



Preliminary Ecological Appraisal

Land at Bexstone House
Eastergate, West Sussex

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LIABILITIES:

Whilst every effort has been made to guarantee the accuracy of this report, it should be noted that living animals and plants are capable of migration/establishing and whilst such species may not have been located during the survey duration, their presence may be found on a site at a later date.

This report provides a snap shot of the species that were present at the time of the survey only and does not consider seasonal variation. Furthermore, where access is limited or the site supports habitats which are densely vegetated only dominant species may be recorded.

The recommendations contained within this document are based on a reasonable timeframe between the completion of the survey and the commencement of any works. If there is any delay between the commencement of works that may conflict with timeframes laid out within this document or have the potential to allow the ingress of protected species, a suitably qualified ecologist should be consulted.

It is the duty of care of the landowner/developer to act responsibly and comply with current environmental legislation if protected species are suspected or found prior to or during works.

1.0 Introduction

Background

- 1.1 The Ecology Partnership was commissioned by Christine Hewitt to undertake a preliminary ecological appraisal (PEA) of land at Bexstone House, Barnham Road, Eastergate, West Sussex, PO20 3RT.
- 1.2 This report presents the results of The Ecology Partnership's surveys in and around the site, which aims specifically to assess the site's potential to support protected species and protected habitats that may be affected by the proposed development.
- 1.3 Section 2 of this report sets out the methodologies of the Ecology Partnership's surveys. In section 3 the results of the surveys are presented. Discussions and implications for development are found in section 4, including general site enhancements. An impact assessment is outlined in section 5 and conclusions drawn from the report are presented in section 6.

Site Context and Status

- 1.4 The site is located off Barnham Road in Eastergate, Chichester (SU 95025 05194). The immediate surroundings comprise of low-density housing, Eastergate Industrial estate, a plant nursery and agricultural fields. The site covers approximately c. 0.7 ha and it consists of a single building surrounded by scattered trees and maintained gardens. There are no Sites of Special Scientific Interest (SSSI) or Local Nature Reserves (LNR) within 2km of the site.
- 1.5 The aerial photograph overleaf (Figure 1) shows the site and its immediate surroundings. The red line depicts the approximate site boundary and survey area.



Figure 1: Approximate location of the red line boundary

Description of Proposed Development

- 1.6 The plans for the site are not currently known but will be informed by a number of surveys, of which ecology is one. It is understood that a residential development is being considered on the site. This will involve the demolition of all of the buildings on site.

Planning Policies

- 1.7 National and local planning policies may have an effect on the proposed development. The following paragraphs identify relevant planning policies and discuss these in the context of the site.
- 1.8 Under the Natural Environment and Rural Communities (NERC) Act 2006, *“Every public authority must, in exercising its functions, have regard, so far as is consistent with the proper exercise of those functions, to the purpose of conserving biodiversity”*. In order to comply with

this 'Biodiversity Duty', planning decisions must ensure that they adequately consider the potential ecological impacts of a proposed development.

1.9 In compliance with Section 41 of the NERC Act, the Secretary of State has published a list of species and habitats considered to be of principle importance for conserving biodiversity. These were known as BAP habitats and species. The UK BAP lists of priority species and habitats remain an important and valuable reference certainly at county levels. However, the UK Post 2010 Biodiversity Framework (published 2012) has succeeded BAP. It was produced by JNCC and Defra, on behalf of the Four Countries' Biodiversity Group (4CBG), through which the environment departments of all four governments in the UK work together to achieve the 'Aichi Biodiversity Targets' and the aims of the EU biodiversity strategy.

1.10 National policy guidance is provided by National Planning Policy Framework (NPPF), which sets out the Government's planning policies for England and how they should be applied. Section 11 of the document is entitled 'Conserving and Enhancing the Natural Environment'. This section highlights the following:

"The planning system should contribute to and enhance the natural and local environment by:

- Protecting and enhancing valued landscapes, geological conservation interests and soils;*
- Recognising the wider benefits of ecosystem services;*
- Minimising impacts on biodiversity and providing net gains in biodiversity where possible, contributing to the Government's commitment to halt the overall decline in biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures;*
- Preventing both new and existing development from contributing to or being put at unacceptable risk from, or being adversely affected by unacceptable levels of soil, air, water or noise pollution or land instability; and*
- Remediating and mitigating despoiled, degraded, derelict, contaminated and unstable land, where appropriate."*

1.11 In addition to this the following paragraphs are also considered to be relevant:

“In preparing plans to meet development needs, the aim should be to minimise pollution and other adverse effects on the local and natural environment. Plans should allocate land with the least environmental or amenity value, where consistent with other policies in this Framework.”

“Planning policies and decisions should encourage the effective use of land by re-using land that has been previously developed (brownfield land), provided that it is not of high environmental value. Local planning authorities may continue to consider the case for setting a locally appropriate target for the use of brownfield land.”

- 1.12 The site falls under the jurisdiction of Arun District Council. The council created a Local plan which was adopted in 2003 and it sets out the council’s visions for the borough for the period up to 2011. The following are relevant policies:

CP13: Green Infrastructure

“The Borough Council, in partnership with other organisations, will plan for a network of accessible and integrated green infrastructure across the Borough of Surrey Heath and linked to neighbouring areas. The Council will seek to strengthen the role of the Green Infrastructure network.

In considering proposals for any new development the Borough Council will encourage schemes which contribute toward, or provide, opportunities to enhance the function of existing green infrastructure, increase provision and improve connectivity. Development which results in the loss, fragmentation or isolation of green infrastructure will be resisted.

Green infrastructure of strategic importance will include those areas designated as European sites and Suitable Alternative Natural Greenspace (SANGs) required to avoid and mitigate impacts to the European sites.”

Policy Area 13: Sites of International Importance of Nature Conservation

“Proposals for development in, or likely to affect (directly or indirectly) a site of international importance for nature conservation will be subject to the most rigorous examination. Development

not directly connected with or necessary to the management of the site which is likely to have an adverse effect on the site, will not be permitted unless: there is no alternative solution, there are reasons of public health or public safety, or there are benefits of primary importance to the environment.

Where such sites do not host a priority habitat or species, development will not be permitted unless there are imperative reasons of overriding public interest.

Where development is permitted, the use of conditions or planning obligations will be considered in order to avoid and minimise harm to the site, to enhance the site's nature conservation interest, and to secure any compensatory or mitigation measures and appropriate management that may be required."

Policy Area 14: Sites of National Importance for Nature Conservation

"Proposals for development in, or likely to affect (directly or indirectly) Sites of Special Scientific Interest will be subject to special scrutiny. Where such development is likely to have an adverse effect, it will not be permitted unless the reasons for the development clearly outweigh the nature conservation value of the site itself and the national policy to safeguard the national network of such sites.

Where the site concerned is a National Nature Reserve, a site identified by the Nature Conservation Review or Geological Conservation Review, particular regard will be paid to the national importance of that site.

Where development is permitted, harm to the nature conservation interest must be minimised. The use of conditions or planning agreements will be considered to ensure the protection and enhancement of the nature conservation interest, and to provide appropriate compensatory or mitigation measures and site management."

Policy Area 15: Sites of Local Importance for Nature Conservation

“Proposals for development in, or likely to have an adverse effect (directly or indirectly) on a Local Nature Reserve, Site of Nature Conservation Importance (including ancient woodlands or wildlife corridors) or Regionally Important Geological/Geomorphological Site will not be permitted unless it can be demonstrated that reasons for the proposal outweigh the need to safeguard the nature conservation value of the site/feature. Where development is permitted which would damage the nature conservation value of the site/feature, such damage should be kept to a minimum.

Conditions or planning obligations will be used to secure necessary compensatory or mitigation measures, enhancement and site management.

Where appropriate, the Authority will consider the use of legal agreements to provide appropriate compensatory measures, enhancement and site management.”

- 1.13 The site was surveyed to assess its ecological value and to ensure compliance with national and local plan policies. The report has been produced with reference to current guidelines for preliminary ecological appraisal (CIEEM 2013) and in accordance with BS 42020:2013 Biodiversity – Code of Practice for Planning and Development.

2.0 Methodology

Desktop Study

- 2.1 A desktop study search was completed using an internet-based mapping service (www.magic.gov.uk) for statutory designated sites and an internet-based aerial mapping service (maps.google.co.uk) was used to understand the habitats present in and around the survey area and habitat linkages and features (ponds, woodlands etc.) within the wider landscape.

Preliminary Ecological Appraisal

- 2.2 An extended preliminary ecological appraisal was undertaken on 23rd April 2018 by ecologists Alexia Tamblyn MA (Oxon) MSc CEnv MCIEEM FRGS and Natalie Kay BSc (Hons) MSc ACIEEM. The surveyors identified the habitats present following the standard 'Phase 1 habitat survey' auditing method developed by the Joint Nature Conservancy Council (JNCC). The site was surveyed on foot and the existing habitats and land uses were recorded on an appropriately scaled map (JNCC 2010). In addition, the dominant plant species in each habitat were recorded. The potential for the site to support protected species was also assessed.

Building Assessment for Bats

- 2.3 An internal and external examination of the buildings was undertaken on the day of the survey. The surveyors assessed the buildings visually and searched for evidence such as:
- Staining beneath or around a hole caused by natural oils in bat fur.
 - Bat droppings beneath a hole, roost or resting area.
 - Audible squeaking from within a hole.
 - Insects (especially flies) around a hole.
 - Dead bats.
- 2.4 Buildings that are considered to have a high potential to support roosting bats would include the following:
- Agricultural buildings (e.g. farmhouses, barns and out buildings) of traditional brick or stone construction and/or with exposed beams;
 - Buildings with weather boarding and/or hanging tiles that are within 200m of woodland and/or water;
 - Pre-1960s detached buildings and structures within 200m of woodland and/or water;
 - Pre-1914 buildings within 400m of woodland and/or water;
 - Pre-1914 buildings with gable ends or slate roofs regardless of location;
 - Buildings which are located within or immediately adjacent to woodland and/or immediately adjacent to water;

-
- Dutch barns or livestock buildings with a single skin roof and board and gap or Yorkshire boarding if, following a preliminary roost assessment the site, appear to be particularly suited to bats.
- 2.5 The buildings were assessed during the day. An external investigation assessed the tiles, any weatherboarding and structural timber joints of the building. This was undertaken in order to see if there were access points readily available for bats to utilise or crevices that bats could be roosting in.

Tree Assessment for Bats

- 2.6 Roosts of bats in trees may be identified from the following field signs:
- Black stains beneath cracks, splits and other features where bat dropping have fallen;
 - Dark marks at entrance points where bats have rubbed against the wood and left natural body oils;
 - Feeding remains beneath roosts, such as insect wings;
 - Chattering of bats;
 - Bat droppings under access points;
 - Scratch marks around a feature (cavity or split) caused by bat claws;
 - Urine stains below the entrance or end of split;
 - Large roosts or regularly used sites may produce an odour;
 - Flies around the entrance, attracted by the smell of guano.
- 2.7 The trees on site were assessed for their potential to support roosting bats. The trees were assessed visually for evidence of bats as well as for features that increase the likelihood such as the following:
- Woodpecker holes, natural cracks and rot holes in trunks and branches;
 - Frost cracks;
 - Trunk and branch splits;
 - Hollow sections of trunk and branches;
 - Loose bark;
 - Cavities beneath old root buttresses and coppice stools;

- Dense epicormic growth;
- Dense ivy cover.

2.8 Trees scheduled for arboriculture work should also be assessed and may be categorised (Table 1) to relate the value of their features to recommended actions. This approach allows trees to be graded according to their potential to support bat roosts. Trees may be assessed as having the potential to support bats (from an individual to a larger roost) even if no bats have been found.

**Table 1: Protocol for visual inspection of trees to assess their value to bats
(Bat Conservation Trust 2016)**

Suitability	Roosting habitat description
Negligible	Negligible habitat features on-site likely to be used by roosting bats.
Low	A tree of sufficient size and age to contain potential roosting features but with none seen from the ground or features seen with only very limited roosting potential.
Moderate	A tree with one or more potential roost sites that could be used by bats due to their size, shelter, protection, conditions and surrounding habitat but unlikely to support a roost of high conservation status.
High	A tree with one or more potential roost sites that are obviously suitable for use by larger numbers of bats on a more regular basis and potentially for longer periods of time due to their size, shelter, protection, conditions and surrounding habitat.

Badger Survey

2.9 A badger survey was undertaken at the site to assess if badgers were using the area and if any setts were located on the site and 30m away from the site that might constrain development. The evaluation of badger activity was based on methodology developed for the National Survey of Badgers (Creswell *et al.* 1990) and includes searching for badger field signs such as setts, badger pathways, tracks (paw prints), dung piles with latrines, badger hairs and feeding signs such as snuffle holes.

2.10 During the survey, all habitats potentially suitable for badgers were systematically examined for evidence of badger activity including:

- Setts: several sett types may be present within a social group territory, ranging from a single hole to numerous interconnecting tunnels. Setts can be categorised into main, annexe, subsidiary and outlier (Wilson *et al.* 1997).
- Latrine sites: badgers characteristically deposit dung in pits, which may be located along the boundaries and within the social group territory. These sites serve as means of inter- and intra-group communication.
- Paths and runs: well used routes between setts and/or foraging areas. Often used by generations of badgers.
- Snuffle holes: areas of disturbed vegetation often formed by badgers foraging for ground dwelling invertebrates such as earthworms and larvae and the underground storage organs of plants.
- Hair: often found among spoil and bedding outside entrances to setts or snagged on fences (such as barbwire) along well-used runs.
- Footprints: easily distinguishable from other large mammal species. Often found along paths and runs or in spoil outside sett entrances.

Habitat Suitability for Reptiles

2.11 Habitat surveys were carried out to assess the potential of the site to hold populations of reptile species. This involved looking for the presence of factors that would increase the suitability of the site for reptiles such as:

- Scrub and grassland (long sward) mosaic across the site;
- Features that can be potential hibernation sites for common reptiles such as log piles;
- Grass tussocks within the grassland that can act as shelter and burrowing sites;
- Water bodies or damp places on site (grass snakes);
- Compost heaps or decaying vegetation (slow worms);
- Features that can act as refugia on the ground such as disused roofing felt.

Other Protected Species

2.12 The site was also inspected for indications of the presence of other protected species, as follows:

- Relevant habitat for dormice such as dense deciduous woodland, coppice and thick shrubbery;
- Ponds and associated habitat suitable to support great crested newts;
- The presence of ditches for water voles;
- The presence of fresh water stream/rivers for otters;
- Suitable nesting places for birds;
- Other potential protected species.

Limitations

2.13 It should be noted that whilst every effort has been made to provide a comprehensive description of the site, no single investigation could ensure the complete characterisation and prediction of the natural environment. The site was visited over the period of one site visit, as such seasonal variations cannot be observed and potentially only a selection of all species that potentially occur within the site have been recorded. Therefore, the survey provides a general assessment of potential nature conservation value of the site and does not include a definitive plant species list.

2.14 The protected species assessment provides a preliminary view of the likelihood of protected species occurring on site, based on the suitability of the habitat and any direct evidence on site. It should not be taken as providing a full and definitive survey of any protected species group. The assessment is only valid for the time when the survey was carried out. Additional surveys may be recommended if, on the basis of this assessment, it is considered reasonably likely that protected species may be present.

3.0 Results

Desktop Study

- 3.1 The site does not lie within or adjacent to any statutory designations and there are none within a 2km radius. The closest is Fairmile Bottom Site of Special Scientific Interest (SSSI) and Local Nature Reserve (LNR) approximately 4.5km northeast of site.
- 3.2 In terms of non-statutory designations, there are two Local Wildlife Sites (LWS) within 2km of the site:
- Fontwell Park Racecourse LWS approximately 1.2km northwest;
 - Binstead Wood Complex LWS approximately 1.2km northeast.
- 3.3 There are a number of priority habitats within 2km of the site (Figure 2). There are traditional orchards approximately 90m north of the site along with small units of priority deciduous woodland. Small areas of ancient semi-natural woodland are present, the closest of which is approximately 1km east. A large area of lowland meadow lies approximately 1.2km northwest along with a small area of lowland fen approximately 1.6km northeast.
- 3.4 There are no ponds on site but there is one within a 250m radius of the red line boundary, approximately 200m southwest.
- 3.5 From previous ecological surveys undertaken within the local area and from records previously received from Sussex Biodiversity Information Centre, it is known that the following species of importance are present in the local area:
- Slow Worm (*Anguis fragilis*)
 - Grass Snake (*Natrix natrix*)
 - Western European Hedgehog (*Erinaceus europaeus*)
 - Hazel Dormouse (*Muscardinus avellanarius*)
 - Western Barbastelle (*Barbastella barbastellus*)
 - Serotine (*Eptesicus serotinus*)

- Alcahthoe Bat (*Myotis alcahthoe*)
- Brandt's bat (*Myotis brandtii*)
- Whiskered Bat (*Myotis mystacinus*)
- Natterer's (*Myotis nattereri*)
- Common Pipistrelle (*Pipistrellus pipistrellus*)
- Soprano Pipistrelle (*Pipistrellus pygmaeus*)
- Brown Long-eared (*Plecotus auritus*)

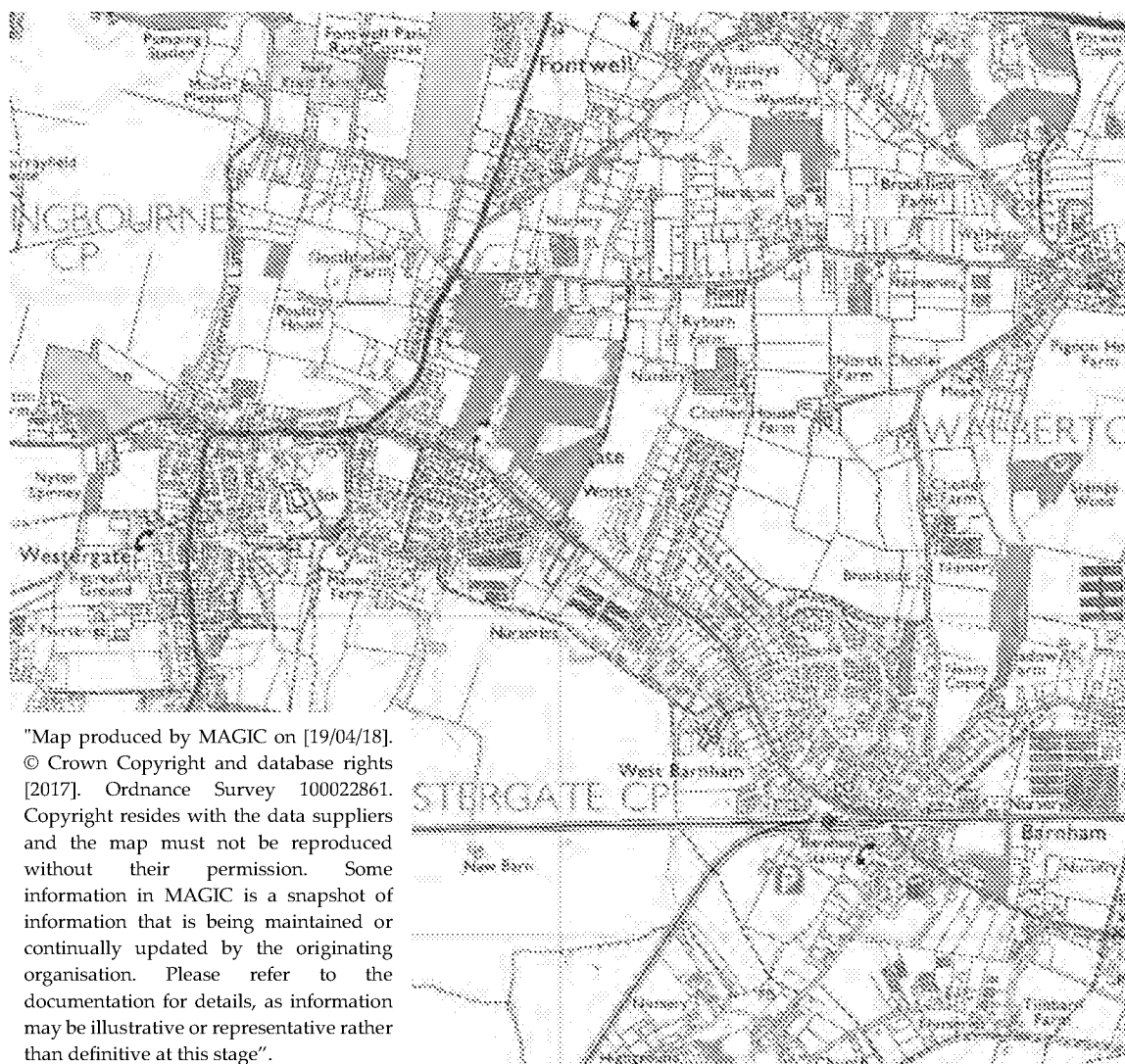


Figure 2: Priority deciduous woodland (green), ancient semi-natural woodland (brown hatch), lowland meadow (lime green), traditional orchard (dark green) and lowland fen (pink) habitats within 2km of the site

Phase 1 Habitat Survey

- 3.6 The site consisted of the main house with an outbuilding to the rear along with large grassland areas, boundary tree lines and scattered trees. There were also some old water tanks in the back garden.

Semi-improved grassland

- 3.7 A large proportion of the site was made up of neutral semi-improved grassland, which dominates both the front and back garden of the house. The main species found included perennial ryegrass (*Lolium perenne*), cocksfoot (*Dactylis glomerata*), Yorkshire fog (*Holcus lanatus*), annual meadow grass (*Poa annua*), broad-leaved dock (*Rumex obtusifolius*), red dead nettle (*Lamium purpureum*), dandelion (*Taraxacum* agg.), common nettle (*Urtica dioica*), creeping buttercup (*Ranunculus repens*), changing forget-me-not (*Myosotis discolor*), germander speedwell (*Veronica chamaedrys*), common hogweed (*Heracleum sphondylium*), bugle (*Ajuga reptans*), cleavers (*Galium aparine*), hairy bittercress (*Cardamine hirsuta*), garlic mustard (*Allaria petiolata*), creeping thistle (*Cirsium arvense*) and dovesfoot cranesbill (*Geranium molle*).

Trees

- 3.8 The boundaries of the site were made up of mature trees and there were islands of trees and shrubs scattered throughout both gardens. The main species present included Norway maple (*Acer platanoides*), Cypress sp., elder (*Sambucus nigra*), silver birch (*Betula pendula*), sycamore (*Acer pseudoplatanus*), ash (*Fraxinus excelsior*), yew (*Taxus baccata*), Scot's pine (*Pinus sylvestris*) and willow (*Salix* sp.). Many of the mature trees were densely covered in ivy (*Hedera helix*).

Buildings and hardstanding

- 3.9 The main building on site is the house in the centre and next to this was an outbuilding. There is a shed in the back garden as well as a dilapidated glasshouse. There are also two old water tanks in the back garden.

Protected Species

Bats

- 3.10 The house was a brick building with a tiled roof and hanging tiles on the northern and southern aspect. Externally, the tiles were relatively well sealed apart from one or two of the hanging tiles close to the corners. The hanging tiles on the northern aspect of the house did not support any features which could be exploited by crevice dwelling bats. The soffit boards were relatively well sealed except for those on the southern aspect of the house which had rotted in places leaving large gaps.
- 3.11 Internally, there was one roof void with intact felt lining and insulation along the base of the void only. No evidence of bats was found in the void, only mouse droppings and there were no potential access points observed. The building was considered to have low roosting bat potential.
- 3.12 The outbuilding next to the house was made of breeze blocks and a flat corrugated metal roof. There was no void internally and the building appeared to be well-sealed. The wooden panelling on the southern aspect of the building had some large holes which may offer some bat roosting potential but the building as a whole was considered to have low roosting bat potential.
- 3.13 None of the trees within the red line boundary supported complex growth forms, cracks or crevices traditionally associated with roosting bats. Therefore, none were considered to have roosting bat potential.
- 3.14 The linear features on site, particularly the boundary tree lines, are likely to provide some potential foraging and commuting opportunities for bats in the local area. They also provide connectivity into the wider landscape.

Badgers

- 3.15 No evidence of badgers, such as setts, latrines or snuffle holes, was identified anywhere on site. However, it is considered that they may venture on to site from the surrounding area for foraging and commuting purposes.

Great Crested Newts

- 3.16 There were no ponds on site and the only waterbody in close vicinity to the red line boundary is a pond approximately 200m southeast. This could not be accessed at the time of the survey as it is located on private property. However, it should be noted that there are a number of glasshouses between the pond and the site which may act as barriers to dispersal.



Figure 3: Pond within a 250m radius of the red line boundary

Reptiles

- 3.17 Semi-improved grassland can provide suitable habitat for reptiles. The sward height in the gardens at the time of the survey was considered reasonably high, but was under regular management, with evidence of recent mowing having occurred. In addition, the habitats surrounding the site consist of managed grassland and hardstanding, which are not suitable for reptiles meaning it is unlikely that reptiles would venture onto site from the surrounding area.

Other Species

- 3.18 Birds are likely to use the scrub and scattered trees on site for foraging and breeding. A small number of common species were observed on site including great tit, blackbird and robin.
- 3.19 Due to a lack of suitable habitat and connectivity, the site is not considered suitable for other protected species such as dormice, otters and water voles.

4.0 Discussion

Site

- 4.1 The site does not fall within any statutory or non-statutory designations and there are none within a 2km radius. In addition, the nearest LWS are over 1km from the site. Given the scale of the site and its distance from any designations, it is considered that development of the site would not significantly impacted any nearby protected areas. Therefore, there are no issues in relation to local plan policy areas 13, 14 and 15.
- 4.2 In terms of surrounding habitats, there are units of traditional orchard and priority deciduous woodland between 90m and 150m north of the site. Again, given the scale of the site and the presence of a road between the site and these habitats, it is considered that any development on the site would not significantly impact these protected habitats.

- 4.3 The habitats on site are widespread and common throughout the local area and the UK as a whole. The mixture of grassland and trees was considered to be of ecological value at site level only. However, it is recommended that tree lines be retained along the boundaries of the site to maintain green corridors and landscape connectivity.
- 4.4 In terms of the local plan, policy CP13 (Green Infrastructure) states that developments should contribute to and enhance existing green infrastructure as well as improve connectivity. As stated above, the tree lines along the boundaries of the site should be retained to maintain connectivity across the site. However, in addition it is recommended that the trees be thinned to allow the development of habitat with a more diverse structure. Thinning will allow more light onto site and therefore the growth of younger specimens. Additional planting can then take place to increase the species diversity on site, using native species only. This will help to improve wildlife corridors around the site.

Protected Species

Bats

- 4.5 Both the house and the outbuilding were considered to have low roosting bat potential due to the presence of a small number of external features which may be used opportunistically by a small number of bats. As a precautionary approach, it is recommended that a single bat emergence/re-entry survey be carried out in order to determine if any of the features identified are being used. The Bat Conservation Trust guidelines (2016) recommended that this survey be carried out between May and August in suitable weather conditions.
- 4.6 Considering the nature and location of the site, it is considered that any roost which may be identified can be accommodated within the redevelopment of the site. The site is of sufficient size to support replacement bat roosts, either as a stand-alone function or within the development of the new buildings or on mature trees. With no external evidence found

around any of the features identified (e.g. staining from fur oil or scratch marks), it is considered unlikely that either building would support a large roost.

4.7 None of the trees on site were considered suitable for roosting bats due to the lack of cracks, holes or dense ivy growth. However, the tree lines themselves offer some potential foraging and commuting habitat. Therefore, it is recommended that these are retained, enhanced and buffered from lighting.

4.8 The Bat Conservation Trust survey guidelines (Collins 2016) states in Table 4.1, *“guidelines for assessing the potential suitability of proposed development sites for bats, based on the presence of habitat features within the landscape, to be applied using professional judgement”*. It is important that proportionality is employed when recommending further survey work for bat species on a proposed development site. As stated within section 8.2.7 of the latest survey guidelines (2016), the following points need to be taken into account with regard to planning activity surveys:

- Likelihood of bats being present;
- Likely species concerned;
- Number of individuals;
- Type of habitat affected;
- Predicted impacts of the proposed development on bats;
- Type and scale of proposed development.

4.9 It is understood that there are no current plans, albeit a proposed residential development within the site has been recommended. It is also understood that trees on the boundaries of the site will largely be left *in situ* and the tree line enhanced post development and incorporated into the design. These habitats are the most significant for bats on site providing foraging and commuting habitat with development largely restricted to areas of species-poor grassland habitat. Furthermore, the site itself is small in size and located within a fragmented landscape.

4.10 Considering the above, the relatively small-scale nature of the development proposals and the potential for ecological enhancement to be provide within the site, it is considered that no further survey work for bats would be required. Furthermore, it is considered that the

development of a small residential estate would not impact upon the ecological functionality of the local landscape and will not significantly severe or fragment landscape links or green corridors. It is therefore considered that the proposals will not impact upon the favourable conservation status of bats in the local area.

4.11 Any proposed lighting scheme as part of the development will have to take into account bats in the surrounding area as well as the site. All bat species are nocturnal, resting in dark conditions in the day and emerging at night to feed. Bats are known to be affected by light levels, which can affect both their roosting and foraging behaviour. This needs to be taken into account with a sympathetic lighting scheme. Recommendations include:

- Installing lighting only if there is a significant need;
- Using low-pressure sodium lamps or high-pressure sodium instead of mercury or metal halide lamps where glass glazing is preferred due to its UV filtration characteristics;
- Directing light to where it is needed and avoiding light spillage;
- Using baffled lighting where light is directed towards the ground;
- Avoid putting lighting near tree lines and hedgerows and angling light away from these linear features;
- Planting a barrier or using man-made features required within the scheme to form a barrier.

4.12 To enhance the local bat population and provide roosting opportunities within the new development, it is recommended that integrated bat boxes/tubes be incorporated into the structure of the new buildings (Figure 4). These provide good opportunities for crevice-dwelling species such as pipistrelles. The opening of the bat box/tube will be the only section visible and they are designed so that they require little to no maintenance. Several of these tubes can be established in a row together providing a good-sized roost space. The bat tubes should be inserted as high up as possible in the brickwork. Habitat, in association with the Bat Conservation Trust, provide a range of boxes which are unfaced for render or designed to match the brickwork of the building.

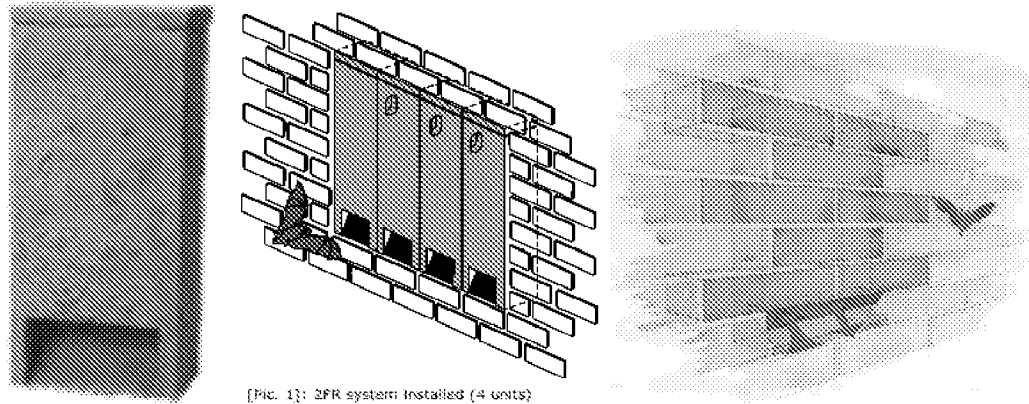


Figure 4: Bat tubes incorporated into the wall of a building to provide roosting space

4.13 Additional roosting opportunities can be provided by hanging bat boxes on mature trees or buildings around the site. Recommended boxes include:

- Schwegler 2F Bat Box – These boxes are attractive to small bats such as pipistrelles and long-eared bats and can be hung on trees (Figure 5).
- Schwegler 2FN Bat Box – This is slightly larger than the 2F and provides opportunities for the larger bats such as noctules. These should be hung on mature trees.
- Schwegler 1FD Bat Box - This box has been designed specifically for smaller bats and provides opportunities as a maternity roost (Figure 5).

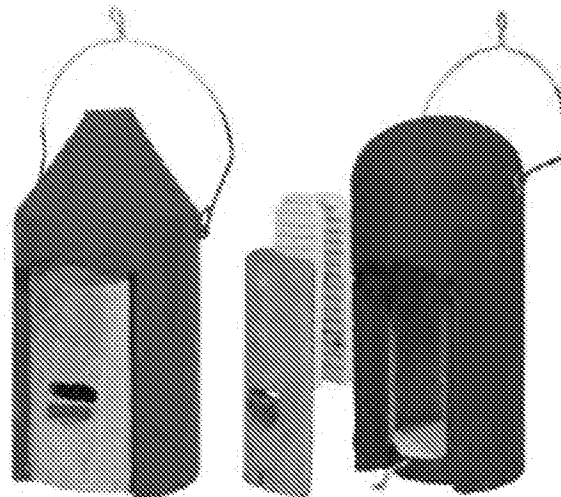


Figure 5: Schwegler 2F (left) and 1FD (right) bat boxes

Badgers

4.14 No evidence of badgers, such as setts, latrines or snuffle holes, was found at the time of the survey. However, they may reside in the surrounding area and venture on to site for foraging and commuting purposes. There are a number of best practice guidelines which should be followed to take this species into account:

- Any excavations and/or trenches associated with construction should be covered at night or supplemented with a means of escape for any badgers that may fall into the excavation whilst foraging.
- Any open pipes or conduits laid should be blocked off each night to prevent badgers from entering them.
- If possible, construction should only take place between dawn and dusk with no late evening work to reduce possible disturbance.

Great Crested Newts

4.15 There were no ponds on site but one was identified using satellite imagery approximately 200m from the red line boundary. This could not be assessed for its suitability for great crested newts (GCNs) at the time of the survey as it is located on private property. However, there are glasshouses and areas of hardstanding separating the pond from site and the only suitable connective habitat is a series of hedgerows leading to the tree lines on site. In the unlikely event that GCNs are present within the off-site pond, it is considered unlikely that they would travel more than 280m to reach the site. This is because research has shown that GCNs tend to remain very close to breeding ponds. Jehle (2000) identified a terrestrial zone of 63m around a breeding pond, within which 95% of summer refuges were located. A subsequent survey showed that after the breeding season, 64% of newts were recorded within 20m of the pond (Jehle & Arntzen 2000).

4.16 Furthermore, the terrestrial habitat on site is considered suboptimal for GCNs given it is a managed grassland with little refuge which lacks cover from predators and limits foraging opportunities. It is expected that any GCNs in the area would remain within wooded and hedgerow habitats, such as those along the boundaries of the site. Research

has shown that GCNs have a higher affinity for wooded habitats (Cresswell *et al.* 2004) since they provide both shelter and humid microclimates to a much greater extent than grassland. As such, it is expected that any GCNs in the area would remain in the boundary habitats as opposed to venturing on to site.

4.17 The redevelopment of the site would not isolate ponds from one another, would not impact on breeding sites or isolate breeding sites from other breeding sites or foraging habitat or dispersal routes. As such, it is considered that any development on the site, which itself is considered largely unsuitable for GCNs being dominated by buildings and hardstanding and well-maintained grassland, would not impact upon the favourable conservation status of GCNs in the wider landscape.

4.18 Considering the above, a precautionary approach site clearance is recommended to avoid harming any GCNs in the highly unlikely event that they are on site. As such, sensitive clearance has been recommended and enhancements along the edges of the site have been outlined further below (see Ecological Enhancements).

Reasonable Avoidance Measures

4.19 It is recommended that the grass length be kept short to limit the suitability of the site for GCNs. Currently the site is considered to be suboptimal for such species due to the nature of the grassland. That being said, it is recommended that mowing is maintained to ensure and maintain the suboptimal conditions.

4.20 Prior to commencement of works, the location of the proposed development should be kept in a state that is unattractive to GCN and without potential refuge opportunities:

- Lawn should be regularly mown to keep to approximately 50mm;
- Area should be kept free from scrub and tall ruderal species;
- Area to be kept free of piles of debris such as log piles, leaf piles, brick heaps or loose soil.

-
- 4.21 When removing small patches of vegetation where present, a sensitive approach to vegetation removal should be adopted. It is recommended that removal of shrubs and trees (if required) can be undertaken in the standard way with regards to above ground level felling. If roots are to be dug out, then this area should be hand dug initially to assess the reasonable likelihood of GCN presence. The ecologist should be in attendance for any initial ground works.
- 4.22 When clearing the grassland habitat, the vegetation should be sensitively strimmed to 150mm, checked by the supervising ecologist and then finally strimmed down to ground level. A fingertip search will then be carried out before the soil is slowly raked through with a toothed bucket under ecological supervision. Once clear of animals, the soil can then be completely removed. Any potential hibernacula will be searched and moved by hand or using sensitive machine work.
- 4.23 During development work, construction and demolition materials as well as skips and pallets, should be stored on hardstanding where possible and should be elevated off the ground. This is so that no features are created that GCN could potentially use as refuge habitat.
- 4.24 Where trenches and holes are dug, these should not be left open overnight. GCN (and other amphibians, reptiles and small mammals) may get trapped in vertical-sided trenches. Therefore, where there is a risk of this occurring, the holes should be refilled or planks of wood should be placed so that any trapped animals may use these to escape.
- 4.25 It is considered that if these methods are used on site then no individual GCN would be harmed by the proposals.

Reptiles

- 4.26 Whilst grassland usually provided some suitable habitat for reptiles, its small size, management as a garden and the lack of suitable surrounding habitat make it unlikely that reptiles are present on site. Whilst the exact plans for the site are not currently known, it

is recommended that clearance work on site follow a similar approach as that recommended for GCNs. Any vegetation removal required should be carried out under ecological watching brief to ensure that any reptiles that may be present are not harmed.

Other Species

- 4.27 Birds are likely to use the trees and hedgerows along the boundaries for foraging and breeding. Any tree or shrub removal as part of the development should be implemented outside the breeding bird season (March-September inclusive) or immediately after a nesting bird check by a suitably qualified ecologist. If active nests are identified, works in the vicinity of the nest must cease until the birds have fledged the nest.
- 4.28 Owing to the lack of suitable habitat and connectivity, the site is not considered to have the potential to support species such as dormice, otters or water voles.

Ecological Enhancements

- 4.29 A number of enhancements can be made to the final development to help reduce potential ecological impacts. It is important to utilise native species of local provenance in landscaping schemes to enhance the ecological value of the development.
- 4.30 The exact proposals for the site are not currently known but it is recommended that the tree lines along the boundaries of the site be thinned. New planting can then be carried out to improve the species diversity and structure of the boundaries. Recommended species include:
- Oak (*Quercus robur*)
 - Ash (*Fraxinus excelsior*)
 - Hazel (*Coryllus avellana*)
 - Beech (*Fagus sylvatica*)
 - Rowan (*Sorbus aucuparia*)
 - Elder (*Sambucu nigra*)
 - Spindle (*Eunoymas europaea*)

-
- Privet (*Ligustrum vulgare*)
 - Hawthorn (*Crataegus monogyna*)
 - Blackthorn (*Prunus spinosa*)
 - Wayfaring tree (*Viburnum lantana*)
 - Yew (*Taxus baccata*)

4.31 Shrubs and herbs can be planted in areas of open space post-development. Species which provide nectar opportunities for invertebrates should be used such as lavender, jasmine, chamomile, evening primrose, thyme, mint and heather.

4.32 Green walls can also be incorporated into the scheme as they provide additional habitats for birds and insects. They can be created by planting climbing plants in the ground or planters and training these directly onto walls or trellis. A combination of species should include clematis (*Clematis montana*), traveller's joy (*Clematis vitalba*), jasmine (*Jasminum officinale*), honeysuckle (*Lonicera perichlymenum*) and climbing hydrangea (*Hydrangea petiolaris*).

4.33 It is recommended that bird boxes are installed to provide additional nesting opportunities on site, particularly for urban birds such as swifts and house sparrows, which are a London BAP species. Recommended boxes include:

- Schwegler 1SP Sparrow Terrace – This can be fixed to the surface of the wall or incorporated into the building structure.
- Schwegler 17A Swift Nest Box (triple cavity) – This can be fixed to buildings/walls or can be embedded within the wall of a new building.
- Schwegler Bird House – This is suitable for all common garden birds and may be attached to a building or wall so is suitable for siting behind climbing plants.

5.0 Conclusions

5.1 The site does not lie within any statutory or non-statutory designations and nearby protected sites are considered to be far enough away to be buffered from any significant impacts.

- 5.2 The majority of the habitats on site are common and widespread throughout the local area and the UK as a whole. As such, it is considered that the redevelopment of the site will not impact upon the ecological functionality of the wider landscape.
- 5.3 The house and outbuilding were considered to have low roosting bat potential due to a small number of suitable external features present. As a precautionary approach, a single emergence/re-entry survey has been recommended to determine if any of the identified features are being used by bats.
- 5.4 No evidence of badgers was found on site but precautionary methods of work have been outlined to take them into account during construction work.
- 5.5 It is considered unlikely that both GCNs and reptiles are present on site given the suboptimal terrestrial habitat on site and a lack of suitable surrounding habitat. Reasonable avoidance measures have been recommended with regards to site clearance in order to avoid harming any individuals which may be present on site.
- 5.6 Nesting birds may use the trees and scrub on site. It is expected that all trees and hedgerows will be retained as part of the scheme. However, if any tree or shrub removal is required, this should be undertaken outside the breeding bird season (March-September inclusive) or immediately after a nesting bird check by a suitably qualified ecologist.
- 5.7 The site is not considered to be constrained by other protected species such as dormice, otters and water voles. Therefore, no further surveys are required for these species.
- 5.8 Recommendations for enhancements have been made within this report, aimed at improving the ecological value of the site post-development.

6.0 References

Bat Conservation Trust (2016) *Bat Surveys – Good Practice Guidelines*. Bat Conservation Trust, London.

CIEEM (2016) *Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater and Coastal, 2nd Edition*. Chartered Institute of Ecology and Environmental Management, Winchester.

Jehle, R. (2000) The terrestrial summer habitat of radio-tracked great crested newts (*Triturus cristatus*) and marbled newts (*T. marmoratus*). *Herpetological Journal*, 10(4), 13-142.

Jehle, R. & Arntzen, J.W. (2000) Post-breeding migrations of newts (*Triturus cristatus* and *T. marmoratus*) with contrasting ecological requirements. *Journal of Zoology*, 251(3), 297-306.

Joint Nature Conservation Committee (2010) *Handbook for Phase 1 habitat survey – a technique for environmental audit*. JNCC, Peterborough.

Mitchell-Jones, A.J. (2004) *Bat Mitigation Guidelines*. English Nature, Peterborough.

Neal, E. & Cheeseman, C. (1996) *Badgers*. T & A D Poyser Ltd. London.

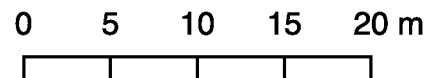
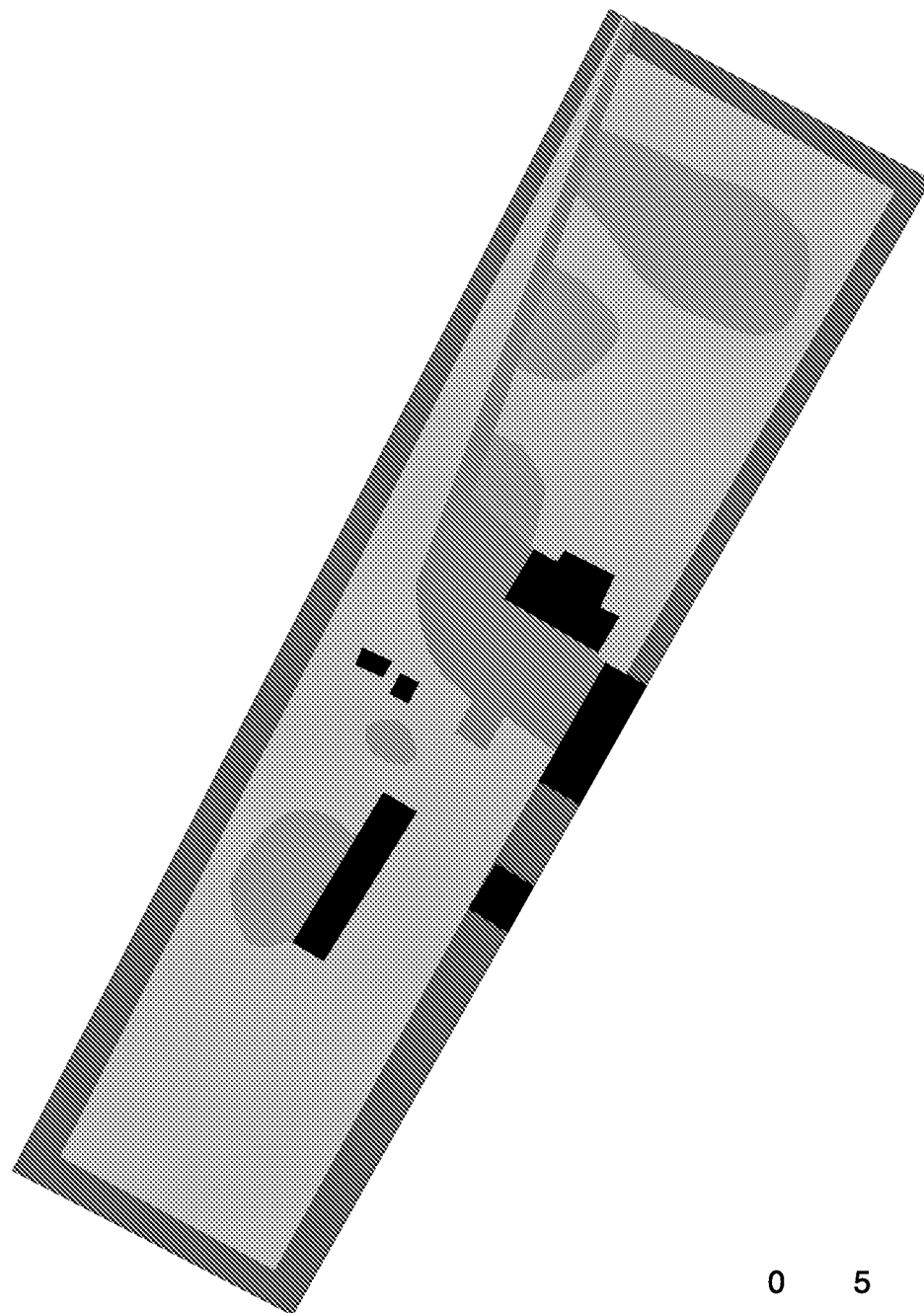
Wilson, G.J., Harris, S. & McLaren, G. (1997) *Changes in British badger population, 1988-1997*. People's Trust for Endangered Species, London.

Internet resources:

Google Maps: www.google.co.uk/maps

Magic Interactive Map: www.magic.gov.uk

Appendix 1: Phase 1 Habitat Map



Legend

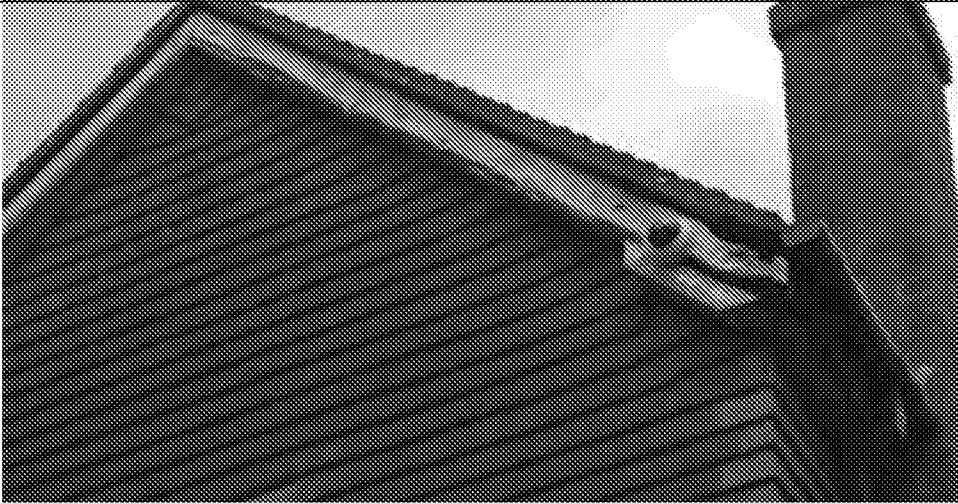
-  Semi-improved grassland
-  Tree lines
-  Trees and shrubs
-  Buildings
-  Hardstanding
-  RLB

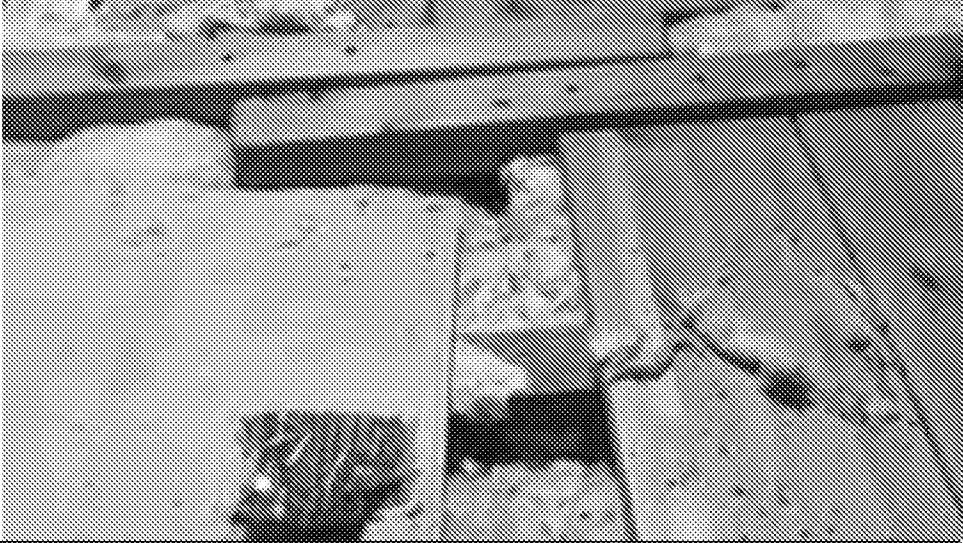
Site: Bexstone House
Client: Christine Hewitt
Survey Date: 23.04.2018
Surveyors: A. Tamblyn, N. Kay
Drawing Title: Habitat Map

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Appendix 2: Photos

Photograph 1: Back of Bexstone House	
Photograph 2: Broken part of soffit boarding at back of house	
Photograph 3: Front of Bexstone House with intact soffit boarding	

Photograph 4: Hanging tiles flush at the front of the house	
Photograph 5: Mouse droppings in void of Bexstone House	
Photograph 6: One end of the void in Bexstone House used for storage	

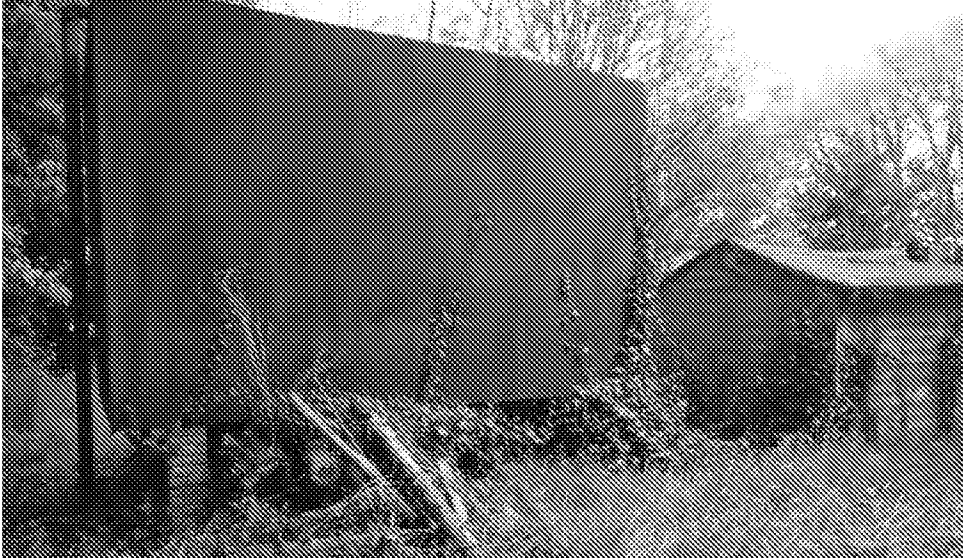
Photograph 7:
Well-sealed
lining of roof
void



Photograph 8:
Another end
of the void
with no
evidence of
bats



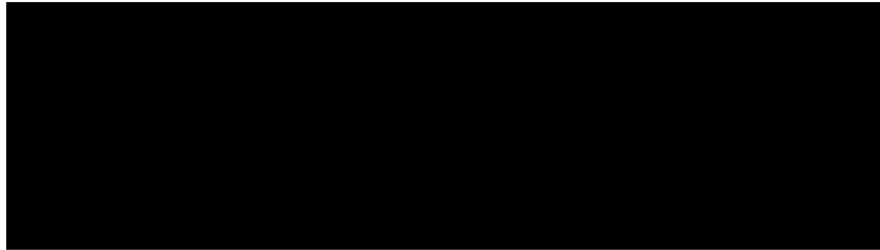
Photograph 9: Outbuilding next to house	 A black and white photograph showing a small outbuilding with a corrugated metal roof and walls, partially obscured by dense foliage and trees. The building is situated next to a larger house, which is partially visible on the left.
Photograph 10: Wooden cladding intact on northern aspect	 A black and white photograph showing the northern aspect of a building. The building features a curved roofline and a section of the wall with wooden cladding. The cladding appears intact and well-maintained. The background shows bare trees, suggesting a winter or early spring setting.
Photograph 11: Holes in cladding of outbuilding on southern aspect	 A black and white photograph showing the southern aspect of an outbuilding. The building has a corrugated metal roof and walls. There are visible holes and damage in the cladding, particularly on the lower part of the wall. The background shows trees and foliage.

Photograph 12: Disused glasshouse in back garden	
Photograph 13: Shed and old water tank and shed in back garden	
Photograph 14: View of back garden from southern boundary	

Photograph 15: Western tree line in back garden	 A black and white photograph showing a dense line of trees in the background, with a grassy field in the foreground.
Photograph 16: Southern tree line of back garden	 A black and white photograph showing a dense line of trees in the background, with a grassy field in the foreground.
Photograph 17: Eastern tree line of back garden	 A black and white photograph showing a dense line of trees in the background, with a grassy field in the foreground.

Photograph 18: Driveway on to site	
Photograph 19: Northern end of front garden	
Photograph 20: Southern end of front garden	

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