



DARWIN ECOLOGY
integrating nature conservation

The Hopkiln Bury Court, Bentley,
Farnham, GU10 5LZ

Email: info@darwin-ecology.co.uk

www.darwin-ecology.co.uk

Ecological Impact Assessment

Great Rye Farm,
Farnham Road
Hook,
RG29 1HT

September 2023

Darwin Ecology Ltd
Registered Office: 8 Layton Lane, Shaftesbury, Dorset SP7 8EY
Company No. 07654823

1.	EXECUTIVE SUMMARY	4
2.	INTRODUCTION AND BACKGROUND	5
	Background	5
	Site Overview	5
	Scope of Assessment	5
3.	LEGISLATION & POLICY	7
	General Wildlife Legislation	7
	Bat Legislation	7
	National Planning Policy	8
	Local Planning Policy	10
	Hart Biodiversity Action Plan	12
4.	METHODOLOGY	13
	Desk Study	13
	Habitat Walkover Survey	13
	Great Crested Newt Habitat Suitability Index (HSI)	14
	Building Inspection	15
	Limitations	16
5.	SURVEY RESULTS	17
	Desk Study	17
	Habitat Walkover Survey	19
	Building Inspection	21
	Overall	25
	Trees	26
6.	IMPACT ASSESSMENT	30
	Designated Sites	30
	Habitats	30
	Bats	31
	Reptiles	32
	Great Crested Newt and Common Amphibians	33
	Terrestrial Mammals	34
	Birds	34
7.	ENHANCEMENT RECOMMENDATIONS	36
8.	REFERENCES	38
	APPENDICES	40

QUALITY CONTROL		
The information which we have prepared and provided is true, and has been prepared and provided in accordance with the Chartered Institute of Ecology and Environmental Management's Code of Professional Conduct.		
Prepared by	Elliot Lewis MRes - Assistant Ecologist	20.09.23
Approved by	Olatz Gartzia BSc MSc ACIEEM	22.09.23
<p>This report remains valid for 12 months from date of issue.</p> <p>Survey data are valid for 12-18 months from the date the survey was undertaken.</p>		

Copyright Darwin Ecology Ltd.

This report is intended for the commissioning party only and should not be copied or reproduced in any way without prior written permission from Darwin Ecology Ltd.

This report has been prepared for the sole use of the client. Any third party referring to this report or relying on the information contained herein, does so entirely at their own risk.

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

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

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

1. EXECUTIVE SUMMARY

- 1.1. Darwin Ecology Ltd was commissioned to undertake an Ecological Impact Assessment (EclA) of proposals for the buildings and habitats at Great Rye Farm, Farnham Road, Hook RG29 1HT. The assessment was required to support a planning application for the renovation of three barn buildings into liveable space, as well as the demolition of a stable building, and was informed by a desk study, internal / external building inspection and habitat walkover survey.
- 1.2. During the habitat walkover survey, habitats recorded within the site boundary comprised amenity grassland, bare earth, hardstanding, bramble scrub and four manmade structures. The majority of the habitats provide limited opportunities for protected and notable species, being of low intrinsic ecological value and individually small in size.
- 1.3. A pond was present immediately to the north of the site which was assessed as providing good potential for breeding great crested newts.
- 1.4. Under the current development proposals, the works will largely be confined to the areas of building footprint, bare earth and hardstanding, with the other habitats on site being minimally impacted. These impacted habitats are of negligible ecological value in the context of the site.
- 1.5. The bramble scrub and the scattered trees have moderate intrinsic ecological value, but are not being impacted by the works. Recommendations have been made to ensure that these habitats are protected for the duration of the proposed development works.
- 1.6. Due to the lack of suitable habitat for protected and notable species, and the low intrinsic ecological value of the impacted habitats, no further surveys are recommended. However, due to the connectivity of the site to the wider landscape, there is potential for these species to pass through site on occasion and therefore mitigative methods are recommended.
- 1.7. During the internal / external building inspection, all impacted buildings were assessed to have **negligible potential** to support roosting bats.
- 1.8. The proposed plans will not directly impact any bat roosts and works can proceed without licensing or further surveys. A precautionary method should still be followed.
- 1.9. **In the unlikely event that a bat is discovered during the works, all works must cease and a bat-licence ecologist contacted for advice.**
- 1.10. There is opportunity for enhancement within the application site and wider site ownership. Specifically, the implementation of a wildlife-beneficial landscaping scheme, implementation of bat and bird boxes and the installation of a barn owl nest box.

2. INTRODUCTION AND BACKGROUND

Background

- 2.1. Darwin Ecology Ltd was commissioned to undertake an Ecological Impact Assessment (EclA) of proposals for the buildings and habitats at Great Rye Farm, Farnham Road, Hook RG29 1HT¹. The assessment was required to support a planning application for the renovation of three barn outbuildings into liveable space, as well as the demolition of a stable building, and was informed by a desk study, internal / external building inspection and habitat walkover survey.
- 2.2. At the time of writing, no formal plans were available.
- 2.3. The internal / external building inspection followed the Bat Conservation Trust (BCT) Good Practice Guidelines (2016) and the habitat walkover survey followed the Chartered Institute for Ecological and Environmental Management (CIEEM) Guidelines for Preliminary Ecological Appraisal (2017).
- 2.4. The subsequent EclA follows the CIEEM Guidelines for Ecological Impact Assessment in the UK and Ireland (2018).

Site Overview

- 2.5. The site is situated approximately 5km south of the M3, 2.9km south of Dogmersfield village centre and 4.6km southwest of Fleet town centre.
- 2.6. It comprises a farmyard area with three listed outbuildings; a large vaulted barn, a smaller barn which had been converted into storage space, and a stable building, surrounded by associated amenity garden and hard standing. The site is bordered by residential dwellings to the north and east, and by pastoral and agricultural fields to the south and west (see **Figure 1**).
- 2.7. The wider landscape comprises a mosaic of pastoral and agricultural fields, and scattered areas of woodland. Within this mosaic, there are additional scattered low density residential areas consisting of detached properties with associated amenity gardens. a large industrial area is situated 525m northeast of the site. Large waterbodies are located 2.3km northwest and 2.6km north of the site, with the Basingstoke canal being situated around 1.2km northeast of site at the closes point (see **Figure 2**).

Scope of Assessment

- 2.8. The process of EclA aims to identify, quantify and evaluate the potential effects of development-related or other proposed actions on habitats, species and ecosystems.
- 2.9. Potential effects on the following ecologically sensitive receptors have been considered during the EclA of Great Rye Farm:

¹ Ordnance Survey (OS) grid reference TQ 10112 55749.

- Statutory designated sites;
- On-site habitats of intrinsic importance (such as buildings or discrete habitat features); and
- Protected species, comprising invertebrates, breeding birds, amphibians, bats, badger *Meles meles*, reptiles, and dormice.



Figure 1: Site location within the local landscape (Copyright Google Earth, 2023).

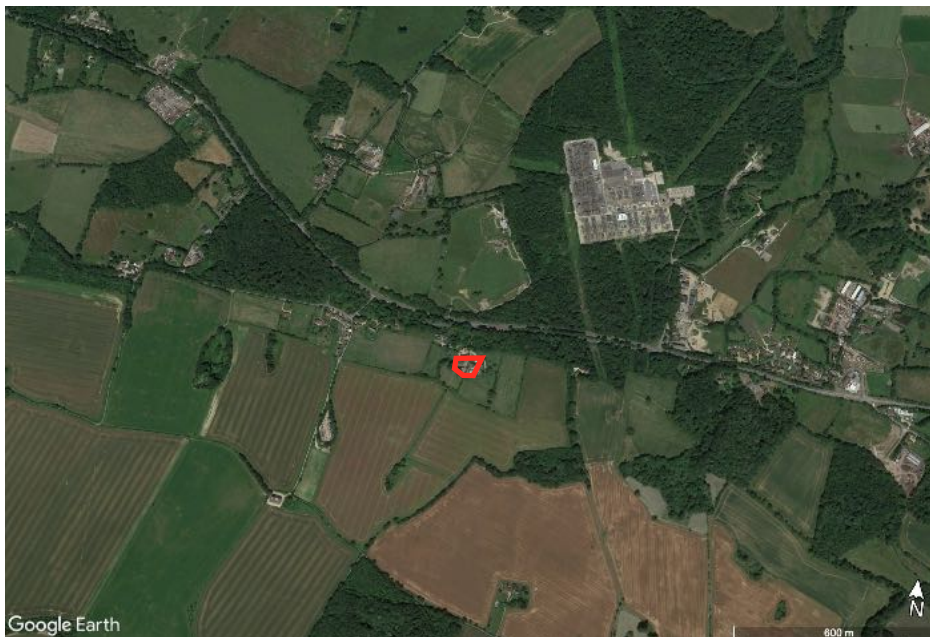


Figure 2: Site location within the wider landscape (Copyright Google Earth Pro,

3. LEGISLATION & POLICY

General Wildlife Legislation

- 3.1. Wildlife in the United Kingdom (UK) is protected through European and national legislation, supported by national and local policy and guidance. Development can contribute to conservation and enhancement goals outlined by these various legislation and policy by retaining and protecting the most valuable ecological features within a site and incorporating enhancements to provide biodiversity net gain.
- 3.2. This section provides a brief summary of the principle legalisation and policy that triggers the requirement for preliminary and further ecological assessments in the UK. The presence of protected species within a site are a material consideration during the planning process. Preliminary and any necessary further ecological assessments provide an ecological baseline for a site and evaluation of the potential impact of proposals.
- 3.3. It is the responsibility of those involved with development works to ensure that the relevant legislation is complied with at every stage of a project. Such legislation applies even in the absence of related planning conditions or projects outside the scope of the usual planning process (i.e. permitted development projects or projects requiring Listed Building Consent only).

Bat Legislation

- 3.1. In England and Wales, all bat species and their roosts are legally protected under the European *Habitats Directive (1992)*; the *Conservation of Habitats and Species Regulations (2017)*; the *Wildlife and Countryside Act (1981) (as amended)*; the *Countryside and Rights of Way Act, 2000*; and the *Natural Environment and Rural Communities Act (NERC, 2006)*.
- 3.2. Barbastelle *Barbastella barbastellus*, Bechstein's *Myotis bechsteinii*, greater horseshoe *Rhinolophus ferrumequinum*, lesser horseshoe *Rhinolophus hipposideros*, brown long-eared *Plecotus auritus*, soprano pipistrelle *Pipistrellus pygmaeus*, and noctule *Nyctalus noctula* bats are all species of principal importance in England under *Section 41* of the *Natural Environment and Rural Communities Act 2006*.
- 3.3. You will be committing a criminal offence if you:
 - Deliberately capture, injure or kill a bat;
 - Intentionally or recklessly disturb a bat in its roost or deliberately disturb a group of bats;
 - Damage or destroy a bat roosting place (even if bats are not occupying the roost at the time);
 - Possess or advertise/sell/exchange a bat (dead or alive) or any part of a bat; or
 - Intentionally or recklessly obstruct access to a bat roost.

- 3.4. The government's statutory conservation advisory organisation, Natural England, is responsible for administering EPS licenses that permit activities that would otherwise lead to an offence.
- 3.5. A licence can be obtained if the following three tests have been met:
- Regulation 53(9)(a) - there is "no satisfactory alternative" to the derogation, and;
 - Regulation 53(9)(b) - the derogation "will not be detrimental to the maintenance of the population of the species concerned at a favourable conservation status in their natural range" and;
 - Regulation 53(2)(e) - the derogation is for the purposes of "preserving public health or public safety or other imperative reasons of overriding public interest, including those of a social or economic nature and beneficial consequences of primary importance for the environment".

National Planning Policy

- 3.1. The *National Planning Policy Framework (2021)* aims to minimise impacts on biodiversity and provide net gains in biodiversity where possible, contributing to the Government's commitment to halt the overall decline in biodiversity. Chapter 15 'Conserving and enhancing the natural environment' details what local planning policies should seek to consider with regard to planning applications.
- 3.2. Planning policies and decisions should contribute to and enhance the natural and local environment by:
- 174 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);
 - 174 b) Recognising the intrinsic character and beauty of the countryside, and the wider benefits from natural capital and ecosystem services – including the economic and other benefits of the best and most versatile agricultural land, and of trees and woodland;
 - 174 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;
 - 175) Plans should: distinguish between the hierarchy of international, national and local designated sites; allocate land with the least environmental or amenity value, where consistent with other policies in this Framework; take a strategic approach to maintaining and enhancing networks of habitats and green infrastructure; and plan for the enhancement

of natural capital at a catchment or landscape scale across local authority boundaries;

176) Great weight should be given to conserving and enhancing landscape and scenic beauty in National Parks, the Broads and Areas of Outstanding Natural beauty which have the highest status of protection in relation to these issues. The conservation and enhancement of wildlife and cultural heritage are also important considerations in these areas, and should be given great weight in National Parks and Broads. The scale and extent of development within all these designated areas should be limited, while development within their settings should be sensitively located and designed to avoid or minimize adverse impacts on the designated area.

3.3. Specific policies regarding habitats and biodiversity comprise:

179) To protect and enhance biodiversity and geodiversity, plans should:

- a) identify, map and safeguard components of local wildlife-rich habitats and wider ecological networks, including the hierarchy of international, national and locally designated sites of importance for biodiversity, wildlife corridors and stepping stones that connect them; and areas identified by national and local partnerships for habitat management, enhancement, restoration or creation and
- b) promote the conservation, restoration and enhancement of priority habitats, ecological networks and the protection and recovery of priority species and identify and pursue opportunities for securing measurable net gains for biodiversity.

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;
- b) development on land within or outside of Sites 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 feature 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 and a suitable compensation strategy exists; and

d) development whose primary objective is to conserve or enhance biodiversity should be supported; while opportunities to improve biodiversity in and around development 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.

Local Planning Policy

3.4. The local planning policy for the site is the Hart Local Plan, with relevant policies comprising:

Policy NBE2 Landscape: Development proposals must respect and wherever possible enhance the special characteristics, value or visual amenity of the District's landscapes. Development proposals will be supported where there will be no adverse impact to:

- The particular qualities identified within the relevant landscape character assessments and relevant guidance;
- The visual amenity and scenic quality of the landscape;
- Historic landscapes, parks, gardens and features;
- Important local, natural and historic features such as trees, woodlands, hedgerows, water features e.g. rivers and other landscape features and their function as ecological networks; and
- It does not lead to the physical or visual coalescence of settlements, or damage their separate identity, either individually or cumulatively with other existing or proposed development.

An assessment of the impact on landscape character and visual quality should be carried out proportionate to the scale and nature of the development proposed. Where appropriate, proposals will be required to include a comprehensive landscaping scheme to ensure that the development would successfully integrate with the landscape and surroundings.

Policy NBE3 Thames Basin Heaths Special Protection Area: New development which is considered to have a likely significant effect on the ecological integrity of the Thames Basin Heaths Special Protection Area (TBHSPA) will be required to demonstrate that adequate measures will be put in place to avoid or mitigate any potential adverse effects. When considering development proposals for residential or similar forms of development the following principles will apply:

- There is an 'exclusion zone' set at 400m linear distance from the TBHSPA boundary. Permission will not be granted for development that results in a net increase in residential units within this zone unless it can be demonstrated through an appropriate assessment that there will be no adverse effect on the integrity of the TBHSPA;
- There is a "zone of influence" set at between 400m and 5km linear distance from the TBHSPA boundary. Mitigation measures will be required for all net new dwellings and must be delivered prior to occupation and in perpetuity.
- Residential development of over 50 net new dwellings that falls between five and seven kilometres from the TBHSPA may be required to provide mitigation measures.

Policy NBE 4 Biodiversity: In order to conserve and enhance biodiversity, new development will be permitted provided:

- It will not have an adverse effect on the integrity of an international, national or locally designated site;
- It does not result in the loss or deterioration of irreplaceable habitats, including ancient woodland and the loss of aged or veteran trees found outside ancient woodland, unless the need for, and benefits of, the development in that location clearly outweigh the loss;
- Opportunities to protect and enhance biodiversity and contribute to wildlife and habitat connectivity are taken where possible. All development proposals will be expected to avoid negative impacts on existing biodiversity and provide a net gain where possible.

Policy INF 2 Green Infrastructure: Development will be supported provided that:

- It protects the green infrastructure network as shown on the Policies map, avoiding any loss, fragmentation or significant impact on the function of the network;
- Where possible it enhances green infrastructure, through provision within the site, or where appropriate provision for off-site improvements in line with the green infrastructure Strategy;
- Any adverse impacts on the green infrastructure network are fully mitigated through the provision of green infrastructure on site or, where this is not possible, through appropriate off-site compensatory measures; and
- Where new green infrastructure is provided with new development, suitable arrangements are put in place for its future maintenance and management.

- 3.5. The local biodiversity action plan relevant to the site is Hart Biodiversity Action Plan. It aims to set out a long-term strategy for biodiversity conservation within Hart and provide a series of objectives and actions for achieving successful conservation of habitats and species across the county.

Hart Biodiversity Action Plan

- 3.6. The local biodiversity action plan relevant to the site is the Biodiversity Action Plan (BAP) for Hart 2018-2023. It aims to set out a long-term strategy for biodiversity conservation within the district of Hart and provide a series of objectives and actions for achieving successful conservation of habitats and species across the county.
- 3.7. This document aims to build on the previous plan while reflecting new opportunities and areas of focus for the period until 2023. The BAP will seek to deliver specific projects, many of which will be linked to the aspirations within the Corporate Plan for protecting and enhancing biodiversity in Hart. The BAP and its associated actions is also a key part of delivering national biodiversity targets at a local level and to facilitate Hart meeting its statutory biodiversity duties. The broad aims of this Plan are:
- To continue protecting habitats and species within the district and enhance existing areas for wildlife;
 - To ensure that all council owned or managed designated nature conservation sites are managed favourably and monitored accurately;
 - To action the creation of new habitats through planning policy, including investigating the feasibility of introducing a biodiversity offsetting scheme;
 - To continue raising awareness of biodiversity within the community;
 - To raise awareness of biodiversity among council staff and members and work to make biodiversity a key consideration in council decision making;
 - To Monitor and review local biodiversity and this action plan.

4. METHODOLOGY

Desk Study

- 4.1. A desk study was undertaken for designated sites and bat species and habitat records within 2 km of the site:
- The MagicMap website was reviewed, to obtain information on any designated sites of nature conservation interest within 2 km of the site and details of any European Protected Species licences issued within 2 km for bats and within 1km for great crested newt and dormouse;
 - The Hart District Council Planning Portal was searched for past and pending planning applications that may have associated ecological documents detailing results of bat surveys; and
 - Google Maps and Ordnance Survey (OS) Leisure Maps was utilised to view aerial photographs, maps and mapnik data, and to assess the ecological context of the site within the wider landscape.
- 4.2. Natural England has developed a tool to help assess the potential risks to Sites of Special Scientific Interest (SSSIs) by proposed developments. These are known as 'Impact Risk Zones' (IRZs) and they define the area around a SSSI that could be sensitive to development, considering the particular sensitivities of the feature for which the site is designated.
- 4.3. The IRZs help inform whether a development proposal may affect a SSSI and if so, whether it is necessary for the Local Planning Authority (LPA) to seek pre-application advice from Natural England. Information on the IRZs was determined from the MAGIC website to determine if the LPA is required to seek consultation for the current development.

Habitat Walkover Survey

- 4.4. Ecologist Abigail Harrington BSc (Hons) and Assistant Ecologist Elliot Lewis BSc (Hons) MSc conducted a walkover survey at Great Rye Farm 2nd August 2023.
- 4.5. The walkover survey assessed habitats present within the application red line boundary for their potential to support protected species, including:
- Bats;
 - Great crested newt *Triturus cristatus*;
 - Common amphibians;
 - Reptiles;
 - Dormice;
 - Other terrestrial mammals, including European hedgehog *Erinaceus europaeus* and badger;

- Otter *Lutra lutra* and water vole *Arvicola amphibius*;
- Birds; and
- Invertebrates.

- 4.6. As there is no running water within the site, in combination with their nationally sparse distribution, it is considered highly unlikely that white clawed crayfish *Austropotamobius pallipes* would be using the site and they are therefore not considered further in this report.
- 4.7. The site was also searched for non-native, invasive plant species, with particular care to search for the most commonly occurring and problematic species, such as Japanese knotweed *Fallopia japonica*, Indian balsam *Impatiens grandiflora* and giant hogweed *Heracleum mentegasianum*.

Great Crested Newt Habitat Suitability Index (HSI)

- 4.8. A Habitat Suitability Index (HSI) assessment was carried out on the waterbodies within the site. The HSI score gives an indication of the likelihood of presence of great crested newts (GCN) within a water body. The assessment can be performed at any time of year, although ideally between March and the end of September.
- 4.9. Generally, ponds with a higher score are more likely to support GCN than those with a lower score and there is a positive correlation between HSI scores and ponds in which GCN are recorded. Ten suitability indices (SI) are assessed for each pond to calculate the suitability of the ponds to support this species: Geographic location; Pond area; Desiccation rate; Water quality; Shade; Number of fowl; Number of fish; Number of linked ponds; Terrestrial habitat; and Macrophyte cover.
- 4.10. A total score of between 0 and 1 is calculated and pond suitability is then determined according to the scale shown in **Table 1** below:

Table 1: HSI scores and pond suitability for great crested newts

HSI Score	Pond Suitability
< 0.5	Poor
0.5 - 0.59	Below average
0.6 - 0.69	Average
0.7 - 0.79	Good
> 0.8	Excellent

Building Inspection

- 4.11. Ecologist Abigail Harrington BSc (Hons) and Assistant Ecologist Elliot Lewis BSc (Hons) MSc conducted a internal / external building inspection at the site at Great Rye Farm on the 2nd August 2023 in accordance with the following methodology:

External Survey

- 4.12. An investigation was carried out of external features with potential for use by roosting bats, such as gaps under roof and ridge tiles, gaps at soffit boxes or fascias. A search for bat droppings was made beneath each potential entry/exit point identified where accessible. The surveyor used binoculars and powerful, low-heat LED torch.

Internal Survey

- 4.13. An investigation was carried out of the roof void (including the floor and walls) for signs of bats roosting and the access potential into the roof void for bats. The surveyor looked for bats, bat droppings, likely access points, signs of feeding, dead bats, scratch marks and staining, and made a suitability assessment of the structure of the roof.

Categorisation of bat roosting potential

- 4.14. Each building and tree was assessed for its potential to support roosting bats as detailed in **Table 2** below which is taken from the Bat Conservation Trust 2016 guidelines Table 4.1 and Table 7.3.

Table 2: Roost classification from the Bat Conservation Trust (2016) guidelines

Category	Description of roosting habitat	Number of surveys required
Negligible	Negligible habitat features on site likely to be used by roosting bats.	No further surveys
Low	A structure with one or more potential roost sites that could be used by individual bats opportunistically. However, these potential roost sites do not provide enough space, protection, appropriate conditions and or suitable surrounding habitat to be used on a regular basis by large numbers of bats.	Single survey between May to August
Moderate	A structure with one or more potential roost sites that could be used by bats due to their size, shelter, protection, condition and surrounding habitat but unlikely to support a roost of high conservation status.	Two separate surveys with one dusk and one dawn re-entry survey between May-August.
High / Confirmed	A structure with one or more potential roost sites that are obviously suitable for use by a larger number of bats on a more regular basis and potentially for longer periods of time due to their size, shelter, protection, conditions and surrounding habitat.	Three separate surveys with at least one dawn survey.

Limitations

- 4.15. Ecological surveys are limited by factors that affect the presence of plants and animals such as the time of the year, weather, migration patterns. The survey was undertaken in August and therefore represents a valid sample of ecological evidence present on that date/season. The report is not designed, nor is it required to present a completed inventory of flora/fauna.
- 4.16. The desk study does not include data from the local environmental records centre (LERC). However, following CIEEM guidelines (2017) it is possible to conduct a robust assessment without the need of LERC data, for example for small-scale projects or on sites such as;
- A field in active arable cultivation where there is no impact on any hedges, trees or water bodies;
 - A small area of cultivated garden/amenity grassland, as above; or
 - A small urban site comprising mostly asphalt or compacted hardstanding.
- 4.17. The proposals include the renovation of three existing buildings and the demolition of the existing stable. Only small small areas of amenity grassland, bare earth, and hardstanding will be impacted. All mature trees of high ecological value are to be retained, and the ponds on site will not be impacted by the works. This is a low impact, small-scale project and therefore the lack of LERC data is not considered a limitation to the ecological assessment of the site.
- 4.18. Many species of bat in the UK are crevice-dwelling, and bats or signs of bats can be difficult to find within a building.
- 4.19. The interior of B4 could not be accessed. However, due to the lack of access points for bats observed during the external inspection, this is not considered a significant limitation to the assessment.
- 4.20. No other limitations were encountered, or assumptions made during either the desk study or the field survey and it is considered that with the access gained and recording undertaken an accurate assessment of the site's ecological importance has been made.

5. SURVEY RESULTS

Desk Study

Statutory Sites

- 5.1. There is one statutory site within 2km of the application site designated as a Site of Special Scientific Interest (SSSI), namely Basingstoke Canal. The site is 1.2km northeast and is a 99.15ha area nationally important for aquatic plants and invertebrates. It was designated for its extremely diverse flora, as well as its invertebrate richness.
- 5.2. The site is also in the impact risk zone for the Heath Brow SSSI, and Odiham Common with Bagwell Green and Shaw SSSI and the Thames Basin Heath SPA.

Habitats

- 5.3. There are numerous areas of priority deciduous woodland site, the closest of which is an unnamed area approximately 30m north of the site and is also registered on the National Forest Inventory (Woodland - Broadleaved). Further priority habitats within 1 km of the site comprise woodpasture and parkland BAP, and lowland fens.
- 5.4. There are six areas of ancient woodland within 1 km of the application site, the closest of which is an area named 'New Wood' located approximately 709m south.
- 5.5. Additionally the site is within a Priority area for Countryside Stewardship measures addressing Lapwing *Vanellus vanellus* habitat issues.

Protected Species

- 5.6. There are records on MagicMap of ten EPS licenses for works impacting bats within 2km of the application site and are summarised in **Table 3**:

Table 3: EPS Licences within 2 km of the site at Great Rye Farm.

Licence reference	Species and roosts Impacted	Approximate distance from site
EPSM2009-641	Destruction of a resting place and breeding site of common pipistrelle, serotine and brown long-eared bats	1.87km southwest
2017-28050-EPS-MIT	destruction of a breeding site of brown long-eared bats, common pipistrelle, and soprano pipistrelle	590m west
2014-606-EPS-MIT	destruction of a resting place of brown long-eared bats, common pipistrelle, and soprano pipistrelle	1.50km west
2019-41550-EPS-MIT	damage of a resting place of brown long-eared bats and common pipistrelle	2km west
2020-48461-EPS-MIT	destruction of a resting place and damage of a breeding site of brown long-eared bats and common pipistrelle	1.84km west
EPSM2009-1385	destruction of a resting place of common pipistrelle	1.76km west

EPSM2011-3801	Destruction of a resting place of soprano pipistrelle	1.71km northwest
EPSM2013-6748	Destruction of a resting place of common and soprano pipistrelle	1.64km northwest
2019-42649 - EPS-MIT	Damage of a resting place and breeding site of common pipistrelle, soprano pipistrelle, brown long-eared, and Daubenton's bats.	1.91km north
2020-49731 - EPS-MIT	Damage of a resting place and breeding site of common pipistrelle, soprano pipistrelle, and brown long-eared bats	1.87km north
2017-31216 - EPS-MIT	Destruction of a resting place of soprano pipistrelle	1.99km northeast

- 5.7. There are no records of EPS licences and Great Crested Newt Pond Survey 2017 - 2019 within 1km of the site. However, there was a EPS licence (2014-794-EPS-MIT) permitting the damage of a Great Crested Newt resting place at a location 1.27km northwest of the site.
- 5.8. There was one Great crested newt class survey licence return 887m east of the site.

Planning Portal

- 5.9. A search of the Hart District Council planning portal shows that there are no relevant planning applications with associated ecological documents in the nearby area within the last three years.

Habitat Walkover Survey

Habitats

- 5.10. A plan has been created for the site detailing the habitat areas identified on site (**Figure 3**).

Manmade Structures

- 5.11. There were four manmade structures present on site. These consisted of two single storey barns, a single storey building, and a stable block. These buildings are detailed further in the **Building Inspection** section of the report.
- 5.12. A fence of wooden post and metal wire construction bordered the west of the site.
- 5.13. Other buildings were present within the wider ownership, but these are not being impacted by works and therefore were not included within the assessment.

Hardstanding

- 5.14. Hardstanding of poured concrete construction comprised the majority of the site, consisting of a driveway, track, and farmyard. The hardstanding on site was in good condition, with few encroaching species.

Improved Grassland

- 5.15. There was a small area of improved grassland to the east of the site which was bordered on all aspects by hardstanding. The grass appeared regularly managed and kept to a short sward length of approximately 10cm. The grassland was predominantly annual meadow grass *Pea annua*, with other recorded species including white clover *Trifolium repens*, dandelion *Taraxacum sp.*, and common daisy *Bellis perennis*.
- 5.16. A weeping willow *Salix babylonica* tree (Target Note 1) was present in the centre of the grassland, reaching around 10m in height.

Bare Earth

- 5.17. Bare earth dominated the southwest area of the site, to the west of B2 and B1. There was a low level of encroachment at the border of this habitat by grassland species such as creeping thistle *Cirsium arvense*, maple saplings *Acer platanoides*, willow herb, dandelion, common nettle *Urtica dioica*, self heal *Prunella vulgaris*, white clover, and herb robert *Geranium robertianum*.

Bramble Scrub

- 5.18. Bramble scrub comprised the southwestern border of the site (Target Note 2). This scrub was dense and came to a height of approximately 1.5m. The scrub predominantly consisted of bramble *Rubus fruticosus*, with other recorded species including ivy *Helix hedera*, dog rose *Rosa canina*, creeping thistle *Cirsium arvense*, and common nettle.

5.19. Emergent trees were present within the scrub, which were predominantly young, and varied in height. Recorded species included maple, hawthorn *Crataegus monogyna*, hornbeam *Carpinus betulus*, and hazel *Corylus avellana*.



Image 1: Eastern amenity grassland with mature willow tree



Image 2: Hardstanding



Image 3: Bramble scrub on the southwestern border of the site



Image 4: Bare earth with encroaching vegetation

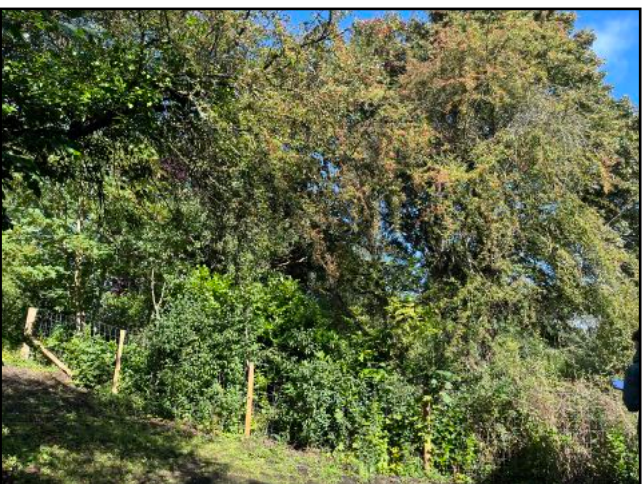
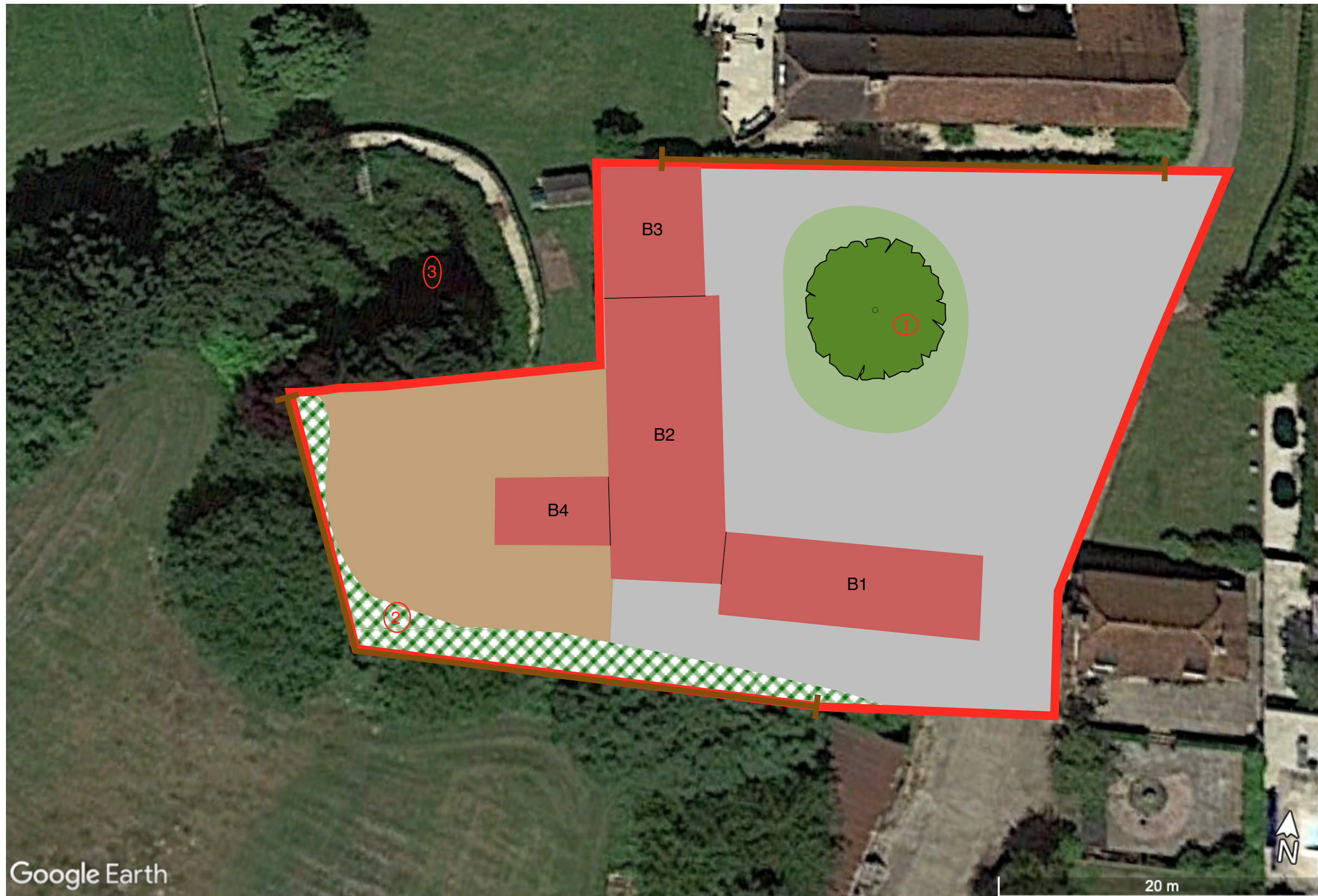


Image 5: Bramble scrub with emergent trees on western border



*NOTE Areas are indicative and are not shown to exact scale.

Site Boundary



Improved grassland



Building



Tree



Dense with Emergent Trees



Hardstanding



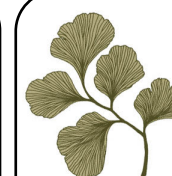
Fence



Bare Ground



Target Note



DARWIN
ECOLOGY

integrating nature conservation

Project: Great Rye Farm

Figure 3: Habitat Map

Date: August 2023

Info@darwin-ecology.co.uk
www.darwin-ecology.co.uk

Protected Species

Bats

- 5.20. The vegetation on site provided potential foraging and commuting opportunities for bats which connects to suitable priority deciduous woodland in the wider area. No potential roosting features (PRFs) were identified on mature trees during the walkover survey.

Building Inspection

B1

External Assessment

- 5.21. The building was a single storey barn with a loft void of brick construction. There was some wooden cladding within the hipped end on the eastern aspect of the structure. There was some visible lifting and damage to this wood clad area, which whilst not suitable as potential external roosting opportunities, allowed access to the interior.
- 5.22. The structure had a hipped roof and was connected to B2 on the western aspect. The roof was of corrugated metal construction with lead flashing over the ridges. Some damage and missing pieces were visible within the metal roof panels, and the lead flashing along the ridge had sections which were lifted. Additionally, the eaves were not sealed, allowing access into the loft void.
- 5.23. Overall, no external roosting opportunities were identified, but many access points into the void were identified.

Internal Assessment

- 5.24. Internally the main area of the structure had been converted into a storage space and was sealed with plasterboard, with some exposed beams being present along the ceiling. A high level of cobwebbing was present within this area. There was a single window the the northern aspect, allowing for high levels of light ingress. There were no internal roosting opportunities within this space.
- 5.25. The void measured 20m (L) X 6m (W) X 2m (H). The void had a timber A-frame with truss posts. The corrugated metal roof had no lining, and the hipped end was also not lined.
- 5.26. There was a high level of light ingress from the damage in the wooden cladding and from around the eaves. The ridge beam, structural beams and the eaves were all heavily cobwebbed, and the void contained high amounts of dust.
- 5.27. No bats or evidence of bats were recorded. Rodent droppings were present within the void and an owl pellet was found.
- 5.28. Due to the lack of lining there were no internal roosting opportunities identified internally. Due to the high level of light ingress, lack of a stable temperature, and lack of internal roosting opportunities, the void of B1 is not suitable for roosting bats.



Image 6: Northern aspect of B1.



Image 7: Southern aspect of B1



Image 8: Internal aspect of B1



Image 9: B1 loft void

B2

External Assessment

- 5.29. The building was a single storey vaulted barn of brick, wooden cladding, and breeze-block construction. It was connected on the northern aspect to B3, and on the southeastern aspect to B1. There was a large amount of damage to the wooden cladding on the eastern aspect, and the structure was open on the eastern and western aspects.
- 5.30. B2 had a corrugated metal hipped roof, with lead flashing at the ridges. There was wooden cladding present under the hipped ends, which was rotting with encroaching ivy. The flashing along the ridge was lifted and some of the corrugated metal plates were lifted, missing and damaged.

- 5.31. Overall, multiple access points were identified within the structure, but no external roosting points were identified.

Internal Assessment

- 5.32. B2 was open to the eaves and contained a vaulted ceiling with a timber A-frame with exposed timber beams. No central ridge was present. It was noted that the exposed timber beams were damp in places, indicating a high level of weather exposure.
- 5.33. The corrugated metal roof was unlined, with the walls also not being lined.
- 5.34. There was a high level of light ingress within the structure due to the open arches on the eastern and western aspects, the damage to the wooden cladding, and the missing roof panels.
- 5.35. There was a high level of cobwebbing throughout the structure. No bats or evidence of bats were recorded.
- 5.36. No internal roosting opportunities were identified due to the lack of lining on the metal roof. Additionally, the structure had a high level of element and light ingress. Overall, the structure was unsuitable for roosting bats.



Image 10: Eastern aspect of B2



Image 11: Southern and western aspects of B2



Image 12: Internal aspect (facing west) of B2

B3*External Assessment*

- 5.37. B3 was an open structure (on the eastern aspect) of brick, wooden cladding, and cement block construction containing small partition walls. There was large amounts of damage visible on the wooden cladding, with many sections being missing.
- 5.38. The structure had a pitched roof of corrugated metal construction, with lifting visible on many of the panels and at the ridge. Some lead flashing was present along the ridge which was lifted in some places.
- 5.39. Ivy was encroaching into the roof and the building along the northern aspect.

Internal Assessment

- 5.40. Internally the structure was open to the eaves and contained a timber A-frame. No central ridge beam was present. There was ivy encroaching into the structure along the northern aspect.
- 5.41. The roof and walls were unlined, allowing for high levels of light ingress from missing, lifted, or damaged metal roof panels and wooden cladding. The open eastern aspect also allowed for high levels of light and weather ingress.
- 5.42. No bats or evidence of bats were recorded. No internal roosting opportunities were identified due to the lack of lining on the metal roof. Additionally, the structure had a high level of element and light ingress. Overall, the structure was unsuitable for roosting bats.



Image 13: Eastern aspect of B3



Image 14: Internal aspect of B3

B4

External Assessment

- 5.43. B4 was a single storey stable block of wood panel construction with a brick base. No damage, lifting, or missing panels were recorded on this structure.
- 5.44. The structure had a pitched corrugated metal roof with lead flashing along the ridge. no lifting, damage, or missing panels were recorded on the roof. The eaves and ridges were well sealed. No access points were visible.
- 5.45. Two windows were present on the northern aspect of the structure allowing for high levels of light ingress

Internal assessment

- 5.46. The internal aspect of this structure could not be accessed. However, no access points were visible externally.



Image 15: Northern aspect of B4



Image 16: Southern aspect of B4

Overall

- 5.47. B1 was assessed as having **negligible potential** to support roosting bats as although there were many access points identified during the survey, the structure lacked internal and external roosting opportunities. Additionally, there was a high level of light ingress into the void.
- 5.48. B2 was assessed as having **negligible potential** to support roosting bats as although there were many access points identified during the survey, the structure lacked internal and external roosting opportunities. Additionally, there was a high level of light ingress and exposure to weather within the structure.

- 5.49. B3 was assessed as having **negligible potential** to support roosting bats as although there were many access points identified during the survey, the structure lacked internal and external roosting opportunities. Additionally, there was a high level of light ingress and exposure to weather within the structure.
- 5.50. B4 was assessed as having **negligible potential** to support roosting bat due to a lack of external roosting opportunities and a lack of access points for bats. The internal aspect of the structure would have a high level of light ingress due to the presence of two large windows on the northern aspect.

Trees

- 5.51. No trees on site are planned to be removed as part of the current proposals. If proposals change to include the removal of these trees then all impacted trees will need to undergo a ground level tree assessment.

Reptiles

- 5.52. There are no records of EPS licences for licensable works impacting reptiles (sand lizard *Lacerta agilis* and smooth snake *Coronella austriaca*) within 2km of the application site.
- 5.53. A search of planning applications on the Hart District Council planning portal did not identify any applications within 1km of the site with records of reptiles in the last 2 years.
- 5.54. The majority of habitats on site are unsuitable for reptiles as they do not offer opportunities for foraging, commuting or shelter. The bramble scrub provides some opportunities for these species, however, the size of this habitat is small, and therefore is unlikely to support a population of reptiles. Further to this, the site does not contain discrete refugia.
- 5.55. The bramble scrub has limited connectivity to suitable reptile habitat, being bordered by hardstanding, bare earth, and pastoral fields. The wider landscape does contain some habitats suitable for these species, such as deciduous woodland and field margins, suggesting that there is potential for these species to pass through site on occasion.

Great Crested Newt and Common Amphibians

- 5.56. There are no records of EPS licences and Great Crested Newt Pond Survey 2017 - 2019 within 1km of the site. However, there was a EPS licence (2014-794-EPS-MIT) permitting the damage of a Great Crested Newt resting place at a location 1.27km northwest of the site. There was one Great crested newt class survey licence return 887m east of the site.
- 5.57. A search of planning applications on the Hart District Council planning portal did not identify any applications within 1km of the site with records of amphibians in the last 2 years.
- 5.58. There is one pond immediately to the north of the site (P1 - Target Note 3) and a further four ponds within 500m (P2, P3, P4, and P5 - Figure 4). Two of these ponds are within 250m of the site (P2 and P3).

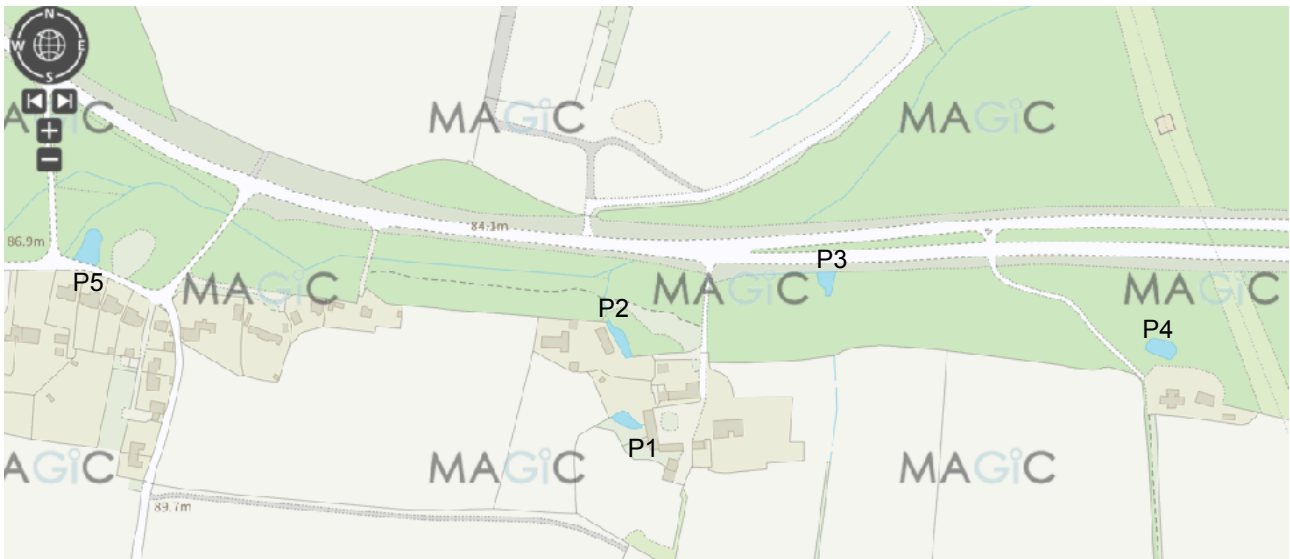


Figure 4: Ponds within 500m of the site

- 5.59. Wooden post and rail fencing bordered the site to the north, and the waterbody to the north of the site is bordered by a metal post and rail fence.
- 5.60. The pond to the north of the site was assessed using the habitat suitability (HSI) tool. It was determined to have “High” suitability to support a great crested newt population. The full HSI calculations are presented in **Table 4**.

Pond Name		P1
SI No	SI Description	SI Value
1	Geographic location	1.00
2	Pond area	0.20
3	Pond permanence	1.00
4	Water quality	0.67
5	Shade	0.90
6	Water fowl effect	0.67
7	Fish presence	1.00
8	Pond Density	1.00
9	Terrestrial habitat	0.67
10	Macrophyte cover	0.90
HSI Score		0.74
Pond suitability		<i>Good</i>

Based on ARGUK advice note 5 - GCN HSI



Image 17: Pond 1 to the north of the site

- 5.61. The bramble scrub offers foraging, commuting, and shelter opportunities for amphibian species. However, all other habitats on site are not suitable for these species due to not offering these opportunities. There is some limited connectivity between P1 and neighbouring ponds through scrub and field margins, however connectivity between the site and the wider landscape (particularly to suitable amphibian habitats within the wider

landscape) is limited due to the site being bordered by pastoral fields and hardstanding. There is potential for amphibians to be present on site due to the good quality pond and small amount of suitable habitat, and there is potential that these species pass through site on occasion.

Dormouse and other Terrestrial Mammals

- 5.62. There is one record of EPS licences for licensable works impacting dormouse within 1km of the application site, which covers a property 631m northeast of the site, and permits the destruction and damage of a resting place and breeding site of hazel dormice (2018-33358-EPS-MIT)
- 5.63. A search of planning applications on the Hart District Council planning portal did not identify any applications within 1km of the site with records of dormice in the last 2 years.
- 5.64. No evidence of dormouse was found during the habitat walkover of the site. The habitats on site offer no suitability for dormice. The scrub along the southeastern boundary contained some species of ecological value to dormouse, providing foraging and commuting opportunities, however, the scrub does not connect to woodland within the wider landscape, and therefore is of little value to dormice.
- 5.65. Whilst dormice may be present in the woodland in the wider area, it is considered unlikely that they will be present within the site. Dormice are not considered further in this report.
- 5.66. No signs of badger activity e.g. latrines, snuffle holes, or sett entrances were recorded on site during the survey or within 30m of the site boundary. The site has suitable habitat for hedgehog and badger foraging including amenity grassland, scrub and the understory of mature and emergent trees. Priority woodland in the wider area provides extensive suitable habitat for these species. Therefore, whilst these species are unlikely to present on the site, they are likely to be within the wider area and therefore may pass through the site on occasion.

Otter and Water Vole

- 5.67. There are no records of EPS licences for licensable works impacting otters or water voles within 2km of the application site. A search of planning applications on the Hart District Council planning portal did not identify any applications within 1km of the site with records of otters or water voles in the last 2 years.
- 5.68. Whilst Basingstoke Canal is located within 1km of the site, there is no running water or suitable habitat for otter or water vole within the development boundary. Due to the small size of the site and the lack of suitable foraging and resting habitat or holt features on site it is considered highly unlikely that water voles or Eurasian otters are present.
- 5.69. These species are not considered further in this report.

Birds

- 5.70. The trees and scrub within the site provide good foraging and nesting opportunities for a variety of bird species which may be found in the local area. No active bird's nests were found during the survey.
- 5.71. The owl pellet found within B1 suggest that there are opportunities for hunting and feeding by barn owls within the site and the wider area. It is anticipated that the pellets are evidence of a feeding perch only as no suitable nesting platform was found within the barn. No suitable nesting platform was present within the other buildings on site.



Image 18: Owl pellet in B1

Invertebrates

- 5.72. The site likely supports an assemblage of common invertebrates.

6. IMPACT ASSESSMENT

Designated Sites

- 6.1. The site is located within Impact Risk Zones for several SSSIs which applies restrictions to large developments (50 or more houses), transport proposals, combustion processes etc. However the proposed works do not come under any description which would require the local planning authority to consult Natural England.
- 6.2. It is not anticipated that the proposed works will have a negative impact on nearby designated sites or related legislation, as the proposal is only for the refurbishment and demolition of existing buildings and will not result in an increase in local population size or footfall, and the closest designated site being approximately 1.2km northeast.

Habitats

Status on site

- 6.3. Habitats within the application site currently have low intrinsic ecological value, comprising amenity grassland, bare earth and hardstanding.
- 6.4. The scattered trees and scrub are of moderate local value as they offer opportunities for commuting, foraging, and nesting/shelter for protected and notable species. However, these habitats will not be directly impacted by works. The mature willow is of high local value due to its age and character, but this tree will not be directly impacted by works.

Potential Impacts

- 6.5. Under the current development proposals, the works will largely be confined to areas of hardstanding and bare earth.
- 6.6. Emergent trees on the southwestern boundary and the mature trees are to be retained under the current proposals.
- 6.7. Overall, the proposed will result in the loss of **low** importance habitats, resulting in a permanent **low** negative impact on a **local** level.

Mitigation

- 6.8. All trees that are to be retained and remain unaffected by the development, including trees adjacent to the site boundary, should be protected throughout the development in accordance with British Standards BS 5837:2012. Root protection areas should be 12 x the diameter at breast height (DBH) or the reach of the longest branch (whichever is greater), unless otherwise advised by a qualified arboriculturist. Trees located off site but with their roots on site should also be protected. No materials should be allowed to be stored within these root protection areas and no heavy machinery should run over them.

- 6.9. Where new planting is considered in the plan, native tree and shrub species should be used to enhance the ecological value of the site.

Bats

Status on site

- 6.10. During the PRA all buildings assessed during the survey were assessed as providing **negligible potential** to support roosting bats. No further surveys are required.
- 6.11. No trees are planned to be removed during the works, and subsequently were not assessed for their potential to support roosting bats.

Potential Impacts

- 6.12. The proposed works for Great Rye Farm include the renovation of three barn outbuildings into liveable space, as well as the demolition of the a stable building.
- 6.13. The works at Great Rye Farm are unlikely to impact a bat roost.
- 6.14. Works can proceed with further surveys or licensing. In the unlikely event that a bat is seen during the works, all works must cease and a bat licensed ecologist contacted for advice.**
- 6.15. Any new lighting incorporated within the new development has the potential to impact bats using the application site or adjacent habitats, and specifically, those species that are considered to be most light-sensitive.

Mitigation

- 6.16. Any new external lighting must be directed to avoid light spillage onto the retained trees and hedgerow. Upward lighting will be avoided by fitting lights with downward facing baffles and fixtures to ensure no light spillage above an angle of 70°. Lighting will be triggered by motion sensors using a short timer where possible and in compliance with building regulations. Warm white LEDs will be used in preference to bright white LEDs. All lighting plans will be reviewed by a suitably qualified ecologist before finalising and submitting for approval. See **Appendix 1** for further information on designing lighting to minimise impacts on bats.
- 6.17. *Habitats:* The proposals do not result in significant loss of foraging habitat for bats, however, a wildlife friendly landscaping scheme is recommended to enhance the site for bats and other wildlife.
- 6.18. Given the above mitigation strategies, it is considered likely that there will be no residual impacts on bats using the application site for foraging and commuting.

Reptiles

Status on Site

- 6.19. Whilst there is some suitable habitat on site for reptiles, in the form of bramble scrub, this habitat is unlikely to support populations of these species due to its small size. Additionally, the limited connectivity of the site to suitable habitat and the lack of further suitable habitat on site suggests that these species are unlikely to be present on site. The presence of the scrub and the fact that the wider landscape contains suitable habitat suggests that these species may be in the wider area and therefore may pass through site on occasion.

Potential Impacts

- 6.20. The proposed small scale vegetation clearance and construction works are not anticipated to result in a significant decrease in the quality of reptile habitat within the site due to the areas impacted being primarily hardstanding, and bare earth and therefore of low quality for reptiles. However, due to the presence of other good quality reptile habitat on site, any vegetation clearance and construction works associated with the renovation of the buildings have the potential to injure/kill reptiles if present at the time of works.

Mitigation

- 6.21. The grassland surrounding the site will be kept to a short sward length prior to construction works to ensure continued limited suitability for reptiles.
- 6.22. Vegetation clearance works will be done by hand and only occur during the reptile key active season (March-end of September, inclusive). Weather should be 9 degrees or higher, and dry with no strong winds. This will allow active reptiles to move to more suitable habitat nearby, if they are present within the working area.
- 6.23. The vegetation will be cleared in a two stage cut. Vegetation will be cut to a height of 1m with the following cut one to two hours later. All clearance will be carried out from the centre of the working area towards retained areas of habitat. The arisings should be completely removed from the working area to prevent the creation of potential refuge areas.
- 6.24. Reasonable avoidance measures (RAMs) will be implemented on site during construction works to avoid injury/killing of reptiles, to include:
- Open excavations should be sloped to prevent entrapment;
 - Any excavations left over night will be covered during the night to prevent reptiles from being stuck in them.
 - Any materials brought to the site should be stored in a secure store, raised on pallets or stacked as far as possible from the development area to prevent animals from using these areas for hibernation or refuge.

- Habitat fencing (such as heras fencing) around the development area will provide a buffer between suitable habitat within the site and the construction works. Disturbance should be avoided in and around the areas of mature trees at the southeast end of the site.

6.25. In the unlikely event that reptiles are found within the site, the project manager should contact an ecologist to supervise the removal and release of these individuals.

6.26. It is considered that following the implementation of these working measures and post-development enhancements this species group will be fully protected throughout the development process and that suitable ecological opportunities will remain available to them in the long term.

Great Crested Newt and Common Amphibians

Status on Site

6.27. Due to the presence of a good quality pond on site, the minor connectivity to ponds within the wider area, and the presence of scrub offering suitable habitat for amphibians, it is probable that these species are present nearby.

Potential Impacts

- 6.28. The pond adjacent to the site is not being impacted directly during the works.
- 6.29. Vegetation clearance and construction works associated with the refurbishment of the barns have the potential to injure/kill great crested newt and common amphibians should they be present at the time of works.

Mitigation

- 6.30. Given no suitable newt habitat is being impacted, it is considered that the mitigation measures outlined above with respect to **reptiles** will safeguard any individual amphibians in the event that they are present within the site during the development works.
- 6.31. In the unlikely event that a great crested newt is encountered during the development works, all works must immediately cease, and a suitably qualified ecologist must be contacted for advice.**
- 6.32. Given the above mitigation strategies, it is considered likely that there will be no residual impacts on amphibians.

Terrestrial Mammals

Status on Site

- 6.33. Badger and hedgehog may be present in the wider area due to the adjacent woodland and may pass through the site on occasion.

Potential Impacts

- 6.34. Should badger and hedgehog be present during the proposed works, they may be injured due to the destructive activity or trapped in any excavations.

Mitigation

- 6.35. It is considered that the mitigation measures outlined above with respect to **reptiles** will safeguard hedgehog and badger in the event that they are present within the site during the development works.
- 6.36. Given the above mitigation strategies, it is considered likely that there will be no residual impacts on terrestrial mammals.

Birds

Status on Site

- 6.37. The trees and scrub on site provided suitable nesting and foraging potential for birds. An owl pellet was identified within B1, indicating the use of the building as a feeding perch. No evidence of the barn being used as a nest was noted.

Potential Impacts

- 6.38. Currently no trees or scrub are planned to be removed as part of the works. Therefore, there will be no loss of nesting opportunities.

Mitigation

- 6.39. Breeding birds are protected by law and must not be disturbed until the chicks have fledged or the nest has failed. If vegetation removal is required during the breeding bird season (February - August), a pre-works check by a suitability qualified ecologist will be conducted to ensure that no active nests are present. If active nests are recorded, a suitable buffer will be retained around these until all chicks have fledged (to be confirmed by a suitably qualified ecologist).
- 6.40. Given the above mitigation strategies, it is considered likely that there will be no residual impacts on birds.
- 6.41. To enhance the site for barn owls the installation of a barn owl box is recommended within the barn or alternatively on a tree in the wider ownership of the site. A suitable tree would

be a mature tree where the box can be placed at least 3m above ground level. The access hole should face an open area but away from the prevailing weather.

Invertebrates

Status on Site

- 6.42. The site likely supports an assemblage of common invertebrates.

Potential Impacts

- 6.43. The habitats which will be lost have little ecological value to invertebrates and will largely be recreated following the works.

Recommendations

- 6.44. Where possible, area of species rich grassland which will be attractive to invertebrates should be incorporated into the design of the site. Some areas of grassland should also be allowed to grow longer (for example along the hedgerows) to help improve structural diversity on site.
- 6.45. Where new planting is considered in the plan, native tree and shrub species should be used to enhance the ecological value of the site. Examples of these species include apple, box, heather, common poppy, cornflower, and oregano.
- 6.46. Given the above mitigation strategies, it is considered likely that there will be no residual impacts on invertebrates.

7. ENHANCEMENT RECOMMENDATIONS

- 7.1. National planning policy states that all developments should seek to enhance onsite biodiversity whether impacts on protected species are recorded or not. Incorporating enhancement features into new or renovated buildings should be carefully considered. These features can be simple and inexpensive, please see below for specific recommendations.

Wildlife Beneficial Landscaping Scheme

- 7.2. Any future landscape planting should seek to enhance biodiversity, improve connectivity to the surrounding habitats and provide food and shelter for a wide range of wildlife. All amenity planting and formally landscaped areas should be designed using a variety of plant species beneficial for wildlife. These do not necessarily have to be native but should be chosen for their ability to provide nectar or fruit and should be non-invasive species. There are a number of specialist seed mixes available specific to certain soil types, growing conditions and designed to benefit different groups of species such as bees or butterflies and moths.
- 7.3. All habitats should be managed in a suitable way to encourage a wide variety of insects and other wildlife to use the site.
- 7.4. Further information regarding habitat creation, enhancement and management can be provided on request and submitted with further survey results for the final planning application.

Bats

- 7.5. To increase the roosting opportunities for bats in the area, at least two roosting features can be integrated into the refurbished buildings.
- 7.6. At least one integrated bat box such as a Schwegler 1FR bat tube or Green&Blue Bat Brick, could be implemented into the external brickwork of the refurbished buildings in order to provide new roost locations. If it is not possible to integrate bat features into the new building then at least two bat boxes such as the Greenwoods Small Hollow or Vivara Pro Beaumaris bat box can be installed on the external elevations of the new dwelling or on any mature trees on site. Bat boxes should be installed at a height of at least 4m, preferably on a southern un-cluttered aspect with good connectivity to linear features such as other mature trees and hedgerows. The location should be determined by a licensed bat ecologist to ensure likelihood of repeated use is increased.
- 7.7. Additionally, where traditional building methods are to be used, integrated, discrete features within a roof can be built into a wet ridge. This is done by providing a gap in the mortar allowing access for bats. By linking together a couple of ridge tiles, the feature becomes more suitable for a greater range of species and number of bats. Where discrete features

are being created, breathable roofing membrane must **NOT** be used in order to avoid hazards to bats.

Reptiles and Amphibians

- 7.8. To provide new resting and hibernating habitat for reptile and amphibians, small deadwood piles or hibernaculum features can be incorporated at appropriate areas of the site (see **Appendix 2** for further details).

Birds

- 7.9. Tree-mount bird boxes can be installed on any trees or building on site. Bird boxes should be installed at least 4 m from ground level and with unobstructed air space in front.

Invertebrate Features

- 7.10. Habitats within the site can best be enhanced through appropriate management practices, although specific features, such as bee bricks, can be incorporated at the application site.
- 7.11. Longer grass and habitat diversity as described above will also benefit this species group. The main aim of management for invertebrates is to maintain a diverse structure, with areas of short sward, bare ground, tussocks and flowering herbaceous plants. Native plants should be allowed to set seed to increase the availability of food (nectar and pollen) for foraging insects.

8. REFERENCES

CIEEM (2012) Guidelines for Preliminary Ecological Appraisal. *Technical Guidance Series*.

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

Mitchell-Jones, A.J., (2002). *Bat Mitigation Guidelines*. English Nature, Peterborough.

Mitchell-Jones, A. J. & McLeish, A. P. (2004). *Bat Workers' Manual (3rd Edition)*. JNCC, Peterborough.

Ordnance Survey Maps [online] www.osmaps.ordnancesurvey.co.uk [September 2023].

Schofield, H. W. & Mitchell-Jones, A.J. (2004). *The Bats of Britain and Ireland*. Vincent Wildlife Trust, Ledbury.

UK Government's Countryside Geographic Information Website [online] www.magic.gov.uk [September 2023].

Legislation and Policy

Council of the European Communities (1992) *Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora (EN)*. Official Journal of the European Communities [online] www.eur-lex.europa.eu/legal-content/EN/TXT/?uri=OJ:L:1992:206:TOC [September 2023]

Council of the European Communities (2009) *Council Directive 2009/147/EC of 30 November 2009 on the conservation of wild birds (EN)*. Official Journal of the European Union [online] eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2010:020:0007:0025:EN:PDF [September 2023]

Department for Environment, Food and Rural Affairs (2011) *Biodiversity 2020: A Strategy for England's Wildlife and Ecosystem Services* [online] www.gov.uk/government/uploads/system/uploads/attachment_data/file/69446/pb13583-biodiversity-strategy-2020-111111.pdf [September 2023]

Ministry of Housing, Communities & Local Governments (2019) National Planning Policy [online] www.assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/810197/

NPPF_Feb_2019_revised.pdf [Aug 2020] Natural Environment and Rural Communities Act 2006 (UK Parliament). *The National Archives* [online] www.legislation.gov.uk/ukpga/2006/16/contents [September 2023]

Office of the Deputy Prime Minister Circular (2005) *Government Circular: Biodiversity and Geological Conservation – Statutory Obligations and their*

Impact within the Planning System [online] www.gov.uk/government/uploads/system/uploads/attachment_data/file/7692/147570.pdf [September 2023]

Protection of Badgers Act 1992 (UK Parliament). *The National Archives* [online] www.legislation.gov.uk/ukpga/1992/51/contents *The Hunting Act, 2004* [September 2023]

Reigate and Banstead Borough Council (August 2017) *Green Infrastructure Strategy* [online] www.reigate-banstead.gov.uk/downloads/file/3600/green_infrastructure_strategy_and_action_plan [September 2023]

Reigate and Banstead Local Plan: Core Strategy (Adopted July 2014) Reigate and Banstead Borough Council [online] www.reigate-banstead.gov.uk/info/20088/planning_policy/1101/development_plan_2020/2 [September 2023]

Reigate and Banstead Local Plan: Development Management Plan (Adopted September 2019) Reigate and Banstead Borough Council [online] www.reigate-banstead.gov.uk/info/20088/planning_policy/1101/development_plan_2020/2 [September 2023]

The Conservation of Habitats and Species (Amendment) Regulations 2012 (UK Parliament). *The National Archives* [online] www.legislation.gov.uk/uksi/2012/1927/contents/made [September 2023]

The Hunting Act (2004) *The National Archives* [online] www.legislation.gov.uk/uksi/2012/1927/contents/made [September 2023]

The Wildlife and Countryside Act 1981 (England and Wales) (Amendment) Regulations 2004 (UK Parliament). *The National Archives* [online] www.legislation.gov.uk/ukpga/1991/39/contents *Countryside and Rights of Way Act, 2000* [September 2023]

APPENDICES



THE IMPACT OF LIGHTING ON BATS

Bats favour a dark environment for both roosting and foraging as they are adapted to low-light conditions. Artificial lighting will disturb bats if the lighting covers roost access points, flight paths or foraging habitats.

The main peak of nocturnal insect abundance occurs at dusk and a delay in emergence results in a lower foraging rate for bats.

Artificial lighting creates a 'vacuum effect' for nocturnal insects. During the night nocturnal insects use the light of the moon* to navigate. However, artificial lighting and even sky glow above cities obscures the natural moonlight as it is closer

and radiates light in multiple directions.

Some species of bats have been recorded foraging around street lights such as *Pipistrelle* species and *Nyctalus* species. However, species that are less tolerant of artificial light are at a disadvantage when foraging as insects are drawn away from these species usual foraging grounds into the zones of artificial light.

Lighting must be considered in context to any development as increased lighting may cause roost abandonment, reduced reproductive success, and reduced foraging. Mitigation to reduce the impacts of lighting for bats is therefore of great importance in bat conservation.

Table 1: Summary of predicted impact of lighting for each species/genus

Impact	High	Medium	Low
Behaviour			
Maternity roost	All species	-	-
Night roost	<i>Rhinolophus hipposideros</i> <i>Rhinolophus ferrumequinum</i> <i>Myotis</i> spp. <i>Plecotus</i> spp.	<i>Pipistrellus</i> spp. <i>Nyctalus</i> spp. <i>Eptesicus serotinus</i> <i>Barbastella barbastellus</i>	-
Emergence	All species	-	-
Foraging	<i>Rhinolophus hipposideros</i> <i>Rhinolophus ferrumequinum</i> <i>Myotis</i> spp. <i>Plecotus</i> spp.	-	<i>Pipistrellus</i> spp. <i>Nyctalus</i> spp. <i>Eptesicus serotinus</i> <i>Barbastella barbastellus</i>
Commuting	<i>Rhinolophus hipposideros</i> <i>Rhinolophus ferrumequinum</i> <i>Myotis</i> spp. <i>Plecotus</i> spp.	-	<i>Pipistrellus</i> spp. <i>Nyctalus</i> spp. <i>Eptesicus serotinus</i> <i>Barbastella barbastellus</i>
Swarming	All species	-	-
Hibernation	All species	-	-

*For more information see Warrant, E., and Dacke, M. (2016) Visual Navigation in Nocturnal insects. *Physiology*, 31, 182-196.

Sources of light that can disturb bats include; light spill via windows, sport floodlighting, car headlights, roadside lighting, security lighting, aesthetic lighting of waterways, and aesthetic illumination of buildings. Glare will affect bats over greater distance than the target area directly illuminated.

Avoidance is the most effective method, but if this is not possible the following measures should be considered.

What lighting should I use?

- Low pressure sodium lights or 'warm' LEDs
- Wavelength above 540nm
- Colour temperature below 2700K
- Shielded lights that prevent light spill above a 70 degree angle
- Passive infrared (PIR) motion sensors



What to avoid:

- Lighting roost entrances, flightpaths, and foraging or commuting routes
- Reflective surfaces beneath lighting
- High level lights
- Non-directional lighting

Lighting should be considered at an early stage allowing impacts to be minimised through the design of the site.

Key Points

- Keep lighting intensity to the minimum level required
- Limit the times that lights are on to provide some dark periods (e.g. switching installations off between midnight and 5am)
- Dim lighting according to demand
- As an alternative to lighting pathways use paving materials that reflect moonlight
- Low level lighting allows darkness to be retained within higher vegetation
- Set dark habitat buffers - lighting should always be a minimum of 25m from vegetated margins and 40m from waterbodies
- Incorporate dark corridors within the site
- Compensate for the loss of dark areas by enhancing other dark areas
- Consider building design - install internal lighting away from windows



Creation and design



Hibernacula offer sheltering opportunities for reptile and amphibian species, providing them with essential frost-free habitat in which to hibernate during the winter and to provide temporary shelter in the summer.

Hibernacula can be both naturally-occurring and artificial, and can be constructed of a range of materials. Our ecologists can advise on the best locations and materials for the placement of artificial hibernacula.

The optimum locations for hibernacula are oriented east to west on south-facing slopes within freely-draining soils. It is imperative that the hibernacula are exposed to direct sunlight for the majority of the day to ensure maximum thermal capacity.

It is also important that hibernacula are created within a mosaic of habitat types for example open areas of grassland adjacent to sheltered areas of scrub / hedgerow. This ensures excellent basking areas are available adjacent to well connected habitat and areas of shelter.



Hibernacula can range from underground chambers to sheltered areas at ground level, akin to refugia.

By digging a shallow pit and filling it with materials such as rocks and logs, a chamber can be created which contains several gaps for access and shelter. No access pipes are necessary.

When the chamber and access has been constructed, soil can be piled on top of the hibernacula to seal it. Plant wildflower seeds on top to further benefit local biodiversity!

