



**Birchenwood, Brindsey Lane, Staunton**

**Preliminary Ecological Appraisal**

**On behalf of Michael Bryant**

**Project Ref: BB2023002Av1**

---

**Wild Service Office**

Conservation Centre

Robinswood Hill Country Park

Reservoir Road

Gloucester

GL4 6SX

**Tel** 01452 383 333

**Email** [info@wildservice.net](mailto:info@wildservice.net)

---

	<b>Name</b>	<b>Date</b>
Prepared by	Becca Brown, Senior Ecologist	10/03/2023
Reviewed/checked by	Gemma Waters, Associate Ecologist	14/03/2023

---

## Contents

---

<b>1</b>	<b>Introduction.....</b>	<b>1</b>
<b>2</b>	<b>Methods .....</b>	<b>4</b>
<b>3</b>	<b>Results.....</b>	<b>8</b>
<b>4</b>	<b>Discussion.....</b>	<b>23</b>
<b>5</b>	<b>References.....</b>	<b>30</b>
	<b>Appendix 1: Policy and Legal Considerations.....</b>	<b>33</b>
	<b>Appendix 2: Photographs.....</b>	<b>34</b>
	<b>Appendix 3: Proposed Development.....</b>	<b>38</b>
	<b>Appendix 4: Ecological Enhancements .....</b>	<b>39</b>
	<b>Appendix 5: Ecological Experience .....</b>	<b>50</b>

This report has been produced by Wild Service within the terms of the contract with the client and taking account of the resources devoted to it by agreement with the client.

We disclaim any responsibility to the client and others in respect of any matters outside the scope of the above.

This report is confidential to the client and we accept no responsibility of whatsoever nature to third parties to whom this report, or any part thereof, is made known. Any such party relies on the report at their own risk.

# 1 Introduction

---

## 1.1 Scope

- 1.1.1. Wild Service was commissioned by Michael Bryant to undertake a Preliminary Ecological Appraisal (PEA) at Birchenwood, Brindsey Lane, Staunton GL16 8PE (hereafter referred to as the 'Site'). The survey was requested to inform plans to renovate and erect an extension onto the existing house.
- 1.1.2. The PEA comprised a Phase 1 habitat survey, Preliminary Roost Assessment, protected species survey assessment and desk study.
- 1.1.3. This report includes a description of methods used to identify habitats, results and recommendations for mitigation.

## 1.2 Site Description

- 1.2.1 The Site is located to the south of Staunton, within an existing residential plot surrounded by woodland and farmland.
- 1.2.2 The Site contained buildings, hardstanding consisting of a driveway, boundary hedgerow, scattered trees, orchard and amenity grassland. The proposals extend across the existing hardstanding footprint of the Site only.
- 1.2.3 The surrounding landscape contained predominantly woodland, parkland and pastoral fields.
- 1.2.4 A Site Plan is provided in Figure 1 indicating the Site boundary and the area of proposed development.
- 1.2.5 The central Ordnance Survey grid reference for the Site is SO 54219 11702.

## 1.3 Legislation

- 1.3.1 This report has been prepared in accordance with relevant legislation and policy. Further detail is provided in Appendix 1, however, the following primary documents are of relevance:

- The Wildlife and Countryside Act 1981 (as amended) (WCA 1981);

- The Countryside and Rights of Way Act 2000 (as amended) (CRoW Act 2000);
- The Natural Environment and Rural Communities Act 2006 (NERC Act 2006);
- The Protection of Badgers Act 1992 (PBA 1992);
- The Conservation of Habitats and Species Regulations 2017 (as amended) (CHS Regs 2017); and
- The Environment Act 2021, which contains provisions for the protection and improvement of the environment, including introducing biodiversity net gain (BNG).

1.3.2 No part of this report should be considered as legal advice and when dealing with individual cases, the client is advised to consult the full texts of the relevant legislation and obtain further legal advice.



**Figure 1. Site Plan including Site boundary, proposed development boundary and location of LWS.**

## 2 Methods

---

### 2.1 Desk Study

2.1.1 The objectives of the desk study are to review the existing available information in order to identify the following:

- Statutory and non-statutory nature conservation sites within 1km of the Site (including an extended 5km search of RAMSAR sites, Special Areas of Conservation (SACs) and Special Protection Areas (SPAs));
- Records of protected and rare/notable species within 1km of the Site; and
- Records of bats within 2km of the Site.

2.1.2 Ecological data were provided by Gloucestershire Environmental Records Centre (GCER) and sourced from the Multi-Agency Geographic Information for the Countryside (MAGIC) website (2023).

### 2.2 Phase 1 Habitat and Protected Species Survey

2.2.1 Becca Brown, Senior Ecologist of Wild Service undertook the appraisal on 6<sup>th</sup> February 2023. The weather was dry and sunny (approx. 9°C).

2.2.2 The building was evaluated for bat roosting potential both internally and externally by Becca Brown, under Natural England Class Level 1 bat Licence: 2020-45262-CLS-CLS. The survey was undertaken in accordance with best practice guidelines (based on Collins, 2016).

2.2.3 The buildings' exterior was observed from ground level using a high-powered torch and binoculars paying attention to potential roosting and access points for bats. Internal areas were also accessed. Areas of particular suitability include crevices in stonework, gaps beneath roof tiles, gaps above lintels and any dark spaces. Any suitable areas were searched thoroughly for evidence of use by bats. Signs of bats include live animals, corpses, droppings, urine staining, feeding remains (e.g. moth and butterfly wings) and scratches.

2.2.4 The criteria used to categorise the bat roost potential (BRP) of buildings and trees are summarised in Table 1 (based on Collins, 2016).

2.2.5 The methods used for the Phase 1 habitat and protected species surveys are outlined in Table 2.

**Table 1. Bat Roost Potential**

Category	Description
Known or confirmed bat roost	<p>Bats or evidence of bats recorded, both of recent and/or historic activity.</p> <p><b>Works affecting a roost are licensable. Further survey effort (e.g. dusk emergence/dawn re-entry survey(s) in accordance with best practice) is required to determine the bat species present, nature of roost and level of use before mitigation can be determined. Seasonal constraints may apply.</b></p>
High to moderate BRP Buildings/trees with features capable of supporting a bat roost.	<p>Features include holes, cracks or crevices that extend or appear to extend back to cavities suitable for bats. In trees, examples include rot holes, woodpecker holes, splits and flaking or raised bark which could provide roosting opportunities. Any ivy cover is sufficiently well-established and matted so as to create potential crevices beneath. In buildings, features such as gaps beneath ridge and roof tiles, gaps beneath fascia and barge boards and access points into internal loft voids or cellars are all features of roosting potential for bats.</p> <p><b>Further survey effort is required to determine whether or not bats are present and if so, the bat species present, nature of roost and level of use. Appropriate mitigation and potentially licensing requirements may then be determined. Seasonal constraints may apply.</b></p>
Low BRP	<p>Buildings: The building may exhibit features that would have some limited bat roosting opportunities. <b>A further survey for emerging or re-entering bats is required to help confirm the building's low suitability, or to identify any roosting bats present.</b></p> <p>Trees: From the ground, the tree appears to have features (e.g. holes, cavities or cracks) that may extend back into a cavity. However, owing to the characteristics of the feature, they are deemed to be sub-optimal for roosting bats. Alternatively, if no features are visible but owing to the size and age and structure, hidden features, sub-optimal for roosting bats, may occur that only an elevated inspection may reveal.</p> <p><b>For trees, no further survey is required. Works may proceed using reasonable precautions (e.g. controlled working methods, usually the soft-felling of a tree under supervision of a bat worker. Seasonal constraints may apply).</b></p>

Category	Description
Negligible	An inspected building or tree that is considered not to have potential for roosting bats. <b>No further survey or mitigation required.</b>

### 2.3 Limitations and Constraints

- 2.3.1 While every attempt has been made to collect accurate baseline data, all ecological surveys represent a 'snapshot' of activity. Ecological features are dynamic and often transient, and it is not possible to confirm the absence of a species through survey. It may be necessary to update the ecological surveys if sufficient time elapses since the surveys and data collection presented in this report were carried out.
- 2.3.2 The survey was undertaken in February and therefore outside the optimal season for assessing habitats. However, given the habitats present on Site and the current management practices, it is considered unlikely that the Site would hold significant botanical value and therefore this is not seen as a significant constraint.
- 2.3.3 A small section of the western 2km buffer fell outside of the GCER border, therefore the results in this area not been included within the report. As this search area only extends to bats and a small area not covered by the GCER data search it is not considered a major constraint within the assessment.



**Table 2. Phase 1 Habitat and Protected Species Survey Methods**

<b>Phase 1 habitat survey</b>	The aim of the Phase 1 survey is to provide a description of the habitats on a particular site and is made in accordance with the JNCC Phase 1 Habitat Survey methodology (JNCC, 2010). The survey includes a detailed assessment of the land within the development boundary, including a description and mapping of all key features and habitat types. The survey has been carried out to identify the range of habitats within the site and the predominant and notable species of flora. Where necessary, the condition of habitat has been described. The appraisal also aims to identify invasive plants listed on Schedule 9 of the Wildlife & Countryside Act that could have implications for works on site. Where appropriate, maps are provided in other formats, such as annotated aerial photographs/site plans.
<b>Badgers</b>	The Site is assessed for suitable habitats that may support badgers <i>Meles meles</i> . Where relevant habitat occurs, evidence of badgers including setts, latrines, tracks, snuffle holes, padding or guard hairs is recorded.
<b>Bats</b>	The Site is assessed for suitable habitats, generally buildings and trees, that may support roosting bats. For example, buildings are assessed for holes in soffits, missing tiles and gaps in the masonry whilst trees are assessed for features such as cracks, holes, flaky bark and established ivy cover. Where possible the interior of buildings are also inspected for suitable roosting features and any evidence of bats in the form of bats, droppings, urine staining and feeding remains are noted. Potential roosting features are classed as negligible, low, moderate, or high potential in (Collins, 2016). The suitability of the habitats for foraging bats is also assessed.
<b>Birds</b>	The Site is assessed for suitable habitats that may support birds in terms of feeding, nesting and roosting. Where relevant habitat occurs, evidence identifying the presence of birds including nests, droppings, pellets and feathers is recorded.
<b>Dormice</b>	The Site is assessed for suitable habitats that may support dormice <i>Muscardinus avellanarius</i> including woodland and hedgerows. Where relevant habitat occurs evidence of dormice including nests and gnawed nuts is recorded.
<b>Great crested newts</b>	During the site visit the potential of the site to support great crested newts <i>Triturus cristatus</i> is assessed; this includes looking for potential breeding sites such as ponds, disused swimming pools and other water-bodies. The appraisal also focuses on the potential for this species to find refuge in places such as log piles, rubble and compost heaps. Where still water-bodies occur a Habitat Suitability Index (HSI) is calculated. This is a standard appraisal method developed specifically to evaluate the habitat suitability for great crested newts (Oldham <i>et al.</i> 2000). A series of factors must be considered. Each factor is assessed along suitability guidelines and allocated a value of between 0.1 (highly unsuitable) to 1.0 (highly suitable). The geometric mean of these values provides an overall suitability value for the site. Although this is no substitute for a dedicated survey the suitability value informs the decision on whether to undertake a dedicated survey.
<b>Otters</b>	The area under appraisal is searched for suitable habitat along water-bodies, recording where appropriate, evidence pertaining to the presence of otters <i>Lutra lutra</i> in the form of holts, spraints, anal jelly, tracks and feeding remains.
<b>Reptiles</b>	The site is assessed for suitable habitats that may support reptiles including slow-worms <i>Anguis fragilis</i> , common lizards <i>Zootoca vivipara</i> grass snakes <i>Natrix natrix</i> and adder <i>Vipera berus</i> . Where relevant habitat occurs, evidence identifying the presence of reptiles, particularly tracks and sloughed skin is recorded.
<b>Water voles</b>	The area under appraisal is searched for suitable habitat along water-bodies, recording where appropriate, evidence pertaining to the presence of water voles <i>Arvicola amphibius</i> in the form of burrows, latrines, runs, footprints and distinctive “feeding lawns”.
<b>White-clawed crayfish</b>	The area under appraisal is searched for suitable habitats that may support white-clawed crayfish <i>Austropotamobius pallipes</i> . This typically includes freshwater streams and rivers but may also include still water-bodies.

## 3 Results

---

### 3.1 Desk Study

3.1.1. There are two statutory nature conservation sites within 1km of the Site. These are: Swanpool Wood and Furnace Grove Special Site of Scientific Interest (SSSI), and Wye Valley Woodlands Special Area of Conservation (SAC), both of which are located 916m to the south. Swanpool Wood and Furnace Grove SSSI is a block of ancient broad-leaved woodland on Carboniferous limestone shales, and Wye Valley Woodlands SAC is a broad-leaved deciduous woodland with roosts of lesser horseshoe *Rhinolophus hipposideros* bats.

3.1.2. There are two non-statutory nature conservation sites within 1km of the Site, both of which are Local Wildlife Sites (LWS). These are:

- Staunton Woods Meend LWS (adjacent to the Site): semi-natural grassland larger than 0.5ha.
- Staunton Woods LWS (adjacent to the Site): ancient semi-natural broad-leaved woodland site larger than 2ha with plant and invertebrate interest.

3.1.3. There are two additional Special Areas of Conservation (SAC) within 5km of the Site. These are:

- Wye Valley & Forest of Dean Bat Sites SAC (4.4km away): broad-leaved deciduous woodland supporting lesser and greater horseshoe bats.
- Wye Valley Woodlands SAC (2.8km away): broad-leaved deciduous woodland supporting lesser horseshoe bats.
- River Wye SAC (1.7km away): watercourse with flora and fauna interest.

3.1.4. There are no RAMSAR sites within 5km of the Site.

3.1.5. The biological data search yielded records of several protected and notable species within 1km of the Site. None are specific to the Site. The data are summarised in Table 4.

### 3.2 Phase 1 Habitat and Protected Species Survey

3.2.1 The results of the Phase 1 habitat and protected species survey assessment are outlined in Tables 3, 4 & 5. Reference should be made to the site maps presented in Figure 1 and Figure 2, and photographs in Appendix 2.

### 3.2.2 Preliminary Roost Assessment

3.2.3 Results of the Preliminary Roost Assessment (PRA) are provided in Table 5 and summarised in Table 4. Reference should be made to the Phase 1 habitat plan in Figure 2 and photographs in Appendix 2.

### 3.2.4 Incidental Results

3.2.5 Within the orchard area of the site, bird feeders had been placed on the trees. During the site visit the following species of bird were noted; great tit *Parus major*, blue tit *Cyanistes caeruleus*, coal tit *Periparus ater*, robin *Erithacus rubecula*, dunnock *Prunella modularis*, chaffinch *Fringilla coelebs* and nuthatch *Sitta europaea*.

3.2.6 Deer droppings were also noted within the amenity grassland.

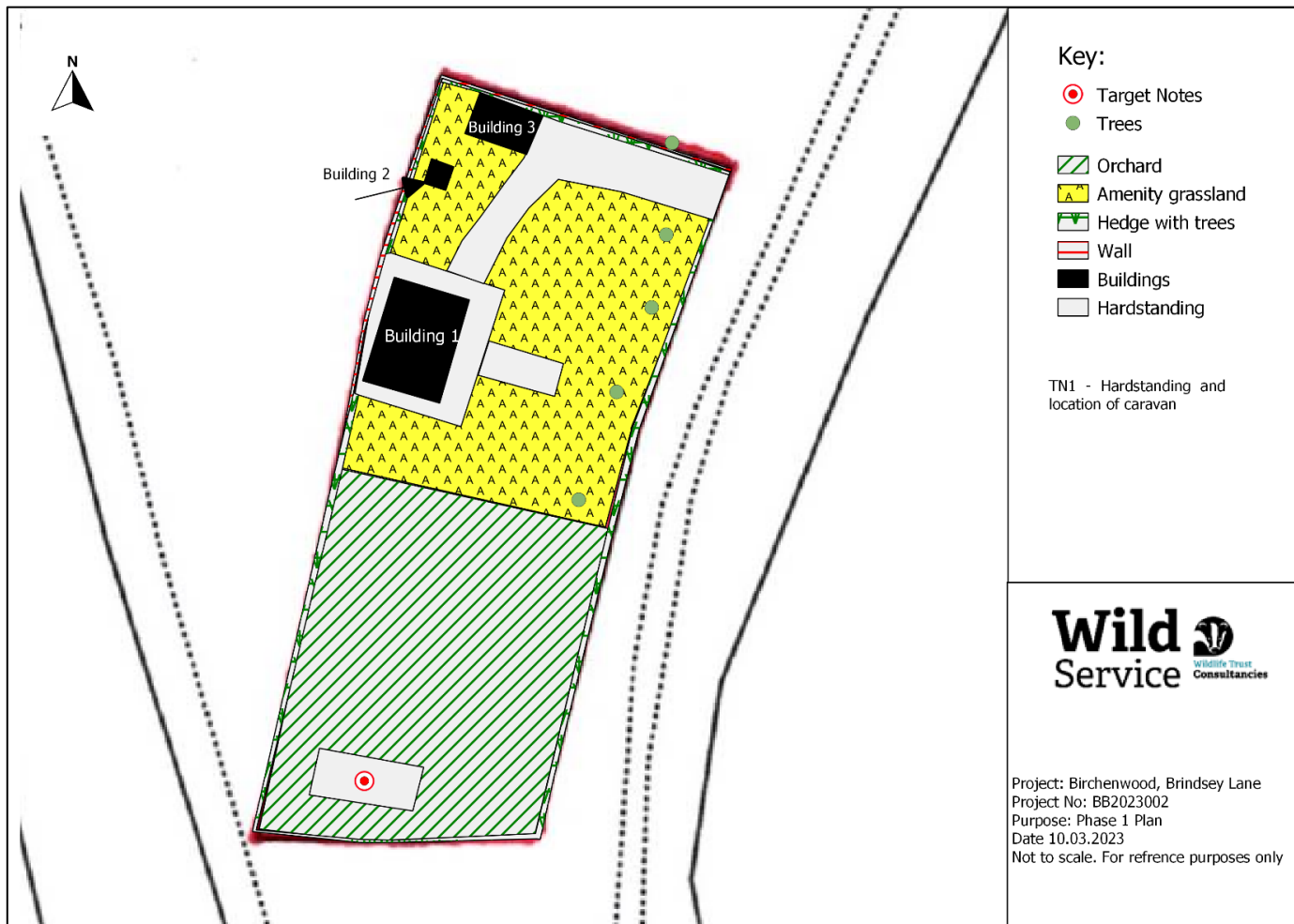


Figure 2: Phase 1 Habitat Plan of the Site

**Table 3. Phase 1 Habitat Survey Results and Recommendations**

Habitat/Feature	Description	NERC <sup>1</sup> habitat (Y/N)	Evaluation and potential impact	Recommendations Avoidance / mitigation / enhancement measures
<b>Buildings and hardstanding</b>	<p>The Site comprised a main residential dwelling Building 1, a small brick shed Building 2 and a garage Building 3. Hardstanding comprised the driveway and pathways around the residential dwelling.</p> <p>The residential dwelling was a two-story building constructed from stone and brick with slate tiles on the roof. The residential dwelling has been completely gutted leaving only the shell of the house. A small brick shed was present to the north of the site adjacent to the residential dwelling. The brick shed has a corrugated metal roof with ivy growing within and over it. The garage is constructed from breeze blocks with corrugated metal roofing and is covered in vegetation.</p> <p>A small patch of hardstanding with a caravan was also noted in the south of the site.</p>	N	The building and hardstanding are of negligible ecological value. The building's value with respect to bats and birds is discussed below.	<p>Plans for the residential building include complete internal renovation and a two-story extension to the northern and western elevations of the building. The small brick shed and garage are being retained.</p> <p>No specific mitigation regarding the building and hardstanding is required however mitigation measures for species potentially associated with the buildings are discussed below.</p>
<b>Amenity grassland</b>	A garden space including amenity grassland covers a large proportion of the site. The grassland is managed to a short sward. Species present include perennial rye <i>Lolium perenne</i> and cocksfoot <i>Dactylis glomerata</i> . Wetter and	N	None, the proposals are limited to the footprint of the existing buildings and hardstanding.	The amenity grassland is being retained. However, temporary minor impacts may occur during the construction period to store building materials. Therefore, no specific mitigation regarding the amenity grassland is required however precautionary

<sup>1</sup> Habitats of 'Principal Importance' under Section 41 of the NERC Act 2006.

Habitat/Feature	Description	NERC <sup>1</sup> habitat (Y/N)	Evaluation and potential impact	Recommendations Avoidance / mitigation / enhancement measures
	shaded areas of the amenity grassland were dominated by moss species and scattered bracken <i>Pteridium aquilinum</i> .			mitigation measures for species potentially associated with the amenity garden are discussed below.
<b>Orchard</b>	A small orchard is present to the south of the site separated from the amenity grassland and private amenity space by a small wire fence. The orchard comprises fruit trees <i>Malus/Prunus sp.</i> A large cherry laurel <i>Prunus laurocerasus</i> bush is also present.	Y	None, the proposals are limited to the footprint of the existing buildings and hardstanding.	The orchard is being retained. However, it is recommended that no construction related activities including materials storage takes place within the orchard. Temporary fencing e.g. Heras fencing could be erected, taking into account root protection zones of the trees with clear signage attached to ensure no construction-related activities are to take place beyond the fence line.
<b>Hedgerow</b>	Native defunct hedgerow is present around the boundary of the site. Species include oak <i>Quercus sp.</i> , holly <i>Ilex aquifolium</i> , hazel <i>Corylus avellana</i> and beech <i>Fagus sylvatica</i> . A number of felled trees are present along the norther boundary and a single mature conifer tree is present in the northern boundary hedgerow.	Y	Moderate ecological value.	The hedgerow is being retained and the proposals are limited to the footprint of the existing buildings and hardstanding.  No specific mitigation is required however opportunities to enhance the hedgerow by infill planting of native species of local provenance is recommended and would contribute to a net gain in biodiversity.
<b>Scattered trees</b>	There are several scattered trees within the site located in the amenity grassland area. Species were predominantly young/semi mature oak trees.	N	Moderate ecological value.	The scattered trees are being retained and the proposals are limited to the footprint of the existing buildings and hardstanding.

Table 4. Protected Species Survey Results and Recommendations

Species	Habitats/features	Evidence	Data search	Likelihood of presence	Potential impact	Recommendations Further survey required? (Yes/No) / Avoidance / mitigation / enhancement measures
BADGERS	The site contains amenity grassland and an orchard which could provide suitable foraging habitat for badger. There was limited opportunity for sett building due to the lack of banks.	None.	There is one record of a badger within 1km of the Site, located approximately 800m to the north-east.	Likely to be present within the context of the surrounding landscape.	Badgers are extremely mobile. Impacts are related to construction impacts only if badgers were to commute into the Site.	Badgers are offered full protection under the PBA 1992. <b>No further surveys required.</b>  If “D-shaped” holes are to appear at any time, advice from an ecologist should be sought immediately.  Should any trenches or pits need to be excavated during development, these should be covered at night or fitted with a ramp to enable any animals to escape.
BATS	The buildings onsite were assessed for their suitability to support roosting bats. Further details are provided in Table 5 below.	Approximately 50-60 bat droppings were recorded on the first floor of Building 1 and five bat droppings on the ground floor. There was a mix of fresh and old	There are 33 records of bats within 2km of the Site (within the GCER boundary). Species comprise greater horseshoe, lesser horseshoe,	Roosting bats are discussed in Table 5 below.  Foraging and commuting high likely.	Moderate to high impact to foraging bats using on and off-site habitats if unsuitable artificial lighting is installed.	Bats and their resting places are protected under the WCA 1981 and the CHS Regs 2017. Details outlined in Table 4.  <b>Further surveys required. Three dusk or dawn emergence or re-entry surveys</b>

Species	Habitats/features	Evidence	Data search	Likelihood of presence	Potential impact	Recommendations Further survey required? (Yes/No) / Avoidance / mitigation / enhancement measures
	<p>The habitats within the Site offer suitable foraging potential for bats. Due to the presence of the boundary hedgerows, the orchard and scattered trees. The location would also indicate that there is a lack of light pollution which could provide suitable opportunities for light tolerant and light sensitive species of bat to foraging and commute. The site is also well connected to suitable offsite habitats.</p>	<p>droppings. Furthermore, butterfly wings were also present scattered around the first and second floor of the building.</p>	<p>western barbastelle <i>Barbastella barbastellus</i>, serotine <i>Eptesicus serotinus</i>, myotis species, Leisler's <i>Nyctalus leisleri</i>, noctule <i>Nyctalus noctula</i>, common pipistrelle <i>Pipistrellus pipistrellus</i>, soprano pipistrelle <i>P. Pygmaeus</i> and brown long-eared <i>Plecotus auritus</i>. None of the records are specific to the Site.</p>			<p><b>of the building between May and August/September to characterise the roost are necessary as outlined in the discussion below.</b></p> <p>The Site is located within the Zone of Influence for the Forest of Dean Bat Special Area of Conservation (SAC). The Forest of Dean guidelines identify that the site is located within 3km of a known lesser horseshoe bat maternity roost and within 2-4km of a known greater horseshoe maternity roost. In line with the guidelines the site falls within Zone A and this may result in bat activity transect surveys being requested by the Forest of Dean LPA. Due to the limited nature of the proposed works a pragmatic approach to activity surveys is suggested, with a <b>minimum of three activity transect surveys over the spring and summer and deployment of one static</b></p>



Species	Habitats/features	Evidence	Data search	Likelihood of presence	Potential impact	Recommendations Further survey required? (Yes/No) / Avoidance / mitigation / enhancement measures
						<p><b>detector for five nights on each survey visit.</b> However, this reduced survey effort would need agreement from the FoD.</p> <p>It is recommended that a sensitive lighting strategy is implemented to ensure the proposed development does not use excessive external lighting that could impact commuting and foraging bats within the immediate surrounding landscape.</p>
<b>BIRDS</b>	<p>The buildings provides some opportunities for common species of birds to nest.</p> <p>The hedgerows and trees within the site provide suitable nesting opportunities for nesting and foraging birds</p>	<p>Disused birds' nest was recorded within the northeast corner of Building 1.</p> <p>Birds were seen using bird feeders within the orchard include great tit <i>Parus major</i>, blue tit <i>Cyanistes caeruleus</i>, coal tit <i>Periparus ater</i>, robin</p>	<p>There are 271 records of birds within 1km of the Site. Species include swift <i>Apus apus</i>, house martin <i>Delichon urbicum</i>, greenfinch <i>Chloris chloris</i>, mistle thrush <i>Turdus viscivorus</i>, bullfinch</p>	<p>Opportunities to nest in the building and forage likely.</p>	<p>High if nesting birds are present during the works to the house. Or if nests are present and hedgerows or trees are impacted.</p>	<p>All birds are protected under Section 1 of the WCA 1981. It is therefore generally unlawful to intentionally kill or injure a bird, damage or destroy an occupied nest or take or destroy eggs other than in exceptional prescribed circumstances. Therefore, development operations should take care to avoid the risk of</p>

Species	Habitats/features	Evidence	Data search	Likelihood of presence	Potential impact	Recommendations Further survey required? (Yes/No) / Avoidance / mitigation / enhancement measures
		Erithacus rubecula, dunnock Prunella modularis, chaffinch Fringilla coelebs and nuthatch Sitta europaea.	<i>Pyrrhula pyrrhula</i> and house sparrow <i>Passer domesticus</i> . None of the records are specific to the Site.			harm to birds and their nests, especially during the nesting season (generally considered to be March to August).  <b>No further surveys required unless works are proposed during the nesting bird season.</b>  If works to the house or surrounding vegetation cannot commence outside of the nesting bird season, a pre-works nesting bird inspection should be undertaken by a suitably experienced ecologist to ensure no nests are present. If active nests are found, the nests will left, with an appropriate buffer, until the chicks have fledged.
<b>DORMICE</b>	There are hedgerows on Site but none likely to support dormice due the lack of hedgerow structure and limited species. The site is	None.	There are no records of dormice within 1km of the Site.	Highly unlikely to be present on site but maybe present within the	No impact.	Dormice and their resting places are protected under the WCA 1981 and the CHS Regs 2017. <b>No further surveys required.</b>

Species	Habitats/features	Evidence	Data search	Likelihood of presence	Potential impact	Recommendations Further survey required? (Yes/No) / Avoidance / mitigation / enhancement measures
	well connected to woodland within the surrounding area.			surrounding area.		To our knowledge the hedgerows are being retained, therefore if dormouse are present within the surrounding landscape no impacts to dormice would occur. Enhancement to the hedgerow though infill planting would provide better connectivity and commuting and foraging opportunities for dormice if present.
<b>GREAT CRESTED NEWTS (GCN) / OTHER AMPHIBIANS</b>	There are two ponds within 500m of the Site not separated by dispersal barriers. These are located approx. 170m south and 300m north.	None.	There are no records of great crested newts or other amphibians within 1km of the Site.	Likely absent.	The main impact will be to the buildings and hard standing which is unsuitable for use as terrestrial habitat for great crested newt. The amenity grassland maybe used to store construction materials. Amenity grassland is suboptimal habitat	GCN and their resting/breeding places are protected under the WCA 1981 and CHS Regs 2017. <b>No further surveys required.</b>  It is considered unlikely that GCN would be present on the Site, due to the lack of suitable habitat and the fact that while GCN can be present up to 500m from their breeding ponds, radiotracking studies of GCN have shown that the majority

Species	Habitats/features	Evidence	Data search	Likelihood of presence	Potential impact	Recommendations Further survey required? (Yes/No) / Avoidance / mitigation / enhancement measures
					<p>for great crested newts.</p>	<p>of newts stay within the core habitat of 65m (Jehle 2000) and are therefore more likely to remain around their breeding ponds particularly where there is optimal terrestrial habitat present.</p> <p>It is our understanding that no works are proposed to the garden and surrounding habitats within the red line boundary other than that to the building.</p> <p>As a precautionary measure, all material should be stored on pallets or otherwise separated from the ground in order to eliminate any potential refuge for GCN and other amphibians, or reptiles. Aggregates should also be delivered in bags and stored in this way.</p> <p>Any brash and rubble piles should be dismantled by hand.</p>

Species	Habitats/features	Evidence	Data search	Likelihood of presence	Potential impact	Recommendations Further survey required? (Yes/No) / Avoidance / mitigation / enhancement measures
OTTERS, WATER VOLES & WHITE-CLAWED CRAYFISH	There are no waterbodies within the Site to provide habitat for these species.	None.	There are no records of these species within 1km of the Site.	None.	No impact.	Otters, white-clawed crayfish and water voles, including water vole resting places, are protected under the WCA 1981, and otters and their resting places are also protected under the CHS Regs 2017. <b>No surveys required.</b>
REPTILES	The site contains semi-improved grassland within the orchard and longer amenity grassland next to boundary hedgerows which could provide suitable reptile habitat on site. The site is also surrounded by woodland with connective habitats.	None.	There is one record of slow worm within 1km of the Site, approximately 750m to the north-east.  There are no other records of reptiles within 1km	Common reptiles such as likely present within the surrounding landscape and may pass through the site.	None. Main impacts relate to the building and hardstanding which are unsuitable for reptiles. Minor temporary impacts may occur if the garden is to be used during construction phase.	Reptiles are protected under the WCA 1981.  <b>No further surveys required.</b>  No plans for the amenity garden, boundary hedgerows and semi-improved grassland are proposed. However, the garden maybe used for storage of construction materials therefore as a precautionary measure, all material should be stored on pallets or otherwise separated from the ground in order to eliminate any potential refuge for reptiles /

Species	Habitats/features	Evidence	Data search	Likelihood of presence	Potential impact	Recommendations Further survey required? (Yes/No) / Avoidance / mitigation / enhancement measures
						amphibians. Aggregates should also be delivered in bags and stored in this way.  Any brash and rubble piles should be dismantled by hand.
<b>HEDGEHOGS and OTHER MAMMALS</b>	The boundary hedgerow habitats and semi-improved grassland offer some suitable foraging and commuting habitats.	None.	There are no records of hedgehogs within 1km of the Site.	Possibly present, commuting / foraging within the surrounding landscape.	It is possible that hedgehogs may pass through the Site. Impacts on hedgehogs are not predicted, however caution during the construction phase is recommended.	Hedgehogs are listed as a Species of Principal Importance under the NERC Act 2006. <b>No further surveys required.</b>  The Site workforce should remain alert to the potential for hedgehogs to be present on the Site and proceed with care.

Table 5: Preliminary Roost Assessment Results

Feature	Description
Building 1 (Main House)	<p><i>Exterior</i></p> <p>Building 1 is a two-story former residential dwelling constructed from stone and brick with clay tiles on the roof. An existing extension is present to the west of the building. The building has large gaps between the windows and lintels, soffit board is missing leading to exposed gaps between the walls and roof, gaps are present within the stonework and gaps under tiles are visible. Plans are to restore the existing building and add an extension to the west that wraps around the building to the north and south.</p> <p><i>Interior</i></p> <p>The building has been completely stripped back and gutted to just the shell of the house with high natural light levels in the main internal space. The roof timbers and roofing felt was exposed. Small gaps in the walls are present. Dark crevices were present between wooden timbers and between the tiles and roofing felt. Approximately 50-60 bat droppings were recorded on top of insulation boards stacked up on the second floor of the building. A mix of new and old droppings were present. Approximately five bat droppings were recorded on the ground floor on wooden boards near the staircase along with several butterfly wings scattered throughout. The ground floor is currently exposed bare ground and is damp it is likely that any bat droppings on the floor of the ground floor would disintegrate quickly. Evidence of the bat droppings and feeding remains together with the large flight space could indicate a feeding roosting however the presence of crevices within the building a night roost cannot be ruled out.</p> <p>The droppings collected are various in size and shape and likely indicate that more than one species of bat are using the building. In the absence of DNA results of the bat droppings it cannot be confirmed what species are present. <b>The building is a confirmed roost and further surveys are required to characterise the roost.</b></p> <p>There are a large number of bat records returned from the data search including light sensitive species. The closest records are of lesser horseshoe approximately 500m north and greater horseshoe, lesser horseshoe, barbastelle, serotine, <i>Myotis sp.</i>, Leisler bat, common pipistrelle and brown long-eared bats located approximately 660m north east.</p> <p>Lesser and greater horseshoe bats are likely to be present within the wider landscape. The building could be used as a possible feeding or night roost for these species if access is gained through the eaves or gaps within the walls of the building. The site also provides opportunities for crevice dwelling bats and bats that prefer a flight space prior to leaving the main roost.</p>

	<p>The main impacts are associated with the renovation of Building 1 taking into consideration the likely presence of both crevice and free hanging species could be using the building. <b>The building is a confirmed roost and three dusk emergence/dawn re-entry surveys are required during the active season for bats (May- September with at least two of these survey being undertaken between May And August). Results of the surveys will inform a Natural England Mitigation Licence and suitable mitigation measures.</b></p>
<p><b>Buildings 2 &amp; 3 (out buildings)</b></p>	<p>Building 2 is a small brick shed with corrugated metal roofing sheets. This building is single skinned, very small and dilapidated. Ivy and vegetation is growing through the building. There are no suitable roosting features identified within this building and it is assessed as having negligible potential to support roosting bats. This building is to be retained. No further surveys required for this building.</p> <p>Building 3 is a double garage constructed from breeze blocks and corrugated metal roof sheeting. This is a single skinned building likely to fluctuate in temperature with no potential roosting features identified for bats. Vegetation is also growing through the building. This building is assessed as having negligible potential to support roosting bats. This building is proposed as retained. No further surveys required for this building.</p>
<p><b>Trees</b></p>	<p>The scattered trees and boundary hedgerow trees were assessed for bat roost potential. The majority of trees were young/semi-mature. These trees had no potential roost features such as cracks, crevices of flaky bark, to support roosting bats. Therefore, these trees were assessed as having negligible potential to support roosting bats.</p> <p>The orchard trees were not assessed for bat roost potential as they are being retained and of sufficient distance from the development area that no impacts are likely. However, mitigation including sensitive lighting during the construction phase should be followed.</p>



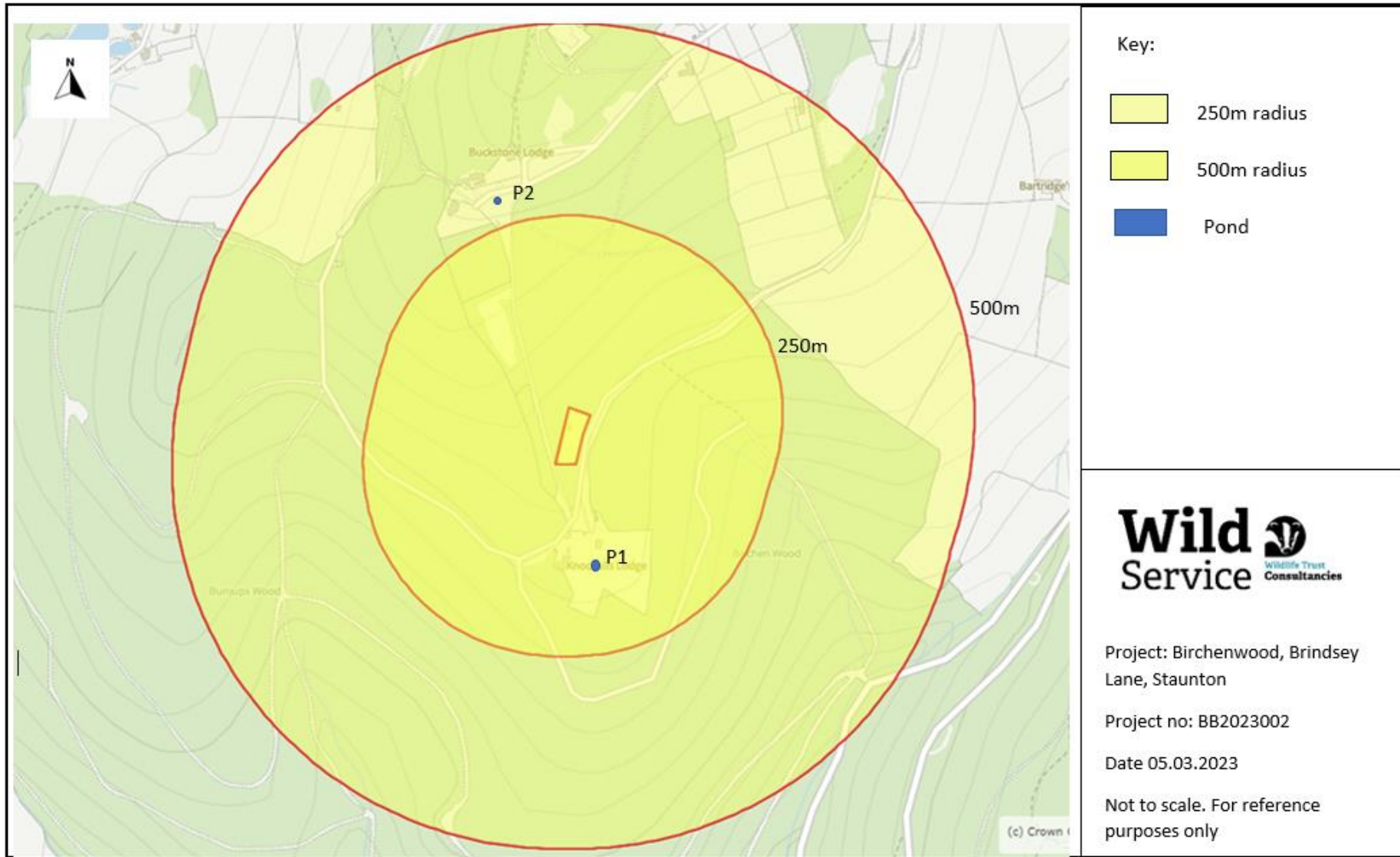


Figure 3. Pond location plan.

## **4 Discussion**

---

### **4.1 Nature Conservation Sites**

4.1.1 Due to the nature and small scale of the proposed development (renovation and extension to residential dwelling) no effect on the ecological value of these designated sites is anticipated.

### **4.2 Habitats**

4.2.1 The habitats that need consideration in relation to this development are mentioned below with detailed enhancement measures.

#### **4.2.2 Hedgerows**

4.2.3 Hedgerows are a Priority Habitat under the NERC Act 2006. It is our understanding that the hedgerows are to be retained. Clearance of individual select trees have already been removed however this hasn't changed the function of the hedgerows. In the event that entire hedgerows are to be removed, or large sections to be removed, it will be necessary to undertake a Hedgerow Regulations survey to determine if the hedgerow is classed as 'important' under the Wildlife and Landscape element of the Hedgerow Regulations 1997. Should any hedgerow removal be undertaken, replacement hedgerow planting of native species of shrubs/trees, ideally of local provenance, is strongly recommended as compensation and to retain a wildlife corridor around the site. Retention and planting of species-rich hedgerows/ infill planting is recommended.

#### **4.2.4 Orchard**

4.2.5 Orchards are a Priority Habitat under the NERC Act 2006. It is our understanding that the orchard is to be retained. Protective fencing such as. Haras fencing should be installed outside the orchard during the construction phase to ensure no construction materials or activities occur in or take place near the orchard. Suitable signage should be attached to the fencing.

#### 4.2.6 **General habitat recommendations**

4.2.7 The ecological value of the Site can be enhanced through planting native species and/or those of value to wildlife, i.e. those producing fruits, seeds, nuts or single-flowering varieties. Leaving patches of unmown grass and tall herb as well as creating compost heaps / log piles creates valuable wildlife habitat, particularly for invertebrates, reptiles, amphibians and small mammals including hedgehogs<sup>2</sup>. If pesticides are required to be used on Site, ideally only pesticides branded as 'wildlife friendly' should be used. Wildlife planting tips and advice can be found here: <https://www.goucestershirewildlifetrust.co.uk/wildlife/wildlife-gardening>. Further information is provided in Appendix 4.

#### 4.3 **Protected Species**

4.3.1 The protected species that need consideration in relation to this development are mentioned below, along with recommended mitigation.

#### 4.4 **Badgers**

4.4.1 Badgers are offered full protection under the PBA 1992. Although no direct evidence of badger presence was found on Site, the habitat within and surrounding the Site could provide suitable foraging and commuting opportunities for badgers.

4.4.2 Should any "D-shaped" holes appear at any time, advice from an ecologist should be sought immediately.

4.4.3 Should any trenches or pits need to be excavated during development, these should either be covered or fitted with a ramp to enable any animals to escape.

#### 4.5 **Bats**

4.5.1 Bats and their resting places are protected under the WCA 1981 and the CHS Regs 2017.

4.5.2 A number of roosting opportunities for bats are present within Building 1, furthermore bat droppings were identified within the ground floor and first floor of

---

<sup>2</sup> The State of Britain's Hedgehogs 2015, publicised at a special UK summit on hedgehogs: since 2000, records of the species have declined by half in rural areas and by a third in urban ones. Hedgehogs are also a species of 'Principal Importance' under Section 41 of the NERC Act 2006 and therefore need to be taken into consideration by a public body when performing any of its functions with a view to conservation.

the building. The open space of the building provides a large flight space for bats. **Building 1 has been confirmed as a roost, therefore, further survey is required.** It will be necessary to undertake a minimum of three dusk emergence or dawn re-entry surveys between May to August/September to characterise the roost (at least two of these surveys should be done between May to August). Results of the surveys will inform an EPS mitigation licence application to Natural England.

4.5.3 Suitable mitigation and enhancement measures for roosting bats will be recommended following results of the further survey work.

4.5.4 The Site lies within 3km of a known lesser horseshoe bat maternity roost and within 2-4km of a known greater horseshoe maternity roost. The Site is surrounded by woodland, grassland and located adjacent to Staunton Woods Meend LWS, Staunton Woods LWS and 916m from Wye Valley Woods SAC. It is considered likely that the Forest of Dean District Council planning authority will expect bat activity surveys to be undertaken in line with Wye Valley and Forest of Dean Bat Special Area of Conservation (SAC) guidelines for sites recognised as being highly sensitive for lesser horseshoe bat (i.e. in Zone A; <https://fdean.gov.uk/media/q1jinfo54/wv-fod-bat-sac-development-management-survey-and-assessment-guidance-vr-july-2021.pdf>). The FoD guidelines are as follows:

- During the bat 'active' season (April – October inclusive), a minimum of 35 days surveying is required. Surveying should be spread throughout the spring/summer/autumn to gain an understanding of how bats use a site throughout the season. A minimum of 10 days of surveying should take place during the spring (April-May), 15 days during the summer (June–August) and 10 days during the autumn (September-October).
- Recent research in the Forest of Dean has shown that bats are frequently active during the winter (November–March inclusive). Winter surveys are therefore generally required in Band A unless otherwise robustly justified with evidence. Automated detectors should be deployed in similar locations as above between November and March for 5 consecutive days in at least 3 of the 5 winter months (3 months x 5 days = 15 days total). Alternatively,

detectors could be deployed for 10 days within two of the winter months (2 months x 10 days = 20 days total).

**4.5.5 Due to the limited nature of the proposed works a pragmatic approach to activity surveys is suggested, with a minimum of three activity transect surveys over the spring and summer and deployment of one static detector for five nights on each survey visit** to obtain an idea of bat usage of the Site. However, this reduced survey effort would need agreement from the FoD Council to ensure that they accept the bat survey report for planning purposes.

4.5.6 It is recommended that any proposed lighting should be designed sensitively to minimise light spill and potential impacts on bats in accordance with best practice. The following recommendations are based on Bats and Lighting in the UK (Stone, 2013):

- All luminaires should lack UV elements when manufactured. Metal halide, fluorescent sources should not be used.
- LED luminaires should be used where possible due to their sharp cut-off, lower intensity, good colour rendition and dimming capability.
- A warm white spectrum (ideally <2700Kelvin or >550nm) should be adopted to reduce blue light component, as redder light is preferable for bats.
- <0.2 lux on horizontal plane good, hedgerow lighting tends to be <1 lux.
- Luminaires should feature peak wavelengths higher than 550nm to avoid the component of light most disturbing to bats.
- Blue/white light should be avoided, or if mercury lamps are installed, these should be fitted with UV filters.
- Internal luminaires can be recessed where installed in proximity to windows to reduce glare and light spill.
- Accessories such as baffles, hoods or louvres can be used to reduce light spill and direct it below horizontal plane.
- The use of specialist bollard or low-level downward directional luminaires to retain darkness above can be considered.
- Column heights should be carefully considered to minimise light spill.

- Reducing the height of light units to keep the light as close to the ground as possible and reduce the volume of illuminated space.
- Only luminaires with an upward light ratio of 0% should be used.
- Luminaires should always be mounted on the horizontal, i.e. no upward tilt. Ideally the angle of the luminaire should be less than 70 degrees to avoid upward light spill.
- Any external security lighting should be set on people-activated motion-sensors and short (1min) timers.

4.5.7 It is recommended to include new hedgerow/ shrub planting with wildlife value to create new foraging/commuting links from existing linear features within the wider landscape.

4.5.8 Examples of enhancement opportunities for bats are outlined in Appendix 4.

#### 4.6 **Birds**

4.6.1 All birds are protected under Section 1 of the WCA 1981. It is therefore generally unlawful to intentionally kill or injure a bird, damage or destroy an occupied nest or take or destroy eggs other than in exceptional prescribed circumstances. Therefore, development operations should take care to avoid the risk of harm to birds and their nests, especially during the nesting season (generally considered to be March to August). There are identified nesting opportunities for birds within the Site including within Building 1 and hedgerows and trees. Therefore, if works to the house or vegetation cannot commence outside of the nesting bird season. A pre-works nesting bird inspection should be undertaken by a suitably qualified ecologist to ensure no nests are present. If active nests are found, the nests will left, with an appropriate buffer, until the chicks have fledged.

4.6.2 Nesting opportunities for house sparrows *Passer domesticus* and swifts *Apus apus* can be provided in the form of nest boxes fitted to the external walls where integral boxes cannot be accommodated. Swift boxes should ideally be installed at a height of 4-5m to ensure usage. House martins *Delichon urbicum* can be provided with nesting provision in the form of house martin cups, which can be fitted on the exterior walls of a building. Barns, carports and open fronted porches or large overhanging eaves are suitable locations for swallow cups to provide nesting

features for swallows *Hirundo rustica*. All these species have undergone a decline in recent years. These nesting features should be installed under the eaves of a building at minimum heights of 2-2.5m and face in a north to south-east direction. In addition, hole-fronted and open-fronted bird boxes can be installed on medium to large trees at similar heights and directions to attract other species of birds. Examples are provided in Appendix 4.

#### 4.6.3 **Great crested newt (GCN)**

4.6.4 GCN and their resting/breeding places are protected under the WCA 1981 and CHS Regs 2017. There are no records of GCN within a 1km radius of the Site, there is a lack of a cohesive pond network within the wider landscape and suitable habitats within the site are being retained and are unlikely to be disturbed. It is considered that while GCN can be present up to 500m from their breeding ponds, radiotracking studies of GCN have shown that the majority of newts stay within the core habitat of 65m (Jehle 2000) and are therefore more likely to remain around their breeding ponds.

4.6.5 As a precautionary measure, all material should be stored on pallets or otherwise separated from the ground in order to eliminate any potential refuge for GCN and other amphibians, or reptiles. Aggregates should also be delivered in bags and stored in this way. Any rubble or brash piles should be dismantled by hand.

#### 4.6.6 **Reptiles**

4.6.7 Reptiles are protected under the Wildlife & Countryside Act 1981 (as amended). No plans are proposed to the garden however it is recommended that if the amenity garden is 'tidied up' a precautionary approach to work is recommended including works undertaken during the active season for reptiles (April – September) and dismantling of brash and rubble piles by hand and using hand tools for vegetation works, to enable reptiles (if present) to move out of the way on their own accord. As an additional precautionary measure, all material should be stored on pallets or otherwise separated from the ground in order to eliminate any potential refuge for reptiles / amphibians. Aggregates should also be delivered in bags and stored in this way.

4.6.8 Construction of one reptile shelter as per the diagram in the Ecological Enhancements Section below will provide useful shelter and enhance the available habitat on site (or within the wider area under the clients control) for reptiles/amphibians.

#### 4.6.9 **Hedgehog**

4.6.10 Hedgehogs are listed as a Priority Species under the NERC Act 2006. Suitable habitat is present within the orchard and hedgerows and these habitats are being retained and protected. Hedgehogs are likely present and the site workforce should remain alert to the potential for hedgehogs to be present on the Site and proceed with care.

4.6.11 Should any trenches or pits need to be excavated during development, these should either be covered or fitted with a ramp at night to enable any animals to escape.

4.6.12 Where close board fencing is to be installed, hedgehog passes within the fence can be incorporated by raising the fence off the ground or by including a 13cmx13cm hole in the fence to allow hedgehog to continue to commute across the site.

#### 4.7 **General Recommendations**

4.7.1 There appear to be no other obvious and immediate issues for this development with regard to any other species protected under the WCA 1981 and the CHS Regs 2017, and no further dedicated surveys for any other species are recommended. However, in the unlikely event that any protected species listed in Section 2 are found on the Site during the works then all works must cease immediately and the advice of a suitably qualified ecologist must be sought.



## 5 References

---

Bat Conservation Trust. 2018. Bats and Artificial Lighting in the UK. Bats and the Built Environment Series. London.

Bat Conservation Trust. 2012. Bats and Buildings. Bats and the Built Environment Series. London.

Bright, P., Morris, P. & Mitchell-Jones, T. 2006. The Dormouse Conservation Handbook (2nd Ed.) English Nature.

British Trust for Ornithology website. <http://www.bto.org/about-birds/birdfacts>

Chanin, P. 2003. Monitoring the Otter *Lutra lutra*. Conserving Natura 2000 Rivers Monitoring Series No. 10, English Nature, Peterborough.

Chanin, P. & Woods, M. 2003. Surveying Dormice using Nest Tubes: Results and Experiences from the South West Dormouse Project. English Nature Research Report 524 . Peterborough: English Nature 34pp

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

Dean, M., Strachan, R., Gow, D. and Andrews, R. 2016. The Water Vole Mitigation Handbook (Mammal Society Mitigation Series). Eds. Fiona Matthews and Paul Chanin. Mammal Society, London.

DEFRA (2007). Hedgerow Survey Handbook. A Standard Procedure for Local Surveys in the UK. Defra, London.

Froglife. 1999. Reptile Survey: An Introduction to Planning, Conducting and Interpreting Surveys for Snake and Lizard Conservation. Froglife Advice Sheet 10. Froglife, Halesworth.

Gent, A. & Gibson, S. 1998. Herpetofauna Workers' Manual. JNCC, Peterborough.

Hayes, C & Whitehurst, J. 2001. Great Crested Newt Mitigation Guidelines. English Nature, Peterborough.

Jehle, R. 2000. The terrestrial summer habitat of radio-tracked great crested newts (*Triturus cristatus*) and marbled newts (*Triturus marmoratus*). The Herpetological Journal Vol. 10, No. 4. British Herpetological Society, London.

Joint Nature Conservation Committee (JNCC). 2010. Handbook for Phase 1 Habitat Survey: A Technique for Environmental Audit. Peterborough: JNCC.

Matthews, F. & Chanin, P. (ed). 2016. The Water Vole Mitigation Handbook: Mammal Society Mitigation Guidance Series. Mammal Society, London.

Multi-Agency Geographical Information for the Countryside website <http://magic.defra.gov.uk>. Accessed January 2023.

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

Mitchell-Jones, A.J. and McLeish, A.P. 1999 (revised 2004). The Bat Workers Manual. Joint Nature Conservation Committee, Peterborough.

Naura, M. and Robinson, M. 1998. Principles of using River Habitat Survey to Predict Aquatic Species: An Example Applied to the White-clawed Crayfish *Austropotamobius pallipes*. Aquatic Conservation 8, 515–527.

Neal, E. and Cheeseman, C. 1996. Badgers. Poyser Natural History, London.

Oldham, R.S. *et al* 2000. Evaluating the Suitability of Habitat for the Great Crested Newt (*Triturus cristatus*): The Herpetological Journal Vol. 10, No. 4. British Herpetological Society, London.

Roper, T. 2010. *Badger*. Collins, London.

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

Scottish Natural Heritage. 2003. *Best Practice Guidance - Badger Surveys. Inverness Badger Survey 2003*. Commissioned Report No. 09.

Smith, G.R.T., Learner, M.A., Slater, F.M. and Foster, J. 1996. Habitat Features Important for the Conservation of the Native Crayfish *Austropotamobius pallipes* in Britain. Biological Conservation 75, 239–246.

Stanbury, A., Eaton, M., Aebischer, N., Balmer, D., Brown, A., Douse, A., Lindley, P., McCulloch, N., Noble, D. and Win, I. 2021. The status of our bird populations: the fifth Birds of

Conservation Concern in the United Kingdom, Channel Islands and Isle of Man and second IUCN Red List assessment of extinction risk for Great Britain. *British Birds*: 114; pp. 723-747.

Stone, E.L. 2013. *Bats and Lighting: Overview of Current Evidence and Mitigation Guidance*. University of Bristol.

Strachan, R, Moorhouse, T. & Gelling, M. 2011. *Water Vole Conservation Handbook* (Third Edition). Wildlife Conservation Research Unit, Oxford.

UK Biodiversity Framework <http://jncc.defra.gov.uk/page-6189>

## Appendix 1: Policy and Legal Considerations

---

Statutory nature conservation sites and protected species are a ‘material consideration’ in the UK planning process (DCLG, March 2012). Where planning permission is not required, for example on proposals for external repair to structures, consideration of protected species remains necessary given their protection under UK law.

The **Conservation of Habitats and Species Regulations 2017** transpose the requirements of European Directives such as the Habitats Directive and Birds Directive<sup>3</sup> into UK law, enabling the designation of protected sites and species at a European level.

The **Wildlife and Countryside Act 1981** (as amended) forms the key piece of UK legislation relating to the protection of habitats and species. The **Countryside and Rights of Way Act 2000** provides additional support to the 1981 Act, for example, increasing the protection of certain reptile species. Specific protection for badger is provided by the **Protection of Badger Act 1992**. The **Wild Mammals (Protection) Act 1996** sets out the welfare framework with respect to wild mammals prohibiting a range of activities which may cause unnecessary suffering.

The Government has a duty to ensure that parties take reasonable practicable steps to further the conservation of habitats and species of Principal Importance for Conservation in England listed under Section 41 of the **Natural Environment and Rural Communities Bill 2006**<sup>4</sup>. In addition, the 2006 Act places a Biodiversity Duty on public authorities who ‘must, in exercising [their] functions, have regard, so far as is consistent with the proper exercise of those functions, to the purpose of conserving biodiversity’ (Section 40 (1)). Criteria for selection of priority habitats and species include, for example, international threat (such that species may be protected in their strong holds) and marked national decline.

The **National Planning Policy Framework 2021**<sup>5</sup> states that the planning system should minimise impacts on biodiversity, providing net gains in biodiversity, wherever possible. Section 15 states that when determining planning applications, local planning authorities should apply the following principles:

- a) if significant harm to biodiversity resulting from a development cannot be avoided (through locating on an alternative site with less harmful impacts), adequately mitigated, or, as a last resort, compensated for, then planning permission should be refused;
- b) development on land within or outside a Site of Special Scientific Interest, and which is likely to have an adverse effect on it (either individually or in combination with other developments), should not normally be permitted. The only exception is where the benefits of the development in the location proposed clearly outweigh both its likely impact on the features of the site that make it of special scientific interest, and any broader impacts on the national network of Sites of Special Scientific Interest;
- c) development resulting in the loss or deterioration of irreplaceable habitats (such as ancient woodland and ancient or veteran trees) should be refused, unless there are wholly exceptional reasons<sup>6</sup> and a suitable compensation strategy exists; and
- d) development whose primary objective is to conserve or enhance biodiversity should be supported; while opportunities to improve biodiversity in and around developments should be integrated as part of their design, especially where this can secure measurable net gains for biodiversity or enhance public access to nature where this is appropriate.

---

<sup>3</sup>Council Directive 92/43/EEC on the Conservation of Natural Habitats and of Wild Fauna and Flora, and Council Directive 79/409/EEC on the Conservation of Wild Birds, respectively.



<sup>4</sup>The **NERC Act** refers to “*species of principle importance for the conservation of biodiversity*”, which translates to BAP habitats and species occurring in England.

<sup>5</sup> [https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/1005759/NPPF\\_July\\_2021.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1005759/NPPF_July_2021.pdf)

<sup>6</sup> For example, infrastructure projects (including nationally significant infrastructure projects, orders under the Transport and Works Act and hybrid bills), where the public benefit would clearly outweigh the loss or deterioration of habitat.

## Appendix 2: Photographs

---

No	Photo	Description
1		Internal view of the Building 1 showing the exposed roof timbers and roof felt
2		View of gaps around the windows in Building 1

No	Photo	Description
----	-------	-------------

3







View of ground floor in Building 1

4



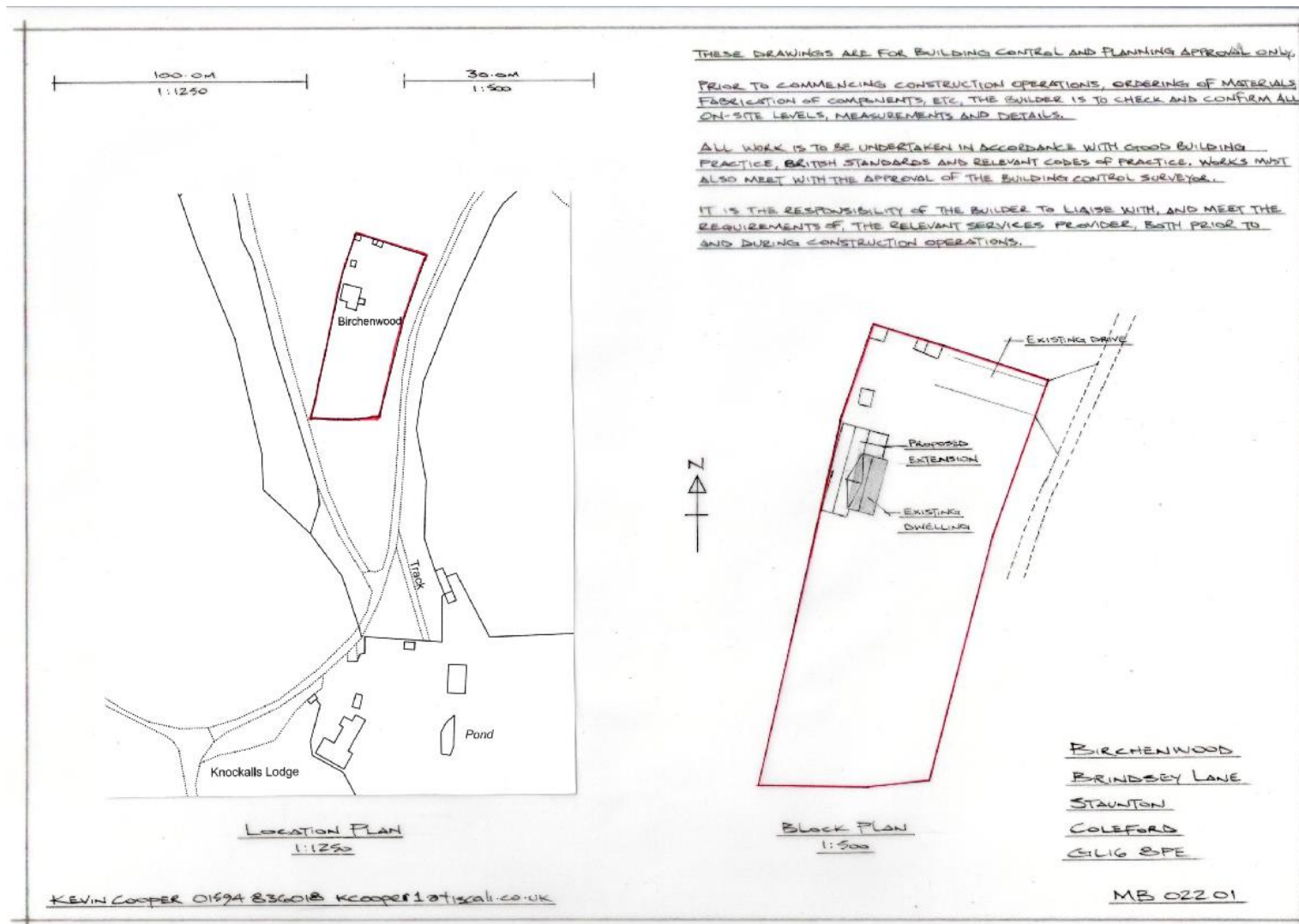
External view of Building 1 looking west with amenity grassland in front.

No	Photo	Description
5	 A close-up photograph of a roof edge. A white gutter is mounted on a wooden batten. Below the gutter, there is a wall made of light-colored, textured masonry. A significant gap is visible between the gutter assembly and the masonry wall.	View showing gaps between wall and roof.
6	 A photograph of a small, single-story brick building. The building has a white door and a window with a white frame. The building is surrounded by trees and some overgrown vegetation. The ground in front of the building is covered with dry leaves and grass.	View of Building 2- small shed
7	 A photograph of a larger, single-story brick building. The building has a white door and a window with a white frame. The building is surrounded by trees and some overgrown vegetation. The ground in front of the building is covered with dry leaves and grass.	View of Building 3 - garage

No	Photo	Description
8		View looking east showing the amenity grassland, eastern boundary hedgerow and scattered trees



### Appendix 3 Proposed development



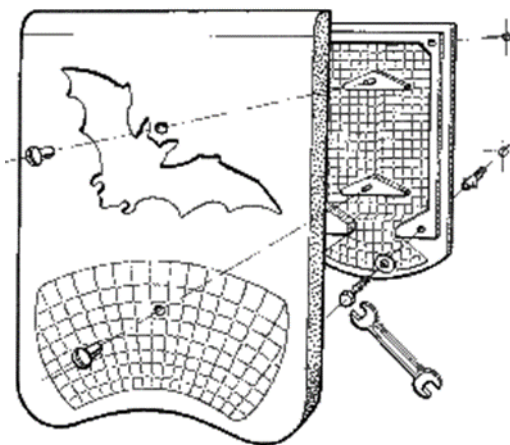
## Appendix 4: Ecological Enhancements

### BAT ROOSTING FEATURES

#### Schwegler 1FF Bat Box



#### Schwegler 1WQ Summer & Winter Bat Box



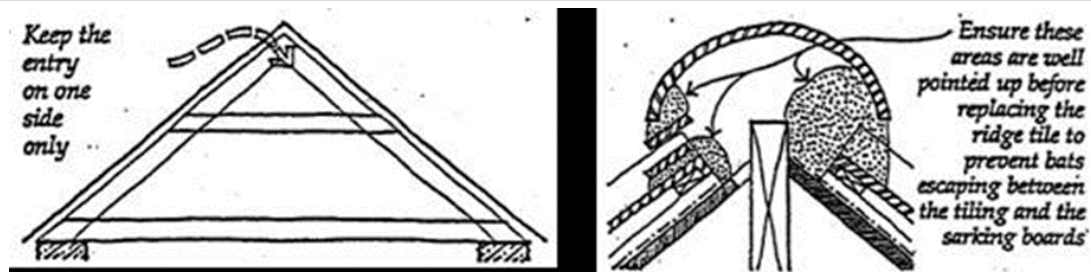
**Habibat 001 Bat Box – integral bat box, fitted into wall**



**Schwegler 2FN Bat Box - for installation in trees**



**Diagrammatic view of ridge tile and cross section through ridge tile** showing access point (taken from Scottish Natural Heritage 1996). Bitumastic lining must be used near/on the ridge beam to ensure bats can only have contact with this type of membrane to avoid any possible entanglement with a breathable membrane.



**BIRD BOXES**

**Two designs of swift boxes**



**Swift brick**



**Swallow cup**



**Hole-fronted bird box (for trees)**



**Open-fronted bird box (for trees)**



**House martin terrace box**



### HEDGEHOG NEST BOX



### HEDGEHOG HOUSE

## Make a deluxe hedgehog house



**You will need**

- 20mm FSC plywood boards cut to the sizes shown
- Hammer and nails
- 2 metal hinges
- Soil
- Dry leaves
- Straw or dry grass
- Newspapers
- Polythene sheeting

*Birch is ideal*

**1** Construct the hedgehog house from the following diagram and dimensions.

**2** Put the newspaper and straw or dry grass inside, cover the house with polythene sheeting, then pack soil and dead leaves around the outside.

Do not creosote or treat the wood

Make sure the entrance tunnel faces south, and is kept clear at all times

The roof is hinged so you can clean the box in future

raised up on feet


[www.wildlifewatch.org.uk](http://www.wildlifewatch.org.uk)

**INVERTEBRATES**

<p><b>BEE BRICK</b></p>	
<p><b>SCHWEGLER INSECT NESTING AID</b></p>	

## INVERTEBRATES

### How to Make an insect hotel



#### the express way!

**What you need:**

- hollow plant stems, like bamboo canes
- twigs and sticks
- string

- 1 Collect handfuls of stems, twigs and sticks.
- 2 Tie the bundles quite tightly in two places.
- 3 Post into a hedge/bush or hang in a sheltered place.

#### the deluxe way!

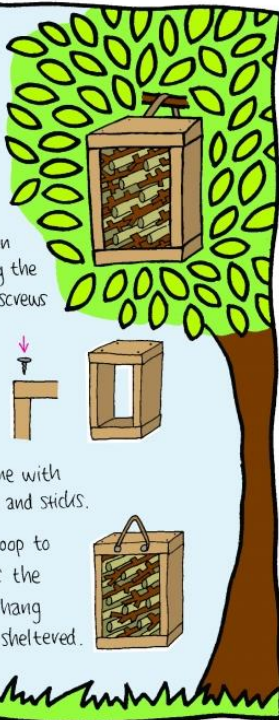
**What you need:**

- Small logs or untreated timber
- hollow plant stems, like bamboo canes
- twigs and sticks

**An adult to help with tools:**

- wood saw
- nails and hammer or screwdriver and wood screws
- drill and 5mm wood bit


- 1 Make a wooden frame, fixing the wood with screws or nails.
- 2 Fill the frame with stems, twigs and sticks.
- 3 Fix a wire loop to the back of the frame and hang somewhere sheltered.



[www.wildlifewatch.org.uk](http://www.wildlifewatch.org.uk)

Illustration: Corinne Welch © Copyright Royal Society of Wildlife Trusts 2015

### How to build a bug hotel




**You will need:**

- Wooden pallets x4
- Bricks
- Plastic bottles\*
- Bamboo canes
- Straw
- Leaves
- Tiles
- Cardboard
- Stones/pebbles
- Twigs/loose bark

\*Use old plastic bottles for this, and always recycle after use.

- 1 Place a wooden pallet in your chosen location. On top of the pallet, line bricks around the corners and across the middle.
- 2 Place your next pallet on top of this and repeat the process for all of your pallets.
- 3 Cut off the top two-thirds of your bottles. Fill up half of them with bamboo canes/plastic straws and the other half with rolled up cardboard. Place these inside the hotel.
- 4 Fill in the remaining spaces with bricks, leaves, pebbles, stones, tiles, loose bark and straw.
- 5 Add in any extra materials that you want to recycle e.g. old pipes, carpeting, toilet tubes, old plant pots. Be creative - add a welcome sign or give your hotel a name!



[www.wildlifewatch.org.uk](http://www.wildlifewatch.org.uk)

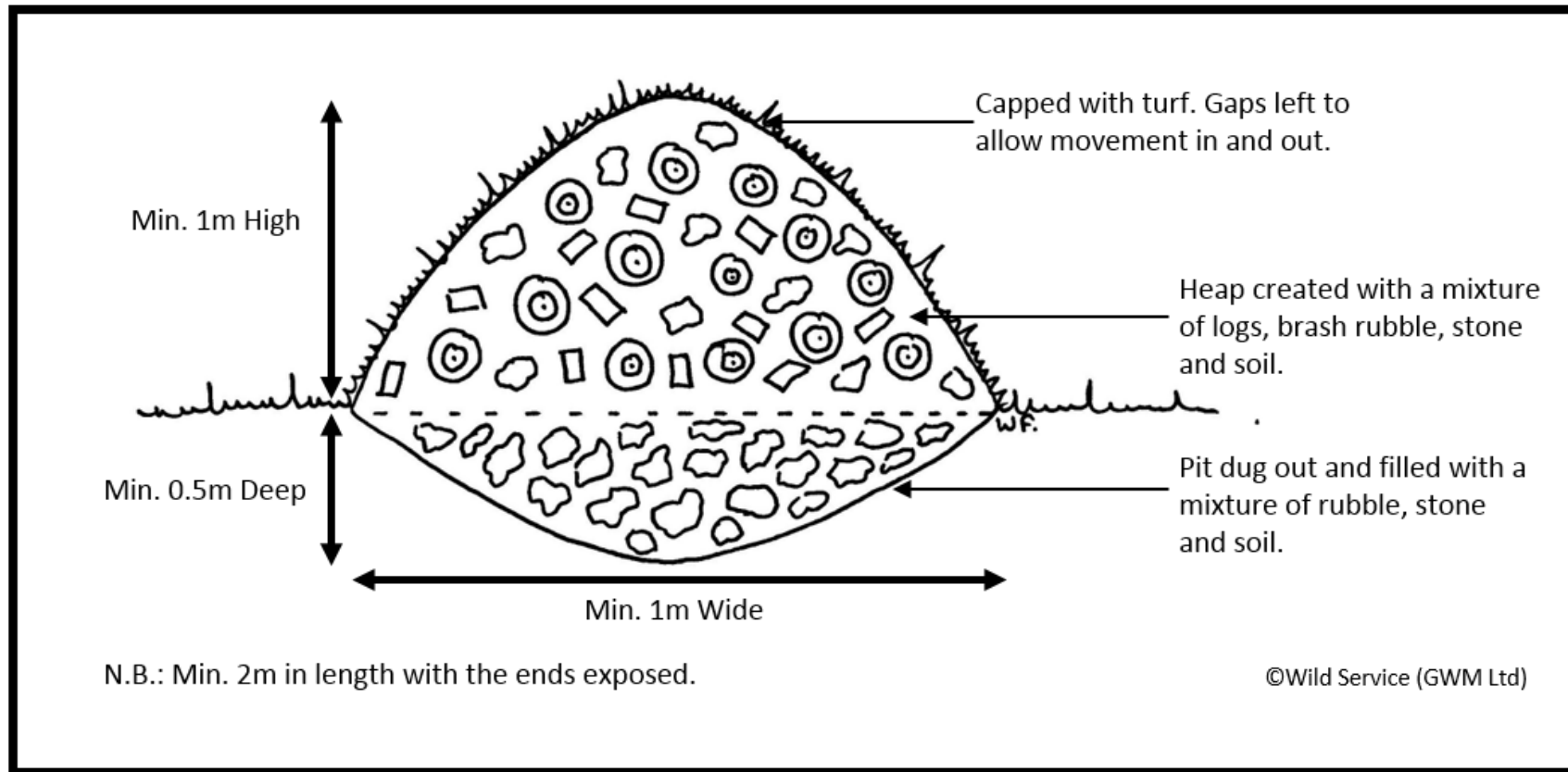
Illustration: Corinne Welch © Copyright Royal Society of Wildlife Trusts 2015

**DORMOUSE BOX**





### AMPHIBIAN/REPTILE HIBERNACULUM





Many wildlife species benefit greatly from considerate planting choices that still meet our practical and aesthetic needs. Plants and trees provide food for wildlife as well as places to nest and rest. Vegetation providing a variety of these functions creates an environment more beneficial for wildlife.

## Non native species

Native species provide the best habitat for UK wildlife but there are also many non-native species, which are single flowering and/or provide fruits/nuts/seeds that can be used as food sources for insects, birds and small mammals. When using these non-native species in planting schemes, care should be taken to avoid invasive species such as Cotoneaster and Rhododendron. This is especially important when sites are adjacent to open countryside particularly nature reserves.



Butterfly bush

## Uses of Wildlife Planting

Wildlife value can be easily incorporated into visually pleasing and useful green areas and amenity spaces, such as borders, grass verges and tree screens.

**Attractive Borders:** Well selected decorative borders can be valuable for many insects and birds. Native plants can be mixed with single flowering ornamental species to add aesthetic interest and increase the flowering period of a planting scheme.

**Shrubs and hedges:** Native spiky species like blackthorn and hawthorn are effective barriers when used in hedges. They also provide an attractive feature at all times of year especially when in blossom and fruit. Bushy areas of foliage provide useful nesting and feeding areas for birds and small mammals, as well as foraging/commuting corridors for bats.

**Grasses mixes and verges:** Leaving uncut areas of suitable grasses provides great wildlife value and is economical to manage. Diverse grassy areas and verges also create an attractive human environment with different flowers and colours. There are a range of native grass and flower mixes for various soil types available on the market.



Wild flower grass mix



## Selecting Suitable Species

There are wildlife friendly species suitable for all situations, from fields, verges, shady corners or small gardens. Listed below are native wildlife friendly plant species organised by type and suitability for different locations.

### Large Trees

Ash *Fraxinus excelsior*  
Beech *Fagus sylvatica*  
English Elm *Ulmus procera*  
Oak *Quercus robur* or *Q. petraea*  
Small-leaved lime *Tilia cordata*  
White willow *Salix alba*  
Wild cherry *Prunus avium*



White willow

### Medium/small trees

Alder *Alnus glutinosa*  
Aspen *Populus tremula*  
Crab apple *Malus sylvestris*  
Field maple *Acer campestre*  
Holly *Ilex aquifolium*  
Rowan *Sorbus aucuparia*  
Silver birch *Betula pendula*  
Yew *Taxus baccata*



Tussocky grassland

### Native shrubs

Blackthorn *Prunus spinosa*  
Dogwood *Cornus sanguinea*  
Elder *Sambucus nigra*  
Guelder rose *Viburnum opulus*  
Hawthorn *Crataegus monogyna*  
Hazel *Corylus avellana*



Blackthorn

### Plants for shady areas

Archangel *Lamiaeum galeobdolon*  
Betony *Stachys officinalis*  
Bluebell *Hyacinthoides non-scriptus*  
Bugle *Ajuga reptans*  
Foxglove *Digitalis purpurea*  
Ground ivy *Glechoma hederacea*  
Lily of the valley *Convallaria majalis*  
Lords-and ladies/cuckoopint *Arum maculatum*  
Nettle-leaved bellflower *Campanula trachelium*  
Primrose *Primula vulgaris*  
Sweet violet *Viola odorata*  
Wild daffodil *Narcissus pseudo-narcissus*

### Plants for marshy areas & pond edges

Bugle *Ajuga reptans*  
Hemp agrimony *Eupatorium cannabinum*  
Marsh marigold *Caltha palustris*  
Marsh woundwort *Stachys palustris*  
Meadowsweet *Filipendula ulmaria*  
Purple loosestrife *Lythrum salicaria*  
Ragged robin *Lychnis flos-cuculi*  
Water avens *Geum rivale*  
Water forget-me-not *Myosotis scorpioides*  
Water mint *Mentha aquatica*  
Water violet *Hottonia palustris*  
Yellow flag *Iris pseudacorus*

**Beneficial cultivated plants  
(generally non-natives)**

Grecian windflower *Anemone blanda*  
Angelica *Angelica archangelica*  
Aubretia *Aubretia deltoidea*  
California poppy *Eschscholtzia californica*  
Candytuft *Iberis sempervirens*  
Christmas rose *Helleborus niger*  
Cosmos *Cosmos bipinnatus*  
Evening primrose *Oenothera biennis*  
Fleabane *Erigeron spp.*  
Forget-me-not *Myosotis spp.*  
French marigold *Tagetes patula*  
Globe thistle *Echinops ritro*  
Grape hyacinth *Muscari botryodes*  
Hollyhock *Althaea rosea*  
Honesty *Lunaria rediviva*  
Ice plant *Sedum spectabile*  
Lenten rose *Helleborus orientalis*  
Tree mallow *Lavatera spp.*  
Michaelmas daisy *Aster novae-belgii*  
Mint *Mentha x rotundifolia*  
Perennial cornflower *Centaurea montana*  
Perennial sunflower *Helianthus decapetalus*  
Phlox *Phlox paniculata*  
Poached-egg plant *Limnanthes douglasii*  
Red valerian *Centranthus ruber*  
Snapdragon *Antirrhinum majus*  
Spring crocus *Crocus chrysanthus* and hybrids  
Sweet alyssum *Lobularia maritima*  
Sweet bergamot *Monarda didyma*  
Sweet William *Dianthus barbatus*  
Tobacco plant *Nicotiana affinis*  
Wallflower *Cheiranthus cheiri*  
Alpine rock-cress *Arabis alpina*  
Winter aconite *Eranthis hyemalis*  
Yellow alyssum *Alyssum saxatile*

**Native wildflowers for borders**

Agrimony *Agrimonia eupatoria*  
Betony *Stachys officinalis*  
Bluebell *Hyacinthoides non-scriptus*  
Chicory *Cichorium intybus*  
Chives *Allium schoenoprasum*  
Common poppy *Papaver rhoeas*  
Corncockle *Agrostemma githago*  
Cornflower *Centaurea cyanus*  
Corn marigold *Chrysanthemum segetum*  
Cowslip *Primula veris*  
Cuckooflower *Cardamine pratensis*  
Dame's-violet *Hesperis matronalis*  
Devil's-bit scabious *Succisa pratensis*  
Field scabious *Knautia arvensis*  
Foxglove *Digitalis purpurea*  
Goldenrod *Solidago virgaurea*  
Great mullein *Verbascum thapsus*  
Greater knapweed *Centaurea scabiosa*  
Harebell *Campanula rotundifolia*  
Herb-robert *Geranium robertianum*  
Lady's bedstraw *Galium verum*  
Marjoram *Origanum vulgare*  
Meadow cranesbill *Geranium pratense*  
Common mallow *Malva sylvestris*  
Oxeye daisy *Leucanthemum vulgare*  
Primrose *Primula vulgaris*  
Red campion *Silene dioica*  
Snowdrop *Galanthus nivalis*  
Spiked speedwell *Veronica spicata*  
Tansy *Tanacetum vulgare*  
Teasel *Dipsacus fullonum*  
Toadflax *Linaria vulgaris*  
White campion *Silene alba*  
Wild thyme *Thymus drucei*  
Yellow loosestrife *Lysimachia vulgaris*



Marjoram



Cornflower



Perennial sunflower

## Appendix 5: Ecological Experience

---

### **Becca Brown: Senior Ecologist, BSc (Hons) ACIEEM**

Becca has been working in ecological consultancy since 2016 and has been involved in a wide range of surveys including extended Phase 1 habitat surveys and a variety of protected species surveys, including bats, badger, barn owl *Tyto alba*, great crested newt, hazel dormouse, reptiles, otter and water vole. She has experience in writing technical reports, including PEAs, Ecological Impact Assessments (EclAs) and preparation of European Protected Species (EPS) licence applications. She has experience of undertaking condition assessments and BNG calculations. She also has experience as an Ecological Clerk of Works (ECoW) for a variety of projects. Becca holds Natural England class licences for bats (Level 1), barn owl and great crested newt. She also holds a valid Construction Skills Certification Scheme (CSCS) card and is a mental health first aider.

Becca has a degree in Conservation Biology from the University of the West of England, Bristol and went on to complete a Certificate in Ecological Consultancy. She has been involved in numerous conservation volunteer opportunities over the years, including undertaking dormouse surveys for the Somerset mammal group, undertaking radio tracking for Bechstein's *Myotis bechsteinii* bats and bat box checks for the Somerset bat group, and undertaking smooth snake *Coronella austriaca* surveys with the Amphibian and Reptile Conservation Trust. Becca is currently working towards her Natural England Level 2 bat and dormouse class licences.

### **Gemma Waters: Associate Ecologist BSc (Hons) MCIEEM**

Gemma has 15 years' experience in ecological consultancy with a focus on bat and bird ecology and surveying. She is also an experienced environmental educator. She has worked on a wide range of consultancy projects from residential developments, renewable energy projects and cultural heritage work. Gemma has undertaken many internal inspections of different man-made structures, trees, and other natural features to assess their potential to

---

support roosting bats. She is also very experienced at planning and undertaking emergence and dawn re-entry surveys for bats alongside activity transects to determine bat use over the wider landscape.

She has also been a bat warden for Natural England since 2006, providing surveys and advice for householders with bats. Gemma is a Natural England licence holder for bats (Licence number: 2015- 1560-CLS-CLS, WML CL18: Bat Survey Level 2) and is also a volunteer bat roost visitor (2015-10271-CLS-CLS). Gemma is experienced in providing EPS mitigation on a variety of projects, including cultural heritage projects for the National Trust and the Wye Valley AONB and a wide range of development projects.

Gemma has undertaken voluntary research with Gloucestershire Bat Group (GBG) and Dr Roger Ransome, assisting in research of greater horseshoe, Bechstein's and barbastelle bats. With GBG, Gemma has also led bat walks and talks for the public. Gemma has over a decade of teaching experience; from primary students, up to University level.

# Wild Service



ECOLOGICAL SERVICES

MITIGATION

CONSERVATION

- We provide ecological surveys and assessments, mitigation, advice and guidance regarding wildlife, plants and habitats for both development and conservation projects throughout the UK.
- Wild Service is the Ecological Consultancy for Gloucestershire Wildlife Trust. As such, the company reinvests its profits into local conservation work.
- We are also part of a wider network of Wildlife Trust Consultancies enabling us to offer national delivery with local expertise.

• We offer the following types of service to clients:

**Ecological Surveys**  
**Protected Species Licences**  
**Ecological Management Plans**  
**Biodiversity Net Gain**  
**Ecological Impact Assessments (EiA)**  
**BREEAM Assessments**  
**Mitigation, Enhancement & Rewilding**  
**Green Infrastructure Planning (Building with Nature)**  
**Arboricultural Surveys**  
**Landscape Consultancy Services**

**Contact us at**  
**Wild Service,**  
**Conservation Centre**  
**Robinswood Hill Country Park**  
**Reservoir Road, Gloucester, GL4 6SX**  
**TEL: 01452 383 333; Email: [info@wildservice.net](mailto:info@wildservice.net)**  
**Website: <https://wildservice.net/>**

Wild Service is part of Gloucestershire Wildlife Enterprises Ltd: Company No. 9706354, VAT Registration No. 535644633; and wholly owned by Gloucestershire Wildlife Trust.