation of Habitats and Species Regulations 2017 (as amended);
- Wildlife and Countryside Act 1981 (as amended);
- Countryside and Rights of Way Act 2000;
- Natural Environment and Rural Communities Act 2006;
- Hedgerow Regulations 1997;

- Protection of Badgers Act 1992; and
- Environment Act 2021.

1.2.2 The relevant species legislation is provided in Appendix 2.

National Planning Policy

1.2.3 The Government's key national planning policy for development is set out in the National Planning Policy Framework (NPPF), published in 2021. The NPPF includes the Government's policy on the protection of biodiversity through the planning system. It states that local planning policies and planning decisions should seek to minimise impacts on biodiversity and provide net gains in biodiversity. Planning policies should promote the conservation, restoration and enhancement of priority habitats, ecological networks and the protection and recovery of priority species populations (e.g. Habitats and Species of Principal Importance under the NERC Act 2006), linked to national and local targets.

Local planning policy

East Herts District Plan 2011-2033 (October 2018)

1.2.4 The following policies of the East Herts District Plan (October 2018) are considered relevant to the proposed development:

- Policy NE1 International, National and Locally Designated Nature Conservation Sites: '*Development proposals, land use or activity (either individually or in combination with other developments) which are likely to have a detrimental impact which adversely affects the integrity of a designated site, will not be permitted unless it can be demonstrated that there are material considerations which clearly outweigh the need to safeguard the nature conservation value of the site, and any broader impacts on the international, national, or local network of nature conservation assets';*
- Policy NE2 Sites or Features of Nature Conservation Interest (Non-Designated): this states that '*All proposals should achieve a net gain in biodiversity where it is feasible and proportionate to do so';* and, *'Proposals will be expected to apply the mitigation hierarchy of avoidance, mitigation and compensation, as set out in the NPPF';*
- Policy NE3 Species and Habitats: this states that *'Development should always seek to enhance biodiversity and to create opportunities for wildlife. Proposals must demonstrate how the development improves the biodiversity value of the site and surrounding environment. Evidence will be required in the form of up-to-date ecological surveys undertaken by a competent ecologist prior to the submission of an application. The biodiversity value of a site pre and post development will be determined by applying a locally approved Biodiversity Metric where appropriate'.*
- *Policy NE4 Green Infrastructure: 'A diverse network of accessible, multi-functional green infrastructure across the district will be protected and enhanced for its biodiversity, recreational, accessibility, health and landscape value and for the contribution it makes towards combating climate change.'*

1.3 Methodology

Ecological baseline

Desk study

1.3.1 Biodiversity information was obtained for a 2km area around the site (hereafter referred to as the 'desk study area') from the Herts Environmental Records Centre (HERC) and included the location and details of the following:

- Designated sites of nature conservation value (statutory and non-statutory; extended to 10km for Habitats Sites [former European Sites] using the DEFRA Magic website); and
- Previous records of protected and/or notable species, including Priority Species (Species of Principal Importance for Conservation in England listed on Section 41 of the Natural Environment and Rural Communities [NERC] Act 2006) and Hertfordshire BAP Species.

1.3.2 In addition, the ecology reports by Greengage Environmental produced between 2017 and 2020 to support an extant planning application for a residential development on the site were also reviewed and results included within this report where appropriate.

Survey

1.3.3 An Extended Phase 1 Habitat Survey of the development site was undertaken on 26th July 2022 (refer to Figure 1). The survey followed guidelines published by JNCC (2010) and the Institute of Environmental Assessment (1995) and identified the main habitat types within the site and the presence/potential presence of protected and notable species. The results of the survey were detailed on a Phase 1 Habitat Plan, with target notes used to identify specific features of ecological interest within the site. A UK Habitat Classification Survey of the site (UK Habitat Classification Working Group, 2018) was also undertaken at the same time as the Phase 1 survey. A botanical species list was collected containing all observed plant species.

1.3.4 The Extended Phase 1 Habitat survey identified the potential for protected and notable species within the site. Specialist Phase 2 ecological surveys were subsequently undertaken to determine if such species were present. A summary of these surveys is provided in Table 1.1 below; full details of methodologies and results are contained within Appendix 3 and 4.

Table 1.1: Summary of ecology surveys

Survey	Date(s)	Details
Daytime building inspection	July 2022	Inspection of buildings within the site to look for their potential to support roosting bats in accordance with Bat Survey Guidelines (Collins, 2016)
Bat emergence surveys	July – September 2022	Three dusk emergence surveys of both buildings were undertaken to determine presence/absence of roosting bats; refer to Section 2.4 of this report.
Badger survey	June to October 2022	Search for signs of badger activity e.g. setts, prints, latrines; refer to Section 2.4 of this report.

Survey limitations

1.3.5 There were no limitations to the survey effort, all surveys were undertaken at the correct time of year and followed best practice guidelines.

Evaluation of ecological features

1.3.6 An ecological evaluation of the baseline was undertaken using the framework provided by CIEEM (2018). This provided an evaluation for ecological features as follows (refer to Appendix 5 for further information):

- International value (High)
- National value (High)
- Regional value (High to Medium)
- County value (Medium)
- District value (Medium to Low)
- Parish value (Low)
- Sub-Parish (Low).

Identification of Ecological Effects

1.3.7 In addition to evaluating the importance of the ecological features identified, this section characterises predicted potential ecological effects arising from the proposed scheme. It does so by assessing the anticipated effects for each key ecological feature in light of the available information. Where appropriate, the effects identified to be acting on each ecological feature are assessed in terms of the factors listed below:

- Direction (negative, beneficial, neutral or negligible effect);
- Magnitude (the amount or level of effect);
- Extent (area in hectares, linear metres, etc.);
- Reversibility (i.e. is the effect permanent or temporary);
- Timing and frequency (e.g. related to breeding seasons); and
- Duration/timescale of the effect which is given as either (i) acute, (ii) short-term: 0-3 years, (iii) medium-term 3-10 years, and (iv) long-term: 10 years +.

1.3.8 These factors provide a means of characterising the effects on the ecological features identified, thereby allowing the significance of an effect to be assessed. Particular attention was given to the direction and duration of an effect.

1.3.9 An effect on an ecological feature is considered to be significant if it has a negative or beneficial effect on the integrity of a defined site or ecosystem and/or the conservation status of habitats or species within a given geographical area. Effects identified at 'Sub-Parish' level or below were not considered 'Significant'.

1.3.10 A Small Sites Biodiversity Metric (DEFRA, 2022) is summarised in this section and compares the number of habitat units to be lost with the number gained. The Environmental Bill 2021 is currently in its transitional period and will come into force in 2023. The legislation would require developments to use this metric to demonstrate that 10% net gain would be achieved.

Mitigation, compensation and enhancement measures

1.3.11 The layout and design of the proposed development was informed by the ecological baseline. Therefore, the impact assessment was of a partially-mitigated scheme. Additional mitigation, compensation and enhancement measures for the construction and operational phases of the development were identified; recommendations for how these measures could be secured through planning conditions are provided.

Residual effects

1.3.12 Effects that were predicted to occur following incorporation of avoidance and mitigation measures were also assessed using the above methods.

2 Ecological baseline

2.1 Designated sites of nature conservation value

2.1.1 There are no designated sites of nature conservation value within or immediately adjacent the site. However, a number of sites occur within 2km of the site.

2.1.2 A single statutory site is located within the desk study area. Benington High Wood Site of Special Scientific Interest occurs approximately 1km to the north-east and is designated for its Ancient Woodland and species-rich ground flora. No Habitats Sites (former European Sites) occurred within 10km of the site.

2.1.3 Records from Herts Environmental Records Centre also identified 14 non-statutory Local Wildlife Sites (LWS), three sites of Ancient Semi-natural Woodland (ASNW) and Plantation on Ancient Woodland (PAWS) within 2km of the site. The closest of these is Poplars Meadow and Pond South LWS approximately 0.8km to the northwest of the site which is remnant of an ancient hay meadow with a pond. Below is a list of other LWS within 1km of the site:

- Ridlins Wood LWS and ASNW found approximately 0.9km west of the site;
- Walkern Road Verge LWS found approximately 0.9km east of the site; and
- Ridlins Mire LWS found approximately 1km west of the site.

2.2 Habitats within the site

2.2.1 The following habitats categorised under the UK Habitat Classification were recorded on-site:

- Developed land; sealed surfaces;
- Modified Grassland:
- Scattered trees;
- Ruderal/ephemeral;
- Other hedgerows (non-native); and,
- Bramble and introduced scrub

Urban: Developed land; sealed surface (UK Hab Code: u1b)

2.2.2 A two-storey, brick-built, Grade-II listed former public house (Target Note 1 on Figure 1) with a clay tiled pitched roof occurred in the south-east corner of the site. A large roof void was present which was approximately 2.5m high from loft floor to ridge beam. There were numerous potential bat access locations into the roof void between cracked and broken tiles, and through holes in the bitumen roofing membrane. A one-storey extension occurred on the eastern elevation of the main building block; there was no roof void in this block. There is a small basement; however, this was not accessible from the outside and no obvious bat access points were recorded.

2.2.3 An L-shaped, timber-framed, Grade II listed barn with wooden-slatted walls (Target Note 2) occurred just to the north of the public house with a pitched roof covered in corrugated metal sheeting. The barn comprised two main rooms; the large barn area and a smaller room seemingly used for storage. Both rooms were double height. The barn was in poor structural condition and is open to the elements along several elevations, including a large section of wall missing along the northern elevation. There were no roof voids.

2.2.4 Hardstanding (car park) occurred in the south of the site to the west of the public house.

Introduced shrub (1160)

2.2.5 Introduced shrub was associated predominantly with the perimeters but also within the scrub area and included species such as laurel, box and spindle.

Modified grassland (g4)

2.2.6 The unmanaged garden to the rear of the public house was likely to have previously been amenity grassland with surrounding garden shrub planting. This vegetation within the garden has, however, matured with patches of scrub and ruderal vegetation amongst the tussocky improved grassland. The grassland was dominated by perennial rye-grass, with abundant cock's-foot, Yorkshire fog, dandelion and cleavers with frequent wood avens, false oat-grass, broadleaved dock and snow drop. and locally abundant creeping thistle. Several elder, pedunculate oak and English elm saplings occurred within this area of grassland.

Ruderal/ephemeral (17)

2.2.7 Tall ruderal species dominated by common nettle was recorded to the east of the barn. Other species included hogweed, cow parsley, curly dock, lesser burdock and cleavers.

Scattered trees (11)

2.2.8 Young scattered broadleaved trees occurred in the south-east corner of the site with semi-mature trees along the western boundary. Species included semi-mature sycamore and paper birch.

Bramble scrub (h3s)

2.2.9 Scattered and dense bramble scrub (H3s) was recorded encroaching into the northeast of the site. Other species recorded included frequent common nettles, ivy, cow parsley and hogweed.

Other hedgerows (h2b)

2.2.10 A non-native hedgerow occurred along the northern and eastern boundaries which comprised Leylandii cypress and laurel.

2.3 Habitats surrounding the site

2.3.1 The site is located towards the centre of the village of Aston. Residential development occurs to the site's north, east and west. A road was located along the southern boundary, beyond which were playing fields. In the wider context, Aston is surrounded by agricultural land of both pasture and arable use with associated network of hedgerows and small pockets of broadleaved woodland.

2.4 Protected and notable species

2.4.1 A number of protected and/or notable species have been recorded within the desk study area and during the surveys of the site. These records are summarised below.

Notable plants

Desk study

2.4.2 No notable plant species were identified within the study area.

Site

2.4.3 No notable plants were recorded and the presence of such species was considered unlikely.

Invertebrates

Desk study

2.4.4 No notable invertebrate species were identified within the study area.

Site

2.4.5 The scrub, introduced shrub and unmanaged grassland habitats and trees on site are likely to be of value to a range of common and widespread invertebrate species.

2.4.6 The site does not possess suitable volumes of deadwood to support saproxylic invertebrates (i.e. stag beetle) and overall, the site was considered to have low potential to support notable invertebrates.

Amphibians

Desk study

2.4.7 Great crested newt (GCN), which is fully legally protected and a Priority Species, was recorded within 2km of the site.

Site

2.4.8 No amphibian breeding habitat was present within the site. The scrub, hedgerows and grassland provided terrestrial habitat for common toad which is a Priority Species.

2.4.9 Review of the OS 1:25,000 map and aerial photos of the site and the surroundings indicated that two ponds occurred within 250m of the site, which are located approximately 180m to the northwest and 175m northeast. The ponds are separated from the site by extensive residential development and roads which act as barriers to GCN dispersal. It is therefore considered highly unlikely that GCN occurs on-site and this species is therefore not considered further within this report.

Reptiles

Desk study

2.4.10 Adder, grass snake and slow worm have all been recorded within 2km of the site. All UK reptile species are legally protected under the Wildlife and Countryside Act 1981 (as amended). No reptiles were recorded on-site during the reptile surveys previously undertaken by Greengage Environmental in March and April 2017.

Site survey

2.4.11 The habitats within and adjacent the site do not appear to have changed since the 2017 reptile survey was undertaken and therefore it assumed that reptiles continue to be absent from the site.

Birds

Desk study

2.4.12 Several notable bird species were recorded within the 2km desk study area, including the following species:

- house sparrow, sift and starling which are all Red-Listed Species on the RSPB's 'Birds of Conservation Concern' (Stanbury et al 2021); and
- barn owl which is listed on Schedule 1 of the Wildlife and Countryside Act 1981 (as amended).

Site survey

2.4.13 The trees, hedgerow and scrub within the site provided suitable nesting habitat for common and widespread birds, including notable species such as dunnock which is an Amber-Listed Species.

2.4.14 No signs of nesting birds were recorded within the buildings, although it is possible that crevice nesting birds i.e. house sparrow were obscured from view within suitable gaps within the buildings.

2.4.15 Barn owl was recorded within the locality but no evidence (i.e. whitewash, pellets) were recorded within the buildings and they were deemed to be absent from the building at the time of survey.

Bats

Desk study

2.4.16 The following bat species were identified by Hertfordshire Environmental Records Centre within 2km of the site:

- Common pipistrelle;
- Soprano pipistrelle;
- Nathusias' pipistrelle;
- Daubenton's;
- Natterer's;
- Serotine;
- Noctule; and
- Brown long-eared bat.

2.4.17 Emergence surveys undertaken by Greengage Environmental in 2017 recorded a single common pipistrelle bat roosting between wooden cladding on the public house's eastern elevation. Single common pipistrelle and brown long-eared bats were also identified emerging from the barn during these emergence surveys indicating the presence of day roosts for these species.

2.4.18 In 2017, Greengage Environmental placed a static detector in the barn in June and July for a total period of three weeks. From this data, Greengage concluded that the barn was being used as a night roost by brown long-eared, common pipistrelle and soprano pipistrelle bats.

Site survey

Building survey

2.4.19 Both the public house and the barn were considered to be of 'High' suitability for roosting bats due to the presence of several Potential Roosting Features on both buildings (Collins 2016) including loose roof and wall tiles on the public house and gaps between the wooden slats on the barn when assessed in accordance with the Bat Survey Guidelines (refer to Appendix 3). None of the trees on site were considered suitable for roosting bats.

2.4.20 Approximately 30 brown long-eared bat droppings were found within the barn during the initial building inspection (confirmed by DNA analysis).

Static detector results

2.4.21 Data from a static detector placed inside the barn between 24th August and 4th September 2022 recorded common pipistrelle, soprano pipistrelle and brown long-eared bat activity. The majority of these calls were recorded during the middle of the night, indicating that these species are using the barn as a night roost.

2.4.22 A single barbastelle recording was also identified at 4:48 am on 1st September 2022 (84 minutes before sunrise); refer to Table 2.1 below. The single call suggests that the bat is likely to have flown through the barn instead of remaining to roost inside.

Table 2.1: Barn static detector analysis

Species	Total number of passes	Average per night
Brown long-eared	292	14
Common pipistrelle	102	8.5
Soprano pipistrelle	21	1.75
Barbastelle	1	0.06

Emergence surveys

2.4.23 A single brown long-eared bat was identified emerging from a gap in the wooden slats on the eastern elevation of the barn on 28 September (refer to Photograph 1 below). No bats were recorded emerging from the public house during any of the bat emergence surveys.

Photograph 1: Emergence location of brown long-eared bat

2.4.24 Low levels of common pipistrelle, soprano pipistrelle and noctule bats were recorded flying over the site during the 2022 emergence surveys. A single barbastelle bat was also recorded flying over the site during the survey on 28th September 2022.

Survey conclusions

2.4.25 The 2022 emergence surveys and static detector surveys confirmed the following bat roosts within the barn:

- A brown long-eared transition roost; and
- A brown long-eared, common pipistrelle and soprano pipistrelle night roost.

2.4.26 It is likely that the barn was used by individual or low numbers of bats. Similar results were also recorded during the 2017 surveys by Greengage Environmental.

2.4.27 No bats were recorded emerging from the Public House but a single common pipistrelle bat was recorded here during the 2017 surveys and this building is likely to be used intermittently by roosting common pipistrelle bats.

2.4.28 No barbastelle bats were recorded emerging from the barn during the extensive surveys undertaken in 2017 and 2022. A total of six dusk or dawn surveys were carried out on this building, along with DNA analysis of bat droppings and 34 nights of static bat detector recordings. These surveys recorded a single barbastelle bat call briefly within the building, which suggests this bat had flown through the building instead of remaining to roost and this building is not used as a roost by this species. The bat loft proposed within the barn provides suitable barbastelle roosting habitat (refer to Section 4).

Badger

Desk study

2.4.29 Badger, which is a legally protected species, was recorded within the desk study area.

Site

2.4.30 No badger evidence was recorded within the site at the time of survey. Although this species may occasionally forage within the grassland on site.

Other mammals

Desk study

2.4.31 Polecat, which is also a Priority Species, has been recorded in the desk study area.

Site

2.4.32 Polecat favour farmland with hedgerows and woodland edge (VWT, 2022), and the urban nature of this site makes it unsuitable for this species.

2.4.33 The grassland habitat on site provided suitable foraging and sheltering habitat for hedgehog which is a Priority Species and the presence of this species is therefore assumed.

2.5 Evaluation

2.5.1 An evaluation of the ecological features within and adjacent to the Site is provided in Table 2.2.

Table 2.2 Ecological evaluation of ecological features

Ecological Feature	Ecological Importance	Reason
Designated sites of Nature Conservation Value		
Benington High Wood SSSI	National	Importance reflects designation
Local Wildlife Sites	County	Importance reflects designations
Ancient Semi-Natural Woodland (ASNW) and Plantation on Ancient Woodland (PAWS)	District	Importance reflects designations
Habitats within the Site		

Modified grassland	Sub-Parish	Common, widespread habitat with low botanical diversity
Other hedgerows	Sub-Parish	Common and widespread habitats of limited biodiversity importance.
Scattered trees	Parish	The semi-mature trees along the western boundary were considered to be of important at the Parish level.
Scrub	Sub-Parish	Common and widespread habitats of limited biodiversity importance.
Buildings and hardstanding	Sub-Parish	Common, widespread and easily replaceable artificial habitats.
Introduced shrub	Negligible	Common and widespread habitats of very low biodiversity importance.
Adjacent habitats		
Agricultural habitats	Sub-Parish to Parish	Arable habitats are generally of low ecological importance, but hedgerows provide important wildlife corridors through the landscape.
Urban habitats	Sub-Parish	Common, widespread habitats of limited biodiversity importance.
Protected / notable species		
Notable plants	Negligible	No notable plant species were recorded within the site.
Invertebrates	Sub-Parish	Site likely to support common and widespread species potentially including Priority Species.
Amphibians	Sub-Parish	Great crested newt was considered highly unlikely to occur on site. Suitable habitat for common toad occurred on-site which is a Priority Species.
Reptiles	Negligible	No reptiles were recorded on-site during the previous surveys on-site and this species is therefore considered to be absent from site.
Birds	Sub-Parish	Habitats within the site are likely to support common and widespread breeding species typical of urban and woodland habitats.
Bats	Parish	Five species recorded comprising barbastelle, noctule, soprano pipistrelle, common pipistrelle and brown long-eared bat. This species

		assemblage is considered to be typical for a site in this locality. The barn contains a day and night roost for brown long-eared bats and a night roost for common and soprano pipistrelles. The public house was found to contain a day roost for common pipistrelles in 2017.
Badgers	Sub-Parish	No evidence recorded within the site although they could occasionally pass through the site.
Hedgehog	Sub-Parish	The scrub and grassland provide suitable foraging habitat for this species. The presence of these Priority Species within the site was assumed.

3 Ecological assessment, mitigation and compensation

3.1 The proposed scheme

Development description

3.1.1 The proposed development comprises the following:

- Provision of 6 new build residential units;
- Conversion of the barn to form a 2-bed unit;
- Improvements to the existing pub parking and accessibility;
- Associated landscaping, car parking and infrastructure.

3.1.2 The public house would be unaffected by this development as no alterations or improvements are proposed.

3.2 Ecological mitigation by design

3.2.1 The proposed development would incorporate an integrated landscape and ecological design that would provide features that protect the existing semi-mature trees around the perimeter of the site and create new wildlife habitats within the site. The design would include the following features:

- Retention of the semi-mature trees within the site;
- Creation of new native species-rich hedgerow planted within the site;
- Creation of a mosaic of native wildflower meadow and perennial planting adjacent the driveway in the north west of the site;
- Native tree planting within the site;
- 'Grasscrete' carparking spaces;
- A Bat Loft within the barn and bat boxes on trees; and
- Bird boxes on buildings and trees within the site.

3.2.2 The Proposed Landscape Plans (Figure 2 and 3), Proposed Bat Loft Plan (Figure 4) and the Ecological Constraints and Opportunities Plan (Figure 5) provide further information on the proposed ecological design and avoidance measures. All habitats would be managed during the pre-construction, construction and operational phase in accordance with a Landscape and Ecological Management Plan.

3.3 Unmitigated potential effects during construction

Designated sites of nature conservation value

3.3.1 Due to the distance of the site from any statutory or non-statutory designated sites of nature conservation importance; no effects on these sites are predicted during the construction phase.

Habitats on and adjacent the site

3.3.2 Construction would result in the removal of the following:

- 1,027m^2 of modified grassland;
- 376m^2 bramble scrub;
- 110m^2 ruderal/ephemeral; and
- 68m^2 of introduced scrub.
- Approximately 100m length of non-native hedgerows.

3.3.3 The loss of these habitats would be a short-term negative effect at Sub-Parish level. In addition to habitat removal, construction could lead to potential effects on retained vegetation e.g. vehicular damage to Root Protection Zones around hedgerows and mature trees. Without mitigation, this would be a long-term negative effect at Sub-Parish level.

Protected and notable species

Invertebrates

3.3.4 Removal of bramble scrub, ruderal/ephemeral and non-native hedgerow would lead to loss of invertebrate habitat. This is predicted to be a temporary, short-term, negative effect at the Sub-Parish level i.e. not significant overall.

Amphibians

3.3.5 There is the potential for individual amphibians, including common toad, to be killed or injured during site clearance. This would be an adverse, acute effect at Sub-Parish level. The removal of grassland, scrub, ruderal and non-native hedgerow would reduce the amount of suitable terrestrial habitat on site for amphibians. This would be an adverse, short-term effect at Sub-Parish level.

Birds

3.3.6 If site clearance occurs in the nesting bird season, removal of the hedgerows and scrub could have direct effects on nesting birds by removing active nests containing eggs/young. All active bird nests, eggs and young are legally protected. Direct effects on nesting birds from vegetation removal are likely to be an acute and negative effect at Sub-Parish level. Mitigation measures to ensure legal compliance would be implemented; refer to Section 4.1 below.

3.3.7 Clearance of the hedgerows and scrub could also result in the loss of foraging habitats for birds. Construction activity has the potential to cause localised noise and visual disturbance which may cause displacement of nesting birds in the immediate vicinity, although some species would be tolerant of disturbance as the site is adjacent existing urban habitats. Overall, the effects of disturbance and habitat loss on nesting birds are likely to be temporary, short-term and negative at the Sub-Parish level.

Bats

3.3.8 Without mitigation, the proposed conversion of the barn into accommodation could result in the disturbance, killing and/or injury of small numbers of brown long-eared bats. The development of the barn could also result in the loss of brown long-eared, common pipistrelle and soprano pipistrelle 'night' roosts. Without mitigation, the works would have an adverse, short-term effect on the bats that would be significant at the 'Parish' level and would not be legally compliant under the Wildlife and Countryside Act 1981 (as amended) or the Conservation of Habitats and Species Regulations 2017 (as amended). Mitigation measures to ensure legal compliance would be implemented; refer to Section 4.

3.3.9 Although the site is considered to have low levels of foraging bat activity in general, removal of the scrub and grassland habitats is still expected to decrease habitat for night-flying invertebrates, thereby reducing the value of the site for foraging bats. Effects on foraging bats would be temporary, short-term and negative at the Sub-Parish level i.e. not significant overall

3.3.10 Site clearance is unlikely to significantly disrupt bats from commuting around the site and therefore no habitat fragmentation effect on bats is predicted. However, any construction lighting shining on the site's perimeters could impact on commuting bats, particularly 'light-sensitive' species such as barbastelle and brown long-eared bats. Without mitigation (refer to Section 4.1), this would be a short-term negative effect at Sub-Parish level.

Badger

3.3.11 Although no badgers were recorded during the site survey, their presence in the locality means they could periodically forage within the site. Effects on foraging badgers during the works are considered to be temporary, short-term and negative at Sub-Parish level. Open excavations within the construction area could lead to the entrapment of badgers. This would be an acute, negative effect at Sub-Parish level.

Other mammals

3.3.12 Removal of the scrub, non-native hedgerow, ruderals and grassland would result in reduced suitable foraging and shelter habitat for hedgehog. There is also potential for direct impacts (e.g. killing or injury) on hedgehogs during site clearance. Overall effects to hedgehogs during construction are acute-short-term and negative at Sub-Parish Level.

3.4 Unmitigated potential effects during the operational phase

Designated sites of nature conservation value

3.4.1 Due to the distance of the site from any statutory or non-statutory designated sites of nature conservation importance, no effects on these sites are predicted during the operational phase.

Habitats within the site

3.4.2 The landscape proposals are the result of an integrated landscape and ecology design approach. The landscape proposals would lead to the creation of the following habitat types and ecological features as set out in Table 3.1. All figures are approximate. Other development areas include hard standing and built form.

Table 3.1: Biodiversity budget

Feature	Importance	Loss in m^2	Gain in m^2	Net change in m^2
Modified grassland	Sub-Parish	1027	0	-1027
Bramble scrub	Sub-Parish	376	0	-376
Introduced shrub	Negligible	68	0	-38
Ruderal/Ephemeral	Sub-Parish	110	0	-110
Other neutral grassland	Sub-Parish	0	60	+60
Vegetated Garden	Sub-Parish	0	1695	+1695
Street trees	Sub-Parish	0	15 small trees	+15
Non-native hedgerow	Sub-Parish	100m length	0	-100m length
Native hedge	Sub-Parish	0m length	54m length	+54m length

3.4.3 A Biodiversity Offsetting Small Sites Metric (DEFRA, 2022) has been produced for the site which compares the number of biodiversity units to be lost with the number to be gained (refer to Table 3.2 below and Appendix 6). Outputs have been broken down into Habitats Units for non-linear habitats (measured as areas in hectares) and Hedgerow Units for hedges (measured by length in metres).

Table 3.2: Biodiversity Metric 3.0 Results

	Habitat types	Habitat Unit
On-site baseline habitat units	Habitat units	0.619
	Hedgerow units	0.1
On-site post-intervention habitat units	Habitat units	0.235
	Hedgerow units	0.181
Total unit change	Habitat units	0.68

	Hedgerow units	0.11
Total percentage changes	Habitat units	-61.99%
	Hedgerow units	+80.75%

3.4.4 The 54m length of native species-rich hedgerow creation would offset the loss of a 100m length of non-native hedgerow and deliver an increase in Hedgerow Units of 80.75%. This is a beneficial effect at the Sub-Parish level once the hedgerow becomes established in the medium-term onwards.

3.4.5 The loss of the on-site habitats would be partially offset by the creation of wildflower meadow, street trees and vegetated garden. However, a loss in Habitat Units of -61.99% would remain which would be a long-term negative effect at the Sub-Parish level.

3.4.6 Overall, there would be an increase in value of the hedgerows but decrease in value of the other habitats. Overall, no significant changes to the habitat value of the site is predicted (or no net loss) following completion of the development. Measures to provide Biodiversity Net Gain are included in Section 4.2.

Habitats adjacent the site

3.4.7 No significant effects on the adjacent habitats are predicted.

Protected and notable species

Invertebrates

3.4.8 The proposed hedgerow, trees, wildflower meadow and vegetated garden would provide habitat for invertebrates. This would offset the loss of habitat during construction and effects would be negligible in the medium-term onwards.

Amphibians

3.4.9 The native hedgerows, trees and wildflower meadow would provide suitable terrestrial habitat for common amphibians, including common toad. Residential gardens would also be utilised by common amphibians. Overall, the habitat creation would offset the construction level effects resulting in a Neutral effect in the medium-term onwards.

Birds

3.4.10 A small increase in the cat population could occur as a result of the proposed development. Birds within the site are also already likely to be subject to predation by an existing domestic cat population from the surrounding residential areas.

3.4.11 The habitat creation proposals, including the new tree planting, hedgerow, wildflower and vegetated garden would provide suitable foraging and nesting habitat for birds. The site is currently urbanised and therefore the species assemblage is unlikely to change. Overall, developmental effects on birds are considered to be Neutral in the medium-term onwards.

Badger

3.4.12 The habitat creation proposals would provide similar foraging habitat for badgers. This is considered to be a Neutral effect in the short-term onwards.

Bats

3.4.13 Although the site is already subject to a degree of lighting from public realm lighting, increased lighting from the development is likely to reduce the value of the site for more 'light sensitive' bat species including brown long-eared bats and barbastelle. These species were, however, only recorded in low numbers. The pipistrelle and noctule bats recorded within the site are known to be relatively tolerant to artificial lighting (Stone et al, 2015). These species are likely to continue to forage within the development site and not be significantly affected by lighting. Without mitigation the potential adverse effect of light spill would be adverse and long-term at Sub-Parish level (i.e. not significant).

3.4.14 The adverse effects of lighting would reduce the foraging/movement value of the site for bats. The additional hedgerow planting would create additional foraging/movement habitat for light-sensitive species, however, the potential adverse effects of lighting are likely to be slightly greater than such beneficial effects. Without mitigation, impacts would be long-term negative at Sub-Parish level.

Other mammals

3.4.15 Once established, hedgehogs are likely to use the new habitats for foraging. Overall effects to hedgehogs would be Neutral in the medium-term onwards.

4 Mitigation, compensation and enhancement

4.1 Mitigation, compensation and enhancement during construction

Habitats

4.1.1 Retained trees within and adjacent the site would be protected from potential damage during construction through the use of temporary barriers (e.g. Heras fencing). Construction would be undertaken in accordance with BS 5837 'Trees in relation to construction.' Contractors' compounds would be located away from the hedgerow to minimise potential lighting and disturbance effects. No lighting would be left on during the night during the construction period. Any security lighting would be low-level and motion-activated on short-timers.

Amphibians

4.1.2 To ensure that amphibians are not killed or injured during construction, Site clearance would be preceded by a hand search for amphibians by an experienced ecologist. Any toads or other common amphibians found would be captured and moved to suitable habitat along the site boundary. The area of search would then be immediately stripped following the hand-search, which would render the habitat unsuitable for amphibians.

Nesting birds

4.1.3 Clearance of suitable bird nesting habitat including the hedgerows would take place between October and February which is outside of the main bird-breeding season. If this was not possible within this time, removal would only take place following a survey by an appropriately qualified ecologist to ensure that no nesting birds would be affected. If active bird nests were found, work in that area would be delayed until all chicks had fledged.

4.1.4 A minimum of 4 general timber bird nest boxes and 4 Schwegler 24 or 25 type bird boxes would be installed within the retained trees and shrubs within and adjacent the site. Full details would be included within the LEMP.

Bats

Licence application and ecological watching brief

4.1.5 As bat roosts were recorded within the barn, a Natural England Mitigation Licence would be obtained prior to the proposed works on this building. A licence would be applied for following receipt of Planning Approval and would take approximately 7 weeks to obtain.

4.1.6 Prior to the start of the proposed works, two woodcrete bat boxes would be installed on the semi-mature trees along the western boundary; full details of box locations would be provided in the Natural England Bat Licence Application. A pre-works survey would be undertaken by a licensed bat ecologist to remove any crevice roosting bats by hand and release them into the bat boxes on the tree.

4.1.7 A 'Toolbox Talk' would be given by a bat ecologist to all personnel involved prior to stripping the metal sheeting from the roof or repairing the wooden slats on the walls of the barn. The toolbox talk would ensure site personnel are aware of the legal protection of bats and what to do in the unlikely event that bats were discovered during the works. The licensed ecologist would also oversee all works within the barn in areas considered suitable for roosting bats (e.g. roof timbers, behind wooden cladding, removal of metal sheeting); any bats found would be transferred in the same way.

Replacement bat loft in barn

4.1.8 A replacement bat loft would be constructed out of boarding within the roof of the barn to provide suitable roosting conditions for bats (refer to Figure 4):

- A height of at least 2m from loft floor to ridge beam, 5m apex length and 4m wide;
- A roof covering of tiles and roof lining of dark underfelt proven to be suitable for use in bat roosts which allows bats to grip the surface more easily;
- Two bat tiles to be installed on the roof to enable bat access into the bat loft;
- Additional small crevices to be installed throughout loft i.e. wooden squeeze boxes; and
- A loft hatch to enable access for monitoring and management of roost.

4.1.9 No lighting would be left on during the night during the construction period. Any security lighting would be positioned at low-height and motion-activated on short-timers. Full mitigation details would be included within the LEMP.

Badgers

4.1.10 To ensure no negative impacts to any badger entering the site during construction, excavations and piping (>200mm in diameter) would be fenced/capped overnight to deter badgers from entering. Excavations that could not be covered would have a means of escape for any animals that may fall in (e.g. sloping sides/ramps a maximum of 1:2 gradients). Fuel, oil and chemicals would only be stored in secure sites within the construction compound and no fires would be lit.

Hedgehog

4.1.11 Removal of hedgerows would be immediately preceded by a search by an experienced ecologist for hedgehogs. Any hedgehogs found would be moved to suitable habitat away from the working area.

4.2 Mitigation, compensation and enhancement – Operational Phase

Habitats

4.2.1 To ensure the long-term success of the habitat creation and enhancement proposals, a Landscape and Ecological Management Plan (LEMP) would be produced for the development. The LEMP would cover site establishment and the first five-years following completion of the construction phase. The LEMP would be reviewed after this time for the next five to ten-year period and agreed with East Herts District Council.

4.2.2 The proposed development would result in a gain of +0.08 Hedgerow Units (80.75%) and a loss of -0.384 Habitat Units (61.99%). Discussions will be undertaken with East Herts District Council to agree compensation requirements to achieve Biodiversity Net Gain. This could include one of the following measures:

- 1) Enhancing the habitats within an off-site Enhancement Area. The identification, management and monitoring of the area would be directly funded by the developer. Details of which could be included within the LEMP; and
- 2) an in-lieu financial payment to the planning authority or a specialist third party in order to provide compensation off-site. Developer contribution would be agreed with the planning authority and secured through a planning obligation.

Protected and notable species

Birds

4.2.3 To enhance nesting habitat on site six Schwegler Type 24 brick nest boxes (or similar approved) for house sparrows would be integrated into buildings in gable ends avoiding south and southwest facing aspects, spaced 1-2m apart and no lower than 3m from ground level. Full details would be included within the LEMP.

Bats

4.2.4 The lighting design for the development would ensure that lighting effects to bats were minimised. Lighting would be designed to direct light away from the barn and adjacent habitats. Lighting along roads and footpaths would be kept to the minimum required for security and public health and safety. A dark corridor would be retained to the west of the barn. The lighting design would consider the following characteristics:

- Use of LED units (which do not have a UV component). UV light is known to attract insects away from adjacent dark foraging habitat.
- Composite LED units would enable parts of the unit to be turned off to direct the light beam to a specific area.
- Minimising the height of the lighting column to ensure minimal light spill.
- Use of low-level, downward directional bollard lighting along footpaths.

4.3 Mechanisms for mitigation delivery

4.3.1 Implementation of the bat mitigation strategy for bats would be secured through a Natural England development licence and there is considered to be no restriction on the issue of this licence. Preparation and implementation of the LEMP could be secured via a planning condition.

5 Residual Effects

5.1 Designated sites of nature conservation value

5.1.1 No effects on designated sites are predicted.

5.2 Habitats

5.2.1 A summary of the residual effects is contained in Table 5.1 below. Construction effects on the scrub, ruderals, grassland and hedgerows would be short-term and negative at the Sub-Parish level.

5.2.2 The loss of 100m length of non-native hedgerow would be compensated for by the creation of 54m length of new native hedgerow. This would lead to an increase in Hedgerow Units of +80.75% (+0.08 units) when using the Biodiversity Metric and result in a beneficial effect at the Sub-Parish level. The loss of the grassland, scrub and ruderals would be partially offset by the creation of wildflower meadow, vegetated garden and tree planting native shrub planting. However, a loss in Habitat Units of 61.99% (-0.384 units) would remain. Overall, no significant change in the habitat value of the site is predicted following completion of the development. However, in order to ensure the development results in Biodiversity Net Gain, discussions will be undertaken with East Herts District Council to agree appropriate compensation (refer to Section 4.2).

5.3 Protected and Notable Species

5.3.1 A summary of the residual effects is contained in Table 5.1 below. The proposed mitigation would ensure legal compliance with regards to protected species (including nesting birds and bats). Habitat removal during site construction would result in a short-term negative effect on invertebrates, amphibians, birds, badgers and hedgehogs at the Sub-Parish (low) level and are therefore not significant. The conversion of the barn would result in a short-term negative effect which is significant at the Parish level, although this would be mitigated by construction of a bat loft.

5.3.2 The proposed habitats, particularly the wildflower grassland, tree planting and native hedgerow would ensure that local populations of notable species were maintained. The installation of bird boxes would provide additional habitat enhancement for notable bird species. The bat boxes and bat loft would ensure the ecological functionality of the site was maintained for roosting bats and that the population of bats would, therefore, be maintained at a 'Favourable Conservation Status' within the locality. Measures to avoid light spill post-construction would minimise potential effects to bats.

Cumulative effects

5.3.3 The East Herts Local Plan (2018) allocates a site for 600 new dwellings to the east of Stevenage approximately 2km to the north of the site. No cumulative ecological effects are anticipated as a result of this developments due to the distance from the site.

Conclusion

5.3.4 The proposed development would protect and maintain biodiversity overall, in accordance with policies concerning the conservation of biodiversity in the National Planning Policy Framework (2021) and the relevant policies within the East Herts District Plan 2011-2033 (October 2018).

Table 5.1: Summary of residual effects – during the construction and operational phase			
Ecological Feature	Characterisation of unmitigated effect on the feature	Design proposals and mitigation and enhancement measures	Significance of residual effects
Designated Sites			
SSSIs, LWS, SNW and PAWS	No effects	NA	No effects
Habitats			
Modified grassland, bramble scrub, introduced scrub, ruderals and non-native hedgerow	Removal through site clearance.	Loss would be partially compensated by habitat creation including wildflower grassland, tree planting and vegetated garden. Habitats managed in accordance with a Landscape and Ecological Management Plan.	Long-term and negative effect at Sub-Parish level.
Non-native hedgerows	Removal through site clearance.	Loss would be compensated by planting new native species-rich hedgerow. Habitats managed in accordance with a Landscape and Ecological Management Plan.	Short-term and negative effect at Sub-Parish. Beneficial effect at Sub-Parish level in the medium-term onwards.
Retained trees within and adjacent the site	Risk of accidental damage to hedgerow, for example as a result of root compaction from machinery.	All contractor's compounds would be located away from the hedgerow to minimise potential impacts. Use of temporary barriers (e.g. Heras fencing). Construction would be undertaken in accordance with BS 5837:2012 'Trees in relation to design, demolition and construction.'	Neutral effect.
Notable species			
Plants	No effects	NA	No effects

Invertebrates	Removal of habitat during operation.	Habitat creation proposals to include new hedgerow.	Short-term and negative effect at Sub-Parish level. Neutral effect in the medium-term onwards.
Amphibians (common toad)	Possible direct effects during construction. Loss of terrestrial habitats.	Any amphibians found would be moved during a hand search of the site by a suitably qualified ecologist. Loss of habitat mitigated by habitat creation proposals.	Short-term and negative effect at Sub-Parish level. Neutral effect in the medium-term onwards.
Birds	Possible direct effects to nesting birds during removal of hedgerow. Disturbance during construction.	Site clearance to be undertaken outside of the bird nesting season or subject to a pre-clearance check. Use of temporary barriers to ensure habitats adjacent to the construction area were protected from disturbance and transgression of machinery. Habitat proposals provide suitable foraging and nesting habitat for birds. Habitats managed in accordance with a Landscape and Ecological Management Plan (LEMP) to include objectives to manage site for bird species. Bird boxes on buildings and retained trees.	Short-term and negative effect at Sub-Parish level. Neutral effect in the medium-term onwards.
Bats	Barn conversion temporarily remove roosting locations. Adverse effect on light sensitive species from light spill onto hedgerows used by commuting/foraging bats.	Bat loft included within barn and bat boxes on trees. Habitat creation would provide foraging and commuting opportunities. Contractors' compounds would be located away from the retained trees to minimise potential lighting and disturbance impacts. Measures taken to minimise lighting impacts during the operational phase.	Short-term and negative effect at Parish level. Negligible effect in the medium-term onwards.

Badgers	Small loss of foraging habitat. Entrapment during site operation.	Measures taken to ensure badgers are not harmed during site operation including pre-construction survey.	Neutral.
Hedgehogs	Possible direct effect during site clearance. Loss of foraging and resting habitat.	Pre-clearance search by an ecologist to remove any hedgehogs that may be present. Suitable habitat retained around the periphery of the site. Habitat creation proposals to provide suitable habitat for hedgehogs.	Short-term and negative effect at Sub-Parish level. Neutral effect in the medium-term onwards.

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Figure 1: Habitats Plan

- Site Boundary
- Scattered trees
- fence
- g4 - modified grassland
- h2b - other hedgerows
- h3 - dense scrub
- u1b - developed land. sealed surface
- u1b5 - buildings
- 1160 - introduced shrub
- 17 - Ruderal/ ephemeral

p1code	Area (m2)
u1b	714
h2b	305
1160	68
17	110
u1b5	309
h3	376
g4	1027

HT ECOLOGY

Figure: Habitat Plan

Site: Rose & Crown, Aston, Stevenage

Client: Annakut Limited

Date: 09/11/2022

Figure 2: Landscape Plan for Driveway off Benington Road

Concept Sketch

A Perennial planting and meadow mix (50% perennial planting and 50% meadow)

B Row of Betula nigra (Birch)

C Half-height knapped flint and brick wall

D Red-brick path

E Knapped flint and brick edging with whiskey barrel planters

F Mown grass

G Species-rich native hedging

Figure 3: Landscape Plan for wider site

Refer to Figure 2

LEGEND:

- PLANTING
- LAWN
- TARMAC
- BLOCK PAVERS - COLOUR 1
- BLOCK PAVERS - COLOUR 2
- PAVING
- GRASSCRETE
- EXISTING TREE
- NEW TREE
- TREE TO BE REMOVED

BOUNDARY TREATMENT:

1. 2.1M HIGH CLOSE BOARD FENCE
2. 1.2M - 1.5M HIGH POST AND RAIL FENCE
3. 0.6M HIGH KNEE RAIL FENCE

COURTYARD ENTRANCE GATES ELEVATION

l Ltd

Revisions:

joining the Rose and Crown, Aston, Stevenage

ed Landscape Plan

0 2 4 6 8 10 12 14 16 18 20m

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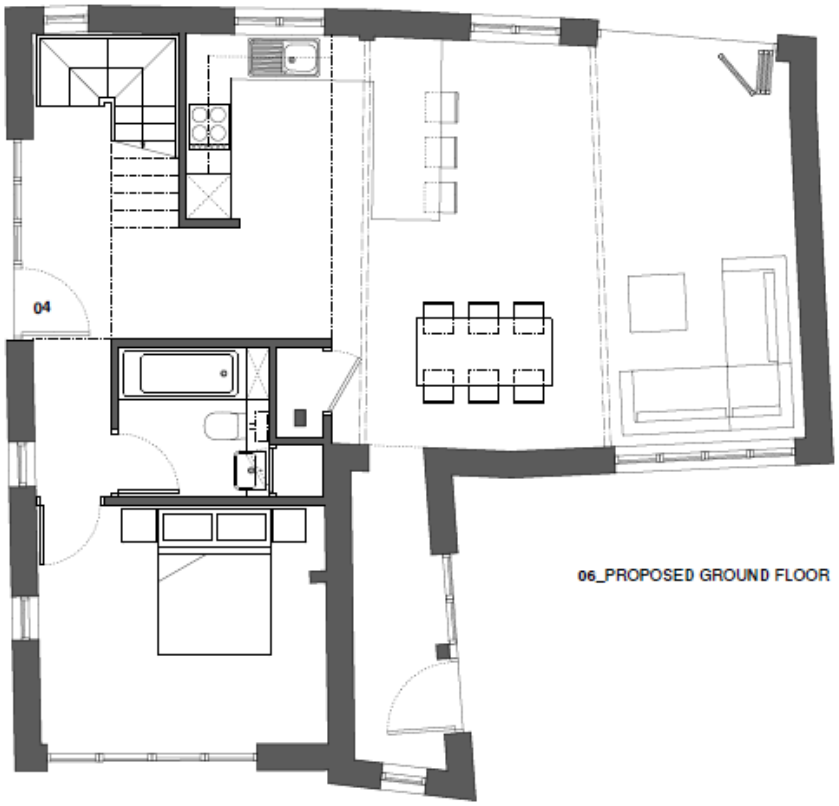
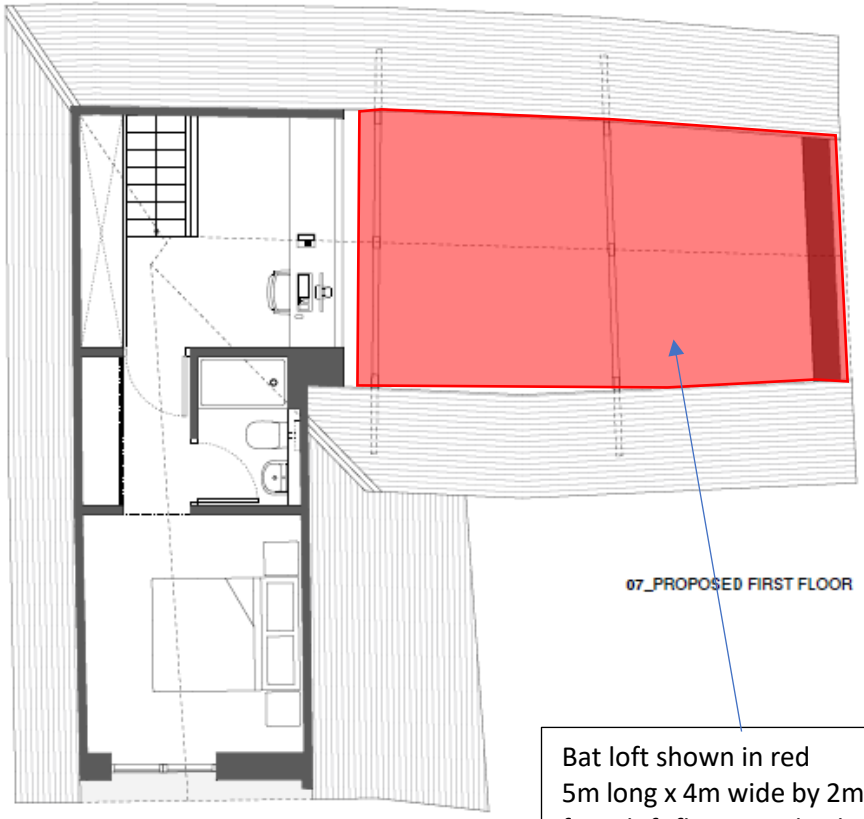
Forge Design Studio

Status: For Planning
Drawn by: LM Date: July 2022
Checked by: MH Date: July 2022
Scale: 1:200@A2
Project no: 202202
Drawing no: PL020 Revision:

Figure 4: Proposed bat loft within barn



06_PROPOSED GROUND FLOOR



07_PROPOSED FIRST FLOOR

Bat loft shown in red
5m long x 4m wide by 2m high
from loft floor to ridge beam.

Figure 5: Ecological Constraints and Opportunities Plan

l Ltd

Revisions:

joining the Rose and Crown, Aston, Stevenage

d Landscape Plan

0 2 4 6 8 10 12 14 16 18 20m

Forge Design Studio

Status: For Planning
Drawn by: LM Date: July 2022
Checked by: MH Date: July 2022
Scale: 1:200@A2
Project no: 202202
Drawing no: PL020 Revision:

Appendix 1: Wildlife legislation

Conservation of Habitats and Species Regulations 2017 (as amended)

These Regulations, also referred to as the 'Habitats Regulations', implement the EC Directive on the Conservation of Natural Habitats and of Wild Flora and Fauna (92/43/EEC) and the EC Directive on the Conservation of Wild Birds (79/409/EEC). The Regulations provide for the designation and protection of former 'European Sites' (Natura 2000 sites). They convey a statutory requirement for local planning authorities to undertake a 'Habitats Regulations Assessment' of the potential impacts of plans and projects, including development proposals, on European Sites. The provisions also include protection of former 'European Protected Species' (EPS). Under the Regulations, local planning authorities have to consider three 'derogation tests' when deciding whether to grant permission for a development that affects an EPS, which are as follows:

- the development must be for over-riding public interest or for public health and safety;
- there are no satisfactory alternatives to the proposed development; and
- the favourable conservation status of the EPS concerned must be maintained.

Wildlife and Countryside Act 1981 (as amended)

This Act is the principal wildlife legislation in Great Britain. It includes provisions for important habitats to be designated and protected as Sites of Special Scientific Interest (SSSIs). Numerous plant and animal species, and the places that they use for shelter and protection, are also protected under the Act, including all bats and also birds, their nests and eggs.

Countryside and Rights of Way Act 2000

Referred to as the CROW Act, this legislation increases the protection of SSSIs and strengthens wildlife enforcement action. The Act also strengthens the protection of protected species under the Wildlife and Countryside Act 1981 (as amended) through the introduction of a new offence of 'reckless disturbance'.

Natural Environment and Rural Communities Act 2006

This Act places a duty on all public bodies and statutory undertakers to have due regard to the conservation of biodiversity in all their functions. It also requires the publication of a list of habitats and species of principal importance for the conservation of the biodiversity. This list, known as the Section 41 list, includes all Priority Habitats and Species of Principal Importance for the Conservation of Biodiversity in England.

Protection of Badgers Act 1992

This Act was introduced primarily for animal welfare reasons, as opposed to species conservation. It provides protection of badgers and their setts.

Environment Act 2021

The Environment Act 2021 was passed into legislation in 2021 and will be completing its transitional phase in autumn 2023. The act contains legislation relating to air and water quality, waste and recycling. It aims to strengthened biodiversity duty and ensure 10% biodiversity net gain is delivered on development sites. It will also ensure Local Authorities create Local Nature Recovery Strategies to support a Nature Recovery Network.

Appendix 2: Species legislation and conservation status

Invertebrates

A number of UK invertebrates are protected by international and national legislation, including the EC Habitats Directive (1992) and the Wildlife and Countryside Act 1981 (as amended). In addition, numerous species are Priority Species.

Plants

All wild plants are protected against unauthorised removal or uprooting under Section 13 of the Wildlife and Countryside Act 1981 (as amended). Plants listed on Schedule 8 of the Act (e.g. western rustwort, stinking goosefoot, red helleborine, monkey orchid) are afforded additional protection against picking, uprooting, destruction and sale. Bluebell (*Hyacinthoides non-scripta*) is protected against sale only. Further species are also protected under the Conservation of Habitats and Species Regulations 2017 (as amended).

Notable plant species include those that are listed as:

- Nationally vulnerable – A taxon is Vulnerable when the best available evidence indicates that it meets any of the criteria A-E for Vulnerable, and is therefore considered to be facing a high risk of extinction in the wild (Cheffings C M & Farrell L (Eds) (2005) *Species Status No. 7 – The Vascular Red Data List for Britain*, JNCC (online)
- Nationally scarce – species recorded in 16-100 hectads in Great Britain
- Nationally rare – species occurring in 15 or fewer hectads in Great Britain

Section 14 of the Wildlife and Countryside Act 1981 (as amended) prohibits the planting of certain invasive plant species in the wild, or otherwise causing them to grow there. Prohibited plants are listed on Part 2 of Schedule 9 and include Japanese knotweed, Himalayan balsam and giant hogweed.

Amphibians

There are seven native amphibian species present in Britain. These are afforded varying degrees of protection under national and European legislation. Great crested newts and their habitat are afforded full protection under UK and European legislation, including the Wildlife and Countryside Act 1981 (as amended), the Countryside and Rights of Way (CRoW) Act 2000 and the Conservation of Habitats and Species Regulations 2017 (as amended). Together, this legislation makes it illegal to:

- Deliberately capture, injure or kill a great crested newt.
- Damage or destroy any place used for shelter or protection, including resting or breeding places; or intentionally or recklessly obstruct access to such a place.
- Deliberately, intentionally or recklessly disturb great crested newts.

Great crested newt and common toad are Priority Species.

Reptiles

Slow-worm, viviparous/common lizard, adder and grass snake are protected under the Wildlife and Countryside Act 1981 (as amended) against intentional killing and injuring. These species are also Priority Species.

Birds

The bird breeding season generally lasts from March to early September for most species. All birds are protected under the Wildlife and Countryside Act (1981) (as amended) and the Countryside & Rights of Way (CRoW) Act 2000. This legislation makes it illegal, both intentionally and recklessly, to:

- kill, injure or take any wild bird;
- take, damage or destroy the nest of any wild bird while it is being built or in use;
- take or destroy the eggs of any wild bird

Furthermore, birds listed on Schedule 1 of the Wildlife & Countryside Act 1981 (as amended) are protected against intentional or reckless disturbance whilst nest building and when at or near a nest containing eggs or young. Dependent young of Schedule 1 species are also protected against disturbance. Cirl bunting is a Schedule 1 species.

In addition to this legal protection, the leading governmental and non-governmental conservation organisations in the UK have reviewed the population status of the birds regularly found here and produced a list of birds of conservation concern. Of the 247 species assessed, 67 were placed on the Red List of high conservation concern, 96 on the Amber List of medium conservation concern and 81 on the Green List of low conservation concern:

- Red list species are those that are Globally Threatened according to IUCN criteria; those whose population or range has declined rapidly in recent years; and those that have declined historically and not shown a substantial recent recovery.
- Amber list species are those with an unfavourable conservation status in Europe; those whose population or range has declined moderately in recent years; and those with internationally important or localised populations.

Badger

Badger (*Meles meles*) is a widespread and common species. However, they are legally protected under The Protection of Badgers Act 1992, due to animal welfare concerns. Under this legislation it is illegal to:

- Wilfully kill, injure, take, or cruelly ill-treat a badger, or attempt to do so
- Intentionally or recklessly interfere with a sett by disturbing badgers whilst they are occupying a sett, damaging or destroying a sett, or obstructing access to it.

A badger sett is defined in the legislation as "*any structure or place, which displays signs indicating current use by a badger*".

Bats

There are 18 species of bats found in the UK, 17 of which are known to breed here. The conservation status of these species is summarised in the table below:

Common name	Scientific name	IUCN Red List*	Priority Species
Greater horseshoe	*Rhinolophus ferrumequinum*	LC	Yes
Lesser horseshoe	*Rhinolophus hipposideros*	LC	Yes
Daubenton's	*Myotis daubentonii*	LC	No
Brandt's	*Myotis brandtii*	LC	No
Whiskered	*Myotis mystacinus*	LC	No

Natterer's	*Myotis nattereri*	LC	No
Bechstein's	*Myotis bechsteinii*	NT	Yes
Alcathoe bat	*Myotis alcathoe*	DD	No
Greater mouse-eared	*Myotis myotis*	LC	No
Common pipistrelle	*Pipistrellus pipistrellus*	LC	No
Soprano pipistrelle	*Pipistrellus pygmaeus*	LC	Yes
Nathusius's pipistrelle	*Pipistrellus nathusii*	LC	No
Serotine	*Eptesicus serotinus*	LC	No
Noctule	*Nyctalus noctula*	LC	Yes
Leisler's	*Nyctalus leisleri*	LC	No
Barbastelle	*Barbastellabarabastellus*	NT	Yes
Brown long-eared	*Plectorus auritus*	LC	Yes
Grey long-eared	*Plectorus austriacus*	LC	No

*IUCN categories: LC Least Concern, NT Near Threatened, DD Data Deficient

All bat species are afforded full protection under UK and European legislation, including the Wildlife and Countryside Act 1981 (as amended) and the Conservation of Habitats and Species Regulations 2017 (as amended). Together, this legislation makes it illegal to:

- Deliberately capture, injure or kill a bat.
- Damage or destroy a bat roost; or intentionally or recklessly obstruct access to bat roosts.
- Deliberately, intentionally or recklessly disturb, a bat, including in particular any disturbance which is likely:

to impair their ability to survive, to breed or reproduce, or to rear or nurture their young, or

in the case of animals of a hibernating or migratory species, to hibernate or migrate; or

to affect significantly the local distribution or abundance of the species to which they belong.

A bat roost is defined in the legislation as "*any structure or place which a bat uses for shelter or protection*". Roosts are protected whether or not bats are present at the time.

Appendix 3: Bat Survey

Methodology

Building inspection
Both the public house and the barn were assessed for their potential to support roosting bats following BCT Guidelines (Collins 2016). The building inspections were undertaken by a Natural England-licensed bat ecologist (H. Torr CEnv MCIEEM) on 26 July 2022 using binoculars, endoscope and ladders where necessary. The two buildings were classified as Negligible, Low, Moderate or High suitability for roosting bats in accordance with the BCT Guidelines (refer to Table A3.1 below). None of the trees on site were considered suitable for roosting bats.

Table A3.1: Assessing bat roosting potential for built structures and trees (Collins, 2016)

Suitability	Description of habitats	Survey effort
Negligible	Negligible habitat features on site likely to be used by roosting bats	No further surveys required
Low	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 larger numbers of bats (i.e. unlikely to be suitable for maternity or hibernation). A tree of significant size and age to contain potential roost features but with none seen from the ground or features seen with only very limited roosting potential.	One dusk emergence or dawn re-entry (structures). No further surveys required (trees).
Moderate	A structure or tree with one or more potential roost sites that could be used by bats due to the size, shelter, protection, conditions and surrounding habitat but unlikely to support a roost of high conservation status (with respect to roost type only- the assessments in this table are made irrespective of the species conservation status, which is established after presence is confirmed)	Two separate survey visits. One dusk emergence and a separate dawn re-entry survey.
High	A structure or tree with one or more potential roost sites that are obviously suitable for use by larger numbers of bats on a more regular bases and potentially for longer periods of time due to their size, shelter, protection, conditions, and surrounding habitat.	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.

Static detector survey
A static bat detector (Anabat Express detectors) was placed beside inside the barn between 24th August and 4th September 2022. This provided an insight into the species of bat using the barn and how they were using it.

Dusk emergence surveys
Both the public house and the barn were subject to three separate dusk emergence surveys in line with best practice recommendations (Collins 2016). Surveys were conducted in suitable weather conditions between July and September 2022 (refer to Table A3.2 below).

Emergence surveys commenced 15 minutes prior to sunset and continued for approximately 2 hours. All surveys were undertaken by two surveyors (one Natural England-licensed bat ecologist and another suitably experienced bat surveyor equipped with an EchoMeter3) and two high-resolution thermal imaging cameras (Hikmoicro G60[1] and Flir E96[2]). Four survey points were positioned to adequately cover both buildings on each survey. All camera footage was downloaded on to a computer and subsequently reviewed on VLC Viewer in real time for emerging bats. Photographs A3.1 show the view of the barn taken by the Flir E96.

Photograph A3.1: Thermal Image of the barn taken from the north western corner by the Flir E96

Table A3.2: Weather conditions

Date	Sunset time	Cloud (Oktas)	Wind speed (Beaufort)	Temperature (Deg C)	Precipitation
26 July 2022	21:00	5/8	0	Start: 19 Finish: 18	None
24 August 2022	20:06	1/8	1	Start: 19 Finish: 18	None
28 September 2022	18:45	4/8	1	Start: 17 Finish: 15	None

Limitations
There were no limitations to the survey effort.

Results

Building inspection
Both the barn and the public house were classified as being of 'High' suitability for roosting bats due to the presence of several Potential Roosting Features on both buildings (Collins 2016) including loose roof and wall tiles on the public house and gaps between the wooden slats on the barn. Approximately 30 Brown long-eared bat droppings (confirmed by DNA analysis) were found in the centre of the barn during the building inspection.

[1] The G60 has a 640 x 512 thermal resolution and 25-degree field of view which is in accordance with the recommended specification for unmanned camera detailed in the Thermal Imaging: Bat Survey Guidelines (Fawcett Williams, 2021).
[2] The E96 has a 640 x 480 thermal resolution and 42-degree field of view which is in accordance with the recommended specification for unmanned camera detailed in the Thermal Imaging: Bat Survey Guidelines (Fawcett Williams, 2021).

Static detector survey
12 nights of static detector data within the barn showed that 4 species were recorded within the barn:

- Brown long-eared bat was recorded on each night at an average 24 passes per night;
- Common pipistrelle was recorded on three nights;
- Soprano pipistrelle was recorded on seven nights:
- A single barbastelle pass was recorded at 04:48 (approx 1.5 hours before sunrise) on 1st September.

Data from a static detector placed inside the barn between 24th August and 4h September 2022 showed low levels of activity of common pipistrelle, soprano pipistrelle and brown long-eared bat. The majority of these calls were recorded during the middle of the night, indicating that these species are using the barn as a night roost.

Of the 416 calls registered on the barn static detector in 2022, only 23 calls were recorded within 1 hour of either sunset or sunrise indicating that the barn is being used as a night roost by nrown long-eared bats and both common and soprano pipistrelle. This aligns with the findings of the static detector survey by Greengage in 2017.

Emergence surveys
A single brown long-eared bat was recorded emerging from the barn's eastern elevation via a gap in the wooden slats during the emegence survey on 28th September (refer to Photograph A3.1 below). No bats were recorded emerging from the public house during any of the emergence surveys.

Conclusions

The 2022 emergence surveys and static detector surveys confirmed the following bat roosts within the barn:

- A brown long-eared transition roost; and
- A brown long-eared, common pipistrelle and soprano pipistrelle night roost.

It is likely that the barn was used by individual or low numbers of bats. Similar results were also recorded during the 2017 surveys by Greengage Environmental.

No bats were recorded emerging from the Public House but a single common pipistrelle bat was recorded here during the 2017 surveys and this building is likely to be used intermittently by roosting common pipistrelle bats.

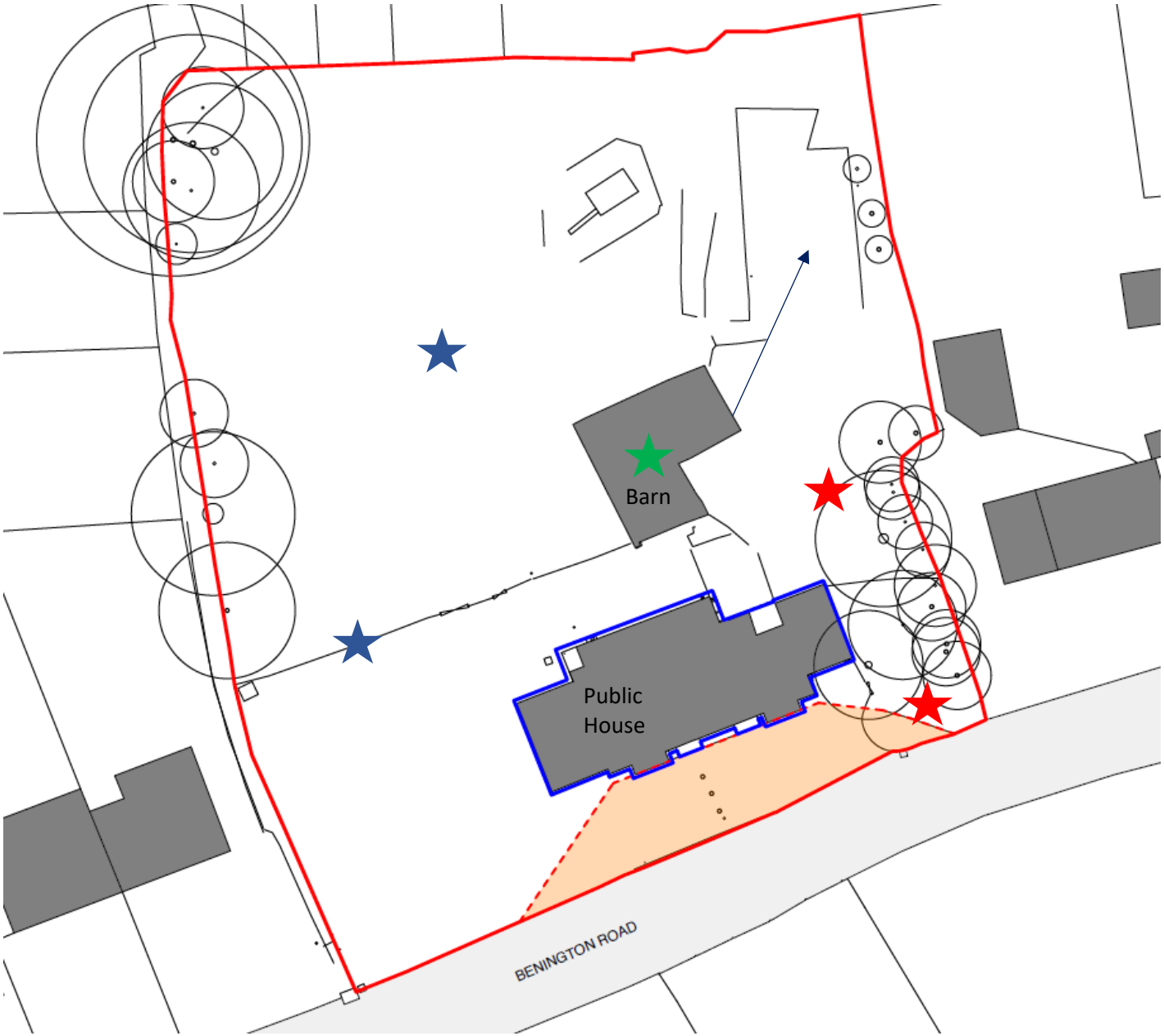
No barbastelle bats were recorded emerging from the barn during the extensive surveys undertaken in 2017 and 2022. A total of six dusk or dawn surveys were carried out on this building, along with DNA analysis of bat droppings and 34 nights of static bat detector recordings. These surveys recorded a single barbastelle bat call briefly within the building, which suggests this bat had flown through the building instead of remaining to roost and this building is not used as a roost by this species.

Photograph A3.1: Location of brown long-eared bat emergence point

References

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

Russ J (2012) British Bat Calls: A Guide to Species Identification. Pelagic Publishing, Exeter.



Key

- Location of bat surveyor during emergence surveys
- Location of thermal-imaging cameras during emergence surveys
- Location of static bat detector and 30 bat droppings found
- Location of bat emergence point on 28.09.22 and direction of flight

HT ECOLOGY

Bat Survey Plan

Site: Rose & Crown, Aston, Stevenage

Client: Annakut Ltd

Date: 09/11/2022

WARWICK
THE UNIVERSITY OF WARWICK

EcoWarwicker
Ecological Forensics

18 October 22

Re: Identification Results for Tom Davies, HT Ecology

Job number 19055, received 10 October 2022
Sample labelled: R & C 28/9/22
PCR amplification successful. DNA sequence:
CATTCGAAATCCCACCCTCTCATAAAAATTATCAATGACTCATTCATTGACTTACCTGC
TCCCTCAAATATTTCTCATGAGAAACTTTGGATCTCTTCTAGGCAT
Phylogenetic analysis identification: *Plecotus auritus*

Confirmed by maximum likelihood, maximum parsimony, bootstrap 100%.

Best regards,

Professor Robin Allaby

The results and conclusions in this report are based on an investigation of mtDNA sequence analysis. The results obtained have been reported with accuracy. The interpretation represents the most probable conclusion for the DNA sequence obtained rather than the sample provided given current levels of species data. It should be borne in mind that different circumstances might produce different results. Therefore, care must be taken with interpretation of the results especially if they are used as the basis for commercial recommendations.

Professor Robin Allaby

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Appendix 4: Badger Survey

Methodology

A badger survey was undertaken in accordance with the Mammal Society publication Surveying Badgers (Harris et al 1989). A search for badger setts and other signs of activity (e.g. prints, hairs, latrines, pathways) was carried out on 24th July 2022 and updated whilst undertaking the other bat surveys in August and September 2022. All areas of the site and the immediate surroundings were surveyed.

Results

No badger evidence was recorded within the site during the surveys and they were likely to be absent from the site at the time of survey.

References

Clark M. (2001) Badgers. Whittet Books Ltd

Appendix 5: Baseline Evaluation Criteria

Key evaluation categories are as follows:

- International value (internationally designated sites, or sites meeting criteria for international designation. Sites supporting populations of internationally important species);
- UK value (sites with UK importance);
- National value (nationally designated sites (e.g. SSSIs) or sites meeting SSSI selection criteria. Sites containing viable areas of threatened Priority Habitat or supporting a viable population of Red Data Book species or supplying critical elements of their habitat requirements);
- Regional value (sites exceeding county-level designations but not meeting SSSI criteria. Sites containing viable areas of threatened habitats on the Regional BAP, supporting viable populations of species that are nationally scarce or included in the regional BAP due to rarity);
- County value (sites meeting criteria for county or metropolitan designations. Site containing a viable area of a threatened habitat identified on the county BAP or supporting viable populations of county or metropolitan rarities e.g. county BAP or county 'Red Data Book' species);
- District value (undesignated sites or features that are considered to appreciably enrich the habitat resource within the context of the Borough or District);
- Parish value (areas of habitat considered to appreciably enrich the habitat resource within the context of a parish or neighbourhood);
- Sub-Parish (ecological resource not meeting any of the above criteria).

Additional criteria employed were from the following:

- Schedules and Annexes of UK and European wildlife legislation (e.g. Wildlife and Countryside Act (1981) (as amended) and The Conservation (Natural Habitats, &c.) Regulations 1994;
- International conventions on wildlife (e.g. Bern Convention, Bonn convention);
- Habitats and species of Principal Importance.
- Local Biodiversity Action Plan.
- Taxi-specific conservation lists (e.g. Red Data Lists; Red/Amber Lists).

Appendix 6: Biodiversity Metric Small Sites (DEFRA, 2022)

Refer to separate Excel spreadsheet