Land off Village Road, Child's Ercall

Preliminary Ecological Appraisal

On behalf of Ling Developments Ltd

Project Ref: JM2021002Av1

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1 Introduction

1.1 Scope

1.1.1. Wild Service was commissioned by Ling Developments Ltd to undertake a Preliminary Ecological Appraisal (PEA) at 8 Village Road, Child's Ercall, Market Drayton, Shropshire, TF9 2DG (hereafter referred to as the 'Site'). The survey was requested to inform plans for construction of residential buildings.

1.1.2. The PEA comprised a Phase 1 habitat survey and protected species survey assessment.

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 within the village of Child's Ercall in rural Shropshire, approximately 9km south of Market Drayton. The Site is located off Village Road in Child's Ercall and comprises an area of bare ground surrounded by boundary hedgerows and walls.

1.2.2 The surrounding landscape consists of residential houses and gardens to the east, west and south, and arable fields with boundary hedgerows to the north.

1.2.3 The central Ordnance Survey Grid Reference for the Site is SJ 66469 25081.

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 Hedgerows Regulations 1997.

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.

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 search of 5km for Special Protection Areas (SPAs) Special Areas of Conservation (SACs) and Ramsar sites; and
- Records of protected and rare/notable species within 1km of the Site.

2.1.2 Ecological data were provided by Telford and Wrekin Council (2021) and sourced from the Multi-Agency Geographic Information for the Countryside (MAGIC) website (2021).

2.2 Phase 1 Habitat and Protected Species Survey

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

2.2.2 Julia Morrison of Wild Service undertook the surveys on 11th February 2021 and the weather conditions were dry and cold (approx. 1°C).

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 south-west corner of the Site was not accessible during the survey as fencing surrounded this area. The majority of the habitat that was inaccessible comprised of bare ground and therefore lack of access did not significantly impact the survey. A small section of hedgerow (<15m) along the western boundary was also inaccessible,

however it was mostly possible to determine species present, as the inaccessible area was small and visible through the surrounding fencing.

2.3.3 Note that the optimum period for habitat surveys and protected species appraisals is during the late spring and summer period. However, sufficient information was available at this time of year to categorise habitats and inform the need for further surveys.

Table 1. Phase 1 Habitat and Protected Species Survey Methods	
Phase 1 habitat survey	The aim of the Phase 1 survey is to provide a description of the semi-natural vegetation of a particular site and is made in accordance with the JNCC Phase 1 Habitat Survey methodology (JNCC, 2010). Where necessary, the condition of habitat is described, and full plant lists collated to provide greater detail, which helps when identifying the conservation significance of a particular habitat. 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.
Badgers	The site is assessed for suitable habitats that may support badgers *Meles meles*. Where relevant habitat occurs, evidence of badgers including setts, latrines, tracks, snuffle holes, padding or guard hairs is recorded.
Bats	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.
Birds	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.
Dormice	The site is assessed for suitable habitats that may support dormice *Muscardinus avellanarius* including woodland and hedgerows. Where relevant habitat occurs evidence of dormice including nests and gnawed nuts is recorded.
Great crested newts	During the site visit the potential of the site to support great-crested newts *Triturus cristatus* 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 *et al*. 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.
Otters	The area under appraisal is searched for suitable habitat along water-bodies, recording where appropriate, evidence pertaining to the presence of otters *Lutra lutra* in the form of holts, spraints, anal jelly, tracks and feeding remains.
Reptiles	The site is assessed for suitable habitats that may support reptiles including slow-worms *Anguis* fragilis, common lizards *Zootoca vivipara* grass snakes *Natrix natrix* and adder *Vipera berus*. Where relevant habitat occurs, evidence identifying the presence of reptiles, particularly tracks and sloughed skin is recorded.
Water voles	The area under appraisal is searched for suitable habitat along water-bodies, recording where appropriate, evidence pertaining to the presence of water voles *Arvicola amphibius* in the form of burrows, latrines, runs, footprints and distinctive “feeding lawns”.
White-clawed crayfish	The area under appraisal is searched for suitable habitats that may support white-clawed crayfish *Austropotamobius pallipes*. This typically includes freshwater streams and rivers but may also include still water-bodies.

3 Results

3.1 Desk Study

3.1.1. The results of the desk study confirmed that there are no statutory or non-statutory nature conservation sites within 1km of the Site.

3.1.2. The results of the extended search confirmed there are no SPAs, SACs or Ramsar sites within 5km of the Site.

3.1.3. The biological data search yielded records of several protected species within 1km of the Site, but none are specific to the Site. The data are summarised in Table 3.

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 2 and 3. Reference should be made to the Site Map presented in Figure 1, and photographs in Appendix 2.

Table 2. Phase 1 Habitat Survey and Recommendations

Habitat/Feature	Description	NERC[1] habitat (Y/N)	Evaluation and potential impact	Recommendations Avoidance / mitigation / enhancement measures
BARE GROUND	The majority of the Site comprised bare ground and rubble piles, with no vegetation.	N	Negligible ecological value.	Detailed plans have not been provided. However, planting with wildflower meadow grassland is recommended where possible, and planting native trees would also enhance the Site for wildlife.
DRY STONE WALL BOUNDARY (north of Site)	The boundary to the north of the Site comprised a dry-stone wall ranging in height from approximately 0.5m at the north-east to 1m in the north-west. The wall had some ivy *Hedera helix* growth, and occasional shrubs/herbs growing along the ground which included; common nettle *Urtica dioica*, ribwort plantain *Plantago lanceolata*, crane's-bill *Geranium* sp., bramble *Rubus fruticosus* agg. and cleavers *Galium aparine*. Adjacent to the stone wall, in the field opposite, dog-rose *Rosa canina* plants were overhanging the Site slightly.	N	Low ecological value.	It is our understanding the wall is to be retained under proposed plans.
SPECIES-POOR INTACT HEDGEROW (H1)	The boundary to the east of the Site comprised a species-poor hedgerow (<1m wide, approx. 50m in length), which was largely intact, with a few visible gaps. Species present included immature and semi-mature sycamore *Acer pseudoplatanus* and ash *Fraxinus excelsior* trees, and hawthorn *Crataegus monogyna*. Several of the immature ash trees had moderate ivy growth. There were occasional holly *Ilex aquifolium* bushes, bramble, ivy, and cow parsley *Anthriscus sylvestris* at ground level. The maximum height of the trees present was approx. 5-6m.	Y	Moderate ecological value.	It is our understanding the hedgerow is to be retained under proposed plans. Should hedgerow removal be required, a survey would be required prior to removal, to determine their species richness and 'importance' according to the criteria outlined in the Wildlife and Landscape section of the Hedgerows Regulations (1997). It is recommended to plant any small gaps with native species including blackthorn *Prunus spinosa,* dog-rose, and honeysuckle *Lonicera periclymenum.*

[1] Habitats of 'Principal Importance' under Section 41 of the Natural Environment and Rural Communities (NERC) Act 2006

Habitat/Feature	Description	NERC[1] habitat (Y/N)	Evaluation and potential impact	Recommendations Avoidance / mitigation / enhancement measures
BOUNDARY WALL (south of site)	The boundary to the south of the Site (bordering Village Road) had a small wall covering half of the border (from the south-west corner of the Site to the middle), with access to the Site gained from the south-east corner. The wall was of low height (0.3m to 0.5m) with moderate ivy and bramble growth. An area of dense ivy growth was covering the south-west corner of the wall.	N	Negligible ecological value.	It is our understanding the wall is to be retained under proposed plans.
SPECIES-POOR GAPPY HEDGEROW (H2)	The Site is separated from a neighbouring property by a wooden fence along the western boundary. Along the fence-line was a species-poor, gappy hedgerow. Species present included; hawthorn, bramble, ivy, common nettle, holly, honeysuckle *Lonicera* sp., with a few young ash and sycamore trees. To the south-west corner butterfly bush *Buddleja davidii* was growing, possibly from the neighbouring garden (not possible to access this area of the Site). To the middle of the western boundary were some Leyland cypress *Cupressus × leylandii* trees which were hanging over the Site from the neighbouring garden. The hedgerow had recently been flailed.	Y	Low ecological value.	It is our understanding the hedgerow is to be retained under proposed plans. Should hedgerow removal be required, a survey would be required prior to removal of hedgerows, to determine their species richness and 'importance' according to the criteria outlined in the Wildlife and Landscape section of the Hedgerows Regulations (1997). It is recommended to plant any gaps with native species including blackthorn *Prunus spinosa,* dog-rose and honeysuckle *Lonicera periclymenum*, particularly in the north-west corner where there are large gaps in the hedgerow. The butterfly bush could be removed (if within Site boundary) in order to prevent it colonising the Site. Whilst it is not listed on Schedule 9 of the WCA 1981, butterfly bush is generally considered to be invasive.
IMPROVED GRASSLAND/ HERBS (north-west corner of Site)	There was a very small patch of improved grassland/herbs to the north-west corner of the Site, which bordered the neighbouring garden, with a sward height of <5cm. Species present included; perennial rye-grass *Lolium perenne*, cock's-foot *Dactylis glomerata*, ribwort plantain, broad-leaved dock *Rumex obtusifolius*, creeping buttercup *Ranunculus repens*, creeping thistle *Cirsium arvense*, cleavers and bramble.	N	Negligible ecological value.	Replacement planting with wildflower meadow grassland is recommended.

Table 3. Protected Species Survey 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 trees and hedgerows along the boundaries of the Site provide negligible foraging and shelter opportunities for badgers.	None.	There are no records of badgers within 1km of the Site.	Unlikely.	None.	Badgers are offered full protection under the PBA 1992. **No further surveys required.** As a precautionary measure, should any trenches or pits need to be excavated, these should be fitted with ramps to enable any animals to escape (including small mammals).
BATS	The trees and hedgerows along the boundaries of the Site provide suitable commuting/foraging habitat for bats. All the trees on Site were immature or semi-mature and did not have any potential roost features for bats.	None.	There are no records of bats within 1km of the Site.	Likely to be commuting/ foraging along the hedgerows.	No impact to roosting bats as no suitable roosting habitats/ features were recorded on Site. Low impact to foraging bats (lighting recommendations provided).	Bats and their resting places are protected under the WCA 1981 and the CHS Regs 2017. **No further surveys required.** It is our understanding that the hedgerows and trees are to be retained, therefore retaining suitable commuting/foraging habitat for bats. Roosting opportunities for local bats can be incorporated into the new buildings (further details are provided in Section 4 of this report). To reduce the impact of lighting on bats from the proposed development, lighting recommendations are provided in Section 4 of this report.

Species	Habitats/features	Evidence	Data search	Likelihood of presence	Potential impact	Recommendations Further survey required? (Yes/No) / Avoidance / mitigation / enhancement measures
BIRDS	The trees and hedgerows along the Site boundaries provide suitable nesting habitat for birds.	The following species of bird were observed in the hedgerows during the survey: robin *Erithacus rubecula,* blackbird *Turdus merula* and woodpigeon *Columba palumbus.*	Biological records yielded results of 40 species within 1km of the Site and include barn owl *Tyto alba*, cuckoo *Cuculus canorus*, redwing *Turdus iliacus*, starling *Sturnus vulgaris* and yellowhammer *Emberiza citrinella*.	Birds are likely to be nesting in the hedgerows and trees bordering the Site during the nesting season.	No impact to nesting birds, if present, as it is our understanding that the boundary hedgerows/trees on Site are to be retained.	All birds are protected under Section 1 of the WCA 1981. **No further surveys required.** It is our understanding that the hedgerows/trees on Site are to be retained. Nesting opportunities can be provided in the new buildings and on existing boundary hedgerow trees, and recommendations are provided in Section 4 of this report. It is 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, should hedgerow removal be required, 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). Removal of hedgerows/trees, if required, should be undertaken outside the main nesting season and where this is not possible a suitably qualified ecologist should be engaged to check for nesting birds and to provide advice on the most appropriate way to proceed.

Species	Habitats/features	Evidence	Data search	Likelihood of presence	Potential impact	Recommendations Further survey required? (Yes/No) / Avoidance / mitigation / enhancement measures
DORMICE	The hedgerows on Site provide sub-optimal habitat for dormice as they are species-poor, and not connected to habitat suitable for dormice in the surrounding landscape. The hedgerow on the western boundary was gappy, and the hedgerow on the eastern boundary was largely intact, with only a few small gaps. The habitats surrounding the Site (residential houses/gardens and arable fields) were not suitable for dormice.	None.	There are no records of dormice within 1km of the Site.	Unlikely.	No impact.	Dormice and their resting places are protected under the WCA 1981 and the CHS Regs 2017. **No further surveys required.**
GREAT CRESTED NEWTS (GCN)	There were no waterbodies on Site. The terrestrial habitat largely comprised bare ground and a very small patch of grassland, neither of which were suitable habitat for GCN. However, the hedgerows and dry-stone wall boundary provided potential places of	None.	The data provided by Telford and Wrekin Council included no records of GCN within 1km of the Site but did include one record of a smooth newt *Lissotriton vulgaris* located at the limit	Unlikely to be present on Site due to lack of suitable terrestrial habitat on Site and in the area surrounding the Site, and lack of records within 1km of the Site.	Negligible impact.	No further surveys required. GCN and their resting/breeding places are protected under the WCA 1981 and CHS Regs 2017. **No further surveys required.** It is our understanding that the hedgerows and dry-stone wall boundaries are to be retained and therefore there will be no impact to sheltering/hibernating amphibians if present around the Site.

Species	Habitats/features	Evidence	Data search	Likelihood of presence	Potential impact	Recommendations Further survey required? (Yes/No) / Avoidance / mitigation / enhancement measures
	shelter/hibernation, should GCN be present in the surrounding landscape. There were also several rubble/log piles on Site which offered some potential shelter to GCN. There are no waterbodies within 500m of the Site which are not separated from the Site by dispersal barriers e.g. roads.		of the 1km search boundary. There is also one GCN licence record approx. 775m from the Site (MAGIC, 2021).			As a precautionary measure, all material must be stored on pallets or otherwise separated from the ground in order to eliminate any potential refuge for GCN. Aggregates must also be delivered in bags and stored in this way.
OTTERS, WATER VOLES & WHITE-CLAWED CRAYFISH	There are no waterbodies on the Site to provide habitat for these species.	None.	There are no records of otters, water voles or white-clawed crayfish within 1km of the Site.	None.	No impact.	Otters, water voles and white-clawed crayfish are protected under the WCA 1981, and otters and their resting places are also protected under the CHS Regs 2017. **No further surveys required.**
REPTILES	The hedgerows and dry-stone wall boundary provide potential places of shelter/hibernation, should reptiles be present in the surrounding landscape. There were also several rubble/log piles on Site	None.	There are no records of reptiles within 1km of the Site.	Low likelihood.	Negligible impact.	Reptiles are protected under the WCA 1981. **No further surveys required.** It is our understanding that the hedgerows and dry-stone wall boundaries are to be retained and therefore there will be no impact to

Species	Habitats/features	Evidence	Data search	Likelihood of presence	Potential impact	Recommendations Further survey required? (Yes/No) / Avoidance / mitigation / enhancement measures
	which offered potential shelter to reptiles.					sheltering/hibernating reptiles if present around the Site. As a precautionary measure, all material must be stored on pallets or otherwise separated from the ground in order to eliminate any potential refuge for reptiles. Aggregates must also be delivered in bags and stored in this way.
HEDGEHOGS	The hedgerows on the boundaries of the Site provide suitable habitat for hedgehogs *Erinaceus europaeus* to forage and shelter in.	None.	There is one record of a hedgehog within 1km of the Site.	Likely to be present, commuting/ foraging through the Site and in the surrounding habitat.	No impact, as it is our understanding that the hedgerows on Site are to be retained.	Hedgehogs are listed as a Species of Principal Importance under the NERC Act 2006. To encourage/facilitate the movement of hedgehogs on/off the Site, holes of dimensions 13cmx13cm can be created at the base of any fencing. It is recommended that a hedgehog house is constructed on the Site. Examples of hedgehog houses can be found in Appendix 3.

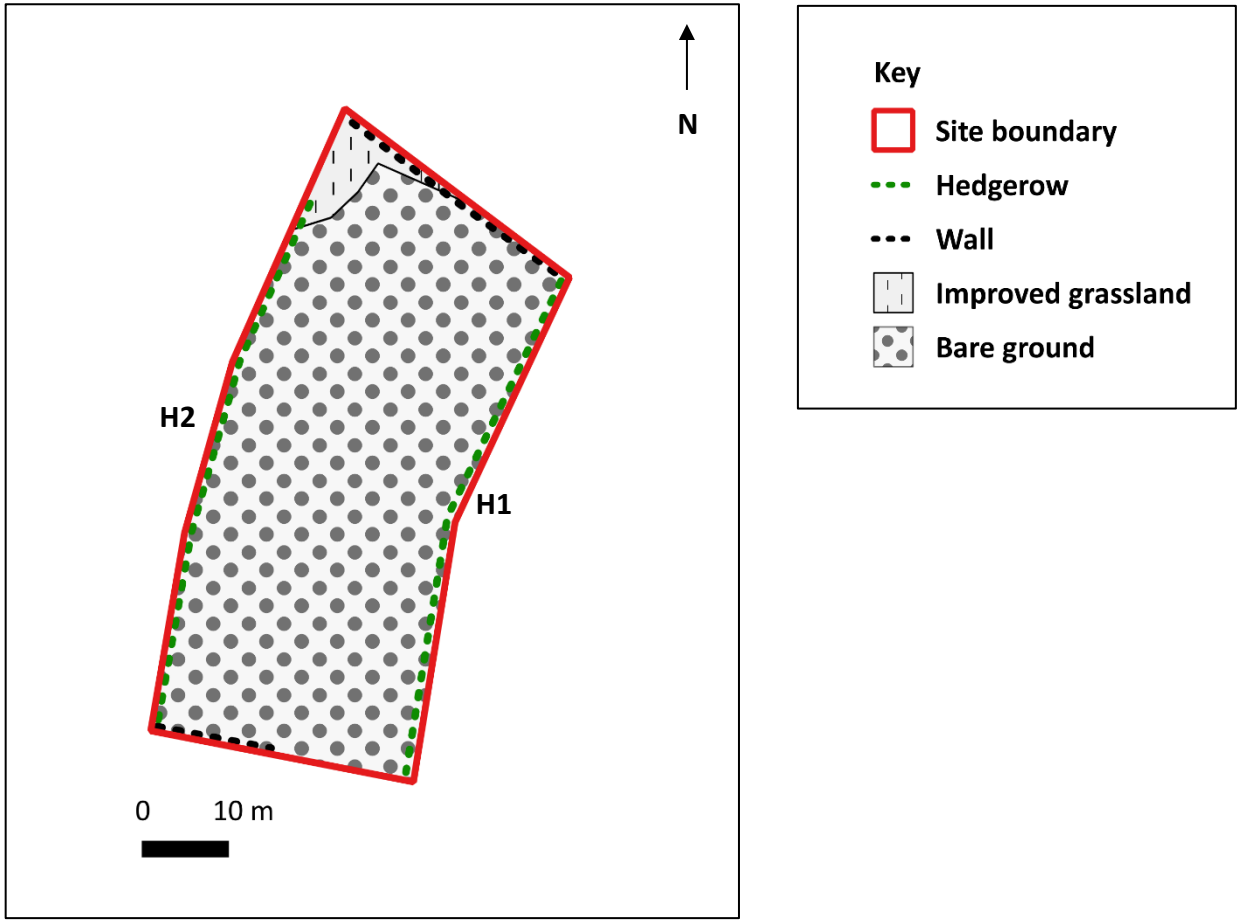

Figure 1. Site Plan and Habitat Descriptions (Central Grid Reference: SJ 66469 25081)

4 Discussion

4.1 Habitats

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

Hedgerows

4.1.2 Hedgerows are a Habitat of Principal Importance under the NERC Act 2006. It is our understanding that the hedgerows on Site are to be retained and therefore no further surveys are required. Should hedgerow removal be required, a Hedgerow Regulations Survey would be required prior to removal, to determine their species richness and 'importance' according to the criteria outlined in the Wildlife and Landscape section of the Hedgerow Regulations (1997). Protection fencing should be in place around retained hedgerows and trees.

Enhancements

4.1.3 It is recommended to plant any small gaps in the existing hedgerows on Site with native species including blackthorn, dog-rose, and honeysuckle.

4.1.4 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[2]. Gardens can be made more permeable to wildlife, such as hedgehogs, through leaving small gaps of 13x13cm under fences. Ideally only pesticides branded as 'wildlife friendly' should be used. Wildlife planting tips and advice can be found here: https://www.gloucestershirewildlifetrust.co.uk/wildlife/wildlife-gardening. Further information is provided in Appendix 3 below.

[2] 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 Natural Environment and Rural Communities (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

4.2 Protected Species

4.2.1 The protected species and their mitigation that need consideration in relation to this development are mentioned below.

Bats

4.2.2 Bats and their resting places are protected under the Wildlife and Countryside Act 1981 (as amended) and the Conservation of Habitats and Species Regulations 2017. The hedgerows and trees on Site provide some suitable commuting/foraging habitat for bats, and it is our understanding these habitats are to be retained. Although detailed plans for the Site have not been provided, it is our understanding that residential buildings are to be constructed on Site. In order to minimise the impact of development to foraging bats, the following lighting recommendations are provided, 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 is 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.

4.2.3 Roosting opportunities for local bats can be incorporated into the new buildings through the installation of bat boxes under the eaves either on the exterior walls (e.g. Schwegler 1WQ/1FF bat box) or fitted into the walls (e.g. Habibat 001 bat box), and the creation of raised ridge tiles. Bat boxes (e.g. Schwegler 2FN) can also be installed on medium-large trees. Bat boxes should be installed at minimum heights of 2.5m (ideally 3.5-4m), facing away from external illumination and should ideally face in a south-east or south-west orientation. Examples are provided in Appendix 3.

Birds

4.2.4 All birds are protected under Section 1 of the Wildlife and Countryside Act 1981 (as amended). It is our understanding that the hedgerows/trees on Site are to be retained. It is 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, should hedgerow removal be required, 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). Removal of hedgerows/trees, if required, should be undertaken outside the main nesting season and where this is not possible a suitably qualified ecologist

should be engaged to check for nesting birds and to provide advice on the most appropriate way to proceed.

4.2.5 Nesting opportunities for house sparrows *Passer domesticus* and swifts *Apus apus* can be provided in the form of swift bricks (that are fitted into the walls and are readily used by these and other species of small bird). Where it is not possible to fit them into the wall, swift boxes can also be fitted externally. 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-large trees at similar heights and directions to attract other species of birds. Examples are provided in Appendix 3.

General Protected Species

4.2.6 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 Table 1 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.

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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[3] 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**[4]. 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.

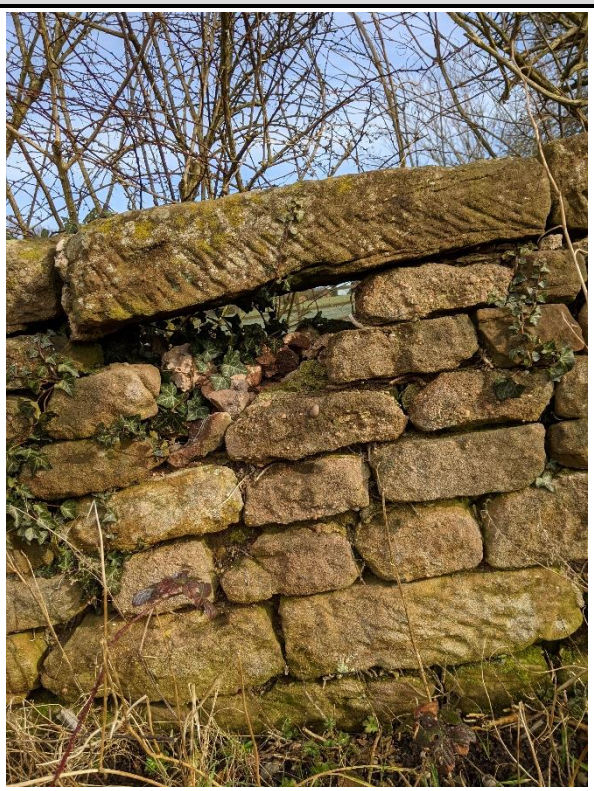
The **National Planning Policy Framework 2019** states that the planning system should minimise impacts on biodiversity, providing net gains in biodiversity, wherever possible. Section 15 states that when determining planning applications, local planning authorities should apply the following principles:

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[5] and a suitable compensation strategy exists; and
d) development whose primary objective is to conserve or enhance biodiversity should be supported; while opportunities to incorporate biodiversity improvements in and around developments should be encouraged, especially where this can secure measurable net gains for biodiversity.

[3]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.
[4]**The NERC Act** refers to "*species of principle importance for the conservation of biodiversity*", which translates to BAP habitats and species occurring in England.
[5] 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

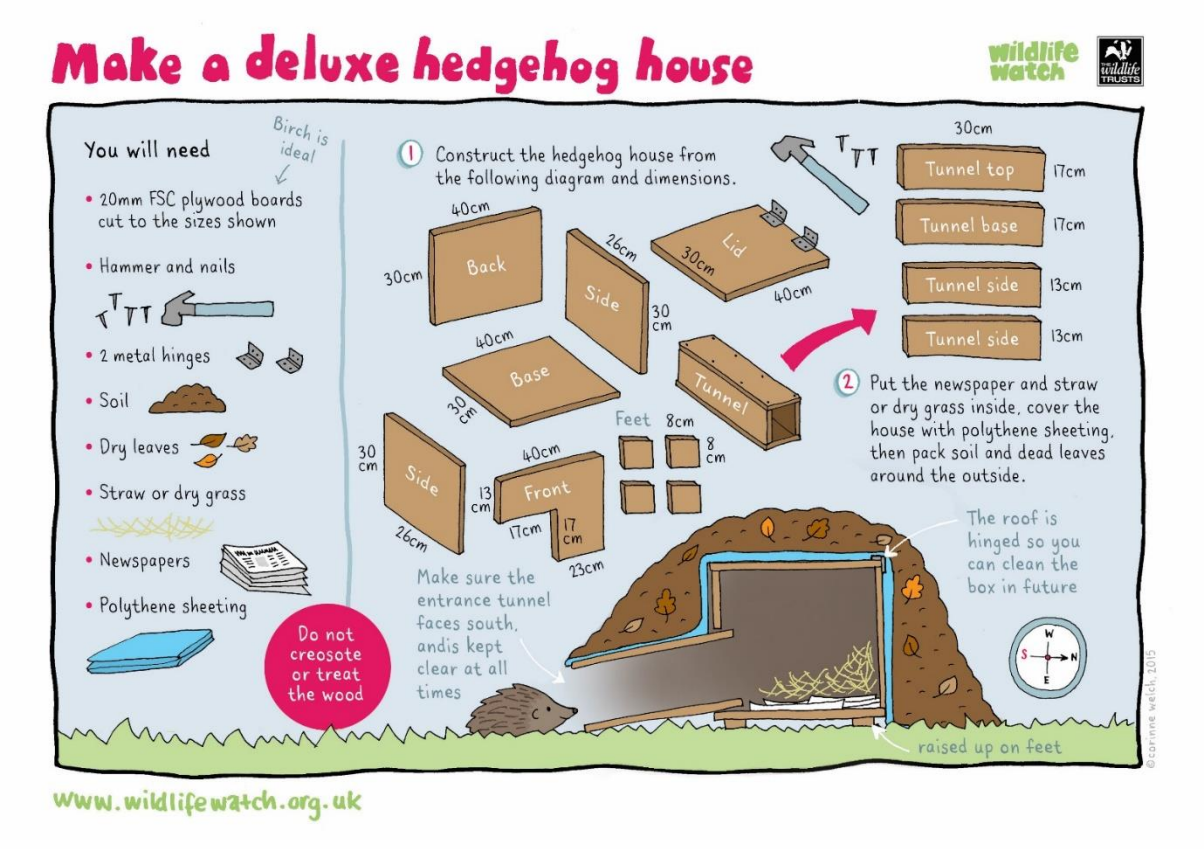
No	Photo	Description
1		View from south of Site. The majority of the Site comprised bare ground, with rubble piles scattered throughout.
2		Dry stone wall boundary to the north of the Site.

No	Photo	Description
3		Dry stone wall boundary to the north of the Site.
4		Species-poor, intact hedgerow (H1) on eastern Site boundary.

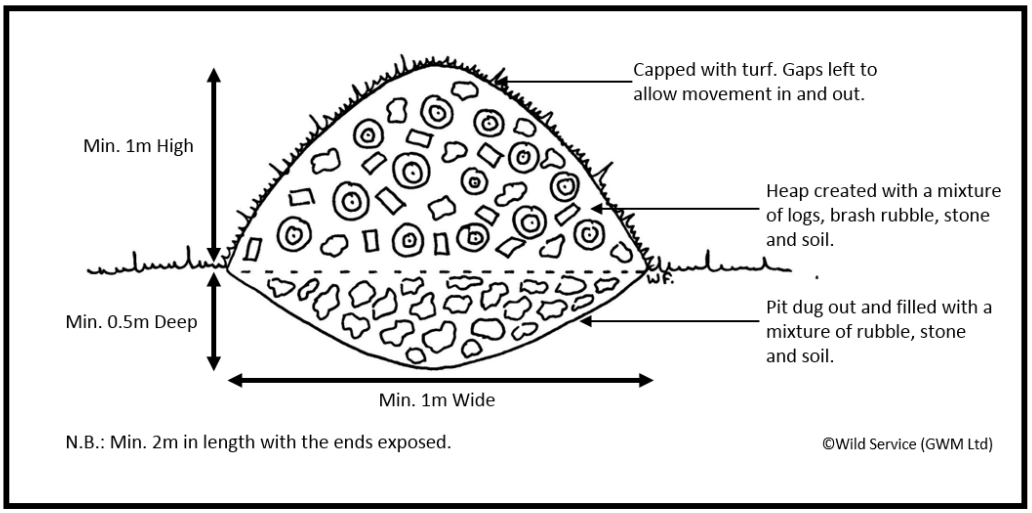
No	Photo	Description
5		Species-poor, gappy hedgerow (H2) on western Site boundary.
6		Small area of improved grassland in north-west corner of Site.

Appendix 3: Ecological Enhancements

HEDGEHOG HOUSE



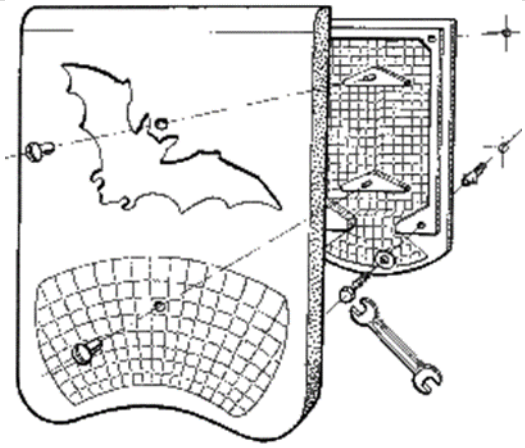
AMPHIBIAN/REPTILE HIBERNACULUM



BAT ROOSTING FEATURES

Schwegler 1FF bat box

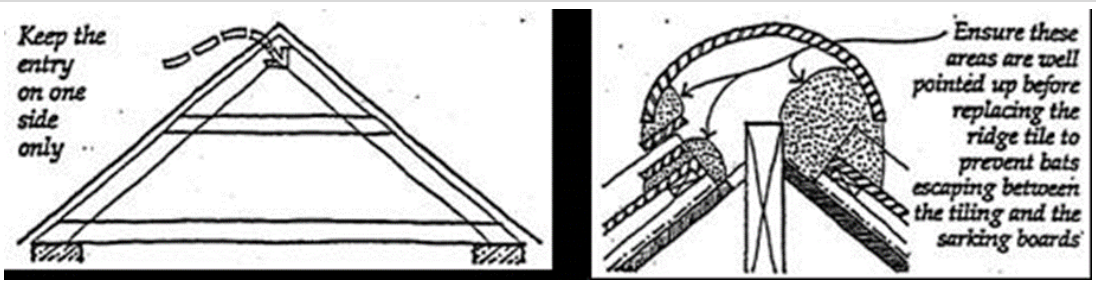
Schwegler 1WQ Summer and Winter bat



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 bricks	
	
House Sparrow terrace box	**Swallow Cup**
	
Hole-fronted bird box (for trees)	**Open-fronted bird box (for trees)**
	
Swift box	
	

Planting for Wildlife

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 *Lamiastrum 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 pseudonarcissus*

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 scorpoides*
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 nova-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 4: Ecological Experience

Julia Morrison: Assistant Ecologist, BSc (Hons) MSc CIEEM

Julia has been working with Wild Service for several years and has recently gained her MSc in Applied Ecology from the University of Gloucestershire. Julia's dissertation project involved large-scale data analysis of biometric bird ringing data to assess biometric changes in UK wintering waterbirds. Julia has a keen interest in bat ecology and in addition to undertaking professional bat surveys and assessments, she has also studied bats in Ghana, West Africa. She is experienced in a range of ecological surveys including Phase 1 habitat assessments, protected species surveys, reptile surveys and translocations, great crested newt and dormouse surveys. Julia's additional skills include advanced data analysis and GIS mapping using various software packages including QGIS and ArcGIS. In addition to project delivery, she also assists with the management of Wild Service projects. Julia has also spent time volunteering on conservation projects with the Gloucestershire Bat Group and the Gloucestershire Wildlife Trust. Julia is a Qualifying member of CIEEM and holds a CSCS card. She is currently working towards her Natural England bat and great crested newt licences.

Elizabeth Pimley: Head of Ecology and Principal Ecologist, BSc (Hons) PhD CEnv MCIEEM

Elizabeth has worked in both the academic and consultancy ecology sectors since 2000 with a focus on mammalian ecology, particularly badgers, dormice, bats, water voles and otters. Elizabeth manages the consultancy as well as being involved in project delivery. She has managed ecological projects, ranging in size and type, both in the UK and abroad. She regularly advises clients on the planning process in relation to ecology. Elizabeth has expertise in a wide variety of ecological survey techniques including Preliminary Ecological Appraisals/Phase 1 habitat assessments and a variety of protected species surveys (e.g. the aforementioned mammal species as well as reptiles and great crested newts).

Elizabeth also devises ecological mitigation schemes, both as part of protected species mitigation licences (e.g. bats, great crested newts, badgers, dormice, water voles, otters) and

for projects not requiring licensing (e.g. reptiles). She has produced a wide variety of preliminary ecological appraisals, BREEAM/CSH Ecology Assessments, mitigation licences for protected species (including Bat Mitigation Class Licences), Ecological Impact Assessments (EcIA), Construction Ecological Management Plans, Habitat Regulations Assessments, Biodiversity Net Gain assessments, Biodiversity Enhancement Schemes and Ecological Design Strategies, as well as writing for scientific journals, books and magazines. As a Building with Nature Assessor, Elizabeth also has expertise in providing green infrastructure advice to projects.

Elizabeth offers a scientific approach to projects with additional skills in radiotracking, bat call analysis, statistical analysis, home range and compositional habitat analysis and Geographical Information Systems (GIS) mapping. Elizabeth holds Natural England and Natural Resources Wales licences for bats and dormice, as well as Natural England licences for great crested newts and water voles. She is also a Registered Consultant of the Bat Mitigation Class Licence (BMCL) and holds a CSCS card.

Benjamin Goodger: Principal Ecologist, MA (Oxon) MSc CEnv MCIEEM

Ben has 20 years' experience as a professional ecologist, five in nature conservation and 15 in consultancy. As a consultant he has worked on a wide range of development projects at sites across the UK. These have ranged from housing and employment developments, land reclamation projects, road schemes and major infrastructure projects. He has undertaken numerous site assessments, using information obtained from habitat and protected species surveys and desk-based studies. He is particularly skilled in EcIA and the design of mitigation solutions and has written ecology chapters for a number of ESs. He has also undertaken several HRAs. Ben is a skilled botanist and has undertaken many plant and habitat surveys in his career, including Phase 1 habitat surveys, National Vegetation Classification (NVC) surveys and targeted plant surveys.