ethos
Environmental Planning

Ecological Impact Assessment

The Stables, Tanhouse Lane

November 2023

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SUMMARY

Purpose of the report	This report has been produced by Ethos Environmental Planning on behalf of Mr M Rushent to support a Full Planning Application. It provides an assessment of the likely ecological effects associated with the proposed residential development of an area of land known as 'The Stables, Tanhouse Lane'.
Description of the scheme	The site is proposed for the construction of three residential dwellings with associated gardens.
Methodology	A desk study and UK Habitat Classification survey were undertaken for the site in September 2023. The habitat survey was extended to include an assessment for protected species.
Baseline ecological conditions	• The site comprises vacant/derelict land, modified grassland and a hardstanding access track. There are three offsite hedgerows comprising a mixture of native and ornamental hedgerows adjacent to the red line boundary. • There is a parcel of traditional orchard adjacent to the northern boundary. • It is assessed that the site likely supports an assemblage of bats comprising common and widespread species. • Previous surveys undertaken at the site concluded that reptiles are absent. • A previous eDNA survey of the pond 50m north of the site was negative for GCN DNA. • The offsite native hedgerows were assessed as suitable habitat for birds and hazel dormouse. • The site supports suitable habitat for commuting/ foraging hedgehog.
Key impacts and mitigation	The development layout has been designed to protect the most valuable ecological features, namely the offsite hedgerows adjacent to the site boundaries. Mitigation measures are described to ensure compliance with protected species legislation for hedgehog, bats and birds.
Conclusion	Assuming the implementation of effective mitigation measures, as set out in this report, no significant adverse ecological effects are predicted. The proposed development is therefore in accordance with relevant national and local planning policies in relation to nature conservation and relevant wildlife legislation.

1 INTRODUCTION

1.1 This Ecological Impact Assessment (EcIA) report has been prepared by Ethos Environmental Planning (Ethos) on behalf of Mr M Rushent. The EcIA was written by Katie Munday MSc BSc (Hons), Assistant Ecologist, and reviewed by Stephanie Green MSc BSc (Hons) MCIEEM, Principal Ecologist at Ethos. The details and experience of the authors and field survey team are provided in Section 3.7.

1.2 The report provides the results of an EcIA in relation to the proposed development of The Stables, Tanhouse Lane (Central Grid Reference ST 69902 84969), hereafter referred to as 'the site' and shown in Figure 1.

1.3 The site is approximately 0.21ha in size and comprises vacant/derelict land, modified grassland and a hardstanding access track. There are three offsite hedgerows comprising a mixture of native and ornamental hedgerows adjacent to the red line boundary. The land to the south within the adjacent blue line boundary comprises hardstanding with two residential buildings.

Figure 1 Site location

1.4 The proposals for the site comprise the construction of three residential dwellings with associated gardens and landscaping.

1.5 This assessment is based on surveys undertaken between 2019 and 2021 as part of 'The Stables, Tanhouse Lane, Rangeworthy, Preliminary Ecological Assessment' (Wessex Ecological Consultancy, 2020) and 'The Stables, Tanhouse Lane, Rangeworthy, Protected Species and Ecological Surveys' (Wessex Ecological Consultancy, 2021) and updated surveys undertaken by Ethos in 2023 comprising a UK Habitat Classification (UKHab) survey.

1.6 The aims of this EcIA report are to:

- provide an assessment of the likely effects of the proposed development on ecological features on site;
- identify the measures required to mitigate impacts on site biodiversity;
- identify opportunities to deliver ecological enhancements and measurable gains for biodiversity as part of the development proposals; and
- to enable the Local Planning Authority to assess whether the proposals comply with relevant planning policy or legislation.

1.7 This report has been produced following the approach set out in 'Guidelines for Ecological Report Writing' (CIEEM, 2017).

2 POLICY AND LEGISLATION

2.1 National Policy

2.1.1 The National Planning Policy Framework (NPPF) sets out national planning policy, including policies of relevance to conserving and enhancing the natural environment. Policies of relevance to the proposed development (parts of paragraphs 174, 180 and 185) have been summarised below:

Para 174: Planning policies and decisions should contribute to and enhance the natural and local environment by:

(a) protecting and enhancing valued landscapes, sites of biodiversity or geological value and soils (in a manner commensurate with their statutory status or identified quality in the development plan).

(d) minimising impacts on and providing net gains for biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures.

Para 180: 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;

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.

Para 185: c) limit the impact of light pollution from artificial light on local amenity, intrinsically dark landscapes and nature conservation.

2.2 Local Policy

2.2.1 South Gloucestershire's Local Plan comprises the Joint Waste Core Strategy (adopted 2011), the Core Strategy (adopted 2013) and the Policies, Sites and Places Plan (PSP Plan). The following policies from the Core Strategy and the PSP Plan relate to biodiversity.

Policy CS2 Green Infrastructure

2.2.2 The Council and its partners will ensure that existing and new Green Infrastructure (GI) is planned, delivered and managed as an integral part of creating sustainable communities and enhancing quality of life, considering the following GI objectives:

- Protecting and enhancing species and habitats, and creating new habitats and wildlife linkages between them.

Policy CS9 Managing the Environment and Heritage

2.2.3 The natural and historic environment is a finite and irreplaceable resource. In order to protect and manage South Gloucestershire's environment and its resources in a sustainable way, new development will be expected to:

- Conserve and enhance the natural environment, avoiding or minimising impacts on biodiversity and geodiversity.

Policy PSP2 Landscape

2.2.4 Development proposals will be acceptable where they conserve and where appropriate enhance the quality, amenity, distinctiveness and special character of the landscape (defined by the Landscape Character Assessment). This includes, but is not limited to:

- Landscape features, such as trees, hedgerows, woodlands, views, banks, walls, ponds and waterways.

Policy PSP3 Trees and Woodland

2.2.5 Development proposals should minimise the loss of existing vegetation on a site that is of importance in terms of ecological, recreational, historical or landscape value. Development proposals which would result in the loss of, or damage (directly or indirectly) to, existing mature or ancient woodland, veteran trees, ancient or species-rich hedgerows will only be acceptable where the need for, and benefits of, the development in that location clearly outweigh the loss or damage. Development proposals should, where appropriate, include:

- the protection of trees; and
- replacement trees, of an appropriate size and species, where tree loss or damage is essential to allow for development; and
- additional tree planting, in accordance with Core Strategy Policy CS1 and the Landscape Character Assessment SPD's, including, but not limited to, planting along arterial roads, in car parks and in the public realm; and
- new planting schemes that retain and integrate healthy, mature trees and hedgerows, and include native species.

Policy PSP5 Undesignated Open Spaces within Urban Areas and Settlements

2.2.6 Development proposal(s) on undesignated open space within the urban areas and settlements defined on the Policies Map, will be acceptable if it does not adversely affect the quality, character, biodiversity, sustainable water management, recreation opportunities, heritage value, amenity or distinctiveness of the locality.

Policy PSP19 Wider Biodiversity

2.2.7 Development Proposals resulting in the loss or deterioration of irreplaceable habitats, including unimproved grassland (lowland hay meadows), ancient woodland, and ancient trees will be refused unless the need for, and benefits of, the development in that location clearly outweigh the loss.

2.2.8 Where appropriate, biodiversity gain will be sought from development proposals. The gain will be proportionate to the size of the scheme and be secured through an appropriate planning condition or legal undertaking. This will include sites of low nature conservation interest (for example, intensive agricultural land) where new semi-natural habitat (green infrastructure) would provide opportunities and gains for local wildlife.

2.2.9 Development proposals, where they would result in significant harm to sites of value for local biodiversity, which cannot be avoided by locating it on an alternative site with less harmful impacts, adequately mitigated or, as a last resort, compensated for, will be refused. Sites of value for local biodiversity include (but are not limited to):

- local sites (Sites of Nature Conservation Interest or Regionally Important Geological Sites);
- sites supporting species of fauna or flora protected under the Wildlife and Countryside Act 1981 (as amended), Countryside and Rights of Way Act 2000 or Habitat Regulations 2010;
- sites supporting species and habitats listed by the Government as being of Principle Importance for Biological Diversity in Britain under Section 41 of the Natural Environment and Rural Communities Act 2006 (Priority Species and Habitats);
- sites supporting birds listed on the Red, Amber or Green Lists of Species of Conservation Concern;
- wildlife corridors or new green infrastructure, which enable the dispersal and favourable status of flora and fauna species; and
- brownfield sites supporting notable assemblages of invertebrates.

2.3 Relevant Legislation

2.3.1 The following pieces of legislation have been considered within this assessment with an explanation of their relevance provided in Table 1.

Table 1 Relevant legislation

Legislation	Relevance
The Habitats Directive (together with the Birds Directive) forms the cornerstone of Europe's nature conservation policy. It is built around two pillars: the Natura 2000 network of protected sites and the strict system of species protection. All in all, the Directive protects over 1,000 animals and plant species and over 200 "habitat types" (e.g. special types of forests, meadows, wetlands, etc.), which are of European importance. The Habitats Directive and parts of the Birds Directive are transposed into legislation by **The Conservation of Species and Habitat Regulations 2017 (as amended).**	Likely presence of commuting/foraging bats utilising the offsite hedgerows. Potential presence of hazel dormouse utilising the offsite hedgerows.
Wildlife and Countryside Act 1981 (as amended, including by the Countryside and Rights of Way Act 2000), which provides legislative protection for certain species. The Act also prohibits the spread of invasive plant species, as well as providing the mechanism for the designation and protection of Sites of Special Scientific Interest;	Potential for nesting birds in offsite hedgerows and trees.
The **Natural Environment and Rural Communities Act 2006** (the NERC act) places a duty on all public authorities, including local planning authorities, to consider biodiversity in their work. Local planning authorities are to ensure that there is no net loss of biodiversity on a site, no net loss in habitat connectivity and aims to enhance biodiversity.	Enhancements for biodiversity. Potential presence of foraging/commuting hedgehog.
The **Hedgerows Regulations 1997** protect 'important hedgerows' from being removed (uprooted or destroyed). Hedgerows are protected if they are at least 30 years old and meet at least one of the criteria listed in part II of schedule 1.	Presence of offsite hedgerows.

3 METHODOLOGY

3.1 Scope of Assessment

3.1.1 This assessment has been undertaken following the approach set out in 'Guidelines for Ecological Impact Assessment in the UK and Ireland' (CIEEM, 2018). The assessment has considered 'Important Ecological Features' that are present within the 'Zone of Influence' of the project. Important Ecological Features for this project comprise[1]:

- Designated nature conservation sites;
- Habitats and Species of Principal Importance for the Conservation of Biodiversity in England;
- Legally protected species; and
- Red Listed or rare species (based on Red Data Book lists, Birds of Conservation Concern and species considered to be nationally rare/scarce).

3.1.2 The Zone of Influence (ZoI) is the area over which the project could have an influence on ecological features. The ZoI is likely to vary for different features. However, in general terms the ZoI for this development proposal is considered to comprise the land within the red line boundary as well as immediate adjacent habitat features. It also includes designated nature conservation sites in the surrounding area.

3.1.3 The scope of the assessment was informed by a UK Habitat Classification (UKHab) Survey undertaken in September 2023. The purpose of this was to identify the habitats on site, their potential for protected species and to establish the scope of surveys that would be required to inform a future planning application at the site.

3.1.4 The overall assessment has been informed by guidelines provided in 'Guidelines for Ecological Report Writing' (CIEEM, 2017).

3.2 Background Data Search

3.2.1 A background data search was received from Bristol Regional Environmental Records Centre (BRERC) on 6th September 2023. The search included records of statutory and non-statutory designated sites and protected and notable species within 1km of the proposed development site.

3.2.2 An additional search for statutory designated sites within 1km of the development site and granted European Protected Species (EPS) licences within 1km of the site boundary was undertaken using publicly available information (DEFRA Magic map).

[1] Box 14 in CIEEM's ECiA Guidelines (2018)

3.3 UK Habitat Classification Survey

3.3.1 A UKHab survey was undertaken on 12th September 2023. The survey incorporated detailed assessment of the land within the development boundary, including a description and mapping of all key features and habitat types. The survey was carried out to identify the range of habitats within the site and the predominant and notable species of flora. This survey was informed by the UKHab classification User's Manual (Butcher *et al.*, 2020).

3.4 Protected Species Surveys

NERC S. 41 Mammals

3.4.1 The survey included an assessment of the habitats on site for their potential to support NERC Section 41 species such as hedgehog *(Erinaceus europaeus)*, polecat *(Mustela putorius)*, harvest mouse *(Micromys minutus)* and brown hare *(Lepus europaeus)*.

[redacted]

Hazel Dormouse

3.4.3 The survey included an assessment of the potential of the site for hazel dormouse *(Muscardinus avellanarius)*, focusing on the connectivity and suitability of the habitat on site.

Riparian Mammals

3.4.4 The survey included an assessment of the potential of the site to support riparian mammals such as otter *(Lutra lutra)* and water vole *(Arvicola amphibius)*. This included an assessment of the riparian habitats on site or within the wider environment to support these species.

Bats

3.4.5 The habitats on site were assessed for their suitability to support foraging and commuting bats. This assessment was also contextualized through examination of suitable habitat and features in the wider landscape and possible flight-lines across the proposed site following natural linear features such as hedgerows.

Birds

3.4.6 The bird survey included an assessment of the habitats on site for their potential to support protected and notable species of bird as well as their potential to support breeding birds.

Reptiles

3.4.7 The potential presence of reptiles on site was assessed considering the habitats present (availability of refugia and basking areas) and suitability of surrounding environment.

Amphibians

3.4.8 The habitats on site were assessed for their potential to support amphibian species, including great crested newt (*Triturus cristatus)* (GCN). This included an examination of suitable waterbodies and for breeding terrestrial habitat and terrestrial habitats which may provide sufficient structured vegetation in which amphibians may forage or hibernate.

3.4.9 In addition to the on-site assessment, *Great Crested Newt Mitigation Guidelines* (English Nature, 2001) recommend that a desktop analysis of ponds within 500m of the site be undertaken, to identify any potential breeding ponds which may require further survey. Ponds within 500m of the site were mapped on GIS with an OS OpenData base map at 1:10,000 resolution.

Invertebrates

3.4.10 Due to the many invertebrate taxonomic groups that exist, the often-large differences in invertebrate diversity between habitats and the many survey techniques available, invertebrate surveys are highly specific to individual sites. Therefore, an assessment of the potential site for invertebrates was undertaken, including the need for targeted surveys.

3.5 Limitations

3.5.1 The habitat assessment, previous surveys and background data search identified that the offsite hedgerows in close proximity to the site provide suitable habitat for bats and hazel dormouse, albeit of limited value. These hedgerows will be retained and protected during the construction phase and new boundary hedgerows will be planted to provide additional habitat. Given the small scale of the proposed development and the retention and protection of the suitable bat and hazel dormouse habitat, it was considered disproportionate to undertake targeted surveys for these species and instead, the assessment was undertaken on the assumption that these species are present. Mitigation measures have been recommended on this precautionary basis to avoid impacts on these species and this is therefore not considered to be a significant limitation to the assessment.

3.6 Evaluation of Ecological Features

3.6.1 In line with CIEEMs guidelines on EcIA, this assessment has focused on relevant Important Ecological Features. The scale of importance of these features has been determined based on available contextual information and could include:

- **International** – of international importance and protected through international legislation;
- **National** – of importance in England and protected through national legislation;
- **County** – of importance to the county (South Gloucestershire) but not sufficiently important to warrant 'National' scale of importance; and
- **Local** – of importance to the local area (Yate), but not sufficiently important to warrant County scale of importance.

3.6.2 Potential impacts on Important Ecological Features are identified and assessed; likely significant effects are those likely to result in a change to the conservation status of a habitat or species population or undermine/support nature conservation policy. Mitigation measures have been devised following the mitigation hierarchy; appropriate mechanisms for securing mitigation measures have been identified.

3.7 Personnel

3.7.1 The report authors and surveyors on site have been detailed below in Table 2.

Table 2 Site surveyors and report authors

Ecologist	Position	Qualifications/ Licences	Experience	Role in Assessment
Steph Green	Principal Ecologist	MSc BSc (Hons) MCIEEM Class 1 GCN Licence Class 1 Hazel Dormouse licence	Steph is a principal ecologist at Ethos with over ten years' experience in ecological field survey and assessment. Steph is responsible for leading site visits and technical reviewing reports	Site surveyor Report reviewer
Matt Attrill	Senior Ecologist	Tree Climbing and Rescue, City and Guilds NPTC Level 2 Award (206 and 306) BSc (Hons) Class 2 Bat Licence Class 1 GCN Licence	Matt is a highly experienced field surveyor with over 7 years ecological experience. Matt is competent in surveying for a wide variety of wildlife gained experience from both the commercial and voluntary sectors.	Site surveyor
Katie Munday	Assistant Ecologist	MSc, BSc (Hons)	Katie has experience with a variety of ecological field surveys, including protected species surveys and habitat assessments. She assists with bat call data analysis and report-writing.	Report author

4 BASELINE ECOLOGICAL CONDITIONS

4.1 Previous Surveys on the Site

4.1.1 Surveys were undertaken at the site between 2019 and 2022 by Davies Ecology Ltd and Wessex Ecological Consultancy. Surveys comprised habitat surveys and targeted surveys for bats, GCN and reptiles. A summary of the results of the targeted surveys previously undertaken is provided below:

- Targeted reptile surveys did not identify the presence of reptiles on site.
- Targeted bat activity surveys recorded mainly common and widespread species of bat, namely common pipistrelle (*Pipistrellus pipistrellus*), *Myotis* species, noctule (*Nyctalus noctula*), brown long-eared (*Plecotus auritus*) and soprano pipistrelle (*Pipistrellus pygmaeus*). Activity was dominated by bats commuting from east to west over the site.
- An eDNA survey of the pond 50m to the north of the site was negative for GCN DNA.

4.2 Designated Sites

Statutory designated sites

4.2.1 There are no statutory designated sites within 1km.

Non-statutory designated sites

4.2.2 There are three Sites of Nature Conservation Interest (SNCI) within 1km of the site, as shown in Figure 2 and described in Table 3. The SNCIs are assessed to be of 'County importance' for nature conservation, in line with their designations.

4.2.3 The SNCIs are located at a sufficient distance from the site that direct impacts during the construction phase are expected to be avoided. Given the small scale of the development, it is assessed that the development will not result in indirect impacts on the SNCIs during the operational phase. As such, the SNCIs are scoped out of this assessment.

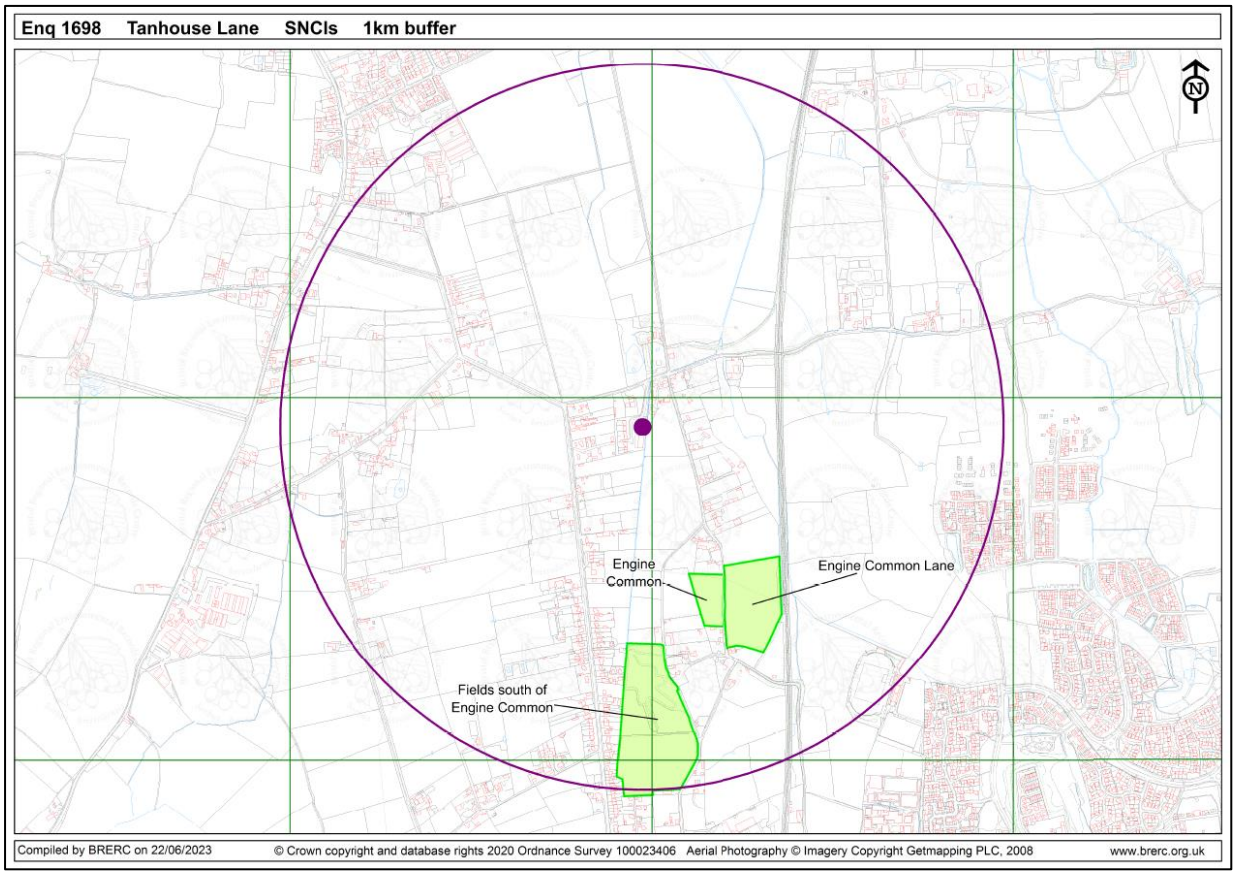

Figure 2 Non-statutory sites within 1km

Table 3 Non-statutory designated sites within 1km

Name	Description	Distance/direction from site
Engine Common	The site comprises neutral grassland which supports species such as small timothy (*Phleum bertolonii*), bulbous buttercup (*Ranunculus bulbosus*), meadow vetchling (*Lathyrus pratensis*), black knapweed (*Centaurea nigra*), ox-eye daisy (*Leucanthemum vulgare*) and hedge bedstraw (*Galium mollugo*).	470m south-east
Engine Common Lane	The site comprises neutral grassland which supports species such as meadow thistle (*Cirsium dissectum*), black knapweed, bird's-foot trefoil (*Lotus corniculatus*), fairy flax (*Linum catharticum*), cowslip (*Primula veris*), ox-eye daisy, agrimony (*Agrimonia eupatoria*), lady's bedstraw (*Galium verum*), common spotted orchid (*Dactylorhiza fuchsii*) and quaking-grass (*Briza media*).	495m south-east
Fields south of Engine Common	The fields south of Engine Common comprise neutral grassland, marshy grassland and broadleaved woodland. Species present include oval sedge (*Carex ovalis*), devil's-bit scabious (*Succisa pratensis*), black knapweed, agrimony, cat's-ear (*Hypochaeris radicata*), ox-eye daisy, bird's-foot trefoil, salad burnet (*Sanguisorba minor*), gipsywort (*Lycopus europaeus*), flag iris (*Iris pseudacorus*) and pignut (*Carya glabra*).	610m south

Priority habitats

4.2.4 There are several parcels of priority habitats within 1km of the site, as shown in Figure 3. The priority habitats present include traditional orchard, deciduous woodland, good quality semi-improved grassland and lowland meadow. The land directly to the north west of the site supports traditional orchard.

4.2.5 Traditional orchards are listed in the UK Biodiversity Action Plan as a Priority Habitat. Whilst this implies a national level of importance, one third of all of the traditional orchards within the UK are found in Gloucestershire, Herefordshire and Worcestershire (Gloucestershire Wildlife Trust, 2023) and traditional orchards are therefore assessed to be relatively common across the wider area. As such, the adjacent traditional orchard is assessed to be of **'Local importance'** for nature conservation.

4.2.6 The majority of the priority habitat parcels in the surrounding area are located at a sufficient distance from the site that impacts are expected to be avoided. However, given the proximity of the adjacent traditional orchard, potential impacts on this habitat will be discussed further in Section 6.

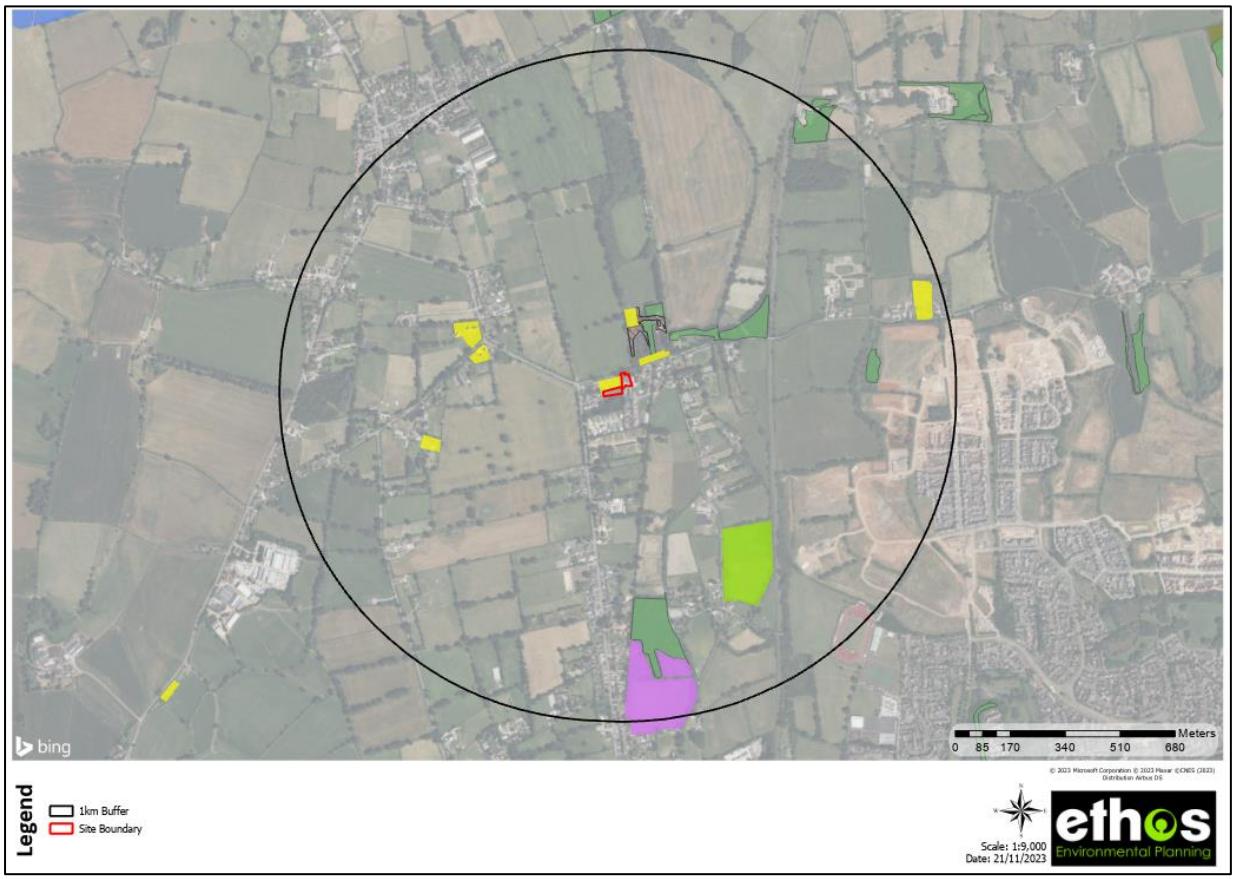

Figure 3 Priority habitats within 1km

4.3 Habitats

General site description

4.3.1 The site is approximately 0.21ha in size and comprises vacant/derelict land, modified grassland and a hardstanding access track. There are offsite native and ornamental hedgerows present adjacent to the red line boundary. The land to the south within the adjacent blue line boundary comprises hardstanding with two residential buildings.

4.3.2 The site is located within a small area of urban development. The wider landscape is semi-rural, comprising urban development to the south and arable fields with associated boundary hedgerows to the north, east and west.

UKHab survey

4.3.3 Figure 4 displays the key habitats using the UK Habitat classifications. Descriptions of the habitats are provided in the following section.

Figure 4 UK Habitat survey

Modified grassland (A1)

4.3.4 In the west of the site there is a parcel of modified grassland, shown in Photos 1 and 2. The grassland was unmanaged at the time of the survey and there was a prevalence of

ruderal species, such as common nettle (*Urtica dioica*), around its edges. The grassland is dominated by fast-growing species such as cock's-foot (*Dactylis glomerata*) and false oatgrass (*Arrhenatherum elatius*). It also supports ragwort (*Senecio jacobaea*), common hogweed (*Heracleum sphondylium*), ox-eye daisy (*Leucanthemum vulgare*), ribwort plantain (*Plantago lanceolata*), bush vetch (*Vicia sepium*), red clover (*Trifolium pratense*), cleavers (*Galium aparine*), red dead nettle (*Lamium purpureum*), Yorkshire fog (*Holcus lanatus*), common sow thistle (*Sonchus oleraceus*), broad-leaved dock (*Plantago major*), bristly oxtongue (*Helminthotheca echioides*), creeping cinquefoil (*Potentilla reptans*) and wild garlic (*Allium ursinum*).

4.3.5 The modified grassland on site is assessed to be of low ecological value, is not assessed to be important for nature conservation and is only considered further in its relation to support protected species.

Photo 1 Modified grassland

Photo 2 Modified grassland

<u>Developed land; sealed surface (A2)</u>

4.3.6 There is a developed land; sealed surface access track leading from Tanhouse Lane to the north to the residential dwellings within the blue line boundary to the south of the site (Photo 3). The developed land; sealed surface is in good condition and is assessed to be of negligible importance for biodiversity and is not considered further in this assessment.

Photo 3 Developed land; sealed surface

Vacant or derelict land (A3)

4.3.7 There is vacant or derelict land in the north of the site which has been damaged and repeatedly disturbed by construction activities, as shown in Photos 4 and 5. The area supports a small amount of vegetation along with piles of debris, discarded construction equipment and some bare ground. This habitat is assessed to be of low ecological value and is not considered further in this assessment.

Photo 4 Vacant or derelict land

Photo 5 Vacant or derelict land

Hedgerows (offsite)

4.3.8 There is an offsite native hedgerow with trees running adjacent to the northern boundary of the modified grassland parcel (Photo 6). The hedgerow contains ash (*Fraxinus excelsior*), apple (*Malus x domestica*), cypress (*Cupressus x leylandii*), oak (*Quercus sp.*), hawthorn (*Crataegus monogyna*), and bramble (*Rubus fruticosus*), with mature ash and crack willow (*Salix fragilis*) trees.

4.3.9 The offsite native hedgerow running along the southern boundary of the parcel of modified grassland (Photo 7) is dominated by hornbeam (*Carpinus betulus*). Other species present include cherry laurel (*Prunus laurocerasus*) and cypress.

4.3.10 There is a short stretch (14m) of ornamental vegetation running offsite along the frontage of the site, adjacent to Tanhouse Lane (Photos 8 and 9). The structure is predominantly ivy (*Hedera helix*) and bindweed (*Calystegia sepium*) growing up a chain link fence, however there are also four ornamental conifer trees and a single hazel (*Corylus avellana*) tree.

4.3.11 The two offsite native hedgerows are assessed to be Priority Habitats which are of **'Local importance'** for nature conservation. Given their proximity to the site, potential impacts on them and any protected species they may support are discussed further in Section 6.

4.3.12 The offsite ornamental hedgerow is not considered to be of importance for nature conservation and is not considered further in this assessment.

Photo 6 Offsite native hedgerow with trees

Photo 7 Offsite native hedgerow

Photo 8 Ornamental hedgerow

Photo 9 Ornamental hedgerow

4.4 NERC S. 41 Mammals

4.4.1 The data search returned three records of hedgehog within 1km, only one of which was dated from within the last decade. The closest record was of a hedgehog nest located approximately 350m south-west of the site.

4.4.2 One historical record of brown hare was returned by the data search. The record was located within an arable field approximately 550m south of the site.

4.4.3 The vacant/derelict land on site has been subject to disturbance and is assessed to be of limited value for hedgehog. The modified grassland on site is unmanaged and provides suitable foraging and commuting opportunities for hedgehog. The key features for hedgehog are assessed to be the offsite native hedgerows, as they provide foraging resources alongside nesting and commuting opportunities. Whilst the site does support suitable habitat for hedgehogs, it is not considered to be of significant nature conservation importance for the species. Hedgehogs are therefore only considered further in relation to mitigation measures to avoid direct impacts on them during the construction phase.

4.4.4 Although there is suitable habitat present in the wider landscape, it is assessed that the habitats on site and directly adjacent to the site are unsuitable for brown hare, polecat and harvest mouse. As such, they are considered absent from the site and are scoped out of this assessment.

4.6 Hazel Dormouse

4.6.1 No records of hazel dormouse were returned by the data search.

4.6.2 There was a single EPS licence relating to hazel dormouse (2019-39185-EPS-MIT) which was granted in 2019, however this was located outside the search radius, approximately 1.3km east of the site.

4.6.3 The site itself does not support habitats suitable for hazel dormouse, however the offsite native hedgerows in proximity to the site are assessed as suitable and contain some species known to be important food resources for dormouse including ash, hawthorn and bramble. The wider landscape contains several parcels of woodland with adjoining hedgerows providing connectivity, which are also considered likely to provide suitable habitat.

4.6.4 Given the proximity of an EPS licence relating to hazel dormouse, and the connectivity across the wider area, it is assessed that hazel dormouse may be present within the offsite native hedgerows and utilising them for commuting and foraging purposes. However, given the small scale of the features, it is considered unlikely that the hedgerows support a significant population, and they are more likely to support occasional dispersal of dormouse across the local area. As such, any hazel dormouse utilising the offsite hedgerows are considered to be of '**Local importance**' for nature conservation. Potential impacts on hazel dormouse are therefore discussed further in Section 6.

4.7 Riparian Mammals

4.7.1 The data search did not identify any records of riparian mammals within 1km of the site.

4.7.2 The site does not support any riparian habitats and the terrestrial habitats are of poor suitability for riparian mammals. The nearest watercourse is a drainage ditch located approximately 140m south-east of the site, however this does not have sufficient connectivity across the wider area and is therefore assessed as unsuitable for riparian mammals. Ladden Brook is considered to provide suitable commuting and foraging habitat for riparian mammals and is located 300m east of the site. Whilst there are therefore opportunities for riparian mammals in the surrounding area, the habitats on, and in close proximity to, the site are of negligible value for riparian mammals and they are therefore considered absent and scoped out of this assessment.

4.8 Bats

4.8.1 Fifteen bat records were returned by the data search. Species included common pipistrelle, soprano pipistrelle, brown long-eared bat, noctule, Leisler's bat (*Nyctalus leisleri*), Natterer's bat (*Myotis nattereri*), whiskered bat (*Myotis mystacinus*) and Daubenton's bat (*Myotis daubentonii*). All of the records were dated from 2017 and related to a residential development approximately 100m east of the site.

4.8.2 No granted EPS licences relating to bats were recorded within 1km of the site.

4.8.3 The habitats on site comprise hardstanding, modified grassland and vacant/derelict land which provide minimal foraging opportunities for bats. The key features for bats are assessed to be the offsite native hedgerows which provide both foraging and commuting opportunities. The hedgerows provide connectivity with the wider area, however the habitats in proximity to the site are also of limited value for bats.

4.8.4 Based on the updated habitat surveys, the previous surveys undertaken at the site and the records returned by the data search, it is assessed that the site is likely to support an assemblage of bats comprised of common and widespread species and the site itself is considered to be of 'low suitability' for bats, in line with guidance (Collins, 2023). Any bats utilising the offsite hedgerows are considered to be of **'Local importance'** for nature conservation and potential impacts on the bat assemblage are discussed further in Section 6.

4.9 Birds

4.9.1 The data search returned over two hundred records of birds within 1km of the site, none of which were dated from within the last decade. Records included two field records of fieldfare (*Turdus pilaris*), which is a species listed within Schedule 1 of the Wildlife and Countryside Act 1981. The data search also returned records of several species listed on the RSPB's Birds of Conservation Concern (BoCC) Red and Amber lists, such as spotted flycatcher (*Muscicapa striata*), skylark (*Alauda arvensis*), yellowhammer (*Emberiza citrinella*), house sparrow (*Passer domesticus*), bullfinch (*Pyrrhula pyrrhula*), starling (*Sturnus vulgaris*) and song thrush (*Turdus philomelos*).

4.9.2 The site supports habitats of limited value for birds. The modified grassland provides some foraging opportunities, whilst the vacant/derelict land and developed land; sealed surface are considered to be of negligible value. The key features for birds are considered to be the offsite hedgerows and trees in close proximity to the site which offer foraging and nesting opportunities.

4.9.3 Overall, it is considered that the likely assemblage of birds on site is not of particular importance for nature conservation, likely to consist of common and widespread species. The development proposals will not result in the loss of potential nesting habitat and, as such, birds are not discussed further in this assessment.

4.10 Reptiles

4.10.1 No reptile records were identified within 1km of the site.

4.10.2 Targeted surveys carried out in 2019 concluded that reptiles are likely absent from the site.

4.10.3 The modified grassland was unmanaged at the time of the survey, offering some suitable cover and dispersal habitat for common species of reptiles. The discarded debris/materials within the area of vacant/derelict land provide refugia, however the habitat as a whole shows signs of regular disturbance which reduces the suitability for reptiles. The key features for reptiles are considered to be the offsite hedgerows which provide commuting and foraging opportunities.

4.10.4 Whilst the site supports habitats which offer some opportunities for common reptiles, recent surveys carried out at the site concluded that reptiles are likely absent. Since those surveys were undertaken, the land has been subject to regular disturbance due to construction activities taking place within the adjacent blue line boundary and it is therefore considered unlikely that the land would have become inhabited by reptiles. On this basis, reptiles are scoped out of this assessment and are not discussed further.

4.11 Amphibians

4.11.1 Four records of GCN were returned by the data search. Two of the records were dated from within the last decade and they related to ponds located 670m and 900m east of the site.

4.11.2 The data search identified one granted EPS licence relating to GCN (2019-39467-EPS-MIT), located approximately 755m east of the site. The licence is valid from 2019 to 2029.

4.11.3 A search for ponds within 500m of the site identified one pond within 500m (Pond 1 in Figure 5). This pond is located approximately 50m north of the site and an eDNA survey of the pond undertaken in 2021 was negative for GCN DNA. It was also observed that the pond supported wildfowl, which reduces the suitability for amphibians.

4.11.4 There are no waterbodies on site and the terrestrial habitats are of low suitability for GCN. The vacant/derelict land appears to be subject to regular disturbance and the site is separated from the ponds in the wider area with records of GCN by urban development. Given the low suitability and isolated setting of the terrestrial habitats on site and the lack of GCN DNA within the offsite pond to the north, it is assessed that GCN are likely absent from the site.

4.11.5 Common amphibians, such as common frog (*Rana temporaria*) or common toad (*Bufo bufo*), may occasionally disperse across the site. However, the site is not assessed to be of significant nature conservation importance for them and amphibians are therefore not discussed further in this assessment.

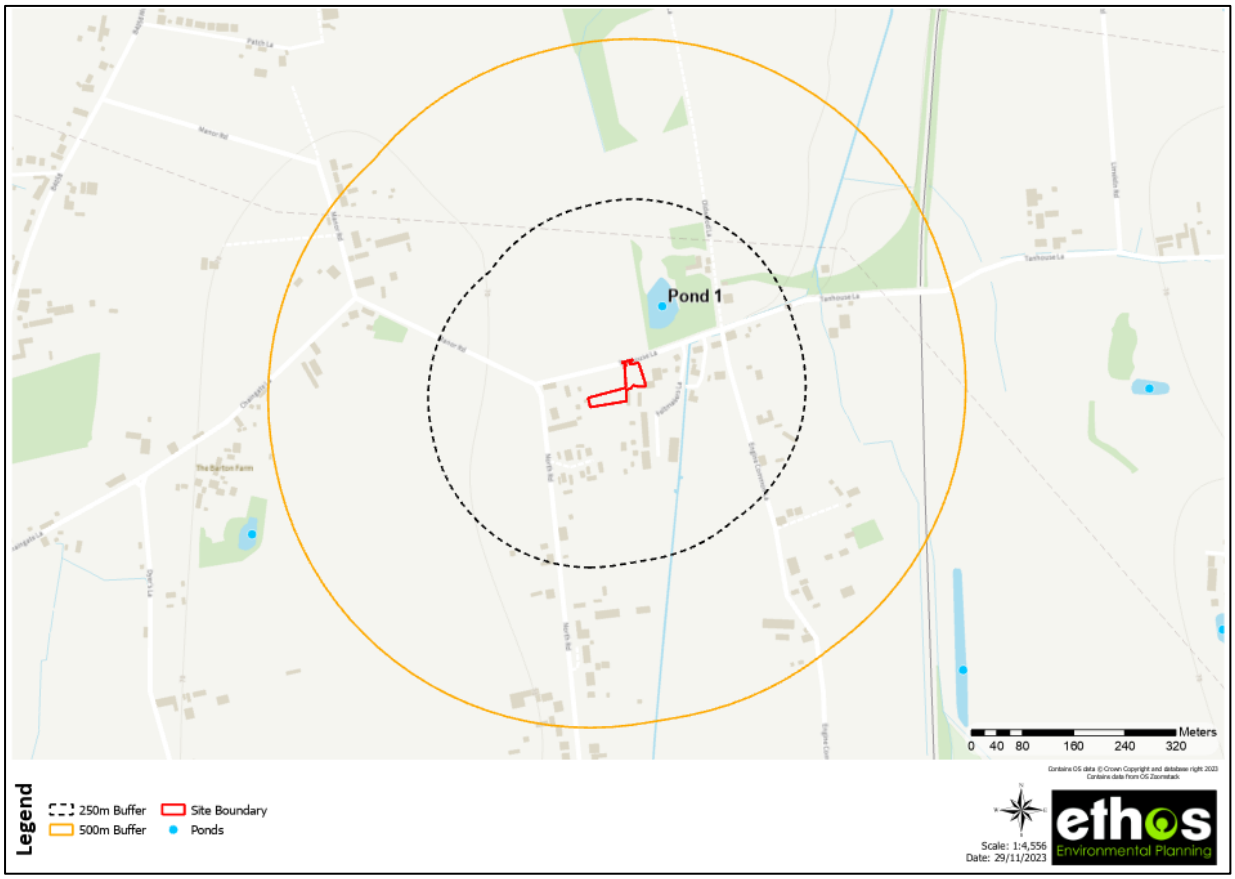

Figure 5 Ponds within 500m of the site

4.12 Invertebrates

4.12.1 The data search identified fourteen invertebrate records within 1km of the site, including nine records relating to NERC S.41 species. These species were small heath (*Coenonympha pamphilus*), white-letter hairstreak (*Satyrium w-album*) and cinnabar (*Tyria jacobaeae*). None of these records were returned within the last decade.

4.12.2 The site supports common and widespread habitats which are assessed to be of limited value for invertebrates. It is therefore considered that the site is unlikely to support an assemblage of invertebrates that is of particular importance to nature conservation. As such, invertebrates are not discussed further in this assessment.

4.13 Summary

4.13.1 The important ecological features of relevance to this assessment and their importance are summarised in Table 4.

Table 4 Summary of important ecological features

Important Ecological Features	Scale of Importance
Traditional orchard (offsite)	Local
Native hedgerows (offsite)	Local
Hazel dormouse	Local

Important Ecological Features	Scale of Importance
Bats	Local
Hedgehog	N/A – precautionary mitigation

5 DESCRIPTION OF THE PROPOSED DEVELOPMENT

5.1 The development proposals comprise the construction of three residential properties with associated gardens and landscaping, as shown in Figure 6.

5.2 The layout of the development has been developed to minimise impacts on site ecology as follows:

- The existing offsite hedgerows will be protected during the construction phase and in the long-term via planting of new native hedgerows along the site boundaries.
- This new native hedgerow planting will increase the overall connectivity of the site for species such as bats and hazel dormouse.
- The hedgerows adjacent to the access track and along the northern boundary will be managed by a management company to ensure their long-term protection.
- Access to the site will be through the existing access point from Tanhouse Lane to the north and will not require the removal of vegetation.

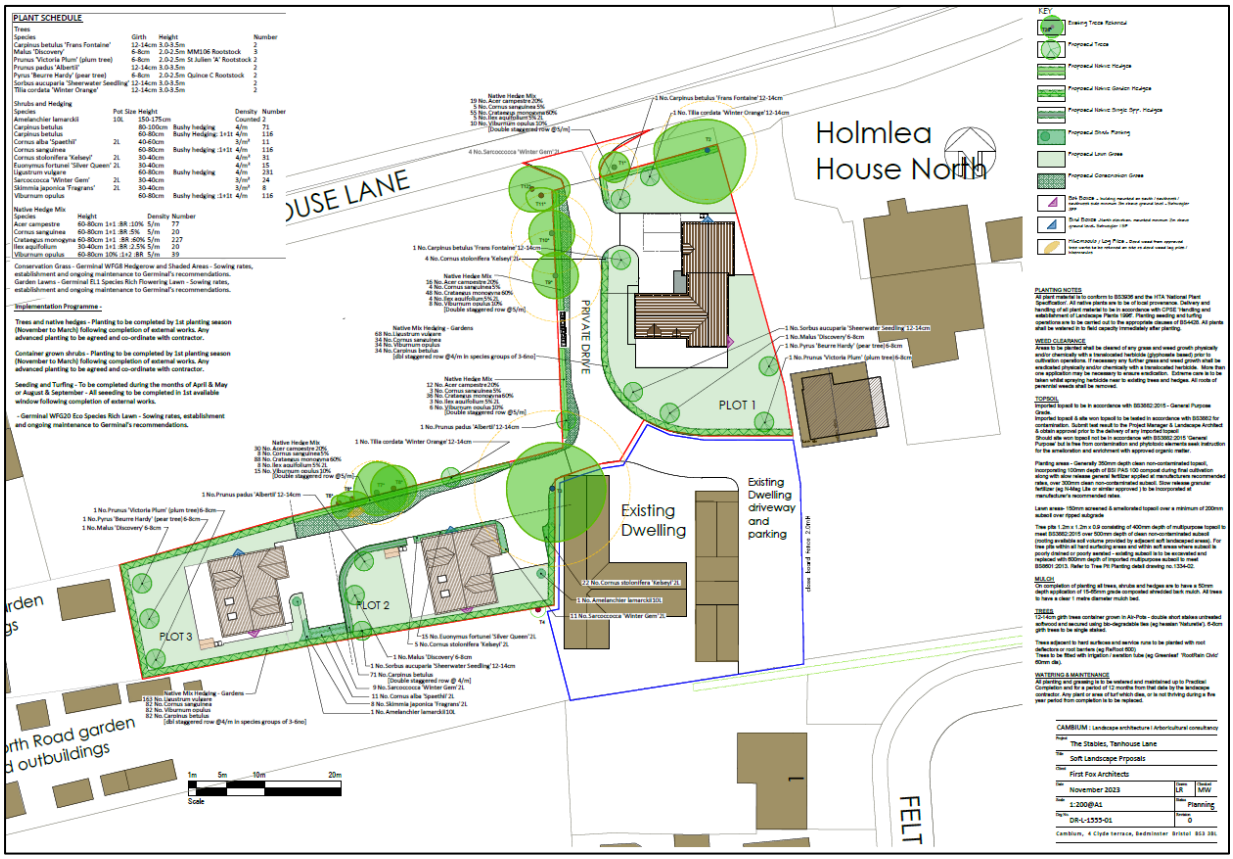

Figure 6 Soft landscape proposals, Drawing No: DR-L-1555-01, Rev: 0 (Cambium, 2023)

6 ASSESSMENT OF IMPACTS AND MITIGATION MEASURES

6.1 Traditional Orchard (Offsite)

Construction

6.1.1 The proposed works are of a small scale and the existing hedgerows between the site and the traditional orchard will be protected during the construction phase, providing a buffer between the construction activities and the orchard. It is therefore considered that the offsite traditional orchard will not experience any direct impacts during the construction phase. However, the works are likely to result in the production of dust and surface water runoff, which, given the proximity to the site, may impact the traditional orchard. Dust and water pollution can have damaging effects on soil quality and ecosystems. It is therefore recommended that strict dust and water control measures are put in place during construction to avoid impacts on the offsite traditional orchard.

Operational

6.1.2 The proposed development will not result in a large increase in residents in the area and the traditional orchard is not publicly accessible. It is therefore expected that there will be no operational impacts on the traditional orchard as a result of the proposed development.

6.1.3 With the implementation of suitable dust and water quality control measures during construction, **no significant effects** are predicted on the adjacent traditional orchard.

6.2 Native Hedgerows (Offsite)

Construction

6.2.1 In the absence of mitigation during construction, impacts on the native hedgerows to the north and south of plots 1 and 2 could include damage to the root protection zones of the trees within the hedgerows as well as impacts from construction pollution. To avoid impacts, the hedgerows will be protected with tree protection fencing and pollution prevention controls will also be required.

Operational

6.2.2 Potential impacts on the offsite hedgerows adjacent to the site boundaries could include damage from excessive residential management. To avoid damage, new hedgerows will be planted adjacent to the existing offsite hedgerows to shield them from the residential development. The new hedgerows adjacent to the access track and the northern boundary will be managed by a management company to ensure their long-term protection. Details of the planting and management of the new hedgerows can be found within the Soft Landscape Proposals and the Landscape Maintenance and Management Plan (Cambium, 2023).

6.2.3 Overall, with the implementation of precautionary mitigation during construction and protection during the operational phase, **no significant effects** are predicted on the offsite hedgerows as a result of the proposed development.

6.3 Hazel Dormouse

Construction

6.3.1 In the absence of mitigation, impacts on hazel dormouse could include damage to retained dormouse habitat, namely the offsite native hedgerows, during construction. To avoid impacts, suitable tree protection fencing will be installed during the construction period.

Operational

6.3.2 As the existing offsite hedgerows will be retained and protected as part of the development, potential impacts on hazel dormouse are expected to be limited to anthropomorphic impacts from an increase in residential pressure. These are assessed to include increased predation from domestic cats and an increase in artificial lighting. However, given the small scale of the development and the lack of light spill as demonstrated in the lighting strategy (DFL, 2023), potential impacts are not expected to be significant.

6.3.3 With the implementation of suitable mitigation during construction and the planting of suitable species within the new hedgerows, **no significant effects** on hazel dormouse are predicted as a result of the development.

6.4 Bats

Construction

6.4.1 Potential impacts on the assemblage of bats utilising the site for foraging and commuting purposes could occur as a result of insensitive construction lighting. To ensure these impacts are avoided, all construction lighting will be turned off overnight. If construction lighting is required after dusk at any time, it will be positioned away from the native hedgerows adjacent to the modified grassland parcel, which were assessed to be the key features for commuting and foraging bats.

Operational

6.4.2 An increase in lighting onto the new native hedgerows as a result of light spill from the new properties could result in longer term impacts on commuting and foraging bats. In order to avoid this, an external lighting plan has been provided which demonstrates that these areas can be retained at below 0.5 lux. The light spill diagram for the site can be found in Appendix 1. Other mitigation measures relating to lighting include the use of warm white colour temperature light (2700 Kelvin or less) and the use of motion sensor

lighting on the exterior of the properties to limit the time they are on. As such, it is expected that impacts on foraging/commuting bats during the operational phase will be avoided.

6.4.3 If the lighting plan is adhered to, **no significant effects** are predicted on bats as a result of the proposed development.

6.5 Hedgehog

6.5.1 Good practice measures should be employed during construction to avoid impacts on hedgehogs. This should include appropriate storage of material (i.e. not in piles on the floor) to avoid creating refugia for hedgehog and ensuring any trenches or excavations have escape ramps to allow hedgehogs to escape in case any fall in.

6.5.2 Sections of non-permeable fencing (e.g. close-boarded fencing) along residential gardens will be made permeable to hedgehog through ensuring suitable gaps in fencing are created, which will allow hedgehog to disperse, commute and forage across site post-construction.

6.5.3 Overall, with the implementation of suitable mitigation measures during and post-construction, **no significant effects** are predicted on hedgehog as a result of the development.

6.6 Summary

6.6.1 A summary of the predicted significance of any effects, as well as the proposed mitigation/compensation measures and how these may be secured are outlined in Table 5.

Table 5 Summary of significance of effects and mitigation/compensation

Ecological feature	Mitigation/compensation	Mechanism for securing delivery	Residual effects
Traditional orchard (offsite)	• Precautionary construction measures – dust and water pollution control measures.	Contractors to follow best practice.	No significant effect
Native hedgerows (offsite)	• Provision of tree protection fencing. • Planting of new hedgerows to shield the existing hedgerows from the development during operation.	Tree protection plan. Contractors to follow best practice. Landscape Maintenance and Management Plan.	No significant effect
Hazel dormouse	• Protection of suitable hazel dormouse habitat.	Tree protection plan. Lighting strategy.	No significant effect
Bats	• Sensitive construction lighting.	Lighting strategy.	No significant effect

Ecological feature	Mitigation/compensation	Mechanism for securing delivery	Residual effects
	• Lighting strategy avoiding light spill above 0.5 lux on boundary hedgerows.	Contractors to follow construction lighting measures outlined in EcIA.	
Hedgehog	• Precautionary construction measures – appropriate storage of materials and escape ramps added to trenches. • Permeable fencing to allow hedgehog dispersal through site.	Contractors to follow precautionary measures outlined in EcIA.	No significant effect

6.7 Cumulative Effects

6.7.1 A search for planning applications within 1km of the site was undertaken using South Gloucestershire Council's planning portal. Several of the applications related to small-scale extensions to existing properties, whilst some, as described below, related to the construction of new residential dwellings.

6.7.2 Land approximately 15m to the south-east has received Permission in Principle for the erection of up to six residential dwellings (Planning Reference: P23/01219/PIP). Surveys undertaken on this land by Ethos in 2023 identified that the habitats are of negligible to low value for wildlife. The key features were assessed to be the native hedgerows along the eastern and southern boundaries.

6.7.3 Land approximately 100m to the east was approved for the erection of four detached houses in 2018 (Planning Reference: PK18/3104/F). Bat surveys undertaken by Ethos at the site in 2017 identified low levels of bat activity along the site boundaries. To mitigate for the presence of foraging/commuting bats, a lighting strategy was produced which demonstrated that the boundaries would not experience light spill above 0.5 lux.

6.7.4 Development within the blue line boundary directly to the south-east of the site comprised the conversion of the outbuilding to facilitate the formation of an annex (Planning Reference: P23/00729/HH). This development did not result in the loss of hedgerows, which were assessed to be the key feature for wildlife on the site.

6.7.5 Overall, the proposed and approved developments within the surrounding area are of a small-scale and predominantly result in the loss of low value habitats. The key features for wildlife, namely the hedgerows, are being retained and protected, in line with the proposed development. A lighting strategy has been produced for the site to demonstrate that impacts on bats commuting/foraging across the area can be avoided. As such, is expected that there will be **no significant cumulative effects** as a result of the proposed development.

7 ENHANCEMENTS

7.1 Habitats

7.1.1 New native tree planting around the site boundaries will provide additional foraging resources for birds. Trees include fruiting species which will increase the value of the site for invertebrates.

7.1.2 The planting of new native hedgerows along the site boundaries will provide new foraging opportunities for birds, bats and hazel dormouse and new nesting opportunities for birds.

7.1.3 New grass verges will be created between the access track and the new native hedgerows in the north-west of the site. These verges will contain nectaring species which will provide new opportunities for invertebrates and in turn benefit the species which feed on them, such as birds and bats.

7.2 Protected Species

7.2.1 Enhancements for bats will include the installation of three 3FF Schwegler bat boxes suitable for a range of species. These will be placed on the eastern and southern aspects of the properties at a height of at least 3m above ground level.

7.2.2 Enhancements for birds will comprise the installation of three 1SP Schwegler sparrow terraces. These will provide new nesting opportunities for house sparrow, which were identified within the data search. The terraces will be placed on the northern elevations of the properties at a height of at least 2m above ground level.

7.2.3 A hibernacula will be created within one of the grass verges in the north-western part of the site comprising dead wood from approved tree works. This will provide opportunities for invertebrates and hedgehogs.

8 MONITORING

8.1 The provision of the ecological enhancements as set out in Section 7 will be subject to an ecological compliance report undertaken by an Ecological Clerk of Works (ECoW).

8.2 The habitat on site provided for biodiversity net gain will be monitored for success every five years for 30 years. This will be the responsibility of the management company who will appoint an ecologist to undertake this.

9 CONCLUSIONS

9.1 The site comprises vacant/derelict land, modified grassland and a hardstanding access track. There are three offsite hedgerows comprising a mixture of native and ornamental hedgerows adjacent to the red line boundary. The native hedgerows and adjacent traditional orchard were assessed to contain local importance for nature conservation and potential impacts on these habitats will be avoided through the implementation of precautionary mitigation during and post-construction.

9.2 The site itself supports habitats of negligible to low value for wildlife. The key features are assessed to be the offsite native hedgerows adjacent to the site boundaries. These hedgerows are considered to provide suitable habitat for birds, hazel dormouse, hedgehog and bats.

9.3 Mitigation measures for birds, hazel dormouse, hedgehog and bats have been provided, which focus on avoiding impacts during the construction phase and protecting the key features during the operational phase.

9.4 Enhancements for invertebrates, bats and birds have been recommended, including the addition of new roosting and nesting provisions.

9.5 The development proposals are therefore assessed to be compliant with local policy, including South Gloucestershire's Local Plan Policy CS2 Green Infrastructure and Policy PSP19 Wider Biodiversity.

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APPENDIX 1 LIGHT SPILL DIAGRAM

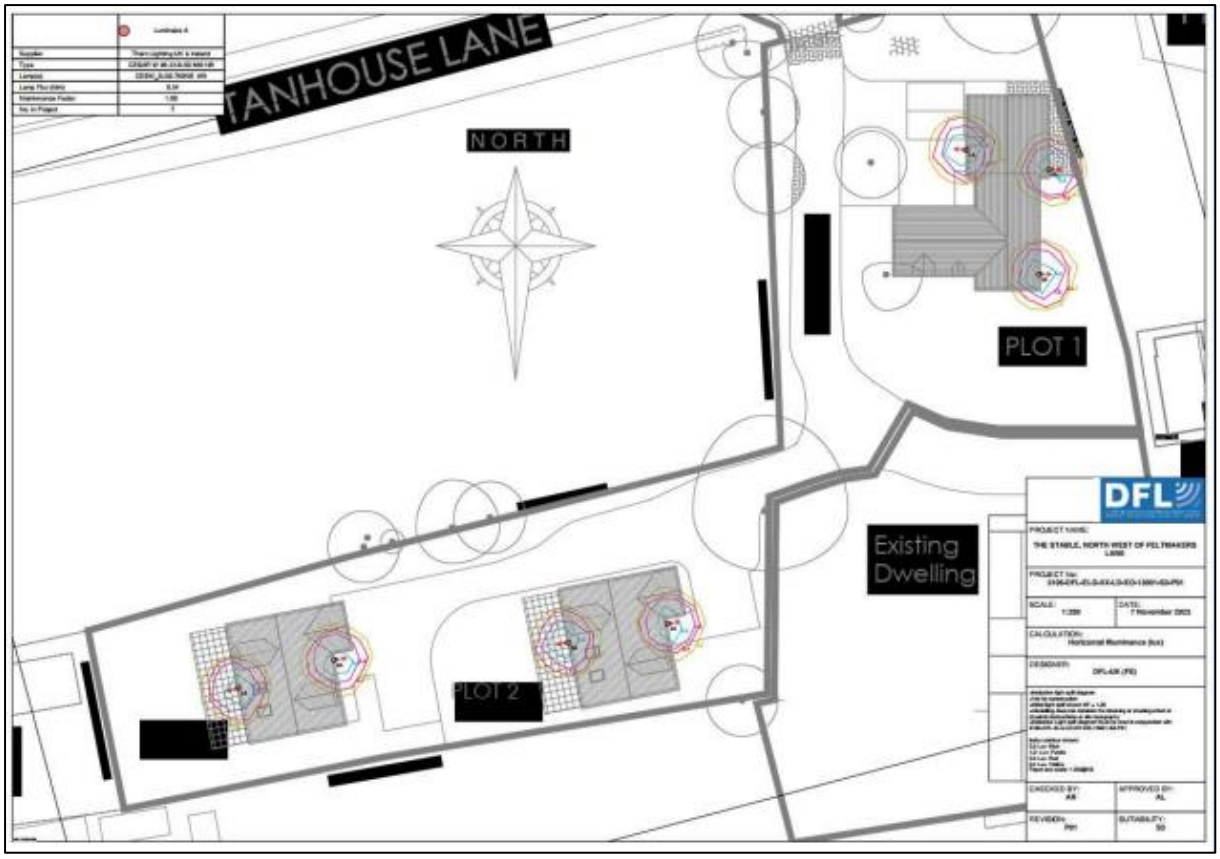

Figure 7 Light spill diagram (DFL, 2023)